Script to check for Missing Indexes for Foreign Keys (Doc ID 16428.1)

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APPLIES TO:

Oracle Database - Enterprise Edition - Version 8.0.6.0 and later
Information in this document applies to any platform.
Checked for relevance on 10-Dec-2013

GOAL

To find all missing indexes for foreign keys

SOLUTION

Indexing foreign keys as well as primary keys on master-detail tables can dramatically improve the performance of many systems by preventing deadlocks.

The reasons for the performance gain are documented in the "Oracle Application Developer's Guide" under 'Maintaining Data Integrity'.
When creating foreign keys, it is relatively straightforward to create the index soon after.

The following PL/SQL module addresses the situation when the foreign keys were created some time ago, and some (if not all) were not indexed.
It does this by querying the data-dictionary, and identifying and constructing the columns that make up each of the foreign keys. This information is then displayed on the screen and can also be written to a temporary table (FOREIGN_KEY_EXCEPTIONS), that can be used by the DBA for reference while manually creating each index. Alternatively it may be used to generate the indices automatically via a simple select statement.

Program Notes

The script will prompt:

1. whether you wish to write the results to a table (write_to_table_y_n) .
    In this case create the table FOREIGN_KEY_EXCEPTIONS under the privileged user that will run the script:

    ```
    CREATE TABLE foreign_key_exceptions
    (owner VARCHAR2(30),
     constraint_name VARCHAR2(30),
     status VARCHAR2(8),
     table_name VARCHAR2(30),
     foreign_key VARCHAR2(2000));
    ```

2. SCHEMA for which you wish to check the foreign keys
    If the input is ALL , then all schemas will be scanned for missing indexes

How the Script Works

For each foreign key in the data dictionary:
1. Work out the columns that form the key for that owner & table.
2. Work out the columns that form the indices for that owner & table.

3. If the order of columns for one of the indices does not match the order of the foreign key columns, then write the foreign key name, status, table, and columns comprising the key to the table foreign_key_exceptions

Note:

- The script may report that an index is missing when an index does exist but with the columns in a different order from the constraint.
  This situation will still avoid the locking issue. e.g. foreign key (p1,p2,p3,p4) will work with an index on (p3,p1,p2,p4,x1,x2,...)

- Before running the module, ensure that the FOREIGN_KEY_EXCEPTIONS table is empty.

```
Download script from: fk_indexes.sql
```

CAUTION:

This sample code is provided for educational purposes only and not supported by Oracle Support Services. It has been tested internally, however, and works as documented. We do not guarantee that it will work for you, so be sure to test it in your environment before relying on it.

Proofread this sample code before using it! Due to the differences in the way text editors, e-mail packages and operating systems handle text formatting (spaces, tabs and carriage returns), this sample code may not be in an executable state when you first receive it. Check over the sample code to ensure that errors of this type are corrected.

REFERENCES

NOTE:1227554.1 - SCRIPT: How to Check if Foreign Key Columns are Indexed for a Specific Table
NOTE:1019527.6 - Script to Check for Foreign Key Locking Issues for a Specific User