Modem Connectivity

V4.X

02/01/00

Enable Modem Functionality

Modem Support

KepserverEx™ supports the use of modems on all serial communication drivers. Once modem operation has been enabled for a KepserverEx™ project, a set of predefined modem tags become available to client applications for modem monitoring and control. These modem tags provide control of phone number, dial, hang up, and auto answer mode. Additional modem tags provide status of the modem connection. Using these modem tags, client applications can be designed to control all aspects of a dialup modem connection. The built in Modem capabilities of KepserverEx will allow you to extend your system management and data gathering needs beyond the local facility.

Before accessing modem tags for use in an OPC/DDE client application, you must first enable modem functionality. A description on how to do so is described in the first section of this document. Following the Enable Modem section are two examples of implementing a modem connection using KepserverEx™. The first example is intended for those using a browsing **OPC client** to access Modem tags in the KepserverEx™. The OPC client used for this example is the OPC Quick Client™ (provided with KepserverEx™). The second example shows how to access Modem tags by way of DDE. In this case Microsoft Excel™ is used as the example **DDE client**.

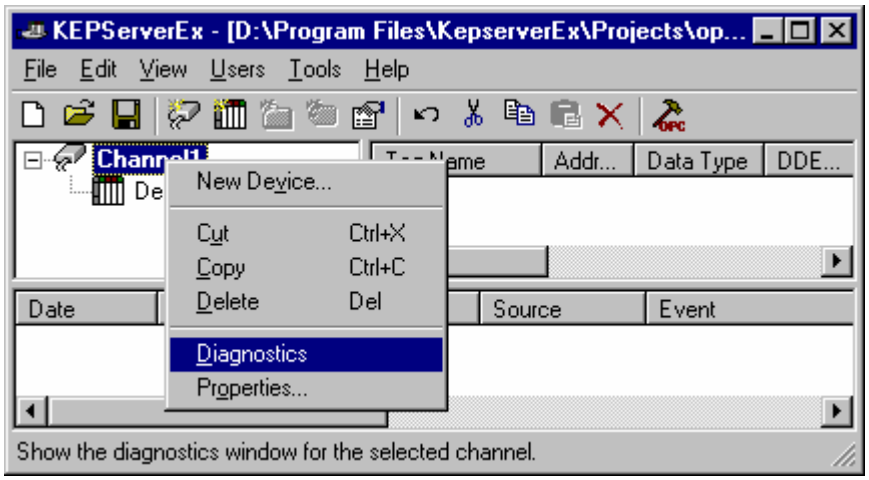
> ***NOTE: If you have not done so already, you need to configure a modem with the operating system before using KepserverEx™ modem operations. Consult your Windows™ and modem documentation on how to set up your modem in Windows control panel. In addition, we recommend that you use external modems on both the initiating and receiving modems. In testing, we found that some internal modems would not accept settings that were imperative for some KepserverEx™ drivers. External modems are also easier to replace if they fail.***

Before Enabling the Modem

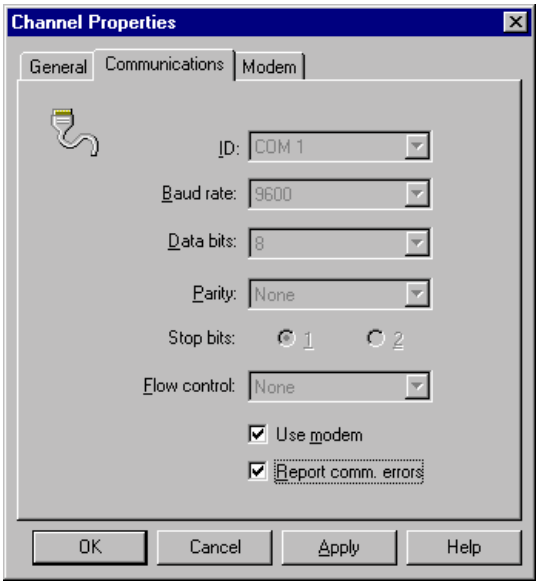
1. *Without* using the modem, first make a direct serial connection to the device or PLC using KepserverEx™ and the OPC Quick Client™. This will help verify that communication settings are correct between the server and the device or PLC and that your direct connect cable is good. Instructions to do so are located in the OPC Quick Client™ help file or you can view the **OPC Connectivity Guide** located on: www.opcsource.com under *Support*..

Enabling Modem for Modem Tag Access

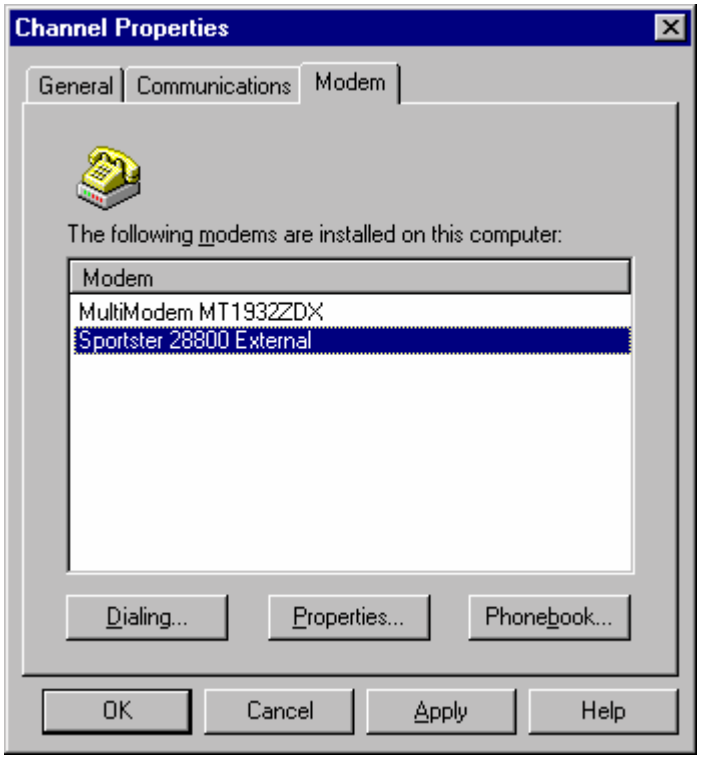
2. Right click on the *channel name* or choose **Edit** from the menu bar and select **Properties…** from the drop down menu.



3. Select the **Use modem** checkbox under the Communications page of the *Channel Properties* window.



4. Select the correct modem from the modem page, click apply, and choose Properties to make sure your modem is configured correctly.



5. After selecting a modem, you will be able to set dialing properties and modem properties for the channel. Refer to the KepserverEx™ help files on Channel Properties and modem support for more information on this topic.
6. Modem tags should now be available on the channel level for both OPC and DDE access.

Using a Modem in Your KepserverEx™ Project

At this point you will need to configure and setup the Initiating / Receiving modems.
Refer to the KepserverEx™ help file on Modem Support to configure the Initiating and Receiving modems that you will use with your project. We strongly recommend using a terminal program like HyperTerminal™ to configure the Receive modem. Also, don't forget that if you have proven a direct connection first, you simply need to add a null modem connector to your direct connect cable. This cable and null modem will provide the connection between your Receive modem and PLC.

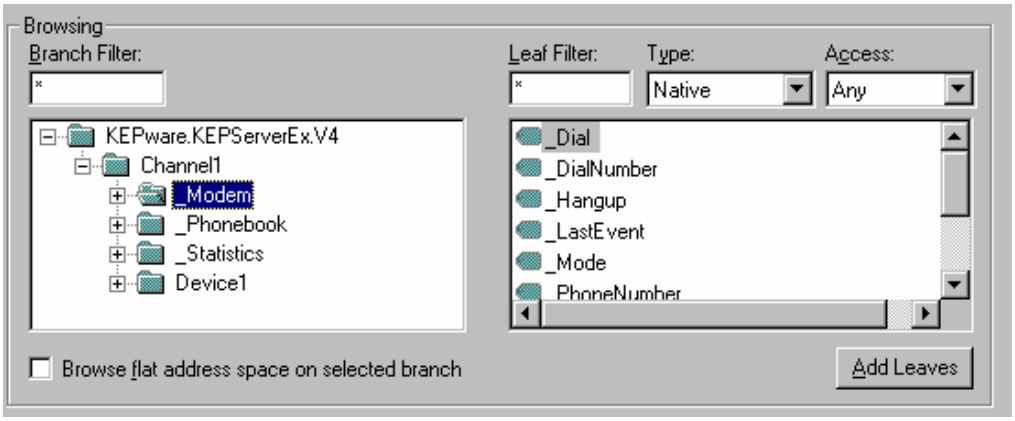
Access Modem Tags using OPC/DDE.

Browsing Modem Tags with an OPC Client

After enabling the modem on a channel in the KepserverEx™, predefined modem tags may now be browsed using an OPC client. In this example, OPC Quick Client™ is the browsing client.

1. Create a connection to the KepserverEx™ with the OPC Quick Client™ by pressing the shortcut button labeled OPC on the KepserverEx ™ toolbar. This will automatically bring up the client and connect it to the server. For more complete connection instructions view the OPC Quick Client™ help files or you can view the OPC Connectivity Guide located on: www.opcsource.com under *Support*.

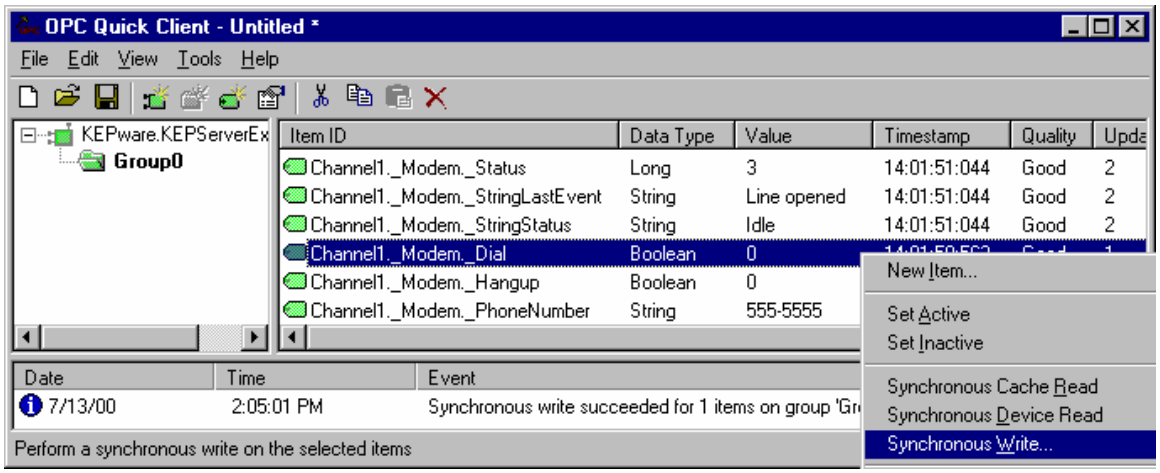
2. Once a connection has been made to the KepserverEx™, browse for tags in the folder entitled **_Modem** available at the channel level. This folder contains predefined tags necessary to control and monitor an attached modem.



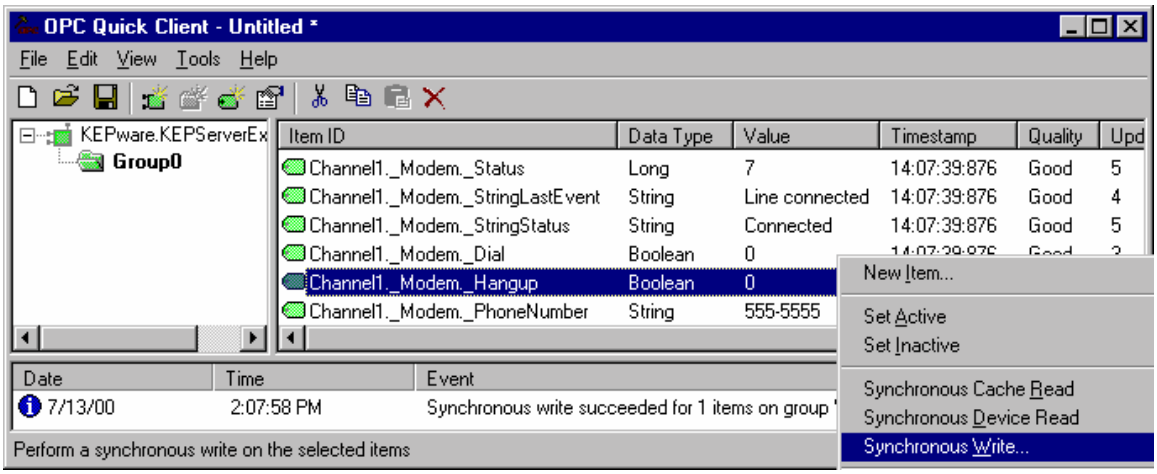
3. The following are crucial tags needed to make a modem connection. Add these tag items using the OPC browser: **_Dial, _Hangup, _Status, _PhoneNumber, _StringLastEvent, _StringStatus**.

   NOTE: All modem operations are completely under the control of your client application. KepserverEx™does not have built in polling routines that control connecting/disconnecting to remote devices. You can create modem applications that are as simple or complex as your application requires. Using the control and scripting capabilities of your client, anything from auto dialing to polling routines can be created by manipulating the predefined modem tags.

4. The final steps in making the modem connection are to either write the phone number you will use to connect modems with to the _Phonenumber tag, or choose your predefined phone number tag in the file entitled **_Phonebook** using the OPC browser.



5. Now write any number to the dial tag to dial the phone number. If your modems are configured correctly, your Initiate modem should dial and connect to the Receive modem. Monitor the _Status tag to verify your connection status (check the _StringStatus tag for a string representation of the modem status). You decide how long you want to stay connected. If you have finished viewing data from a particular remote device or PLC, you can hang up your connection.



6. To hang up the line, write a number to the _Hangup tag. At this point you can write a new phone number to the _PhoneNumber tag and dial a new site if you choose.

Accessing Modem Tags Using DDE

1. Make sure the 'DDE connection to server' is enabled in the server (See KEPServerEX™ Help 'DDE Options')
2. Choose **Edit | Alias Map** from the KepserverEx™
3. View the Help on using the Alias Map. The help will show how to access tags using two different access formats. For reasons indicated in the Alias Map help file, we strongly suggest creating an alias map and using the alias names format instead of full path names in you DDE application. If you decide to change the name of your channel or device, you will only have to reconfigure your alias map.

Reading and Writing with Modem Tags Using Microsoft Excel™

Choose the help file called 'How do I…' on the main KepserverEx™ help page and review the file called 'Using KepserverEx™ Data in Microsoft Excel'. This will give you a general understanding of to how access DDE tags

Using a full address path:

=KEPDDE|_ddedata!Channel_1._Modem._Dial

Syntax

=[*Application or service name*] | [*Topic*] ! [*Modem tag path*]

Using an alias path:

=kepdde|Modem!_Dial

Syntax:

= [*Application or service name)*] | [*Alias path name as topic*] ! [*Modem Tag Name*]

Available Modem Tags:

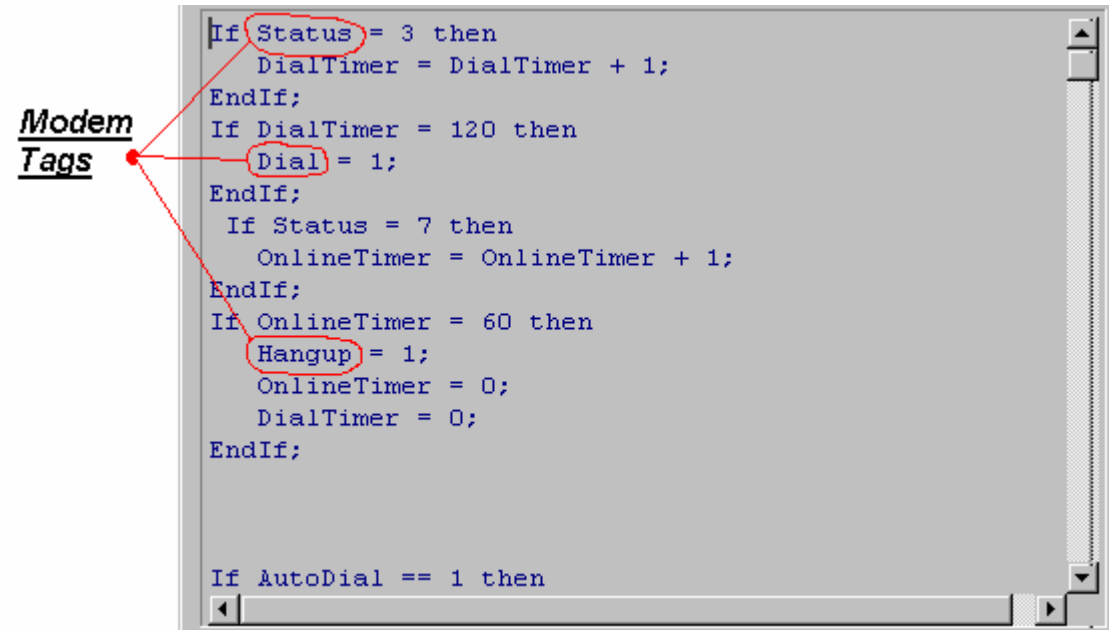
The modem tags allow you to control and monitor an attached modem. Operationally, KepserverEx™ knows very little about what you or your application may need for modem control. With this in mind KepserverEx™ does not imply any type of control over the modem. Using the predefined modem tags you can use the control or scripting capabilities of your client application to control KepserverEx's™ use of the selected modem. There are currently 9 built-in system tags available on each channel. They are as follows:

_Dial
_DialNumber
_Hangup
_LastEvent
_Mode
_Status

_StringLastEvent
_StringStatus
_PhoneNumber

Setup dial scripting in the client

As mentioned, KepserverEx does not have built in polling routines and functions. It is the responsibility of the user to develop polling scripts in the client application. These scripts would manipulate the modem tags to control the modem connection. This makes the most sense, because it allows the user to use the native scripting capabilities of whatever client application he or she is familiar with. The following script shows an example of a possible dial routine that could be used:



Modem Control Panel Example

This is an example of a modem control window (in an HMI client) used in conjunction with KepserverEx™. Remember, the server and driver cannot acquire data from the device if the modem connection is not established, so it is better to open your device data screens after a connection is made. The window below acquires and displays modem tags only. Another way to make the modem project more efficient is to disable the device in the server when the modem connection is not established and enable it when it is. By doing so, the server would not poll for device tags until a modem connection has been established. To do this you can write 0 or 1 (On/Off) to the System tag called '_Enabled' in your project script.