

Blockchain as a Service

Quick Start

Quick Start

Hyperledger Fabric

Quick Start

Alibaba Cloud BaaS provides Starter Edition to deploy a test blockchain network, which simulates a minimum multi-party transaction scenario. This network is owned by a single customer and suitable for getting started and testing smart contracts.

Note: The Starter Edition has one consortium and two organizations. It is for test purpose and can not add more organizations. When you want to create production environment, you can choose the Basic Edition or Enterprise Edition. In these editions, you can create, extend and customize your blockchain network, as well as inviting new members. For more information, see [Operation process](#).

Deploy blockchains quickly

Log on to Alibaba Cloud.

- If you are using an Alibaba Cloud account, [click here to log on](#).
- If you are using a RAM user, [click here to log on](#).

Log on to the Alibaba Cloud BaaS console.

Click **Create Consortium** and enter in purchase page.

My Organizations

Label

Create Organization

Refresh

Name	Domain	Region	Specification	Label	Peers	Users	Consortium	Status	Created At	Expired Time	Description	Action
No data is available												

My Consortia

Label

Create Consortium

Refresh

Name	Domain	Creator	Region	Specification	Label	Members	Channels	Channel Creation Policy	Status	Created At	Expired Time	Action

Select your region, choose Consortium Instance Type and Starter Edition, specify Consortium Name, Consortium DomainName and Duration, then go through purchase

Region

China (Hong Kong)

Singapore

Australia (Sydney)

Japan (Tokyo)

India (Mumbai)

Germany (Frankfurt)

US (Virginia)

Choose a region that is close to your applications to reduce network latency. Use caution: The selected region cannot be changed after purchase.

Blockchain Engine

Hyperledger Fabric

Instance Type

Consortium

Organization

A workable blockchain network should includes one consortium instance and at least one organization instance that joins the consortium.

Edition

Starter

Basic

Enterprise

All editions of BaaS instances are exclusive resources, which provides a more stable and reliable performance. For more information, see [Specifications and pricing](#).

Consortium Name

testDemo

Recommend that enter a business-related name that is easy to identify.

Consortium DomainName

testDemo

Enter the prefix of the consortium domain name. The consortium domain name is the identity of the consortium in the blockchain network. It is globally unique and cannot be modified after purchase. For example, if you enter abc, the consortium domain name is abc.alibabacloudbaas.com.

Storage Cost

You do not need to select a storage capacity when purchase. It charges hourly on a pay-as-you-go basis. [Learn More>>](#)

Duration

1 Month

2 Months

3 Months

4 Months

5 Months

6 Months

More

process.

Move back to BaaS console, on the **Overview** page, you can see the consortium and 2 organizations that you created. It may take several minutes for the system to configure the resources.

[illegible]

Member Organizations		Channels	Chaincodes	Orderer Nodes		
<button>Add Channel</button>		<button>Refresh</button>				
Name	Creator	Organizations	Chaincodes	Status	Created At	Last Updated At
first-channel	5d5397f0908e00000000000000000000	2/2	0	Running	Aug 7, 2020, 16:30:45	Aug 7, 2020, 16:30:45

Deploy chaincodes

Quick Experience for Free

Notice: The test contract blockchain is for test only. Do not upload business code or business data.

Prerequisites

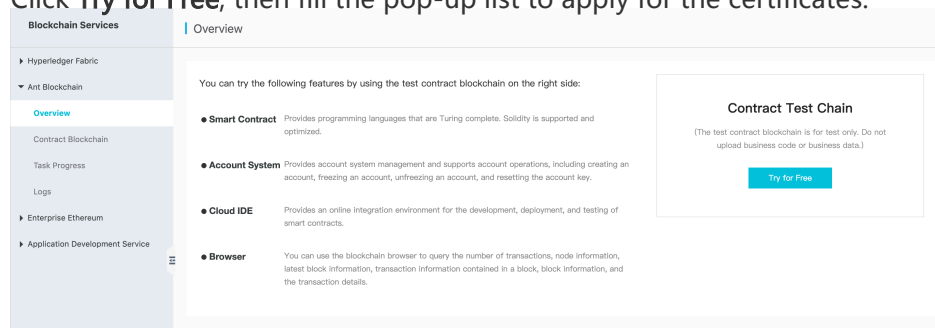
You have already activated Alibaba Cloud BaaS and logged on to Alibaba Cloud.

- If you are using an Alibaba Cloud account, click [here](#) to log on .
- If you are using a RAM user, click [here](#) to log on.

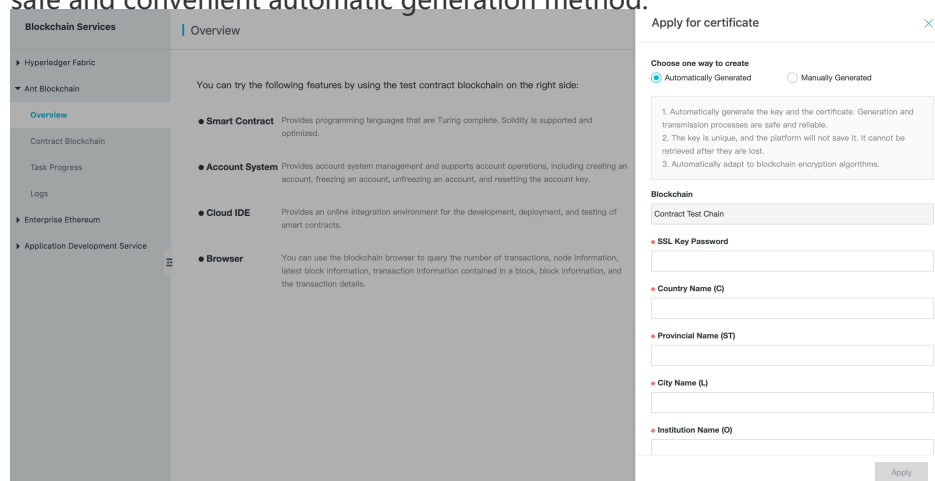
Apply for the blockchain

Log on to the Alibaba Cloud BaaS console. Click **Overview** under **Ant Blockchain** in the left navigation pane.

Click **Try for Free**, then fill the pop-up list to apply for the certificates.



We provide **Automatic/Manual** ways to generate the certificate. It is recommended to use a safe and convenient automatic generation method.



If you choose **Automatically Generated**, the following steps need to be completed.

- Fill in the application information and click **Apply**.

Download private key and certificate.

Notice: There is only one chance to download the private key.

The screenshot shows the 'Blockchain Services' interface. On the left, a sidebar lists services: Hyperledger Fabric, Ant Blockchain (selected), Enterprise Ethereum, and Application Development Service. The main area is titled 'Overview' and lists features: Smart Contract, Account System, Cloud IDE, and Browser. A yellow warning box at the top right states: 'Notice: There is only one chance to download the private key. This page will not be displayed later. If it is lost carelessly, it can not be retrieved.' Below this, a 'Download Private Key' link is visible. At the bottom, links for 'Download Signed Certificate', 'Download Root Certificate (trustCa)', and 'Download SDK' are provided.

Click **Create Account**, choose **Automatically**, and then fill in the application information, click **Apply**.

This screenshot shows the 'Create Account' dialog box overlaid on the 'Blockchain Services' interface. The dialog has two radio buttons: 'Manually' and 'Automatically' (which is selected). Below the buttons, three numbered instructions are listed: 1. The generation and transmission of public-private key pairs are safe and reliable. 2. Public and private key pairs are unique, and the platform will not save them. They cannot be retrieved after they are lost. 3. Automatically adapt to blockchain encryption algorithms. There are three input fields: 'Account Name', 'Account Password', and 'Account Recovery Password'. An 'Apply' button is at the bottom right of the dialog. The background interface is dimmed, showing the same sidebar and feature list as the previous screenshot.

Download public-private key pairs.

Notice: There is only one chance to download the private key.

The screenshot shows the 'Blockchain Services' Overview page. On the left is a sidebar with navigation links: Hyperledger Fabric, Ant Blockchain, Contract Blockchains, Logs, Enterprise Ethereum, and Application Development Service. The main content area is titled 'Overview' and lists features: Smart Contract, Account System, Cloud IDE, and Browser. A dialog box titled 'Download Public-private Key Pairs' is open on the right. It contains a notice: 'Notice: There is only one chance to download the public-private key pair. This page will not be displayed later. If it is lost carelessly, it can not be retrieved.' Below the notice, it says 'Please click on the link below to download the corresponding public and private key:' and provides links for 'Download Public Key' and 'Download Private Key'. A second section says 'Please click on the link below to download the corresponding recovery public and private key:' and provides links for 'Download Restore Public Key' and 'Download Restore Private Key'.

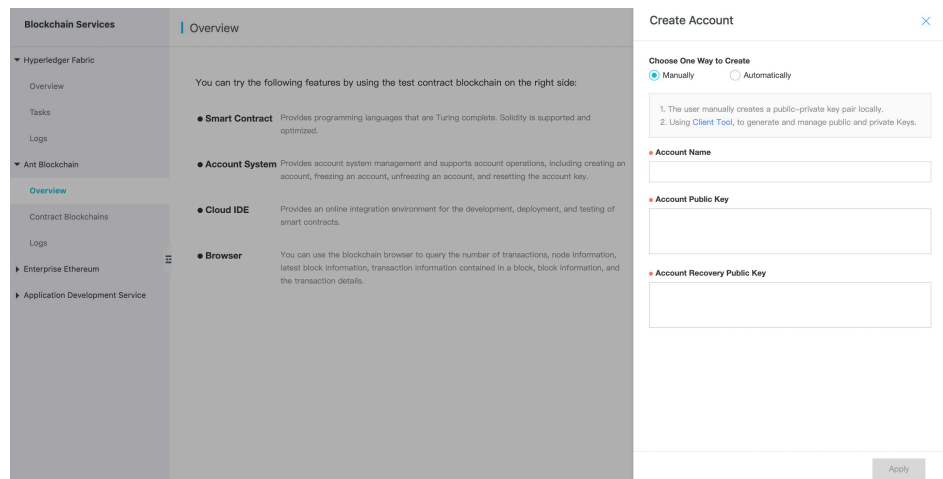
If you choose **Manually Generated**, the following steps need to be completed.

- Upload the locally generated certificate request file client.csr and click **Apply**. For the specific steps of locally generating the private key client.key and the certificate client.csr, see [Locally generate certificate and public-private key pair](#).

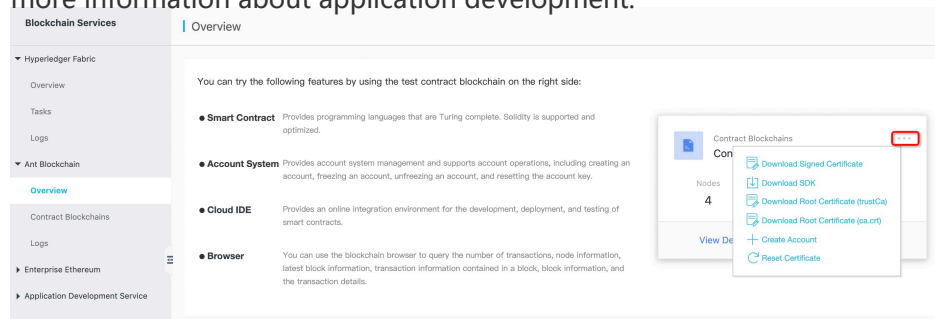
The screenshot shows the 'Blockchain Services' Overview page with the 'Apply for Certificate' dialog box open. The dialog has a title bar and a close button. It contains a section 'Choose One Way to Create' with two radio buttons: 'Automatically Generated' and 'Manually Generated' (which is selected). Below this is a text input field with the placeholder 'Generate a certificate request file and upload it using OpenSSL'. There is a 'Blockchain' section with a dropdown menu currently showing 'Contract Test Chain'. At the bottom, there is a 'Certificate Request' section with an 'Upload' button.

- Click **Create Account**, choose **Manually**, and then fill the Account Name, Account Public Key, and Account Recovery Public Key. For the specific steps of locally generating the key pairs, see [Locally generate certificate and public-private key pair](#).

The screenshot shows the 'Blockchain Services' Overview page. The 'Contract Blockchain' dropdown menu is open, showing a list of options: 'Download Signed Certificate', 'Download SDK', 'Download Root Certificate (trustCa)', 'Download Root Certificate (ca.crt)', 'Create Account' (highlighted), and 'Reset Certificate'. The background shows the same 'Overview' page content as the previous screenshots.



Click the more button the top right of the test blockchain to download certificates, development components or reset certificates. You can refer to Development Guides for more information about application development.



Locally generate certificate and public-private key pair

Use OpenSSL

Note: You do not need to manually install OpenSSL on a macOS system.

Install OpenSSL

Install OpenSSL on the Windows operating system as follows:

Go to OpenSSL download page (English), find version 1.0.2o (recommended), and download the installation package. Or, you can click the following download link:

- 32-bit OpenSSL installation package (direct download)
- 64-bit OpenSSL installation package (direct download)

Open the command line tool and go to the bin directory of the OpenSSL installation path.

Prepare the environment variables and enter set OPENSSL_CONF=openssl.cfg on the command line.

Generate certificate requests

Generate private keys and certificate requests by using OpenSSL.

Note: You must remember the password of the private key and save the private key file properly.

```
openssl req -newkey rsa:2048 -keyout key_pkcs10.pem -out csr.pem  Generating a 2048 bit RSA private key
.....+++ .....+++  writing new private key to 'key_pkcs10.pem'  Enter PEM pass
phrase:  Verifying- Enter PEM pass phrase:  -----
```

While this command is being executed, you are required to enter the following information:

Country name (2-letter code): Use the International Standards Organization (ISO) format and enter the 2-letter country code. For example, enter CN for China.

State or province name (full name): The province. For example, Zhejiang.

Locality name (for example, city): The city. For example, Hangzhou.

Organization name (for example, company): The organizational unit. For example, Pinyin of a company name.

Organizational unit name (for example, section): For example, IT Dept.

Common name (for example, domain name of your website): The domain name of the website encrypted with SSL.

This is a domain name that uses SSL certificate. For example, pay.xxxx.com. Different URLs are defined here as different website domain names. For example: xxxx.com, www.xxxx.com, and pay.xxxx.com are identified as three different website domain names. The website domain name here must be the same as the SMTP/POP3 server name set by the mail client software.

Email address: Optional, the email address.

Challenge password: Optional.

Optional company name: Optional.

Use local key service

For your convenience, the BaaS platform provides a Java version of local key service.

Start local key service

The Java runtime environment must be version 1.7 or later.

Download the key generation tool. [Click here to download.](#)

Run the command `java -jar baas-crypto-tool-1.0.0.jar --server.port=8080` to start the key service.

Generate certificate requests

After you start the key service, in the browser, enter `http://localhost:8080/api/crypto/generateTlsKey? algo=rsa&isPkcs8=true&password=${password}` to generate the `tlskey.zip` file. Unzip the file to obtain `client.csr` and `client.key`. `client.key` is used to connect to the blockchain, and `client.csr` needs to be signed by the BaaS platform.

Note: Replace `${password}` in the link with your own password.

Generate public and private key pairs

After you start the key service, in the browser, enter `http://localhost:8080/api/crypto/generateUserKey? algo=ec&isPkcs8=true&password=${password}` to generate the `userkey.zip` file. Unzip the file to obtain `user.key` and `pub.txt`. `user.key` is the private key of the user, and `pub.txt` is the public key of the user.

You can run this command twice to generate two public private key pairs. One is the key pair of the account and the other one is the recovery key pair.

Quick start

This guide describes how to apply for a blockchain in Ant Blockchain. You need to complete the following steps:

1. Create a consortium

2. Create a blockchain
3. Apply for blockchain permission
4. Develop applications

Prerequisites

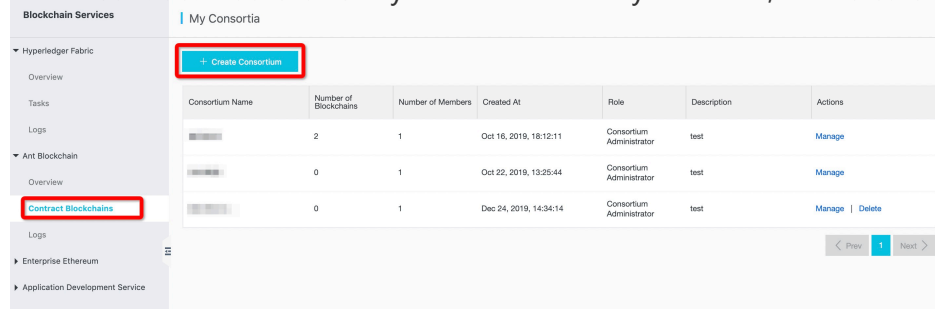
You have activated Alibaba Cloud BaaS and logged on to Alibaba Cloud.

If you use an Alibaba Cloud account, click [here](#) to log on.

Create a consortium

Log on to the Alibaba Cloud BaaS console.

Select **Contract Blockchains**. If you do not have any consortia, click **Create Consortium**.

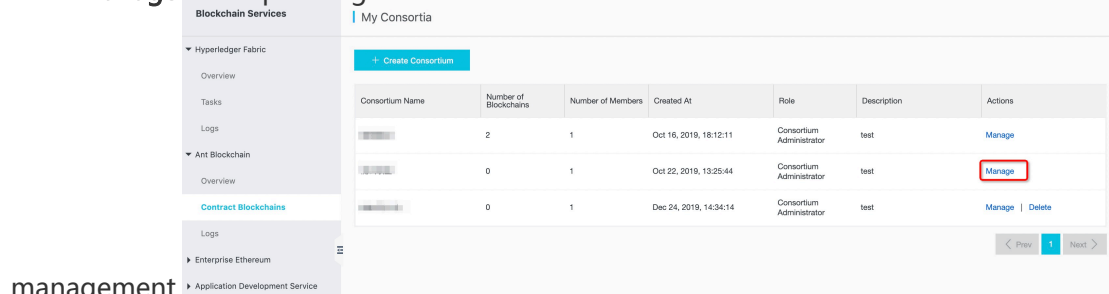


After the consortium is created, you can create a blockchain.

Create a blockchain

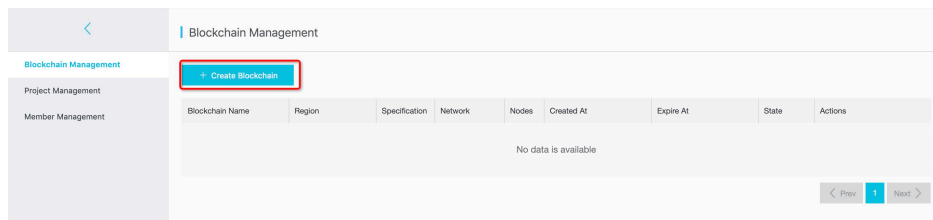
On the **Contract Blockchains** page complete the following steps to create a blockchain:

1. Click **Manage** corresponding to the blockchain to be created to enter the list of chain



management.

Click **Create Blockchain** to enter the purchase page.



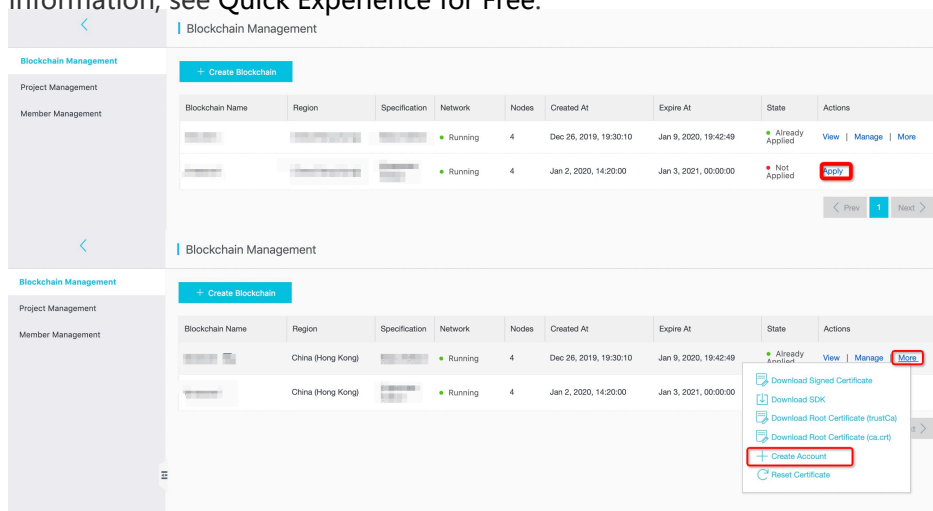
On the purchase page, select the consortium, and the purchased blockchain will be configured in your selected consortium. Then select the duration of the blockchain according to your needs and click **Buy Now** (see Purchase Guide).

For more operations, see Manage consortium blockchains.

Apply for blockchain permission

After the blockchain is created, you can then apply for blockchain permissions to prepare for blockchain development.

On the blockchain list page, click **Apply** to apply for certificates and account. For more information, see [Quick Experience for Free](#).



Then download certificates and development components to start develop blockchain applications.

Develop applications

You can refer to [Development Guides](#) for more information about application development.

Enterprise Ethereum - Quorum

Quick start

Alibaba Cloud BaaS provides a quick mode to create and deploy secure Enterprise Ethereum - Quorum networks. You only need to specify required information, and Alibaba Cloud BaaS will automatically perform operations to create a complete Quorum network.

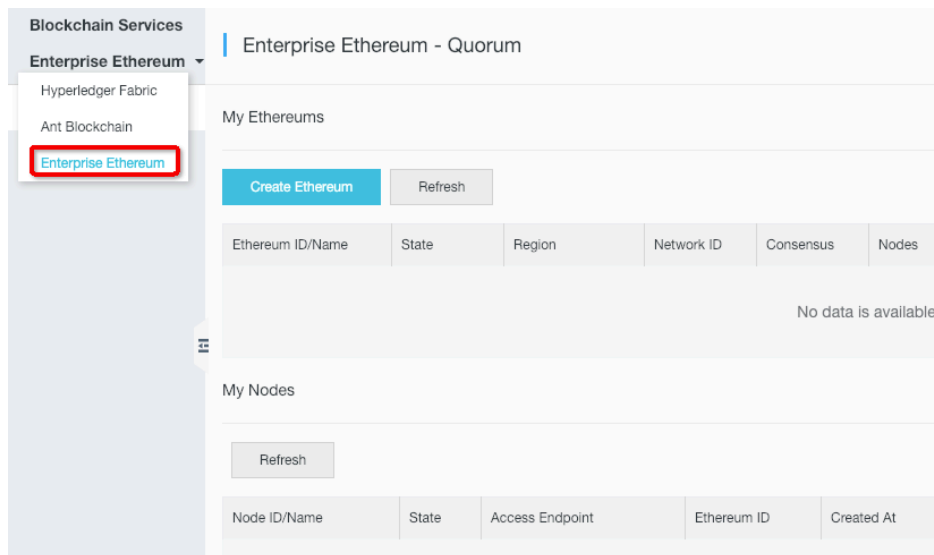
Note: After you are getting more familiar with Quorum technology, you can customize and extend your blockchain network by inviting new members. These new members can deploy their Quorum nodes on cloud platforms (like AWS, Azure, etc.) or in on-premise environment. Alibaba Cloud BaaS can help you build up a cross-cloud, cross-region consortium blockchain network easily.

Create Enterprise Ethereum - Quorum

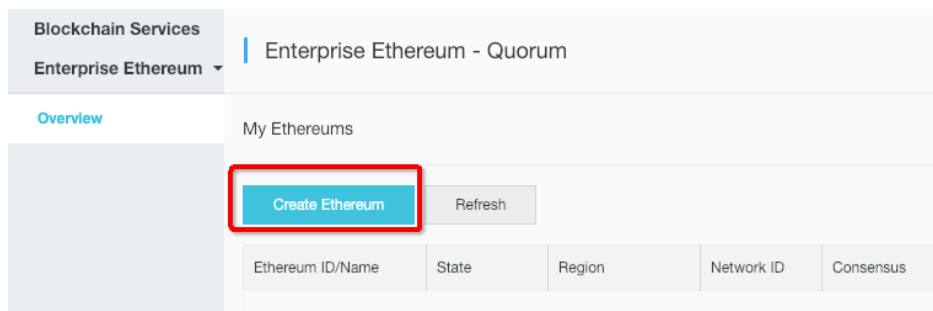
Log on to Alibaba Cloud.

- If you are using an Alibaba Cloud account, [click here to log on](#) .
- If you are using a RAM user, [click here to log on](#).

Log on to the Alibaba Cloud BaaS console. Click the top left navigation panel and choose the entry **Enterprise Ethereum**.



Click **Create Ethereum**.



Specify the following information.

Parameter	Description
Name	We recommend that you enter a business-related name that is easy to identify.
Network ID	The network id of Ethereum network, which can't be modified after creation.
Consensus	Istanbul BFT (Byzantine Fault Tolerance) Consensus: A PBFT-inspired consensus algorithm with transaction finality, by AMIS.
GasLimit	Gas limit can be applied to both individual transactions and blocks, block-gas-limit. For individual transactions, the gas limit represents the maximum amount of gas you indicate you are willing to pay for a contract execution transaction. The block gas limit represents the maximum cumulative gas used for all the transactions in a block. With the launch of Homestead, the block gas limit floor will increase from 3,141,592 gas to 4,712,388 gas (~50% increase).
Region	The region where your organization is located. We

	recommend that you select the region where your business application system is located.
Description	Enter the organization description.

Click the “Add Node” button to add Ethereum network node as you need.

Create Ethereum

×

• Name: ⓘ

supplychain

• Network ID: ⓘ

2111

• Consensus: ⓘ

istanbul

• Difficulty: ⓘ

0x01

• GasLimit: ⓘ

0xE0000000

• Region:

East China 2 (Shanghai)

Description:

Add Node

Node Name

Action

wholesaler

Delete

Create

Close

Contact Us

Click **Create**.

On the **Overview** page, you can see the network and node that you created. The network

and node are in the **Creating** status.

It may take 15~40 minutes for the system to configure and create the resources.

eth-1px71y482vic DemoNetwork	Running	cn-shanghai	5544332	Istanbul	1	uid-12871222222222222222	AddNode Invite Delete
eth-u9jja0x1w8m5 supplychain	Creating	cn-shanghai	2111	Istanbul	4	uid-12871222222222222222	AddNode Invite Delete

After you have created one network, you can click the name of the network in **My Ethereum**s to view the status of the networks.

Blockchain Services

Enterprise Ethereum

Enterprise Ethereum - Quorum

Overview

My Ethereum

Create Ethereum

Refresh

Ethereum ID/Name	State	Region	Network ID	Consensus
eth-pc8xy69f6zso	Running	cn-hangzhou	22	Istanbul

In **My Nodes**, click the name of a node to view the details.

Blockchain Services

Enterprise Ethereum

Enterprise Ethereum - Quorum

Quick Introduction

Help

Overview

My Ethereum

Create Ethereum

Refresh

Ethereum ID/Name	State	Region	Network ID	Consensus	Nodes	Creator	Description	Action
eth-pc8xy89f6zso	Running	cn-hangzhou	22	Istanbul	7	uid-12871222222222222222		AddNode Invite Delete

My Nodes

Refresh

Node ID/Name	State	Access Endpoint	Ethereum ID	Created At	Creator	Description	Action
enode-1f8d8e62cyd	Running	http://10.10.10.100:8545 ws://10.10.10.100:8546	eth-pc8xy89f6zso	Jan 9, 2019, 15:12:11	uid-12871222222222222222		Approve Explore
enode-1jom89p1zy7ns	Running	http://10.10.10.100:8545 ws://10.10.10.100:8546	eth-pc8xy89f6zso	Jan 9, 2019, 15:12:11	uid-12871222222222222222		Approve Explore

Node details are included in tabs such as **Configuration**, **Node Information**, **Security**, and

Blockchain Services	Blockchain / 2 / enode-1jom89p1zy7ns	Back
Enterprise Ethereum	Configuration Node Information Security Logs	
Overview	<pre> permissions-nodes.json { "enode://611ba789aefid2625f48f13254d20bc3bc4e0d095435baa2077bed64156838fe9bbdde1d023abcd54495691d42e13f1:30303@10.10.10.100:30303": { "url": "http://10.10.10.100:8545", "wsurl": "ws://10.10.10.100:8546", "enode": "enode://720779b1c1c757ef11eeed2c0e390312c189c543fd854e53766c91a12a4c8dd586a065d4e71b576c3a225be4202b71:30303@10.10.10.100:30303" }, "enode://387cb2f563f0b2a7049d3e2b8e586c1ba381e5c94f473dd2088b6808da74af88cabcafe899e6f512f665c64e14c3fc1:30303@10.10.10.100:30303": { "url": "http://10.10.10.100:8545", "wsurl": "ws://10.10.10.100:8546", "enode": "enode://387cb2f563f0b2a7049d3e2b8e586c1ba381e5c94f473dd2088b6808da74af88cabcafe899e6f512f665c64e14c3fc1:30303@10.10.10.100:30303" } } </pre>	

Logs.