Parquet|ORC: OutOfMemoryError when copying with parquet|orc format

Last updated by | Veena Pachauri | Mar 8, 2023 at 11:22 PM PST

202031- Parquet/ORC: OutOfMemoryError when copying with parquet/orc format

Wednesday, November 14, 2018
9:17 PM

SME	
Symptoms	Error message: ErrorCode=UserErrorJavaInvocationException,'Type=Microsoft.DataTransfer.Common.Shared.HybridDeliveryException,Message=An error occurred when invoking java, message: java.lang.OutOfMemoryError:Java heap space / Direct memory
Cause	Default JVM heap size (1G) is not enough for JVM to do (de)serialization work in copying parquet/orc format data.

Resolution

1. If parquet is used as sink, and error message contains "Java heap space" and "doubleCapacity" in call stack
    a. If customer is using selfhosted-IR and version < 3.20.7159.1, please upgrade to the latest version.
2. Please first try mitigation 1.
3. If not work, ask the customer several questions and try mitigate one by one:
    a. What's the total RAM of the host machine? If < 8GB, please use more powerful machine.
    b. What's the concurrent job limit of the host node? Please set lower number for parquet jobs. For example: 3. (See mitigation 2 below).
    c. What's the schema of the parquet file? It would be prone to OOM when:
        i. There're hundreds of columns inside.
        ii. The row group size (block) is very large . Please reduce the row group size if the value >1GB.

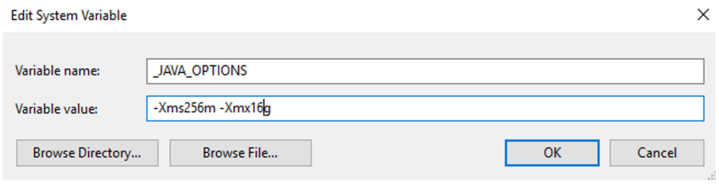
Kusto Query to list the OOM jobs:

```
let startTime={startTime};
let endTime={endTime};
JobInfo | where TIMESTAMP >= startTime and TIMESTAMP < endTime and  JobMode == "TransferJob"
| join
(  CustomLogEvent | where TIMESTAMP >= startTime and TIMESTAMP < endTime and TraceMessage ==
"TransferServiceExecutorJobPayloadSplitted"
   |  extend payload = parse_json(substring(Message, 21, strlen(Message)-44))
   | project
JobId,jvmSize=payload.rule.maxJvmMemoryLimit,srcFormat=payload.source.format.type,sinkFormat=payload.sink.format.type
   | join (
    CustomLogEvent | where TIMESTAMP >= startTime and TIMESTAMP < endTime and TraceMessage == 'TransferManagerPullNotify'
| where Message contains "OutOfMemory"
       ) on JobId
) on JobId
| join (
    CustomLogEvent | where TIMESTAMP >= startTime and TIMESTAMP < endTime and TraceMessage == "TranferServiceJobTelemetry"
    | extend telemetry = parse_json(substring(Message, 21, strlen(Message)-44))
    | project ActivityId,memUseRatio=telemetry['Memory.CommittedBytesInUseRatio'],
    inboundSize=telemetry['DataSizeInbound'],
    outboundSize=telemetry['DataSizeOutbound']
) on ActivityId
| project TIMESTAMP, SubscriptionId, ActivityId, JobId, DataType, DestinationType,
GatewayVersion,memUseRatio,inboundSize,outboundSize,jvmSize,srcFormat,sinkFormat,
JVMOOM=(todouble(memUseRatio)<85 and sinkFormat in ('ParquetFormat','OrcFormat'))
| where JVMOOM == 1
```

- **For selfhosted IR:**

First: check the total RAM of the host machine. Please make sure total RAM is >= 8GM

Add the following environment System variable in the machine that hosts the selfhosted IR:
_JAVA_OPTIONS "-Xms256m -Xmx16g"



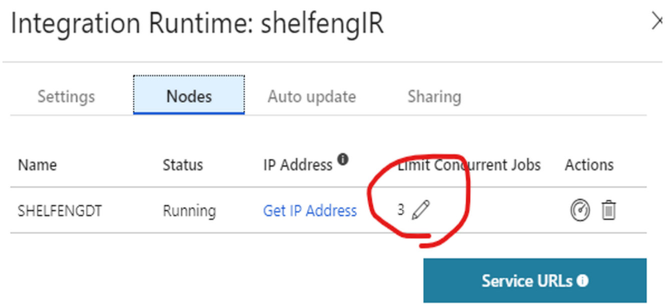
Edit System Variable

Variable name: _JAVA_OPTIONS

Variable value: -Xms256m -Xmx16g

Then restart the IR.
Note: this is only a sample value. Customer can determine the min/max heap size by him/herself.

Also please do not set too many nodes on this machine if the parquet/orc work is heavy[]
.
You may change this value in ADF portal -> Connections -> Integration Runtimes -> Edit -> Nodes



Integration Runtime: shelfengIR

Name	Status	IP Address	Limit Concurrent Jobs	Actions
SHELFENGDT	Running	Get IP Address	3	

- **For azure IR:**

Use a selfhosed IR instead.

More Information	Related incidents, reminder, best practice, how to avoid the issue, how to troubleshoot
Tags	Provide some tags that may help search

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