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PERSONALIZATION, INTEGRATION, and COLLABORATION

Tutorial – PW Sample Database Application

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1. Overview

A PlexWare application can be any thing from a simple utility tool to an Enterprise Integration Portal and PlexWare Klip Programming Environment (Starter Kit) and Software Development Kit (SDK) come with a Basic Klips Library (BKL). This tutorial focuses on building a sample PlexWare database application from the ground up using a few predefined klips from BKL. In this tutorial, you'll learn how to:

- Create klips from BKL.
- Connect klips together.
- Logon to PlexServer.
- Build an XML query request.
- Execute the query request to retrieve data from a database connected to PlexService on PlexServer.
- Display the XML query result using Display Klip.

The application used in this tutorial is a simple database application which queries the data through PlexService, the Web Services software hosted at our office. PlexService is middleware software that can provide XML Web Services data from SQL Server, Oracle, and/or DB2 database systems. For more information, refer to our company brochure included in this trial CD or visit our website at <http://www.kplex.com>.

To deliver this demo, our PlexServer is configured to connect to the Northwind database of SQL Server inside our office. This demo will access the Employees table in the Northwind database and displays the query result using HighLightGrid Klip.

2. What You Need

You don't need to be a software developer nor a HTML/XML expert to follow this tutorial. You also don't need a lot of experience with the database. Windows Desktop operation is sufficient for this tutorial, but web surfing skill is required for downloading the PlexWare Kernel and PlexKlips used in this tutorial.

Requirements:

Operating System	Windows 98SE, Windows Me, XP, Windows 2000 (Japanese/English version) with Internet Explorer 5.5 or above.
Software	PlexWare Kernel with PlexService connection.
PlexKlips	Desktop Klip, SQL Query Klip, SQL Statement Klip, and HighLightGrid Klip, Button Klip.

3. List of Klips

PlexWare includes a library of PlexKlips, and each PlexKlip performs certain functions. The following table summarizes the klips that will be used in this tutorial. For more information about these klips or a complete klips listing for BKL, refer to PlexKlip Reference Manual included in PlexWare Starter Kit or Development Kit.

PlexWare Kernel	K-Plex I-Pad Client Platform Software and PlexWare Application Builder Tool.
Desktop Klip	Provide logon mechanism and connection to the PlexServer.
SQL Query Klip	Send XML query request to the PlexServer and retrieve XML query result back.
SQL Statement Klip	Build XML query request from user input.
HighLightGrid Klip	Display XML query result in the grid.
Button Klip	Standard push button component.

4. Preparation

Before building the sample application, make sure you have the PlexWare kernel and PlexKlips software installed on your system. If you have already installed PlexWare 1.6 or later with Starter Kit or Development Kit, skip this section.

Install PlexWare Software

This tutorial requires PlexWare Kernel and a few of PlexKlips. If you have not installed the software, you may obtain a 10-days evaluation copy from the trial CD.



Follow These Steps . . .

To Install PlexWare:

1. Insert the trial CD in your CD Drive.
2. Click PlexWare Installation Guide from the trial CD menu under Documents.
3. Click PlexWare under Trial Software to run the PlexWare setup program.
4. Follow the installation instruction from PlexWare Installation Guide.
5. Click PlexWare KPE Installation Guide under Documents.
6. Click PlexWare KPE under Trial Software to run the PlexWare KPE setup program.
7. Follow the installation instruction from PlexWare KPE Installation Guide.

Check out PlexWare

PlexWare Installation Program will add the PlexWare menu into the Start/Programs menu. This menu should contain four menu items for running the default local and remote desktop application (WebTop). The local desktop can be launched after the installation, so you can launch the local desktop to check out PlexWare.



Follow These Steps . . .

To check out PlexWare:

1. Select Local Desktop from Start ->Programs->PlexWare.
2. Open PlexWare Operations Manual under Documents in the trial CD and follow its instruction.

Configure and Connect To K-Plex Web Services (PlexServer) with Remote Desktop

By selecting Remote Desktop from Start->Programs->PlexWare, you can launch PlexWare Desktop stored on PlexServer at K-Plex office. The following configuration work is required for this tutorial because it will connect to K-Plex office PlexServer and retrieve data from the Northwind database.



Follow These Steps . . .

To Configure and Connect to K-Plex PlexServer:

1. Select Remote Desktop (without confirmation) from Start->Programs->PlexWare.
2. Click Add Server... button in the Logon dialog.
3. Click "... " button in the Add Server Information dialog.
4. Select the KplexPlexServer.xml file in the trial CD software folder.
5. Click Add button in the Add Server Information dialog to add this Server.
6. Enter sddemo as User and kplex as Password in the Logon dialog.
7. Select KPLex as Server.
8. Click Logon button to logon to K-Plex PlexServer and retrieve the remote desktop from K-Plex PlexServer.



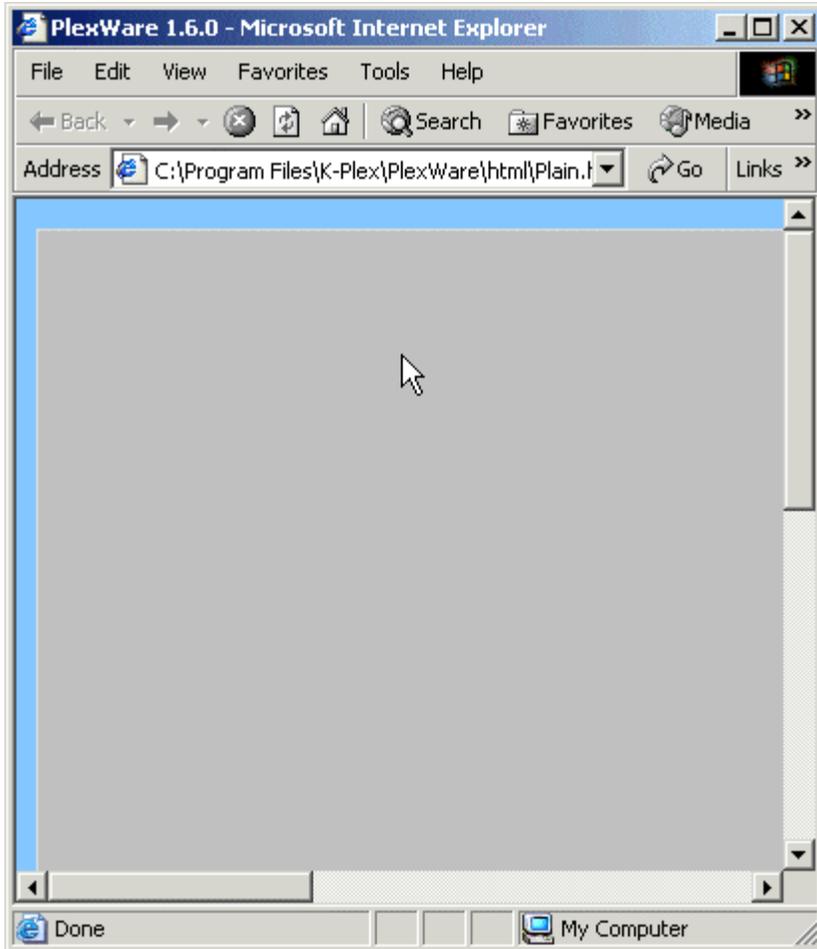
Note: Steps 2-5 are for configuring the new PlexServer. Once the PlexServer is configured on the client system, they should be skipped.

After you logon to the PlexServer, you should have the desktop that is similar to Local Desktop, and you should be ready for building your sample database application as explained in this tutorial.

5. Start the Tutorial

All the user's interaction and application development are done inside K-Plex PlexWare Environment (I-Pad). I-Pad can be launched inside an Internet Explorer (or Netscape Navigator with an ActiveX Plug-In support).

5.1. Launching I-Pad



Follow These Steps . . .

To Launch I-Pad:

1. Open your Internet Browser.
2. Select File/Open from the Internet Browser menu.
3. Browse the file system and find a file named Plain.html. By default, it is located in C:\Program Files\K-Plex\PlexWare\html\Plain.html)
4. Open the Plain.html file to launch I-Pad.
5. If successful, a screen similar to **Figure 1** should show up.

Figure 1: K-Plex PlexWare Environment (I-Pad)



Note: The background color for all klips including I-Pad is automatically generated. Therefore, it might look different from Figure 1. However, you can set the background color using the properties page.

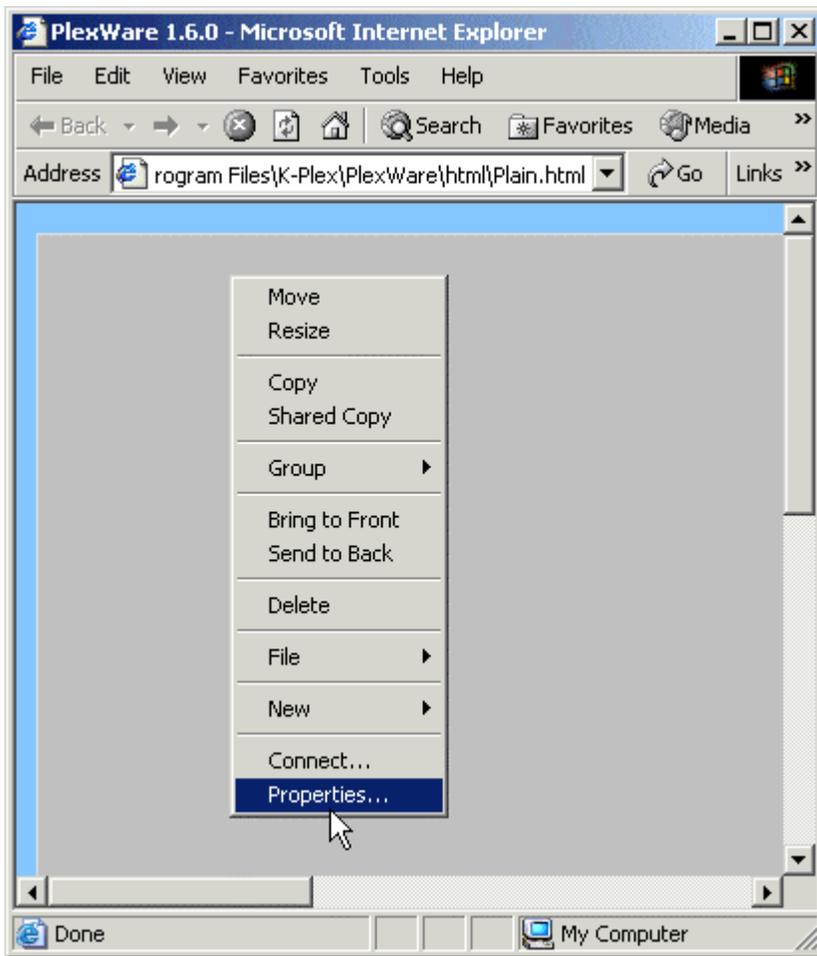


Figure 2: I-Pad pop-up menu.



Follow These Steps . . .

To Change Background Color:

1. Move the mouse pointer inside I-Pad.
2. Click the right mouse button and select Properties from the popup menu to bring up the Property Settings window. (See Figure 2)
3. Click the Background... button on the Attribute page in the Property Settings window. (See Figure 3)
4. Select the background color in the Color Selection Page and click the OK button. (See Figure 4)
5. Click the Apply button to accept the change and click the Cancel button to close the Property Settings window. (See Figure 5)



Note: If you do not have KPE or SDK package installed, you will not have the Group, New, Connect, and Properties menu item on the pop-up menu. If this is the case, contact K-Plex and request for an evaluation license.

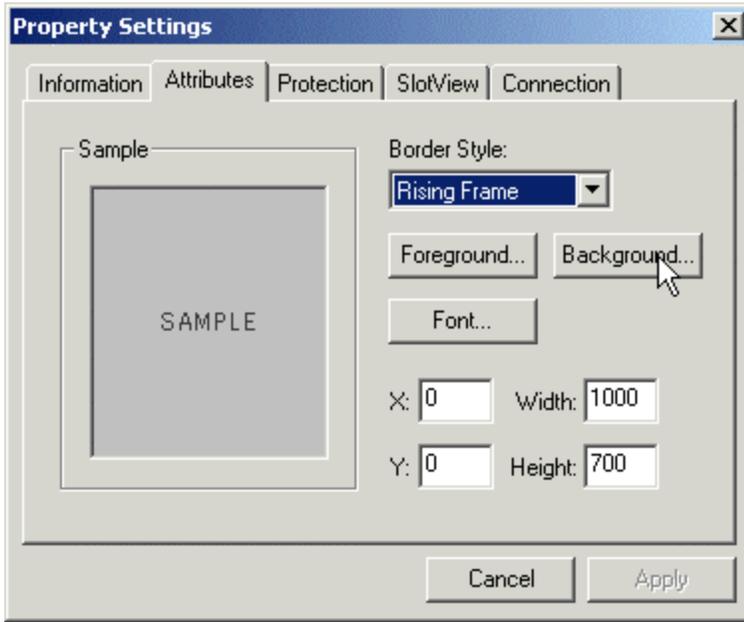


Figure 3: Property Settings/Attribute Page.



Figure 4: Color Selection Page.

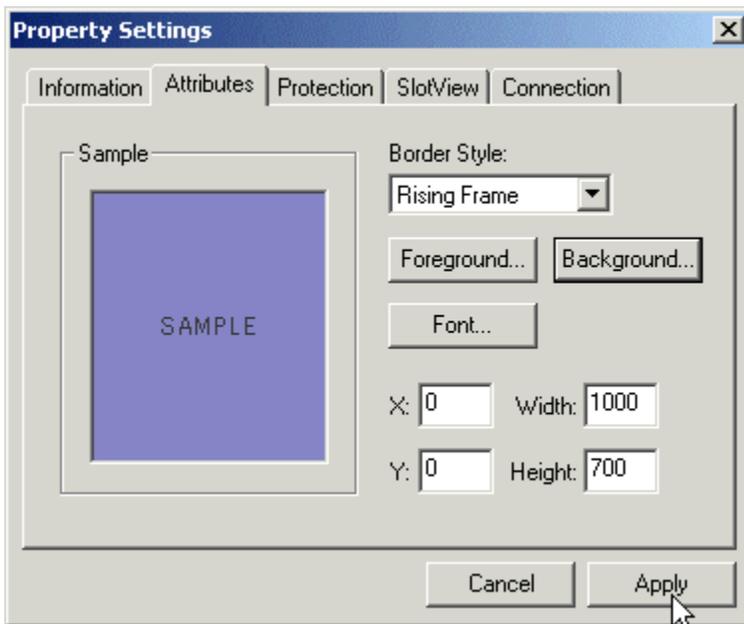


Figure 5: Accept Background Change.

5.2. Create Desktop Klip

This tutorial needs to access the K-Plex Web Services server (PlexServer). In order to communicate and log on to the PlexServer, it requires the Desktop Klip. The Desktop Klip is build-in with the PlexWare Kernel. To create the Desktop Klip, follow these steps:

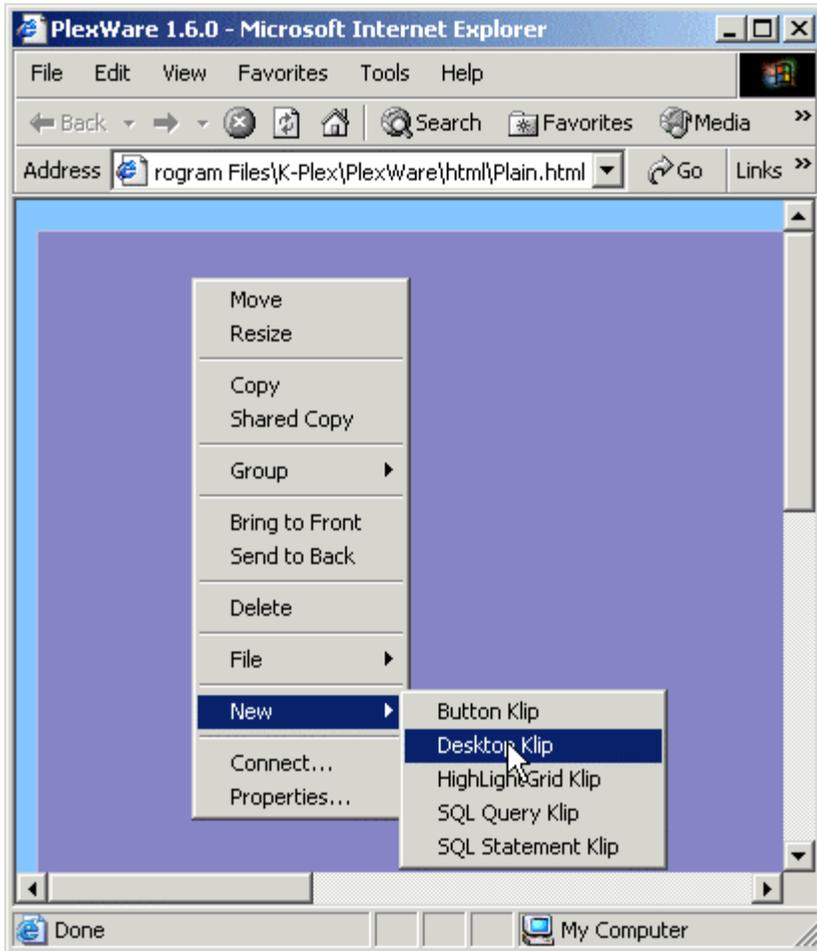


Figure 6: Creating Desktop Klip



Follow These Steps . . .

To Create Desktop Klip:

1. Move the mouse pointer inside I-Pad.
2. Click the right mouse button and select New from the popup menu. Select Desktop Klip from the New submenu to create a Desktop Klip. (See Figure 6 & 7)

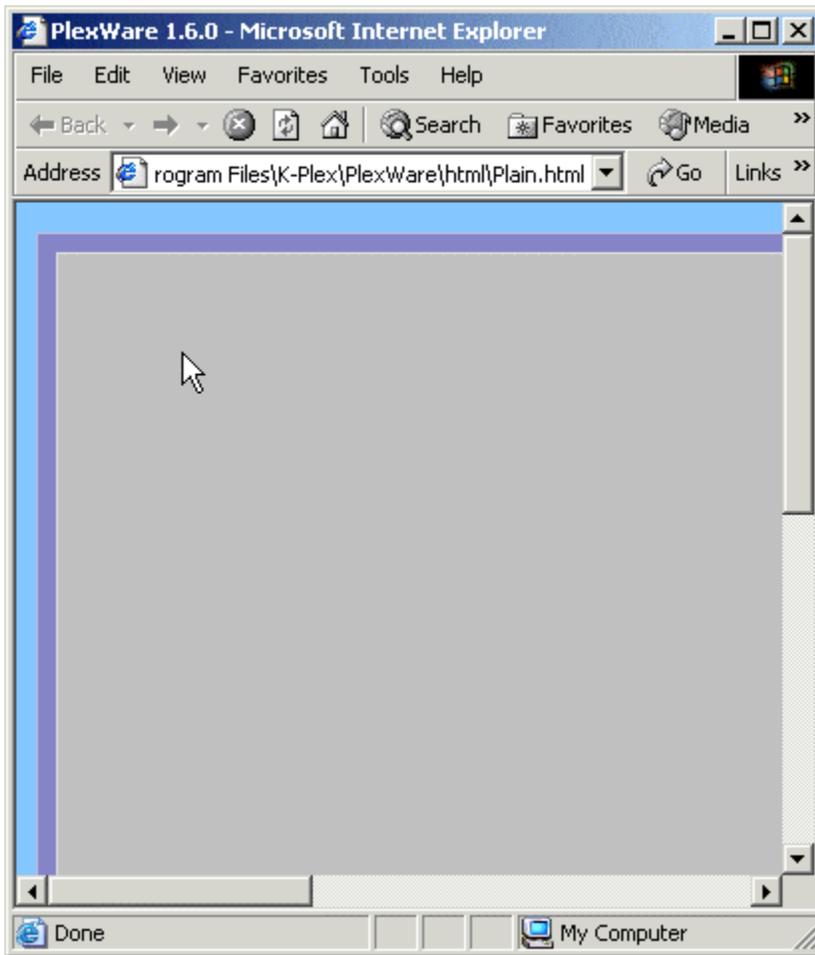


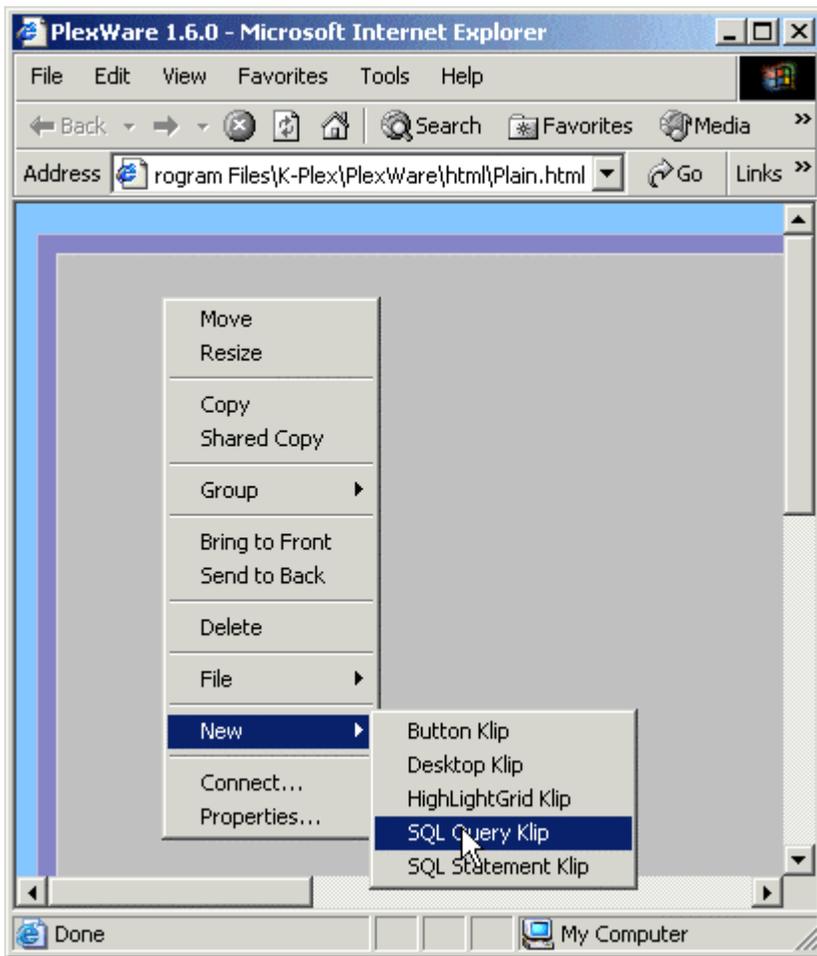
Figure 7: Desktop Klip With Gray Background Color.



Note: In general, most newly created klip is place at 10 pixels from the top and 10 pixels from the left of its parent klip with the dimension of 150 pixels width and 150 pixels height. Desktop Klip is a special klip that will take the whole client region as its dimension.

5.3. Create SQL Query Klip

This tutorial queries the Employees table in the SQL Server Northwind database connected to PlexServer. In order to send a query request and retrieve the response, a klip called SQL Query Klip is required. To create SQL Query Klip, please follow these steps:



Follow These Steps . . .

To Create SQL Query Klip:

1. Move the mouse pointer inside Desktop Klip.
2. Click the right mouse button and select New from the popup menu. Select Desktop Klip from the New submenu to create SQL Query Klip. (See Figure 8 & 9)

Figure 8: Creating SQL Query Klip

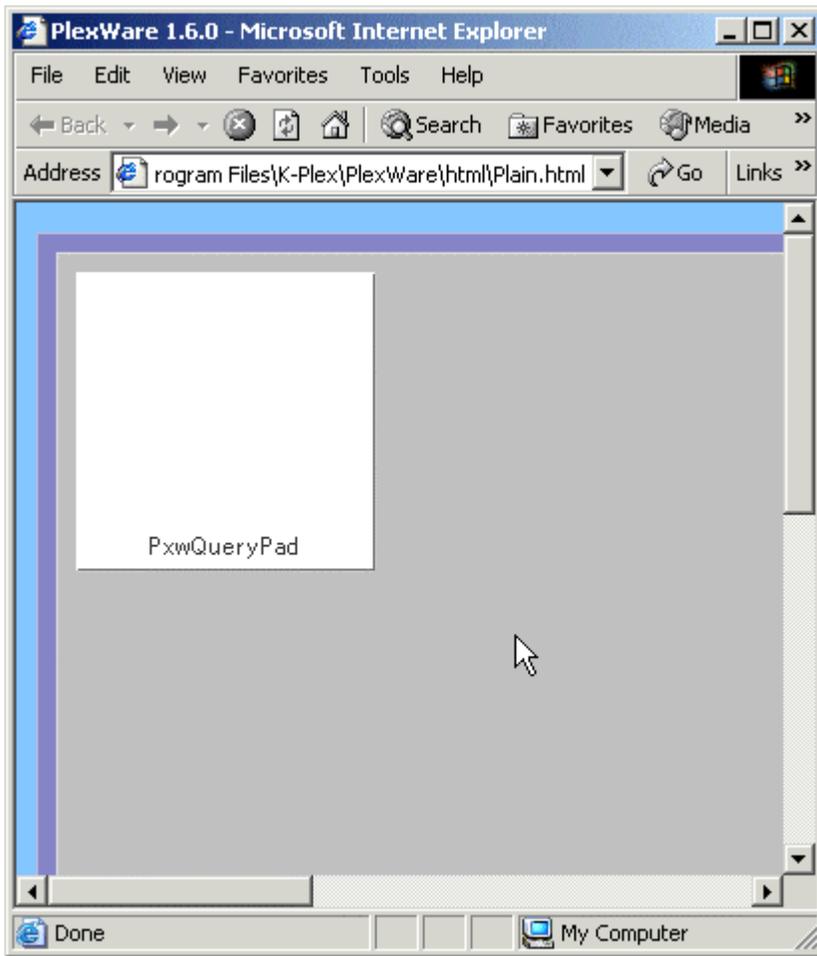


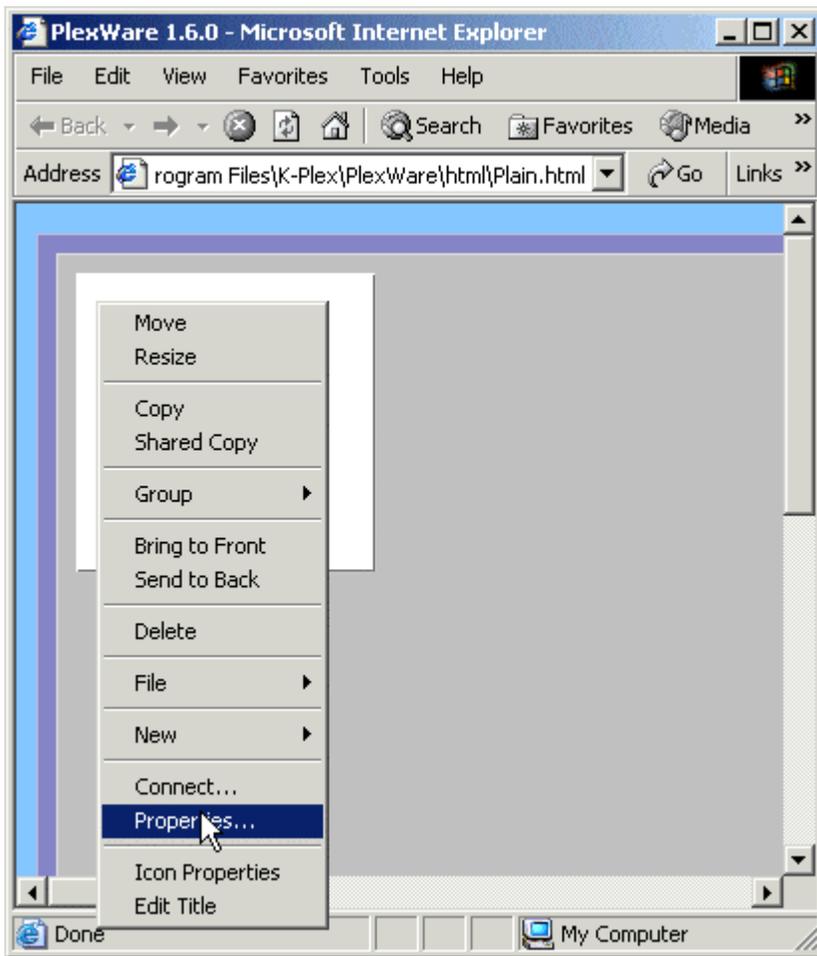
Figure 9: SQL Query Klip With White Background Color.



Note: SQL Query Klip is based on a klip called Iconable Window Klip. The Iconable Window Klip is composed of Icon Klip and Window Base Klip. Icon Klip displays the klip as an icon. Window Base Klip expands the klip into a window. By double clicking on the left mouse button, you can switch it between the icon mode and the window mode.

5.4. Resize SQL Query Klip

Once the SQL Query Klip created, it is in an icon mode. However, it has the dimension of 150 pixels width by 150 pixels height. It is too big for display the icon. The dimension of 60 pixels by 60 pixels should be enough for displaying an icon and its name. To resize the SQL Query Klip, follow these steps:



Follow These Steps . . .

To Resize SQL Query Klip:

1. Move the mouse pointer inside SQL Query Klip.
2. Click the right mouse button and select Properties from the popup menu to bring up the Property Settings window. (See Figure 10)
3. Select Attribute page and enter 60 in the Width and Height box, respectively, and click the Apply button. (See Figure 11)

Figure 10: Property Settings/Attribute Page.

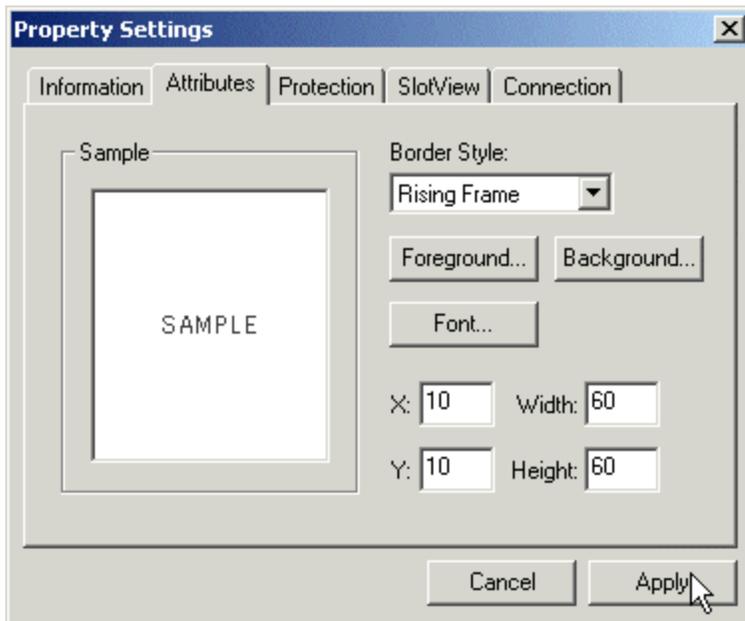


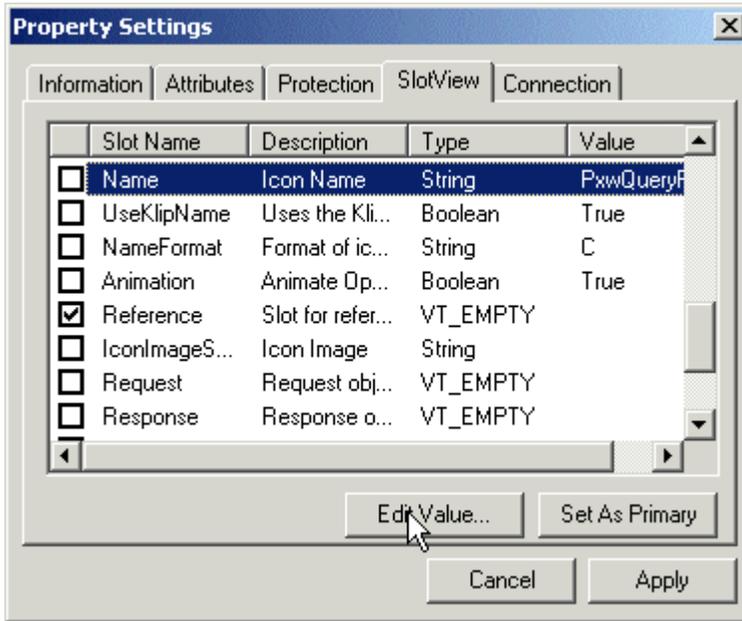
Figure 11: Change the Klip Dimension.



Note: Do not click the Cancel button to close the Property Settings window because next step will need this window again.

5.5. Change Icon Name and Image

The SQL Query Klip has many slots. Slots are the external interface to the Klip's data and function. Klip's developer defined the slot(s) for each Klip when design and develop the Klip. For this tutorial, you just need to know that each Klip might has 0 (zero) or more slots, and each slot is holding the data or a pointer to a function associated to that Klip. In this section, we only focus on the Name slot and IconImageSource Slot of the SQL Query Klip. Both of these slots hold the string data. The Name slot hold the Icon Name string, and the IconImageSource hold the path to an image file for the icon. To change the SQL Query Klip Icon Name, follow these steps:



Follow These Steps . . .

To Change SQL Query Klip Icon Name:

1. Go to the SlotView page, scroll the list down until you see a slot with the "Name" in the Slot Name column, and select it. (See Figure 12)
2. Click the Edit Value... button to edit the slot value.
3. Enter Employees in the Slot Value text box and click the OK button. (See Figure 13)
4. Select the IconImageSource slot. (See Figure 14)
5. Enter "res:res\icons\query.bmp" in the Slot Value text box and click the OK button (See Figure 15).
6. Click the Apply button to accept the change and click the Cancel button to close the Property Settings window.

Figure 12: Change the Name Slot.

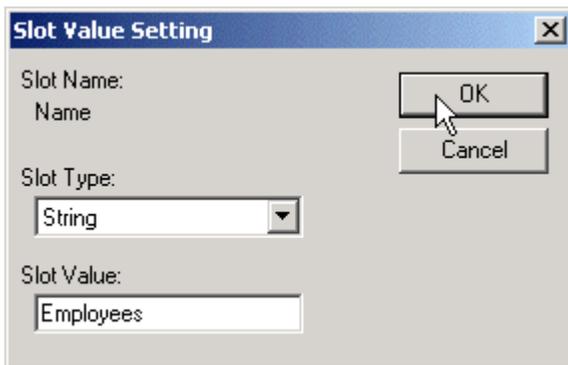


Figure 13: Enter The Icon Name.

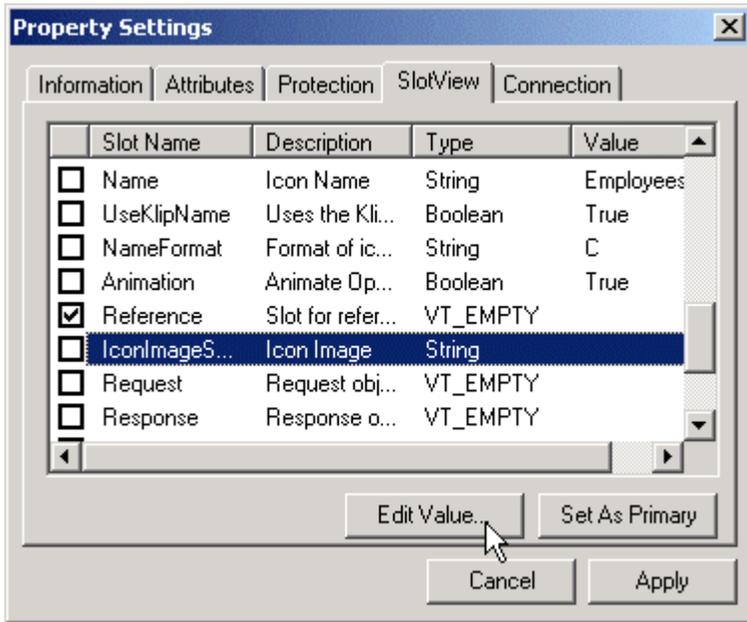


Figure 14: Change the IconImageSource Slot.

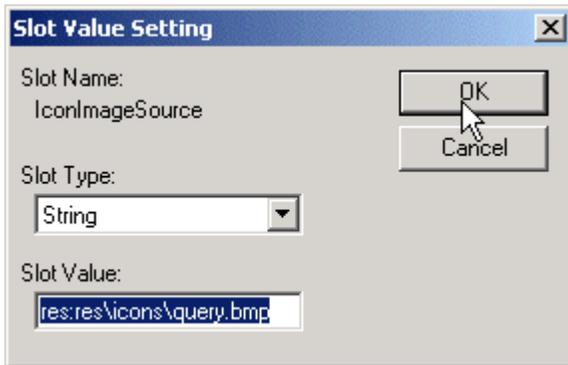
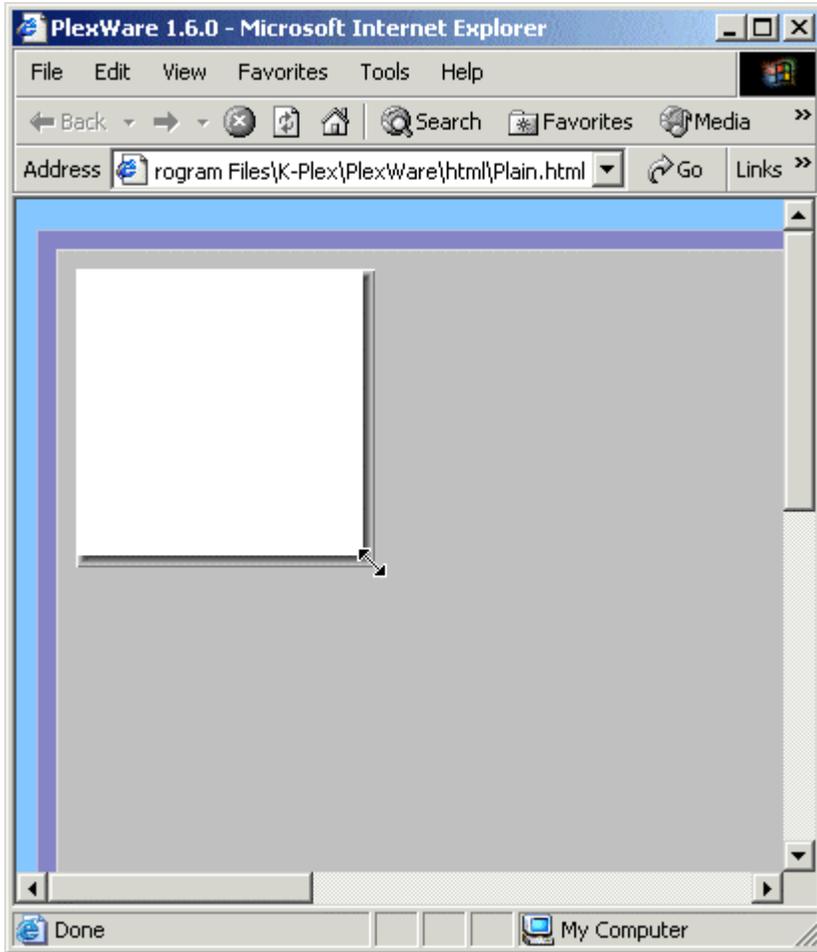


Figure 15: Enter The Icon Path and File.

5.6. Add SQL Statement Klip

The next klip we need is called SQL Statement Klip. This Klip generates the XML query request with specified database provider, database name, and table name. Since SQL Statement Klip provides the XML query request object for SQL Query Klip, it needs to be inside the later. To create SQL Statement Klip from inside SQL Query Klip, follow these steps:



Follow These Steps . . .

To Resize the SQL Query Window:

1. Double click SQL Query Klip to switch it to the window mode.
2. At the bottom right corner of the SQL Query window border, drag it bigger. (See figure 16 & 17)

Figure 16: SQL Query Klip in window mode.



Note: When the mouse is at the border of the klip, the mouse pointer is switched to the resizable pointer (double arrow image).

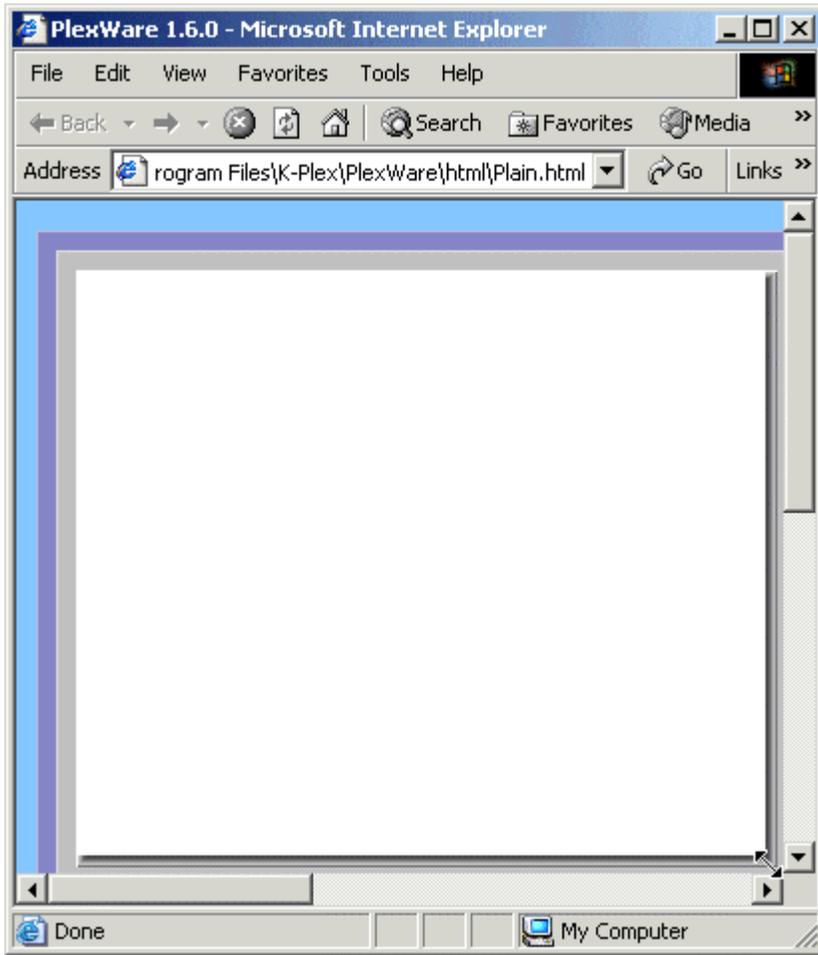
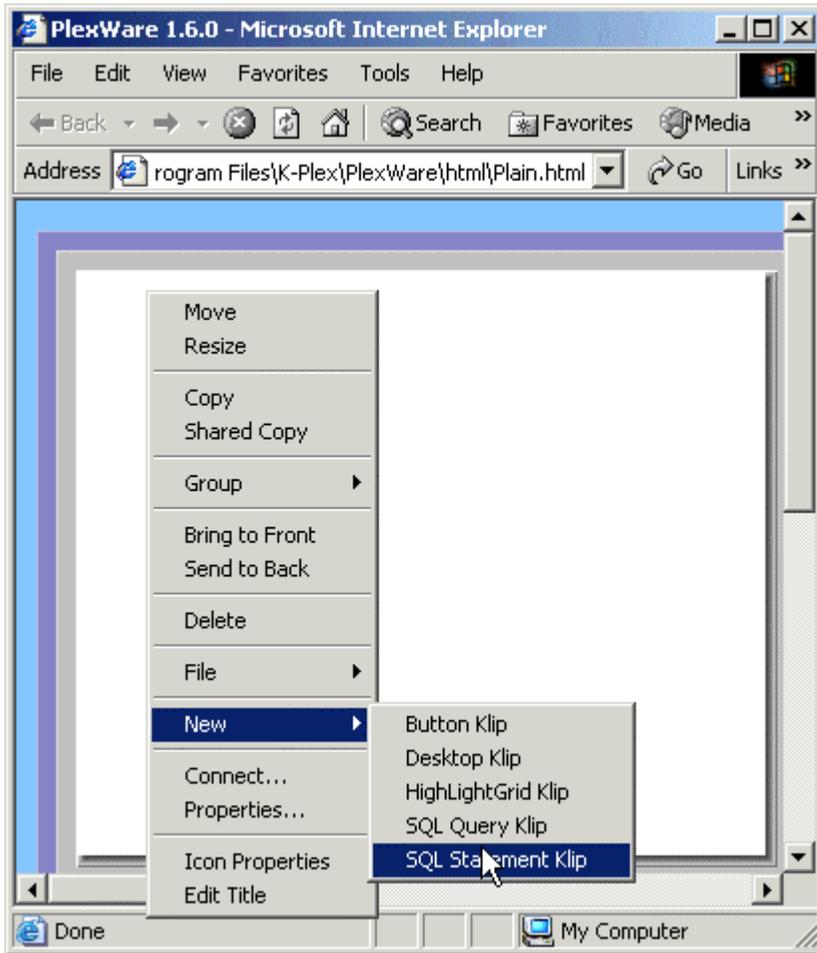


Figure 17: Resize the SQL Query window.



Follow These Steps . . .

To Add SQL Statement Klip:

1. Move the mouse pointer inside the SQL Query window.
2. Click the right mouse button and select New from the popup menu. Select SQL Statement Klip from the New submenu to create SQL Statement Klip. (See Figure 18 & 19)

Figure 18: Create the SQL Statement Klip Inside the SQL Query window.

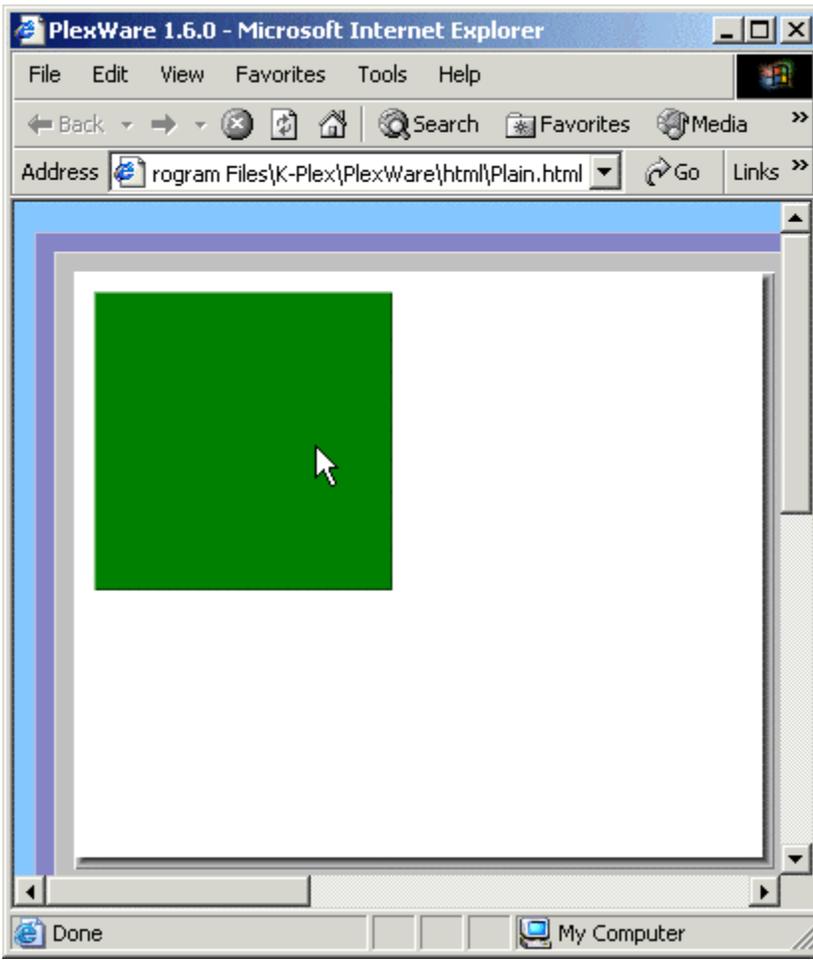
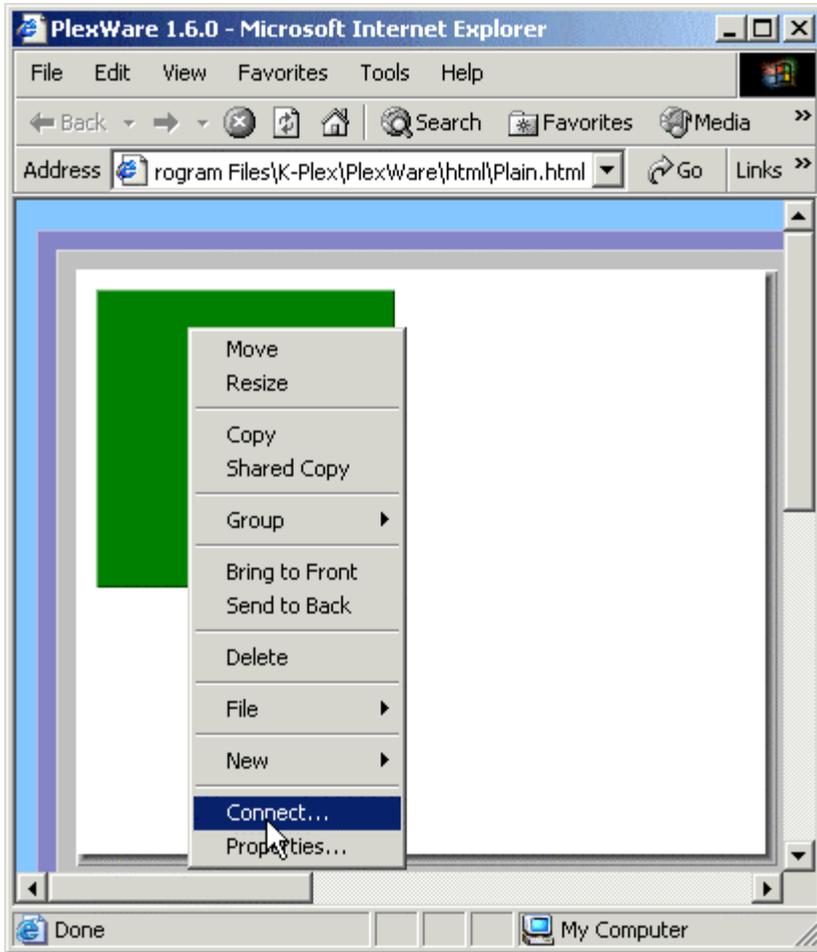


Figure 19: SQL Statement Klip with Dark Green Background Color.

5.7. Connect SQL Statement Klip to SQL Query Klip

One of the PlexWare's features is to allow the communication between Klips. This is the key to integration between klips (applications, web contents and databases). Each child klip can link and transfer information through its parent klip. The Connection page in the klip property settings provides the user interface for setting up the link. To create a connection, please follow these steps:



Follow These Steps . . .

To Create a Connection to SQL Query Klip:

1. Move the mouse pointer inside SQL Statement Klip.
2. Click the right button and select Connect... from the popup menu to bring up the Property Settings window. (See Figure 20)
3. Go to the Connection page of the Property Settings window if it is not the current selected page.
4. Select Request slot as Primary Slot Name.
5. Select Employees <PwxQueryPad> as Target Klip.
6. Select Request as Slot Name.
7. Click the Apply button to accept the change. (See figure 21)

Figure 20: SQL Statement Klip Connection Page.

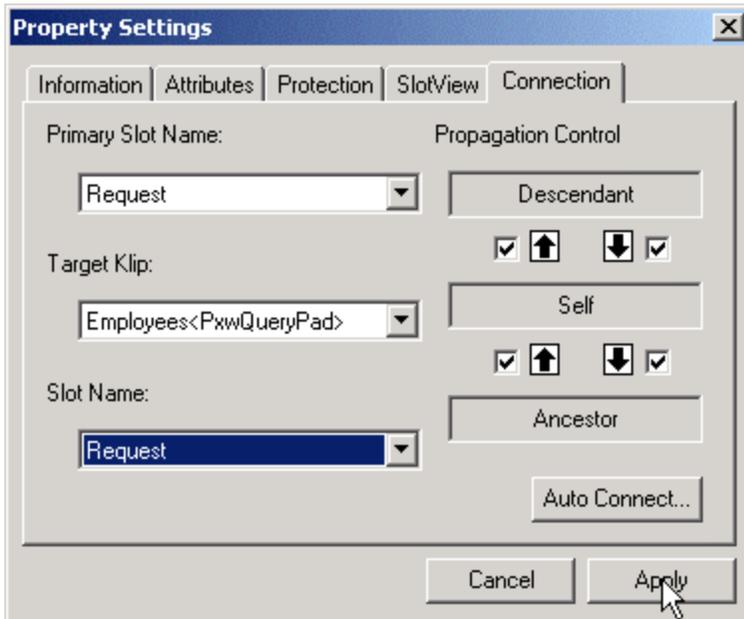
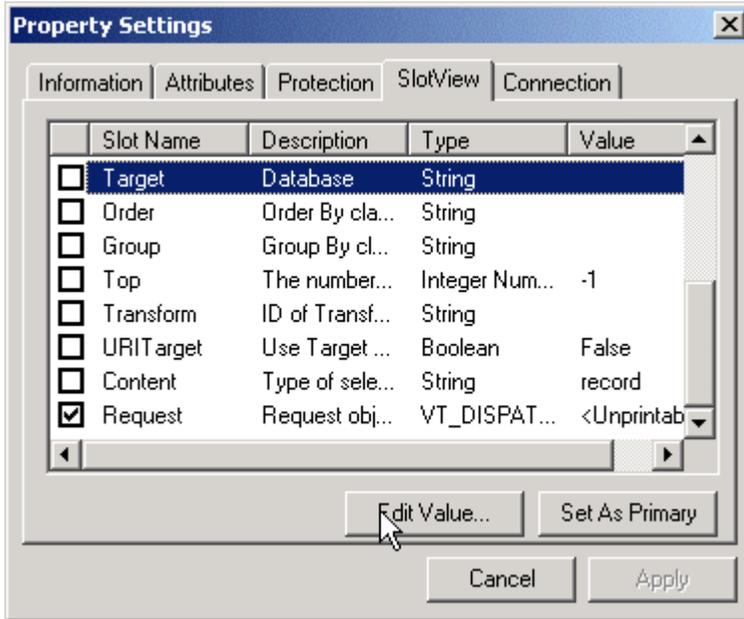


Figure 21: Connection Between SQL Statement Klip Request Slot and SQL Query Klip Request Slot.

5.8. Create XML Query Request

Once the link between the SQL Statement Klip Request slot and the SQL Query Klip Request slot is established, an XML query request can be created. To create the XML query request, follow these steps:



Follow These Steps . . .

To Create an XML Query Request:

1. Select the Target slot in the Slot View Page and click the Edit Value... button. (See Figure 22)
2. Enter the provider, server, database name, and table name into the Slot Value text box separated by comma as: "SQLOLEDB.1,EXTERNAL,Northwind,Employees", and click the OK button. **Note: Do not add the double quote around the string.** (See Figure 23)
3. Click the Apply button to accept the change and click the Cancel button to close the Property Settings window.

Figure 22: Edit Target Slot.

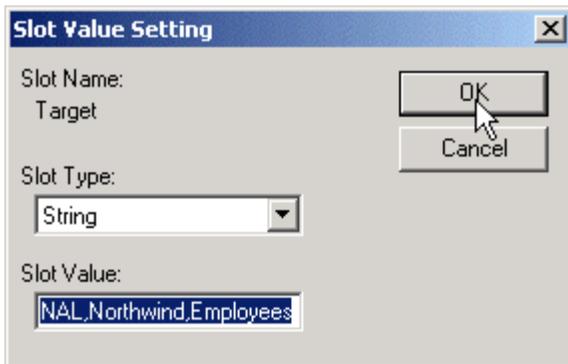


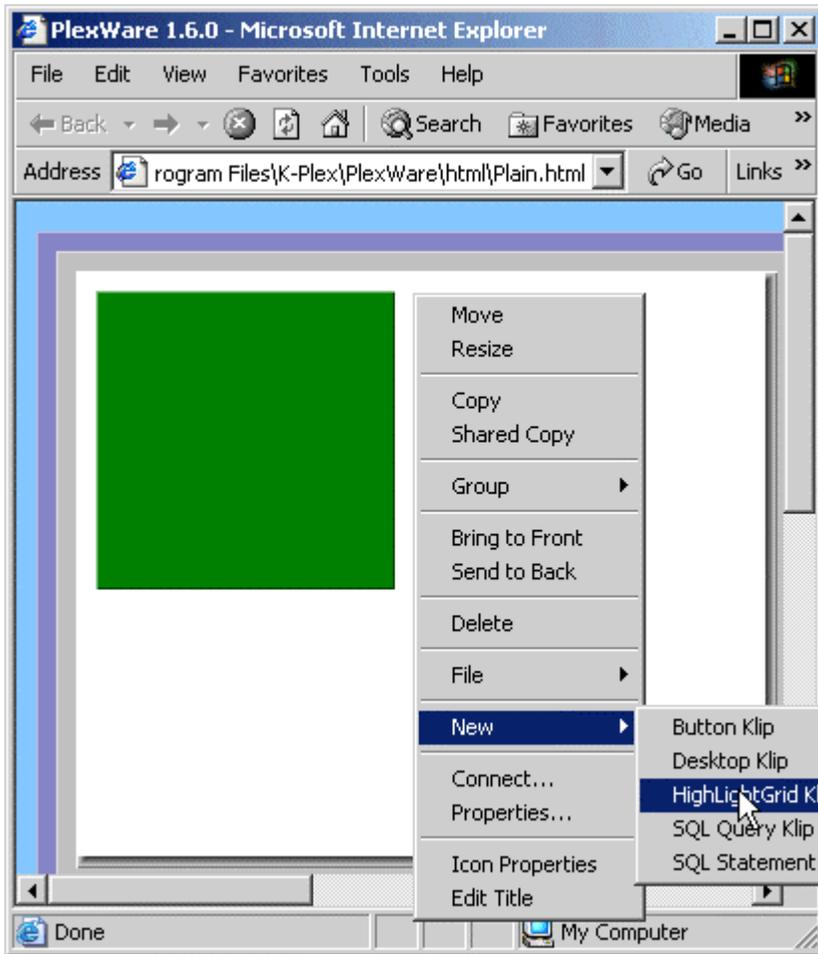
Figure 23: Set The Target Value.



Note: Remember to click the Apply button to accept the change before clicking the Cancel button. Otherwise, the Target slot will not be set, and you have to go back and set it again for this tutorial to work.

5.9. Add HighLightGrid Klip

Now, we move on to the display data step. In this tutorial, grid will be sufficient to display the employee records called for by the XML query request. A klip called HighLightGrid Klip is perfect for the job. Because this klip retrieves the XML result data from SQL Query Klip and displays the data in grid, it needs to be inside SQL Query Klip also. To create HighLightGrid Klip from inside SQL Query Klip, please follow these steps:



Follow These Steps . . .

To Create HighLightGrid Klip:

1. Move the mouse pointer inside the SQL Query window.
2. Click the right mouse button and select New from the popup menu. Select HighLightGrid Klip from the New submenu to create HighLightGrid Klip. (See Figure 24 & 25)

Figure 24: Create the HighLightGrid Klip Inside the SQL Query window.

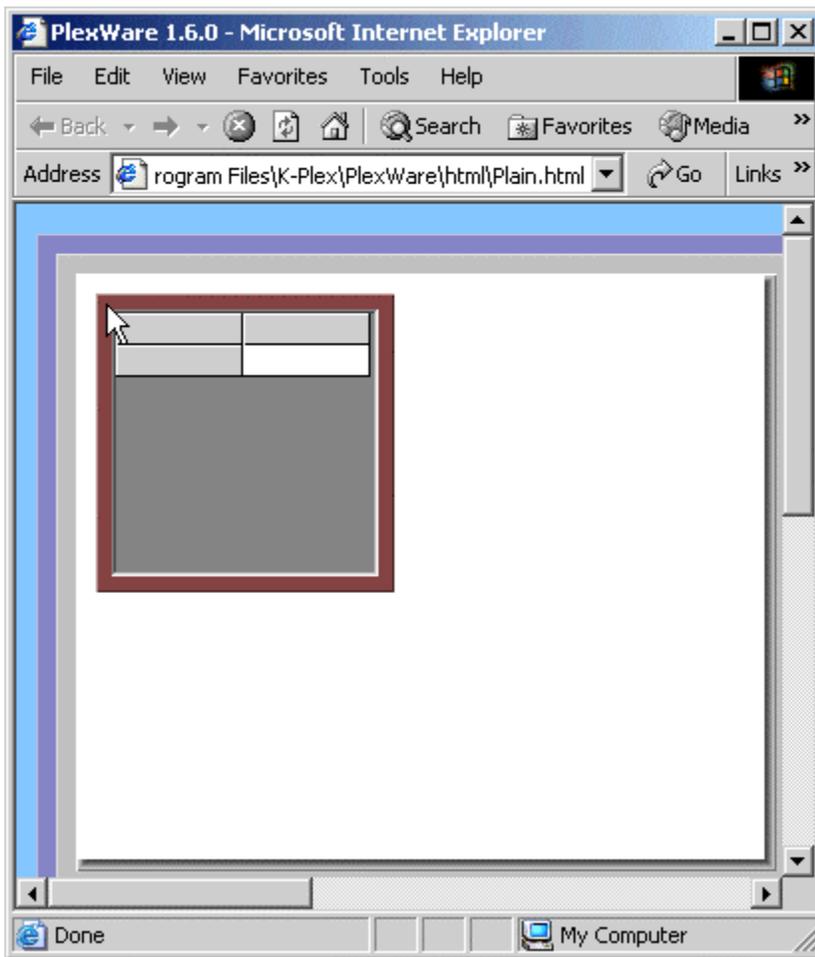


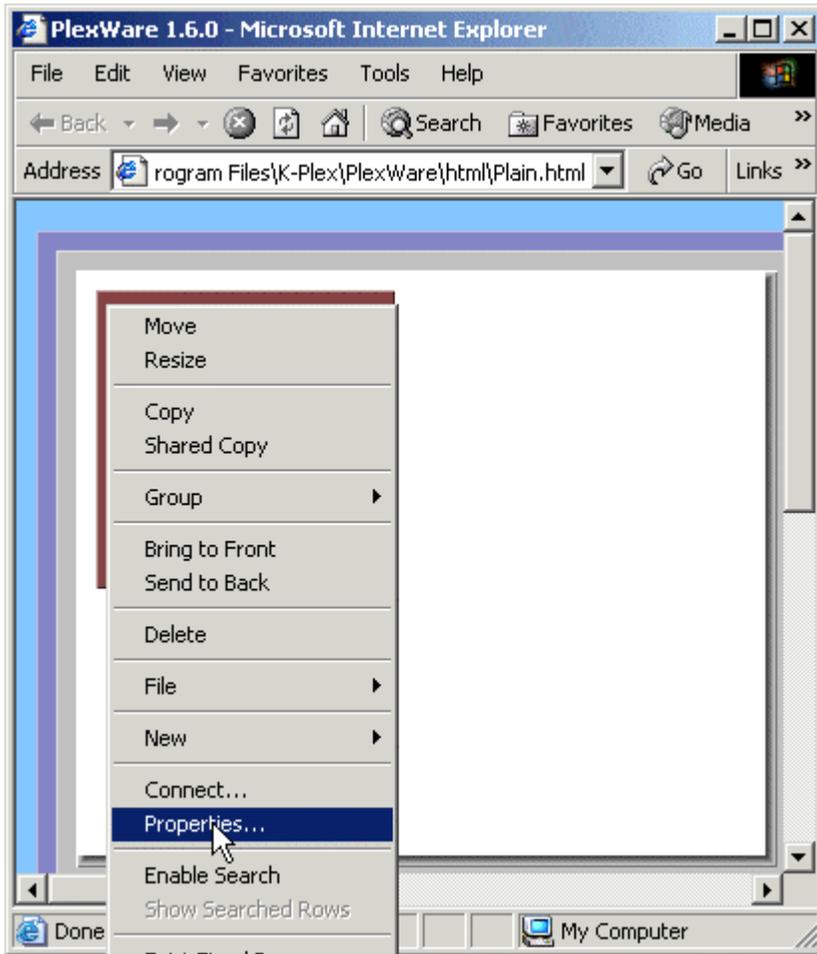
Figure 25: HighLightGrid Klip with Dark Red Background Color.



Note: The Location of the mouse pointer is very important. You need to move the mouse pointer to the klip area (not its parent, its child klip, or a component wrapped by the klip) in order for you to go get the correct popup menu belonging to the klip.

5.10. Move, Resize, and Connect HighLightGrid Klip

Once HighLightGrid Klip is created, you will need to move, resize, and connect it to SQL Query Klip. To move and resize HighLightGrid Klip inside SQL Query Klip, please follow these steps:



Follow These Steps . . .

To Move/Resize HighLightGrid Klip:

1. Move the mouse pointer to the upper left corner of HighLightGrid Klip. (See the location of the mouse pointer in Figure 25)
2. Click the right mouse button and select Properties from the popup menu to bring up the Property Settings window. (See Figure 26)
3. On the Attributes page, enter 160 for X, 180 for Width, and 280 for Height. (See Figure 27).
4. Click the Apply button to accept the change. **Note: Do not click the Cancel button at this point.**

Figure 26: Property Settings/Attribute Page.

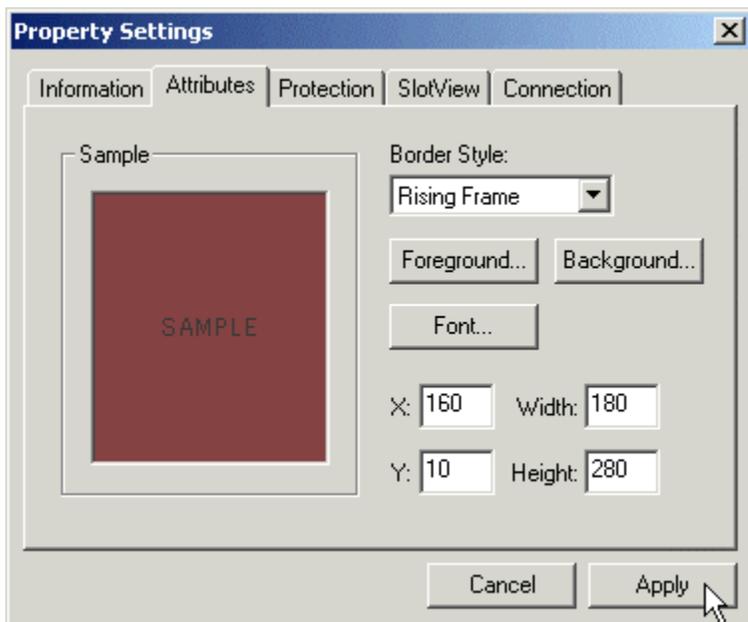
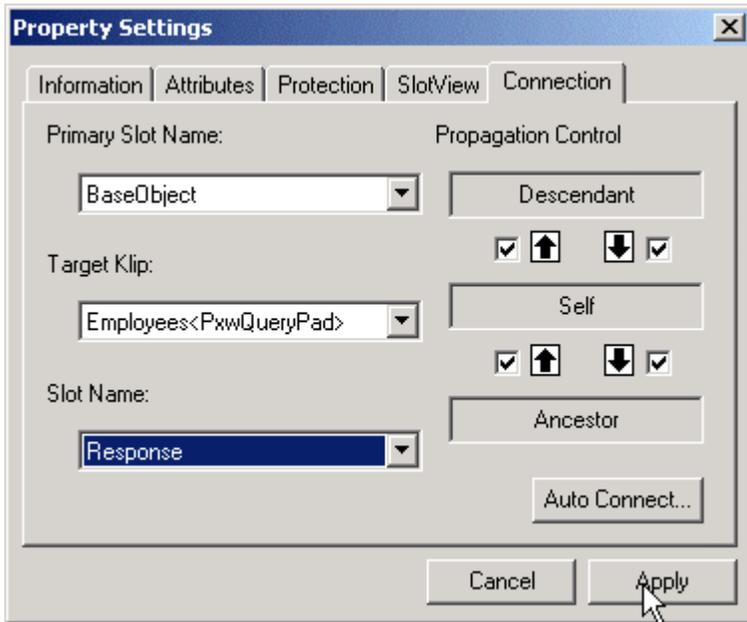


Figure 27: Move and Resize the Klip.

The HighLightGrid Klip needs the result data in the SQL Query Klip Response slot. In order for the XML result data to transfer from SQL Query Klip to HighLightGrid Klip, the two klips must connect to each other. The HighLightGrid Klip BaseObject slot needs to link to the SQL Query Klip Response slot. To do this, please follow these steps:



Follow These Steps . . .

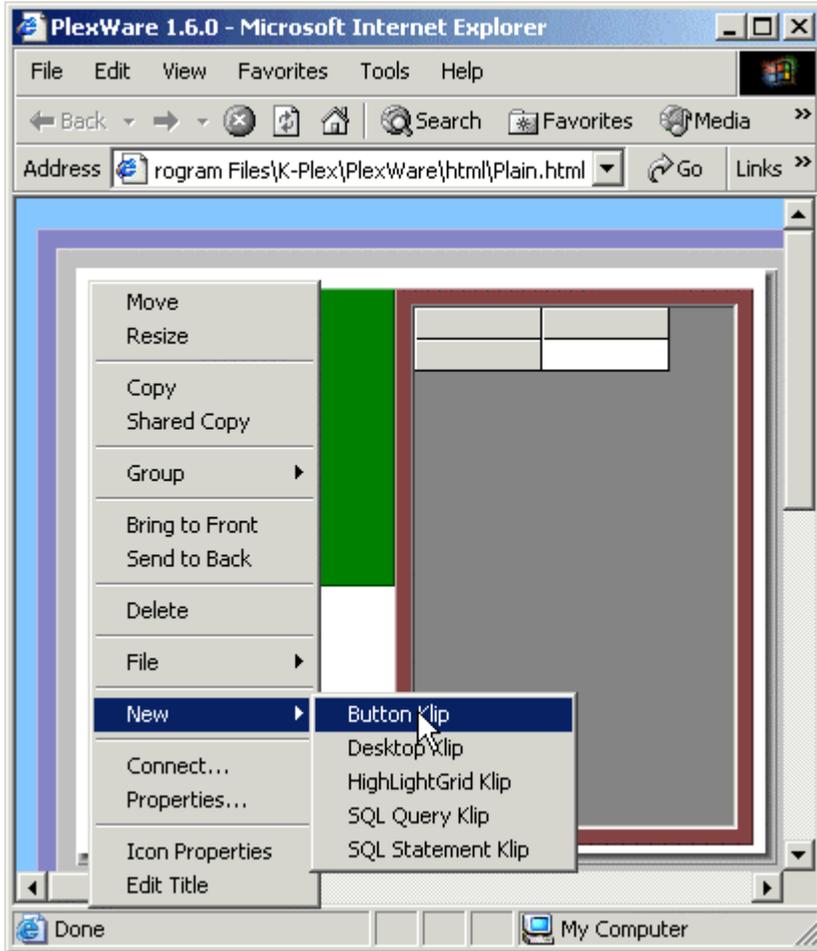
To Connect HighLightGrid Klip to SQL Query Klip:

1. Go to the Connection page. (See Figure 28)
2. Select BaseObject slot as Primary Slot Name.
3. Select Employees <PwxQueryPad> as Target Klip.
4. Select Response slot as Slot Name.
5. Click the Apply button to accept the change and click the Cancel button to close the Property Settings window.

Figure 28: Connect the HighLightGrid Klip.

5.11. Add Button Klip

The final klip to be added in this tutorial is called Button Klip. This klip provides the button component for the user to execute the XML query request and receive the result back. To create the Button Klip, please follow these steps:



Follow These Steps ...

To Create Button Klip:

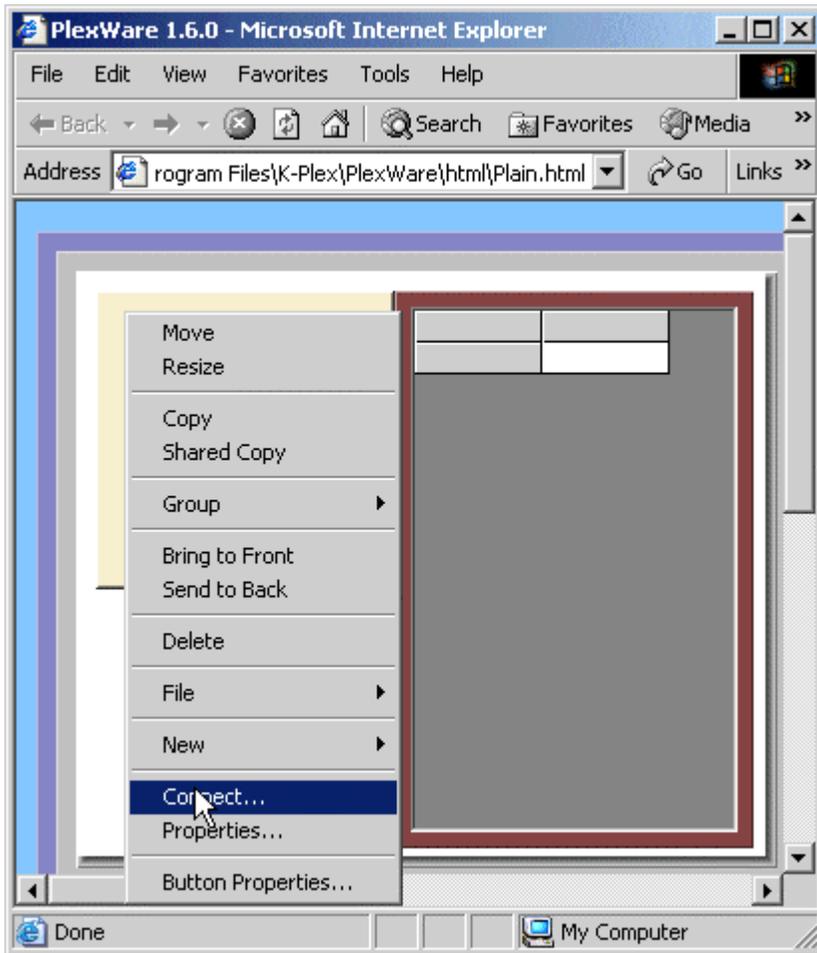
1. Move the mouse pointer inside the SQL Query window. (See Figure 29)
2. Click the right mouse button and select New from the popup menu. Select Button Klip from the New submenu to create Button Klip.

Figure 29: Create the Button Klip.



Note: Be careful with the mouse pointer. The mouse pointer must be in the white area to create the klip that is belonging to SQL Query Klip. If it is in the green area, the created klip will belong to SQL Statement Klip.

To connect the Button Klip Command slot to the SQL Query Issue slot, please follow these steps:



Follow These Steps . . .

To Connect Button Klip:

1. Move the mouse pointer inside Button Klip.
2. Click the right button and select Connect... from the popup menu to bring up the Property Settings window. (See Figure 30)
3. Go to the Connection page of the Property Settings window if it is not the current selected page.
4. Select Command slot as Primary Slot Name.
5. Select Employees <PxxQueryPad> as Target Klip.
6. Select Issue slot as Slot Name.
7. Click the Apply button to accept the change. (See figure 31)

Figure 30: Connect the Button Klip.

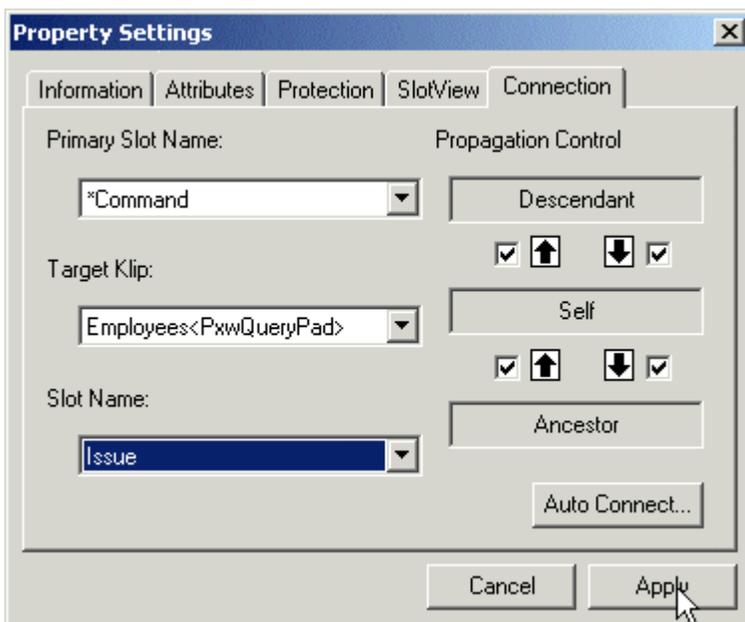


Figure 31: Command Slot Connect To Employees Query's Issue Slot.

5.12. Testing The Application

After the application is created, it can be saved to a template file for sharing with other PlexWare users or for future development use. To Save the application, please follow these steps:

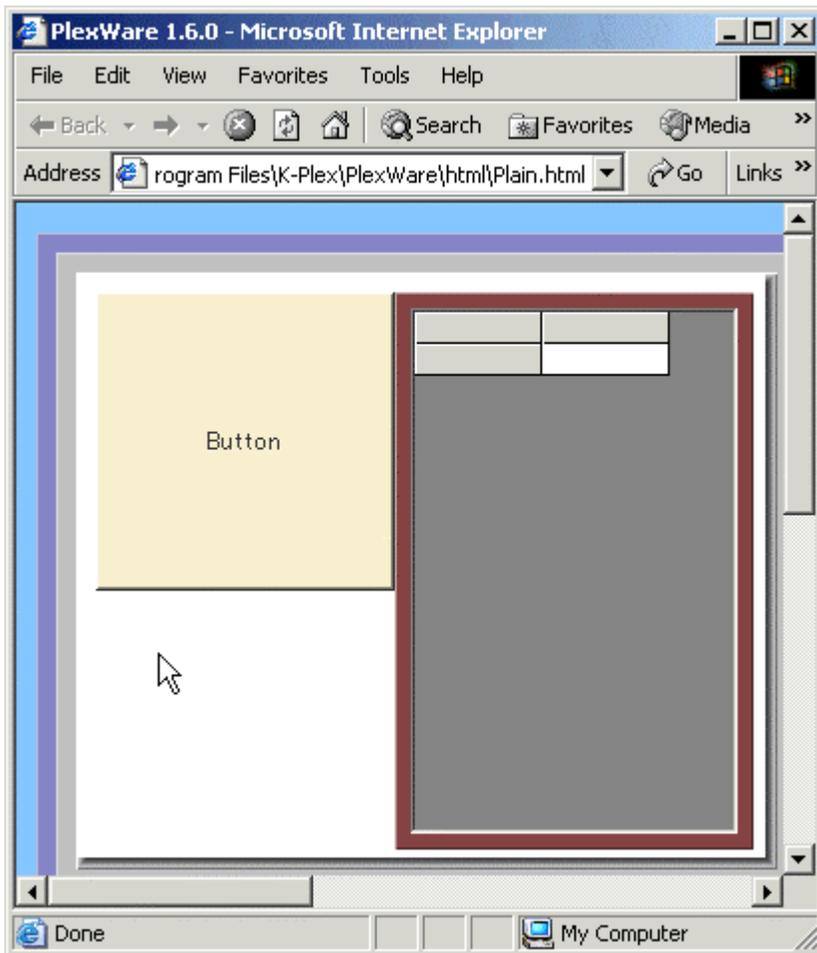


Figure 32: Mouse Pointer over SQL Query Klip.



Follow These Steps . . .

To Save Application:

1. Move the mouse pointer to SQL Query Klip (white area). (See Figure 32)
2. Double click SQL Query Klip to switch back to the icon mode.
3. Move the mouse pointer to Desktop Klip (gray area).
4. Right Click Desktop Klip to bring up the popup menu and select File|Save as the sub-menu. (See Figure 33).
5. Enter SampleDB as the template name in the File Name text box of the Save As dialog box and click the Save button. (See Figure 34).

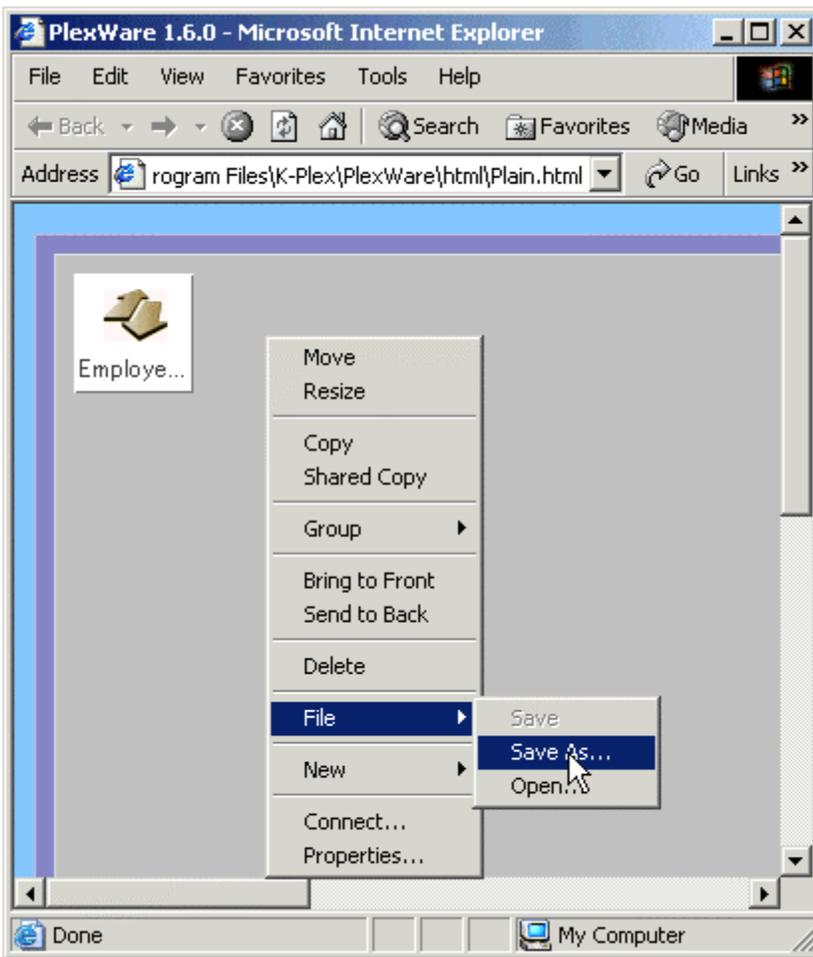


Figure 33: Save The Desktop Klip.

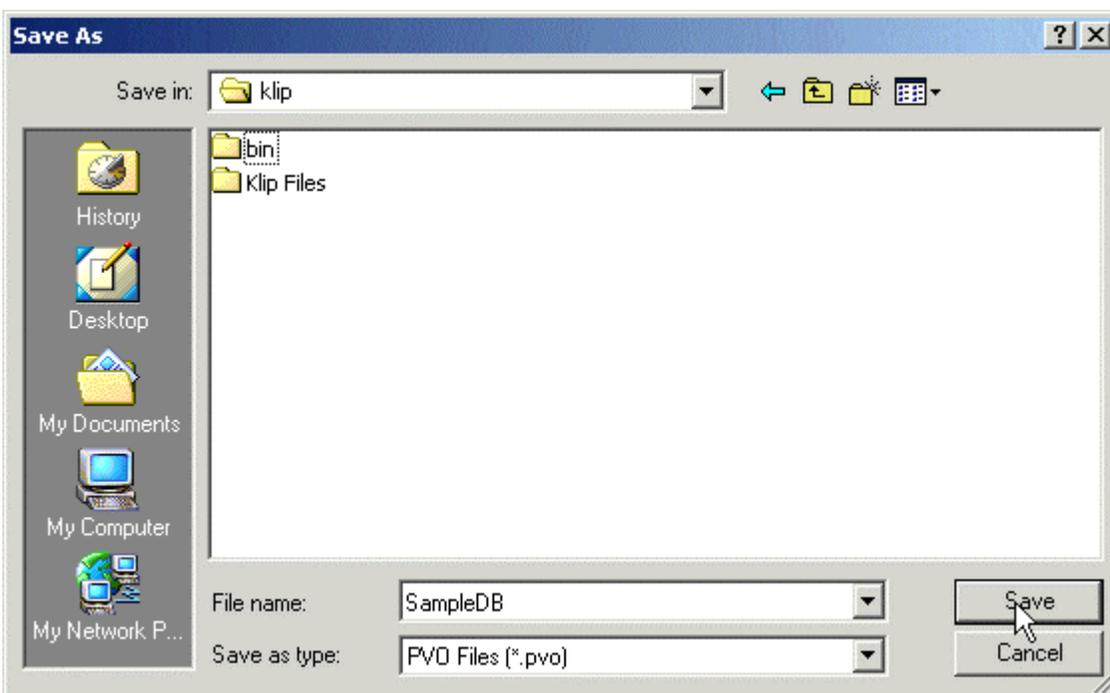
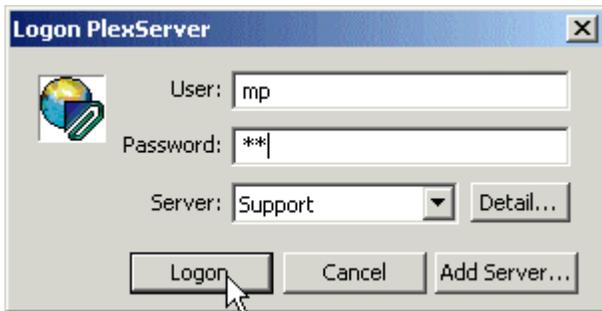


Figure 34: Save the Desktop Klip as the SampleDB template.

When the saving is done, it is time to test it. If every step was correctly followed, you should be able to logon, submit the XML query request, retrieve the result, and display the data in grid. Here is the execution process:



 **Follow These Steps . . .**

To Execute the Query:

1. Click the Button Klip.
2. Enter mp in the User text box.
3. Enter mp in the Password text box.
4. Select Support as the Server.
5. Click the Logon button. (See Figure 35)

Figure 35: Logon to the Support PlexServer.

If the logon successful, the result should display in HighLightGrid Klip as shown in Figure 36 below.

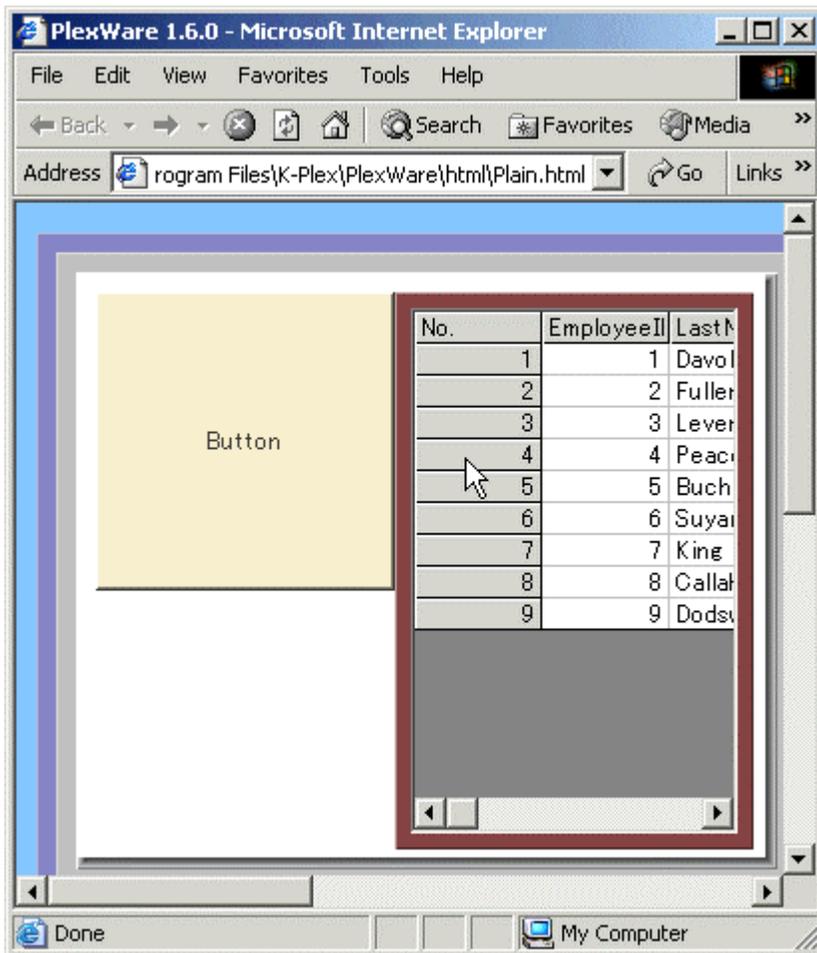


Figure 36: The result data set displayed using HighLightGrid Klip.