

Lab BL01 - Part II Database Navigator and Generate SQL in DB2 UDB for iSeries on V5R2



ITSO iSeries Technical Forum 2003

Contents

Lab 1. iSeries Navigator setup Task 1: Getting connected Task 2: Creating a sample schema (database) Task 3: Displaying properties and descriptions of DB objects	1 .1 .3 .5
Lab 2. Database Navigator: General tasks	.9
Task 2: General tasks using the Database Navigator window	7
Task 3: General task using print capability to print a MAP	26
Lab 3. Changing the Database Navigator Map	3
Task 1: Selecting the Database Navigator Map	\$4
Task 2: Adding views in the map	5
Task 3: Showing the relationships of a specific object	\$7
Task 4: Removing objects from the map using the toolbar	;9
Task 5: Changing object placement and arranging objects in a map	\$9
Task 6: Expanding and collapsing a table object4	4
Task 7: Creating a user-defined relationship (UDR)4	7
Task 8: Overview window function	0
Lab 4. Generating SQL using iSeries Navigator	53
Task 1: Generating SQL from the library in the iSeries Navigator window5	64
Task 2: Generating SQL to PC and data source files on the iSeries server6	60
Task 3: Generating SQL from the Database Navigator Map	57
Task 4: Generating SQL from DDS7	6
Task 5: Generating a map from DDS8	60

Lab 1. iSeries Navigator setup

This lab explains how to set up iSeries Navigator.

Introduction

If you completed the *Piloting DB2 UDB with iSeries Navigator in V5R2* lab, you do not need to recreate the environment necessary to complete this lab. If this is the case, you can proceed to Lab 2. Otherwise, you have to complete this lab to create the necessary environment for these labs.

The notation XX that appears in library names, profile names, and so on refers to your *Team Number* (for example, DBNAVXX, SAMPLEDBXX and LIBXX). Refer to your lab worksheet for details.

- Note -

As part of iSeries Navigator in V5R2, the SQL Script Center uses JDBC instead of an ODBC connection to the server. Connection parameters used by JDBC are similar to those used by ODBC.

Objectives

This lab teaches you how to:

- Create a sample Database (SAMPLEDBXX)
- Display the Database using iSeries Navigator
- Display the contents of the sample database using iSeries Navigator

Lab prerequisites

Before you begin this lab, be sure the following prerequisites are available:

- An IBM @server iSeries or AS/400e server with OS/400 V5R2, or higher, with:
 - 5722-SS1 Option 12: Host Servers
 - 5722-TC1: TCP/IP Connectivity Utilities
- A PC with iSeries Access for Windows V5R2M0 with the latest Service Pack applied
- User profile DBNAVXX created in the iSeries server

Time required

The time required to efficiently complete this lab is 20 minutes.

Task 1: Getting connected

In this task, you create a connection definition from iSeries Navigator on your PC to the iSeries server.

- 1. If you have a connection to iSeries server using iSeries Navigator, go to Task 2, "Creating a sample schema (database)" on page 3.
- ____2. Double-click the **iSeries Navigator** icon on your desktop. If this is your first time running this application, a message box appears stating that there are

no connections to the iSeries server. Click **Yes**. The Add iSeries Connection dialog appears.

____3. In the iSeries server text box, enter 1400WS. Click Next. The iSeries Signon Information dialog appears as shown in Figure 1. Select the Use default User ID, prompt as needed radio button. In the text box shown in Figure 1, enter DENAVXX.

Add Connection - Signon Information	×
	What user ID do you want to use to sign on to 'sssss'? Use Windows user name and password, no prompting ITSCID41 Use default user ID, prompt as needed DBNAWX Prompt every time
	Cancel

Figure 1. iSeries Signon Information

- ____ 4. Click Next. The Verify Connection dialog appears. Click the Verify Connection button. Make sure that the host servers on the iSeries server are up and running. Click OK and then click Finish.
- ___ 5. Right-click the My iSeries Connections object in the main iSeries Navigator window. Select Add iSeries Connection. The Add iSeries Connection - Welcome dialog appears.
- 6. In the iSeries Navigator window, click the I400WS connection. A window prompts you to enter a username and password as shown in Figure 2. Consult your iSeries lab worksheet for your profile name and password. When you are finished, click OK. Because this is the first time you are signing on to the iSeries server, the system has to update iSeries Navigator with its capabilities.

Signon to i	Series	<u>۲</u> ×
	Server:	1400ws
_	Uper ID:	DBNAV01
	Password	210210210
		OK Cancel

Figure 2. Signon to iSeries

____ 7. Click the plus sign (+) in front of the **Databases** icon to expand it. Then click the plus sign (+) in front of the **Named Database** icon (*1400ws* in this case). The Libraries, Database Navigator, SQL Performance monitors, and Transactions options appear in the expanded list as shown in Figure 3.

– Note

You see a different name for the Named Database icon if you let the system create it automatically.



Figure 3. Main iSeries Navigator panel

In iSeries Navigator, there are three places from which to access the functions for an object:

- The File menu
- · An icon from the toolbar
- · An object's right-click menu

In the remaining labs, use the right-click menu to access these functions.

Task 2: Creating a sample schema (database)

In this task, you run a system-provided stored procedure to create a sample schema (database) from which to work:

1. If you already created a sample schema SAMPLEDBxx, go to Task 3, "Displaying properties and descriptions of DB objects" on page 5.

- __ 2. Invoke the SQL Script Center by right-clicking the Database Name (1400WS icon under your Databases icon). Select Run SQL Scripts. A new Run SQL Scripts window appears.
- __ 3. Click the **Options** menu item and select the following items (one at a time) as shown in Figure 4:
 - Stop on Error
 - Smart Statement Selection
 - Run Statement on Double-Click



Figure 4. Run SQL Scripts: Options menu item

Note

When the Smart Statement Selection option is selected, all highlighted SQL statements run in sequence. If this option is not selected, the highlighted SQL statements are executed as a single statement. This option also ensures that complete statements are run even if one or more statements are only partially highlighted.

__ 4. Invoke the V5R2-supplied stored procedure that creates a sample database that you use in subsequent tasks. In the SQL statement working area, type the following statement:

CALL QSYS.CREATE_SQL_SAMPLE('SAMPLEDBXX');

Be sure to replace XX with your team number.

- Note

Always type a semicolon (;) at the end of every SQL statement so the Smart Statement Selection feature knows where each statement ends.

__ 5. Move the text cursor anywhere into the statement and double-click to run it. Watch the Messages tab for a completion notification informing you that you have a sample database with which to work.

If an error message appears, notify your lab supervisor.

You now have a sample database to use during the next lab.

__ 6. Close the Run SQL Script window.

Task 3: Displaying properties and descriptions of DB objects

In this task, you use iSeries Navigator to explore the sample database that you created in the previous task:

- 1. In the left panel of the main iSeries Navigator window, click the plus (+) sign next to the **Database** icon.
- ____ 2. Right-click the Libraries icon and select Select Libraries to Display from the pop-up context menu as shown in Figure 5. The Select Libraries to Display window appears.



Figure 5. Select Libraries to Display to include iSeries Navigator

__ 3. In the Enter Libraries input field, type SAMPLEDBXX and click Add as shown in Figure 6. The SAMPLEDBXX library is added to the list in the right panel of the window. Click the OK button.

Be sure to replace XX with your team number.

Select Libraries to Display - As2 C Enter libraries: SAMPLEDBOX C Select from list	7 Add -> Hemove	Libraries to display: NICOLAS ORDAPPLIB GGPL GSPL GTEMP SAMPLEDB05 SAMPLEDB06 SAMPLEDB06 SAMPLEDB07 SAMPLEDB00 SAMPLEDB00 SAMPLEDB00 SAMPLEDB00 SAMPLEDB00 SAMPLEDB00	? ×
	ОК	Cancel	telp

Figure 6. Select Libraries to Display window

- ____4. Right-click your SAMPLEDBXX library and select Properties. A new SAMPLEDBXX Properties window appears.
- ___ 5. Explore the information in this window and answer the following questions:
 - How large is this library? _____ megabytes

Hint: General->Total allocated size

- How many objects are in this library? ______
 - Hint: Storage->Contents
- When was this library last-saved? ______

Hint: Save->Last saved

When was this library created? By whom? _____

Hint: Creation->Created

Click **OK** when you are finished.

- ___ 6. Double-click your SAMPLEDBXX library to see all the database objects of this library displayed in the right panel.
- ___ 7. Locate and right-click the EMPLOYEE table. Select Description. This option is a new function added in V4R5. A new Description window appears with six different information tabs.

This option is used in the same manner as the CL commands Display File Description (DSPFD), Change Physical File (CHGPF), and Change Logical File (CHGLF).

Click each different tab and then click **Help** to see detailed information of all table description attributes in the corresponding tab that you are in.

- ____8. Explore the information in this window and answer the following questions:
 - How large is this table? _____ kilobytes
 - How many rows are in this table? ______
 - Is the Reuse deleted rows feature active? ______

Hint: General Tab

How many bytes is the longest row in this table? _____ bytes

Hint: Details->Maximum row length

Click **OK** when you are finished.

9. In the previous step, you found that there are two indexes built for the EMPLOYEE table. How do you identify its indexes?

Hint: Right-click the **EMPLOYEE** table and select **Properties**. Find the correct tab that shows you this information.

Click the **Indexes** tab. Two index names (XEMP1 and XEMP2) appear. Click **OK** when you are finished.

- ____ 10.Click **OK** to go back to the iSeries Navigator main window. Locate and right-click the **VEMPDPT1** view. Select **Description**.
- ____ 11.Click the **Details** tab and note the Allowed activities attribute. Why is it read-only? Notice the check mark in front of Read, while there is none for Update, Write, and Delete. Why is this?

Click **OK** when you are finished.

Normally, a joined view is a read-only object. You can prove that VEMPDPT1 is a joined view by right-clicking **VEMPDPT1** and selecting **Properties**. The SQL DDL statement that joins DEPARTMENT and EMPLOYEE tables appears. Click **OK** when you are finished.

At this point, you are ready to run the second lab, which introduces a new feature called Database Navigator (included with iSeries Navigator in V5R2).

You have now completed this lab!

Lab 2. Database Navigator: General tasks

This lab outlines some of the general tasks that are available with Database Navigator.

Introduction

Database Navigator enables you to visually depict the relationship of database objects on your system. The visual depiction you create for your database is called a *Database Navigator Map*. In essence, the Database Navigator Map is a "snapshot" of your database and the relationships that exist between all of the objects in the database.

Using iSeries Navigator, you can explore the complex relationships of your database objects using graphical representations that present the tables in your database and the relationship between tables, indexes, and constraints that are attached to tables. After you connect to your system, you can use iSeries Navigator to:

- Generate a map of a set of tables and the relationships between them.
- Manipulate the map to show items of interest, without changing objects on the system.
- Generate SQL for all the objects in the map.
- Print maps.
- Save maps and view them later.

In this lab, you use the example database SAMPLEDBXX. Remember that XX in library names, profile names, and so on refers to your team number (for example, DBNAVXX). Refer to your lab worksheet for details.

Objectives

This lab teaches you how to:

- Generate a MAP from some tables and view the relationship between such database objects as tables, views, indexes, referential constraints, and primary keys
- Add Primary Key Constraints
- Zoom and Arrange objects
- Save the MAP

Lab prerequisites

Before you begin this lab, be sure the following prerequisites are available:

- An IBM @server iSeries or AS/400 server with OS/400 V5R2, or higher, with:
 5722-SS1: Host Servers
 - 5722-TC1: TCP/IP Connectivity Utilities
- · Client Access Express V5R2M0 with the latest Service Pack applied
- Sample Database SAMPLEDBXX created

Time required

The time required to efficiently complete this lab is 30 minutes.

Task 1: Creating the Database Navigator Map

In this lab, you create your first Database Navigator Map and work with the components. You also learn general navigation operations using the map.

1. In the Navigator window, click the **I400WS** connection. A window prompts you to enter a username and password as shown in Figure 7. Consult your lab worksheet for your profile name and password. When you are finished, click **OK**. Because this may be your first time signing on to the iSeries server, the system has to update Navigator with its capabilities.

Signon to it	Series	<u>থ</u> ম
0 - F	Server:	400wS
_	User ID:	DBNAV01
	Password	2020-2000
		OK Cancel

Figure 7. iSeries Sign on information

- ___ 2. Click the plus (+) sign next to the **Database** icon to expand it. The Libraries, Database Navigator, and SQL Performance Monitor functions should appear in the expanded list as shown in Figure 8.
- ___ 3. Click the Database Navigator icon. All of the existing maps on the iSeries or AS/400 server should appear as shown in Figure 8.

@ ISeries Navigator				<u>.0 ×</u>
File box wew nep				
* "D #G X B" \$# EB @				0 minutes old
Environment: My Connections	1400ws: Database Nav	rigator Database: 1400ves		
Advancement Central (1400ws) My Connections My Connections Advancement Advancement Advanc	Nome	Ubrary	Description	
Alterate	- Tatabasas basks			
Add a connection O Instal additional components	Create new summary	y SQL performance monitor ISQL performance monitor	Run an SQL script	
0 objects	am seect interes to de	rhezh.	 2 metp for related tasks 	<u>*</u>

Figure 8. Database Navigator option

- _____4. Click the plus sign (+) sign in front of the **Libraries** icon to expand the Navigator library list.
- ____ 5. Check whether your SAMPLEDBXX library is included in the list. If it does not exist, change the iSeries Navigator Library List to include it. Refer to step 2 in Task 3, "Displaying properties and descriptions of DB objects" on page 5, in Lab 1.
- ____ 6. Right-click the Database Navigator object and select New to create your Map as shown in Figure 9. A new Database Navigator window appears as shown in Figure 10 on page 14.



Figure 9. Selecting New to build a new map

- Exploring the Database Navigator window

The primary workspace for Database Navigator is a window that is divided into four main areas. These four areas allow you to find the objects to include in a map, show and hide items in a map, view the map, and check the status of pending changes for a map. The following list briefly describes the main areas of the database navigator window:

- Locator Pane: The Locator Pane is located on the left side of the Database Navigator window. It is used to find the objects that you want to include in your new map or to locate objects that are part of an open map. The upper Location Pane is a search facility that can be used to specify the Name, Type, and Library of the objects that you want to include in the map. The results of the search are displayed in the lower Locator Pane under the Library Tree and Library Table tabs.
- **Map Pane**: The Map Pane is located on the right side of the Database Navigator window. It graphically displays the database objects and their relationships.
- **Object Status Bar**: The Object Status Bar is located on the bottom left of the Database Navigator window. It displays the number of visible and eligible objects in the map.
- Action Status Bar: The Action Status Bar is located on the bottom center of the Database Navigator window. It provides a clear description of what has taken place in the map and whether modifications are pending.
- **Modification Status Bar**: The Modification Status Bar indicates whether a modification has been made or is pending.
- ____7. The iSeries Navigator library list appears in the left side of the Database Navigator Window. Double-click your **SAMPLEDBXX** library to expand the objects (*XX* is your team number) as shown in Figure 10.
- ____ 8. Double-click **Tables** in the Locator Pane to expand all the tables in a database.
- 9. Double-click the EMPLOYEE table on the lower Locator Pane to start building a map. This table is added to the map and all its related objects.



Figure 10. Selecting a database to build a map

The Map is built from the cross reference files (XREF) on the iSeries. The relationship and statistics are based from the table that you selected to generate a map as shown in Figure 11.

ýn Until	led* - Data	ibase Nav	igator - As	80						
<u>File V</u>	iew Optio	ns ∐ap	Help							
10 📾	Finding B	elations	-							×
Name: Type: Library			۵	⊑ 				<u>л</u>		
Librar	Related C	bjects:								
	0	Tables			11	Foreign k	iey constra	ints		PE
E-10	ß	Aliases			Omitted	Journal r	eceivers			
	1	Check co	onstraints		7	Primary k	ey constra	nts		
	12	Indexes			0	Unique k	ey constrai	nts		
	Omitted	Journals			20	Views				
									Cano	el E
	🖲 🖽 EM	Р_РНОТО)							

Figure 11. Building a Database Navigator Map

- ____ 10.Click the minus (-) sign next to the **SAMPLEDBXX** database object to collapse the tree view.
- ____ 11.Use the vertical and horizontal scroll bars to navigate the map. Use the Zoom icons on the toolbar to zoom in and zoom out the MAP as shown in Figure 12.



Figure 12. Database Navigator Map

The default view of a map only shows tables and referential constraints.

12.Click Options and select the User Preferences option to open a new window to include or remove the defaults user preferences as shown in Figure 13.

ge Untitled* - Database Navigati	or - 1400ws(1400ws)
File View Options Map He	lp
🔁 😂 🖪 🛛 Unter Preference	■■■● 小管氏瘤を入り用き目
Searchor objects	e preferences
Name:	All names
Type:	All types
Library:	SAMPLEDB01
	Search
Library Tree Library Table Ot	jects In Map
C Libraries	
E-RE SAMPLEDB01	
E-I Tables	
A TT ACT	
en un cl_sched	

Figure 13. Viewing or Changing the user preference for Database Navigator Map

____ 13.You can see that the User Preference window shows you the various objects that may be included on the map, click OK to return to Database Navigator Map as shown in Figure 14.

User Preferences	×
When adding an object to the map find these	related objects:
✓ Aliases	Primary key constraints
Check constraints	Unique key constraints
Indexes	I Triggers
🗖 Journals	I Views
Dournal receivers	
Show flyover help on objects in map	
Show properties dialog for generate SQL	
	OK Cancel Help 7

Figure 14. Database Navigator user preference

The map is generated based on default user references. In V5R2, support for *Trigger objects* in the MAP was added. You can change the default option to remove or add extra objects.

Task 2: General tasks using the Database Navigator window

In this task, you select some general functions on the Locator Pane on the left side of the Database Navigator to find and include objects in the map that are part of an open map.

- 1. Use the criteria selection in the Upper Locator Pane to select only your SAMPLEDBXX library. Click and select the library parameter as shown in Figure 15.
- ____ 2. Click the Search button to execute. The result is shown on the bottom pane, under the Library Tree and Library Tables tabs.

Note

When you open your database, the default search process is the list of libraries on the iSeries Navigator window. Therefore, you always can see the list of libraries on the Library Tree tabs.



Figure 15. Search criteria on the locator pane

- ____ 3. Click the plus (+) sign next to your SAMPLEDBXX database on the Lower location Pane to show the objects found, such as Tables, Indexes, and Views.
- ___ 4. Click the (+) sign next to the Tables database object to expand it.
- __ 5. All of the tables in the map should appear as shown in Figure 16. Do an advanced search using the criteria selection in the Upper Location Pane to select all tables that begin with the literal 'EMP'.

En SAMPLEDBMAP05* - Database Navigator - 1400ws			
File View Options Map Help			
I P P P P P P P P P P P P P P P P P P P	▶ 小卷風≣⇔√		
Search for Objects			
Name: All names 💌			
Type: All types			
Library: SAMPLEDB05			
Search			
Library Tree Library Table Objects In Map			
C Libraries			
E SAMPLEDB05			
🖻 🎹 Tables			
E-E CL_SCHED			
R-III EMPLOYEE			
E EMPPROJACT			
H EMP_PHOTO			
EMP_RESUME			
GENSQL0(3			
IN_TRAY			
B-III PROJECT			
B-III OGSOLSRC			
B-III SALES			
B III SAMPLEDBMAP05			
I STAFF			

Figure 16. Using the Locator pane

- ___ 6. In the Name input field, type EMP*. In the Type input field, select **Table** as shown in Figure 17.
- ____7. Click **Search** to execute. The search results are shown on the bottom pane under the Library Tree and Library Tables tabs.

gin SAMPLED	8MAP05* - Database Na	vigator - 1400ws
Elle View g	Options Map Help	
19 🖻 🖥 🔇) B 4 4 5 1	(속티파 스챔
Se	arch for Objects	
Name:	EMP*	•
Type:	Table	•
Library:	SAMPLED805	-
	Sear	ch
Ubrary Tree Ubraries B-GE SAMP B-CO B-CO B-CO B-CO B-CO B-CO B-CO B-CO B-CO B-CO B-CO B-CO	Library Table Objects	In Map

Figure 17. Advance search using the Locator pane

- ____ 8. Use the criteria selection again to show all of the tables on the Lower Location Pane. Click in the Name input field and select All names to view all of the tables in the schema. Click the Search button. In the next step, you use the Find objects in the map function.
- ___ 9. Right-click the **PROJECT** table from the list of tables and select the **Find in Map** option to find this table in the map as shown in Figure 18.



Figure 18. Selecting a specific object to locate in a map

- ____ 10.Move the pointer over the **PROJECT** table on the map. The general description about it (flyover window) should appear as shown in Figure 19.
- ____ 11.Use the criteria selection again to show the tables, Indexes and views on the Lower Location pane. Click in the **Type** field and select **All types**. Click the **Search** button.



Figure 19. Locate specific object in a map

You can see the Object Status bar at the bottom left of the Database Navigator window as shown in Figure 20. This displays the number of visible and eligible objects in the map. As shown in Figure 20, only 23 of 68 objects qualify as eligible objects and are included on the map. This is because only the tables and constraints are included in the map.



Figure 20. Status bar code

12.Select the Library Table tab on the Locator Pane to show the complete list of tables, indexes, and views on the database selected as shown in Figure 21.

- ____ 13.Use the vertical and horizontal scroll bars to view all of the objects in the Library Table list.
- ____ 14.Click Objects In Map in the lower locator pane and a list of objects in the map should appear. Only the selected objects in the list are included in a MAP.
- ____ 15.Click the **Type** tab on the Object In Map field to organize the objects by Type.
- __ 16.Use the vertical and horizontal scroll bars to search the index objects in the Objects In Map list.
- ____ 17.Select all of the indexes (one by one) in the list to include them in a map.



Figure 21. Including a new object in a map

Each time you select an index or another object from the Library Table, the map and the Status bar message is updated.

- ____ 18.Right-click in a free space on the Map Pane in the Database Navigator window.
- __ 19.Select Zoom and then select the To Fit Window option to fit the map in the window as shown in Figure 22.



Figure 22. Selecting To Fit Window

You can see all objects in the current window as shown in Figure 23.

When the objects are shown under the Library Tree and Library Table tabs, you can also add objects to the map by right-clicking an object and selecting **Add to Map**, or double-clicking the object name.



Figure 23. Sizing a map to fit the display window

Notice the Object Status Bar in the bottom left of the Database Navigator window. This displays the number of visible objects in the map of the total found.

- ___ 20.Click File and select Save As... to save the Map.
- ____ 21.From the Save As... window, click the Libraries parameter and select your SAMPLEDBXX library.
- ___ 22.In the Name input field (Figure 24), type:

SAMPLEDBMAPXX

___ 23.In the Description input field (Figure 24), type:

'MAP created by DBNAVXX'

___ 24. Click **OK** to save your map.

Save As		×
Name:	GAMPLEDBMAP07	
Library:	SAMPLED807	v
Description:	Map of SAMPLEDB07	
	OK Cancel	Help ?

Figure 24. Saving the database map

Note	1
The Database Navigator Maps are stored on the iSeries server. After you open	
a Database Navigator Map, it is locked from other users to prevent conflicts	
where other users try to update the same map at the same time.	

Task 3: General task using print capability to print a MAP

In this task, you select some general functions on the Locator Pane on the left side of the Database Navigator. These functions help to find and include objects in the map that are part of an open map. You also select the print options to setup different ways to print a MAP.

- ____ 1. Click Objects In Map in the lower locator pane, and a list of objects in the map should appear. Only the selected objects in the list are included in a MAP.
- ___ 2. Click the **Type** tab on the Object In Map field to organize the objects by Type.
- ____ 3. Use the vertical and horizontal scroll bars to search the index objects in the Objects In Map list.
- ____ 4. Select all objects (one by one) in the list to include them in a map.
- __ 5. Right-click in a free space on the Map Pane in the Database Navigator window.
- ___ 6. Click Zoom and then select the To Fit Window option to fit the map in the window. Now you can see all the objects included in a MAP.

You can see the Object Status bar at the bottom left of the Database Navigator window as shown in Figure 20 on page 22. This displays the number of visible and eligible objects in the map. As shown in Figure 25, 68 of 68 objects in the map are available.



Figure 25. Including all objects in a map

Each time you select an index or another object from the Library Table, the map and the Status bar message is updated.

____7. Click **File** and select **Print Preview** to open a new window to preview and customize different options to print a MAP as shown in Figure 26.



Figure 26. Selecting the Print Preview option

- ___ 8. Click Print Setup to customize the printout to be on 2 x 2 matrix (two lines by two columns).
- ___ 9. Select Print Entire Graph. On Scale Box, select Pages to print the output across several pages.
- ___ 10.In the Page Columns input field, type 2.
- ___ 11. In the Page Rows input field, type 2 as shown in Figure 27.

rint Setup	>			
Print Entire Graph C Print Current Window C Print Current Selection				
Scale By Pages Page Columns: 2 C Actual Size Page Rows: 2	Margins (Inches) Left: [0.5] Top: [0.5] Bottom: <a>[0.5]			
C Zoom Level	Multipage Printing Print Page Numbers Print Crop Marks			
Untitled	Other Color			
Position: Bottom Right	Print Grid			

Figure 27. Printing map using Scale by Page



__ 12.Click **OK** to see your map split on a 2 by 2 matrix as shown in Figure 28.

Figure 28. Printing a Map using Scale by Page

With this option, you can split your map across many pages to see the entire object in a Map.

- 13.If a printer is available in the Lab, click the **Print** button and select the printer to print your Map. Otherwise, click **close** to return a Database Navigator Windows.
- _____14.Click **File** and select **Print Preview** to open a new window to preview. Customize the Scale by **Actual size** option to print a MAP.
- ____ 15.Click **Print Setup...** to customize the printout automatically based on the number objects in a map.
- ____ 16.Select **Print Entire Graph**. On Scale Box, select **Actual Size** to set the printout to print automatically as shown in Figure 29.

Print Entire Graph C Print Current	nt Window C Print Current Selection
C Pages Page Columns: 2 C Actual Size Page Rows: 2	Margins (Inches) Left: 0.5 Right: 0.5 [3]op: 0.5 Bottom: 0.5
C Zoom Level Caption I Print Caption Font	Multipage Printing Print Page Numbers Print Crop Marks
Untitled 🔹	Other Color

Figure 29. Printing using Actual Size Scale

- ____ 17.In the Caption section, replace the name *Untitled* with Project Database MAP (try now to enter a title for the printer map).
- ____ 18.Click **Position** and select **Top left** option.
- ____ 19.Click Font button to customize printout to automatically print based on the number objects in a map.
- ___ 20.On the Choose Font window, select the font **ScanSerif Bold** and size **18** as shown in Figure 30.

Choose Font				×
SansSerif Bold		0123AaBbYyZz		
18	-1,		ОК	Cancel

Figure 30. Choose Font window

__ 21.Click OK to return printer setup see your preview printing Map as shown in Figure 31.



Figure 31. Printing using Actual Size scale

____ 22.If you a printer is available in the Lab, click the **Print** button. Then select the printer to print your map. Otherwise, click **close** to return to the Database Navigator window.

- Note -

On V5R2, the print options have been enhanced to provide different options to print MAP. This gives the user good documentation about the logical design of the database.

You have now completed this lab!
Lab 3. Changing the Database Navigator Map

The lab explains how to change a Database Navigator Map.

Introduction

This exercise teaches you how to manage a Database Navigator Map, manipulate the map, and show specific objects in the map (this includes showing you the different alternatives for including objects such as views, remove objects, change object placement, and so on). In this lab, you manipulate the map in more detail and you use a mix function from the menu bar and toolbar.

You use the SAMPLEDBXX example database. Remember, *XX* in library names, profile names, and so on refers to your team number (for example, DBNAVXX). Refer to your lab worksheet for details.

Note

In the Database Navigator Map window, there are two places from which to access map functions. You can use either the File menu or an icon from the toolbar. For a specific object, use the right-click menu. In the remaining labs, the right-click menu is used to access these functions.

Objectives

This lab teaches you how to:

- Add Views, Primary Key Constraints, etc., that exist on the iSeries server but that are not included in the Database Navigator Map
- View a different Map layouts: Symmetric (default), Circular, and hierarchic design
- · Analyze a map relationship for a specific object
- Remove objects from the map
- · Change object placement in the map
- Create a user-defined relationship (UDR)
- · Expand and collapse tables in a map
- Save the map

Lab prerequisites

Before you begin this lab, be sure the following prerequisites are available:

- An IBM @server iSeries or AS/400 server with OS/400 V5R2, or higher, with:
 - 5722-SS1: Host Servers
 - 5722-TC1: TCP/IP Connectivity Utilities
- Client Access Express V5R2M0 with the latest Service Pack applied
- Sample Database SAMPLEDBXX created
- Sample Database Navigator Map SAMPLEDBMAPXX created

Time required

The time required to efficiently complete this lab is 30 minutes.

Task 1: Selecting the Database Navigator Map

In this task, you select the map that you want to manage:

- ____1. Click the plus (+) sign next to the database object to expand the different options.
- ___ 2. Click the **Database Navigator** to display the maps in the right panel that exist on the iSeries server as shown in Figure 32.



Figure 32. Opening the Database Navigator Map

- ____ 3. Double-click the Database Map that you created in Lab 2, "Database Navigator: General tasks" on page 9, to open it. If it does not appear, refresh the window.
- 4. Click View. From the pull-down menu, select Zoom-> To Fit Window to fit all objects on the map in this window as shown in Figure 33.

File View Options Map Help	
😑 😋 Zoom 🔹 In	▲ · · · · · · · · · · · · · · · · · · ·
Refresh Out	
Object Spacing To Fit Win	low wot
Nam Show Overview Window To Belette	
Type Arrange	ABE XODETT.
Library. List of libraries	
Search	
Library Tree Library Table Objects In Map	DEWATTHENT
C Libraries	
C RE CHARLES CONT	
SAMPLEDBOT	H00
SampleD803	I ADA
B B SAMPLEDB99	RED
CTEMP	
I I I I I I I I I I I I I I I I I I I	

Figure 33. Fitting all objects in a map

5. Use the toolbar to select the icons Zoom In, Zoom Out, and Zoom to fit for the object size on the map in this window as shown in Figure 34. It also shows the different options that are available on the toolbar.





- ____6. Use the vertical and horizontal scroll bars to navigate to the top of the map.
- ____7. You can see the Objects Status Bar in the bottom left of the Database Navigator window. This displays the number of visible objects in the map and the total found. Write the number of visible objects in the Map: ______.

Task 2: Adding views in the map

1. Click View-> Show Objects of Type-> Views to include all Views in the map as shown in Figure 35. In the bottom left of the Database Navigator window, the Object Status Bar that was updated with the new objects included in the map appears.



Figure 35. Selecting the Views object type to appear in the Map

- ___ 2. Write the number of visible objects in the Map: _____
- ____ 3. Use the toolbar to select the **Zoom** icons (including Zoom in, Zoom Out and Zoom to fit Window) to fit all objects on the map in this window.
- ____ 4. Use the vertical and horizontal scroll bars to navigate to the top of the map as shown in Figure 36.

You can change the zoom level of the Database Navigator Map to manage how much of the map you can see in the map pane on the Database Navigator window.



Figure 36. Using scroll bars to navigate to the top of the map

Task 3: Showing the relationships of a specific object

- 1. Use the criteria selection in the locator pane to select only your SAMPLEDBXX library. Click the Library parameter and select your SAMPLEDBXX library.
- ___ 2. Click the **Search** button.
- ____ 3. Click the plus (+) sign next your SAMPLEDBXX database to expand the objects for Tables, Indexes, and Views.
- ____ 4. Click the (+) sign next to the Tables database object to expand it.
- ___ 5. Double-click the **PROJECT** table from the list of tables to find this table in a map.
- ____ 6. Click the zoom icons (Zoom in, Zoom Out, and Zoom to fit window) in the toolbar to focus the PROJECT table in the map pane.
- ____7. Use the vertical and horizontal scroll bars to navigate and focus on every relationship object of the PROJECT table as shown in Figure 37.



Figure 37. Fitting the object in a map

____ 8. Place the cursor over every relationship to view a brief description (Object Name and Type of Relationship) and fill in Table 1 with all the relationships of the Project table.

Table 1. Relationship objects

Original table	Relationship object name	Type of relationship
Project		

Task 4: Removing objects from the map using the toolbar

- 1. Click the **Index** and **Views** icons on the toolbar to remove indexes and views from the map as shown in Figure 38.
- ____ 2. Click the zoom icons (Zoom in, Zoom Out, and Zoom to fit window) from the toolbar to fit the objects in a Database Navigator window.
- ____ 3. Use the vertical and horizontal scroll bars to navigate to the top of the map on the Database Navigator window.



____4. Write the number of visible object in the Map: _____

Figure 38. Removing objects from the map



Task 5: Changing object placement and arranging objects in a map

In this task, you learn how to arrange and move objects in the map. You also learn how to remove the bends that appear on the relationship lines after the object is moved to the new location.

- Double-click the EMPLOYEE table from the list of tables to find this table in the map.
- ____ 2. Click the zoom icon options in the toolbar to see all of the objects in the map pane.

- __ 3. Use the vertical and horizontal scroll bars to navigate on the Map on the Database Navigator Windows.
- ____ 4. Drag-and-drop the **EMPLOYEE** table to the left as shown in Figure 39.



Figure 39. Changing object placement

___ 5. Repeat steps 2, 3, and 4 to move the DEPARTMENT table to the right. A window similar to the example in Figure 40 appears.



Figure 40. Moving the Department object in a map

When objects are moved or added to a map, you usually use the Arrange function to reorganize the Map in Map Pane.

Arrange option

The arrange option was enhancement in V5R2 to provide additional Map layout: *Circular, Hierarchic,* and *Symmetric* (default). The Arrange layout option puts the map in the Default state.

- ____ 6. Right-click in a free space on the map pane in the Database Navigator window. The Arrange function appears.
- ____7. Select **Arrange** to chose the Symmetric (default) option to put the Map in its original state as shown in Figure 41.



Figure 41. Selecting the Symmetric layout option

- ___ 8. Use the icons in the toolbar in the Database Navigator windows to include the Indexes, Views, and Primary Key Constrained to gain a good view of different layout Maps.
- ___ 9. Click the zoom icons (Zoom in, Zoom Out, and Zoom to fit window) from the toolbar to fit the objects in a Database Navigator window.
- ____10.Use the scroll bar to go to the top of the map. You can see the Symmetric (Default) layout as shown in Figure 42.



Figure 42. Symmetric (Default) layout or the map

- ____ 11.Right-click in a free space on the Map Pane in the Database Navigator windows.
- 12.Select Arrange and then select the Circular option to see the Circular layout as shown in Figure 43.
- ____ 13.Repeat steps 11 and 12 to see the *Hierarchic* layout map and then return to the Symmetric (Default) layout.
- ____ 14.Use the icons in the toolbar in the Database Navigator windows to remove the Indexes, Views, and Primary Key Constrained.
- ___ 15.Click File-> Save to save the changes in the map.



Figure 43. Circular layout of the map

Task 6: Expanding and collapsing a table object

This task shows you how to expand a table icon in your Database Navigator Map. This allows you to view essential data about the table. The data that appears in the expanded table is a subset of the data you can see in Table Properties.

- ____1. Double-click the **PROJACT** table from the list of tables to find this table in the map.
- ____ 2. Click the **Zoom Icons** in the toolbar to see all the objects in the map pane.
- ___ 3. Right-click the **PROJACT** table on the Database Navigator window and select **Expand** as shown in Figure 44.



Figure 44. Selecting the Expand table option in a map

____ 4. Resize the **PROJACT** table to increase the size as shown in Figure 45.



Figure 45. Expanding the table in a map

- __ 5. Click the **Columns** tab on the table.
- ____ 6. Use the cursor to widen the header of the second column on the column table. This column contains the fields that comprise the primary key (if any) for this table.
- ___ 7. Fill in Table 2, in the correct order, with the columns that have a primary key on them.
- ___ 8. Click the **Indexes** tab on the table.
- ___ 9. Use the vertical and horizontal scroll bars to view the Indexes.
- ____ 10.Enter the Index Name in the following field and, in the correct order, fill in Table 2 with the columns that include an index.

Index Name: _____

Table 2. Primary Key and Indexes

Table	Primary key columns	Index columns
PROJACT		

__ 11.Right-click the **PROJACT** table and select the **Collapse** function to compress the table to its original size in the map (iconify the table) as shown in Figure 46.



___ 12.Click File-> Save to save the changes in the map.

Figure 46. Collapsing the table in the map

You can now see the entire map in the Database Navigator window.

Task 7: Creating a user-defined relationship (UDR)

In this task, you to create a user-defined relationship in a map.

User-defined relationship

When you have a relationship that is defined by your program, you can create a user-defined relationship. An example of this is when the referential integrity is controlled by the application and is not defined in the database.

- 1. Right-click in a free space on the map pane in the Database Navigator window. Select the **Create** function as shown in Figure 47.
- 2. Select Create-> User Defined Relationship to create the new object (UDR).



Figure 47. Selecting the function to create a User Defined Relationship

____ 3. In the Name input field, type SAMPLEUDRXX. In the Description field, type 'UDR created by DBNAVXX' as shown in Figure 48.

Important

It is important to provide a meaningful description for your user-defined relationship since it is the only way for you to indicate what the user-defined relationship represents.

- ___ 4. Click **Type** on the Select Object in Relationship to organize the objects by type.
- ___ 5. Select the **PROJECT** and **DEPARTMENT** tables from the list of objects.
- ___ 6. Select Square for Shape and Blue for Color for this relationship.

New User Defined Relationship - 1400ws	(Rchasm27)			×
Name:	SAMPLE01UDR			-
Description:	UDR created by 0	DBNAV01		
Select objects in relationship:				
Name	Library	Type	Description	
DEPARTMENT	SAMPLEDB	Table		*
EMPLOYEE	SAMPLEDB	Table		
EMPPROJACT	SAMPLEDB	Table		_
E EMP_PHOTO	SAMPLEDB	Table		
E EMP_RESUME	SAMPLEDB	Table		
	CAMPLEDO	Table		-
A A A A A A A A A A A A A A A A A A A	ONMPLEDO	Table		DÊ.
Shape:	Color:			
C Circle	C Black			
C Rectangle	Blue			
G Square	C Green			
C Triangle	C Red			
	C Yellow			
				La la l
		ok 🌮 -	Cancel	telp 7

Figure 48. Creating a user-defined relationship

- ___ 7. Click **OK** to create the user-defined relationship and return to the map.
- ____ 8. Click the zoom icons in the toolbar to see all the objects in the map pane (Figure 49).
- ___ 9. Click File-> Save to save the changes in the map.



Figure 49. The user-defined relationship in a map

Task 8: Overview window function

The Overview window is a small window that shows the map on a reduced scale. It has a highlighted area that represents the parts of the image that are currently displayed in the main window.

In the Overview window, you can move to specific areas of the map by right-clicking the highlighted area and moving the highlighted area to the area you want to view.

This task shows you to how to view the map in the Overview window and invoke the both function from the toolbar and the view menu. You add the Indexes, Views, Primary Key Constraints, and Check Constraints to gain a better idea of how this function is useful.

- ____1. Use the icons in the toolbar in the Database Navigator window to include the Indexes, Views, Primary Key Constraints, and Check Constraints.
- ____2. Click the zoom icons in the toolbar to see all the objects in the map pane.
- ____ 3. Use the scroll bar to go to the top of the map as shown in Figure 50.



Figure 50. Adding objects in the map

____ 4. Click the Show Overview Window icon in the toolbar to open the Overview window as shown in Figure 51.



Figure 51. Overview window

___ 5. Click the highlighted area and move the blue box to the right of the Overview window as shown in Figure 52.



Figure 52. Moving the Overview window

The map pane should include a highlighted part of the map on the Overview window as shown in Figure 53.



Figure 53. A map using the Overview window

The Overview window contains all of the objects in the map. You can move to specific areas of the map by moving the highlighted area to the area you want to view. In addition, you can reduce or widen the highlighted area to include a specific area.

___ 6. Close the Overview window and the Database Navigator window.

You have now completed this lab!

Lab 4. Generating SQL using iSeries Navigator

This lab explains how to generate the SQL statements from existing database objects via iSeries Navigator. This process is often referred to as *Reverse Engineering*.

The notation XX that appears in library names, profile names, directories in your PC, and so on refers to your team number.

Objectives

This lab teaches you how to:

- · Generate SQL statements from a map
- · Generate SQL statements from an object in a Library
- Save the SQL Script in a Database Source File and PC file

Lab prerequisites

Before you begin this lab, be sure the following prerequisites are available:

- An IBM @server iSeries or AS/400 server with OS/400 V5R2, or higher, with:
 - 5722-SS1: Host Servers
 - 5722-TC1: TCP/IP Connectivity Utilities
- Client Access Express, V5R2M0, with the latest Service Pack applied
- You must have completed *Lab 1, "iSeries Navigator setup" on page 1*, before generating the *SAMPLEDBXX* sample database.
- You must have completed Lab 2, "Database Navigator: General tasks" on page 9, to generate the *SAMPLEDBMAPXX* map used in this lab.
- You must have completed Lab 3, "Changing the Database Navigator Map" on page 33, to obtain the necessary skills.
- The DDSLIBXX library must be available because it contains the physical and logical files created with DDS.

Time required

The time required to efficiently complete this lab is 60 minutes.

Introduction

The new Generate SQL function for iSeries Navigator provides a GUI interface that allows you to reverse engineer several types of database objects. The results are SQL create statements (often referred as *DDL statements*).

After you select one or more objects to be reverse engineered, you have the option to view the resulting SQL in the Run SQL Scripts Dialog. Or, it can be saved to a file on the PC or a Source physical file on the iSeries server.

The new Generate SQL Database Object supports the following objects:

- Aliases
- Distinct types
- Functions
- Indexes

- Procedures
- Schemas (Collections) and libraries
- Tables and Physical files
- · Views and logical files

Task 1: Generating SQL from the library in the iSeries Navigator window

In this task, you learn how to invoke the Generate SQL option from your SAMPLEDBXX library in the iSeries Navigator window to generate the SQL DDL statement for some objects:

- ___ 1. Start iSeries Navigator and expand Database-> I400WS-> Libraries.
 - You should see the SAMPLEDBXX library in the active library list under the Libraries icon. If not, add it by right-clicking **Libraries** and select **Select Libraries to Display**. Refer to Task 3, "Displaying properties and descriptions of DB objects" on page 5, in Lab 1, for information on how to do this.
- ___ 2. Click the SAMPLEDBXX library to display the current content in the right window panel.
- ___ 3. Click **Type** in the right window panel to organize all objects.
- ____ 4. Use the scroll bar to show the Table objects.
- ___ 5. Press the Ctrl key on the right panel, and locate and select the following tables:
 - ACT
 - CL_SCHED
 - DEPARTMENT
 - EMP_PHOTO
 - EMP_RESUME
 - EMPLOYEE
- ___ 6. Right-click and select Generate SQL as shown in Figure 54.



Figure 54. Selecting objects from the library to generate SQL

When the Generate SQL function is invoked, the new Generate SQL window appears as shown in Figure 55. This window provides a list of the objects initially selected and the Output, Options, and Format tabs that are used for the generated SQL.

Name	Library	1	Type	
VCT	SAMPLEDB01	Table		
CL_SCHED	SAMPLED801	Table		Add
DEPARTMENT	SAMPLEDB01	Table		
EMP_PHOTO	SAMPLEDB01	Table		Remove
EMP_RESUME	SAMPLEDB01	Table		
EMPLOYEE	SAMPLEDB01	Table		
Open in Run Si Write to file	ormat 9L. Scripts			
Open in Run Bi Write to file File https:	ormat j QL Scripts Databas	e source file	*	[
C Open in Run Bi Write to file File hpe: Dbrary	ormat j QL Scripts Databas QGPL	e source file	<u>×</u>	
C Open in Run Bi Write to file File type: Library File name:	ormat j QL Scripts Databas QOPL	e source file	¥	
Open in Run Si Write to file File hpe: Library File name: Member:	ormat QL Scripts Databas QOPL	e source file	<u>×</u>	

Figure 55. Generate SQL window

- ____7. In the Generate SQL window, click the **Output**, **Options**, and **Format** tabs to see and accept the default values. Explore the information in this window and answer the following questions:
 - Where will it Generate SQL?
 - Which is the Standards Option?
 - Which is the Naming Convention?
- ___ 8. Click **Generate** to accept the default values as shown in Figure 56.

- Note

The initial list of objects in the Generate SQL window could be modified using the Add and Remove buttons to add new objects or remove objects from the initial list.

ienerate SQL - 1400ws(14	00ws)				x
Objects for which to gene	rate SQL:				
Name	Library	Typ	lê		
ACT CL ROUTE	SAMPLEDB01	Table		Add	
DEPARTMENT	SAMPLEDB01	Table			
EMP PHOTO	SAMPLEDB01	Table		Desserve	1
EMP_RESUME	SAMPLEDB01	Table		Remove	
EMPLOYEE	SAMPLEDB01	Table			
Output Options Form	at				
Ø Open in Run BQL 8	Generating SQ	L [
C With to file	33%				
· value to the					
File type:	Database so	urce file	Ŧ		
	DOPI		-		
	Prorie				
File name:					
Member:					
-	· · · ·				
M Append					
	Øer	Rate	Cancel	Help	7

Figure 56. Generating SQL statements

____9. Switch to the new Run SQL Scripts window to see the generated SQL statement. Use the scroll bar to navigate as shown in Figure 57.

CH-N	
CH+O	
CH+8	* Insert
CH+P	-
d ase02 80L ase04 90L ase04 90L ase03 90L ase03 90L	
TNO}));	
Y KEY (DEPTINO));	
	CH+N CH+O CH+S CH+F d ask02.9GL ask01.9GL ask01.9GL ask01.9GL ask01.9GL ask01.9GL

Figure 57. SQL generated in the Run SQL Scripts window

____ 10.After the Run SQL Scripts window is created, explain the reasons for the ALTER table statements to be added to the create table window.

Note

You can generate SQL for a Schema, Table, Type, View, Procedure Function, Alias, and Index. When you generate SQL for a table that contains constraints or triggers associated with it, the SQL Generate is generated for those as well.

___ 11.Click File-> Save As... to save the SQL script as shown in Figure 58.

S Untitled - Run SQL Scripts - As27			- 🗆 X
Ele Edit View Run VisualExplain Options Connection Help			
New	Ctrl+N		
Open	Ctrl+O		
Save	Ctrl+S	-	Insert
Save As			_
Print	Ctrl+P		_
C:(Nicolas/AS-1113Residency/LabHandouts/Advanced/GenSampleDB09a.s	ql		
C:INicolas\AS-1113Residency/LabHandouts\Advanced\GenSampleDB09.sc	al l		
C:INicolas\AS-1113ResidencyLabHandouts\Advanced\SAMPLEDB07.sql			
C:/TEMP/TEMP.sql			
C:/TEMPInicksql.sql			
C:/TEMP/lab3.sql			
Exit			
BIRTHDATE DATE DEFAULT NULL			
SALARY DECIMAL(9, 2) DEFAULT NULL ,			
BONUS DECIMAL(9, 2) DEFAULT NULL,			
CONSTRAINT BAMPLEDB05 QSYS EMPLOYEE 00001 PRIM	ARY KEY (EMPNO)	01:	
ALTER TABLE SAMPLEDB05.EMPLOYEE			
ADD CONSTRAINT SAMPLEDBUS RED			
REFERENCES SAMPLEDBIS DEPARTMENT (DEPTNO)			*
Messages			

Figure 58. Saving the Script SQL

- 12.A Save window appears. Click Look in to select your directory (C:\DBNAV\SQLScript) from the pull-down menu to save your file as shown in Figure 59.
- ____13.In the File name input field, type GENSQLXX1. In the Files of type input field, leave the default as SQL files(.SQL) as shown in Figure 59.

You can use the SQL file to replicate your Database files on another system (for example, a development system). On the GENSQLXXn file name, the XX refers a your team number and the n is a sequential number.

____14. Click **Save** to save the SQL script file.

S Save	k					x
Look in:	🖿 SQL Script	-	ŧ	٦	Ċ.	<u>11</u>
GENSQL01	1.sql					
File <u>n</u> ame:	GENSQL011.sql		_		3	ave
Files of type:	SQL files (.sql)		_	٣	<u>C</u> a	incel

Figure 59. Saving the SQL script

___ 15.Click File-> Exit to close the Run SQL Script window.

Task 2: Generating SQL to PC and data source files on the iSeries server

In this task, you generate the SQL statements to a PC file and to a source member on the iSeries server. You start by generating all the SQL statements of all the objects in your library from the iSeries Navigator window:

- ____1. Click the SAMPLEDBXX library to display its content in the right window panel.
- __ 2. Right-click the SAMPLEDBXX library and then select Generate SQL as shown in Figure 60.



Figure 60. Generate SQL library in the Operation Navigator window

____ 3. In the Generate SQL window, select the **Write to file** option on the **Output** tab as shown in Figure 61. The generated SQL is saved to a PC file.

biomo	Liberry	L Time	
CAMPI EDD04	Library	Libeate	
ACT	CAMPLEDD04	Library	Add
OL ROUED	CAMPLED001	Table	
DEDADTMENT	CAMPLEDBUT	Table	1
EMPLOYEE	SAMPLEDBUT	Table	Remove
EMPROVICE	CAMPLED001	Table	
EMPPROJACT	SAMPLEDBUT	Table	*
Open in Run Sol Write to file File type: Location :	PC file	QL Stripf/GENSQL	012.sql Browse
			Ŷ

Figure 61. Selecting Generate SQL to PC

- ____ 4. Click File type and select the PC file option.
- ___ 5. In the Location file, click **Browse**, and then select your directory (C:\DBNAV\SQLScript) to save your file.
- ___ 6. In the File name input field, type GENSQLXX2.SQL In the Files of type input field, leave the default SQL files (.SQL) as shown in Figure 62.
- ____7. Click the **Select** button to return to the Generate SQL Output tab.

@ Select					×
Look in:	SQL Script	٣	t (
GENSOLD1	1.sql 9.sql				
File <u>n</u> ame:	GENSQL012 sql			-	elect
Files of type:	SQL files (.sql)			Save se	elected file

Figure 62. Saving the SQL script to PC file

__ 8. Click the Generate button to start generating the SQL DDL statements for all the objects in the library.

A status window appears showing the progress of the generate SQL as a percentage as shown in Figure 63.

Generating SQL	
36%	

Figure 63. Generating SQL window

__ 9. In the iSeries Navigator window, click the Run an SQL script icon in the database task pad. Explore the SQL file saved previously as shown in Figure 64.

- Note

The task pad (located in the lower part of the iSeries Navigator window) was introduced in V5R1. If you click the various higher level options, such as Security, Users and Groups, Database, etc., this task pad changes accordingly. One of the database tasks of the task pad is Run an SQL Script (among others).



Figure 64. Selecting Run SQL script from the Taskpad option

__ 10.In the Run SQL scripts window, click File-> Open to open your SQL Script file (GENSQLXX2).

- ____ 11.Click Look in and select your directory (C:\DBNAV\SQLScript) from the pull-down menu to save your file.
- ____ 12.Select your GENSQLXX2 file and click the Open button as shown in Figure 65.

ାର Open						×
Look in:	SQL Script	*	Ē	۲	Ť	:: :
GENSQL0	11.sql					
GENSOLD	12.sql					
GENSOLD	19.sql					
L						
File <u>n</u> ame:	GENSQL012.sql		_	_		often
				-0	pen se	lected file
Files of type:	(SQL files (.sql)			-		ancer

Figure 65. Restoring an SQL script file from a PC

____ 13.View the SQL statements generated on the Run SQL Script window as shown in Figure 66. Take some time to analyze the order of the statements.

Once the statements are generated, they can be edited to, for example, create a new copy in another library and optionally saved, or run using the SQL Script facility. If multiple objects were selected to be SQL Generated, you have the option to run one, some, or all of the statements after any required editing.

C:\Nicolas\AS-2112Residency\Piloting DB2 UDB PAT II\SQL Scr	ipt\GENSQL012.sql - Run SQL Scripts - 1400ws()
le Edit View Run VisualExplain Monitor Options Conn	ection <u>H</u> elp
126 × 10 8 8 27 27 9 0 0 00 00 0	¢
amples	[
Generate SQL Version: V5R2M0 020719 Generated on: 03/22/02 10:56:49 Relational Database: I400WS Standards Option: DB2 UDB AS/400	
REATE SCHEMA SAMPLEDB45; • SQL150C 10 CRTAUT for schema SAMPLEDB45 ignored.	
REATE TABLE SAMPLEDB45(ACT (ACTNO SMALLINT NOT NULL, ACTKWD CHAR(6) CCSID 37 NOT NULL, ACTDESC VARCHAR(20) CCSID 37 NOT NULL, CONSTRAINT SAMPLEDB45/QSYS_ACT_00001 F	PRIMARY KEY(ACTNO));
REATE TABLE SAMPLED845/CL_SCHED (CLASS_CODE CHAR(7) CCSID 37 DEFAULT NUL "DAY" SMALLINT DEFAULT NULL, STARTING TIME DEFAULT NULL, ENDING TIME DEFAULT NULL);	LL.
:REATE TABLE SAMPLED845/DEPARTMENT (DEPTNO CHAR(3) CCSID 37 NOT NULL, DEPTNAME VARCHAR(36) CCSID 37 NOT NULL, MGRNO CHAR(6) CCSID 37 DEFAULT NULL, ADMRDEPT CHAR(3) CCSID 37 NOT NULL, LOCATION CHAR(16) CCSID 37 DEFAULT NULL CONSTRAINT SAMPLED845/05YS_DEPARTMEN	T_00001 PRIMARY KEY(DEPTNO));



____ 14.Click File-> Exit to close the Run SQL Scripts window. If you made changes in the SQL script statement, do *not* save.

You now generate the SQL statement directly to a Source physical file member on the iSeries server from the iSeries Navigator window using the File menu.

- ____15.Click the **SAMPLEDBXX** library to display the content in the right window panel.
- ____ 16.Click File-> Generate SQL... to view the Generate SQL window as shown in Figure 67.

ISeries Navigator			
Tile Edit View Help			
Explore Ro. Pt 1	X P	0 0 0 0	
Open Page 42	<u> </u>		
Create Shortcut		1400ws: SAMPLEDB01	Database: 1400ws
Custopize this View + wint		Name	Type
Cannel an to Servers 🔸 and Service		同 DEPT	Alias
Install Options		B EMP	Alias
Generate SQL		BEMP_ACT	Alias
Remove from List IPS		REMPACT	Alles
Delete	11	B PROJ	Alles
Permissions		^b 冒XACT1	Index
New b		增xACT2	Index
FMD		唱XDEPT1	Index
Print		地图XDEPT2	Index
Print Preview MPLEDB02		HEXDEPT3	Index
Properties MPLED603		HEXEMP1	Index
Close MPLED845		HEXEMP2	Index
SLI JAMPLED099		HEXEMP_PHOTO	Index
TEZCMDS		HEXEMP_RESUME	Index
Database Navigator		HEXPROJ1	Index
SQL Performance Mon		增XPROJ2	Index
⊕ ⊕ _{\$} Transactions		增XPROJAC1	Index
Pie Systems		QSQ.IRN	Journal
	1	DOE0.104/0001	December
My Tasks		Databases tasks	
Add a connection	- 1	Create new summa	ry SQL performance monit
Install additional components		Create new detailed	d SQL performance monito
		Select libraries to di	splay

Figure 67. Selecting Generate SQL from the File menu

- ____ 17.In the Generate SQL window, click the **Write to file** option in the **Output** tab as shown in Figure 68.
- ____ 18.Click File type and select the database source file.
- ____ 19.Click Library and select your SAMPLEDBXX library.
- ___ 20.In the File Name input field, type GENSQLXX3. In the Member input field, type GENSQLXX3.

– Note

You can use the SQL file to replicate your schema tables on another system, such as a development system. For the GENSQLXXn file name, the XX refers to your team number and the n is a sequential number.

____ 21.Click the Generate button to start Generate SQL on the iSeries server.

1401110	Library	Type		
SAMPLEDB01		Library 16	*	
ACT	SAMPLED001	Table		Add
CL_SCHED	SAMPLEDB01	Table		
DEPARTMENT	SAMPLED801	Table		Remove
EMPLOYEE	SAMPLED801	Table		
EMPPROJACT	SAMPLEDB01	Table	+	
File type:	Databa	se source file	¥	
	SAMPLI	ED801	Ŧ	
Library:				
Library: File name:	GENSG	L013	_	
Library: File name: Member:	GENSO	L013	=	

Figure 68. Generating SQL to the iSeries server

For existing files, the option to append to the file is provided. If an existing file is selected, and the append option is not chosen, you are asked if you want to overwrite the existing file.

___ 22.Double-click GENSQLXX3 to see the script on the iSeries Navigator window as shown in Figure 69.



Figure 69. Selecting the source physical file to show the generate SQL script

____ 23.Expand the window and use the scroll bar to explore the script file as shown in Figure 70.

111 SAN	MPLEDB01.GEN	SQL013 - 1400	ws(I400ws)	×
File E	dik View Rov	vs Help		
	SRCSEQ	SRCDAT	SRCDTA	-
1	1.00	20325	- Generate SQL	
2	2.00	20325	 Version: V5R2M0 020719 	
1	3.00	20325	- Generated on: 03/25/02 14:32:51	
-	4.00	20325	 Relational Database: I400WS 	
5	5.00	20325	– Standards Option: DB2 UDB AS/400	
	6.00	20325	N	
1	7.00	20325	CREATE SCHEMA SAMPLE 0801 ;	
1	8.00	20325	- SQL150C 10 CRTAUT for schema SAMPLEDB01 ign	
	9.00	20325		
1	10.00	20325		
1	11.00	20325	CREATE TABLE SAMPLEDB01/ACT (
1	12.00	20325	ACTNO SMALLINT NOT NULL,	
1	13.00	20325	ACTKWD CHAR(6) CCSID 37 NOT NULL,	
1	14.00	20325	ACTDESC VARCHAR(20) CCSID 37 NOT NULL,	
1	15.00	20325	CONSTRAINT SAMPLEDB01/QSYS_ACT_00001 PRIM	
1	16.00	20325		
1	17.00	20325		
1	18.00	20325	CREATE TABLE SAMPLEDB01/CL_SCHED (
1	19.00	20325	CLASS_CODE CHAR(7) CCSID 37 DEFAULT NULL.	
2	20.00	20325	"DAY" SMALLINT DEFAULT NULL,	
1	21.00	20325	STARTING TIME DEFAULT NULL.	
1	22.00	20325	ENDING TIME DEFAULT NULL);	
2	23.00	20325		

Figure 70. Exploring the SQL script file from iSeries Navigator

____ 24.Close the window of the SQL script file to return to the iSeries Navigator window.

Task 3: Generating SQL from the Database Navigator Map

In this task, you learn how to generate the SQL DDL statement from some and all objects in a map:

____1. Click the **Database Navigator** to display the maps on the right that exist on the iSeries server as shown in Figure 71.

Environment My Connectants	Add Database Navigets			
H (I) Honogeneral Central (A127) Ho Connections Ho	Mann SAMPLEDBHAP95 SAMPLEDBHAP96	Library SAMPLEDBOG SAMPLEDBOG SAMPLEDBOG	Decoptors Dotabase MAP in SAMPLEDBOR Dotabase MAP in SAMPLEDBOR Map in SAMPLEDBOR	5
Select Review to stopies	nia de	5 Map your database 9 Pun an SQL script	1	-

Figure 71. Opening the Database Navigator Map

- 2. Double-click to open the database map that you created in the last exercise. If it does not appear, refresh the window.
- ____ 3. Click the View menu and click Zoom-> To Fit Window to fit all objects on the map in this window as shown in Figure 72.



Figure 72. Fitting all objects in a map
____4. Use the toolbar to select the **Zoom In** and **Zoom Out** icons to fit the object size on the map in this window.



___ 5. Use the vertical and horizontal scroll bars to navigate to the top of the map as shown in Figure 73.

Figure 73. Showing all objects included in the map

- ____ 6. Use the criteria selection in the locator pane and select only your SAMPLEDBXX library. Click the Library parameter and select it as shown in Figure 74.
- ___7. Click the Search button.

gmUntitled* - Database Navigator - 1400ws(1400	ws)
Elle Yiew Options Map Help	
`∃₽₽₽₽₽₿ ₹ ₹₽	▶ △●回帰~~町周
Search for Objects	
Name: All names 💌	
Type: All types	
Library: SAMPLED801	
Search	
Library Tree Library Table Objects In Map	
Libraries 途一覧 SAMPLED801	

Figure 74. Selecting only your sample library to appear in the Database Navigator Map

- ___ 8. Click the plus (+) sign next your **SAMPLEDBXX** database to see the objects found, such as Tables, Indexes, and Views.
- ___ 9. Click the (+) sign next to the **Tables** database object to expand it.
- ____ 10.Double-click the EMPLOYEE table in the list of tables to find this table in the map.
- ____ 11.Click the zoom icons (**Zoom in**, **Zoom out**, and **Zoom to fit window**) from the toolbar to focus the EMPLOYEE table in a Map Pane.
- ___ 12.Right-click the **EMPLOYEE** table and select **Generate SQL** as shown in Figure 75.



Figure 75. Generating SQL of a specific object from the map

____ 13.In the Run SQL Script window, explore the generated SQL statements, using the scroll bar to navigate as shown in Figure 76.

😨 Untitled - Run	SQL Scripts - I	400ws(140	Ows) *				
File Edit View	Run Visual	Explain M	lonitor <u>O</u>	ptions <u>C</u> o	onnection	Help	
1666 %	• 6 6	y p z		Gag Gag	9		
Examples							
Generate SQL							
- Version: Generated or	o.	V5R2M0 0	20719				
- Relational Da	atabase:	1400WS	1.05.15				
Standards Op	ption:	D82 UDB	AS/400				
ODDATE TABLE							
CREATE TABLE	EMPLIEDBUT	VEN COSID 3	E (17 NOT NE				
	FIRSTNME VAR	RCHAR(12)	CCSID 37	NOT NUL	L.		
	MIDINIT CHAR	(1) CCSID :	7 NOT NU	JLL,			
	LASTNAME VAR	RCHAR(15)	CCSID 3	7 NOT NUL	L.		
	WORKDEPT C	HAR(3) CC	SID 37 DE	FAULT NU	LL,		
	PHONENO CH	AR(4) CCS	ID 37 DEF	AULT NUL	L,		
	JOB CHAR/B)	COSID 37 D	FEALLER				
I i	EDLEVEL SMA	LUNT NOT	NULL.	with the second			
	SEX CHAR(1)	CCSID 37 D	EFAULTI	JULL,			
	BIRTHDATE DA	ATE DEFAU	LT NULL				
	SALARY DECIN	MAL(9, 2) D6	EFAULT N	ULL,			
	BONUS DECIN	AL(9, 2) DE	FAULT N	ULL,			
	COMM DECIMA	AL(3, 2) DEF SAMPLEDE	AULT NO	EMPLOVE	E 00001 E		EV/ EMPNIO 11
	CONSTICUTION	SHML FEDE	0170010	emreore	C_000011	NIMPACTING	EI(EMP100)),
ALTER TABLE S	SAMPLEDB01/F	EMPLOYEE					
	ADD CONSTR/	AINT SAMPI	.EDB01/R	ED			
	FOREIGN KEY	(WORKDE	PT)				
	REFERENCES ON DELETE R	SAMPLED	BOIDEPA	RTMENT (DEPTNO))	
	ON DELETE ST	O ACTION :					
	on or pricing						
ALTER TABLE S	SAMPLEDB01/8	EMPLOYEE					
	ADD CONSTR/	AINT SAMPI	EDB01/N	UMBER			
	CHECK(PHON	VEN0 >= 10	000'AND F	PHONENO	<= ,8888.)		

Figure 76. Generating SQL from the employee table

You can see that two Constraint rules were generated in addition to the EMPLOYEE table. One of them, the Referential Constraint Key, is represented as RED in the map to show the relationship between the EMPLOYEE and DEPARTMENT tables as shown in Figure 77.



Figure 77. Showing a Referential Constraints Key in the map

____ 14.Click File-> Save As... to save the SQL script as shown in Figure 78.

Linutified - Run SQL Scripte - 148Dee(1400ex) *		_151
Edit View Bun VisualExplain Montor Options Connection Help	and the second se	
New	Chi+N	
Open	Ctri+O	
1 and	Chi+G.	· kisert
Egre op		
EWL'S	Ctsl+P	
C/Watstat/WS-2112Residency/Pikoting DB2 UDG PAT INSOL SurphGENSOL01	2.51	
C:W4cstasWS-2112Residenc/Pikting DB2 UDB PAF HSQL Borpf/0ENSQL01	9.sui	
C'Alcolas/AS-2112Residency/Plicing DS2 UDB PAT IISOL ScraftGENSQL01	7.84	
C Witslan/45-2112Residency/Piking DB2 UDB PAT ISSOL SciphGENSOL01	End	
C Vacalar/WS-2112Realdercy/Pikting DB2 UDB PAT INSOL ScriptOENSOL01	Tai	
OTHEEDOYA@TSOV8-2112ResidenceWisuaExplain/SQLScrpts/BasicLato	1 Task02 8QL	
6: HEEDOYABITEONS-2112Residency/VisualExplain/BQLScripts/BasicLatio	4 Task01.90L	
0'HEEDOYABIT80W8-2112ResidencyWsualExplain/80LScripts/BasicLato	3 Taski4 SQL	
Edi		
PROVING CRANKER CORD 37 DRIVICE HOLE ;		
HEREDATE DATE DEFAULT MULL.		
JOB CHARGE COSID 37 DEFAULT NULL		
SEX CHAR(1) COSID 37 DEFAULT NULL		
BRITHDATE DATE DEFAULT NULL .		
IIALARY DECIMALIS, 2) DEFAULT MULL.		
BONUS DECIMALIR, 25 DEFAULT MULL,		
CONSTRAINT SAMPLED BUILDING EMPLOYEE DODDI PRIMA	RY KEY(EMPNO1)	
	(1007-117-1100/AR)	
ALTER TABLE SAMPLEDB01/EMPLOYEE		
ADD CONSTRAINT SAMPLEDBULIRED		
REFERENCES SAMPLEDROLDEPARTMENT (DEPTNO)		
ON DELETE SET NULL.		
ON UPDATE NO ACTION ;		
A TER TARI E GAMES EDGOLEMEI OVER		
ADD CONSTRAINT SAMPLED BITINUMBER		
CHECK(PHONENO >= 10000 AND PHONENO <= \$9991).		
그가 가장 가지 않아 집에 가장 같은 것 같아. 가지 않았다.		
and the second sec		
and the second sec		

Figure 78. Selecting save Script SQL

- ____ 15.On the Save window, click **Look in** to select your directory (C:\DBNAV\SQLScript) from the pull-down menu to save your file.
- ____ 16.In the Name input field, type GENSQLXX4. In the Type input field, leave the default SQL files (.SQL) as shown in Figure 79.
- __ 17.Click Save to save SQL script file.

Save .			x
Look in:	SQL Script	Ē	ð ř 📰
GENSQL01	1.sql		
GENSQL01	2.sql		
GENSOL01	7.sql	Ν.	
GENSOL01	8.sql	15	
GENSQL01	9.sql		
File <u>n</u> ame:	GENSQL014sql		Save
Files of type:	SQL files (.sql)		▼ <u>C</u> ancel

Figure 79. Saving the SQL script

___ 18.Click File-> Exit to close the Run SQL Script window.

- ____ 19.Switch to the Database Navigator window. You are now going to generate the SQL statement for all objects in a library.
- ___ 20.Click Map-> Generate SQL-> All Objects... to generate the SQL statement for all objects in your library as shown in Figure 80.

SAMPLED	DMAPDS - Database Navigator -	A127		
Ete Vew 1	Options Map Help	and the second sec		
000.	S Gemerale BOL .	ALCHARD PLAN PLAN PLAN		
Se Name	ernt fors Delete Map	Generale and show creation SGL for all objects in a	(44)	mî
Tax	Al types	E	MP_RESUME	EMP_PHO
Litrary	SAMPLEOB05		0	٧
	Search	GSV	S_EMPNO	
Library Tree	Littrary Table Objects In Map	10		
	LEDBOS titles 2 AGT 2 CL_DCHED 2 DEPARTMENT 2 INTRODUCT 4 Indones			
No. of Concession, Name			_	1
the set of the second	TO DE LITTLE DE LE DELLE DE	2		

Figure 80. Generate SQL for all objects in a library.

A status window appears showing the progress of the generate SQL as a percentage (Figure 81).

Generating SQL	
36%	

Figure 81. Generating the SQL window

- ___ 21.In the Run SQL Script window, use the scroll bar to navigate to see the generated SQL statements.
- ____22.Explore all the generated statements and enter the order in which they were created (example, views, constraints, tables, Schema, alias....) in Table 3.

SQL statements Objects

Table 3. SQL Generate order

- ___ 23.Click File-> Save As... to save the map.
- __ 24.In the Save window, click Look in to select your directory (C:\DBNAV\SQLScript) from the pull-down menu to save your file.
- ___ 25.In the File name input field, type GENSQLXX5. In the File of type input field, leave the default as SQL files(.SQL).
- ___ 26.Click Save to save the SQL script file.
- ___ 27.Click File-> Exit to close the Run SQL Script window.
- ___ 28.Return to the iSeries Navigator main window.

Task 4: Generating SQL from DDS

The generate SQL function works with objects created using SQL and using DDS. These objects can also be reverse engineered into an SQL create statement.

However, there are options that allow the user to specify that the generated statement should adhere to certain standards. Depending on the standard selected, some objects created through native OS/400 interfaces may not be compatible for use with this functions.

In this task, you generate the SQL statements for physical files that were created using a DDS source file member. You use the DB2 UDB Family standard to generate this SQL statement.

Comment

The objective of this exercise is to combine Generate SQL with the Database Navigator feature. You create two maps of the same schema while following different steps.



Figure 82. Generate SQL and Database Navigator combined

- 1. Click the plus (+) sign next to the Libraries object to expand the list of libraries.
- ____ 2. Change the list of libraries in iSeries Navigator to include the DDSLIBXX Library. Refer to the first step in Task 3, "Displaying properties and descriptions of DB objects" on page 5, in Lab 1.

- ____ 3. Click **DDSLIBXX** (on the right side of the window).
- ____ 4. Right-click the DDSLIBXX library and select Generate SQL as shown in Figure 83.

Ø ISeries Navigator			
File Edit View Help			
回過適当 尋 ※ 55	® X⊺	6 9 🖸 0	
Environment: My Connections		1400we: DDSLIB01	Database: 1400ws
🖅 🌒 Management Central (1400ws)		Name	Туре
E My Connections		E AUDITFIL	Table
🗈 📲 As02b		CTLFILE	Table
🗷 📲 As23		CUSTOMER.	Table
Astha		IIIIH	Table
⊟-■ 1400ws		CRDERDTL .	Table
Basic Operations		CRDERHDR.	Table
Work Management		PRODPIC	Table
Conguration and Server	NCE	CLISRC	Table
E Securbu		CLSRC	Table
E General Groups		E QCMDSRC	Table
Databases		E QCSRC	Table
E 1400ws		QDDSSRC	Table
E-Im Libraries		05QLSRC	Table
15 1031	unlaux.		
- RE QGPL	xpiore		
- TEL QTEN	pen 		
- RE SAME	reate Short	icuit	
- REI SAME	ustomize th	IS YHEW	
THE SAME	enerate 30	Loo	
- RE SAME R	engive from	n List	
TH SAME D	esete		
REAL TEZC P	ermissions		
- Database N	ew	•	
E \$5 Transacti p	202		
⊕ u ² ₂ File Systems p	aste Definit	ion.	
🖲 🧾 Backup			
• P	roperties		

Figure 83. Selecting physical files to generate an SQL statement

- ___ 5. Leave the default options. Click the **Generate** button in the Generate SQL window.
- ____6. The SQL Script Center appears with the generated SQL DDL statements posted in the working area as shown in Figure 84.
- ___7. Use the vertical scroll bar to explore the SQL statements.

중 Untitled - Run SQL Scripts - H400ws
File Edit View Run VisualExplain Options Connection Help
김대학 : #168월 과과과 1 이 여러 것
Examples
Generate SQL Version: VSR1N0 010525 Generated on: 02/23/01 13:40:44 Relational Database: RCHASM27 Standards Option: DB2 UDB AS/400
CREATE SCHEMA DOSLIBXX; SQL150C 10 CRTAUT for schema DDSLIBXX ignored.
CREATE TABLE DDSLIBXX.AUDITFIL (- SQL1509 10 Formatiname AUDITFILR for AUDITFIL in DDSLIBXX ignored. SRNBR CHAR(10) CCSID 37 NOT NULL DEFAULT *, CUSNBR CHAR(5) CCSID 37 NOT NULL DEFAULT *);
LABEL ON TABLE DDSLIB/0CAUDITFIL IS Yudit file for invalid orderhdr inserts/updates";
LABEL ON COLUMN DDSLIBXCAUDITFIL (SRNBR TEXT IS 'SALESREP_NUMBER', CUSNBR TEXT IS 'CUSTOMER_NUMBER');
CREATE TABLE DDSLIBOX.CTLFILE (NUMREC DECIMAL(5, 0) NOT NULL DEFAULT 0.);
CREATE TABLE DDSLIBOX.CUSTOMER (CUSTOMER_NUMBER FOR COLUMN CUSNBR CHAR(5) COSID 37 NOT NULL DEFAULT *, CUSTOMER_NAME FOR COLUMN CUSNAM CHAR(20) COSID 37 NOT NULL DEFAULT *, CUSTOMER_TELEPHONE FOR COLUMN CUSTEL CHAR(15) COSID 37 NOT NULL DEFAULT *, CUSTOMER_FAX.FOR COLUMN CUSFAX CHAR(15) COSID 37 NOT NULL DEFAULT *, CUSTOMER_ADDRESS FOR COLUMN CUBADR CHAR(20) COSID 37 NOT NULL DEFAULT *,

Figure 84. Exploring SQL script generated from a physical file

- Note

Previously, you generated SQL statements that can recreate your existing database (for example, on another iSeries server). In this case, you are going to recreate an existing database on the same iSeries server. For this reason, you must change the schema (database) name from DDSLIBxx to DDSLIBxxC. There are some DDS-specific keywords that cannot be converted to SQL. This appears in the code as messages (see SQL150C and SQL509 in Figure 84).

__ 8. Click Edit and select Replace. A Replace window like the one shown on Figure 85 appears.

eplace	×
Find what	Find Next
DDSUB0X	Replace
Replace with: DDSLIBexC	Replace All
Match case	Cancel

Figure 85. Replace window

____ 9. Review all of the SQL statements. Before you run the script to generate the new schema (DDSLIBxxC), you must move the ALTER TABLE ORDERDTL statement to follow the CREATE TABLE ORDERHDR. You must do this because, in the ALTER TABLE statement, you are trying to define a Referential Integrity constraint, which involves ORDERHDR, that has not been created yet. For this reason, you must move it after the creation of the ORDERHDR table. Figure 86 shows the ALTER statement that you must move to appear after the CREATE TABLE ORDERHDR.

ALTER TABLE	DDSLIB02C.ORDERDTL ADD CONSTRAINT DDSLIB02C.ORDERHDRNUM FOREION KEY(ORDER_NUMBER) REFERENCES DDSLIB02C.ORDERHDR (ORDER_NUMBER) ON DELETE RESTRICT ON UPDATE RESTRICT;
CREATE TABL	E DDSLIB02C.ORDERHDR (ORDER_NUMBER FOR COLUMN ORHNBR CHAR(5) CCSID 37 NOT NULL DEFAULT ", CUSTOMER_NUMBER FOR COLUMN ORHNBR CHAR(5) CCSID 37 NOT NULL DEFAULT ", ORDER_DATE FOR COLUMN ORHDTE DATE NOT NULL DEFAULT CURRENT_DATE, ORDER_DELIVERY FOR COLUMN ORHDLY DATE NOT NULL DEFAULT CURRENT_DATE, ORDER_TOTAL FOR COLUMN ORHDTT DECIMAL(11, 2) NOT NULL DEFAULT 0, ORDER_SALESREP FOR COLUMN SRNBR CHAR(10) CCSID 37 NOT NULL DEFAULT ", CONSTRAINT DDSLIB02C.ORDERHKEY PRIMARY KEY(ORDER_NUMBER));
ALTER TABLE	DDSLB02C.ORDERHDR ADD CONSTRAINT DDSLB02C.ORDERHDRCNBR FOREIGN KEY(CUSTOMER_NUMBER) REFERENCES DDSLB02C.CUSTOMER (CUSTOMER_NUMBER) ON DELETE RESTRICT ON UPDATE RESTRICT;

Figure 86. Altering a table after table creation

- ____ 10.Click the Edit->Cut and Edit->Paste options to move the text.
- 11.Run all the SQL statements and verify that they run successfully. You just created a schema (DDSLIBxxC) from the SQL statements that you created from the original DDS created database (DDSLIBxx).
- ____ 12.You now create a Database Navigator Map of the generated SQL DDSLIB. In the main iSeries Navigator window, expand the **Database** icon.
- ____ 13.Right-click the Database Navigator object and select New to create a new map.
- ____14.Use the criteria selection in the upper locator pane to select your new schema (DDSLIBxxC).
- ____ 15.Click Search to execute. The result appears on the bottom pane under the Library Tree and Library Tables tabs.
- 16.Click the plus (+) sign next to your DDSLIBxxC schema to show objects, such as Tables, Indexes, and Views.
- ___ 17.Click the (+) sign next to the Tables object to expand it.
- 18.Double-click the CUSTOMER table on the lower locator pane to start building a map. This table is added to the map and all of the related objects as shown in Figure 87.



Figure 87. Map of DDSLIBxxC

- ___ 19.Click File-> Save As... to save the Map.
- ___ 20.From the **Save As...** window, click the **Libraries** parameter and select your DDSLIBxxC library from the pull-down menu.
- ___ 21.In the Name input field, type DDSLIBXXMAP.
- ___ 22.In the Description input field, type Map created for the DDSLIBxxC.
- ___ 23.Click **OK** to save the map.

Task 5: Generating a map from DDS

In this task, you learn to generate a Map from a DDS-created database. Then you generate the SQL statement from the Map.

- 1. In the left panel of the main iSeries Navigator window, expand Database-> I400WS-> Libraries.
- ____ 2. Double-click your DDSLIBXX library. All the objects in this library appear in the right panel.
- ___ 3. Right-click the Database Navigator object and select New to create your Map as shown in Figure 88.

and and and see the second second second	19. On 178 on		
Environment: My Connections	I HODWE DDSLIGOT DA	stabove: 1400imi	and a set to see a
Hy Connectors AdOb	Neve Mare Macorrel	Type Table Toble Toble Toble Table Table Table Table Toble Toble Toble Table	Description Audit He for invalid orderhitr inserts/lupidates Source PF for header files of Order Entry App SOURCE PF FOR ALL OLI PIGMS OF ORDER Source IFF for cippes of the order entry app SRC pF for DDS of all pfs, fs, dapf, prtfs of s SQL Procedures Source Files

Figure 88. Creating a map from physical files

- 4. Use the criteria selection in the upper locator pane to select only your DDSLIBXX library. Click the Library parameter and select your library. Refer to the second step in Task 2, "General tasks using the Database Navigator window" on page 17, in Lab 2.
- ___ 5. Click Search to execute. The results appear on the bottom pane under the Library Tree and Library Tables tabs.
- ____ 6. Click the plus (+) sign next to your **DDSLIBXX** database to show the objects found, such as Tables, Indexes, and Views.
- ___ 7. Click the (+) sign next to the **Tables** database object to expand it.
- 8. Double-click the CUSTOMER table in the lower locator pane to start building a map. At this time, this Table is added to the map and all related objects.
- ____ 9. Use the toolbar to select the Zoom In and Zoom Out icons to fit the object size on the map in this window.
- ____ 10.Use the vertical and horizontal scroll bars to navigate to the top of the map as shown in Figure 89.



Figure 89. Displaying a map from physical files

- ____ 11. Take a few moments to analyze the map. Compare it with the one you created in the previous task (GENSQLxx6). Are the maps the same?
- 12.As an optional step, generate an SQL statement from a the map and compare the SQL statement with the one generated in Lab 2, "Database Navigator: General tasks" on page 9.

You have now completed this lab!