



Data Mining – Quick Start



APPLICATIONS NOTE

September 2017

Description: Guide to configuring and connecting to the Data Mining OPC (DBOPC) Server.

Introduction

The Data Mining OPC Server was developed in order to visualize database data 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.

This document will explain the steps of configuring a simple data source. For advanced options and how to configure a data manipulator, please refer to the application note entitled *Data Mining – Data Mining OPC Server and Data Mining Grid*.

Configuring the DBOPC Server

1. Open the Data Mining Configurator. For best results, use the “Run as Administrator” option.

NOTE: “Run as Administrator” is only required if your configuration database is stored in a protected location. Protected locations depend on your operating system, but generally include C:\ProgramData and C:\Program Files (x86). The user’s Desktop and Documents folders are generally not protected.

2. Make a new configuration database by selecting File → New. Walk through the wizard to create a new configuration database. Make sure to check the box to make the database active.
3. In the new configuration, right-click on Databases and select New → Database Connection
4. On the right-hand pane, type in Northwind for the database connection name, and give an optional description.
5. Select MS Access MDB Database for the connection type.
6. Click on the “Browse...” button and find the Northwind.mdb file in C:\ProgramData\ICONICS\Examples32. Click on “Apply”.

NOTE: ProgramData is a hidden folder.

1. Connection Name: Northwind

2. Description:

3. Connection Type: MS Access MDB database

4. Select or Enter MS Access Database

C:\ProgramData\ICONICS\Examples32\Northwind.mdb

Browse...

Rel. Paths...

Click to Advanced button to set other connection properties.

Advanced...

Apply Reset Add New Restart Connection

Figure 1 - Database Connection

NOTE: You can also make database connections to MS Excel (with limited support given by MS Jet Engine), MS SQL (MSDE) Server, Oracle SQL Server, SAP R/3 System, and ODBC Drivers (any other ODBC compliant databases).

7. Expand Northwind, then right-click on “Data Sources” and select New → Datasource.
8. Give the Data Source a name (i.e. ReadOneCell). You may also enter a description if you wish. We will use this data source to read one single cell in the database.
9. Select Database Table under Specify Dataset. You can alternatively use an SQL Command/Stored Procedure to query for the database or join table from which you wish to retrieve data.
10. Click on the ... button to the right of the Table Name
11. In the Unified Data Browser, expand Tables on the left-hand side and select Customers on the right-hand side. Click on “OK”
12. Add CustomerID as a Table Parameter. This will be the parameter to query on, and click on “Apply”.

Name:
ReadOneCell

Desc.:
Table connection to read a single cell that matches the CustomerID parameter

1. Specify Dataset

☒ Database Table
☐ Enable Multi-rows Dataset

☐ SQL Command/Stored Procedure

Table Name:
Customers

Table Parameters:

Index	Parameter Name
0	CustomerID

Add...
Remove
Edit...
Move Up
Move Down

☐ Enable Writes
☐ Enable Inserts
☐ Enable Deletes (on VT_EMPTY value)

2. Set Database Polling
☒ Enable Updates
Update Rate (sec):
10

Apply
Reset
Add New

Figure 2 – Data Source with parameter

13. Right-click on ReadOneCell, select New → Data Item.
14. Name the item “Anton”.
15. Double-click on the CustomerID parameter to bring up the Enter Parameter Value window.
16. Type in “ANTON” and make sure that the Value Data Type is VT_BSTR and click on “OK”.

Enter Parameter Value

Parameter Value:
ANTON

Value Data Type:
VT_BSTR

OK
Cancel

Figure 3 - Enter Parameter Value

17. There are other Value Data Types. Table 1 lists and describes them.

Table 1 - Value Data Types

Data Type	Description	Values
VT_BSTR	String	“Text”; “text1_23”
VT_I4	4-bytes integer	-2,147,483,648 to +2,147,483,647
VT_R8	8-bytes floating-point number (double)	-2,147,483,648 to +2,147,483,647
VT_BOOL	Boolean	True or False
VT_Date	8-byte floating-point number	DATE/TIME (date value)

18. Select Specific Column if it is not already selected.
19. Click on the [...] button next to the Column Name and select “CompanyName” so that the tag will display the company of the user ANTON. Click on “Apply” when you are done.

Name:
Anton

1. Bind Dataset Parameters

Index	Parameter Name	Data Type	Value
0	CustomerID	VT_BSTR	“ANTON”

Edit...
Test SQL...

2. Specify Dataset Columns
☒ Specific Column
☐ Complete Rowset (returned as an array)

Column Name:
CompanyName

Apply
Reset
Add New

Figure 4 - Data Item

20. Select File → Make Active if the database is not already active.
21. To see the data, open GraphWorX32.
22. Select the “ICONICS Data Mining Control” from the ActiveX toolbar.
23. Double-click on the object to bring up the Data Mining Control Properties window.
24. Select “Data Mining” for the Data Source Type.
25. Click on “Connection Parameters”, the Data Mining Properties window appears.
26. Click on the “Add Tags” button to bring up the Unified Data Browser.
27. Select ANTON from ICONICS.DatabaseOPCServer.3 → Northwind → ReadOneCell. This is the data item that we have just created.
28. Click on “OK” until you are back in the GraphWorX32 display working area.
29. Enter run time. You should see that the company name is Antonio Moreno Taquería.
30. Alternative, you can add a process point, browse to the tag, and display the information using a process point.

ICONICS Data Mining Control	
	ReadOneCell.Anton
1	Antonio Moreno Taquería

Antonio Moreno Taquería

Figure 5 - Runtime Display

Writable Data Source

1. Create a new Data Source under Northwind following the same steps listed in the previous section. This time, name it WriteOneCell.
2. Check the Enable Write option.

1. Specify Dataset

☒ Database Table
☐ SQL Command/Stored Procedure

☐ Enable Multi-rows Dataset

Table Name:

Table Parameters:

Index	Parameter Name
0	CustomerID

Add...
Remove
Edit...
Move Up
Move Down

☒ Enable Writes
☐ Enable Inserts
☐ Enable Deletes (on VT_EMPTY value)

Test SQL...

2. Set Database Polling

☒ Enable Updates

Update Rate (sec):

Apply Reset Add New

Figure 6 - Enable Write

NOTE: you can also enable inserts and deletes. “Enable Insert” will insert a new row when the parameter value does not exist in the table and “Enable Deletes” will delete a record when you write a value of VT_EMPTY to a cell.

3. Create a data item as describe in the previous section.
4. Launch a GraphWorX32 display and add a process point for the data item. Make sure the process point is writable.

Property Inspector

Text PPT/DE

Data Source: ☐ Drag/Drop Data Source
☒ ICONICS.DatabaseOPCServer.3\Northwind.f

Data Tags...
Expression...

Point Type

☒ Update
☒ Data Entry
☐ Confirm
☐ Keypad

OPC Request Type:
Client Display Type:
Format:
☐ Initial Value:

Figure 7 - Writeable Process Point

5. Enter runtime, and try changing the value of the ANTON’s company name. You should see the Company Name change.

ICONICS Data Mining Control	
	ReadOneCell.Anton
1	Changed Company Name

ReadOneCell: Changed Company Name

WriteOneCell: Changed Company Name

Figure 8 - WriteOneCell in Runtime