About Oracle TDE (Transparent Data Encryption)

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INRODUCTION
The Transparent Data Encryption feature was announced in Oracle 10g Database Release 2 to simplify the encryption of data within datafiles, tables stopping access to it from the operating system. Tablespace encryption extends this technology, allowing encryption of the entire insides of a tablespace and tables.

Steps of TDE configuration
1. Set up the TDE wallet location.

1.1. Use the default or other location like $ORACLE_BASE/ admin/<Database Name>/Name of wallet.

1.2. Update sqlnet.ora with an entry like below.

```
ENCRYPTION_WALLET_LOCATION =
 (SOURCE = (METHOD = FILE)
  (METHOD_DATA =
   (DIRECTORY = /opt/oracle/WALLETS/$ORACLE_SID)
  )
 )
```

2. Make sure the specified wallet directory exists.

3. Create the initial TDE master key.
On 11g and 10g, in sqlplus:

```
ALTER SYSTEM SET ENCRYPTION KEY IDENTIFIED BY "WALLET PASSWORD"
```

4. Create the encrypted tablespace and tables.

Tablespace:
```
CREATE TABLESPACE <tablespace name>
DATAFILE <datafile specifications>
ENCRYPTION [USING '<encryption algorithm>'][IDENTIFIED BY password][SALT|NO SALT]
DEFAULT STORAGE (ENCRYPT);
```

Table:
```
CREATE TABLE <table name>(
<non encrypted column list>,...
<encrypted column name> <type> ENCRYPT [USING '<encryption algorithm>'][IDENTIFIED BY password][SALT|NO SALT],...
<non encrypted column list>,...
<encrypted column name> <type> ENCRYPT [USING '<encryption algorithm>'][IDENTIFIED BY password][SALT|NO SALT],...
);
```

Some database dictionary table where you can find information about objects encrypted with TDE
Tables: DBA_ENCRYPTED_COLUMNS, ENC$
Tablespaces: DBA_TABLESPACES, V$ENCRYPTED_TABLESPACES

CONCLUDING
Transparent Data Encryption delivers tool to encrypt the data stored in the OS data files and table level. TDE enables the encryption of data at the storage level to prevent data tempering and theft from outside of the database. The above is to show ways of configuration of TDE and methods to test this enable in databases. A happy company and a happy employee are the ones who have a solid encryption plan program.