

Web 3.0 Node Engine Service (NES)

Quick Start

Issue 01
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1 Dedicated

1.1 Full Nodes

The following sections describe how to use Node Engine Service (NES) to manage full nodes.

1.1.1 Step 1: Create a Full Node

To create a full node, you need to configure the **Public Blockchain, Mainnet & Testnet, Node Type, Node Specifications**, and **Nodes**.

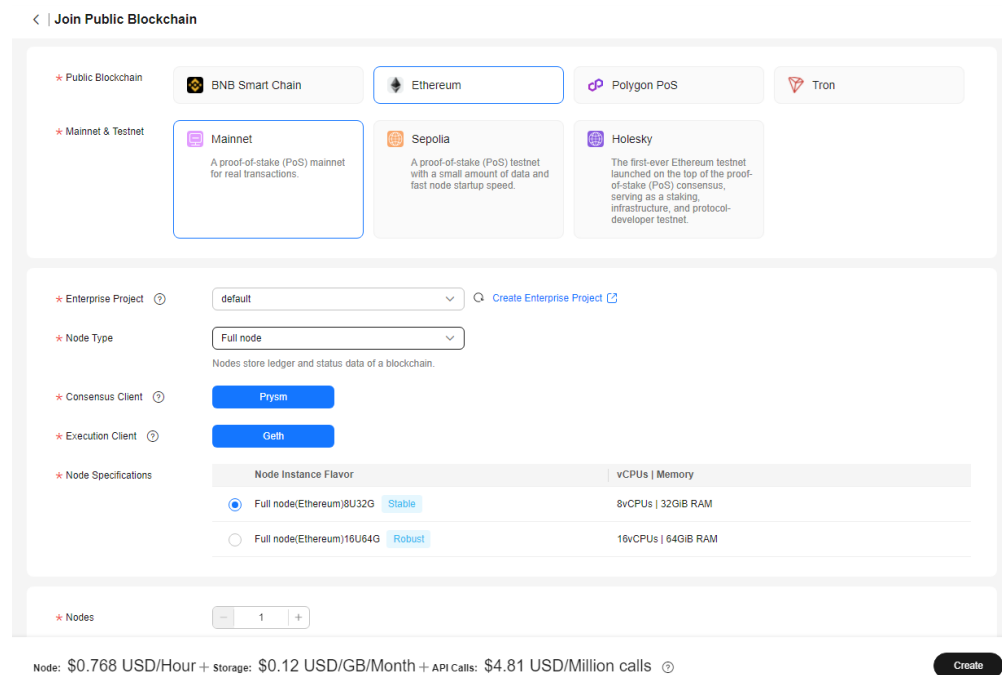
Prerequisites

You have registered with Huawei Cloud.

Procedure

- Step 1** Log in to the NES console.
- Step 2** Choose **Dedicated > Network Management** and click **Join Public Blockchain**.
- Step 3** Configure parameters.

Figure 1-1 Creating a full node



Step 4 Click **Create**.

Step 5 Select **I have read and agree to the HUAWEI CLOUD User Agreement and Disclaimer**, and click **Submit**.

NOTE

It takes about 5 to 8 seconds to complete the process.

----End

1.1.2 Step 2: Create and Obtain an API Key

API keys are used for node interconnection tests. An API key can be attached to the end of a node address as a request parameter for quick interconnection.

Prerequisites

You have created a full node.

Procedure

Step 1 On the NES console, choose **Dedicated > API Keys**, then click **Create API Key**.

Step 2 Describe the API key and set the access policy.

Figure 1-2 Creating an API key

Create API Key

✕

Each API key can be attached to the end of the node address as a request parameter for quick interconnection. This is recommended for node interconnection tests. For actual business, use Huawei Cloud tokens. Each API key can be downloaded only once. Change the API key periodically for security.

★ Enterprise Project Select an enterprise project. ▾ 🔍 [Create Enterprise Project](#)

Description Enter a description.

0/1,000

Access Policy ^

Target Nodes 2b936cf8-451b-4187-8f36-0dd0242e355a ✕ ▾ 🔍

Access Policy Type
Disabled
Whitelist
Blacklist

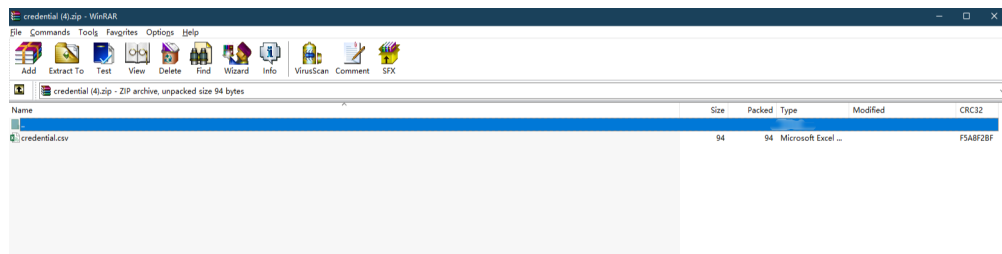
Your DApp can only send requests to or receive requests from the whitelist.
Note: Set one access policy type for each API key.

Whitelist Whitelist Access Control By ? Operation

⊕ Add Whitelist

Cancel
OK

Step 3 Click **OK**. The API key is created and then automatically downloaded as a ZIP package.



NOTE

Each API key can be downloaded only once. Change the API key periodically for security.

Step 4 Decompress the package and open the **credential.csv** file to obtain the API key.

	A	B	C
1	ID	Credential	
2	e5b23068-f9e4-11ed-9237-0255ac100036	QNyaAcXGqQR	
3			
4			
5			

----End

1.1.3 Step 3: Combine an Endpoint and API Key

You can combine an endpoint with an API key to call Ethereum node APIs.

Prerequisites

- You have created a full node.
- You have created and obtained an API key.

Procedure

Step 1 On the NES console, choose **Dedicated > Network Management**.

Step 2 Click a node ID.

Node ID	Status	Node Type	Client	Specifications	AZ	Enterpr...	Created	Operatio
2b936c09-451b-4187-8f36-05d0242e355a	Available	Full node (Staking supported)	Consensus layer: Pr Execution layer: Gt	8vCPUs 32GiB	AZ3	default	Apr 28, 202...	Scale
aeed902d-f8c3-450e-bda3-6971cbb2df42	Available	Full node (Staking supported)	Consensus layer: Pr Execution layer: Gt	8vCPUs 32GiB	AZ3	default	Apr 28, 202...	Scale
44be1527-f5c4-4cae-a9f3-b6107ee07776	Available	Full node	Consensus layer: Pr Execution layer: Gt	8vCPUs 32GiB	AZ3	default	Apr 28, 202...	Scale

Step 3 Obtain the values of **HTTP Endpoint** and **WebSocket Endpoint**.

Node Engine Service (NES) / Network Management / Node Details

cb9e1f92-5a5d-431d-a99d-2a553cd84... Available

Node Info

Basic Info

Node ID	Status	Public Blockchain	Mainnet & Testnet
cb9e1f92-5a5d-431d-a99d-2a553cd84283	Available	Ethereum	Mainnet
Enterprise Project	AZ	Node Type	Instance Flavor
default	AZ3	Full node	Full node(Ethereum)BJ2G
Created	HTTP Endpoint	WebSocket Endpoint	
Nov 26, 2024 09:28:14 GMT+08:00	[Redacted]	[Redacted]	

Client Info

Execution Client	Consensus Client	Consensus Client Version
Geth	Prism	v5.1.0

Monitoring APIs Alarms

CPU Usage: 40%
Physical Memory Usage: 50%

Step 4 Combine the HTTP endpoint or WebSocket endpoint with an API key as follows:

- HTTP endpoint: `https://your-http-endpoint/your-API key`. For example, `https://79b83c56-0a7f-11ee-9cac-0255ac10004e.web3.bcs.ap-southeast-3.myhuaweicloud.com/xxxxxxxxxxxx`
- WebSocket endpoint: `wss://your-http-endpoint/your-API key`. For example, `wss://79b83c56-0a7f-11ee-9cac-0255ac10004e.web3.bcs.ap-southeast-3.myhuaweicloud.com/xxxxxxxxxxxx`

----End

1.1.4 Step 4: Call Ethereum Node APIs

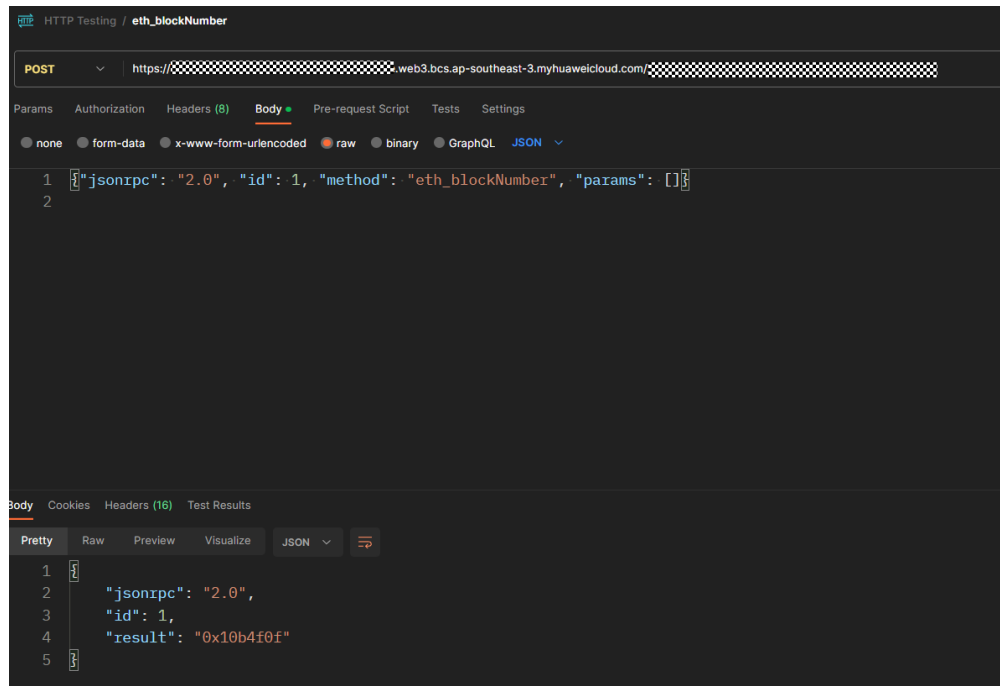
You can use Postman to call Ethereum node APIs.

Prerequisites

You have combined an HTTP endpoint with a credential.

Procedure

Enter the HTTP endpoint and parameters in Postman and view the returned result.



1.2 Staking Nodes

The following sections describe how to use NES to manage staking nodes that use Prysm as the consensus client.

1.2.1 Step 1: Create a Staking Node

To create a staking node, you need to configure the **Public Blockchain, Mainnet & Testnet, Node Type, Node Specifications, and Nodes**.

Prerequisites

- You have registered with Huawei Cloud.
- You have obtained a key on Staking Launchpad. For details, see *NES User Guide (Staking Nodes)*.
- You have downloaded [Prysm](#) and installed it to your Linux host.

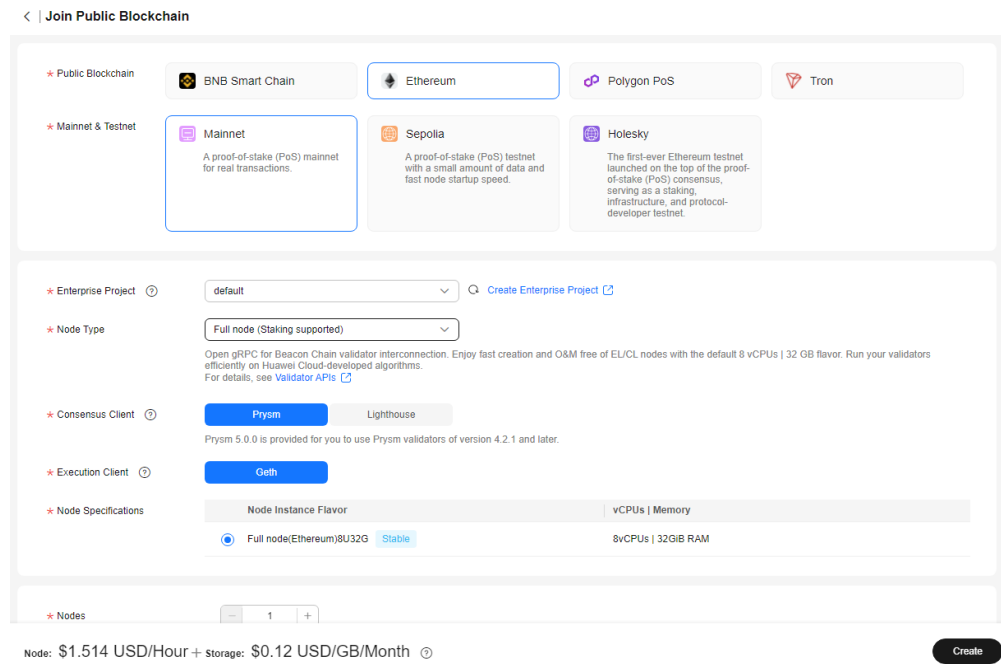
Procedure

Step 1 Log in to the NES console.

Step 2 Choose **Dedicated > Network Management** and click **Join Public Blockchain**.

Step 3 Configure parameters.

Figure 1-3 Creating a staking node



Step 4 Click **Create**.

Step 5 Select **I have read and agree to the HUAWEI CLOUD User Agreement and Disclaimer.** and click **Submit**.

NOTE

- It takes about 5 to 8 seconds to complete the process.
- Currently, only staking nodes of Ethereum mainnet, Goerli, and Holesky are supported.

----End

1.2.2 Step 2: Create and Obtain an API Key

API keys are the parameter values used to start staking nodes.

Prerequisites

You have created a staking node.

Procedure

Step 1 On the NES console, choose **Dedicated > API Keys**, then click **Create API Key**.

Step 2 Describe the API key and set the access policy.

Figure 1-4 Creating an API key

Create API Key ×

Each API key can be attached to the end of the node address as a request parameter for quick interconnection. This is recommended for node interconnection tests. For actual business, use Huawei Cloud tokens. Each API key can be downloaded only once. Change the API key periodically for security.

★ Enterprise Project [Create Enterprise Project](#)

Description 0/1,000

Access Policy ^

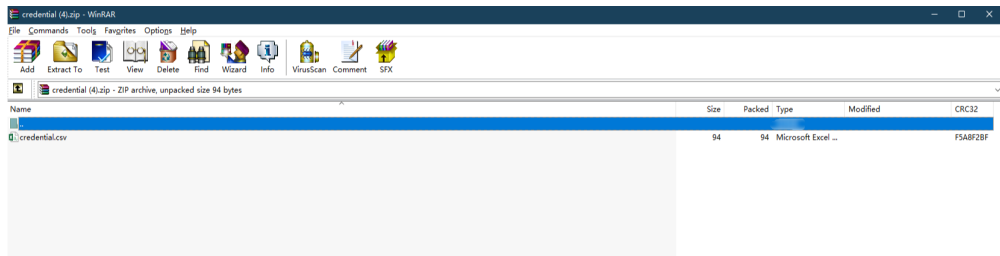
Target Nodes ?

Access Policy Type

Your DApp can only send requests to or receive requests from the whitelist.
Note: Set one access policy type for each API key.

Whitelist ?

Step 3 Click **OK**. The API key is created and then automatically downloaded as a ZIP package.



NOTE

Each API key can be downloaded only once. Change the API key periodically for security.

Step 4 Decompress the package and open the **credential.csv** file to obtain the API key.

	A	B	C	D
1	ID	Credential		
2	e5b23068-f9e4-11ed-9237-0255ac100036	QNyaAcXGgQR		
3				
4				
5				
6				

----End

1.2.3 Step 3: Start the Staking Node

Starting a staking node is to start a validator client using a key, gRPC endpoint, and TLS certificate.

Prerequisites

- You have created a staking node.
- You have created and obtained an API key.

Procedure

Step 1 On the NES console, choose **Dedicated > Network Management**.

Step 2 Click a node ID.

Figure 1-5 Node ID

Node ID	Status	Node Type	Client	Specifications	AZ	Enterpr...	Created	Operatio
2b938c8-451b-4187-8f36-0dd0242e355a	Available	Full node (Staking supported)	Consensus layer: Pr Execution layer: Gt	8vCPUs 32GiB	AZ3	default	Apr 28, 202...	Scale C
aaad902d-f8c3-450e-bda3-6971cb2df42	Available	Full node (Staking supported)	Consensus layer: Pr Execution layer: Gt	8vCPUs 32GiB	AZ3	default	Apr 28, 202...	Scale C
44be1527-f5c4-4cae-a9f3-b6107ee07776	Available	Full node	Consensus layer: Pr Execution layer: Gt	8vCPUs 32GiB	AZ3	default	Apr 28, 202...	Scale C

Step 3 Obtain the values of **gRPC Endpoint** and **Node TLS Certificate**.

Figure 1-6 Node details

Node Engine Service (NES) / Network Management / Node Details

9ab16f45-a1fd-4e71-be4a-4b7b94950fa6 Available

A full node that supports staking must be used with its certificate and API key. [FAQs](#)

Node Info

Basic Info

Node ID: 9ab16f45-a1fd-4e71-be4a-4b7b94950fa6
 Status: Available
 Public Blockchain: Ethereum
 Mainnet & Testnet: Mainnet
 Enterprise Project: default
 AZ: AZ3
 Node Type: Full node (Staking supported)
 Instance Flavor: Full node/Ethereum/BU320
 Created: Nov 28, 2024 09:23:04 GMT+08:00
 Display APIs for Full Node:
 gRPC Endpoint (for Validators):
 HTTP Endpoint (for Validators):
 Node TLS Certificate:
 Download

Client Info

Execution Client: Geth
 Execution Client Version: v1.13.15
 Consensus Client: Prysm
 Consensus Client Version: v5.1.0

Staking Performance Node Status Alarms

Check statistics for up to 800 validators since the Staking Performance function became available. Buy new nodes to analyze more validators. [Learn more](#)

Step 4 Paste the key and TLS certificate to the hardware machine installed with the script. Run the following command to import the key to the keystore:

```
./prysm.sh validator accounts import --keys-dir=<YOUR_FOLDER_PATH> --< NETWORK >
```

NETWORK is the staking network and *YOUR_FOLDER_PATH* is the actual key file path.

Step 5 After the key is imported, execute the **prysm.sh** file and configure the following parameters to start the staking node:

- beacon-rpc-provider: the value of **gRPC Endpoint**
- grpc-headers: the API key
- tls-cert: the relative path of **Node TLS Certificate**

For example:

```
./prysm.sh validator --beacon-rpc-provider=xx.xx.xx.xx:30002 --grpc-headers=credential=xxxxxxxxxxxxxxxxxxxxxx --tls-cert=ca.crt
```

NOTE

These parameters are mandatory for interconnecting Huawei Cloud nodes. Check the [Prysm Documentation](#) to learn other parameters.

----End

1.2.4 Step 4: Monitor the Staking Node

Prerequisites

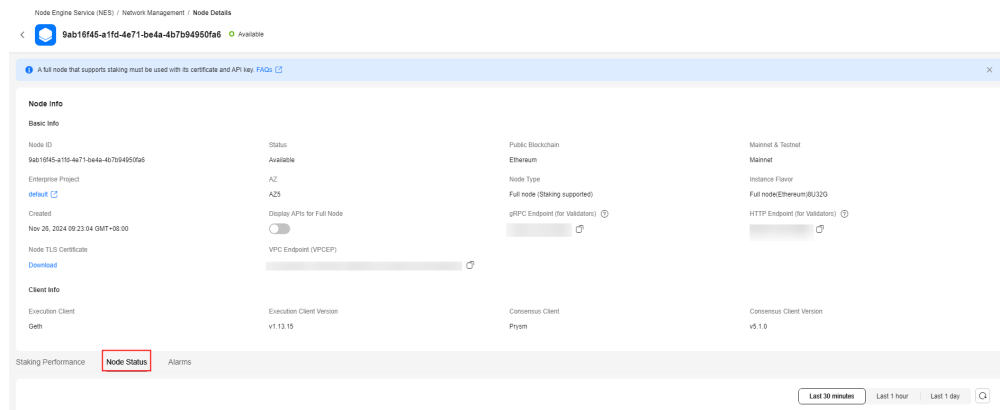
You have started a staking node.

Procedure

Step 1 On the NES console, choose **Dedicated > Network Management**.

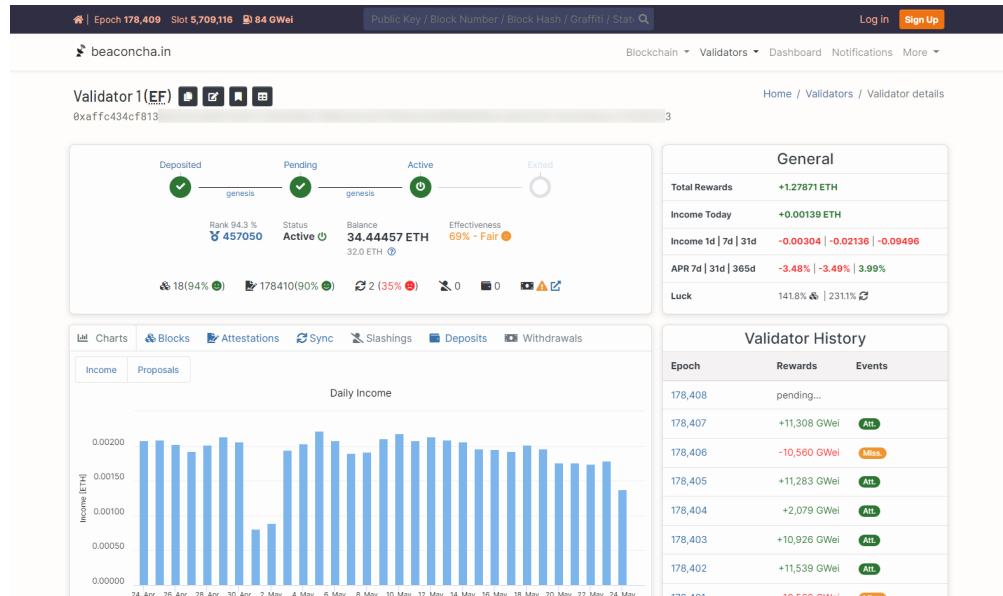
Step 2 Click a node ID and click the **Node Status** tab page.

Figure 1-7 Node status



 NOTE

You need to monitor and perform O&M on the validator client where a staking node has been started. You can also enter the key [on a page similar to the following](#) to check the client execution.



----End

2 Shared

2.1 Step 1: Buy a Package

Prerequisites

You have registered with Huawei Cloud.

Procedure

Step 1 Log in to the NES console.

Step 2 Choose **Shared** > **Package Management** and click **Buy Package**.

Step 3 Configure parameters.

Figure 2-1 Buying a package

< | Buy Package

Configurations

- * Edition
 - Basic Edition (Monthly)**
\$0.00 USD / month
 - Projects: 10
 - Compute Units/Month/Million: 450
 - Compute Units/Second: 400
 - Professional Edition (Monthly)**
\$49.00 USD / month
 - Projects: 20
 - Compute Units/Month/Million: 600
 - Compute Units/Second: 990
 - Excess: USD1.2/million CUs
 - Enterprise Edition (Monthly)**
\$289.00 USD / month
 - Projects: 40
 - Compute Units/Month/Million: 2,200
 - Compute Units/Second: 5,000
 - Excess: USD1.0/million CUs
 - Enterprise Edition (Yearly)** 31% off
\$2,388.00 USD / year
 - Projects: 40
 - Compute Units/Month/Million: 2,200
 - Compute Units/Second: 5,000
 - Excess: USD1.0/million CUs
- * Required Duration: 1 month
The package becomes invalid if there are excess CUs. [Billing Details](#)
- * Effective Time: Upon expiration | **Immediately**
This package will be effective and replace your current package immediately. The CUs in your current package will be invalid. Current package: Basic Edition (Monthly). Expiration date: May 28, 2024

Notes

If you have purchased a package, its fees cannot be refunded and the CUs in it will become invalid after it expires or it is replaced.

Price: \$0.00 USD

Next

Step 4 Click **Next**. Confirm the configurations, confirm that you have read and agree to the agreement and disclaimer, and click **Submit**.

< | Buy Package

Current Package Configurations

Package Edition	Specifications	Duration	Time Left
Basic Edition (Monthly) In-use	Edition	Basic Edition	
	Projects	10	
	Compute Units/Month/Million	450	Months: 1
	Compute Units/Second	400	Days: 20

New Package Configurations

Package Edition	Specifications	Duration	Price
Basic Edition (Monthly)	Edition	Basic Edition	
	Projects	10	
	Compute Units/Month/Million	450	Months: 1
	Compute Units/Second	400	\$0.00

I have read and agree to the [HUAWEI CLOUD User Agreement and Disclaimer](#).

Price: \$0.00 USD

Cancel Previous Submit

----End

2.2 Step 2: Create a DApp Project

Prerequisites

- You have registered with Huawei Cloud.
- You have purchased a package.

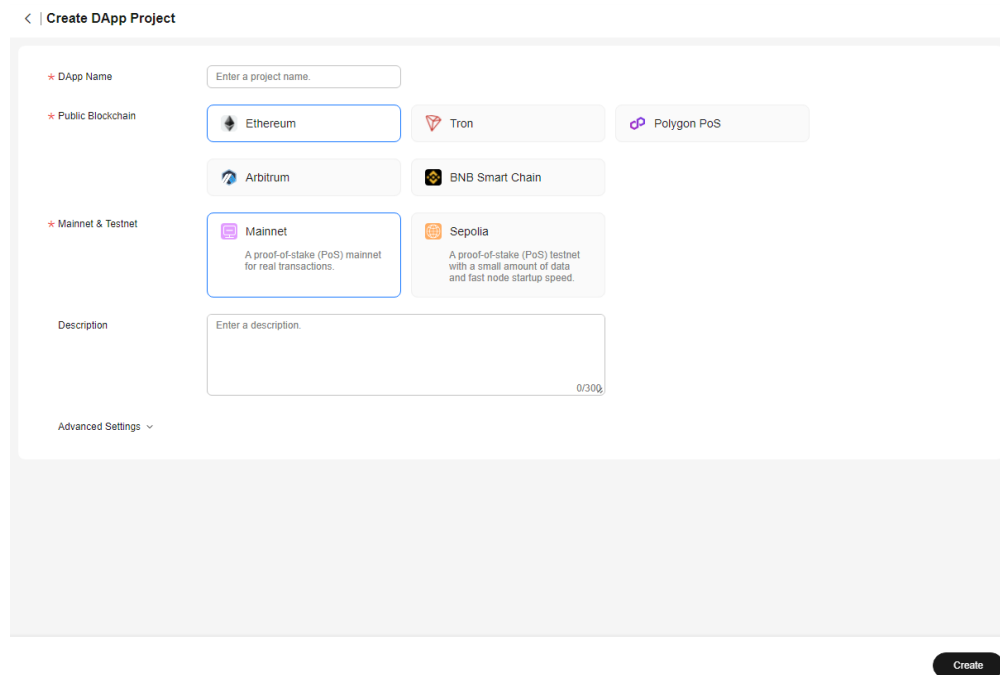
Procedure

Step 1 Log in to the NES console.

Step 2 Choose **Shared** > **DApp Project Management** and click **Create DApp Project**.

Step 3 Configure parameters.

Figure 2-2 Creating a DApp project



Step 4 Click Create.

----End

2.3 Step 3: Combine an API Key with HTTPS/ WebSocket

Combine the obtained API key with the HTTPS or WebSocket parameter to call the API.

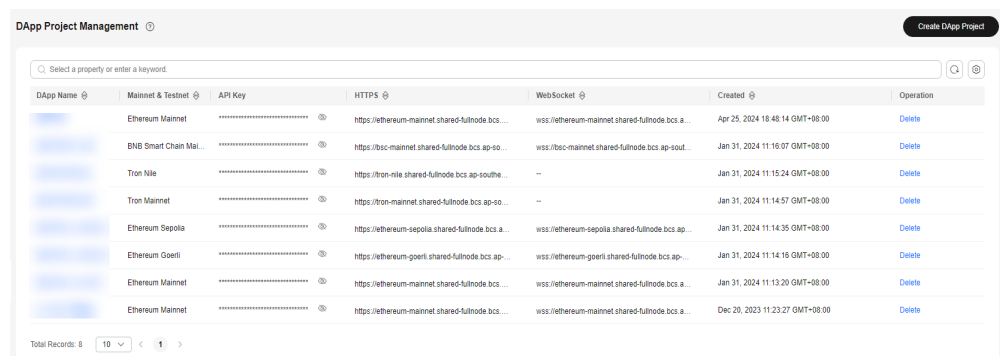
Prerequisites

You have created a DApp project.

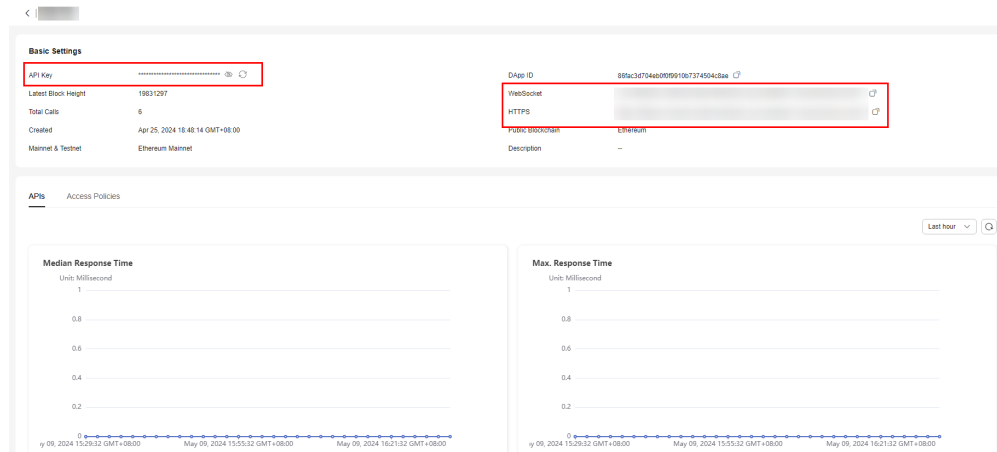
Procedure

Step 1 On the NES console, choose **Shared > DApp Project Management**.

Step 2 Click a DApp.



Step 3 Obtain the values of API Key, WebSocket, and HTTPS.



Step 4 Combine the HTTP or WebSocket parameter with the API key as follows:

- HTTP: `https://your-http-endpoint/api-key`. For example, `https://polygon-mainnet.shared-fullnode.bcs.ap-southeast-3.myhuaweicloud.com/v1/XXXXXXXXXXXX`
- WebSocket: `wss://your-http-endpoint/api-key`. For example, `wss://polygon-mainnet.shared-fullnode.bcs.ap-southeast-3.myhuaweicloud.com/v1/XXXXXXXXXXXX`

----End

2.4 Step 4: Call the API

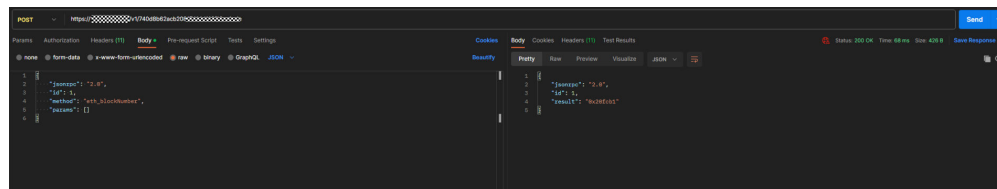
You can use Postman to call APIs.

Prerequisites

You have obtained the API key and HTTPS.

Procedure

Enter HTTP parameters and other values in Postman and view the returned result.



2.5 Step 5: Check API Call Statistics

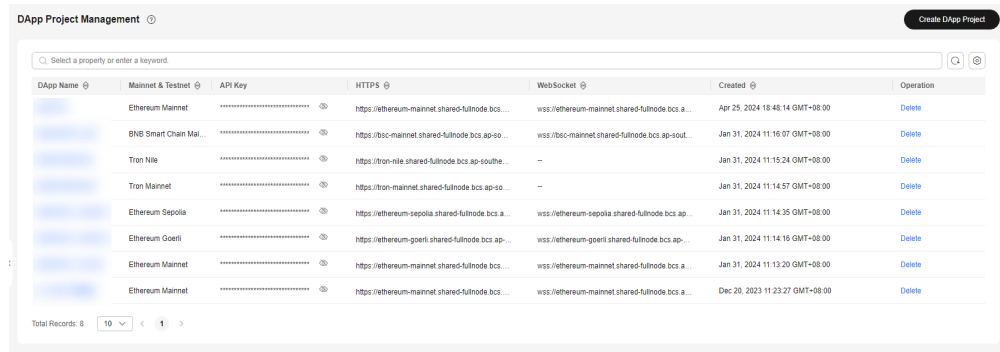
Prerequisites

- You have created a DApp project.
- You have called the API.

Procedure

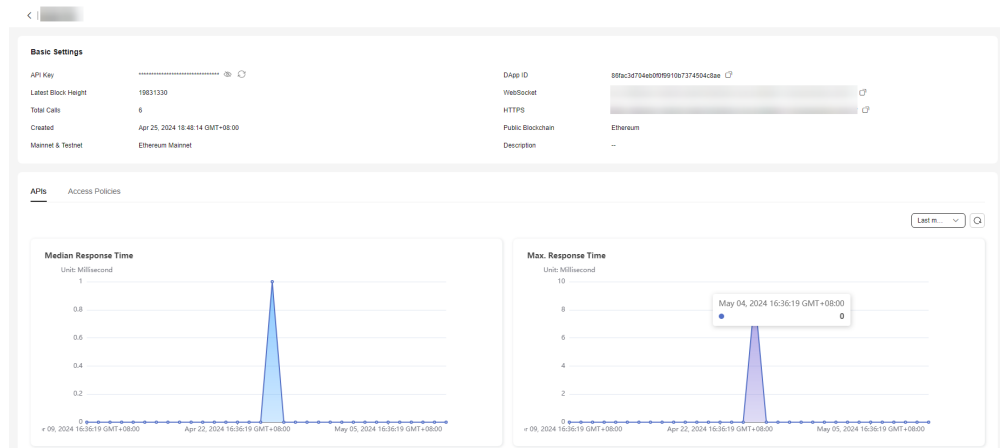
Step 1 On the NES console, choose **Shared > DApp Project Management**.

Step 2 Click a DApp.



DApp Name	Mainnet & Testnet	API Key	HTTPS	WebSocket	Created	Operation
Ethereum Mainnet		https://ethereum-mainnet-shared-fullnode.bcs...	wss://ethereum-mainnet-shared-fullnode.bcs.a...	Apr 25, 2024 18:48:14 GMT+08:00	Delete
BNS Smart Chain Mai...		https://bsc-mainnet-shared-fullnode.bcs.ap-so...	wss://bsc-mainnet-shared-fullnode.bcs.ap-sou...	Jan 31, 2024 11:16:07 GMT+08:00	Delete
Tron Nile		https://tron-nile-shared-fullnode.bcs.ap-south...	--	Jan 31, 2024 11:15:24 GMT+08:00	Delete
Tron Mainnet		https://tron-mainnet-shared-fullnode.bcs.ap-so...	--	Jan 31, 2024 11:14:57 GMT+08:00	Delete
Ethereum Sepolia		https://ethereum-sepolia-shared-fullnode.bcs.a...	wss://ethereum-sepolia-shared-fullnode.bcs.ap...	Jan 31, 2024 11:14:35 GMT+08:00	Delete
Ethereum Goerli		https://ethereum-goerli-shared-fullnode.bcs.ap...	wss://ethereum-goerli-shared-fullnode.bcs.ap...	Jan 31, 2024 11:14:16 GMT+08:00	Delete
Ethereum Mainnet		https://ethereum-mainnet-shared-fullnode.bcs...	wss://ethereum-mainnet-shared-fullnode.bcs.a...	Jan 31, 2024 11:13:20 GMT+08:00	Delete
Ethereum Mainnet		https://ethereum-mainnet-shared-fullnode.bcs...	wss://ethereum-mainnet-shared-fullnode.bcs.a...	Dec 20, 2023 11:23:27 GMT+08:00	Delete

Step 3 Check the API call statistics.



----End