

TAJO-99

hyunsik

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# Contents

# Chapter 1

## Root issue TAJO-99

### 1.1 Summary

Design the interface of join enumeration algorithm

### 1.2 Description

The core feature of cost-based optimizer is cost-based join enumeration approach. The main objective of this is to find the best join order from lots of enumerated join trees. In database community, there have been many studies for join enumeration ways.

It would like to great to provide a generic and pluggable interface for join enumeration algorithms. It may encourage contributors to implement various join enumeration ways, and users could choose the best join ordering algorithm for their purpose.

### 1.3 Attachments

1. [TAJO-99.patch](#)

### 1.4 Commits

1. Commit **517355d** by **Hyunsik Choi** (2013-10-11): TAJO-99: Design the interface of join enumeration algorithm. (hyunsik)

### 1.5 Comments

1. **hyunsik:** I've uploaded the patch. This patch contains as follows:
  - \* a greedy heuristic for left-deep tree join ordering
  - \* join ordering algorithm interface
  - \* logical optimizer refactoring to use cost-based join order algorithm
  - \* add various utilities for join order string representation and join cost computation
2. **hyunsik:** This patch also fixes a selection push down bug that we haven't found.
3. **jhkim:** ++1  
Great work!! I've verified 'mvn clean install'.
4. **hudson:** FAILURE: Integrated in Tajo-trunk-postcommit #506 (See [<https://builds.apache.org/job/Tajo-trunk-postcommit/506/>])

TAJO-99: Design the interface of join enumeration algorithm. (hyunsik) (hyunsik: <https://github.com/apache/incubator-tajo/commit/517355dc50fec4244bc5a9d5f7fc246cfc6f31a9>)

- \* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/engine/planner/TestLogicalOptimizer.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/logical/join/JoinEdge.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/PlannerUtil.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/LogicalPlan.java
- \* tajo-common/src/main/java/org/apache/tajo/conf/TajoConf.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/logical/join/JoinGraph.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/logical/join/JoinOrderAlgorithm.java
- \* CHANGES.txt
- \* tajo-core/tajo-core-backend/src/test/java/org/apache/tajo/master/TestGlobalPlanner.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/rewrite/FilterPushDownRule.java
- \* tajo-common/src/main/java/org/apache/tajo/util/TUtil.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/LogicalPlanVisitor.java
- \* 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/planner/PhysicalPlannerImpl.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/ExplainLogicalPlanVisitor.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/LogicalOptimizer.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/logical/join/FoundJoinOrder.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/graph/DirectedGraphCursor.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/rewrite/ProjectionPushDownRule.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/logical/join/GreedyHeuristicJoinOrder.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/logical/JoinNode.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/BasicLogicalPlanVisitor.java
- \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/engine/planner/LogicalPlanner.java

5. **hyunsik:** I've just committed it. From now, we don't need to guess a correct join order by hand. Of course, we need to continue enhancement of join order algorithms.

## 1.6 Pull requests

No pull requests

## Chapter 2

# Connected issue TAJO-199

### 2.1 Summary

All relations in catalog must have data volume size.

### 2.2 Description

Some relations generated in specific file format like RCFile and Trevni may have 0 bytes as a data volume. In order to use data volume as some factor in query optimization, we need to force all relations to have exact data volume.

### 2.3 Attachments

1. [TAJO-199\\_2.patch](#)
2. [TAJO-199.patch](#)

### 2.4 Commits

1. Commit **3f61b97** by **Hyunsik Choi** (2013-10-04): TAJO-199: All relations in catalog must have data volume size. (hyunsik)

### 2.5 Comments

1. **hyunsik:** I've submitted the first patch.
2. **hyunsik:** I've updated the second patch which additionally does as follows:
  - \* Fix a bug that 'using' clause of CREATE/INSERT OVERWRITE does not work.
  - \* Enable TajoCli to print response times in CREATE/INSERT OVERWRITE queries
  - \* Eliminate a execution time from TajoCli
  - \* This is duplicated to response time.
3. **jhkim:** ++1This is indeed necessary work.  
Thank you!!
4. **hyunsik:** I've just committed it.

5. **hudson:** SUCCESS: Integrated in Tajo-trunk-postcommit #493 (See [<https://builds.apache.org/job/Tajo-trunk-postcommit/493/>])
- TAJO-199: All relations in catalog must have data volume size. (hyunsik) (hyunsik: <https://git-wip-us.apache.org/repos/asf?p=incubator-tajo.git&a=commit&h=3f61b973366f9b8a5a85469379b71f4dfb3ff7d6>)
- \* tajo-core/tajo-core-storage/src/main/java/org/apache/tajo/storage/AbstractStorageManager.java
  - \* tajo-catalog/tajo-catalog-common/src/main/java/org/apache/tajo/catalog/statistics/TableStat.java
  - \* CHANGES.txt
  - \* tajo-catalog/tajo-catalog-server/src/main/java/org/apache/tajo/catalog/store/DBStore.java
  - \* tajo-catalog/tajo-catalog-common/src/main/java/org/apache/tajo/catalog/TableMeta.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/engine/planner/LogicalPlanner.java
  - \* tajo-catalog/tajo-catalog-common/src/main/java/org/apache/tajo/catalog/TableMetaImpl.java
  - \* tajo-catalog/tajo-catalog-common/src/main/proto/CatalogProtos.proto
  - \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/Query.java
  - \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/GlobalEngine.java
  - \* tajo-catalog/tajo-catalog-common/src/main/java/org/apache/tajo/catalog/Options.java
  - \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/QueryMasterTask.java
  - \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/master/querymaster/SubQuery.java
  - \* tajo-core/tajo-core-backend/src/main/java/org/apache/tajo/cli/TajoCli.java

## 2.6 Pull requests

No pull requests