

# Container and Pluggable databases - Part2

## Common vs. Local Concept

- Common VS Local Concept
  - Can be defined on CDB or PDB Level
    - Users →Defined on root or local PDB
    - Roles →Defined on root or local PDB
    - Privileges →Defined on root or local PDB
    - Objects →Defined on root or local PDB

## Common and Local Privileges

- A common privilege is privilege granted across all containers
- A privilege granted to a single PDB is a local privilege
- Local users can only utilize privileges locally in the current PDB
- Common users can only utilize privileges locally in the current PDB
- Common users connected to the root container can utilize privileges across container, such as creating a common user

## Common and Local Roles

- local user can only create local roles. Local roles can be granted to local or common users. Local roles can be granted to common roles.
- common user can create common roles and/or local roles. Common roles can be granted to local or common users. Common roles can be granted to local roles
  - SQL> create role bill\_master CONTAINER=ALL;
  - SQL> create role bill\_local CONTAINER=CURRENT;

## Grant and Revoke Privileges and Roles

- Grant common privilege by common user
- SQL> grant prv1 to cm\_user CONTAINER=ALL;
- Grant local privilege by common user
- SQL> grant prv2 to pdb01\_user CONTAINER=CURRENT;
- Grant a local privilege by a local user
- SQL> grant prv2 to pdb01\_user;
- Revoke common privilege by common user
- SQL> revoke prv1 from cm\_user CONTAINER=ALL;

## Create Common User

- Connect to CDB and Create Common User

```
SQL> show con_id
```

```
CON_ID
```

```
-----
```

```
1
```

```
SQL> show con_name
```

```
CON_NAME
```

```
-----
```

```
CDB$ROOT
```

- SQL> create user C##\_main identified by qw easd zxc  
2 container=ALL;

User created.

## Grant some role and privilege to common user

- SQL> grant dba to C##\_main container=ALL;
- Grant succeeded.
- SQL> grant select any table to C##\_main container=ALL;
- Grant succeeded.
- select grantee, granted\_role from dba\_role\_privs where grantee ='C##\_MAIN';

GRANTEE	GRANTED_ROLE
C##_main	DBA
C##_main	DBA

- select grantee, privilege from dba\_sys\_privs where grantee ='C##\_MAIN';

GRANTEE	PRIVILEGE
C##_main	UNLIMITED TABLESPACE
C##_main	SELECT ANY TABLE
C##_main	UNLIMITED TABLESPACE
C##_main	SELECT ANY TABLE

### Common User Information

- Connect to PDB using just created common user
  - SQL> show con\_name
  - CON\_NAME
    - 
    - ANUJPDB
  - SQL> show con\_id
  - CON\_ID
    - 
    - 3
  - SQL> select grantee, granted\_role from dba\_role\_privs where grantee ='C##\_MAIN';
  - GRANTEE GRANTED\_ROLE
    - 
    - C##\_main DBA
  - SQL> select grantee, privilege from dba\_sys\_privs where grantee ='C##\_MAIN';
  - GRANTEE PRIVILEGE
    - 
    - C##\_main UNLIMITED TABLESPACE
    - C##\_main SELECT ANY TABLE

**While connected to PDB try to create common user**

- create user C##\_main1 identified by qweasdzxc container=ALL;  
create user C##\_main1 identified by qweasdzxc container=ALL

\*

ERROR at line 1:

ORA-65050: Common DDLs only allowed in CDB\$ROOT

- create user C##\_main1 identified by qweasdzxc

\*

ERROR at line 1:

ORA-65094: invalid local user or role name

- SQL> create user main1 identified by qweasdzxc; /\* User local to PDB \*/

User created.

- SQL> grant dba to main1;

Grant succeeded.

- SQL> grant create any table to main1;

Grant succeeded.

### Check roles/privileges you just granted

- SQL> select grantee, privilege from dba\_sys\_privs where grantee ='MAIN1';

GRANTEE	PRIVILEGE
main1	CREATE ANY TABLE
main1	UNLIMITED TABLESPACE

- SQL> select grantee, granted\_role from dba\_role\_privs where grantee ='MAIN1';

GRANTEE	GRANTED_ROLE
main1	DBA

### Connect to CDB and check privileges of local user we just granted

- SQL> show con\_name

CON_NAME
CDB\$ROOT

- SQL> select grantee, privilege from dba\_sys\_privs where grantee ='MAIN1';

- no rows selected

- SQL> select grantee, granted\_role from dba\_role\_privs where grantee =MAIN1';

- no rows selected

- SQL> select grantee, granted\_role from cdb\_role\_privs where grantee ='MAIN1';

```
GRANTEE      GRANTED_ROLE
-----
main1  DBA
```

- SQL> select grantee, privilege from cdb\_sys\_privs where grantee ='MAIN1';

```
GRANTEE      PRIVILEGE
-----
main1  CREATE ANY TABLE
main1  UNLIMITED TABLESPACE
```

- USER\_%% Show list of all the Objects owned by the current user in a PDB
  - ALL\_%% Show list of all the Objects accessible by the current user in a PDB
  - DBA\_%% Show list of all the Objects in the root or a pluggable database
  - CDB\_%% Show list of all the Objects in the container database. CDB\_%% use new column CON\_ID
- 
- Local object can be created by common and local users
  - Common objects can NOT be created by user defined common users. To create Common objects you need to use by Oracle supplied common user (sys/system)

#### DBA\_USERS

```

      Name                Null?  Type
-----
USERNAME                NOT NULL VARCHAR2(128)
USER_ID                 NOT NULL NUMBER
PASSWORD                VARCHAR2(4000)
ACCOUNT_STATUS          NOT NULL VARCHAR2(32)
LOCK_DATE                DATE
```

EXPIRY_DATE	DATE
DEFAULT_TABLESPACE	NOT NULL VARCHAR2(30)
TEMPORARY_TABLESPACE	NOT NULL VARCHAR2(30)
CREATED	NOT NULL DATE
PROFILE	NOT NULL VARCHAR2(128)
INITIAL_RSRC_CONSUMER_GROUP	VARCHAR2(128)
EXTERNAL_NAME	VARCHAR2(4000)
PASSWORD_VERSIONS	VARCHAR2(12)
EDITIONS_ENABLED	VARCHAR2(1)
AUTHENTICATION_TYPE	VARCHAR2(8)
PROXY_ONLY_CONNECT	VARCHAR2(1)
COMMON	VARCHAR2(3)
LAST_LOGIN	TIMESTAMP(9) WITH TIME ZONE

CDB\_USERS

• Name	Null?	Type
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-----		
USERNAME	NOT NULL	VARCHAR2(128)
USER_ID	NOT NULL	NUMBER
PASSWORD		VARCHAR2(4000)
ACCOUNT_STATUS	NOT NULL	VARCHAR2(32)
LOCK_DATE		DATE
EXPIRY_DATE		DATE
DEFAULT_TABLESPACE	NOT NULL	VARCHAR2(30)
TEMPORARY_TABLESPACE	NOT NULL	VARCHAR2(30)
CREATED	NOT NULL	DATE
PROFILE	NOT NULL	VARCHAR2(128)
INITIAL_RSRC_CONSUMER_GROUP		VARCHAR2(128)
EXTERNAL_NAME		VARCHAR2(4000)

PASSWORD_VERSIONS	VARCHAR2(12)
EDITIONS_ENABLED	VARCHAR2(1)
AUTHENTICATION_TYPE	VARCHAR2(8)
PROXY_ONLY_CONNECT	VARCHAR2(1)
COMMON	VARCHAR2(3)
LAST_LOGIN	TIMESTAMP(9) WITH TIME ZONE
CON_ID	NUMBER