



## **Migrating Databases to Postgres Plus Advanced Server**

# Objectives

- In this module you will learn:
  - Oracle Compatibility
    - Synonyms
    - Data Types
    - ALTER SESSION
    - DATABASE LINK
    - CREATE DIRECTORY
  - Migration
  - Oracle to PPAS Migration
  - Migration Process
  - Migration Toolkit (MTK)
    - Installation
    - Source-specific drivers
    - Prepare a connection
    - Perform migration
  - Demo

# Database Compatibility

- Database compatibility or Oracle helps an application running in an Oracle environment to run in a Postgres Plus Advanced Server (PPAS) environment with minimal or no changes.
- Database Compatibility for Oracle in PPAS offers:
  - Data types
  - SQL statements
  - System and built-in functions
  - Stored Procedure Language (SPL)
  - System catalog views
  - Open Client Library (OCL) for *Oracle Call Interface* (OCI)

# Database Compatibility for Oracle - Synonyms

- Postgres Plus Advanced Server supports synonyms for:
  - tables
  - views
  - sequences
  - procedures
  - functions
  - other synonyms
- Syntax
  - `CREATE [OR REPLACE] [PUBLIC] SYNONYM [schema.]syn_name FOR object_schema.object_name;`
  - **E.g:** `CREATE SYNONYM personnel FOR enterprisedb.emp;`

# Database Compatibility for Oracle - Data Types

The built-in general-purpose data types are:

- BLOB
- BOOLEAN
- CHAR
- CLOB
- DATE
- DOUBLE
- BINARY
- VARBINARY
- INTEGER
- NUMBER
- TIMESTAMP
- VARCHAR2
- NVARCHAR2
- ROWID
- INTERVAL
- XML

# Database Compatibility – Altering Session Parameters

- To change a runtime parameter:
  - `ALTER SESSION SET name = value`
- The following configuration parameters can be modified using the `ALTER SESSION` command:
  - `NLS_DATE_FORMAT (string)`
  - `NLS_LANGUAGE (string)`
  - `NLS_LENGTH_SEMANTICS (string)`
  - `OPTIMIZER_MODE (string)`
  - `QUERY_REWRITE_ENABLED (string)`
  - `QUERY_REWRITE_INTEGRITY (string)`

# Database Compatibility – DATABASE LINK

- A database link is a pointer from one database to another
- Can be referenced by appending *@dblink* to the table or view name
- Can be defined as public or private
- LD\_LIBRARY\_PATH environment variable or **oracle\_home** configuration parameter must be set in order to use database links in PPAS
- Syntax

```
CREATE [ PUBLIC ] DATABASE LINK name
  CONNECT TO { CURRENT_USER | username IDENTIFIED BY 'password' }
  USING { libpq 'libpq_connection_string' | [ oci ]
        'oracle_connection_string' }
```

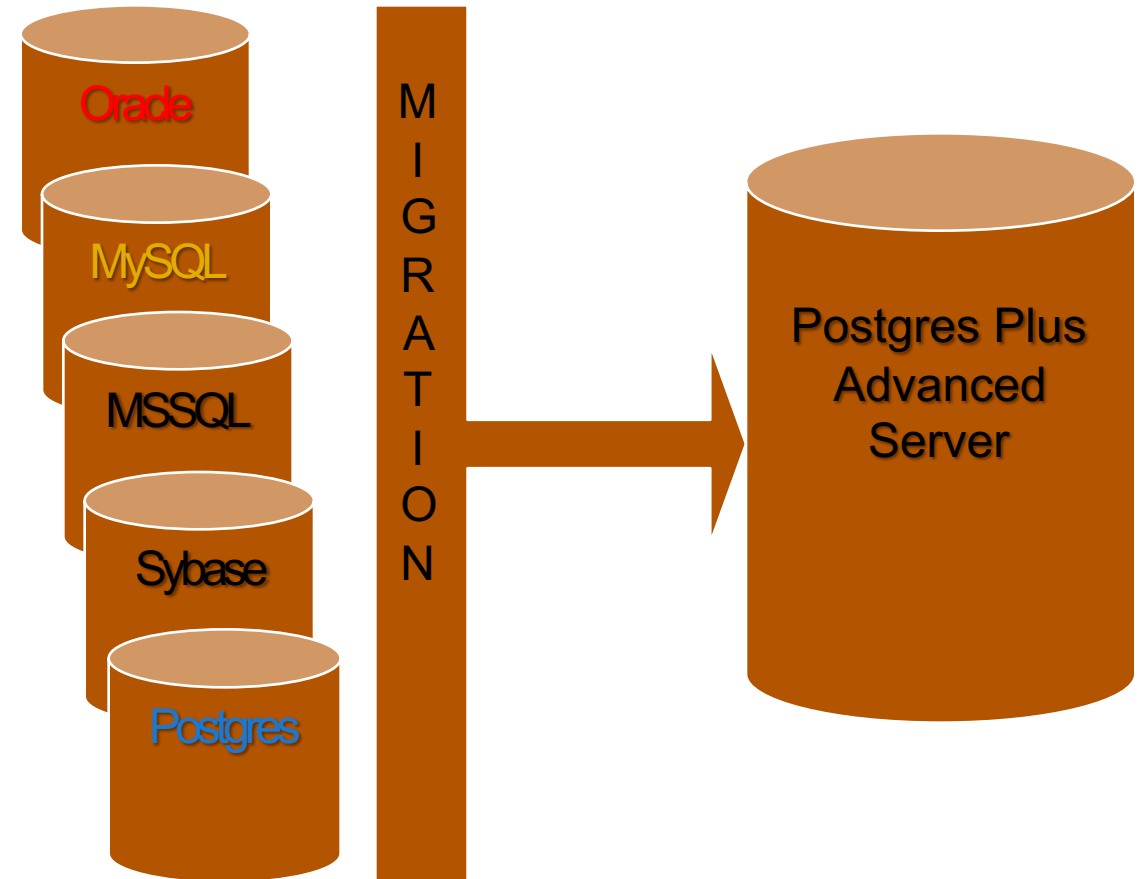
# Database Compatibility – CREATE DIRECTORY

- The CREATE DIRECTORY command creates an alias for a file system directory pathname.
- You must be a database superuser to use this command.
- The operating system user **enterprisedb** must have the appropriate read/write privileges on the directory.
- Syntax
  - `CREATE DIRECTORY name AS 'pathname'`



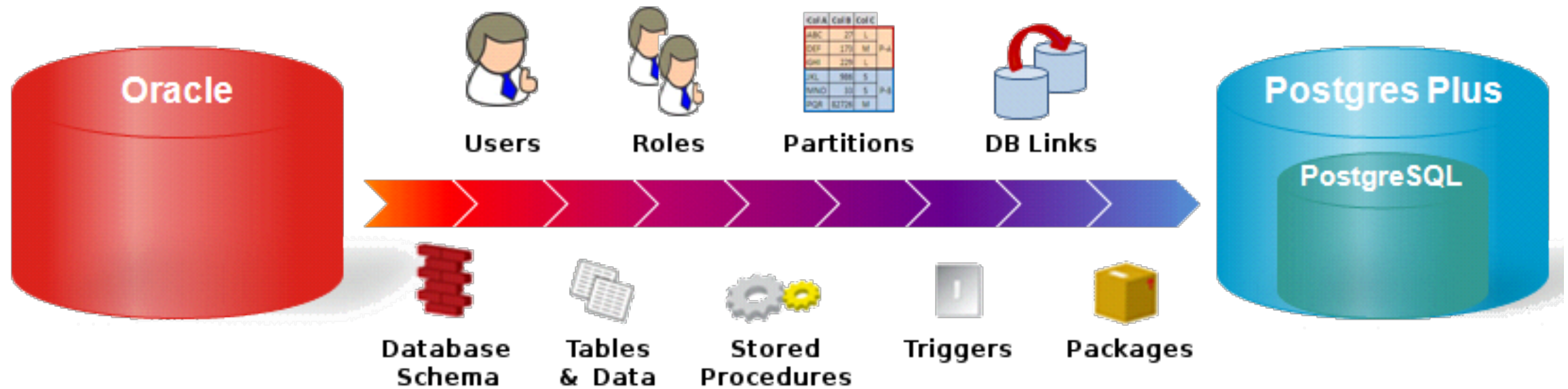
# Migration

- There are many reasons to consider migrating from one database to another
  - Advantage of new or better technology
  - Reduce database cost
- EnterpriseDB's Database Migration Assessment program:  
<http://www.enterprisedb.com/ds-oracle-migration-assessment>

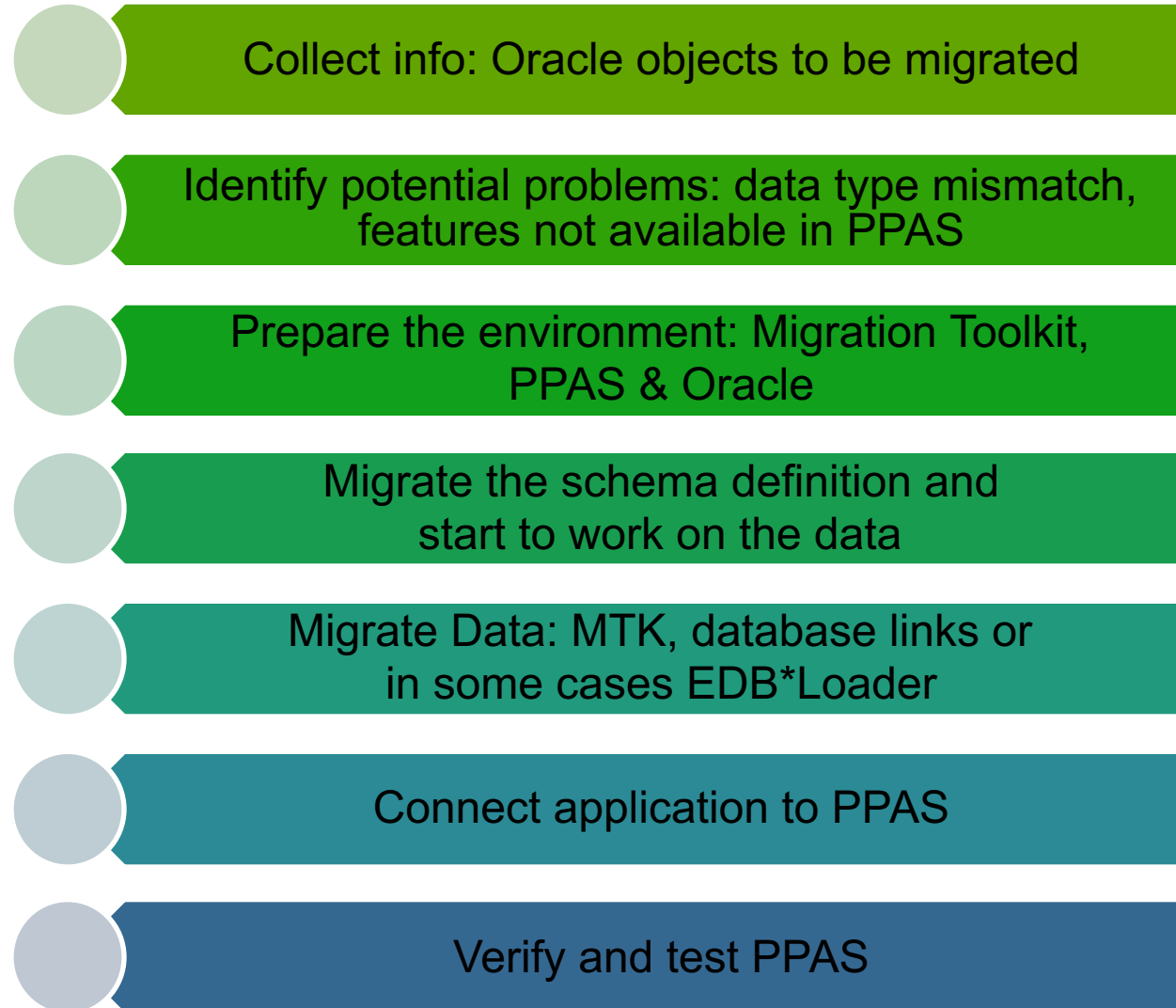


# Oracle to PPAS Migration

- Overview of the Oracle to PPAS migration setup



# Migration Process

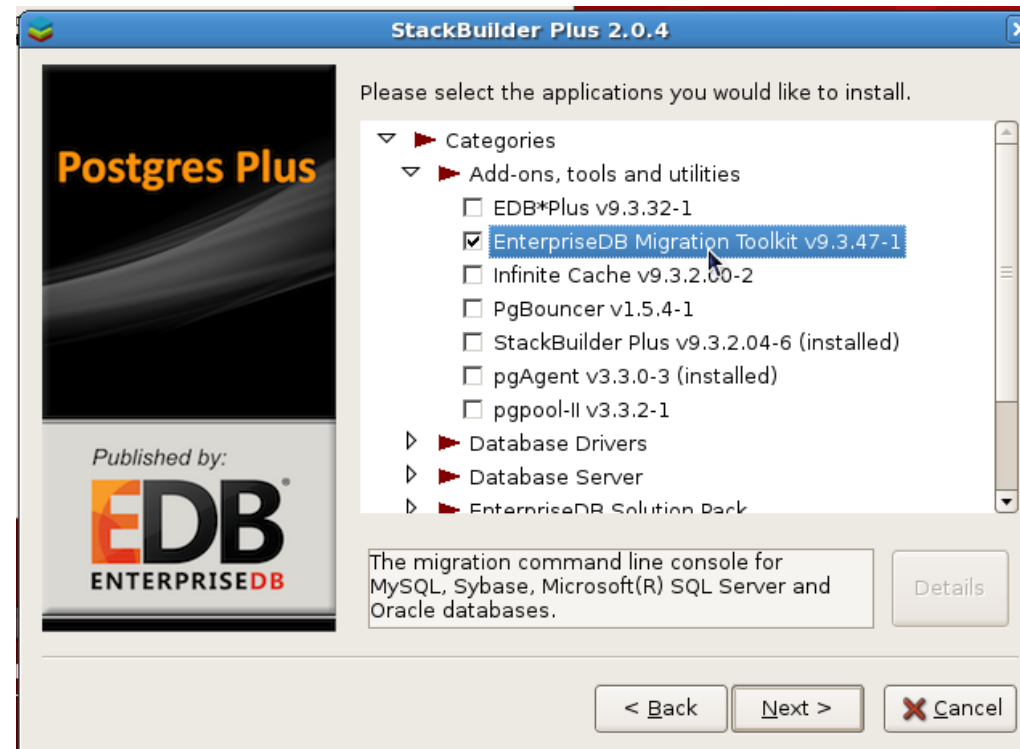


# Migration Toolkit

- Migration database objects and data to an Advanced Server from Oracle, Sybase, MSSQL and MySQL.
- The Migration Toolkit is a powerful command-line tool
  - -safeMode: commit each row as it is migrated.
  - -fastCopy: bypass WAL logging to optimize migration.
  - -batchSize: control the batch size of bulk inserts.
  - -cpBatchSize: specify the batch size used with the COPY command.
  - -filterProp: migrate only those rows that meet a user-defined condition.
  - -customColTypeMapping: change the data type of selected columns.
  - -allDBLinks: migrate all Oracle database links.
  - -copyViaDBLinkOra: enable the dblink\_ora module.

# Migration Toolkit: Installation

- Distributed with the Postgres Plus Advanced Server installer.
- Can also be installed using StackBuilder Plus.

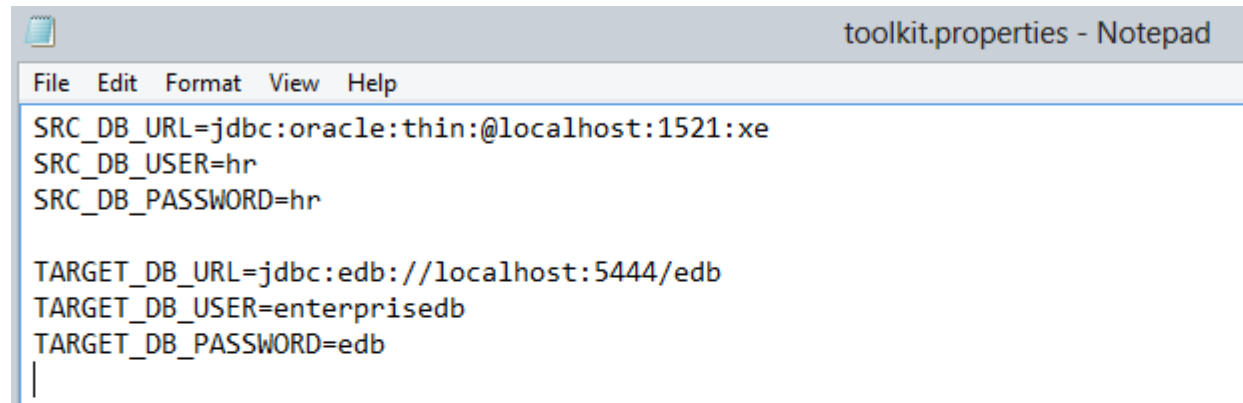


# Migration Toolkit: Source-Specific Drivers

- You must install a source-specific driver.
- Source-specific drivers are freely available.
- Go to: <http://www.enterprisedb.com/downloads/third-party-jdbc-drivers>.
- Move the downloaded driver file into the jre/lib/ext directory under the Postgres home directory.

# Migration Toolkit: Prepare a connection

- MTK gets the configuration and connection information from the **toolkit.properties** file.
- Edit the **toolkit.properties** file to specify the source and target database.
- File is located in:
  - opt/PostgresPlus/9.2AS/etc
  - C:\Program Files\PostgresPlus\9.2AS\etc



```
File Edit Format View Help
SRC_DB_URL=jdbc:oracle:thin:@localhost:1521:xe
SRC_DB_USER=hr
SRC_DB_PASSWORD=hr

TARGET_DB_URL=jdbc:edb://localhost:5444/edb
TARGET_DB_USER=enterprisedb
TARGET_DB_PASSWORD=edb
|
```

# Migration Toolkit: Perform Migration

- The Migration Toolkit executable is named **runMTK.sh** or **runMTK.bat**.
- Located in the bin directory of Postgres Plus installation.
- Migrating a Schema
  - `$ ./runMTK.sh schema_name`
  - `> .\runMTK.bat schema_name`
  - Separate multiple schema names using comma
  - `-allSchemas` will migrate all schemas



# Migration Toolkit: Perform Migration

- Options available in **runMTK** Command:
  - -offlineMigration
  - -sourcedbtype, -targetdbtype, -schemaOnly, -dataOnly
  - allTables, -tables, -importPartitionAsTable
  - -indexes -triggers
  - -allViews, -allSequences, -allProcs, -allFuncs, -allPackages
  - -truncLoad, -enableConstBeforeDataLoad
  - -allUsers, copyViaDBLinkOra, -allDBLinks, -allSynonyms
  - -help, -logDir

THANK YOU

merci  
grazie  
spasiba  
kam ouen  
gratizias  
tak  
manana  
mahalo  
hvala  
cheers  
toda  
gracias  
thank you  
danki  
grassie  
kitos  
welalin  
mahalo  
danki  
thanks  
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gracias  
domo arrigato  
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