

Description: Guide to create dynamic queries to the Database Mining OPC (DBOPC) Server.

OS Requirement: Win 2000, XP Pro, Server 2003, Vista, Server 2008, Windows 7

General Requirement: Installation of GENESIS32 or BizViz

Introduction

The Database Mining OPC Server allows you to create data sources with parameters. This allows you to select the data you want dynamically with ease instead of creating individual data items for each piece of data.

These parameters are defined at the tag level allowing you to retrieve any piece of data from your data source by filling in the parameters in the tag syntax. This application note will walk you through the basics of such a scenario.

Setting up the Database OPC Server

1. Open the Database OPC Server Configurator by going to **Start → Programs → ICONICS Tools → Data Mining Configurator**.
2. Create a new Database Connection by selecting **File → Configuration Wizard**.
3. Follow the wizard to create a database connection and a data source. You do not need to create any data items for a dynamic query. Alternatively, you could use the default database DBOPCConfig.mdb located in C:\Documents and Settings\All Users\ICONICS\Examples32. This application will use the default configuration database.

Custom Queries

The syntax for creating a custom query tag is as follows:

```
ICONICS.DatabaseOPCServer.3\[database connection].[data source]<[parameter];[parameter]>.<[column]>
```

The number and order of the parameters is set in the Database OPC Server Configurator. The column must be the name of a column returned by the SQL query. An easy way to create this string is to open the Unified Data Browser, navigate to the data source within the Database OPC Server, and select the “@@column” tag. Selecting the “@@column” tag for the Employees_By_PID data source in the example AdministrationDB connection will result in the string:

```
ICONICS.DatabaseOPCServer.3\AdministrationDB.Employees_By_PID<PID>.<Column Name>
```

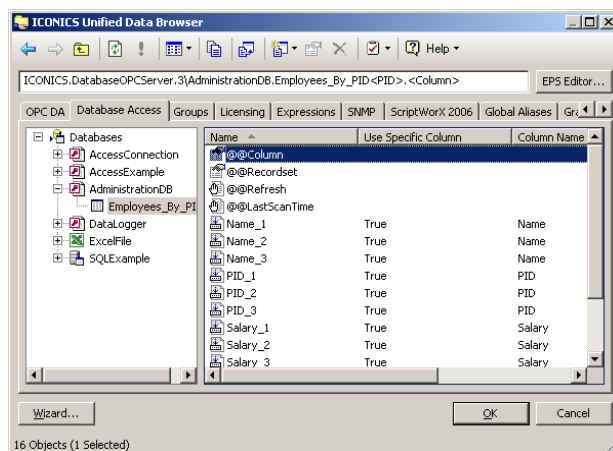


Figure 1 - @@Column

The user must replace “PID” with a value for that parameter and “Column Name” with the name of a column. The resulting string will look something like this:

```
ICONICS.DatabaseOPCServer.3\AdministrationDB.Employees_By_PID<1>.<Name>
```

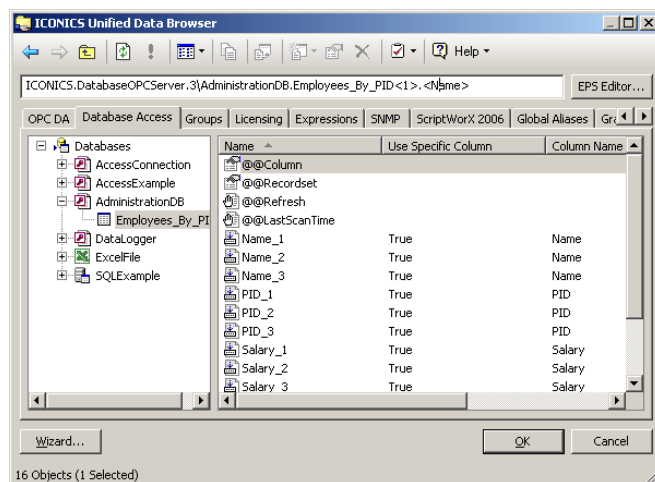


Figure 2 - Complete Example String

Dynamic Queries

Simple dynamic queries can be created by replacing either the parameters or the column with local or global aliases. Setting these aliases will then allow the user to dynamically change the query to the Database OPC server.

However, the limitation here is that you cannot use aliases in this manner if the parameter or column name is set by an OPC value. If you set an alias with a tag name and use that alias as a parameter then when it resolves you will get a tag that looks like this:

ICONICS.DatabaseOPCServer.3\AdministrationDB.Employees_By_PID<ICONICS.Simulator.1\SimulatePLC.OUTPUTS.INT>.<Name>

The engine cannot resolve a tag within a tag, so this string will not come back with a value. To do this properly, we will need to use a simple script. To create this script, follow these steps:

1. Add a process point to your GraphWorX32 display. Set this to your parameter OPC tag (in the above example, it would be the simulated INT tag). This tag is necessary for this script, but you may hide it if you do not want it visible to your users.
2. Add a second process point to your GraphWorX32 display. Leave this point blank, but put a name in the Object name field. This is the point that will be altered by the script to contain your DBOPC tag.

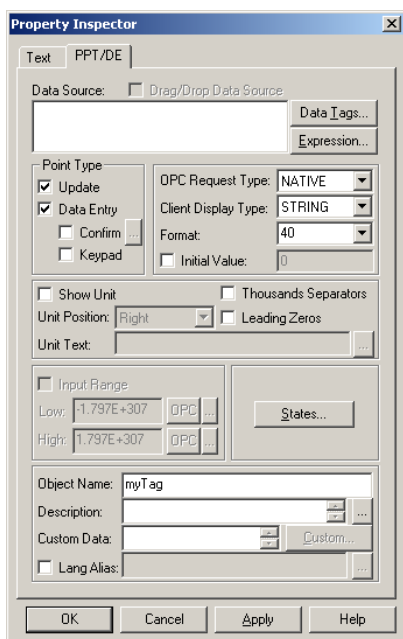


Figure 3 - Destination Point

3. Add a checkbox to your GraphWorX32 display. Set the action to “Run Script”, the Execution Trigger to “While Down”, check the “Force Initial Down State” box, and set the Script Type to “VBScript”. Give a name to the script if you wish and click “Edit”. (If you do not give it a name, it will have the default name of “Script”).

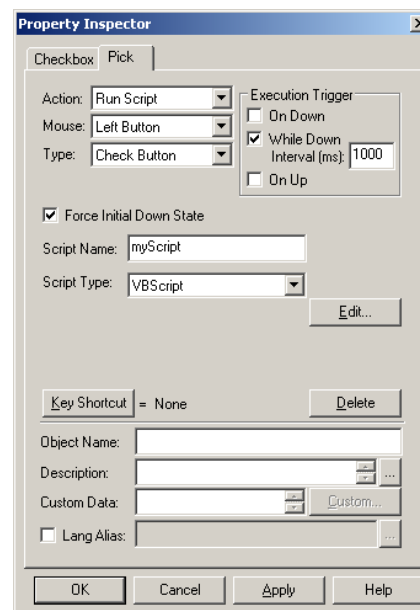


Figure 4 - Script Checkbox

4. Type the following script into the editor, altering it to use your tags and the name you specified in step 2:

```
Dim ppt1, ppt2

Set ppt1 =
ThisDisplay.GetPointObjectFromName("ICO
NICS.Simulator.1\SimulatePLC.OUTPUTS.IN
T")

Set ppt2 =
ThisDisplay.GetDynamicObjectFromName("m
yTag")

ppt2.dataSource =
"ICONICS.DatabaseOPCServer.3\Administra
tionDB.Employees_By_PID<" & ppt1.Value
& ">.<Name>"
```

5. You are now all set. You may hide the checkbox with the script if you wish. The script will run while you are in runtime mode, and will alter the DB OPC process point string with the value from your other point. You can alter the script to use multiple parameters or to set the column name as well, but you will need to add another process point for each tag to your display.