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# PROFICY iFIX HMI/SCADA

Using VisiconX

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# Using VisiconX

This e-book, Using VisiconX, is intended for users who need to access data from relational or non-relational databases. The information in this document describes how to use the VisiconX ActiveX controls. These controls offer access to data in any database. Scripts or customized programs previously required to access data are a thing of the past.

Previously, accessing data meant writing a Microsoft Visual Basic script, which can be tedious and requires knowledge of Visual Basic. The VisiconX controls harness the newest Microsoft technology known as ADO, which stands for ActiveX Data Objects. By using ADO, VisiconX lets you access data easily and quickly.

This e-book assumes you are familiar with either iFIX or CIMPLICITY, both of which support the use of VisiconX objects. It also assumes some familiarity with SQL queries and relational database concepts. Finally, knowledge of the Windows environment and the advanced capabilities of Microsoft Windows is assumed.

**NOTE (CIMPLICITY USERS ONLY):** CIMPLICITY WebView does not support the use of VisiconX objects.

## iFIX Reference Documents

For related information on iFIX, refer to the following iFIX manuals:

- *Creating Pictures*
- *Using SQL*
- *Writing Scripts*

## CIMPLICITY Reference Documents

For related information on CIMPLICITY, refer to the following CIMPLICITY manuals:

**NOTE:** Reference documents for iFIX or CIMPLICITY will only be available for the product you have installed.



## Introduction

VisiconX™ is a GE Plug and Solve® solution for the iFIX® and CIMPLICITY® products. It is an easy-to-use, object-oriented development tool that makes accessing data in any type of database a snap! Its simple point-and-click interface provides the means to configure access to any database and then create an SQL query as simple or complex as necessary to retrieve the information you need. You can also create simple insert and update statements to add or change the data in a database table.

VisiconX consists of a suite of controls that can be inserted into a iFIX WorkSpace™ picture or a CIMPLICITY CimEdit screen. These controls access Microsoft's ActiveX™ Data Objects (ADO), eliminating the need to write Microsoft® Visual Basic® scripts or create a customized program to access and manipulate data. A task that previously required hours of development time is reduced to seconds!

The VisiconX SQL Wizard makes it easy for you to retrieve the precise information you need, or to add and change the data stored in a database table. The SQL Wizard helps you choose options for your statement and then builds the SQL Select, Insert, or Update statement for you. If you want, you can bypass the SQL Wizard and query the database using a stored procedure or by entering an SQL statement yourself.

Besides making data access easier and quicker, VisiconX also enforces access to secured databases. VisiconX can use either a user name and password or the features of Windows integrated security to perform a security check. The security check must succeed before VisiconX returns any data.

iFIX users can configure SQL commands to require either Perform Only or Perform and Verify electronic signatures. Both iFIX and CIMPLICITY users can configure whether the SQL Wizard is available in run mode.

## How VisiconX Works

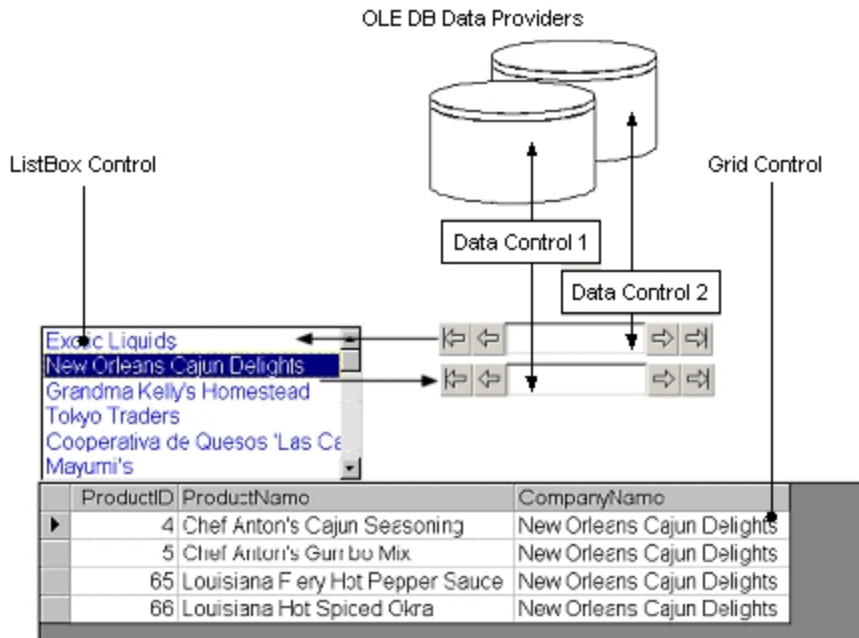
VisiconX is a suite of the following four ActiveX objects:

- Data Control
- Grid Control
- ListBox Control
- ComboBox Control

The Data Control connects to any database and retrieves data. The Grid, ListBox, and ComboBox Controls display the data retrieved by connecting to the Data Control through object-to-object animation in iFIX and through pre-built script logic in CIMPLICITY.

The following illustration depicts how VisiconX works. In this figure, each Data Control is configured to access an OLE DB data provider.

- Data Control 1 animates the Grid Control, which displays the retrieved data in a spreadsheet-like format.
- Data Control 2 animates the ListBox Control.
- The ListBox Control animates the query property defined in the SQL Select statement of Data Control 1, which in turn filters the data displayed in the Grid Control.



*Using VisiconX Controls*

## Getting Started

This chapter describes how to begin using VisiconX controls to connect to and retrieve data from OLE DB data providers. It describes the controls themselves, how to insert them in a picture, and how to configure the Data Control to connect to an OLE DB data provider, secure access, and test the connection. It includes the following sections:

- [Getting Information About Your OLE DB Data Provider](#)
- [Before You Begin Working with VisiconX](#)
- [Understanding VisiconX Controls](#)
- [Inserting VisiconX Controls](#)
- [Connecting to an OLE DB Data Provider](#)
- [Accessing Secured OLE DB Data Providers](#)
- [Testing the OLE DB Data Provider Connection](#)
- [Overview Checklist](#)

## Getting Information About Your OLE DB Data Provider

Before you begin using VisiconX, find out what you need to know to access an OLE DB data provider. The first thing to determine is which data provider to access. VisiconX supports a number of data

providers, such as SQL Server and Oracle, as well as ODBC drivers that map to many different types of relational databases.

The information you need differs depending on the data provider you access. Begin by asking your system administrator. The following table defines the information to acquire for each type of OLE DB data provider VisiconX supports.

**Required Connection Information for an OLE DB Data Provider**

OLE DB Data Provider	Information Needed
Microsoft Jet 3.51 or 4.0 Provider	Database path and name System (security) database path and name
ODBC Drivers	ODBC data source name or ODBC connection string
SQL Server	Server name Database name
Oracle	Server name
Simple Provider	Connection string for the data source (server) and initial catalog

**NOTE:** ODBC data source names are defined through the ODBC Administrator tool. Access this tool by clicking the Start button and pointing to Programs, Administrative Tools, and then Data Sources (ODBC). You can also access the Administrative Tools folder from the Control Panel.

You also need to determine if the OLE DB data provider is secured. If it is, you need a user ID and password to access the data provider. You also need to determine which access privileges you have. For example, do you have access to all or specific databases on the server? Can you access all tables in the database?

## Before You Begin Working with VisiconX

Before you begin working with VisiconX Controls:

- iFIX users:  
Start iFIX and the iFIX WorkSpace. When you start the WorkSpace, you are ready to begin inserting and defining your controls. Start by creating a new picture or opening an existing one, as described in the iFIX *Creating Pictures* ebook.
- CIMPLICITY users:  
Start CimEdit and then create a new CimEdit screen or open an existing one, as described in the ebook. VisiconX controls are inserted and defined in a CimEdit screen.

## Understanding VisiconX Controls

VisiconX provides the following OLE ActiveX controls for you to include in your iFIX WorkSpace picture or CIMPLICITY CimEdit screen:

- [Data Control](#)
- [Grid Control](#)
- [ListBox and ComboBox Controls](#)

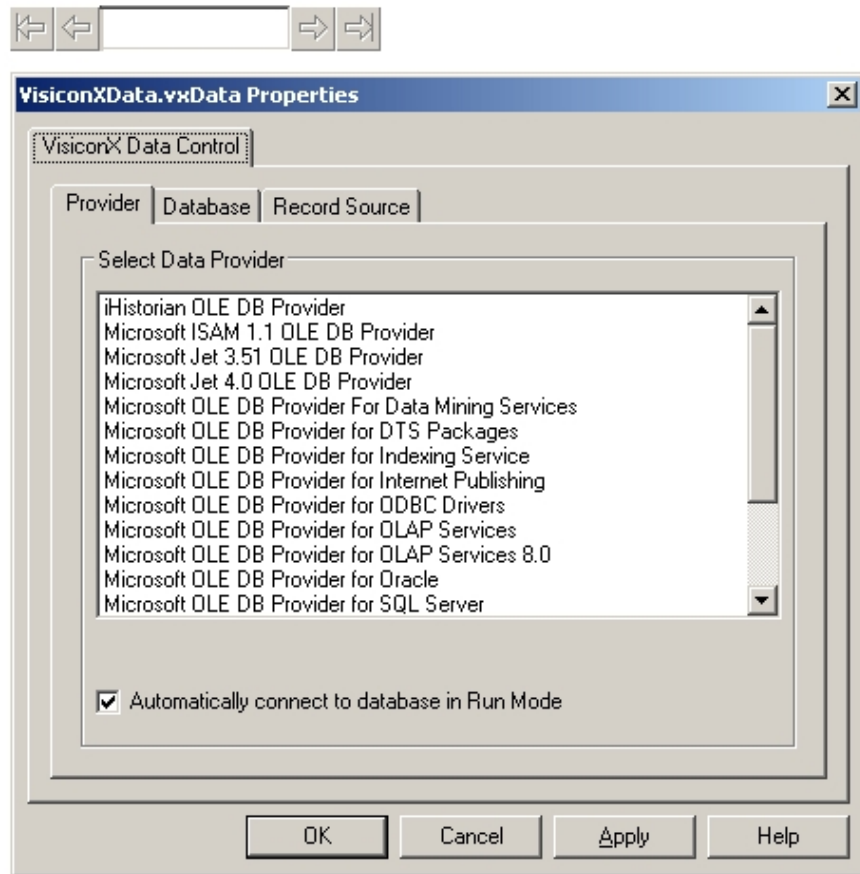
These controls let you connect to an OLE DB data provider, specify a database query, and view the returned data in a spreadsheet-like format, list box, or drop-down list box.

## Data Control

The Data Control provides the interface between OLE DB data providers and the VisiconX object. Through the Data Control, you can communicate with any OLE DB data provider installed on your local machine, including, but not limited to SQL Server, MS Access, and Oracle. You can also access relational databases using ODBC drivers.

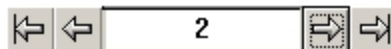
The Data Control looks like this.

Double-click the control to display the Data Control Properties dialog.



*Data Control and Its Properties Dialog Box*

In the run-time environment, the control itself displays the zero-based number of the current row and navigation arrows, which you can use to move through the data displayed in the Grid Control.



### *Data Control Display in the run-time environment*

If the data provider you want to access has security implemented, the Data Control requires an authorized user ID and password before it can access and retrieve data. Users accessing a secured SQL Server have the option of using the security features of Windows.

**NOTE:** If the data control's `InvisibleInRunMode` property is set to `True`, security error messages will not appear.

The Data Control is easy to configure with a point-and-click user interface. The Data Control dialog box presents tabs from which you can quickly select a server and a database to access.

#### **Provider Tab**

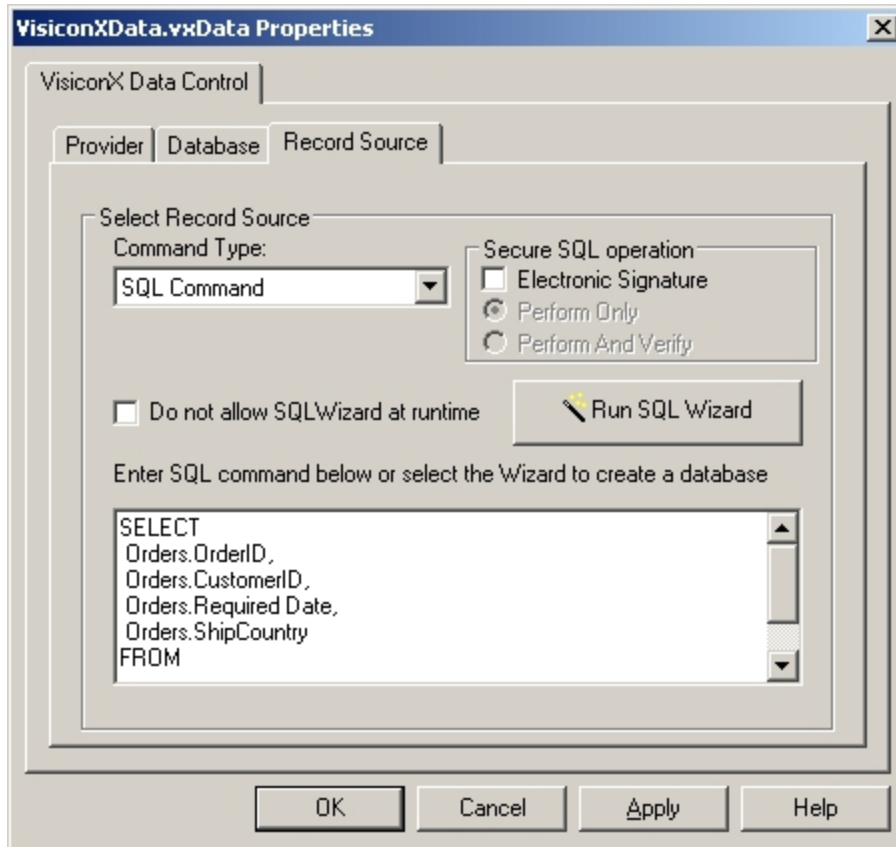
The Provider tab provides a list of the available OLE DB data providers you can choose from. These data providers map to many different types of relational databases. Once you have selected a provider, you can proceed to the Database tab.

#### **Database Tab**

The fields on the Database tab differ depending on the data provider you select. Each type of data provider requires different information to connect to the associated databases. You must select a data provider and database before moving on to the Record Source tab.

#### **Record Source Tab**

The Record Source tab in the Data Control OLE Properties dialog box is the location where you create an SQL statement to retrieve, insert, or update data, or use a stored procedure to retrieve data. The Record Source Tab is identical for iFIX and CIMPLICITY users, with the exception of the Secure SQL Operation section for electronic signatures, which is only available to iFIX users as shown in the following figure:



*Record Source Tab in the iFIX Data Control OLE Properties Dialog*

In the Record Source tab, you can specify whether the SQL Wizard can be accessed during run mode. iFIX users can also specify whether electronic signatures are required for SQL statements when they are run in Workspace run mode.

**IMPORTANT (iFIX USERS ONLY):** Before you can write to a database you must have the VisiconX Writes application feature added to your user and/or group account. Also, if the data controls you created in a previous version of iFIX were performing database writes, they will no longer work; you must add the VisiconX Writes application feature to your user and/or group account. For more information, see *Application Features* in the *Configuring Security Features* e-book.

### SQL Wizard

The Record Source tab is also the location where you activate the SQL Wizard, a tool that builds SQL Select, Insert, and Update statements for you. Use the SQL Wizard to quickly create simple-to-complex SQL Select statements or simple Insert or Update statements. You can create more complex Insert or Update statements in the Record Source tab. Queries can support:

- Up to 64 column properties that can be animated.
- Up to 32 query properties that serve as variables in the query statement. These properties can be set to any value or animated through the iFIX object animation dialog.

Be aware that on Record Source tab, if you choose to use a .csv file as table, then you should use a table alias instead of using the .csv file name to modify the table columns in the SQL command. For example, do not create a query like this:

```
SELECT data.csv.col1, data.csv.col2 FROM data.csv
```

Instead, create a query like this:

```
SELECT t.col1, t.col2 FROM data.csv t
```

where *t* is the alias of the data.csv table.

For more information about using the SQL Wizard, see [Creating a Query Using the SQL Wizard](#) and [Creating an Insert or Update Statement](#).

## Grid Control

The Grid Control presents retrieved data in a spreadsheet-like format. To display data, you must animate the Grid Control using a Data Control as its data source. Each time the Data Control is re-configured, the data presented in the Grid Control is automatically updated. The Grid Control also lets you choose display properties for the displayed data, such as the font and font size.

## ListBox and ComboBox Controls

The ListBox and ComboBox Controls display a specific column of data in a list box and drop-down list box, respectively. Like the Grid Control, you can animate these controls with the Data Control as their data source. Also like the Grid Control, you can select display properties for these controls, such as the font, as well as a color for the text displayed in the list boxes.

## Connecting to an OLE DB Data Provider

The first step in setting up VisiconX to access data is to configure a Data Control to connect to an OLE DB data provider or ODBC driver.

By default, the Data Control automatically connects to the OLE DB data provider in the run-time environment. However, there may be times (when testing your configuration, for example) when you want to manually connect and disconnect from the data provider. To connect manually, you can add a command button to your picture and enter the following code for the command button Click event:

```
Private Sub CommandButton1_Click()  
vxData1.DBConnect  
End Sub
```

### NOTES (CIMPPLICITY USERS ONLY):

- The name of the subroutine shown here follows standard VBA naming convention, which does not apply to CimEdit Basic script language.
- In CIMPPLICITY, the following additional code must precede the first reference of vxData1 in its scope:

```
Dim vxData1 As Object  
Set vxData1 = CimGetScreen.Object.Objects.Item("vxData1").OleObject
```

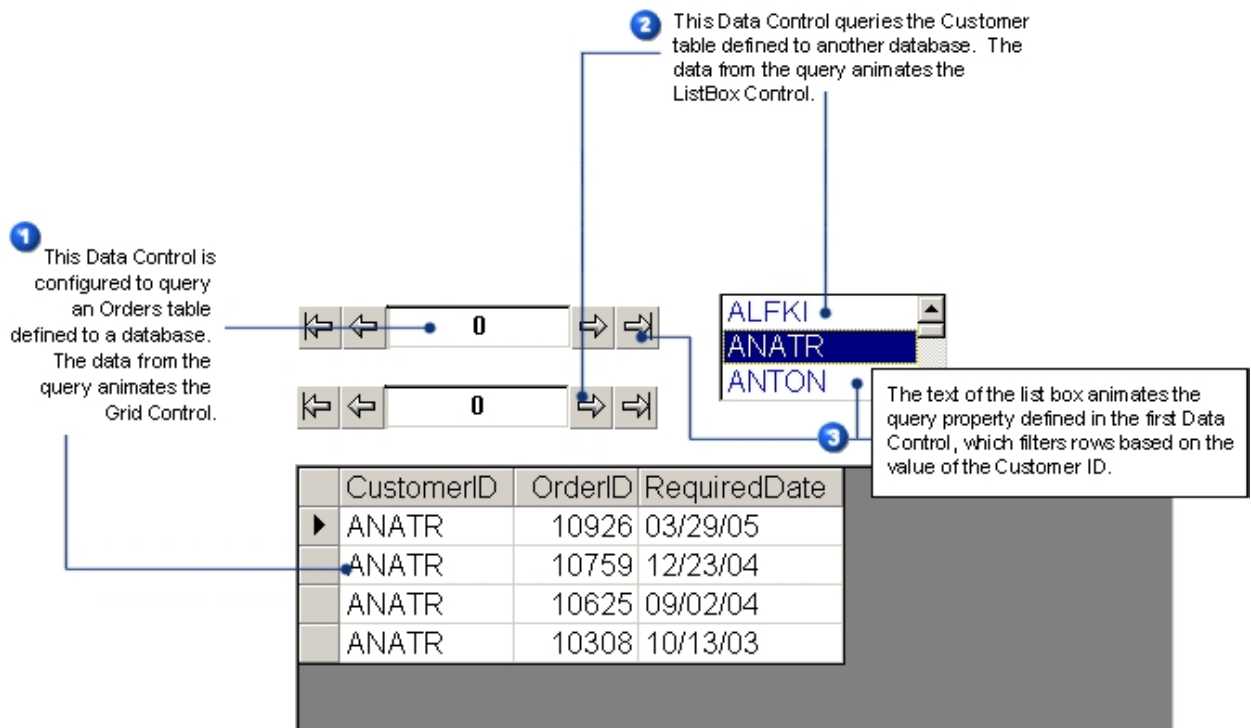
For more information about VisiconX properties, methods, and events, see the [VisiconX Automation Reference](#). For information how to use properties and events in your application, consult the appropriate topic below:

- [Using VisiconX Properties and Methods in iFIX](#)
- [Using VisiconX Properties and Methods in CIMPLICITY](#)

## Connecting to Multiple Databases

The data your enterprise stores in one database may affect the view of data you want to see in another database. For example, the delivery dates in your Order Entry database impact production dates in the Production database.

With VisiconX, you acquire data from multiple databases by configuring a Data Control for each database you want to access. Through object-to-object animation, you can query one database based on the values returned by a different database, as illustrated in the following diagram.



*Accessing Multiple Databases*

## Accessing Secured OLE DB Data Providers

VisiconX provides a simple user interface to enter the information necessary to access secured OLE DB data providers. In addition, you can configure the Data Control to display a login dialog box each time iFIX or CIMPLICITY is put into run mode.

Users accessing the Microsoft OLE DB for SQL Server data provider can opt to use the Windows integrated security system, rather than entering a User Name and Password.



## Testing the OLE DB Data Provider Connection

The final step in connecting to an OLE DB data provider is to test the OLE DB data provider connection. Before you test the connection, you must select the OLE DB data provider in the OLE Properties dialog box for the Data Control and select or enter the database that you want access to. If the OLE DB data provider is secured, you must also enter or select the appropriate security information.

If the connection succeeds, a dialog box with the message Test Connection Succeeded appears. If the connection does not succeed, a dialog box with the message Test Connection Failed appears along with an error returned. Click OK. For more information about troubleshooting failed connections, see [Assessing Failed Test Connections](#).

## Overview Checklist

The following steps outline the procedural checklist you should follow to retrieve data from an OLE DB data provider and display it in either iFIX or CIMPLICITY:

### ► To retrieve data from an OLE DB data provider and display it in iFIX:

1. [Insert a Data Control](#) into your iFIX WorkSpace picture.
2. In the Data Control OLE Properties dialog box, configure the Data Control to connect to an OLE DB data provider and database; test the connection.
3. In the same dialog box, select the database table or tables to query and create your query using any of the methods provided by VisiconX.
4. In your WorkSpace picture, [insert a Grid, ListBox, and/or ComboBox Control](#) in which to display the retrieved data.
5. On the Behavior tab of the Animations dialog box, [animate the Grid, ListBox, and ComboBox Controls](#). For the animation data source, select the Data Control and choose Object in the Data Conversion drop-down list box.
6. To view your picture in Run mode:  
In Ribbon view, on the Home tab, in the Workspace group, click Switch to Run.  
- Or -  
In Classic view, on the Standard toolbar, click Switch to Run.

### ► To retrieve data from an OLE DB data provider and display it in CIMPLICITY:

1. [Insert a Data Control](#) into your CIMPLICITY CimEdit screen.
2. In the Data Control OLE Properties dialog box, configure the Data Control to connect to an OLE DB data provider and database; test the connection.
3. In the same dialog box, select the database table or tables to query and create your query using any of the methods provided by VisiconX.
4. In your CimEdit screen, [insert a Grid, ListBox, and/or ComboBox Control](#) in which to display the

retrieved data. Select a Data Control source for the control(s) you insert.

5. Save your CimEdit screen and open it in CimView's run-time environment.

## Implementing VisiconX

This chapter describes some things to consider when using VisiconX controls to connect to a database and when planning how to query or write to that database. This includes planning the information to obtain from a query, or the information you want to insert or update, designing a layout of the retrieved information for the intended audience, finalizing your design, and optimizing system performance. This chapter also describes some common pitfalls and how to correct them.

Refer to the following sections for more information:

- [Planning Your Query](#)
- [Planning Your Database Write](#)
- [Designing Your Layout](#)
- [Finalizing Your Design](#)
- [Optimizing System Performance](#)
- [Troubleshooting](#)

### Planning Your Query

The first step in working with VisiconX is planning what information you want to obtain. For example, sales may want a list of all customers whose orders were shipped after the required date so that they can offer special incentive packages for future orders.

This means finding out what database to query and obtaining privileges to access data in the database. It also means finding out how information is organized in the database so that you can determine what tables to access.

Once you have determined where and how information is organized, you should determine how to construct a query that returns the precise information you want. That means finding out:

- What table or tables to query. If you query more than one table, what column should they be joined on and should the join be an inner join or an outer join?
- What columns to include in the query and the order in which they should appear. Do you want to see duplicate rows or not?
- What comparison expressions to use in the row filter and whether to combine the expressions using an And operator or an Or operator.
- How to sort the information returned.

You may need to create multiple queries, especially in a situation where the data residing in one database determines the data retrieved from another database. In each case, use the considerations listed in the preceding bullets to return the information you need.

## Planning Your Database Write

In the course of your business operations you will find that, over time, the information stored in your databases changes. For example, you acquire new customers, or information about existing customers changes, such as the contact person name, or telephone number. VisiconX allows you to write this new information to your databases using either an SQL Insert or Update statement.

**IMPORTANT (iFIX USERS ONLY):** Before you can write to a database you must have the VisiconX Writes application feature added to your user and/or group account. Also, if the data controls you created in a previous version of iFIX were performing database writes, they will no longer work; you must add the VisiconX Writes application feature to your user and/or group account. For more information, see *Application Features* in the *iFIX Configuring Security Features* e-book.

Adding to or changing information means finding out which database you want to update and how information is organized in the database so that you can determine which tables and columns to access.

After you have determined where and how information is organized, you should find out:

- Which table or tables you want to add to or change.
- Which columns contain the information you want to add to or change.
- When performing an Update, which comparison expressions to use in the row filter and whether to combine the expressions using an And operator or an Or operator.

You may need to perform multiple database writes, especially when the data residing in one database affects the data in another database.

### TIPS:

- SQL statements must follow standard SQL-92 conventions. Consistent with SQL standards, any statements you enter are not case-sensitive.
- When executed through a stored procedure, the Datetime output parameter does not return milliseconds because the ADOPParameter returned to the VisiconX object from ADOCommand does not contain the millisecond part.

## Designing Your Layout

Once you have researched what information to obtain, you should think about how to present the information and how it will be used in the runtime display. Some things to consider are:

- How to display specific types of information, such as in a spreadsheet-like grid or in a list box.
- Who the audience is for the runtime display. Someone monitoring production may want to see a Grid Control with the returned rows, but not the Data Control that configures and queries the database. A user who needs access to more than one database may want to use push buttons in run mode to connect to and query different databases.
- How to use color in the picture.
- What objects should be visible or invisible in the run-time environment.
- Whether to use the information to animate another object, such as a query property or the fill properties of a rectangle.

## Finalizing Your Design

After planning your query and designing your layout, you can refine your design by:

- Requiring users to log in to the data provider in the run-time environment.
- Animating objects, such as list boxes, query properties, and so on.
- Using properties and methods in scripts to create a more dynamic run-time environment. For example, in iFIX you can add Microsoft Forms, such as command buttons and option buttons, to run specific queries or activate the SQL Wizard.
- Modifying the design to optimize system performance.

## Optimizing System Performance

Querying relational databases and retrieving data can impact the performance of your Windows system. This section describes a few actions you can take to optimize system performance when querying databases through VisiconX Data Controls. It includes the following topics:

- [Selecting a Data Provider](#)
- [Use Row Filters to Limit Data Retrieved](#)

### Selecting a Data Provider

VisiconX performs best when it accesses data through native OLE DB data providers, rather than using an ODBC database driver. If your site has access to both a native OLE DB data provider, for example SQL Server, and an ODBC database driver for the same server, select the native OLE DB data provider in the Data Control OLE Properties dialog box.

### Use Row Filters to Limit Data Retrieved

Retrieving large data sets affects the time it takes to retrieve all the data, but it does not freeze the system while the data retrieval occurs. However, if you need a limited subset of the data retrieved, use a Row Filter in the SQL query to limit the data set to the records required.

## Troubleshooting

VisiconX is a simple tool to implement and use. Certain situations, however, such as connecting to a data provider or animating an object, can produce problems that seem difficult to understand.

This section provides descriptions of typical problems you may experience. It also lists actions that you can take to resolve the issue. It includes the following topics:

- [Avoiding Problems](#)
- [Assessing Failed Test Connections](#)

- [Assessing Failed Connections at Run Time](#)
- [Row Filters Using Date Fields Display No Data](#)
- [Controls Animated by the Data Control Display No Data](#)
- [Troubleshooting Problems Caused By Stored Procedures](#)

## Avoiding Problems

You can avoid problems by configuring your system properly before operation. When troubleshooting, always try to simplify object animations and data query.

The following list is the minimum recommended configuration you should adhere to while troubleshooting problems:

- Use recommended computers.
- Use recommended network hardware and software.

For more information, see the *Getting Started with iFIX* guide if you are using iFIX, or the *Getting Started* guide if you are using CIMPLICITY.

## Assessing Failed Test Connections

When you click the Test Connection button on the Database tab of the VisiconX Data Control OLE Properties dialog box, you get a message indicating that the connection failed.

- Try to determine the reason for the failure from the description that appears in the Failed Connection dialog box.
- If the database is secured, make sure that you have authority to access the database and the tables selected in the query.
- Make sure that the User ID and password for the database is correct.
- Make sure that the server on which the database resides is accessible and operating.

For continued problems, contact your System Administrator to determine if your settings are correct.

## Assessing Failed Connections at Run Time

In the run-time environment, the Data Control displays Connection Error.

- Make sure the table in the query is accessible. Create a query using the Table command and run the query again. If the message reappears, the table is not accessible.
- Check your user privileges. You may not have the necessary privileges to access the table.
- Review the data source and data conversion selected for all objects and animated query properties.

## Row Filters using Date Fields Display No Data

The Row Filter contains a comparison expression that equates a Date field to a value or query property. When you run the query, no data is displayed in the objects animated by the Data Control.

- Make sure that there is data that corresponds to the specifications of the row filter.
- The DATE field may really be a STRING field formatted to display dates. In the Row Filter, enter a string formatted as a date and re-run the query. In addition, set the date format to a format that matches the database date format. To set the date format, use the Regional and Language Options in the Control Panel.

## Controls Animated by the Data Control Display No Data

A Grid, ListBox, or ComboBox control displays no data in the run-time environment.

- Make sure there is data that corresponds to the specifications of your query.
- Make sure the object is animated by the Data Control in iFIX or is associated with it in CIMPLICITY.
- If the query contains a query property, make sure the Data Control query property is animated in iFIX or initialized in a CimEdit script.

If the query contains a query property, switch to the run-time environment. Select or enter a value in the object that animates the query property. The new value should change the data displayed in the object animated by the Data Control. For example, if a ListBox Control animates the query property, select another item in the ListBox to change the display in objects animated by the Data Control.

## Troubleshooting Problems Caused By Stored Procedures

Using a stored procedure to query a Microsoft Access database or an Oracle server requires special consideration because of specific elements incorporated in the design of these databases.

### Microsoft Access Databases

Microsoft Access databases do not truly support stored procedures. However, they do support queries, which ADO treats in the same way as stored procedures. Currently, the MS Jet 3.51 and 4.0 OLE DB Providers cannot retrieve parameter information from Access queries. Therefore, when Stored Procedure is selected as the command type in the Record Source tab of the Data Control OLE Properties dialog, no parameters or mapped query properties appear for a selected Access query.

To get around this problem, you can try one of two solutions:

- Connect to the Microsoft Access database through an ODBC driver, rather than through the native MS Jet OLE DB Provider
- If you know the parameters defined in the Access query, you can enter the query as an SQL Select statement. In this example, ScrBatchSummary is the name of the Access query and Batch\_Serial\_No is an input parameter to the query:

```
Select * From ScrBatchSummary where ScrBatchSummary.batch_serial_no = QP1
```

## Oracle Servers

Oracle stored procedures that Update, Insert, or Delete database information work as expected in VisiconX. However, stored procedures that retrieve, or Select, data from an Oracle server require special consideration. In order for an Oracle stored procedure to return a Recordset, you must create a package.

The Oracle package defines an array that is populated with the Recordset data returned to ADO and VisiconX. You cannot call this package using the "Stored Procedure" command type in VisiconX. You must call it as an SQL command. In this example, *packperson* is the name of the package, *oneperson* is the name of the stored procedure, *resultset 2* tells the package the maximum number of rows to return, *ssn*, *fname*, and *lname* specify the columns to return, and QP1 is the VisiconX variable that controls the selection:

```
{call packperson.oneperson(QP1,{resultset 2, ssn, fname, lname})}
```

For details on how to create a package in Oracle that is able to return a Recordset to ADO and VisiconX, look at [Article Q176086](#) in the Microsoft Support KnowledgeBase.

# Creating SQL Statements in VisiconX

This chapter describes how to create an SQL statement to retrieve data from an OLE DB data provider. Beyond the basics, it tells you how to refine your statements to retrieve the specific information you need, add data to a database, or update existing data, as well as how to use animated query properties.

Once you retrieve the data, you can display it in a Grid Control, ListBox Control, or ComboBox Control. For more information, refer to the [Displaying Data](#) section.

This chapter includes the following sections:

- [Creating a Query](#)
- [Writing to a Database](#)
- [The SQL Wizard](#)
- [Creating a Row Filter](#)

## Creating a Query

A query accesses tables in a database and returns the data you request. A simple query returns the entire contents of a single table. A more complex query filters rows based on selection criteria, sorts data, or combines data from more than one table. With VisiconX, it's easy to create queries as simple or complex as you need.

Query creation begins in the Record Source tab of the Data Control OLE Properties dialog box. The Command Type list box let you choose what type of query to create, as shown in the following table.

**Query Command Types**

Command Type	Description
SQL Command	Uses the SQL Wizard to create an SQL command or lets you enter an SQL command manually.
Table	Returns data for an entire table.
Stored Procedure	Maps query properties to the parameters of a stored procedure.

The Record Source tab also provides options for setting the type of database lock to use when reading and updating data. For more information, see *Advanced Topics* in the *Setting Up the Environment* e-book.

## Creating a Query Using the SQL Wizard

VisiconX's SQL Wizard helps you create simple-to-complex SQL Select statements quickly. By using the Wizard, you do not need to know SQL Select statement syntax; the Wizard builds the statement for you.

Besides making your job quicker and easier, the SQL Wizard also lets you use query properties. By animating the query properties, you can modify the data displayed based on the value currently assigned



to the query property. [Animating Query Properties](#), in the Using VisiconX in iFIX chapter, describes query animation in more detail.

**NOTE:** CIMPLICITY users need to use CimEdit Basic script to use query properties. For more information, see [Using Query Properties in CIMPLICITY](#).

With the SQL Wizard, you can:

- Select one or more tables to query.
- Select the table columns to display.
- Return rows with unique values, rather than rows with duplicate entries.
- Filter the rows returned based on selection criteria you assign.
- Sort data in ascending or descending order by the values of columns you select.

## Entering or Pasting an SQL Statement

The Record Source tab of the Data Control OLE Properties dialog box includes the SQL Command Text box. You can enter SQL statements directly into the text box or paste a statement from another application. Queries built by the SQL Wizard also appear in this box, where you can refine them further.

Users comfortable with coding SQL statements and who know the table and column names of their database may prefer to enter the statement manually. You may also want to create an SQL query in another application, such as MS Query, and then paste it in.

### Joining Tables

When you want to create a query that combines data from two or more tables, you are *joining* the tables. The tables used in the query must share a common column. For example, a Customer table and an Orders table both have a column of Customer IDs.

With the SQL Wizard, you can easily combine tables using the most common type of join operation, which is an *inner join*. An inner join selects only the records from each table where the values of the common column match. For example, this Select statement joins the Customer and Orders tables by equating the CustomerID column in both tables. It returns information about customers and orders that have the same customer ID value. It does not return information about customers with no associated orders or information about orders with no associated customer.

```
SELECT
Customers.CustomerID,
Customers.ContactName,
Orders.OrderID,
Orders.ShipName
FROM Customers, Orders
WHERE (Customers.CustomerID = Orders.CustomerID)
ORDER BY Customers.CustomerID
```

The following figure shows a sampling of data retrieved by joining the Customers and Order table based on the preceding Select statement.

	CustomerID	ContactName	OrderID	ShipName
▶	ALFKI	Maria Anders	10643	Alfreds Futterki
	ALFKI	Maria Anders	10692	Alfred's Futterk
	ALFKI	Maria Anders	10702	Alfred's Futterk
	ALFKI	Maria Anders	10835	Alfred's Futterk
	ALFKI	Maria Anders	10952	Alfred's Futterk
	ALFKI	Maria Anders	11011	Alfred's Futterk

*Results of an Inner Join*

The other type of join is an *outer join*, which must be created by entering or pasting a Select statement. An outer join returns all the records for one table, but only the records from the second table where the values of the common column match. For example, this Select statement uses an outer join to return all the records in the Orders table, but only the records in the Customer table where the Customer ID value in both tables is the same. That is, it displays each Order record, with or without associated customer information.

```
SELECT
Customers.CustomerID,
Customers.ContactName,
Orders.ShippedDate,
Orders.ShipName
FROM
(Orders LEFT OUTER JOIN Customers
ON Orders.CustomerID = Customers.CustomerID)
ORDER BY Customers.CustomerID
```

This Select statement does the reverse; notice the only difference is the sequence of tables in the From clause. This statement returns all the records in the Customers table and only the records in the Orders table where the Customer ID value in both tables is the same. That is, it displays each Customer record, with or without associated order information.

```
SELECT
Customers.CustomerID,
Customers.ContactName,
Orders.OrderID,
Orders.ShipName
FROM
(Customers LEFT OUTER JOIN Orders
ON Customers.CustomerID = Orders.CustomerID)
ORDER BY Customers.CustomerID
```

The following figure shows a sampling of data retrieved by running the preceding Select statement. Notice the PARIS customer ID record has no associated order information.

CustomerID	ContactName	OrderID	ShipName
OTTIK	Henriette Pfalzheim	10766	Ottilies Käselar
OTTIK	Henriette Pfalzheim	10833	Ottilies Käselar
OTTIK	Henriette Pfalzheim	10999	Ottilies Käselar
OTTIK	Henriette Pfalzheim	11020	Ottilies Käselar
PARIS	Marie Bertrand		
PERIC	Guillermo Fernánd...	10322	Pericles Comi...

*Results of an Outer Join*

### Creating a Query Using a Table

The easiest query you can create is one that returns all the data in a table; that is, all the columns and rows in a table. For a small table, where the data is easy to digest, you may want to choose this option.

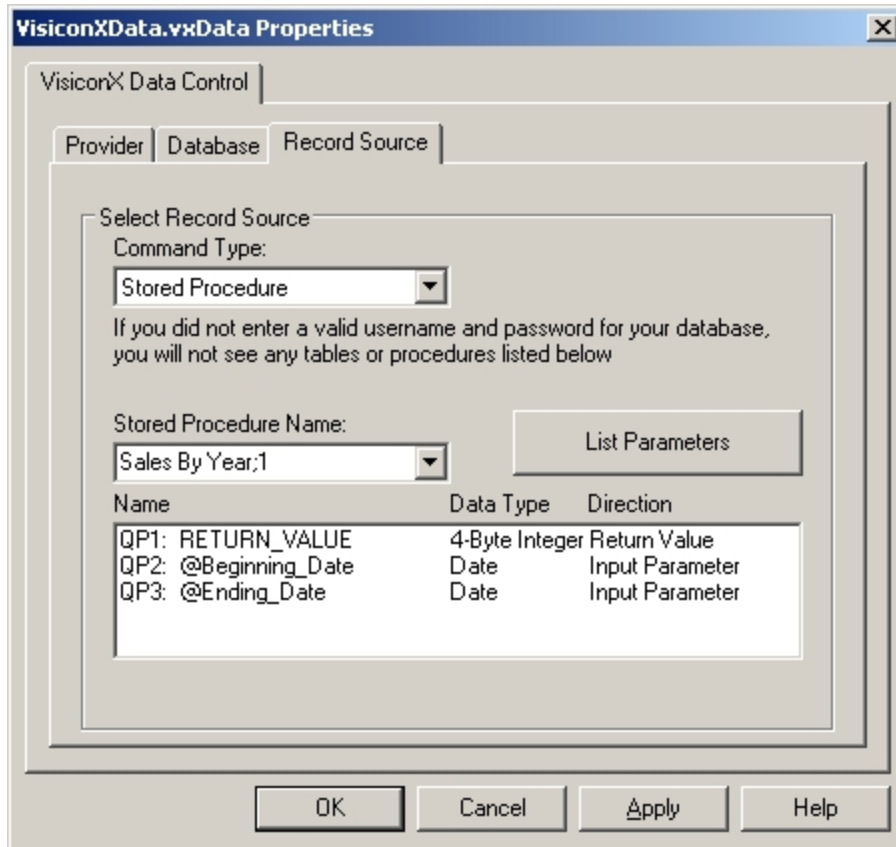
### Creating a Query Using a Stored Procedure

Stored procedures are compiled blocks of code in the relational database. They are useful because they can have conditional statements and flow statements. Stored procedures can perform INSERT, UPDATE, DELETE, and SELECT commands. They can also take arguments and return results. The arguments may be values to insert or values to use in Where clauses.

Procedures can be much faster than SQL commands for the following reasons:

- Executing a stored procedure requires only one call.
- A stored procedure is already compiled in the database.
- A stored procedure runs on the server, not on the client.

When VisiconX uses a stored procedure to access and retrieve data, it creates a list of query properties that map to the parameters of the stored procedure. The query property list displays the query property / parameter mapping, the parameter's data type, and the direction the parameter passes information, as the following illustration shows.



*Stored Procedure Parameter Mapping*

VisiconX assigns query properties to the return value, input parameters, output parameters, and input/output parameters defined to the stored procedure. In cases where VisiconX cannot determine the purpose of a parameter, the direction in the Parameter List appears as Unknown.

**NOTES:**

- If you use a stored procedure to query a Microsoft Access database or Oracle database, please see [Troubleshooting Problems Caused By Stored Procedures](#) for special considerations that apply to these databases.
- CIMPLICITY users need to use CimEdit Basic script to use query properties. For more information, see [Using Query Properties in CIMPLICITY](#).
- The Datetime output parameter does not return milliseconds when executed through a stored procedure. (The ADOParameter returned to the VisiconX object does not contain the millisecond part when a stored procedure returns a datatype of datetime.)

After viewing the Parameter List for the stored procedure, make a note of the query properties that map to the input parameters for the stored procedure. These are the query properties that must be animated in order to retrieve data using the stored procedure.

**Writing to a Database**

Writing to a database means that you can insert or update the column values of the selected database table. You can use the SQL Wizard to create simple insert or update statements, or you can manually

enter more complex statements using the Record Source tab of the Data Control OLE Properties dialog box.

By using the Wizard, you do not need to know SQL Insert or Update statement syntax; the Wizard builds the statement for you.

**TIP:** SQL statements must follow standard SQL-92 conventions. Consistent with SQL standards, any statements you enter are not case-sensitive.

## Creating an Insert or Update Statement

VisiconX data controls can use SQL commands that allow you to add or update column values to selected database tables. You can use the SQL Wizard to create simple Insert or Update statements, or you can manually enter more complex statements using the Record Source tab of the Data Control OLE Properties dialog box. For more information about manually creating SQL statements, refer to [Entering or Pasting an SQL Statement](#).

VisiconX's SQL Wizard helps you create simple SQL Insert or Update statements quickly. By using the Wizard, you do not need to know SQL statement syntax; the Wizard builds the statement for you.

With the SQL Wizard, you can:

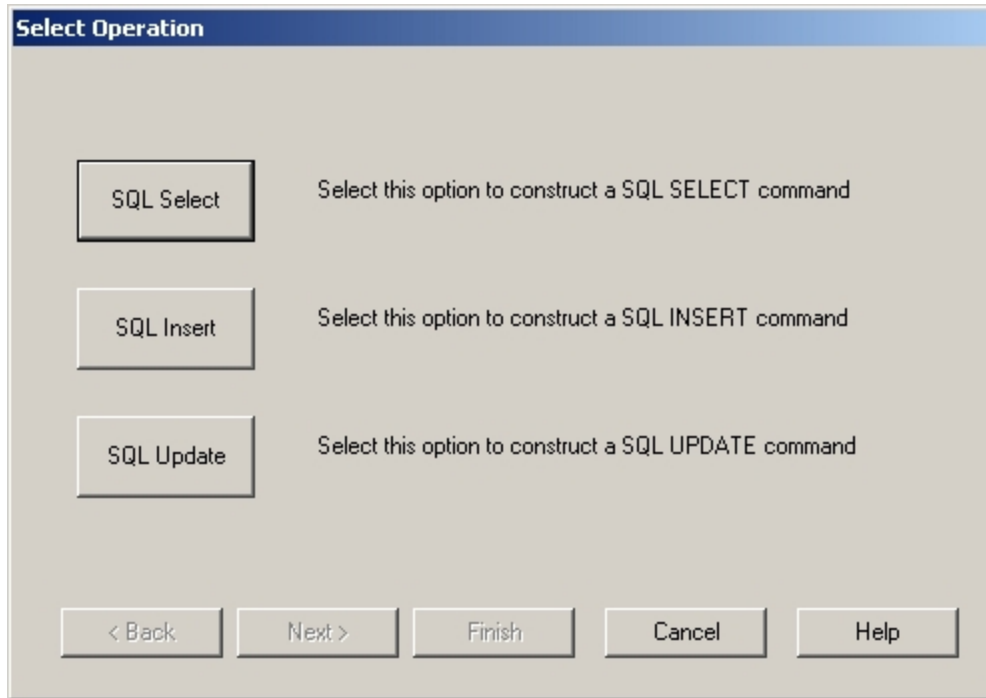
- [Select one or more tables to write to.](#)
- [Select the table columns you want to write to.](#)
- [Filter the rows you are updating](#), based on selection criteria you assign.

## The SQL Wizard

The SQL Wizard is a powerful tool that makes it easy to create sophisticated SQL statements to obtain the data you want to display or to add and update your databases. You do not need to know SQL statement syntax; the Wizard builds the statement for you. With the SQL Wizard, you can quickly:

- [Select tables](#)
- [Select columns](#)
- [Filter rows using a point-and-click interface to specify selection criteria.](#)
- [Sort data by column value.](#)
- [Return unique rows only.](#)

Creating statements with the SQL Wizard begins in the Record Source tab of the Data Control OLE Properties dialog box. The Run SQL Wizard button is available only when the selected Command Type is SQL Command. The SQL Wizard gives you the choice to create Select, Insert, or Update statements.



#### *SQL Wizard Select Operation*

The SQL Wizard walks you through the process of creating an SQL statement. When you click the Next button in the Wizard, the Wizard uses the options you selected in the current dialog box to build the information displayed in the next dialog box. If you want to backtrack and select different choices, click the Back button. At any point in the Wizard, you can click Finish to complete your query.

The SQL Wizard asks you to select:

1. The tables to query, add to, or update.
2. The columns in those tables to query, add to, or update, and whether those columns should have unique values.
3. The selection criteria to use to filter rows in a Select or Update statement.
4. Columns upon which the table data is sorted in a Select statement.

When you finish the statement, the SQL Wizard displays the SQL statement it has built, first in the Finish dialog box of the SQL Wizard, and in a text box on the Record Source tab of the Data Control OLE Properties dialog box. You can edit the finished statement in either of these places. The following list itemizes some common edits you may need to perform:

- To filter rows based on one or another comparison expression in the Where clause, change the AND keyword to OR.
- In a Select statement that joins two or more tables, remove quotation marks surrounding the column name in the Where clause.

## Selecting Tables

The first step in creating an SQL statement is selecting the tables in the database you want to query, add to, or update. Knowing how data in your database is organized will help you make informed decisions.

A simple query accesses the data in one table. The SQL Wizard can build more complex queries based on data in two or more tables using an inner join. To join tables using an outer join, you need to enter your query manually. For more information about joining tables, see [Entering or Pasting an SQL Select Statement](#).

## Selecting Columns

Selecting the table columns you want to query, add to, or update is one way to filter information contained in a table. For example, if you want to display or update the contact name and phone number for each customer ID, it would make sense to select only those columns and omit the columns containing information about the customer's mailing address.

In SQL, the column name is qualified by its table name like this:

```
tablename.columnname
```

The SQL Wizard displays the column names using this naming convention. When performing a query, the display lists all the columns belonging to the first table before listing the columns belonging to the second table and so on.

The SQL Wizard also displays an asterisk (\*) in the list of available columns. In SQL, the asterisk is the symbol to select all columns in the table(s) and appears like this in a Select statement:

```
SELECT * FROM tablename
```

Selecting the asterisk from the list of Available Columns is the same as clicking the All >> button in the SQL Wizard.

## Returning Unique Rows

The SQL Wizard gives you the option to retrieve rows that contain unique column values or rows that contain duplicate column values. For example, suppose you want to query the names and addresses of vendors used to ship orders, but that information is associated with each Order ID in the Orders table. The query will return multiple occurrences of each shipping vendor.

By selecting the option to return Distinct, or unique, rows, the query will return only one occurrence of each shipping vendor, making it much easier to make sense of the information returned.

**NOTE:** This option is available only when creating an SQL Select statement.

## Filtering Rows Returned

The Create Row Filter dialog box in the SQL Wizard is where you can limit the rows retrieved to only those that meet the selection criteria you specify. For those of you familiar with SQL, this is the Where clause. For example, this string:

```
Milktype equal to 3
```

returns only the rows where the value in the MilkType column equals 3. This string:

```
Milktype equal to 3 and BatchID equal to 1
```

returns only the rows where the value of Milktype equals 3 and the value of the BatchID is 1.

In the previous examples, the row filter is static; that is, the values used in the clause are hard-coded. In many cases, it is preferable to create a clause that is more flexible; one where you can change the value at run time and retrieve the updated results.

To create a clause that can be updated at run time, use a query property as shown in the following example:

```
Milktype equal to {ts `QP1`}
```

In this query, you can animate QP1 in the Data Control and assign a value to it at run time. The Data Control queries the data provider and updates the display in your picture.

For more information about creating a clause to filter the rows of your query, see [Creating a Row Filter](#).

If you are using iFIX, see [Animating Query Properties](#) for more information about animating query properties.

**NOTE:** CIMPLICITY users need to use CimEdit Basic script to use query properties. For more information, see [Using Query Properties in CIMPLICITY](#).

## Sorting Data by Column Value

Sorting the data retrieved by a query can make it much easier to understand the data displayed. SQL sorts data based on the values of selected columns. All the data in the table is sorted based on the values of the first sort column. Within that sort, the data is sorted based on the values of the second sort column and so on.

You can sort the column values in both ascending and descending order. Ascending is the default. Ascending means that numeric data is sorted from lowest-to-highest and character data is sorted from A-to-Z. Descending means the numeric data is sorted from highest-to-lowest value and character data is sorted from Z-to-A.

**NOTE:** This option is available only when creating an SQL Select statement.

## Creating a Row Filter: Overview

The Create Row Filter dialog box of the SQL Wizard helps you create a Row Filter that customizes the data returned by your query. The SQL Wizard builds a clause with the following syntax:

```
columnName1comparison-operatorvalue | QP1  
AND  
columnName2 comparison-operatorvalue | QP2  
AND  
columnNameN comparison-operatorvalue | QPn
```

where:



- *ColumnName1*, *ColumnName2*, and *ColumnNameN* are column names in the queried table.
- *Comparison-operator* compares the column value to another value or query property.
- *Value* is a string, date, or number value or expression that results in a value. It can also be a column name for queries that join two or more tables together.
- *QPn* is a query property where *n* is an integer from 1 to 32.
- AND is a keyword that retrieves rows that satisfy both comparison expressions.

**NOTES:**

- This option is not available when you create an SQL Insert statement.
- The Row Filter dialog box does not support the OR keyword, which retrieves rows that satisfy one comparison expression or the other. To combine comparison expressions with an OR keyword, edit the resulting SQL Select statement that appears when you click the Finish button.
- If you create a comparison expression that equates two column names, you may need to edit the resulting Where clause by removing quotation marks surrounding the column names.
- Be aware that CIMPLICITY users need to use CimEdit Basic script to use query properties. For more information, see the [Using Query Properties in CIMPLICITY](#) section.

## Row Filter Comparison Operators

The Row Filter comparison expression supports a number of comparison operators, which are visible in a list box in the Create Row Filter dialog box. The following table describes the meaning of each comparison operator.

Row Filter Comparison Operators	
Comparison Operator	Description
Any value	Is any value
Equal to	Equals a specified value
Less than	Is less than a specified value
Greater than	Is greater than a specified value
Less or equal	Is less than or equal to a specified value
Greater or equal	Is greater than or equal to a specified value
Begin with	Begins with the specified text string
End with	Ends with the specified text string
Contain	Contains the specified text string
Between	Is between and including two specified values
Null	Is Null

You can customize the comparison expression to do the opposite of what the comparison expression contains by selecting Is/Does Not from the list box to the left of the comparison expression list box. For example, this comparison expression retrieves all rows where the MilkType is not equal to 3:

MilkType Is Not Equal To 3

## Row Filter Values

**NOTE:** Filtering rows is not available when creating SQL Insert statements.

The SQL Wizard uses the column name selected for the comparison expression to determine if the value you enter is a string value, date value, or numeric value. The value you enter can be an explicit value or an expression that results in an explicit value.

The resulting SQL statement displays string and date values enclosed in special characters; for example, string values are enclosed in quotes. If you enter an SQL statement manually, follow the formats for Resulting Syntax described in the table.

#### How the SQL Wizard Interprets Row Filter Values

Data Type	Entering in the SQL Wizard	Resulting Syntax
String	Enter string values, even those with spaces and apostrophes, as you would normally; for example:  Sir Rodney's Scones	The SQL Wizard encloses string values in quotes; when it encounters an apostrophe, it replaces it with two single quotes, as follows:  'Sir Rodney's Scones'
Numeric	Enter numeric values as you would normally. For percentages, use the decimal representation; for example, 0.10 for 10%.	The SQL Wizard displays the number as you entered it.
Date	Enter date values using this syntax:  <i>yyyy-mm-dd hh:mm:ss</i>  where:  <i>yyyy</i> is the four-digit year  <i>mm</i> is the two-digit month  <i>dd</i> is the two-digit day  <i>hh</i> is the two-digit hour  <i>mm</i> is the two-digit minute  <i>ss</i> is the two-digit second	The SQL Wizard encloses the value in quotes prefixed by the string <code>{ts 'ts'}</code> . Braces enclose the entire expression:  <code>{ts 'yyyy-mm-dd hh:mm:ss'}</code>
Query Property	Select a query property from the drop-down list box.	The SQL Wizard treats the query property as a string, numeric, or date value, depending on the data type of the column used in the comparison expression.  For example, <code>'QP1'</code> for strings, <code>QP1</code> for numeric, and <code>{ts 'QP1'}</code> for dates. Note if a string is case-sensitive, you may need to change <code>QP</code> to <code>qp</code> .

## Displaying Data

To display data in Grid, ListBox, or ComboBox controls in iFIX, you must first animate them to use the ADORecords of the Data Control as a data source, as described in [Animating Grid, ListBox, or ComboBox Controls](#). Then, to switch the WorkSpace to Run mode: in Ribbon view, on the Home tab, in the WorkSpace group, click the Switch to Run button, or in Classic view, on the WorkSpace toolbar click the Run button.

To display data in Grid, ListBox, or ComboBox controls in CIMPLICITY, you must make sure that each of your controls is associated with a Data Control as a data source, if you have not already done so. Then, open the screen in CimView.

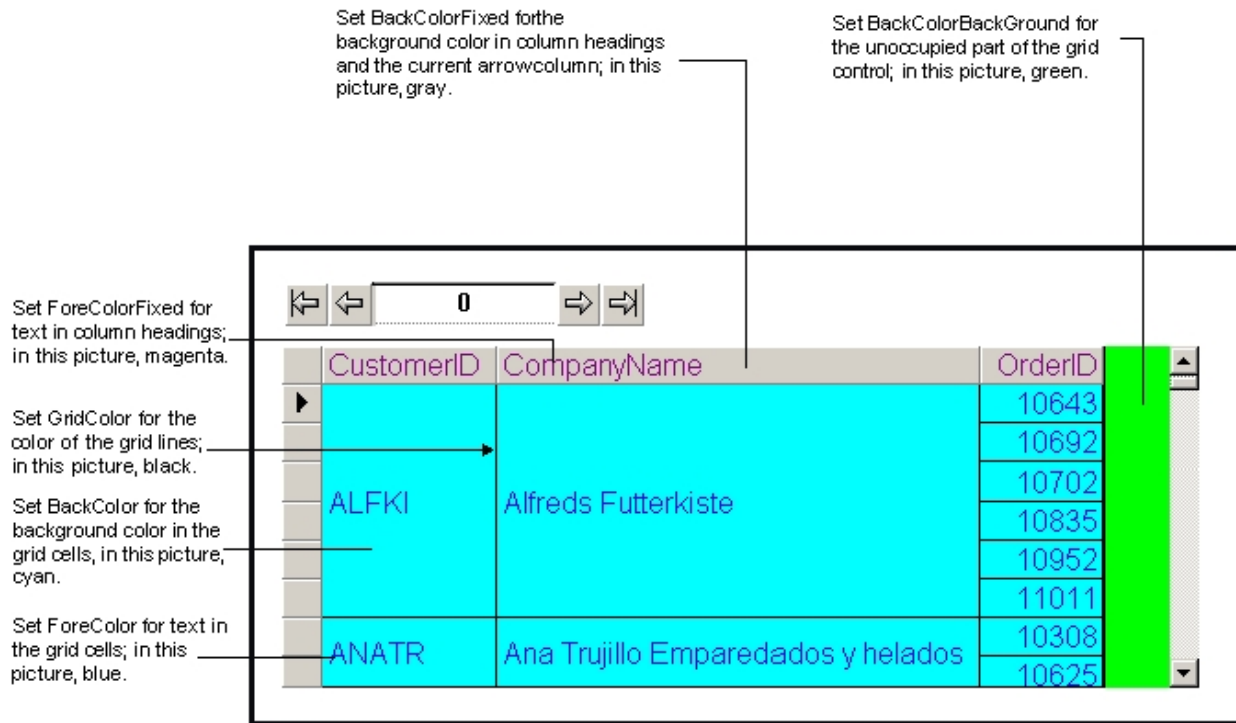
Whether using iFIX or CIMPLICITY's run-time environment, you can use the navigation arrows on the Data Control to move to the first, last, next, or previous records of data displayed in a Grid Control. The zero-based number in the Data Control displays the number of the current record. You can also make the Data Control invisible in the run-time environment by setting the InvisibleInRunMode property to True in the Data Control's object Properties window.

The Grid, ListBox, and ComboBox Controls behave as you would expect them to. For example, data in a ListBox Control appears in a list box, with a scroll bar if necessary to view the data. Data in a ComboBox Control, appears in a drop-down list box. Click the down-arrow to view listed items or enter a value. In the Grid Control, data appears in a spreadsheet-like format. Use the scroll bars to view data. To resize columns in the Grid Control, position the mouse cursor over the column headings. When the cursor changes to a double-headed arrow, slide the mouse left or right to resize the columns.

## Configuring Display Properties

With VisiconX, you can configure the display properties of the Grid, ListBox, and ComboBox Controls in their respective OLE Properties dialog boxes. Specifically, you can select the display font and font size of the controls, as well as colors for text, column headings, and backgrounds.

The following picture illustrates a Grid Control with colors set for each element of the control that can have a color property:



*Grid Control Color Elements in the run-time environment*

This illustration also shows the use of two Grid Control object properties that you can set by [opening the object Properties window](#) for the Grid Control.

One property, MergeCells, when set to True, displays one occurrence of repeating column values. For example, customer ID, ALFKI, has six associated orders. Instead of repeating the Customer ID and name six times, once for each order, the values appear once.

The other property, BorderStyle, when set to vxBorderNone, hides the outside border of the grid control. If you turn off the border and set the BackColorBackGround color of the grid to white, the Grid Control appears to be floating in the picture. The following picture is the same as the previous example, except that the BackColorBackGround color is set to white, instead of green; in both pictures, the outside border is hidden.

CustomerID	CompanyName	OrderID
ALFKI	Alfreds Futterkiste	10643
		10692
		10702
		10835
		10952
		11011
ANATR	Ana Trujillo Emparedados y helados	10308
		10625

*Grid Control with No Border and White Background Color*

To hide the row with column headings and the column with the row marker, you can set the DisplayHeaders and DisplayRowMarker properties in the Properties window of the Grid Control to False. You also have the option to set the column widths in the Grid Control by setting the AutoResize property to False and then entering the column widths in the ColumnWidths property.

## Using VisiconX: Examples

This section provides some concrete examples of using VisiconX. The examples are based on a sample Microsoft Access database:

- [Example 1: Displaying Batch Processes by Batch ID](#)
- [Example 2: Displaying Batch Processes by Recipe Version Dates](#)

This is just a small and simple sampling of the types of queries and displays you can create. As you become more familiar with VisiconX controls, the applications at your site become obvious.

### Example 1: Displaying Batch Processes by Batch ID

In this example, the process control operators want to view the details of a batch process by batch ID. To view the batch process details, this example uses:

- Two Data Controls to submit two different queries to the Batch table in the database.
- A Grid Control to display batch process information for a selected batch ID.
- A ListBox Control to select the batch ID.

The following screen shows the result in the run-time environment.

	batch_id	product_description	product_code	procedure_type	recipe_id
990413_01	990413_01	BLEND	GREEN357	BP	599:GREEN357-1
990413_010	990413_01	BLEND	GREEN357	BP	576:GREEN357-1
990413_02	990413_01	TRANSFER	UNDEFINED	BP	600:TRANSFER-1
990413_03	990413_01	TRANSFER	UNDEFINED	BP	577:TRANSFER-1

*Displaying Batch Process Details by Batch ID*

Here, the list pointer in the Grid Control points to the second record of the ADO record set retrieved by the query, which is Record 1 in the Data Control. As you increment the Data Control, the list pointer moves down the list.

## Example 2: Displaying Batch Processes by Recipe Version Dates

This example of VisiconX shows how you can create an SQL query to display batch processing information for recipe version dates on and beyond a specified date. The figure includes a Data Control and Grid Control as well as an OLE Calendar Object control. The data in the Grid Control changes depending on the date selected in the OLE Calendar Control.

September 2005						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
28	29	30	31	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	1
2	3	4	5	6	7	8

batch_id	recipe_versiondate
B001	09/26/05
B002	09/19/05
B003	09/19/05
B0030	09/19/05
B010	09/19/05
990413_01	09/19/05
990413_02	09/19/05
990413_03	09/19/05
990413_04	09/19/05

*Displaying Batch Data by Specific Recipe Dates*

## VisiconX Automation Reference

The VisiconX Automation Reference is intended for integrators and programmers who want to develop applications that access and manipulate information in iFIX or CIMPLICITY through a set of automation interfaces. This help file assumes the reader is proficient in the Microsoft® Visual Basic® programming language.

The following sections provide more details on how to use the objects, properties, methods, and events associated with VisiconX:

- [Quick Reference](#)
- [Object Summary](#)
- [Property Summary](#)
- [Method Summary](#)
- [Event Summary](#)

## Quick Reference - VisiconX Automation

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)

The following list contains all of the Plug & Solve Solutions objects, properties, methods, and events that are available to the VisiconX Automation interface.

### A-B

[AboutBox Method](#)

[ADODConnection Property](#)

[ADORRecords Property](#)

[AutoConnect Property](#)

[AutoResize Property](#)

[BackColor Property](#)

[BackColorFixed Property](#)

[BorderStyle Property](#)

### C

[Click Event](#)

[Click \(Area as Integer\) Event](#)

[Col Property](#)

[Cols Property](#)

[ColumnN Property](#)

[ColumnName Property](#)  
[ColumnNames Property](#)  
[ColumnNumber Property](#)  
[ColumnWidths Property](#)  
[Connected Property](#)  
[CurrentRow Property](#)

## **D**

[Database Property](#)  
[DataChanged Event](#)  
[DBConnect Method](#)  
[DBDisconnect Method](#)  
[DbClick Event](#)  
[DbClick \(Area as Integer\) Event](#)  
[DisplayHeaders Property](#)  
[DisplayRowMarker Property](#)  
[DSN Property](#)

## **E**

[ErrorDesc Property](#)  
[ErrorNum Property](#)  
[ErrorOccurred Event](#)  
[ExecuteComplete Event](#)

## **F-H**

[Font Property](#)  
[ForeColor Property](#)

## **I-L**

[InvisibleInRunMode Property](#)  
[JetDB Property](#)  
[JetSDB Property](#)

## **M-N**

[MoveFirst Method](#)  
[MoveLast Method](#)



[MoveNext Method](#)

[MovePrevious Method](#)

## **O**

[ODBCConnectionString Property](#)

[OLEDBConnectionString Property](#)

[OLEDBProvider Property](#)

## **P**

[Password Property](#)

[PersistUserInfo Property](#)

[ProcedureNames Property](#)

## **Q**

[QPn Property](#)

## **R**

[RefreshData Method](#)

[Row Property](#)

[RowChanged Event](#)

[Rows Property](#)

[RunSqlWizard](#)

## **S**

[Server Property](#)

[ShowMilliseconds Property](#)

[SourceType Property](#)

[SQLCommand Property](#)

## **T**

[Table Property](#)

[TableNames Property](#)

[Text Property](#)

## **U-Z**

[UseNTSecurity Property](#)

[UseODBCConnectionString Property](#)

[User Property](#)

## Property Summary

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)

The following list contains the Plug & Solve Solutions properties that are available to the VisiconX Automation Interface.

### A-B

[ADOConnection Property](#)

[ADORecords Property](#)

[AutoConnect Property](#)

[AutoResize Property](#)

[BackColor Property](#)

[BackColorBackGround Property](#)

[BackColorFixed Property](#)

[BorderStyle Property](#)

### C

[Col Property](#)

[Cols Property](#)

[ColumnN Property](#)

[ColumnName Property](#)

[ColumnNames Property](#)

[ColumnNumber Property](#)

[ColumnWidths Property](#)

[Connected Property](#)

[CurrentRow Property](#)

### D

[Database Property](#)

[DisplayHeaders Property](#)

[DisplayRowMarker Property](#)

[DSN Property](#)

## **E**

[ErrorDesc Property](#)

[ErrorNum Property](#)

## **F-H**

[Font Property](#)

[ForeColor Property](#)

## **I-L**

[InvisibleInRunMode Property](#)

[JetDB Property](#)

[JetSDB Property](#)

## **M-O**

[MergeCells Property](#)

[ODBCConnectionString Property](#)

[OLEDBConnectionString Property](#)

[OLEDBProvider Property](#)

## **P**

[Password Property](#)

[PersistUserInfo Property](#)

[ProcedureNames Property](#)

## **Q**

[QPn Property](#)

## **R**

[Row Property](#)

[Rows Property](#)

## **S**

[Server Property](#)

[ShowMilliseconds Property](#)

[SourceType Property](#)

[SQLCommand Property](#)

## T

[Table Property](#)

[TableNames Property](#)

[Text Property](#)

## U-Z

[UseNTSecurity Property](#)

[UseODBCConnectionString Property](#)

[User Property](#)

### ADOCConnection Property

Exposes the read-only Data Control's connection object so that it can be used in Visual Basic scripts.

#### Syntax

*object*.ADOCConnection

#### Parameters

The *object* placeholder represents an [object expression](#) that evaluates to an object in the Applies To list.

#### Remarks

The data type of this property is ADODB.CONNECTION.

### ADORecords Property

Specifies the read-only ADO Record set containing the query results.

#### Syntax

*object*.ADORecords

#### Parameters

The **ADO Record** property syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

#### Remarks

The data type of this property is ADODB.RECORDSET.

### AutoConnect Property

Specifies whether to automatically connect to the selected OLE DB data provider when iFIX or CIMPLICITY enters the run-time environment.

#### Syntax

*object*.**AutoConnect** [= *Boolean*]

#### Parameters

The **AutoConnect** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>Boolean</i>	Whether to automatically connect to the OLE DB data provider in the run-time environment.

#### Settings

The settings for *Boolean* are:

Value	Description
True	Automatically connects to the selected OLE DB data provider in the run-time environment. (Default)
False	Must manually connect to the selected OLE DB data provider using the DBConnect method.

#### Remarks

This property can only be set in Configure mode. It is read-only in Run mode.

## AutoSize Property

Controls whether VisiconX automatically sizes the columns in a Grid Control to fit the data.

#### Syntax

*object*.**AutoSize** [= *Boolean*]

#### Parameters

The **AutoSize** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>Boolean</i>	Whether to automatically size the column widths in a Grid Control.

#### Settings

The settings for *Boolean* are:

Value	Description
True	Automatically sizes the column widths in a Grid Control to fit the data. (Default)
False	Must manually size the column widths in a Grid Control using the ColumnWidths Property.

### Remarks

Set this property to False and use the ColumnWidths property if you want to set the Grid column widths manually. By setting the widths manually, the columns remain the same size each time you run the query.

## BackColor Property

Sets the background color of cells in the Grid Control and the background color of the text area in ListBox and ComboBox Controls.

### Syntax

*object*.BackColor [= OLE\_COLOR]

### Parameters

The **BackColor** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>OLE</i>	The value of the color you select from the displayed color palette; for example:
<i>COLOR</i>	&H0000FF00&

### Remarks

In a Grid Control, this property sets the background color each cell in the grid. To set:

- The background color of the column headings and the column for the current row pointer, use the BackColorFixed property.
- To set the background color of the portion of the control not occupied by the grid, use the BackColorBackGround property.
- To set the color of the grid lines, use the GridColor property.
- To set the color of the cell text, use the ForeColor property.
- To set the color of the column headings, use the ForeColorFixed property.

## BackColorBackGround Property

Specifies the background color of the Grid Control that is not occupied by the grid.

### Syntax

*object*.BackColorBackGround [= OLE\_COLOR]

### Parameters

The **BackColorBackGround** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>OLE</i>	The value of the color you select from the displayed color palette; for example:
<i>COLOR</i>	&H0000FF00&

## Remarks

To set:

- To set the background color for cells that display query data, use the BackColor property.
- The background color of the column headings and the column for the current row pointer, use the BackColorFixed property.
- To set the color of the grid lines, use the GridColor property.
- To set the color of the cell text, use the ForeColor property.
- To set the color of the column headings, use the ForeColorFixed property.

## BackColorFixed Property

Sets the background color of cells used for column headings and the current row pointer in the Grid Control.

### Syntax

*object*.BackColorFixed [= OLE\_COLOR]

### Parameters

The **BackColorFixed** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>OLE COLOR</i>	The value of the color you select from the displayed color palette; for example: &H0000FF00&

## Remarks

In a Grid Control, this property sets the background color each cell in the grid. To set:

- To set the background color for cells that display query data, use the BackColor property.
- To set the background color of the portion of the control not occupied by the grid, use the BackColorBackGround property.
- To set the color of the grid lines, use the GridColor property.
- To set the color of the cell text, use the ForeColor property.
- To set the color of the column headings, use the ForeColorFixed property.

## BorderStyle Property

Specifies the border style of the vxGrid object.

### Syntax

*object*.BorderStyle [= enumBorderStyle]

### Parameters

The **BorderStyle** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>EnumBorderStyle</i>	Determines whether the border style is fixed or none.

### Settings

The settings for *enumBorderStyle* are:

Constant	Value	Description
<i>vxBorderNone</i>	0	Returns no border.
<i>vxBorderFixed</i>	1	Returns a fixed border.

### Col Property

Specifies the column number of the currently selected cell in the Grid Control.

#### Syntax

*object.Col* [= Long]

#### Parameters

The **Col** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>Long</i>	The column number of the currently selected cell in the Grid Control.

### Cols Property

Specifies the total number of columns in the Grid Control. This property is read-only.

#### Syntax

*object.Cols* [= Long]

#### Parameters

The **Cols** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>Long</i>	The column number of the currently selected cell in the Grid Control.

#### Remarks

Use this Property with the Rows Property to determine the total number of columns and rows in a grid.

### ColumnN Property

Specifies the value of the current row of the specified column in the ADO Record set.

#### Syntax

*object.ColumnN*[= String | Long | Date | Double]



## Parameters

The **Column** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>String</i>	A string value in the current row.
<i>Long</i>	A numeric value in the current row.
<i>Date</i>	A date value in the current row.
<i>Double</i>	A double-precision floating-point value in the current row.

## ColumnName Property

Returns the read-only column name selected for a ListBox or ComboBox Control display. To select the column, use the ColumnNumber property.

### Syntax

*object*.**ColumnName** [= *String*]

### Parameters

The **ColumnName** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>String</i>	The name of a column whose value populates a ListBox or ComboBox Control. <i>String</i> is read-only.

## ColumnNames Property

Returns an ADO Recordset containing the name and data type of each column that the query is configured to return.

### Syntax

*object*.**ColumnNames**

### Parameters

The **ColumnNames** property syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

## ColumnNumber Property

Specifies the column number of the ADO record set to use to populate a ListBox or ComboBox Control.

### Syntax

*object*.**ColumnNumber** [= *Long*]

### Parameters

The **ColumnNumber** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>Long</i>	The column number of the retrieved ADO record set.

### Remarks

The **ColumnNumber** property refers to the column number in the data **table** retrieved, not the column number of the table queried.

## ColumnWidths Property

Use this property to manually set the column widths in a Grid Control.

### Syntax

*object*.**ColumnWidths** [= *String*]

### Parameters

The **ColumnWidths** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>String</i>	The width of the columns in the grid, measured in twips, and separated by a pipe character, using the following format:  column1 column2 column3 column4 columnN

### Remarks

To use this property, set `AutoSize` to false. The column widths you apply remain each time you query the database. This property applies the sizes specified. If you do not specify a column width, the default is 960 twips. To hide a column in the grid display, specify 0. If you specify more columns than the query contains, VisiconX ignores the extra column specifications.

## Connected Property

Returns the connection status of the Data Control.

### Syntax

*object*.**Connected** [= *Boolean*]

### Parameters

The **Connected** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>Boolean</i>	Whether the data control is currently connected.

## Settings

The settings for *Boolean* are:

Value	Description
True	Currently connected
False	Not connected.

## Remarks

Use this property to test the connection to the selected OLE DB data provider and database.

## CurrentRow Property

Identifies the number of the current row in the retrieved ADO record set.

### Syntax

*object*.**CurrentRow** [= *Long*]

### Parameters

The **CurrentRow** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>Long</i>	The zero-based number of the current record in the record array.

## Remarks

The **CurrentRow** value is visible in the Data Control in Run mode. Use the MoveNext, MovePrevious, MoveFirst, and MoveLast methods to change the current row number.

## Database Property

Specifies the name of the current database if the provider is SQL Server.

### Syntax

*object*.**Database** [= *String*]

### Parameters

The **Database** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>String</i>	The name of the currently connected database; for example: Northwind.

## DisplayHeaders Property

Displays or hides the fixed row at the top of a grid that displays the column headings.

### Syntax

*object*.**DisplayHeaders** [= *Boolean*]

## Parameters

The **DisplayHeaders** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>Boolean</i>	Whether to display or hide the column headers in a grid display.

## Settings

The settings for *Boolean* are:

Value	Description
True	Displays the fixed row of column headers. (Default)
False	Hides the fixed row of column headers.

## Remarks

Set this property to False to display customized column headings using text objects.

## DisplayRowMarker Property

Displays or hides the fixed column to the left of a grid that displays the arrow row marker.

### Syntax

*object*.**DisplayRowMarker** [= *Boolean*]

## Parameters

The **DisplayRowMarker** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>Boolean</i>	Whether to display or hide the fixed column in a grid that displays the arrow row marker.

## Settings

The settings for *Boolean* are:

Value	Description
True	Displays the fixed column in a grid with the arrow row marker.
False	Hides the fixed column.

## Remarks

Set this property to False to customize a grid display by hiding the arrow row marker.

## DSN Property

Specifies the ODBC data source name if the provider is ODBC.

### Syntax

*object*.**DSN** [= *String*]

### Parameters

The **DSN** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>String</i>	The name of the ODBC data source, as defined through the ODBC Administrator tool; for example: Northwind.

### ErrorDesc Property

Specifies a description of the current error.

#### Syntax

*object*.**ErrorDesc** [= *String*]

#### Parameters

The **ErrorDesc** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>String</i>	The description of the current error. <i>String</i> is read-only.

### ErrorNum Property

Specifies the read-only error code of the current error.

#### Syntax

*object*.**ErrorNum** [= *Long*]

#### Parameters

The **ErrorNum** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>Long</i>	A read-only error code value.

### Font Property

Returns or sets the Font object for the selected Grid Control, ListBox Control, and ComboBox Control.

#### Syntax

*object*.**Font** [= *StdFont*]

#### Parameters

The **Font** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>StdFont</i>	The name of the Font selected from the Windows Font dialog box.

## ForeColor Property

Sets the color of text for cells in the Grid Control and in ListBox and ComboBox Controls.

### Syntax

*object*.ForeColor [= OLE\_COLOR]

### Parameters

The **ForeColor** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>OLE COLOR</i>	The value of the color you select from the displayed color palette; for example: &H0000FF00&

### Remarks

In a Grid Control, this property sets the text color for each cell in the grid. To set:

- The background color of the grid cells, use the BackColor property.
- The text color of the column headings, use the ForeColorFixed property.
- The background color of the column headings and the column for the current row pointer, use the BackColorFixed property.
- The background color of the portion of the control not occupied by the grid, use the BackColorBackGround property.
- The color of the grid lines, use the GridColor property.

## ForeColorFixed Property

Sets the text color of column headings in the Grid Control.

### Syntax

*object*.ForeColorFixed [= OLE\_COLOR]

### Parameters

The **ForeColorFixed** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>OLE COLOR</i>	The value of the color you select from the displayed color palette; for example: &H0000FF00&

### Remarks

To set:

- To set the color of the cell text, use the ForeColor property.
- The background color of the column headings and the column for the current row pointer, use the BackColorFixed property.

- To set the background color of the grid cells, use the BackColor property.
- To set the background color of the portion of the control not occupied by the grid, use the BackColorBackGround property.
- To set the color of the grid lines, use the GridColor property.

### GridColor Property

Specifies the color of the grid lines in the Grid Control

#### Syntax

*object*.GridColor [= OLE\_COLOR]

#### Parameters

The **GridColor** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>OLE COLOR</i>	The value of the color you select from the displayed color palette; for example: &H0000FF00&

#### Remarks

To set:

- To set the background color for cells that display query data, use the BackColor property.
- The background color of the column headings and the column for the current row pointer, use the BackColorFixed property.
- To set the background color of the portion of the control not occupied by the grid, use the BackColorBackGround property.
- To set the color of the cell text, use the ForeColor property.
- To set the color of the column headings, use the ForeColorFixed property.

### InvisibleInRunMode Property

Specifies whether the selected Data Control is visible in the run-time environment.

#### Syntax

*object*.InvisibleInRunMode [= Boolean]

#### Parameters

The **InvisibleInRunMode** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>Boolean</i>	Whether the Data Control is visible in the run-time environment.

#### Settings

The settings for *Boolean* are:

Value	Description
True	The Data Control is not visible in the run-time environment.
False	The Data Control is visible in the run-time environment. (Default)

#### Remarks

Use this property to make the Data Control invisible in the run-time environment.

#### JetDB Property

Specifies the Microsoft Access Database Name for the Microsoft Jet data provider.

#### Syntax

*object*.**JetDB** [= *String*]

#### Parameters

The **JetDB** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>String</i>	The name of the Microsoft Access database; for example: C:\Program Files (x86)\Proficy\iFIX\PDB\APPTTEST.mdb

#### JetSDB Property

Specifies the Microsoft Access System (Security) Database Name for the Microsoft Jet data provider.

#### Syntax

*object*.**JetSDB** [= *String*]

#### Parameters

The **JetSDB** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>String</i>	The name of the Microsoft Access database; for example: C:\Program Files (x86)\Proficy\iFIX\PDB\APPTTEST.mdb

#### Remarks

Use this property if Microsoft Access is configured for user-based security.

#### MergeCells Property

In a Grid Control, turns on or off an option to display only one occurrence of a repeating cell value in a column. For example, in a query that displays orders for each customer, the customer ID and name appear once, centered vertically, next to the rows that contain the associated orders.

#### Syntax

*object*.**MergeCells** [= *Boolean*]



## Parameters

The **MergeCells** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>Boolean</i>	Whether to display one occurrence of repeating cell values in a column or display all occurrences.

## Settings

The settings for *Boolean* are:

Value	Description
True	Display one occurrence of repeating cell values in a column, centered vertically.
False	Fills each grid cell with data. (Default)

## ODBCConnectionString Property

Specifies an ODBC connection string to connect to an ODBC driver.

### Syntax

*object*.**ODBCConnectionString**[= *String*]

### Parameters

The **ODBCConnectionString** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>String</i>	An ODBC connection string that connects to an ODBC driver; for example: <code>Driver={SQL Server};Server=QALAB15;Database=Northwind;</code> The connection string replaces the ODBC data source name.

### Remarks

Use this property if the UseODBCConnectionString property is set to True. An example connection string for the SQL Server appears above. Below are example connection strings for a Microsoft Access Driver and the Oracle Server driver:

#### Microsoft Access Driver

```
Driver={Microsoft Access Driver (*.MDB)};DBQ=C:\Program Files (x86)\Proficy\iFIX\PDB\accessarchiver.mdb;
```

#### Oracle Driver

```
Driver={Microsoft ODBC For Oracle};Server=OTTO;
```

## OLEDBConnectionString Property

Specifies a string used to connect to an OLE DB provider other than ODBC, Jet, SQL Server, and Oracle.

#### Syntax

*object*.OLEDBConnectionString[= *String*]

#### Parameters

The **OLEDBConnectionString** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>String</i>	An OLE DB connection string; for example:  Data Source=QALAB15;Initial Catalog=Test

#### Remarks

When setting up the **OLEDBConnectionString** property on a vxData object, do not pass in a user and password in the string. Set up the [User](#) and [Password](#) properties instead, because VisiconX will append whatever is assigned to these properties when it tries to create the connection.

See the documentation for your OLE Provider for more information about using a connection string.

### OLEDBProvider Property

Specifies the name of the OLE DB data provider currently selected.

#### Syntax

*object*.OLEDBProvider[= *String*]

#### Parameters

The **OLEDBProvider** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>String</i>	An OLE DB data provider name, as described below.

The following table identifies values for *String* and identifies its corresponding data provider.

<i>String</i>	Description
SQLOLEDB	SQL Server
MSDAORA	Oracle Server
Microsoft.Jet.OLEDB.3.51	Microsoft Jet 3.51 data provider
Microsoft.Jet.OLEDB.4.0	Microsoft Jet 4.0 data provider
MSDAOSP	Simple provider
MS Remote	MS Remote
MS DataShape	MS DataShape

### Remarks

The table above shows the default set of data providers installed by ADO 2.1. See the documentation for your OLE Provider if you are using another provider.

## Password Property

Sets your password for access to secured databases. This property is designed so that the password cannot be read for security purposes.

### Syntax

*object*.**Password**(pwCode As String)= *String*

### Parameters

The **Password** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>pwCode</i>	An empty string.
<i>String</i>	Your password.

### Remarks

This example shows how to set a password. The password can be set, but it cannot be read back:

```
VxData1.Password("")=my_password
```

## PersistUserInfo Property

Specifies whether the user must login to secured OLE DB data providers every time iFIX or CIMPLICITY enters the run-time environment.

### Syntax

*object*.**PersistUserInfo** [= *Boolean*]

### Parameters

The **PersistUserInfo** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>Boolean</i>	Whether the User must login each time the run-time environment is entered for a secured OLE DB data provider.

### Settings

The settings for *Boolean* are:

Value	Description
True	The user does not have to login each time the run-time environment is entered. (Default). The User ID and Password are stored in the Data Control.

False The user does have to login each time the run-time environment is entered.

#### Remarks

Set this property to **False** to force users to log in to secured OLE DB data providers in order to view data.

### ProcedureNames Property

Returns an ADO Recordset containing the name and description of each stored procedure defined to the queried database.

#### Syntax

*object*.ProcedureNames

#### Parameters

The **ProcedureNames** property syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

### QPn Property

Specifies a string that equates to the current value assigned to the query property.

#### Syntax

*object*.QPn [= *String*]

#### Parameters

The **QPn** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>String</i>	The current value assigned to the query property. For example, the value assigned to QP1 could be Finance.

#### Remarks

These properties are designed to be variables for use in the SQL Select statement. When the query runs, it replaces the QPn placeholder with the *string* value.

### Row Property

Specifies the row number of the currently selected cell in the Grid Control.

#### Syntax

*object*.Row [= *Long*]

#### Parameters

The **Row** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>Long</i>	The number of the currently selected cell in the Grid Control.

**Rows Property**

Specifies the total number of rows in the Grid Control. This property is read-only.

**Syntax**

*object*.**Row** [= *Long*]

**Parameters**

The **Row** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>Long</i>	The total number of of rows in the Grid Control.

**Remarks**

Use this Property with the Cols Property to determine the total number of columns and rows in a grid.

**Server Property**

Specifies the name of the current data base server for SQL Server or Oracle providers.

**Syntax**

*object*.**Server**[= *String*]

**Parameters**

The **Server** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>String</i>	The name of the current database server; for example:  QALAB15

**ShowMilliseconds Property**

In a Grid Control, indicates whether milliseconds are displayed in time or date/time fields.

**Syntax**

*object*.**ShowMilliseconds** [= *Boolean*]

**Parameters**

The **ShowMilliseconds** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

**Boolean** Whether to display milliseconds in a Grid Control's time or date/time fields.

### Settings

The settings for *Boolean* are:

Value	Description
True	Displays milliseconds in Grid Control time or date/time fields.
False	Does not display milliseconds in Grid Control time or date/time fields. (Default)

### SourceType Property

Identifies the type of command to use to query the database; for example, using an SQL Command, a stored procedure, or a table.

#### Syntax

*object*.**SourceType**[= *vxSourceType*]

#### Parameters

The **SourceType** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>vxSourceType</i>	Enumerates the type of query command, as follows:  1 vxSourceSQL SQL Command  4 vxSourceTable Table Command  512 vxSourceStoredProc Stored Procedure Command

### SQLCommand Property

Specifies an SQL command string.

#### Syntax

*object*.**SQLCommand**[= *String*]

#### Parameters

The **SQLCommand** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>String</i>	An SQL command string.

#### Remarks

The SQL command string value displayed in the Properties window is the string built by the SQL Wizard or the string entered or pasted into the SQL Command edit box on the Record Source tab of the Data Control OLE Properties dialog box.

## Table Property

Specifies the name of a database table selected for the Table command type or Stored Procedure for the Stored Procedure command type.

### Syntax

*object*.**Table**[= *String*]

### Parameters

The **Table** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>String</i>	The name of the database table that is currently selected to query for the Table command type or the name of the Stored Procedure for the Stored Procedure command type.

## TableNames Property

Returns an ADO Recordset containing the name, type (Table or View), and description of each table and view defined to the queried database.

### Syntax

*object*.**TableNames**

### Parameters

The **TableNames** property syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

## Text Property

Specifies the text in:

- The selected cell of a grid, based on the settings of the Row and Col properties.
- The selected row in a list box.
- The value in the text box of a drop-down (combo) box.

### Syntax

*object*.**Text**[= *String*]

### Parameters

The **Text** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>String</i>	The text in a selected cell of a grid, selected row of a list box, or text in a combo box. <i>String</i> is

read-only.

## UseNTSecurity Property

Specifies whether to use Microsoft Windows integrated security to access a Microsoft SQL Server database.

### Syntax

*object*. **UseNTSecurity** [= *Boolean*]

### Parameters

The **Active** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>Boolean</i>	Whether to use Windows integrated security.

### Settings

The settings for *Boolean* are:

Value	Description
True	Uses Windows integrated security to secure access to the chosen MS SQL Server database.
False	Uses the user ID and password to secure access to the chosen MS SQL Server database. (Default)

### Remarks

Use this property to use Windows integrated security to access MS SQL Server providers.

## UseODBCConnectionString Property

Uses an ODBC connection string to access an ODBC driver, rather than a data source (DSN) defined through the ODBC Administrator tool located in the Windows Control Panel.

### Syntax

*object*. **UseODBCConnectionString** [= *Boolean*]

### Parameters

The **UseODBCConnectionString** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>Boolean</i>	Whether to use an ODBC connection string to configure access to an ODBC driver.

### Settings

The settings for *Boolean* are:

Value	Description
True	Uses an ODBC connection string to configure access to an ODBC driver.



False Uses an ODBC data source name to access an ODBC driver. (Default)

## User Property

Specifies a user name or ID required for access to a secured data provider.

### Syntax

*object*.**User**[= *String*]

### Parameters

The **User** property syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>String</i>	The current user name required for access to a secured data provider.

## Method Summary

The following list contains the Plug & Solve Solutions object methods that are available to the VisiconX Automation Interface:

- [AboutBox Method](#)
- [DBConnect Method](#)
- [DBDisconnect Method](#)
- [MoveFirst Method](#)
- [MoveLast Method](#)
- [MoveNext Method](#)
- [MovePrevious Method](#)
- [RefreshData Method](#)
- [RunSqlWizard Method](#)

For examples of these object methods, refer to the [Method Examples](#) section.

## AboutBox Method

Shows the version and copyright information for the [vxData Object](#), [vxGrid Object](#), [vxList Object](#) or [vxCombo Object](#).

### Syntax

*object*.**AboutBox**

### Parameters

The **AboutBox** method property syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

## CopyCells Method

Used to copy a specified cell or range of cells onto a system clipboard.

### Syntax

*object*.**CopyCells**(*IngRow*, *IngColoumn*, [*varEndRow*], [*varEndColumn*], [*bIncludeHeader*])

### Parameters

The **CopyCells** method property syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
<i>IngRow</i>	Long. The row number of the cell to be copied, or the starting row number of the cell range to be copied.
<i>IngColumn</i>	Long. The column number of the cell to be copied, or the starting column number of the cell range to be copied.
<i>varEndRow</i>	Variant. Optional. If provided, specifies the last row in the range of cells to be copied.
<i>varEndColumn</i>	Variant. Optional. If provided, specifies the last column in the range of cells to be copied.
<i>bIncludeHeader</i>	Boolean. Optional. Indicates whether the column headers are to be copied. TRUE includes the column headers.

## DBConnect Method

Used to manually instruct the Data Control to connect to the configured data source and run its query.

### Syntax

*object*.**DBConnect**

### Parameters

The **DBConnect** method property syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

## DBDisconnect Method

Used to manually disconnect the Data Control from its configured data source and close the ADORecords object.

### Syntax

*object*.**DBDisconnect**

### Parameters

The **DBDisConnect** method property syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

### MoveFirst Method

Moves the database cursor to the first returned row of the ADO Record set.

#### Syntax

*object*.**MoveFirst**

#### Parameters

The **MoveFirst** method property syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

### MoveLast Method

Moves the database cursor to the last returned row of the ADO Record set.

#### Syntax

*object*.**MoveLast**

#### Parameters

The **MoveLast** method property syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

### MoveNext Method

Advances the database cursor to the next returned row in the ADO Record set.

#### Syntax

*object*.**MoveNext**

#### Parameters

The **MoveNext** method property syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

### MovePrevious Method

Moves the database cursor to the previous returned row in the ADO Record set.

**Syntax**

*object*.**MovePrevious**

**Parameters**

The **MovePrevious** method property syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

**RefreshData Method**

Manually instructs the Data Control to run its query.

**Syntax**

*object*.**RefreshData**

**Parameters**

The **RefreshData** method property syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

**RunSQLWizard Method**

If the command type for the Data Control is SQLCommand, this method launches the SQL Wizard, allowing you to create an SQL Select statement in the run-time environment and run the query.

**Syntax**

*object*.**RunSQLWizard**

**Parameters**

The **RunSQLWizard** method property syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

**Remarks**

This method assigns the SQL Select statement to the [SQLCommand](#) property.

**SetMyContainer Method**

This method is reserved for internal use and should not be called.

**Method Examples**

Click the appropriate link below for examples of VisiconX methods:

- [AboutBox Method Example](#)
- [DBConnect Method Example](#)
- [DBDisconnect Method Example](#)
- [MoveFirst Method Example](#)
- [MoveLast Method Example](#)
- [MoveNext Method Example](#)
- [MovePrevious Method Example](#)
- [RefreshData Method Example](#)
- [RunSQLWizard Method Example](#)

## AboutBox Method Example

The following example opens the Help About Box for the [Data Object](#) *vxData1*.

```
vxData1.AboutBox
```

**NOTE (CIMPLICITY USERS ONLY):** In CIMPLICITY, the following additional code must precede the first reference of *vxData1* in its scope:

```
Dim vxData1 As Object  
Set vxData1 = CimGetScreen.Object.Objects.Item("vxData1").OleObject
```

## DBConnect Method Example

The following example is a script associated with a command button. When you click the button in the run-time environment, the script sets properties and methods for the [Data Object](#) *vxData1*. The script disconnects from the current data provider and configures *vxData1* to connect to the Northwind database of SQL Server QALAB15. Then it connects to the database and runs a query that returns the rows and columns of the Employees table.

```
Private Sub CommandButton1_Click()  
vxData1.DBDisconnect  
vxData1.OLEDBProvider = "SQLOLEDB"  
vxData1.Server = "QALAB15"  
vxData1.Database = "NORTHWIND"  
vxData1.SourceType = vxSourceTypeTable  
vxData1.Table = "Employees"  
vxData1.User = "sa"  
vxData1.DBConnect  
End Sub
```

### NOTES (CIMPLICITY USERS ONLY):

- The name of the subroutine shown here follows standard VBA naming convention, which does not apply to CimEdit Basic script language.
- In CIMPLICITY, the following additional code must precede the first reference of *vxData1* in its scope:

```
Dim vxData1 As Object  
Set vxData1 = CimGetScreen.Object.Objects.Item("vxData1").OleObject
```

## DBDisconnect Method Example

The following example is a script associated with a command button that, when clicked, disconnects from the data provider selected in the [Data Object vxData1](#).

```
Private Sub CommandButton1_Click()  
vxData1.DBDisconnect
```

### NOTES (CIMPPLICITY USERS ONLY):

- The name of the subroutine shown here follows standard VBA naming convention, which does not apply to CimEdit Basic script language.
- In CIMPPLICITY, the following additional code must precede the first reference of vxData1 in its scope:

```
Dim vxData1 As Object  
Set vxData1 = CimGetScreen.Object.Objects.Item("vxData1").OleObject
```

## MoveFirst Method Example

The following example is a script associated with a command button, that, when clicked, makes the first row of the record set retrieved by the [Data Object vxData1](#) the current row.

```
Private Sub CommandButton1_Click()  
vxData1.MoveFirst  
End Sub
```

### NOTES (CIMPPLICITY USERS ONLY):

- The name of the subroutine shown here follows standard VBA naming convention, which does not apply to CimEdit Basic script language.
- In CIMPPLICITY, the following additional code must precede the first reference of vxData1 in its scope:

```
Dim vxData1 As Object  
Set vxData1 = CimGetScreen.Object.Objects.Item("vxData1").OleObject
```

## MoveLast Method Example

The following example is a script associated with a command button, that, when clicked, makes the last row of the record set retrieved by the [Data Object vxData1](#) the current row.

```
Private Sub CommandButton1_Click()  
vxData1.MoveLast  
End Sub
```

### NOTES (CIMPPLICITY USERS ONLY):

- The name of the subroutine shown here follows standard VBA naming convention, which does not apply to CimEdit Basic script language.
- In CIMPPLICITY, the following additional code must precede the first reference of vxData1 in its scope:

```
Dim vxData1 As Object  
Set vxData1 = CimGetScreen.Object.Objects.Item("vxData1").OleObject
```

## MoveNext Method Example

The following example is a script associated with a command button, that, when clicked, makes the next row in the record set retrieved by the [Data Object](#) `vxData1` the current row.

```
Private Sub CommandButton1_Click()  
vxData1.MoveNext  
End Sub
```

#### NOTES (CIMPPLICITY USERS ONLY):

- The name of the subroutine shown here follows standard VBA naming convention, which does not apply to CimEdit Basic script language.
- In CIMPPLICITY, the following additional code must precede the first reference of `vxData1` in its scope:

```
Dim vxData1 As Object  
Set vxData1 = CimGetScreen.Object.Objects.Item("vxData1").OleObject
```

### MovePrevious Method Example

The following example is a script associated with a command button, that, when clicked, makes the previous row in the record set retrieved by the [Data Object](#) `vxData1` the current row.

```
Private Sub CommandButton1_Click()  
vxData1.MovePrevious  
End Sub
```

#### NOTES (CIMPPLICITY USERS ONLY):

- The name of the subroutine shown here follows standard VBA naming convention, which does not apply to CimEdit Basic script language.
- In CIMPPLICITY, the following additional code must precede the first reference of `vxData1` in its scope:

```
Dim vxData1 As Object  
Set vxData1 = CimGetScreen.Object.Objects.Item("vxData1").OleObject
```

### RefreshData Method Example

The following example is a script associated with a command button, that, when clicked, re-queries the data provider selected for the [Data Object](#) `vxData1` and refreshes the data displayed.

```
Private Sub CommandButton1_Click()  
vxData1.RefreshData  
End Sub
```

#### NOTES (CIMPPLICITY USERS ONLY):

- The name of the subroutine shown here follows standard VBA naming convention, which does not apply to CimEdit Basic script language.
- In CIMPPLICITY, the following additional code must precede the first reference of `vxData1` in its scope:

```
Dim vxData1 As Object  
Set vxData1 = CimGetScreen.Object.Objects.Item("vxData1").OleObject
```

### RunSQLWizard Method Example

The following example initiates the SQL Wizard from a command button in the run-time environment. The command button configures the [Data Object](#) `vxData1` to connect to the Microsoft Jet provider and an Access database. After setting the command type as an SQL Command, the example initiates the SQL Wizard. After you close the SQL Wizard, the example connects to the database and runs the query.

```
Private Sub CommandButton4_Click()  
vxData1.DBDisconnect  
vxData1.OLEDBProvider = "Microsoft.Jet.OLEDB.3.51"  
vxData1.JetDB = "C:\Program Files (x86)\Proficy\iFIX\FDB\APPTTest.MDB"  
vxData1.SourceType = vxSourceSQL  
vxData1.RunSQLWizard  
vxData1.DBConnect  
End Sub
```

#### NOTES (CIMPLICITY USERS ONLY):

- The name of the subroutine shown here follows standard VBA naming convention, which does not apply to CimEdit Basic script language.
- In CIMPLICITY, the following additional code must precede the first reference of `vxData1` in its scope:

```
Dim vxData1 As Object  
Set vxData1 = CimGetScreen.Object.Objects.Item("vxData1").OleObject
```

## Event Summary

The following list contains the Plug & Solve Solutions object events that are available to the VisiconX Automation Interface.

- [Click Event](#)
- [Click \(Area as Integer\) Event](#)
- [DataChanged Event](#)
- [DbClick Event](#)
- [DbClick \(Area as Integer\) Event](#)
- [ErrorOccurred Event](#)
- [ExecuteComplete Event](#)
- [RowChanged Event](#)

### Click Event

Occurs when the user releases the left mouse key in a list box object or grid object in the run-time environment.

#### Syntax

`object_Click( )`

The **Click** event syntax has this part:



Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

**NOTE (CIMPPLICITY USERS ONLY):** The event handler above is named in accordance with the standard VBA naming convention. In CIMPPLICITY, this convention is not followed and the default name for this event handler is **OnClick()**. You can use a name of your own choice for the event handler and use the Event tab to associate it with the ActiveX event in question. For some events you may notice that there are already handlers, in which case you should add your own processing to the existing handlers rather than replacing them.

#### Remarks

This event is the common event used to initiate an operator action. It is also the default event used by the script authoring wizards.

The sequence of mouse-related events is:

#### Click

##### [DbiClick](#)

#### Click (Area as Integer) Event

Occurs when the user releases the left mouse key in a drop-down list (combo) box object in the run-time environment.

#### Syntax

*object*.**Click**(1 | 2 | 3)

**NOTE (CIMPPLICITY USERS ONLY):** The event handler above is named in accordance with the standard VBA naming convention. In CIMPPLICITY, this convention is not followed and the default name for this event handler is **OnClick**. You can use a name of your own choice for the event handler and use the Event tab to associate it with the ActiveX event in question. For some events you may notice that there are already handlers, in which case you should add your own processing to the existing handlers rather than replacing them.

#### Parameters

The **Click** event syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
1	A click in the default display area of the drop-down list box.
2	A click on the arrow of the drop-down list box.
3	A click in the drop-down area of the list box.

The sequence of mouse-related events is:

#### Click

##### [DbiClick](#)

#### DataChanged Event

Occurs to indicate that the ADORecords property has changed. This event fires:

- After each query
- At regular intervals during a large query to update the Fetch progress

#### Syntax

*object\_DataChanged( )*

**NOTE (CIMPLICITY USERS ONLY):** The event handler above is named in accordance with the standard VBA naming convention. In CIMPLICITY, this convention is not followed and the default name for this event handler is **OnDataChanged()**. You can use a name of your own choice for the event handler and use the Event tab to associate it with the ActiveX event in question. For some events you may notice that there are already handlers, in which case you should add your own processing to the existing handlers rather than replacing them.

#### Parameters

The **DataChanged** event syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

### DbIcClick Event

Occurs when the user double clicks the mouse in a list box object or grid object in the run-time environment

#### Syntax

*object\_DbIcClick( )*

#### Parameters

The **DbIcClick** event syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

**NOTE (CIMPLICITY USERS ONLY):** The event handler above is named in accordance with the standard VBA naming convention. In CIMPLICITY, this convention is not followed and the default name for this event handler is **OnDbIcClick()**. You can use a name of your own choice for the event handler and use the Event tab to associate it with the ActiveX event in question. For some events you may notice that there are already handlers, in which case you should add your own processing to the existing handlers rather than replacing them.

#### Remarks

The **DbIcClick** event occurs when multiple left mouse clicks are received in the object.

The sequence of mouse-related events is:

[Click](#)

**DbIcClick**

### DbIcClick (Area as Integer) Event

Occurs when the user double clicks the mouse in a drop-down list (combo) box object in the run Time environment.

### Syntax

`object_DbClick( 1 | 2 | 3 )`

### Parameters

The **DbClick** event syntax has these parts:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
1	A double-click in the default display area of the drop-down list box.
2	A double-click on the arrow of the drop-down list box.
3	A double-click in the drop-down area of the list box.

**NOTE (CIMPPLICITY USERS ONLY):** The event handler above is named in accordance with the standard VBA naming convention. In CIMPPLICITY, this convention is not followed and the default name for this event handler is **OnDbClick**. You can use a name of your own choice for the event handler and use the Event tab to associate it with the ActiveX event in question. For some events you may notice that there are already handlers, in which case you should add your own processing to the existing handlers rather than replacing them.

### Remarks

The **DbClick** event occurs when multiple left mouse clicks are received in the object.

The sequence of mouse-related events is:

### [Click](#)

### DbClick

## ErrorOccurred Event

Occurs when the Data Control encounters an error while connecting to the database or when running the query. This event usually indicates:

- Configuration errors in the connection properties (for example, Provider, Server, Database, etc)
- Invalid login credentials (User name and Password)
- Syntax errors in the query, such as an invalid table name, query property value, and so on.

### Syntax

`object_ErrorOccurred(pError as ErrObject )`

**NOTE (CIMPPLICITY USERS ONLY):** The event handler above is named in accordance with the standard VBA naming convention. In CIMPPLICITY, this convention is not followed and the default name for this event handler is **OnErrorOccurred**. You can use a name of your own choice for the event handler and use the Event tab to associate it with the ActiveX event in question. For some events you may notice that there are already handlers, in which case you should add your own processing to the existing handlers rather than replacing them.

### Parameters

The **ErrorOccurred** event syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

The event returns a VB Error Object (pError) that contains the specific error number, description, source, and so on as defined in the following table:

Property	Value
Number	The Error code that specifies the error that occurred.
Source	The Name of the component that generated the error.
Description	A string corresponding to the return of the Error function for the specified Number, if this string exists. If the string doesn't exist, Description contains "Application-defined or object-defined error".
HelpFile	The fully qualified drive, path, and file name of the Visual Basic Help file.
HelpContext	The Visual Basic Help file context ID for the error corresponding to the Number property.
LastDLLError	On 32-bit Microsoft Windows operating systems only, contains the system error code for the last call to a dynamic-link library (DLL). The LastDLLError property is read-only.

### ExecuteComplete Event

Occurs when a query submitted to a database is done executing. This event returns information that indicates whether the query was successful. Error number 0 means that the query was successful.

#### Syntax

*object*.**ExecuteComplete**(pStatus as ErrObject,sQuery as String)

**NOTE (CIMPPLICITY USERS ONLY):** The event handler above is named in accordance with the standard VBA naming convention. In CIMPPLICITY, this convention is not followed and the default name for this event handler is **OnExecuteComplete**. You can use a name of your own choice for the event handler and use the Event tab to associate it with the ActiveX event in question. For some events you may notice that there are already handlers, in which case you should add your own processing to the existing handlers rather than replacing them.

#### Parameters

The **ExecuteComplete** event syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

The event returns a VB Error Object (pStatus) that contains the specific error number, description, source, and so on as defined in the following table:

Property	Value
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.
Number	The Error code that specifies the error that occurred.
Source	The Name of the component that generated the error.
Description	A string corresponding to the return of the Error function for the specified Number, if this string exists. If the string doesn't exist, Description contains "Application-defined or object-defined error".
HelpFile	The fully qualified drive, path, and file name of the Visual Basic Help file.
HelpContext	The Visual Basic Help file context ID for the error corresponding to the Number property.
LastDLLError	On 32-bit Microsoft Windows operating systems only, contains the system error code

for the last call to a dynamic-link library (DLL). The LastDLError property is read-only.

sQuery is a string that displays the parsed value of the last query submitted to the database. For example, it displays the last Select statement submitted, including the values assigned to any query properties defined to the query.

#### Remarks

Use the sQuery string, displayed in a Message box, to help you debug queries. For example, if the query returns no data or if the query returns unexpected results, you can use this string to determine the exact query submitted to the database.

## RowChanged Event

Occurs when the CurrentRow property changes.

The CurrentRow property changes when you:

- Set its value
- Use the MoveFirst, MoveLast, MoveNext, or MovePrevious methods to move through the ADORRecord set
- Use the buttons in the Data Control's user interface to move through the ADORRecord set.

#### Syntax

*object*\_RowChanged( )

**NOTE (CIMPPLICITY USERS ONLY):** The event handler above is named in accordance with the standard VBA naming convention. In CIMPPLICITY, this convention is not followed and the default name for this event handler is **OnRowChanged()**. You can use a name of your own choice for the event handler and use the Event tab to associate it with the ActiveX event in question. For some events you may notice that there are already handlers, in which case you should add your own processing to the existing handlers rather than replacing them.

#### Parameters

The **RowChanged** event syntax has this part:

Part	Description
<i>object</i>	An <a href="#">object expression</a> that evaluates to an object in the Applies To list.

## Object Summary

The following list contains the Plug & Solve Solutions objects that are available to the VisiconX Automation Interface. For information on non Plug & Solve Solutions objects, refer to the appropriate help system.

- [vxCombo Object](#)
- [vxData Object](#)
- [vxGrid Object](#)
- [vxList Object](#)

## vxCombo Object

The **vxCombo** object is a ComboBox Control that displays column data retrieved from an OLE DB data provider in a drop-down list box.

## vxData Object

The **vxData** object is a Data Control inserted into an iFIX Workspace picture or CIMPLICITY CimEdit screen. It establishes a connection with an OLE DB data provider, secures access to secured data providers, and queries and retrieves data.

For more information on the **vxData** object, see the "Getting Started" chapter in the *Accessing Data* manual.

## vxGrid Object

The **vxGrid** object is a Grid Control that displays data retrieved from an OLE DB data provider in a table.

## vxList Object

The **vxList** object is a ListBox Control that displays column data retrieved from an OLE DB data provider in a list box.

## Glossary

Use the Glossary to further your understanding of the terms used in VisiconX VBA.

### A-C

[Animate](#)

[Animation](#)

[Automation](#)

[Collection](#)

[ComboBox Control](#)

### D-M

[Data Control](#)

[Event](#)

[Grid Control](#)

[ListBox Control](#)

[Method](#)

## **N-R**

[Numeric Expression](#)

[Object](#)

[Object Expression](#)

[Property](#)

[Query](#)

[Query Property \(QPn\)](#)

[Row Filter](#)

## **S-Z**

[Source Object](#)

[SQL Statement](#)

[SQL Wizard](#)

[Stored Procedure](#)

[String Expression](#)

[Target Object](#)

## **Animate**

The act of animating the property of an object. Although the result you see in the run-time environment is an object performing a visible, functional action, it is the object's properties that are animated, not the object itself.

To animate an object in iFIX, select it, right-click, and choose Animations from the pop-up menu.

## **Animation**

The connection between a data source and an object's property that dynamically changes the property.

## **Automation**

The method through which objects are exposed that allows you to create and manipulate them.

## **Collection**

An ordered set of items that can be referred to as a unit.

## **ComboBox Control**

A VisiconX object that displays a specific column of retrieved data in a drop-down list box. To display retrieved data, you must animate the ComboBox Control using a Data Control as its data source.

## Data Control

A VisiconX object that establishes an interface with a OLE DB data provider installed on your local machine. Through the Data Control, you select a database to query and submit the query.

## Event

Action that the object recognizes, such as a mouse click on the object.

## Grid Control

A VisiconX object that displays retrieved data in a spreadsheet-like format. To display retrieved data, you must animate the Grid Control using a Data Control as its data source.

## ListBox Control

A VisiconX object that displays retrieved data in a spreadsheet-like format. To display retrieved data, you must animate the Grid Control using a Data Control as its data source.

## Method

Subroutine that affects the object's behavior, such as scale or refresh.

## Numeric Expression

Any expression that evaluates to a number.

## Object

Any expression that evaluates to a number.

## Object Expression

An expression that specifies a particular object. This expression can include any of the object's containers. For example, if your application has an Application object that contains a Document object that contains a Text object, the following are valid object expressions:

```
Application.Document.Text  
Application.Text  
Document.Text  
Text
```



## Property

Any expression that evaluates to a number.

## Query

A command submitted to a database that accesses tables in a database and returns the data you request. A simple query returns the entire contents of a single table. A more complex query filters rows based on selection criteria, sorts data, or combines data from more than one table.

## Query Property (QP $n$ )

A property of the Data Control, QP1 through QP32, which serve as variables in the query submitted to the database. These properties can be set to any value or can be animated by any object. For example, in this equation, `milk_type = QP1`, VisiconX assigns a value to QP1 at run time and submits the query to the database.

## Row Filter

A comparison expression or group of comparison expressions connected by And or Or keywords that filter the rows returned by a query. For example, `milk_type = 3` returns only the rows where the value of `milk_type` is 3. In SQL, commonly known as a Where clause.

## Source Object

The object that provides data to a target object.

## SQL Statement

A command submitted to a database that accesses tables in a database and returns the data you request. SQL statements can be Select, Insert, or Update statements

## SQL Wizard

A Wizard accessible from the Record Source tab of the Data Control OLE Properties dialog that builds SQL Select statements based on input you submit to the Wizard.

## Stored Procedure

Compiled blocks of code in the relational database. Stored procedures can perform INSERT, UPDATE, DELETE, and SELECT commands. They can also take arguments and return results. The arguments may be values to insert or values to use in Where clauses.

## String Expression

Any expression that evaluates to sequence of contiguous characters.

## Target Object

The object that receives data from a source object.

## VisiconX Dialog Boxes

The VisiconX application includes the following dialog boxes:

- [VisiconX ComboBox OLE Properties Dialog Box](#)
- [VisiconX Data Control OLE Properties Dialog Box](#)
- [VisiconX Grid OLE Properties Dialog Box](#)
- [VisiconX ListBox OLE Properties Dialog Box](#)
- [Welcome to the VisiconX Wizard Dialog Box](#)
- [Select Operation Dialog Box](#)
  - [SQL SELECT Dialog Boxes:](#)
    - [Select Tables Dialog Box](#)
    - [Select Columns Dialog Box](#)
    - [Create Row Filter Dialog Box](#)
    - [Select Columns to Sort By Dialog Box](#)
    - [Finish Dialog Box](#)
  - [SQL INSERT Dialog Boxes:](#)
    - [Select Table to Insert Into Dialog Box](#)
    - [Select Values to Insert Dialog Box](#)
    - [Finish Dialog Box](#)
  - [SQL UPDATE Dialog Boxes:](#)
    - [Select Table to Update Dialog Box](#)
    - [Select Columns to Update Dialog Box](#)
    - [Create Row Filter Dialog Box](#)
    - [Finish Dialog Box](#)

One additional dialog box is only available when using VisiconX in iFIX

- [VisiconX Configuration to View Historian Data Dialog Box](#)

Four additional dialog boxes are only available when using VisiconX in CIMPLICITY:

- [VisiconX ListBox Control Dialog Box](#)
- [VisiconX ComboBox Control Dialog Box](#)

- [VisiconX Grid Control Dialog Box](#)
- [VisiconX Data Control Dialog Box](#)

## VisiconX ComboBox OLE Properties Dialog Box

The VisiconX ComboBox OLE Properties dialog box displays the following items:

### Font Tab

Item	Description
Properties	Displays the properties you can modify for this control. In the Font tab, this will always display "Font."
Font	Lets you choose the font to use in the control.
Size	Lets you choose the size of the font to use in the control.
Bold	Select this check box to apply a bold effect to the control's font.
Italic	Select this check box to apply an italic effect to the control's font.
Underline	Select this check box to apply an underline effect to the control's font.
Strikeout	Select this check box to apply a strikeout effect to the control's font.
Sample Text	Displays a preview of what the control's font will look like based on your selections in the Font tab.

### Color Tab

Item	Description
Properties	Displays the control elements whose colors can be changed. Select the control element you want to modify.
Color Set	Lets you select a color palette from which you can choose a color for the selected control element.
Color Palette	Displays the colors that are available from the currently selected color set. Select a color to apply to the selected control element.

**NOTE:** The Windows custom color selection dialog box also appears if you double-click Custom in the Color Palette drop-down box.

Edit Custom Colors	Opens the Windows custom color selection dialog box, where you can choose a custom color or define your own.
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## VisiconX Data Control OLE Properties Dialog Box

The VisiconX Data Control OLE Properties dialog box displays the following items:

### Provider Tab

Item	Description
Select Data Provider	Lists the OLE DB data providers that are installed on your computer. Select the data provider that you want to query from the list of data providers.  <b>NOTE:</b> A data provider must be selected before other tabs in the Data Control OLE Properties dialog box can be accessed.
Automatically connect to database in Run Mode	Lets you automatically connect to the selected OLE DB data provider when you activate the run-time environment. Clear this check box if you want to manually control when to connect to and disconnect from the data provider.

### Database Tab

**NOTE:** The contents displayed in the upper part of the Database Tab depend on which type of data provider was selected in the Provider Tab. Consult the following tables for information on the items that are displayed for each type of data provider.

#### Microsoft Jet

Item	Description
Database path and file name	For a Microsoft Jet provider, lets you enter or browse for the database path and name of a Microsoft Access database, which has *.MDB as a default file extension.
System (Security) Database path and file name	For a Microsoft Jet provider, lets you enter or browse for the Microsoft Access system security database path and name, which has *.MDA or *.MDW as a default file extension; enter a value in this field if the Microsoft Access database selected for the query is secured.

#### ODBC

Item	Description
DSN Name	Lets you select an ODBC data source name defined through the ODBC Administrator tool in the Windows Control Panel. The list includes both system and user-defined data source names.
Use ODBC Connection String (No	Lets you use an ODBC connection string, rather than an ODBC data source name, to establish a connection to an ODBC driver.

DSN Required)	
ODBC Connection String	Lets you enter an ODBC connection string to establish a connection to an ODBC driver.

### Oracle Server

Item	Description
Server Name	Lets you enter the name of the Oracle server.

### Microsoft SQL Server

Item	Description
Server Name	Lets you select the name of a SQL Server data provider.
Database Name	Lets you select a database defined to the selected SQL Server data provider.

### Generic Server

Item	Description
OLE DB Connection String	Lets you enter a connection string to connect to an OLE DB Provider. Below is an example connection string for a Simple Provider:  <code>Data Source=QALAB15; Initial Catalog=Test;</code>

**NOTE:** The Database Security Settings area in the lower part of the Database Tab is always displayed regardless of which type of data provider was selected in the Provider Tab.

### Database Security Settings Area

Item	Description
User Name	Lets you enter your user name as defined to the selected data provider; if access to the data provider is not secured, then the user name is not required.
Password	Lets you enter the password as defined to the selected data provider; if access to the data provider is not secured, then the password is not required.
Prompt for user name and password in Run Mode	Displays a login box in Run mode, which prompts for a user name and password before accessing the selected data provider.
Use Windows NT integrated security	For SQL Server data providers, uses Windows integrated security to control access to secured SQL Server data providers.
Test Connection	Click this button to test the connection to the selected data provider. VisiconX responds with a message that indicates a successful or failed connection. In the case of failed connections, the message includes a reason for the failure.

### Record Source Tab

Item	Description
------	-------------

Command Type	<p>Lets you select the type of query to use for the selected database. The options are:</p> <ul style="list-style-type: none"> <li>• <b>SQL Command</b> – Uses an SQL statement to acquire, add, or update data; you can create the statement with the SQL Wizard or you can enter or paste one directly into the displayed scroll box.</li> <li>• <b>Stored Procedure</b> – Uses a stored procedure to acquire data.</li> <li>• <b>Table</b> – Uses an SQL Select statement to acquire all data in a selected table.</li> </ul>
Do not allow SQLWizard at runtime	Select this check box to prevent the SQL Wizard from being accessed when the data control is opened in run mode.
Electronic Signature	<p>Select this check box to apply electronic signature requirements to the data control in run mode.</p> <p><b>NOTE:</b> This item is only available in iFIX.</p>
Perform Only	<p>Select this option to require a Perform Only electronic signature for the data control in run mode.</p> <p><b>NOTE:</b> This item is only available in iFIX.</p>
Perform and Verify	<p>Select this option to require Perform and Verify electronic signatures for the data control in run mode.</p> <p><b>NOTE:</b> This item is only available in iFIX.</p>
Run SQL Wizard	Click this button to create an SQL statement using the SQL Wizard.
SQL Edit Box	Lets you enter or paste an SQL statement. This box also displays statements built by the SQL Wizard, which can be edited. Press Ctrl+Enter to create line breaks in the SQL command.

## VisiconX Grid OLE Properties Dialog Box

The VisiconX Grid OLE Properties dialog box displays the following items:

### Font Tab

Item	Description
Properties	Displays the properties you can modify for this control. In the Font tab, this will always display "Font."

Font	Lets you choose the font to use in the control.
Size	Lets you choose the size of the font to use in the control.
Bold	Select this check box to apply a bold effect to the control's font.
Italic	Select this check box to apply an italic effect to the control's font.
Underline	Select this check box to apply an underline effect to the control's font.
Strikeout	Select this check box to apply a strikeout effect to the control's font.
Sample Text	Displays a preview of what the control's font will look like based on your selections in the Font tab.

## Color Tab

Item	Description
Properties	Displays the control elements whose colors can be changed. Select the control element you want to modify.
Color Set	Lets you select a color palette from which you can choose a color for the selected control element.
Color Palette	Displays the colors that are available from the currently selected color set. Select a color to apply to the selected control element.  <b>NOTE:</b> The Windows custom color selection dialog box also appears if you double-click Custom in the Color Palette drop-down box.
Edit Custom Colors	Opens the Windows custom color selection dialog box, where you can choose a custom color or define your own.

## VisiconX ListBox OLE Properties Dialog Box

The VisiconX ListBox OLE Properties dialog box displays the following items:

### Font Tab

Item	Description
Properties	Displays the properties you can modify for this control. In the Font tab, this will always display "Font."

Font	Lets you choose the font to use in the control.
Size	Lets you choose the size of the font to use in the control.
Bold	Select this check box to apply a bold effect to the control's font.
Italic	Select this check box to apply an italic effect to the control's font.
Underline	Select this check box to apply an underline effect to the control's font.
Strikeout	Select this check box to apply a strikeout effect to the control's font.
Sample Text	Displays a preview of what the control's font will look like based on your selections in the Font tab.

## Color Tab

Item	Description
Properties	Displays the control elements whose colors can be changed. Select the control element you want to modify.
Color Set	Lets you select a color palette from which you can choose a color for the selected control element.
Color Palette	Displays the colors that are available from the currently selected color set. Select a color to apply to the selected control element.  <b>NOTE:</b> The Windows custom color selection dialog box also appears if you double-click Custom in the Color Palette drop-down box.
Edit Custom Colors	Opens the Windows custom color selection dialog box, where you can choose a custom color or define your own.

## Welcome to the VisiconX Wizard Dialog Box

The Welcome to the VisiconX Wizard dialog box displays the following item:

### Do Not Show Welcome Dialog Again Check Box

Lets you bypass the SQL Wizard Welcome dialog when you activate the Wizard. Clear this check box if you want to display the Welcome dialog box when you activate the SQL Wizard.

### Next >

Click this button to move to the Next screen of the SQL Wizard.



## Select Operation Dialog Box

The Select Operation dialog box contains the following buttons:

### SQL SELECT

Select this option to construct a SQL SELECT command. For more information on the dialog boxes associated with the SQL SELECT command construction, see [SQL SELECT Dialog Boxes](#).

### SQL INSERT

Select this option to construct a SQL INSERT command. For more information on the dialog boxes associated with the SQL INSERT command construction, see [SQL INSERT Dialog Boxes](#).

### SQL UPDATE

Select this option to construct a SQL UPDATE command. For more information on the dialog boxes associated with the SQL UPDATE command construction, see [SQL UPDATE Dialog Boxes](#).

## SQL SELECT Dialog Boxes

The SQL SELECT command construction involves the following dialog boxes (listed in order from start to finish):

- [Select Tables Dialog Box](#)
- [Select Columns Dialog Box](#)
- [Create Row Filter Dialog Box](#)
- [Select Columns to Sort By Dialog Box](#)
- [Finish Dialog Box](#)

## Select Tables Dialog Box

The Select Tables dialog box displays the following items:

### Available Tables

Displays tables, defined to the selected database, that are available to query, add to, or update. Double-click a listed table or select it and then click the Add button to add it to the list of selected tables.

### Add/Remove/All Buttons

Button	Description
Add ->	Adds the item selected in the Available list to the Selected list.
All ->>	Adds all the items in the Available list to the Selected list.

<- Remove	Moves a selected item from the Selected list to the Available list.
<<- All	Moves all items in the Selected list to the Available list.

### Selected Tables

Displays tables selected to include in the SQL statement.

### Up/Down Arrow Buttons

Button	Description
Up Arrow	Click this button to move the selected item higher in the Selected list.
Down Arrow	Click this button to move the selected item lower in the Selected list.

## Select Columns Dialog Box

The Select Columns dialog box displays the following items:

### Available Columns

Displays columns, defined to the selected tables, that are available to query, add to, or update. Each column name is qualified by its table name. Double-click a listed column or select it and then click the Add button to add it to the list of selected columns.

### Add/Remove/All Buttons

Button	Description
Add ->	Adds the item selected in the Available list to the Selected list.
All ->>	Adds all the items in the Available list to the Selected list.
<- Remove	Moves a selected item from the Selected list to the Available list.
<<- All	Moves all items in the Selected list to the Available list.

### Selected Columns

Displays columns selected to include in the SQL statement.

### Up/Down Arrow Buttons

Button	Description
Up Arrow	Click this button to move the selected item higher in the Selected list.
Down Arrow	Click this button to move the selected item lower in the Selected list.

### Return Unique Rows

When selected, returns only one occurrence of rows with duplicate values; when clear, returns rows with duplicate values.

## Create Row Filter Dialog Box

The Create Row Filter dialog box displays the following items:

### Available Columns

Displays columns, defined to the selected tables, that are available to query, add to, or update. Each column name is qualified by its table name. Double-click a listed column or select it and then click the Add button to add it to the list of selected columns.

### Add/Remove/All Buttons

Button	Description
Add ->	Adds the item selected in the Available list to the Selected list.
All ->>	Adds all the items in the Available list to the Selected list.
<- Remove	Moves a selected item from the Selected list to the Available list.
<<- All	Moves all items in the Selected list to the Available list.

### Selected Columns

Displays columns selected to include in the SQL statement.

### Up/Down Arrow Buttons

Button	Description
Up Arrow	Click this button to move the selected item higher in the Selected list.
Down Arrow	Click this button to move the selected item lower in the Selected list.

### Operator

Lets you select the action of the selected comparison operator. Is/Does has no effect on the selected comparison operator; Is/Does Not negates the action of the comparison operator. For example, 'equal to' becomes 'is not equal to'; 'less than' becomes 'is not less than'.

### Comparison Operator

Lets you select a comparison operator for the column selected in the list of selected columns. The options are:

Option	Description
any value	The column value equals any value. Any Value is the default.
equal to	The column value equals a specified value or query property.
less than	The column value is less than a specified value or query property.
greater than	The column value is greater than a specified value or query property.
less or equal	The column value is less than or equal to a specified value or query property.
greater or equal	The column value is greater than or equal to a specified value or query property.
begins with	The column value begins with the specified string value or query property.
ends with	The column value ends with the specified string value or query property.
contain	The column value contains the specified string value or query property.
between	The column value is between two specified values or query properties.
Null	The column value is Null.

## Value

Value	Description
Comparison Value	Lets you enter a comparison value for the comparison expression. Enter a value or select a query property from the drop-down list box.
Second Comparison Value	Lets you enter a second comparison value for the comparison expression. This box appears only if the Between operator is selected. Enter a value or select a query property from the drop-down list box.

## Select Columns to Sort By Dialog Box

The Select Columns to Sort By dialog box displays the following items:

### Available Columns

Displays columns, defined to the selected tables, that can be sorted. Each column name is qualified by its table name. Double-click a listed column or select it and then click the Add button to add it to the list of selected columns.

### Add/Remove/All Buttons

Button	Description
Add ->	Adds the item selected in the Available list to the Selected list.
All ->>	Adds all the items in the Available list to the Selected list.
<- Remove	Moves a selected item from the Selected list to the Available list.
<<- All	Moves all items in the Selected list to the Available list.

### Selected Columns

Displays columns selected to include in the SQL statement.

### Up/Down Arrow Buttons

Button	Description
Up Arrow	Click this button to move the selected item higher in the Selected list.
Down Arrow	Click this button to move the selected item lower in the Selected list.

### Sort This Column

Lets you choose the sort order for the column selected in the list of selected columns. In Ascending Order, the default, sorts from lowest-to-highest value; In Descending Order sorts from highest-to-lowest value.

## Finish Dialog Box

The Finish dialog box displays the following item:

### SQL Statement Edit Box

Displays the SQL statement built by the SQL Wizard. You can refine the statement further by editing it. For example, you can change an AND keyword in a Where clause to OR. Click OK to exit the SQL Wizard.

## SQL INSERT Dialog Boxes

The SQL INSERT command construction involves the following dialog boxes (listed in order from start to finish):

- [Select Table to Insert Into Dialog Box](#)
- [Select Values to Insert Dialog Box](#)
- [Finish Dialog Box](#)

### Select Table to Insert Into Dialog Box

The Select Table to Insert Into dialog box displays the following items:

#### Available Tables

Displays tables, defined to the selected database, that are available to query, add to, or update. Double-click a listed table or select it and then click the Add button to add it to the list of selected tables.

#### Add/Remove/All Buttons

Button	Description
Add ->	Adds the item selected in the Available list to the Selected list.
All ->>	Adds all the items in the Available list to the Selected list.
<- Remove	Moves a selected item from the Selected list to the Available list.
<<- All	Moves all items in the Selected list to the Available list.

#### Selected Tables

Displays tables selected to include in the SQL statement.

#### Up/Down Arrow Buttons

Button	Description
Up Arrow	Click this button to move the selected item higher in the Selected list.
Down Arrow	Click this button to move the selected item lower in the Selected list.

### Select Values to Insert Dialog Box

The Select Values to Insert dialog box displays the following item:

#### Insert Values

Displays fields, defined to the selected tables, that are available to update. Any field whose Required setting is True must be assigned a value. Insert values into the Value column for the desired fields, and click Next.

### Finish Dialog Box

The Finish dialog box displays the following item:

### SQL Statement Edit Box

Displays the SQL statement built by the SQL Wizard. You can refine the statement further by editing it. For example, you can change an AND keyword in a Where clause to OR. Click OK to exit the SQL Wizard.

## SQL UPDATE Dialog Boxes

The SQL UPDATE command construction involves the following dialog boxes (listed in order from start to finish):

- [Select Table to Update Dialog Box](#)
- [Select Columns to Update Dialog Box](#)
- [Create Row Filter Dialog Box](#)
- [Finish Dialog Box](#)

### Select Table to Update Dialog Box

The Select Table to Update dialog box displays the following items:

#### Available Tables

Displays tables, defined to the selected database, that are available to query, add to, or update. Double-click a listed table or select it and then click the Add button to add it to the list of selected tables.

#### Add/Remove/All Buttons

Button	Description
Add ->	Adds the item selected in the Available list to the Selected list.
All ->>	Adds all the items in the Available list to the Selected list.
<- Remove	Moves a selected item from the Selected list to the Available list.
<<- All	Moves all items in the Selected list to the Available list.

#### Selected Tables

Displays tables selected to include in the SQL statement.

#### Up/Down Arrow Buttons

Button	Description
Up Arrow	Click this button to move the selected item higher in the Selected list.
Down Arrow	Click this button to move the selected item lower in the Selected list.

### Select Columns to Update Dialog Box

The Select Columns to Update dialog box displays the following item:

### Update Columns

Displays columns, defined to the selected tables, that are available to update. Insert values into the Value column for the desired columns, and click Next.

### Create Row Filter Dialog Box

The Create Row Filter dialog box displays the following items:

#### Available Columns

Displays columns, defined to the selected tables, that are available to query, add to, or update. Each column name is qualified by its table name. Double-click a listed column or select it and then click the Add button to add it to the list of selected columns.

#### Add/Remove/All Buttons

Button	Description
Add ->	Adds the item selected in the Available list to the Selected list.
All ->>	Adds all the items in the Available list to the Selected list.
<- Remove	Moves a selected item from the Selected list to the Available list.
<<- All	Moves all items in the Selected list to the Available list.

#### Selected Columns

Displays columns selected to include in the SQL statement.

#### Up/Down Arrow Buttons

Button	Description
Up Arrow	Click this button to move the selected item higher in the Selected list.
Down Arrow	Click this button to move the selected item lower in the Selected list.

#### Operator

Lets you select the action of the selected comparison operator. Is/Does has no effect on the selected comparison operator; Is/Does Not negates the action of the comparison operator. For example, 'equal to' becomes 'is not equal to'; 'less than' becomes 'is not less than'.

#### Comparison Operator

Lets you select a comparison operator for the column selected in the list of selected columns. The options are:

Option	Description
any value	The column value equals any value. Any Value is the default.
equal to	The column value equals a specified value or query property.
less than	The column value is less than a specified value or query property.
greater than	The column value is greater than a specified value or query property.
less or equal	The column value is less than or equal to a specified value or query property.
greater or equal	The column value is greater than or equal to a specified value or query property.

begins with	The column value begins with the specified string value or query property.
ends with	The column value ends with the specified string value or query property.
contain	The column value contains the specified string value or query property.
between	The column value is between two specified values or query properties.
Null	The column value is Null.

#### Value

Value	Description
Comparison Value	Lets you enter a comparison value for the comparison expression. Enter a value or select a query property from the drop-down list box.
Second Comparison Value	Lets you enter a second comparison value for the comparison expression. This box appears only if the Between operator is selected. Enter a value or select a query property from the drop-down list box.

#### Finish Dialog Box

The Finish dialog box displays the following item:

##### SQL Statement Edit Box

Displays the SQL statement built by the SQL Wizard. You can refine the statement further by editing it. For example, you can change an AND keyword in a Where clause to OR. Click OK to exit the SQL Wizard.

## How Do I...

Click the following links for more information about working with VisiconX:

- [Accessing Secured OLE DB Providers](#)
- [Testing the OLE DB Data Provider Connection](#)
- [Creating SQL Statements](#)
- [Displaying Data at Run Time](#)
- [Accessing VisiconX Properties](#)

## Connecting to a Data Provider

For VisiconX, refer to the following sections for information on connecting to a data provider:

- [Connecting to an OLE DB Data Provider Overview](#)
- [Connecting to Microsoft OLE DB Provider for SQL Server](#)
- [Connecting to Microsoft OLE DB Simple Provider](#)
- [Connecting to an ODBC Driver](#)



- [Connecting to Microsoft Jet OLE DB Provider](#)
- [Connecting to Microsoft OLE Provider for Oracle](#)
- [Connecting to Multiple OLE DB Data Providers or Databases](#)

## Overview: Connecting to an OLE DB Data Provider

### ► To connect to an OLE DB data provider:

1. Open the VisiconX Data Control OLE Properties dialog box. For information on how to do this in your product, refer to the [Accessing VisiconX OLE Control Properties](#) section.
2. From the Provider tab, select an OLE DB data provider.
3. Optionally, clear the Automatically Connect To Database In Run Mode check box if you do not want to automatically connect to the data provider in Run Mode.
4. Click the Database tab.
5. Enter the connection information for the OLE DB data provider you selected.
6. If access to the OLE DB data provider is secured, enter the necessary security information.
7. Click Test Connection to test the OLE DB data provider connection.

## Connecting to Microsoft OLE DB Provider for SQL Server

### ► To connect to the Microsoft OLE DB Provider for SQL Server:

1. Open the VisiconX Data Control OLE Properties dialog box. For information on how to do this in your product, refer to the [Accessing VisiconX OLE Control Properties](#) section.
2. From the Provider tab, select Microsoft OLE DB Provider for SQL Server.
3. Click the Database tab.
4. In the Server Name drop-down list box, enter a server name.
5. In the Database Name drop-down list box, enter a database name.

## Connecting to a Microsoft OLE DB Simple Provider

### ► To connect to the Microsoft OLE DB Simple data provider:

1. Open the VisiconX Data Control OLE Properties dialog box. For information on how to do this in your product, refer to the [Accessing VisiconX OLE Control Properties](#) section.
2. From the Provider tab, select Microsoft OLE DB Simple Provider.

3. Click the Database tab.
4. Enter the OLE DB connection string to connect to a data source and catalog. For example:

```
Data Source=QALAB15; Initial Catalog=Test;
```

## Connecting to an ODBC Driver

For VisiconX, refer to the following sections for information on connecting to an ODBC driver:

- [Using a Data Source Name](#)
- [Using a Connection String](#)

### Connecting to an ODBC Driver Using a Data Source Name

► To connect to the Microsoft OLE DB Provider for ODBC drivers using an existing data source name:

1. Open the VisiconX Data Control OLE Properties dialog box. For information on how to do this in your product, refer to the [Accessing VisiconX OLE Control Properties](#) section.
2. From the Provider tab, select Microsoft OLE DB Provider for ODBC Drivers.
3. Click the Database tab.
4. In the DSN Name drop-down list box, enter a data source name.

### Connecting to an ODBC Driver Using a Connection String

► To connect to the Microsoft OLE DB Provider for ODBC drivers using a connection string:

1. Open the VisiconX Data Control OLE Properties dialog box. For information on how to do this in your product, refer to the [Accessing VisiconX OLE Control Properties](#) section.
2. From the Provider tab, select Microsoft OLE DB Provider for ODBC Drivers.
3. Click the Database tab.
4. Select the Use ODBC Connection String check box.
5. Enter an ODBC connection string in the Connection String (No DSN Required) edit box; for example:

```
Driver=SQL Server;Server=QALAB15;Database=Northwind;
```

## Connecting to Microsoft Jet OLE DB Provider

► **To connect to the Microsoft Jet OLE DB provider:**

1. Open the VisiconX Data Control OLE Properties dialog box. For information on how to do this in your product, refer to the [Accessing VisiconX OLE Control Properties](#) section.
2. From the Provider tab, select Microsoft Jet 4.0 OLE DB Provider.
3. Click the Database tab.
4. Enter the path and name of a Microsoft Access database; the extension of these databases is \*.mdb.
5. If access to the database is secured through MS Access security, enter the path and name of a Microsoft Access System (Security) database. The extensions of these databases are \*.mda and \*.mdw.

## Connecting to Microsoft OLE Provider for Oracle

► **To connect to the Microsoft OLE Provider for Oracle:**

1. Open the VisiconX Data Control OLE Properties dialog box. For information on how to do this in your product, refer to the [Accessing VisiconX OLE Control Properties](#) section.
2. From the Provider tab, select Microsoft OLE DB Provider for Oracle.
3. Click the Database tab.
4. Enter the name of the Oracle server.

## Connecting to Multiple OLE DB Data Providers or Databases

► **To connect multiple OLE DB data providers or databases:**

1. Open the VisiconX Data Control OLE Properties dialog box. For information on how to do this in your product, refer to the [Accessing VisiconX OLE Control Properties](#) section.
2. For simplicity, configure the first VisiconX Data Control to access the database and table whose data you want displayed; configure the second Data Control to access the database that supplies the value for the row filter.
3. Create a query in the first VisiconX Data Control that equates a query property to a column common to both database tables.
4. Animate the query property, using the data supplied by the second data control as its data source.

**NOTE:** CIMPLICITY users need to use CimEdit Basic script to use query properties. For more information, see [Using Query Properties in CIMPLICITY](#).

## Accessing Secured OLE DB Providers

For VisiconX, you can access secure OLE DB data providers by using the following sections:

- [Entering User ID and Password](#)
- [Using Windows Security](#)

## Accessing a Secured OLE DB Data Provider with User ID and Password

► To access a secured OLE DB data provider using a user ID and password:

1. Open the VisiconX Data Control OLE Properties dialog box. For information on how to do this in your product, refer to the [Accessing VisiconX OLE Control Properties](#) section.
2. Click the Database tab.
3. Enter the User ID and password required for access to the secured OLE DB data provider in the Database Security Settings area.
4. If you want users to login to the secured OLE DB data provider in the run-time environment, select the Prompt For Username And Password In Run Mode check box.

## Using Windows Security to Access a Microsoft SQL Server Database

► To use Windows integrated security to access a Microsoft SQL Server database:

1. Open the VisiconX Data Control OLE Properties dialog box. For information on how to do this in your product, refer to the [Accessing VisiconX OLE Control Properties](#) section.
2. Click the Database tab.
3. In the Database Security Settings area, select the Use Windows Integrated Security check box.

## Testing the OLE DB Data Provider Connection

► To test the OLE DB data provider connection:

1. Open the VisiconX Data Control OLE Properties dialog box. For information on how to do this in your product, refer to the [Accessing VisiconX OLE Control Properties](#) section.
2. In the Provider tab, select the OLE DB data provider.
3. Click the Database tab.
4. Select a database to access.
5. If necessary, enter the information required to access a secured OLE DB data provider.
6. Click Test Connection.

## Creating SQL Statements

Refer to the following sections for information on creating SQL statements when using VisiconX controls:

- [Using the SQL Wizard](#)
- [Creating Statements Manually](#)
- [Creating a Query for an Entire Table](#)
- [Creating a Query Using a Stored Procedure](#)

## Using the SQL Wizard

The following sections provide information on how to use the SQL Wizard to create SQL statements with VisiconX:

- [Creating SQL Statements with the SQL Wizard](#)
- [Constructing an SQL SELECT command](#)
- [Constructing an SQL INSERT command](#)
- [Constructing an SQL UPDATE command](#)

## Creating SQL Statements with the SQL Wizard

► To create an SQL statement with the SQL Wizard:

1. Open the VisiconX Data Control OLE Properties dialog box. For information on how to do this in your product, refer to the [Accessing VisiconX OLE Control Properties](#) section.
2. Click the Record Source tab.
3. Select SQL Command from the Command Type list box.
4. Click the SQL Wizard button. The Welcome dialog box appears.
5. On the SQL Wizard Welcome page, optionally select the Do not show Welcome Dialog again check box, then click Next. The Select Operation dialog box appears.
6. On the Select Operation dialog box, click the type of SQL statement you want to construct. You can construct an [SQL SELECT](#), [SQL INSERT](#), or [SQL UPDATE](#) command.
7. Proceed through the appropriate SQL command construction wizard.
8. At the end of the wizard, click OK in the Finish dialog box to return to the Data Control OLE Properties dialog box.

## Constructing an SQL SELECT Command

### ► To construct an SQL SELECT command using the SQL Wizard:

1. From the Record Source tab of the Data Control OLE Properties dialog box, click Run SQL Wizard. The Select Operation dialog box appears.
2. In the Select Operation dialog box, click SQL Select. The Select Tables dialog box appears.
3. [Select one or more tables](#) for your statement, then click Next. The Select Columns dialog box appears.
4. [Select one or more table columns](#) for your statement.
5. Optionally, [select the Return Unique Rows check box](#), then click Next. The Create Row Filter dialog box appears.
6. Optionally, [create a row filter](#) based on selection criteria you define. Click Next. The Select Columns to Sort By dialog box appears.
7. Optionally, [sort the data in ascending or descending order by column values](#). Click Next. The Finish dialog box appears.
8. Optionally, edit the statement. Click OK to return to the Data Control OLE Properties dialog box.

## Selecting Tables in an SQL SELECT Command

### ► To select tables in an SQL SELECT command using the SQL Wizard:

1. Run the SQL Wizard and on the Select Operation dialog box, click SQL Select.
2. Proceed in the SQL Wizard until you reach the Select Tables dialog box.
3. In the Select Tables dialog box's Available Tables list, select a table and click Add. Repeat this action for each table required for the SQL statement or, to add all the tables, click All >>.
4. To re-order the sequence of selected tables, select a table in the Selected Tables list and click the Up or Down arrow to move the table up or down in the list.
5. Click Next to continue creating the query.

- Or -

Click Back to return to the previous screen in the SQL Wizard.

- Or -

Click Finish if the query is done.

**NOTE:** To remove a table from the statement, select it from the Selected Tables list and click Remove All to remove all the tables in the statement.

## Selecting Columns in an SQL SELECT Command

► **To select columns in an SQL SELECT command using the SQL Wizard:**

1. Run the SQL Wizard and on the Select Operation dialog box, click SQL Select.
2. Proceed in the SQL Wizard until you reach the Select Columns dialog box.
3. In the Select Columns dialog box's Available Columns list, select a column and click Add. Repeat this action for each column required in the SQL Statement or, to add all the columns, choose \* (All Columns) or click All >>.
4. To re-order the sequence of selected columns, select a column in the Selected Columns list and click the Up or Down arrow to move the column up or down in the list.
5. Click Next to continue creating the query.

- Or -

Click Back to return to the previous screen in the SQL Wizard.

- Or -

Click Finish if the query is done.

**NOTE:** To remove a column from the statement, select it from the Selected Columns list and click Remove All to remove all the columns in the statement.

#### Returning Unique Rows for Your Query

► **To create a query that returns unique rows using the SQL Wizard:**

1. Run the SQL Wizard and on the Select Operation dialog box, click SQL Select.
2. Proceed in the SQL Wizard until you reach the Select Columns dialog box.  
**NOTE:** You can only return unique rows for your query in an SQL SELECT statement.
3. In the Select Columns dialog box, select columns to include in your query.
4. Select the Return Unique Rows check box.
5. Click Next to continue creating the query.

- Or -

Click Back to return to the previous screen in the SQL Wizard.

- Or -

Click Finish if the query is done.

#### Creating a Row Filter

► **To create a row filter using the SQL Wizard:**

1. Run the SQL Wizard and on the Select Operation dialog box, click SQL Select or SQL Update.
2. Proceed in the SQL Wizard until you reach the Create Row Filter dialog box.

**NOTE:** You can only create a row filter when constructing an SQL SELECT or SQL UPDATE command.

3. In the Create Row Filter dialog box, select a column from the list of available columns and click Add. Repeat this action for each column to use in the Row Filter or, to add all the columns, click All >>.
4. Select a column from the list of selected columns.
5. Select a comparison operator from the Operator drop-down list box.
6. Enter a comparison value in the Value box or select a query property to compare the column value to.
7. To negate the action of the comparison operator, select Is/Does Not from the Operator drop-down list box.
8. Repeat Steps 3 through 6 until the row filter is complete.
9. Click Next to continue creating the query.

- Or -

Click Back to return to the previous screen in the SQL Wizard.

- Or -

Click Finish if the query is done.

**NOTES:**

- To remove a column from the row filter, select it from the Selected Columns list and click Remove; click << All to remove all the columns in the row filter.
- The resulting Select statement connects multiple comparison expressions with the AND keyword; that is, the row is selected when both comparison expressions are true. To use the OR keyword, which selects the row if one of the two comparison expressions is true, edit the finished Select statement.

**Sorting Retrieved Data by Column Values**

**► To sort data using the SQL Wizard:**

1. Run the SQL Wizard and on the Select Operation dialog box, click SQL Select.
2. Proceed in the SQL Wizard until you reach the Select Columns To Sort By dialog box.
2. In the Select Columns To Sort By dialog box, select a column from the list of available columns and click Add. Repeat this action for each column to be sorted or, to sort all the columns in the list, click All >>.
3. To re-order the sequence of selected columns, select a column in the Selected Columns list and click the Up or Down arrow to move the column up or down in the list. The first column in the list is the primary sort column.
4. To sort a column in descending order, select it in the Selected Columns list and choose In Descending Order from the drop-down list box.
5. Click Next to continue creating the query.

- Or -



Click Back to return to the previous screen in the SQL Wizard.

- Or -

Click Finish if the query is done.

**NOTE:** To remove a column from the query, select it from the Selected Columns list and click Remove All to remove all the columns in the query.

## Constructing an SQL INSERT Command

► To construct an SQL INSERT command using the SQL Wizard:

1. From the Record Source tab of the Data Control OLE Properties dialog box, click Run SQL Wizard. The Select Operation dialog box appears.
2. In the Select Operation dialog box, click SQL Insert. The Select Table to Insert Into dialog box appears.
3. [Select one or more tables](#) for your statement, then click Next. The Select Values to Insert dialog box appears.
4. Insert values into one or more table columns for your statement, then click Next. The Finish dialog box appears.
5. Optionally, edit the statement. Click OK to return to the Data Control OLE Properties dialog box.

## Selecting Tables in an SQL INSERT Command

► To select tables in an SQL INSERT command using the SQL Wizard:

1. Run the SQL Wizard and on the Select Operation dialog box, click SQL Insert.
2. Proceed in the SQL Wizard until you reach the Select Tables To Insert To dialog box.
3. In the Select Tables To Insert To dialog box's Available Tables list, select a table and click Add. Repeat this action for each table required for the SQL statement or, to add all the tables, click All >>.
4. To re-order the sequence of selected tables, select a table in the Selected Tables list and click the Up or Down arrow to move the table up or down in the list.
5. Click Next to continue creating the query.

- Or -

Click Back to return to the previous screen in the SQL Wizard.

- Or -

Click Finish if the query is done.

**NOTE:** To remove a table from the statement, select it from the Selected Tables list and click Remove All to remove all the tables in the statement.

## Constructing an SQL UPDATE Command

► **To construct an SQL UPDATE command using the SQL Wizard:**

1. From the Record Source tab of the Data Control OLE Properties dialog box, click Run SQL Wizard. The Select Operation dialog box appears.
2. In the Select Operation dialog box, click SQL Update. The Select Table to Update dialog box appears.
3. [Select one or more tables](#) for your statement, then click Next. The Select Columns to Update dialog box appears.
4. Insert values into one or more table columns for your statement.
5. Optionally, [create a row filter](#) based on selection criteria you define. Click Next. The Finish dialog box appears.
6. Optionally, edit the statement. Click OK to return to the Data Control OLE Properties dialog box.

### Selecting Tables in an SQL UPDATE Command

► **To select tables in an SQL UPDATE command using the SQL Wizard:**

1. Run the SQL Wizard and on the Select Operation dialog box, click SQL Update.
2. Proceed in the SQL Wizard until you reach the Select Table To Update dialog box.
3. In the Select Table To Update dialog box's Available Tables list, select a table and click Add. Repeat this action for each table required for the SQL statement or, to add all the tables, click All >>.
4. To re-order the sequence of selected tables, select a table in the Selected Tables list and click the Up or Down arrow to move the table up or down in the list.
5. Click Next to continue creating the query.

- Or -

Click Back to return to the previous screen in the SQL Wizard.

- Or -

Click Finish if the query is done.

**NOTE:** To remove a table from the statement, select it from the Selected Tables list and click Remove All to remove all the tables in the statement.

### Creating a Row Filter

► **To create a row filter using the SQL Wizard:**

1. Run the SQL Wizard and on the Select Operation dialog box, click SQL Select or SQL Update.
2. Proceed in the SQL Wizard until you reach the Create Row Filter dialog box.

**NOTE:** You can only create a row filter when constructing an SQL SELECT or SQL UPDATE command.

3. In the Create Row Filter dialog box, select a column from the list of available columns and click Add. Repeat this action for each column to use in the Row Filter or, to add all the columns, click All >>.
4. Select a column from the list of selected columns.
5. Select a comparison operator from the Operator drop-down list box.
6. Enter a comparison value in the Value box or select a query property to compare the column value to.
7. To negate the action of the comparison operator, select Is/Does Not from the Operator drop-down list box.
8. Repeat Steps 3 through 6 until the row filter is complete.
9. Click Next to continue creating the query.

- Or -

Click Back to return to the previous screen in the SQL Wizard.

- Or -

Click Finish if the query is done.

#### NOTES:

- To remove a column from the row filter, select it from the Selected Columns list and click Remove; click << All to remove all the columns in the row filter.
- The resulting Select statement connects multiple comparison expressions with the AND keyword; that is, the row is selected when both comparison expressions are true. To use the OR keyword, which selects the row if one of the two comparison expressions is true, edit the finished Select statement.

## Creating a Statement Manually

### ► To query a database by entering or pasting an SQL statement:

1. Open the VisiconX Data Control OLE Properties dialog box. For information on how to do this in your product, refer to the [Accessing VisiconX OLE Control Properties](#) section.
2. From the Record Source tab, in the Command Type drop-down list box, select SQL Command.
3. In the SQL Command Text box, enter or paste the SQL command.
4. To start a new line or to create line breaks in the SQL command, press CTRL+ENTER.

## Creating a Query for an Entire Table

► **To query an entire table:**

1. Open the VisiconX Data Control OLE Properties dialog box. For information on how to do this in your product, refer to the [Accessing VisiconX OLE Control Properties](#) section.
2. From the Record Source tab, in the Command Type drop-down list box, select Table.
3. In the Table drop-down list box, enter a table name.
4. Click List Columns if you want to see the columns defined to the selected table and their data types.

## Creating a Query Using a Stored Procedure

► **To create a query based on a stored procedure:**

1. Open the VisiconX Data Control OLE Properties dialog box. For information on how to do this in your product, refer to the [Accessing VisiconX OLE Control Properties](#) section.
2. From the Record Source tab, in the Command Type drop-down list box, select Stored Procedure.
3. Enter a stored procedure name in the Stored Procedure drop-down list box.
4. Click List Parameters to display the query properties mapped to the stored procedure parameters.
5. Click OK.
6. Animate the query properties that map to the input parameters for the stored procedure.

**NOTE:** CIMPLICITY users need to use CimEdit Basic script to use query properties. For more information, see [Using Query Properties in CIMPLICITY](#).

## Displaying Data at Run Time

Refer to the following sections for information on creating displaying data at runtime when using VisiconX controls:

- [Overview: Displaying Data at Run Time](#)
- [Hiding the Data Control at Run Time](#)
- [Configuring Run Time Display Properties](#)

### Overview: Displaying Data at Run Time

► **To display data in Grid, ListBox, or ComboBox controls in iFIX:**

1. Animate the controls to use the ADORecords of the Data Control as a data source.
2. To switch to Run mode:  
In Ribbon view, on the Home tab, in the WorkSpace group, click Switch to Run.  
- Or -  
In Classic view, on the WorkSpace toolbar click Run.

► **To display data in Grid, ListBox, or ComboBox controls in CIMPLICITY:**

1. Associate the controls with a Data Control. You can change or verify the association by double-clicking on the control and selecting or viewing the current data source.
2. Run CimView on the screen file.

## Hiding the Data Control at Run Time

► **To make the Data Control invisible in the run-time environment:**

1. Open the Properties dialog box. For information on how to do this in your product, refer to the [Accessing VisiconX Object Properties](#) section.
2. In the Property window, set the InvisibleInRunMode property setting to True.

## Configuring Run Time Display Properties

► **To configure the text and color properties of the Grid, ListBox, and ComboBox controls:**

1. Open the VisiconX Data Control OLE Properties dialog box. For information on how to do this in your product, refer to the [Accessing VisiconX OLE Control Properties](#) section.
2. Click the Font tab.
3. Select the font, font size, and any special font effects, such as bold or italic. The Sample Text box shows a sample of your current selection.
4. Click the Color tab.
5. Select Standard Colors or Windows System Colors from the Color Set list box.
6. For each control element, such as Fore Color and Back Color, select a color from the Color Palette scroll box or click Edit Custom Colors to further refine your color selection.

**NOTE:** To avoid repetitions of recurring column values, set MergeCells to True in the object Properties dialog box. To hide the outside border of the Grid Control, set BorderStyle to 0 (vxBorderNone).

## Accessing VisiconX Properties

VisiconX control objects have two types of properties: object properties, which are part of any object in iFIX or CIMPLICITY; and OLE control properties, which are specific to VisiconX.

Refer to the following links for information on how to access and edit either of these types of properties:

- [VisiconX Object Properties](#)
- [VisiconX OLE Control Properties](#)

## Accessing VisiconX Object Properties

### ► To access and edit VisiconX object properties in iFIX:

1. Right-click a VisiconX control in your iFIX WorkSpace picture and choose Property Window. The iFIX Properties dialog box for the selected object appears.
2. Edit the properties you want to change.
3. Optionally, if you want to edit the object properties of another VisiconX control in the same picture, select it from the drop-down list in the Properties dialog box.

### ► To access and edit VisiconX object properties in CIMPLICITY:

1. Right-click a VisiconX control in your CimEdit screen and choose Properties. The CIMPLICITY Properties dialog box for the selected object appears.
2. Click the Control Properties tab.
3. Edit the properties you want to change.

## Accessing VisiconX OLE Control Properties

### ► To access and edit VisiconX OLE Control properties in iFIX:

1. Right-click a VisiconX control in your iFIX WorkSpace picture and choose Properties [control name] Object. The OLE Properties dialog box for the selected object appears.
2. Edit the properties you want to change.

### ► To access and edit VisiconX OLE Control properties in CIMPLICITY:

1. Right-click a VisiconX control in your CimEdit screen, point to the Object name, and then choose Properties. The OLE Properties dialog box for the selected object appears.
2. Edit the properties you want to change.

**TIP:** CIMPLICITY users can also access the Data Control's OLE Properties dialog box by double-clicking the Data Control in the CimEdit screen, and then clicking on the Configure Database Connection button in the dialog box that appears.

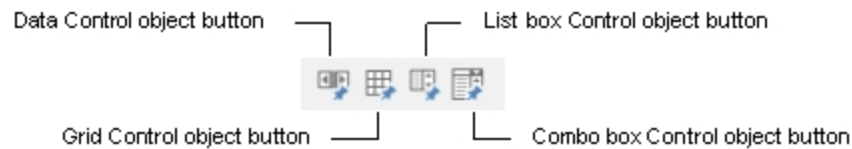
## Using VisiconX in iFIX

Consult the following topics for iFIX-specific information and procedures regarding VisiconX:

- [Inserting VisiconX Controls in iFIX](#)
- [Using Electronic Signatures with SQL Commands](#)
- [Using VisiconX Properties and Methods in iFIX](#)
- [Animating Grid, ListBox, or ComboBox Controls](#)
- [Animating Query Properties](#)
- [iFIX How Do I...](#)

## Inserting VisiconX Controls in iFIX

After installing VisiconX, the iFIX WorkSpace includes a new toolbar, VisiconX, with four buttons:



*VisiconX Toolbar*

In Classic view, use these toolbar buttons to insert VisiconX controls into your picture. In Ribbon view, you may access the VisiconX controls from the Ribbon, on the Insert tab, in the VisiconX group.

The control appears in the picture, with handles that you can grab to move and size the control as you would with any picture object.

For more information about moving and sizing picture objects, see the iFIX *Creating Pictures* e-book.

If the VisiconX toolbar is not visible in the WorkSpace, it either needs to be imported or it needs to be selected from the list of available toolbars to display.

After inserting VisiconX controls into your picture, they appear as objects in the WorkSpace system tree. The following table displays the naming conventions used for each object. In this naming convention, *n* is an integer, starting with 1, which is automatically incremented for each new occurrence of an object type.

### Naming Conventions for VisiconX Controls

Control	Naming Convention
Data Control	<code>vxData<math>n</math></code>
Grid Control	<code>vxGrid<math>n</math></code>
ListBox Control	<code>vxList<math>n</math></code>
ComboBox Control	<code>vxCombon</code>

## Using Electronic Signatures with SQL Commands

When you are creating SQL Select, Insert, or Update statements for your VisiconX data control in iFIX, you have the option of requiring electronic signatures to be used for these commands when WorkSpace is in run mode. You can apply Perform Only or Perform and Verify signatures to your statements.

When your data control is opened in run mode, you are prompted with the Electronic Signature login dialog box. When you sign in, a message is sent to the iFIX alarm system. If the signature is valid a successful signature message displays. If the signature is invalid, an Invalid Esignature message displays.

For more detailed information about using electronic signatures, see *Using Electronic Signatures*.

These electronic signatures are provided for added security. For example, if you are changing data in a database and require those changes to be audited. You can access the audit trail from the same esignature audit trail that the other iFIX esignatures use. For more information, see *Creating an Electronic Signature Audit Trail*.

## Using VisiconX to View Historian Data

Beginning with iFIX 5.0, you can easily configure VisiconX data and grid objects to display Historian data in pictures, using the VisiconX Configuration to View Historian Data tool; the tool is available from the Proficy Historian toolbar (Classic and Ribbon views) or from the Insert tab, in the VisiconX group, in the VisiconX Controls (Ribbon view).

Configuring VisiconX to view Historian data allows you to display data in Grid and Data Controls; the data displayed is based on the parameters you set at configuration time. You can choose the time, date, tag name and query during the configuration process.

Although the Data and Grid objects are standard VisiconX objects, because you have configured them using the configuration tool to use Historian data, they are already animated. When you place them in the picture, they require no further configuration, unlike directly placing VisiconX Data and Grid objects.

## Using VisiconX Properties and Methods in iFIX

Like other iFIX objects, VisiconX objects have associated properties and methods that you can use in VisualBasic scripts or to animate other objects. These properties and methods give you the flexibility to use a variety of objects to access and display data.

For example, to let users access different databases in Run mode, you might want to insert individual, labeled command buttons rather than several Data Control objects. In Run mode, the user can click a button, which executes a Visual Basic script that uses the properties and methods of the Data Control to connect to a database and execute a query. You can even invoke the SQL Wizard in Run mode using the RunSQLWizard method.

You also use properties to animate other objects. For example, you typically animate grid objects with the ADORecords property of a Data Control. Similarly, you can use properties to animate other objects, like the caption of a Data link or the HorizontalFillPercentage of a rectangle.

The following sections describe how to use the properties and methods of the VisiconX objects:



- [In Run mode within a VisualBasic script.](#)
- [In Configuration mode in an object Properties window.](#)
- [To animate other objects.](#)

## Using VisiconX Properties and Methods in a Visual Basic Script

VisiconX properties and methods are integrated with Microsoft's Visual Basic Editor, giving you the means to configure and manipulate the object in Run mode using Visual Basic scripts.

For more information about writing Visual Basic scripts for iFIX objects, see the iFIX *Writing Scripts* e-book. For detailed descriptions of VisiconX properties, methods, and events, see the [VisiconX Automation Reference](#) section.

The following section describes using properties and methods with Data Controls. Only one method, AboutBox, can be used with Grid, ListBox, and ComboBox Controls.

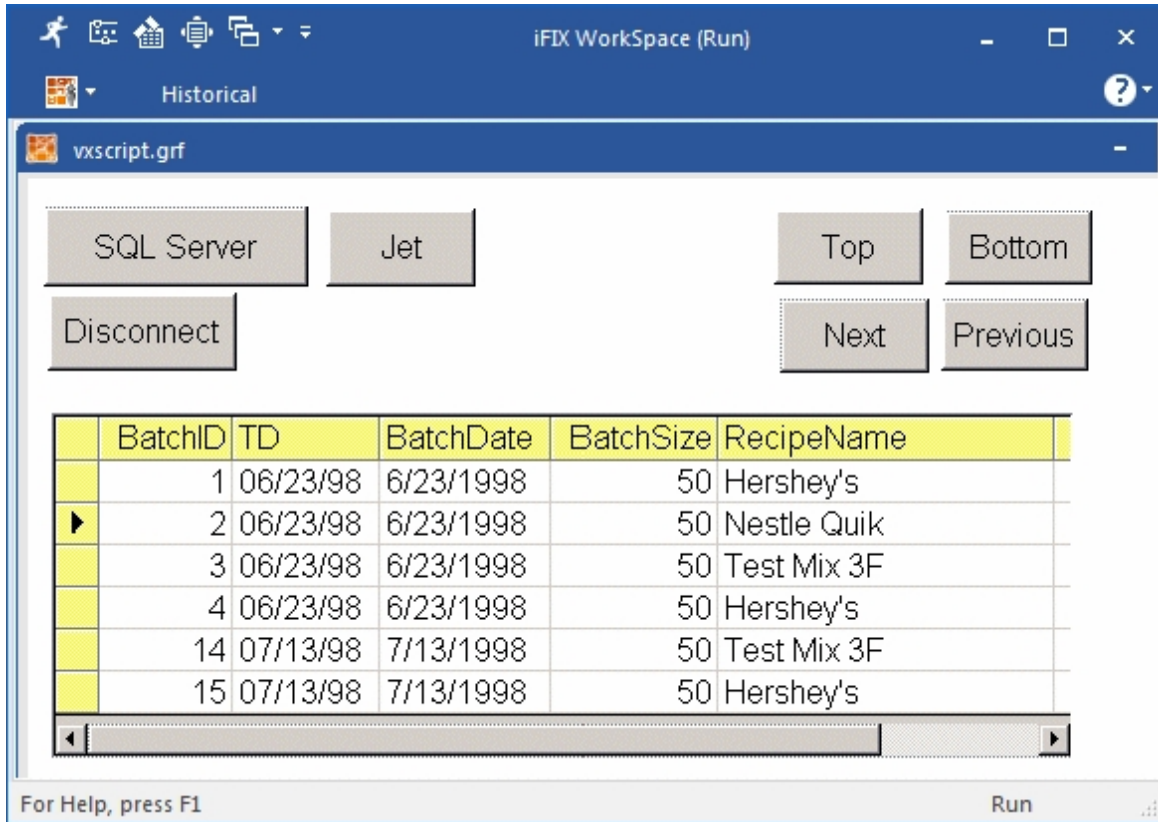
### Using Properties and Methods with a Data Control in iFIX

Using Data Control properties and methods within Visual Basic scripts that are associated with option buttons, command buttons, and so on, gives you the option to create an intuitive, flexible, and attractive Run mode environment. The methods associated with the Data Control object, vxData, fall into the following descriptive categories.

**Method Categories for Data Control Objects**

Descriptive Category	Methods
Connects or disconnects from the database provider and queries the database	DBConnect DBDisconnect RefreshData
Builds an SQL Select statement.	RunSQLWizard
Moves the position of the row pointer in the ADO Record set.	MoveFirst MoveNext MovePrevious MoveLast

The following illustration shows a picture in Run mode that contains a number of command buttons and a Grid Control. The SQL Server and Jet command buttons connect to and query an SQL Server database and Microsoft Access database respectively. The Top, Bottom, Next, and Previous buttons move the current pointer in the Grid Control.



### Using VisiconX Properties and Methods in Run Mode

Below is the script associated with the SQL Server button in the preceding illustration.

```
Private Sub CommandButton1_Click()
    vxData1.DBDisconnect
    vxData1.OLEDBProvider = "SQLOLEDB"
    vxData1.Server = "QALAB15"
    vxData1.Database = "NORTHWIND"
    vxData1.User = "sa"
    vxData1.SourceType = vxSourceSQL
    vxData1.RunSQLWizard
    vxData1.DBConnect
End Sub
```

This script:

1. Uses the DBDisconnect method to disconnect from the current data provider.
2. Uses properties for Data Control, vxData1, to configure it to access an SQL Server provider and database. The type of command it submits, determined by the SourceType property, is an SQL Command.
3. Initiates the SQL Wizard in response to the RunSQLWizard method
4. Uses the DBConnect method to connect to the database and run its query.

The following example shows the script for the Top button in the preceding illustration; it sets the current row pointer to the first row in the ADO Record set.

```
Private Sub CommandButton5_Click()
```

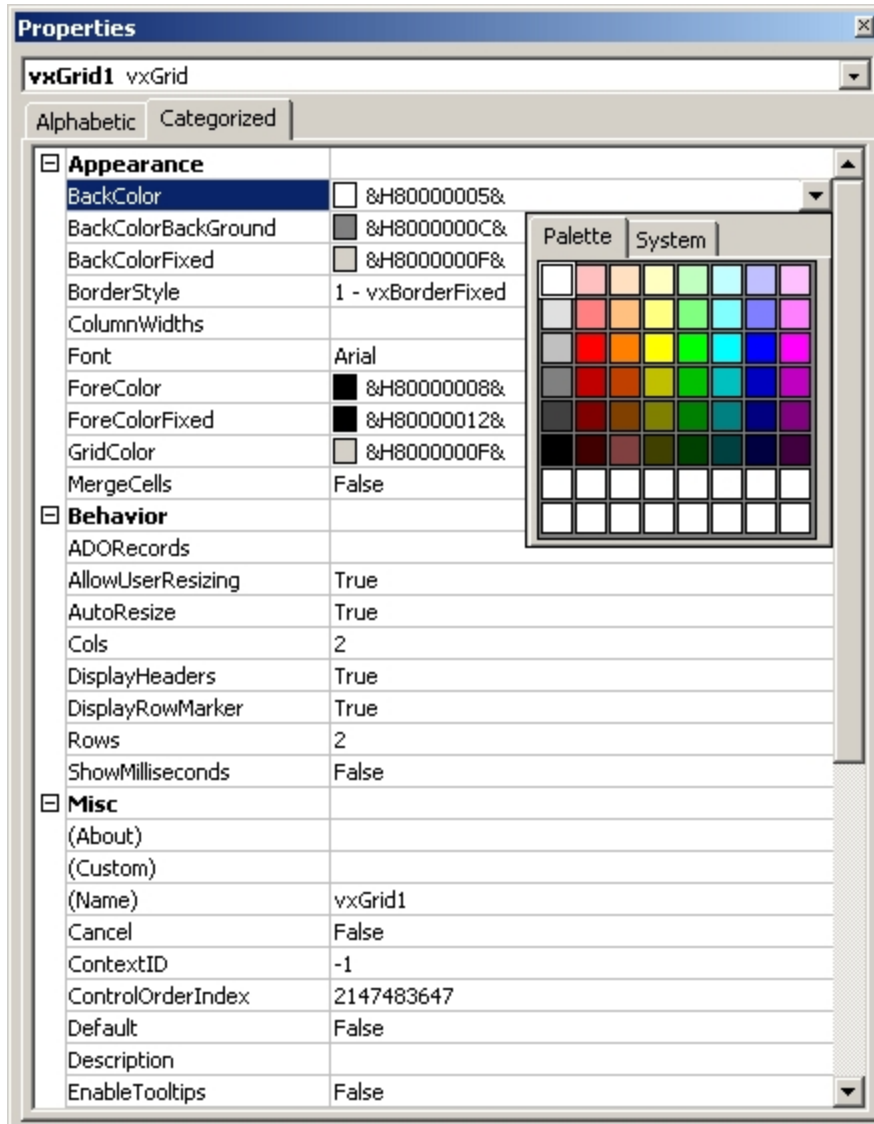
```
vxData1.MoveFirst  
End Sub
```

The command buttons in the previous example make it unnecessary to display the Data Control in the Run time environment, because the buttons duplicate the function of the navigation arrows in the Data Control. To make the Data Control invisible in the Run mode environment, use the Properties window to set its `InvisibleInRunMode` property to `True`.

## Setting VisiconX Properties in an iFIX Properties Window

To set configuration properties of a VisiconX object, such as display attributes in the run-time environment, you can use the Properties window for the object. The Properties window provides a simple and quick way to expose the properties of any object. It displays the properties both alphabetically and by category.

For example, this figure shows the Properties window in iFIX for a Grid Control, `vxGrid1`. The Categorized tab displays properties organized by those that pertain to display properties for the grid, behavior, and so on. In this example, the current background color for the grid cells is white. Clicking the down-arrow displays the color palette, from which you can select another color for the cell background.



*Properties Window in iFIX*

Use the Properties window to expose some properties that are not visible in the user interface such as MergeCells, BorderStyle, DisplayHeader, DisplayRowMarker, Autoresize, and ColumnWidths for Grid Controls and InvisibleInRunMode for Data Controls. Using the Properties window also lets you quickly set properties without activating object dialog boxes in the user interface, expediting development and testing.

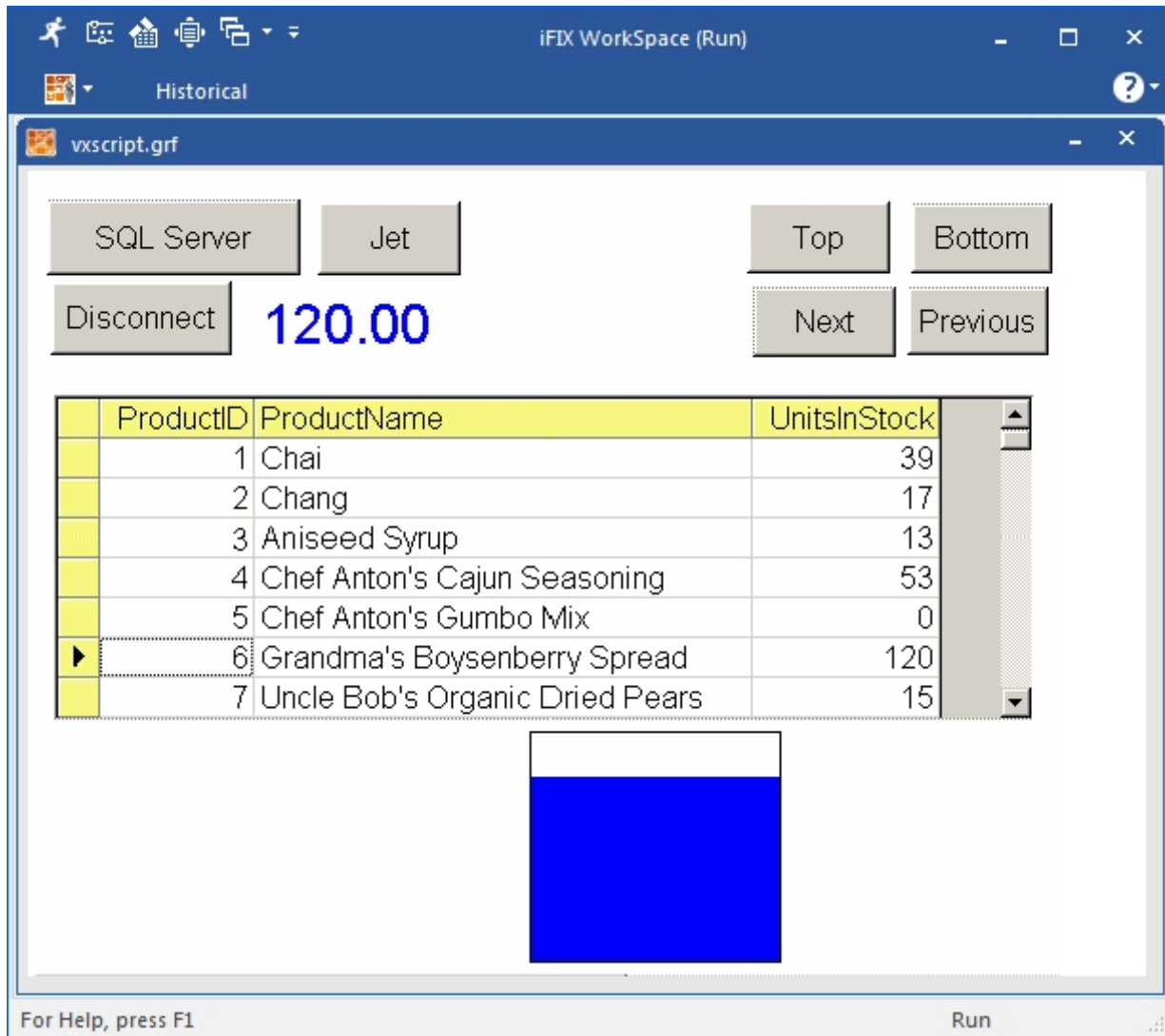
The properties associated with the Grid, ListBox, and ComboBox controls pertain primarily to display properties for the controls, such as the display font and colors for the text and background of the objects.

The properties associated with the Data Control include 32 query properties, 64 column properties, and a variety of configuration properties.

## Animating Objects with VisiconX Properties in iFIX

Animating objects with VisiconX properties has already been introduced in the sections [Animating Grid, ListBox, or ComboBox Controls](#) and [Animating Query Properties](#). What wasn't made obvious in those sections was that you were actually using a VisiconX property, most often ADORRecords, as the animation source.

The following illustration shows a Data link, displaying the value 120.00, and a rectangle. The caption of the Data link and the VerticalFillPercentage of the Rectangle are animated by the Column3 property of the Data Control.



### *Animating Objects with VisiconX Properties*

In this case, Column3 contains the number of product units in stock. The Data link displays the number of units in stock for the current row and the rectangle fills as a percentage of the number of units in stock.

## **Animating Grid, ListBox, or ComboBox Controls in iFIX**

A Data Control defines the connection to the OLE DB data provider and determines what data to retrieve. To display the retrieved data, use the Grid, ListBox, and ComboBox Controls.

The Grid Control displays data in a table-like format. The ListBox and ComboBox Controls display the values of a single column of a queried table in a scrollable list box or a drop-down list box.

To display data in these controls in iFIX, you must animate them and select the Data Control as the animation data source. The animated connection means that you can re-configure the Data Control, for example, to query another database or table, and automatically update the display in the connected display controls.

Note that you can also animate the query properties of the Data Control with the values of the Grid, ListBox, and ComboBox controls. For example, the item selected in a list box can animate a Data Control query property, which is used to filter the data returned by the data query.

For more information about animating objects, see the iFIX *Creating Pictures* e-book. For more information about animating query properties, see [Animating Query Properties](#).

## Animating a Grid Control

Typically, the data source that animates the Grid Control is a Data Control. Most often, the data source name is:

```
Picturename.vxDatN.ADORecords
```

where *Picturename* is the name of the Workspace picture and *vxDatN* is the Data Control that is animating the Grid Control. The last part of the data source name, *ADORecords*, is selected from the Properties list; it contains the data retrieved from the OLE DB data provider.

**NOTE:** In place of *ADORecords*, you may want to select *ColumnNames* from the Properties list to display the column names of the queried table or *TableNames* to display the table names of the queried database.

## Animating ListBox and ComboBox Controls

ListBox and ComboBox Controls display the values of a column in the table of retrieved data. To designate which column values to display, you need to know the column sequence in the retrieved table. Generally, this should match the sequence of columns in the SQL Select statement built by the SQL Wizard.

Typically, the data source that animates the ListBox or ComboBox Control is a Data Control. Most often, the data source name is:

```
Picturename.vxDatN.ADORecords
```

where *Picturename* is the name of the Workspace picture and *vxDatN* is the Data Control that is animating the ListBox or ComboBox Control. The last part of the data source name, *ADORecords*, is selected from the Properties list; it contains the data retrieved from the OLE DB data provider.

**NOTE:** In place of *ADORecords*, you may want to select *ColumnNames* from the Properties list to display the column names of the queried table or *TableNames* to display the table names of the queried database.

## Animating Query Properties

Query Properties are properties of the Data Control. Query properties, QP1 through QP32, serve as variables in the query submitted to the database. These properties can be set to any value or can be animated by any object. To use query properties in a query, you can:

- Select them in the Create Row Filter dialog box of the SQL Wizard
- Enter them manually in an SQL Select or Update statement, using the following syntax:

```
{ts 'QPn'}
```

where  $n$  is an integer from 1 to 32.

If you use a stored procedure to query a database, VisiconX automatically assigns query properties to the parameters of the stored procedure.

The query properties act as placeholders in the query statement. In this example:

```
OrderDate={ts 'QP1'} and Customer= 'QP2'
```

the query substitutes values for QP1 and QP2; the resulting query might look something like this:

```
OrderDate={ts '1999-02-18 00:00:00'} and Customer= 'FOLKO'
```

You animate query properties through the Data Control. The query gets the substitution values from objects linked to the query property, such as an OLE object, a Data link, or another object control.

When you switch to run mode, the objects animated by the Data Control, such as the Grid Control, will appear empty until you select or enter a value in the object that is animating the query property. For example, suppose you animate the query property with the value selected in a ListBox Control. The list box value animates a query property in the Data Control, which in turn, determines the data displayed in the Grid Control.

For more information about animating objects, see the iFIX *Creating Pictures* manual.

## Animating Query Properties with OLE Objects

Using OLE objects with VisiconX Controls gives you a tremendous amount of flexibility for querying and displaying data. For example, you can display data in a Grid Control based on the date selected in an OLE Calendar control. You can use Microsoft Form objects, such as check boxes, option buttons, list boxes, and so on, to filter the data displayed.

VisiconX Controls themselves are OLE objects that can be used to animate a query property. The options are limitless, especially for those users who are familiar with coding Visual Basic logic for Microsoft Forms objects.

## Animating Query Properties with Data Links

Data links give you a flexible tool for displaying text and values from process databases. Data links provide:

- Access to any data source.
- The ability to enter data.

- Flexible display formatting.
- Definable output error messages.

With VisiconX Controls, you might want to use Data links to quickly test out some design features for your SQL queries and displays. For users who manually enter or paste in SQL commands, using a Data link gives you the ability to edit the command in Run mode and see the results immediately.

For more information about Data links, see the iFIX *Creating Pictures* manual.

## Examples of Animating Query Properties

The following examples are all based on a query submitted to a table in an Access database. The query retrieves all rows from the table where the query property equals the value of the batch serial number. The table name in this example is Unit\_Operation\_Proc:

```
Unit_Operation_Proc.Batch_Serial_No = QP1
```

The examples use different data sources to animate the query property, as follows:

- [Example 1 uses a ListBox Control.](#)
- [Example 2 uses a Microsoft Forms check box control.](#)
- [Example 3 uses the caption of a Data link control.](#)

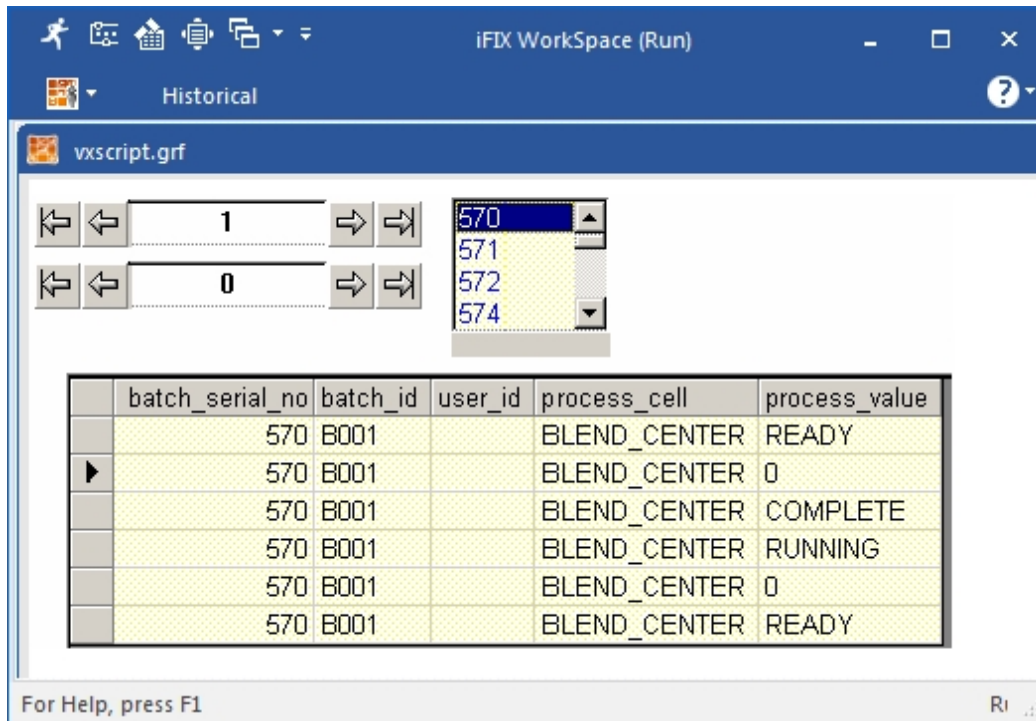
### Example 1: Using a ListBox Control

This example animates the query property used in the following Where clause

```
Unit_Operation_Proc.Batch_Serial_No = QP1
```

with the text of a ListBox Control. That is, the value selected in the list box filters the rows displayed in the Grid Control, as shown in the following figure.





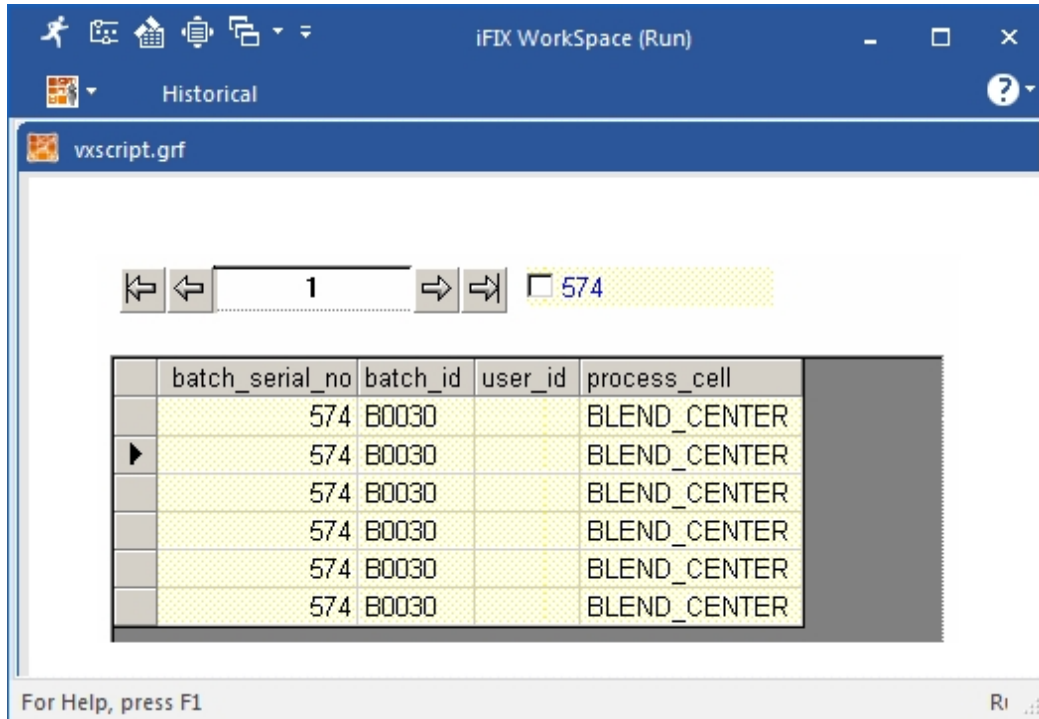
*Animating Query Properties with a ListBox Control*

### Example 2: Using a Microsoft Forms Check Box Control

This example animates the query property used in the following Where clause

```
Unit_Operation_Proc.Batch_Serial_No = QP1
```

with the caption of a Microsoft Forms check box control. The check box object toggles the displayed data, based on one of two batch serial numbers, as shown in the following figure.



### *Animating Query Properties with a Check Box Object*

The following script was entered for the Click action for the Microsoft Forms CheckBox control:

```
Private Sub CheckBox1_Click()
If CheckBox1.Value Then
    CheckBox1.Caption = "570"
Else
    CheckBox1.Caption = "574"
End If
End Sub
```

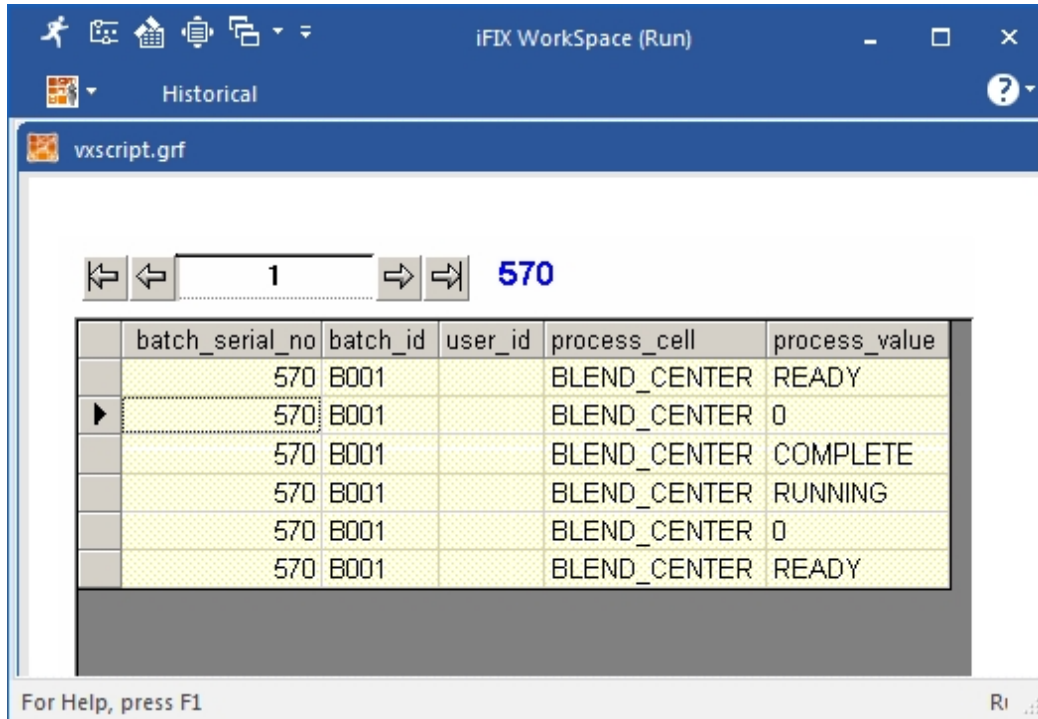
In Run mode, the check box displays '570' when the box is checked and the Grid Control displays all operation processes for that batch serial number. When the check box is cleared, '574' appears in the check box caption and the Grid Control displays all operation processes for batch serial number 574.

### **Example 3: Using a Data Link Control**

This example animates the query property used in the following Where clause

```
Unit_Operation_Proc.Batch_Serial_No = QP1
```

with the value supplied by a Data link. Each time you change the value of the Data link in Run mode, the display in the Grid Control changes. In this picture, the value of the Data link animates the query property and all unit operation processes for batch serial number 570 are displayed in the Grid Control.



*Animating Query Properties with a Data Link*

## iFIX VisiconX Dialog Boxes

The VisiconX application includes the following dialog box specific to iFIX:

- [VisiconX Configuration to View Historian Data Dialog Box](#)

### VisiconX Configuration to View Historian Data Dialog Box

The VisiconX Configuration to View Historian Data dialog box displays the following items:

#### Historian Configuration

##### Server

Lets you enter the name of the Historian server to which you want to connect. If you do not specify a server name, the default Historian server is used.

##### User Name

Allows you to enter the Historian server user name.

##### Password

Allows you to enter the password for the Historian server.

## Raw Data

### Connect to iHrawData Table

Click this button to use the data in Historian's iHrawData table.

### Select a Tag Name

Select tags to use from the list box. You may select more than one Tag Name by using either the Shift or Ctrl key and clicking additional files.

### Time Stamp

#### From:

Enter the time you want the data query to begin, using the format for your region. The format is indicated in the example.

#### To:

Enter the time you want the data query to stop, using the format for your region. The format is indicated in the example.

## Advanced

Click this button to display the All Historian Tables area.

### All Historian Tables

#### Form Your Own Query Check Box

Click this button if you want to use the SQL Wizard to build your own query.

### Selected Query

Displays the query created by the SQL Wizard. You may also enter a query in this field or modify the query created by the SQL Wizard. This field can be edited only if Advanced is selected.

## How Do I... (iFIX)

Click the following links for more information about working with VisiconX in iFIX:

- [Working with VisiconX in the WorkSpace](#)
- [Using VisiconX Properties and Methods](#)
- [Animating Controls](#)
- [Animating Query Properties](#)

## Working with VisiconX in the Workspace

Click the following links for more steps on how to work with VisiconX in the iFIX WorkSpace:

- [Inserting a VisiconX Control](#)
- [Adding the VisiconX Toolbar to the WorkSpace](#)
- [Setting Synchronous Execution with VisiconX](#)

## Inserting a VisiconX Control in iFIX

### ► To insert a VisiconX data control:

In Ribbon view, on the Insert tab, in the VisiconX group, click VisiconX Controls, and then click VisiconX Data Control.

- Or -

In Classic view, on the VisiconX toolbar, click the first button.

### ► To insert a VisiconX grid control:

In Ribbon view, on the Insert tab, in the VisiconX group, click VisiconX Controls, and then click VisiconX grid control.

- Or -

In Classic view, on the VisiconX toolbar, click the second button.

### ► To insert a VisiconX list box control:

In Ribbon view, on the Insert tab, in the VisiconX group, click VisiconX Controls, and then click VisiconX List Box Control.

- Or -

In Classic view, on the VisiconX toolbar, click the third button.

### ► To insert a VisiconX combo box control:

In Ribbon view, on the Insert tab, in the VisiconX group, click VisiconX Controls, and then click VisiconX Combo Box Control.

- Or -

In Classic view, on the VisiconX toolbar, click the fourth button.

**TIP:** If the VisiconX toolbar is not visible, you can make it appear by adding it to the WorkSpace. Refer to the [Adding the VisiconX Toolbar to the WorkSpace](#) procedure for details.

## Adding the VisiconX Toolbar to the WorkSpace

### ► To import the VisiconX toolbar or make it visible in the WorkSpace:

**NOTE:** All of the functionality provided by the toolbar is available in Ribbon view on the Insert tab, in the VisiconX group.

1. In the iFIX WorkSpace, in Ribbon view, on the Home tab, in the WorkSpace group, click Settings, and then click Toolbars.

- Or -

In Classic view, on the WorkSpace menu, click Toolbars.

2. In the Owner list box, select Picture.
3. If VisiconX appears in the list of toolbars, select it to make it visible.
4. If VisiconX does not appear in the list of toolbars, click Customize to import it.
5. In the Toolbars tab, click Import.
6. Select VisiconXToolbar.

## Setting Synchronous Execution for VisiconX

### ► To change VisiconX to use synchronous execution:

1. In Notepad or other Windows text editor, open the FixUserPreferences.ini file. By default, the FixUserPreferences.ini file is located in the C:\Program Files (x86)\Proficy\iFIX\LOCAL folder.
2. Change the setting for RunAsynch to FALSE:

```
[VisiconX]
RunAsynch=FALSE
```

**NOTE:** By default, VisiconX uses asynchronous execution logic to SELECT data from an OLE DB provider. You need to change this setting if your OLE DB provider does not support asynchronous execution. When you change this setting, it is applied globally in the WorkSpace (for all VisiconX data controls and all OLE DB providers in all pictures). You do not need to re-build or re-save pictures. The data control uses synchronous execution the next time you open a picture.

3. Save the file.

## Configuring VisiconX to View Historian Data

### ► To configure VisiconX to view Historian data:

1. In Ribbon view, on the Insert tab, in the VisiconX group, click VisiconX Controls, and then click Configure VisiconX Historical Data.

- Or -

In Classic view, on the Proficy Historian toolbar, click Automatically Configure VisiconX Objects to View Historical Data.

2. In the Historian Configuration area, enter the following information:
  - Historian server name,
  - Historian server user name, and
  - Historian server password.
3. Choose to use either raw or historical data. To use raw data, go to Step 4. To use historical data, go to Step 9.
4. Click Connect to ihrawData Table and click OK.

5. Select a tag name from the Select a Tag Name list. To select multiple tag names, use either Ctrl or Shift and click the additional tag names.

**NOTE:** To prevent the WorkSpace from crashing, limit tag selection so that there are less than a total of 4000 characters in the tag names.

6. In the From field, enter the time you want the query to start.
7. In the To field, enter the time you want the query to end .
8. Click OK. *End of procedure.*
9. To write your own query:

- a. Click Advanced.
- b. In the All Historian Tables area, click Form Your Own Query.
- c. To use the SQL Wizard to assist you in writing a query, click SQL Select and proceed through the SQL command construction wizard. At the end of the wizard, click OK.

**NOTE:** If the SQL Wizard does not appear, and you want to use it, double-click Form Your Own Query.

- d. Otherwise, click Cancel and enter your query in the Selected Query field.
- e. Click OK.

## Using VisiconX Properties and Methods in iFIX: Procedures

Click the following links for more information about procedures to use with VisiconX properties and methods in iFIX:

- [Using Properties and Methods in a Visual Basic Script](#)
- [Exposing VisiconX Properties through a Property Window](#)

## Using VisiconX Properties and Methods in a Visual Basic Script

► To use VisiconX properties and methods in a Visual Basic script:

1. Insert a VisiconX Data Control and Grid Control, ListBox Control, and/or ComboBox Control into a picture in the iFIX WorkSpace.
2. Select an object in the picture.
3. Right-click and select Edit Script. The Visual Basic Editor appears.
4. In the Visual Basic Editor, select the event, from the drop-down list box, that activates the associated script in Run mode.
5. In the script area, enter the name of the VisiconX object, for example vxData1, followed by a period (.). The list of properties and methods available to the VisiconX object appear when you type the period.
6. Select or enter the property or method.

7. If necessary, enter an equal sign (=) and the value assigned to the property. In some cases, the Visual Basic editor displays selectable values.

## Editing VisiconX Properties in the iFIX Properties Dialog Box

► To edit VisiconX properties in the iFIX Properties dialog box:

1. In the iFIX WorkSpace, select the object.
2. Right-click and select Property Window. The Properties dialog box appears.
3. Optionally, click the Alphabetic tab to view the properties alphabetically or the Categorized tab to view them by categories.
4. Select a property to modify.
5. If the property displays a down-arrow button or a button with ellipses, select it to choose an option. Otherwise, enter the value to associate with the property.

## Animating Controls: Procedures

For VisiconX, refer to the following sections for procedures used to animate controls:

- [Animating a Grid Control](#)
- [Animating a ListBox or ComboBox Control](#)

### Animating a Grid Control

► To animate a Grid Control:

1. In the iFIX WorkSpace, insert a VisiconX Grid Control into a picture.
2. Right-click the VisiconX Grid Control and select Animations from the pop-up menu. The Basic Animation dialog box appears.
3. Click the Configure button. The VisiconX Advanced Animations dialog box appears.
4. Click the Behavior tab.
5. Click the Animate button for ADORecords in the Property Name scroll box.
6. In the Dynamic Setting area for the ADORecords property, enter the ADORecords data source. Generally, this is ADORecords, as follows:

*Picture-name.vxDataN.ADORecords*

6. Select Object from the Data Conversion drop-down list box.

**NOTE:** In place of ADORecords, you may want to select ColumnNames from the Properties list to display the column names of the queried table or TableNames to display the table names of the queried database.



## Animating a ListBox or ComboBox Control

### ► To animate a ListBox or a ComboBox Control:

1. In the iFIX WorkSpace, insert a VisiconX ListBox or ComboBox Control into the picture.
2. Right-click the VisiconX ListBox or ComboBox Control and select Animations from the pop-up menu. The Basic Animation dialog box appears.
3. Click the Behavior tab. The VisiconX Advanced Animations dialog box appears.
4. Find ColumnNumber in the Property Name scroll box. The default number is 0, which displays the first column of retrieved data. Enter another number to display values of a different column.
5. Click the Animate button for ADORecords in the Property Name scroll box.
6. In the Dynamic Setting area for the ADORecords property, enter the ADORecords data source. Generally, this is ADORecords, as follows:

*Picture-name.vxDataN.ADORecords*

7. Select Object from the Data Conversion drop-down list box.

**NOTE:** In place of ADORecords, you may want to select ColumnNames from the Properties list to display the column names of the queried table or TableNames to display the table names of the queried database.

## Animating Query Properties: Procedures

For VisiconX, refer to the following sections for procedures used to animate query properties:

- [Overview: Animating Query Properties](#)
- [Animating Query Properties with an OLE Object](#)
- [Animating Query Properties with a Data Link](#)

## Overview: Animating Query Properties

### ► To animate a query property:

1. In the iFIX WorkSpace, insert an object in your picture that will supply the data for the query property.
2. In the Create Row Filter dialog box of the SQL Wizard, create a comparison expression that uses a query property.
3. Right-click the Data Control and select Animations from the pop-up menu. The Basic Animation dialog box appears.
4. Click the Query tab.
5. Click the Animate button of the QP property used in the comparison expression.
6. In the Dynamic Settings area, enter the data source that animates the query property.
7. Select a Data Conversion option for the Query Property, which is usually Object.

## Animating Query Properties with an OLE Object

### ► To animate a query property with an OLE object:

1. In the iFIX WorkSpace, insert and configure a VisiconX Data Control.
2. Create a query for the VisiconX Data Control, using the SQL Wizard and a query property (QP) in the Row Filter comparison expression.
3. Insert a Grid Control and animate it, selecting the Data Control as the animation data source.
4. Insert an OLE object. If necessary, edit the script for the change event.
5. Animate the query property in the Data Control.
6. Select the OLE object and its property as the animation data source for the query property. Select Object for Data Conversion.
7. Switch to Run mode. Select a value in the OLE object. The Grid Control displays the data filtered by the OLE object value.

## Animating Query Properties with a Data Link

### ► To animate a query property with a Data link:

1. In the iFIX WorkSpace, insert and configure a VisiconX Data Control.
2. In the Create Row Filter dialog box, create a query that uses a query property.
3. Insert a VisiconX Grid, ListBox, or ComboBox Control and animate it. Use the VisiconX Data Control as the animation data source.
4. To insert a Data link object:  
In Ribbon view, on the Insert tab, in the Objects/Links group, click Objects/Links and then Datalink.  
- Or -  
In Classic view, on the WorkSpace Insert menu, select Datalink.
5. In the Datalink dialog box, select the source. This could be Caption for in-place entries. From the Data Entry list, select In-Place and if necessary, increase the Chars/Line value.
6. Right-click the Data link to animate its caption. Select the Text tab.
7. Click the Animate button for the Caption property. Select the Data link's caption as its data source and choose In-Place for Data Entry.
8. Right-click the Data Control and animate the query property used in the Filter Options dialog box. Use the caption of the Data link as the animation data source.
9. In the iFIX WorkSpace, switch to Run mode.
10. Modify the caption in the Data link to change the rows displayed in the Grid Control.

# Using VisiconX in CIMPLICITY

Consult the following topics for CIMPLICITY-specific information and procedures pertaining to VisiconX:

- [Inserting VisiconX Controls in CIMPLICITY](#)
- [Using VisiconX to View Historian Data in CIMPLICITY](#)
- [Using VisiconX Properties and Methods in CIMPLICITY](#)
- [CIMPLICITY VisiconX Dialog Boxes](#)
- [CIMPLICITY How Do I...](#)

## Inserting VisiconX Controls in CIMPLICITY

After installing VisiconX, the CimEdit Object Explorer will contain a new folder, VisiconX, displaying four objects, one for each VisiconX control. Drag an object into your CimEdit screen to insert a VisiconX control.

When you drag a VisiconX Data Control into your CimEdit screen, a dialog box will prompt you to choose a name for the Data Control. Once you have entered a name, you can either click OK to place the control in the CimEdit screen, or you can click the Configure Database Connection button to begin configuring the Data Control.

When you drag any of the other three VisiconX controls into your CimEdit screen, a dialog box will prompt you to select a data source from a list of Data Controls that have previously been inserted.

**NOTE:** If you insert a ListBox Control, ComboBox Control, or Grid Control into the CimEdit screen and you have not yet inserted a Data Control, a message window will inform you that you must select a data source later. When you click OK, the control will be placed in the CimEdit screen.

Once inserted in the CimEdit screen, the VisiconX objects have handles that you can grab to move and size them as you would with any picture object.

For more information about moving and sizing picture objects, see the CIMPLICITY manual.

## Using VisiconX to View Historian Data in CIMPLICITY

The VisiconX control allows for the retrieval of data (via an OLE DB Provider) from a database such as Proficy Historian or Microsoft SQL. This allows the data to be displayed on a grid or in a drop down list box.

The VisiconX Control for CIMPLICITY was released as part of Productivity Pack 4 and included in CIMPLICITY 7.5. The VisiconX control is listed as a Developer Download from the GE support site under the heading of "DD209 - VisiconX for Proficy HMI/SCADA – CIMPLICITY".

## Software Requirements

- CIMPLICITY 7.5 Development Server (or higher).
- Proficy Historian 3.1 (with the OLE DB Driver installed).
- VisiconX Control for CIMPLICITY.

**NOTE:** A user name and password is required to log in to the Proficy Historian database. If you do not know your Historian user name and password, please contact your IT Administrator. In addition, this topic assumes that your Historian Server and your CIMPLICITY installation are on the same system.

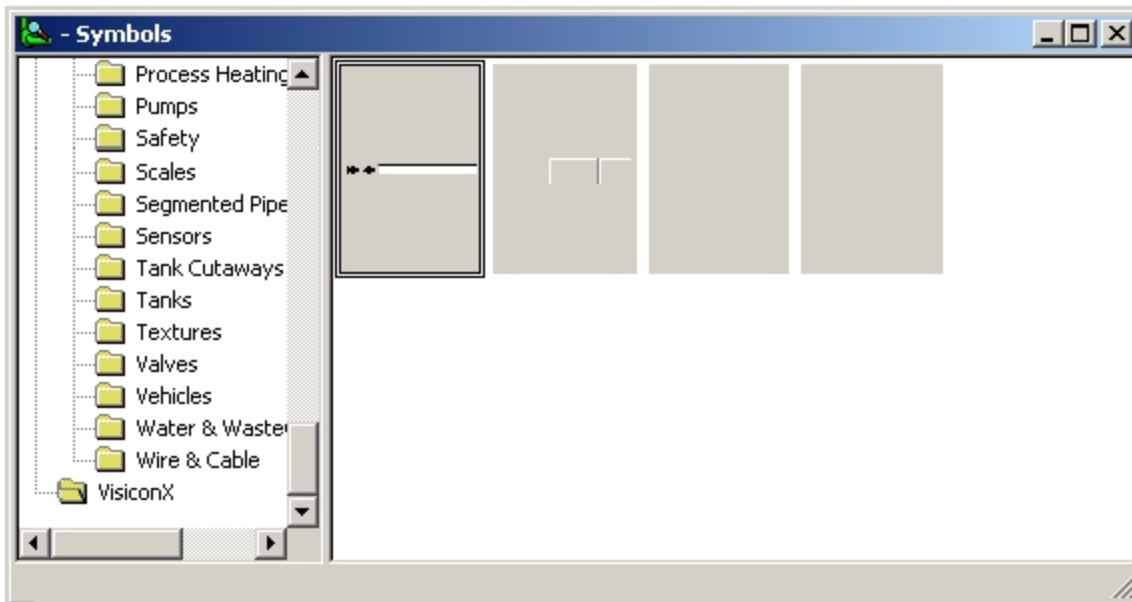
The VisiconX control independently attempts to connect to the database that is being used and then retrieves the data that is requested. It then displays this data on a set of specialized controls that are available. These controls include a Grid, a Combo Box, and a List Box.

For example, there are 3 steps:

1. Create the Data Control.
2. Add the VisiconX.ini file to the installation folder.
3. Add the data display (for example: Grid Control).

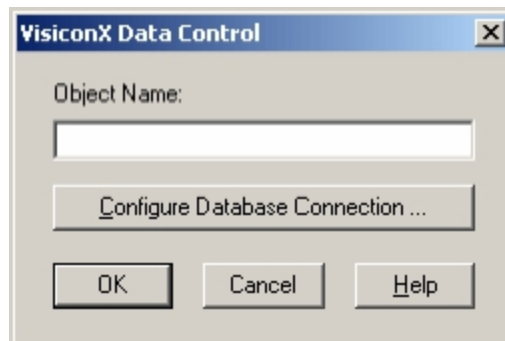
### ► To create the data control:

1. Create a new CimEdit screen.
2. Open the Smart Object Explorer by clicking the icon on the CimEdit toolbar or by selecting Tools->Show Object Explorer from the CimEdit Menu. The Object Explorer window appears and displays a tree control in the left pane, as shown in the following figure.



3. At the bottom of the left pane in the Object Explorer, click the VisiconX folder to display the associated objects in the right pane.

- In the right pane, click the leftmost object (it has two black arrows on it) and drag the object onto the CimEdit screen. A VisiconX Data Control dialog box appears, as shown in the following figure.



- Click Configure Database Connection. The VisiconX Properties dialog box appears.
- On the Provider tab, highlight the iHistorian OLE DB Provider.
 

**NOTE:** Communicating with a remote Historian database requires installation of the Historian OLE DB Provider from the Historian installation CD onto the CIMPLICITY 7.5 node.
- Click the Database tab on the dialog and enter the user name and password that will be used to connect to the actual database (this is for a local Historian database).
 

**NOTE:** If you are communicating to a remote Historian Database then you must enter Data Source=ComputerName as the OLE DB Connection String (where ComputerName is the name of the Historian Server).
- Click Test Connection to validate the connection information.
- Click the Record Source tab. This tab is used to specify the database results you would like returned.
- For the Command Type drop down, choose Table to return the results of an entire table. For the Table Name drop down, choose "ihRawData".
 

**NOTE:** You can use any Table Name that exists in the database instead of ihRawData. This table was chosen because it contains all of the data in the database.
- Click OK to close this dialog and return to the preceding dialog.
- In the VisiconX Data Control dialog, in the Object Name field, enter VXDataControl.
 

**NOTE:** You can use any unique name for this control. The name is the object name that CIMPLICITY uses to uniquely identify the object.
- Click OK to close the dialog and display the control on the CimEdit screen. The following figure shows an example of a VisiconX control on the CimEdit screen.



► **To add the VisiconX.ini file to the installation folder:**

- Open Notepad or another text editor, and add the following lines:

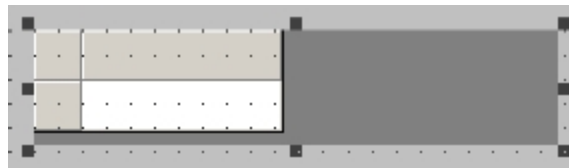
```
[visiconx]
RUNASYNC=FALSE
```

2. Save the file as VisiconX.ini in the CIMPLICITY installation folder. Typically, this folder is C:\Program Files\Proficy\Proficy CIMPLICITY\exe.

**NOTE:** This file is required for the VisiconX control to operate. If it does not exist then the VisiconX control will fail to connect to the database when you attempt to use it in CimView.

► **To add the data display (the Grid control):**

1. Open the Smart Object Explorer by clicking the icon on the CimEdit toolbar or by selecting Tools->Show Object Explorer from the CimEdit Menu. The Object Explorer window appears and displays a tree control in the left pane.
2. In the right pane, click the second object from the left (this is the VisiconX grid control) and drag the object onto the CimEdit screen. A VisiconX Grid Control dialog box appears.
3. Select the same Data Source name configured when the Data Control was created (in this case, VXDataControl).
4. Click OK to close the dialog and display the control on the CimEdit screen.



5. Save the CimEdit screen using File->Save.
6. Open the screen in CimView. It should now be active and have a grid populated with data.

## Using VisiconX Properties and Methods in CIMPLICITY

Like other OLE objects, VisiconX objects have associated properties and methods that you can use in CimEdit Basic scripts. These properties and methods give you the flexibility to use a variety of objects to access and display data.

For example, to let users access different databases at run time, you might want to insert individual, labeled command buttons rather than several Data Control objects. At run time, the user can click a button, which executes a script that uses the properties and methods of the Data Control to connect to a database and execute a query. You can even invoke the SQL Wizard at run time using the RunSQLWizard method.

The following sections describe how to use the properties and methods of the VisiconX objects:

- [At run time within a CimEdit Basic script.](#)
- [In a CimEdit object Properties dialog box.](#)

## Using VisiconX Properties and Methods in a CimEdit Basic Script

VisiconX properties and methods are accessible in the CimEdit's script editor just as other ActiveX controls, giving you the means to configure and manipulate the object at run time using scripts.

For more information about writing CimEdit Basic scripts, see the Cimplicity CimEdit manual. For detailed descriptions of VisiconX properties, methods, and events, refer to the [VisiconX Automation Reference](#) section.

The [Using Properties and Methods with a Data Control in CIMPLICITY](#) section describes using properties and methods with Data Controls. Only one method, AboutBox, can be used with Grid, ListBox, and ComboBox Controls.

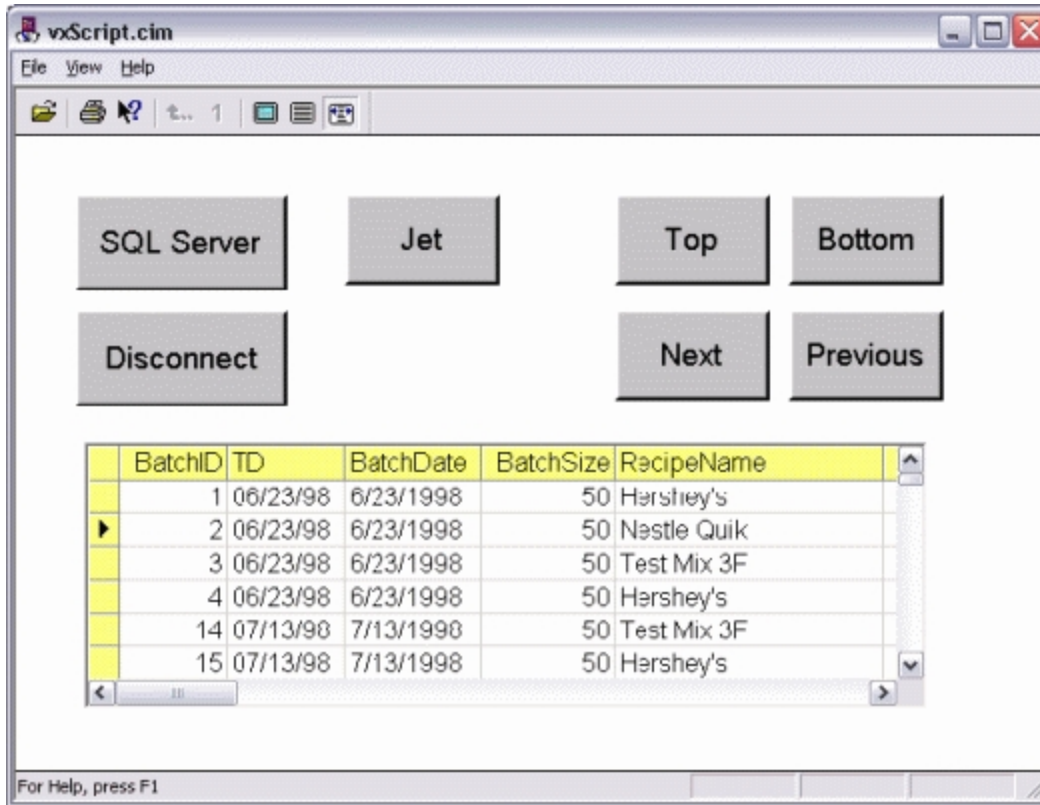
### Using Properties and Methods with a Data Control in CIMPLICITY

Using Data Control properties and methods within CimEdit Basic scripts gives you the option to create an intuitive, flexible, and attractive run-time environment. The methods associated with the Data Control object fall into the following descriptive categories.

**Method Categories for Data Control Objects**

Descriptive Category	Methods
Connects or disconnects from the database provider and queries the database	DBConnect DBDisconnect RefreshData
Builds an SQL Select statement.	RunSQLWizard
Moves the position of the row pointer in the ADO Record set.	MoveFirst MoveNext MovePrevious MoveLast

The following illustration shows a screen in CimView that contains a number of buttons and a Grid Control. The SQL Server and Jet buttons connect to and query an SQL Server database and Microsoft Access database respectively. The Top, Bottom, Next, and Previous buttons move the current pointer in the Grid Control.



*Using VisiconX Properties and Methods in the run-time environment*

Below is the script associated with the SQL Server button in the preceding illustration.

```
Private Sub OnMouseDown()
    Dim vxData1 As Object
    Set vxData1 = CimGetScreen.Object.Objects.Item("vxData1").OleObject
    vxData1.DBDisconnect
    vxData1.OLEDBProvider = "SQLOLEDB"
    vxData1.Server = "QALAB15"
    vxData1.Database = "NORTHWIND"
    vxData1.User = "sa"
    vxData1.SourceType = vxSourceSQL
    vxData1.RunSQLWizard
    vxData1.DBConnect
End Sub
```

This script:

1. Uses the DBDisconnect method to disconnect from the current data provider.
2. Uses properties for Data Control, vxData1, to configure it to access an SQL Server provider and database. The type of command it submits, determined by the SourceType property, is an SQL Command.
3. Initiates the SQL Wizard in response to the RunSQLWizard method
4. Uses the DBConnect method to connect to the database and run its query.

The following example shows the script for the Top button in the preceding illustration; it sets the current row pointer to the first row in the ADO Record set.



```

Private Sub OnMouseDown()
Dim vxData1 As Object
Set vxData1 = CimGetScreen.Object.Objects.Item("vxData1").OleObject
vxData1.MoveFirst
End Sub

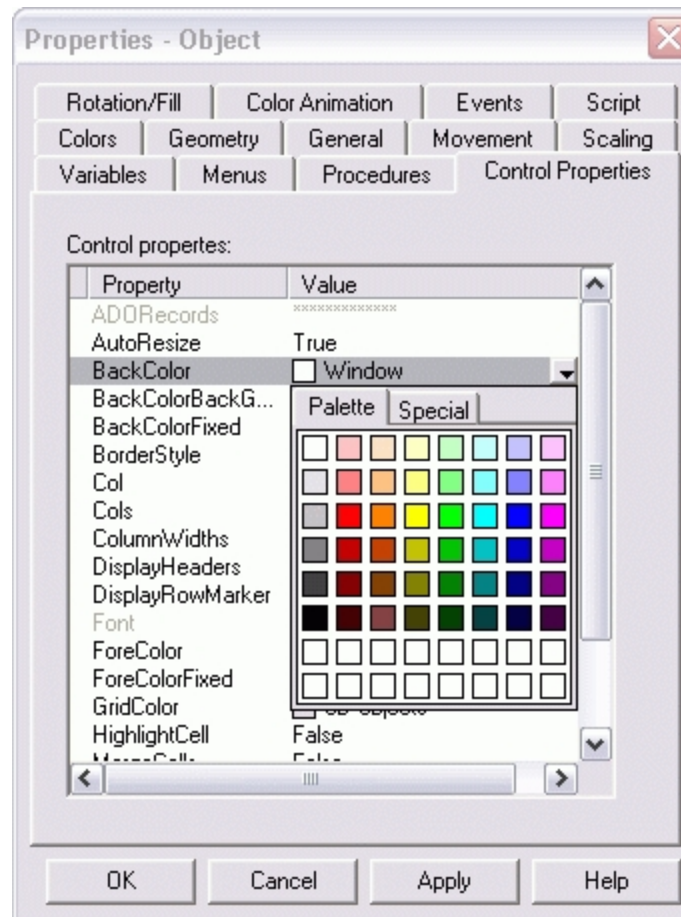
```

The buttons in the previous example make it unnecessary to display the Data Control in the run-time environment, because the buttons duplicate the function of the navigation arrows in the Data Control. To make the Data Control invisible in the run-time environment, use the Properties dialog box to set its InvisibleInRunMode property to True.

## Setting VisiconX Properties in a CimEdit Properties Dialog Box

To set object configuration properties of a VisiconX object, such as display attributes in the run-time environment, you can use the Control Properties tab in the Properties dialog for the object. The tab provides a simple and quick way to expose the properties of any object. It displays the properties alphabetically.

For example, the following figure shows the Control Properties tab in CimEdit for a Grid Control.



*Properties Window in CimEdit*

In this example, the current background color for the grid cells is white. Clicking the down-arrow displays the color palette, from which you can select another color for the cell background.

Use the Properties window to expose some properties that are not visible in the user interface such as MergeCells, BorderStyle, DisplayHeader, DisplayRowMarker, Autoresize, and ColumnWidths for Grid Controls and InvisibleInRunMode for Data Controls.

The properties associated with the Grid, ListBox, and ComboBox controls pertain primarily to display properties for the controls, such as the display font and colors for the text and background of the objects.

The properties associated with the Data Control include 32 query properties, 64 column properties, and a variety of configuration properties.

## Using Query Properties in CIMPLICITY

CIMPLICITY requires the use of CimEdit Basic script in order to take advantage of VisiconX SQL query properties. For example, if you want to query a ProductionEventRecords table to find all records whose severity is greater than 4, you would need to create the following two elements in your CimEdit screen:

- A VisiconX Data Control containing the following SQL command:

```
SELECT * FROM ProductionEventRecords WHERE ProductionEventRecords.Severity > QP1
```

- A text button that defines an event action for the "Mouse Down" event with the following script:

```
Sub OnMouseDown(x As Long, y As Long, flags As Long)
    CimGetScreen.Object.Objects.Item("MyDataControlName").OLEObject.QP1 = 4
End Sub
```

At run time, when you click the button, the VisiconX Data control will query for only those records in the ProductionEventRecords table whose severity is greater than 4.

## CIMPLICITY VisiconX Dialog Boxes

VisiconX includes the following dialog boxes that are only available in CIMPLICITY:

- [VisiconX ListBox Control Dialog Box](#)
- [VisiconX ComboBox Control Dialog Box](#)
- [VisiconX Grid Control Dialog Box](#)
- [VisiconX Data Control Dialog Box](#)

### VisiconX ListBox Control Dialog Box

The VisiconX ListBox Control dialog box (available only in CIMPLICITY) displays the following items:

#### Current Data Source

If a Data Control has already been associated with this control, it is displayed here. Otherwise, (None) is displayed.

### **Select a Data Source**

The Select a Data Source drop-down list lets you select a Data Control that has been previously inserted into your CimEdit screen. The Data Control you select will animate the ListBox Control.

## **VisiconX ComboBox Control Dialog Box**

The VisiconX ComboBox Control dialog box (available only CIMPLICITY) displays the following items:

### **Current Data Source**

If a Data Control has already been associated with this control, it is displayed here. Otherwise, (None) is displayed.

### **Select a Data Source**

The Select a Data Source drop-down list lets you select a Data Control that has been previously inserted into your CimEdit screen. The Data Control you select will animate the ComboBox Control.

## **VisiconX Grid Control Dialog Box**

The VisiconX Grid Control dialog box (available only in CIMPLICITY) displays the following items:

### **Current Data Source**

If a Data Control has already been associated with this control, it is displayed here. Otherwise, (None) is displayed.

### **Select a Data Source**

The Select a Data Source drop-down list lets you select a Data Control that has been previously inserted into your CimEdit screen. The Data Control you select will animate the Grid Control.

## **VisiconX Data Control Dialog Box**

The VisiconX Data Control dialog box (available only in CIMPLICITY) displays the following items:

### **Object Name**

Enter a name for the Data Control object. If you are using more than one Data Control object in your CimEdit screen, each object name must be unique.

### **Configure Database Connection**

The Configure Database Connection button, when clicked, displays the VisiconX Data Control OLE Properties dialog box, where you can configure the Data Control object's data provider, database settings, and record source.

## **How Do I... (CIMPLICITY)**

Click the following links for more information about working with VisiconX in CIMPLICITY:

- [Inserting a VisiconX Control in CIMPLICITY](#)
- [Associating a VisiconX Control With a Data Source](#)
- [Using VisiconX Properties and Methods in CIMPLICITY](#)

## Inserting a VisiconX Control in CIMPLICITY

### ► To insert a VisiconX Data Control:

1. In CimEdit, open the Object Explorer.
2. From the VisiconX folder in the Object Explorer, drag the Data Control object into the CimEdit screen.

### ► To insert a VisiconX Grid Control:

1. In CimEdit, open the Object Explorer.
2. From the VisiconX folder in the Object Explorer, drag the Grid Control object into the CimEdit screen.

### ► To insert a VisiconX ListBox Control:

1. In CimEdit, open the Object Explorer.
2. From the VisiconX folder in the Object Explorer, drag the ListBox Control object into the CimEdit screen.

### ► To insert a VisiconX ComboBox Control:

1. In CimEdit, open the Object Explorer.
2. From the VisiconX folder in the Object Explorer, drag the ComboBox Control object into the CimEdit screen.

**TIP:** You can also insert a control by double-clicking on it in the Object Explorer. The control will be placed in the center of the CimEdit screen.

## Associating a VisiconX Control With a Data Source

### ► To associate a VisiconX Grid Control with a data source:

1. Make sure at least one Data Control has been inserted into your CimEdit screen.
2. In CimEdit, double-click the Grid Control, or insert a Grid Control if you have not already done so. The VisiconX Grid Control dialog box appears.
3. From the Select a Data Source drop-down list, select a Data Control and click OK.

► **To associate a VisiconX ListBox Control with a data source:**

1. Make sure at least one Data Control has been inserted into your CimEdit screen.
2. In CimEdit, double-click the ListBox Control, or insert a ListBox Control if you have not already done so. The VisiconX ListBox Control dialog box appears.
3. From the Select a Data Source drop-down list, select a Data Control and click OK.

► **To associate a VisiconX ComboBox control with a data source:**

1. Make sure at least one Data Control has been inserted into your CimEdit screen.
2. In CimEdit, double-click the ComboBox Control, or insert a ComboBox Control if you have not already done so. The VisiconX ComboBox Control dialog box appears.
3. From the Select a Data Source drop-down list, select a Data Control and click OK.

## Using VisiconX Properties and Methods in CIMPLICITY: Procedures

Click the following links for more information about procedures to use with VisiconX properties and methods in CIMPLICITY:

- [Using VisiconX Properties and Methods in a CimEdit Basic Script](#)
- [Editing VisiconX Properties in the CimEdit Properties Dialog Box](#)

## Using VisiconX Properties and Methods in a CimEdit Basic Script

► **To use VisiconX properties and methods in a CimEdit Basic script:**

1. Insert a VisiconX Data Control into a CimEdit screen, then insert a Grid Control, ListBox Control, and/or ComboBox Control into the CimEdit screen.
2. Select an object in the picture.
3. Right-click and select Properties.
4. In the Script tab, click the "Edit" button, or double-click the subroutine you want to edit. See the CimEdit manual to learn how to use the Events tab to associate the event to an event handler subroutine.
5. If the object you are editing script for is the ActiveX control whose properties or methods you want to use, you can use the "ActiveX Methods" and "ActiveX Properties" menu items located under the Tools menu item. Selecting a property or method will put a statement or expression at your caret's location in the script. The icon in the toolbar that represents the ActiveX control provides the same access.
6. If you are accessing properties and methods of an VisiconX control from another object's script, you need to properly reference the control as:

```
CimGetScreen.Object.Objects.Item("NameOfTheVisiconXControl").OleObject.
```

Replace the name of the control and append the method or property to the expression.

7. If necessary, enter an equal sign (=) and the value assigned to the property.

## Editing VisiconX Properties in the CimEdit Properties Dialog Box

► To edit VisiconX properties in the CimEdit Properties dialog box:

1. In CimEdit, select the object.
2. Right-click and select Properties. The Properties dialog box appears.
3. Click the Control Properties tab.
4. Select a property to modify.
5. If the property displays a down-arrow button or a button with ellipses, click the button to choose an option. Otherwise, enter the value to associate with the property.



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