

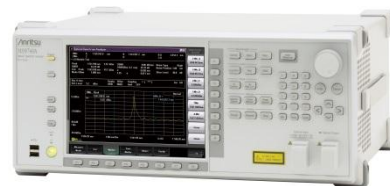
MS9740A

Optical Spectrum Analyzer

Automatic Control of MS9740A Measurement System

Outline

These reference materials explain the equipment connections and setup when using a Python interpreter and Python VISA to perform automatic control of the MS9740A Measurement System.



Equipment Setup

The MS9740A Optical Spectrum Analyzer is controlled over either Ethernet or GPIB using VISA installed in a controller PC. Consequently, VISA must be used when performing automatic control. An Ethernet or GPIB card installed in the control PC functions as the control interface supporting automatic control of the MS9740A from the external control PC. The basic equipment connections are shown in the following figures.

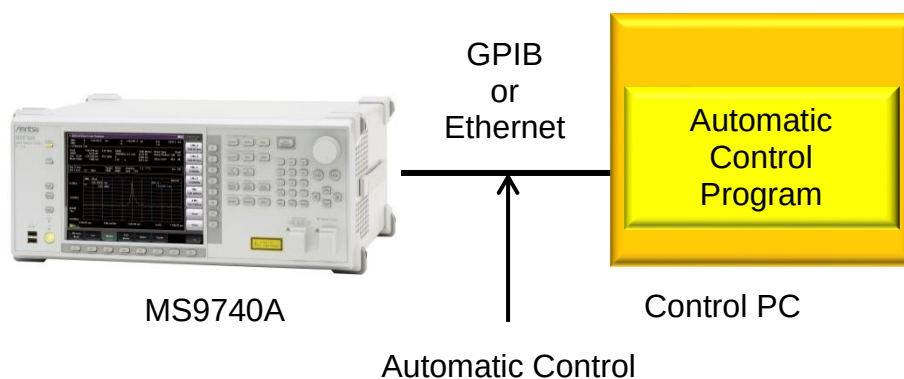


Fig. 1. Basic Equipment Connections

Setup Example

An example of the MS9740A setup is shown below. The automatic control interface uses an Ethernet connection.

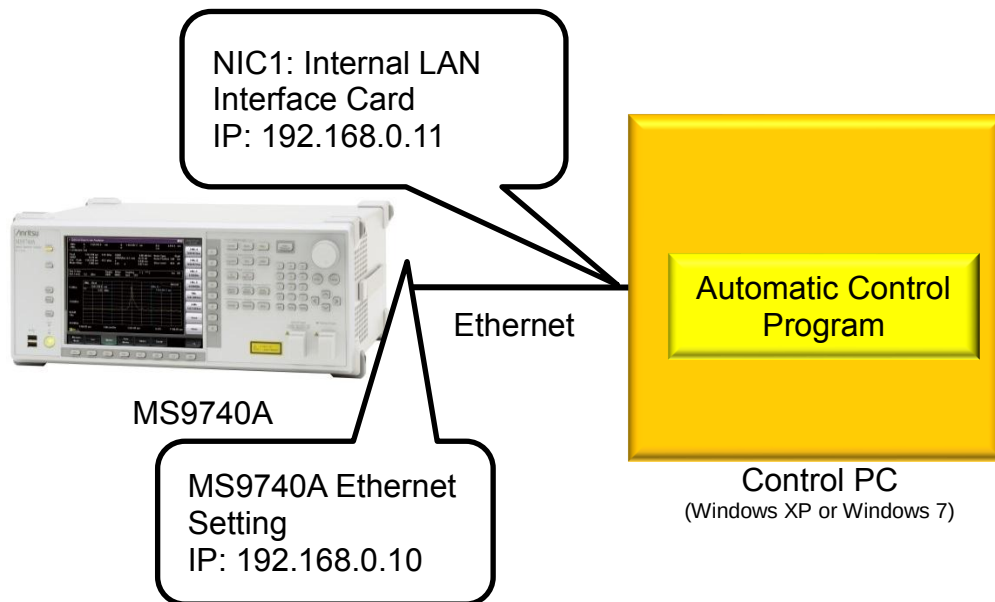


Fig. 2. MS9740A Measurement System

- (1) Connect the MS9740A Ethernet connector and NIC1 of the control PC.
- (2) Set the address of NIC1 of the control PC.
IP address: 192.168.0.11
Subnet mask: 255.255.255.0

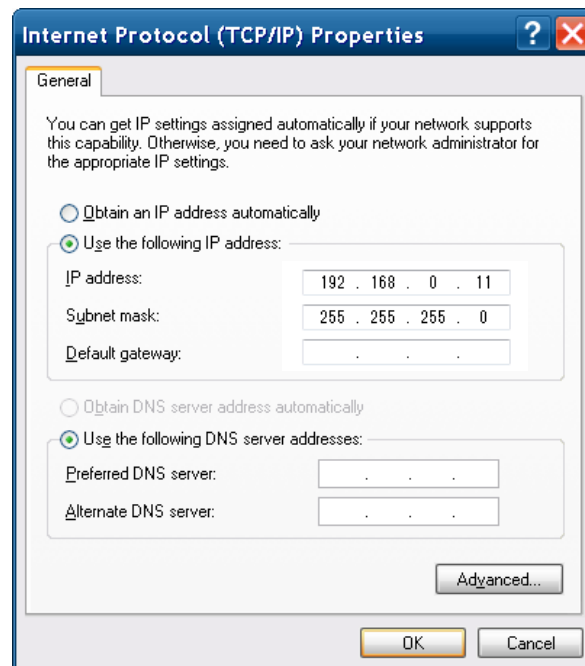


Fig. 3. Setting NIC1 Address

(3) Set the NIC2 interface for performing automatic control at the MS9740A Windows screen. The setting procedure is described below.

1. Initialize the MS9740A application and select Network Connection from the Start Menu at the Desktop.

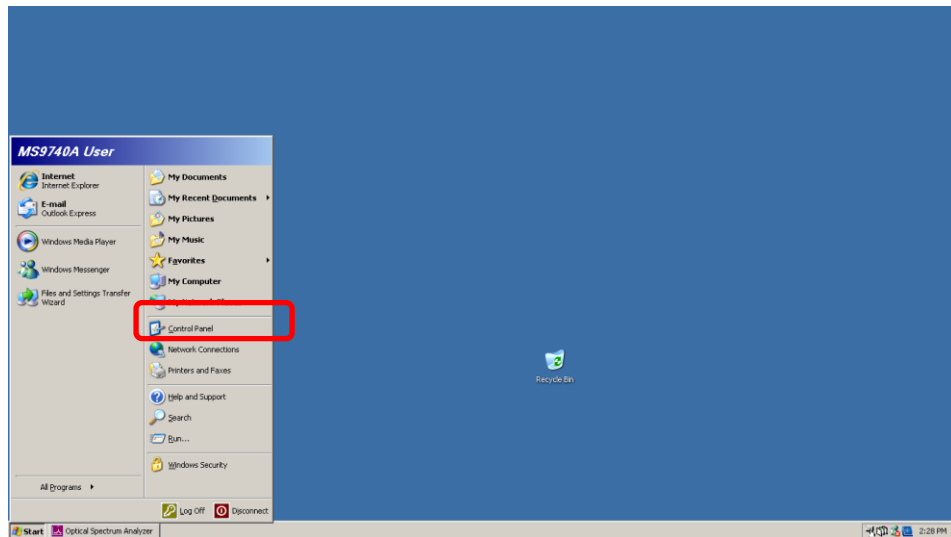


Fig. 4. MS9740A Start Menu

2. Select the Local Area Connection.

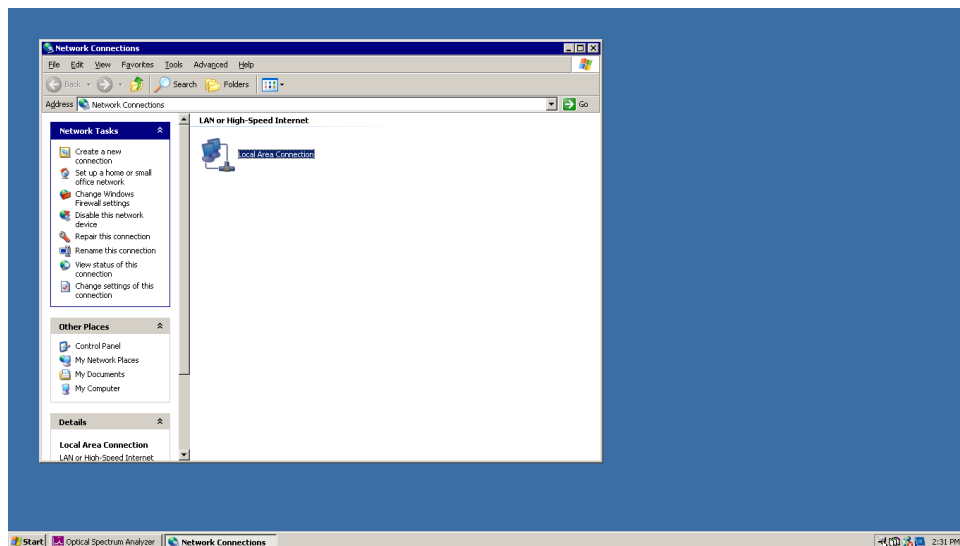


Fig. 5. Setting Local Area Connection

3. Open the Local Area Connection Properties window and open Internet Protocol (TCP/IP).

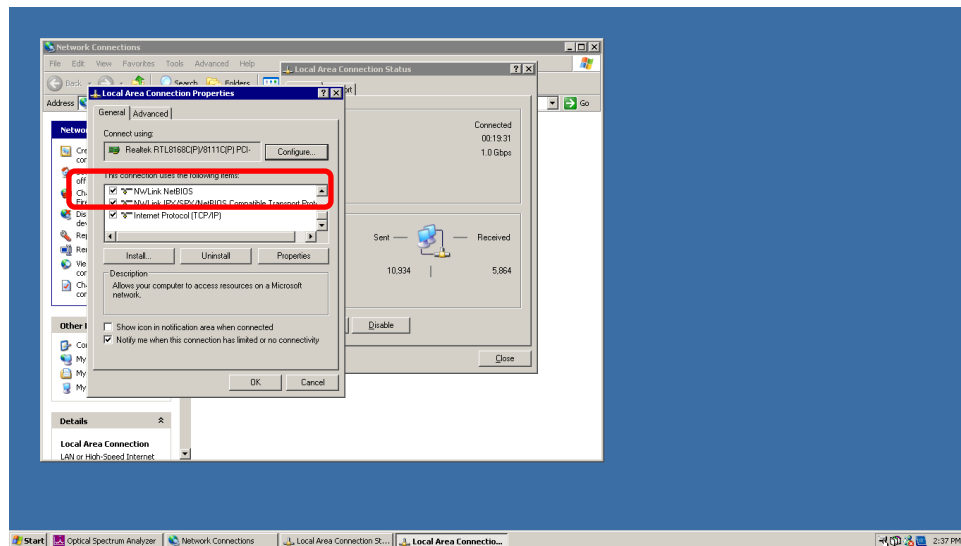


Fig. 6. Local Area Connection Properties Window

4. Set the MS9740A IP Address at the Internet Protocol (TCP/IP) window.

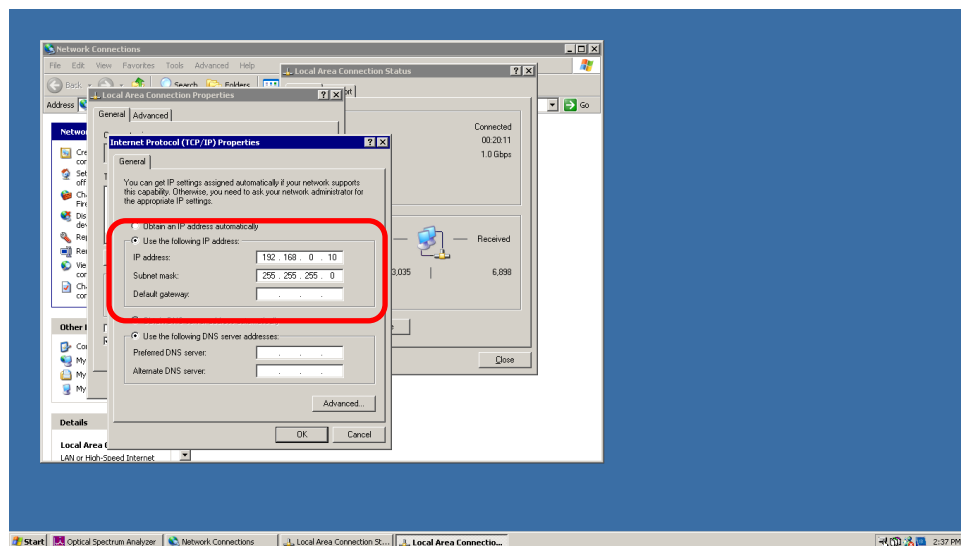


Fig. 7. Setting IP Address

(4) Check that the Ethernet settings are reflected at the MS9740A Configuration screen.

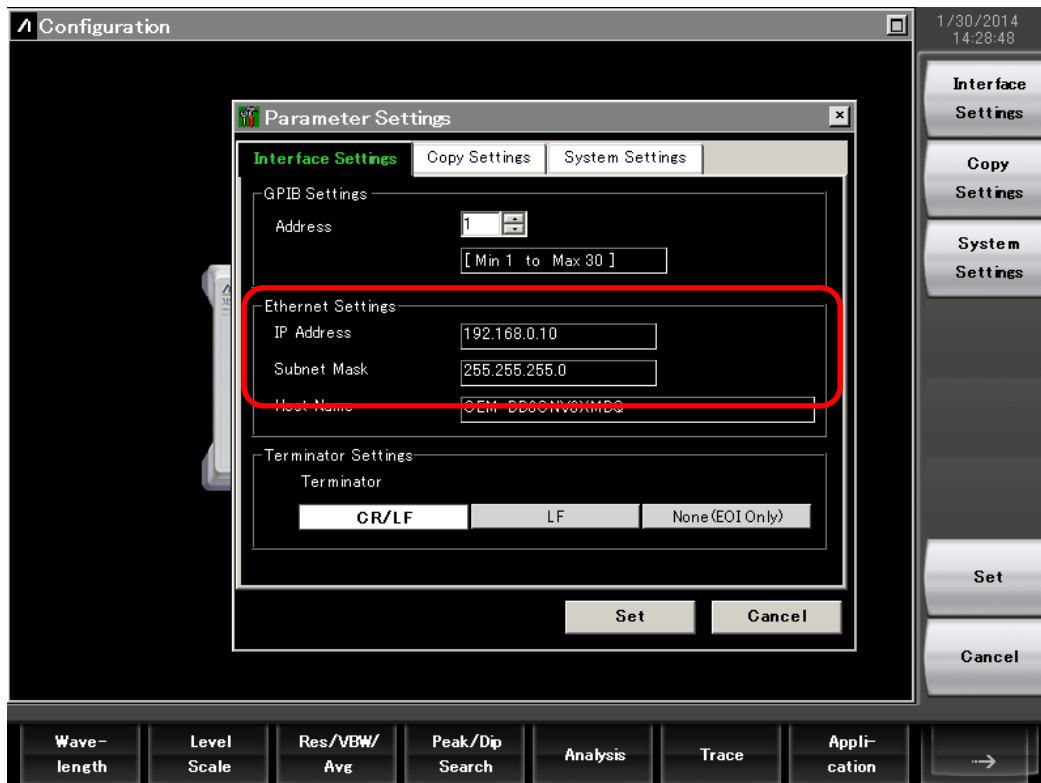


Fig. 8. Configuration Screen

(5) The above completes the settings. In the next step, the provided remote check tool is used to check the connection from the control PC. The remote check tool is assumed to be replaced by the customer's own automation control program.

- a. The remote check tool runs on the Python interpreter version 2.7.6. First, download the Python 2.7.6 Windows Installer from the following URL and then install it in the control PC. Python is a free download.

<http://www.python.org/download/>

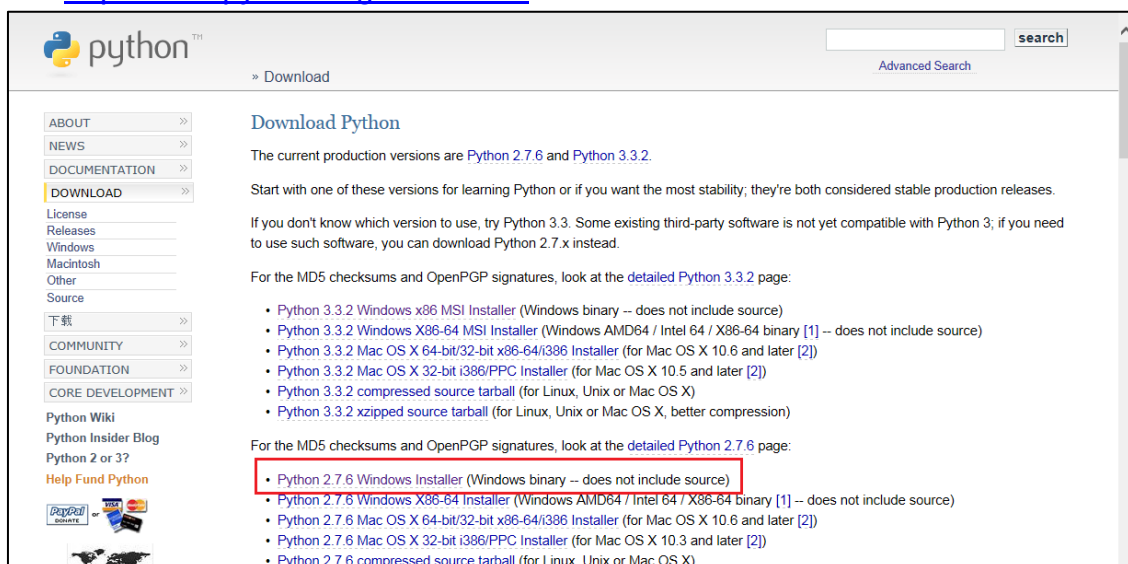


Fig. 9. Python Interpreter Download

- b. Python VISA is required when controlling the MS9740A using Python. First, download Python VISA from the following URL and install it in the control PC. Python VISA is free VISA software.

<http://sourceforge.net/projects/pyvisa/>

Python VISA -- control GPIB, USB, Serial

Brought to you by: [bauflo3](#), [bronger](#), [gth](#), [kcsaff](#)

As of 2013-08-25, this project may now be found at <https://github.com/hgrecco/pyvisa>.

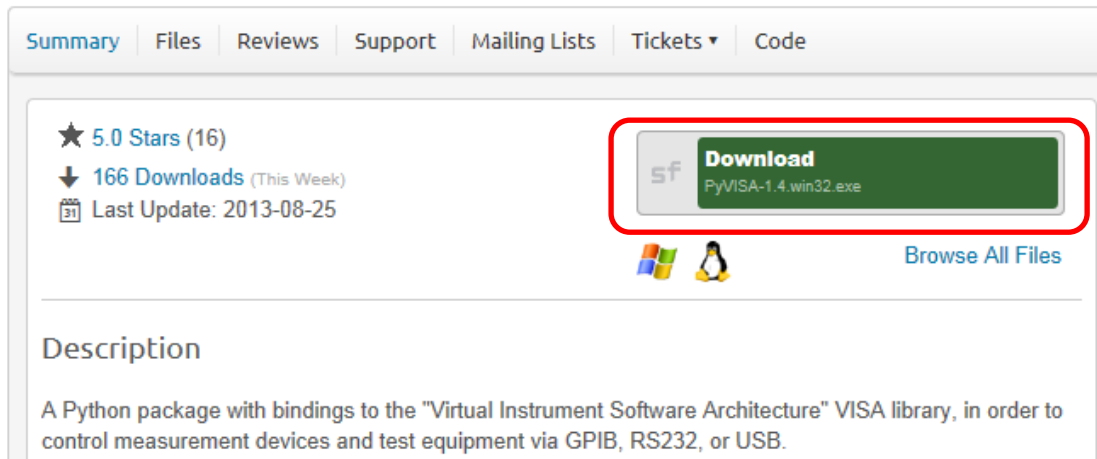


Fig.10. Python VISA Download

- c. Copy the provided remote check tool file RemoteCheck_visa_Ether.py to the Desktop of the control PC. Double-click the icon shown below on the desktop to start the remote check tool.



Fig. 11. Remote Check Tool Icon

- d. Input the remote command *IDN?
If the connection is normal, ANRITSU, MS9740A, **** will be displayed.
To quit the remote check tool input q.

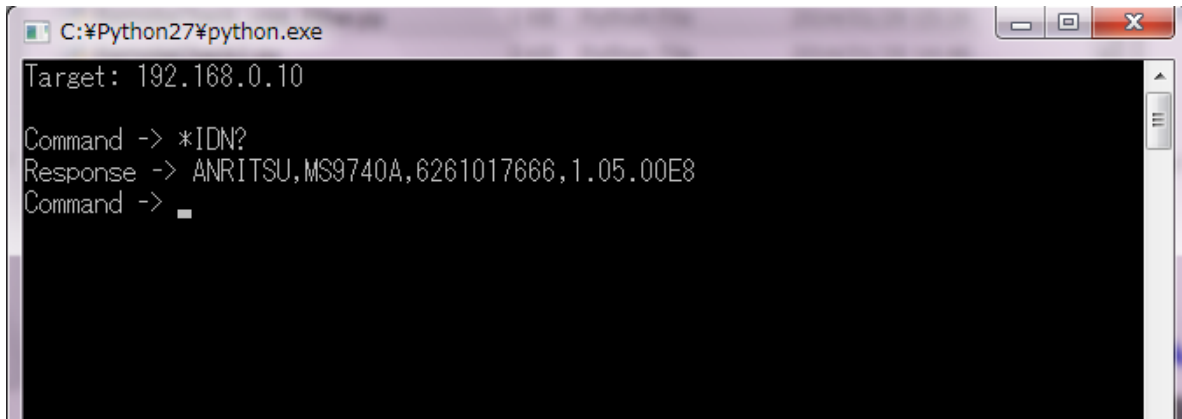


Fig. 12. Remote Check Tool Window

If the remote check tool quits automatically while starting, there is probably a problem with the connection to the target. In this case, recheck the equipment connections, and address settings, and whether the Main application is running.

◆ Reference

Sample code for remote check tool

#RemoteCheck_visa_Ether.py

```
import visa
```

```
host = '192.168.0.10'
```

```
device = visa.instrument ('TCPIP::' + host + '::INSTR')
```

```
print 'Target: ' + host
```

```
print "
```

```
while True:
```

```
    print 'Command ->',
```

```
    command = raw_input()
```

```
    if command == 'q':
```

```
        break
```

```
    if '?' in command:
```

```
        response = device.ask(command + chr(13) + chr(10))
```

```
        print 'Response -> %s' % (response)
```

```
    else:
```

```
        device.write(command + chr(13) + chr(10))
```

```
device.close()
```

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