

PL/SQL static code analysis: SQL "JOIN" conditions should involve all joined tables

2 minutes

When a SQL query is joining n tables (with $n \geq 2$), it is expected to have join conditions defined to determine on which columns these n tables should be joined. At minimum, for n joined tables, the SQL query should contain $(n-1)$ join conditions involving all the joined table to avoid a full cartesian product between the rows of the n tables.

Not doing so will imply that too many rows will be returned. If this is not the case and unless this has been done on purpose, the SQL query should be reviewed and missing conditions should be added or useless tables should be removed from the SQL query.

This rule is raising no issue when the SQL query is involving `CROSS JOIN`, `NATURAL JOIN` statements.

Noncompliant Code Example

```
SELECT c.id, c.name, o.id, o.item_id, o.item_quantity
  FROM ORDERS o, CUSTOMERS c; -- Noncompliant; no JOIN
condition at all
```

```
SELECT c.id, c.name, o.id, o.item_id, o.item_quantity
```

```
FROM ORDERS o
JOIN CUSTOMERS c ON o.customer_id = o.id; --
Noncompliant; no condition related to CUSTOMERS
```

```
SELECT f.name, d.title, l.*
FROM FOLDERS f, DOCUMENTS d, DOC_LINES l --
Noncompliant; missing at least one condition related to
DOC_LINES
WHERE f.id = d.folder_id;
```

Compliant Solution

```
SELECT c.id, c.name, o.id, o.item_id, o.item_quantity
FROM ORDERS o, CUSTOMERS c
WHERE o.customer_id = c.id; -- Compliant
```

```
SELECT c.id, c.name, o.id, o.item_id, o.item_quantity
FROM ORDERS o
JOIN CUSTOMERS c ON o.customer_id = c.id; -- Compliant
```

```
SELECT f.name, d.title, l.*
FROM FOLDERS f, DOCUMENTS d, DOC_LINES l
WHERE f.id = d.folder_id
AND d.id = l.document_id; -- Compliant
```