

E-MapReduce

FAQ

FAQ

EMR Fundamental FAQs

Q: What is the difference between a job and an execution plan?

A: Descriptions of a job and an execution plan are as follows:

Job

In E-MapReduce, to create a job is to create a configuration about how to run the job. A job cannot be run directly. The configuration of a job must contain the jar package to be run for the job, the input and output addresses of data, and some running parameters. After such a job is created, you can name it (that is, define a job). When you want to debug the running job, an execution plan is required.

Execution plan

An execution plan is a bond that associates the job and the cluster. Through the execution plan, multiple jobs can be combined into a job sequence and prepare a running cluster for the job (or automatically create a temporary cluster or associate an existing cluster). The execution plan also helps to set a periodical execution plan for the job sequence and automatically releases the cluster after the task is accomplished. The execution record list displays successful execution plans and logs.

Q: How can I view a job log?

A: The E-MapReduce system uploads running job logs to OSS according to the jobid plan (that is, the path that is set by users when they create the cluster). You can view the job logs directly on the webpage. If you log on to the master node for job submission, and you are running the script, the logs are determined by your script according to your plan.

Q: How can I view logs on OSS?

A: You can search directly through OSS for all log files and download them. However, since OSS is

unavailable for direct viewing of log files, this procedure may cause issues. The following describes how to use OSS to view log files.

1. Go to the execution plan page.
2. Find the corresponding execution plan and click "Running Log" to enter the running log page.
3. Find the specific execution log on the running log page, such as the last execution log.
4. Click the corresponding "Execution Cluster" to view the ID of the execution cluster.
5. Search for OSS://mybucket/emr/spark/cluster ID directory under the OSS://mybucket/emr/spark directory.
6. Multiple directories are displayed under OSS://mybucket/emr/spark/cluster ID/jobs according to the execution ID of the job, and each directory stores the running log file of the job.

Q: What is the timing policy of the cluster, execution plan, and running job?

A: Three timing policies are as follows:

The timing policy of the cluster

In the cluster list, the running time of every cluster is displayed. Calculation of the running time is: Running time = Time when the cluster is released - Time when the cluster is established. Once a cluster starts to be established, the timing starts until the end of the lifecycle of the cluster.

The timing policy of the execution plan

In the running log list of the execution plan, the running time of every execution plan is displayed. The timing policy can be summarized in two categories:

If the execution plan is executed on demand, the running process of every execution log involves the cluster creation, job submission for running, and cluster release. The calculation policy of an on-demand execution plan is: Running time = The time when the cluster is created + The total time used for completing running all the jobs in the execution plan + The time when the cluster is released.

If the execution plan is associated with an existing cluster, the entire execution cycle does not involve the cluster establishment and releasing. In this case, Running time = The total time used for completing running all the jobs in the execution plan.

The timing policy of the job:

The job here refers to the jobs assigned to the execution plan. Click the View Job List on the right of the running log of every execution plan to see the job. Here the calculation of the running time of every job is: Running time = The actual time when the job running ends - The actual time when the job starts to run. The actual time when the job running starts (ends) refers to the time points when the job is actually scheduled for running or stops running by the Spark or Hadoop cluster.

Q: During MaxCompute reading/writing, why does the java.lang.RuntimeException.Parse response failed: '<!DOCTYPE html>...' display?

A: Check whether the MaxCompute tunnel endpoint is correct.

Q: Why is the TPS inconsistent when multiple Consumer IDs consume the same Topic?

A: The topic may have been created in a beta or other testing environment, as a result, inconsistent TPS appears. Please submit a ticket indicating the corresponding topic and Consumer ID to MQ for troubleshooting.

Q: Can I view job logs on the worker nodes in E-MapReduce?

A: Yes. However, the "Save Log" option must be enabled when the cluster is created. The log location is: Execution Plan List > Running Log > Execution Log > View Job List > Job List > View Job Worker Instance.

Q: Why there is no data in the external table created in Hive?

A: Take the following example:

```
CREATE EXTERNAL TABLE storage_log(content STRING) PARTITIONED BY (ds STRING)

ROW FORMAT DELIMITED
FIELDS TERMINATED BY '\t'
STORED AS TEXTFILE
LOCATION 'oss://xxx:xxxx@log-124531712.oss-cn-hangzhou-internal.aliyuncs.com/biz-logs/airtake/pro/storage';

hive> select * from storage_log;

OK

Time taken: 0.3 seconds

No data is in the created external table.
```

In the preceding example, Hive does not automatically associate the partitions directory of the specified directory. You must associate it manually. For example:

```
alter table storage_log add partition(ds=123);
OK
Time taken: 0.137 seconds
hive> select * from storage_log;
OK
abcd 123
efgh 123
```

Q: Why does the Spark Streaming job stop after running for a period of time?

A: First, check whether the Spark version is earlier than Version 1.6. Spark Version 1.6 repaired a memory leak bug. Earlier versions of Spark may retain this bug, which causes container memory overuse, meaning the job is not executed. Additionally, check whether your code has been optimized for memory usage.

Q: Why is a job still in “Running” status in E-MapReduce Console even though the Spark Streaming job has ended?

A: Check whether the running mode of the Spark Streaming job is “yarn-client.” If yes, we recommend that you change it to the “yarn-cluster” mode. E-MapReduce is not currently optimized for monitoring the status of Spark Streaming jobs in the “yarn-client” mode.

Q: How can I transmit AccessKeyId and AccessKeySecret parameters for jobs to read/write OSS data?

A: One simple method is to use the complete OSS URI. For more information, see: Development Manual > Development Preparation.

Q: Why does “Error: Could not find or load main class” display?

A: Check whether the path protocol header of the job jar package is “ossref” in the job configuration. If the protocol header is different, change it to “ossref” .

Q: How can I use the cluster machine division?

A: The E-MapReduce contains a master node and multiple slave (or worker) nodes. The master node does not participate in data storage and computing tasks and the slave nodes are used for data storage and computing. For example, in a cluster with three 4-core 8G machines, one of the machines serves as the master node and the other two serve as the slave nodes. In this case, the available

computing resources of the cluster are two 4-core 8G machines.

Q: How can I use local sharing library in MR jobs?

A: A simple method is to modify the mapred-site.xml file. For example:

```
<property>
<name>mapred.child.java.opts</name>
<value>-Xmx1024m -Djava.library.path=/usr/local/share/</value>
</property>

<property>
<name>mapreduce.admin.user.env</name>
<value>LD_LIBRARY_PATH=$HADOOP_COMMON_HOME/lib/native:/usr/local/lib</value>
</property>
```

Then add the library file you need.

Q: How can I specify the OSS data source file path in the MR/Spark job?

A: See the following.

OSS URL: oss://[accessKeyId:accessKeySecret@]bucket[.endpoint]/object/path

This URI is used for specifying input/output data sources in the job, and is similar to hdfs://. In OSS data operations, you can configuration accessKeyId, accessKeySecret, and endpoint to Configuration, or you can specify accessKeyId, accessKeySecret, and endpoint in URI. For more information, see [Development Preparation](#).

Q: Why does the Spark SQL display “Exception in thread “main” java.sql.SQLException: No suitable driver found for jdbc:mysql:xxx” error?

A:

1. The mysql-connector-java of an earlier version may have similar issues. Update it to the latest version.
2. In the job parameters, use “—driver-class-path ossref://bucket/.../mysql-connector-java-[version].jar” to load mysql-connector-java package. The preceding issue also occurs when mysql-connector-java is directly packaged into the job jar package.

Version Upgrade

- E-MapReduce version is updated regularly, such as 1.0, 1.1, 1.2.
- The software version and packaged software version are stable. It does not support selection from multiple different versions of software, and it is not recommended for the user to change the version of the software. For example, Hadoop 2.6.0 and Spark 1.4.1 are built in the version 1.0.
- Once a version is selected, and a cluster is created, the version used in the cluster is not auto updated. For example, in version 1.0, Hadoop remains at 2.6.0, and Spark remains at 1.4.1. If subsequently the version is updated to 1.1, Hadoop is updated to 2.7.0, and Spark is updated to 1.5.0. The created cluster remains unaffected, and only new clusters use the new images.
- If you update the version of the cluster, for example, from 1.0 to 1.1, some incompatibilities may occur. So you must test your jobs to make sure that they can normally run in the new software environment.

Cluster Creation

Error: The Pay-As-You-Go ECS is temporarily unavailable in the region

This usually happens when Pay-As-You-Go ECS instance has been made temporarily unavailable in the region you selected to create the cluster. We recommend that you change the region and make a purchase again.

Error message: The request processing has failed due to some unknown error, exception, or failure.

E-MapReduce relies on Alibaba Cloud ECS, and this error happens when an unknown error occurs in the ECS management and control system. You can try again later, or immediately submit a ticket to the ECS support team for further assistance.

Error: The Node Controller is temporarily unavailable

E-MapReduce relies on Alibaba Cloud ECS. This error appears when a temporary problem occurs in the related ECS management and control system. Please retry the cluster creation later.

Error: ECS in the zone or cluster is insufficient

It usually happens when ECS inventory in the zone is insufficient. You can manually change it to another zone for creation or use random mode.

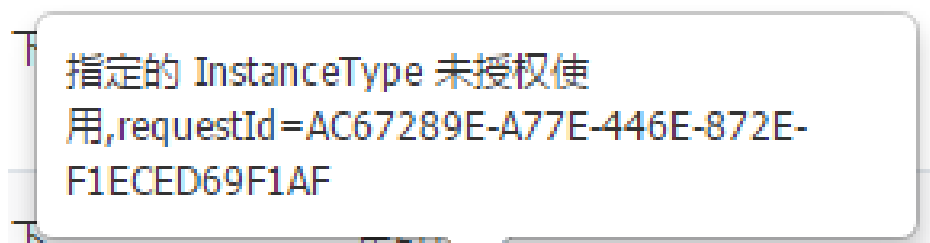
Error: The specified instance type is not authorized to be used

ECS Pay-As-You-Go high-end models (all models with 8 or more cores) can be used after the user has applied for activation. Click [here](#) to apply. When the application has passed, you can create high-end models. You can apply for one of the 4 types for use with E-MapReduce, which include 8-core 16 GB, 8-core 32 GB, 16-core 32 GB, or 16-core 64 GB .

Use of Execution Plan

High-configuration Instance Application

If you have not applied to activate a high-configuration instance, you fail to create the cluster by using a high-configuration instance, and the following error message appears:



Click [here](#) to submit a ticket to activate a high-configuration instance.

Use of Security Group

The security group that is created in E-MapReduce is used during cluster creation by E-MapReduce. The main reason being that only port 22 is opened in the cluster created by E-MapReduce. We recommend that the users can divide the ECS instances by function and place them into different user security groups. For example, the security group of E-MapReduce is “E-MapReduce security group” while the security group that the user has is “EMR-security group” . Each security group is provided with different access control as required. If it is

necessary to link with the existing cluster, see the following method.

Add E-MapReduce cluster to existing security group.

On the cluster, click to view the Cluster Details, and the security group where all ECS instances of the cluster are located is shown as follows . Go to the **ECS management** console, and click the tab "Security Group" in the lower-left, to find the corresponding security group in the list, such as the "EMR-security group" mentioned earlier.

Click "Manage instance" in the security group operation. You can see many ECS instance names which start with emr-xxx. These are corresponding ECS instances in E-MapReduce cluster. Select all these instances and click "Move to Security Group" and select the new security group to be added to.

Add the existing cluster into the E-MapReduce security group

Find out the security group where the existing cluster is located, repeat the preceding operations and move to the E-MapReduce security group. Some scattered machines can be selected in the ECS console interface directly. Then, the clusters are moved to the E-MapReduce security group in batch.

Security group rules

The security group rules are subject to the "or" relationship when an ECS instance is in several different security groups. For example, the E-MapReduce security group only opens port 22. "User-security group" opens all ports. When the E-MapReduce cluster is added to "User-security group" , machines in E-MapReduce open all ports. You must pay special attention during use.

FAQs about the Use of Execution Plan

1. Editing execution plan

Execution plan can only be edited when it is not in the running or the scheduling statuses. If the edit button has grayed out, confirm if the edit plan is in any of these statuses.

2. Execution of the execution plan

A newly created execution plan will be immediately executed after creation if it has been selected to be executed immediately. If the execution plan already exists, it will not be immediately executed after creation, and it requires manual execution.

3. Periodic execution time

The start time for a periodic execution cluster refers to the start time for execution of this execution plan, which is accurate to the minute.

The scheduling interval refers to the interval between this start time and the next execution time.

The first execution time is 2015/12/1 14:30:00, and the second execution time was 2015/12/2 14:30:00. It was executed once a day.

If the current time is greater than this value, then the latest qualifying time would be the first run time.

Assuming it is 9:30 on the morning of December 2, 2015, and the latest scheduling time is 2015/12/2 10:00:00 according to the scheduling rule. Then, the first schedule will be started at this time.

Cluster port configuration

Cluster port configuration

Hadoop HDFS

Service	Limits	Port	Access Requirements	Configuration	Description
NameNode	-	9000	External	fs.default.name or fs.defaultFS	fs.default.name has expired but is still usable.
NameNode	-	50070	External	dfs.http.address or	dfs.http.address has

				dfs.namenode.http-address	expired but is still usable.
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Hadoop YARN (MRv2)

Service	Limits	Port	Access Requirements	Configuration	Description
JobHistory Server	-	10020	Internal	mapreduce.jobhistory.address	-
JobHistory Server	-	19888	External	mapreduce.jobhistory.webapp.address	-
ResourceManager	-	8025	Internal	yarn.resourcemanager.resource-tracker.address	-
ResourceManager	-	8032	Internal	yarn.resourcemanager.address	-
ResourceManager	-	8030	Internal	yarn.resourcemanager.scheduler.address	-
ResourceManager	-	8088	Internal	yarn.resourcemanager.webapp.address	-

Hadoop MapReduce (MRv1)

Service	Limits	Port	Access Requirements	Configuration	Description
JobTracker	-	8021	External	mapreduce.jobtracker.address	-

Exception Diagnosis

Q: When Spark SQL is connected to RDS? Why does the “Invalid authorization specification, message from server: ip not in whitelist” appear?

A: Check the RDS whitelist settings and add the intranet addresses of the cluster machines to the RDS whitelist.

**Q: Why does “Exception in thread “main”
java.lang.RuntimeException: java.lang.ClassNotFoundException:
Class com.aliyun.fs.oss.nat.NativeOssFileSystem not found”
display?**

A: When reading/writing OSS data in Spark jobs, you must package the SDK provided by E-MapReduce into the Jar package. The specific operations can be found at: Development Manual > Spark > Development Preparation.

Q: Why memory overuse happens when Spark is connected to Flume?

A: Check whether the data receiving mode is Push-based. If it is a different mode, switch it to the Push-based mode for receiving data. Reference

Q: Why does java.io.IOException: Input stream not be reset when only 5242880 bytes have been written, and does not exceed the available buffer size of 524288 display?

A: If insufficient cache is detected, and the preceding error is displayed, we recommend that you use EMR-SDK Version 1.1.0 or later to avoid insufficient cache during OSS network reconnection tries.

**Q: Why does “Failed to access metastore. This class should not
accessed in
runtime.org.apache.hadoop.hive.ql.metadata.HiveException:
java.lang.RuntimeException: Unable to instantiate
org.apache.hadoop.hive.ql.metadata.SessionHiveMetaStoreClient”
display?**

A: The job execution mode must be yarn-client (or local) for Spark to process Hives data. Yarn-cluster

is not supported. Otherwise, the preceding exception appears. Some third-party packages in the job jar file may also trigger the exception while running Spark.

Q: During the use of OSS SDK in the Spark program, the following message appeared

“java.lang.NoSuchMethodError:org.apache.http.conn.ssl.SSLConnectionSocketFactory.init(Ljavax/net/ssl/SSLContext;Ljavax/net/ssl/HostnameVerifier)” , what does it mean?

A: The http-core and http-client packages that OSS SDK is dependent on have version conflicts with the Spark and Hadoop running environments. We recommend that you do not use OSS SDK in the code as it requires you to manually solve the dependency conflicts. However, if you want to perform some basic operations, such as list on OSS files, see [Simple operations on OSS files](#).

O&M FAQs

Cluster service management

You can purchase and deploy an ECS machine with the 1-core 2 GB Ubuntu system into the intranet environment to manage the access of the cluster.

Overview of all service access addresses in the cluster

Software	Service	Access Address
hadoop		
	yarn resourcemanager	k masternode1_private_ip:8088 ,masternode2_private_ip:8088
	jobhistory	masternode1_private_ip:19888
	timeline server	masternode1_private_ip:8188
	hdfs	masternode1_private_ip:50070,masternode2_private_ip:50070
spark		

	spark ui	masternode1_private_ip:4040
	history	masternode1_private_ip:18080
tez		
	tez-ui	masternode1_private_ip:8090/tez-ui2
hue		
	hue	masternode1_private_ip:8888
zeppelin		
	zeppelin	masternode1_private_ip:8080
hbase		
	hbase	masternode1_private_ip:16010
presto		
	presto	masternode1_private_ip:9090
oozie		
	oozie	masternode1_private_ip:11000
ganglia		
	ganglia	masternode1_private_ip:8085/ganglia

Appendix

Error codes

Common error codes

Error code	Description
4001	Request parameters do not meet the requirements, for example, parameters missing, or the parameter formats do not

	meet the requirements.
4005	No permission to access to other users' resources.
4006	This cluster is abnormal, and you cannot submit the job. Check whether the cluster associated with the execution plan is released.
4007	Security group name cannot be empty.
4009	Check whether your account has overdue charges or is frozen.
4011	This cluster is abnormal, and you cannot resume scheduling. Check whether the cluster associated with the execution plan is released.
5012	The number of the security groups created by the user has exceeded the limit. Go to Security Group Page to delete unnecessary security groups.
5038	The job cannot be modified in the running or pending execution plan until the associated execution plan is completed, and you can clone a new job and modify it for use.
5039	Failed to lock the cluster role, and some permissions are needed to run E-MapReduce. For the Role Description of the EMR, go to create .
5050	Failed to access the database. Try again later.
6002	Failed to update the cluster status.
8002	No operation permissions, use RAM for authorization.
8003	No permission for PassRole, use RAM for authorization.
9006	Cluster ID does not exist. Check it again.
9007	The logon password of the master node set in the creation of the cluster must contain uppercase and lowercase letters and numbers. The password length must be 8-30 characters.

ECS related errors

Error code	Description
The specified InstanceType is not authorized for using.	The model for the cluster creation has not been applied. Apply for activating high-configuration instance in the ECS purchase page.

The inventory of the zone or cluster is insufficient.

ECS quota in the zone is insufficient.

Cluster status

Cluster status table

Note: Cluster status can be viewed on the cluster list and the cluster details page.

Status Name	Status Code	Status Description
Creating	CREATING	The cluster is being created, which comprises two stages: 1. creating physical ECS machines; 2. starting the Spark cluster. Wait for a moment, and then it will reach the Running status.
Create Failed	CREATE_FAILED	An exception was thrown when creating the cluster. The created ECS machines will automatically rollback. Click the question mark at the right side of the status name on the cluster list page to view details of the exception.
Running	RUNNING	The cluster is in the running status.
Idle	IDLE	The cluster currently has no execution plan to run.
Releasing	RELEASING	This status can be reached after you click the Release button on the cluster status list. This status means that the cluster is being released. Wait for a while for the cluster to reach the Released status.
Release failed	RELEASE_FAILED	An exception was thrown when releasing the cluster. You can view details of the exception by clicking the question mark at the right

		side of the status name on the cluster list page. In this case, click the Release button again.
Released	RELEASED	The computing cluster and the ECS machine that hosts the computing cluster are in the released status.
Abnormal	ABNORMAL	If one or more computing nodes within the computing cluster encounters an unrecoverable error, the cluster presents this status. You can click the Release button to release this cluster.

Job status list

Note: Job status can be viewed on the JOB status list.

Status Name	Status Description
Job Ready	JOB creation information is complete and accurate and has been saved successfully. The job is ready to be submitted to the system's scheduling queue, and it will reach the Submitting status soon.
Submitting	The job is waiting in a queue of the computing cluster and has not been submitted to the computing cluster for computation.
Submission Failed	An exception was thrown when submitting the job to the computing cluster. If you need to execute this job again, you must clone this job and submit it again.
Running	The job is under computation in the computing cluster, please wait for a while. You can view the output log in real time by clicking the corresponding log button on the job list.
Run Successful	The job has been executed successfully in the computing cluster. You can view the related log by clicking the corresponding log button on the job list.
Run Failed	An exception was thrown when executing the job in the computing cluster. You can view the related log by clicking the corresponding log button on the job list.