Blockchain as a Service

Quick Start

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Quick Start

Hyperledger Fabric

Ant Blockchain

Quick Experience for Free

We provide a contract test blockchain for free to help you quickly experience our blockchain service. To apply for your own blockservice, please follow **Create a consortium**.

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.

Blockchain Services	Overview		
Hyperledger Fabric			
▼ Ant Blockchain	You can try the fol	lowing features by using the test contract blockchain on the right side:	
Overview	Smart Contract	Provides programming languages that are Turing complete. Solidity is supported and	Contract Test Chain
Contract Blockchain		optimized.	(The test contract blockchain is for test only. Do not upload business code or business data.)
Task Progress	 Account System 	Provides account system management and supports account operations, including creating an account, freezing an account, unfreezing an account, and resetting the account key.	Try for Free
Logs			
Enterprise Ethereum	Cloud IDE	Provides an online integration environment for the development, deployment, and testing of smart contracts.	
 Application Development Service 	• Browser	You can use the blockchain browser to query the number of transactions, node information, latest block information, transaction information contained in a block, block information, and the transaction details.	

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

Blockchain Services	Overview	-	Apply for certificate ×
 Hyperledger Fabric Ant Blockchain 	You can try the fol	lowing features by using the test contract blockchain on the right side:	Choose one way to create Automatically Generated Manually Generated
Overview Contract Blockchain	Smart Contract	Provides programming languages that are Turing complete. Solidity is supported and optimized.	 Automatically generate the key and the cartificate. Generation and transmission processes are safe and reliable. The key is unique, and the platform will not save it. It cannot be retrieved after they are lost.
Task Progress	 Account System 	Provides account system management and supports account operations, including creating an account, freezing an account, unfreezing an account, and resetting the account key.	3. Automatically adapt to blockchain encryption algorithms.
Enterprise Ethereum	Cloud IDE	Provides an online integration environment for the development, deployment, and testing of smart contracts.	Blockchain Contract Test Chain
Application Development Service	Browser	You can use the blockchain browser to query the number of transactions, node information,	SSL Key Password
		latest block information, transaction information contained in a block, block information, and the transaction details.	• Country Name (C)
			Provincial Name (ST)
			• City Name (L)
			Institution Name (O)
			Apply

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.

Blockchain Services	Overview		Download certificate and private key	×
Hyperledger Fabric			C. Martin Theoreman Annual	
Ant Blockchain	You can try the fo	ollowing features by using the test contract blockchain on the right side:	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.	
Overview	Smart Contrac	Provides programming languages that are Turing complete. Solidity is supported and		
Contract Blockchain		optimized.	Please click the link below to download the private key:	
Task Progress	Account System	Provides account system management and supports account operations, including creating an account, freezing an account, unfreezing an account, and resetting the account key.	Download Private Key	
Logs			Please click the link below to download the certificate and developer	
Enterprise Ethereum	Cloud IDE	Provides an online integration environment for the development, deployment, and testing of smart contracts.	components:	
		smart contracts.	Download Signed Certificate Download Root Certificate (trustCa) Download Root Certificate (ca.crt) Download SDK	
 Application Development Service 	· Browser	You can use the blockchain browser to query the number of transactions, node information, latest block information, transaction information contained in a block, block information, and the transaction details.	(uuaica) Downoad noor Carshcate (ca.crt) Download SDK	

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

Blockchain Services	Overview		
Hyperledger Fabric Ant Blockchain	You can try the fo	sllowing features by using the test contract blockchain on the right side:	
Overview	Smart Contrac	t Provides programming languages that are Turing complete. Solidity is supported and	Contract Blockchain ···· Contra Contra Download Signed Certificate
Contract Blockchain Task Progress	Account System	optimized. ${f n}$ Provides account system management and supports account operations, including creating an	Nodes Download SDK 4 Download Root Certificate (trustCa)
Logs	Cloud IDE	account, freezing an account, unfreezing an account, and resetting the account key. Provides an online integration environment for the development, deployment, and testing of	Download Root Certificate (ca.crt) View Deta Create Account C' Reset Certificate
Application Development Service	E Browser	amart contracts. You can use the blockchain browser to query the number of transactions, node information, latest block information, transaction information contained in a block, block information, and the transaction details.	
Blockchain Services	Overview		Create Account
Hyperledger Fabric Overview	You can try the fo	llowing features by using the test contract blockchain on the right side:	Choose One Way to Create Manually Automatically
Tasks Logs	Smart Contract	Provides programming languages that are Turing complete. Solidity is supported and optimized.	 The generation and transmission of public-private key pairs are sa and reliable. Public and private key pairs are unique, and the platform will not save them. They cannot be retrieved after they are lost.
Ant Blockchain Overview	Account System	n Provides account system management and supports account operations, including creating an account, freezing an account, and resetting the account key.	3. Automatically adapt to blockchain encryption algorithms.
Contract Blockchains	Cloud IDE	Provides an online integration environment for the development, deployment, and testing of smart contracts.	Account Name
Logs Enterprise Ethereum	Browser	You can use the blockchain browser to query the number of transactions, node information, latest block information, transaction information contained in a block, block information, and the transaction details.	Account Password Account Recovery Password
Application Development Service			
			Apply

Download public-private key pairs.

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

Blockchain Services	Overview		Download Public-private Key Pairs	×
▼ Hyperledger Fabric				
Overview	You can try the fol	lowing features by using the test contract blockchain on the right side:	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.	
Tasks	Smart Contract	Provides programming languages that are Turing complete. Solidity is supported and	Please click on the link below to download the corresponding public and	
Logs		optimized.	private key:	
▼ Ant Blockchain	Account System	Provides account system management and supports account operations, including creating an account, freezing an account, and resetting the account key.	Download Public Key Download Private Key	
Overview				
Contract Blockchains	Cloud IDE	Provides an online integration environment for the development, deployment, and testing of smart contracts.	Please click on the link below to download the corresponding recovery pul and private key:	DIIC
Logs			Download Restore Public Key Download Restore Private Key	
Enterprise Ethereum	Browser	You can use the blockhain browser to query the number of transactions, node information, latest block information, transaction information contained in a block, block information, and the transaction details.		
Application Development Service				

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 certificateclient.csr, see Locally generate certificate and public-private key pair.

Blockchain Services	Overview		Apply for Certificate	×
 Hyperledger Fabric Ant Blockchain 	You can try the fol	lowing features by using the test contract blockchain on the right side:	Choose One Way to Create Automatically Generated Manually Generated	
Overview Contract Blockchains	Smart Contract	Provides programming languages that are Turing complete. Solidity is supported and optimized.	Generate a certificate request file and upload it using OpenSSL.	
Logs	Account System	Provides account system management and supports account operations, including creating an account, freezing an account, unfreezing an account, and resetting the account key.	Contract Test Chain Certificate Request	
Application Development Service	Cloud IDE	Provides an online integration environment for the development, deployment, and testing of smart contracts.	(E) Upload	
	≘ ● Browser	You can use the blockshaln browser to query the number of transactions, node information, latest block information, transaction information contained in a block, block information, and the transaction details.		

• 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 genrating the key pairs, see **Locally generate certificate** and public-private key pair.

Hyperledger Fabric				
▼ Ant Blockchain	You can try the fol	lowing features by using the test contract blockchain on the right side:	Contract B	linekchain ***
Overview Contract Blockchain	Smart Contract	Provides programming languages that are Turing complete. Solidity is supported and optimized.	Contra	Download Signed Certificate
Contract Blockchain Task Progress	Account System	Provides account system management and supports account operations, including creating an account, infreezing an account, unfreezing an account, and resetting the account key.	Nodes 4	Download SDK Download Root Certificate (trustCa) Download Root Certificate (ca.crt)
Logs Enterprise Ethereum	Cloud IDE	Provides an online integration environment for the development, deployment, and testing of smart contracts.	View Deta	+ <u>Create Account</u> C' Reset Certificate
 Application Development Service 	E • Browser	You can be the blockchain browser to query the number of transactions, node information, latest block information, transaction information contained in a block, block information, and the transaction details.		
Blockchain Services	Overview		Create Account	
Hyperledger Fabric	You can try the fol	owing features by using the test contract blockchain on the right side:	Choose One Way to Create Manually	utomatically
Tasks	Smart Contract	Provides programming languages that are Turing complete. Solidity is supported and optimized.		ates a public-private key pair locally. generate and manage public and private Keys
Logs Ant Blockchain	Account System	Provides account system management and supports account operations, including creating an account, freezing an account, unfreezing an account, and resetting the account key.	Account Name	
Overview Contract Blockchains	Cloud IDE	Provides an online integration environment for the development, deployment, and testing of smart contracts.	Account Public Key	
Logs Enterprise Ethereum	· Browser	You can use the blockchain browser to query the number of transactions, node information, latest block information, transaction information contained in a block, block information, and the transaction details.	Account Recovery Public	: Key
Application Development Service		ure transaction denaits.		
				Acoly

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.

Hyperledger Fabric				
Overview	You can try the fo	llowing features by using the test contract blockchain on the right side:		
Tasks	Smart Contract	Provides programming languages that are Turing complete. Solidity is supported and		
Logs		optimized.	Contra Con	ct Blockchains
Ant Blockchain	 Account System 	n Provides account system management and supports account operations, including creating an	Con	Download Signed Certificate
Overview		account, freezing an account, unfreezing an account, and resetting the account key.	Nodes	Download SDK
	Cloud IDE	Provides an online integration environment for the development, deployment, and testing of	4	Download Root Certificate (trustCa)
Contract Blockchains		smart contracts.		Download Root Certificate (ca.crt)
Logs			View De	+ Create Account
interprise Ethereum	Browser	You can use the blockchain browser to query the number of transactions, node information, latest block information, transaction information contained in a block, block information, and the transaction details.		C Reset Certificate
Application Development Service				

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 1.0.20 (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 Generatinga 2048 bit RSA private key+++ writingnew private key to 'key_pkcs10.pem' EnterPEM 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.

BIOCKCITAIN Services	My Consortia						
 Hyperledger Fabric Overview 	+ Create Consortium						
Tasks	Consortium Name	Number of Blockchains	Number of Members	Created At	Role	Description	Actions
Logs	1000 C	2	1	Oct 16, 2019, 18:12:11	Consortium Administrator	test	Manage
 Ant Blockchain Overview 		0	1	Oct 22, 2019, 13:25:44	Consortium Administrator	test	Manage
Contract Blockchains	10.001	0	1	Dec 24, 2019, 14:34:14	Consortium Administrator	test	Manage Delete
Logs							< Prev 1 Next >
Enterprise Ethereum							
Application Development Service							

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

	BIOCKCHain Services		My Consortia						
	▼ Hyperledger Fabric		+ Create Consortium						
	Overview	1.7							
	Tasks		Consortium Name	Number of Blockchains	Number of Members	Created At	Role	Description	Actions
	Logs		1700 c	2	1	Oct 16, 2019, 18:12:11	Consortium Administrator	test	Manage
	✓ Ant Blockchain						Consortium		
	Overview		18-19-E	0	1	Oct 22, 2019, 13:25:44	Administrator	test	Manage
	Contract Blockchains		and the second se	0	1	Dec 24, 2019, 14:34:14	Consortium Administrator	test	Manage Delete
	Logs								< Prev 1 Next >
	Enterprise Ethereum	8							(1041)
management.	Application Development Service								

Click Create Blockchain to enter the purchase page.

<	Blockchain Manag	ement							
Blockchain Management	+ Create Blockchain								
Project Management	· Create Diockonain								
Member Management	Blockchain Name	Region	Specification	Network	Nodes	Created At	Expire At	State	Actions
					No da	ta is available			
									<pre>< Prev 1 Next ></pre>

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**.

× ·	Blockchain Mana	agement							
Blockchain Management	+ Create Blockchair	n							
Project Management									
Member Management	Blockchain Name	Region	Specification	Network	Nodes	Created At	Expire At	State	Actions
	100.000			Running	4	Dec 26, 2019, 19:30:10	Jan 9, 2020, 19:42:49	 Already Applied 	View Manage More
	And a second	1000	inere e	Running	4	Jan 2, 2020, 14:20:00	Jan 3, 2021, 00:00:00	 Not Applied 	Apply
									< Prev 1 Next >

<	Blockchain Management								
Blockchain Management	+ Create Blockchain								
Project Management									
Member Management	Blockchain Name	Region	Specification	Network	Nodes	Created At	Expire At	State	Actions
	100 C	China (Hong Kong)		Running	4	Dec 26, 2019, 19:30:10	Jan 9, 2020, 19:42:49	 Already Applied 	View Manage More
	******	China (Hong Kong)		Running	4	Jan 2, 2020, 14:20:00	Jan 3, 2021, 00:00:00	Download S	igned Certificate
1									

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.

Enterprse Ethereum - Quroum

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**.

Blockchain Services Enterprise Ethereum 👻	Ent	erprise Ether	eum - Quo	orum							
Hyperledger Fabric Ant Blockchain	My Ethe	My Ethereums									
Enterprise Ethereum	Crea	ate Ethereum	Refresh								
	Ethereu	im ID/Name	State	Region	Network ID	Consensus	Nodes				
1	-					No data	is available				
	My Noc	ies									
	Re	fresh									
	Node I	D/Name	State	Access Endpoint	Ethereu	m ID Crea	ted At				

ClickCreate Ethereum.

Blockchain Services Enterprise Ethereum 👻	Enterprise Ether	Enterprise Ethereum - Quorum								
Overview	My Ethereums									
	Create Ethereum	Refresh								
	Ethereum ID/Name	State	Region	Network ID	Consensus					

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: (i)		
supplychain		
• Network ID: (j)		
2111		
• Consensus: (j)		
istanbul		\sim
• Difficulty: (i)		
0x01		
• GasLimit: (j)		
0xE0000000		
Region:		
East China 2 (Shanghai)		\sim
Description:		
		-
Add Node		Contact Us
Node Name		Action
wholesaler		Delete
	Create	Close

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.



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

Blockchain Services Enterprise Ethereum 👻	Enterprise Ethereum - Quorum										
Overview	My Ethereums	My Ethereums									
	Create Ethereum	Refresh									
	Ethereum ID/Name	State	Region	Network ID	Consensus						
<u>.</u>	eth-pc8xy89f6zso 🤌 2	 Running 	cn-hangzhou	22	istanbul						

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

Blockchain Services Enterprise Ethereum	Enterprise Ethere	um - Quorum								Quick Introduction	⑦ Help
Overview	My Ethereums										
	Create Ethereum	Refresh									
	Ethereum ID/Name	State	Region	Network	ID Co	xnsensus	Nodes	Creator	Description	Action	
	eth-pc8xy8915zso 🤗 2	e Running	cn-hangzhou	22	istz	anbul	7	ud-1287		AddNode Imite I	Delete
	My Nodes										
	Refresh										
	Node ID/Name	State	Access Endpoint		Ethereum ID	Creat	ed At	Creator	Description	Action	
	enode-1fm9bn6f2lby0 2	 Running SS 	nttp://001 ws://0000		eth-pc8xy89f6zso	Jan 9	2019, 15:12:11	uid-1287		Approve Explore	0
	enode-1jom89p1zy7ns 3	Bunning	nttp: 006 nts:// 105		eth-pc8xy89f6zso	Jan 9	2019, 15:12:11	uid-1287 54 🖓		Approve Explore	r Ø

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

	Enterprise Ethereum -	Blockchain / 2 / enode-1jom89p1zy7ns Back
	Overview	Configuration Security Logs
		permissioned-nodes.json 🖻 [
		"enode://611ba789aeffd2625f48f13254d20bc3bc4e0d095435baa2077bed64156838fe9bbdde1d023abcd54495691d42e13f;
		"enode://720779b11c1c757ef11eeed2c0e390312c189c543fd854e53766c91a12a4c8dd586a065d4e71b576c3a225be4202b7!
		"enode://387cb2f563f0b2a7049d3e2b88c586cfba381e5c84f473dd2088b6808da74af88cabcaf899e6f512f665c64e14c3fct
Logs.		