

# Instance

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# Instance

- A database instance is a set of memory structures that manage database files.
- A database is a set of physical files on disk created by the CREATE DATABASE statement.
- The instance manages its associated data and serves the users of the database.
- Every running Oracle database is associated with at least one Oracle database instance.

## Oracle installation

Instance development

SGA (memory)

Oracle processes (CPU)

Database

Files (harddisk)

Instance production

SGA (memory)

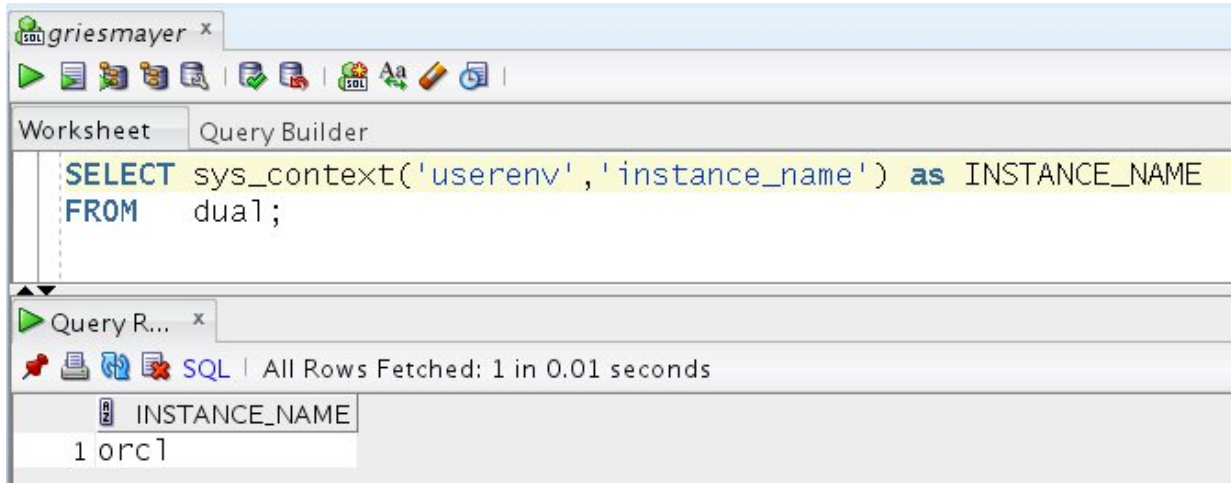
Oracle processes (CPU)

Database

Files (harddisk)

# SID

- The SID (Oracle System ID) uniquely identify a particular instance on a system.
- ```
$ echo $ORACLE_SID  
orcl
```



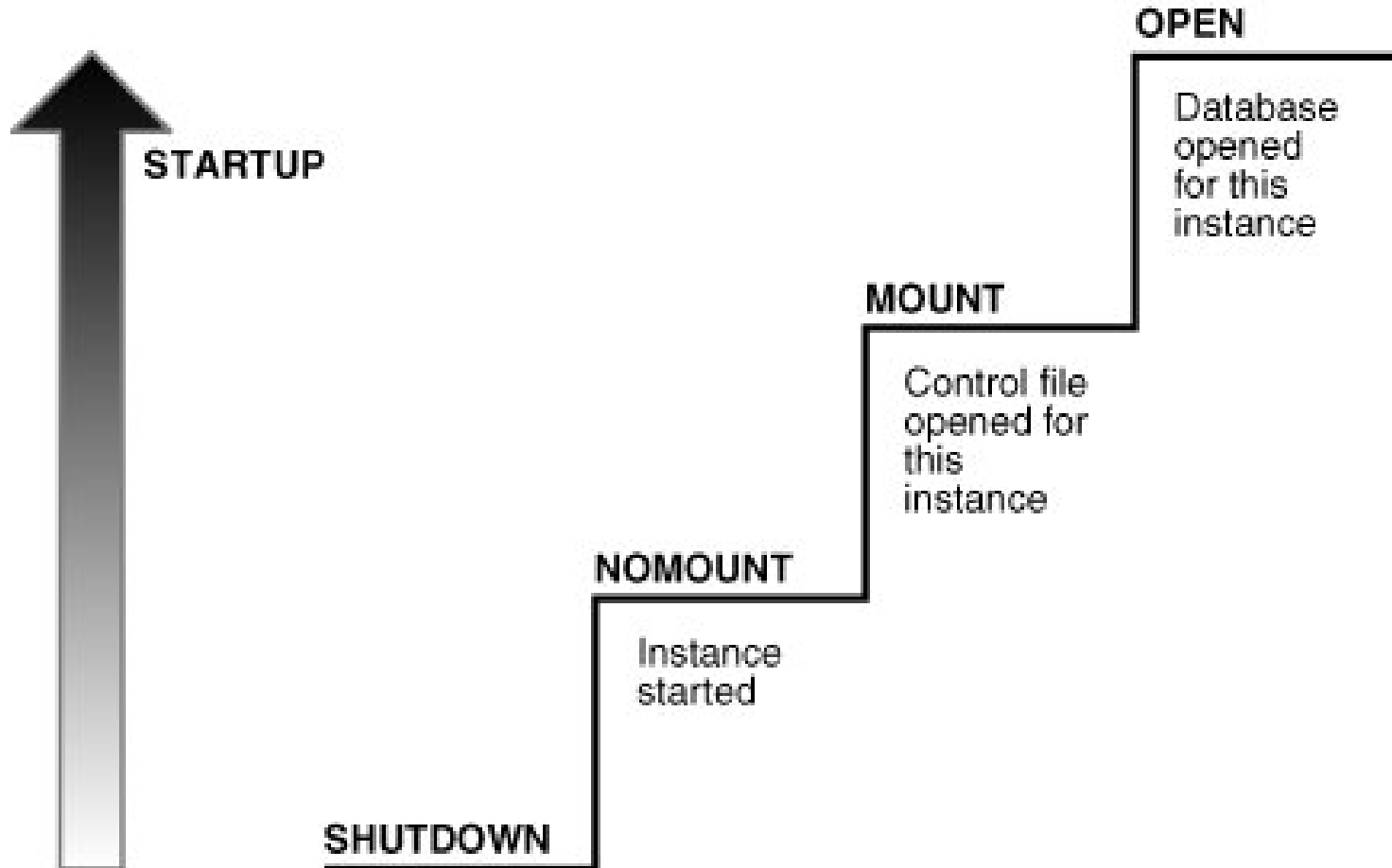
The screenshot shows the Oracle SQL Developer interface. The top window is titled 'griesmayer' and contains a 'Worksheet' tab with the following SQL query:

```
SELECT sys_context('userenv','instance_name') as INSTANCE_NAME  
FROM dual;
```

Below the query editor is a 'Query Results' window titled 'Query R...'. It shows the execution status: 'SQL | All Rows Fetched: 1 in 0.01 seconds'. The results are displayed in a table with one row:

| INSTANCE_NAME |
|---------------|
| 1 orcl        |

# STARTUP/SHUTDOWN



<https://docs.oracle.com/database/121/CNCPT/startup.htm#CNCPT602> (2.10.2018)

# STARTUP/SHUTDOWN

| Database Behavior                           | ABORT | IMMEDIATE | TRANSACTIONAL | NORMAL |
|---------------------------------------------|-------|-----------|---------------|--------|
| Permits new user connections                | NO    | NO        | NO            | NO     |
| Waits until current sessions end            | NO    | NO        | NO            | YES    |
| Waits until current transactions end        | NO    | NO        | YES           | YES    |
| Performs a checkpoint and closes open files | NO    | YES       | YES           | YES    |

```
CREATE TABLE GRIESMAYER_CUSTOMER
(
  CUSTOMER_ID INTEGER PRIMARY KEY,
  BALANCE      DECIMAL(10, 2)
);
INSERT INTO GRIESMAYER_CUSTOMER VALUES(1, 100);
INSERT INTO GRIESMAYER_CUSTOMER VALUES(2, 150);
INSERT INTO GRIESMAYER_CUSTOMER VALUES(3, 300);
COMMIT;

UPDATE GRIESMAYER_CUSTOMER
SET    BALANCE = 200
WHERE  CUSTOMER_ID = 2;

SELECT XID
FROM   V$TRANSACTION;
03001A006F250000
```

```
$ sqlplus sys/oracle as sysdba
```

```
Connected to:
```

```
Oracle Database 11g Enterprise Edition Release 11.2.0.2.0 -  
Production
```

```
SQL> SELECT STARTUP_TIME  
2 FROM V$INSTANCE;
```

```
STARTUP_T
```

```
-----
```

```
02-OCT-18
```

```
SQL> SHUTDOWN TRANSACTIONAL;
```



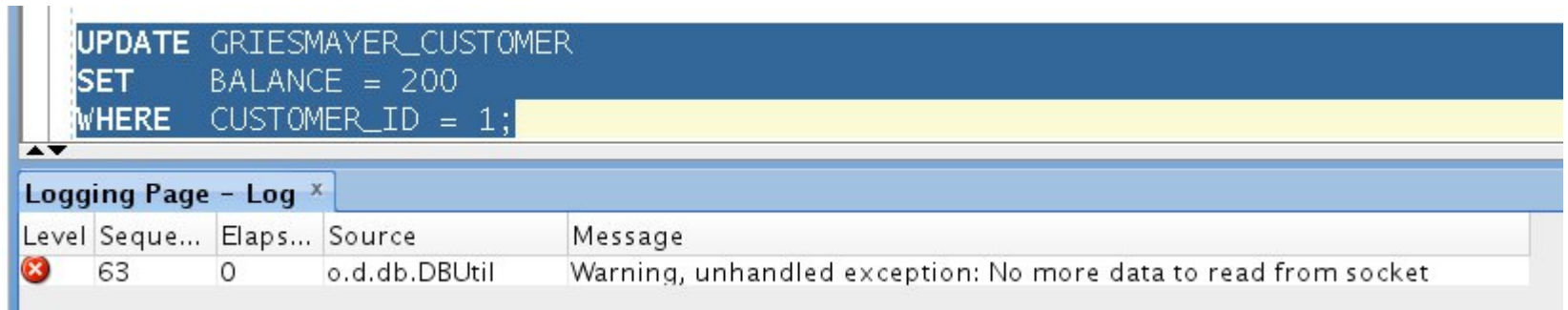
```
COMMIT;
```

```
SQL> SHUTDOWN TRANSACTIONAL;
```

```
Database closed.
```

```
Database dismounted.
```

```
ORACLE instance shut down.
```



The screenshot shows a terminal window with the following content:

```
UPDATE GRIESMAYER_CUSTOMER
SET    BALANCE = 200
WHERE  CUSTOMER_ID = 1;
```

Below the SQL statement is a logging page titled "Logging Page - Log x". It contains a table with the following data:

| Level | Seque... | Elaps... | Source        | Message                                                        |
|-------|----------|----------|---------------|----------------------------------------------------------------|
| ⊗     | 63       | 0        | o.d.db.DBUtil | Warning, unhandled exception: No more data to read from socket |

```
SQL> STARTUP;  
ORACLE instance started.
```

```
Total System Global Area 456146944 bytes  
Fixed Size                 1344840 bytes  
Variable Size             369101496 bytes  
Database Buffers         79691776 bytes  
Redo Buffers              6008832 bytes
```

```
Database mounted.  
Database opened.
```