Data Mining – Using Data Sources to Insert and Delete Records

APPLICATIONS NOTE

October 2013

Description: Guide to inserting, and deleting records using data sources instead of data manipulators.
OS Requirement: Win 2000 Pro/Server, XP Pro, Server 2003, Server 2008, Vista, 7
General Requirement: Installation of GENESIS32 v9 or v9.2, and beginner knowledge to data mining in ICONICS.

Introduction

The Data Mining OPC Server was developed to allow visualization of information in a database in the form of OPC-DA or through a grid-control. You can configure basic read and write actions, along with stored procedures for connected databases.

The application note *Data Mining – Data Mining Quick Start* already covered instructions on how to configure the DBOPC Server to read and update records. In this document, we'll try to detail the steps in using Data Sources to Insert and Delete records. If you would like to use Data Manipulators to perform the task instead, please refer to the application note *Data Mining – Data Mining OPC Server and Data Mining Grid*.

Inserting a Record

In this section, you will find the details on how to create a Data Source that allows you to insert a record. We will be using the Northwind Access Database, which is located in C:\Documents and Settings\All Users\ICONICS\Examples32. Specifically, we will insert records into the Customers Table as an example.

1. Open the data mining configurator by going to Start → Programs → ICONICS Tools → Data Mining Configurator.

   NOTE: If this is the first time you are using the Data Mining Configurator, then the default database will open. If you have used this before, you will want to edit the default configuration database. We will use some tags in the default configuration database. You can find the default in \Documents and Settings\All Users\ICONICS\Examples32\DBOPCConfig.mdb.

2. Insert a data source and call it Insert.
3. Select the Customers table in the database.
4. Insert CustomerID as a parameter
5. Check the Enable Writes and Enable Inserts checkboxes. When you are done with configuring the data source, it should look like Figure 1.

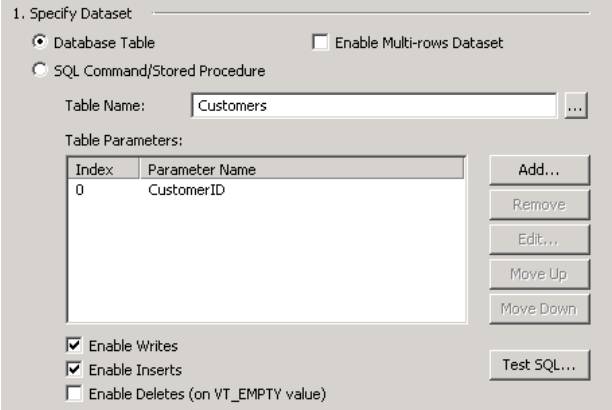

Figure 1 - Configured Insert Data Source

NOTE: If you need more information on how to create a data source, please refer to the application note *Data Mining – Data Mining Quick Start*.

6. You are ready to insert data now. Start DataSpy from Start → Programs → ICONICS Tools → OPC DataSpy
7. Right-click on Data Monitor and select Add GenBroker Item.
8. Browse to the Insert that that you have just created and select the @@Recordset tag.
9. Change the data inside the first set of triangular brackets to -99. Your finished tag should look similar to the one shown in Figure 2.

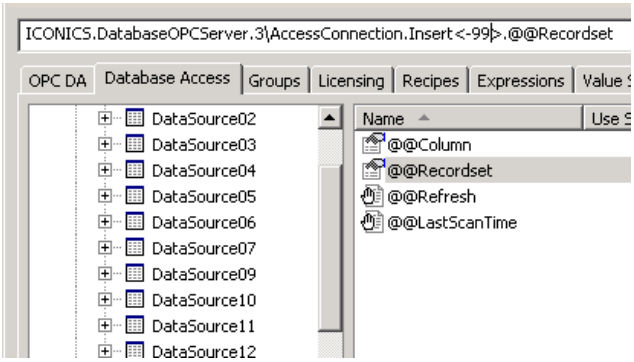

Figure 2 - Insert Tag

10. Select OK to add the tag and return to OPC DataSpy.
11. Right-click on the tag and select the Write option.
12. In the dialog box that pops up, there are three options, leave it in the default option: Value to Write. You can enter information about each column in the table, separated by a comma.

    NOTE: using this method, you must enter information for all fields (columns), otherwise the record will not be added.

13. Once the data is entered, you can use the Database Grid to see that the record has been inserted.

Inserting Records using GraphWorX32

After you have setup the Data Mining Configurator as described in the previous section, you can now use GraphWorX32 to insert a record. Since you cannot write to an array in GraphWorX32, you will have to insert the record with one field first, and then update it using the inserted field as the key. You should also note that because you can only write to one field at a time in GraphWorX32, if your database requires multiple fields (e.g. composite key, none-null fields, etc) to contain information before the record is inserted, this will not work.

1. Because you can only have one require field in a record in order for GraphWorX32 to insert data, we will need to edit the table.
2. Open the Northwind.mdb file and open the Customers table in design view.
3. Select the CompanyName field, in the bottom, there is a list of attributes for the field. Change the require attribute to "No". Save the table and close the database.
4. In GraphWorX32, insert the Data Mining Grid control and link it to DataSource04.Tag4 from the Access Connection in the Default Configuration database. This will allow you to see in formation for the entire database.
5. Add a process point and set the data source of the process point to "ICONICS.DatabaseOPCServer.3\AccessConnection.Insert <-99>.<CustomerID>" (without quotes). Set the data type to string and check the Data Entry check-box. This will allow you to insert a new customer with a specific ID.
6. Enter runtime, select the process point you have added and enter a five letter value.

   NOTE: The Northwind database has restrictions for the CustomerID to only take five letters and it should comprise of the first three letters of the customer's first name and the first two letters of the customer's last name.

7. You should now see a new record. You can use this in conjunction with dynamic queries (please refer to the application note *Data Mining – Dynamic Queries* for more information on how to configure tags).

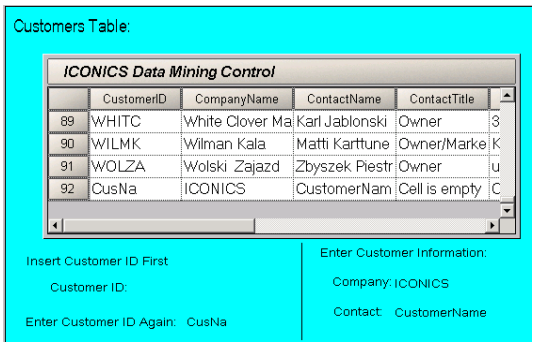

Figure 3 - Inserting Data in GraphWorX32

Deleting Records

You can create a data source to delete the entire table or to delete a single record. It is best that you work with a dummy table in the beginning to make sure you do not delete any important information. In this example, we delete the record that we have added in the previous sections.

1. Add a data source into the "AccessConnection" database connection and call it Delete.
2. Select the Customers Table and add CustomerID as a parameter.
3. Check the "Enable Write" and "Enable Deletes (on VT_EMPTY values)" check boxes and apply the changes.

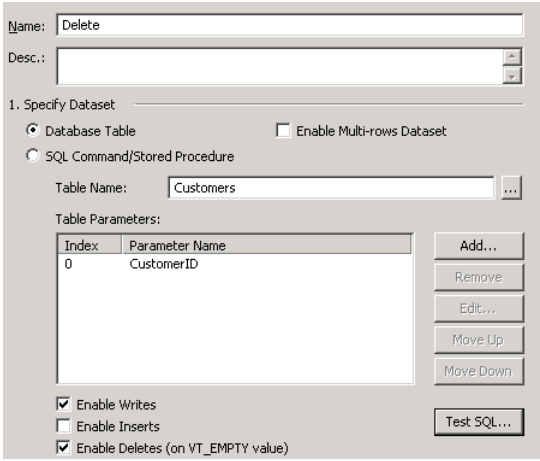

Figure 4 – Configured Delete Data Source

4. Open OPC DataSpy and add this new tag into it with the @@Recordset parameter. Delete the CustomerID between the triangular brackets. Your tag should look similar to the one shown in Figure 5.

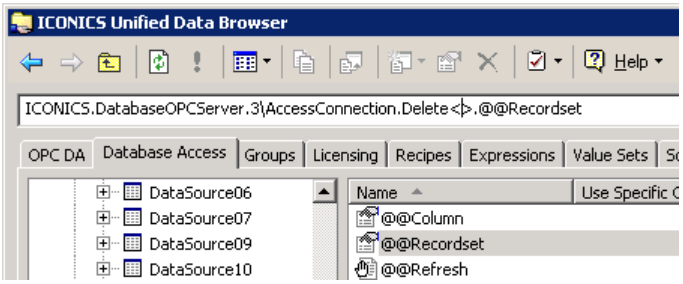

Figure 5 - Delete Tag in OPC DataSpy

5. This tag will allow you to delete all records in the Customers Table even though you have not checked the "Enable Multi-row Dataset". Please make sure you have backed up your data before you try the next step.

6. You can right-click on the tag and select write. In the dialog that pops up, select "Write an EMPTY variant" and click on OK.
7. Alternatively, you can delete just one record. Edit your tag so that it looks like the one shown in Figure 6.

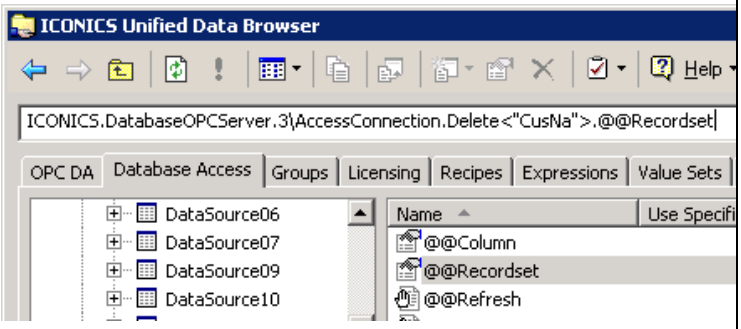

Figure 6 - Delete Tag with One Record in OPC DataSpy

8. Noticed that the tag has value in it in DataSpy
9. Right-click on the tag in DataSpy and select write again. Choose the "Write an EMPTY variant" option and click on OK.
10. You should now see that the value of the tag is empty and if you look into the database, the record is no longer there.
11. Since you will need to write an empty variant, or set the data type to VT_EMPTY to the record set to delete the entire record, you will not be able to do this using GraphWorX32.