Web 3.0 Node Engine Service (NES)

Quick Start

Issue 01

Date 2024-11-28

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Contents

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.

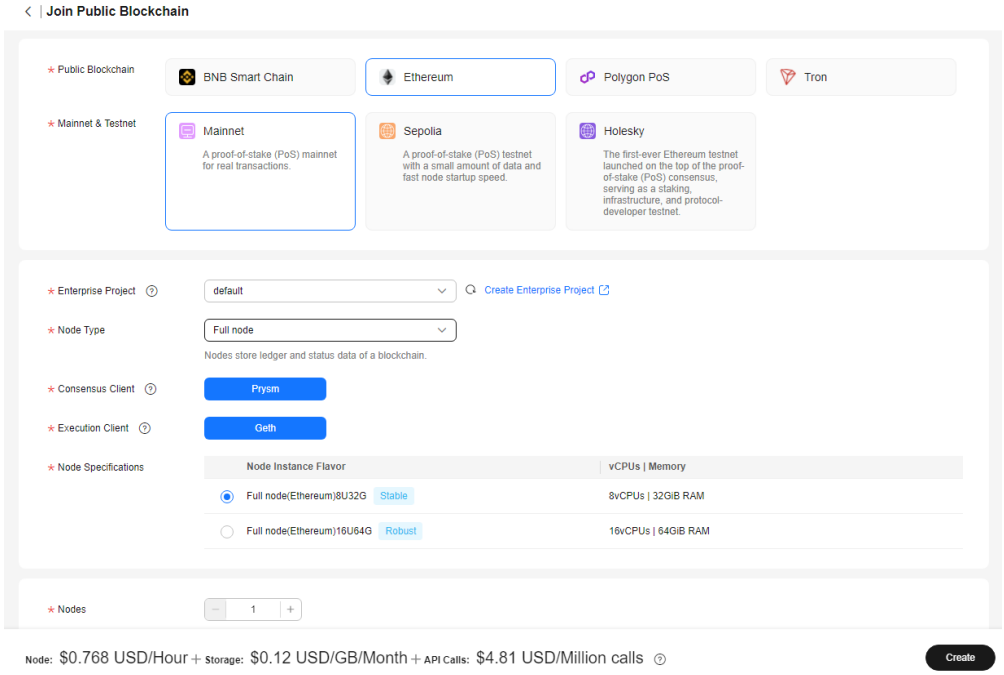
Procedure

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

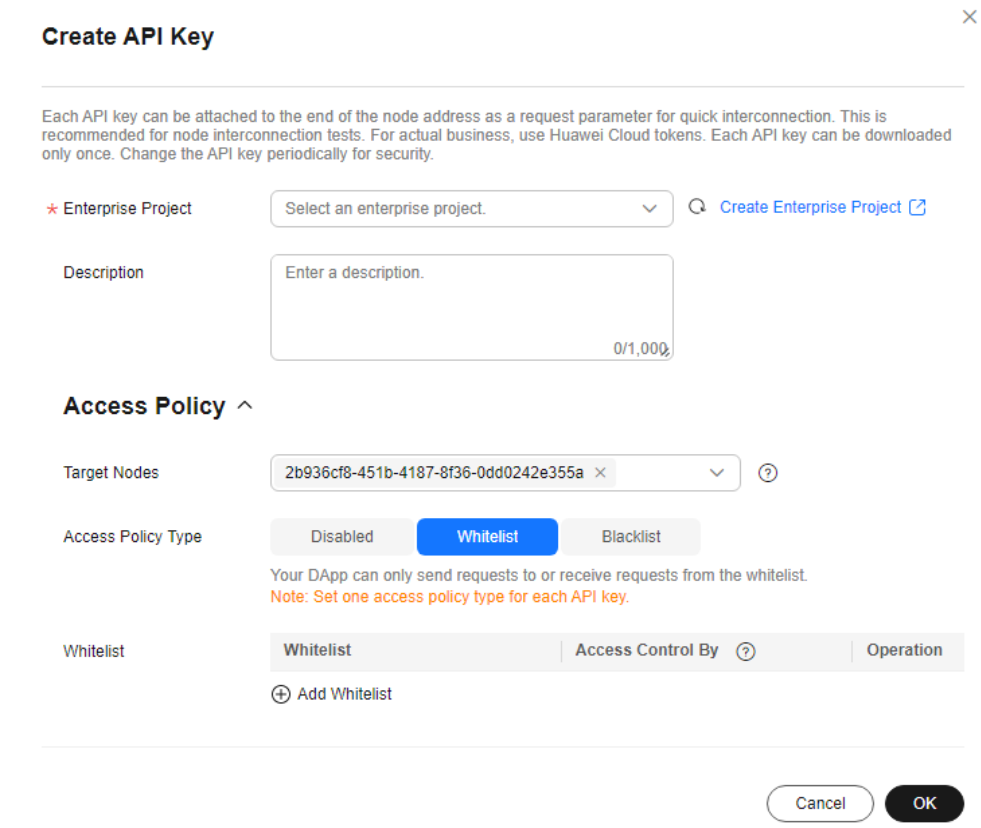
You have created a full node.

Procedure

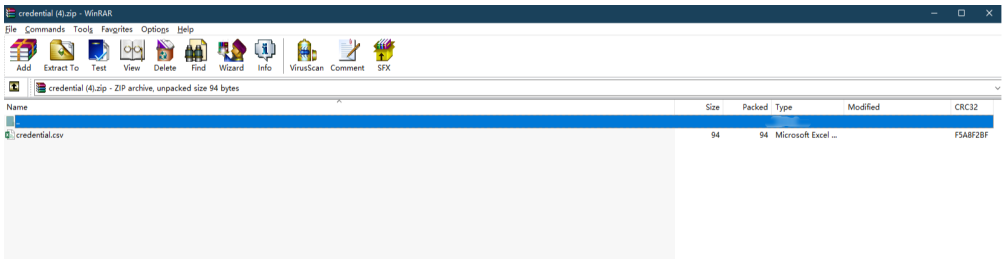
Step 1 On the NES console, choose **Dedicated** > **API Keys**, then click **Create API Key**.

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

Figure 1-2 Creating an API key



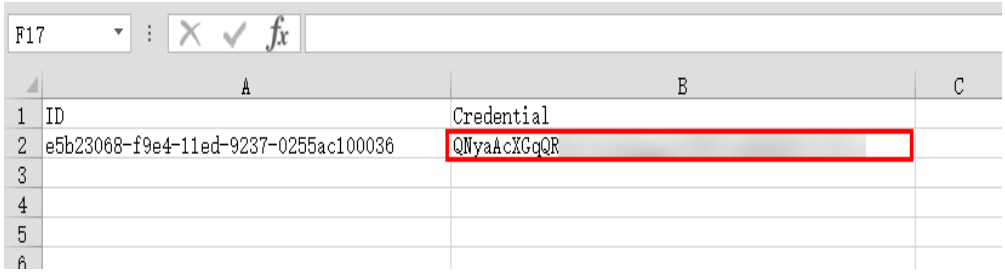
Step 3 Click **OK**. The API key is created and then automatically downloaded as a ZIP package.



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.



----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.

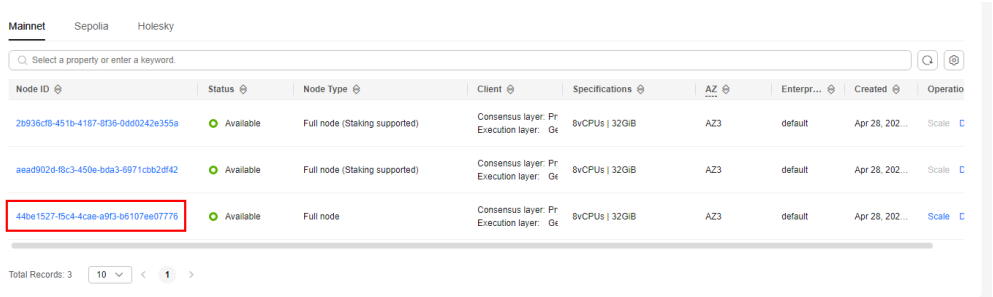
Prerequisites

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

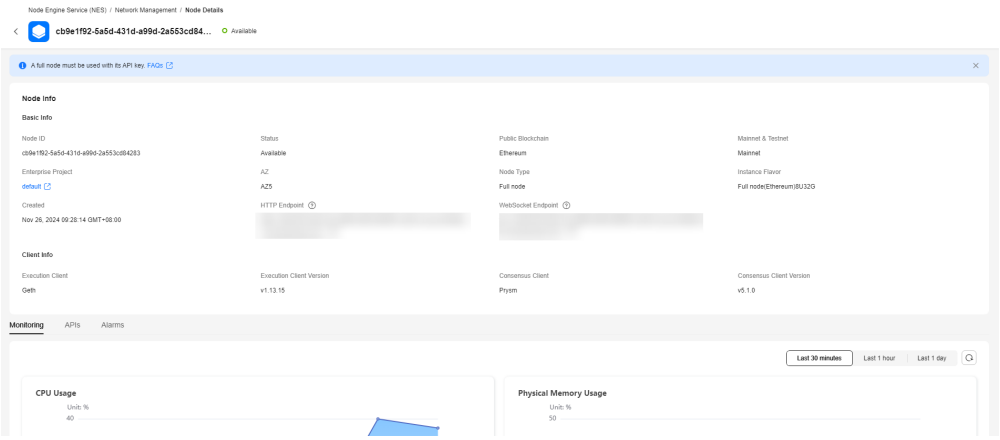
Procedure

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

Step 2 Click a node ID.



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



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

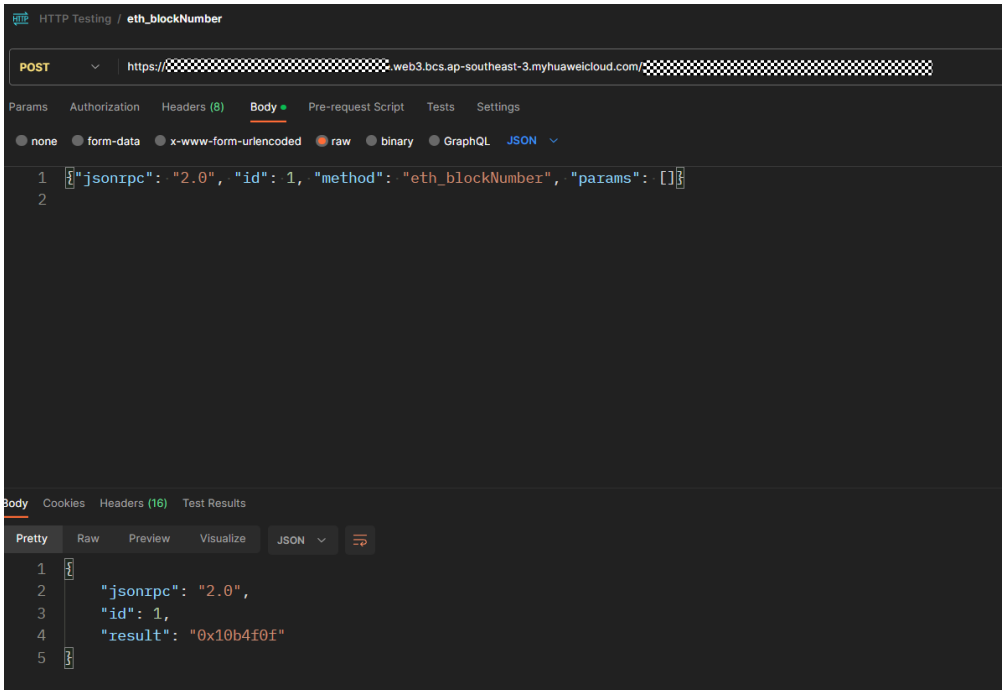
You can use Postman to call Ethereum node APIs.

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.

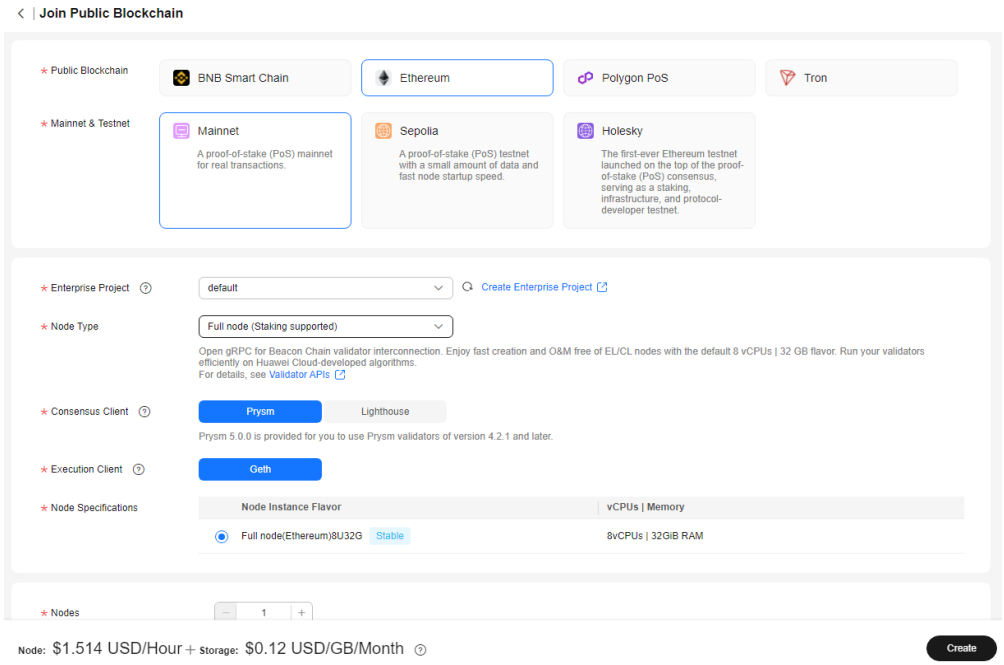
Procedure

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

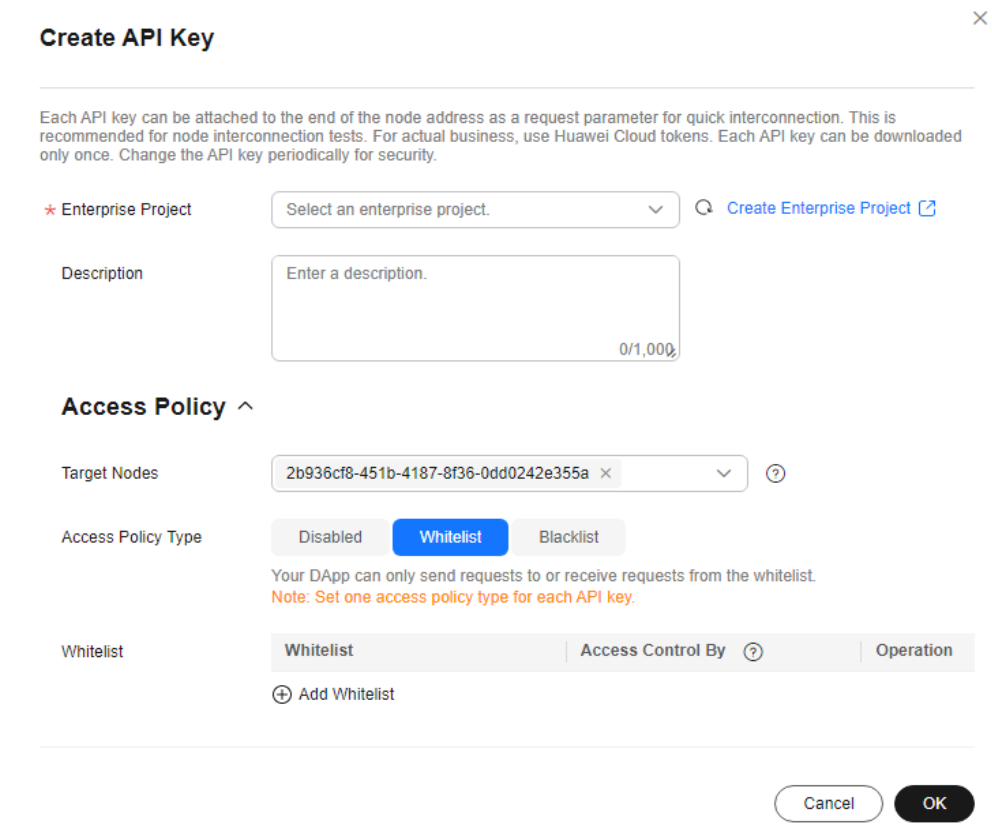
You have created a staking node.

Procedure

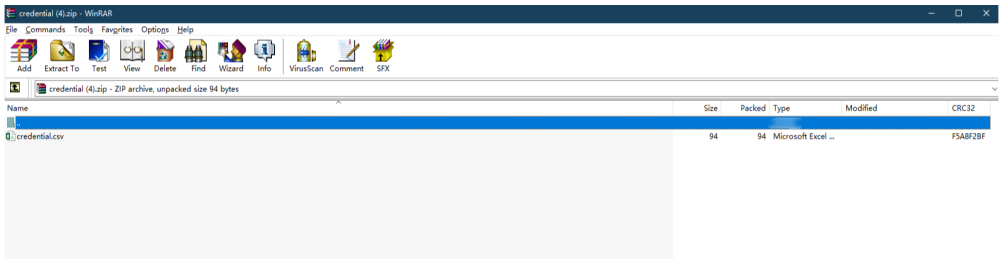
Step 1 On the NES console, choose **Dedicated** > **API Keys**, then click **Create API Key**.

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

Figure 1-4 Creating an API key



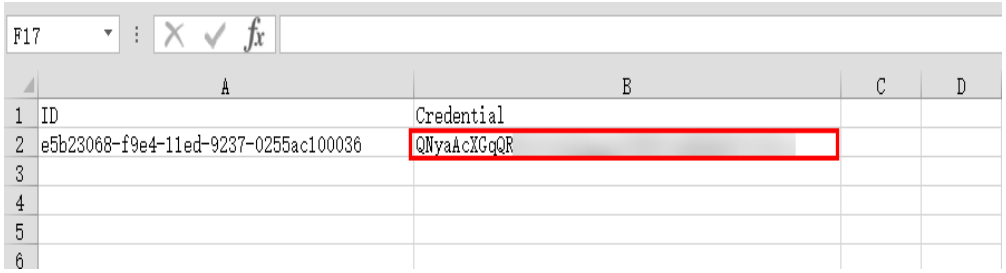
Step 3 Click **OK**. The API key is created and then automatically downloaded as a ZIP package.



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.



----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

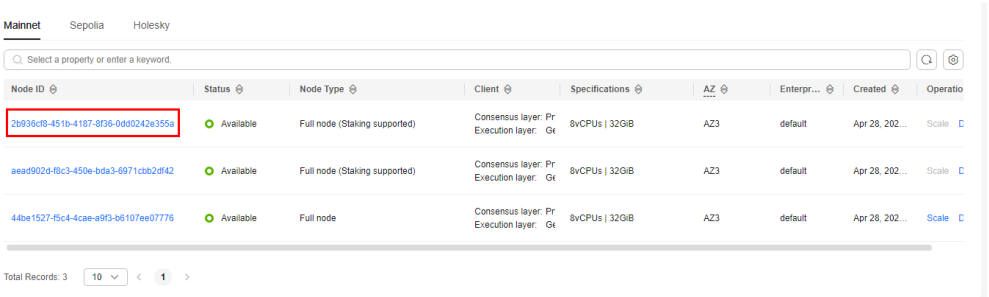
- You have created a staking node.
- You have created and obtained an API key.

Procedure

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

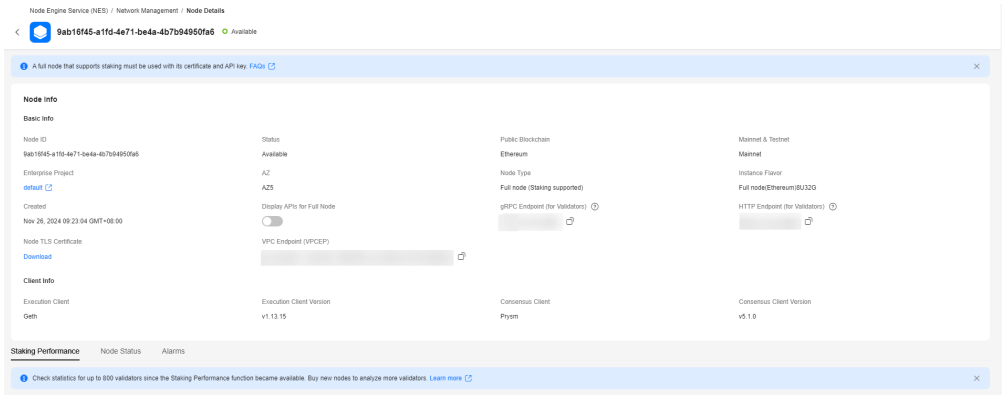
Step 2 Click a node ID.

Figure 1-5 Node ID



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

Figure 1-6 Node details



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

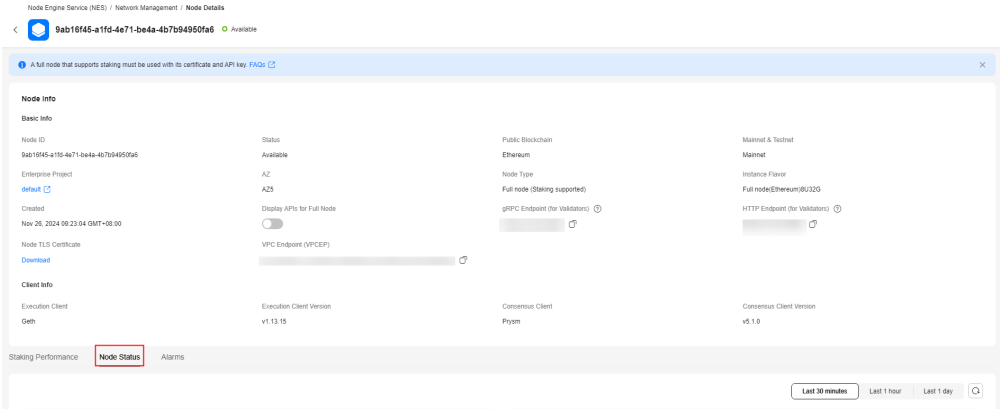
You have started a staking node.

Procedure

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

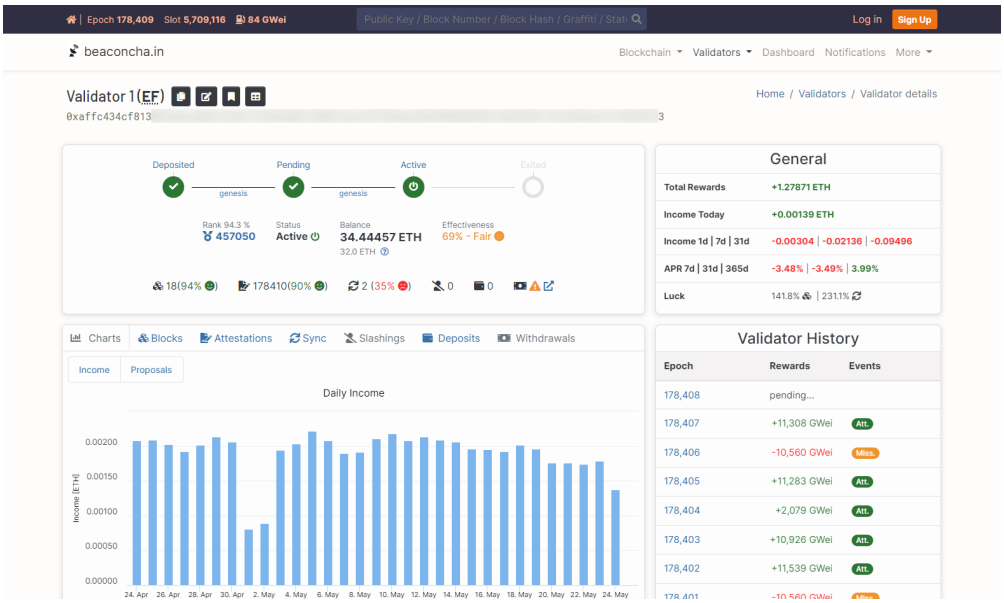
Step 2 Click a node ID and click the **Node Status** tab page.

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.

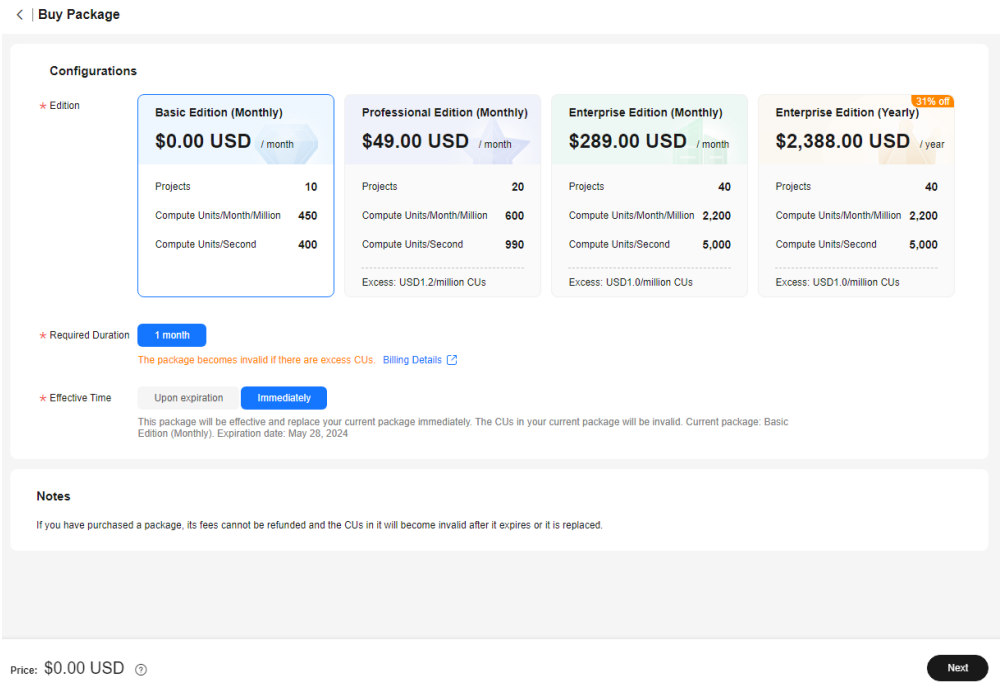
Procedure

Step 1 Log in to the NES console.

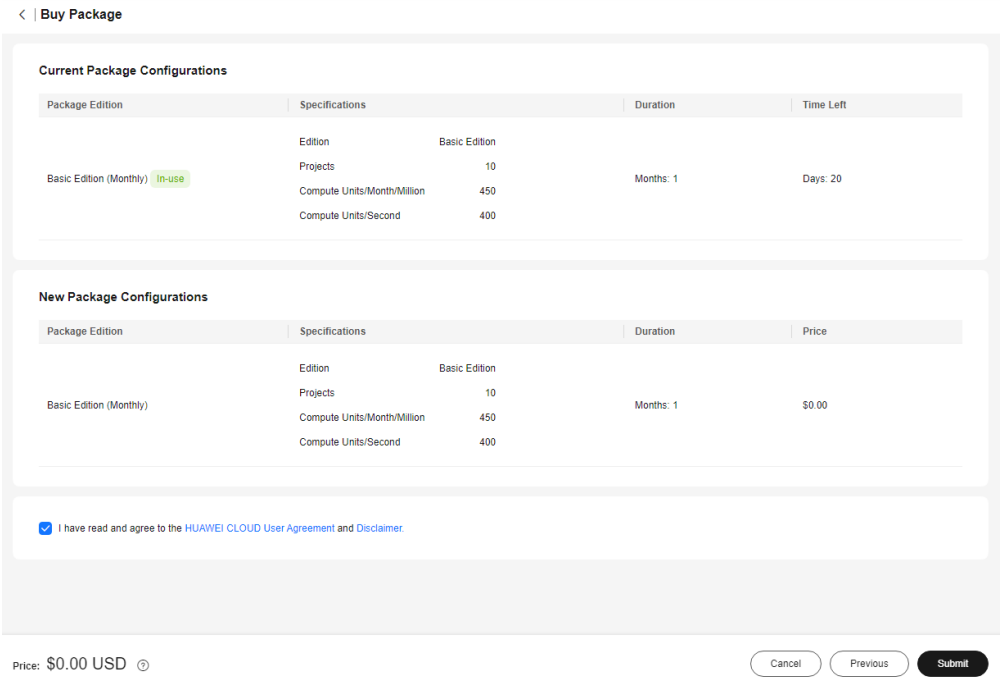
Step 2 Choose **Shared** > **Package Management** and click **Buy Package**.

Step 3 Configure parameters.

Figure 2-1 Buying a package



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



----End

2.2 Step 2: Create a DApp Project

Prerequisites

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

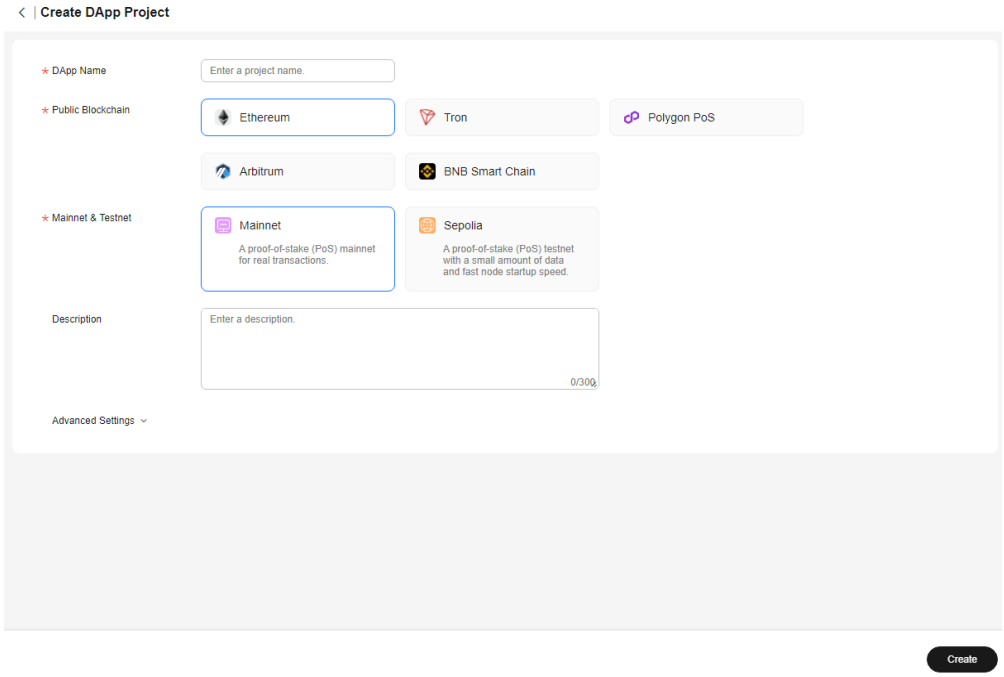
Procedure

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.

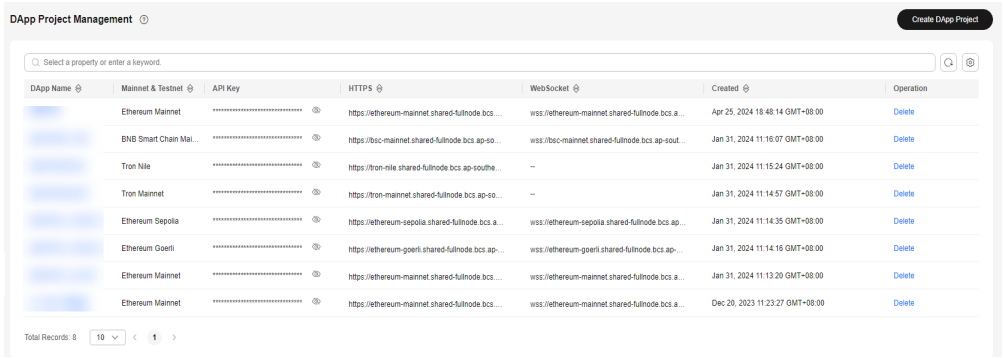
Prerequisites

You have created a DApp project.

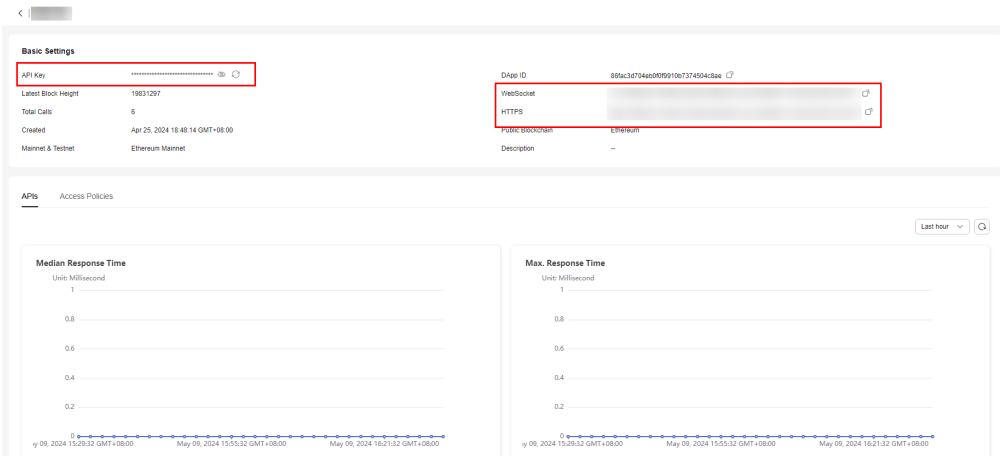
Procedure

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

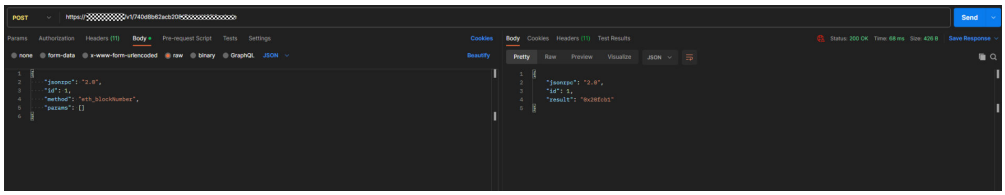
You can use Postman to call APIs.

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

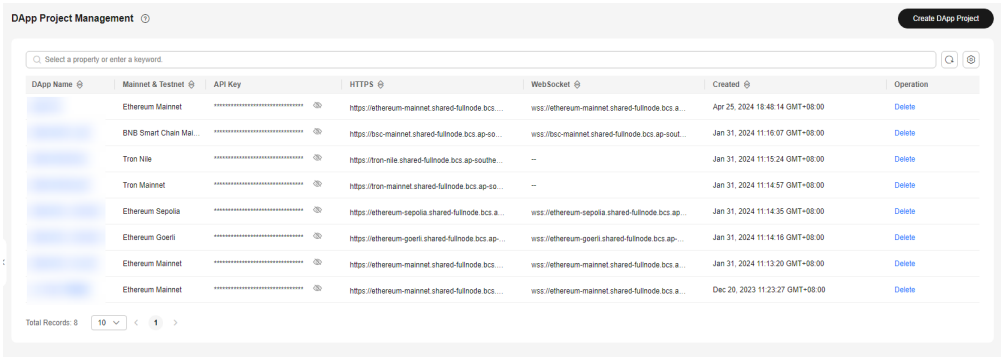
Prerequisites

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

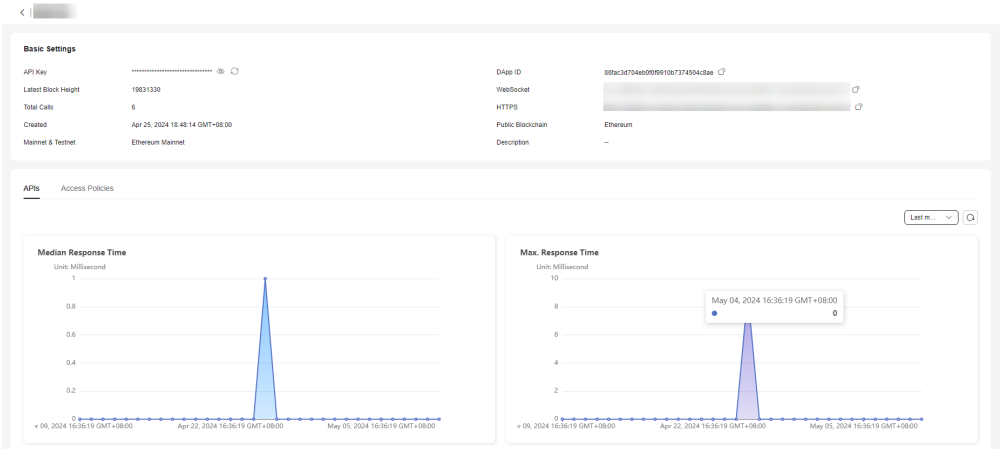
Procedure

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

Step 2 Click a DApp.



Step 3 Check the API call statistics.



----End

