

# Oracle 12c

Day - 11



Flashback

# Oracle – 12c Flashback

---

## **Flashback**

Oracle Flashback Feature was introduced in Oracle 9i.

After 9i version It provides a set of new features

Flashback Technology allow to retrieve past states to view or rewind the database objects.

Flashback functionalities provide fast and flexible data recovery.

Recover tables or rows a previous point in time.

It perform self-service repair to recover from logical corruptions while the database is online.

Automatically track and archive transactional data changes.

Roll back a transaction and its dependent transactions while the database remains online.

# Oracle – 12c Flashback

---

## **Types of Flashback**

Flashback Query

Flashback Version Query

Flashback Transaction Query

Flashback Table

Flashback Drop

Flashback Database

Flashback Database Archive

# Oracle – 12c Flashback

---

## Flashback

Database Must be Archive Mode and enable the flashback features on.

```
SQL> select name, open_mode, log_mode, flashback_on  
2 from v$database;
```

NAME	OPEN_MODE	LOG_MODE	FLASHBACK_ON
-----			
SDBT	READ WRITE	MANUAL	YES

```
SQL> archive log list;  
Database log mode           Archive Mode  
Automatic archival         Enabled  
Archive destination         USE_DB_RECOVERY_FILE_DEST  
Oldest online log sequence  16  
Next log sequence to archive 16  
Current log sequence        18
```



## Oracle – 12c Flashback

---

### **Flashback Enable/Disable**

To Enable

```
SQL> alter database flashback on;
```

Database altered.

To Disable

```
SQL> alter database flashback on;
```

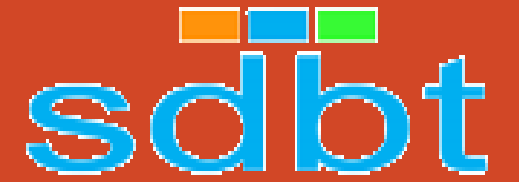
Database altered.

# Oracle – 12c Flashback

---

## **Flashback Using clause**

- To SCN
- To Timestamp
- To Restore Point



# Flashback Query



# Oracle – 12c Flashback

---

## **Flashback Query**

It using select statement with an as of clause.

Retrieves data which existed at an earlier time.

The time specify by SCN or Timestamp.

It returns only committed data.

Depends upon the data availability in Undo Segments

# Oracle – 12c Flashback

---

## **Flashback Query Purpose**

Recovering lost data or undoing incorrect committed changes.

Comparing data at current time to past time.

Checking transactional data at specific time.

Provide self service error correction for an application,

Enabling users undo and correct their errors.



## Oracle – 12c Flashback

---

### Flashback Query

```
SQL> create table flash_sdbt_tab1  
2 (fid number(5), name varchar2(20));
```

Table created.

```
SQL> select * from flash_sdbt_tab1;
```

FID NAME

-----

```
31 Harish  
32 Maha  
39 Banu  
42 Barani
```

# Oracle – 12c Flashback

---

## Flashback Query - SCN

```
SQL> select * from flash_sdbt_tab1 as of scn 10345205;
```

FID	NAME
31	Harish

```
SQL> select * from flash_sdbt_tab1 as of timestamp scn_to_timestamp(10345205);
```

FID	NAME
31	Harish



## Oracle – 12c Flashback

---

### Flashback Query

```
SQL> select * from flash_sdbt_tab1 as of timestamp  
2 to_date('2018-10-09 12:29:40','YYYY-MM-DD HH24:SS:MI');
```

FID NAME

-----

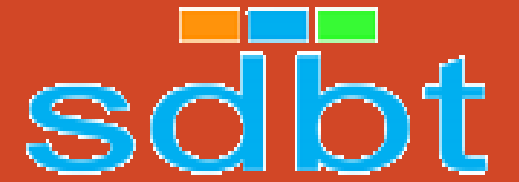
31 Harish  
32 Maha  
39 Banu  
42 Barani

```
SQL> select * from flash_sdbt_tab1 as of scn  
2 timestamp_to_scn(to_date('2018-10-09 12:29:40','YYYY-MM-DD HH24:SS:MI'));
```

FID NAME

-----

31 Harish  
32 Maha  
39 Banu  
42 Barani



# Flashback Version Query



## Oracle – 12c Flashback

---

### Flashback Version Query

```
SQL> select versions_startscn, versions_starttime,  
2         versions_endscn, versions_endtime,  
3         versions_xid, versions_operation, id, name  
4   from sdbt_tab_1  
5  versions between timestamp minvalue and maxvalue where id=1;
```

```
VERSIONS_STARTSCN  VERSIONS_STARTTIME  VERSIONS_ENDSCN  VERSIONS_ENDTIME
```

```
-----  
VERSIONS_XID      V          ID NAME  
-----
```

```
          1853718  10-OCT-18 08.00.20 PM  
03000D0011040000 U          1 Sai  
  
          1853365  10-OCT-18 08.00.20 PM  1853718  10-OCT-18 08.00.20 PM  
0A0016005E040000 U          1 Sakthi  
  
          1852810  10-OCT-18 08.00.20 PM  1853365  10-OCT-18 08.00.20 PM  
0500070052040000 I          1 Basker
```

# Oracle – 12c Flashback

---

## Flashback Version Query

```
SQL> select versions_startscn, versions_starttime,  
2         versions_endscn, versions_endtime,  
3         versions_xid, versions_operation, id, name  
4 from sdbt_tab_1  
5 versions between timestamp  
6 to_timestamp('2018-10-10 14:31:38', 'YYYY-MM-DD HH24:MI:SS')  
7 and to_timestamp('2018-10-10 14:41:40', 'YYYY-MM-DD HH24:MI:SS')  
8 where id=1;
```





## Oracle – 12c Flashback

---

### Flashback Version Query

```
SQL> select versions_startscn, versions_starttime,  
2         versions_endscn, versions_endtime,  
3         versions_xid, versions_operation, id, name  
5 from sdbt_tab_1  
6 versions between scn 1853730 and 1855585  
7 WHERE id=1;
```

```
VERSIONS_STARTSCN VERSIONS_STARTTIME VERSIONS_ENDSCN VERSIONS_ENDTIME
```

```
-----  
VERSIONS_XID      V          ID NAME
```

```
-----  
                1854308 10-OCT-18 08.00.20 PM  
0300010010040000 U          1 Sai
```

```
                1854300 10-OCT-18 08.00.20 PM 1854308 10-OCT-18 08.00.20 PM  
0100150067030000 U          1 Sakthi
```

```
                1854300 10-OCT-18 08.00.20 PM  
                1 Sai
```



# Flashback Transaction Query



## Oracle – 12c Flashback

---

### **Flashback Transaction Query**

Retrieve Metadata and historical data for transaction

Its used to see the past transaction data.

Flashback\_transaction\_query

It use Undo SQL not the Logminer

For viewing information we need Transaction ID (XID).

# Oracle – 12c Flashback

## Flashback Transaction Query

```
SQL> desc FLASHBACK_TRANSACTION_QUERY
Name                               Null?  Type
-----
--
XID                                 RAW(8)
START_SCN                           NUMBER
START_TIMESTAMP                      DATE
COMMIT_SCN                           NUMBER
COMMIT_TIMESTAMP                      DATE
LOGON_USER                           VARCHAR2(30)
UNDO_CHANGE#                          NUMBER
OPERATION                            VARCHAR2(32)
TABLE_NAME                           VARCHAR2(256)
TABLE_OWNER                           VARCHAR2(32)
ROW_ID                               VARCHAR2(19)
UNDO_SQL                             VARCHAR2(4000)
```



## Oracle – 12c Flashback

---

### Flashback Transaction Query

```
SQL> select logon_user, operation, table_name, table_owner, undo_sql  
2 from FLASHBACK_TRANSACTION_QUERY  
3 where xid=hextoraw('090006001D000000');
```

LOGON_USER	OPERATION	TABLE_NAME	TABLE_OWNER
-----	-----	-----	-----
UNDO_SQL			
-----	-----	-----	-----
SDBT	UPDATE	SDBT_TAB_1	SDBT
update "SDBT"."SDBT_TAB_1" set "NAME" = 'sai' where ROWID ='AAACeKAAEAAAEg2AAC';			
SDBT	BEGIN		



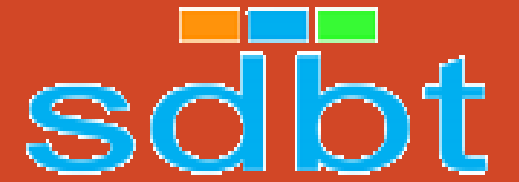
## Oracle – 12c Flashback

---

### Flashback Transaction Query

```
SQL> select logon_user, operation, table_name, table_owner, undo_sql  
2  from FLASHBACK_TRANSACTION_QUERY  
3  where xid=hexraw('09000C001E040000')
```

LOGON_USER	OPERATION	TABLE_NAME	TABLE_OWNER
-----	-----	-----	-----
UNDO_SQL			
-----	-----	-----	-----
SDBT	UNKNOWN	SDBT_TAB_1	
SDBT	BEGIN		



# Flashback Table



## Oracle – 12c Flashback

---

### **Flashback Table**

flashback allow restore a table to some time in past.

It Use undo to flashback the table.

This is not able to rollback, it's a separate transaction.

Flashback table keep the constraints intact.

It must to enable row movement on tables before flashback table.



# Oracle – 12c Flashback

---

## Flashback Table

```
SQL> create table sdbt_flash_tab  
2 (id number(5), name varchar2(10),dob date);
```

Table created.

```
SQL> alter table sdbt_flash_tab enable row movement;
```

Table altered.

# Oracle – 12c Flashback

---

## Flashback Table

```
SQL> begin
  2 insert into sdbt_flash_tab values(101,'Daniel','25-DEC-1996');
  3 insert into sdbt_flash_tab values(103,'Davied','01-FEB-1994');
  4 insert into sdbt_flash_tab values(105,'Durga','11-JUL-1998');
  5 insert into sdbt_flash_tab values(108,'Daniel','25-DEC-1996');
  6 insert into sdbt_flash_tab values(110,'Navith','13-MAR-1989');
  7 insert into sdbt_flash_tab values(112,'Manish','20-DEC-1991');
  8 insert into sdbt_flash_tab values(114,'Stevee','10-DEC-1990');
  9 insert into sdbt_flash_tab values(116,'Durai','12-JUN-1996');
 10 insert into sdbt_flash_tab values(119,'Kannan','19-AUG-1995');
 11 insert into sdbt_flash_tab values(121,'Vani','28-OCT-1997');
 12 end;
 13 /
```

PL/SQL procedure successfully completed.

```
SQL> commit;
```

# Oracle – 12c Flashback

---

## Flashback Table

```
SQL> commit;
```

Commit complete.

```
SQL> insert into sdbt_flash_tab values(132,'Mala','11-JAN-1990');
```

1 row created.

# Oracle – 12c Flashback

---

## **Flashback Table**

```
SQL> delete from sdbt_flash_tab where id <= 110;
```

5 rows deleted.

```
SQL> commit;
```

Commit complete.

# Oracle – 12c Flashback

---

## Flashback Table

```
SQL> flashback table sdbt_flash_tab  
2 to timestamp to_timestamp('2018-10-11 14:30:36','YYYY-MM-DD HH24:MI:SS');
```

Flashback complete.

# Oracle – 12c Flashback

---

## Flashback Table

```
SQL> select * from sdbt_flash_tab;
```

ID	NAME	DOB
101	Daniel	25-DEC-96
103	Davied	01-FEB-94
105	Durga	11-JUL-98
108	Daniel	25-DEC-96
110	Navith	13-MAR-89
112	Manish	20-DEC-91
114	Stevee	10-DEC-90
116	Durai	12-JUN-96
119	Kannan	19-AUG-95
121	Vani	28-OCT-97

10 rows selected.

# Oracle – 12c Flashback

---

## Flashback Table

```
SQL> flashback table sdbt_flash_tab to scn 1861807;
```

Flashback complete.

```
SQL> select * from sdbt_flash_tab;
```

ID	NAME	DOB
112	Manish	20-DEC-91
114	Stevee	10-DEC-90
116	Durai	12-JUN-96
119	Kannan	19-AUG-95
121	Vani	28-OCT-97

# Oracle – 12c Flashback

---

## **Flashback Table**

```
SQL> flashback table sdbt_flash_tab to scn 1861787;
```

Flashback complete.



# Oracle – 12c Flashback

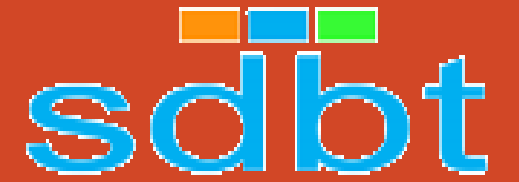
---

## Flashback Table

```
SQL> select * from sdbt_flash_tab;
```

ID	NAME	DOB
101	Daniel	25-DEC-96
103	Davied	01-FEB-94
105	Durga	11-JUL-98
108	Daniel	25-DEC-96
110	Navith	13-MAR-89
112	Manish	20-DEC-91
114	Stevee	10-DEC-90
116	Durai	12-JUN-96
119	Kannan	19-AUG-95
121	Vani	28-OCT-97

10 rows selected.



# Flashback Drop



## Oracle – 12c Flashback

---

### **Flashback Drop**

Getting back the dropped table

Table is recreated (re-named) from recycle bin.

Depends upon the availability of dropped tables in recycle bin.

Cannot recover a table from dropped schema

flashback table drop\_table to before drop;

# Oracle – 12c Flashback

## Flashback Drop

```
SQL> desc user_recyclebin;
```

Name	Null?	Type
OBJECT_NAME	NOT NULL	VARCHAR2(30)
ORIGINAL_NAME		VARCHAR2(32)
OPERATION		VARCHAR2(9)
TYPE		VARCHAR2(25)
TS_NAME		VARCHAR2(30)
CREATETIME		VARCHAR2(19)
DROPTIME		VARCHAR2(19)
DROPSCN		NUMBER
PARTITION_NAME		VARCHAR2(32)
CAN_UNDROP		VARCHAR2(3)
CAN_PURGE		VARCHAR2(3)
RELATED	NOT NULL	NUMBER
BASE_OBJECT	NOT NULL	NUMBER
PURGE_OBJECT	NOT NULL	NUMBER
SPACE		NUMBER



## Oracle – 12c Flashback

---

### Flashback Drop

```
SQL> select * from tab;
```

TNAME	TABTYPE	CLUSTERID
-----	-----	-----
SDBT_FLASH_TAB	TABLE	
SDBT_TAB_1	TABLE	

```
SQL> drop table sdbt_tab_1;
```

Table dropped.

# Oracle – 12c Flashback

---

## Flashback Drop

```
SQL> show recyclebin
```

ORIGINAL NAME	RECYCLEBIN NAME	OBJECT TYPE	DROP TIME
SDBT_TAB_1	BIN\$d/JspqzVSgbgU94BqMDpfg==\$0	TABLE	2018-10-11:15:57:57

```
SQL> select * from "BIN$d/JspqzVSgbgU94BqMDpfg==$0";
```

ID	NAME
1	Sai
4	Martin
10	Sankari
11	Prabakaran

# Oracle – 12c Flashback

## Flashback Drop

```
SQL> desc user_recyclebin;
```

Name	Null?	Type
OBJECT_NAME	NOT NULL	VARCHAR2(128)
ORIGINAL_NAME		VARCHAR2(128)
OPERATION		VARCHAR2(9)
TYPE		VARCHAR2(25)
TS_NAME		VARCHAR2(30)
CREATETIME		VARCHAR2(19)
DROPTIME		VARCHAR2(19)
DROPSCN		NUMBER
PARTITION_NAME		VARCHAR2(128)
CAN_UNDROP		VARCHAR2(3)
CAN_PURGE		VARCHAR2(3)
RELATED	NOT NULL	NUMBER
BASE_OBJECT	NOT NULL	NUMBER
PURGE_OBJECT	NOT NULL	NUMBER
SPACE		NUMBER

# Oracle – 12c Flashback

---

## Flashback Drop

```
SQL> select object_name, original_name, dropscn, droptime  
2 from user_recyclebin;
```

OBJECT_NAME	ORIGINAL_NAME	DROPSCN	DROPTIME
-----	-----	-----	-----
BIN\$d/JspqzVSgbgU94BqMDpfg==\$0	SDBT_TAB_1	1865327	2018-10-11:15:57:57



# Oracle – 12c Flashback

---

## **Flashback Drop**

```
SQL> flashback table sdbt_tab_1 to before drop;
```

Flashback complete.

```
SQL> select * from user_recyclebin;
```

no rows selected



## Oracle – 12c Flashback

---

### Flashback Drop

```
SQL> flashback table sdbt_tab_1 to before drop;  
flashback table sdbt_tab_1 to before drop
```

\*

ERROR at line 1:

ORA-38312: original name is used by an existing object

```
SQL> flashback table sdbt_tab_1 to before drop rename to sdbt_tab;
```

Flashback complete.

# Oracle – 12c Flashback

---

## Flashback Drop

```
SQL> select * from tab;
```

```
TNAME          TABTYPE CLUSTERID
```

```
-----
```

```
SDBT_FLASH_TAB TABLE
```

```
SDBT_TAB       TABLE
```

```
SYS_FLASH_TAB TABLE
```

```
SQL> select * from sdbt_tab;
```

```
   ID NAME
```

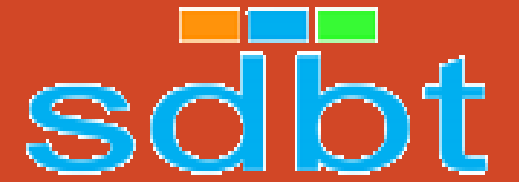
```
-----
```

```
    1 Sai
```

```
    4 Martin
```

```
   10 Sankari
```

```
   11 Prabakaran
```



# Flashback Database



## Oracle – 12c Flashback

---

### Flashback Database

```
SQL> show parameter db_recovery
```

NAME	TYPE	VALUE
db_recovery_file_dest	string	/u01/app/oracle/fast_recovery_area/sdbt
db_recovery_file_dest_size	big integer	8016M

```
SQL> show parameter retention
```

NAME	TYPE	VALUE
db_flashback_retention_target	integer	1440
undo_retention	integer	1500

# Oracle – 12c Flashback

---

## Flashback Database

```
SQL> archive log list
```

Database log mode	Archive Mode
Automatic archival	Enabled
Archive destination	USE_DB_RECOVERY_FILE_DEST
Oldest online log sequence	16
Next log sequence to archive	16
Current log sequence	18



## Oracle – 12c Flashback

---

### **Restore Point**

A name where restore point stored the SCN, time and database incarnation number .

### **Restore Point Syntax**

```
create restore point <restore_point_name>;
```

```
create restore point <restore_point_name> guarantee flashback database;
```

```
drop restore point <restore_point_name>;
```

### **Restore Point View**

```
v$restore_point
```

# Oracle – 12c Flashback

## Flashback Database

```
SQL> desc v$restore_point;
```

Name	Null?	Type
SCN		NUMBER
DATABASE_INCARNATION#		NUMBER
GUARANTEE_FLASHBACK_DATABASE		VARCHAR2(3)
STORAGE_SIZE		NUMBER
TIME		TIMESTAMP(9)
RESTORE_POINT_TIME		TIMESTAMP(9)
PRESERVED		VARCHAR2(3)
NAME		VARCHAR2(128)
PDB_RESTORE_POINT		VARCHAR2(3)
CLEAN_PDB_RESTORE_POINT		VARCHAR2(3)
PDB_INCARNATION#		NUMBER
CON_ID		NUMBER





## Oracle – 12c Flashback

---

### Flashback Database

```
SQL> create restore point rsp_1;
```

Restore point created.

```
SQL> select name, scn, time  
2 from v$restore_point;
```

NAME	SCN	TIME
DB_SDBT_1	1848888	10-OCT-18 12.50.27.000000000 PM
RP11	1861072	11-OCT-18 02.13.29.000000000 PM
RSP_1	1869078	12-OCT-18 11.03.36.000000000 AM

# Oracle – 12c Flashback

---

## **Flashback Database**

```
SQL> create user jony identified by oracle;
```

User created.

```
SQL> grant connect,resource to jony;
```

Grant succeeded.

```
SQL> alter user jony quota 10m on usertbs;
```

User altered.

```
SQL> create table jony.emp as  
2 select * from scott.emp;
```

Table created.



## Oracle – 12c Flashback

### Flashback Database

```
SQL> select * from jony.emp;
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	17-DEC-80	800		20
7499	ALLEN	SALESMAN	7698	20-FEB-81	1600	30	30
7521	WARD	SALESMAN	7698	22-FEB-81	1250	500	30
7566	JONES	MANAGER	7839	02-APR-81	2975		20
7654	MARTIN	SALESMAN	7698	28-SEP-81	1250	1400	30
7698	BLAKE	MANAGER	7839	01-MAY-81	2850		30
7782	CLARK	MANAGER	7839	09-JUN-81	2450		10
7788	SCOTT	ANALYST	7566	19-APR-87	3000		20
7839	KING	PRESIDENT		17-NOV-81	5000		10
7844	TURNER	SALESMAN	7698	08-SEP-81	1500	0	30
7876	ADAMS	CLERK	7788	23-MAY-87	1100		20
7900	JAMES	CLERK	7698	03-DEC-81	950		30
7902	FORD	ANALYST	7566	03-DEC-81	3000		20
7934	MILLER	CLERK	7782	23-JAN-82	1300		10



## Oracle – 12c Flashback

---

### Flashback Database

```
SQL> create restore point rbs_2;
```

Restore point created.

```
SQL> select name, scn, time  
2 from v$restore_point;
```

NAME	SCN	TIME
DB_SDBT_1	1848888	10-OCT-18 12.50.27.000000000 PM
RP11	1861072	11-OCT-18 02.13.29.000000000 PM
RSP_1	1869078	12-OCT-18 11.03.36.000000000 AM
RBS_2	1870611	12-OCT-18 11.26.43.000000000 AM



## Oracle – 12c Flashback

---

### **Flashback Database**

```
SQL> shut immediate;  
SQL> startup mount
```

```
SQL> flashback database to scn 1869078;
```

Flashback complete.

```
SQL> alter database open resetlogs;
```

Database altered.

```
SQL> select username from dba_users  
2 where username like 'J%';
```

no rows selected

# Oracle – 12c Flashback

---

## Flashback Database

```
SQL> select name, scn, time  
2 from v$restore_point;
```

NAME	SCN	TIME
DB_SDBT_1	1848888	10-OCT-18 12.50.27.000000000 PM
RP11	1861072	11-OCT-18 02.13.29.000000000 PM
RSP_1	1869078	12-OCT-18 11.03.36.000000000 AM
RBS_2	1870611	12-OCT-18 11.26.43.000000000 AM



## Oracle – 12c Flashback

---

### Flashback Database

```
SQL> shut immediate;
```

```
SQL> startup mount
```

```
SQL> flashback database to timestamp to_date('12-OCT-18 11.26.43','DD-MON-YY  
HH24.MI.SS');
```

Flashback complete.

```
SQL> alter database open resetlogs;
```

Database altered.

```
SQL> select username from dba_users  
2 where username like 'J%';
```

```
USERNAME
```

```
-----
```

```
JONY
```

# Oracle – 12c Flashback

---

## Flashback Database

```
SQL> select ename from jony.emp;
```

```
ENAME
```

```
-----
```

```
SMITH
```

```
ALLEN
```

```
WARD
```

```
JONES
```

```
MARTIN
```

```
BLAKE
```

```
CLARK
```

```
SCOTT
```

```
KING
```

```
TURNER
```

```
ADAMS
```

```
JAMES
```

```
FORD
```

```
MILLER
```





## Oracle – 12c Flashback

---

### Flashback Database

```
SQL> drop restore point rsp_1;
```

Restore point dropped.

```
SQL> select name from v$restore_point;
```

```
NAME
```

```
-----
```

```
DB_SDBT_1
```

```
RP11
```

```
RBS_2
```



## Oracle – 12c Flashback

---

### **Flashback Database**

flashback database to restore point rbs2;

flashback database to scn 313780;

flashback database to before scn 313780;

flashback database to timestamp to\_date('2012-02-22 07:15:12','YYYY-MM-DD HH24:SS:MI');

flashback database to before timestamp to\_date('2012-02-22 07:15:12','YYYY-MM-DD HH24:SS:MI');



# Flashback Database Archive

# Oracle – 12c Flashback

---

## **Flashback Database Archive**

flashback data archive (FDA), also known as Flashback Archive(FBA).

Its Introduced in 11g

It provide undo based operations.

Its implemented in Oracle 12c.

# Oracle – 12c Flashback

---

## Flashback Database Archive

```
SQL> create tablespace sdbt_fda_tbs  
2 datafile '/u01/app/oracle/oradata/SDBT/datafile/sdbt_fda.dbf'  
3 size 50m autoextend on next 1m;
```

```
SQL> create flashback archive fda_dur_1  
2 tablespace sdbt_fda_tbs  
3 quota 5g retention 1 year;
```

Flashback archive created.



## Oracle – 12c Flashback

---

### **Flashback Database Archive**

```
SQL> grant flashback archive on fda_dur_1 to sdbt;
```

Grant succeeded.

```
SQL> grant flashback archive administer to sdbt;
```

Grant succeeded.

```
SQL> grant execute on dbms_flashback_archive to sdbt;
```

Grant succeeded.

```
SQL> grant create any context to sdbt;
```

Grant succeeded.



## Oracle – 12c Flashback

---

### Flashback Database Archive

```
SQL> desc dba_flashback_archive
```

Name	Null?	Type
OWNER_NAME		VARCHAR2(255)
FLASHBACK_ARCHIVE_NAME	NOT NULL	VARCHAR2(255)
FLASHBACK_ARCHIVE#	NOT NULL	NUMBER
RETENTION_IN_DAYS	NOT NULL	NUMBER
CREATE_TIME		TIMESTAMP(9)
LAST_PURGE_TIME		TIMESTAMP(9)
STATUS		VARCHAR2(7)

```
SQL> select flashback_archive_name, retention_in_days, status  
2 from dba_flashback_archive;
```

FLASHBACK_ARCHIVE_NAME	RETENTION_IN_DAYS	STATUS
FDA_DUR_1	365	



## Oracle – 12c Flashback

---

### Flashback Database Archive

```
SQL> desc dba_flashback_archive_ts
```

Name	Null?	Type
FLASHBACK_ARCHIVE_NAME	NOT NULL	VARCHAR2(255)
FLASHBACK_ARCHIVE#	NOT NULL	NUMBER
TABLESPACE_NAME	NOT NULL	VARCHAR2(30)
QUOTA_IN_MB		VARCHAR2(40)

```
SQL> select * from dba_flashback_archive_ts;
```

FLASHBACK_ARCHIVE_NAME	FLASHBACK_ARCHIVE#	TABLESPACE_NAME	QUOTA_IN_MB
FDA_DUR_1	1	SDBT_FDA_TBS	5120





## Oracle – 12c Flashback

---

### Flashback Database Archive

```
SQL> select * from session_privs;
```

```
PRIVILEGE
```

```
-----
```

```
SET CONTAINER
```

```
FLASHBACK ARCHIVE ADMINISTER
```

```
CREATE ANY CONTEXT
```

```
CREATE INDEXTYPE
```

```
CREATE OPERATOR
```

```
CREATE TYPE
```

```
CREATE TRIGGER
```

```
CREATE PROCEDURE
```

```
CREATE SEQUENCE
```

```
CREATE CLUSTER
```

```
CREATE TABLE
```

```
UNLIMITED TABLESPACE
```

```
CREATE SESSION
```

```
13 rows selected.
```



## Oracle – 12c Flashback

---

### Flashback Database Archive

```
SQL> select tablespace_name, bytes/1024/1024  
2 from user_ts_quotas;
```

no rows selected

```
SQL> select privilege from user_sys_privs;
```

PRIVILEGE

-----

```
CREATE ANY CONTEXT  
UNLIMITED TABLESPACE  
FLASHBACK ARCHIVE ADMINISTER
```

```
SQL> create table sdbt_fda_tab  
2 (id number(5), name varchar2(10))  
3 flashback archive fda_dur_1;
```

Table created.

# Oracle – 12c Flashback

---

## Flashback Database Archive

```
SQL> desc dba_flashback_archive_tables;
```

Name	Null?	Type
TABLE_NAME	NOT NULL	VARCHAR2(128)
OWNER_NAME	NOT NULL	VARCHAR2(128)
FLASHBACK_ARCHIVE_NAME	NOT NULL	VARCHAR2(255)
ARCHIVE_TABLE_NAME		VARCHAR2(53)
STATUS		VARCHAR2(13)

# Oracle – 12c Flashback

---

## Flashback Database Archive

```
SQL> select * from dba_flashback_archive_tables;
```

```
TABLE_NAME
```

```
-----
```

```
OWNER_NAME
```

```
-----
```

```
FLASHBACK_ARCHIVE_NAME
```

```
-----
```

```
ARCHIVE_TABLE_NAME
```

```
STATUS
```

```
-----
```

```
SDBT_FDA_TAB
```

```
SDBT
```

```
FDA_DUR_1
```

```
SYS_FBA_HIST_74126
```

```
ENABLED
```



## Oracle – 12c Flashback

---

### **dbms\_flashback**

Option	Description
Typical	Basic auditing , attributes form userenv context are stored
All	All contexts available to the user
None	No conext

```
SQL> exec dbms_flashback_archive.set_context_level('ALL');
```

PL/SQL procedure successfully completed.

# Oracle – 12c Flashback

---

## **dbms\_flashback**

Package used to rollback transactions  
subprograms

Enable\_at\_time

Transaction\_backout

Diable

Must have flashback any table privilege

```
SQL> create or replace context sdbt_c1 using sdbt_api;
```

Context created.



## Oracle – 12c Flashback

---

### **dbms\_flashback**

```
SQL> create or replace package sdbt_api as
  2 procedure pro_fda(
  3 pname in varchar2,
  4 pvalue in varchar2);
  5 end sdbt_api;
  6 /
```

Package created.



## Oracle – 12c Flashback

---

### **dbms\_flashback**

```
SQL> create or replace package body sdbt_api
  2 as
  3 procedure pro_fda(
  4 pname in varchar2,
  5 pvalue in varchar2)
  6 as
  7 begin
  8     dbms_session.set_context(
  9     'sdbt_c1',lower(pname),pvalue);
 10 end;
 11 end sdbt_api;
 12 /
```

Package body created.





## Oracle – 12c Flashback

---

### **dbms\_flashback**

```
SQL> exec dbms_session.set_identifier('sdbt_idfy');
```

PL/SQL procedure successfully completed.

```
SQL> exec sdbt.sdbt_api.pro_fda('fda_attribute','first');
```

PL/SQL procedure successfully completed.

```
SQL> insert into sdbt_fda_tab values(101,'steve');
```

1 row created.

```
SQL> commit;
```

Commit complete.

## Oracle – 12c Flashback

---

### **dbms\_flashback**

```
SQL> exec dbms_session.set_identifier('sdbt_idfy');
```

PL/SQL procedure successfully completed.

```
SQL> exec sdbt.sdbt_api.pro_fda('f_attribute','second');
```

PL/SQL procedure successfully completed.

```
SQL> update sdbt_fda_tab set name='Sai' where id=101;
```

1 row updated.

```
SQL> commit;
```

Commit complete.

## Oracle – 12c Flashback

---

### **dbms\_flashback**

```
SQL> exec dbms_session.set_identifer('sdbt_idfy');
```

PL/SQL procedure successfully completed.

```
SQL> exec sdbt.sdbt_api.pro_fda('f_attribute','third');
```

PL/SQL procedure successfully completed.

```
SQL> update sdbt_fda_tab set name='SDBT' where id=101;
```

1 row updated.

```
SQL> insert into sdbt_fda_tab values(102,'Smith');
```

1 row created.

```
SQL> commit;
```

Commit complete.

# Oracle – 12c Flashback

---

## **dbms\_flashback**

```
SQL> SELECT versions_startscn,  
2      versions_starttime,  
3      versions_endscn,  
4      versions_endtime,  
5      versions_xid,  
6      versions_operation,  
7      name,  
8      DBMS_FLASHBACK_ARCHIVE.get_sys_context(versions_xid, 'USERENV','SESSION_USER') AS  
session_user,  
9      DBMS_FLASHBACK_ARCHIVE.get_sys_context(versions_xid,  
'USERENV','CLIENT_IDENTIFIER') AS client_identifier,  
10     DBMS_FLASHBACK_ARCHIVE.get_sys_context(versions_xid, 'sdbt_c1','f_attribute') AS  
my_attribute  
11 FROM   sdbt_fda_tab  
12     VERSIONS BETWEEN TIMESTAMP minvalue and maxvalue;
```

# Oracle – 12c Flashback

## dbms\_flashback

VERSIONS_STARTSCN	VERSIONS_STARTTIME	VERSIONS_ENDSCN	VERSIONS_ENDTIME
VERSIONS_XID	V NAME	SESSION_USER	CLIENT_IDENTIFIER MY_ATTRIBUTE
1880972	12-OCT-18 02.46.14.000000000 PM	1881289	12-OCT-18 02.47.32.000000000 PM
02001C0031040000	I steve	SDBT	sdbt_idfy
1881289	12-OCT-18 02.47.32.000000000 PM	1881696	12-OCT-18 02.49.29.000000000 PM
070003007D030000	U Sai	SDBT	sdbt_idfy second
1881696	12-OCT-18 02.49.29.000000000 PM		
0A0016007E040000	U SDBT	SDBT	sdbt_idfy third
1881696	12-OCT-18 02.49.29.000000000 PM		
0A0016007E040000	I Smith	SDBT	sdbt_idfy third

# Oracle – 12c Flashback

---

## Flashback archive disable

```
SQL> select table_name from dba_tables  
2 where table_name like '%FBA%';
```

```
TABLE_NAME  
-----
```

```
SYS_FBA_FA  
SYS_FBA_TSFA  
SYS_FBA_TRACKEDTABLES  
SYS_FBA_PARTITIONS  
SYS_FBA_USERS  
SYS_FBA_BARRIERSCN  
SYS_FBA_DL  
SYS_FBA_CONTEXT  
SYS_FBA_CONTEXT_AUD  
SYS_FBA_CONTEXT_LIST
```

```
SYS_MFBA_STAGE_RID  
SYS_MFBA_TRACKED_TXN  
SYS_MFBA_NROW  
SYS_MFBA_NCHANGE  
SYS_MFBA_NTCRV  
SYS_FBA_APP  
SYS_FBA_APP_TABLES  
SYS_FBA_COLS  
SYS_FBA_PERIOD  
SYS_FBA_DDL_COLMAP_74126  
SYS_FBA_HIST_74126  
SYS_MFBA_NHIST_74126  
SYS_FBA_TCRV_74126
```

## Oracle – 12c Flashback

---

### **Flashback archive disable**

```
SQL> alter table sdbt.sdbt_fda_tab no flashback archive;
```

Flashback archive altered.

```
SQL> drop table sdbt.sdbt_fda_tab purge;
```

Table dropped.



## Oracle – 12c Flashback

---

### Flashback Views

dba\_flashback\_archive

flashback\_transaction\_query

dba\_flashback\_archive\_ts

v\$flashback\_database\_log

dba\_flashback\_archive\_tables

v\$flashback\_database\_logfile

dba\_flashback\_txn\_report

v\$flashback\_txn\_graph

dba\_flashback\_txn\_state

v\$flashback\_database\_stat



# Oracle – 12c Flashback

---

## Flashback

Flashback Type	Source	Affect	Version
Flashback Query	Undo	False	9i
Flashback Version Query	Undo	False	10g
Flashback Transaction Query	Undo	False	10g
Flashback Table	Undo	True	10g
Flashback Drop	Recycle bin	True	10g
Flashback Database	Flashback logs	True	10g
Flashback Data Archive	Undo	True	11g

# Oracle – 12c Flashback

---

## **Related Topics**

Flashback in Oracle

<https://www.sakthidbtech.com/blog/view/oracle-flashback-technology>



Thank you