

Installing and running BPX full node on Debian / Ubuntu

1. Check latest versions of BPX [Execution Client](#) and [Beacon Client](#). Log in as root. Download both DEB packages by following commands. Replace **X.X.X** to latest versions tags.

```
wget https://github.com/bpx-chain/bpx-execution-client/releases/download/X.X.X/bpx-execution-client_X.X.X-stable+stable_amd64.deb
wget https://github.com/bpx-chain/bpx-beacon-client/releases/download/X.X.X/bpx-beacon-client-cli_X.X.X-1_amd64.deb
```

2. Install execution client and beacon client. Replace **X.X.X** to latest versions tags.

```
dpkg -i bpx-execution-client_X.X.X-stable+stable_amd64.deb bpx-beacon-client-cli_X.X.X-1_amd64.deb
```

```
root@debian:~# dpkg -i bpx-execution-client_1.0.0-stable+stable_amd64.deb bpx-beacon-client-cli_3.0.1-1_amd64.deb
Selecting previously unselected package bpx-execution-client.
(Reading database ... 32327 files and directories currently installed.)
Preparing to unpack bpx-execution-client_1.0.0-stable+stable_amd64.deb ...
Unpacking bpx-execution-client (1.0.0-stable+stable) ...
Selecting previously unselected package bpx-beacon-client-cli.
Preparing to unpack bpx-beacon-client-cli_3.0.1-1_amd64.deb ...
Unpacking bpx-beacon-client-cli (3.0.1) ...
Setting up bpx-execution-client (1.0.0-stable+stable) ...
Setting up bpx-beacon-client-cli (3.0.1) ...
root@debian:~#
```

3. Create new user for BPX services

```
adduser bpxv3
```

Create any password. You can skip entering additional information about the user by pressing **Enter** each time. Answer "**Y**" when asked if the information is correct.

```
root@debian:~# adduser bpxv3
Adding user `bpxv3' ...
Adding new group `bpxv3' (1001) ...
Adding new user `bpxv3' (1001) with group `bpxv3' ...
Creating home directory `/home/bpxv3' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for bpxv3
Enter the new value, or press ENTER for the default
    Full Name []:
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n] Y
root@debian:~#
```

4. Switch to the newly created account

```
su - bpxv3
```

5. Initialize Beacon Client configuration

```
bpx init
```

```
root@debian:~# su - bpxv3
bpxv3@debian:~$ bpx init
BPX directory /home/bpxv3/.bpx/beacon
Can't find private CA, creating a new one in /home/bpxv3/.bpx/beacon to generate TLS certificates
No keys are present in the keychain. Generate them with 'bpx keys generate'

To see your keys, run 'bpx keys show --show-mnemonic-seed'
bpxv3@debian:~$ _
```

6. Press **Control + D** to log out and return to the root console.

7. Create the execution client service descriptor file using for example **nano** editor

```
nano /etc/systemd/system/bpx-execution.service
```

Insert the following file content:

```
[Unit]
Description=BPX Execution Client

[Service]
Type=simple
User=bpxv3
ExecStart=bpx-geth --syncmode snap --http
Restart=always

[Install]
```

```
WantedBy=multi-user.target
```

Save the file by pressing **Control + O** and close the editor with **Control + X**.

8. Create the beacon client service descriptor file:

```
nano /etc/systemd/system/bpx-beacon.service
```

Insert the following file content:

```
[Unit]
Description=BPX Beacon Client

[Service]
Type=forking
User=bpxv3
ExecStart=bpx start node
ExecStop=bpx stop -d all
Restart=always

[Install]
WantedBy=multi-user.target
```

Save the file and close the editor.

9. Refresh startup services configuration

```
systemctl daemon-reload
```

10. Activate automatic startup of BPX services

```
systemctl enable bpx-execution
systemctl enable bpx-beacon
```

11. Launch both services

```
systemctl start bpx-execution
systemctl start bpx-beacon
```

```
root@debian:~# systemctl daemon-reload
root@debian:~# systemctl enable bpx-execution
Created symlink /etc/systemd/system/multi-user.target.wants/bpx-execution.service → /etc/systemd/system/bpx-execution.service.
root@debian:~# systemctl enable bpx-beacon
Created symlink /etc/systemd/system/multi-user.target.wants/bpx-beacon.service → /etc/systemd/system/bpx-beacon.service.
root@debian:~# systemctl start bpx-execution
root@debian:~# systemctl start bpx-beacon
root@debian:~#
```

12. Your full node is already working and configured to automatically start on system boot. Use the commands below to watch the initial sync status (it will refresh every 10 seconds).

```
su - bpxv3
watch -n 10 bpx show -s
```

Every 10.0s: bpx show -s debian: Fri Jun 9 05:51:26 2023

Network: mainnet Port: 6201 RPC Port: 8201
Node ID: 0c65770e23b4dc1179e01ad155f323b377c6ac83a24b1805fb70a27de535d922
Genesis Challenge: 6e38ea309b3d24b66c103ed07442c62facbec6af310c01606da147b8d4327105
Current Blockchain Status: Syncing 2080/82867 (80787 behind).
Peak: Hash: 079ab98becb3465cdda441c9493dfa583bd4fafc4f5a09af638dbbf8a3cf4aca
Time: Thu May 25 2023 06:56:45 EDT Height: 2080

Estimated network space: 6.223 PiB
Current difficulty: 1
Current VDF sub_slot_iters: 134217728

Height:	Hash:
2080	079ab98becb3465cdda441c9493dfa583bd4fafc4f5a09af638dbbf8a3cf4aca
2079	369d040fd684f7890f2e34d843a4d8be731adf9a60b1bb662aca71b85cf6dc12
2078	748ba165a5128d487d58c43e584e9072cfbad1146ebe8dbb837ce415bf5358e9
2077	67dff2733217a464216e314218cf1952e795a81d39d2173272e06450a2208c43
2076	774c74569ef52665471d6d04ef537a97846b01e93ba65acc1f8b68ed66bbfd59
2075	870ba14ffcb23fb81954b7dbaf84d4e6b424f574ae938fbbd99d46590905dbbf
2074	5e34fe5aa7c12ee7d2e3741a0ae65cd85930bb2e820f755554735fcdcdce412a5
2073	07681dc3e17ed235786fe3cfc440988879f85b18038a48bb769f2dae6c6b3e3e
2072	4056f7a7e1031da9cabf5fda3967c8f42f159583fb8d6482c789b66eaae4ea11
2071	21a832b27d0f426ac722c6633b83611fba68a50ebf6972557f15ea5b46f98c42

13. After a few hours or days, the initial sync should complete.

```
Every 10.0s: bpx show -s                                debian: Fri Jun  9 17:22:30 2023

Network: mainnet    Port: 6201    RPC Port: 8201
Node ID: 0c65770e23b4dc1179e01ad155f323b377c6ac83a24b1805fb70a27de535d922
Genesis Challenge: 6e38ea309b2d24b556c102ed07442c62facbec6af310c01606da147b8d4327105
Current Blockchain Status: Full Node Synced

Peak: Hash: 3c3d861086734a8bae9d6c9edf151e4bedbfdcc81b63002968ea81bad03f480c
      Time: Fri Jun 09 2023 17:21:33 EDT                                Height:      85119

Estimated network space: 134.094 PiB
Current difficulty: 18
Current VDF sub_slot_iters: 27262976

Height: |      Hash:
85119 | 3c3d861086734a8bae9d6c9edf151e4bedbfdcc81b63002968ea81bad03f480c
85118 | a027e3d0d84eb404d961dfb457da2c780faa83fc29c47cc03a9cb94d5369151d
85117 | 17fe4cb8c448ed2dbc60b29d28177c7e3cfaa5702bdcf94280dc3e92bc5d02f7
85116 | 449211a0726a6b2244a2c947152bd2b05bf92a899b88abf1648f4268cf36ee7e
85115 | 46cfda7cd0e06de6c59941c13e6a0ae5f806190d7aad895c97950b490fd01794
85114 | 6722246cfb1474b7a34493322447571eee8afdbbd062bb9779b285089605d9df
85113 | ecd141c16c6851a01ff7f85f10d030fa9b849b9a5d3143b85282427d0e62f5e0
85112 | 5d177cf0c111b6f78266b22a9509bd2fe6350c41b3200351d31da1f14aaa477e
85111 | 7a75ebf21c9291c5137f55d5d398537cc4b119506cb7fb0de3c121d9fa6bfd5d
85110 | a7ed4ad9e7849ca75693c37f24e760f863b57c93e197c9e775d367410653ce4e
```