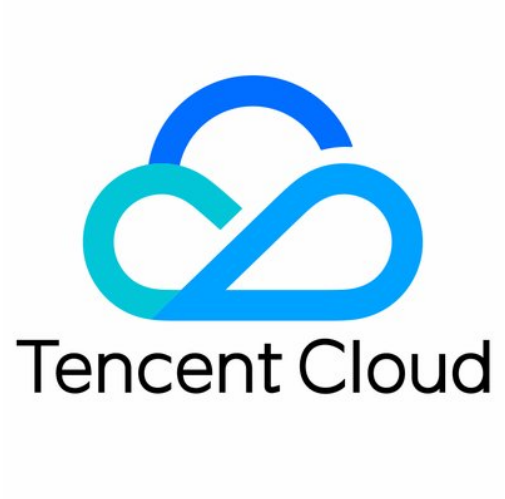
Elastic MapReduce

FAQs

Product Documentation



Contents

FAQs
Basic EMR Issues

Last updated : 2020-08-10 16:13:35

How do I view task logs?

You can log in to any EMR server and run the following command to view task logs:

```
yarn logs -applicationId application_1507732460084_0057
```

Note :

- This command can only be executed by a Hadoop user.
- If it is a task of another user, you can add the `-appOwner username` parameter.

To view the cause of a task exception, run the following command:

```
yarn logs -applicationId application_1507732460084_0057|grep -A20 Exception
```

How do I adjust the computing resources of a cluster?

Cluster computing resources are determined by the following two configuration items in `yarn-site.xml` :

```
<property>
<name>yarn.nodemanager.resource.cpu-vcores</name>
<value>4</value>
</property>
<property>
<name>yarn.nodemanager.resource.memory-mb</name>
<value>14745</value>
</property>
```

By default, `cpu-vcores` is equal to number of CPU cores of the server, and `memory-mb` is equal to 91% of the memory size of the server. You can adjust them based on your actual needs, but if they are too large, there may be a risk of server failure.

How do I fix an out of memory error?

If an out of memory error occurs when you are submitting a MapReduce task or running an SQL script through Hive, fix it by setting the following parameters:

- `set mapreduce.map.java.opts=-Xmx4096m;`
- `set mapreduce.reduce.java.opts=-Xmx4096m;`

The memory parameter can be adjusted based on your actual computation needs. It can also be written in the `~/.hiverc` file in Hive and will be executed automatically when submitted.

How do I estimate the cluster size?

Suppose that you need to run an SQL query. If 64 vcores and 128 GB memory are needed for getting the query result in the specified time period, and the business requires 10 concurrencies, then the required resources would be 640 vcores and 1,280 GB memory. If the server specification you are using is 24 cores and 48 GB memory, then you need around 1280 / 48 = 27 servers.

How do I set up a fetch query in Hive?

The default query in Hive is as follows:

```
select * from tablename where a=' 1'  limit 10;
```

The default query does not start a computation task. You can start a distributed query by adding the `set hive.fetch.task.conversion=none` parameter.

How do I choose the cluster storage media?

An EMR cluster supports the following storage media: HDD local disk, SSD local disk, HDD cloud disk, SSD cloud disk, and COS. You can choose the most appropriate one based on your actual needs:

- If your application scenario is large-scale data warehouse analysis which is not very latency-sensitive, you are recommended to use COS as the underlying storage.
- If you are very familiar with HDFS and the cost of migration to COS would be too high, you can use HDD cloud disks.
- If your application is a massive columnar database (HBase) which requires efficient writing and querying, you are recommended to use SSD local or cloud disks.

Failed Operations on EMR Master Node Due to Low Configuration

Last updated : 2020-05-15 17:26:14

How do I fix failed operations on the EMR master node due to low configuration?

Symptoms

As the master node's configuration is too low, Hive or Spark jobs submitted to it report errors or are directly killed.

Cause analysis

The memory of the master node is insufficient, causing other applications to be killed due to OOM.

Solution

1. Too many businesses are deployed on the EMR master node, which usually becomes the bottleneck of the entire cluster. However, the master node cannot be scaled out; instead, it can only be upgraded as described below:
   - First, find the node where the standby NameNode resides in the cluster.
     - Run the following command on the standby NameNode to enter the safe mode.

       ```
       hdfs dfsadmin -fs 10.0.0.9(standby node IP):4007 -safemode enter Enter the safe mode
       ```

     - Run the following command on the standby NameNode to save the metadata.

       ```
       hdfs dfsadmin -fs 10.0.0.9(standby node IP):4007 -saveNamespace Save the metadata
       ```

     - Run the following command on the standby NameNode to exit the safe mode.

       ```
       hdfs dfsadmin -fs 10.0.0.9(standby node IP):4007 -safemode leave Exit the safe mode
       ```

   - Then, in the EMR Console (or the CVM Console for a legacy cluster), upgrade the active node.
   - Upgrade the standby node and make the configuration of the master's active node the same as that of the standby node.

     > If your cluster is not a high-availability one, then it will become unavailable for a while during the upgrade.

2. In Spark, jobs are committed in client mode by default, and the driver runs on the master node. You can change the mode to master mode and then commit jobs.
3. For the Hive component, enable the router node, migrate HiveServer2 to it, and then disable the Hive component on the master node. For detailed directions, please see Migrating HiveServer2 to Router.
4. Disable components that are not commonly used on the master node or migrate Hue to the router node.
   Directions for migrating Hue to the router node:
   - Enter the EMR Console, Add a router node on the Cloud Hardware Management page, and select the Hue component.
   - After the scale-out, disable the original Hue component on the master node, retain that on the router node, bind a public EIP to the router node, and open the source policy and ports in the security group.

Preset values of memory size for master node components in EMR cluster and recommendations

1. List of heap memories of common components

Component	Process	Configuration File	Configuration Item	Default Heap Memory (in MB)
HDFS	Namenode	hadoop-env.sh	NNHeapsize	4,096
YARN	Resourcemanager	yarn-env.sh	Heapsize	2,000
Hive	Hiveserver2	hive-env.sh	HS2Heapsize	4,096
HBase	Hmaster	hbase-env.sh	Heapsize	1,024
Presto	Coordinator	jvm.config	Maximum JVM	3,072
Spark	spark-driver	spark-defaults.conf	spark.driver.memory	1,024
Oozie	Oozie	-	-	1,024
Storm	Nimbus	-	-	1,024

2. Suggested preset values for components

Component	Suggested Heap Memory Size

HDFS (NameNode)	Minimum heap memory = 250 x number of files + 290 x number of directories + 368 x number of blocks
YARN (ResourceManager)	It can be increased as needed
Hive (HiveServer2)	It can be increased as needed
HBase (HMaster)	The master node only receives DDL requests and performs load balancing. The default size of 1 GB is generally sufficient
Presto (Coordinator)	Use the default value
Spark (spark-driver)	It can be increased as needed
Oozie (oozie)	Use the default value
Storm (Nimbus)	Use the default value

3. Suggested idle memory size for servers: 10–20% of the total memory size.
4. You can deploy EMR components in independent mode or hybrid mode as needed.
   - Independent deployment: it is suitable for HDFS clusters for storage, HBase clusters for analysis of massive amounts of data, and Spark clusters for job computation.
   - Hybrid deployment: multiple components can be deployed in a cluster in this mode, which is suitable for testing clusters or scenarios where the business volume is not high or resource preemption is negligible.

Unhealthy guidance for Yarn nodemanager nodes

Last updated : 2020-10-13 15:51:31

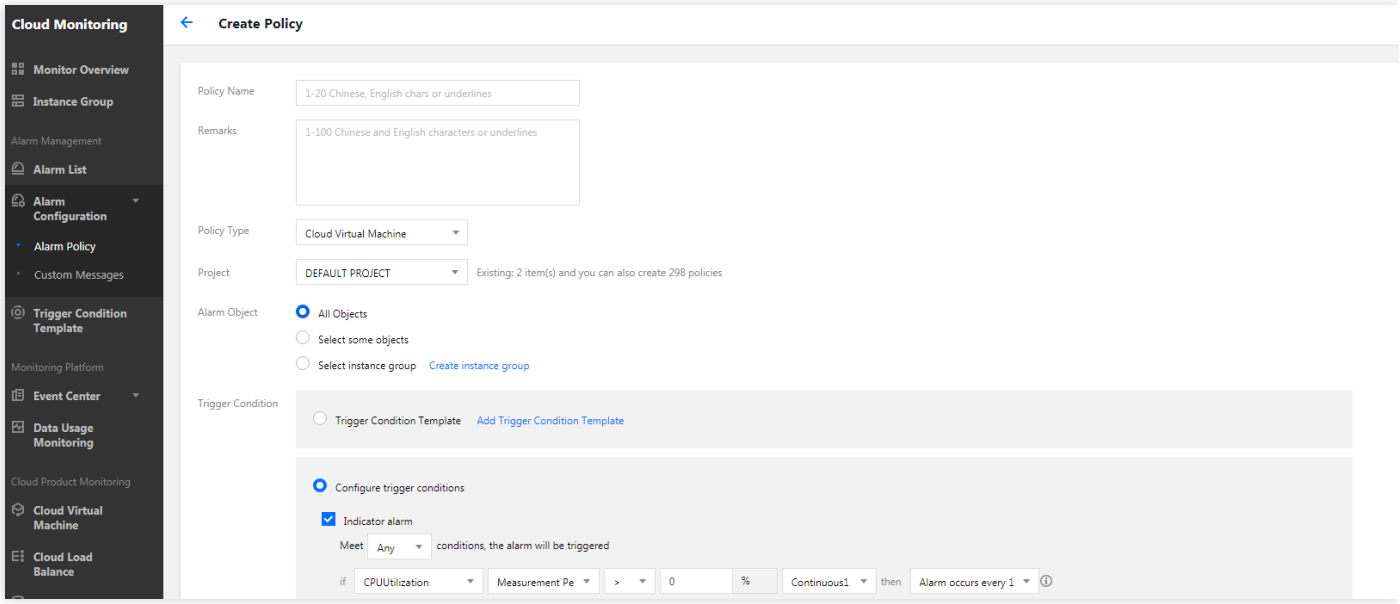
How do I fix an unhealthy node in YARN NodeManager?

Symptoms

When disk utilization of a core node exceeds 90%, NodeManager will set it as "Unhealthy".

Solution

1. We recommend that you use Cloud Monitor and set the alarm threshold for ERM CVM disk utilization to 80-85%, so that the node disk utilization won't exceed 90%.
   Configure the EMR disk utilization threshold in Cloud Monitor at the following address:
   `https://console.cloud.tencent.com/monitor/policyTemplate`



2. If the disk capacity is insufficient, you can add core nodes and perform load balancing to reduce the load of HDFS storage on the core nodes.
3. Clean up the disk regularly, especially the following parts:
   - Storage space of the core nodes.
   - Entire storage space of HDFS.

InternalError in the Console

Last updated : 2020-05-15 17:26:14

How do I fix the "InternalError" reported by the console?

1. "InternalError" is reported when a non-root account attempts to purchase an EMR cluster.

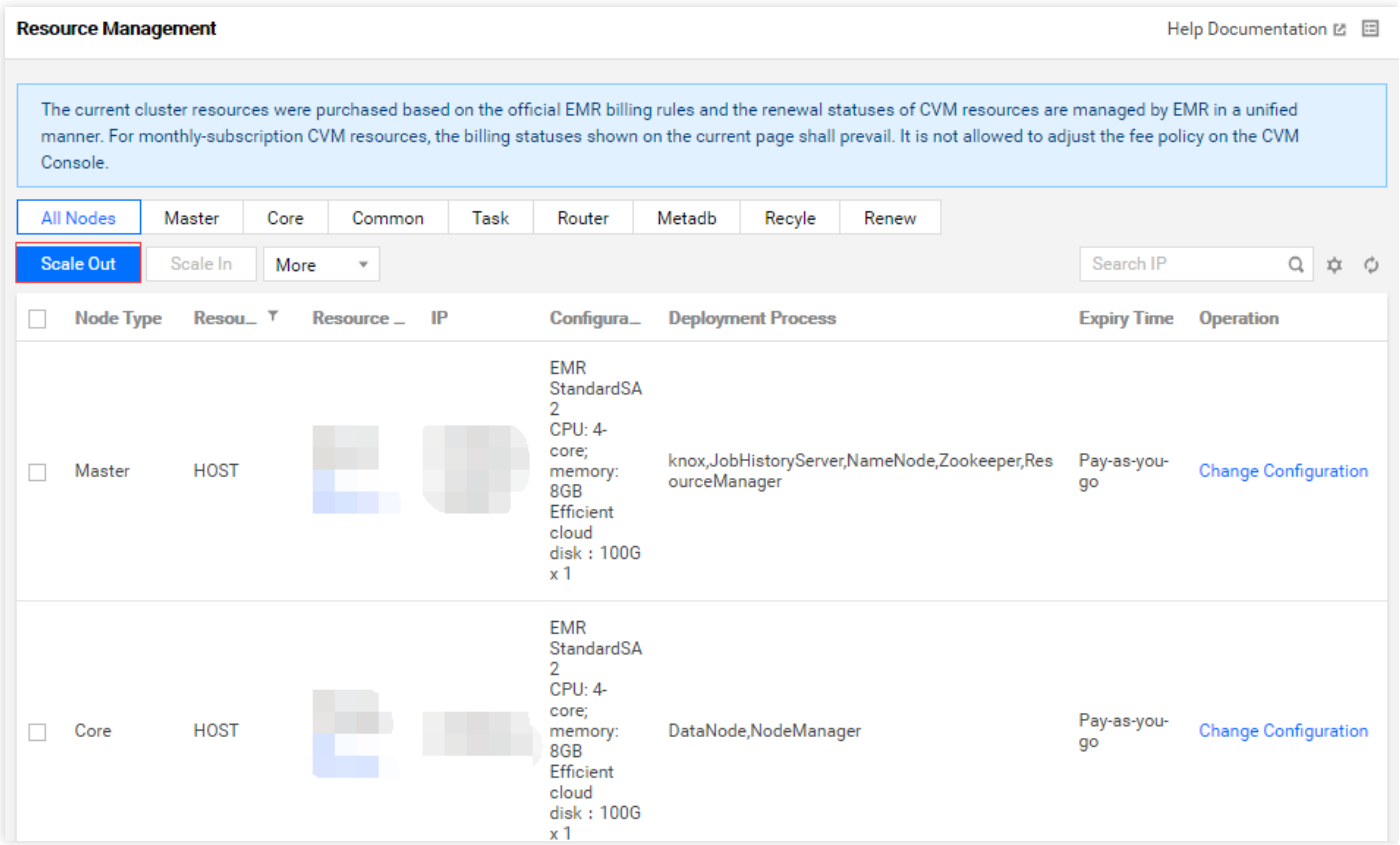
Cause: the current account lacks permission.
Solution: confirm whether the current account has completed identity verification and been granted the payment permission.
2. "InternalError" is reported when a non-root account clicks **Hardware Management** in the console.
Cause: the current account lacks permission.
Solution: open the following link: `https://console.cloud.tencent.com/cam/role/grant?roleName=EMR_QCSRole&policyName=QcloudAccessForEMRRole&principal=eyJzZXJ2aWNlIjoiZW1yLmNsb3VkLnRlbmNlbnQuY29tIn0=&serviceType=EMR` . Then, grant the EMR permission by using the root account.

HiveServer2 migrates to Router

Last updated : 2020-08-20 15:11:05

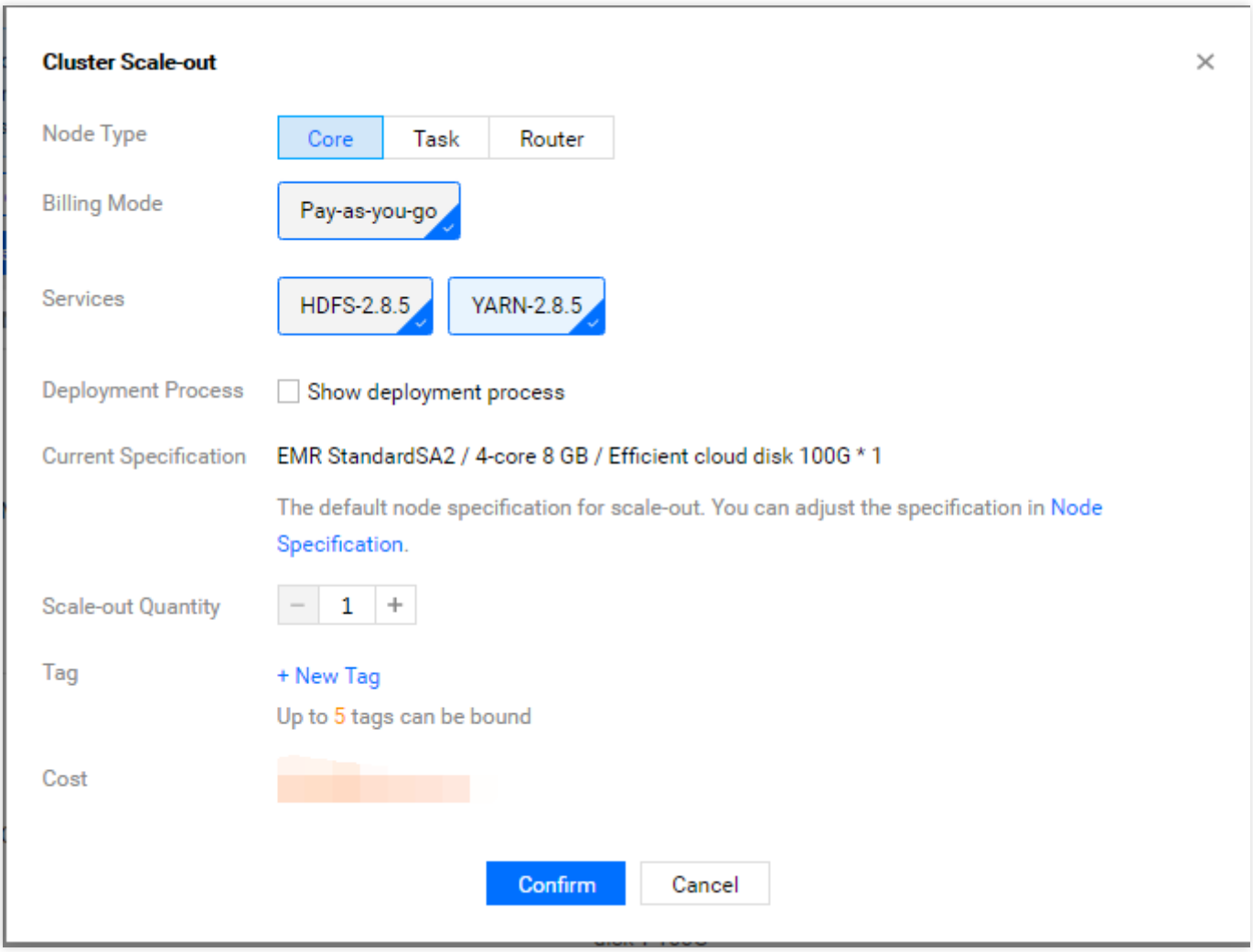
How do I migrate HiveServer2 to a router node?

1. Log in to the EMR Console, select the target cluster in **Cluster List**, and click its **ID/Name** to enter the cluster details page. Select **Cluster Resources** > **Resource Management** to enter the resource management page, and then click **Scale Out** to enter the cluster scale-out page.



On the cluster scale-out page, select **Router** as the **Node Type** and **Hive-2.3.3** as the **Services**,

and configure other options as needed.

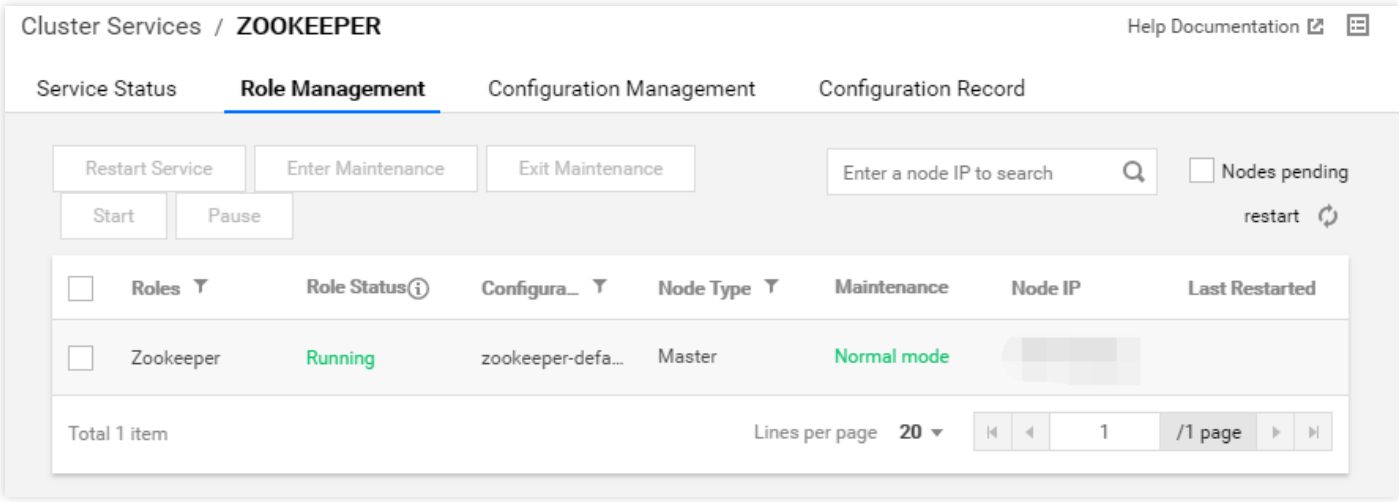


2. Log in to the router node and modify the configuration file `hive-site.xml` .

```
vim /usr/local/service/hive/conf/hive-site.xml
<property>
   <name>hive.metastore.uris</name>
   <value>thrift://<router-ip>:7004</value>
</property>
```

3. Disable the Hive service on the master node.
   In **Cluster Services**, select **Operation** > **Role Management** of the Hive component, pause all

Hive processes on the master node, and restart the Hive processes on the router node.



4. Conduct a test.
   On the router node, check whether HiveServer2 can be properly connected to and existing tables can be queried; and if so, the migration is successful.

```
cd /usr/local/service/hive
./bin/beeline -u "jdbc:hive2://<router-ip>:7001" -n hadoop -p hadoop
show tables;
```

5. Modify the Hue configuration file to route requests to the Hive component on the router node.

```
vim /usr/local/service/knox/conf/topologies/emr.xml Modify `HIVE` and `HIVEUI`.
<service>
<role>HIVE</role>
<url>http://Router-ip:7003</url>
<param>
<name>replayBufferSize</name>
<value>8</value>
</param>
</service>
<service>
<role>HIVEUI</role>
<url>http://Router-ip:7003</url>
</service>
```

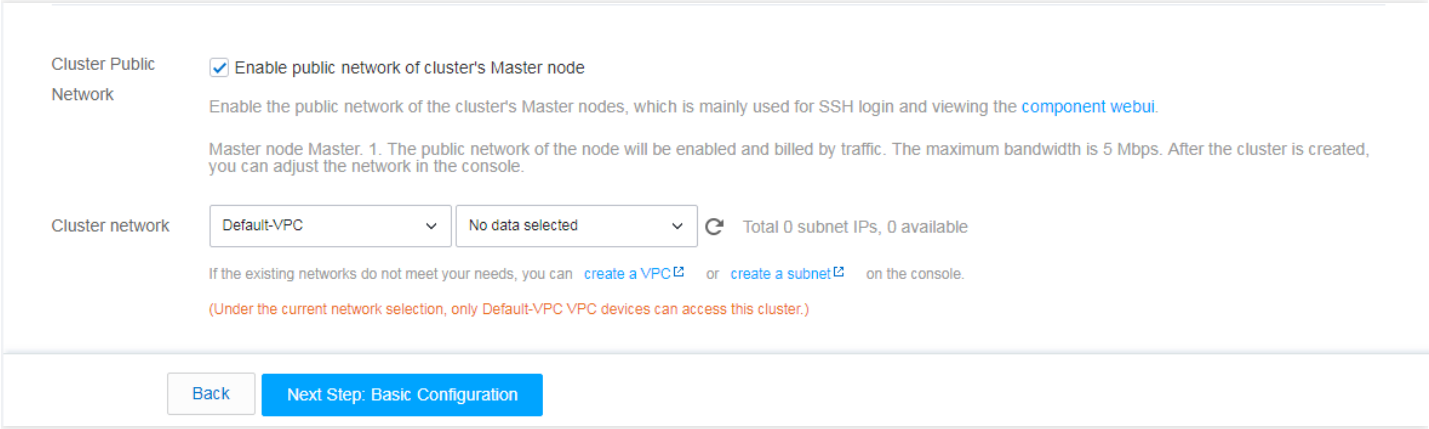
   Run the following command to restart Knox.

```
su hadoop
/usr/local/service/knox/bin/gateway.sh stop ; /usr/local/service/knox/bin/gateway.sh start
```

Cluster Network Settings

Last updated : 2020-04-21 09:45:56

What should I do if the error "No subnet in the AZ selected for the cluster" is displayed when I try to set the cluster network on the purchase page?



A VPC can be deployed across AZs, and all VPCs in the current region will be loaded by default. A subnet belongs to an AZ, and all existing subnets in the AZ where the cluster resides will be loaded by default. Please check whether there are available subnets in the selected AZ.