



EDB Postgres Migration Portal

Version 3.1.0

1	What's New	3
2	Supported Platforms	5
3	Using Migration Portal	6
3.1	Overview of the Migration Portal Home Page	7
3.2	Overview of the Migration Portal Projects Page	9
3.3	Overview of the Migration Portal Wiki Page	12
4	Migrating a Database	13
4.1	Performing a Schema Extraction	13
4.2	Performing a Schema Assessment	19
4.3	Schema Migration	27
4.4	Data Migration	62
5	Advanced Data Migration	63

1 What's New

The following enhancements are added to the Migration Portal for the release 3.1.0:

- Asynchronous/Parallel assessment

You can now create multiple projects and run the assessments in parallel, getting notified once the assessment completes. Also, use multiple browser tabs to work on projects simultaneously.

- Restructured schema assessment report for enhanced readability along with consolidated information about the incompatible function/package
- Refined object search and filter experience along with other UI enhancements
- Starting this release, Migration Portal detects function/procedure names from the packages which are not supported in EPAS, for example, '**Incompatible function/package found : UTL_FILE.GET_RAW**', giving a better understanding of error and the migration efforts required.

Updated Repair Handler

Repair handlers convert Oracle syntax to Postgres-compatible syntax so that you don't have to do it manually.

- ERH-2055 - UNSUPPORTED_USING_INDEX_CLAUSE

Updated the repair handler such that it does not remove GLOBAL indexes from the table definition

- ERH-1012 - INSERT_STATEMENT_ALIAS

Modified the repair handler as it was not firing for scenarios where INSERT statements contained the SELECT statement

- ERH-2090 - CONVERT_FUNCTION

Enhanced the performance for large DDLs

- ERH-2027 - SESSION_GLOBAL_SEQUENCE

Enhanced the accuracy so that it functions correctly for edge case DDLs

- ERH-2079 - GLOBAL_PARTITIONED_INDEX

Removed this so that Global Partitioned Indexes will not be removed

Knowledge Base

Knowledge base entries provide workarounds or solutions for the objects that fail during an assessment. You can view and apply the knowledge base solutions to reassess the fail objects.

New Knowledge Base entries

Following are the new knowledge base entries added:

- Workaround for Oracle SQLERRM function

The `SQLERRM()` function returns the error message associated with the most recently raised error exception. You may use Advanced Server supported `SQLCODE` and `SQLERRM` variables in the exception block to get similar results.

- Workaround for Oracle SQLCODE function

In PL/SQL blocks, the `SQLCODE` can be used for getting numeric code of exception, in Advanced Server you can create custom function which can return numeric value of error.

- Value assignment with %type operator for TYPE definition inside package

This syntax is supported starting with Advanced Server v12, hence we recommend upgrading to Advanced Server v12 or above to resolve this error.

- Global Indexes

Global Indexes map one index to multiple partitioned tables. There can be multiple workarounds, for example, aligning partitioning keys across all referencing and referenced tables.

- Workaround for NESTED Table

In Advanced Server, **ARRAY** can be used to achieve the same kind of functionality.

- Method Overloading

In Oracle, users can overload the method inside the package by changing the name of the arguments. In Advanced Server, users should change the argument type to overload a method.

2 Supported Platforms

The Migration Portal supports assessment and migration from Oracle 11g and 12c to EDB Postgres Advanced Server 10, 11, 12, or 13. Migration Portal is supported on the following browsers and operating systems:

Supported Browsers

For the best user experience, we recommend using the Google Chrome browser. Migration Portal is also supported on the following browsers:

Browser	Supported Version
Apple Safari on Macintosh OS	11 and above
Google Chrome	68 and above
Microsoft Edge	42 and above
Mozilla Firefox	60 and above

Supported Operating Systems

Operating Systems	Supported Version
Macintosh	OS X Sierra
Windows	10

Operating Systems

Linux

Supported Version

CentOS 7

3 Using Migration Portal

Migration Portal allows you to easily migrate your database schema from Oracle to EDB Postgres Advanced Server. You can upload schemas for assessment and get immediate feedback and suggestions. The portal allows you to download assessed DDLs for all objects and create your EDB Postgres database on-premises or in the cloud.

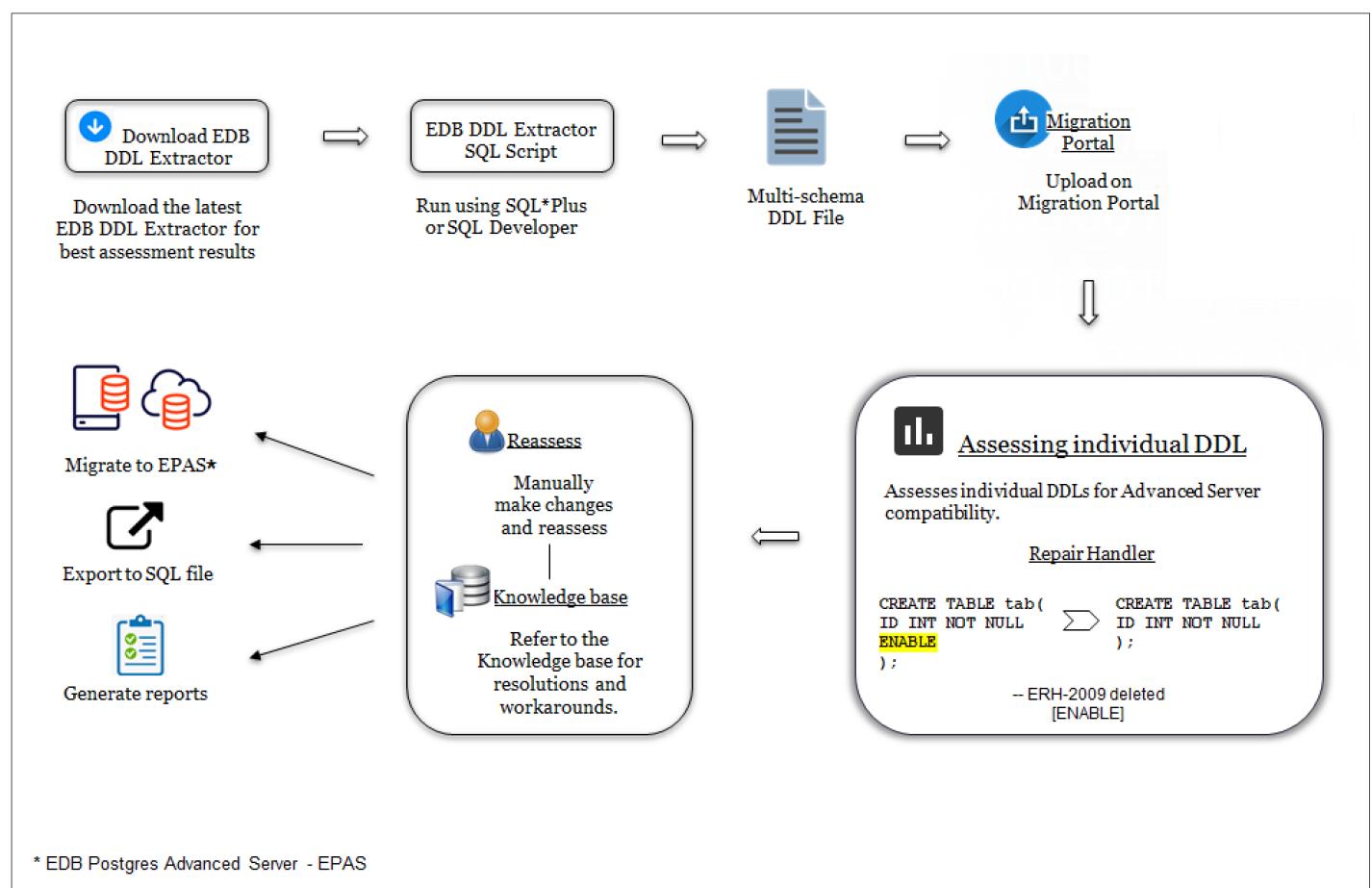


Figure 2-1: The assessment and migration process

!!! Note Migration Portal currently does not have team collaboration features. We

recommend collaborative meetings, screen sharing, and using the downloadable assessment report to share results.

To access the Migration Portal:

1. Open a browser and navigate to <https://www.edbpostgres.com/>.
2. On the EnterpriseDB home page, click **Products > Migration Portal**.



Figure 2-2: The assessment and migration process

3. Click **Open Migration Portal**.
4. Log in using your credentials.

3.1 Overview of the Migration Portal Home Page

The Migration Portal home page provides quick access to migration tools.

The screenshot shows the EDB Migration Portal home page. On the left, a sidebar lists five projects: ProjectManagement, HumanResources, Finance, Marketing, and Administration, each with a progress bar and a 'View Details' button. The main area has three panels: 'Overview' (selected), 'Schemas', and 'Quick help'. The 'Overview' panel shows a warning about migration challenges, project details (Name: ProjectManagement, Interface: JDBC, Source DB: Oracle 11g, Target DB: EDB Postgres Advanced Server 12, Compatibility: 71%), and actions (Migrate to..., Report, Delete). The 'Schemas' panel shows three schemas: HR (7 objects, 100% compatibility), HRM (13 objects, 53% compatibility), and schema_6595 (1 object, 100% compatibility). Each schema has a progress bar indicating failed, repaired, and passed migrations.

Figure 2-3: The Migration Portal home

The Migration Portal home page allows access to the following Migration Portal features:

1. Projects: The **Projects** panel displays a list of assessed projects.
 2. Create project: Click **+ New** (the button located to the right of the **Projects** label) to create a new project.
 3. Search projects: Use the **Search** box to search for projects.
 4. Overview: The **Overview** panel provides details about the selected project and displays the compatibility percentage after schema assessment.
 5. Migrate to: Use the **Migrate to** button to either download an EDB Postgres Advanced Server compatible **.sql** file or migrate a schema to an EDB Postgres Advanced Server on-premise or on the cloud. For more information, see [Schema Migration](#).
- !!!Note Uploading large DDL files might freeze or crash the browser (depending on the browser and the system resources in use). In this scenario, try running Migration Portal in a different browser or extracting fewer schemas and uploading that file on Migration Portal.

6. Report: Use the **Report** button to view and download the schema assessment report.
 7. Delete: Use the **Delete** button to delete a selected project.
 8. Warning sign: A warning message is displayed if a project or a schema is less than 70% compatible or any DDL doesn't succeed after multiple attempts.
 9. Upload DDL file: Use the **Upload new schema** button to upload a new or additional DDL file.
 10. Schemas: The **Schemas** panel displays the assessment result from an uploaded DDL file.
 11. Quick help: The **Quick help** panel contains quick handles to a few required resources.
 12. Portal Wiki: The **Portal Wiki** has links to product information and different help guides.
-

3.2 Overview of the Migration Portal Projects Page

The Migration Portal Projects page provides detailed information about your migration.



Figure 2-4: The Migration Portal Projects Page overview

Use the following resources to gather information about your migration projects:

1. Compatible: The **Compatible** gauge displays the color on the basis of the compatibility percentage of the assessed schema.
2. Schema Count: Displays the number of schemas in a project.
3. Migrate to: Use the **Migrate to** to migrate the schema to an *EDB Postgres Advanced Server* on-premise or on cloud.
4. Search objects: Use the **Search** box to search for objects.
5. Filters: You can filter the system repaired and manual repaired objects from the left panel of the Projects page. In addition, you can select one or more filter combinations to refine the information.
6. Objects: Displays the objects for the selected schemas.
7. Common Failures: Displays the reason for the failed objects for the selected schemas.

The screenshot shows the EDB migration portal interface. On the left, there's a sidebar with 'OBJECTS' and 'COMMON FAILURES'. Under 'COMMON FAILURES', there's a tree view with 'case_no_v2' expanded, showing 'MIGRATIONTEST' (2 errors) and 'HR' (5 errors). The 'HR' node is selected. A search bar labeled 'Search Errors' is also present. The main panel shows the 'HR Schema' with a table of failures:

Count	Reason for failure	Occurrences
2	only superuser can change options of a file_fdw foreign table	Tables 2
1	column "empno" does not exist	Views 1
1	syntax error at or near "FROM"	Views 1
1	relation "hr.emp" does not exist	Materialized View 1

Figure 2-5: Common Failures tab

!!! Note You can download a **CSV** file for the common failures for the project.

8. Schema: The **Schema** panel displays the result of the assessment.
9. Tooltip: Hover over a result set to display a tooltip with the number of passed, failed, and repaired objects.
10. Quick help: The **Quick help** panel displays links to Knowledge base articles and repair handler documentation.
11. Search: Use the **Search** box to search the **Knowledge base** entries or repair handler documentation for specific information.



Figure 2-6: Searching the Knowledge Base entry

3.3 Overview of the Migration Portal Wiki Page

The Portal Wiki page provides quick access to information:

- What's New information
- Quick Start guide
- Migrating Schema
- Migrating Data
- DDL Extractor guide
- Knowledge Base
- Repair handlers
- Migration Portal User's Guide
- FAQs

The screenshot shows the EDB migration portal Wiki page. On the left, there's a sidebar with links like 'What's new', 'Quick Start guide', 'DDL Extractor guide', etc. The main content area has a heading 'What's New' with a sub-section 'Version 3.1.0 (25-May-2021)'. It includes a screenshot of the migration interface showing a 'Finance' project with various tabs like 'Overview', 'Assessments', and 'Schemas'. There's also a 'Jump to version' section with links to previous versions.

Figure 2-7: The Migration Portal Wiki page

4 Migrating a Database

To migrate a database, you must complete the following steps:

1. Perform a [Schema Extraction](#).
2. Perform a [Schema Assessment](#).
3. Perform a [Schema Migration](#).
4. Perform a [Data Migration](#).

The following sections provide detailed information about each step in the migration process.

4.1 Performing a Schema Extraction

Prerequisites

Before extracting a schema, you must download the latest EDB DDL Extractor script from the Migration Portal [Projects](#) page or from the link provided in the DDL Extractor guide in the Portal Wiki. The script can be run in SQL Developer or SQL*Plus. It uses Oracle's `DBMS_METADATA` built-in package to extract DDLs for different objects under schemas (specified while running the script). The EDB DDL extractor creates the DDL file uploaded to the portal and analyzed for EDB Postgres compatibility.

!!!Note You must have `CONNECT` and `SELECT_CATALOG_ROLE` roles and `CREATE TABLE` privilege.

For SQL*Plus

1. Connect to SQL*Plus and run the command:

```
SQL>@edb_ddl_extractor.sql
```

2. Provide the schema name and the path or directory in which the extractor will store the extracted DDL. When extracting multiple schemas, use a comma (‘,’) as a delimiter.

!!!Note If you want to extract all the user schemas from the current database, do not mention any schema names while extracting. However, it is recommended to mention the schema names that you would like to extract.

3. If you want to extract dependent objects from other schemas, enter `yes` or `no`.

For example, on Linux:

```
Enter a comma separated list of schemas to be extracted
(Default all schemas): HR, SCOTT, FINANCE
```

```
Location for output file (Default current location) :
/home/oracle/extracted_ddls/
```

WARNING:

Given schema(s) list may contain objects which are

dependent on objects from other schema(s), not mentioned in the list. ``Assessment may fail for such objects. It is suggested to extract all dependent objects together.

Extract dependent object from other schemas?(yes/no)
(Default no / Ignored for all schemas option): yes

On Windows:

Enter comma separated list of schemas to be extracted
(Default all schemas): HR, SCOTT, FINANCE

Location for output file (Default current location) :
c:\Users\Example\Desktop\

WARNING:

Given schema(s) list may contain objects which are dependent on objects from other schema(s), not mentioned in the list. ``Assessment may fail for such objects. It is suggested to extract all dependent objects together.

Extract dependent object from other schemas?(yes/no)
(Default no / Ignored for all schemas option): yes

For SQL Developer

1. Connect to the SQL server and run the following command:



Figure 3-1: Enter the path for Linux or Windows

2. Enter a comma-separated list of schemas:



Figure 3-2: Provide a list of schemas

3. Enter the path for the output file:



Figure 3-3: Specify the output file path

4. Enter (yes/no) to extract dependant objects:



Figure 3-4: Extracting dependent objects

!!! Note You can also enter single schema name in both SQL*Plus and SQL Developer.

The script then iterates through the object types in the source database and once the task is completed, the .SQL output is stored at the entered location, i.e.,
c:\Users\Example\Desktop\.

Additional Notes

- The EDB DDL Extractor script does not extract objects restored using **Flashback** and still have names like **BIN\$b54+4XlEYwPgUAB/AQBWwA==\$0**. If you want to extract these objects, you must change the name of the objects and re-run the extraction process.
- DDL Extractor extracts **nologging** tables as normal tables. Once these tables are migrated to EDB Postgres Advanced Server, WAL log files will be created.
- DDL Extractor creates Global Temporary tables to store the schema names and their dependency information. These tables are dropped at the end of successful extraction.
- DDL Extractor script does not extract schemas whose name starts with **PG_** because PostgreSQL does not support it. If you want to extract these schemas, you must change name of schema before extraction.

Supported Object Types

The Migration Portal supports the migration of the following object types:

- Synonyms
- DB Links
- Types and Type Body
- Sequences
- Tables
- Constraints
- Indexes (Except LOB indexes and indexes on materialized views)
- Views
- Materialized Views
- Triggers
- Functions
- Procedures
- Packages

!!! Note COMMENTS on Columns, Tables, and Materialized Views are also supported.

Unsupported Object Types

- Editions
- Operators
- Schedulers
- LOB indexes and Indexes on Materialized Views
- XML Schemas
- Profiles
- Role and Object Grants
- Tablespaces
- Directories
- Users
- RLS Policy
- Queues

Oracle System Schemas

EDB DDL Extractor script will ignore the following system schemas while extracting from Oracle:

ANONYMOUS	APEX_PUBLIC_USER	APEX_030200
APEX_040000	APEX_040000	APPQOSSYS
AUDSYS	BI	CTXSYS
DMSYS	DBSNMP	DIP
DVF	DVSYS	EXFSYS
FLOWS_FILES	FLOWS_020100	GSMADMIN_INTERNAL
GSMCATUSER	GSMUSER	IX
LBACSYS	MDDATA	MDSYS
MGMT_VIEW	OE	OJVMSYS
OLAPSYS	ORDPLUGINS	ORDSYS
ORDDATA	OUTLN	ORACLE_OCM
OWBSYS	OWBYSS_AUDIT	PM
RMAN	SH	SI_INFORMTN_SCHEMA
SPATIAL_CSW_ADMIN_USR	SPATIAL_WFS_ADMIN_USR	SYS
SYSBACKUP	SYSDG	SYSKM
SYSTEM SYSMAN	TSMSYS WKPROXY	WKSYS
WK_TEST XS\$NULL	WMSYS	XDB

4.2 Performing a Schema Assessment

To assess an Oracle database schema for compatibility with EDB Postgres Advanced Server, you must:

1. Navigate to the [Migration Portal](#).
2. Enter your EDB credentials.
3. Click **New** to create a new project.

New project



Project name

e.g. First project

Application interface

- JDBC
- ODBC
- .NET
- OCI
- ProC
- Other

Source DB

Oracle

Version

11g

Target DB

EDB Postgres Advanced Server

Version

13

DDL file [\(How to get a DDL file?\)](#)

No file chosen

Choose file

Add Index Prefix

Index objects will be prefixed with “idx” as unique names are required for tables and indexes.

Description(Optional)

Say something about the project...

200 characters left

Cancel

Create & assess

Figure 3-5: The Migration Portal New project dialog box

4. On the **New project** dialog box, enter the project name in the **Project name** field.
5. Specify project details:
 - Select the radio button next to the **Application interface**.
 - Select a **Source DB** and **Version** for the source.
 - Select the **Target DB** and **Version** for the target.
6. Click **Choose file** to upload the .SQL file generated by the latest EDB DDL Extractor for Oracle Database.

!!! Note - You should not modify the .SQL file. - Only the .SQL file generated by the latest EDB DDL Extractor can be uploaded.

For more information, refer to the [Schema Extraction](#) section.

7. Check the box next to **Add Index Prefix** to specify an index prefix (**idx**) when creating a project to ensure better assessment results, as EDB Postgres Advanced Server does not support the same name for tables and indexes.
8. Click **Create & assess** to create a new project and to assess the schemas.

The screenshot shows the EDB migration portal interface. On the left, there's a sidebar with a list of 'Projects (297)' and a search bar. The main area has tabs for 'Projects' and 'Portal Wiki'. A prominent 'Overview' card displays project details: Name (case_no_v2), Interface (ODBC), Source DB (Oracle 11g), Target DB (EDB Postgres Advanced Server 10), and Compatibility (68%). It includes buttons for 'Migrate to...', 'Report', and 'Delete'. Below this, there's a 'Schemas' section with a progress bar for 'HR' (58%) and 'MIGRATIONTEST' (77%), and a single object in 'schema_1900' (100%). A message box in the center says 'This project has migration challenges. Contact us for help.' with a 'Contact Us' button. The right side has a 'Quick help' sidebar with links to 'Getting Started', 'Quick Start guide', 'Migration Portal guide', and 'EDB DDL Extractor'.

Figure 3-6: The Schema analysis result

The analysis tool will review every construct and execute repair actions to improve compatibility with EDB Postgres Advanced Server and flag any remaining errors that require manual intervention.

9. Verify the DDL objects (e.g., TABLES) that do not show a 100% success ratio.

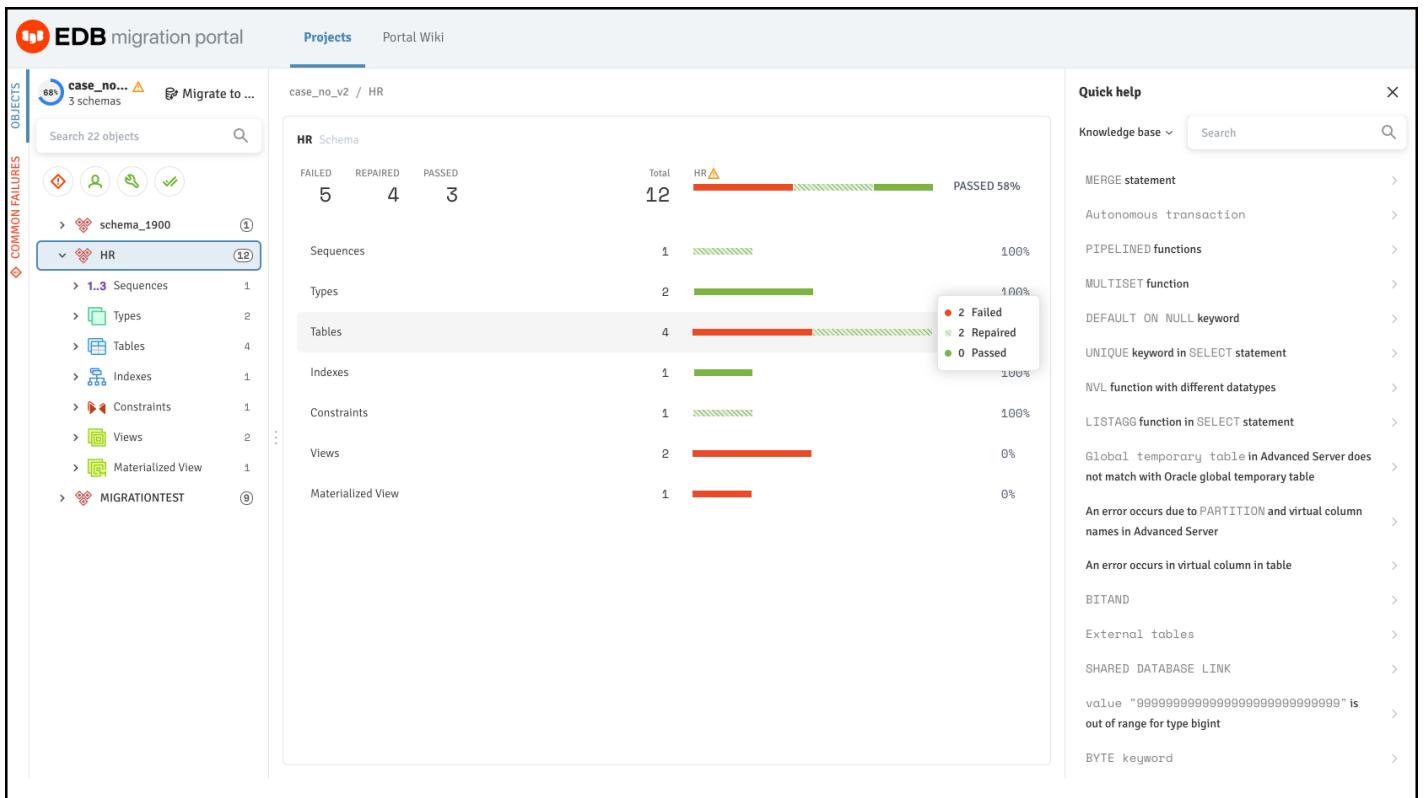


Figure 3-7: Verifying the DDL objects

10. Click the objects that are not compatible with EDB Postgres Advanced Server and view the details. At the bottom of the middle panel, you can view repair action details.

The screenshot shows the EDB migration portal interface. On the left, there's a sidebar with 'COMMON FAILURES' and 'OBJECTS' sections. The main area displays migration details for 'case_no_v2 / HR / Tables / DEPARTMENTS_EXT'. It shows the 'Source' code (CREATE TABLE HR.DEPARTMENTS_EXT) and the 'Target' code (CREATE FOREIGN TABLE HR.DEPARTMENTS_EXT). A note at the bottom says 'only superuser can change options of a file_fdw foreign table'. On the right, a 'Quick help' panel lists various Oracle features and their equivalents in PostgreSQL.

Figure 3-8: Incompatible objects are identified

- Refer to the Knowledge Base information in the right panel to locate the possible workarounds for the objects that are not immediately compatible with EDB Postgres Advanced Server. You can also view the Knowledge Base information on the Portal Wiki page.

The screenshot shows the EDB migration portal interface. On the left, there's a sidebar with 'COMMON FAILURES' and 'OBJECTS' sections. The main area displays migration details for 'case_no_v2 / HR'. It shows a summary of failed, repaired, and passed objects for the 'HR Schema'. A detailed breakdown for 'Tables' shows 4 failed, 2 repaired, and 0 passed. A legend indicates: Failed (red), Repaired (green), and Passed (blue). On the right, a 'Quick help' panel lists various Oracle features and their equivalents in PostgreSQL.

Figure 3-9: Assessment result with errors

12. On the **Knowledge Base** tab, you can enter the error message for the incompatible objects with EDB Postgres Advanced Server and click **Search**.

The object detail panel displays the workaround or the resolution for the failed object. You can manually make the changes on the **Assessment** tab for that object and click **Reassess**.

!!! Note If any failed object passes while reassessing, the dependent objects for that object are also reassessed.

Figure 3-10: Workaround or resolution for incompatible objects

Similarly, you can make all incompatible objects compatible.

!!! Note If the information or workaround for incompatible objects is not available in the Knowledge Base, please contact the support team for assistance.

When you have finished working with the DDL, you can either download the modified EDB compatible DDL as a .sql file or migrate the schemas see, [Schema Migration](#).

Generating an Assessment Report

Migration Portal's report functionality provides a high-level assessment summary of the schemas assessed for your project. In addition, the report provides details about the failed objects and the cause of failure.

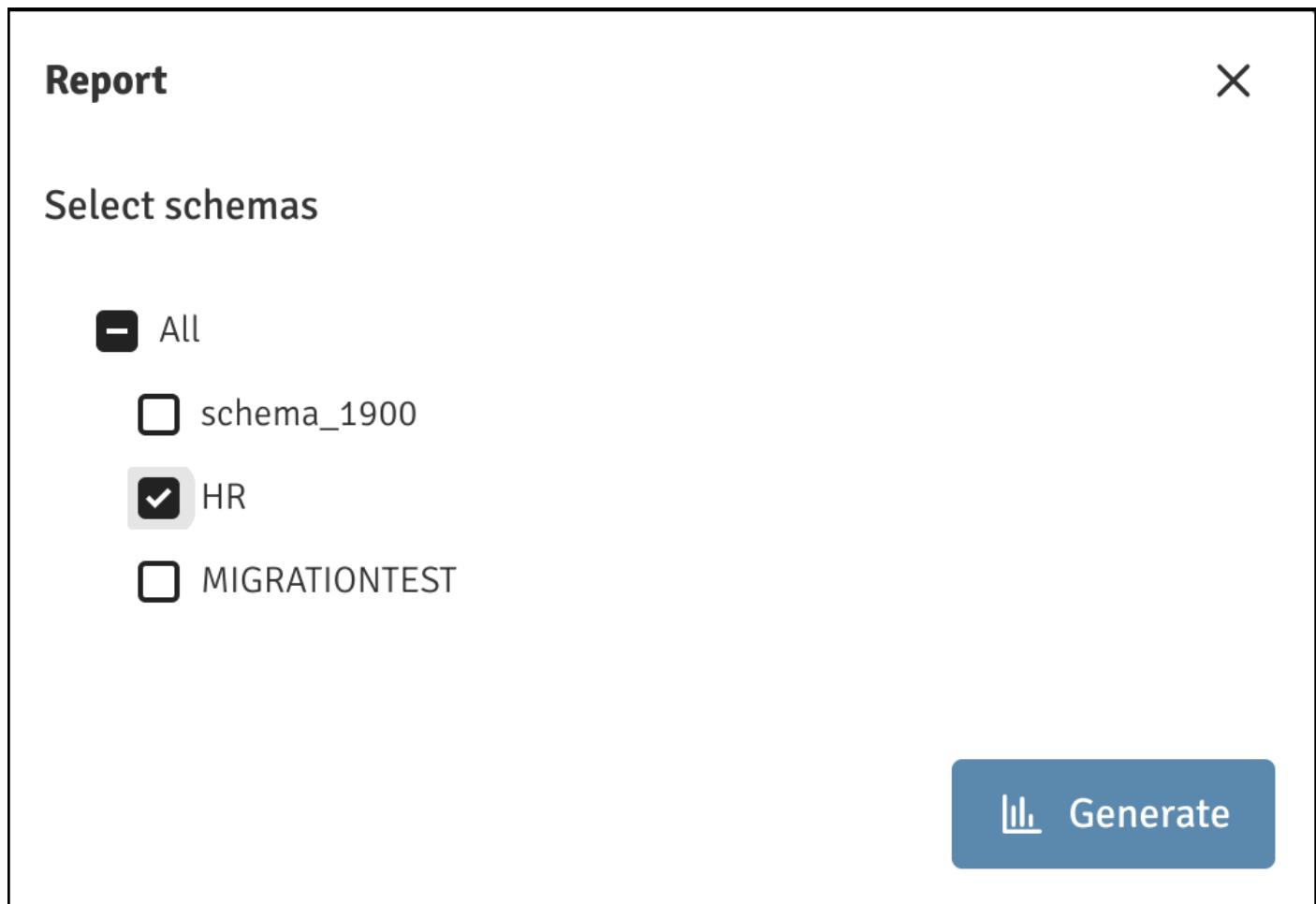


Figure 3-11: Select schemas for reports

To generate a report:

1. Click the **Report** button to access the schema selection dialog.
2. Select the schemas that you wish to include in the report.
3. Click **Generate** to generate the onscreen report.



Figure 3-12: The Schema Assessment Report

You can optionally select **Generate PDF** to save the report in **.pdf** format. You can also view the count of distinct repair handlers applied to the DDLs under the selected schemas.

14/09/2020

EDB Assessment Report-case_no_v2



Project:
case_no_v2

Source database:
Oracle 11g

Target database:
EDB Postgres Advanced Server 10

Generated by:

Migration Portal v2.9.0

14th September 2020, 2:51:34 pm

Description:

Summary

This report provides a high-level assessment summary for selected schemas you assessed under "case_no_v2" project. In addition, the report provides details of the failed objects and the cause of failure.

1	12	5	2	5	58%
Schemas	Total objects	Passed	Repaired	Failed	Compatibility



Object type	Total	Passed	Repaired	Failed
Constraints	1	1	0	0
Indexes	1	1	0	0
Materialized View	1	0	0	1
Sequences	1	0	1	0
Tables	4	1	1	2
Types	2	2	0	0
Views	2	0	0	2

Figure 3-13: The saved pdf report

4.3 Schema Migration

After resolving errors in your schemas, you can use the schemas with a client application such as pgAdmin, ToadEdge, or the PSQL client, or migrate the schema to an EDB Postgres Advanced Server.

!!!Note

For more information about using Toad Edge with EDB Postgres Advanced Server, see [Toad Edge for Postgres](#).

You can choose one of the following options for migrating schemas; migrate to an:

- Existing on-premises EDB Postgres Advanced Server
- New on-premises EDB Postgres Advanced Server
- EDB Postgres Advanced Server on Cloud



Figure 3-14: Schema migration home page

Migrating to an Existing On-Premises EDB Postgres Advanced Server Host

You can migrate schemas to an existing on-premises EDB Postgres Advanced Server on Windows or Linux platforms.

Migrating Schemas on Windows

1. Select the **Existing on-premises EDB Postgres Advanced Server** option:

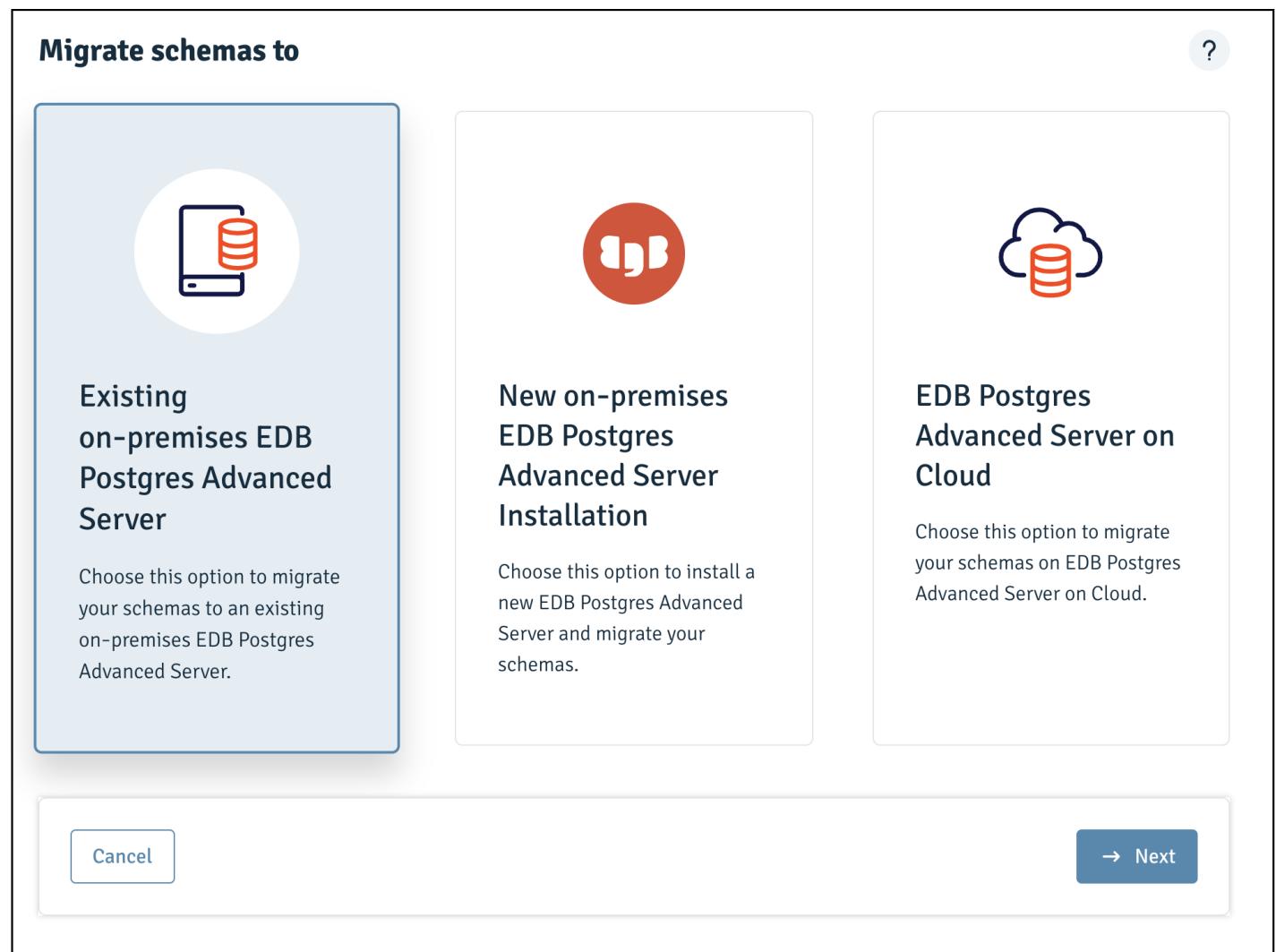


Figure 3-15: Existing on-premises EDB Postgres Advanced Server home page

2. Select one or more schemas to migrate to EDB Postgres Advanced Server:

Migrate schemas to existing on-premises EDB Postgres Advanced Server

1 Select Schemas — 2 Download Schema — 3 Import — 4 Finish

⚠ This project has migration challenges. Contact us for help.

Contact Us X

Project Name case_no_v2	Interface ODBC	Source DB Oracle 11g	Target DB EDB Postgres Advanced Server 10	Compatibility 68% ⚠
----------------------------	-------------------	-------------------------	--	--

Select one or more schemas

All

schema_1900

HR

MIGRATIONTEST

[Cancel](#) [← Previous](#) [→ Next](#)

Figure 3-16: Selecting schemas for migration

!!!Note If your schemas are not 100% compatible, a banner will be displayed as shown; complete the [Contact Us](#) form for any assistance required.

Contact Us X

Your message...

Required project details will be sent along with your message.

By submitting this form, I agree to EDB's [Terms & Conditions](#) and [Privacy Policy](#).

➤ Send

Figure 3-17: The Contact Us form

3. Download the assessed schemas:

Migrate schemas to existing on-premises EDB Postgres Advanced Server

1 Select Schemas 2 Download Schema 3 Import 4 Finish

⚠ This project has migration challenges. Contact us for help.

Contact Us X

Project Name case_no_v2	Interface ODBC	Source DB Oracle 11g	Target DB EDB Postgres Advanced Server 10	Compatibility 68% ⚠
----------------------------	-------------------	-------------------------	--	--

Download the assessed schemas

Download SQL file

Note: Ensure the version number for the EDB Postgres Advanced Server database that you are migrating is 10 (your assessed version).

Cancel ← Previous Next →

Figure 3-18: Download the assessed schemas

4. Click on **Windows**:

Migrate schemas to existing on-premises EDB Postgres Advanced Server

Project Name: case_no_v2 Interface: ODBC Source DB: Oracle 11g Target DB: EDB Postgres Advanced Server 10 Compatibility: 68% ⚠️

Import the selected schemas

Run the following command:

Windows **Linux**

On CLI

```
edb=# \i c:\users\...\<project_name>.sql
```

On cmd/shell

```
edb-psql -f <project_name>.sql
```

Cancel **← Previous** **→ Next**

Figure 3-19: Selecting Windows operating system

5. To import the schemas, run the following command:

- On CLI

```
\i c:\users\...\<project_name>.sql
```

- On cmd/shell

```
edb-psql -f <project_name>.sql
```

!!!Note You can also use **pgAdmin** instead.

The converted schemas are migrated to the target server.

The screenshot shows the 'Migrate schemas to existing on-premises EDB Postgres Advanced Server' page. At the top, a progress bar indicates the migration process: 'Select Schemas' (green checkmark), 'Download Schema' (green checkmark), 'Import' (green checkmark), and 'Finish' (blue circle with the number 4). Below the progress bar, project details are listed: Project Name 'case_no_v2', Interface 'ODBC', Source DB 'Oracle 11g', Target DB 'EDB Postgres Advanced Server 10', and Compatibility '68%' with a warning icon. A large green checkmark icon is displayed with the message 'Migration Successful'. Below this, two informational messages are shown: 'You can view your converted schemas on the target server.' and 'If you cannot see your schemas on the target server or need help to migrate the schemas, contact us.' A 'Contact us' button is available. At the bottom, there are 'Cancel', '← Previous', and '✓ Done' buttons.

Figure 3-20: A successful migration

Migrating Schemas on Linux

To migrate schemas to an existing on-premises EDB Postgres Advanced Server on Linux, complete the following steps:

1. Click the **Existing on-premises EDB Postgres Advanced Server** option:

Migrate schemas to

The screenshot shows a user interface for migrating database schemas. At the top, it says "Migrate schemas to". Below that are three large rectangular boxes, each containing an icon and text. The first box on the left has a blue border and contains an icon of a smartphone with a database icon inside a circle, followed by text: "Existing on-premises EDB Postgres Advanced Server". It also includes a descriptive paragraph about migrating to an existing server. The middle box has a white border and contains an icon of a red circle with a white "db" symbol, followed by text: "New on-premises EDB Postgres Advanced Server Installation". It includes a descriptive paragraph about installing a new server. The third box on the right has a light gray border and contains an icon of a cloud with a database icon inside, followed by text: "EDB Postgres Advanced Server on Cloud". It includes a descriptive paragraph about migrating to the cloud. At the bottom left is a "Cancel" button, and at the bottom right is a "Next" button with a right-pointing arrow.

Existing on-premises EDB Postgres Advanced Server

Choose this option to migrate your schemas to an existing on-premises EDB Postgres Advanced Server.

New on-premises EDB Postgres Advanced Server Installation

Choose this option to install a new EDB Postgres Advanced Server and migrate your schemas.

EDB Postgres Advanced Server on Cloud

Choose this option to migrate your schemas on EDB Postgres Advanced Server on Cloud.

Cancel

→ Next

Figure 3-21: Existing on-Premises EDB Postgres Advanced Server home page

2. Select one or more schemas to migrate to EDB Postgres Advanced Server:

Migrate schemas to existing on-premises EDB Postgres Advanced Server

1 Select Schemas — 2 Download Schema — 3 Import — 4 Finish

⚠️ This project has migration challenges. Contact us for help.

Contact Us X

Project Name case_no_v2	Interface ODBC	Source DB Oracle 11g	Target DB EDB Postgres Advanced Server 10	Compatibility 68% ⚠️
----------------------------	-------------------	-------------------------	--	---

Select one or more schemas

All

schema_1900

HR

MIGRATIONTEST

[Cancel](#) [← Previous](#) [→ Next](#)

Figure 3-22: Selecting schemas for migration

3. Download the assessed schemas:

Migrate schemas to existing on-premises EDB Postgres Advanced Server

1 Select Schemas 2 Download Schema 3 Import 4 Finish

⚠ This project has migration challenges. Contact us for help.

Contact Us X

Project Name case_no_v2	Interface ODBC	Source DB Oracle 11g	Target DB EDB Postgres Advanced Server 10	Compatibility 68% ⚠
----------------------------	-------------------	-------------------------	--	--

Download the assessed schemas

⬇ Download SQL file

Note: Ensure the version number for the EDB Postgres Advanced Server database that you are migrating is 10 (your assessed version).

Cancel ← Previous → Next

Figure 3-23: Download the assessed schemas

4. Click on Linux:

Migrate schemas to existing on-premises EDB Postgres Advanced Server

Project Name: case_no_v2 | Interface: ODBC | Source DB: Oracle 11g | Target DB: EDB Postgres Advanced Server 10 | Compatibility: 68%

Import the selected schemas

Run the following command:

[Windows](#) [Linux](#)

Run the following command on Terminal

```
shell=$ sudo su - enterpriseedb
shell=$ edb-psql edb
edb=# create database <database_name>;
edb=# \connect <database_name>
database_name=# \i <project_name>.sql
```

[Cancel](#) [← Previous](#) [→ Next](#)

Figure 3-24: Selecting Linux operating system

5. To import the schemas, invoke the following `edb-psql` client commands:

```
sudo su - enterpriseedb
edb-psql edb
create database <database_name>;
\\connect <database_name>
\\i <project_name>.sql
```

!!!Note You can optionally use the `pgAdmin` client for the import.

The converted schemas are migrated to the target server.

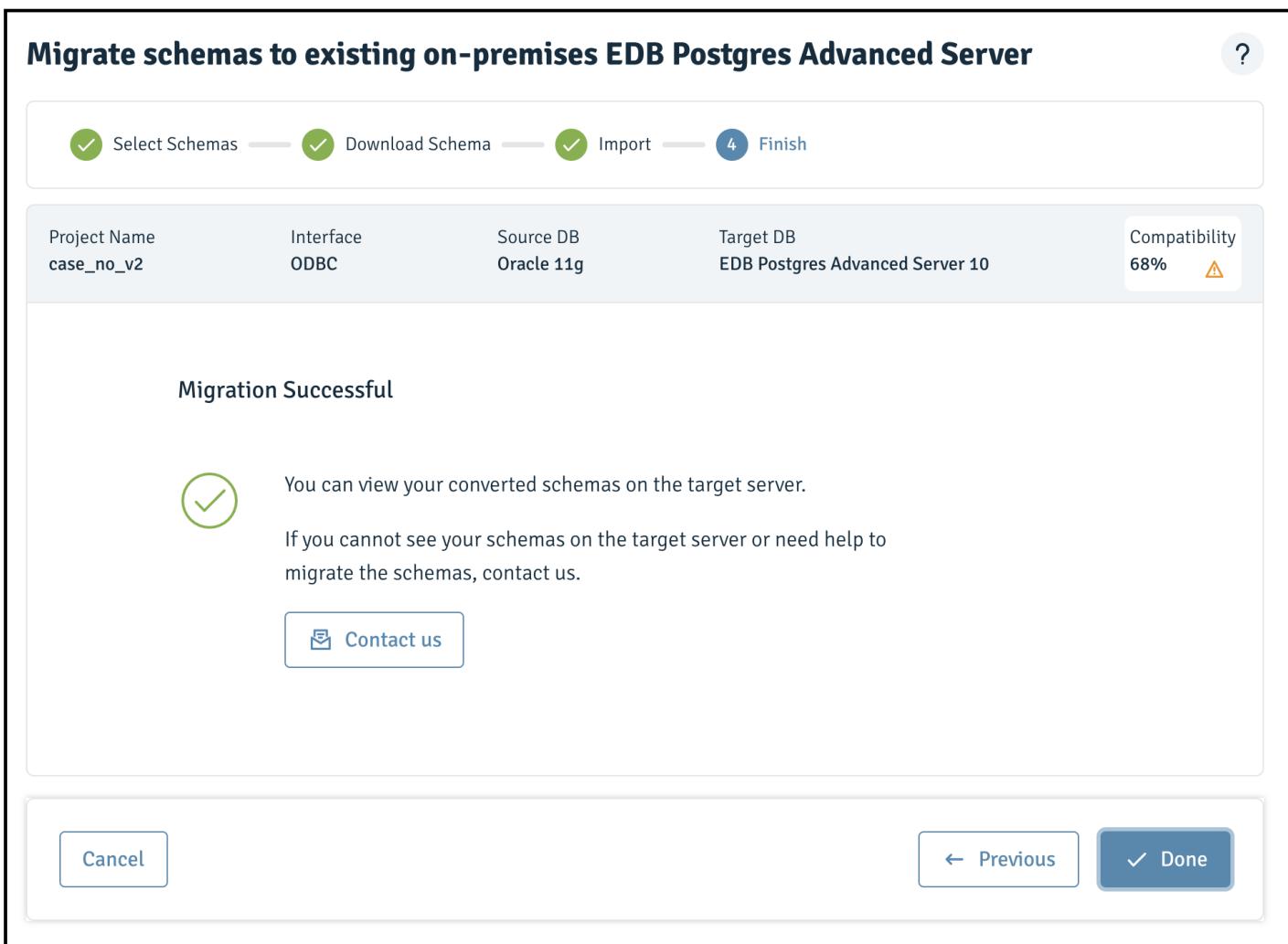


Figure 3-25: A successful schema migration

Migrating to a New On-Premises EDB Postgres Advanced Server Installation

You can install new EDB Postgres Advanced Server on-premises on Windows or Linux platforms and migrate the schemas.

Migrating Schemas on Windows

To migrate schemas to a new on-premises EDB Postgres Advanced Server on Windows, complete the following steps:

1. Click **New on-premises EDB Postgres Advanced Server** option.

Migrate schemas to

?



Existing on-premises EDB Postgres Advanced Server

Choose this option to migrate your schemas to an existing on-premises EDB Postgres Advanced Server.



New on-premises EDB Postgres Advanced Server Installation

Choose this option to install a new EDB Postgres Advanced Server and migrate your schemas.



EDB Postgres Advanced Server on Cloud

Choose this option to migrate your schemas on EDB Postgres Advanced Server on Cloud.

Cancel

→ Next

Figure 3-26: New on-premises EDB Postgres Advanced Server home page

2. Select one or more schemas to migrate on EDB Postgres Advanced Server.

Migrate schemas to new on-premises EDB Postgres Advanced Server Installation

1 Select Schemas — 2 Select Platform — 3 Get EDB Postgres Advanced Server — 4 Install EDB Postgres Advanced Server

⚠ This project has migration challenges. Contact us for help.

Contact Us X

Project Name	Interface	Source DB	Target DB	Compatibility
case_no_v2	ODBC	Oracle 11g	EDB Postgres Advanced Server 10	68% ⚠

Select one or more schemas

All
 schema_1900
 HR
 MIGRATIONTEST

Cancel ← Previous Next →

Figure 3-27: Selecting schemas for migration

3. Select the **Windows** operating system.

Migrate schemas to new on-premises EDB Postgres Advanced Server Installation

1 Select Schemas 2 Select Platform 3 Get EDB Postgres Advanced Server 4 Install EDB Postgres Advanced Server

⚠ This project has migration challenges. Contact us for help.

Project Name case_no_v2	Interface ODBC	Source DB Oracle 11g	Target DB EDB Postgres Advanced Server 10	Compatibility 68%
----------------------------	-------------------	-------------------------	--	----------------------

Select the Operating System/Platform

Windows 64-bit

Linux 64-bit

[Cancel](#) [← Previous](#) [→ Next](#)

The screenshot shows the 'Select Platform' step of the migration process. At the top, there's a navigation bar with four steps: 'Select Schemas' (done), 'Select Platform' (current step), 'Get EDB Postgres Advanced Server', and 'Install EDB Postgres Advanced Server'. A message box says 'This project has migration challenges. Contact us for help.' Below the message, there's a summary table with project details: Project Name (case_no_v2), Interface (ODBC), Source DB (Oracle 11g), Target DB (EDB Postgres Advanced Server 10), and Compatibility (68%). The compatibility score has a warning icon. The main area is titled 'Select the Operating System/Platform' and contains two options: 'Windows 64-bit' (selected) and 'Linux 64-bit'. At the bottom, there are 'Cancel', 'Previous', and 'Next' buttons.

Figure 3-28: Selecting Windows operating system

4. Download [Windows Installer](#).

Migrate schemas to new on-premises EDB Postgres Advanced Server Installation [?](#)

1 Select Schemas ✓ 2 Select Platform ✓ 3 Get EDB Postgres Advanced Server 3 4 Install EDB Postgres Advanced Server 4

⚠ This project has migration challenges. Contact us for help. [Contact Us](#) X

Project Name case_no_v2	Interface ODBC	Source DB Oracle 11g	Target DB EDB Postgres Advanced Server 10	Compatibility 68% ⚠
----------------------------	-------------------	-------------------------	--	--

Install EDB Postgres Advanced Server for Windows

Windows Download Windows installer ↗

[Cancel](#) ← Previous → Next

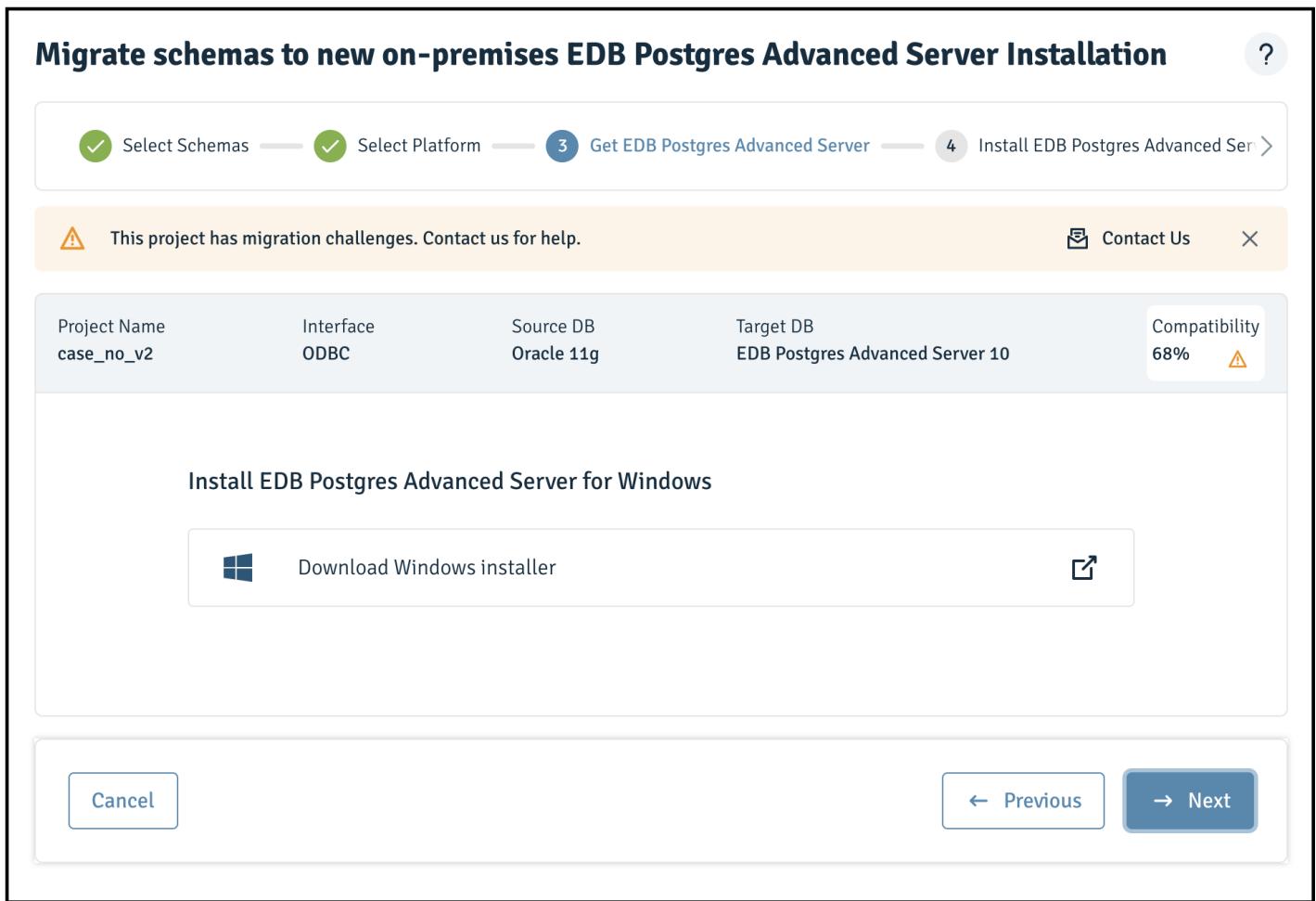


Figure 3-29: Downloading Windows installer

5. For installation steps, click **EDB Postgres Advanced Server Installation Guide for Windows**.

Migrate schemas to new on-premises EDB Postgres Advanced Server Installation

Get EDB Postgres Advanced Server **4** Install EDB Postgres Advanced Server **5** Download Schema **6** Import >

This project has migration challenges. Contact us for help.

Contact Us X

Project Name case_no_v2	Interface ODBC	Source DB Oracle 11g	Target DB EDB Postgres Advanced Server 10	Compatibility 68% ⚠
----------------------------	-------------------	-------------------------	--	--

Install EDB Postgres Advanced Server on Windows

EDB Postgres™ Advanced Server Installation Guide for Windows

Cancel ← Previous → Next

Figure 3-30: A successful schema migration

6. Download the assessed schemas.

Migrate schemas to new on-premises EDB Postgres Advanced Server Installation

Postgres Advanced Server — ✓ Install EDB Postgres Advanced Server — 5 Download Schema — 6 Import — 7 Finish

⚠ This project has migration challenges. Contact us for help.

Contact Us X

Project Name case_no_v2	Interface ODBC	Source DB Oracle 11g	Target DB EDB Postgres Advanced Server 10	Compatibility 68% ⚠
----------------------------	-------------------	-------------------------	--	--

Download the assessed schemas

Download SQL file

Note: Ensure the version number for the EDB Postgres Advanced Server database that you are migrating is 10 (your assessed version).

Cancel ← Previous Next →

Figure 3-31: Downloading the assessed file

7. You can import schemas by running the following command:

- On CLI

```
\i c:\users\...\<project_name>.sql
```

- On cmd/shell

```
edb-psql -f <project_name>.sql
```

Migrate schemas to new on-premises EDB Postgres Advanced Server Installation ?

Postgres Advanced Server — ✓ Install EDB Postgres Advanced Server — ✓ Download Schema — 6 Import — 7 Finish

⚠ This project has migration challenges. Contact us for help. [Contact Us](#) X

Project Name case_no_v2	Interface ODBC	Source DB Oracle 11g	Target DB EDB Postgres Advanced Server 10	Compatibility 68% ⚠
----------------------------	-------------------	-------------------------	--	--

Import schemas into EDB Postgres Advanced Server

On CLI

```
edb=# \i c:\users\...\<project_name>.sql
```

On cmd/shell

```
edb-psql -f <project_name>.sql
```

[PSQL Documentation](#) | [Advanced Server Documentation](#)

Use pgAdmin instead.

[Cancel](#) [← Previous](#) → Next

Figure 3-32: Importing schemas into EDB Postgres Advanced Server

!!! Note You can also use pgAdmin instead.

The schemas are migrated to the target server.



Figure 3-33: Importing schemas into EDB Postgres Advanced Server

Migrating Schemas on Linux

To migrate schemas to an on-premises EDB Postgres Advanced Server on Linux, complete the following steps:

1. Click **New On-premises EDB Postgres Advanced Server** option.

Migrate schemas to

?



Existing on-premises EDB Postgres Advanced Server

Choose this option to migrate your schemas to an existing on-premises EDB Postgres Advanced Server.



New on-premises EDB Postgres Advanced Server Installation

Choose this option to install a new EDB Postgres Advanced Server and migrate your schemas.



EDB Postgres Advanced Server on Cloud

Choose this option to migrate your schemas on EDB Postgres Advanced Server on Cloud.

Cancel

→ Next

Figure 3-34: Migrating schemas home page

2. Select one or more schemas to migrate on EDB Postgres Advanced Server.

Migrate schemas to new on-premises EDB Postgres Advanced Server Installation

1 Select Schemas — 2 Select Platform — 3 Get EDB Postgres Advanced Server — 4 Install EDB Postgres Advanced Server

⚠ This project has migration challenges. Contact us for help.

Contact Us X

Project Name	Interface	Source DB	Target DB	Compatibility
case_no_v2	ODBC	Oracle 11g	EDB Postgres Advanced Server 10	68% ⚠

Select one or more schemas

All
 schema_1900
 HR
 MIGRATIONTEST

Cancel ← Previous Next →

Figure 3-35: Selecting schemas for migration

3. Select the **Linux** operating system.

Migrate schemas to new on-premises EDB Postgres Advanced Server Installation

1 Select Schemas 2 Select Platform 3 Get EDB Postgres Advanced Server 4 Install EDB Postgres Advanced Server

This project has migration challenges. Contact us for help.

Contact Us X

Project Name	Interface	Source DB	Target DB	Compatibility
case_no_v2	ODBC	Oracle 11g	EDB Postgres Advanced Server 10	68%

Select the Operating System/Platform

Windows 64-bit

Linux 64-bit

Cancel ← Previous Next →

The screenshot shows the 'Select Platform' step of the migration process. At the top, a progress bar indicates steps 1 through 4. Step 1 ('Select Schemas') is completed (green checkmark). Step 2 ('Select Platform') is currently selected (blue circle with the number 2). Step 3 ('Get EDB Postgres Advanced Server') and Step 4 ('Install EDB Postgres Advanced Server') are shown as greyed-out steps. A yellow warning box at the top states 'This project has migration challenges. Contact us for help.' Below it are contact links. The main area shows project details: Project Name 'case_no_v2', Interface 'ODBC', Source DB 'Oracle 11g', Target DB 'EDB Postgres Advanced Server 10', and Compatibility '68%' with a warning icon. Below this, a section titled 'Select the Operating System/Platform' lists two options: 'Windows 64-bit' and 'Linux 64-bit'. The 'Linux 64-bit' option is selected, indicated by a blue outline around its radio button and a blue background. Navigation buttons 'Cancel', '← Previous', and 'Next →' are at the bottom.

Figure 3-36: Selecting Linux operating system

4. You can select one of the following options to install the EDB Postgres Advanced Server:

- Repository
- More options

Migrate schemas to new on-premises EDB Postgres Advanced Server Installation ?

1 Select Schemas — 2 Select Platform — 3 Get EDB Postgres Advanced Server — 4 Install EDB Postgres Advanced Server >

⚠ This project has migration challenges. Contact us for help.

Contact Us X

Project Name case_no_v2	Interface ODBC	Source DB Oracle 11g	Target DB EDB Postgres Advanced Server 10	Compatibility 68%
----------------------------	-------------------	-------------------------	--	----------------------

Install EDB Postgres Advanced Server for Linux

Repository

More options

[Cancel](#) [← Previous](#) [→ Next](#)

This screenshot shows the 'Install EDB Postgres Advanced Server for Linux' step in the migration process. It lists two options: 'Repository' and 'More options', each with a checkbox. A warning message at the top indicates that the project has migration challenges and suggests contacting support. The compatibility score is shown as 68%.

Figure 3-37: Selecting Linux repository

5. For information on the installation procedure, click [EDB Postgres Advanced Server Installation Guide](#) for Linux:

Migrate schemas to new on-premises EDB Postgres Advanced Server Installation ?

< — ✓ Get EDB Postgres Advanced Server — 4 Install EDB Postgres Advanced Server — 5 Download Schema — 6 Import >

⚠ This project has migration challenges. Contact us for help. ✉️ Contact Us ✖

Project Name case_no_v2	Interface ODBC	Source DB Oracle 11g	Target DB EDB Postgres Advanced Server 10	Compatibility 68% ⚠
----------------------------	-------------------	-------------------------	--	--

Install EDB Postgres Advanced Server on Linux

📖 EDB Postgres™ Advanced Server Installation Guide for Linux ↗

Cancel ← Previous → Next

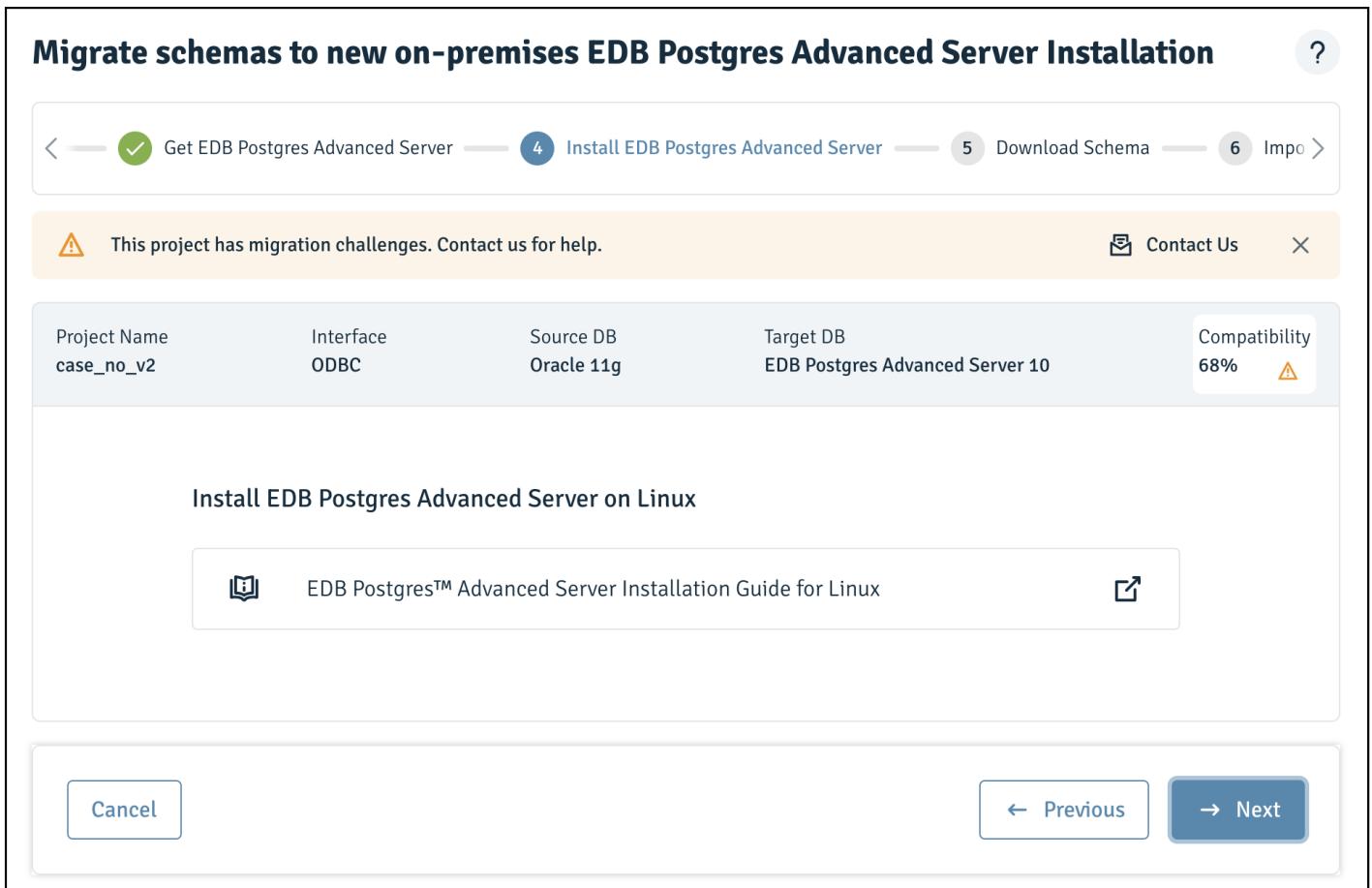


Figure 3-38: Selecting Linux installation guide

6. Download the assessed schemas:

Migrate schemas to new on-premises EDB Postgres Advanced Server Installation

Postgres Advanced Server — ✓ Install EDB Postgres Advanced Server — 5 Download Schema — 6 Import — 7 Finish

⚠ This project has migration challenges. Contact us for help.

Contact Us X

Project Name	Interface	Source DB	Target DB	Compatibility
case_no_v2	ODBC	Oracle 11g	EDB Postgres Advanced Server 10	68% ⚠

Download the assessed schemas

Download SQL file

Note: Ensure the version number for the EDB Postgres Advanced Server database that you are migrating is 10 (your assessed version).

Cancel ← Previous → Next

Figure 3-39: Downloading the assessed schemas

7. To import the schemas, run the following command:

```
sudo su - enterprisedb
edb-psql edb
create database <database_name>;
\connect <database_name>
\i <project_name>.sql
```

Migrate schemas to new on-premises EDB Postgres Advanced Server Installation

postgres Advanced Server ✓ Install EDB Postgres Advanced Server ✓ Download Schema 6 Import 7 Finish

⚠ This project has migration challenges. Contact us for help.

Contact Us X

Project Name case_no_v2	Interface ODBC	Source DB Oracle 11g	Target DB EDB Postgres Advanced Server 10	Compatibility 68% ⚠
----------------------------	-------------------	-------------------------	--	--

Import schemas into EDB Postgres Advanced Server

Run the following command on Terminal

```
shell=$ sudo su - enterpriseedb
shell=$ edb-psql edb
edb=# create database <database_name>;
edb=# \connect <database_name>
database_name=# \i <project_name>.sql
```

[PSQL Documentation](#) | [Advanced Server Documentation](#)

Use  pgAdmin instead.

Cancel ← Previous → Next

Figure 3-40: Importing schemas into EDB Postgres Advanced Server

!!! Note You can also use pgAdmin instead.

The converted schemas are migrated to the target server.

The screenshot shows the 'Migrate schemas to new on-premises EDB Postgres Advanced Server Installation' page. At the top, a navigation bar shows steps: 'Postgres Advanced Server' (green checkmark), 'Install EDB Postgres Advanced Server' (green checkmark), 'Download Schema' (green checkmark), 'Import' (green checkmark), and 'Finish' (blue button with '7'). Below the navigation is a summary table:

Project Name case_no_v2	Interface ODBC	Source DB Oracle 11g	Target DB EDB Postgres Advanced Server 10	Compatibility 68% ⚠
----------------------------	-------------------	-------------------------	--	--

In the main area, a message says 'Migration Successful'. Below it, a green checkmark icon indicates: 'You can view your converted schemas on the target server.' Another message says: 'If you cannot see your schemas on the target server or need help to migrate the schemas, contact us.' A 'Contact us' button is shown. At the bottom are 'Cancel', '← Previous', and '✓ Done' buttons.

Figure 3-41: A successful schema migration

Migrating to the Cloud

To migrate schemas on EDB Postgres Advanced Server to Cloud, complete the following steps:

2. Click **EDB Postgres Advanced Server on Cloud** option:

Migrate your schemas to the cloud

?



Existing on-premises EDB Postgres Advanced Server

Choose this option to migrate your schemas to an existing on-premises EDB Postgres Advanced Server.



New on-premises EDB Postgres Advanced Server Installation

Choose this option to install a new EDB Postgres Advanced Server and migrate your schemas.



EDB Postgres Advanced Server on Cloud

Choose this option to migrate your schemas on EDB Postgres Advanced Server on Cloud.

Cancel

→ Next

Figure 3-42: EDB Postgres Advanced Server on Cloud

3. Select one or more schemas to migrate to EDB Postgres Advanced Server:

Migrate your schemas to the cloud

1 Select Schemas — 2 Select Platform — 3 Launch Cluster — 4 Connect — 5 Deploy — 6 Finish

⚠ This project has migration challenges. Contact us for help.

Contact Us X

Project Name case_no_v2	Interface ODBC	Source DB Oracle 11g	Target DB EDB Postgres Advanced Server 10	Compatibility 68% ⚠
----------------------------	-------------------	-------------------------	--	--

Select one or more schemas

All
 schema_1900
 HR
 MIGRATIONTEST

Cancel ← Previous → Next

Selecting schemas for migration

4. Select the cloud platform. For example, **IBM Cloud**:

Migrate your schemas to the cloud

Project Name: HumanResources Interface: JDBC Source DB: Oracle 11g Target DB: EDB Postgres Advanced Server 12 Compatibility: 100%

Select the Cloud Platform

IBM Cloud

AWS

Google Cloud

Microsoft Azure

[Cancel](#) [← Previous](#) [→ Next](#)



Figure 3-43: Selecting cloud option for migration

5. To launch a new cluster, click **Go to Cloud**:

Migrate schemas to EDB Postgres Advanced Server on Cloud

?

1 Select Schemas 2 Select Platform 3 Launch Cluster 4 Connect 5 Deploy 6 Finish

Project Name ID2019_1	Interface JDBC	Source DB Oracle 11g	Target DB EDB Postgres Advanced Server 12	Compatibility 100%
--------------------------	-------------------	-------------------------	--	-----------------------

Launch new IBM™ Cloud cluster
Navigate to IBM™ Cloud to launch a new cluster.

→ Go to IBM™ Cloud

Note: If you have an existing cluster running, click Next.

Cancel ← Previous → Next

Figure 3-44: Launching a cloud cluster

Or, if you have an existing cluster running, click **Next**.

6. Enter the required connection details on the **Connect** page:

Migrate schemas to EDB Postgres Advanced Server on Cloud

Project Name: ID2019_1 Interface: JDBC Source DB: Oracle 11g Target DB: EDB Postgres Advanced Server 12 Compatibility: 100%

Connect to IBM™ Cloud cluster

Target Database: ID2019_1

Host Name/Address: Host Name/Address: edb Port: 9999

Note: Ensure that your database server is accessible from Migration Portal.

Maintenance Database: edb

Username: enterprisedb

Password:

[Cancel](#) [← Previous](#) [→ Next](#)

Figure 3-45: Connecting to the cloud cluster

!!!Note You can click **Edit Connection** to make changes to the connection details and retest the connection details.

7. Click **Test Connection** to verify the connection details:

Migrate schemas to EDB Postgres Advanced Server on Cloud

?

1 Select Schemas 2 Select Platform 3 Launch Cluster 4 Connect 5 Deploy 6 Finish

Project Name ID2019_1	Interface JDBC	Source DB Oracle 11g	Target DB EDB Postgres Advanced Server 12	Compatibility 100%
--------------------------	-------------------	-------------------------	--	-----------------------

Target Database
ID2019_1

Host Name/Address **Port**
52.5.148.59 9999

Maintenance Database
dmp_exec

Note: Deployment will create a new database **ID2019_1** on target server, if the database does not exist.

Ensure that all schemas have a 100% success ratio before deployment.

Existing schemas with similar names will be dropped during deployment.

[Edit Connection](#)

[Cancel](#) [← Previous](#) [→ Next](#)

Figure 3-46: Verify the connection details

8. Once the connection is successful, click **Next**:

Migrate schemas to EDB Postgres Advanced Server on Cloud

Project Name: ID2019_1 | Interface: JDBC | Source DB: Oracle 11g | Target DB: EDB Postgres Advanced Server 12 | Compatibility: 100%

Migration Successful

You can view your converted schemas on the target server.

[Download Summary](#)

If you cannot see your schemas on the target server or need help to migrate the schemas, contact us.

[Contact us](#)

[Cancel](#) [Previous](#) [Done](#)

Figure 3-47: A successful migration

The converted schemas are migrated to the target server.

4.4 Data Migration

After performing the schema migration, complete the following steps to migrate data:

1. Use Migration Toolkit to migrate the data. For detailed information about using Migration Toolkit, see the [Migration Toolkit Guide](#).

- Configure the Migration Toolkit `toolkit.properties` file, ensuring that connection information for the source and target databases is available in the property file:

```

SRC_DB_URL = jdbc: oracle:thin:@localhost:1521:ORCL
SRC_DB_USER = user_name
SRC_DB_PASSWORD = password
TARGET_DB_URL= jdbc:edb://localhost:5444/migration
TARGET_DB_USER = enterprisedb
TARGET_DB-PASSWORD = password

```

For more information, see [Building the toolkit.properties File](#).

- Invoke Migration Toolkit in `-dataOnly` mode. Include the `-truncLoad` keyword to resolve foreign key dependencies across tables.

For example, the following command migrates data to a schema named `hr`:

```
runMTK.sh -dataOnly -targetSchema hr -truncLoad HR
```

The command migrates the specified `source_schema` to the `target_schema`. The data is loaded into the locally installed EDB Postgres instance with a database superuser named `enterprisedb` and the password of `password`.

!!! Note The tables are truncated before attempting the data load.

5 Advanced Data Migration

For larger databases that require a parallel data load, you can use one of the following methods:

- Use the EDB Postgres Advanced Server database link feature (for compatibility with Oracle databases).

Or

- Use a Dblink or a database link style migration (if your data contains **CLOB** data).

For more information, see the [Migration Toolkit Guide](#).