Oracle® Application Express

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Preface

Oracle Application Express is a hosted declarative development environment for developing and deploying database-centric Web applications. Oracle Application Express turns a single Oracle database into a shared service by enabling multiple workgroups to build and access applications as if they were running in separate databases.

Oracle Application Express Application Migration Guide describes how to migrate applications from Microsoft Access to Oracle Application Express.

This preface contains these topics:

- Topic Overview
- Audience
- Documentation Accessibility
- Related Documents
- Conventions

Topic Overview

This document contains the following chapters:

Title	Description
Overview of the Migration Process	Provides an overview of how to migrate a Microsoft Access application and generate an Oracle Application Express application.
Migrating an Application	Breaks down the migration process into six clearly defined steps.
Managing Your Migration Projects	Explains how to delete an existing migration project.

Audience

Oracle Application Express Migration Guide is intended for application developers who are building database-centric Web applications using Oracle Application Express. The guide describes how to migrate a Microsoft Access application and generate an Oracle Application Express applications

To use this guide, you need to have a general understanding of relational database concepts as well as an understanding of the operating system environment under which you are running Oracle Application Express.

See Also: *Oracle Database 2 Day + Application Express Developer's Guide*

Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible, with good usability, to the disabled community. To that end, our documentation includes features that make information available to users of assistive technology. This documentation is available in HTML format, and contains markup to facilitate access by the disabled community. Accessibility standards will continue to evolve over time, and Oracle is actively engaged with other market-leading technology vendors to address technical obstacles so that our documentation can be accessible to all of our customers. For more information, visit the Oracle Accessibility Program Web site at

http://www.oracle.com/accessibility/

Accessibility of Code Examples in Documentation

Screen readers may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, some screen readers may not always read a line of text that consists solely of a bracket or brace.

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TTY Access to Oracle Support Services

Oracle provides dedicated Text Telephone (TTY) access to Oracle Support Services within the United States of America 24 hours a day, 7 days a week. For TTY support, call 800.446.2398. Outside the United States, call +1.407.458.2479.

Related Documents

For more information, see these Oracle resources:

- *Oracle Application Express Application Builder User's Guide*
- *Oracle Application Express Release Notes*
- *Oracle Application Express Installation Guide*
- *Oracle Database 2 Day + Application Express Developer's Guide*
- *Oracle Application Express Administration Guide*
- *Oracle Application Express SQL Workshop and Utilities Guide*
- *Oracle Application Express API Reference*
- *Oracle Application Express Advanced Tutorials*
- *Oracle Database Concepts*
- *Oracle Database Advanced Application Developer's Guide*
- *Oracle Database Administrator's Guide*
- *Oracle Database SQL Language Reference*

- *SQL*Plus User's Guide and Reference*

For information about Oracle error messages, see *Oracle Database Error Messages*. Oracle error message documentation is available only in HTML. If you have access to the Oracle Database Documentation Library, you can browse the error messages by range. Once you find the specific range, use your browser's "find in page" feature to locate the specific message. When connected to the Internet, you can search for a specific error message using the error message search feature of the Oracle online documentation.

Many books in the documentation set use the sample schemas of the seed database, which is installed by default when you install Oracle. Refer to *Oracle Database Sample Schemas* for information on how these schemas were created and how you can use them yourself

Printed documentation is available for sale in the Oracle Store at

http://oraclestore.oracle.com/

To download free release notes, installation documentation, white papers, or other collateral, please visit the Oracle Technology Network (OTN). You must register online before using OTN; registration is free and can be done at

http://www.oracle.com/technology/membership/

If you already have a user name and password for OTN, then you can go directly to the documentation section of the OTN Web site at

http://www.oracle.com/technology/documentation/

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1

Overview of the Migration Process

This section provides an overview of the process of migrating applications from Microsoft Access to Oracle Application Express.

This section contains the following topics:

- About Application Migration
- Preparation Checklist for Migrating Applications

About Application Migration

Oracle Application Express Application Migration Workshop (Application Migration) enables you to migrate a Microsoft Access application and generate an Oracle Application Express application from the retrieved objects.

This migration begins with exporting your Microsoft Access metadata, using the Exporter tool together with Oracle SQL Developer Migration Workbench. After that initial step, you use Application Migration to review the retrieved objects and resolve any issues regarding invalid objects. As the final step, you have the option of generating either an application based on valid forms and reports or a maintenance application based on valid tables and views.

Once the application is generated, you can take advantage of all the functionality in Oracle Application Express to further develop and publish the migrated application.

Forum for Application Migration

In addition to Oracle support, you can post questions on the Microsoft Access Migration to Oracle Application Express:

`http://forums.oracle.com/forums/forum.jspa?forumID=356`

See Also: "Preparation Checklist for Migrating Applications" on page 1-1

Preparation Checklist for Migrating Applications

Before you begin the migration process, verify that your system meets these requirements:

- Oracle Application Express version 3.0 or later

  You must install Oracle Application Express 3.0 or later. You use the Application Migration feature within Oracle Application Express to download the Exporter tool as well as to migrate Microsoft Access forms and reports to Oracle Application Express.

- Oracle SQL Developer 1.2 or later (available in English only)

  You must install Oracle SQL Developer version 1.2.0 or later. You use the Migration Workbench extension to migrate the Microsoft Access schema and data to Oracle.

- Exporter tool version 10.2.0.2.5 or later (available in English only)

  You can install the Exporter tool using the Download Exporter link within Oracle Application Express. For instructions, see "Step 1: Export Microsoft Access Metadata" on page 2-2.

  If you are using Oracle SQL Developer version 1.2.0 or later, you can access the Exporter tool directly from the Migration menu.

- Microsoft Access

  Your local system must have Microsoft Access installed, and it must be installed where the Exporter tool and `.mdb` file reside.

- Microsoft Data Access Components (MDAC)

  Your local system should have the latest version of Microsoft Data Access Components (MDAC) installed. You can download the latest version from the Microsoft Web site.

- Printer

  Your local system must have a printer installed so that a report can be opened in design view. This is a requirement for exporting your Reports information from an `.mdb` file.

- Analyze your `.mdb` file before you export your database. Follow the instructions in the next section.

Analyze Your MDB File in Microsoft Access

Using Microsoft Access, you should analyze your `.mdb` file before you export your database. Performing these steps will minimize errors in the migration.

1. In Microsoft Access, analyze the objects in your `.mdb` file:
   a. From the Microsoft Access menu bar, select **Tools**, **Analyze**, and then **Documenter**.
   b. Select the **All Object Types** tab, and then click the **Select All** button to select all the objects within the application for analysis.
   c. Remove or resolve any erroneous objects reported by the Documenter.
2. Ensure the application contains no missing references:
   a. In Microsoft Access, launch the design IDE (press **Alt+F11** keys).
   b. From the menu bar, select **Tools** and then **References**.
   c. Remove or resolve any missing references.
3. Ensure the application compiles successfully:
   a. From the menu bar in the IDE view, select **Debug** and then **Compile**.
   b. Resolve any reported errors.
4. Perform a compact and repair on the database:
   - From the menu bar in Microsoft Access, select **Tools**, **Database Utilities**, and then **Compact and Repair Database**.

5. Ensure that all linked tables are valid links:

   a. From the menu bar in Microsoft Access, select **Tools**, **Database Utilities**, and then **Linked Table Manager**.

   b. Verify that all links are up-to-date and pointing to an existing `.mdb` file that is not read-only.

   See Also: "How to Migrate Your Application" on page 2-1 and "Step 1: Export Microsoft Access Metadata" on page 2-2

2

Migrating an Application

This section describes the steps to migrate applications from Microsoft Access to Oracle Application Express.

This section contains the following topics:

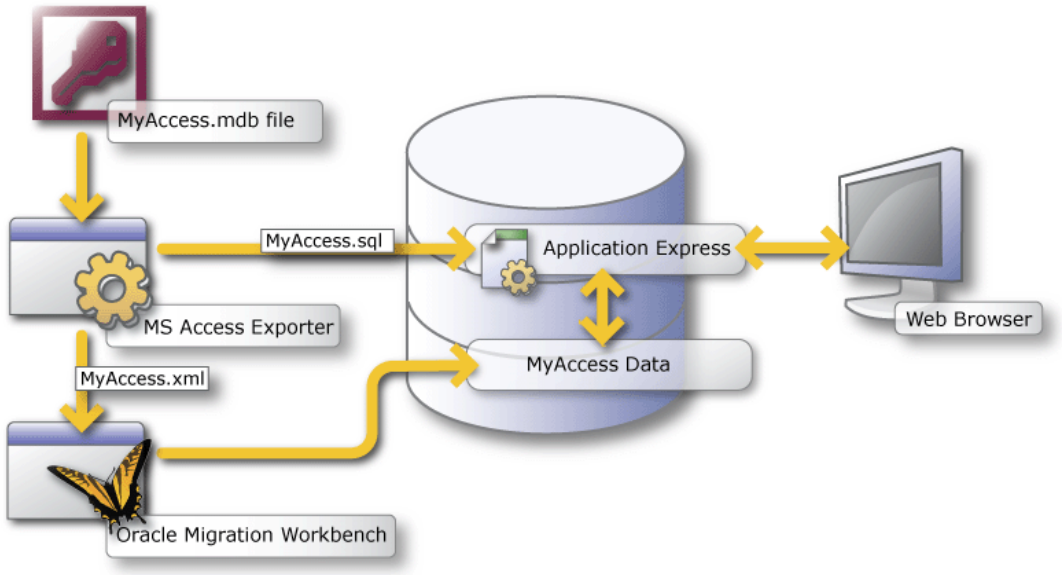
- How to Migrate Your Application
- Step 1: Export Microsoft Access Metadata
- Step 2: Migrate the Microsoft Access Database to Oracle
- Step 3: Create an Oracle Application Express Workspace
- Step 4: Create a Migration Project
- Step 5: Review Your Retrieved Objects
- Step 6: Generate the Oracle Application Express Application

How to Migrate Your Application

Before You Begin

Read "Preparation Checklist for Migrating Applications" on page 1-1.

To migrate applications from Microsoft Access to Oracle Application Express, you need to perform the steps described in this section. This graphic outlines the entire process:



The migration process consists of the following steps:

Step 1: Export Microsoft Access Metadata

Step 2: Migrate the Microsoft Access Database to Oracle

Step 3: Create an Oracle Application Express Workspace

Step 4: Create a Migration Project

Step 5: Review Your Retrieved Objects

Step 6: Generate the Oracle Application Express Application

> **Important:** You must follow the steps in the exact sequence presented in this section.

Step 1: Export Microsoft Access Metadata

To export your metadata from Microsoft Access, download the correct version of the Exporter tool, as explained in this section. Then, run the Exporter and extract the metadata from the Microsoft Access `.mdb` file. The metadata contains the necessary database and application schema information.

The export process creates two output files:

- database (`.xml` file)
- application (`.sql` file)

Downloading the Exporter Tool

> **Note:** Follow the instructions in this section if you are downloading the Exporter tool from Oracle Application Express release 3.0 or later. Alternately, you skip the following task and access the Exporter directly from Oracle SQL Developer using the Migration menu.

To download the Exporter tool for Microsoft Access:

1. Log in to Oracle Application Express 3.0.
2. Under Migrations on the right side of the Workspace home page, click **Application Migrations**.
3. Under Tasks on the right side of the page, click **Download Exporter for Microsoft Access**.
4. In the Download column, click the zip file that corresponds to your version of Microsoft Access. For example, download the `omwb2003.zip` file if you are using Microsoft Access 2003.
5. Save the file.
6. Unzip the file. You must *replace* the following files with the updated versions in the `msaccess_exporter` directory where you unzipped Oracle Migration Workbench:
   - `schema.dtd` file
   - Exporter tool file: `omwb<`*version*`>.mde`
   - online help file: `omwb.chm`

   Be sure to invoke the export from this directory.

Exporting Your Metadata

To export your metadata, follow the instructions found in the help file for the Exporter tool. To find the instructions, do one of the following:

- Launch the Exporter tool, and click the **Help** button.
- Open the help file (`omwb.chm`) contained in the Exporter zip file.

The instructions appear in the topic called Exporter Overview.

See Also: "Step 2: Migrate the Microsoft Access Database to Oracle" on page 2-3 and "How to Migrate Your Application" on page 2-1

Step 2: Migrate the Microsoft Access Database to Oracle

To migrate the Microsoft Access database to Oracle:

1. Start Oracle SQL Developer version 1.2.0 or later. For example:
   a. Create an Oracle user named `MIGRATIONS` with the default tablespace `USER` and temporary tablespace `TEMP` and grant it at least `RESOURCE`, `CREATE SESSION`, and `CREATE VIEW` privileges.
   b. Create a database connection named `Migration_Repository` that connects to the `MIGRATIONS` user.
   c. Right-click the `Migration_Repository` connection, and select **Associate Migration Repository** to create the repository.
2. Load the database metadata (`.xml` file) created in step 1. Select **Migration** and then **Capture Microsoft Access Exported XML**.

   This captures the schema and creates a Captured Model of the Microsoft Access database.
3. Convert the captured database schema to Oracle. Right-click **Captured Model** and select **Convert to Oracle Model**.

4. Generate the migrated Oracle database schema. Right-click **Converted Model** and select **Generate**.

   The generated DDL statements should execute against your Oracle database instance, to generate the migrated schema objects.

For more information about Oracle SQL Developer Migration Workbench, see:

`http://www.oracle.com/technology/tech/migration//workbench/index_sqldev_omwb.html`

Verifying If Generated DDL Executes Against the Appropriate Instance

When using Oracle SQL Developer Migration Workbench, you must verify that the generated DDL statements are executed against the same instance where Oracle Application Express 3.0 is installed. If you select a Least Privilege Schema Migration, the migrated objects can be created in an existing schema on your database instance. Otherwise, a schema of the same name as the captured database (for example, *Northwind*) is created on your database instance.

The migrated Oracle database schema objects must be in the same instance where Oracle Application Express 3.0 is installed. If they are not, you will not be able to complete the next step.

> **See Also:** "Step 3: Create an Oracle Application Express Workspace" on page 2-4 and "How to Migrate Your Application" on page 2-1

Step 3: Create an Oracle Application Express Workspace

The method for creating workspaces depends on your Oracle Application Express configuration. For more information, see "Quick Start" in *Oracle Application Express Application Builder User's Guide*.

While creating your workspace, be sure to associate it with the newly created schema from Step 2.

If you are new to Oracle Application Express, also see the *Oracle Database 2 Day + Application Express Developer's Guide*.

> **See Also:** "Step 4: Create a Migration Project" on page 2-4 and "How to Migrate Your Application" on page 2-1

Step 4: Create a Migration Project

To create a migration project:

1. Log in to Oracle Application Express.

   Make sure you log in to the workspace you created for your migration project (Step 3).

2. Under Migrations on the right side of the Workspace home page, click the **Application Migrations** link.

3. On the Application Migrations page, click **Create Project**.

   The Create Migration Project wizard appears. Note that the steps included in the wizard appear in a flowchart on the left of the page.

4. Enter the project details:

a. Project Name - Enter a unique name. You might want to use the same name as the Microsoft Access `.mdb` file you used to create the project.

b. Type - Select **Access**.

c. Description - Enter a meaningful description for this project. You might want to describe the Microsoft Access `.mdb` file that you used to create the project.

d. Migration Export File - Click **Browse** and select the `.sql` file created by the Exporter tool for Microsoft Access.

e. Schema - Select the schema.

The default schema is the schema associated with your workspace. If more than one schema is associated with your workspace, all associated schemas appear in the select list, arranged in alphabetical order. When this situation exists, select the schema associated with the SQL script you want to upload.

f. Click **Next**.

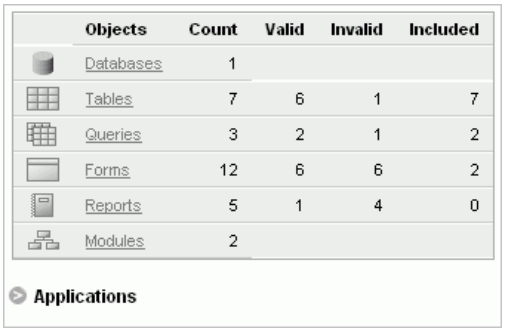
5. Review the project details, and click **Finish**.

The project page appears.

See Also: "About the Project Page" on page 2-5, "Step 5: Review Your Retrieved Objects" on page 2-6, and "How to Migrate Your Application" on page 2-1

About the Project Page

The project page initially shows a high-level overview of the Microsoft Access objects retrieved from your Microsoft Access database.



Specifically, the project page shows the status of these objects in your database:

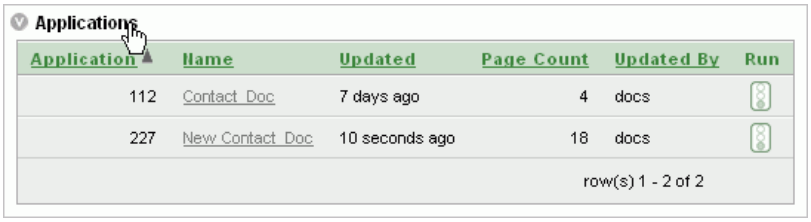
- tables
- queries (now Oracle views)
- forms
- reports

Additionally, for reference purposes only, the project page shows:

- databases
- modules
- pages

Note that your project might not include all object types. The project page lists only object types that exist in your database.

After you generate applications from this migration project, an application list is created on the project page. To review the list, click **Applications**. This opens the list box where you can review application information or run an application.



See Also: "Step 5: Review Your Retrieved Objects" on page 2-6 and "How to Migrate Your Application" on page 2-1

Step 5: Review Your Retrieved Objects

Next, you want to select the objects to include in the migration. The initial list consists of the Microsoft Access application metadata that is retrieved, both valid and invalid.

To include an object, it must have a status of Valid. By default, all objects with a Valid status are selected.

From within Application Migration, you can fix objects identified as invalid so that they can be included. Since the Application Migration also identifies tables without primary keys and objects without user interface defaults, you can correct those situations to maximize application design recovery.

Tip: Extensive Oracle documentation is available for broadening your knowledge of database concepts and objects. For example, to learn more about primary keys and constraints, see *Oracle Database Concepts* or *Oracle Database Application Developer's Guide - Fundamentals*, which you can download from:

`http://www.oracle.com/technology/documentation/index.html`

This section includes these topics:

- Reviewing Retrieved Tables
- Reviewing Retrieved Queries
- Reviewing Retrieved Forms
- Reviewing Retrieved Reports
- Reviewing Database, Module, and Pages Information

Reviewing Retrieved Tables

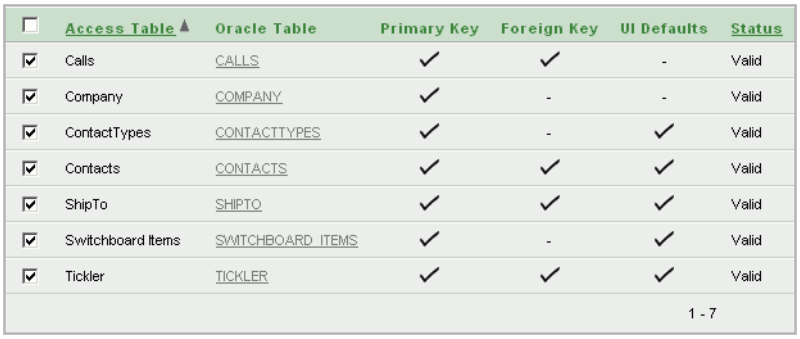
Next, review the Oracle tables retrieved from the Microsoft Access database. Application Migration identifies invalid tables without primary keys as well as those without user interface defaults, which you can add before migrating.

After you update the tables, select the ones you want to include in the migration. If you do not include a table, all forms and reports based on the table are excluded from the migration.

To review retrieved tables:

1. From the project page, click **Tables**.

   The Tables page appears, showing the status of the objects ready for migration.



Access Table	Oracle Table	Primary Key	Foreign Key	UI Defaults	Status
Calls	CALLS	✓	✓	-	Valid
Company	COMPANY	✓	-	-	Valid
ContactTypes	CONTACTTYPES	✓	-	✓	Valid
Contacts	CONTACTS	✓	✓	✓	Valid
ShipTo	SHIPTO	✓	✓	✓	Valid
Switchboard Items	SWITCHBOARD_ITEMS	✓	-	✓	Valid
Tickler	TICKLER	✓	✓	✓	Valid

1 - 7

   For each Microsoft Access table, the Tables page shows:

   - Oracle Table - The corresponding Oracle table, which defaults to the Microsoft Access table name in all capital letters.

     Note that the name might also differ from the original one because of the collision management facility in Oracle Migration Workbench. For information about naming guidelines and restrictions, click **Help** in Oracle Migration Workbench and go to the Frequently Asked Questions section.

     If the Microsoft Access object was not successfully migrated to Oracle, then this field will not have a corresponding Oracle table name. Instead, it will contain a link to a page where you can create a corresponding Oracle table.

   - Primary Key - Indicates if a primary key exists for the table.

     A table without a primary key is considered invalid in Application Migration. You can create a primary key at this point. All tables you want to migrate should have a primary key.

   - Foreign Key - Indicates if a foreign key exists for the table.

     If you know a relationship exists between two tables, you should create a foreign key. You can do this in Object Browser by creating a Foreign Key Constraint. For more information, see Table 16-1 in "Browsing a Table" *Oracle Application Express Application Builder User's Guide*.

   - UI Defaults - Indicates if user interface defaults are set for the table.

     User interface defaults are used by Oracle Application Express to populate initial values for region and item properties. Using user interface defaults provides consistency across multiple applications or across multiple pages in an application.

   - Status - Table status as either Valid or Invalid.

     Only valid tables can be included in the migration.

2. To create a table:

   a. On the Tables page, click the link in the Oracle Table column for the table you want to create.

      The Object Browser opens.

   b. Click the **Create** button.

   c. From the list of object types, select **Table**.

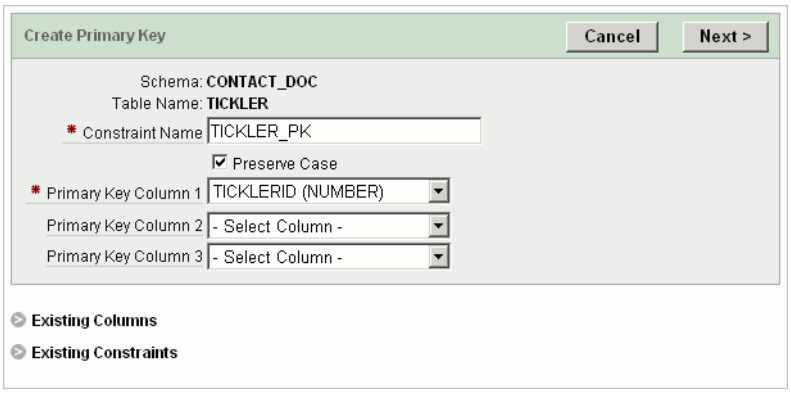
d. Follow the on-screen instructions.

3. To add a primary key:

   a. On the Tables page, click the Oracle table name.

   b. In the Tasks list on the right, click **Create Primary Key**.

   c. For Constraint Details, fill in the information.



Tip: To review the list of existing columns or constraints, click the **Existing Columns** or **Existing Constraints** links.

   d. Click **Next**.

   e. Confirm the information and click **Finish**.

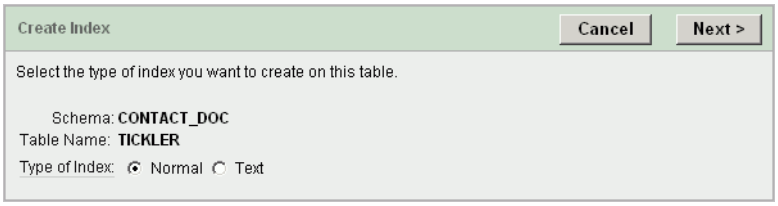
4. To add an index:

   a. On the Tables page, click the Oracle table name.

   b. In the Tasks list on the right, click **Create Index**.

   c. Select the type of index you want to create on this table.

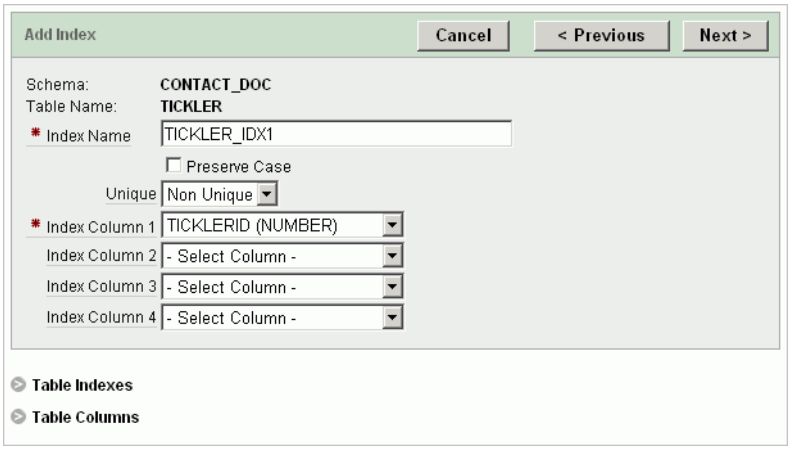
      For indexing NUMBER, VARCHAR, and DATE, select **Normal**. For indexing CLOB columns, select **Text**.



   d. Click **Next**.

   e. For Index Definition, fill in the information.

      The following graphic shows the fields to fill out if you selected Normal as the type of index.



Tip: To review the list of existing table indexes or columns, click the **Table Indexes** or **Table Columns** links.

f. Click **Next**.

g. Confirm the information and click **Finish**.

5. To set user interface defaults:

   a. On the Tables page, click the Oracle table name.

   b. In the Tasks list on the right, click **UI Defaults**.

   c. On the UI Defaults page, click **Create Defaults**.

      The Table Defaults page appears, listing column information as it will appear in forms and reports. Note that you are now working within Application Builder, the component of Oracle Application Express where you can build and modify your applications.

   d. To edit the information, click **Grid Edit**. You can update the column label, change the sequence the columns will appear by default, and so on.

   e. Click **Apply Changes** to save your updates.

6. To include tables in the migration, select them in the left column.

7. Click **Apply Changes** to save your selections.

See Also: "Reviewing Retrieved Queries" on page 2-9, "Step 5: Review Your Retrieved Objects" on page 2-6, and "How to Migrate Your Application" on page 2-1

Reviewing Retrieved Queries

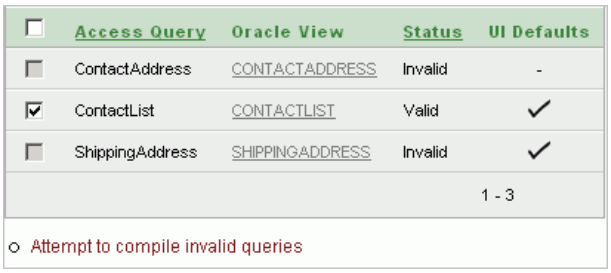
Next, review the queries retrieved from the Microsoft Access export. Application Migration identifies invalid queries as well as those without user interface defaults, which you can set before migration.

After you update the views, select the ones you want to include in the migration. If you do not include a query, any forms or reports based on the query are excluded from the migration.

To review retrieved queries:

1. From the project page, click **Queries**.

The Queries page appears, showing the status of the objects ready for migration.



For each Microsoft Access query, the Queries page shows:

- Oracle View - The corresponding Oracle view, which defaults to the Microsoft Access query name in all capital letters.

  If the Microsoft Access object was not successfully migrated to Oracle, then this field will not have a corresponding Oracle view name. Instead, it will contain a link to a page where you can create a corresponding Oracle view.

- Status - Query status as either Valid or Invalid.

  Only valid queries can be included in the migration.

- UI Defaults - Indicates if user interface defaults are set for the query.

  User interface defaults are used by Oracle Application Express to populate initial values for region and item properties. Using user interface defaults provides consistency across multiple applications or across multiple pages in an application.

2. To run a bulk process that attempts to compile all invalid queries, click **Attempt to compile invalid queries**.

   Using this option can validate some queries that show a status of invalid when initially migrated.

3. To create a view:

   a. On the Queries page, click the link in the Oracle View column for the view you want to create.

      The Object Browser opens.

   b. Click the **Create** button.

   c. From the list of object types, select **View**.

   d. Follow the on-screen instructions.

4. To edit a query:

   a. On the Queries page, click the Oracle view you want to edit.

   b. Click **Compile** to find the invalid part of the query.

      The Microsoft Access Query syntax appears in the edit window. It may require some modification to make it valid Oracle syntax.

   c. Click **Access Query** to review the initial query and compare it to the converted query.

   d. Click **Edit**.

   e. Update the query and recompile it.

f. When it is validated, click the **Queries** breadcrumb.

g. To include this validated query, select it in the left column on the Queries page and click **Apply Changes**.

5. To set user interface defaults:

   a. On the Queries page, click the Oracle view.

   b. In the Tasks list on the right, click **UI Defaults**.

   c. On the UI Defaults page, click **Create Defaults**.

      The Table Defaults page appears, listing column information as it will appear in forms and reports. Note that you are now working in Application Builder, the component within Oracle Application Express where you build and modify applications.

   d. To edit the information, click the **Grid Edit** button.

      You can update the column label, change the sequence the columns will appear by default, and so on.

   e. Click **Apply Changes** to save your updates.

   f. To return to the Application Migration, click the **Home** breadcrumb. Then, select the **Application Migrations** link on the right, select your migration project, and click **Queries**.

6. To include queries in the migration, select them in the left column.

7. Click **Apply Changes** to save your selections.

See Also: "Reviewing Retrieved Forms" on page 2-11, "Step 5: Review Your Retrieved Objects" on page 2-6, and "How to Migrate Your Application" on page 2-1

Reviewing Retrieved Forms

Next, review the forms retrieved from the Microsoft Access export. Application Migration identifies invalid forms and lists additional information, such as the form's source type and source name.

For valid forms with a source type of table, you can select the type of object you want the form to become within Oracle Application Express: form (default), report and form, or tabular form.

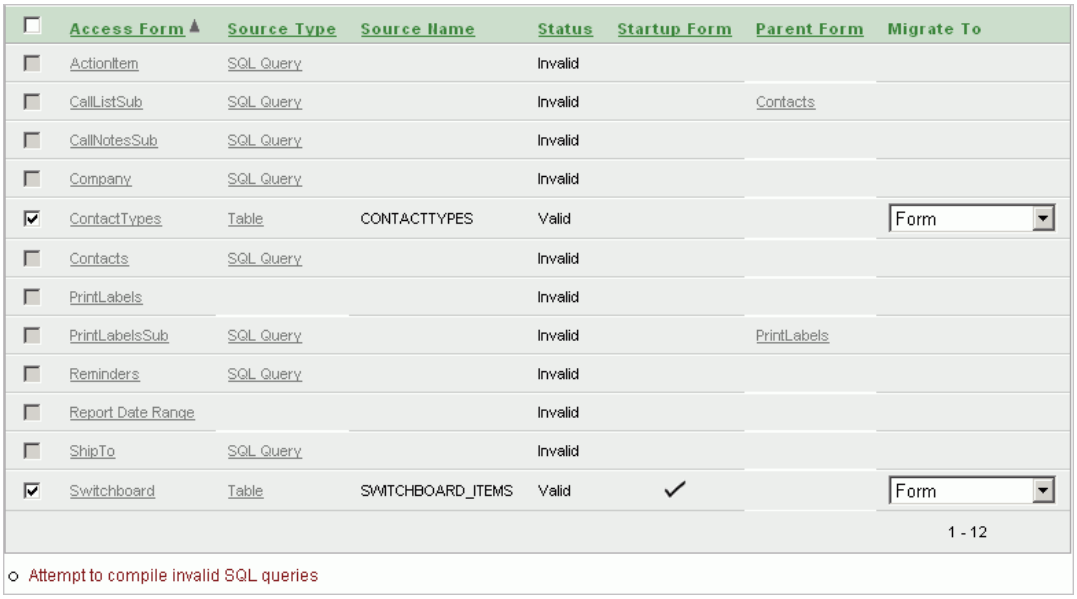
Microsoft Access forms based on a query are migrated to Oracle Application Express forms. Microsoft Access forms based on a SQL query are migrated to Oracle Application Express reports.

After you update the forms, select the ones you want to include in the migration.

To review retrieved forms:

1. From the project page, click **Forms**.

   The Forms page appears, showing the status of the objects ready for migration.



Access Form	Source Type	Source Name	Status	Startup Form	Parent Form	Migrate To
ActionItem	SQL Query		Invalid			
CallListSub	SQL Query		Invalid		Contacts	
CallNotesSub	SQL Query		Invalid			
Company	SQL Query		Invalid			
ContactTypes	Table	CONTACTTYPES	Valid			Form
Contacts	SQL Query		Invalid			
PrintLabels			Invalid			
PrintLabelsSub	SQL Query		Invalid		PrintLabels	
Reminders	SQL Query		Invalid			
Report Date Range			Invalid			
ShipTo	SQL Query		Invalid			
Switchboard	Table	SWITCHBOARD_ITEMS	Valid	✓		Form

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Attempt to compile invalid SQL queries

For each Microsoft Access form, the Forms page shows the following information, if available:

- Source type:
  - Table
  - Query - The Oracle view that was migrated from the Microsoft Access query.
  - SQL Query - The original Microsoft Access SQL query that the Microsoft Access form is based on. Note that this query has not been parsed by the Oracle Migration Workbench. Therefore, you might need to edit it to make it valid Oracle SQL syntax.
  - Nothing - The form has no underlying source type.
- Source name - The Oracle table or view name if the source type is a table or query.
- Status - Form status as Valid or Invalid. The source of the form must have a status of Valid before you can select it for migration.

  A form's status is based on two factors: status of its underlying source object and inclusion of the source object in the migration. Specifically, a form has a status of valid if either one of these situations exists:
  - Its Source Type object (table, query, or SQL query) is valid, and it has been included in the migration. Its check box is enabled and can be selected.
  - Its Source type object has a status of valid, but the source object was not included in the migration. Its check box is disabled.

  A form has a status of invalid if either one of these situations exists:
  - No Source Type is listed. Its check box is disabled.
  - Its Source Type object (table, query, or SQL query) is invalid. Its check box is disabled.
- Startup form - Identifies the form that displays when you open your Microsoft Access database.

- Parent form - Indicates the form / subform relationship that existed in your Microsoft Access database. For example, the **CallListSub** form shows **Contacts** as its Parent Form.
- Migrate to: Form, Tabular Form, or Report and Form - The select list appears if the source type is a valid table.

2. To run a bulk process that attempts to compile all invalid SQL queries, click **Attempt to compile invalid SQL queries**.

   Using this option can validate some SQL queries that show a status of invalid. Note that SQL queries from Microsoft Access forms are not loaded into the Oracle Migration Workbench, and are therefore not parsed.

3. To edit a SQL query:
   a. On the Forms page, click the SQL Query you want to edit.
   b. Click **Validate** to find the invalid part of the SQL query.
   c. Click **Edit**.
   d. Update the query and validate it.
   e. When it is validated, click the project name breadcrumb.
   f. To include the validated query, click **Forms** on the project page to go to the Forms page. Then select the newly validated query in the left column and click **Apply Changes**.
4. To edit a query:
   a. On the Forms page, click **Query** for the form you want to edit.
   b. Click **Compile** to find the invalid part of the query.
   c. Click **Access Query** to review the initial query and compare it to the converted query.
   d. Click **Edit**.
   e. Update the query and recompile it.
   f. When it is validated, click the **Queries** breadcrumb.
   g. To include this validated query, select it in the left column on the Queries page and click **Apply Changes**.
5. To review details about a form, click the link in the Access Form column.
6. To include forms in the migration, select them in the left column.
7. Click **Apply Changes** to save your selections.

See Also: "Reviewing Retrieved Reports" on page 2-13, "Step 5: Review Your Retrieved Objects" on page 2-6, and "How to Migrate Your Application" on page 2-1

Reviewing Retrieved Reports

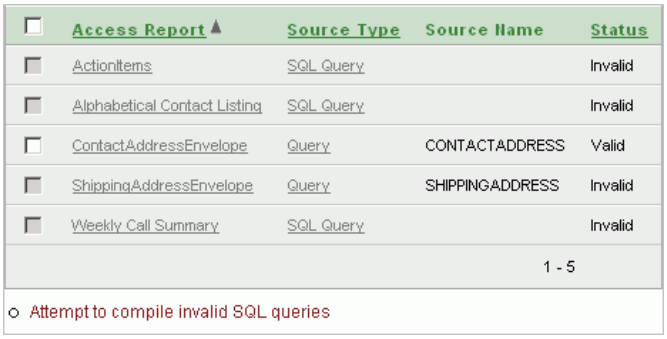
Next, review the reports retrieved from the Microsoft Access export. Application Migration identifies invalid reports and lists additional information, such as the report's source type and source name.

After you update the reports, select the ones you want to include in the migration. To include a report, the source of the report must have a status of Valid.

To review retrieved reports:

1. From the project page, click **Reports**.

   The Reports page appears, showing the status of the objects ready for migration.



Access Report	Source Type	Source Name	Status
ActionItems	SQL Query		Invalid
Alphabetical Contact Listing	SQL Query		Invalid
ContactAddressEnvelope	Query	CONTACTADDRESS	Valid
ShippingAddressEnvelope	Query	SHIPPINGADDRESS	Invalid
Weekly Call Summary	SQL Query		Invalid

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Attempt to compile invalid SQL queries

   For each Microsoft Access report, the Reports page shows the following information, if available:

   - Source type:
     - Table
     - Query - The Oracle view that was migrated from the Microsoft Access query.
     - SQL Query - The original Microsoft Access SQL query that the Microsoft Access form is based on. Note that this query has not been parsed by the Oracle Migration Workbench. Therefore, you might need to edit it to make it valid Oracle SQL syntax.
     - Nothing - The report has no underlying source type.
   - Source name
   - Status of the report: Valid or Invalid. The source of the report must have a status of Valid before you can select it for migration.

     A report's status is based on two factors: status of its underlying source object and inclusion of the source object in the migration. Specifically, a report has a status of valid if either one of these situations exists:

     - Its Source Type object (table, query, or SQL query) is valid, and it has been included in the migration. Its check box is enabled and can be selected.
     - Its Source type object has a status of valid, but the source object was not included in the migration. Its check box is disabled.

     A report has a status of invalid if either one of these situations exists:

     - No Source Type is listed. Its check box is disabled.
     - Its Source Type object (table, query, or SQL query) is invalid. Its check box is disabled.

2. To run a bulk process that attempts to compile all invalid SQL queries, click **Attempt to compile invalid SQL queries**.

   Using this option can validate some SQL queries that show a status of invalid. Note that SQL queries from Microsoft Access forms are not loaded into the Oracle Migration Workbench and are therefore not parsed.

3. To edit a SQL query:

a. On the Reports page, click the **SQL Query** link you want to edit.

b. Click **Validate** to find the invalid part of the SQL query.

c. Click **Edit**.

d. Update the query and validate it.

e. When it is validated, click the project name breadcrumb.

f. To include the validated query, click **Reports** on the project page to go to the Reports page. Then select the newly validated SQL query in the left column and click **Apply Changes**.

4. To edit a query:

a. On the Reports page, click **Query** for the report you want to edit.

b. Click **Compile** to find the invalid part of the query.

c. Click **Access Query** to review the initial query and compare it to the converted query.

d. Click **Edit**.

e. Update the query and recompile it.

f. When it is validated, click the **Queries** breadcrumb.

g. To include this validated query, select it in the left column on the Queries page and click **Apply Changes**.

5. To review details about a report, click the link in the Access Report column.

6. To include reports in the migration, select them in the left column.

7. Click **Apply Changes** to save your selections.

See Also: "Reviewing Database, Module, and Pages Information" on page 2-15, "Step 5: Review Your Retrieved Objects" on page 2-6, and "How to Migrate Your Application" on page 2-1

Reviewing Database, Module, and Pages Information

From the project page, you can drill down to see information about the database, modules, and pages for the migration project.

- Database - Displays summary information about the Microsoft Access database, including the full path and size of the `.mdb` file.
- Modules - Displays the Visual Basic Code, enabling you to extract embedded SQL statements for you to use or edit in your Oracle Application Express application.
- Pages - Displays information for reference purposes.

See Also: "Step 6: Generate the Oracle Application Express Application" on page 2-15 and "How to Migrate Your Application" on page 2-1

Step 6: Generate the Oracle Application Express Application

After validating and updating objects, you now need to generate the application in Oracle Application Express. You can create an application based on valid forms and reports, or a maintenance application based on valid tables and views.

When creating an application, a home page is defined by default. You have the option to create additional blank pages so that you can introduce further navigation possibilities.

You can then choose which user interface theme your application should be based on. By default, the application uses one level of tabs.

As a shortcut, you can also set some application defaults. These defaults are used whenever you create new applications.

Setting Up Application Defaults

To set up application defaults (optional):

1. On the right side of the project page, click **Generate Application Defaults** in the Tasks list.
2. Select the options you want to use as defaults.

   For information, click **Help** or click the item label. Clicking the item label opens a separate window describing the item and its options.
3. Click **Apply Changes**.

   The project page appears.

Generating Applications

To generate either type of application:

1. On the right side of the project page, click one of the following in the Tasks list:
   - Generate Application - This option generates an application based on the forms and reports you selected to include.
   - Generate Maintenance Application - This option generates an application based on the tables and queries you selected to include.
2. In the Selected Application Objects section, you can customize specific pages.

   For example:
   - To rename a page, click the page link and enter the new name on the New Page Definition page that appears.
   - To select the type of navigation on the application's home page, click the **Home Page** link.

     On the New Page Definition page that appears, select Vertical Unordered List with Bullets, Vertical Images List or Horizontal Images List for Navigation.
   - To display an image on a parent page, click the page link.

     On the New Page Definition page that appears, go to the Page Icon field and select the image you want to appear on that page. You can either select an image from the select list or click the **Find** icon (flashlight) to open a page of options.

     Repeat this step for each parent page. If you do not explicitly select an image for a page, the default image appears for that page.

     Note that for the image to appear in your application, you must have selected either Vertical Images List or Horizontal Images List for the Home page navigation.
3. To add a blank page to the application, scroll down to the Add Page section and click **Add Page**.

Note that the new page appears at the bottom of the list in the Selected Application Objects section.

4. Click **Next** to select a theme for the application, or click **Create** to skip the theme selection step.

   If you skip the theme step, the default is used.

5. Select a theme for the application and click Next.

   A **theme** is a collection of templates that define the layout and style of an application, including buttons and pages.

6. Confirm your selections and click **Create**.

7. To preview the application, click **Run Application**.

8. Log in using your Oracle Application Express workspace credentials.

   Your application now appears as a separate application in Oracle Application Express.

9. To customize your application, scroll down to the Developer toolbar and click **Edit Application**.

   You might want to do the following customizations immediately after you generate your application:

   - Rename the application. Each application has a unique ID, but the migration project name becomes the application name by default. To more easily identify an application, you might want to change its name to something more meaningful by editing the application attributes.
   - Change the authentication scheme. By default, the authentication scheme is Application Express authentication. You can change this by editing the application attributes.

     See Also: For instructions on editing application attributes, adding pages, deploying your application, and so on, see the *Oracle Database Application Express User's Guide* or the Oracle Application Express online Help.

3

Managing Your Migration Projects

If you upload a newer version of the export file and create a new migration project from that, you might want to delete the previous migration project.

When you delete a migration project, you delete only the metadata associated with the migration project. Deleting a migration project does *not* delete or impact applications you have generated from the project or any objects, such as tables or views, in the schemas associated with your workspaces.

This section contains the following topics:

- Deleting a Migration Projects

Deleting a Migration Projects

To delete a migration project:

1. Log in to Oracle Application Express.
2. Under Migrations on the right side of the Workspace home page, click the **Application Migrations** link.
3. On the Application Migrations page, click the project you want to delete.
4. On the project page, click **Delete Project** from the Tasks list on the right.
5. Click the **Delete Project** button and confirm the deletion.

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