Managing Gateways

This topic describes various methods for listing gateways, checking status of gateways, managing gateways if they fail, and troubleshooting gateways.

- To see a list of the gateways for a particular destination cluster:

  Run the `maprcli cluster gateway get` (../ReferenceGuide/cluster-gateway-get.html) command on the source cluster. Specify the name of the destination cluster with the `-dstcluster` parameter. If you run the command remotely from your source cluster, specify the name of the source cluster with the `-cluster` parameter.

- To see a list of the gateways for all of the destination clusters that the source cluster is replicating to:

  Run the `maprcli cluster gateway list` (../ReferenceGuide/cluster-gateway-list.html) command on the source cluster. If you run the command remotely from your source cluster, specify the name of the source cluster with the `-cluster` parameter.

- To remove the list of gateways that you specified for a destination cluster by using the `maprcli cluster gateway set` command:

  Run the `maprcli cluster gateway delete` (../ReferenceGuide/cluster-gateway-delete.html) command on the source cluster. Specify the name of the destination cluster with the `-dstcluster` parameter. If you run the command remotely from your source cluster, specify the name of the source cluster with the `-cluster` parameter.

- To find out how MapR-DB or MapR-ES is finding gateways (for example, from DNS records, lists created by the `maprcli cluster gateway set` command or the `mapr-clusters.conf` file):

  Run the command `maprcli cluster gateway resolve` (../ReferenceGuide/cluster-gateway-resolve.html) on the source cluster. Specify the name of the destination cluster with the `-dstcluster` parameter. If you run the command remotely from your source cluster, specify the name of the source cluster with the `-cluster` parameter.

- To stop and start one or more gateways:

  Run the `maprcli node services -name gateway -action stop|start` on the clusters where the gateways are running.

  ```
  maprcli node services -name gateway -action stop -nodes <hostnames or IP addresses separate
  d by spaces>
  ```

  ```
  maprcli node services -name gateway -action start -nodes <hostnames or IP addresses separat
  ed by spaces>
  ```

- To check the status of a gateway service on a particular node:

  Run the command maprcli service list (../ReferenceGuide/service-list.html) on the clusters where the gateways are running.

Running the `maprcli cluster gateway set` command

The syntax of the `maprcli cluster gateway set` (../ReferenceGuide/cluster-gateway-set.html) command is:

```
maprcli cluster gateway set -dstcluster <cluster name> -gateways "<space-delimited list of gatewa
ys>"
```

To generate a list of the existing gateways in a MapR cluster, use the `maprcli cluster gateway list` (../ReferenceGuide/cluster-gateway-list.html) command. You can then copy this list and paste it into the `maprcli cluster gateway set` command. Alternatively, to generate a list of the gateways on a local cluster, run the `maprcli cluster gateway local -format text` (../ReferenceGuide/cluster-gateway-local.html) command. If you want to run the command from a different cluster and point to the cluster where the gateways are located, use `-cluster` parameter can be used to provide the name of that cluster.

For example, suppose that you are configuring table replication from the cluster `sanfrancisco` to the cluster `newyork` and want to use two gateways. The nodes on which these gateways are located are named `gw1` and `gw2` .

The command that you run will look like this:

```
maprcli cluster gateway set -dstcluster newyork -gateways "gw1.bigcompany.com gw2.bigcompany.com"
```

Note: If you are indexing MapR-DB data to Elasticsearch, the `-dstcluster` parameter is set to the MapR source cluster.

Adding a DNS record to your DNS server's zone file for your domain

In your DNS server's zone file for your domain, add a record for the cluster where gateways are located, listing the nodes to use as gateways. You can use the MapR Control System (MCS) to create a record that you can copy into a DNS configuration file, run a maprcli command to generate the record, or create a record manually.

To create a record with the MCS, follow these steps:

1. Log into MCS on the cluster where the gateways are located.
2. In the Navigation pane, select **MapR-DB Tables**.
3. In the **MapR-DB Tables** section, click the button **Generate Gateway DNS**. A window opens with the generated DNS entry.
4. Copy and paste the record into your zone file.

To generate a record by using the maprcli, follow these steps:

1. On the cluster where the gateways are located, run the command `maprcli cluster gateway local -format dns` . If you want to run the command from a different cluster and point to the cluster that hosts the gateways, use the `-cluster` parameter to provide the name of the latter cluster.
2. Copy and paste the output of this command into your zone file.

If you want to create a record manually, use the following format:

```
gateway.<clustername> IN TXT "<space-delimited list of hostnames>"
```

You can also specify IP addresses, though using hostnames is recommended so that it is easier to locate gateways if their IP addresses change. Combinations of hostnames and IP addresses are also supported. The default port is 7660. If a gateway is using a different port, append a colon to the address and then specify the port number. Here is an example entry:

```
gateway.newyork.bigcompany.com gw1ny.bigcompany.com gw2ny.bigcompany.com
```

Multi-homing is also supported. Simply separate the entries for a single node with semicolons, as in this example that uses IP addresses:

```
gateway.newyork.bigcompany.com 10.10.34.20 10.10.34.22 10.10.34.24;173.194.79.121
```

If a Gateway Fails

If a gateway fails, the warden service tries three (3) times to restart it automatically. After an interval, the warden tries again three times to start the gateway. You can configure the interval by using the parameter `services.retryinterval.time.sec` in the `warden.conf` file. The default is 30 minutes.

During the time that the gateway is down, source clusters will resend updates to other gateways. Source clusters will also ping the failed gateway with an exponentially increasing backoff.

If all of the gateways fail in a destination cluster, source clusters will ping the failed gateways in the same manner. Updates pending replication are stored on disk in an internal data structure until at least one gateway in the destination cluster comes back online. Therefore, you will see additional storage costs during a gateway outage. The Gateway Service Down alarm in MCS will notify you when none of the gateways in a destination cluster can be reached.

If the additional storage becomes too costly, you can follow either of these procedures:

If you are replicating to a MapR-DB binary table:

1. Run the `maprcli table replica remove` (../ReferenceGuide/table-replica-remove.html) command to stop replicating to the replica. This action deletes the pending updates.
2. Resolve the gateway outage.
3. Recreate the replica and start replicating to it by running the `maprcli table replica autosetup` (../ReferenceGuide/table-replica-autosetup.html) command.

If you are replicating to a MapR-ES stream:

1. Run the `maprcli stream replica remove` command to stop replicating to the replica stream. This action cancels the pending updates to the replica stream.
2. Resolve the gateway outage.
3. Run the command `maprcli stream replica autosetup` to recreate the replica stream and start replicating to it.

If you are replicating to an Elasticsearch type:

1. Run the `maprcli table replica elasticsearch remove` (../ReferenceGuide/table-replica-elasticsearch-remove.html) command to stop replicating to the type. This action deletes the pending updates.
2. Resolve the gateway outage.
3. Delete the type from the Elasticsearch cluster.
4. Recreate and load the Elasticsearch type with the `maprcli table replica elasticsearch autosetup` (../ReferenceGuide/table-replica-elasticsearch-autosetup.html) command. If you originally created the type manually because you set up custom mapping of MapR-DB data to data types other than string, first recreate the type with the manual method that you used. Then, run the `maprcli table replica elasticsearch autosetup` command.

Troubleshooting

You can refer to two log files for each gateway when troubleshooting. Both are in the `/opt/mapr/logs` directory on the node where the gateway is running:

- `gateway.log`
- `gatewayinit.log`

MapR-DB Lookup Order

MapR-DB uses the following order to locate the gateways that are running in a destination cluster.

- Look up the destination cluster's name and gateway addresses in the information specified by the `maprcli cluster gateway set` (../ReferenceGuide/cluster-gateway-set.html) command. If a list of gateways, then a DNS lookup is performed.
- Perform a DNS lookup of the destination cluster and the addresses of the gateways. If no DNS record for the destination cluster is found, then the lookup goes to the `mapr-clusters.conf` file.
- Look up the destination cluster's name and the CLDB node addresses in the `mapr-clusters.conf` file under the assumption that gateways are running on all of the CLDB nodes and only on those nodes.