

# SpaceChain Client Server Deployment Guide

Version	Date	Note
V0.0	2020.08.05	Original version (HF)
V1.0	2020.09.27	Revised version

# 1. Corporate user registration

## Introduction

Users need to register an account on SPC homepage. An email with regards to Docker deployment will be sent to users upon successful registration. Users need to provide the TX details of SPC Token or BTC paid to SpaceChain in order to approve wallet creation. Users need to provide the RSA public key which will be used to encrypt the OTP.

After verifying the user identity and payment information, users will receive an email regarding the OTP encrypted by RSA public keys. Users can decrypt the OTP with RSA public keys.

Note: Please use a secure email address for user registration. Please install SPC Authenticator in advance. The SPC Authenticator installation process can be found in the below link.

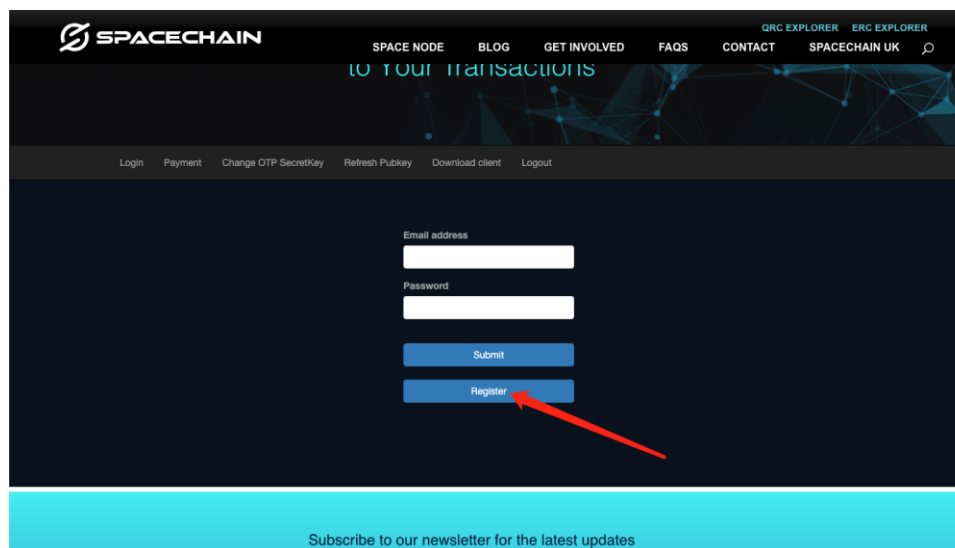
<https://github.com/spacechain/SpaceChain-Board/tree/master/document>

## Register account on SPC homepage

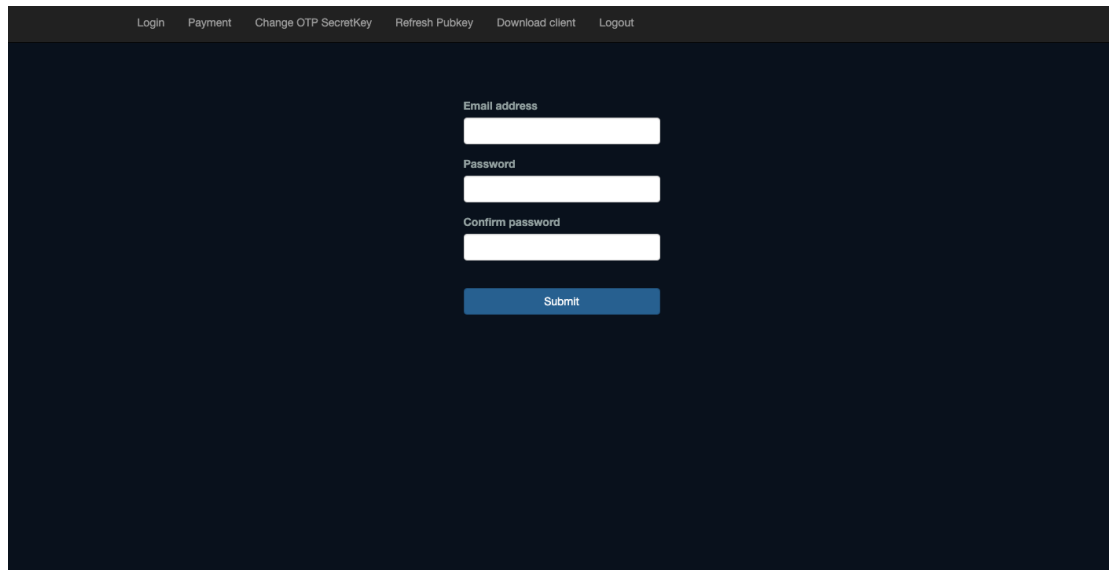
Visit the SPC home to register a user account, linked here.

<https://spacechain.com/space-node-login/>

Click “Register”.

The image is a screenshot of the SpaceChain website's registration page. The header features the SpaceChain logo on the left and navigation links (SPACE NODE, BLOG, GET INVOLVED, FAQs, CONTACT, SPACECHAIN UK) on the right. Below the header, there are links for QRC EXPLORER and ERC EXPLORER. A secondary navigation bar contains links for Login, Payment, Change OTP SecretKey, Refresh Pubkey, Download client, and Logout. The main content area has a dark background with the text "to your transactions" in a light blue font. Below this, there are two white input fields for "Email address" and "Password". Under the password field are two blue buttons: "Submit" and "Register". A red arrow points to the "Register" button. At the bottom of the page, there is a light blue footer with the text "Subscribe to our newsletter for the latest updates".

Fill in the user information and Click “Submit”.

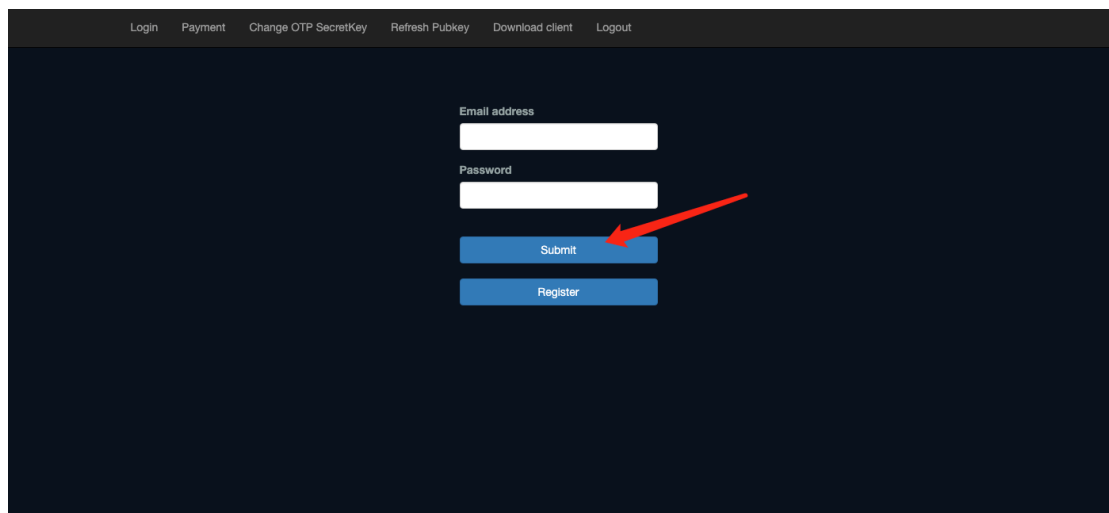


A screenshot of a web application's login page. At the top, a dark navigation bar contains links: Login, Payment, Change OTP SecretKey, Refresh Pubkey, Download client, and Logout. The main area is dark blue and contains a login form with three white input fields labeled 'Email address', 'Password', and 'Confirm password'. Below these fields is a blue 'Submit' button.

Use the below address to log in.

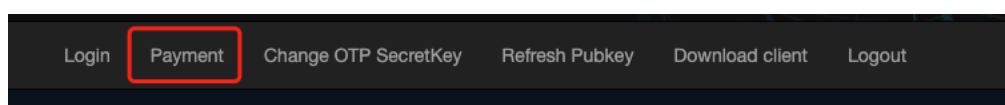
<https://spacechain.com/space-node-login/>

Fill in the user information and Click “Submit”.



A screenshot of the same login page as above. A red arrow points to the blue 'Submit' button. Below the 'Submit' button is another blue button labeled 'Register'.

Click “Payment” to pay via BTC or SPC token.



Bitcoin fee structure:

Please send the user registration fee to this Bitcoin wallet address:  
1HBHWQVYm1oWCwSCWztzWeidCdrJt45YA7

Amount of fees: 0.1 BTC

SPC token fee structure:

Please send the user registration fee to this SPC token wallet address:  
0x62D730284eE7a75775e071c25D8b72e7c97eD3b2

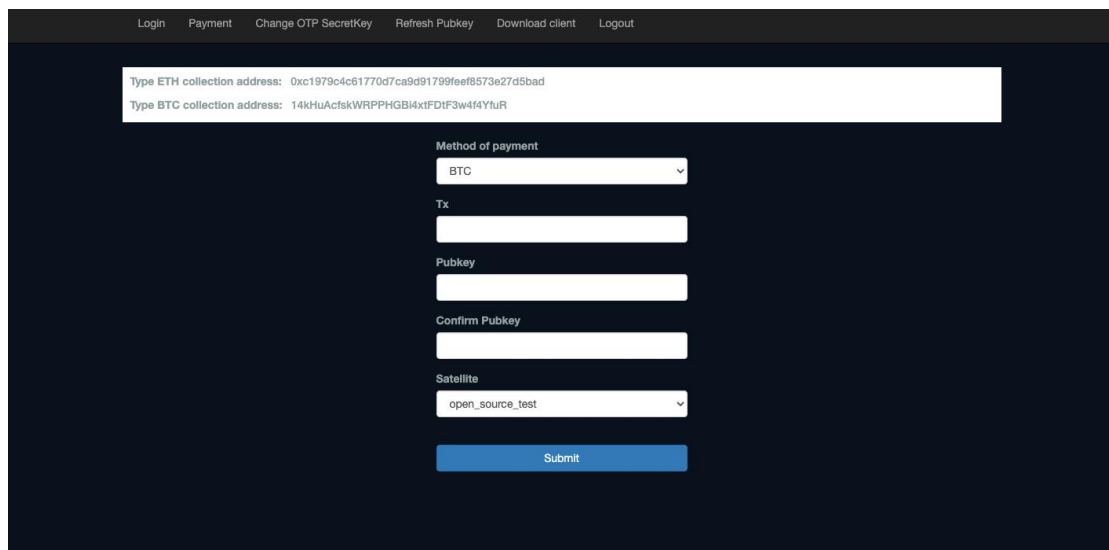
Amount of fees: 50000 SPC

Install SPC Authenticator and obtain the RSA public key.

Please refer to the below address for SPC authenticator.

<https://github.com/spacechain/SpaceChain-Board/tree/master/document>

Fill the information shown in the below figure.

A screenshot of a web application interface for SPC registration. At the top, there is a navigation bar with links: Login, Payment, Change OTP SecretKey, Refresh Pubkey, Download client, and Logout. Below this, there are two text boxes for collection addresses: 'Type ETH collection address: 0xc1979c4c61770d7ca9d91799feef8573e27d5bad' and 'Type BTC collection address: 14kHuAcfskWRPPHGB4xtFDf3w4f4YfuR'. The main form area contains several input fields: 'Method of payment' (a dropdown menu with 'BTC' selected), 'Tx' (a text input field), 'Pubkey' (a text input field), 'Confirm Pubkey' (a text input field), and 'Satellite' (a dropdown menu with 'open\_source\_test' selected). At the bottom of the form is a blue 'Submit' button.

Registration is successful. Please wait for email notification. You should see the screen below.

A screenshot of a web application interface showing the post-registration screen. It features a dark navigation bar at the top with links: TC, Home, Register, Login, and Payment.

Application is successful, please wait for email notification.

## Obtain OTP private keys

Please check your registered email address. You should receive an email containing the OTP secret key ciphertext. Below is an example you should expect to see.

### OTP secret key ciphertext

```
QkiFMQM0ZgaJdTXR5Urkf6ziNfargevcgoWmmJAjc2uZGDZi2/nJuQbGFih3/ERz9FErdOkHtP5b1NQfB0ecbv5N0AGFN4bFJvzXP0WD4pRCLmMns5D3fjogaUuDRzkLdAEqKs=
```

Open SPC Authenticator to decrypt the ciphertext and obtain the OTP. The account has been successfully added to the SPC Authenticator.

Please refer to the files below for more details.

[https://github.com/spacechain/opensource\\_otp\\_app](https://github.com/spacechain/opensource_otp_app)

## 2. Activate POP/IMAP service

### Introduction

Corporate users are expected to have a G Suite account. The POP/IMAP service of the G suite account needs to be activated.

Note: We only show procedures of activating the POP/IMAP service of Gmail in this document.

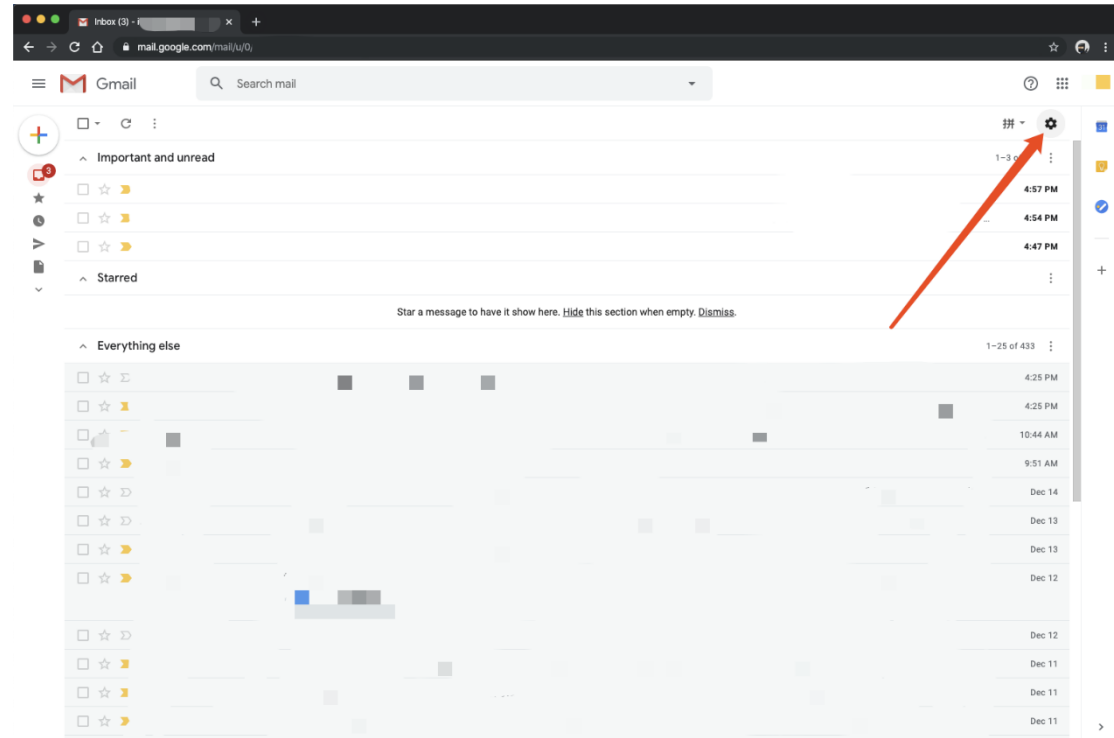
### Procedures

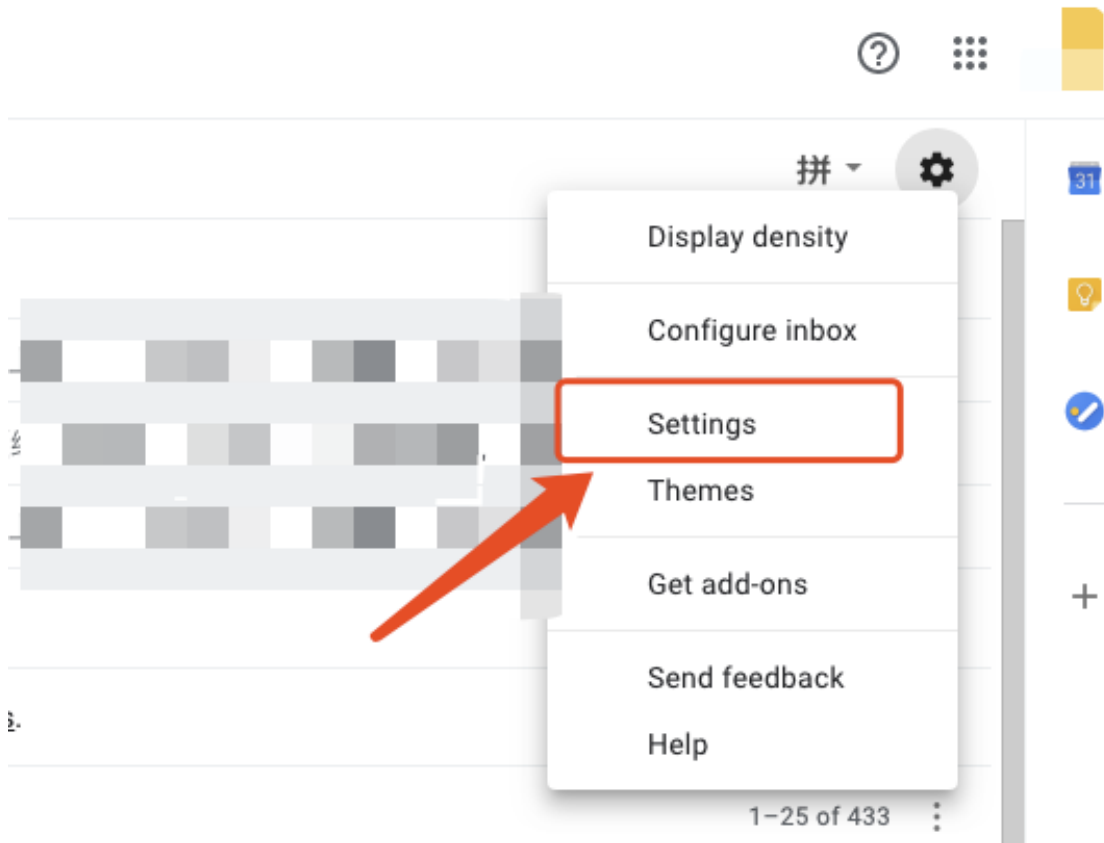
#### Activate POP/IMAP service

Log in to your Gmail account.

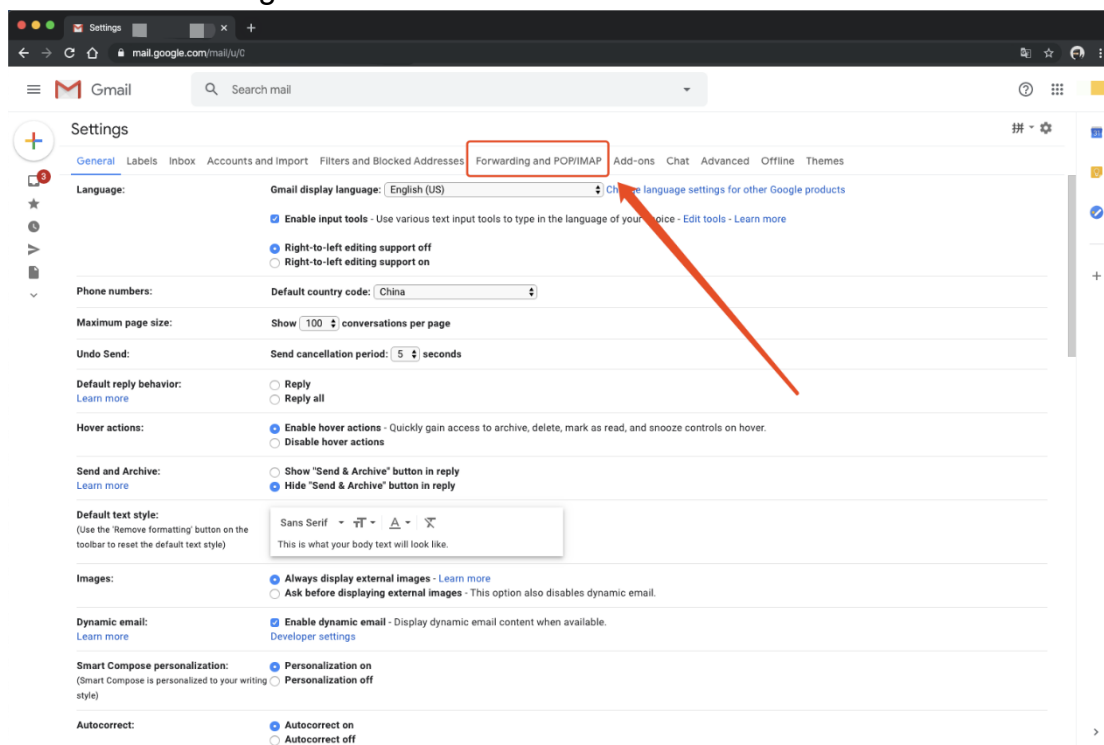
<https://accounts.google.com/signin>

Click “Settings”.





Select “Forwarding and POP/IMAP”.



Enable POP/IMAP and save all the changes.

The screenshot shows the 'Forwarding and POP/IMAP' settings page in Gmail. The 'Forwarding' section is at the top, followed by the 'POP download' section and the 'IMAP access' section. Red boxes and arrows with numbers 1, 2, and 3 highlight specific settings: (1) points to the 'Enable POP for all mail' option, (2) points to the 'Enable IMAP' option, and (3) points to the 'Do not limit the number of messages in an IMAP folder' option. The 'Save Changes' button is at the bottom.

Settings

General Labels Inbox Accounts Filters and blocked addresses **Forwarding and POP/IMAP** Add-ons Chat Advanced Offline Themes

**Forwarding:**  
[Learn more](#)  
Add a forwarding address  
Tip: You can also forward only some of your mail by [creating a filter](#)!

**POP download:**  
[Learn more](#)  
1. Status: **POP is enabled** for all emails  
☒ Enable POP for **all mail** (even mail that's already been downloaded)  
☐ Enable POP for mail that arrives from now on  
☐ Disable POP  
2. When messages are accessed with POP: keep SpaceChain Mail's copy in the inbox  
3. Configure your email client (e.g. Outlook, Eudora, Netscape Mail)  
[Configuration instructions](#)

**IMAP access:**  
(access SpaceChain Mail from other clients using IMAP)  
[Learn more](#)  
Status: **IMAP is enabled**  
☒ Enable IMAP  
☐ Disable IMAP  
When I mark a message in IMAP as deleted:  
☒ Auto-Expunge on - Immediately update the server. (default)  
☐ Auto-Expunge off - Wait for the client to update the server.  
When a message is marked as deleted and expunged from the last visible IMAP folder:  
☒ Archive the message (default)  
☐ Move the message to the Bin  
☐ Immediately delete the message forever  
Folder size limits  
☒ Do not limit the number of messages in an IMAP folder (default)  
☐ Limit IMAP folders to contain no more than this many messages: 1,000  
Configure your email client (e.g. Outlook, Thunderbird, iPhone)  
[Configuration instructions](#)

Save Changes Cancel

Using 0 GB  
Manage

Programme Policies  
Powered by Google

Last account activity: 11 hours ago  
Details

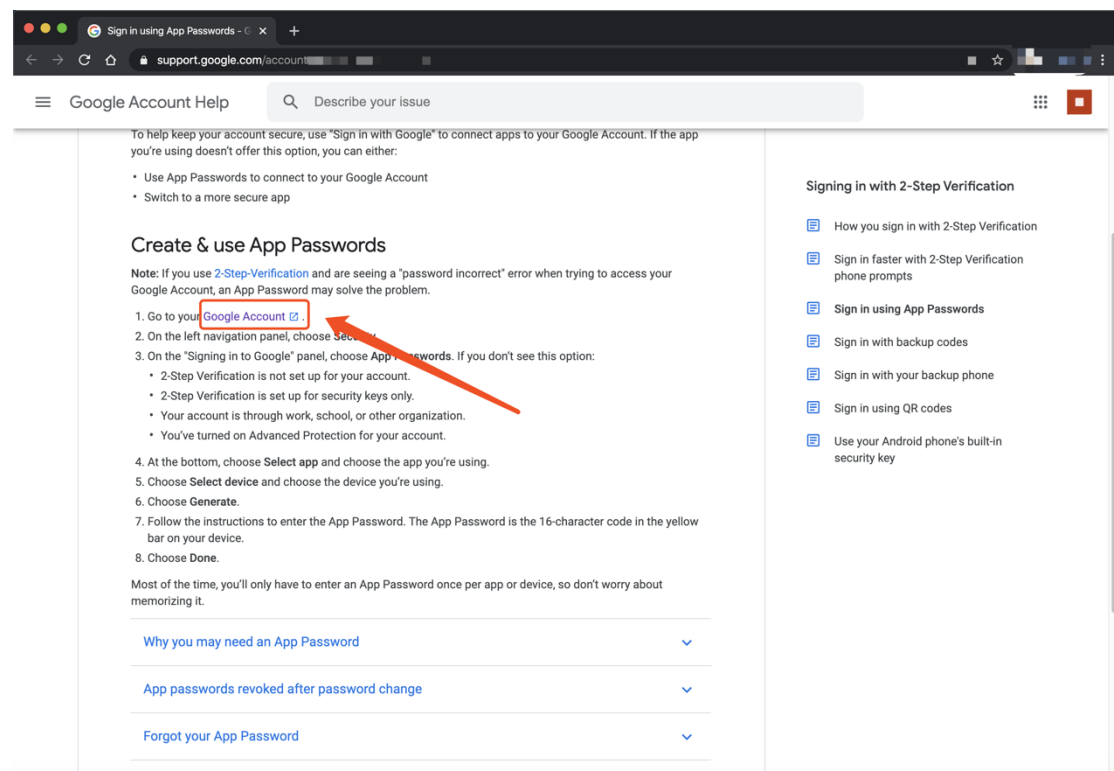
## Active two-step authentication

Activate two-step authentication for Gmail account.

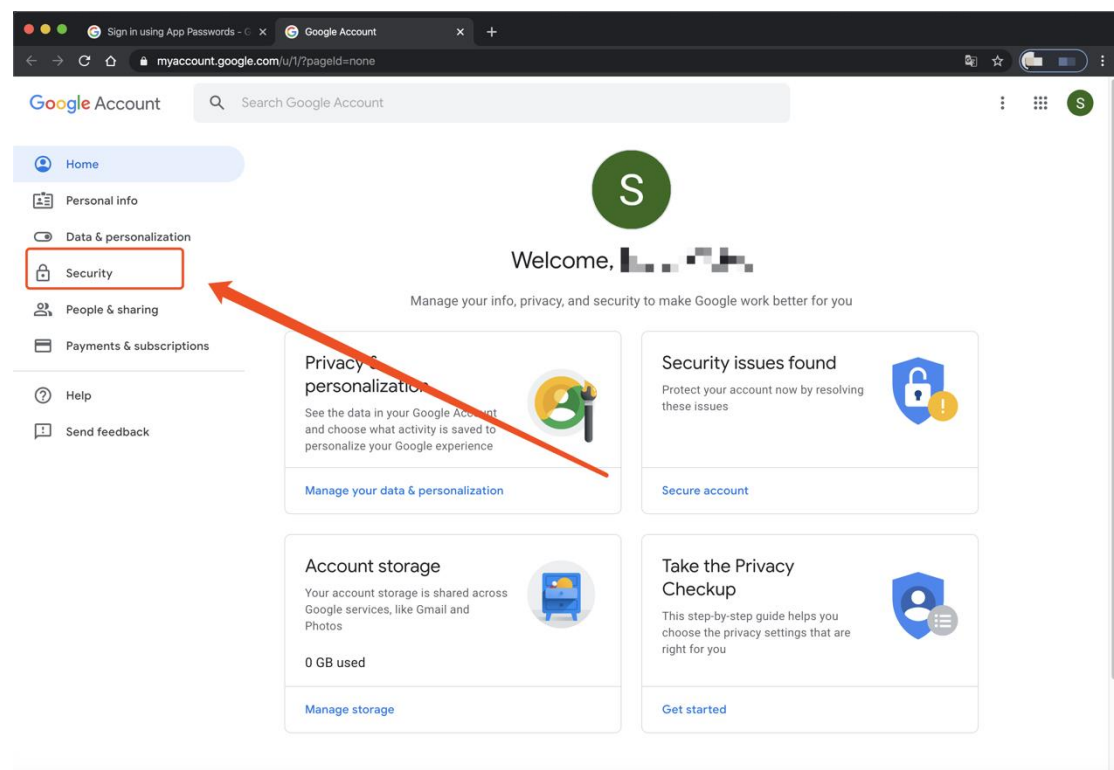
Please refer to the below link for more detail.



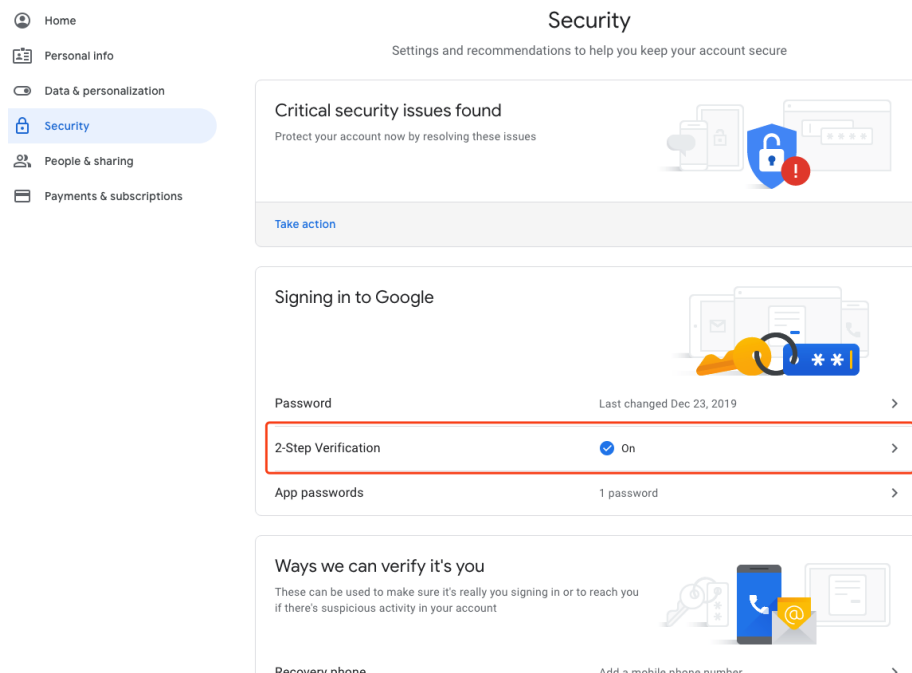
<https://support.google.com/accounts/answer/185833?hl=en>



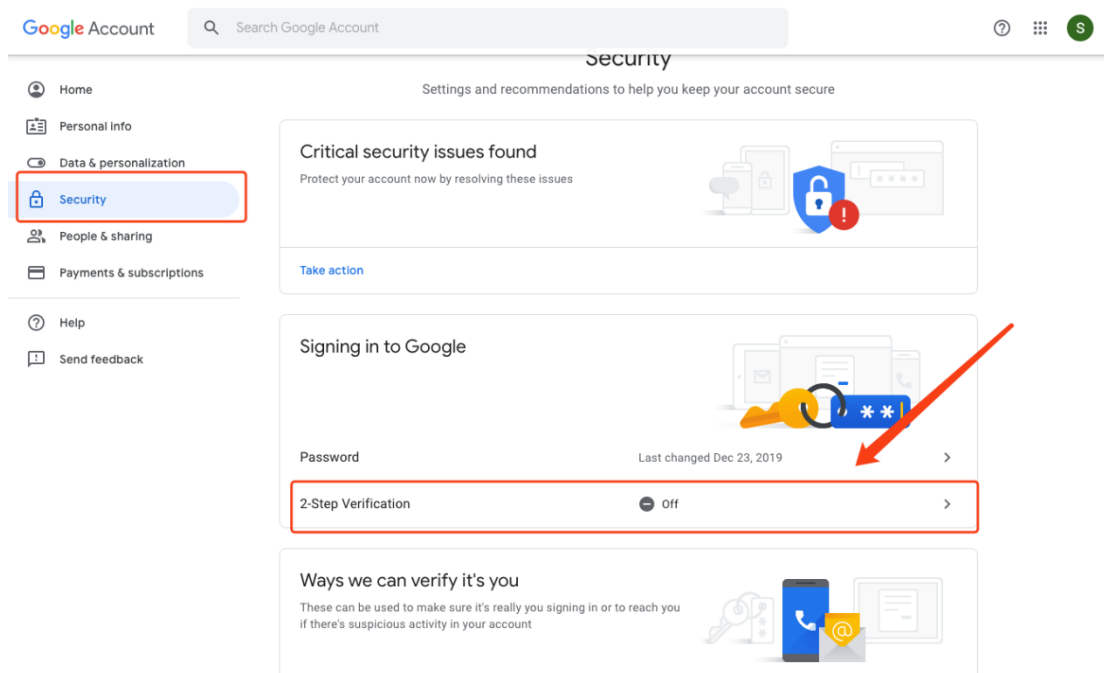
Select "Security".




If you already have the two-step verification, please skip this step.



Please follow these steps below to activate two-step verification.




Click “GET STARTED”.


[←](#) 2-Step Verification

### Protect your account with 2-Step Verification

Each time you sign in to your Google Account, you'll need your password and a verification code.  
[Learn more](#)




**Add an extra layer of security**  
Enter your password and a unique verification code that's sent to your phone.



**Keep the bad guys out**  
Even if someone else gets your password, it won't be enough to sign in to your account.

[GET STARTED](#)

Enter your password and click “NEXT”.



To continue, first verify it's you


[Forgot password?](#)

[Next](#)

English (United States) · [Help](#) · [Privacy](#) · [Terms](#)


Enter your phone number to receive the code.

## ← 2-Step Verification



Let's set up your phone

What phone number do you want to use?

 +86 |

Google will only use this number for account security.  
Don't use a Google Voice number.  
Message and data rates may apply.

How do you want to get codes?

☒ Text message ☐ Phone call


Don't want to use text message or voice call?  
[Choose another option](#)

Step 1 of 3

[NEXT](#)

Enter the received one-time code and Click “NEXT”.

## ← 2-Step Verification



Confirm that it works


Google just sent a text message with a verification code to

Enter the code

Didn't get it? [Resend](#)

[BACK](#) Step 2 of 3 [NEXT](#)

Click “TURN ON”.

[← 2-Step Verification](#)

**It worked! Turn on 2-Step Verification?**

Now that you've seen how it works, do you want to turn on 2-Step Verification for your Google Account `spacewallet@spacechain.com`?

Step 3 of 3

[TURN ON](#)

Two-step verification is successfully activated.

- [Home](#)
- [Personal info](#)
- [Data & personalization](#)
- [Security](#)
- [People & sharing](#)
- [Payments & subscriptions](#)

## Security

Settings and recommendations to help you keep your account secure

### Critical security issues found

Protect your account now by resolving these issues



[Take action](#)

### Signing in to Google



Password

Last changed Dec 23, 2019



2-Step Verification

On



App passwords

1 password



### Ways we can verify it's you

These can be used to make sure it's really you signing in or to reach you if there's suspicious activity in your account



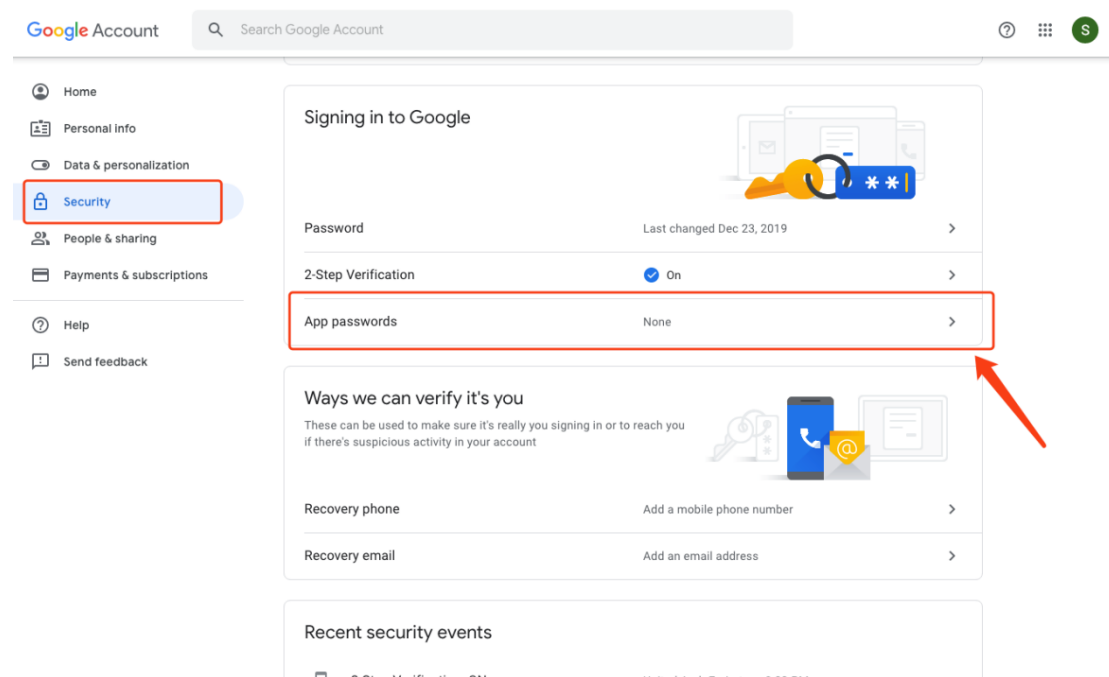
Recovery phone

Add a mobile phone number

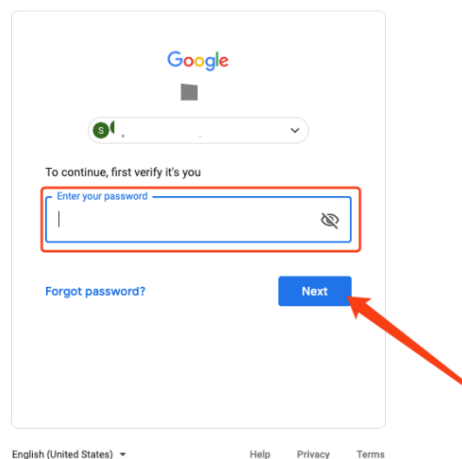


## Set App passwords

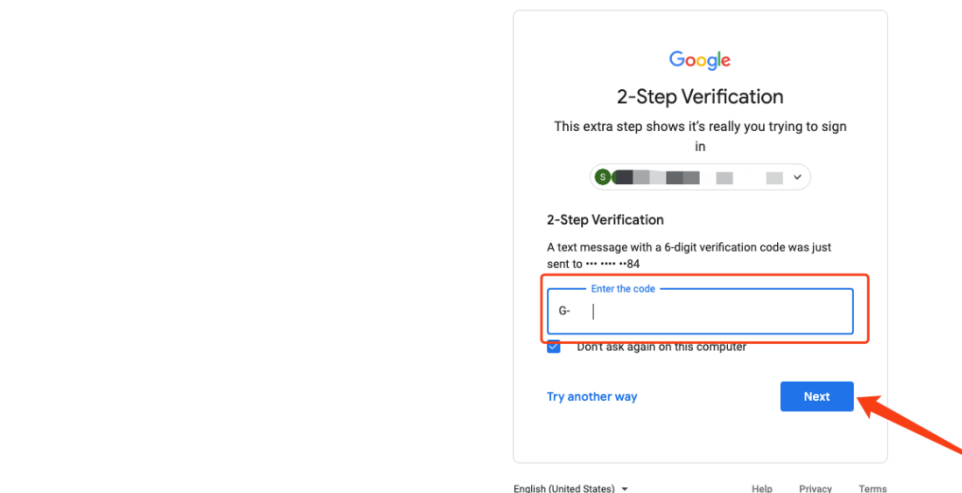
Select “App passwords”.



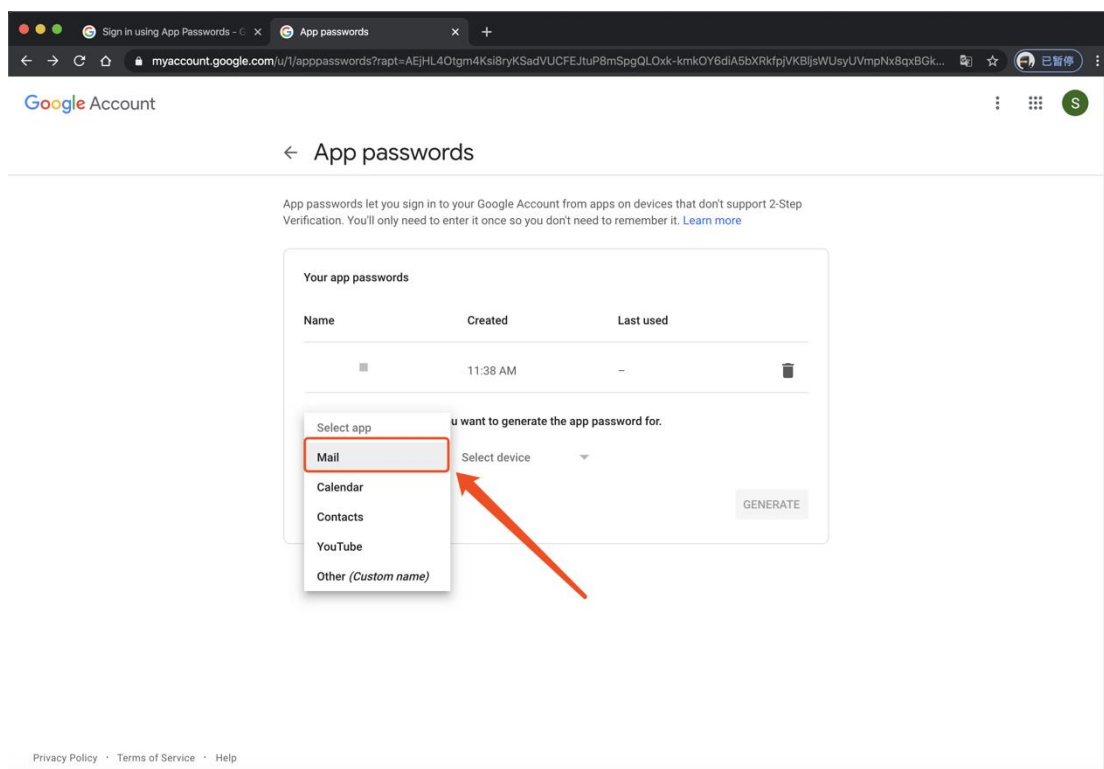
Enter Gmail account password and click “NEXT”.



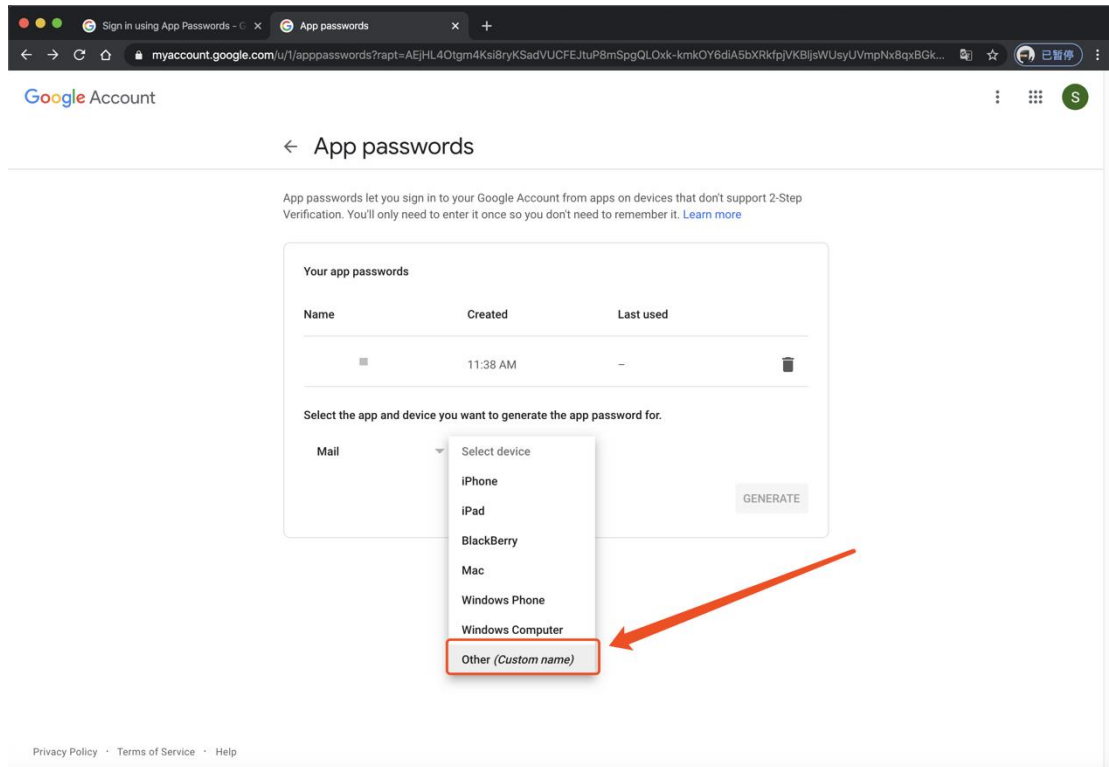
Enter the one-time code sent to your phone.



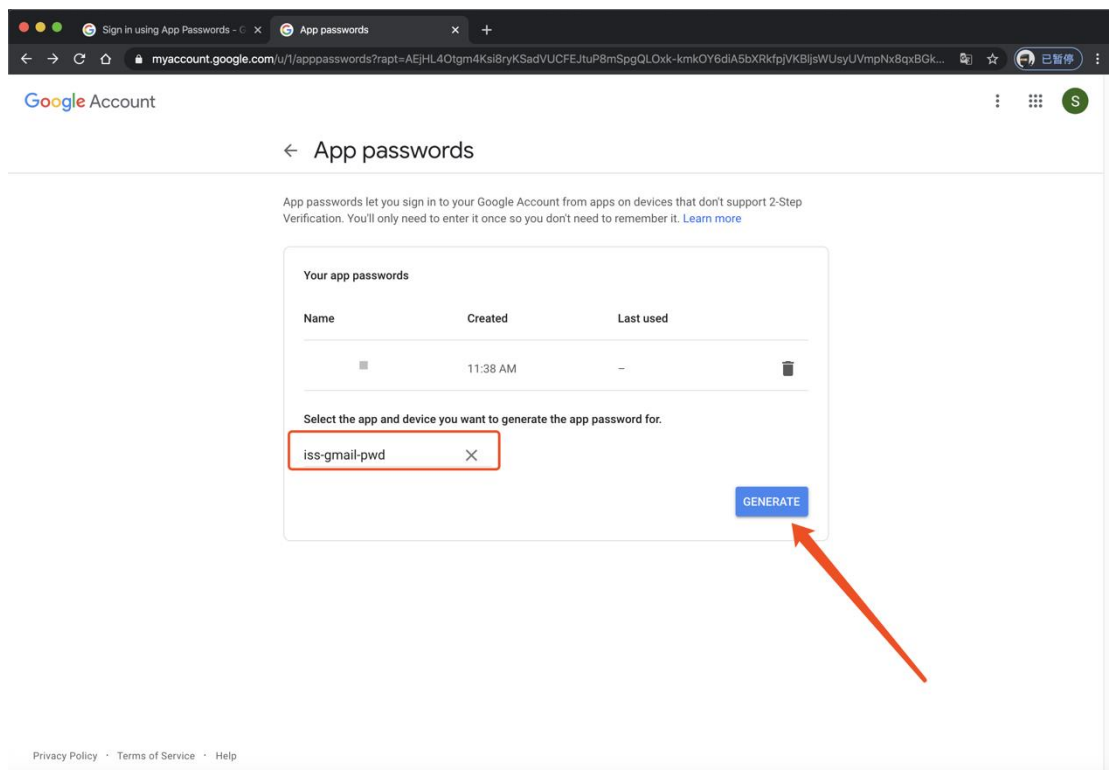
Select "Mail" as shown in the below figure.



Set device as "Other (Custom name)".

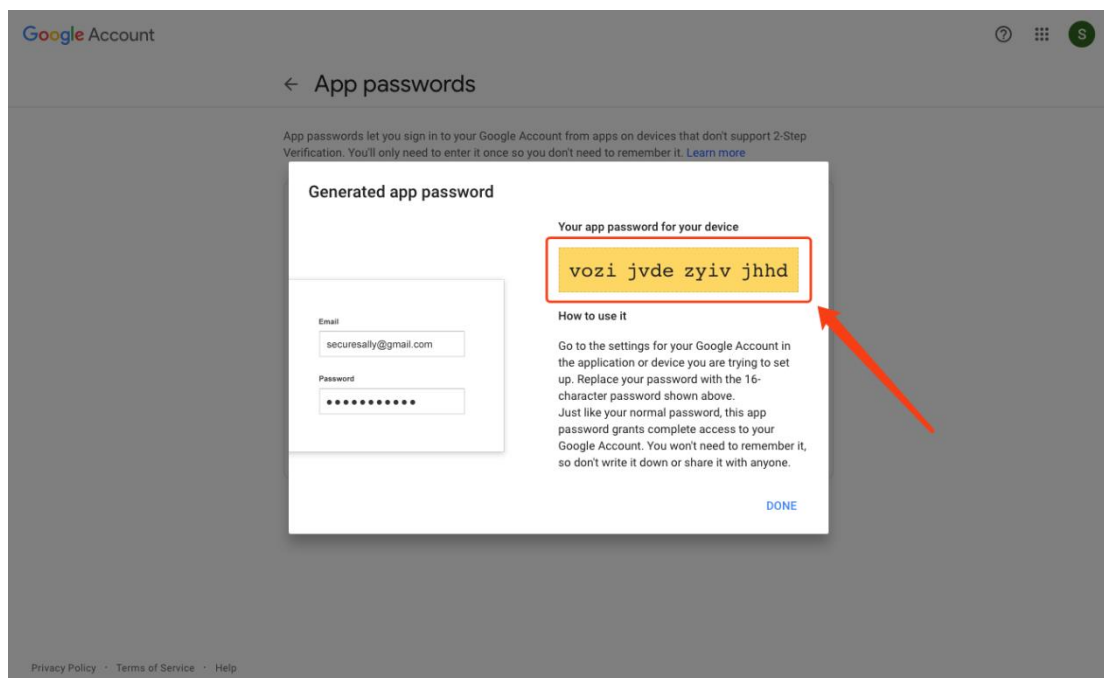


Enter the device name and click “GENERATE”.





Please record the password of your device.



The password will be used for Docker deployment.

## 3. Deploy MySQL with Docker

---

### Introduction

Docker is a platform that uses OS-level virtualization to deliver software in packages called containers. Containers isolate software from its environment and ensure that it works uniformly regardless of the development environment. Our docker contains file dependencies of MySQL database. Users just need to own a MySQL account.

MySQL database stores wallet data, transaction detail. Please deploy MySQL database before deploying the ISS-SERVER.

### Procedures

#### Install Docker

Switch to ROOT

```
sudo su
```

Install the Docker

```
$ yum install docker
```

Start the Docker

```
$ service docker start
```

Please refer to the below link for docker deployment under different OS.

<https://docs.docker.com/>

#### Install MySQL and create a user account

```
docker pull mysql
```

Set the password as 'qazwer1122'. The password is changeable.

```
docker run --name tc-agency-mysql -p 3306:3306 -e  
MYSQL_ROOT_PASSWORD=qazwer1122 -d mysql
```

Create the database with the command below. Please note that this process takes around 5 minutes.

```
docker exec -it tc-agency-mysql bash
```

Enter the below command to log in MySQL.

```
mysql -u root -p
```

Enter the password "qazwer1122".

Enter the command below to create a user account. 'mysqlaccount' is the username and 'qazwer1122' is the user password.

```
CREATE USER 'mysqlaccount'@'%' IDENTIFIED WITH  
mysql_native_password BY 'qazwer1122';  
GRANT ALL PRIVILEGES ON *.* TO 'mysqlaccount'@'%';
```

Enter the command below to create a database.

```
create database TC;
```

Enter 'exit' two consecutive times to exit the MySQL container.

## 4. Server deployment with Docker

---

### Introduction

This Docker contains the file dependencies for server deployment (SpaceNode\_Server\_ISS). Users only need to set email addresses, FTP account to use this server. The server is mainly used for communications among users, as well as communications between users and SPC payload.

### Procedures

#### Server deployment

Switch to ROOT

```
sudo su
```

Create an empty folder. All the subsequent steps are executed in this folder.

```
mkdir tc_docker && cd tc_docker
```

Create a script named start.sh.

```
vim start.sh
```

Write the below codes to the script.

```
#!/bin/bash
uwsgi home/tc/uwsgi/uwsgi.ini
nginx
/home/tc/Electrum-3.3.8/run_electrum daemon start
python3 /home/tc/tc-agency/manage.py db init
python3 /home/tc/tc-agency/manage.py db migrate
python3 /home/tc/tc-agency/manage.py db upgrade
```

```
service cron restart  
tail -f -n 100 /home/tc/server_log/tc-server-request.log
```

Create Dockerfile

```
vim Dockerfile
```

Write the codes below to dockerfile.

```
# tc-agency  
FROM spacechain/iss-image:19.12.25  
MAINTAINER IDKTP  
ADD tc-agency/ /home/tc/tc-agency/  
ADD start.sh /  
WORKDIR /  
ENTRYPOINT ["sh", "start.sh"]
```

Download the code SpaceNode\_Server\_ISS from SpaceChain GitHub.  
Install git

```
yum install git
```

Download the code.

```
git clone https://github.com/spacechain/opensource_server
```

Change the file name.

```
mv opensource_server/ tc-agency/
```

Enter the *tc-agency* folder and create *account-config.py*, which is used to configure the constants used for Docker configuration. Please check your

email with the theme “Docker configuration” and copy the content in your email.

## Docker Config

EOYDVGJ = `agency208bb5039a0847f8946ffc4832cc558c`

WCTSIGB = `8182e205f76042009acce02e392bae71`

```
cd tc-agency/
```

Create *account-config.py*

```
vim account_config.py
```

Write the code below to *account-config.py* and complete the configuration.

```
EOYDVGJ = 'agencybcdb444c8f4240a1bc5015d097f4b88f'
# Please check your email
WCTSIGB = 'f32fd265a43e42369afe5dc8a56ec244'
# Please check your email

# Please change the information below to your email address. Please make
# sure that the POP/IMAP service is activated.
MAIL_SERVER = "smtp.gmail.com"
MAIL_PORT = 465
MAIL_USERNAME = "xxxxx@gmail.com" # email address
MAIL_PASSWORD = "xxxxx"

# Please enter the app password created in Section 2, Page 18 of this
# document.
# Please change the address below to your wallet address. All the transaction
# fees will be credited to this address.
# Wallet address XPUB
FEE_XPUB_BY_TESTNET = 'xxxxx'
# Mainnet wallet address XPUB
```

```
FEE_XPUB = 'xxxxx'
```

**# Connect to MySQL database. Change the '0.0.0.0' to your own IP address.**

```
SQLALCHEMY_DATABASE_URI =  
'mysql+pymysql://mysqlaccount:qazwer1122@0.0.0.0:3306/TC'
```

Enter the below command.

```
cd ..
```

Create a Docker image file.

```
docker build -t='tcimage' .
```

Create a Docker container.

```
docker run -idt -p 5000:5000 -p 8099:8099 -p 9090:9090 -p 80:80 -p 21:21 -p  
20:20 -p 0.0.0.0:10221:10221 -p 0.0.0.0:10222:10222 --name tcserver  
tcimage
```

## **Administrator registration**

### **Administrative account registration**

Enter the link (<http://0.0.0.0:8099/auth/register>) to register an administrative account. Please change '0.0.0.0' to your IP address.

# Initialize docker server

TC

Pack files

Initialize the server

Logout

## Initialize the server

Initialize

1

2



## 5. Compress the transaction files and send to FTP server

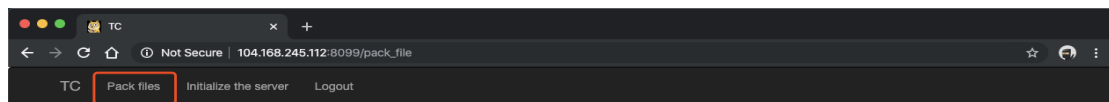
---

### Introduction

All the transaction files are compressed and sent to FTP server. SPC payload will authenticate these transaction files.

### Procedures

Enter the below link ([http://0.0.0.0:8099/pack\\_file](http://0.0.0.0:8099/pack_file)) to compress the file. Enter the Google Authenticator OTP and click 'submit'. Please refer to the document below([https://github.com/spacechain/opensource\\_otp\\_app](https://github.com/spacechain/opensource_otp_app)) for OTP generation.



#### Pack files

OTP

submit

Wait for the authentication from SPC payload.