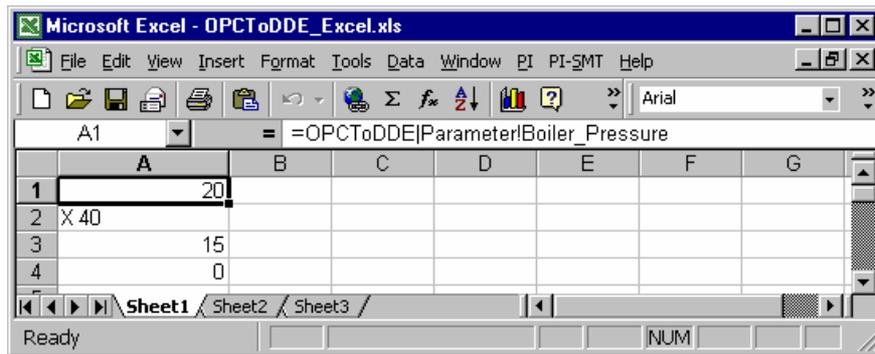


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How To Connect MS Excel And OPC Servers / Clients





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How To Connect MS Excel And OPC Servers

To transfer data between OPC Servers and MS Excel you can use the **OPC to DDE Converter**. This program behaves as an OPC Client in relation to OPC Servers and as a DDE Server in relation to DDE Clients.

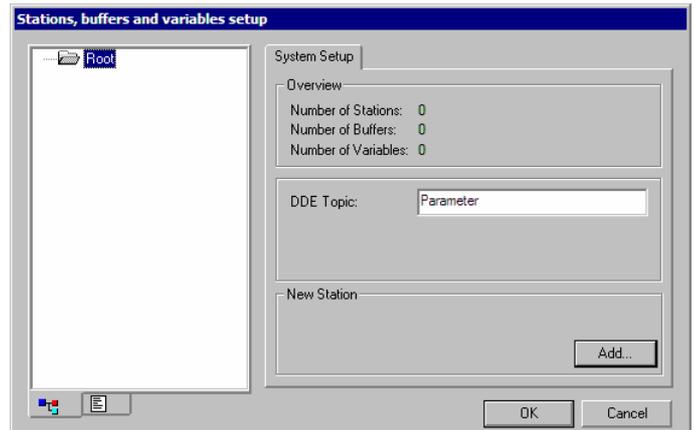
A) One-way communication OPC Servers→MS Excel

Setting OPCToDDE

1) Press  button to open configuration of OPCToDDE.

2) **System Setup level** In the **DDE Topic** edit box set the name of topic used by MS Excel for connection with OPCToDDE. A usually used name is *Parameter*.

Click **Add** to create a Station level and enter its name.

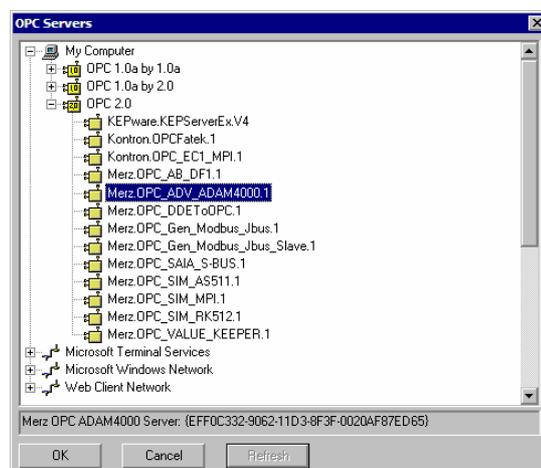
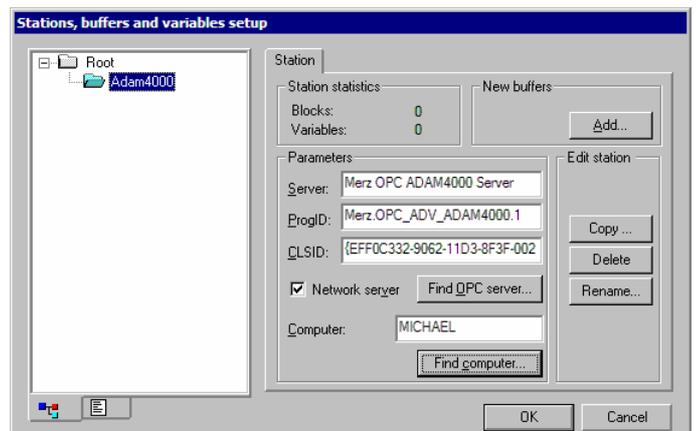


3) **Station level** Connect an OPC Server – press the **Find OPC Server** button.

In the **OPC Servers** dialog select the required server.

If the OPC Server resides on a network computer, find it in a Microsoft Windows Network.

Click **Add** to create a new data buffer and enter its name.

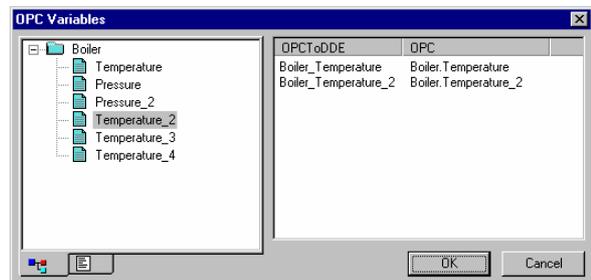
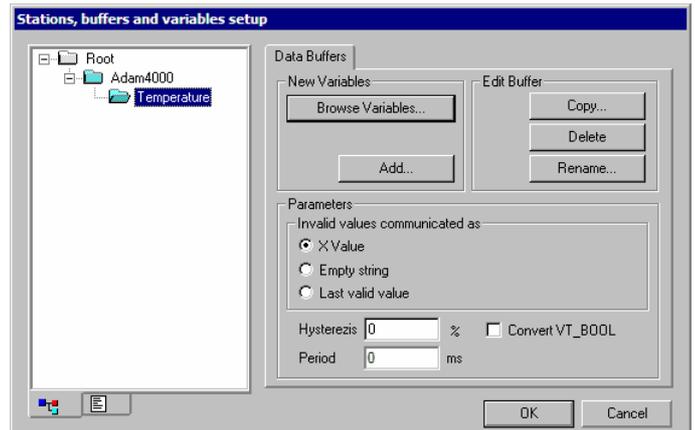


- 4) **Data Buffers** level

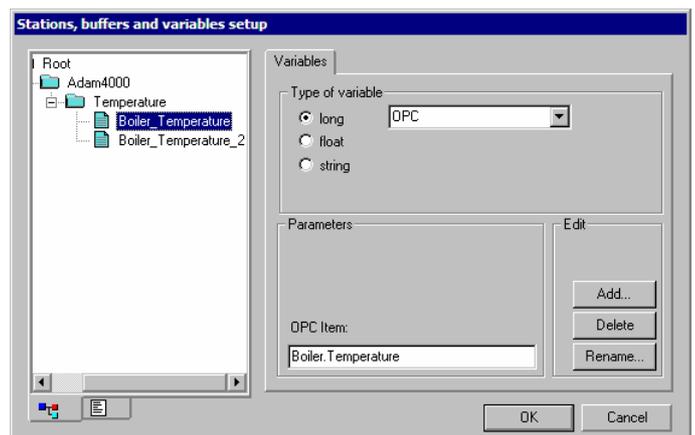
Click **Browse Variables** button to select OPC items from the connected OPC Server.

In the **OPC Variables** dialog: Double-click required variable(s) to copy it into OPCToDDE's configuration (it must appear in the right section of the dialog box). Press **OK** button.

On the **Data Buffers** tab set communication parameters.



- 5) **Variables** level
- Select the variable type.
- In the **OPC Item** box there is automatically filled the link to connected OPC variable in OPC Server's configuration.



Setting MS Excel

Local communication – MS Excel and OPCToDDE on the same computer

Select a cell in MS Excel, where you want to receive values from OPCToDDE. Enter the following formula in this cell:

`=OPCToDDE|Parameter!'Byte 1'`

where `Parameter` is a name of topic used by MS Excel for connection with OPCToDDE, `'Byte 1'` is a variable name in OPCToDDE. If the name contains spaces, it must be included in apostrophes. Otherwise it is not necessary.

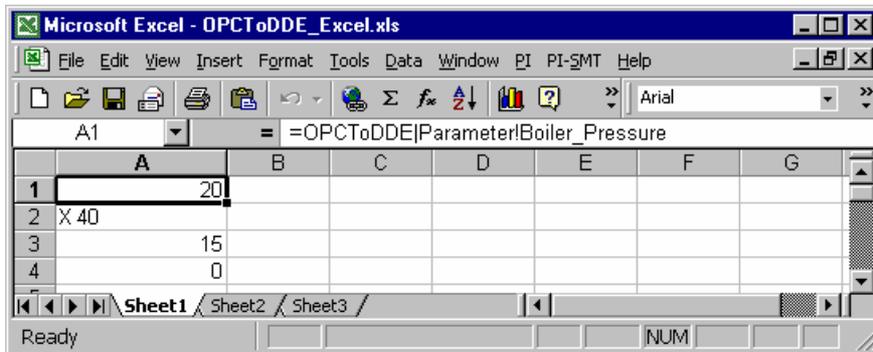
Network communication – MS Excel and OPCToDDE on different computers in a network

Select a cell in MS Excel, where you want to receive values from OPCToDDE. Enter the following formula in this cell:

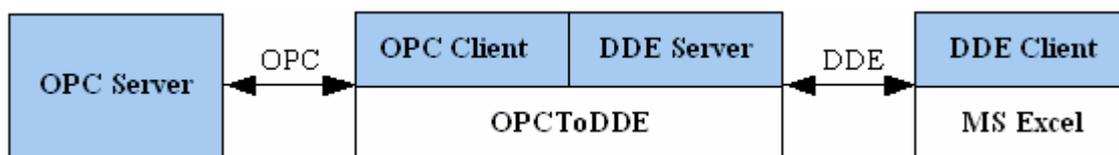
='\COMPUTER\NDDE\$\OPCToDDE!\Byte 1'

where **COMPUTER** is the name of the remote computer,
OPCToDDE is a share name, under which the computer offers OPCToDDE to be shared in the network,
'Byte 1' is a variable name in OPCToDDE. Names with spaces must be included in apostrophes.

Please follow the **C) Network DDE Communication – Necessary Settings** chapter to setup network DDE communication.



Example of data transfer from OPCToDDE to MS Excel



Scheme of the communication between OPCToDDE and MS Excel

Troubleshooting

OPCToDDE cannot be started from MS Excel

Symptom: When MS Excel is started as the first program, the "Remote data not accessible. Start application 'OPCTODDE.EXE?'" message appears. Pressing of Yes button opens the "Cannot run 'OPCTODDE.EXE'. The program or one of its components is damaged or missing." message.

Reason: MS Excel is not able to start DDE Server (OPCToDDE).

Remedy: Firstly start OPCToDDE in communication mode, then open the .XLS file.

Data are not transferred into MS Excel

Symptom: Data transmission to MS Excel does not take place on starting the OPCToDDE in communication mode.

Reason: MS Excel is not able to detect OPCToDDE's communication mode.

Remedy:

- Update the link using the Edit / Link menu in MS Excel or
- Close and reopen the .xls file or
- Open the .xls file while OPCToDDE's communication mode is on.

B) Two-way communication OPC Servers↔MS Excel

To establish two-way communication between OPC Servers and MS Excel setup the one-way communication as described above and then follow these rules.

Create Macro

Create a macro with the following script in MS Excel using Visual Basic Editor (**Tools/Macro/Visual Basic Editor**). You will be able to send a value from MS Excel cell into OPCToDDE. To enter more values, repeat 4th and 5th lines of the macro and change the cell's address and OPCToDDE's variable name.

```
Sub SetValue()  
Dim Chan As Integer  
Chan = DDEInitiate("OPCToDDE", "Parameter")  
Set rangeToPoke = Worksheets("Sheet1").Range("A1")  
DDEPoke Chan, "Boiler_Pressure", rangeToPoke  
DDETerminate Chan  
End Sub
```

where `SetValue` is the macro's name;
`Sheet1` is the name of the sheet where the cell (called `A1` in the script above) is found from which the data are communicated;
`Boiler_Pressure` is the name of the variable in OPCToDDE.

If you read this text in a .PDF document and need to copy the macro, go to a **Help** file of the OPCToDDE, section **Example of Connection / Data transfer from MS Excel to OPCToDDE**.

Create Button

You can create a button to start the macro easily:

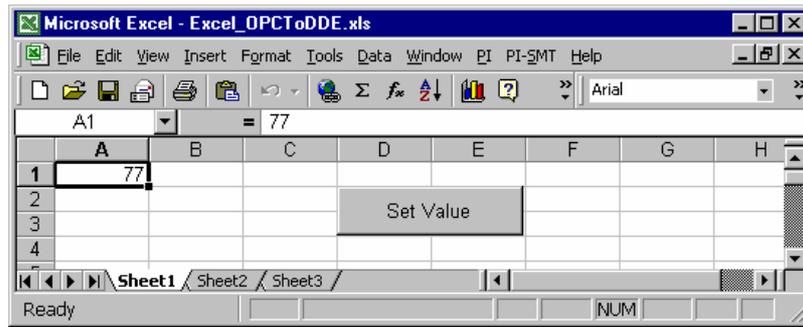
- Open the **Control Toolbox** toolbar from menu **View/Toolbars** and select the **Command Button** object.
- MS Excel is switched into **Design Mode** ( button). You can now work with objects (create, edit etc.).
- Define the button's shape using your mouse button.
- You can edit the button's size and text if you go to **Edit/CommandButton Object/Edit** in the menu while the object (the button) is selected.
- Double click on the button created to open the script in MS Visual Basic Editor. Enter the name of the macro for data transfer (`SetValue` is used in this example). The other part of the script looks perhaps like this:

```
Private Sub CommandButton1_Click()  
SetValue  
End Sub
```

- Save the script in VB editor and terminate the **Design Mode** in MS Excel (click the  button)
- Now you can use the "Set Value" button for data transfer from a MS Excel cell into OPCToDDE.

Note: Consult User Guides for MS Excel and MS Visual Basic Editor for more detailed description of working with these programs.

If the OPCToDDE program gets data from an OPC Server, which is connected to an industrial process, you can control the process directly from MS Excel this way.



Example of data transfer from MS Excel to OPCToDDE

C) Network DDE Communication – Necessary Settings

Correct DDE network communication can be established if sharing via network (NetDDE) is defined. Use the standard DDESHARE.EXE program. This program can be started, for example, using the **Run** dialog box in the Start Menu, where you type the program name (DDESHARE) and press **OK**.

Setting up a DDEShare for Windows 95/98

To ensure correct operation, **NETDDE.EXE** program, which has been started from the command line, must be run. The user himself can always choose the Share Name. To maintain clarity it is recommended to use the standard sample:

Share Name: *OPCToDDE*
Application name: *OPCToDDE*
Topic Name: *Parameter*
Sharing Option: check
Access Type: *Full*

Setting up a DDEShare for Windows NT/2000/XP

To ensure correct operation, Windows NT **Network DDE** services (Control Panel / Services) must be run.

| | | |
|-------------------|--|-------------------|
| Share Name | <i>OPCToDDE</i> | |
| | Application Name | Topic Name |
| Old Style | <i>OPCToDDE</i> | <i>Parameter</i> |
| New Style | <i>OPCToDDE</i> | <i>Parameter</i> |
| Static | <i>OPCToDDE</i> | <i>Parameter</i> |
| Check | Allow start application | |
| Select | Grant access to all items | |
| Check | in section Trust Share for Share Name <i>OPCToDDE</i> : | |
| | – Start Application Enable | |
| | – Initiate to Application Enable (when needed) | |

Note: If you do not succeed connecting to OPCToDDE over a network through NetDDE, please contact your network supervisor to check user settings. In **User Manager for Domains** (Windows NT 4.0) (in **Start Menu/Programs/Administrative Tools**), the user logon restriction has to be set to **unrestricted** for all stations (not restricted to just some stations) on the network server.

How To Connect MS Excel And OPC Clients

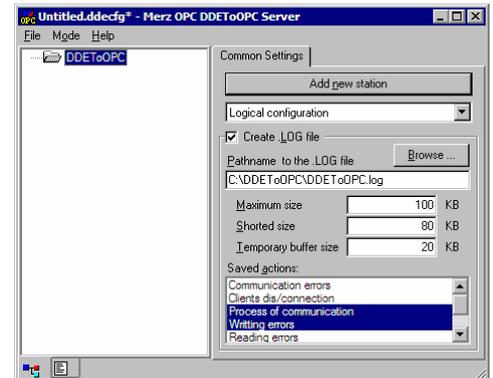
To transfer data between OPC Clients and MS Excel you can use the **DDE to OPC Converter**. This program behaves as an OPC Server in relation to OPC Clients and as a DDE Client in relation to DDE Servers.

A) Setting Merz OPC Server DDEToOPC

Parameters **Value for MS Excel 2000** **Value for MS Excel 9x**

Common Settings tab

Set common parameters as you need (**Logical or Physical Configuration, Creating of .LOG file + Saved actions**).



Station tab

Name of application (DDE server)

Excel

Excel.Sheet.8
(for MS Excel 97)
Excel.Sheet.7
(for MS Excel 95)

Path to its exe file

{path to file} Excel.exe

{path to file} Excel.exe

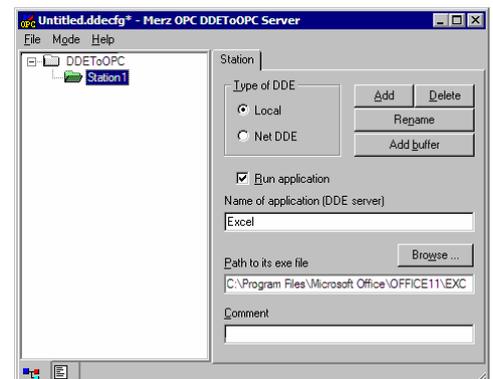
You can specify opening .xls file – set path to .EXE file and after separating space add path to .XLS file:

*{path to file} Excel.exe "{path to file} *.xls"*

Run application

If checked (for local communication), the exe file specified by **Path to its exe file** box will be automatically started.

For network communication set the *DDEShare.exe* on the target computer.

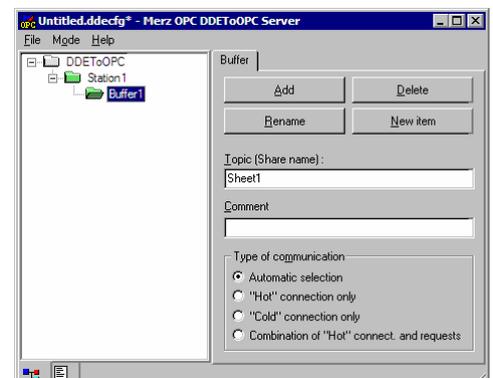


Buffer tab

Topic (Share name)

The name of the Excel sheet, on which communicated data are located, e.g. *Sheet1*

*{path to file} *.xls*



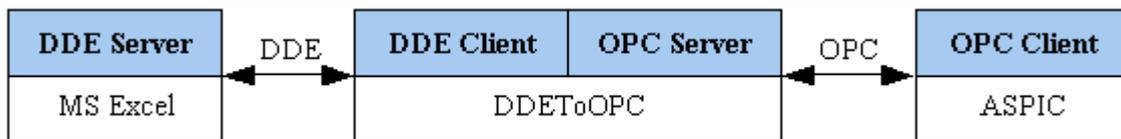
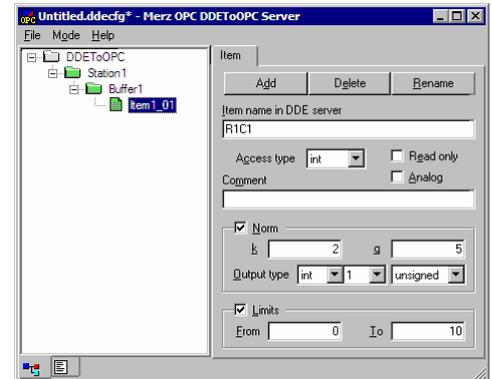
Parameters **Value for MS Excel 2000** **Value for MS Excel 9x**

Item tab

Item name in DDE server

The Excel cell, which is specified by a row number (R) and a column number (C), e.g. *R1C1*

The name of the Excel sheet and the Excel cell separated by exclamation mark, e.g. *Sheet1!R1C1*



Scheme of the communication between OPC Client (e.g. ASPIC by Kontron Czech company) and MS Excel using DDEtoOPC

B) Network DDE Communication – Necessary Settings

Correct DDE network communication can be established if sharing via network (NetDDE) is defined. Use the standard DDESHARE.EXE program. This program can be started, for example, using the **Run** dialog box in the Start Menu, where you type the program name (DDESHARE) and press **OK**.

Setting up a DDEShare for Windows 95/98

To ensure correct operation, **NETDDE.EXE** program, which has been started from the command line, must be run. The user himself can always choose the Share Name. To maintain clarity it is recommended to use the standard sample:

| | |
|--------------------------|------------------|
| Share Name: | <i>Excel</i> |
| Application name: | <i>Excel</i> |
| Topic Name: | <i>Parameter</i> |
| Sharing Option: | check |
| Access Type: | <i>Full</i> |

Setting up a DDEShare for Windows NT/2000

To ensure correct operation, Windows NT **Network DDE** services (Control Panel / Services) must be run.

| | | |
|-------------------|--|-------------------|
| Share Name | <i>Excel</i> | |
| | Application Name | Topic Name |
| Old Style | <i>Excel</i> | <i>Parameter</i> |
| New Style | <i>Excel</i> | <i>Parameter</i> |
| Static | <i>Excel</i> | <i>Parameter</i> |
| Check | Allow start application | |
| Select | Grant access to all items | |
| Check | in section Trust Share for Share Name <i>Excel</i> : | |
| | – Start Application Enable | |
| | – Initiate to Application Enable (when needed) | |

Note: If you do not succeed connecting to *Excel* over a network through NetDDE, please contact your network supervisor to check user settings. In **User Manager for Domains** (Windows NT 4.0) (in **Start Menu/Programs/Administrative Tools**), the user logon restriction has to be set to **unrestricted** for all stations (not restricted to just some stations) on the network server.
