How to Use VISA COM with Visual Basic 6.0

Importing Type Libraries

What you have to do first in Visual Basic environment is import Type Libraries from the Global Resource Manager component. Select Project | References menu. Then you will see the References dialogue box as shown below. On the dialogue, check the line of VISA COM 1.0 (or 3.0) Type Library. If it is not shown on the list, click the Browse button to specify the GlobMgr.DLL, which can be normally found in the \VXIpn\VisaCom directory or occasionally in the \Program Files\VISA\VisaCom directory.

Now your Visual Basic environment allows you to use all the VISA COM interfaces. You can control an instrument with the program fragments shown below.

[Visual Basic 6.0]

Private Sub Command1_Click()
    On Error GoTo ERROR_HANDLER
    Dim rm AsResourceManager
    Set rm = New ResourceManager
    Dim msg As IMessage
    Set msg = rm.Open("GPIB0::1::INSTR")
    If msg.HardwareInterfaceType = 4 Then
        Dim ser As ISerial
        Set ser = msg.Open("USB0::1::INSTR")
        If ser.BaudRate = 9600 Then
            ser.DataBits = 8
            ser.StopBits = ASRL_STOP_ONE
            ser.FlowControl = ASRL_FLOW_XON_XOFF
            ser.EndOut = ASRL_END_TERMCHAR
            If msg.WriteString("*IDN?") Then
                Dim strRd As String
                strRd = msg.ReadString(256)

                ...
Creating Global Resource Manager

To create the Global Resource Manager, you can specify the VisaComLib.ResourceManager coclass type with the New statement. Alternatively you can create it with the CreateObject() function specifying the ProgID "VISA.GlobalRM".

Creating a VISA Session

To create a VISA session, call the Open method of the Resource Manager. It takes a VISA Resource string that specifies an I/O resource you want to use. Although the example specifies "GPIB0::3::INSTR" meaning the Device Address 3 on the GPIB Board #0, you can also specify other resource names such as "ASRL1" for the serial communication port #1. For USBTMC instruments, a resource string like "USB0::0x03B3E::0x1002::AG123456::INSTR" can be used. When the Resource Manager has successfully opened the session, it returns the reference to IVisaSession interface.

Querying The IMessage interface

To send/receive device messages and responses to/from your instrument, you need acquire an IMessage interface. This interface is the most typically used type for actual instrument I/Os. To acquire this interface, you need call QueryInterface method to convert to IMessage interface from the IVisaSession interface that was returned from the Resource Manager. In Visual Basic, the QueryInterface feature is implemented as the Set statement. You only need to assign the return from the Resource Manager to the IMessage interface. Now you have acquired the IMessage interface that can be used for actual instrument I/Os.

Write/Read

The example just sends an "*IDN?" query with an NL termination, then receives its response. These typical ASCII-based operation can be done by using WriteString and ReadString method provided by the IMessage interface. For BINARY I/Os, use Write and Read methods.

Closing VISA Session

To close the session, just call the Close method of the IVisaSession interface. Since the IMessage interface is a derived interface from IVisaSession, any methods and properties exposed from the IVisaSession can also be used directly with the IMessage interface. Mind that calling the Close method does not distract the session COM object immediately. The object is destroyed only when its reference count has become zero, due to explicit assignment to Nothing, going out of the variable scope, or termination of the application process. This is the rule of COM.