

Configuring Cruise Control

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Configuring capacity estimations and goals

Cruise Control rebalancing works using capacity estimations and goals. You need to configure the capacity estimates based on your resources, and set the goals for Cruise Control to achieve the Kafka partition rebalancing that meets your requirements.

For the rebalancing, you need to provide the capacity values of your resources. These values are used for specifying the rebalancing criteria for your deployment. The following capacity values must be set:

Capacity	Description
capacity.default.cpu	100 by default
capacity.default.network-in	Given by the internet provider
capacity.default.network-out	



Note: For the capacity estimates, the disk capacity value is also needed. However, Cruise Control automatically retrieves the disk capacity value from the `kafka_log_directory_disk_total_space` Kafka metric.

The optimizers in Cruise Control use the network incoming and outgoing capacities to define a boundary for optimization. The capacity estimates are generated and read by Cruise Control. A `capacity.json` file is generated when Cruise Control is started. When a new broker is added, Cruise Control uses the default broker capacity values. However, in case disk related goals are used, Cruise Control must be restarted to load the actual disk capacity metrics of the new broker.

After setting the capacity estimates, you can provide different goals that define the optimization proposals given by Cruise Control. Default goals are used to pre-compute optimization proposals that can be applied regardless of any anomalies. These default goal settings on a healthy cluster can optimize resource utilization. Supported goals are also available to assist the optimized rebalancing process. When these goals are fulfilled, the rebalancing is successful. When the goals are violated, self-healing can be used and rebalancing must be carried out.

Cruise Control has an anomaly detection feature where goal violations can also be set. The `anomaly.detection.goals` configuration defines when the goals are not met, thus causing a violation. These anomalies can be fixed by the proposal generated from the `self.healing.goals` configuration. In case there is no self-healing goal specified, Cruise Control uses the default goals setting. Hard goals can also be set to guarantee the fulfilment of any optimization or self-healing process.

For more information about self-healing and goal violation, see the [How Cruise Control self-healing works](#) section.

You can find the capacity estimate and goal configurations at the following location in Cloudera Manager:

1. Navigate to Management Console > Environments, and select the environment where you have created your cluster.
2. Select Cloudera Manager from the services.
3. Select Clusters > Cruise Control.
4. Click Configuration.
5. Select Main from the Filters.

The following table lists all the configurations that are needed to configure Cruise Control specifically to your environment. For the list of goals, see the [upstream Cruise Control documentation](#).



Note: The security settings are not listed in the table below.

Configuration	Description
num.metric.fetchers	Parallel threads for fetching metrics from the Cloudera Manager database

Configuration	Description
default.goals	List of default goals
goals	List of supported goals
hard.goals	List of goals that any optimization proposal must fulfill
self.healing.goals	List of goals to be used for self-healing relevant anomalies
anomaly.detection.goals	List of goals that the anomaly detector should detect if they are violated
partition.metric.sample.store.topic	Storing Cruise Control metrics
broker.metric.sample.store.topic	Storing Cruise Control metrics
partition.metrics.window.ms	Time window size for partition metrics
broker.metrics.window.ms	Time window size for broker metrics
num.partition.metrics.windows	Number of stored partition windows
num.broker.metrics.windows	Number of stored broker windows

Configuring Metrics Reporter in Cruise Control

You can choose between using the default Cruise Control Metrics Reporter or using the Cloudera Manager Metrics Reporter for fetching metrics in Cruise Control. Cloudera recommends using the Cloudera Manager solution with light installations, and the default solution with heavy installations of Kafka deployments.

Procedure

1. Access Cloudera Manager for the Cruise Control configurations.
 - a) Navigate to Management Console > Environments , and select the environment where you have created your cluster.
 - b) Select the Streams Messaging cluster from the list of Data Hub clusters.
 - c) Select Cloudera Manager from the services.
 - d) Select Clusters > Cruise Control .
 - e) Click Configuration.
2. Search for Metrics Reporter.
3. Select CM metrics reporter or Cruise Control metrics reporter based on your requirements.
4. Click Save changes.
5. Click on Action > Restart next to the Cruise Control service name to restart Cruise Control.

Adding self-healing goals to Cruise Control in Cloudera Manager

As self-healing is enabled by default for Cruise Control, you only need to specify the actions Cruise Control should take when detecting anomaly types by providing self-healing goals in Cloudera Manager.

Procedure

1. Access Cloudera Manager for the Cruise Control configurations.
 - a) Navigate to Management Console > Environments , and select the environment where you have created your cluster.
 - b) Select the Streams Messaging cluster from the list of Data Hub clusters.
 - c) Select Cloudera Manager from the services.
 - d) Select Clusters > Cruise Control .
 - e) Click Configuration.
2. Search for Self-Healing Goals.
3. Add the required self-healing goals to the corresponding field.
4. Click Save changes.
5. Click on Action > Restart next to the Cruise Control service name to restart Cruise Control.