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Openbao Cluster Installation (Vault) - Instructions

Non-telco domain

Exported on Aug 27, 2025

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This guide describes the process of installing an Openbao cluster on RHEL 7.3 OS.

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# Docker image

Generate Dockerfile

|  |
| --- |
| FROM openbao/openbao:latest    RUN mkdir -p /opt/raft/data &&\  chown -R openbao:openbao /opt/raft |

Code Block1Dockerfile

Create a docker image with the command:

docker build . -t myopenbao

# Set up config

On 3 nodes create a config file, specify the current node host (\*\*\*\_addr) for each file

|  |
| --- |
| cluster\_addr = "http://myhost-6.local:8201"  api\_addr = "http://myhost-6.local:8200"  disable\_mlock = true  #cluster\_name = "my-vault-cluster"  ui = true    listener "tcp" {  address = "0.0.0.0:8200"  cluster\_address = "0.0.0.0:8201"  tls\_disable = true  }    storage "raft" {  path = "/opt/raft/data"  node\_id = "vault\_node\_2"    retry\_join {  leader\_api\_addr = "http://myhost-5.local:8200"  }    retry\_join {  leader\_api\_addr = "http://myhost-6.local:8200"  }    retry\_join {  leader\_api\_addr = "http://myhost-4.local:8200"  } |

Code Block2openbao.hcl

# Launching a container

|  |
| --- |
| # Run container on each node  docker run -d --name openbao --dns 10.0.10.2 --dns 10.0.10.5 --env BAO\_DEV\_ROOT\_TOKEN\_ID="foobar" -e VAULT\_CLUSTER\_ADDR="http://myhost-5.local:8201" -e VAULT\_ADDR=http://myhost-5.local:8200 -e VAULT\_TOKEN="s.rxOcFhVFcPNMiwwwtSeMMtgT" -e VAULT\_SKIP\_VERIFY=true -v /root/openbao.hcl:/opt/raft/data/openbao.hcl -p 8200:8200 -p 8201:8201 --cap-add=IPC\_LOCK --memory-swappiness=0 myopenbao server -config=/opt/raft/data/openbao.hcl |

Code Block3Launching a docker container

# Generating keys

Open the master node web interface in your browser using the URL:  
[http://myhost-5.local:8200](http://red-5.dev.local:8200)

_scroll_external/other/unknown-macro-adf0b8592588dd27275f5c72ba3f3d9ddd425014283dc459a923131da5080e38

Select "Create a new raft"

A file with keys (Unseal keys) will be generated to unlock the nodes.

Download the file to your computer.

Example name: vault-cluster-vault-2025-08-22T12\_55\_13.801Z.json

|  |
| --- |
| {  "keys": [  "846f809734967d3ce98c952a2d3977f0a5d9905aaa9591e065b899072d68f700f4",  "0a2a9d72fc4af747f80bff827b510ba3da23653b0ed29e4eb07bb58d20e0b15e6f",  "3cdfa74ea75740fd932764c39de255cd9589c62670370a1bee5a7e5fc27d8429ae"  ],  "keys\_base64": [  "hG+AlzSWfTzpjJUqLTl38KXZkFqqlZHgZbiZBy1o9wD0",  "CiqdcvxK90f4C/+Ce1ELo9ojZTsO0p5OsHu1jSDgsV5v",  "PN+nTqdXQP2TJ2TDneJVzZWJxiZwNwob7lp+X8J9hCmu"  ],  "root\_token": "s.15z9IzQ0dWklmUmlSVQJmqW7"  } |

Code Block4vault-cluster-vault-2025-08-22T12\_55\_13.801Z.json

# Connecting a node to a cluster

|  |
| --- |
| **Important note**  It is necessary to make sure that the number of nodes operating in the network is exactly the same as that specified when generating keys, and not more. Otherwise, Unseal will not work. |

Similarly, connect to the other nodes and select Join:  
[http://myhost-4.local:8200/ui/vault/unseal](http://red-5.dev.local:8200)

_scroll_external/other/unknown-macro-adf0b8592588dd27275f5c72ba3f3d9ddd425014283dc459a923131da5080e38

Enter the Unseal keys from the file one by one.

After successful entry, the node will be authorized in the cluster and a window will appear.

_scroll_external/other/unknown-macro-adf0b8592588dd27275f5c72ba3f3d9ddd425014283dc459a923131da5080e38

To view the composition and status of nodes in the cluster, on any node you can go to the "Raft Storage" menu

_scroll_external/other/unknown-macro-adf0b8592588dd27275f5c72ba3f3d9ddd425014283dc459a923131da5080e38

# Authorization in UI

To authorize on any cluster node, you must enter the "root\_token" from the key file.

_scroll_external/other/unknown-macro-adf0b8592588dd27275f5c72ba3f3d9ddd425014283dc459a923131da5080e38

# Useful commands:

To manage and configure the cluster in hot mode, you need to connect to the container:

docker exec -it openbao /bin/sh

Enter commands:

vault status - view cluster status

* Sealed: false - the cluster is unlocked and ready for changes
* HA Enabled: true - High Availability mode is enabled
* Storage Type: Raft - the type of storage of the Raft cluster state - used for HA mode.

vault operator init - initialize a new cluster  
vault operator unseal - unseal node  
vault operator raft join https://<leader\_api\_addr>:8200 - connect a new node to the cluster  
vault operator raft list-peers - view the state of nodes in the cluster

**Reference information**:  
<https://openbao.org/docs/internals/>  
<https://www.youtube.com/watch?v=OyL4NpM_BPA&list=PL7iMyoQPMtAP7XeXabzWnNKGkCex1C_3C&index=10>  
<https://www.youtube.com/watch?v=gIvubEAboH8>  
<https://www.youtube.com/watch?v=ewSfxrBymfc>

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