SYBASE®

SybStore Tutorials: Database Development

Sybase® WorkSpace

1.5

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About This Book

Audience

This document is for developers who want to use Sybase® WorkSpace integrated development tooling.

How to use this book

This guide is divided into these chapters:

- Chapter 1, "Introduction, Installation, and Setup," introduces the Sybase WorkSpace Database Development tutorials, and describes the tasks you must perform before you can begin the lessons.
- Chapter 2, "Database Development Tutorials" shows you how to use Sybase WorkSpace tools to perform basic database development tasks, including creating, editing, and deploying SQL files, and debugging stored procedures.

Related documents

Sybase WorkSpace tutorials and samples Sybase WorkSpace includes interactive tutorials and samples that show you how to use Sybase WorkSpace tools to create basic parts of a service-oriented application.

The tutorial and sample files and documentation are available for download from Sybase CodeXchange.

For more information about the tutorials and samples and instructions on how to download the files, select **Help**|**Tutorials** from the Sybase WorkSpace main menu bar. To get samples information, select the *Samples* Related Concept at the end of the *Tutorials* topic.

Sybase WorkSpace online bookshelf The Sybase WorkSpace online bookshelf contains all of the Sybase WorkSpace documentation. To access the Sybase WorkSpace bookshelf:

1 In Windows, select **Start**|**Programs**|**Sybase**|**Sybase WorkSpace**|**Sybase WorkSpace 1.5** to start Sybase WorkSpace.

2 Select **Help**|**Help Contents** from the Sybase WorkSpace main menu bar to open the main **Help** window.

The left pane displays the bookshelf contents, while the right pane displays the details of the selection in the left pane.

The Sybase WorkSpace bookshelf contains these document collections:

- *Sybase WorkSpace 1.5 What's New* – summarizes new functionality in this version.
- *Sybase WorkSpace Development* – includes Getting Started, and help for each major component service.
- *Sybase WorkSpace Server Administration* – documents how to stop, start, and manage the servers included with Sybase WorkSpace.

Sybase WorkSpace Getting Started CD The Sybase WorkSpace Getting Started CD includes these documents:

- *Sybase WorkSpace 1.5 Installation Guide*
- *Sybase WorkSpace 1.5 Release Bulletin*
- *Sybase Developer Edition Servers Installation Guide*
- *Sybase Adaptive Server Enterprise 15.0 Installation Guide*
- *Sybase Unwired Accelerator 7.0 Installation Guide*

Other sources of information

Use the Sybase Getting Started CD, the SyBooks™ CD, and the Sybase Product Manuals Web site to learn more about your product:

- The Getting Started CD contains release bulletins and installation guides in PDF format, and may also contain other documents or updated information not included on the SyBooks CD. It is included with your software. To read or print documents on the Getting Started CD, you need Adobe Acrobat Reader, which you can download at no charge from the Adobe Web site using a link provided on the CD.
- The SyBooks CD contains product manuals and is included with your software. The Eclipse-based SyBooks browser allows you to access the manuals in an easy-to-use, HTML-based format.

  Some documentation may be provided in PDF format, which you can access through the *PDF* directory on the SyBooks CD. To read or print the PDF files, you need Adobe Acrobat Reader.

  Refer to the *SyBooks Installation Guide* on the Getting Started CD, or the *README.txt* file on the SyBooks CD for instructions on installing and starting SyBooks.
- The Sybase Product Manuals Web site is an online version of the SyBooks CD that you can access using a standard Web browser. In addition to product manuals, you will find links to EBFs/Maintenance, Technical Documents, Case Management, Solved Cases, newsgroups, and the Sybase Developer Network.

To access the Sybase Product Manuals Web site, go to Product Manuals at http://www.sybase.com/support/manuals/.

Sybase certifications on the Web

Technical documentation at the Sybase Web site is updated frequently.

❖ **Finding the latest information on product certifications**

1 Point your Web browser to Technical Documents at http://www.sybase.com/support/techdocs/.

2 Click Certification Report.

3 In the Certification Report filter select a product, platform, and time frame and then click Go.

4 Click a Certification Report title to display the report.

❖ **Finding the latest information on component certifications**

1 Point your Web browser to Availability and Certification Reports at http://certification.sybase.com/.

2 Either select the product family and product under Search by Base Product; or select the platform and product under Search by Platform.

3 Select Search to display the availability and certification report for the selection.

❖ **Creating a personalized view of the Sybase Web site (including support pages)**

Set up a MySybase profile. MySybase is a free service that allows you to create a personalized view of Sybase Web pages.

1 Point your Web browser to Technical Documents at http://www.sybase.com/support/techdocs/.

2 Click MySybase and create a MySybase profile.

Sybase EBFs and software maintenance

❖ **Finding the latest information on EBFs and software maintenance**

1 Point your Web browser to the Sybase Support Page at http://www.sybase.com/support.

2 Select EBFs/Maintenance. If prompted, enter your MySybase user name and password.

3 Select a product.

4 Specify a time frame and click Go. A list of EBF/Maintenance releases is displayed.

   Padlock icons indicate that you do not have download authorization for certain EBF/Maintenance releases because you are not registered as a Technical Support Contact. If you have not registered, but have valid information provided by your Sybase representative or through your support contract, click Edit Roles to add the "Technical Support Contact" role to your MySybase profile.

5 Click the Info icon to display the EBF/Maintenance report, or click the product description to download the software.

Conventions

The following formatting conventions are used in this document:

Formatting example	To indicate
command names and method names	When used in descriptive text, this font indicates keywords such as: • Command names used in descriptive text • C++ and Java method or class names used in descriptive text • Java package names used in descriptive text
myCounter variable *Server*.log *myfile.txt*	Italic font indicates: • Program variables • Parts of input text that must be substituted • Directory and file names
sybase\bin	A backward slash ("\") indicates cross-platform directory information. A forward slash ("/") applies to information specific only to UNIX.
File|Save	Menu names and menu items display in bold. The vertical bar indicates how to navigate menu selections, such as from the **File** menu to the **Save** option.
parse|put|get Name|Address	In syntax and code examples, the vertical bar indicates: • Options available within code • Delimiter within message examples
create table table created	Monospace font indicates: • Information that you enter on a command line or as program text. • Example output fragments

Formatting example	To indicate
Type the **Name** of the attribute. Click **Apply**.	GUI field or button name that is the recipient of a procedural action.
setup -is:tempdir <*full path to alternate temp directory*>	Information that must be supplied by the user is displayed between brackets.

Accessibility features

This document is available in an HTML version that is specialized for accessibility. You can navigate the HTML with an adaptive technology such as a screen reader, or view it with a screen enlarger.

Note You might need to configure your accessibility tool for optimal use. Some screen readers pronounce text based on its case; for example, they pronounce ALL UPPERCASE TEXT as initials, and MixedCase Text as words. You might find it helpful to configure your tool to announce syntax conventions. Consult the documentation for your tool.

For information about how Sybase supports accessibility, see Sybase Accessibility at http://www.sybase.com/accessibility. The Sybase Accessibility site includes links to information on Section 508 and W3C standards.

If you need help

Each Sybase installation that has purchased a support contract has one or more designated people who are authorized to contact Sybase Technical Support. If you cannot resolve a problem using the manuals or online help, please have the designated person contact Sybase Technical Support or the Sybase subsidiary in your area.

CHAPTER 1

Introduction, Installation, and Setup

This chapter introduces the Sybase WorkSpace Database Development tutorials and describes the tasks you must perform before you can begin the lessons.

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Introduction

The interactive tutorials teach you to use the Sybase WorkSpace tooling to create components for an integrated development environment.

This tutorial is based on a sample application, SybStore, which is provided as a complete, working application.

See the online help topic *Sybase WorkSpace Development|Database Development* for more information.

Note To open the online help, launch Sybase WorkSpace, and select **File|Help** from the main menu bar.

SybStore tutorials

The tutorials use the SybStore sample application, which is a sales and inventory system that automates the following retail business process.

1 A customer buys items from the store, and the cash register records that the items were removed from the shelves.

2 The sales and inventory system notifies the stock clerk on a PDA to restock the items.

3 The stock clerk receives an e-mail message on the PDA to restock specific items when the sales and inventory system determines that restocking is required.

4 The stock clerk updates the sales and inventory system using the PDA when restocking is complete.

The following illustration shows the basic flow of the SybStore application.

Note The illustration includes actions that are not implemented in the SybStore tutorial application. The actions that are implemented in SybStore tutorials are in the shaded area and contain enough examples to demonstrate how to use Sybase WorkSpace.

SybStore sample

Sybase WorkSpace includes a Database Development sample that demonstrates the end result of the completed tutorials.

You can refer to the SybStore sample application at any time—before you start a tutorial, while you are working through a tutorial, or after you complete a tutorial—to explore the application component you build in the tutorial, or to compare your results with the sample.

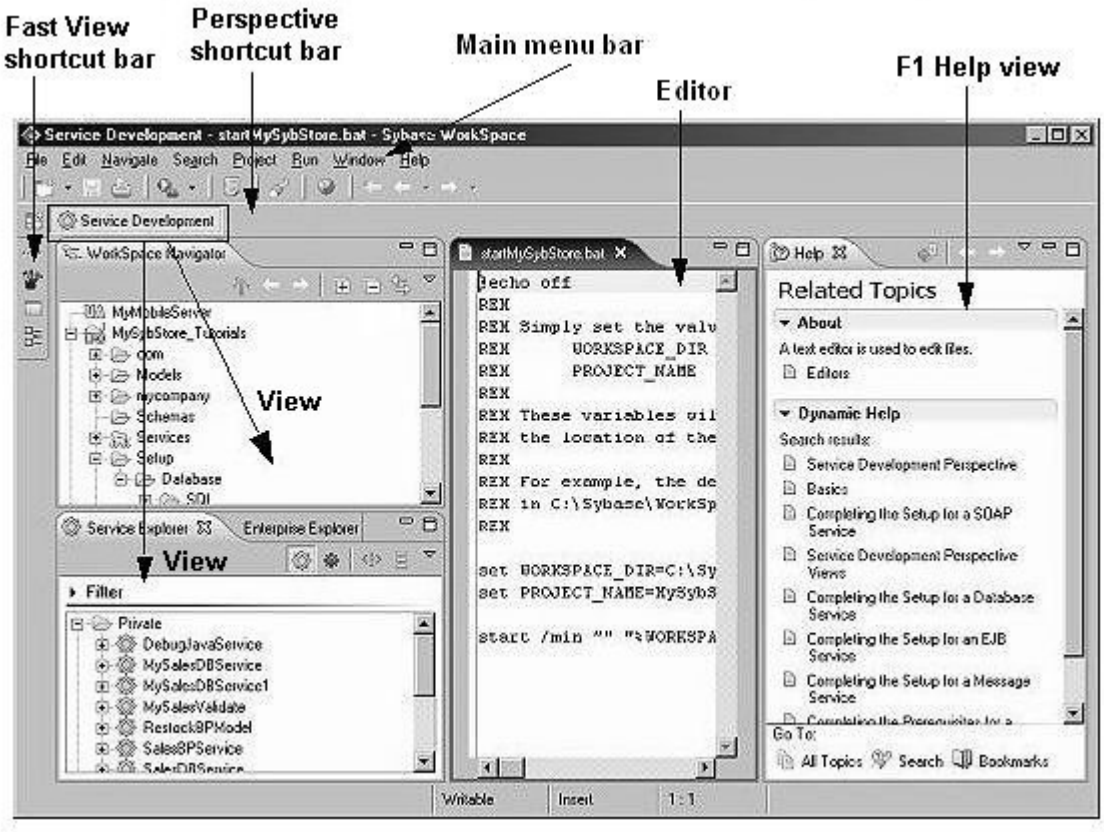
To download and use the component-based samples and documentation, see the online help topic *Sybase WorkSpace Development*|*Getting Started*|*Samples*.

Note To open the online help, after you install Sybase WorkSpace, select **File**|**Help** from the main menu bar.

WorkSpace user interface

The Sybase WorkSpace window is called the **Workbench**. The Workbench opens displaying a **perspective**. A perspective contains views and editors that provide a set of capabilities that enable you to work with resources to perform a task.

The following screen is an example of the Sybase WorkSpace Workbench with the Service Development perspective open.



Becoming familiar with the Eclipse environment

If you are new to Eclipse, take time to review the Sybase WorkSpace and Eclipse online help on the Sybase WorkSpace bookshelf.

To open the help, select **Help|Help Contents** from the main menu bar of the perspective. In the **Contents** pane:

- To learn Eclipse basics, select *Sybase WorkSpace Development|Getting Started|Basics*.
- To review all Eclipse functionality, select *Workbench User Guide*.

Sybase WorkSpace installation

To use the Database Development tutorials, install either Sybase WorkSpace version 1.5 or Sybase WorkSpace 1.5 Evaluation software.

You must have Sybase WorkSpace Database Development tooling and the ASA 9.0.2 Developer Edition server installed before you begin the tutorials.

For more information, see the *Sybase WorkSpace Installation Guide* and the *Sybase Developer Edition Servers Installation Guide*.

Tutorial setup

To prepare your Sybase WorkSpace installation to run the Web Application Development tutorial, complete the setup procedures in this section:

1 Downloading the MySybStore_Tutorials project.

2 Importing the tutorial into Sybase WorkSpace.

3 Starting and connecting to the MySybStore database.

4 Initializing the tutorial database.

Downloading the MySybStore_Tutorials project

Before you begin the tutorial, download and import the files that create the MySybStore_Tutorials project, which contains resources you use in the tutorial.

1 In a Web browser, go to the :Sybase Web site at https://workspace.codeexchange.sybase.com.

2 If you have a MySybase account, enter your **E-mail Address** and **Password**, click **Login**, and go to step 3.

   If you do not have a MySybase account, click **Register now!** and follow the steps to create an account.

   After you log in, the workspace Project homepage opens.

3 In the **Popular Folders** table, click **SybStore** in the **Tutorials v1.5** column.

The **WorkSpace Documents & files: SybStore** page opens.

4 Right-click **SybStore Tutorials Project Zip** and select **Save Target As** from the context menu.

The **Save As** dialog box opens.

5 Navigate to the location where you want to save the file and click **Save**.

A progress bar indicates that the file is downloading to the selected location.

Next, import the tutorial file into Sybase WorkSpace.

Importing the tutorial into Sybase WorkSpace

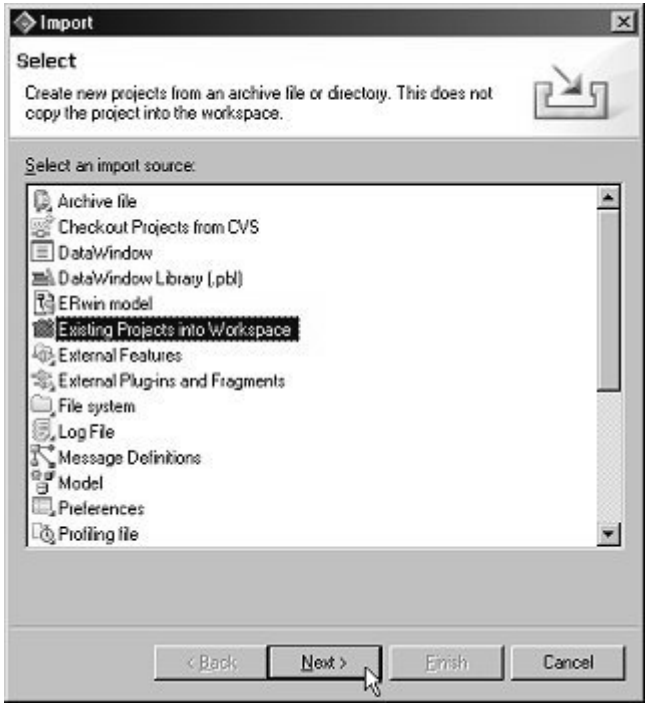
1 From the Windows Start menu, select **Start|Programs|Sybase|Sybase WorkSpace|Sybase WorkSpace 1.5** to start Sybase WorkSpace.

2 If the Sybase WorkSpace **Welcome** page displays, click the **Close** icon in its title bar.

The default Service Development perspective is open.

3 Select **File|Import** from the main menu bar of the perspective.

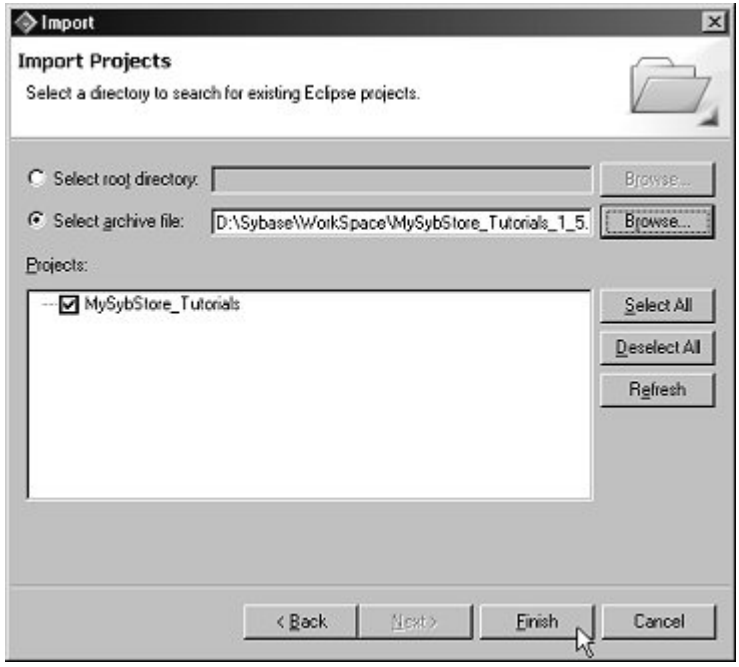
4 When the **Import** wizard opens, select **Existing Projects into WorkSpace** and click **Next**.



5 From **Import Projects**, select **Select archive file**, and click **Browse.**

6 When the file selection page opens, navigate to the *MySysStore_Tutorials_1.5.zip* file and click **Open**.

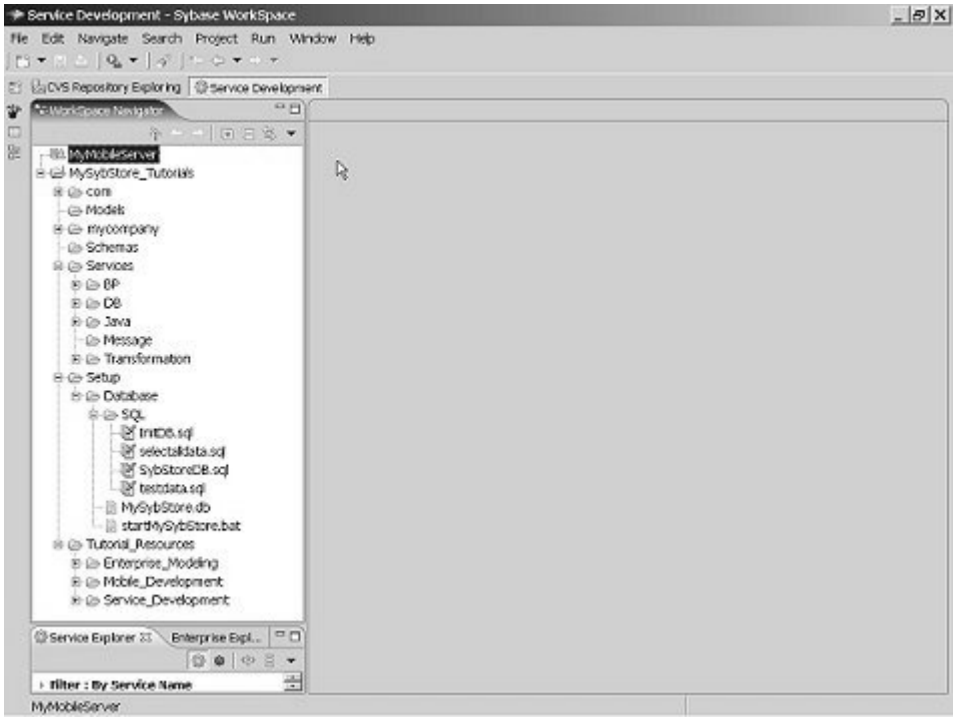
7 In the **Project**s list box, verify **MySybStore_Tutorials** is selected and click **Finish.**



The project imports and displays in the WorkSpace Navigator.

Reviewing the MySybStore_Tutorials project

Tutorial resources are stored in the MySybStore_Tutorials project. To view the project resources, expand the MySybStore_Tutorials project in the WorkSpace Navigator.



The following table describes the top-level MySybStore_Tutorials folders:

Folder	Description
com	Automatically generated based on package names contained in services and schemas.
Models	Location to which you should save tutorial models.
mycompany	Location in which the database service proxy files are stored when they are generated.
Services	Folder to which service files are saved. This folder contains subfolders for each service type, such as *BP* (Business Development), *DB* (Database), *Java*, *Message*, and *Transformation*, to help categorize the services.
Setup	Contains the tutorial database and SQL scripts. Use the files in this folder to re-create the original database.

Folder	Description
Tutorial_Resources	Contains examples of resources created by the tutorial and miscellaneous resources, such as XSD files, required by the tutorial. This folder contains subfolders related to other tutorials.

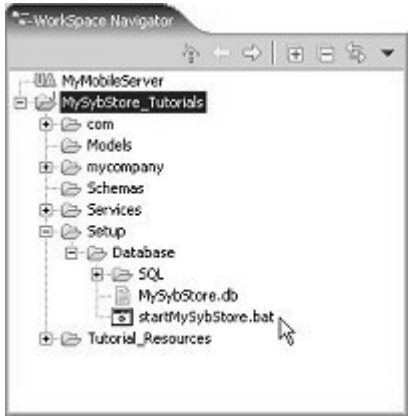
As you work through each lesson, you add new resources to the project.

Starting and connecting to the *MySybStore* database

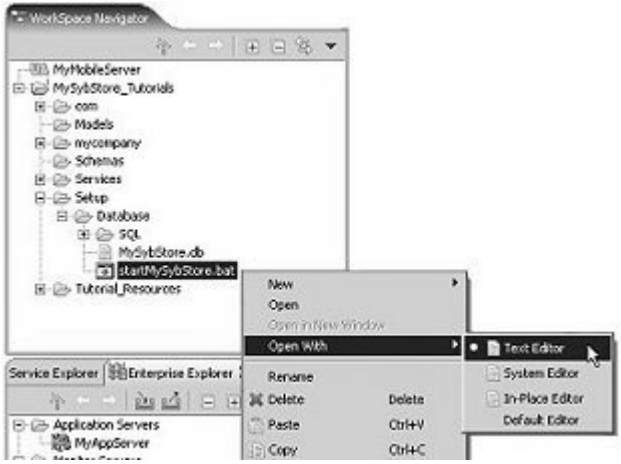
The MySybStore database is a Sybase Adaptive Server Anywhere database, located in the MySybStore_Tutorials tutorial project you created. Because the tutorial database is required, you must start and connect to the MySybStore tutorial database.

Starting the MySybStore database

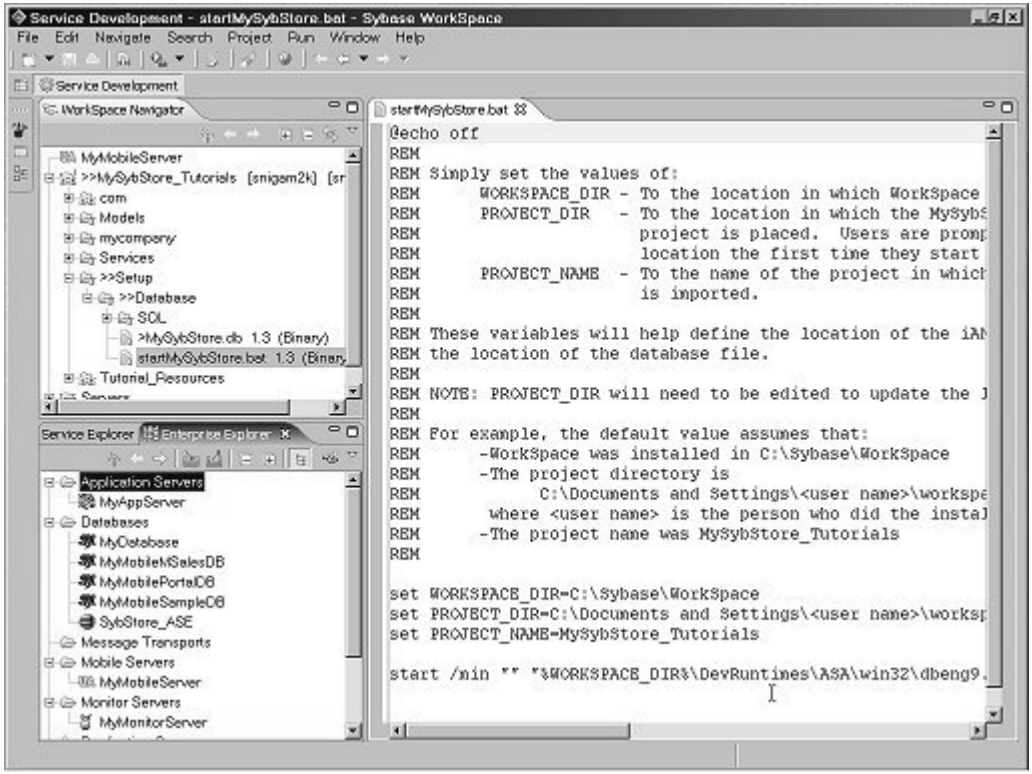
1 In the **WorkSpace Navigator**, expand **MySybStore_Tutorials, Setup,** and **Database**.



2 In the **WorkSpace Navigator**, right-click *startMySybStore.bat*, and select **Open With|Text Editor** from the context menu.



The batch file opens in the text editor.



3 Edit the following lines in *startMySybStore.bat* to set the variable values for your installation and project name:

```
set WORKSPACE_DIR=C:\Sybase\WorkSpace
set PROJECT_DIR=C:\Documents and Setting\<username>\workspace
```

- *WORKSPACE_DIR* must point to the directory in which Sybase WorkSpace is installed; for example, *D:\Sybase\Workspace*.
- *PROJECT_DIR* must point to the directory in which you want your project files stored. The default is *C:\Documents and Settings\<username>\workspace*. If you created your workspace elsewhere, change the variable value.

  For example, if you had the installation create your workspace on *D:\Sybase\<username>\workspace*, change the value to match that path.

4 Select **File|Save** from the main menu bar to save the changes.

5 Select **File|Close** from the main menu bar to close the editor.

6 To start the database, right-click *startMySybStore.bat* in the WorkSpace Navigator and select **Open With|System Editor** from the context menu.

  The Adaptive Server Anywhere, Developer Edition pop-up appears for a few seconds. The Adaptive Server Anywhere icon then displays in your system tray, indicating that the database is running.

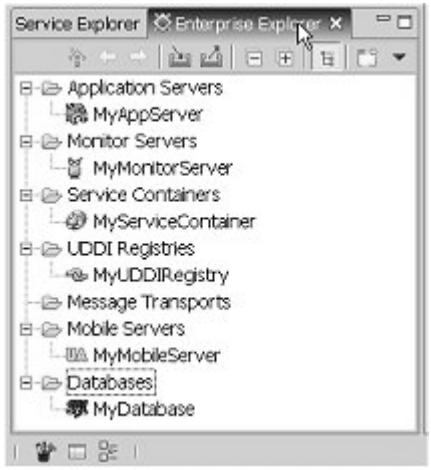
Creating a database connection profile

A connection profile must exist for the MySybStore tutorial database. The connection profile allows Sybase WorkSpace to connect to the database after the database is started.

Note The first time you execute a SQL file, you must specify the connection profile. Subsequently, you do not have to specify the connection profile unless you want to change it. You can create multiple connection profiles for the same database by saving each profile to a different file, which allows you to use different ports or user names and passwords.

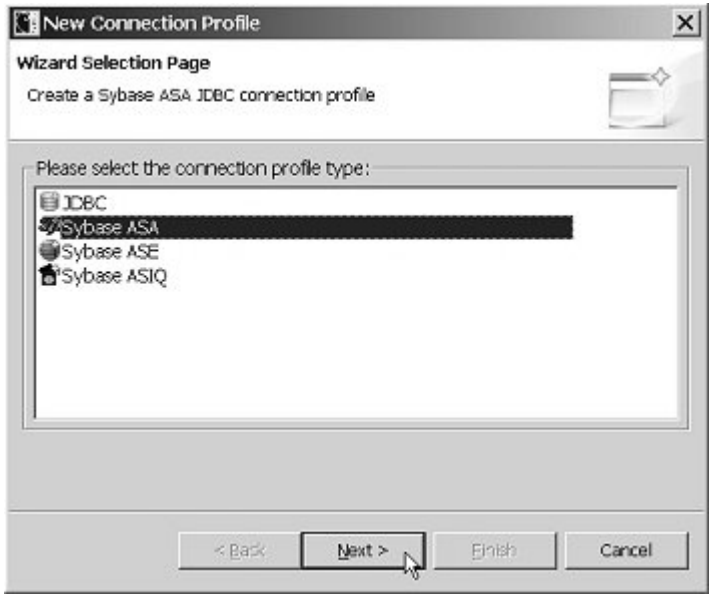
A connection profile contains the connection information, for example, host name and port, that Sybase WorkSpace uses to connect to a server resource. Create and configure connection profiles in the Enterprise Explorer.

1 Select the **Enterprise Explorer** tab, which displays in the perspective if the view is open. If the view is not open, select **Window|Show View|Enterprise Explorer** to open the view.

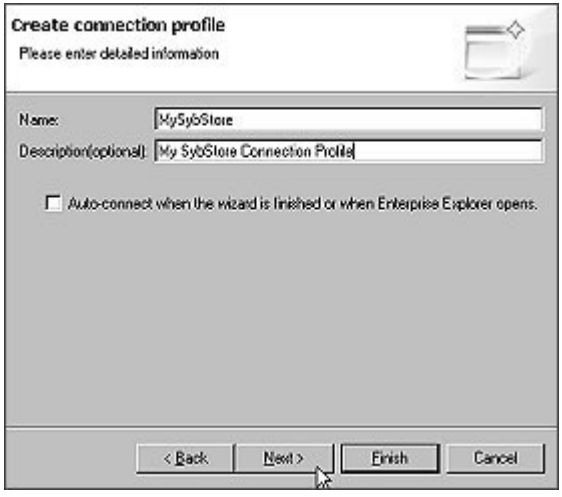


2 In the **Enterprise Explorer**, right-click **Databases** and select **New** from the context menu.

3 When the **New Connection Profile** wizard opens, select **Sybase ASA** from the connection profile type list and click **Next**.



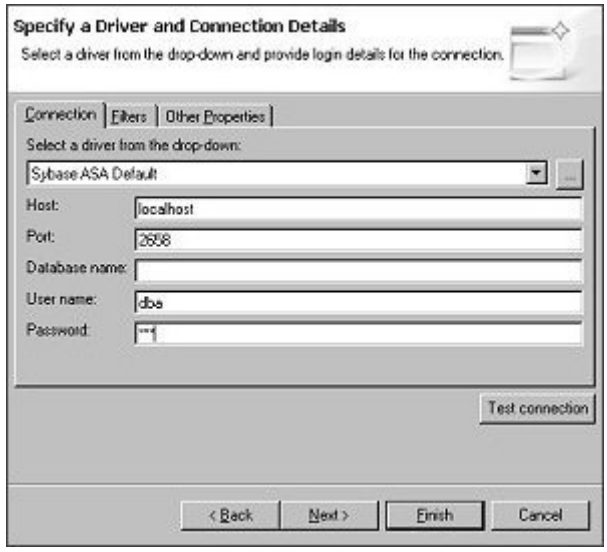
4 Do the following: Type `MySybStore` in the **Name** field, and `MySybStore Connection Profile` in the **Description** field. Click **Next**.



5 On the **Driver and Connection Details** page:

- Verify **Port** is set to `2658`.

- Change **Password** to `SQL`.



6 Click **Test Connection** to ensure the values are correct.

The following prompt displays: `Ping Succeeded`.

Note If the ping fails, verify that the MySybStore database is running and that the values entered for **Driver and Connection Details** are correct.

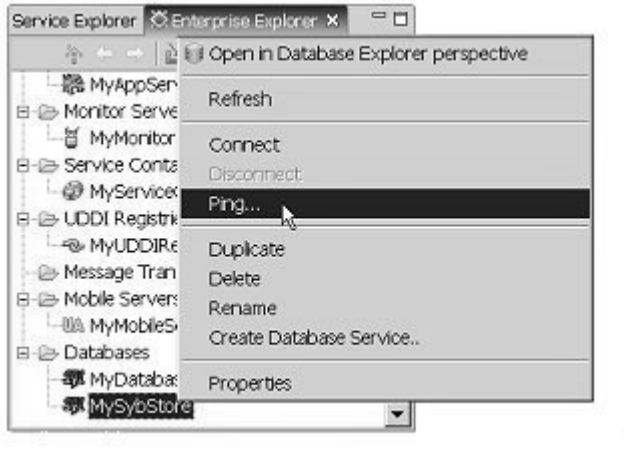
---

7 Click **OK**.

8 Click **Finish**.

Next, test the connection profile.

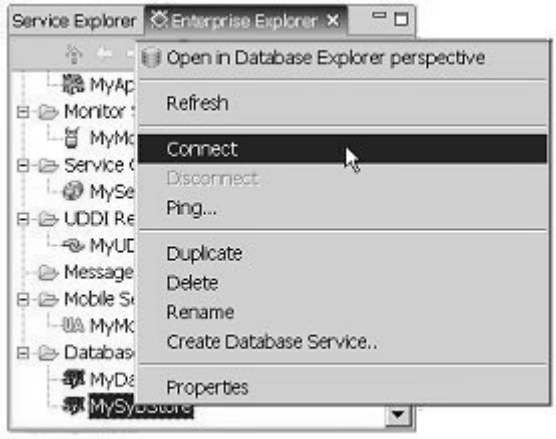
9 In the **Enterprise Explorer**, expand **Databases**, right-click the **MySybStore** connection profile, and select **Ping** from the context menu.



10 When a prompt indicates `Ping Succeeded`, click **OK**.

The final step in this procedure is to connect to the database.

11 In the **Enterprise Explorer**, right-click the **MySybStore** connection profile in **Databases** and select **Connect** from the context menu.



A successful connection is indicated when the database version appears beside the database name in the **Enterprise Explorer** and a database icon displays under the connection profile.

You have created a connection profile and connected to a running database. The MySybStore database is used in many of the Sybase WorkSpace tutorials.

Initializing the tutorial database

1 Complete the steps in "Tutorial setup" on page 5.

WorkSpace must be running, the SybStore tutorial files must be installed, the SybStore database must be running, and you must be connected to the database using the SybStore connection profile.

2 If the **Database Development** perspective is open, continue to the next step.

If the **Database Development** perspective is not open, select **Window|Open Perspective|Database Development** from the main menu bar.

3 Execute the *InitDB.sql* script:

a In the **WorkSpace Navigator**, expand **MySybStore_Tutorials, Setup, Database, SQL,** select and right-click *InitDB.sql*, and select **Execute SQL File** from the context menu.

b When the **Select Profile for the Editor** dialog box opens, select the following values.

Field	Select
Database type	**Adaptive Server Anywhere_9.x**
Connection Profile name	**MySybStore**

c Click **OK**.

A progress window indicates that the script is executing. When the script finishes running, the SQL Results view displays in the perspective.

4 Execute the *testdata.sql* script:

a In the **WorkSpace Navigator**, expand **MySybStore_Tutorials. Setup, Database, SQL,** select and right-click *testdata.sql*, then select **Execute SQL File** from the context menu.

b When the **Select Profile for the Editor** dialog box opens, select the following values.

Field	Select
Database type	**Adaptive Server Anywhere_9.x**
Connection Profile name	**MySybStore**

c Click **OK**.

A progress window indicates that the script is executing. When the script finishes running, the SQL Results view displays in the perspective.

CHAPTER 2

Database Development Tutorials

This chapter contains the Database Development tutorials.

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Overview

The Database Development tutorials show you how to use Sybase WorkSpace tools to create, edit, and execute a SQL script in a database, how to view and manage SQL script query execution plans, how to view and edit database data, and how to debug database stored procedures.

Note There is also an Adaptive Server Enterprise component-level tutorial, which is not based on the SybStore sample database, that teaches you how to work with Adaptive Server stored procedures and triggers. See the *Sybase WorkSpace Component Tutorials: Adaptive Server Enterprise* guide, which is available from the MySybase Web page at http://www.codexchange.sybase.com/.

Prerequisites

Before you begin the Database Development tutorials, complete all of the installation and setup procedures in Chapter 1, “Introduction, Installation, and Setup.”

Creating, editing, and executing SQL files

In this tutorial, you will learn how to create a SQL script, modify the SQL script using the basic editing features of the Database Development editor, execute the SQL script, and view execution results. This tutorial contains two lessons:

Lesson 1: Creating a SQL file
Lesson 2: Editing and executing a SQL script

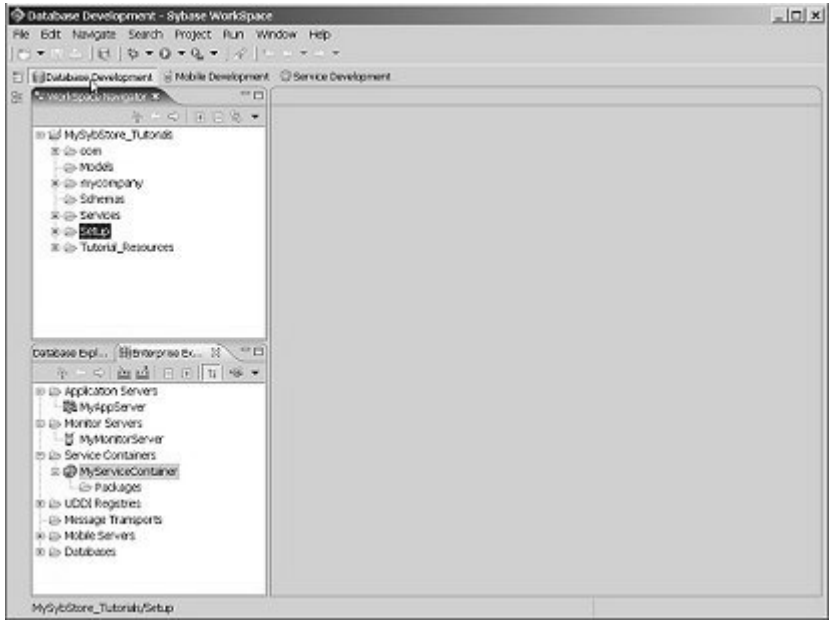
Lesson 1: Creating a SQL file

SQL files provide a convenient way to group together SQL statements for later execution and reuse in a project. This lesson teaches you how to create a SQL file and perform some basic operations on that file.

1 Select **Window|Open Perspective|Database Development** on the Sybase WorkSpace main menu bar.

Note If the Database Development perspective is not on the Open Perspective context menu, select **Window|Open Perspective|Other**, choose **Database Development** from the **Select Perspective** dialog box, and click **OK**.

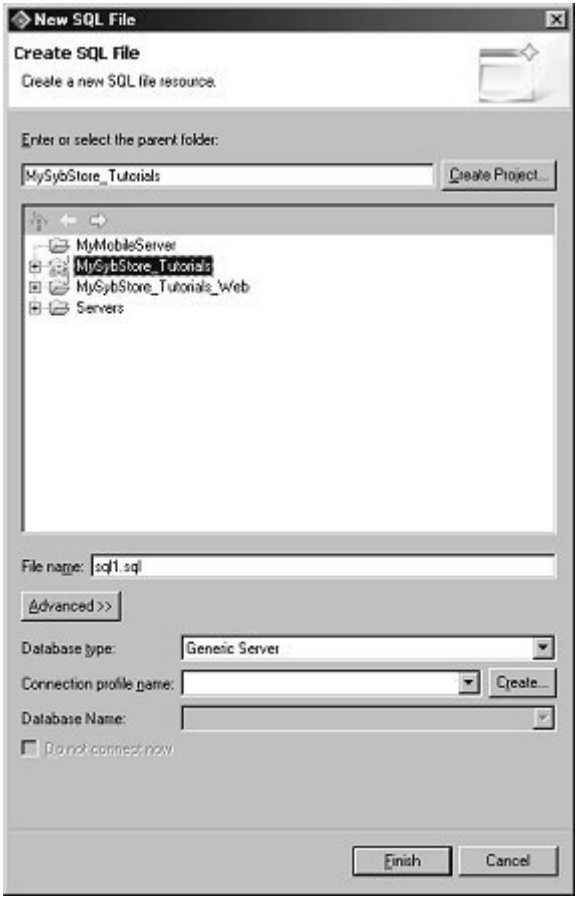
The **Database Development** perspective displays the **WorkSpace Navigator** view on the top left, with the **Database Explorer** and **Enterprise Explorer** view on the bottom left.



You should see the *MySybStore_Tutorials* project folder in the **WorkSpace Navigator**.

Note If you do not see the MySybStore_Tutorials project, you have not completed the required tutorial setup. You must complete all of the installation and setup procedures in Chapter 1, "Introduction, Installation, and Setup."before you begin the tutorial.

2 Select **File|New|SQL File** from the Sybase WorkSpace main menu to open the **New SQL File** wizard.



3 Complete these **Create SQL File** options:

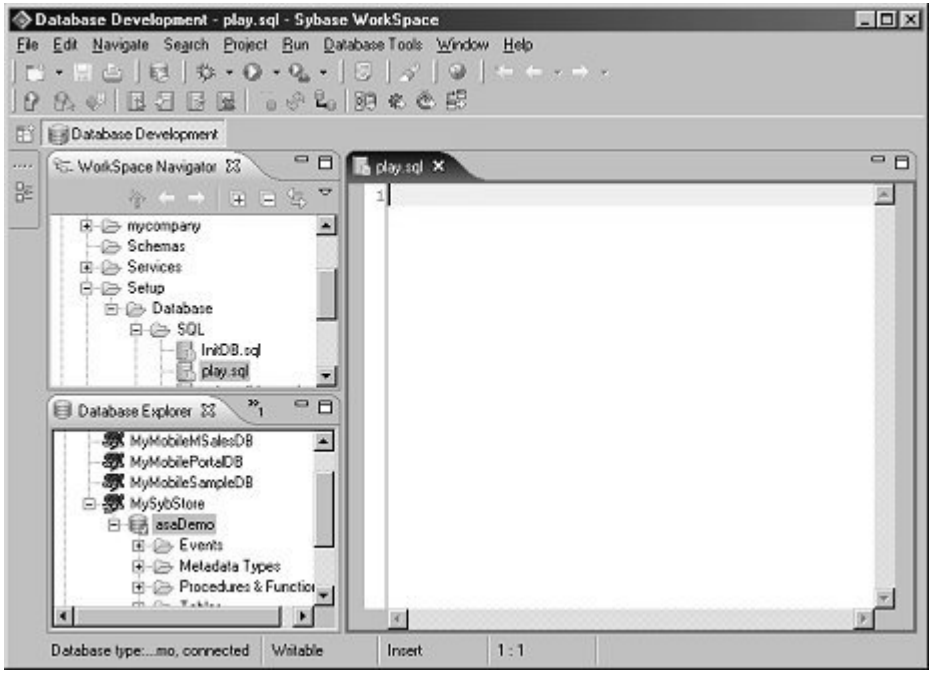
a In the tree view, expand *MySybStore_Tutorials* and select the *MySybStore_Tutorials/Setup/Database/SQL* folder to populate the **Enter or Select the Parent Folder** field.

b **File Name** – enter `play.sql`.

c **Database Type** – select **Adaptive Server Anywhere_9.x** from the drop-down list.

d **Connection Profile Name** – select **MySybStore** from the drop-down list.

4 Select **Finish**. The empty *play.sql* file is created and opened in the editor.



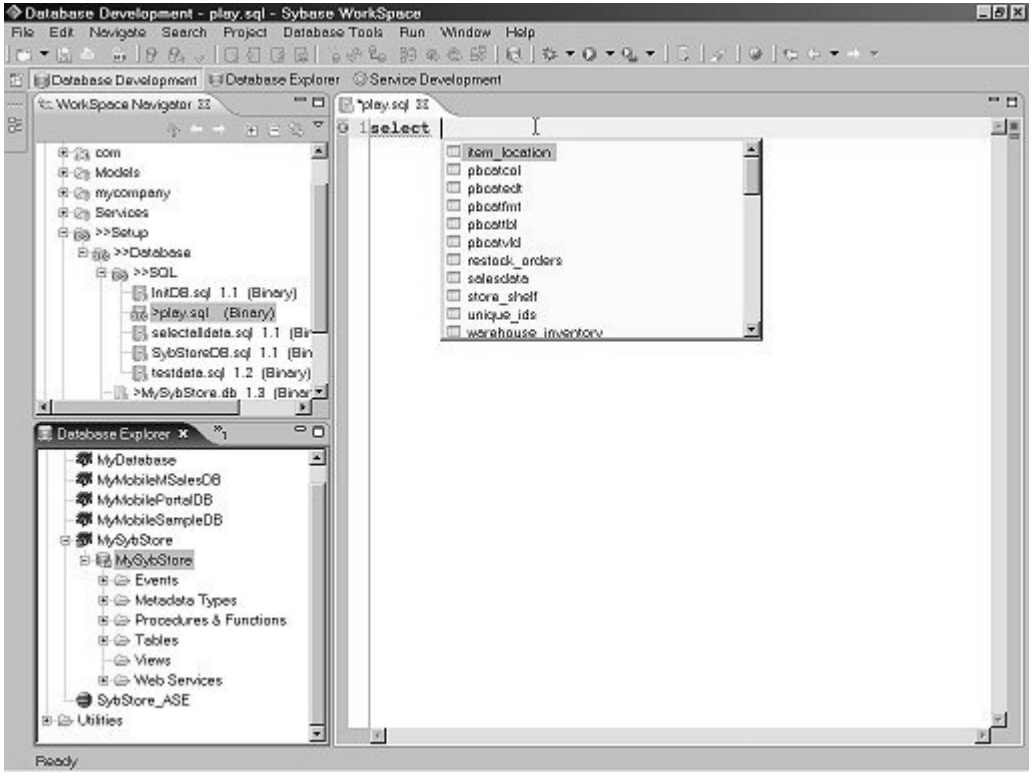
Lesson 2: Editing and executing a SQL script

In this lesson, you will learn how to enter SQL statements in the script, add or remove comments, execute the script, and view the results. Then you will use the Visual SQL wizard to modify the script, then execute it again with the modifications.

1 In the SQL Editor where the *play.sql* file is open, type `select` (the word "select," followed by a space). Several things occur:

- An "**X**" in a red circle appears at the beginning of the line, which indicates that the SQL is not valid.
- When you pause after typing a space in the editor, a window opens to the right of the cursor that presents a list of available syntax options while you are editing SQL statements. This is the Content Assist feature.

Note To select an item from Content Assist, either double-click your choice or click your selection and press Enter. See the online help topic *Sybase WorkSpace Development|Database Development|Develop|Editing Procedural Objects|Using Content Assist* for more information.



2 Continue typing until the line reads:

```
select * from store_shelf
```

which means "select everything from the store_shelf table in the Sybase WorkSpace tutorial sample database."

As you type:

- The "**X**" at the beginning of the line disappears once the SQL is valid.
- The syntax options shown by Content Assist change as you move to different parts of the SQL statement.

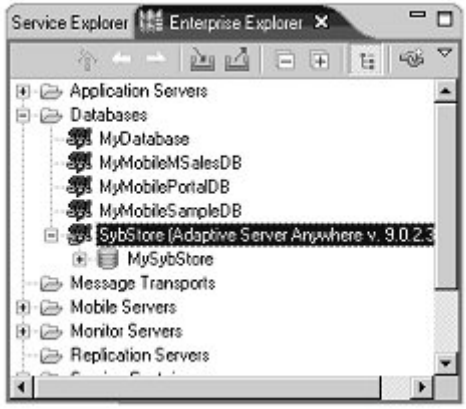
Now you can execute the script; however, you must first start and connect to the tutorial database.

3 If the tutorial database is already running, go to step 4.

If the tutorial database is not running, in the **WorkSpace Navigator**, expand the folder *MySybStore_Tutorials/Setup/Database*. Right-click *startMySybStore.bat* and select **Open With|System Editor** to start the tutorial database.

You should see the Adaptive Server Anywhere icon in your Windows system tray. 

4 If a connection to the SybStore tutorial database is already established, skip to step 5. When there is a successful connection, you see a database icon below the SybStore connection profile.

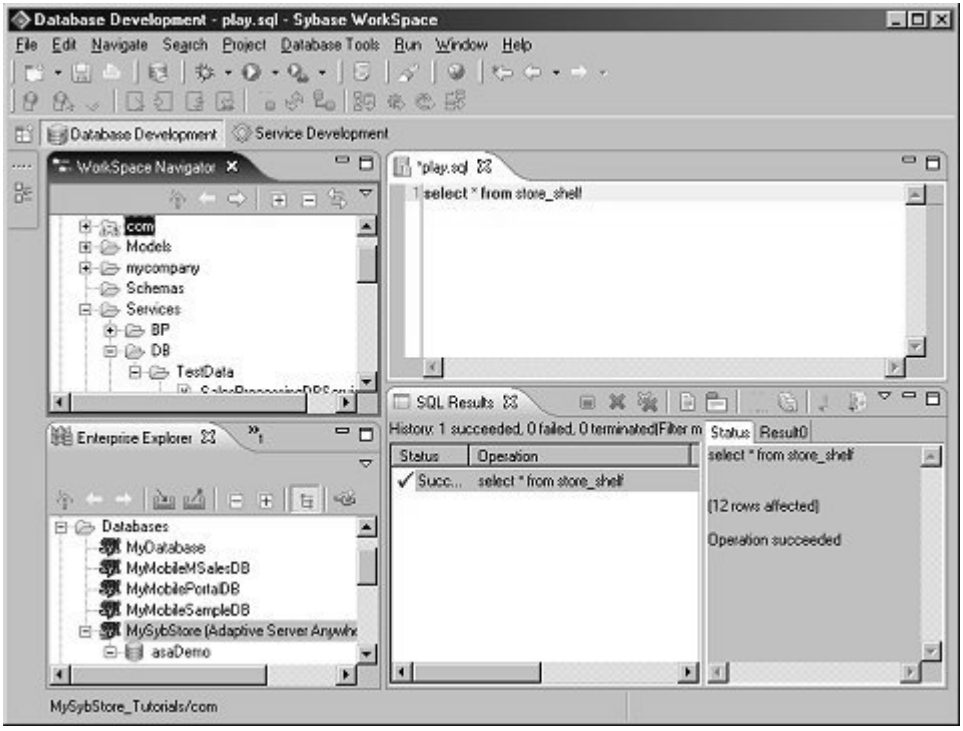


If you are not connected, in the **Enterprise Explorer**, right-click the **MySybStore** connection profile, which you created in the tutorial setup, and select **Connect** to connect Sybase WorkSpace to the tutorial database.

5 Execute the SQL statement by right-clicking in the editor and selecting **Execute All**.

Note When a SQL file is open, right-click in the editor and choose **Execute All** to run all SQL statements in a file. Choose **Execute Selected Text** to run only the selected text in a SQL file. You can also run all statements in a file after the file has been saved by right-clicking the file name in the **WorkSpace Navigator** and selecting **Execute SQL File**.

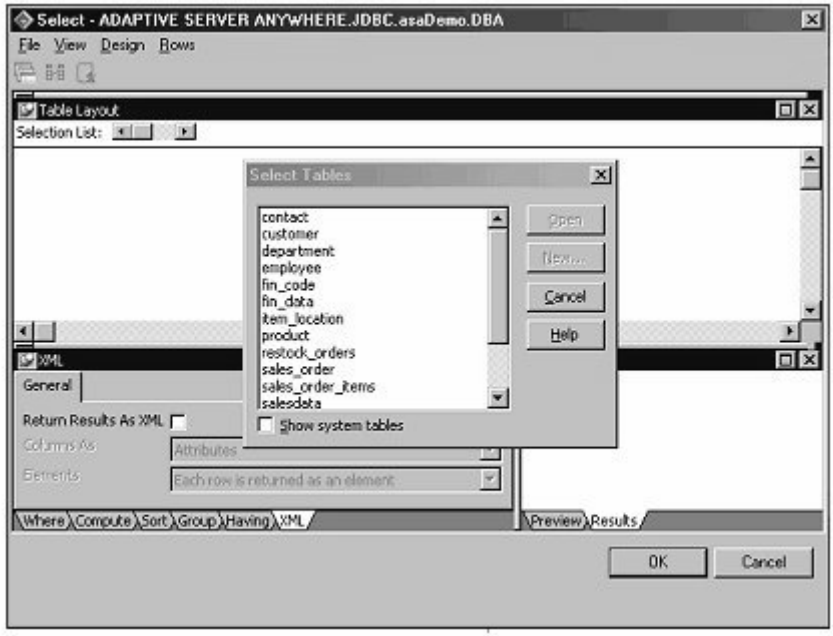
You see the **SQL Results** view with the outcome of the script execution.



Now you will use the Visual SQL wizard to add a SQL statement.

6 In the editor, place the cursor at the end of the first line in the *play.sql* file, then press Enter twice. The cursor should be on line 3 of the file, which is where you want to add the new SQL statement.

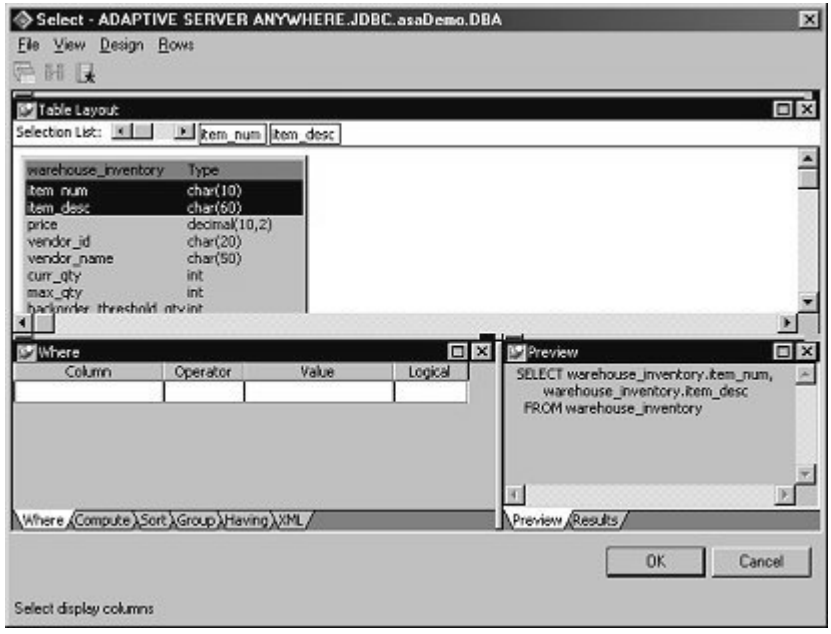
7 Right-click in the editor and select **Visual SQL|Select** from the context menu. The Visual SQL wizard opens.



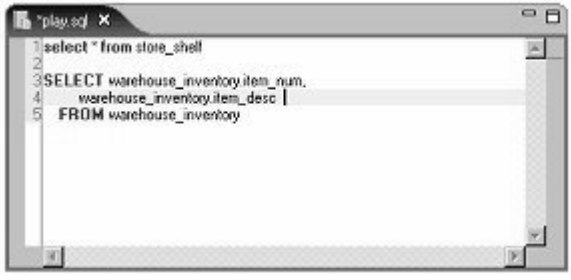
8 In the **Select Tables** window, select warehouse_inventory and click **Open**. You see three main views in the wizard:

- **Table Layout** – select columns.
- **Where** – create a more complex SQL statement by adding and nesting clauses. The tabs at the bottom of the view represent different clauses of a SQL statement appear at the bottom of the lower view.
- **Results, Preview** – view the results or a preview of the SQL statement you are creating.

9 Highlight item_num and item_desc in the **Table Layout** view. These columns are added to **Selection List** bar in the **Table Layout** view and display the **Preview** view.



10 To close the Visual SQL wizard and add the new statement to the SQL file, click **OK**.

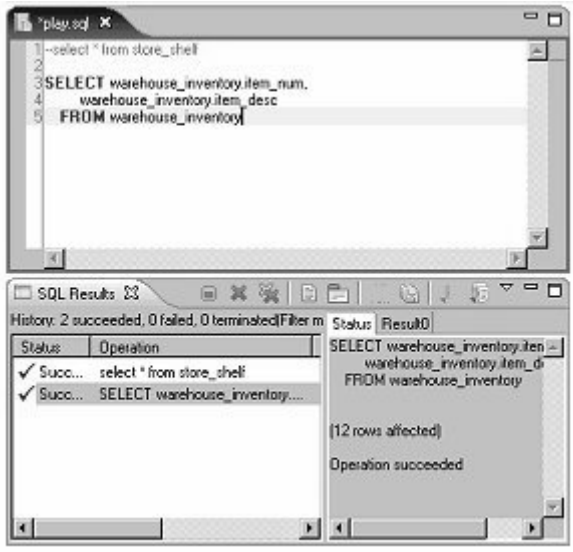


11 Comment out the first line in the SQL file. Place the cursor anywhere on line 1, right-click, and select **Toggle Comment** from the context menu.

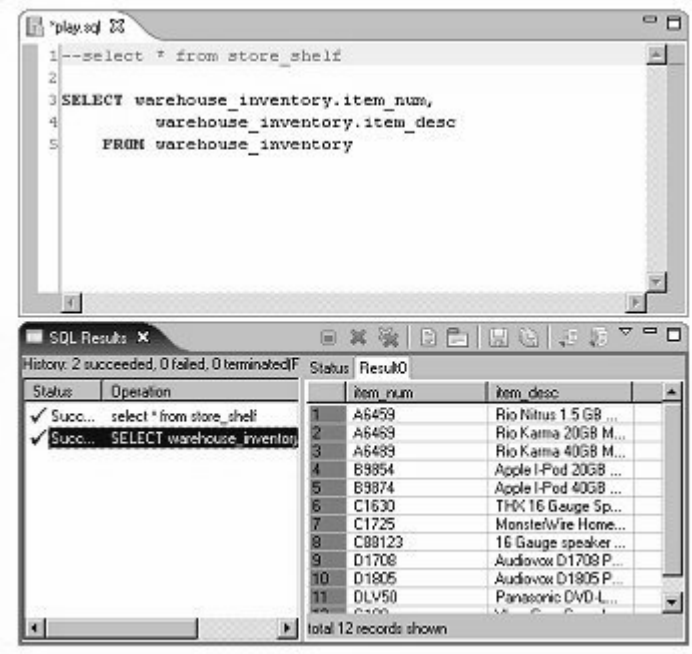
Note You can also uncomment the line or comment and uncomment multiple lines.

- To uncomment one line, right-click anywhere on line 1 and select **Toggle Comment** from the context menu, or place the cursor at the beginning of the line and press **Ctrl /** (Control + Backslash).
- To comment or uncomment multiple lines, select the lines, right-click on your selection, then select **Toggle Comment** from the context menu.

12 Right-click in the editor and select **Execute All** from the context menu. Look at the **SQL Results** view to see the outcome of executing the modified script.



13 Select the **Result** tab in the **SQL Results** view to see items selected from the table based on the executed statement.



14 To save the SQL file, select **File|Save** from the Sybase WorkSpace main menu.

15 Close the editor and **Results** views by clicking the "**X**" next to the view's title. You now know how to create a SQL file, perform basic edits on that file, execute the file, and view the results.

Executing existing SQL scripts

This tutorial teaches advanced SQL script execution. You will learn how to execute an existing SQL script in a database. After you execute the script, you will have a complete database, with tables, indexes, referential integrity constraints, and stored procedures created by the SQL script. You will view a statement's execution plan and learn how to change the preferences for the execution of selected SQL statements.

This tutorial consists of two lessons:

Lesson 1: Opening and executing a SQL script
Lesson 2: Accessing a query plan

Lesson 1: Opening and executing a SQL script

In this lesson, you will execute a MySybStore database SQL script. You must first complete “Creating, editing, and executing SQL files” on page 20.

1 If the **Database Development** perspective is already open, continue to the next step.

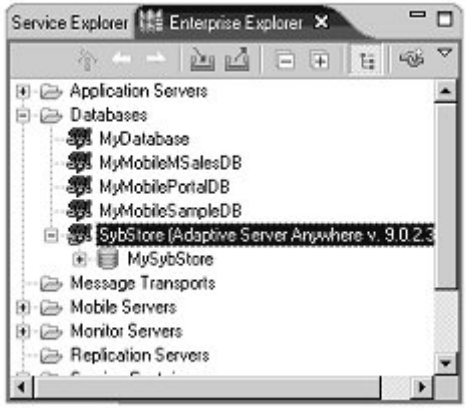
If the **Database Development** perspective is not open, select **Window|Open Perspective|Database Development** from the Sybase WorkSpace main menu bar.

2 If the tutorial database is already running, go to step 3.

If the tutorial database is not running, in the **WorkSpace Navigator**, expand the folder *MySybStore_Tutorials/Setup/Database*. Right-click *startMySybStore.bat* and select **Open With|System Editor** to start the tutorial database.

You should see the Adaptive Server Anywhere icon in your Windows system tray. 

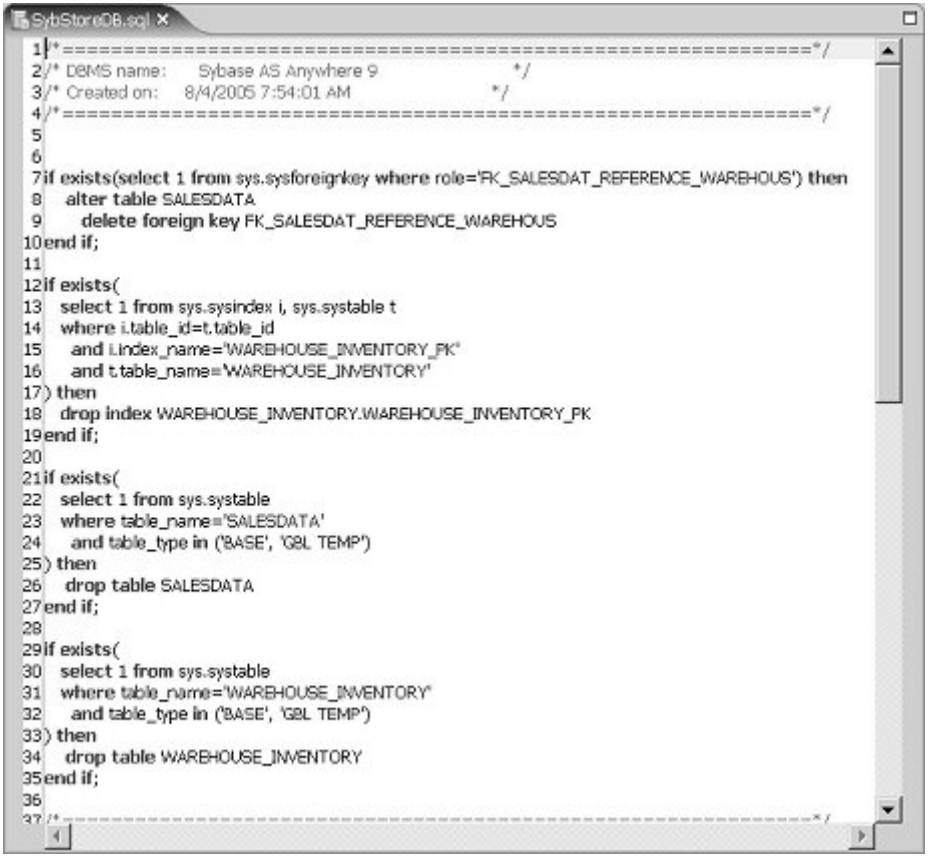
3 If a connection to the SybStore tutorial database is already established, go to step 4. When there is a successful connection, you see a database icon below the SybStore connection profile.



If you are not connected, in the **Enterprise Explorer**, right-click the **MySybStore** connection profile, which you created in the tutorial setup, and select **Connect** to connect Sybase WorkSpace to the tutorial database.

4 In the **WorkSpace Navigator**, expand the *MySybStore_Tutorials/Setup/Database/SQL* folder and double-click the *SybStoreDB.sql* file.

Sybase WorkSpace displays the SQL script contents in the SQL editor.



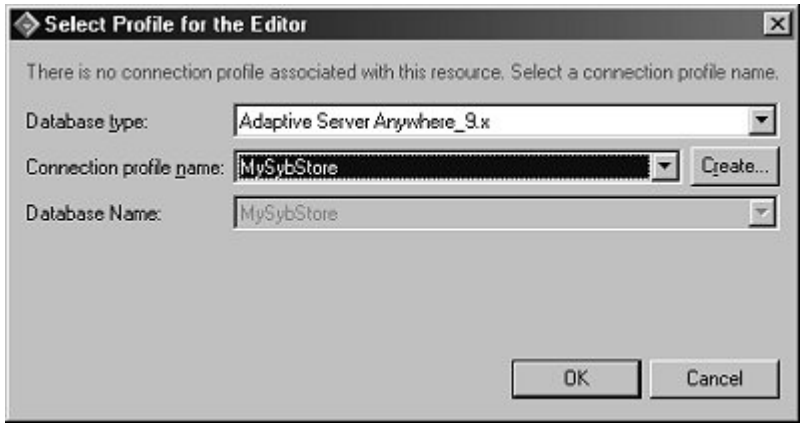
5 In the **WorkSpace Navigator**, right-click *SybStoreDB.sql*, and select **Execute SQL File** from the context menu.

You see the **Select Profile for the Editor** dialog box.

6 Complete these fields:

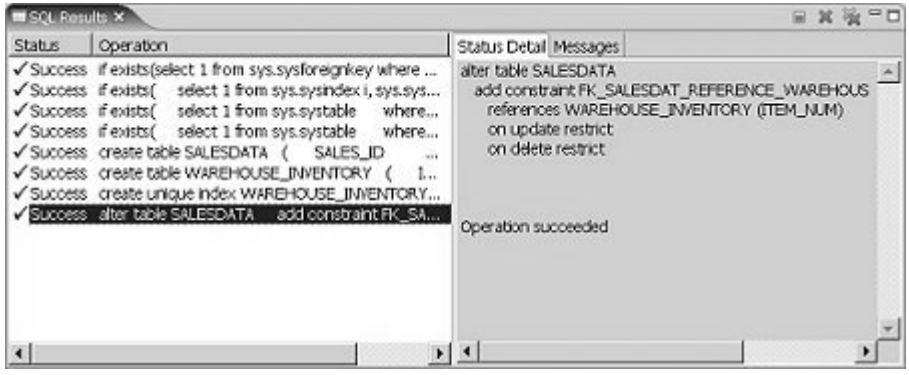
- **Connection Profile Type** – select **Adaptive Server Anywhere_9.x**.

- **Connection Profile Name** – select **MySybStore**.



Once you make these selections, the **Database Name** is automatically filled in.

7 Click **OK**. When execution completes successfully, the following output appears in a **SQL Results** pane that displays in the Sybase WorkSpace main window.



Each line in the history pane (on the left) displays the summary information on statements executed in the SQL script.

8 In the **SQL Results** pane, click a SQL statement line on the left to view that statement's detail on the right below the **Status Detail** tab.

9 Close the **SQL Results** pane by clicking the "**X**" on the title tab. You have finished running a SQL script on a database server.

Leave the SQL editor open for the next lesson.

Note To execute a subset of a SQL script, select only the statements you want to execute, then right-click and select **Execute Selected Text** from the context menu.

Lesson 2: Accessing a query plan

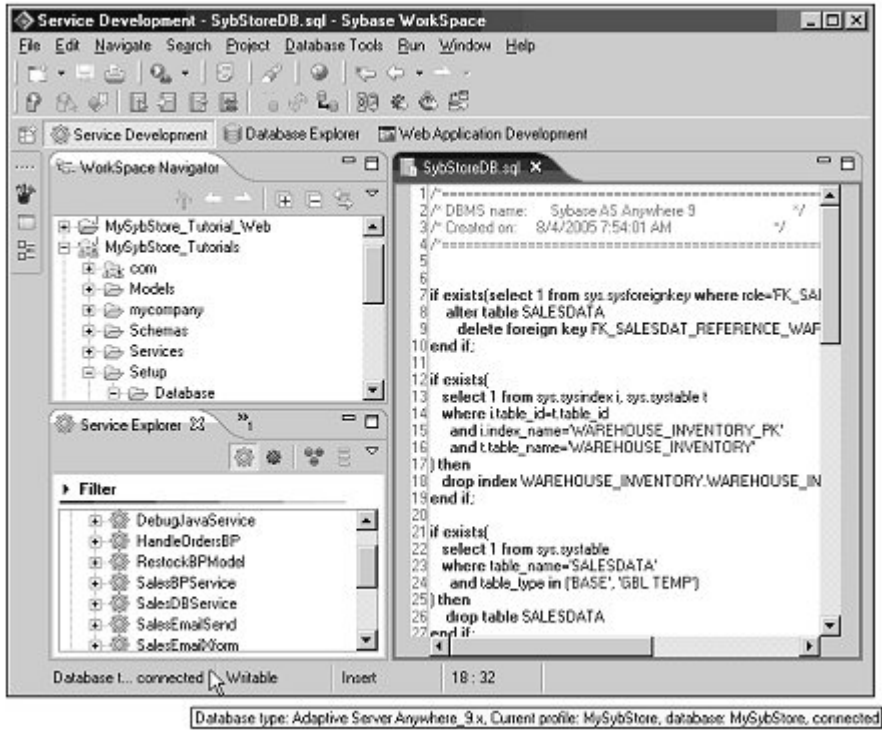
Sybase WorkSpace allows you to select a SQL statement in the SQL editor and use the context menu to visually display the execution plan of the statement. This allows developers or database administrators to optimize the database and SQL code. SQL developers or database administrators can tell from the query plan when, for example, to create table indexes, reorganize data tables, or change the way a query is written.

In this lesson, you will learn how to:

- Display a query plan
- Change query plan preferences
- Save and load query plans to and from files
- View and delete previously displayed plans

Note This lesson does not teach you how to use a query plan, only how to access a query plan in Sybase WorkSpace. For specific information on how to use a query plan, see the *Adaptive Server Anywhere SQL User's Guide*.

1 Verify that the *SybStoreDB.sql* script still has a connection to the database by looking at the Sybase WorkSpace main window status bar. The status should include the information "`...database: MySybStore, connected`".



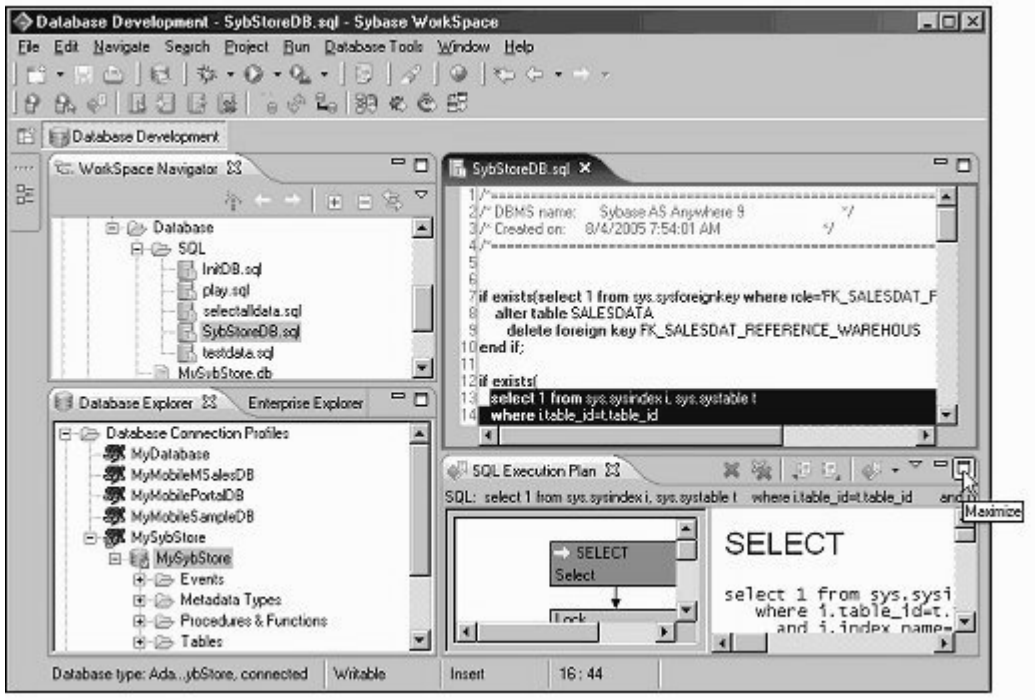
If the script no longer has an active connection, repeat "Lesson 1: Opening and executing a SQL script" on page 31.

2 In SQL editor, highlight lines 13 through 16 in the script *SybStoreDB.sql*:

```
select 1 from sys.sysindex i, sys.systable t
where i.table_id=t.table_id
and i.index_name='WAREHOUSE_INVENTORY_PK'
and t.table_name='WAREHOUSE_INVENTORY'
```

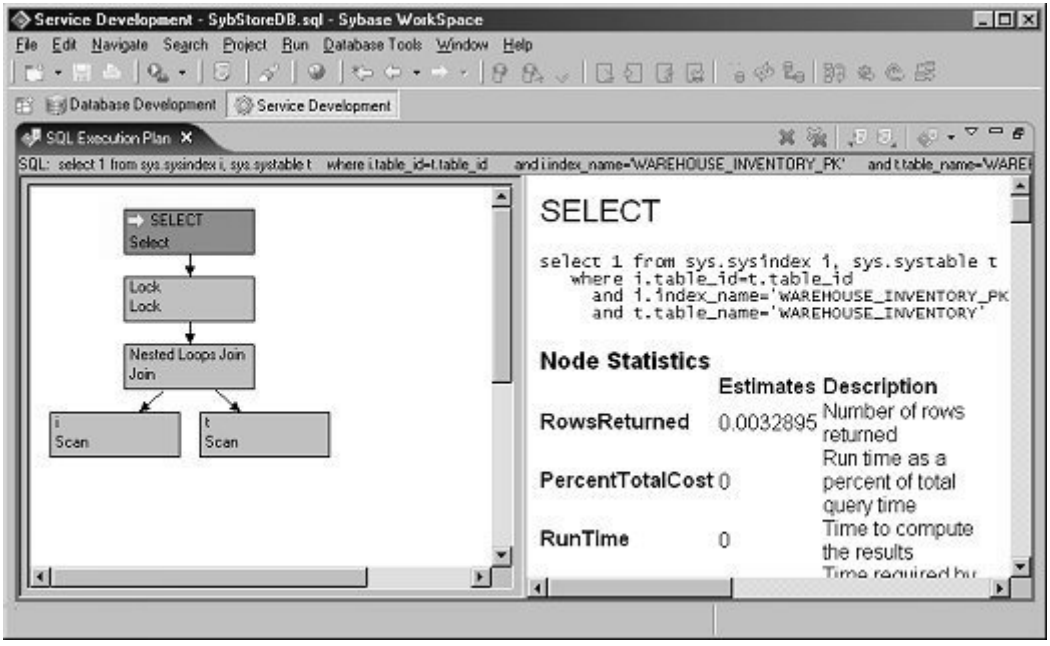
3 Right-click in the editor and select **Get Execution Plan** on the context menu.

4 When the **SQL Execution Plan** view displays, click the **Maximize** icon.



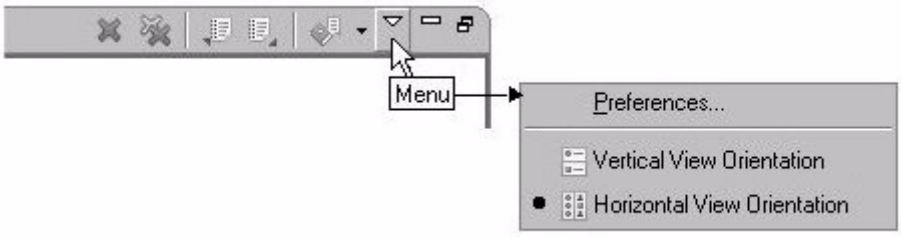
The execution plan expands in the Sybase WorkSpace window.

When you select different nodes in the left pane, the associated information for the selected node displays in the right pane.



Now you will modify some preferences to change the behavior of the execution plan.

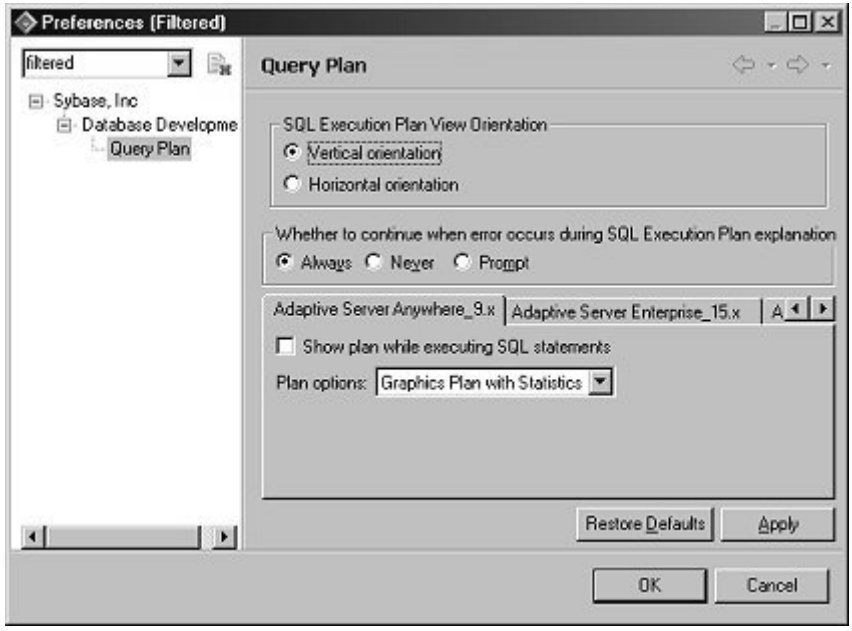
5 Click the **Menu** icon (small white down arrow) on the **SQL Execution Plan** toolbar and select **Preferences** from the menu.



For this lesson, you will change the plan's executed orientation view to vertical, and the plan options to a graphics plan with statistics.

6 When the **Preferences** dialog box opens, select **Query Plan** in the left pane, then change these options:

- **SQL Execution Plan View Orientation** – select **Vertical Orientation**.
- **Adaptive Server Anywhere_9.x** – select this tab and under **Plan Options**, select **Graphics Plan with Statistics** from the drop-down list.



Click **OK**.

7 Close the **SQL Execution Plan** window by clicking the "**X**" icon on the title tab.

8 Right-click in the SQL editor window and select **Get Execution Plan** from the context menu to regenerate the query plan.

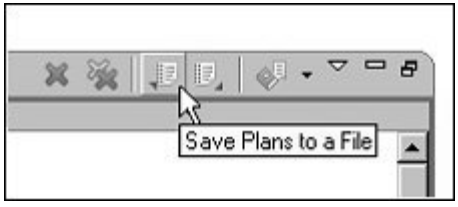
Note After you make preference changes, reselect **Get Execution Plan** to see the results of those changes.

---

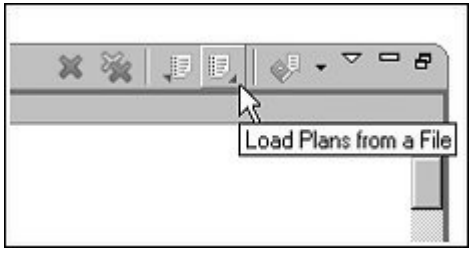
9 Maximize the **SQL Execution Plan** window to see your preference changes displayed.

10 Optionally, change other preferences and reselect **Get Execution Plan** to view how other preferences can be modified.

To save the plan for later viewing, select the **SQL Execution Plan** tab and click the **Save Plans to a File** icon on the window's toolbar. A dialog box displays where you specify the location and filename for the plan you want to save.



To reload a plan, click the **Load Plans from a File** icon. A dialog box opens where you specify the path to the file from which to load a plan.



11 To remove (delete) the current plan, click the single "**X**" icon on the toolbar. To delete all plans, click the double "**XX**" icon.

12 Close the **SQL Execution Plan** window by clicking the "**X**" icon on the title tab, then select **File|Close** from the Sybase WorkSpace main menu to close the SQL editor. You have completed this tutorial and now know how to view and manage SQL query plans with Sybase WorkSpace.

Viewing and editing database data

This tutorial shows you how to run additional SQL scripts, view and edit data in the tutorial database, and use the **Database Explorer** perspective. This tutorial contains two lessons:

Lesson 1: Running additional SQL scripts
Lesson 2: Viewing and editing database data

Lesson 1: Running additional SQL scripts

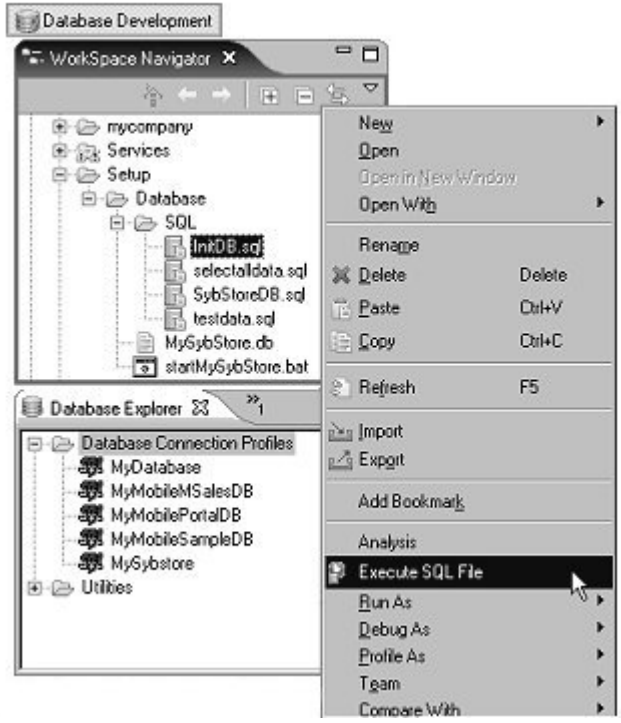
In this lesson, you will run additional SQL scripts in the MySybStore database to create and populate tables for other tutorials.

1 If the **Database Development** perspective is already open, go to step 2.

If the **Database Development** perspective is not open, select **Window|Open Perspective|Database Development** from the Sybase WorkSpace main menu bar.

2 Execute the *InitDB.sql* script:

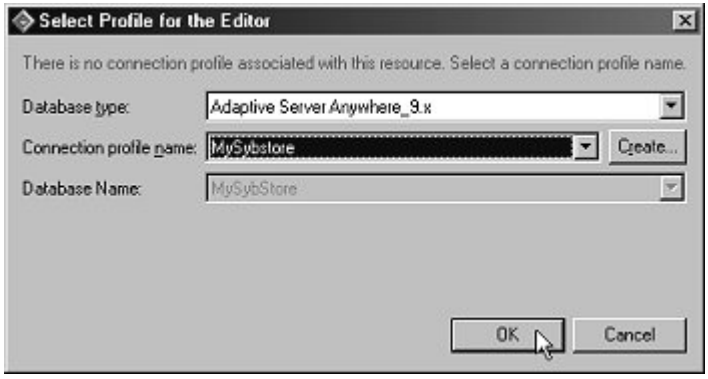
a In the **WorkSpace Navigator**, expand the folder *MySybStore_Tutorials/Setup/Database/SQL*, right-click the *InitDB.sql* file, and select **Execute SQL File** from the context menu.



b When the **Select Profile for the Editor** dialog box opens, select these values:

- **Database Type** – **Adaptive Server Anywhere_9.x**.

- **Connection profile name** – **MySybStore.**



The **Database Name** field is automatically populated.

c Click **OK**.

You see a progress window that indicates that the script is executing. When the script is finished running, you see the SQL Results view in the Sybase WorkSpace window.

3 Execute the *testdata.sql* script:

a In the **WorkSpace Navigator**, expand the folder *MySybStore_Tutorials/Setup/Database/SQL*, right-click the *testdata.sql* file, and select **Execute SQL File** from the context menu.

b When the **Select Profile for the Editor** dialog box opens, select these values:

- **Database Type** – **Adaptive Server Anywhere_9.x.**
- **Connection Profile Name** – **MySybStore.**

The **Database Name** field is automatically populated.

c Click **OK**.

You see a progress window that indicates that the script is executing. When the script is finished running, you see the SQL Results view in the Sybase WorkSpace window.

You have completed running the additional Database Development SQL scripts that set up the tutorial database.

Lesson 2: Viewing and editing database data

In this lesson, you will view and edit data in a database.

1 If the **Database Development** perspective is already open, skip to step 2.

If the **Database Development** perspective is not open, select **Window|Open Perspective|Database Development** from the main menu bar.

2 If a connection to the **MySybStore** database is already established to the tutorial database, skip to step 3.

If a connection is not established, right-click the **MySybStore** connection profile in the **Database Explorer** view and select **Connect** from the context menu.

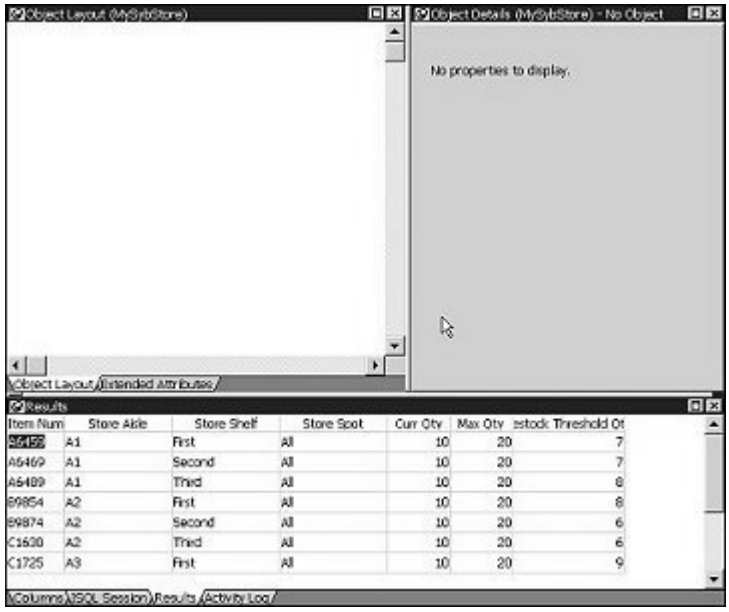
3 In the **Database Explorer**, expand the *MySybStore/Tables* folder.

Note To browse the stored procedures defined in the database, expand other folders, such as **Procedures & Functions**.

4 Right-click the store_shelf table and select **Edit Data|Grid** from the context menu.

Note If a message appears stating that "`the operation is configured to the Database Explorer perspective`," click **OK**.

The contents of the table appear in the **Results** view.



5 Select the **Results** tab, right-click a cell and select **Insert Row** from the context menu. A new empty row appears in the table.

6 Click any cell in the **Curr Qty** column and change the quantity to `20` instead of 10.

7 Right-click any cell in the table and select **Retrieve** from the context menu. The table information shown on the **Results** tab is refreshed.

Note To save any changes, right-click in the **Results** tab and select **Save** from the context menu. If you make changes, but have not saved them, you can right-click and select **Retrieve** to undo your modifications and revert the display to the last-saved version of the table.

---

8 Select **Window|Close Perspective** from the Sybase WorkSpace main menu to close the grid view of the store_shelf table without saving any of your changes. You have finished viewing and editing data in a database.

Debugging a stored procedure

This tutorial teaches you how to debug a stored procedure using Sybase WorkSpace tools.

Database logic is defined in stored procedures and triggers. This logic typically requires debugging and testing before it can be deployed to a production environment.

Note There is also an Adaptive Server Enterprise component-level tutorial, which is not based on the SybStore sample database, that teaches you how to work with Adaptive Server stored procedures and triggers. See the *Sybase WorkSpace Component Tutorials: Adaptive Server Enterprise* guide, which is available from the MySybase Web page at http://www.codexchange.sybase.com/.

Lesson 1: Debugging a stored procedure

In this lesson, you will debug a stored procedure in a database.

1 If the **Database Development** perspective is already open, skip to step 2.

If the **Database Development** perspective is not open, select **Window|Open Perspective|Database Development** from the main menu bar.

2 If a connection to the MySybStore database is already established, skip to step 3.

If a connection is not established, right-click the **MySybStore** connection profile in the **Database Explorer** view, and choose **Connect** from the context menu.

3 In the **Database Explorer** view, expand the MySybStore database connection profile, then expand the *MySybStore/Procedures & Functions* folder.

4 Double-click the sybstore_get_next_sales_id stored procedure. Sybase WorkSpace displays the stored procedure code in the SQL editor.

Note If you are prompted that this action requires the **Database Development** perspective, click **OK**.

The first task in debugging a stored procedure is to set a breakpoint. When a breakpoint is enabled, it suspends execution of a program thread at the location in the code where the breakpoint is set.

5 To set a breakpoint, find this line in the stored procedure:

```
select @next_id = last_sales_id from unique_ids
```

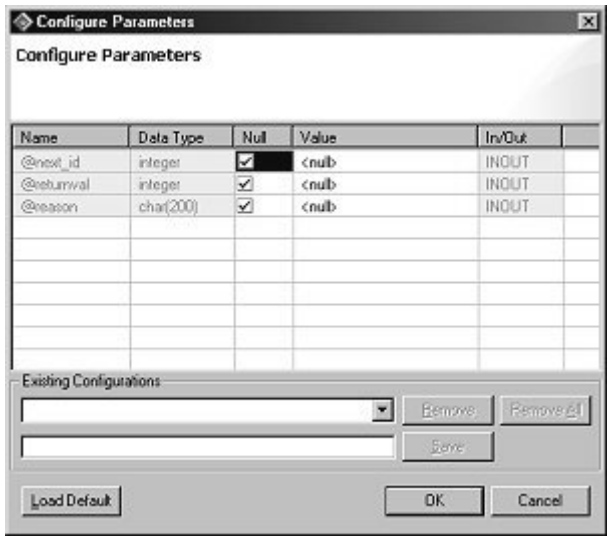
Double-click the line number to set a breakpoint. When a breakpoint is set, a small blue dot displays to the left of the line number at the location of the breakpoint.

Note You can also set a breakpoint by placing the cursor at the beginning of the line and selecting **Run**|**Toggle Line Breakpoint** from the Sybase WorkSpace main menu bar.

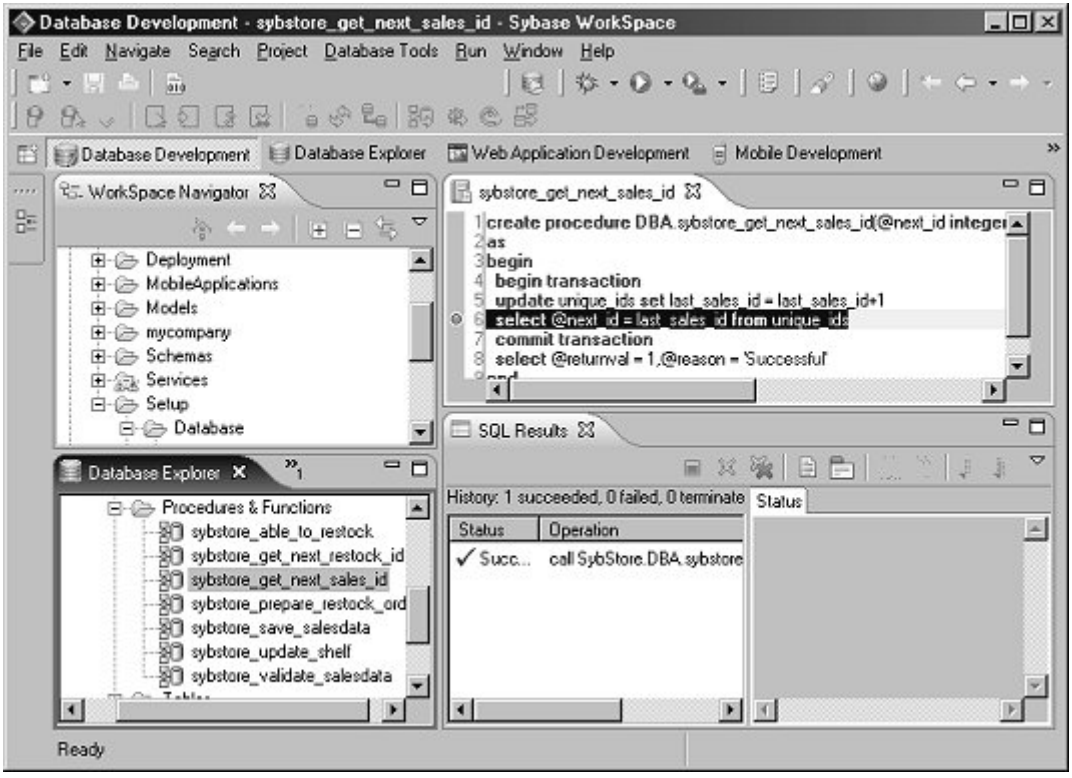
6 Right-click in the editor and select **Run**.

The **Configure Parameters** dialog box opens, which displays default values if they are used in the stored procedure definition. The dialog box also displays parameter values entered from any previous executions.

All parameters have null values, therefore, you are not required to enter any values.



7 Click **OK**. The **SQL Results** view displays the outcome of the script's execution.



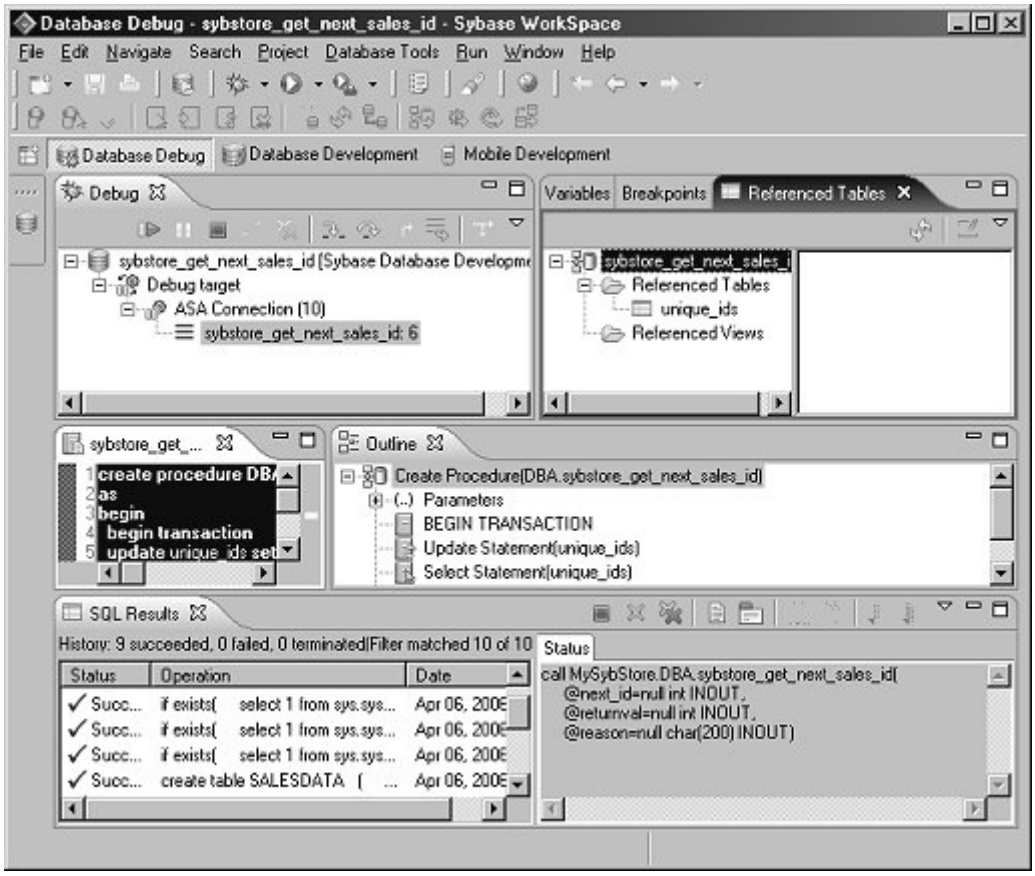
8 Use either of these methods to launch a debug session:

- In the SQL editor, right-click and select **Debug** from the context menu; or
- In the **Database Explorer** view, right-click the stored procedure name and select **Debug Procedure** from the context menu.

9 When the **Configuration Parameters** dialog box opens, click **OK**.

10 When an information dialog box confirms switching to the **Database Debug** perspective, click **Yes**.

The debug execution stops at the breakpoint you set, and current context information, such as variables, breakpoints, and referenced tables, displays.



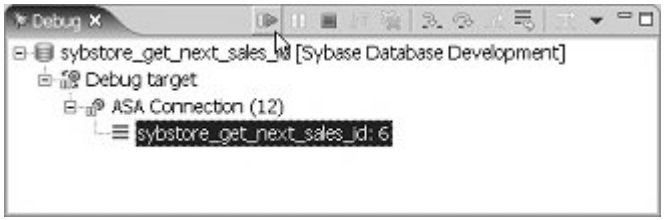
11 Select the **Breakpoints** view (in the upper right) to display the current breakpoints.

Leave the current breakpoint the same.

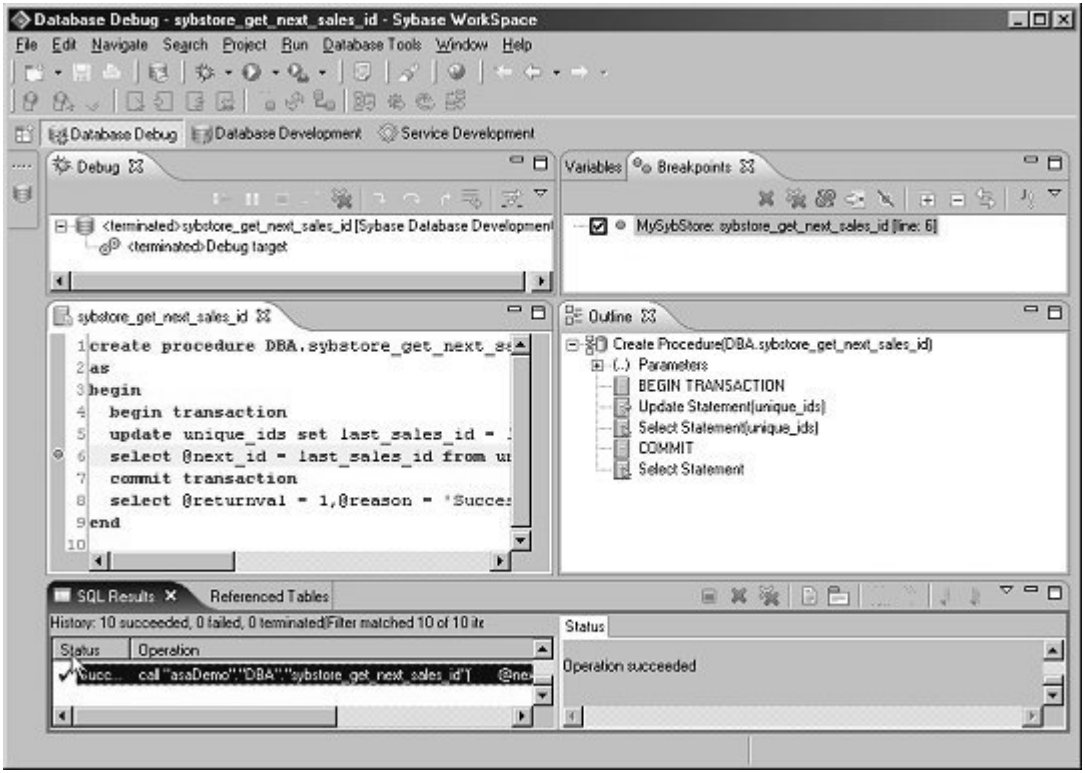
The **Debug** view toolbar contains tools for a variety of debug actions, including **Resume** and **Terminate**.

The **Referenced Tables** view, also in the upper right, displays the tables referenced by the executed SQL script.

12 Click the **Resume** icon on the **Debug** toolbar.



Debug execution completes and the final results display.



13 Select **Database Development** from the perspective shortcut bar to return to that perspective.

You have now completed the tutorials for Database Development.