## PHOENIX-6232

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## Chapter 1

# Root issue PHOENIX-6232

### 1.1 Summary

Correlated subquery should not push to RegionServer as the probe side of the Hash join

### 1.2 Description

We were facing an interesting problem when a more complex query (with inner selects in the WHERE clause) succeeds alone, while the same query fails, if it is part of a join. I created a test table / query to reproduce the problem:

```
DROP TABLE IF EXISTS test;

CREATE TABLE test (

id INTEGER NOT NULL,

test_id INTEGER,

lastchanged TIMESTAMP,

CONSTRAINT my_pk PRIMARY KEY (id));

UPSERT INTO test VALUES(0, 100, '2000-01-01 00:00:00.0');

UPSERT INTO test VALUES(1, 101, '2000-01-01 00:00:00.0');

UPSERT INTO test VALUES(2, 100, '2011-11-11 11:11:11.0');
```

\*Query 1:\* Example query, running fine in itself:

```
SELECT id, test_id, lastchanged FROM test T

WHERE lastchanged = ( SELECT max(lastchanged) FROM test WHERE test_id = T.test_id )

Returns:

The state of the state of test in the
```

\*Query 2: Same query fails on the current master branch, when it is part of a larger (implicit) join:

```
1 SELECT AAA.*
```

```
FROM
2
3
     SELECT id, test id, lastchanged FROM test T
4
     WHERE lastchanged = ( SELECT max(lastchanged) FROM test WHERE test_id = T.test_id )
6
   ) as AAA,
7
     SELECT id FROM test
8
   ) as BBB
9
   WHERE AAA.id = BBB.id;
10
11
12
   java.lang.IllegalArgumentException
13
       at org.apache.phoenix.thirdparty.com.google.common.base.Preconditions.checkArgument(
14
            Preconditions.java:128)
       at org.apache.phoenix.compile.TupleProjectionCompiler.createProjectedTable(
15
            TupleProjectionCompiler.java:66)
       at org.apache.phoenix.compile.QueryCompiler.compileSingleFlatQuery(QueryCompiler.
16
            java:663)
       at org.apache.phoenix.compile.QueryCompiler.compileJoinQuery(QueryCompiler.java:404)
       at org.apache.phoenix.compile.QueryCompiler.compileJoinQuery(QueryCompiler.java:302)
18
19
       at org.apache.phoenix.compile.QueryCompiler.compileSelect(QueryCompiler.java:249)
       at org.apache.phoenix.compile.QueryCompiler.compile(QueryCompiler.java:176)
20
       at org.apache.phoenix.jdbc.PhoenixStatement$ExecutableSelectStatement.compilePlan(
21
            PhoenixStatement.java:504)
       at org.apache.phoenix.jdbc.PhoenixStatement$ExecutableSelectStatement.compilePlan(
22
            PhoenixStatement.java:467)
       at org.apache.phoenix.jdbc.PhoenixStatement$1.call(PhoenixStatement.java:309)
23
       at org.apache.phoenix.jdbc.PhoenixStatement$1.call(PhoenixStatement.java:298)
       at org.apache.phoenix.call.CallRunner.run(CallRunner.java:53)
25
       at org.apache.phoenix.jdbc.PhoenixStatement.executeQuery(PhoenixStatement.java:297)
26
       at org.apache.phoenix.jdbc.PhoenixStatement.executeQuery(PhoenixStatement.java:290)
27
       at org.apache.phoenix.jdbc.PhoenixStatement.execute(PhoenixStatement.java:1933)
28
       at sqlline.Commands.executeSingleQuery(Commands.java:1054)
29
       at sqlline.Commands.execute(Commands.java:1003)
30
       at sqlline.Commands.sql(Commands.java:967)
31
32
       at sqlline.SqlLine.dispatch(SqlLine.java:734)
       at sqlline.SqlLine.begin(SqlLine.java:541)
33
       at sqlline.SqlLine.start(SqlLine.java:267)
       at sqlline.SqlLine.main(SqlLine.java:206)
```

I am not sure what the problem is exactly. My guess is that Phoenix tries to optimize (flatten) an inner-query, which it shouldn't, if we are inside a join (according to the check in the code which throws the exception).

The best workaround I found was to define an explicit join in the original query (Query 1), basically change the inner select into a join. This modified query return the same as the original one:

#### \*Query 3:\*

```
SELECT T.id, T.test_id, T.lastchanged
   FROM
2
     test T
3
     LEFT JOIN (
       SELECT max(lastchanged) AS max_timestamp,
              test_id AS max_timestamp_test_id
6
       FROM test
7
       GROUP BY test_id
     ) JOIN_TABLE ON JOIN_TABLE.max_timestamp_test_id = T.test_id
   WHERE T.lastchanged = JOIN_TABLE.max_timestamp
11
   Returns:
```

\*Query 4:\* And the same modified query (query 3) now works inside a join:

```
SELECT AAA.*
   FROM
3
     SELECT T.id, T.test_id, T.lastchanged
5
     FROM
6
       test T
       LEFT JOIN (
        SELECT max (lastchanged) AS max_timestamp,
               test_id AS max_timestamp_test_id
        FROM test
10
        GROUP BY test_id
11
       ) JOIN_TABLE ON JOIN_TABLE.max_timestamp_test_id = T.test_id
     WHERE T.lastchanged = JOIN_TABLE.max_timestamp
13
    as AAA,
14
15
     SELECT id FROM test
16
17
   ) as BBB
   WHERE AAA.id = BBB.id;
18
19
   Returns:
20
21
   | T.ID | T.TEST_ID | T.LASTCHANGED
22
23
         24
   | 2
25
```

I think Query 4 worked, as it is forcing Phoenix to drop the idea of optimizing it's inner-query (Query 3). Although, I can be wrong about the root cause...

Anyway, I think the bug should be fixed and Query 2 should run without exception.

#### 1.3 Attachments

- $1. \ \ PHOENIX-6232\_v1-4.x.patch$
- 2. PHOENIX-6232\_v1-master.patch

#### 1.4 Comments

1. **comnetwork:** [~symat]ïijŇ thank you very much for the report. It is indeed a bug, I would try to fix it.

I reproduced your problem on the latest branch 4.x, but the exception is different from your reported exception, what is your phoenix version?

2. symat: [~comnetwork], thanks for looking into this!

>I reproduced your problem on the latest branch 4.x, but the exception is different from your reported exception, what is your phoenix version?

First I saw this issue on our downstream phoenix, which is based on 5.0.0 (but might contain some newer commits cherry-picked). Then I tried to reproduce the same problem on other versions. The stacktrace I copied here come from phoenix I built from the apache master branch 2 days ago. (I haven't tested this on any 4.x versions yet)

- 3. **comnetwork:** [~symat]. thank you very much, I would try to fix this and to test on the 4.x and master.
- 4. wangchao316: I reproduct this issues in 5.0.0 branch, this exception is same as query 2.
- 5. **githubbot:** comnetwork opened a new pull request #992: URL: https://github.com/apache/phoenix/pull/992

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6. comnetwork: [~symat], I uploaded my patch to fix this bug, I think the root cause is that

```
SELECT id, test_id, lastchanged FROM test T

WHERE lastchanged = ( SELECT max(lastchanged) FROM test WHERE test_id = T.test_id
)
```

has Correlated subquery ({{SELECT max(lastchanged) FROM test WHERE test\_id = T.test\_id}}), which is a join itself, so it could not as the probe side of the Hash join.

You may also use /\*+ USE SORT MERGE JOIN\*/ hint to get around this bug.

7. **symat:** [~comnetwork], thanks for the very quick fix! :)

I'm going to build your patch and also execute the original query failed for us in production.

```
8. hadoopqa: | (x) *{color:red}-1 overall{color}* |
     //
     //
     || Vote || Subsystem || Runtime || Comment ||
      | {color:blue}0{color} | {color:blue} reexec {color} | {color:blue} 0m 41s{color} | {color:blue}
     Docker mode activated. {color}
     || || || || {color:brown} Prechecks {color} ||
      | {color:green}+1{color} | {color:green} dupname {color} | {color:green} 0m 0s{color} |
      {color:green} No case conflicting files found. {color} |
      | {color:green}+1{color} | {color:green} hbaseanti {color} | {color:green} 0m 0s{color} |
      {color:green} Patch does not have any anti-patterns. {color}
      | {color:green}+1{color} | {color:green} @author {color} | {color:green} 0m 0s{color} |
      {color:green} The patch does not contain any @author tags. {color}
      | \{color:green\} + 1\{color\} | \{color:green\} |
      {color:green} The patch appears to include 2 new or modified test files. {color} |
     || || || || {color:brown} 4.x Compile Tests {color} ||
      | {color:green}+1{color} | {color:green} mvninstall {color} | {color:green} 5m 59s{color}
      | {color:green} 4.x passed {color} |
      | {color:green}+1{color} | {color:green} compile {color} | {color:green} 0m 55s{color} |
      {color:green} 4.x passed {color} |
      | {color:green}+1{color} | {color:green} checkstyle {color} | {color:green} 1m 27s{color}
      | {color:green} 4.x passed {color} |
      | {color:green}+1{color} | {color:green} javadoc {color} | {color:green} 0m 41s{color} |
      {color:green} 4.x passed {color} |
      | {color:blue}0{color} | {color:blue} spotbugs {color} | {color:blue} 2m 59s{color} | {color:blue}
      phoenix-core in 4.x has 950 extant spotbugs warnings. {color}
     || || || || {color:brown} Patch Compile Tests {color} ||
      | {color:green}+1{color} | {color:green} mvninstall {color} | {color:green} 5m 37s{color}
      | {color:green} the patch passed {color} |
      | {color:green}+1{color} | {color:green} compile {color} | {color:green} 0m 53s{color} |
      {color:green} the patch passed {color} |
     | {color:green}+1{color} | {color:green} javac {color} | {color:green} 0m 53s{color} | {color:green}
```

```
| {color:red}-1{color} | {color:red} checkstyle {color} | {color:red} 1m 28s{color} | {color:red}
phoenix-core: The patch generated 180 \text{ new} + 2552 \text{ unchanged} - 142 \text{ fixed} = 2732 \text{ total (was
2694) {color} |
| {color:green}+1{color} | {color:green} whitespace {color} | {color:green} 0m 0s{color}
| {color:green} The patch has no whitespace issues. {color} |
| {color:red}-1{color} | {color:red} javadoc {color} | {color:red} 0m 43s{color} | {color:red}
phoenix-core generated 2 new + 98 unchanged - 2 fixed = 100 total (was 100) {color}
| {color:green}+1{color} | {color:green} spotbugs {color} | {color:green} 3m 6s{color} |
{color:green} the patch passed {color} |
|| || || || {color:brown} Other Tests {color} ||
| {color:red}-1{color} | {color:red} unit {color} | {color:red}143m 9s{color} | {color:red}
phoenix-core in the patch failed. {color}
| {color:green}+1{color} | {color:green} asflicense {color} | {color:green} 0m 33s{color} |
{color:green} The patch does not generate ASF License warnings. {color}
| {color:black}{color} | {color:black} {color} | {color:black}168m 50s{color} | {color:black}
{color} |
//
//
|| Reason || Tests ||
| Failed junit tests | phoenix.end2end.AlterTableWithViewsIT |
| | phoenix.end2end.RangeScanIT |
//
//
| Subsystem | Report/Notes |
| Docker | ClientAPI=1.40 ServerAPI=1.40 base: https://ci-hadoop.apache.org/job/PreCommit-
PHOENIX-Build/230/artifact/patchprocess/Dockerfile
| JIRA Issue | PHOENIX-6232 |
JIRA Patch URL | https://issues.apache.org/jira/secure/attachment/13016278/PHOENIX-
6232 v1-4.x.patch |
Optional Tests | dupname asflicense javac javadoc unit spotbugs hbaseanti checkstyle com-
| uname | Linux 26b8d3769836 4.15.0-112-generic #113-Ubuntu SMP Thu Jul 9 23:41:39
```

the patch passed {color} |

```
UTC 2020 x86 64 x86 64 x86 64 GNU/Linux
  | Build tool | maven |
  | Personality | dev/phoenix-personality.sh |
  git revision | 4.x / 18b9f76 |
  | Default Java | Private Build-1.8.0 | 242-8u242-b08-0ubuntu3~16.04-b08 |
  | checkstyle | https://ci-hadoop.apache.org/job/PreCommit-PHOENIX-Build/230/artifact/patchprocess/diff-
  checkstyle-phoenix-core.txt |
  | javadoc | https://ci-hadoop.apache.org/job/PreCommit-PHOENIX-Build/230/artifact/patchprocess/diff-
  javadoc-javadoc-phoenix-core.txt
  | unit | https://ci-hadoop.apache.org/job/PreCommit-PHOENIX-Build/230/artifact/patchprocess/patch-
  unit-phoenix-core.txt
   Test Results | https://ci-hadoop.apache.org/job/PreCommit-PHOENIX-Build/230/testReport/
  | Max. process+thread count | 6458 (vs. ulimit of 30000) |
  | modules | C: phoenix-core U: phoenix-core |
   Console output | https://ci-hadoop.apache.org/job/PreCommit-PHOENIX-Build/230/console
  | versions | git=2.7.4 maven=3.3.9 spotbugs=4.1.3 |
  Powered by Apache Yetus 0.12.0 https://yetus.apache.org
  This message was automatically generated.
9. githubbot: symat commented on pull request #992:
  URL: https://github.com/apache/phoenix/pull/992#issuecomment-736616782
  I can not comment on the code (I'm not familiar with Phoenix internals) but I executed
  the original production query that failed for us before the patch, and after applying this
  patch the query succeed. Thanks for the fix!
```

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10. **symat:** I executed the original production query that failed for us before the patch, and after applying this patch the query succeed. I tested it on branch 4.x, as the PR was submitted against 4.x. Thanks for the fix again!

Do you plan to also cherry-pick the change to master? (I don't know how the branching works in Phoenix... but it would be great to have this fix in the next 5.x release too)

11. **githubbot:** stoty commented on pull request #992: URL: https://github.com/apache/phoenix/pull/992#issuecomment-736651838

:broken heart: \*\*-1 overall\*\*

```
| +1 :green heart: | compile | 0m 55s | 4.x passed |
| +1 :green_heart: | checkstyle | 1m 33s | 4.x passed |
| +1 : green\_heart: | javadoc | 0m 43s | 4.x passed |
| +0 :ok: | spotbugs | 2m 56s | phoenix-core in 4.x has 950 extant spotbugs warnings.
||| _ Patch Compile Tests _ | |
| +1 :green_heart: | mvninstall | 5m 24s | the patch passed |
| +1 :green_heart: | compile | 0m 55s | the patch passed |
| +1 :green_heart: | javac | 0m 55s | the patch passed |
| -1 :x: | checkstyle | 1m 39s | phoenix-core: The patch generated 121 new + 2612 un-
changed - 83 fixed = 2733 total (was 2695)
+1 :green heart: | whitespace | 0m 0s | The patch has no whitespace issues. |
| -1 :x: | javadoc | 0m 41s | phoenix-core generated 1 new + 99 unchanged - 1 fixed =
100 total (was 100)
| +1 :green_heart: | spotbugs | 3m 6s | the patch passed |
|| _ Other Tests _ |
| -1 :x: | unit | 206m 57s | phoenix-core in the patch failed. |
+1: green heart: | asflicense | 0m 35s | The patch does not generate ASF License warnings. |
| | | 244m 42s | |
| Reason | Tests |
|-----|
| Failed junit tests | phoenix.end2end.PointInTimeQueryIT |
| Subsystem | Report/Notes |
|-----|
```

```
Docker | ClientAPI=1.40 ServerAPI=1.40 base: https://ci-hadoop.apache.org/job/Phoenix/job/Phoenix-
PreCommit-GitHub-PR/job/PR-992/1/artifact/yetus-general-check/output/Dockerfile
| GITHUB PR | https://github.com/apache/phoenix/pull/992 |
| JIRA Issue | PHOENIX-6232 |
Optional Tests | dupname asflicense javac javadoc unit spotbugs hbaseanti checkstyle com-
pile |
| uname | Linux a25f0bde3789 4.15.0-65-generic #74-Ubuntu SMP Tue Sep 17 17:06:04
UTC 2019 x86_64 x86_64 x86_64 GNU/Linux |
| Build tool | maven |
| Personality | dev/phoenix-personality.sh |
git revision | 4.x / 18b9f76 |
| Default Java | Private Build-1.8.0 242-8u242-b08-0ubuntu3~16.04-b08 |
| checkstyle | https://ci-hadoop.apache.org/job/Phoenix/job/Phoenix-PreCommit-GitHub-
PR/job/PR-992/1/artifact/yetus-general-check/output/diff-checkstyle-phoenix-core.txt |
|\ javadoc\ |\ https://ci-hadoop.apache.org/job/Phoenix/job/Phoenix-PreCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHub-PR/job/PR-linearity-preCommit-GitHu
992/1/artifact/vetus-general-check/output/diff-javadoc-javadoc-phoenix-core.txt
unit | https://ci-hadoop.apache.org/job/Phoenix/job/Phoenix-PreCommit-GitHub-PR/job/PR-
992/1/artifact/yetus-general-check/output/patch-unit-phoenix-core.txt
Test Results | https://ci-hadoop.apache.org/job/Phoenix/job/Phoenix-PreCommit-GitHub-
PR/job/PR-992/1/testReport/ |
| Max. process+thread count | 6170 (vs. ulimit of 30000) |
| modules | C: phoenix-core U: phoenix-core |
| Console output | https://ci-hadoop.apache.org/job/Phoenix/job/Phoenix-PreCommit-GitHub-
PR/job/PR-992/1/console
| versions | git=2.7.4 maven=3.3.9 spotbugs=4.1.3 |
| Powered by | Apache Yetus 0.12.0 https://yetus.apache.org |
```

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```
12. comnetwork: [~symat], Thank you for quick feedback, I would make a patch for the master
13. comnetwork: Uploaded my patch for the master.
14. symat: Thank you [~comnetwork]!! :)
15. hadoopqa: | (x) *{color:red}-1 overall{color}* |
    //
    //
    || Vote || Subsystem || Runtime || Comment ||
    | {color:blue}0{color} | {color:blue} reexec {color} | {color:blue} 0m 57s{color} | {color:blue}
    Docker mode activated. {color} |
    || || || || {color:brown} Prechecks {color} ||
    | {color:green}+1{color} | {color:green} dupname {color} | {color:green} 0m 0s{color} |
    {color:green} No case conflicting files found. {color}
    | {color:green}+1{color} | {color:green} hbaseanti {color} | {color:green} 0m 0s{color} |
    {color:green} Patch does not have any anti-patterns. {color} |
    | {color:green}+1{color} | {color:green} @author {color} | {color:green} 0m 0s{color} |
    {color:green} The patch does not contain any @author tags. {color}
    | {color:green}+1{color} | {color:green} test4tests {color} | {color:green} 0m 0s{color} |
    {color:green} The patch appears to include 2 new or modified test files. {color}
    || || || || {color:brown} master Compile Tests {color} ||
    | {color:green}+1{color} | {color:green} mvninstall {color} | {color:green} 10m 41s{color} |
    {color:green} master passed {color} |
    | {color:green} +1{color} | {color:green} compile {color} | {color:green} 1m 5s{color} | {color:green}
    master passed {color} |
    | {color:green}+1{color} | {color:green} checkstyle {color} | {color:green} 1m 26s{color}
    | {color:green} master passed {color} |
    | {color:green}+1{color} | {color:green} javadoc {color} | {color:green} 0m 53s{color} |
```

{color:green} master passed {color} |

```
phoenix-core in master has 966 extant spotbugs warnings. {color}
|| || || || {color:brown} Patch Compile Tests {color} ||
| {color:green}+1{color} | {color:green} mvninstall {color} | {color:green} 9m 29s{color}
| {color:green} the patch passed {color} |
| {color:green} +1{color} | {color:green} compile {color} | {color:green} 1m 0s{color} | {color:green}
the patch passed {color} |
| {color:green} +1{color} | {color:green} javac {color} | {color:green} 1m 0s{color} | {color:green}
the patch passed {color} |
| {color:red}-1{color} | {color:red} checkstyle {color} | {color:red} 1m 27s{color} | {color:red}
phoenix-core: The patch generated 121 new + 2673 unchanged - 84 fixed = 2794 total (was
2757) {color} |
 {color:green}+1{color} | {color:green} whitespace {color} | {color:green} 0m 0s{color}
| {color:green} The patch has no whitespace issues. {color} |
| {color:red}-1{color} | {color:red} javadoc {color} | {color:red} 0m 51s{color} | {color:red}
phoenix-core generated 2 new + 98 unchanged - 2 fixed = 100 total (was 100) {color} |
| {color:green}+1{color} | {color:green} spotbugs {color} | {color:green} 3m 38s{color} |
{color:green} the patch passed {color} |
|| || || || {color:brown} Other Tests {color} ||
| {color:red}-1{color} | {color:red} unit {color} | {color:red}110m 37s{color} | {color:red}
phoenix-core in the patch failed. {color}
| {color:green}+1{color} | {color:green} asflicense {color} | {color:green} 0m 22s{color} |
{color:green} The patch does not generate ASF License warnings. {color}
| {color:black}{color} | {color:black} {color} | {color:black}146m 39s{color} | {color:black}
{color} |
//
//
|| Subsystem || Report/Notes ||
| Docker | ClientAPI=1.40 ServerAPI=1.40 base: https://ci-hadoop.apache.org/job/PreCommit-
PHOENIX-Build/236/artifact/patchprocess/Dockerfile
| JIRA Issue | PHOENIX-6232 |
JIRA Patch URL | https://issues.apache.org/jira/secure/attachment/13016332/PHOENIX-
6232 v1-master.patch
Optional Tests | dupname asflicense javac javadoc unit spotbugs hbaseanti checkstyle com-
```

| {color:blue}0{color} | {color:blue} spotbugs {color} | {color:blue} 3m 29s{color} | {color:blue}

```
pile |
| uname | Linux 0f430c00e671 4.15.0-112-generic #113-Ubuntu SMP Thu Jul 9 23:41:39
UTC 2020 x86 64 x86 64 x86 64 GNU/Linux
| Build tool | maven |
| Personality | dev/phoenix-personality.sh |
git revision | master / 8c260aa |
| Default Java | Private Build-1.8.0_242-8u242-b08-0ubuntu3~16.04-b08 |
| checkstyle | https://ci-hadoop.apache.org/job/PreCommit-PHOENIX-Build/236/artifact/patchprocess/diff-
checkstyle-phoenix-core.txt
| javadoc | https://ci-hadoop.apache.org/job/PreCommit-PHOENIX-Build/236/artifact/patchprocess/diff-
javadoc-javadoc-phoenix-core.txt
| unit | https://ci-hadoop.apache.org/job/PreCommit-PHOENIX-Build/236/artifact/patchprocess/patch-
unit-phoenix-core.txt |
Test Results | https://ci-hadoop.apache.org/job/PreCommit-PHOENIX-Build/236/testReport/
| Max. process+thread count | 6810 (vs. ulimit of 30000) |
| modules | C: phoenix-core U: phoenix-core |
| Console output | https://ci-hadoop.apache.org/job/PreCommit-PHOENIX-Build/236/console
| versions | git=2.7.4 maven=3.3.9 spotbugs=4.1.3 |
| Powered by | Apache Yetus 0.12.0 https://yetus.apache.org |
```

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