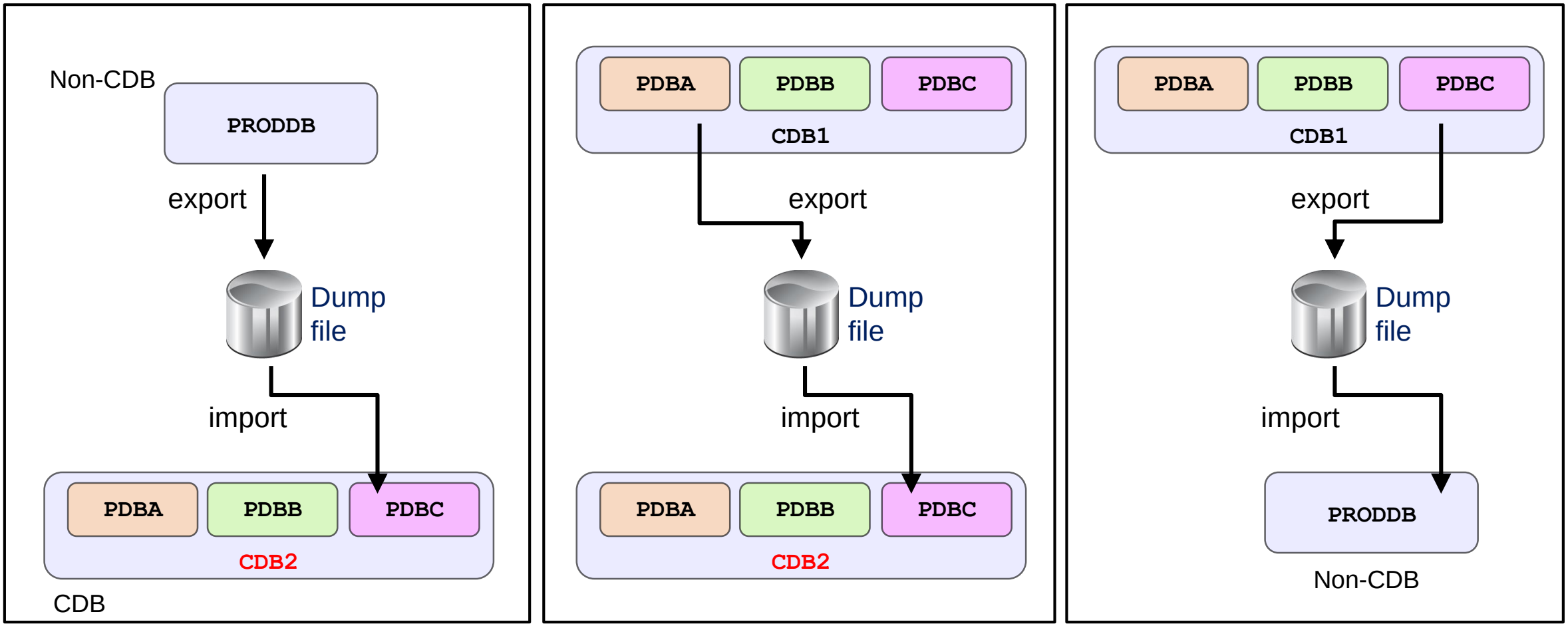
Data Movement

Objectives

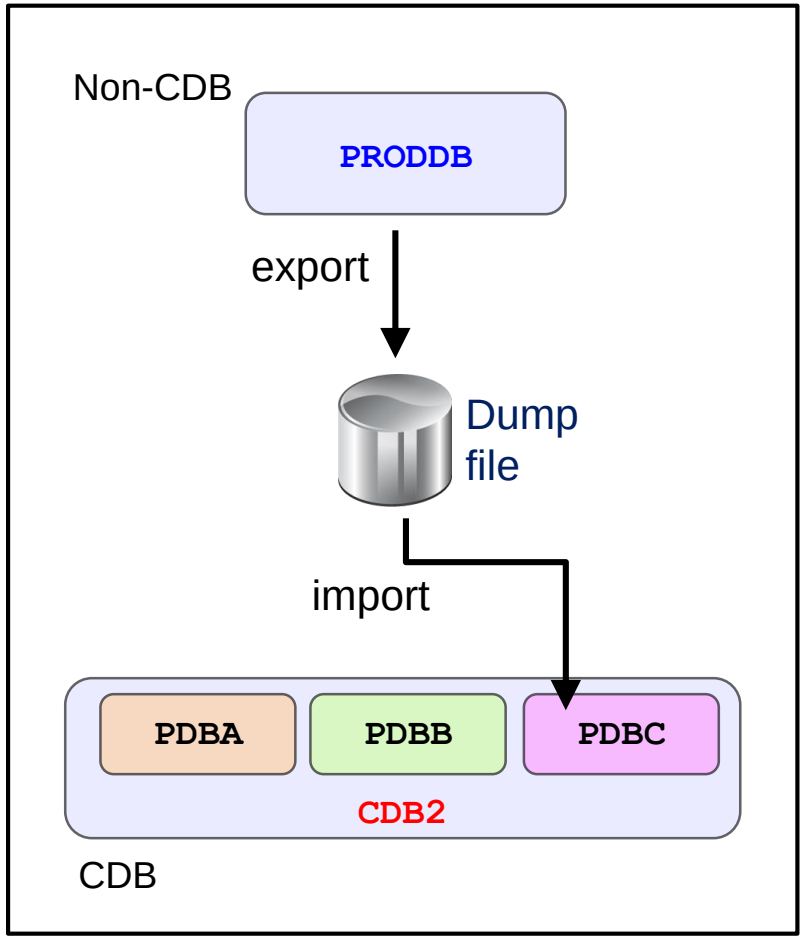
- After completing this lesson, you should be able to:
  - Export from a non-CDB and import into a PDB
  - Export from a PDB and import into a PDB
  - Export from a PDB and import into a non-CDB
  - Use SQL*Loader to load data into a PDB

Using Oracle Data Pump with PDBs



- Use the PDB service name to export from or import into a PDB.

Exporting from non-CDB and Importing into PDB



1. Export PRODDB with FULL clause:

```
$ expdp system@PRODDB FULL=Y DUMPFILE=proddb.dmp
```

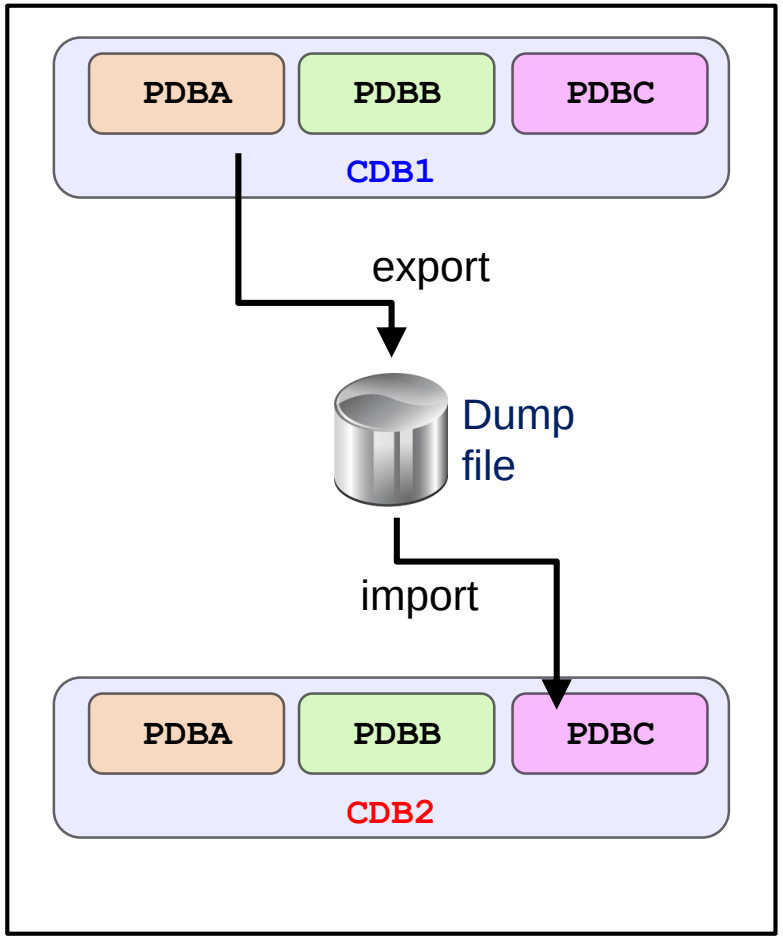
2. If PDBC does not exist in CDB2, create PDBC in CDB2:

```
SQL> CONNECT sys@CDB1
SQL> CREATE PLUGGABLE DATABASE PDBC …;
```

3. Open PDBC.
4. Create a Data Pump directory in PDBC.
5. Copy the dumpfile to the Data Pump directory.
6. Create same PRODDB tablespaces in PDBC for new local users' objects.
7. Import into PDBC with FULL and REMAP clauses:

```
$ impdp system@PDBC FULL=Y DUMPFILE=proddb.dmp
```

Exporting and Importing Between PDBs



1. Export PDBA from CDB1 with FULL clause:

```
$ expdp system@PDBA FULL=Y …
```

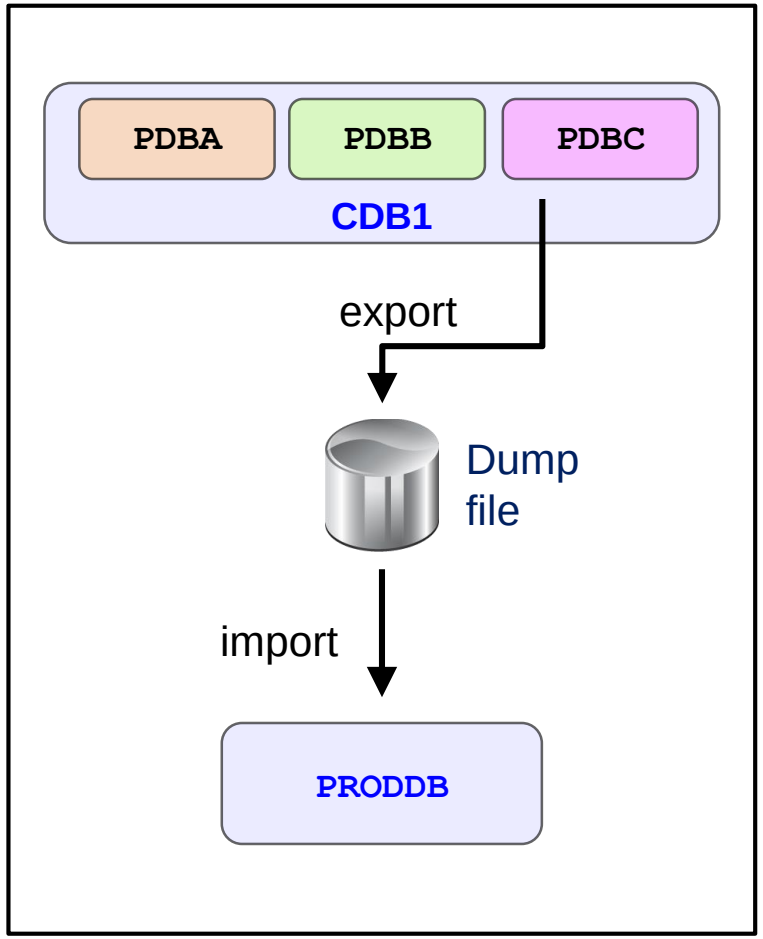
2. If PDBC does not exist in CDB2, create PDBC in CDB2:

```
SQL> CONNECT sys@CDB2
SQL> CREATE PLUGGABLE DATABASE PDBC …;
```

3. Open PDBC.
4. Create a Data Pump directory in PDBC.
5. Copy the dumpfile to the directory.
6. Create same PDBA tablespaces in PDBC for new local users objects.
7. Import into PDBC of CDB2 with FULL and REMAP clauses:

```
$ impdp system@PDBC FULL=Y REMAP_SCHEMA=c##u:lu…
```

Exporting from PDB and Importing into non-CDB



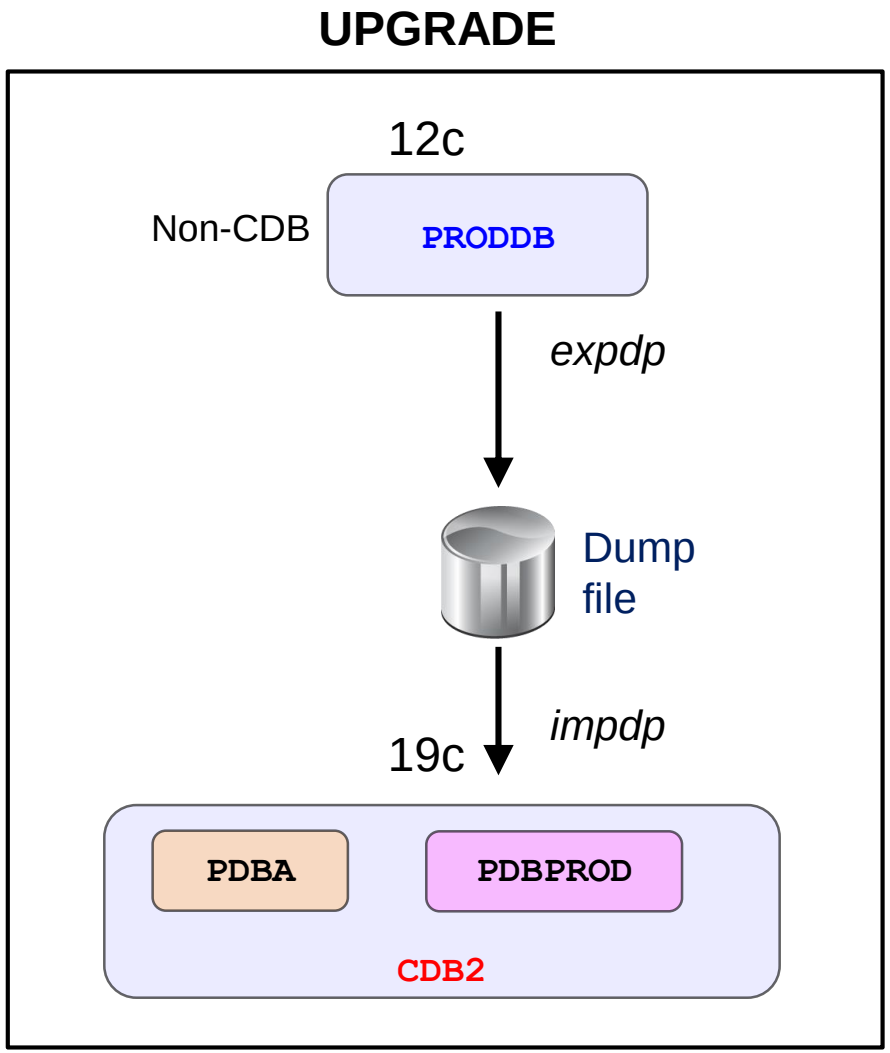
1. Export PDBC of **CDB1** with FULL clause:

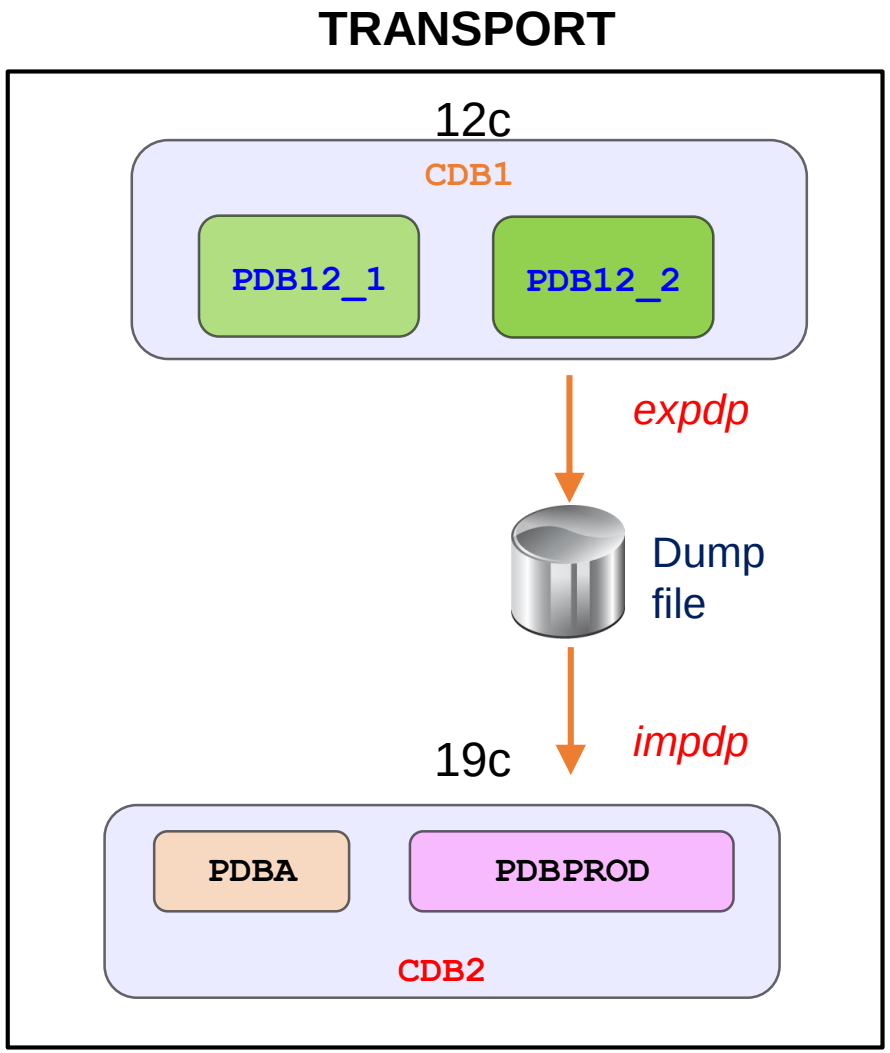
```
$ expdp system@PDBC FULL=Y …
```

2. Import into PRODDB with FULL and REMAP clauses:

```
$ impdp system@PRODDB FULL=Y
        REMAP_SCHEMA=c##u:local_u
```

Full Transportable Export/Import: Overview





Full Transportable Export/Import: Usage

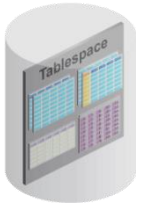
- A full transportable export exports all objects and data necessary to create a complete copy of the database.
  - `TRANSPORTABLE=ALWAYS` parameter
  - `FULL` parameter

```
$ expdp user_name@pdb FULL=y DUMPFILE=expdat.dmp DIRECTORY=data_pump_dir
                         TRANSPORTABLE=always
```

- A full transportable import imports a dump file only if it has been created using the transportable option during export.
  - `TRANSPORT_DATAFILES`
  - If the `NETWORK_LINK` is used, it requires `TRANSPORTABLE=ALWAYS` parameter.

Full Transportable Export/Import: Example

Source Database
`proddb`



1

Tablespaces read-only :

- `APPL1`
- `HRTBS`

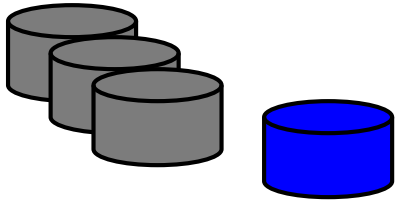
2

```
$ expdp user_name@proddb FULL=y
      DUMPFILE=expdat.dmp
      DIRECTORY=data_pump_dir
      TRANSPORTABLE=always
      LOGFILE=export.log
```

Endian conversion if necessary
RMAN CONVERT

Or
DBMS_FILE_TRANSFER

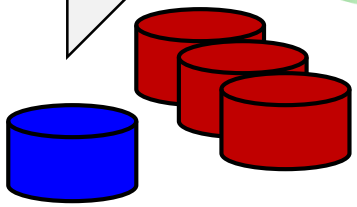
3



Data Files + **dumpfile**
transport

4

Target Database
`pdbprod`



5

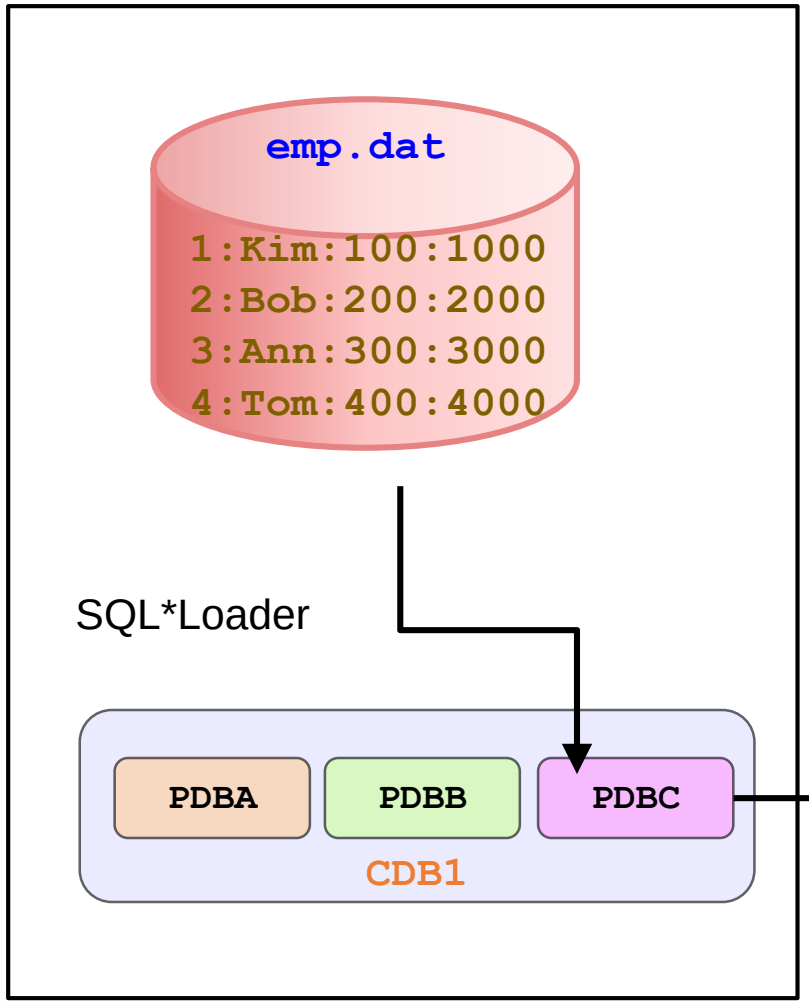
```
$ impdp user_name@pdbprod FULL=y
    DUMPFILE=expdat.dmp
    DIRECTORY=data_pump_dir
    TRANSPORT_DATAFILES=
    '/oracle/oradata/prod/file1.dbf',
    '/oracle/oradata/prod/file2.dbf',
    '/oracle/oradata/prod/file3.dbf'
    LOGFILE=import.log
```

Transporting a Database Over the Network: Example

- Transport a database over the network: perform an import using the `NETWORK_LINK` parameter.
  1. Create a database link in the target to the source database.
  2. Make the user-defined tablespaces in the source database read-only.
  3. Transport the datafiles for all of the user-defined tablespaces from the source to the target location.
  4. Perform conversion of the datafiles if necessary.
  5. Import in the target database.

```
$ impdp username@pdbname full=Y network_link = sourcedb
      transportable = always
      transport_datafiles = '/oracle/oradata/prod/sales01.dbf',
                            '/oracle/oradata/prod/cust01.dbf'
      logfile=import.log
```

Using SQL*Loader with PDBs



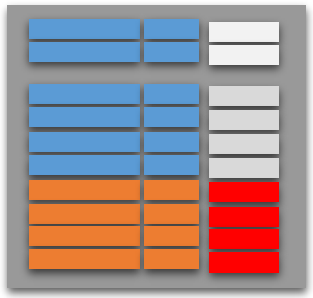
1. Use SQL*Loader Express Mode to insert rows into `HR.EMP` table in **PDBC**.

```
$ sqlldr system@PDBC TABLE=hr.emp
```

No need to prepare a control file:

- The table columns must be scalar data types (character, number, or datetime).
- SQL*Loader uses table column definitions to determine input data types.

2. Use log files to verify load operation.



HR.EMP **table**

`emp.log` file
- SQL*Loader control file options
- Create external table statement

`emp_%p.log_xt` file
- Load result

Summary

- In this lesson, you should have learned how to:
  - Export from a non-CDB and import into a PDB
  - Export from a PDB and import into a PDB
  - Export from a PDB and import into a non-CDB
  - Use SQL*Loader to load data into a PDB

Practice 12: Overview

- 12-1: Performing a full transportable export/import from a 12c non-CDB into an 19c PDB
- 12-2: Performing a full transportable export/import from a 12c PDB into an 19c PDB