

Creating PDBs More Options

Part I

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Objectives

By the end of this lecture, you should be able to:

- Create a new PDB by cloning from a local PDB
- Create a new PDB by cloning from a remote PDB



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Options for Creating a PDB using CREATE PLUGGABLE DATABASE command

| Category | Option | Description |
|-------------|--|---|
| Copying | From the seed | By using the files of the CDB seed or application seed. |
| | Clone a local PDB | By cloning a source local PDB. |
| | Clone a remote PDB | By cloning a remote PDB. |
| | Clone a non-CDB | By cloning a non-CDB. |
| Plugging In | Plugging in an Unplugged PDB | By plugging in an unplugged PDB |
| | Adopting a Non-CDB as a PDB (Using the DBMS_PDB) | By creating an unplugged PDB from a non-CDB and then plug the unplugged PDB into the CDB. |
| Relocating | Relocating a PDB | By moving the files associated with the PDB to a new location. |
| Proxy PDB | Creating a PDB as a proxy PDB | By referencing a different PDB with a database link |



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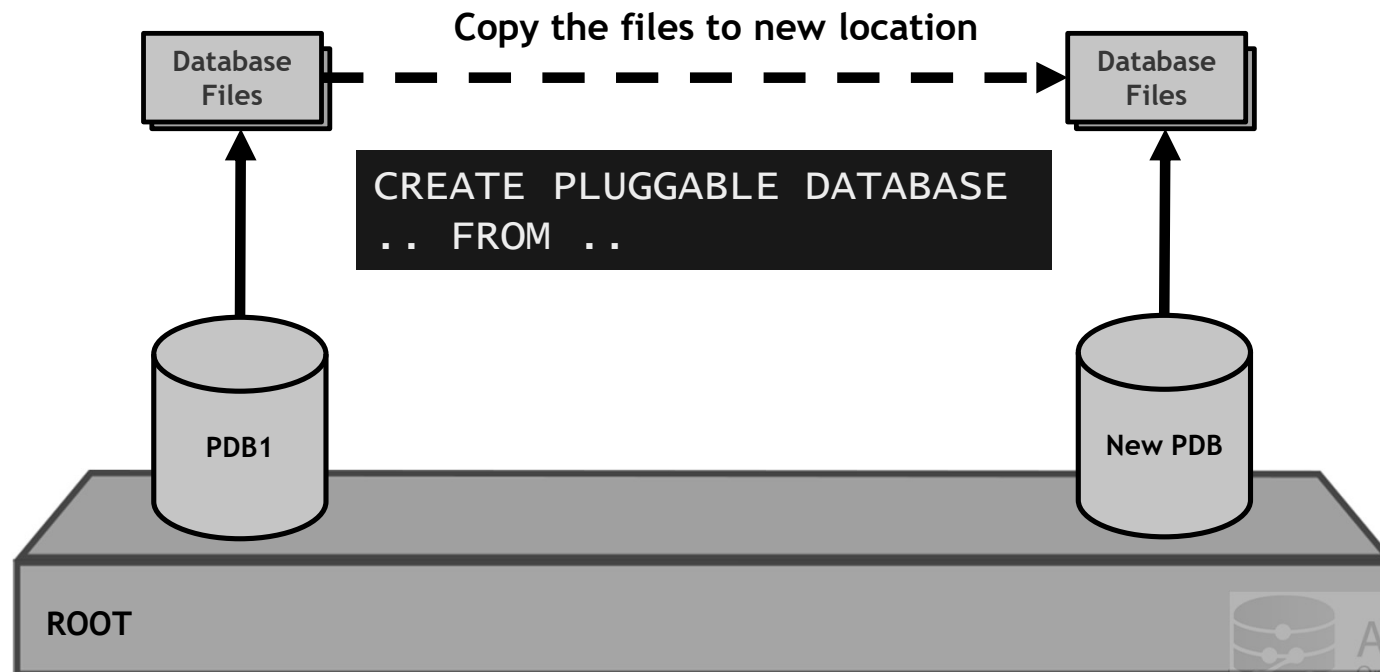
After Creating a New PDB

- PDB must be opened in read/write mode
- Common Users automatically synchronized
- Compatibility violations (warning or error) could happen
- Query PDB_PLUG_IN_VIOLATIONS
- PDBA may consider setting the default tablespace



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About Cloning from a Local PDB



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Cloning from a PDB Considerations

- In 12.1: the source PDB must be in a READ-ONLY state.
- In 12.2: the source PDB can be open, providing that the CDB is in ARCHIVELOG mode with local UNDO enabled.
- Each PDB in a CDB must be uniquely identifiable.



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Cloning from a Local PDB Procedure

1. Connect to the root as a common user
2. Close the source PDB then start it in READ ONLY (if needed)

```
ALTER PLUGGABLE DATABASE pdb1 CLOSE;  
ALTER PLUGGABLE DATABASE pdb1 OPEN READ ONLY;
```

3. Clone the PDB

```
CREATE PLUGGABLE DATABASE pdb2 FROM pdb1;
```

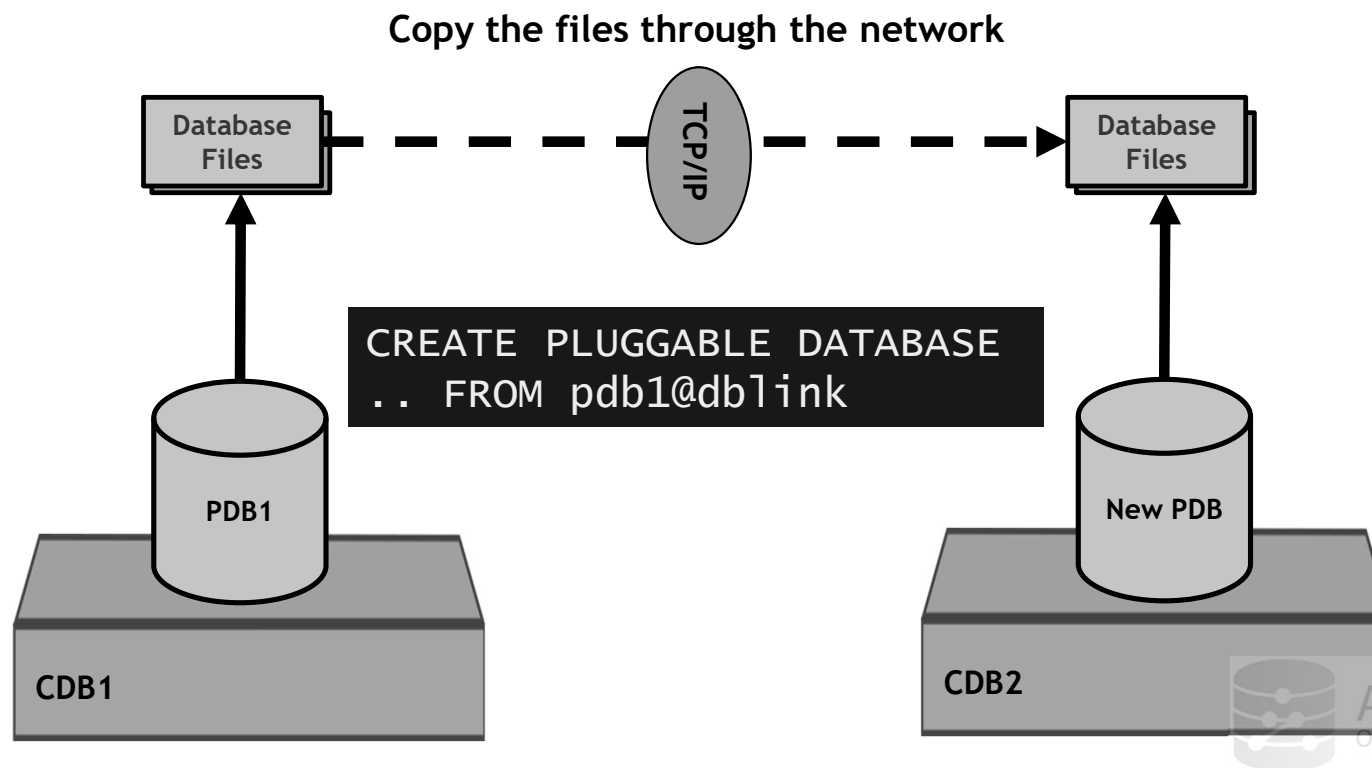
```
CREATE PLUGGABLE DATABASE pdb2 FROM pdb1  
FILE_NAME_CONVERT=(' /u01/pdb1', '/u01/pdb2');
```

4. Open the PDB in read/write mode



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About Cloning a Remote PDB



Cloning from a Remote PDB Considerations

- In 12.1: the source PDB must be in a READ-ONLY state.
- In 12.2: the source PDB can be open, providing that the CDB is in ARCHIVELOG mode with local UNDO enabled.
- Database link considerations:
 - From the target to the source
 - Could be to a root or to a PDB
 - The user must be a common user



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Cloning a Remote PDB Procedure

1. Connect to the root as a common user
2. Close the source PDB then start it in READ ONLY, if needed

```
ALTER PLUGGABLE DATABASE pdb1 CLOSE;  
ALTER PLUGGABLE DATABASE pdb1 OPEN READ ONLY;
```

3. Clone the PDB

```
CREATE PLUGGABLE DATABASE pdb2 FROM pdb1@pdb1_link;
```

```
CREATE PLUGGABLE DATABASE pdb2 FROM pdb1@pdb1_link  
FILE_NAME_CONVERT=('/u01/pdb1', '/u01/pdb2');
```

4. Open the PDB in read/write mode



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Cloning from a Remote PDB Release 12.1

- If you try cloning from a remote Oracle 12.1 PDB, you will receive the following error:

```
ORA-17628: Oracle error 17630 returned by remote Oracle server  
ORA-17630: Mismatch in the remote file protocol version client server
```

- **Solution:** Apply Patch 18633374: Copying across remote servers
- **Workaround:** use unplug/plugin method



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Summary

In the end of this lecture, you should have learnt how to:

- Create a new PDB by cloning from a local PDB
- Create a new PDB by cloning from a remote PDB



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