

TAJO-127

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2013-08-12

# Contents

# Chapter 1

## Root issue TAJO-127

### 1.1 Summary

Implement Tajo Resource Manager

### 1.2 Description

Implement our own resource manager and worker containers for the standby mode without YARN.

1. QueryWorker started when cluster startup.
2. TajoClient requests query to TajoMaster.
3. TajoResourceManager assigns role QueryMaster to a QueryWorker.
4. TajoResourceManager assigns QueryWorkers for execution query.
5. TajoMaster requests query to QueryMaster.
6. TajoClient checks QueryStatus to TajoMaster.
7. TajoMaster reports QueryMaster's host, port to TajoClient.
8. QueryMaster assigns QueryUnit to QueryWorker.
9. TajoClient fetches result data from QueryMaster.

### 1.3 Attachments

1. [TAJO-127.patch](#)

### 1.4 Commits

1. Commit **c027cd2** by **Hyunsik Choi** (2013-08-26): TAJO-127: Implement Tajo Resource Manager. (Fixed some missing changes)
2. Commit **d48f266** by **Hyunsik Choi** (2013-08-26): TAJO-127: Implement Tajo Resource Manager. (hyoungjunkim via hyunsik)

### 1.5 Comments

1. **hjkim**: This patch also includes for TAJO-120
2. **hyunsik**: +1

It's really great work. It significantly reduces the delay of resource allocation and container launch. It shortens also a large amount time for unit tests. After this, the integration test on a number of frontend tests takes only three minutes; it took 10 minutes when it was only based on yarn.

I really appreciate your contribution. I've committed it, and I've resolved it as resolved.

Besides, this work needs an additional documentation on starting a Tajo cluster. I'll create a separate jira issue for that. Thanks!

3. **hudson:** FAILURE: Integrated in Tajo-trunk-postcommit #361 (See [https://builds.apache.org/job/Tajo-trunk-postcommit/361/])
- TAJO-127: Implement Tajo Resource Manager. (hyoungjunkim via hyunsik) (hyunsik: https://git-wip-us.apache.org/repos/asf?p=incubator-tajo.git&a=commit&h=d48f2667b822564260b6e5c9705a41e5)
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/YarnTaskRunnerLauncherImpl.java
  - \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/event/TaskFatalErrorEvent.java
  - \* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/worker/TestRangeRetrieverHandler.java
  - \* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/LocalTajoTestingUtility.java
  - \* tajo-core/tajo-core-backend/src/main/proto/ClientProtocol.proto
  - \* tajo-catalog/tajo-catalog-server/src/main/java/org/apache/tajo/catalog/CatalogServer.java
  - \* tajo-rpc/src/main/java/org/apache/tajo/rpc/ProtoAsyncRpcServer.java
  - \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/TajoMaster.java
  - \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/QueryMasterTask.java
  - \* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/MiniTajoYarnCluster.java
  - \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/rm/RMContainerAllocator.java
  - \* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/engine/planner/global/TestGlobalQueryOptimizer.java
  - \* tajo-common/src/main/java/org/apache/tajo/util/TUtil.java
  - \* tajo-core/tajo-core-pullserver/src/main/java/org/apache/tajo/pullserver/HttpDataServerHandler.java
  - \* tajo-common/src/main/java/org/apache/tajo/QueryIdFactory.java
  - \* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/master/TestRepartitioner.java
  - \* tajo-core/tajo-core-storage/src/main/java/org/apache/tajo/storage/CSVFile.java
  - \* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/worker/dataserver/TestHttpDataServer.java
  - \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/SubQuery.java
  - \* tajo-core/tajo-core-backend/src/main/proto/QueryMasterClientProtocol.proto
  - \* tajo-common/src/main/java/org/apache/tajo/ExecutionBlockId.java
  - \* tajo-rpc/src/main/java/org/apache/tajo/rpc/ProtoAsyncRpcClient.java
  - \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/worker/TaskRunnerManager.java
  - \* tajo-common/src/test/java/org/apache/tajo/datum/TestBitDatum.java
  - \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/ExecutionBlock.java
  - \* tajo-common/src/main/java/org/apache/tajo/QueryUnitId.java
  - \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/QueryMasterManagerService.java
  - \* tajo-core/tajo-core-pullserver/src/main/java/org/apache/tajo/pullserver/TajoPullServerService.java
  - \* tajo-dist/src/main/bin/start-tajo.sh
  - \* tajo-core/tajo-core-pullserver/src/main/java/org/apache/tajo/pullserver/retriever/AdvancedDataRetriever.java
  - \* tajo-dist/src/main/bin/tajo-daemons.sh
  - \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/QueryInfo.java
  - \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/worker/TajoWorker.java
  - \* tajo-core/tajo-core-backend/src/main/proto/ClientProtos.proto
  - \* tajo-dist/src/main/bin/tajo-daemon.sh
  - \* tajo-core/tajo-core-pullserver/pom.xml
  - \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/TajoMasterService.java
  - \* tajo-core/tajo-core-backend/src/test/resources/tajo-default.xml
  - \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/rm/WorkerResourceManager.java
  - \* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/TajoTestingCluster.java

- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/QueryMaster.java
- \* tajo-rpc/src/main/java/org/apache/tajo/rpc/ProtoBlockingRpcClient.java
- \* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/TpchTestBase.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/event/TaskRequestEvent.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/util/ApplicationIdUtils.java
- \* tajo-core/tajo-core-backend/src/main/proto/QueryMasterProtocol.proto
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/GlobalPlanner.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/query/ResultSetImpl.java
- \* tajo-core/tajo-core-pullserver/src/main/java/org/apache/tajo/pullserver/PullServerAuxService.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/ipc/protocolrecords/QueryUnitRequest.java
- \* tajo-core/tajo-core-backend/src/main/proto/TajoMasterClientProtocol.proto
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/QueryMasterClientService.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/worker/Task.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/worker/ResourceAllocator.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/event/SubQuerySucceedEvent.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/worker/TajoResourceAllocator.java
- \* tajo-dist/src/main/bin/stop-tajo.sh
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/worker/TajoWorkerManagerService.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/event/QuerySubQueryEvent.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/event/TaskAttemptStatusUpdateEvent.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/Repartitioner.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/TajoAsyncDispatcher.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/event/SubQueryContainerAllocationEvent.java
- \* tajo-core/tajo-core-backend/src/main/proto/TajoWorkerProtocol.proto
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/ContainerProxy.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/GlobalEngine.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/event/TaskSchedulerEvent.java
- \* tajo-core/tajo-core-backend/pom.xml
- \* tajo-rpc/src/main/java/org/apache/tajo/rpc/NettyServerBase.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/event/SubQueryTaskEvent.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/worker/TajoWorkerClientService.java
- \* tajo-rpc/src/main/java/org/apache/tajo/util/NetUtils.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/TaskRunnerGroupEvent.java
- \* tajo-common/src/main/proto/TajoIdProtos.proto
- \* tajo-core/tajo-core-backend/src/main/resources/tajo-default.xml
- \* tajo-dist/src/main/conf/tajo-env.sh
- \* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/engine/planner/physical/TestPhysicalPlanner.java
- \* tajo-core/tajo-core-storage/src/main/java/org/apache/tajo/storage/MergeScanner.java
- \* tajo-core/tajo-core-backend/src/main/resources/log4j.properties
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/worker/TaskRunner.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/worker/dataserver/retriever/AdvancedDataRetriever.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/QueryJobEvent.java
- \* tajo-common/src/main/java/org/apache/tajo/conf/TajoConf.java
- \* tajo-core/tajo-core-backend/src/main/proto/TajoIdProtos.proto
- \* tajo-core/tajo-core-backend/src/test/java/log4j.properties
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/event/GroupedContainerAllocatorEvent.java
- \* tajo-core/tajo-core-backend/src/main/java/log4j.properties
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/webapp/StaticHttpServer.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/event/TaskCompletionEvent.java
- \* tajo-common/src/main/java/org/apache/tajo/util/TajoIdUtils.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/QueryUnit.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/QueryInProgress.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/rm/YarnRMContainerAllocator.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/TaskSchedulerImpl.java

- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/QueryJobManager.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/QueryMasterRunner.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/YarnContainerProxy.java
- \* tajo-dist/src/main/conf/workers
- \* tajo-core/tajo-core-backend/src/main/proto/QueryMasterManagerProtocol.proto
- \* tajo-common/src/main/java/org/apache/tajo/QueryId.java
- \* tajo-dist/src/main/bin/tajo-config.sh
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/event/QueryStartEvent.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/rm/YarnTajoResourceManager.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/client/TajoClient.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/event/SubQueryEvent.java
- \* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/TestTajoIds.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/TaskRunnerLauncherImpl.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/rm/TajoWorkerContainerId.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/QueryMasterManager.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/cli/TajoCli.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/rm/TajoWorkerContainer.java
- \* tajo-core/tajo-core-backend/src/main/proto/TajoMasterProtocol.proto
- \* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/worker/TaskRunnerTest.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/TajoMasterClientService.java
- \* tajo-common/src/main/java/org/apache/tajo/SubQueryId.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/TajoContainerProxy.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/worker/AbstractResourceAllocator.java
- \* pom.xml
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/event/ContainerAllocationEvent.java
- \* tajo-common/src/main/java/org/apache/tajo/QueryUnitAttemptId.java
- \* tajo-dist/src/main/bin/tajo
- \* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/engine/plan/global/TestGlobalQueryPlanner.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/Query.java
- \* CHANGES.txt
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/event/TaskScheduleEvent.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/event/SubQueryCompletedEvent.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/rm/TajoWorkerResourceManager.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/query/QueryUnitRequestImpl.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/rm/WorkerResource.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/worker/YarnResourceAllocator.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/rm/WorkerStatus.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/QueryUnitAttempt.java
- \* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/TestQueryIdFactory.java

4. **hudson:** SUCCESS: Integrated in Tajo-trunk-postcommit #362 (See [<https://builds.apache.org/job/Tajo-trunk-postcommit/362/>])

TAJO-127: Implement Tajo Resource Manager. (Fixed some missing changes) (hyunsik:

<https://git-wip-us.apache.org/repos/asf?p=incubator-tajo.git&a=commit&h=c027cd271be619f7a19b2f8f91a67309>

- \* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/TajoTestingCluster.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/TajoMasterClientService.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/TajoMasterService.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/client/TajoClient.java

## 1.6 Pull requests

No pull requests

## Chapter 2

# Connected issue TAJO-120

### 2.1 Summary

TestCase doesn't call ResultSet.close

### 2.2 Description

Current implementation is

```
1 ResultSet res = tpch.execute("select 100 * sum(" +
2     "case when p_type like 'PROMO%' then l_extendedprice else 0.0 end) / sum(
3     l_extendedprice * (1 - l_discount)) "
4     + "as promo_revenue from lineitem, part where l_partkey = p_partkey");
5 assertTrue(res.next());
6 assertEquals(33, res.getInt(1));
```

Changed implementation is

```
1 ResultSet res = tpch.execute("select 100 * sum(" +
2     "case when p_type like 'PROMO%' then l_extendedprice else 0.0 end) / sum(
3     l_extendedprice * (1 - l_discount)) "
4     + "as promo_revenue from lineitem, part where l_partkey = p_partkey");
5 try {
6     assertTrue(res.next());
7     assertEquals(33, res.getInt(1));
8 } finally {
9     res.close();
10 }
```

### 2.3 Attachments

No attachments

### 2.4 Commits

No related commits



## 2.5 Comments

1. **hyunsik:** This was resolved by TAJO-127.

## 2.6 Pull requests

No pull requests