DB2/400 Import Utility Guide

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About this manual

Purpose

Obsydian is an application development environment that enables groups of software developers to design and implement business applications.

This manual describes the process of importing the definitions of a DB2/400 database from an AS/400 to an Obsydian model on your workstation.

Audience

This manual is written for analysts, programmers, managers, and system administrators. It is assumed that:

- you have read the product overview and completed the tutorial exercises in the *Getting Started* manual.
- you are familiar with Obsydian and the working environments of the applications you are building (for example, Microsoft Windows, UNIX, or the IBM AS/400). Consult the relevant product documentation where necessary.

Conventions in this manual

This manual uses a number of different typefaces and visual cues as described below.

Typefaces

SMALL CAPS	Indicates a key on your keyboard, such as ENTER, F1, and CTRL.
bold	Identifies Obsydian verbs such as **refers to**, **is a**, and **length**.
italics	Used for emphasis, to introduce new terms, and for the titles of publications.

Syntax conventions

`Courier bold`	Indicates a keyword for a type of action diagram component (for example, **`Case`**, **`If`**, **`Return`**).
`Courier`	Identifies text that you must type exactly as it appears.
`Courier italic`	A placeholder for information that you must supply.
`[Optional]`	Designates items that are optional.
`{First|Second}`	Indicates that you have a choice between two or more items.

Keyboard shortcuts

KEY1+KEY2	This means hold down the first key, while you press the second key. For example, CTRL+ENTER means hold down CTRL and press ENTER at the same time.
KEY1, KEY2	This means press and release the first key, before you press the second key. For example, CTRL, ENTER means press and release CTRL, then press ENTER.

Mouse buttons

The term “mouse button” or “left mouse button” refers to the primary button on your pointing device; “right mouse button” refers to the secondary button. You can use the Windows Control Panel to re-configure the buttons on your mouse as desired.

Organization

This manual is divided into the following chapters:

Chapter 1 *Running the DB2/400 Import Utility*
Describes the DB2/400 Import Utility and lists the steps involved in running it.

Chapter 2 *How objects and their definitions translate*
Outlines the different ways database objects and their definitions translate into Obsydian.

A detailed table of contents follows.

Table of contents

CHAPTER 1

Running the DB2/400 Import Utility

This chapter describes the DB2/400 Import Utility and lists the steps involved in running it.

The main sections are:

Overview

The DB2/400 Import Utility extracts the definition of AS/400 physical files and SQL tables (hereafter, both are referred to as *tables*) for use with Obsydian. Importing AS/400 tables and field descriptions into an Obsydian local model is a two-step process:

1. Create an import file on the AS/400.
2. Import the file into an Obsydian model.

The import file contains objects and triples for each table you select, including all fields from those tables with implementation names for each table and field. The DB2/400 Import Utility does not translate information about views dependent on tables. See Chapter 2 for information about how the DB2/400 Import Utility generates table and field objects.

Getting started

For more information, see the *Installation Guide*.

Before you run the DB2/400 Import Utility, ensure that the DB2/400 Import Utility Library (YDB2400) and the Obsydian run-time library (YOBSYDIAN) have been installed on your AS/400.

Preparing for import

Before importing your DB2/400 database into Obsydian, review the field names in your database. Because the DB2/400 Import Utility automatically replaces fields that have the same names as class library fields with the corresponding class library field, you may want to change your field names before running the DB2/400 Import Utility. For more information, see "Name conflicts" on page 10.

To resolve name conflicts:

1. Perform a full extract to a local model from the class libraries OBASE, OBDATE, and OBJECTS.
2. In the local model, set the option to Show Library Objects and select Fields in the Object Browser. Position to the class library fields.
3. Compare the fields in your DB2/400 database to the class library field names.
4. If any field names in your database match those in the Obsydian class libraries, change the field name in your database before you create the import file on the AS/400.

Beginning the import process

To start the DB2/400 Import Utility:

➤ From the Start menu, click Programs, then choose DB2_400 Import from the Obsydian sub-menu.

To create a shortcut, drag the program DB400IMP.EXE from the OBSYDIAN\DB2400 directory to your desktop. Then double-click the shortcut icon on your desktop to start the DB2/400 Import Utility.

On the AS/400 – extract from database tables

To create an import file on the AS/400:

1. If you know the name of the library that contains the tables you want to import, choose Go to Library from the Select menu or click the Go to Library toolbar button and type the name of the library.

   A list of the tables in the library displays. To continue, skip to step 4.

2. If you are not sure which library contains the tables you want to import, choose Display Libraries from the Select menu or click the Display Libraries toolbar button.

   The list shows all of the libraries on your AS/400 that contain tables.

3. From the list of libraries, select the library that contains the tables you want to import and choose Display Tables from the Select menu or click the Display Tables toolbar button.

   The list shows all of the tables in the selected library.

4. Before you select a table for import, you can see a list of its fields by choosing Display Fields from the Select menu or clicking the Display Fields toolbar button.

   You can use the list of fields to verify which tables you want to import.

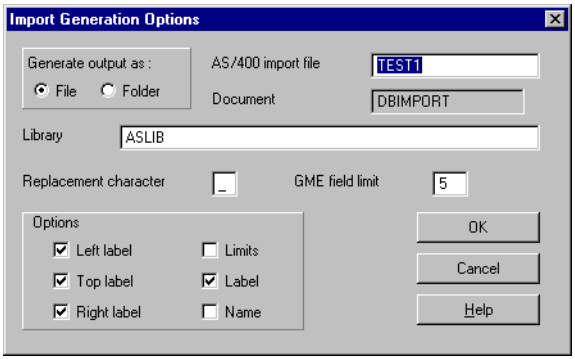
5. To select a table for import, double-click the check box in the Selected column, or choose Toggle Selection from the Select menu. You can also click the Toggle Selection toolbar button to select a table.

   You can select all of the tables at once by choosing Select All from the Select menu.

6. Choose Create File from the Select menu or click the Create File toolbar button to begin processing the tables you selected.

The Import Generation Options dialog box appears, for you to customize the import process.

7. In the Import Generation Options dialog box:



   - Specify whether you want the output to be a file in a library or a document in a folder. If you specify a document in a folder, you can import it into Obsydian using a shared folder as a virtual drive. For documents in shared folders, use the extension .ID4 for the import file. If you specify a file, you need to download the import file to your PC before you can import it.

     Note: Do not use the name of an existing file, unless it was previously created by the DB2/400 Import Utility. Otherwise, unpredictable results can occur.

   - In the Replacement Character field, specify the character you want substituted for invalid characters in the generated import file. The default is an underscore (_).
   - Under Options, specify which triples you want created: Left Label, Top Label, Right Label, Limits, Label, and Name. By default, all types are created.
   - In the GME Field Limit field, enter the maximum number of fields a table can have to become a Grid Maintained Entity. The default is 5. See "Tables" on page 8 for more information about inheritance on imported objects.

8. When you have specified all of the import options, click OK to create the import file. After displaying a completion message, the utility closes.

On the PC – import into Obsydian

To import the file you created into Obsydian:

1. Start Obsydian and open a local model into which you have extracted the OBASE, OBDATE, and OBJECTS class libraries.
2. Choose DB2/400 Import from the Import sub-menu of the Tools menu and select the file you created in the previous steps.

   After you import the file into Obsydian, your local model contains a subject area containing all of the tables you selected and their fields. The subject area has the same name as the library that contains the tables you imported. Your local model also contains triples created according to the rules listed in Chapter 2.

For more information, see "Known restrictions" on page 10.

3. Review the triples created by the import process and make any necessary changes to the inheritance and other assigned properties.
4. Add triples for **owned by** and **refers to** relations.

CHAPTER 2

How objects and their definitions translate

This chapter describes how DB2/400 objects translate to Obsydian.

The main sections are:

Tables

This section describes how the DB2/400 Import Utility translates tables from your database for import into Obsydian.

Data modeling

The DB2/400 Import Utility determines primary keys for each table by analyzing views dependent on the table. It creates ENT **known by** FLD and ENT **has** FLD triples based on this analysis.

Because the DB2/400 Import Utility cannot determine the keys of physical files with no views, you need to add **known by** triples for these tables after importing into Obsydian.

Inheritance

For more information about OBASE entities and fields, see Chapter 3 of Volume I of the *Class Libraries Guide*.

The DB2/400 Import Utility uses the following rules to determine the inheritance for tables:

- A table **is a** OBASE/Business Entity if it has more than one key field.
- A table **is a** OBASE/Grid Maintained Entity if it has one or no key fields, and the number of fields in the table is less than or equal to the value of GME Max Fields you specified in the Import Options dialog box (see page 4).
- A table **is a** OBASE/User Maintained Entity if it has one or no key fields, and the number of fields in the table is greater than the value of GME Max Fields you specified in the Import Options dialog box (see page 4).

Fields

This section describes how the DB2/400 Import Utility translates fields from your database for import into Obsydian.

Alphanumeric fields

The DB2/400 Import Utility uses the following rules to determine the inheritance for alphanumeric fields:

- An alphanumeric field **is a** OBASE/Status if it has length 1.
- An alphanumeric field **is a** OBASE/Code if it has length 2–10.
- An alphanumeric field **is a** OBASE/Narrative if it has length > 10.

Numeric fields

The DB2/400 Import Utility uses the following rules to determine the inheritance for numeric fields:

- A numeric field is a OBASE/Numeric if it has zero decimals and length <= 7.
- A numeric field is a OBASE/Quantity if it has zero decimals and length > 7.
- A numeric field is a OBASE/Price if it has 2 decimals and length 9.
- A numeric field is a OBASE/Percentage if it has 2 decimals and length 5.
- Otherwise, a numeric field is a OBASE/Value.

Labels

The DB2/400 Import Utility creates a FLD **label** LBL triple for each field. The value of the label object comes from the COLHDG DDS keyword (or from TEXT if there is no COLHDG).

In addition. depending on how you set the Generation Options (see page 4), **left label**, **top label**, and **right label** triples are created, and take their values from the label object created with the FLD **label** LBL triple.

Names

Field implementation names import as **…impl name** continuation triples on the TBL **column** FLD triple. To view the columns and their implementation names, open the Model Editor for the Physical Table for your imported file or table.

Name triples take their value from the TEXT DDS keyword. These are useful for National Language translations. When more than one field has the same name, the DB2/400 Import Utility appends a unique identifier to occurrences after the first one, to avoid name conflicts.

Limits

The DB2/400 Import Utility creates **limits** triples for all objects, with a system value of ALL, to allow domain checking.

Known restrictions

Foreign keys

The DB2/400 Import Utility does not recognize foreign keys and does not create **owned by** or **refers to** triples. After importing your file, review the keys and add any necessary triples.

Name conflicts

The DB2/400 Import Utility uses the AS/400 comand DSPFFD to create the import file. When this command sees fields with the same name, it appends a numeric suffix to make the field names unique. For example, if you have two fields called Name, the import file will contain Name001 and Name002. After importing this file into Obsydian, you can change the names to Customer Name and Order Name. Or, you can change field names before creating the import file to ensure uniqueness.

If the tables you are extracting contain fields that have the same name as class library fields, no additional triples are created for those fields. Instead, the class library fields are used instead of your fields. Any additional properties you have defined for your fields are lost in the import process.

To avoid losing attributes of your fields, consider changing the field names before importing. For more information, see “Preparing for import” on page 2.

Field types

The import process does not fully recognize the following DDS field types. Fields of these types are imported, but do not have a full set of properties.

F	floating point
H	hexadecimal
L	ISO date
T	ISO time
Z	ISO timestamp
J	DBCS only
E	DBCS either
O	DBCS open
G	DBCS graphic

After importing the file into Obsydian, examine fields of each of these types, and add the appropriate triples. You may need to change the inheritance for types translated to OBASE/Code or OBASE/Narrative to appropriate numeric, date, or time types. When needed, add FLD AS400 **format** SYS and FLD **DBCS capable** SYS triples.

DDS keywords

The DB2/400 Import Utility uses a file output by the AS/400 comand DSPFFD to determine field definitions. Because this command does not read keywords on physical files, no DDS keywords come through for field types. You need to add this information yourself to the imported model.

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