Flare Linux Documentation

Release 1.1.0

Foreach Code Factory

Oct 07, 2022

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INSTALLATION

In order to start using *Flare Linux*, you must install *Docker* on your computer first.

General information on the *Docker CE* engine is available at the following address: https://docs.docker.com/install/

For more specific information on how to install *Docker CE* on your operating system of choice, please see the following pages:

- **Windows 10** : https://docs.docker.com/docker-for-windows/install/
- **Windows 7/8** : https://docs.docker.com/toolbox/overview/
- **MacOS** : https://docs.docker.com/docker-for-mac/install/
- **CentOS** : https://docs.docker.com/install/linux/docker-ce/centos/
- **Debian** : https://docs.docker.com/install/linux/docker-ce/debian/
- **Fedora** : https://docs.docker.com/install/linux/docker-ce/fedora/
- **Ubuntu** : https://docs.docker.com/install/linux/docker-ce/ubuntu/
- **Linux Binaries** : https://docs.docker.com/install/linux/docker-ce/binaries/

Requirements (on top of the Docker specifications):

- An additional 16 GB of RAM for each Node server you wish to run on your computer,
- An additional 500 GB of storage (HDD or SSD).

BASIC USAGE

Once Docker is installed, you can now run a *Flare Linux* container. It is possible to run the container in live or test modes.

2.1 Flare Linux Live Mode

When running Flare Linux in live mode, you will run a node on the Songbird Network (Canary), or on the Flare Network.

Note: You must be whitelisted by Flare in order to connect to the live network. Please see the Flare website.

2.1.1 Songbird Network

Open a Bash or a ZSH terminal (Mac or Linux), or a Powershell CLI (Windows), and enter the following command in the terminal, and wait for the server to finish bootstrapping (might take some time):

```
$ docker run -dit --restart=always -e FLARE_BIND_ADDRESS=0.0.0.0 -p 9650:9650 --name my_
→flare_server asclinux/flarelinux:1.1.0 flare --songbird
```

To check the state of the 'C' chain, you can watch the logs of the server with this command, from inside the container:

```
$ docker exec -it my_flare_server /bin/bash
```

You will then get a command-line interface similar to this one:

Then, from inside the container:

```
# tail -f /home/flareuser/.flare/logs/C.log
```

You should then see the Songbird node's logs, like so:

```
flareuser@18d9bc609cca [ ~/flare ]$ tail -f /home/flareuser/.flare/logs/C.log
INFO [06-21|21:53:37.911] <C Chain> snow/engine/snowman/transitive.go#67: initia
lizing consensus engine
INFO [06-21|21:53:37.911] <C Chain> snow/engine/snowman/bootstrap/bootstrapper.g
o#222: Starting bootstrap...
INFO [06-21|21:53:37.916] <C Chain> vms/proposervm/vm.go#214: block height index
ing is already complete
INFO [06-21|21:53:37.917] Enabled APIs: public-eth, public-eth-filter, net, web3
, internal-public-eth, internal-public-blockchain, internal-public-transaction-p
ool, avax
INFO [06-21|21:53:41.646] <C Chain> snow/engine/common/bootstrapper.go#235: Boot
strapping started syncing with 1 vertices in the accepted frontier
INFO [06-21|21:53:46.605] <C Chain> snow/engine/snowman/bootstrap/bootstrapper.g
o#388: fetched 5000 of 2572274 blocks. ETA = 42m26.038287869s
INFO [06-21|21:53:51.942] <C Chain> snow/engine/snowman/bootstrap/bootstrapper.g
o#388: fetched 10000 of 2572274 blocks. ETA = 43m57.959343133s
INFO [06-21|21:54:01.503] <C Chain> snow/engine/snowman/bootstrap/bootstrapper.g
o#388: fetched 15000 of 2572274 blocks. ETA = 56m25.348425194s
INFO [06-21|21:54:11.028] <C Chain> snow/engine/snowman/bootstrap/bootstrapper.g
o#388: fetched 20000 of 2572274 blocks. ETA = 1h2m29.468355088s
INFO [06-21|21:54:21.997] <C Chain> snow/engine/snowman/bootstrap/bootstrapper.g
o#388: fetched 25000 of 2572274 blocks. ETA = 1h8m31.383964794s
INFO [06-21|21:54:30.496] <C Chain> snow/engine/snowman/bootstrap/bootstrapper.g
o#388: fetched 30000 of 2572274 blocks. ETA = 1h8m59.668081213s
```

If you want to run a Songbird Validator node, open a Bash or a ZSH terminal (Mac or Linux), or a Powershell CLI (Windows), and enter the following command in the terminal, and wait for the server to finish bootstrapping (might take some time):

```
$ docker run -dit --restart=always -e FLARE_BIND_ADDRESS=0.0.0.0 -p 9650:9650 --name my_
↪flare_server asclinux/flarelinux:1.1.0 flare --songbird-validator
```

Note: You must have validator keys to run a validator node. Please see the Flare documentation.

2.1.2 Flare Network

Open a Bash or a ZSH terminal (Mac or Linux), or a Powershell CLI (Windows), and enter the following command in the terminal, and wait for the server to finish bootstrapping (might take some time):

```
$ docker run -dit --restart=always -e FLARE_BIND_ADDRESS=0.0.0.0 -p 9650:9650 --name my_
↪flare_server asclinux/flarelinux:1.1.0 flare --flare-observer
```

To check the state of the 'C' chain, you can watch the logs of the server with this command, from inside the container:

```
$ docker exec -it my_flare_server /bin/bash
```

Then, from inside the container:

```
# tail -f /home/flareuser/.flare/logs/C.log
```

If you want to run a Flare Validator node, open a Bash or a ZSH terminal (Mac or Linux), or a Powershell CLI (Windows), and enter the following command in the terminal, and wait for the server to finish bootstrapping (might take some time):

```
$ docker run -dit --restart=always -e FLARE_BIND_ADDRESS=0.0.0.0 -p 9650:9650 --name my_
↪flare_server asclinux/flarelinux:1.1.0 flare --flare-validator
```

Note: You must have validator keys to run a validator node. Please see the Flare's website.

2.2 Flare Linux Test Mode

When running Flare Linux in test mode, you will either connect to the Coston Network 1, the Coston Network 2, or use a local test network.

2.2.1 Coston Network 1

Open a Bash or a ZSH terminal (Mac or Linux), or a Powershell CLI (Windows), and enter the following command in the terminal, and wait for the server to finish bootstrapping (might take a few minutes):

```
$ docker run -dit --restart=always -e FLARE_BIND_ADDRESS=0.0.0.0 -p 9650:9650 --name my_
→flare_server asclinux/flarelinux:1.1.0 flare --flare-coston1
```

To check the state of the 'C' chain, you can watch the logs of the server with this command from inside the container:

```
$ docker exec -it my_flare_server /bin/bash
```

Then, from inside the container:

```
# tail -f /home/flareuser/.flare/logs/C.log
```

You can also run the server in interactive mode by removing the 'd' option, like so:

```
$ docker run -it --rm -e FLARE_BIND_ADDRESS=0.0.0.0 -p 9650:9650 --name my_flare_server␣
→asclinux/flarelinux:1.1.0 flare --flare-coston1
```

2.2.2 Coston Network 2

Open a Bash or a ZSH terminal (Mac or Linux), or a Powershell CLI (Windows), and enter the following command in the terminal, and wait for the server to finish bootstrapping (might take a few minutes):

```
$ docker run -dit --restart=always -e FLARE_BIND_ADDRESS=0.0.0.0 -p 9650:9650 --name my_
→flare_server asclinux/flarelinux:1.1.0 flare --flare-coston2
```

To check the state of the 'C' chain, you can watch the logs of the server with this command from inside the container:

```
$ docker exec -it my_flare_server /bin/bash
```

Then, from inside the container:

```
# tail -f /home/flareuser/.flare/logs/C.log
```

You can also run the server in interactive mode by removing the 'd' option, like so:

```
$ docker run -it --rm -e FLARE_BIND_ADDRESS=0.0.0.0 -p 9650:9650 --name my_flare_server␣
→asclinux/flarelinux:1.1.0 flare --flare-coston2
```

2.2.3 Local Network

If you prefer, you can run a local Flare node, by running the following command instead:

```
$ docker run -it --rm -e FLARE_BIND_ADDRESS=127.0.0.1 -p 9650:9650 --name my_flare_
→server asclinux/flarelinux:1.1.0 flare
```

2.3 Start Testing the Flare API

Use Postman to start querying your server's API: VIDEO TUTORIAL,

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Note: Make sure the "C" chain is bootstrapped, before making other queries!

2.4 Stopping the Flare Node

To stop the Flare server, please enter the following command (or press *Ctrl+C* in interactive mode):

```
$ docker rm -f my_flare_server
```

CONFIGURATION

The Flare Linux Docker image allows for runtime configuration. You can do so by passing in environment variables to the container on startup, or by sharing files with the container that is running the Flare server nodes.

3.1 Environment Variables

You can set some environment variables in order to change the default values of the Flare server nodes at runtime.

You can do so by adding the 'e' option as often as you need to, like so:

```
$ docker run -it --rm -p 9650:9650 --name my_flare_server -e FLARE_BIND_ADDRESS="0.0.0.0
→" asclinux/flarelinux:1.1.0 flare --flare-coston1
```

Here is a complete list of all environment variables that will be taken into account by the Flare Linux container at runtime:

Table 1: Environment Variables

Variable	Description
FLARE_BIND_ADDRESS	Bind the Flare server to a specified network interface

3.2 Sharing Files

It is also possible to share files with the Flare Linux container at runtime.

You can do so by adding the 'v' option as often as you need to, like so:

```
$ docker run -it --rm -p 9650:9650 --name my_flare_server -v ${PWD}/.flare:/home/
→flareuser/.flare asclinux/flarelinux:1.1.0 flare --flare-coston1
```

3.3 Installing Additional Software

You can install additional software by using the lfphp-get utility.

For example, to install the Ethereum tools, you can run the following command, from inside the container:

```
# lfphp-get ethereum-utils
```

For more information on this utility, please see the Linux for PHP Documentation.

WHAT'S NEW IN VERSION 1.0

4.1 New Since Version 1.1.0 (Oct 6, 2022)

- **Updated OS software/libraries:**
    - Flare Node (0.7.0)

4.2 New Since Version 1.0.1 (Aug 16, 2022)

- **Updated OS software/libraries:**
    - Songbird Node (0.6.2)

4.3 New Since Version 1.0.0 (Jun 15, 2022)

- **New features:**
    - All Flare dependencies have been upgraded to latest requirements
- **Updated OS software/libraries:**
    - bind (9.16.5)
    - GFlags (2.0)
    - Golang (1.16.8)
    - jq (1.6-137-gd18b2d0)
    - LevelDB (1.23)
    - libtirpc (1.3.1)
    - libuv (1.38.1)
    - lsof (4.91)
    - Node.js (10.24.1)
    - RocksDB (6.11.6)
    - Snappy (1.1.9)
- **Complete list of installed software/libraries (asclinux/linuxforphp-8.2-ultimate):**
    - Acl (2.2.52)

- – Alsa-lib (1.1.4.1)
- – Apache (2.4.29)
- – Apr (1.6.3)
- – Apr-Util (1.6.1)
- – Aspell (0.60.6.1)
- – Attr (2.4.47)
- – Autoconf (2.69)
- – Automake (1.15)
- – Bash (4.3.30)
- – Bc (1.06.95)
- – Berkeley DB (6.2.32)
- – Binutils (2.27)
- – Bison (3.0.4)
- – Bzip2 (1.0.6)
- – c-ares (1.12.0)
- – Certificate Authority Certificates
- – Check (0.10.0)
- – CMake (3.10.2)
- – CPIO (2.12)
- – Coreutils (8.25)
- – Cups (2.2.4)
- – cURL (7.68.0)
- – Cyrus-SASL (2.1.26)
- – DejaGNU (1.6.1)
- – DHCP Client (4.3.6)
- – Diffutils (3.5)
- – Docbook-xml (4.5)
- – Docbook-xsl (1.79.2)
- – Doxygen (1.8.15)
- – Eudev (3.2)
- – E2fsprogs (1.43.1)
- – Enchant (1.6.0)
- – Exim (4.89.1)
- – Expat (2.2.0)
- – Expect (5.45.4)
- – File (5.28)

- – Findutils (4.6.0)
- – Flex (2.6.1)
- – Fontconfig (2.12.6)
- – FreeTDS (1.00.112)
- – FreeType (2.9)
- – Gawk (4.1.3)
- – GCC (6.2.0)
- – GDBM (1.12)
- – Gettext (0.19.8.1)
- – Giflib (5.1.4)
- – Git (2.16.2)
- – Glib (2.60.1)
- – Glibc (2.24)
- – GMP (6.1.1)
- – GnuTLS (3.6.2)
- – Gperf (3.0.4)
- – Grep (2.25)
- – Groff (1.22.3)
- – GRUB (2.02~beta3)
- – Gzip (1.8)
- – Iana-Etc (2.30)
- – icu4c (60.2)
- – IMAP-Cclient (2007f)
- – Inetutils (1.9.4)
- – Intltool (0.51.0)
- – IPRoute2 (4.7.0)
- – Kbd (2.0.3)
- – Kerberos5 (1.17)
- – Kmod (23)
- – Less (481)
- – LFS-Bootscripts (20150222)
- – libarchive (3.3.2)
- – Libcap (2.25)
- – libevent (2.1.8)
- – libexif (0.6.21)
- – libffi (3.2.1)

- – libgd (2.2.5)
- – libjpeg-turbo (1.5.3)
- – libmcrypt (2.5.8)
- – libnghttp2 (1.32.0)
- – Libpipeline (1.4.1)
- – libpng (1.6.34)
- – libsodium (1.0.18)
- – libtasn (1-4.13)
- – Libtool (2.4.6)
- – libunistring (0.9.8)
- – libxml (2-2.9.7)
- – libxslt (1.1.32)
- – libzip (1.6.1)
- – Linux (4.7.2) - Kernel is NOT installed in this Docker image!
- – LZO (2.10)
- – M4 (1.4.17)
- – Make (4.2.1)
- – Man-DB (2.7.5)
- – Man-pages (4.07)
- – MariaDB (10.2.13)
- – mcrypt (2.6.8)
- – meson (0.50.1)
- – mhash (0.9.9.9)
- – MongoDB (4.0.16)
- – MPC (1.0.3)
- – MPFR (3.1.4)
- – MSMTP (1.8.4)
- – Ncurses (6.0)
- – Nettle (3.4)
- – Net-SNMP (5.8)
- – nginx (1.17.7)
- – Ninja (1.9.0)
- – Node.js (10.7.0)
- – oniguruma (6.9.5)
- – OpenJDK (1.8.0.141)
- – OpenLDAP (2.4.45)

– OpenSSH (8.0p1)

– OpenSSL (1.0.2n)

– p11-kit (0.23.9)

– Patch (2.7.5)

– PCRE (8.41)

– Perl (5.24.0)

– Pkg-config (0.29.1)

– PostgreSQL (10.2.0)

– Procps (3.3.12)

– Psmisc (22.21)

– Python (2.7.14)

– Python (3.7.4)

– rabbitmq-client (0.9.0)

– re2c (1.3.0)

– Readline (6.3)

– Redis (5.0.4)

– Rsync (3.1.3)

– Ruby (2.5.0)

– runit (2.1.2)

– runit-docker (1.1.0)

– Sed (4.2.2)

– SGML-common (0.6.3)

– Shadow (4.2.1)

– SQLite (3.22.0)

– Sysklogd (1.5.1)

– Sysvinit (2.88dsf)

– Tar (1.29)

– Tcl (8.6.8)

– Texinfo (6.1)

– Tidy-HTML5 (5.4.0)

– Time Zone Data (2016f)

– Udev-lfs Tarball (udev-lfs-20140408)

– UnZip (6.0)

– Util-linux (2.28.1)

– Vim (7.4)

– Wget (1.19.4)

- Which (2.21)
- XML::Parser (2.44)
- Xorg Libraries 7
- Xz Utils (5.2.2)
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- Zip (3.0)
- Zlib (1.2.8)

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