

Elasticsearch Service

Getting Started

Product Documentation





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Getting Started Evaluation of Cluster Specification and Capacity Configuration

Last updated : 2021-10-29 14:58:01

Tencent Cloud Elasticsearch Service (ES) is a distributed multi-node cluster, where each node consists of computing and storage components. This document provides guidance on how to select an appropriate ES configuration based on your business needs in some common use cases. These suggestions are for your reference and should be adjusted according to your actual business conditions. The auto scaling mechanism provided by ES allows you to scale out your cluster at any time to get optimal cluster specifications when performance bottlenecks occur as your business grows.

Storage Capacity Estimation

The storage capacity of ES is mainly affected by the following factors:

- Number of replicas: replicas can improve data reliability but also increase storage costs. The default and recommended number of replicas is 1, and for some scenarios where the data loss caused by exceptions is tolerable, you can consider setting the number of replicas to 0.
- Data expansion: in addition to raw data, ES also needs to store indices and columnar data, and the data size generally expands by 10% after technologies such as encoding and compression are applied.
- Internal task overheads: ES occupies approximately 20% of the disk space, which is used for segment merges, ES Translog, logs, etc.
- OS reserve: Linux reserves 5% of the disk space for root users by default for key process handling, system restoration, and disk defragmentation.

Therefore, the actual space occupied by data in ES can be estimated with the following formula:

```
Actual space = source data * (1+ number of replicas) * (1 + data expansion) / (1
- internalctask overheads) / (1 - OS reserve)
≈ source data * (1 + number of replicas) * 1.45
```

To ensure the stable operations of the service, we recommend you reserve at least 15% of the disk space. Therefore, the recommended disk capacity is:



```
Storage capacity = source data * (1 + number of replicas) * 1.45 * (1 + reserved
space)
≈ source data * (1 + number of replicas) * 1.67
```

Generally, to ensure the performance and stability of your cluster, we recommend that the ratio of memory to disk capacity not exceed the following limit:

- For hot data, the recommended ratio of memory to disk capacity is 1:96.
- For warm data, the recommended ratio of memory to disk capacity is 1:480.

Note:

ES is widely used in various scenarios such as log, website search, metrics, and APM. The above storage capacity estimation method is general, and you can highly optimize ES based on your own needs to reduce your storage costs.

Computing Resource Estimation

ES computing resources are mainly consumed in the write and query processes, and the complexity of writes and queries and their proportion vary by business scenario; therefore, computing resources are more difficult to estimate than storage resources. However, storage resources generally become a bottleneck earlier, so we recommend you estimate the storage capacity first, and then preliminarily select computing resources and check whether they are sufficient in the testing process.

The following provides guidance on how to estimate computing resources in several common use cases:

- Log scenario: log is a typical scenario involving more writes than reads, and computing resources are mainly consumed in the write process. Our experience in log scenarios shows that 2 CPU cores and 8 GB memory can sustain up to 5,000 writes per second, subject to the actual business scenario. As instance performance is generally scaled linearly with the total amount of computing resources, you can estimate the write capacity based on the total amount of instance resources; for example, 8 CPU cores and 32 GB memory can sustain up to 20,000 writes per second.
- Structured data scenarios such as metrics and APM: these scenarios also involve more writes than reads but
 consume less computing resources than log scenarios; for example, 2 CPU cores and 8 GB memory generally can
 sustain 10,000 writes per second. You can estimate the actual write capacity of instances with different
 specifications by using the linear scaling method as described in the log scenario.
- Search scenarios such as website search and application search: these scenarios involve more reads than writes, and computing resources are mainly consumed in the query process. As the query complexity varies significantly by

use case, computing resources are the most difficult to estimate. We recommend you preliminarily select computing resources based on storage resources and then perform verification and make adjustments in the testing process.

Instance Type Selection and Testing

After estimating storage and computing resources, you can preliminarily select the instance type, including the node specification and the number of nodes. We recommend you select the instance type as follows:

• We recommend you select at least 3 nodes to prevent split-brain problems in your ES instance and ensure its high node fault tolerance.

Note :

Split-Brain: a problem where both nodes believe that they are the only active server and thus scramble for resources.

- If you need a high storage capacity, we recommend you select high-specced nodes rather than high numbers of low-specced nodes, as this benefits the performance and stability of large instances significantly. For example, if you need 40 CPU cores, 160 GB memory, and 5 TB storage capacity, we recommend you select a 5-node instance with 8 CPU cores, 32 GB memory, and 1 TB storage capacity each. Likewise, when you need to scale out your instance, we recommend you perform vertical scaling first to expand the node capacity to 8 CPU cores and 32 GB memory or 16 CPU cores and 64 GB memory and then consider horizontal scaling to increase the number of nodes.
- After you preliminarily select the instance type, you can test it by using real data and observe monitoring information such as CPU utilization, write metrics (performance and rejection rate), and query metrics (QPS and rejection rate) to further verify whether the instance type is appropriate. In addition, we recommend you configure alarms for the above monitoring information, so that you can promptly identify issues such as resource insufficiency.

Estimation of Number of Shards

Each ES index is split into multiple shards, and data is distributed among different shards according to the hash algorithm. As the number of an index's shards affects the read/write performance and failure recovery speed and usually cannot be easily changed, it needs to be considered in advance. We recommend you configure the number of shards as follows:

• The recommended size of a single shard is 10–50 GB, and you can preliminarily determine the number of an index's shards based on this value. Shards should be neither too large nor too small. If they are too large, ES failure

recovery may be slow; if they are too small, there may be many shards, and each shard uses certain amounts of CPU and memory resources, which may cause various issues, including poor read/write performance and memory insufficiency.

- During testing, you can appropriately adjust the number of shards based on the actual size of each index and expected future growth.
- When the number of shards exceeds the number of data nodes, we recommend you adjust the former to make it close to an integer multiple of the latter, so that the shards can be evenly distributed among all the data nodes.
- For log and metric scenarios, we recommend you use the rollover index feature of ES to generate new indices on a rolling basis, so that you can promptly adjust the number of shards when you find that the shard size is unreasonable.

For example, if an instance has 5 data nodes and the current index size is 150 GB and is expected to grow by 50% in half a year, and you set the size of each shard to 30 GB, then you need 150 GB * $(1 + 50\%) / 30 \approx 7$ shards. Considering that two of the data nodes sustain 2/7 of the data and the data is unevenly distributed among the nodes, you can adjust the number of shards to 10.

Creating Clusters

Last updated : 2021-10-29 15:18:10

A cluster is the basic unit where ES provides hosted Elasticsearch services and you use and manage such services. This document describes how to quickly create an Elasticsearch cluster in the Tencent Cloud Console.

Prerequisites

You have a Tencent Cloud account. For more information on how to create an account, please see Signing up for a Tencent Cloud Account.

Directions

Logging in to console

Log in to the ES Console and click Create to enter the creation and purchase page.

Creating cluster

1. Select cluster configuration

- Billing Mode: pay-as-you-go billing is supported.
- Region: currently, ES has been launched in multiple regions in and outside Mainland China.
- Elasticsearch Version: v5.6.4, v6.4.3, v6.8.2, and v7.5.1 are supported.
- X-Pack: Elasticsearch's official commercial features, including capabilities such as data permission management, SQL JDBC, alerting, and machine learning. The features available vary by edition: the Platinum Edition has all the advanced features, the Basic Edition has some advanced features, and the Open Source Edition does not have advanced features. For more information, please see X-Pack.

Note :

The Basic Edition supports **ES** cluster user authentication starting from v6.8, which greatly improves the cluster security and is therefore recommended to be enabled. If you do not enable it when purchasing your cluster, you need to fully restart the cluster when enabling it subsequently, which will affect your online businesses. This feature is enabled in the Platinum Edition by default and is not supported in the Open Source Edition.

 Network/AZ and Subnet: ES is deployed in VPCs. An ES cluster can only be accessed from servers in the same VPC. Therefore, to ensure smooth access to the ES cluster over the private network, you are recommended to select a VPC in the region where your existing cloud-based businesses reside. In multi-AZ deployment mode, you should also select the same VPC. Subnets in different AZs in the same VPC can communicate with each other.

Note :

The VPC cannot be changed or adjusted once the ES cluster is created.

Special notes on network selection

- Cross-VPC Access: if you need to access an ES cluster from a CVM instance located in another VPC in the same region, consider the peering connection scheme which can interconnect two different VPCs in the same region.
- Basic Network Access: if your business is deployed in the basic network and you have never used a VPC, you can bind the CVM instance located in the basic network to the VPC where the ES cluster resides through Classiclink. For more information, please see Classiclink. Classiclink only supports VPCs in the IP range of 10.[0-47].0.0/16. If you need to access the ES cluster from the basic network, please select a VPC in this range when creating the cluster.
- AZ Deployment Mode: single-AZ is a mode where the ES cluster is deployed in one AZ, while multi-AZ is a mode where the cluster is deployed in two AZs in the same region. The multi-AZ mode can improve the disaster recovery capability of the cluster and ensure the stability of online businesses. For more information, please see Multi-AZ Cluster Deployment.
- Data Node Deployment Mode: single mode or hot/warm mode. In hot/warm mode, a cluster can have both warm and hot nodes where hot data that has high requirements for read/write performance can be stored on hot nodes, while indices that have high requirements for storage capacity and relatively low requirements for read/write performance can be stored on warm nodes. This ensures read/write performance of the hot data while reducing storage costs. For more information, please see Hot/Warm Architecture and Index Lifecycle Management.
- Node Model: specifications of each node model in the cluster. The core quantity and memory size available vary by model. For more information on the node models supported by ES and how to select an appropriate type, please see Node Type and Storage Configuration.
- Node Storage Type: premium or SSD cloud disk.
- Single-Node Storage: disk capacity configured for each node. The storage capacity of the entire cluster is the single-node storage multiplied by the number of nodes.
- Dedicated Master Node: if the cluster is large, you can configure dedicated master nodes to further ensure the cluster stability.
- Dedicated Master Node Model: a dedicated master node can use a different model from that of the data nodes.

- Number of Dedicated Master Nodes: 3 or 5. An odd number of nodes ensures high availability and prevents the risk of split-brain.
- Kibana Node: it is provided free of charge with the 1-core 2 GB MEM specification. Currently, it cannot be modified.

Elasticsearch	Service										
1. Select Cluster C	configuration	2. Set Name ar	nd Passwo	ord 3. Con	firm the Config	uration Inform	ation				
Billing Mode	Pay-as-you-go	?									
Elasticsearch Version	7.10.1	7.5.1 6.8.2	6.4.3	5.6.4							
Advanced Features	Basic edition	Recommen Platinum editio	n Op	pen-source edition	?						
	For platinum editio as Kibana login, Lo	n, the account permis ogstash and Beats log	ssion verifica collecting, a	ation feature of clu and access to a c	isters will be enab luster client throug	eled. In order to a gh API call. For c	ccess cluste letails, see Fe	rs normally, you eatures of Each	u need to set an ac Edition 	count password	for actions such
Region	— South China—		East China	-	- North China	South	vest China-	-Hong	Kong/Macao/Taiw	an (China)-	
	Guangzhou	Shanghai	Nanjing	Hangzhou	Beijing	Chengdu	Chongo	aing	Hong Kong (Chir	na)	
	0100000	Southeast Asia	la la sta	- South Asia-	Northeast As	ia — Wes	tern US —	- Eastern US -	-North America	Eur	ope
	Cloud products in	different regions are r	not intercon	nected over privat	te networks. Selec	t the region near	rest to your c	ustomers to re	duce the access la	tency. The region	cannot be
	changed after the	cluster is created.		_							
AZ Deployment Mode	Single AZ	Dual AZs	Three AZs	?							
Network	vpc-7vt2eoo7	intl-test		▼ Ø							
	If the existing VPC	s do not meet your re	equirements,	, you can create a	VPC 🖸 on the co	onsole. The VPC	cannot be cl	hanged after cr	eated.		
AZ and Subnet	Guangzhou Zon	ie 7 👻	Select a s	ubnet		т Ф					
	If the existing sub	nets do not meet your	r requiremen	nts, you can creat e	e a subnet 🛂 on t	the console. The	subnet cann	ot be changed	after created.		
Node Deployment (Select One or More) Don't know how to set the cluster size? Click to estimate cluster configuration.											
		DataNode Model	The	Standard e model cannot b	High IO E	Big data urchased.					
		DataNode Specific	cation	ES.SA2.MEDIUM4	1-2 cores 4 G 💌	Configuration R	ecommendat	tions 🛂			
		Data Disks per No	de Aft	Cloud SSD ter purchased, the	 data disks canno 	- 20 ot be changed.	+ GB	- 1	+ disks ?		
		DataNode Qty	-	- 3 +							

2. Set the name and password

Sencent Cloud

Click **Next** and set a name and password.

- Cluster Name: name the cluster as desired. This name is not a globally unique identifier and can be set as a business-related description.
- Username: username used for Kibana page login and ES cluster user authentication. It is elastic by default and cannot be modified.
- Password: password corresponding to the aforementioned username. Please set it as required and keep it private. If you forgot it, you can reset it on the details page.
- Tag: tag is a unified management service provided by Tencent Cloud and can be used to manage existing Tencent Cloud resources in a categorized manner. You can create or modify tags either before or after ES cluster purchase.
 For more information, please see Tag.

1. Select Cluster Config	ration 2 Set Name and Password 3 Confirm the Configuration Information
Cluster Name	Enter the cluster name
	1-50 characters of English letters, Chinese characters, numbers, dashes (-) or underscores (_) are supported.
Cluster Configuration Name	Enter the cluster configuration na
	1-64 characters of letters, numbers, or underscores are supported
Username	elastic
	Used for Kibana login and user authentication. (Note: the open-source edition does not has the user authentication feature. For the basic edition above V6.8, users can enable or disable this feature. This feature is enabled by default for the platinum edition.
Password	Enter the password
	8-16 characters, including at least three out of the following four types of characters: [a-z], [A-Z], [0-9] and [-1@#\$%&^++=_:,,?]
Confirm Password	Enter the password again
Default scenario configuration	 General Contains general optimization configuration items, suitable for a variety of scenarios. Log Scenarios where there are more writes than reads and that do not require high real-time performance Search Nearly real-time scenarios that require high query performance Not now The above scenario configuration is an initial index template provided based on different business characteristics and experience in application. It can be adjusted at any time after the cluster is created. Learn More 2
Tag key + Add If the existing tags/tag	▼ Tag value ▼ X values do not meet you requirements, you can create a new one 🖾, or leave them blank first and edit the settings after completing the purchase. View tag description 🖾
Fees USD/	Back Next Please check the cluster username

3. Confirm configuration information



Click Next and confirm configuration information.

1. Select Cluster Configuration	2. Set Name and Password 3. Confirm the Configuration Information
Configuration Information	
Billing Mode	Pay-as-you-go
Region	Guangzhou
Elasticsearch Version	7.10.1
Advanced Features	Platinum edition
Network	
AZ Deployment Mode	Single AZ
AZ and Subnet	Angele for Seine Steps
Enable Hot/Warm Deployment Mode	Not configured
Node Model	StandardSA2 2-core 4 GB(ES.SA2.MEDIUM4)
Node Storage	20GB Cloud SSD x 1
Node Qty	3
Dedicated Master Node	Not configured
Kibana Node Specification	StandardSA2 1-core 2 GB(ES.SA2.SMALL2)
Kibana Node Count	1
Cluster Name	
Scenario Configuration	General
Fees USD/hour	Agree to "Tencent Cloud Elasticsearch Service - Service Level Agreement" Back Purchase Now

• Click **Activate** to create the cluster directly if the pay-as-you-go billing mode is selected. You do not need to confirm the order or pay for it, as your account balance will be deducted on an hourly basis during cluster use.

4. Complete the creation

Once successful activated, the pay-as-you-go cluster just created can be viewed in the console and will be completely created in a matter of minutes.

Subsequent Steps

Accessing cluster

To help you get started quickly, ES provides several types of clients for accessing clusters. For more information, please see Accessing Clusters Through API, Accessing Clusters Through Client, and Accessing Clusters Through Kibana.

Monitoring cluster

ES provides a rich set of monitoring metrics to help you view the status of clusters during use. For more information, please see Viewing Monitoring Metrics.

In the Basic Edition and Platinum Edition, Kibana also offers monitoring metrics on the **Monitor** page on the left sidebar.

Adjusting cluster configuration

With the increase in volumes of business data and access requests, the cluster configuration can be elastically adjusted. For more information, please see Adjusting Configuration.

Accessing Clusters Login User Verification

Last updated : 2021-10-29 15:08:07

Before learning how to access an ES cluster, you need to understand user authentication in ES clusters first.

ES Cluster User Authentication

This feature is used to improve the data access security of ES clusters (for more information, please see Protect your data in the Elastic Stack). You must pass the authentication based on username and password before you can access an ES cluster through Kibana, clients, or APIs. For more information, please see Accessing Cluster from API, Accessing Cluster from Client, and Accessing Cluster from Kibana.

Note:

You are required to set the username and password when creating an ES cluster.

- For clusters with this feature not enabled, the username and password will be used only for Kibana login.
- For clusters with this feature enabled, the username and password can be used for authentication for ES cluster login in any method.

Elasticsearch Editions Supporting ES Cluster User Authentication

Not all Elasticsearch editions support this feature. The support conditions of all editions are as follows:

- Open Source Edition: it does not support this feature.
- Basic Edition: only v6.8 or above allows you to enable or disable this feature, while legacy versions do not support this feature.
- Platinum Edition: this feature is enabled by default and cannot be disabled.

Notes on Enabling ES Cluster User Authentication

If you did not enable user authentication for an ES cluster previously and now want to enable it by upgrading the cluster or toggling the configuration switch, you need to complete the following steps first:

- Modify your business code in advance, so that the username and password can be passed in when relevant APIs are called to normally access the cluster after this feature is enabled.
- According to Elasticsearch's official design requirements, you need to fully restart the cluster after enabling this feature. During the restart, the cluster will be unavailable; therefore, please do so at an appropriate time.

Enabling/Disabling ES Cluster User Authentication on Basic Edition v6.8 or Above

- When creating a cluster, you can choose whether to enable or disable ES cluster user authentication.
- After a cluster is created, if you need to change the feature status, you can enter the cluster details page for configuration.

← es-ndjrhvov						Kiba	na Cloud M	onitor	Restart v More v
Basic Configuration	Cluster Monitoring	Node Monitoring	Log	Advanced	l configuration	Plugin List	Visual Configur	ration	Change History
Basic Information					Cluster Configu	ration			Adjust Configuration
Cluster Name Cluster ID					Node Type	Quantity	Specification	Node Stora	age Total Storage
Cluster Status Health Status	Normal				Data Node	3	StandardSA2-2- core 4 GB ES.SA2.MEDIUM	20GB x 1 Cloud SSD	60GB
Elasticsearch Version	6.4.3	n anabled)			Kibana Node	1	4 StandardSA2-1- core 2 GB	/	/
Region	South China(Guangzhou)	n enabled)					ES.SA2.SMALL2		
Network AZ Deployment Type	Default-VPC (vpc-qhnfn47j) Single AZ				Access Control				
AZ and Subnet					Username Password	elastic			
Creation Time	2021-10-12 17:07:34				User Authentication	i Enabled			
Billing Mode	Pay-as-you-go			_	Private Access Add	iress	100		
Tag Info					Public Access Add	ress			
No data Modify									

Accessing Clusters from Client

Last updated : 2020-08-21 17:33:53

ES offers SDKs for different programming languages through its official website and community.

- Elasticsearch provides clients in a variety of programming languages, such as Java and Python, to meet the needs of different developers. For more information, please see Elasticsearch Clients.
- Starting from Elasticsearch 5.6.0, a new official Java client has been released: the Java High Level REST Client. This client can be used to perform search, index, delete, update, and bulk operations using the same core Java classes as the Transport Client does. It is actually designed to replace the Transport Client. For more information, please see Java High Level REST Client.

In terms of version compatibility, you are recommended to choose the client version that is compatible with the server version. For more information, please see Compatibility. Currently, ES is available in multiple Elasticsearch versions, so be sure to select a compatible client version.

ES provides a VIP for accessing your ES cluster in your VPC, to which all nodes in your ES cluster are mounted through load balancing. This aims to adapt to the auto scaling of your cluster and ensure its high availability. In case of any changes in the nodes, the VIP will automatically update node information. In addition, this simplifies operations and eliminates your need to focus on changes in the information about cluster nodes such as IP and port.



You are not recommended to connect a client to ES nodes directly through Transport Client.

The SDKs of ES allow you configure the address of only one node when creating a connection and use the "node sniffing" feature to sniff out all nodes for connection. However, this goes against our original intention of launching the VIP feature and increases the complexity of using an ES cluster. The following describes how to use the SDKs for different programming languages and how to turn off node sniffing.

Java Client

ES recommends that you connect to your cluster and manipulate data using the Java REST Client, which comes in two types: Low Level and High Level:

- Java Low Level REST Client: when using this client, you need to manually splice the body of an HTTP request into JSON format and encapsulate the returned JSON data in the HTTP response into an object.
- Java High Level REST Client: this client is implemented based on the Low Level Client and provides APIs to eliminate the need to manually convert data format.

The sample steps and code for accessing a cluster using the Java High Level REST Client are as follows:

Adding Maven dependencies

You are recommended to choose the Java REST Client API version that is compatible with the server edition of your ES cluster. Currently, ES is available in multiple versions, so be sure to select a compatible client version. For more information on client APIs, please see Elasticsearch API Version Compatibility.

```
<dependency>
<groupId>org.elasticsearch.client</groupId>
<artifactId>elasticsearch-rest-high-level-client</artifactId>
<version>6.4.3</version>
</dependency>
```

• The client version should be compatible with the ES cluster version; otherwise, a compatibility issue may occur. The demo here is applicable to ES 6.4.3. For more information on how to use other versions, please see Java High Level REST Client.

- The Java High REST Client is built on the Java Low REST Client, and both of them connect to an ES cluster using the HTTP protocol. The Java High Level REST provides more APIs with version upgrading. If the APIs currently provided by it cannot meet your needs, you can upgrade your ES cluster version and client version.
- The Transport Client that uses the TCP protocol to connect to an ES cluster is no longer updated, so you are
 recommended to use the Java High Level or Low Level Client that uses the HTTP protocol. For more information,
 please see Migrating from Transport Client to Java High REST Client.

Sample code

```
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.impl.client.BasicCredentialsProvider;
import org.apache.http.impl.nio.client.HttpAsyncClientBuilder;
import org.apache.log4j.BasicConfigurator;
import org.apache.log4j.Logger;
import org.elasticsearch.ElasticsearchException;
import org.elasticsearch.action.DocWriteResponse;
import org.elasticsearch.action.index.IndexRequest;
import org.elasticsearch.action.index.IndexResponse;
import org.elasticsearch.action.get.GetRequest;
import org.elasticsearch.action.get.GetResponse;
import org.elasticsearch.client.RestClient;
import org.elasticsearch.client.RestClientBuilder;
import org.elasticsearch.client.RestHighLevelClient;
import org.elasticsearch.rest.RestStatus;
import java.util.Date;
import java.util.HashMap;
import java.util.Map;
public class test_es_sdk {
private static Logger logger = Logger.getLogger(test_es_sdk.class);
public static void main(String[]args) {
BasicConfigurator.configure();
// Set verification information by entering the username and password
final CredentialsProvider credentialsProvider = new BasicCredentialsProvider();
credentialsProvider.setCredentials(AuthScope.ANY,
new UsernamePasswordCredentials("user", "passwd"));
// Initialize RestClient. For hostName and port, enter the private VIP address an
d port of the cluster respectively
RestClientBuilder builder = RestClient.builder(new HttpHost("xx.xx.xx", 9200,
```



```
"http"));
// Set authentication information
builder.setHttpClientConfigCallback(new RestClientBuilder.HttpClientConfigCallbac
k() {
QOverride
public HttpAsyncClientBuilder customizeHttpClient(HttpAsyncClientBuilder httpClie
ntBuilder) {
return httpClientBuilder.setDefaultCredentialsProvider(credentialsProvider);
}
});
// Set the timeout period
builder.setMaxRetryTimeoutMillis(10000);
// Construct the High Level Client based on the Low Level Client
RestHighLevelClient client = new RestHighLevelClient(builder);
// Index the document
Map<String, Object> jsonMap = new HashMap<String, Object>();
jsonMap.put("user", "bellen");
jsonMap.put("name", new Date());
jsonMap.put("message", "trying out Elasticsearch");
IndexRequest indexRequest = new IndexRequest("posts", "doc", "1")
.source(jsonMap);
try {
// Get the response result
IndexResponse indexResponse = client.index(indexRequest);
String index = indexResponse.getIndex();
String type = indexResponse.getType();
String id = indexResponse.getId();
long version = indexResponse.getVersion();
if (indexResponse.getResult() == DocWriteResponse.Result.CREATED) {
logger.info("doc indexed, index: "+ index +", type:"+ type +",id:"+ id+",versio
n:"+version);
} else if (indexResponse.getResult() == DocWriteResponse.Result.UPDATED) {
logger.info("doc updated, index: "+ index +", type:"+ type +",id:"+ id+",versio
n:"+version);
}
}catch(ElasticsearchException e) {
if (e.status() == RestStatus.CONFLICT) {
logger.error("version conflict");
}
}catch(Exception e) {
logger.error("execute index api failed, "+ e.toString());
}
```



```
// Query the document
GetRequest getRequest = new GetRequest (
"posts",
"doc",
"1");
try {
// Get the response result
GetResponse getResponse = client.get(getRequest);
String index = getResponse.getIndex();
String type = getResponse.getType();
String id = getResponse.getId();
if (getResponse.isExists()) {
long version = getResponse.getVersion();
String sourceAsString = getResponse.getSourceAsString();
logger.info("get doc, index: "+ index +", type:"+ type +",id:"+ id+",version:"+ve
rsion +", source:"+ sourceAsString);
}
}catch (ElasticsearchException e) {
if (e.status() == RestStatus.NOT_FOUND) {
logger.warn("doc not found");
}
}
catch(Exception e) {
logger.error("execute get api failed, "+ e.toString());
}
// Close the client
try {
client.close();
}catch (Exception e) {
logger.error("close rest client exception:"+ e.toString());
}
}
}
```

Python Client

Installing through pip

pip **install** elasticsearch

Sample code

Set the following three parameters of the Elasticsearch function to turn off node sniffing:

- sniff_on_start=False
- sniff_on_connection_fail=False
- sniffer_timeout=None

```
from elasticsearch import Elasticsearch
es = Elasticsearch(["http://xx.xx.xx:9200"],
http_auth=('user', 'passwd'),
sniff_on_start=False,
sniff_on_connection_fail=False,
sniffer_timeout=None)
res = es.index(index="my_index", doc_type="my_type", id=1, body={"title": "One",
"tags": ["ruby"]})
print(res)
res = es.get(index="my_index", doc_type="my_type", id=1)
print(res['_source'])
```

PHP Client

To avoid sniffing of nodes, you can set the connection pool class as StaticConnectionPool . Do not use the node sniffing connection pool.

Sample code

```
$client = ClientBuilder::create()
->setConnectionPool('\Elasticsearch\ConnectionPool\StaticConnectionPool', ["htt
p://user:passwd@xx.xx.xx:9200"])
->build();
```

Go Client

gopkg.in/olivere/elastic is a community-contributed SDK that is widely used in the Go language. The demo here is applicable to ES 6.4.3. For information on how to use other versions, please see here.

Installing elastic

go get github.com/olivere/elastic

Sample code

In the parameters of the NewClient function, set elastic.SetSniff(false) to turn off node sniffing and set elastic.SetHealthcheck(false) to turn off node health check.

```
import (
"context"
"fmt"
"github.com/olivere/elastic"
)
func main() {
client, err := elastic.NewClient(elastic.SetURL("http://user:passwd@xx.xx.xx:9
200"),
elastic.SetSniff(false),elastic.SetHealthcheck(false))
if err != nil {
panic(err)
}
exists, err := client.IndexExists("twitter").Do(context.Background())
if err != nil {
panic(err)
}
fmt.Println(exists)
}
```

Accessing Cluster from API

Last updated : 2021-07-01 10:02:56

Elasticsearch provides full-featured RESTful APIs for intercalation with clusters. For more information, please see Elasticsearch's official API documentation.

As Tencent Cloud ES is deployed in your VPC, you can use a CVM instance in the same VPC as the client to access the ES cluster over the **private network** or **public network**. **Public network access has security risks**; therefore, please enable it with caution.

Note:

- Public network access is used for development and debugging only but cannot be used in the production environment, as the system limits the call frequency.
- Currently, public network access to ES is free of charge with a bandwidth of 10 Mbps.

Viewing Private/Public Network Access Addresses

On the cluster list page, click a cluster ID to enter the cluster details page:

- The private address can be directly found in basic configuration.
- The public network address is disabled by default for the sake of security. For clusters having ES cluster user authentication enabled, the public network address can be enabled. Doing so may bring security risks to the clusters, as it allows data in ES clusters to be accessed, manipulated, and even deleted directly through APIs; therefore, please enable it with caution.



sic Information			Cluster Configurat	ion			Adjust Configuration
uster Name			Node Type	Quantity	Specification	Node Storage 🚯	Total Storage
luster ID				-	ChanadaralC1 D anns 4	10000 1	
Cluster Status	Normal		Data Node	3	GB ES.S1.MEDIUM4	Cloud SSD	300GB
Health Status	Green	-					
Elasticsearch Version	7.5.1		Access Control				
Advanced Features	Platinum edition(User authentication enabled)		Username	elastic			
Region	South China(Guangzhou)		Password	Reset			
Network	new-vpc		User Authentication ()	Enabled			
AZ Deployment Type	Single AZ	Г	Private Access Address				
AZ and Subnet	Guangzhou Zone 3, sub-01		Public Access Address				
Creation Time	2020-10-28 10:23:52	L					
Billing Mode	Pay-as-you-go						

Testing Access

You can test access to clusters by running the curl command. The ping command is not supported for connectivity test.

Testing service accessibility

Note:

For clusters having ES cluster user authentication enabled, login requires authentication of username and password in the format of curl action -u user:password host ..., where user, password, and host should be replaced with the actual username, password, and IP.

The following uses a private network access address as an example to describe the access operations.

Enter the following command:

```
curl -XGET http://10.0.17.2:9200
If ES cluster user authentication is enabled, remember to enter the username and
password.
curl -XGET -u user:password http://10.0.17.2:9200
```

The following content is returned, indicating that the cluster can be accessed normally. The specific parameter values vary by cluster version:

```
{
"name": "15589826570000*****",
"cluster_name": "es-*****",
"cluster_uuid": "NGIm1M_zRw-L3o_gH****",
"version": {
"number": "6.4.3",
"build flavor": "default",
"build_type": "zip",
"build_hash": "fe40335",
"build date": "2019-05-17T14:22:47.286024Z",
"build_snapshot": false,
"lucene_version": "7.4.0",
"minimum_wire_compatibility_version": "5.6.0",
"minimum_index_compatibility_version": "5.0.0"
},
"tagline": "You Know, for Search"
}
```

Creating Document

Creating one document

• If user authentication is not enabled for the cluster, enter the following command:

```
curl -XPUT http://10.0.0.2:9200/china/city/beijing -H 'Content-Type: applicatio
n/json' -d'
{
    "name":"Beijing",
    "province":"Beijing",
    "lat":39.9031324643,
    "lon":116.4010433787,
    "x":6763,
    "level.range":4,
    "level.level":1,
    "level.level":1,
    "level.name":"Tier-1 city",
    "y":6381,
    "cityNo":1
}
```

• If user authentication is enabled for the cluster, you need to **replace the user and password below with** your actual cluster username and password. Enter the following command:

```
curl -XPUT -u user:password http://10.0.0.2:9200/china/city/beijing -H 'Content
-Type: application/json' -d'
{
    "name":"Beijing",
    "province":"Beijing",
    "lat":39.9031324643,
    "lon":116.4010433787,
    "x":6763,
    "level.range":4,
    "level.level":1,
    "level.level":1,
    "level.name":"Tier-1 city",
    "y":6381,
    "cityNo":1
    }
    '
}
```

The following response will be returned:

```
{
"_index":"china",
"_type":"city",
"_id":"beijing",
"_version":1,
"result":"created",
"_shards":{
"total":2,
"successful":1,
"failed":0
},
"created":true
}
```

Creating multiple documents

Enter the following command:

```
curl -XPOST http://10.0.0.2:9200/_bulk -H 'Content-Type: application/json' -d'
{ "index" : { "_index": "china", "_type" : "city", "_id" : "beijing" } }
{"name":"Beijing", "province":"Beijing", "lat":39.9031324643, "lon":116.4010433787,"
x":6763, "level.range":4, "level.level":1, "level.name":"Tier-1 city", "y":6381, "city
No":1}
{ "index" : { "_index": "china", "_type" : "city", "_id" : "shanghai" } }
{"name":"Shanghai", "province":"Shanghai", "lat":31.2319526784, "lon":121.46944324
9, "x":7779, "level.range":4, "level.level":1, "level.name":"Tier-1 city", "y":4409, "c
ityNo":2}
```

```
{ "index" : { "_index": "china", "_type" : "city", "_id" : "guangzhou" } }
{"name":"Guangzhou", "province": "No.79, Jixiang Road, Yuexiu District, Guangdong P
rovince", "lat": 23.1317146641, "lon": 113.2595185241, "x": 6173, "level.range": 4, "leve
1.level":1,"level.name":"Tier-1 city","y":2560,"cityNo":3}
{ "index" : { "_index": "china", "_type" : "city", "_id" : "shenzhen" } }
{"name":"Shenzhen", "province": "No.37, Xinyuan Road, Futian District, Guangdong Pr
ovince", "lat":22.5455465546, "lon":114.0527779134, "x":6336, "level.range":4, "level.
level":1,"level.name":"Tier-1 city","y":2429,"cityNo":4}
{ "index" : { "_index": "china", "_type" : "city", "_id" : "chengdu" } }
{"name":"Chengdu", "province": "No. 88-1, Hongxing Road 4th Section, Jinjiang Distr
ict, Sichuan Province", "lat": 30.6522796787, "lon": 104.0725574128, "x": 4387, "level.1
evel":2,"level.range":19,"level.name":"New tier-1 city","y":4304,"cityNo":5}
{ "index" : { "_index": "china", "_type" : "city", "_id" : "hangzhou" } }
{"name":"Hangzhou", "province": "No.316, Huancheng North Road, Gongshu District, Zh
ejiang Province", "lat": 30.2753694112, "lon": 120.1509063337, "x": 7530, "level.level":
2, "level.range":19, "level.name": "New tier-1 city", "y":4182, "cityNo":6}
```

The following response will be returned:

```
"took":9,"errors":false,"items":[{"index":{"_index":"china","_type":"city","_id":
"beijing","_version":4,"result":"updated","_shards":{"total":2,"successful":2,"fa
iled":0},"created":false,"status":200}},{"index":{"_index":"china","_type":"city",
,"_id":"shanghai","_version":2,"result":"updated","_shards":{"total":2,"successfu
l":2,"failed":0},"created":false,"status":200}},{"index":{"_index":"china","_type":"city","_id":"city","_id":"guangzhou","_version":1,"result":"created","_shards":{"total":2,"failed":0},"created":true,"status":201}},{"index":{"_index":{"_index":"china","_type":"city","_id":"shenzhen","_version":1,"result":"created","_shards":{"total":2,"shards":{"total":2,"failed":0},"created":true,"status":201}},{"index":{"_index":"china","_type":"city","_id":"chengdu","_version":2,"result":"updated","_shards":{"total":2,"shards":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":{"_index":200}},{"index":{"_index":200}},{"index":{"_index":200}},{"index":{"_updated","_shards":{"_updated","_shards":{"_index":200}},{"index":2,"result":"updated","_shards":{"_index":200}},{"index":2,"result":"updated","_shards":{"_index":200}},{"index":2,"result":"updated","_shards":{"_index":200}},{"index":2,"result":"updated","_shards":{"_index":2,"result":"updated","_shards":{"_index":2,"result":"updated","_shards":{"_index":2,"result":"updated","_shards":{"_index":"updated","_shards":{"_index":"updated":"updated":"updated","_shards":{"_index":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updated":"updat
```

Updating Document

You can run the command for creating a single document again to update the document whose ID is beijing. The following response will be returned:

```
{"_index":"china","_type":"city","_id":"beijing","_version":2,"result":"updated",
"_shards":{"total":2,"successful":2,"failed":0},"created":false}
```

Querying Document

Querying specified ID

Enter the following command:

```
curl -XGET 'http://10.0.0.2:9200/china/city/beijing?pretty' -H 'Content-Type: app
lication/json'
```

The following response will be returned:

```
{
"_index" : "china",
"_type" : "city",
"_id" : "beijing",
"_version" : 4,
"found" : true,
"_source" : {
"name" : "Beijing",
"province" : "Beijing",
"lat" : 39.9031324643,
"lon" : 116.4010433787,
"x" : 6763,
"level.range" : 4,
"level.level" : 1,
"level.name" : "Tier-1 city",
"y" : 6381,
"cityNo" : 1
}
}
```

Querying index

Enter the following command:

```
curl -XGET 'http://10.0.0.2:9200/china/city/_search?pretty' -H 'Content-Type: app
lication/json'
```

```
{
   "took" : 0,
   "timed_out" : false,
   "_shards" : {
   "total" : 5,
   "
```

```
"successful" : 5,
"skipped" : 0,
"failed" : 0
},
"hits" : {
"total" : 6,
"max_score" : 1.0,
"hits" : [
{
" index" : "china",
"_type" : "city",
"_id" : "guangzhou",
"_score" : 1.0,
"_source" : {
"name" : "Guangzhou",
"province" : "No.79, Jixiang Road, Yuexiu District, Guangdong Province",
"lat" : 23.1317146641,
"lon" : 113.2595185241,
"x" : 6173,
"level.range" : 4,
"level.level" : 1,
"level.name" : "Tier-1 city",
"y" : 2560,
"cityNo" : 3
}
}]
},
. . . . . .
}
```

Complex query

Sample SQL statement:

```
select * from city where level.level=2
curl -XGET http://10.0.0.2:9200/china/city/_search?pretty -H 'Content-Type: appli
cation/json' -d'
{
    "query" : {
    "constant_score" : {
    "filter" : {
    "term" : {
        "level.level" : 2
    }
    }
}
```



} } '

```
{
"took" : 2,
"timed_out" : false,
" shards" : {
"total" : 5,
"successful" : 5,
"skipped" : 0,
"failed" : 0
},
"hits" : {
"total" : 2,
"max_score" : 1.0,
"hits" : [
{
"_index" : "china",
"_type" : "city",
"_id" : "chengdu",
"_score" : 1.0,
"_source" : {
"name" : "Chengdu",
"province" : "No. 88-1, Hongxing Road 4th Section, Jinjiang District, Sichuan Pro
vince",
"lat" : 30.6522796787,
"lon" : 104.0725574128,
"x" : 4387,
"level.level" : 2,
"level.range" : 19,
"level.name" : "New tier-1 city",
"y" : 4304,
"cityNo" : 5
}
},
{
"_index" : "china",
"_type" : "city",
"_id" : "hangzhou",
"_score" : 1.0,
"_source" : {
"name" : "Hangzhou",
"province" : "No.316, Huancheng North Road, Gongshu District, Zhejiang Province",
"lat" : 30.2753694112,
"lon" : 120.1509063337,
```

```
"x" : 7530,
"level.level" : 2,
"level.range" : 19,
"level.name" : "New tier-1 city",
"y" : 4182,
"cityNo" : 6
}
}
}
```

Aggregation query

Sample SQL statement:

```
select level.level, count(1) from city group by level.level
curl -XGET http://10.0.0.2:9200/china/city/_search?pretty -H 'Content-Type: appli
cation/json' -d'
{
    "size" : 0,
    "aggs" : {
    "city_level" : {
    "terms" : {
    "field" : "level.level"
    }
    }
}
```

```
{
"took" : 10,
"timed_out" : false,
"_shards" : {
"total" : 5,
"successful" : 5,
"skipped" : 0,
"failed" : 0
},
"hits" : {
"total" : 7,
"max_score" : 0.0,
"hits" : [ ]
},
```

```
"aggregations" : {
"city_level" : {
"doc_count_error_upper_bound" : 0,
"sum_other_doc_count" : 0,
"buckets" : [
{
"key" : 1,
"doc count" : 4
},
{
"key" : 2,
"doc_count" : 3
}
]
}
}
}
```

Deleting Document

Deleting one document

Enter the following command:

```
curl -XDELETE 'http://10.0.0.2:9200/china/city/beijing?pretty' -H 'Content-Type:
application/json'
```

```
{
   "found" : true,
   "_index" : "china",
   "_type" : "city",
   "_id" : "beijing",
   "_version" : 5,
   "result" : "deleted",
   "_shards" : {
   "total" : 2,
   "successful" : 2,
   "failed" : 0
}
```

Deleting type

```
curl -XDELETE 'http://10.0.0.2:9200/china/city?pretty' -H 'Content-Type: applicat
ion/json'
```

Deleting index

```
curl -XDELETE 'http://10.0.0.2:9200/china?pretty' -H 'Content-Type: application/j
son'
```

Accessing Clusters from Kibana

Last updated : 2021-07-20 16:57:50

ES comes with a Kibana module. You can access the Kibana page of your cluster to visually query, analyze, and manage your data. This tutorial is designed to help you get started with Kibana.

Accessing Kibana Page

Entries

There are two entries to the Kibana page, which are located on the cluster list page and the cluster details page, as shown below. Click either of them to jump to the Kibana login page.

By default, Kibana is accessed at the public address. If you are concerned that accessing Kibana over the public network will cause security problems, you can disable the Kibana public address and enable the Kibana private address for access on the cluster details page.

Cluster List													Elasticsearch Service User Guide 🛽
	Guangzhou(0)	Shanghai(1)	Beijing(0)	Chengdu(0)	Hong Kong, China(2)	Singapore(0)	Mumbai(0)	Seoul(0)	Silicon Valley(0)	Toronto(0)	Frankfurt(0)		
	Create	Status	Node Specs	Nodes	Health Status ()	Availability Zo	Network	ES Versi	on Billing Ty	pe (, instance ID Operation	¢ ¢	
	100	Normal	2 core 4GB 100GB SSD C	3 I	Green	$\{ (1,1) \}_{i \in I}$	1.00	6.4.3 Basic edi	Pay as yo Created o 18:00:55	u go n 2019-09-10	Kibana More	tor	
	Total 1 items								Lines per page	10 -	1 /1 page	es ⊧ ⊨	
<11										Kit	oana Cloud	Monitor	Upgrade More v Help
Basic Configuration Cluster Monit	oring Cluster L	ogs Advance	d Configuration	Cluster Char	nge History								
	Basic Info					Clus	ster Configuratio	n					
	Name		1			Nod	e Model	ES.S1.ME	DIUM4(2 core 4G)				
	Cluster Configurat	ion Name				Nod	e Storage Type	SSD Cloud	I Storage				
	ID	es-bm	fs3hd1			Nod	e Storage	100GB					
	Private Network A	ddress				Nod	es	3					
	Cluster Status	Norma	l			Tota	I Cluster Storage	300GB					
	Health Status	Green				Ded	icated Master Node	e Not configu	ired				

Login

To access the Kibana page, you need to log in with the username "elastic" and the Kibana password you set when you created your cluster. If you forgot your password, you can reset it on the cluster details page. For security reasons, you can configure an access blocklist/allowlist for the public address of the Kibana page. For more information, please see Kibana Access Settings.

• If "ES cluster user authentication" is not enabled, the Kibana login page is as shown below:

Windows Security	X
iexplore The server es-bmfs3hd1.kibana.tencentelasticsearch.com is asking your user name and password. The server reports that it is from cl site.	g for osed
elastic Password Remember my credentials	
ОК	Cancel

• If "ES cluster user authentication" is enabled, the Kibana login page is as shown below:

Username	
Log in	

Access

After logging in to the Kibana page, if you are a new user, your cluster has not stored any custom indexed data, and you will be prompted to configure an index. For more information, please see Adding and Accessing Index.

	kibana	Management / Kibana	ad Objects Depending Advanced Cettings						
		Index Patterns Sav	ed Objects Reporting Advanced Settings						
Ø	Discover	Warning	Create index pattern						
L.	Visualize	No default index pattern. You must select or create	Kibana uses index patterns to retrieve data from Elasticsearch indices for things like visualizations.						
\odot	Dashboard	one to continue.							
8	Timelion		Step 1 of 2: Define index pattern						
લ્ગ	Machine Learning		Index pattern						
=	АРМ		index-name-*						
*	Graph		You can use a * as a wildcard in your index pattern. You can't use spaces or the characters /, ?, ", <, >, .	Ne)					
ىكى	Dev Tools		No Elasticsearch indices match your pattern. To view the matching system indices, toggle the switch in the upper righ	ıt.					
	Monitoring		x						
\$	Management		Rows ner nage: 10 V						

Adding and Accessing Index (Storing Data)

On the left sidebar on the Kibana page, click **Dev Tools** to enter the development tools page, where you can send various operation requests to your cluster through the console. The following shows how to manipulate your cluster and store data with sample city information.

Adding index

Defining the mapping of index

Specify the index name as china , type name as city , and detailed field and type information. The type of the location field is geo_point which can represent location information, and level is the object type and

contains subfield information. For more information on field types, please see Field Datatypes.

_		Dev Tools History Settings
\geq	kibana	Console Search Profiler Grok Debugger
6	Discourse	
e	Discover	1 PUT china
Ш	Visualize	2 - [[5] to [1] in 7.0.0; if you wish to continue using the defau 3 - "mappings": [of [5] shards, you must manage this on the create index
\odot	Dashboard	<pre>4- "city": { 5- "properties": { 2 #! Deprecation: [_all] is deprecated in 6.0+ and will be remove </pre>
8	Timelion	<pre>6 "name":{ "type": "keyword" }, in 7.0. As a replacement, you can use [copy_to] on mapping 7 "province":{ "type": "keyword" }, fields to create your own catch all field.</pre>
છ	Machine Learning	<pre>8 "location": {"type": "geo_point"}, 3 #! Deprecation: [_default_] mapping is deprecated since it is 9 "x":{ "type": "integer" }, not useful anymore now that indexes cannot have more than or </pre>
Ę	АРМ	10 * "level":{ 11 * "properties":{ 12 * { 13 * "properties":{ 14 * { 15 * [16 *] 17 * [18 *] 19 * [19 *] 19 * [19 *] 10 * [10 *] 10 * [10 *] 10 *
*	Graph	12 Level: { type : integer }, 5 acknowledged : true, 13 "range": { "type": "integer" }, 6 "shards_acknowledged": true, 14 "serves", 7 "sindes", "sindes",
ىك	Dev Tools	14 name :{ type : keyword } / Lindex : chind
~	Monitoring	10* }, 17 "y":{ "type": "integer" }, 18 "situle":{ "type": "integer" }
\$	Management	10 CityNo : { type : integer }
		22 J

```
PUT china
{
"mappings": {
"city": {
"properties":{
"name":{ "type": "keyword" },
"province":{ "type": "keyword" },
"location": {"type": "geo_point"},
"x":{ "type": "integer" },
"level":{
"properties":{
"level":{ "type": "integer" },
"range":{ "type": "integer" },
"name":{ "type": "keyword" }
}
},
"y":{ "type": "integer" },
"cityNo":{ "type": "integer" }
}
}
}
}
```

Adding one single document

Console Search Profiler Grok Debugger	
<pre>PUT china/city/wuhan</pre>	<pre>1 * { 2</pre>

```
PUT china/city/wuhan
{"name":"Wuhan","province":"No.188, Yanjiang Avenue, Jiang'an District, Hubei Pro
vince","location":{"lat":30.5952548577,"lon":114.2999398195},"x":6384,"level":{"l
evel":2,"range":19,"name":"New first-tier city"},"y":4231,"cityNo":7}
```

Querying one single document

GET /china/city/wuhan

Adding multiple documents

```
POST _bulk
{ "index" : { "_index": "china", "_type" : "city", "_id" : "beijing" } }
{"name":"Beijing","province":"Beijing","location":{"lat":39.9031324643,"lon":116.
4010433787}, "x":6763, "level":{"range":4, "level":1, "name": "First-tier city"}, "y":6
381, "cityNo":1}
{ "index" : { "_index": "china", "_type" : "city", "_id" : "shanghai" } }
{"name":"Shanghai", "province":"Shanghai", "location": {"lat": 31.2319526784, "lon": 12
1.469443249}, "x":7779, "level": { "range": 4, "level": 1, "name": "First-tier city" }, "y":
4409, "cityNo":2}
{ "index" : { "_index": "china", "_type" : "city", "_id" : "guangzhou" } }
{"name":"Guangzhou", "province": "No.79, Jixiang Road, Yuexiu District, Guangdong P
rovince","location":{"lat":23.1317146641,"lon":113.2595185241},"x":6173,"level":
{"range":4, "level":1, "name": "First-tier city"}, "y":2560, "cityNo":3}
{ "index" : { "_index": "china", "_type" : "city", "_id" : "shenzhen" } }
{"name":"Shenzhen", "province": "No.37, Xinyuan Road, Futian District, Guangdong Pr
ovince", "location": {"lat": 22.5455465546, "lon": 114.0527779134}, "x": 6336, "level": {"
range":4,"level":1,"name":"First-tier city"},"y":2429,"cityNo":4}
{ "index" : { "_index": "china", "_type" : "city", "_id" : "chengdu" } }
{"name":"Chengdu", "province":"No. 88-1, Hongxing Road 4th Section, Jinjiang Distr
ict, Sichuan Province", "location": { "lat": 30.6522796787, "lon": 104.0725574128 }, "x":
4387, "level":{ "level":2, "range":19, "name": "New first-tier city"}, "y":4304, "cityNo
":5}
```

```
{ "index" : { "_index": "china", "_type" : "city", "_id" : "hangzhou" } }
{"name":"Hangzhou","province":"No.316, Huancheng North Road, Gongshu District, Zh
ejiang Province","location":{"lat":30.2753694112,"lon":120.1509063337},"x":7530,"
level":{"level":2,"range":19,"name":"New first-tier city"},"y":4182,"cityNo":6}
```

Querying multiple documents

```
GET /china/city/_search
```

Accessing index

Configuring Kibana to access index

To use Kibana, you need to configure at least one index that can be matched. Enter the index china created above and click **Next step** to proceed to the next step.

7	Libere	Management / Kibana								
	KIDANA	Index Patterns Save	Saved Objects Reporting Advanced Settings							
อ	Discover	Warning	Create index pattern							
<u>u</u>	Visualize	No default index pattern. You must select or create	Kibana uses index patterns to retrieve data from Elasticsearch indices for things like visualizations.	○ × Include system indic						
9	Dashboard	one to continue.								
3	Timelion		Step 1 of 2: Define index pattern							
9	Machine Learning		Index pattern							
-	APM		china							
×	Graph		You can use a * as a wildcard in your index pattern. You can't use spaces or the characters /, ?, ", <, >, .	> Next step						
r	Dev Tools		✓ Success! Your index pattern matches 1 index.							
P	Monitoring		china							
\$	Management									
			Nous her here a							

You need to **configure a time filter field to filter** the data in an index by time. If there is no field in the index that indicates time, you can choose not to use the time filter feature. Click **Create index pattern** to create an index pattern.



View the fields for the index.

	kibana	Management / Kibana Index Patterns Saved Objects Reporting Advanced Settings							
@ 1	Discover Visualize Dashboard	+ Create Index Pattern	★ china This page lists every field in the china index and the field's associated core type as recorded by Elasticsearch. To chang the Elasticsearch Mapping API %						
3	Timelion		Fields (14)	Scripted fields (0)	Source filters (0)			
Q	Machine Learning		Q Filter						All field type
=	АРМ		Name	Туре	Format	Searchable	Aggregatable	Excluded	
*	Graph		id		string		•	•	
سکر	Dev Tools		index		string		•	•	
∞	Monitoring		_index				•	•	
₽	Management		_score	number					
			_source		_source				
			_type		string		•	•	

	Phase	8 hits	New Save Open Share Inspect C Auto-refree
	KIDANA	>_ Search (e.g. status	O AND extension:PHP) Options C Refresh
Ø	Discover	Add a filter 🕇	
î	Visualize	china	_source
80	Dashboard	Selected fields ? _source	name: Wuhan11 province: No. 188 Yanjiang Road, Jiang'an District, Hubei Province location: { "lat": 30.5952548577, "lon": 114.2999398195 } x: 6,384 level.level: 2 level.range: 19 level.name: new first-tier city y: 4,231
Ø	Timelion	Available 🌣 fields	cityNo: 7 _id: wuhan1 _type: city _index: china _score: 1
ŵ	Canvas	t_id	name: Guangzhou province: No 79, Jixiang Road, Yuexiu District, Guangdong Province location: { "lat":
8	Maps	t _index	23.1317146641, "lon": 113.2595185241 } x: 6,173 level.range: 4 level.level: 1 level.name: first-tier city y: 2,560 cityNo: 3 _id: guangzhou _type: city _index: china _score: 1
(;)	Machine Learning	# _score t _type	name: Shenzhen province: No 37, Xinyuan Road, Futian District, Guangdong Province location: { "lat": 22.5455465546,
ē	Infrastructure	# cityNo	"lon": 114.0527779134 } x: 6,336 level.range: 4 level.level: 1 level.name: first-tier city y: 2,429 cityNo: 4 _id: shenzhen _type: city _index: china _score: 1
j	Logs	# level.level	
гŋ	АРМ	t level.name # level.range	name: Shanghai province: Shanghai location: { "lat": 31.2319526784, "lon": 121.469443249 } x: 7,779 level.range: 4 level.level: 1 level.name: first-tier city y: 4,409 cityNo: 2 _id: shanghai _type: city
5	Uptime	Ocation	_index: china _score: 1
÷	Graph	t name	name: Chengdu province: No 88-1, 4th Section of Hongxing Road, Jinjiang District, Sichuan Province location: { "lat": 30.6522796787. "lon": 104.0725574128 } x: 4.387 level.level: 2 level.range: 19 level.name: new first-tier

Click **Discover** on the left sidebar to view the documents that have been added under the index.

Visual Query and Analysis

Kibana can perform visual statistical analysis of data. Click **Visualize** on the left sidebar to configure various visual charts for data analysis. For example, to count the different levels under the china index mentioned above, follow the steps below:



		Manadan (Nam							
	kibana	Visualize / New							
Ø	Discover	Select visualization type							
	Visualize	Q Search visualization types							
\odot	Dashboard	Basic Charts							
8	Timelion					_			
લ્ગ	Machine Learning						.11		
=	APM								
×	Graph	Area	Heat Map	Horizontal Bar	Line	Pie	Vertical Bar		
مکر	Dev Tools	Data				Compare parts of a whole			
~	Monitoring								
\$	Management				42				
				101					
		Data Table	Gauge	Goal	Metric				

	kibana	Visualize / New / Choose search source			
Ø	Discover	From a New Search, Select Index		Or, From a Saved Search	
ш	Visualize	Q Filter	1 of 1	O Saved Searches Filter	
\odot	Dashboard	C Filter	1011	G Saved Searches Filter	0-0 01 0 Manage saved searches
8	Timelion	Name 🔺		Name 🔺	
ø	Machine Learning	china		No matching saved searches found.	
ŧ	АРМ				
×	Graph				
ىر	Dev Tools				
∞	Monitoring				
۵	Management				





Select the count metric, aggregate the statistics by the level.level field, and click Save.

For more information on how to use Kibana, please see Kibana's official documentation.