Cloudera Runtime 7.2.11

# Hive Troubleshooting

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# Contents

# HeapDumpPath (/tmp) in Hive data nodes gets full due to .hprof files

## Condition

The HeapDumpPath (/tmp) in Hive nodes often gets full because of the .hprof files that are generated. Manually deleting these files to free up space does not always help because the files are generated every time there is an exception. Learn how to resolve this issue by modifying the relevant Tez properties.

## Cause

A .hprof file is created when a process exits with an Out Of Memory exception, and the file captures the state of Java Virtual Machine (JVM) when it crashes.

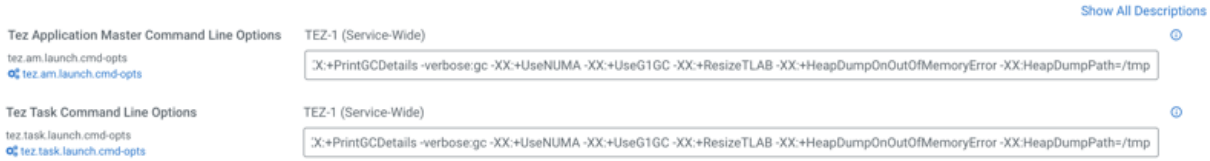
The default value for HeapDumpPath in the Tez Application Master and Tez Task Command Line Options properties is set to /tmp and therefore, Tez saves all the heap dump files in this location.

If you do not want the heap dump files to be saved in /tmp, you can either set the HeapDumpPath value to a different location on the node or choose not to capture heap dump (.hprof) files when a process exits.

## Solution

## Procedure

1. Log in to Cloudera Manager as an administrator.
2. Go to Clusters Tez Configuration and search for the 'Tez Application Master Command Line Options' and 'Tez Task Command Line Options' properties.




3. Choose one of the following solutions:

| If you want to... | Then... |
|---|---|
| **Choose a different location in the Hive node to capture heap dumps** | Modify the value of XX:HeapDumpPath in the above properties from /tmp to a different location, for example, /var/tmp. |
| **Disable automatic capture of heap dumps** | Remove -XX:+HeapDumpOnOutOfMemoryError -XX:HeapDumpPath=/tmp parameters from the above properties.<br>**Note:** You can add these parameters when you want to work with heap dumps or when you require heap dumps for debugging purposes. |

4. Click Save Changes.
5. Restart the Tez service.

# Query fails with "Counters limit exceeded" error message

## Condition

After upgrading to Cloudera Base on premises, you may notice that some Hive queries fail with a "Counters limit exceeded: Too many counters: 10001 max=10000" and "Counters limit exceeded: Too many counter groups: 3001 max=3000".

## Cause

This issue occurs because a lower value is specified for Apache Tez task counters (tez.counters.max) and counter groups (tez.counters.max.groups), which prevents Tez from executing the DAG. If you are running long queries, increase the value for Tez counters and counter groups.

It is recommended that you set the value of tez.counters.max at the session level and also add it to the allowlist.

## Solution

## Procedure

1. Log in to Cloudera Manager as an administrator.
2. Go to Clusters Hive on Tez Configuration and search for 'HiveServer2 Advanced Configuration Snippet (Safety Valve) for hive-site.xml'.
3. Click ⊕ and add the property key: hive.security.authorization.sqlstd.confwhitelist.append.
4. Provide the property value, or values, to allowlist, for example: tez\.counters\..* or tez\.counters\.max|tez\.counters\.max\.groups.

   This action appends the parameters to the allowlist.
5. Save the changes and restart the Hive on Tez service.
6. From the Beeline shell, set the tez.counters.max property to a higher value and run the query.
   set tez.counters.max=50000;

   Run the Hive query and if it continues to fail, perform the steps provided below.
7. In Cloudera Manager, go to Clusters Tez Configuration and search for the tez.counters.max property.
8. Modify the value to 50000, save changes, and refresh the Tez service.
9. Restart the Hive on Tez service and run the Hive query again.

   If you encounter the following error, modify the value for tez.counters.max.groups.

```
ERROR : Counters limit exceeded: org.apache.tez.common.counters.LimitExc
eededException: Too many counter groups: 3001 max=3000
```

10. In Cloudera Manager, go to Clusters Tez Configuration and search for the tez.counters.max.groups property.
11. Modify the value to 10000, save changes, and refresh the Tez service.
12. Restart the Hive on Tez service and run the Hive query.

# Managing high partition workloads

## Condition

If you are running high partition workloads, such as a table having 5000 partitions and 100 columns, you may notice the following error when inserting data from a source table to the destination table:

```
ERROR : FAILED: Execution Error, return code 40000 from org.apache.hadoop.hi
ve.ql.exec.MoveTask.
MetaException(message:One or more instances could not be made persistent)
```

## Cause

The issue occurs because the queries are run one at a time and there is no query concurrency. Learn how you can configure the HiveServer (HS2) and Hive Metastore (HMS) services with the recommended values to prevent errors while inserting data into high partition workloads.

## Solution

## Procedure

1. Log in to Cloudera Manager as an administrator.
2. Go to Clusters Hive on Tez Configuration and search for 'HiveServer2 Advanced Configuration Snippet (Safety Valve) for hive-site.xml'.
3. Tune the following HS2 parameters by setting the recommended values.

   ```
   hive.optimize.sort.dynamic.partition.threshold=0;
   hive.thrift.client.max.message.size=2147483647;
   hive.metastore.client.skip.columns.for.partitions=true;
   hive.stats.autogather=false;
   hive.stats.column.autogather=false;
   hive.msck.repair.batch.size=200;
   ```

   If the properties are not available, click ⊕ to add custom configurations and set the values.
4. Save the changes and restart the Hive on Tez service.
5. Go to Clusters Hive Configuration and search for 'Hive Metastore Server Advanced Configuration Snippet (Safety Valve) for hive-site.xml'.
6. Tune the following HMS parameters by setting the recommended values.

   ```
   hive.metastore.direct.sql.batch.size=5000
   hive.txn.timeout=3600
   hive.metastore.try.direct.sql=true
   hive.metastore.try.direct.sql.ddl=true
   ```

   If the properties are not available, click ⊕ to add custom configurations and set the values.
7. Save the changes and restart the Hive service.
8. Run your high partition workloads.

# HiveServer is unresponsive due to large queries running in parallel

### Condition

HiveServer (HS2) is blocking user queries or sessions because of multiple Hive sessions running in parallel.

### Cause

The issue occurs when a large query is running and you submit the same query again. The hive.query.results.cache .wait.for.pending.results property forces a query to wait for the pending results of an already running query, in order to use the cached result when it is ready.

You can choose to disable this property to avoid blocking queries submitted by other users or you can avoid running the same large queries parallely.

### Remedy

### Procedure

1. Go to Clusters Hive on Tez Configuration and add the following property name and its value in the HiveServer2 Advanced Configuration Snippet (Safety Valve) for hive-site.xml field:

   Name: hive.query.results.cache.wait.for.pending.results

   Value: false
2. Save the changes and restart the Hive on Tez service.

# Whitelisting Configurations at the Session Level

### Condition

Users encounter errors in Hive on Tez when attempting to modify properties at runtime using tools like Beeline or SQL Workbench. Beeline error include:

```
Error while processing statement: Cannot modify hive.input.format at runtime
.
It is not in the list of params that are allowed to be modified at runtime
 (state=42000, code=1).
```

### Cause

The errors occur due to misconfigured or missing properties in the hive.security.authorization.sqlstd.confwhitelist or hive.security.authorization.sqlstd.confwhitelist.append parameters. Specifically:

1. The required property is not included in the whitelist.
2. Misconfigurations in the whitelist, such as:
   - Using | at the beginning of entries.
   - Improper use of . in property names, such as failing to escape it or incorrectly adding it to configurations.

### Solution

### Procedure

1. In **Cloudera Manager**, navigate to  Clusters Hive on Tez Configurations
2. Search for **hive-site.xml** and locate the 'Hive Service Advanced Configuration Snippet (Safety Valve)'
3. Add or update the required properties in the hive.security.authorization.sqlstd.confwhitelist.append parameter.

   For Example:

```
<property>
<name>hive.security.authorization.sqlstd.confwhitelist.append</name>
<value>hive\.input\.format\..*|tez\.queue\.name|my\.third\.property|prin
cipal|sslTrustStore</value>
</property>
```

   **Note:** While adding properties to the whitelist:

   - Define each property as a regular expression, separated by |
   - Ensure the list does not start with |
   - Use \ to escape all . characters

4. Restart the Hive on Tez service for the changes to take effect.

# Mitigating JSON SerDe failures after migration

This topic provides a solution for issues with JSON SerDe functionality that can occur after migrating from older releases.

### Condition

Users migrating from CDH or HDP to Cloudera who utilize the hive-catalog-core-3.1.3000[...] .jar for JSON SerDe functionality encounter a java.lang.ClassNotFoundException post-upgrade.

### Cause

This issue is caused by the use of an outdated SerDe class. The JsonSerDe class was moved to Hive from HCatalog and its previous location in the hive-catalog-core jar is deprecated in Cloudera, leading to the ClassNotFoundException [HIVE-19211]

### Soultion

### Procedure

ALTER TABLE <tbl_name> SET SERDE 'org.apache.hadoop.hive.serde2.JsonSerDe';

To resolve this issue, you must update the table to use the new JsonSerDe class. The recommended solution is to run the above command.