Working with Multiple Instances of the MapR Filesystem

The Multi-MapR Filesystem feature allows multiple instances of the file server to run on a single node in a single process.

Multiple instances of the MapR file server can run on a single node in a single process with the installation of MapR-XD or the MapR Database software. On servers with SSDs with at least 2 storage pools (SP), two instances (per node) are configured by default. On servers without SSDs, a single instance is configured by default. Each instance runs as a separate library that is dynamically loaded into a single process. In this mode, each instance has a separate host ID; however, all of the instances share the same hostname.

The maximum number of supported instances is 32. Instances should be configured based on the available CPU, memory, disks, and SPs. Each instance will need minimum of 2GB and instances should not exceed:

- Number of CPUs / 2
- Number of SPs (enforced)

File Server Instances

On MapR-XD and MapR Database installations, nodes with SSDs can run multiple file server instances. To determine whether a node has SSDs, MapR uses the value of `mfs.disk.is.ssd` in `mfs.conf (../ReferenceGuide/mfs.conf.html)` file, which must be set to `1` .

For clusters with MapR-XD or MapR Database license, if `mfs.disk.is.ssd` in `mfs.conf (../ReferenceGuide/mfs.conf.html)` file is set to `1` , CLDB configures nodes with SSDs to have 2 FileServer instances by default. On homogeneous clusters, you can modify the number of instances by changing (Multi-MFS-Configuring.html) the value of `multimfs.numsps.perinstance` parameter.

Ports for Multiple Instances of MapR Filesystem

Each instance listens on its own set of ports. Ensure that the ports are open for this feature. For example, instance 0 will use four ports from 5660, 5692 (5660+32), 5724 (5660+64), and 5756 (5660+96), instance 1 will use four ports from 5661, 5693, 5725, 5757, and so on for every additional instance. The topology of all instances is the same.

To verify that these ports are open, run the following command from a remote machine:

```
mrconfig -i -h <ip> -p <port number> info threads
```

An error indicates that the port is not open. If a port (for example, port 5661) is blocked, this command will print something similar to the following:

```
------------------
|From Instance 5661::|
------------------
<...> rpc failed <...>
```

Log Files

Each instance has its own set of log files in `$MAPR_HOME/logs` . When multiple instances are configured, the log files have the same name with a different instance ID; for example, `mfs.log.<N>-3` where `N` is the instance number.

Note: For the primary instance, the log file name does not include the instance number.

The RPC and security trace information are in a separate file per instance, `mfs-<N>.err`, where `N` is the instance number. For the primary instance, the file name does not include the instance number.

For example, suppose there are 2 instances running on ports 5660 and 5661. There will be 2 sets of log files, one per instance:

- `mfs.log-3` for the primary instance
- `mfs.log.1-3` for the second instance

The RPC and security trace information will be in these files:

- `mfs.err` for the primary instance
- `mfs-1.err` for the second instance