

Split existing validator private keys

caution Charon is in a beta state and should be used with caution according to its [Terms of Use](#).

This process should only be used if you want to split an existing validator private key into multiple private key shares for use in a Distributed Validator Cluster. If your existing validator is not properly shut down before the Distributed Validator starts, your validator may be slashed.

If you are starting a new validator, you should follow [a quickstart guide](#) instead.

If you use MEV-Boost, make sure you turned off your MEV-Boost service for the time of splitting the keys, otherwise you may hit [this issue](#). Split an existing Ethereum validator key into multiple key shares for use in a [Obol Distributed Validator Cluster](#).

Pre-requisites

- Ensure you have the existing validator keystores (the ones to split) and passwords.
- Ensure you have [docker](#) installed.
- Make sure `docker` is running before executing the commands below.

Step 1. Clone the charon repo and copy existing keystore files

Clone the [charon](#) repo.

Clone the repo

```
git clone https://github.com/ObolNetwork/charon.git
```

Change directory

```
cd charon/
```

Create a folder within this checked out repo

`mkdir split_keys` Copy the existing validator keystore.json files into this new folder. Alongside them, with a matching filename but ending with .txt should be the password to the keystore. E.g., keystore-0.json keystore-0.txt

At the end of this process, you should have a tree like this:

```
|—— split_keys | |—— keystore-0.json | |—— keystore-0.txt | |—— keystore-1.json | |—— keystore-1.txt
| .. | |—— keystore-.json | |—— keystore.txt
```

Step 2. Split the keys using the charon docker command

Run the following docker command to split the keys:

CHARON_VERSION

E.g. v0.19.1

CLUSTER_NAME

The name of the cluster you want to create.

WITHDRAWAL_ADDRESS

The address you want to use for withdrawals.

FEE_RECIPIENT_ADDRESS

The address you want to use for fee payments.

NODES

The number of nodes in the cluster.

```
docker run --rm -v ( pwd ) :/opt/charon obolnetwork/charon: {CHARON_VERSION} create cluster --name = "{CLUSTER_NAME}" --withdrawal-addresses = "{WITHDRAWAL_ADDRESS}" --fee-recipient-addresses = "{FEE_RECIPIENT_ADDRESS}" --split-existing-keys --split-keys-dir = /opt/charon/split_keys --nodes {NODES} --network goerli
```

The above command will create validator_keys along with cluster-lock.json in ./cluster for each node.

Command output:

**** WARNING: Splitting keys **** Please make sure any existing validator has been shut down for at least 2 finalised epochs before starting the charon cluster, otherwise slashing could occur.

Created charon cluster: --split-existing-keys = true

./cluster/ |—— node [0 -*] / Directory for each node | |—— charon-enr-private-key Charon networking private key for

node authentication | |—— cluster-lock.json Cluster lock defines the cluster lock file

which is signed by all nodes | |—— validator_keys Validator keystores and password | | |—— keystore-*.json Validator private share key for duty signing | | |—— keystore.txt Keystore password files for keystore-*.json These split keys can now be used to start a charon cluster. [Edit this page](#) [Previous](#) [Enable MEV](#) [Next](#) [Getting Started](#) [Monitoring your Node](#)