

**git\_comments:**

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2. **comment:** \* \* This class is a base implementation of a simple exponential back retry policy. The batch size \* and decaying factor are provided with the constructor. It reduces the batch size by dividing \* it by the decaying factor every time there is an exception in the execute method.  
**label:** code-design
3. \* \* This method should be called by implementations of this ExponentialBackOffRetry policy \* It represents the actual work which needs to be done based on a given batch size \* @param batchSize The batch size for the work which needs to be executed \* @return \* @throws Exception
4. \* \* Interface used to create a ExponentialBackOffRetry policy
5. if maxRetries is 0 code retries until batch decays to zero
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7. attempts at execute will be made using batchsizes 11, 3, 1, throws retry exception
8. batches will be sized 11,3,1
9. batches will be sized 17, 8, 4, 2, 1
10. there were no exception. Batchsize doesn't change until there is an exception
11. batches will be sized 11,3
12. test perfectly divisible batchsize and decaying factor
13. test batchsize is not divisible by decaying factor
14. batches will be sized 12,4,1
15. batches will be sized 10, 5, 2, 1
16. Data columns. Partition columns.
17. there should be 2 calls to create partitions with batch sizes of 5, 4
18. there should be 5 calls to create partitions with batch sizes of 17, 15, 7, 3, 1
19. first call to createPartitions should throw exception
20. confirm the batch sizes were 23, 15, 8 in the three calls to create partitions
21. \* \* Tests when max number of retries is set to 1. In this case the number of retries should \* be specified \* @throws Exception
22. \* \* Tests the number of calls to createPartitions and the respective batch sizes when first call to \* createPartitions throws HiveException. The batch size should be reduced by the decayingFactor \* \* @throws Exception
23. test with a batch size of 30 and decaying factor of 2
24. create 10 dummy partitions
25. batch size of 13 and decaying factor of 2
26. there should be 1 call to create partitions with batch sizes of 10
27. \* \* Tests the number of times Hive.createPartitions calls are executed with total number of \* partitions to is less than batch size \* \* @throws Exception
28. \* \* Tests the maximum retry attempts provided by configuration \* @throws Exception
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30. create 9 dummy partitions
31. create 13 dummy partitions
32. Tests the number of times Hive.createPartitions calls are executed with total number of partitions to be added are not exactly divisible by batch size @throws Exception
33. Tests the number of times Hive.createPartitions calls are executed with total number of partitions exactly equal to batch size @throws Exception
34. confirm the batch sizes were 5, 4 in the two calls to create partitions
35. there should be 2 calls to create partitions with each batch size of 5
36. batch size of 5 and decaying factor of 2
37. Tests the number of times Hive.createPartitions calls are executed with total number of partitions to be added are equally divisible by batch size @throws Exception
38. Tests the retries exhausted case when Hive.createPartitions method call always keep throwing HiveException. The batch sizes should exponentially decreased based on the decaying factor and ultimately give up when it reaches 0 @throws Exception
39. confirm the batch sizes were 5, 5 in the two calls to create partitions
40. batch size of 20 and decaying factor of 2
41. there should be 3 calls to create partitions with batch sizes of 23, 15, 8
42. there should be 1 call to create partitions with batch sizes of 13
43. batching is not enabled. Try to add all the partitions in one call
44. if last batch is successful remove it from partsNotInMs
45. add the number of partitions given by the current batchsize
46. store the partitions temporarily until processed
47. get the current batch size

#### git\_commits:

1. **summary:** HIVE-16143: Improve msck repair batching (Vihang Karajgaonkar, reviewed by Sahil Takiar & Aihua Xu)  
**message:** HIVE-16143: Improve msck repair batching (Vihang Karajgaonkar, reviewed by Sahil Takiar & Aihua Xu)

#### github\_issues:

#### github\_issues\_comments:

#### github\_pulls:

#### github\_pulls\_comments:

#### github\_pulls\_reviews:

#### jira\_issues:

1. **summary:** Improve msck repair batching  
**description:** Currently, the `{{msck repair table}}` command batches the number of partitions created in the metastore using the config `{{HIVE_MSCK_REPAIR_BATCH_SIZE}}`. Following snippet shows the batching logic. There can be couple of improvements to this batching logic: 

```
{noformat} int batch_size = conf.getIntVar(ConfigVars.HIVE_MSCK_REPAIR_BATCH_SIZE); if (batch_size > 0 && partsNotInMs.size() > batch_size) { int counter = 0; for (CheckResult.PartitionResult part : partsNotInMs) { counter++; apd.addPartition(Warehouse.makeSpecFromName(part.getPartitionName(), null)); repairOutput.add("Repair: Added partition to metastore " + msckDesc.getTableName() + ':' + part.getPartitionName()); if (counter % batch_size == 0 || counter == partsNotInMs.size()) { db.createPartitions(apd); apd = new AddPartitionDesc(table.getDbName(), table.getTableName(), false); } } } else { for (CheckResult.PartitionResult part : partsNotInMs) { apd.addPartition(Warehouse.makeSpecFromName(part.getPartitionName(), null)); repairOutput.add("Repair: Added partition to metastore " + msckDesc.getTableName() + ':' +
```

```
part.getPartitionName()); } db.createPartitions(apd); } } catch (Exception e) { LOG.info("Could not bulk-
add partitions to metastore; trying one by one", e); repairOutput.clear();
msckAddPartitionsOneByOne(db, table, partsNotInMs, repairOutput); } {noformat} 1. If the batch size is
too aggressive the code falls back to adding partitions one by one which is almost always very slow. It is
easily possible that users increase the batch size to higher value to make the command run faster but end
up with a worse performance because code falls back to adding one by one. Users are then expected to
determine the tuned value of batch size which works well for their environment. I think the code could
handle this situation better by exponentially decaying the batch size instead of falling back to one by one.
2. The other issue with this implementation is if lets say first batch succeeds and the second one fails, the
code tries to add all the partitions one by one irrespective of whether some of the were successfully added
or not. If we need to fall back to one by one we should atleast remove the ones which we know for sure
are already added successfully.
```

## jira\_issues\_comments:

1. Here are the results of testing the latest attachment:

```
https://issues.apache.org/jira/secure/attachment/12865438/HIVE-16143.01.patch
{color:green}SUCCESS:{color} +1 due to 2 test(s) being added or modified. {color:red}ERROR:{color}
-1 due to 9 failed/errored test(s), 10647 tests executed *Failed tests:* {noformat}
org.apache.hadoop.hive.cli.TestAccumuloCliDriver.testCliDriver[accumulo_index] (batchId=225)
org.apache.hadoop.hive.cli.TestBlobstoreCliDriver.testCliDriver[create_like] (batchId=237)
org.apache.hadoop.hive.cli.TestCliDriver.testCliDriver[msck_repair_0] (batchId=75)
org.apache.hadoop.hive.cli.TestCliDriver.testCliDriver[msck_repair_1] (batchId=76)
org.apache.hadoop.hive.cli.TestCliDriver.testCliDriver[msck_repair_2] (batchId=56)
org.apache.hadoop.hive.cli.TestCliDriver.testCliDriver[msck_repair_3] (batchId=39)
org.apache.hadoop.hive.cli.TestCliDriver.testCliDriver[msck_repair_batchsize] (batchId=64)
org.apache.hadoop.hive.cli.TestCliDriver.testCliDriver[repair] (batchId=32)
org.apache.hadoop.hive.cli.TestMiniLlapLocalCliDriver.testCliDriver[vector_if_expr] (batchId=143)
{noformat} Test results: https://builds.apache.org/job/PreCommit-HIVE-Build/4917/testReport Console
output: https://builds.apache.org/job/PreCommit-HIVE-Build/4917/console Test logs:
http://104.198.109.242/logs/PreCommit-HIVE-Build-4917/ Messages: {noformat} Executing
org.apache.hive.ptest.execution.TestCheckPhase Executing org.apache.hive.ptest.execution.PrePhase
Executing org.apache.hive.ptest.execution.ExecutionPhase Executing
org.apache.hive.ptest.execution.ReportingPhase Tests exited with: TestsFailedException: 9 tests failed
{noformat} This message is automatically generated. ATTACHMENT ID: 12865438 - PreCommit-
HIVE-Build
```

2. Fixed the msck q.out files

3. Here are the results of testing the latest attachment:

```
https://issues.apache.org/jira/secure/attachment/12865599/HIVE-16143.03.patch
{color:green}SUCCESS:{color} +1 due to 2 test(s) being added or modified. {color:red}ERROR:{color}
-1 due to 4 failed/errored test(s), 10647 tests executed *Failed tests:* {noformat}
org.apache.hadoop.hive.cli.TestAccumuloCliDriver.testCliDriver[accumulo_index] (batchId=225)
org.apache.hadoop.hive.cli.TestBlobstoreCliDriver.testCliDriver[create_like] (batchId=237)
org.apache.hadoop.hive.cli.TestCliDriver.testCliDriver[msck_repair_batchsize] (batchId=64)
org.apache.hadoop.hive.cli.TestCliDriver.testCliDriver[repair] (batchId=32) {noformat} Test results:
https://builds.apache.org/job/PreCommit-HIVE-Build/4939/testReport Console output:
https://builds.apache.org/job/PreCommit-HIVE-Build/4939/console Test logs:
http://104.198.109.242/logs/PreCommit-HIVE-Build-4939/ Messages: {noformat} Executing
org.apache.hive.ptest.execution.TestCheckPhase Executing org.apache.hive.ptest.execution.PrePhase
Executing org.apache.hive.ptest.execution.ExecutionPhase Executing
org.apache.hive.ptest.execution.ReportingPhase Tests exited with: TestsFailedException: 4 tests failed
{noformat} This message is automatically generated. ATTACHMENT ID: 12865599 - PreCommit-
HIVE-Build
```

4. Here are the results of testing the latest attachment:

```
https://issues.apache.org/jira/secure/attachment/12865599/HIVE-16143.03.patch
{color:green}SUCCESS:{color} +1 due to 2 test(s) being added or modified. {color:red}ERROR:{color}
-1 due to 5 failed/errored test(s), 10647 tests executed *Failed tests:* {noformat}
org.apache.hadoop.hive.cli.TestAccumuloCliDriver.testCliDriver[accumulo_index] (batchId=225)
org.apache.hadoop.hive.cli.TestBlobstoreCliDriver.testCliDriver[create_like] (batchId=237)
```

org.apache.hadoop.hive.cli.TestCliDriver.testCliDriver[msck\_repair\_batchsize] (batchId=64)  
org.apache.hadoop.hive.cli.TestCliDriver.testCliDriver[repair] (batchId=32)  
org.apache.hadoop.hive.cli.TestMiniLlapLocalCliDriver.testCliDriver[vector\_if\_expr] (batchId=143)  
{noformat} Test results: <https://builds.apache.org/job/PreCommit-HIVE-Build/4943/testReport> Console  
output: <https://builds.apache.org/job/PreCommit-HIVE-Build/4943/console> Test logs:  
<http://104.198.109.242/logs/PreCommit-HIVE-Build-4943/> Messages: {noformat} Executing  
org.apache.hive.ptest.execution.TestCheckPhase Executing org.apache.hive.ptest.execution.PrePhase  
Executing org.apache.hive.ptest.execution.ExecutionPhase Executing  
org.apache.hive.ptest.execution.ReportingPhase Tests exited with: TestsFailedException: 5 tests failed  
{noformat} This message is automatically generated. ATTACHMENT ID: 12865599 - PreCommit-  
HIVE-Build

5. Fixed the tests

6. Here are the results of testing the latest attachment:

<https://issues.apache.org/jira/secure/attachment/12865799/HIVE-16143.04.patch>  
{color:green}SUCCESS:{color} +1 due to 2 test(s) being added or modified. {color:red}ERROR:{color}  
-1 due to 4 failed/errored test(s), 10640 tests executed \*Failed tests:\* {noformat}  
org.apache.hadoop.hive.cli.TestAccumuloCliDriver.testCliDriver[accumulo\_index] (batchId=225)  
org.apache.hadoop.hive.cli.TestBlobstoreCliDriver.testCliDriver[create\_like] (batchId=237)  
org.apache.hadoop.hive.cli.TestCliDriver.testCliDriver[msck\_repair\_batchsize] (batchId=64)  
org.apache.hadoop.hive.cli.TestMiniLlapLocalCliDriver.testCliDriver[vector\_if\_expr] (batchId=143)  
{noformat} Test results: <https://builds.apache.org/job/PreCommit-HIVE-Build/4966/testReport> Console  
output: <https://builds.apache.org/job/PreCommit-HIVE-Build/4966/console> Test logs:  
<http://104.198.109.242/logs/PreCommit-HIVE-Build-4966/> Messages: {noformat} Executing  
org.apache.hive.ptest.execution.TestCheckPhase Executing org.apache.hive.ptest.execution.PrePhase  
Executing org.apache.hive.ptest.execution.ExecutionPhase Executing  
org.apache.hive.ptest.execution.ReportingPhase Tests exited with: TestsFailedException: 4 tests failed  
{noformat} This message is automatically generated. ATTACHMENT ID: 12865799 - PreCommit-  
HIVE-Build

7. We should not rely on the msck output strings "Repair: Added partition..." when we diff on q.out files.  
since we are iterating overing Set in the code and the iteration order is not guaranteed. Modified the  
existing msck repair files to use {{show partitions}} command instead.

8. Adding the review board link

9. [~spena] [~stakiar] Can you please review?

10. Here are the results of testing the latest attachment:

<https://issues.apache.org/jira/secure/attachment/12866074/HIVE-16143.06.patch>  
{color:green}SUCCESS:{color} +1 due to 9 test(s) being added or modified. {color:red}ERROR:{color}  
-1 due to 3 failed/errored test(s), 10650 tests executed \*Failed tests:\* {noformat}  
org.apache.hadoop.hive.cli.TestAccumuloCliDriver.testCliDriver[accumulo\_index] (batchId=225)  
org.apache.hadoop.hive.cli.TestMiniLlapCliDriver.testCliDriver[table\_nonprintable] (batchId=139)  
org.apache.hadoop.hive.cli.TestMiniLlapLocalCliDriver.testCliDriver[vector\_join30] (batchId=148)  
{noformat} Test results: <https://builds.apache.org/job/PreCommit-HIVE-Build/5011/testReport> Console  
output: <https://builds.apache.org/job/PreCommit-HIVE-Build/5011/console> Test logs:  
<http://104.198.109.242/logs/PreCommit-HIVE-Build-5011/> Messages: {noformat} Executing  
org.apache.hive.ptest.execution.TestCheckPhase Executing org.apache.hive.ptest.execution.PrePhase  
Executing org.apache.hive.ptest.execution.ExecutionPhase Executing  
org.apache.hive.ptest.execution.ReportingPhase Tests exited with: TestsFailedException: 3 tests failed  
{noformat} This message is automatically generated. ATTACHMENT ID: 12866074 - PreCommit-  
HIVE-Build

11. Here are the results of testing the latest attachment:

<https://issues.apache.org/jira/secure/attachment/12866074/HIVE-16143.06.patch>  
{color:green}SUCCESS:{color} +1 due to 9 test(s) being added or modified. {color:red}ERROR:{color}  
-1 due to 3 failed/errored test(s), 10650 tests executed \*Failed tests:\* {noformat}  
org.apache.hadoop.hive.cli.TestAccumuloCliDriver.testCliDriver[accumulo\_index] (batchId=225)  
org.apache.hadoop.hive.cli.TestMiniLlapCliDriver.testCliDriver[table\_nonprintable] (batchId=139)  
org.apache.hadoop.hive.cli.TestMiniLlapLocalCliDriver.testCliDriver[columnstats\_part\_coltype]  
(batchId=155) {noformat} Test results: <https://builds.apache.org/job/PreCommit-HIVE-Build/5013/testReport> Console output: <https://builds.apache.org/job/PreCommit-HIVE-Build/5013/console> Test logs: <http://104.198.109.242/logs/PreCommit-HIVE-Build-5013/> Messages:  
{noformat} Executing org.apache.hive.ptest.execution.TestCheckPhase Executing

org.apache.hive.ptest.execution.PrePhase Executing org.apache.hive.ptest.execution.ExecutionPhase Executing org.apache.hive.ptest.execution.ReportingPhase Tests exited with: TestsFailedException: 3 tests failed {noformat} This message is automatically generated. ATTACHMENT ID: 12866074 - PreCommit-HIVE-Build

12. Addressed review comments on RB

13. Here are the results of testing the latest attachment:

<https://issues.apache.org/jira/secure/attachment/12867397/HIVE-16143.07.patch>  
{color:green}SUCCESS:{color} +1 due to 9 test(s) being added or modified. {color:red}ERROR:{color} -1 due to 3 failed/errored test(s), 10680 tests executed \*Failed tests:\* {noformat}  
org.apache.hadoop.hive.cli.TestMiniLlapCliDriver.testCliDriver[table\_nonprintable] (batchId=140)  
org.apache.hadoop.hive.cli.TestMiniLlapLocalCliDriver.testCliDriver[vector\_if\_expr] (batchId=144)  
org.apache.hadoop.hive.ql.exec.TestMsckCreatePartitionsInBatches.testZeroMaxRetries (batchId=272)  
{noformat} Test results: <https://builds.apache.org/job/PreCommit-HIVE-Build/5175/testReport> Console output: <https://builds.apache.org/job/PreCommit-HIVE-Build/5175/console> Test logs: <http://104.198.109.242/logs/PreCommit-HIVE-Build-5175/> Messages: {noformat} Executing org.apache.hive.ptest.execution.TestCheckPhase Executing org.apache.hive.ptest.execution.PrePhase Executing org.apache.hive.ptest.execution.ExecutionPhase Executing org.apache.hive.ptest.execution.ReportingPhase Tests exited with: TestsFailedException: 3 tests failed {noformat} This message is automatically generated. ATTACHMENT ID: 12867397 - PreCommit-HIVE-Build

14. Fixed the test case

15. Here are the results of testing the latest attachment:

<https://issues.apache.org/jira/secure/attachment/12867471/HIVE-16143.08.patch>  
{color:green}SUCCESS:{color} +1 due to 9 test(s) being added or modified. {color:red}ERROR:{color} -1 due to 2 failed/errored test(s), 10697 tests executed \*Failed tests:\* {noformat}  
org.apache.hadoop.hive.cli.TestMiniLlapCliDriver.testCliDriver[table\_nonprintable] (batchId=140)  
org.apache.hadoop.hive.cli.TestMiniLlapLocalCliDriver.testCliDriver[vector\_if\_expr] (batchId=144)  
{noformat} Test results: <https://builds.apache.org/job/PreCommit-HIVE-Build/5189/testReport> Console output: <https://builds.apache.org/job/PreCommit-HIVE-Build/5189/console> Test logs: <http://104.198.109.242/logs/PreCommit-HIVE-Build-5189/> Messages: {noformat} Executing org.apache.hive.ptest.execution.TestCheckPhase Executing org.apache.hive.ptest.execution.PrePhase Executing org.apache.hive.ptest.execution.ExecutionPhase Executing org.apache.hive.ptest.execution.ReportingPhase Tests exited with: TestsFailedException: 2 tests failed {noformat} This message is automatically generated. ATTACHMENT ID: 12867471 - PreCommit-HIVE-Build

16. **body:** I left some minor doc comments on the review board.

**label:** documentation

17. Addressed review comments

18. Here are the results of testing the latest attachment:

<https://issues.apache.org/jira/secure/attachment/12867859/HIVE-16143.09.patch>  
{color:green}SUCCESS:{color} +1 due to 9 test(s) being added or modified. {color:red}ERROR:{color} -1 due to 2 failed/errored test(s), 10714 tests executed \*Failed tests:\* {noformat}  
org.apache.hadoop.hive.cli.TestMiniLlapCliDriver.testCliDriver[table\_nonprintable] (batchId=140)  
org.apache.hadoop.hive.cli.TestMiniLlapLocalCliDriver.testCliDriver[vector\_if\_expr] (batchId=144)  
{noformat} Test results: <https://builds.apache.org/job/PreCommit-HIVE-Build/5245/testReport> Console output: <https://builds.apache.org/job/PreCommit-HIVE-Build/5245/console> Test logs: <http://104.198.109.242/logs/PreCommit-HIVE-Build-5245/> Messages: {noformat} Executing org.apache.hive.ptest.execution.TestCheckPhase Executing org.apache.hive.ptest.execution.PrePhase Executing org.apache.hive.ptest.execution.ExecutionPhase Executing org.apache.hive.ptest.execution.ReportingPhase Tests exited with: TestsFailedException: 2 tests failed {noformat} This message is automatically generated. ATTACHMENT ID: 12867859 - PreCommit-HIVE-Build

19. +1. The new patch looks good to me .

20. Thanks for the review [~aihuaxu] [~stakiar] and [~leftylev]. Can we commit this patch in master and branch-2?

21. [~vihangk1] Patch pushed to master, but there is a build issue with branch-2. Can you provide a patch for branch-2?

22. Patch pushed to master. [~vihangk1] can you commit to branch-2 if needed by resolving the merge conflict?

- 23. Attaching patch for branch-2
- 24. change merged to branch-2 as well.
- 25. **body:** Doc note: This adds `*hive.msck.repair.batch.max.retries*` and revises the description of `*hive.msck.repair.batch.size*` in release 2.4.0, so the wiki needs to be updated. \* [Configuration Properties -- hive.msck.repair.batch.size | <https://cwiki.apache.org/confluence/display/Hive/Configuration+Properties#ConfigurationProperties-hive.msck.repair.batch.size>] \* [Configuration Properties -- hive.msck.repair.batch.max.retries | <https://cwiki.apache.org/confluence/display/Hive/Configuration+Properties#ConfigurationProperties-hive.msck.repair.batch.max.retries>] (this link won't work until the parameter is documented) Added a TODOC2.4 label. (Please add your own TODOC labels and doc notes from now on. I no longer monitor Hive email for doc issues.)  
**label:** documentation
- 26. Hive 3.0.0 has been released so closing this jira.