Setting up a Zeebe Cluster

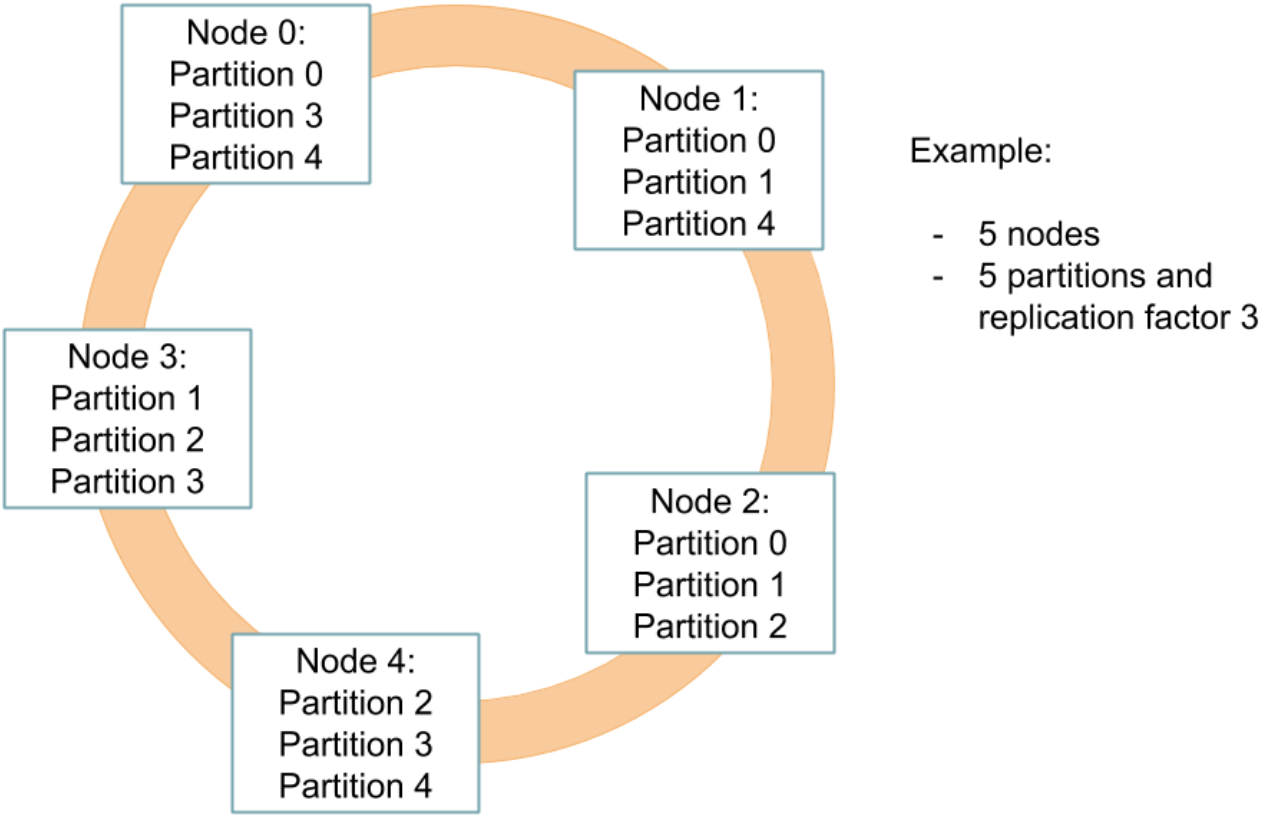
To set up a cluster you need to adjust the `cluster` section in the Zeebe configuration file. Below is a snippet of the default Zeebe configuration file, it should be self-explanatory.

```
[cluster]

# This section contains all cluster related configurations, to set up a Zeebe
cluster

# Specifies the unique id of this broker node in a cluster.
# The id should be between 0 and the number of nodes in the cluster (exclusive).
#
# This setting can also be overridden using the environment variable
ZEEBE_NODE_ID.
# nodeId = 0

# Controls the number of partitions, which should exist in the cluster.
#
# This can also be overridden using the environment variable
ZEEBE_PARTITIONS_COUNT.
# partitionsCount = 1

# Controls the replication factor, which defines the count of replicas per
partition.
# The replication factor cannot be greater than the number of nodes in the
cluster.
#
# This can also be overridden using the environment variable
ZEEBE_REPLICATION_FACTOR.
# replicationFactor = 1

# Specifies the Zeebe cluster size. This value is used to determine which broker
# is responsible for which partition.
#
# This can also be overridden using the environment variable ZEEBE_CLUSTER_SIZE.
# clusterSize = 1

# Allows to specify a list of known other nodes to connect to on startup
# The contact points of the management api must be specified.
# The format is [HOST:PORT]
# Example:
# initialContactPoints = [ "192.168.1.22:26502", "192.168.1.32:26502" ]
#
# This setting can also be overridden using the environment variable
ZEEBE_CONTACT_POINTS
# specifying a comma-separated list of contact points.
#
# To guarantee the cluster can survive network partitions, all nodes must be
specified
# as initial contact points.
#
# Default is empty list:
# initialContactPoints = []
```

Example

In this example, we will set up a Zeebe cluster with five brokers. Each broker needs to get a unique node id. To scale well, we will bootstrap five partitions with a replication factor of three. For more information about this, please take a look into the Clustering section.

The clustering setup will look like this:



Configuration

The configuration of the first broker could look like this:

```
[cluster]
nodeId = 0
partitionsCount = 5
replicationFactor = 3
clusterSize = 5
initialContactPoints = [
  ADDRESS_AND_PORT_OF_NODE_0,
  ADDRESS_AND_PORT_OF_NODE_1,
  ADDRESS_AND_PORT_OF_NODE_2,
  ADDRESS_AND_PORT_OF_NODE_3,
  ADDRESS_AND_PORT_OF_NODE_4
]
```

For the other brokers the configuration will slightly change.

```
[cluster]
nodeId = NODE_ID
partitionsCount = 5
replicationFactor = 3
clusterSize = 5
initialContactPoints = [
  ADDRESS_AND_PORT_OF_NODE_0,
  ADDRESS_AND_PORT_OF_NODE_1,
  ADDRESS_AND_PORT_OF_NODE_2,
  ADDRESS_AND_PORT_OF_NODE_3,
  ADDRESS_AND_PORT_OF_NODE_4
]
```

Each broker needs a unique node id. The ids should be in the range of zero and `clusterSize - 1`. You need to replace the `NODE_ID` placeholder with an appropriate value. Furthermore, the brokers need an initial contact point to start their gossip conversation. Make sure that you use the address and **management port** of another broker. You need to replace the `ADDRESS_AND_PORT_OF_NODE_0` placeholder.

To guarantee that a cluster can properly recover from network partitions, it is currently required that all nodes be specified as initial contact points. It is not necessary for a broker to list itself as initial contact point, but it is safe to do so, and probably simpler to maintain.

Partitions bootstrapping

On bootstrap, each node will create a partition matrix.

This matrix depends on the partitions count, replication factor and the cluster size. If you did the configuration right and used the same values for `partitionsCount`, `replicationFactor` and `clusterSize` on each node, then all nodes will generate the same partition matrix.

For the current example the matrix will look like the following:

	Node 0	Node 1	Node 2	Node 3	Node 4

Partition 0	Leader	Follower	Follower	-	-
Partition 1	-	Leader	Follower	Follower	-
Partition 2	-	-	Leader	Follower	Follower
Partition 3	Follower	-	-	Leader	Follower
Partition 4	Follower	Follower	-	-	Leader

The matrix ensures that the partitions are well distributed between the different nodes. Furthermore, it guarantees that each node knows exactly, which partitions it has to bootstrap and for which it will become the leader at first (this could change later, if the node needs to step down for example).