Checking communication and firmware update

Purpose

Your computer and the spectrometer communicate through an Ethernet interface. You can either use a private connection (i.e. the spectrometer is connected directly to the computer) or communicate through a network. This guide shows how to check if the spectrometer communicates properly to the computer.

**Note:** The computer delivered with your spectrometer comes with two Ethernet interfaces. One, labeled “FTIR”, is configured for a direct connection to the spectrometer. The other Ethernet interface connects to a network.

The Ethernet connection allows easy update of the electronics firmware. This firmware carries the instruction for the electronics how to control the spectrometer and how to communicate to the computer. Instruction on how to update the firmware is also covered in this guide.

Checking connection to the computer or to the network

Connect the spectrometer to the computer or the network (DHCP server)

If you are using a private connection, the computer must be turned ON.

When properly connected, the spectrometer green link indicator will turn on and will flash intermittently, indicating network activity.

Please note the spectrometer MAC address located next to the Ethernet connection. This is how the spectrometer will be identified by your computer or by the network.
Checking communication and firmware update

Checking connection

The connection can be checked with the ABB FTIR Configuration Applet. To run the applet, go to the Windows Control Panel, and double-click on the “ABB Bomem FTIR utility.

The applet will search the network for the presence of spectrometers and will list them.

First you get a message to wait while the applet is checking for the presence of spectrometers. A window opens, listing the spectrometers found on the network.

Seeing your spectrometer’s “MAC address” in the list confirms the connection works properly.

*Note:* If your spectrometer is not detected, please read the next instructions, referring to the network connectivity.
Checking communication and firmware update

Automatic IP assignment when connected to a DHCP server

When first turned ON, your spectrometer will attempt to obtain automatically an IP address from your DHCP server.

If this fails, please check your network configuration:

Select “Internet Protocol (TCP/IP)” and click “Properties”:

The properties must be set to “Obtain an IP address automatically”
Assigning an IP address

If you have to assign a specific IP address, please go through the following steps:

- Turn your spectrometer OFF.
- Note the spectrometer “MAC address”. The address can be found next to the Ethernet connection.
- Obtain a unique IP address for your network from your Network Administrator.
- Start a window command prompt and type these command:

```
arp -s <Spectrometer IP address> < Spectrometer Ethernet address>
Ping -t < Spectrometer IP address>
```

For example, if the spectrometer MAC address is 00-12-34-56-78-90 and the IP address received from your Network Administrator is 192.168.1.1 the IP address assignment will look like this:

```
C:\>arp -s 192.168.1.1 00-12-34-56-78-90
C:\>ping -t 192.168.1.1
```

- Turn your spectrometer ON.
- After about 20 seconds you will get a message “Reply from 192.168.1.1” (or equivalent)

At this point you may run the ABB FTIR Configuration Applet to obtain information on your spectrometer or run your acquisition software. The applet is located in the Windows Control Panel.
Checking communication and firmware update

Making a private connection

To make a private connection between your computer and the spectrometer, you must force a specific “IP address” and “Subnet mask”. The ethernet adaptor of the PC must be set accordingly to match the instrument as shown below in figures. The default IP address for the spectrometer is 10.127.127.127. The computer connection settings should then be defined as IP 10.127.127.1 and Subnet mask 255.255.255.0 as shown below. [Changing the computer or instrument IP address should be done with caution if one is not knowledgeable of Ethernet settings.]
Checking communication and firmware update

Firmware update

The software update is done through the ABB FTIR Configuration Applet. To run the applet, go to the Windows Control Panel, and run the “ABB Bomem FTIR utility.

The applet will search the network for the presence of spectrometers and will list them.

Select the instrument corresponding to the spectrometer’s MAC address and click on “Update Firmware”.

ABB
Checking communication and firmware update

Click on “Select File” and select the update file located on the floppy disk or CD.

Click on OK to launch the update. This may take up to 5 minutes. At the end you will get a message that the instrument is rebooting.

The update will conclude with the confirmation screen: