Setting up Nxt Nodes

Operating System: Ubuntu, Windows

AWS or local installation

Nxt nodes can be installed on either an AWS instance, or on a local computer. This has been tested on our system with either Ubuntu or Windows operating systems. You are required to install Java SDK 8, and the Nxt software. You are then also required to modify the config files slightly to allow for API calls.

There are two Nxt nodes to be set up. One a live blockchain node, which will be used to send transactions onto the blockchain, and the other an offline node, used by the producers to securely generate and sign their transactions before sending them to the live blockchain node. A faithful reconstruction of the system would involve setting up an offline node for each Producer in the system. However to keep the setup simple, it is possible to only make one offline node and be used by each producer, or alternatively only the one live blockchain node, as it can also generate and sign transactions too.

Both of the Nxt nodes require Java and the Nxt software to be installed. Then follow instructions specific to the node being set up.

Install Java

The Nxt node requires Java JDK 8 to run. If you don't have Java installed, you can run the below command to install it (ubuntu):

```
sudo apt-get install openjdk-8-jdk
```

Alternatively, you can install Java from Oracle:

http://www.oracle.com/technetwork/java/javase/downloads/index.html

Install Nxt

Now the Nxt node software will need to be downloaded. If you are installing on Ubuntu you can follow these instructions:

https://nxtwiki.org/wiki/How-To:InstallNRSLinux

If you are installing Nxt on Windows, then you can follow these instructions:

https://nxtwiki.org/wiki/How-To:InstallNRSWindows

Follow the instructions to the point where you are ready to start the Nxt software, however do not actually start the Nxt node until you have followed the next steps for each node.

Public Blockchain Node Configuration

Once the Nxt software has been installed you are required to modify the config file.

Open the folder location where the Nxt software was installed. Inside the `conf` folder, there will be a file named `nxt-default.properties`. Open this file, and modify the following lines under the `#### PEER NETWORKING ###` and `#### API SERVER ####` headings.

```
nxt.isTestnet = true

nxt.allowedBotHosts=*

nxt.apiServerHost=0.0.0.0
```

This tells the Nxt node to contact the testnet instead of the really Nxt blockchain, and also allows API calls from addresses other than the localhost.

Private Blockchain Node Configuration

The same needs to be done to the private blockchain node, however there are some additional lines that must be modified in the `conf/nxt-default.properties` file.

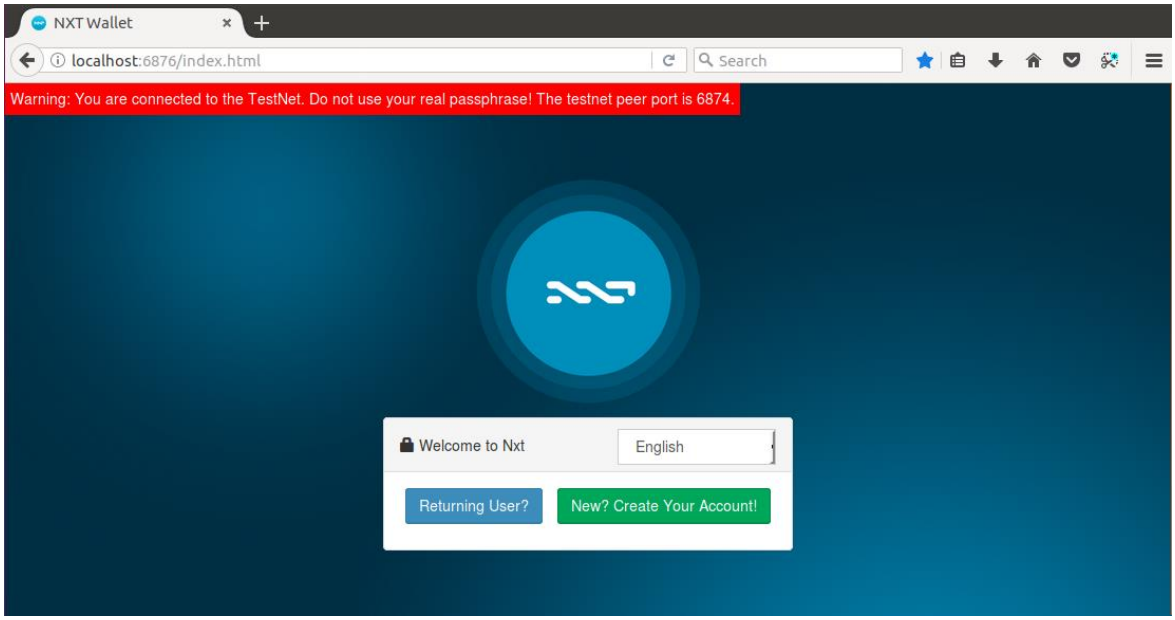
```
nxt.isTestnet = true

nxt.isOffline = true

nxt.allowedBotHosts=*

nxt.apiServerHost=0.0.0.0

nxt.disableAdminPassword=true
```

Running Nxt Nodes

Once the Nxt nodes have been configured, you can start the node by running the `run.sh` file in the Nxt folder root.

Once the Nxt software has been started, browse to the following address through a web browser on the node:

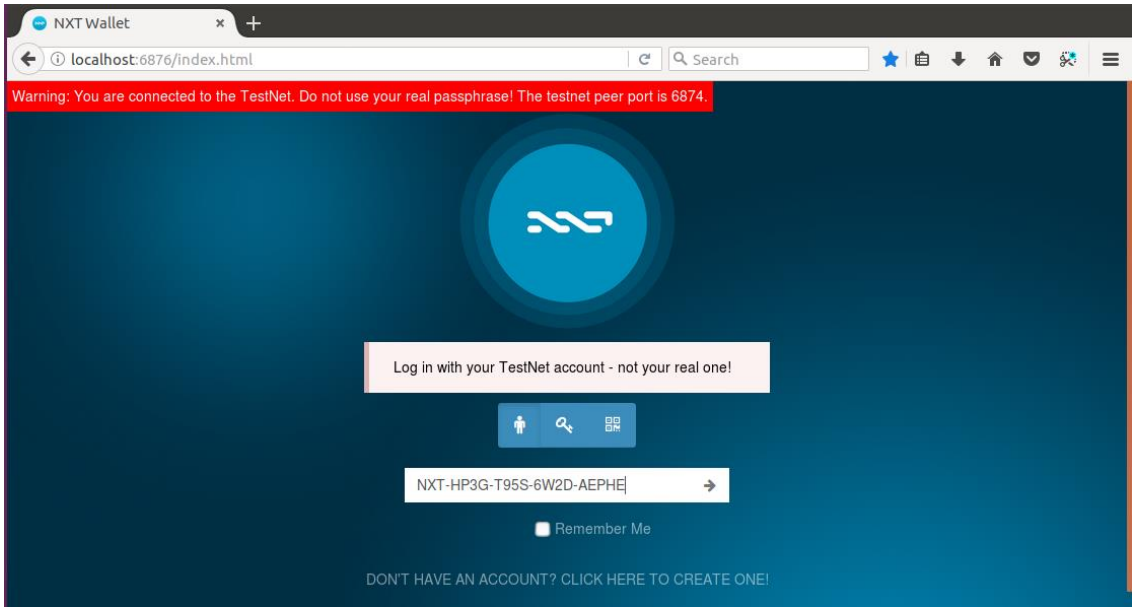
http://localhost:6876

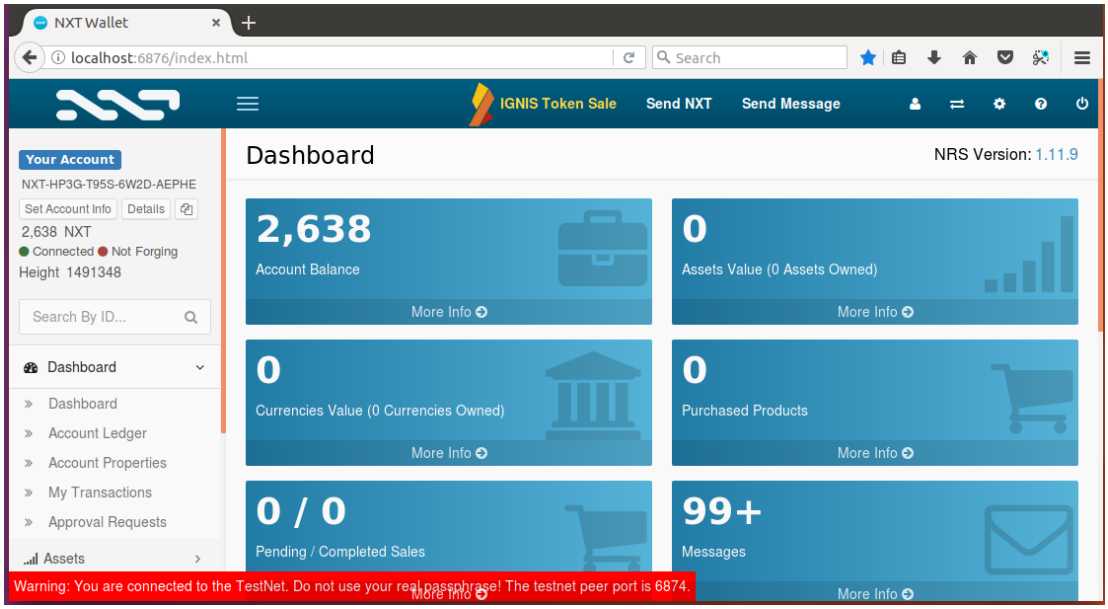


If this is the online Nxt node, you should see messages indicating that you are connected to the testnet.

From here you can enter in the address of your ProductChain account. If you wish to create a new account, click on the “New? Create Your Account!” button. Otherwise you may click on “Returning User?” and enter the Nxt address used in the development of the system

`NXT-HP3G-T95S-6W2D-AEPHE`





Once you have either entered in the above Nxt address or generated your own, you will be greeted with this screen showing an outline of the account. If this is the public node, you will see your Nxt total, as well as a status on the download of the blockchain. This will likely take several hours depending on internet speeds and computer specs. If this is the offline node you will not see any updated information, as it is not downloading the blockchain or connecting to peers, and is used purely offline.

These steps of setting up the node UI are not required, but provides a user interface to see blockchain status and easily see transactions.

Make note of the IP addresses of each machine, as they will be needed for the mobile applications and web servers. If you are running this on a local network, note down the local IP address, and if this is being run on an AWS instance then take note of the public DNS of the instance.

Receiving Nxt

If you have created a new ProductChain address instead of using our existing one, then you will need to receive Nxt in order to start using the ProductChain system.

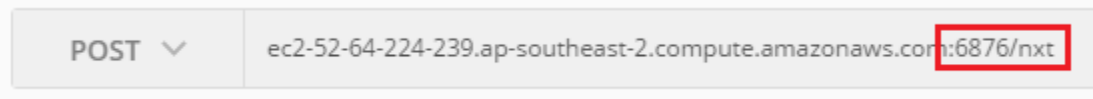
Testnet Nxt can be requested through here:

https://nxtforum.org/testnet/some-testnxt-to-test-asset-exchange/

Creating Producer Addresses

In order to create the Producer addresses, you will need to send a POST request to your online Nxt node. You can do this through a program like Postman. Alternatively you can generate new Nxt accounts through the web UI, or use existing Nxt accounts if you have them.

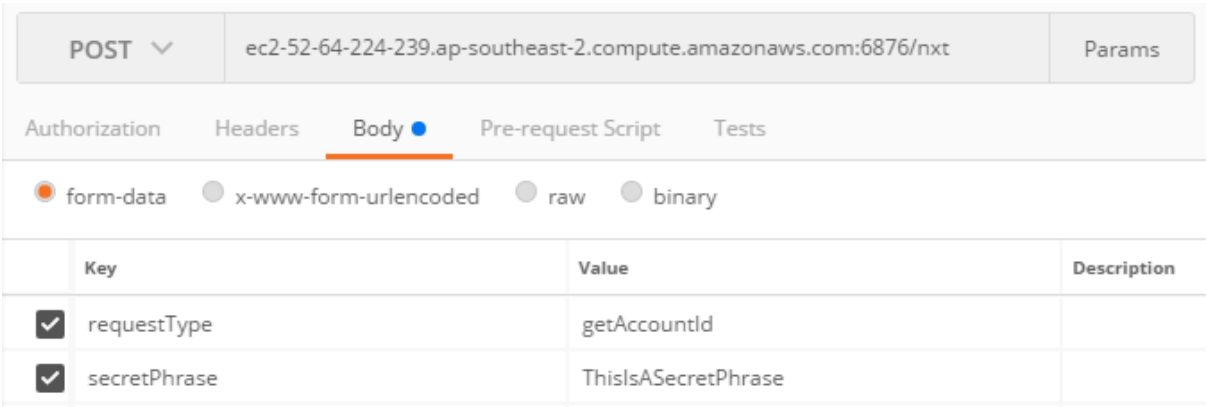
Your POST request will be to your online Nxt node's address, with the below additions:



In your POST's body, you will need to include the following:

```
{
        "requestType": "getAccountId",
        "secretPhrase": "[enter desired secret phrase]"
}
```

Below is a screenshot of what your Postman setup would look like:



Your response from your Nxt node will look something like this. Copy the "accountRS" and "publicKey" fields, as you will need to be using these later. Create three different accounts for your producers.


```
{
        "accountRS":"NXT-BNSM-7WZF-NET9-4N8US",
        "publicKey":"048f547b82593a4a9c64db8989e1e5f5c58a9ba24e168a8fc120e747c929c731",
        "requestProcessingTime":4,
        "account":"3200040834629423891"
}
```


Now you can send some Nxt (several hundred) to each producer you made, from your ProductChain address generated previously. This can be done from the node web UI.