

ASD Smart Ethernet Adapter Setup Guide



ASD.Document 600240 Rev. D

© 2009 by ASD Inc.



Trademark Information

ASD Inc.

2555 55th Street Suite 100
Boulder, CO 80301 USA
Phone: (303) 444-6522
www.asdi.com

FieldSpec®, LabSpec®, QualitySpec®, QualitySpec ip ® BT, RxSpec®, ViewSpec™, Indico™, AgriSpec®, RS³™, and TerraSpec® are registered and unregistered trademarks, and the intellectual property of ASD Inc. (ASD), Boulder, Colorado, USA. All trademarks used or displayed in this document are trademarks of ASD, its affiliates, or third party owners. Unauthorized use of these trademarks is illegal and punishable by law. Nothing contained in this document is to be construed as granting, by implication, estoppel, or otherwise, any license or right of use of any such trademark without the prior and express written permission of ASD, or such third party owner.

This document contains proprietary information protected by copyright law and may not be reproduced in any manner without the express written approval of ASD Inc.

The information and specifications contained in this manual are subject to change without notice. ASD Inc. shall not be held liable for technical, editorial omissions, or errors made herein; nor for incidental or consequential damages resulting from furnishing, performance, or use of this material.

Technical Support

If you have any questions or concerns, please contact ASD Inc. by phone, fax, or email:

Phone: 303-444-6522 X-144
Fax: 303-444-6825
email: support@asdi.com
Web: www.asdi.com
ftp: [ftp.asdi.com](ftp://ftp.asdi.com)

Technical support is committed to providing you with a timely response to your questions. We will work with you to provide solutions to your applications. Technical support is available to answer your questions Monday thru Friday, 8 am to 5 pm Mountain Standard Time. We will happily respond to your e-mail queries as well.

Table of Contents

	Trademark Information	iii
	Technical Support	iii
Chapter 1	Introduction	1
	Computer Requirements	1
Chapter 2	Software Installation	3
	Upgrading the Software	3
Chapter 3	Network Configuration	5
	TCP/IP Background	5
	Network Hardware	6
	Determine the Network Configuration	6
	Isolated Network (Default)	6
	Established Network	7
Chapter 4	Configuring Static IP Addresses	9
	Configuring Windows XP with a Static IP Address	10
	Configuring the ASD Smart Ethernet Adapter with a Static IP Address	14
Chapter 5	Configuring Dynamic IP Addresses	17
	Configuring Windows XP with a DHCP	17
	Configuring the ASD Smart Ethernet Adapter with DHCP	21
Chapter 6	Connecting the Hardware Components	25
	Verifying the Hardware Connections	25
	ASD Smart Ethernet Adapter Connections	25
	Power ON Sequence	27
	Software Applications	28
	RS ³ Application Software	28
	Indico Pro Application Software	30
	Port Overview and Securing the ASD Smart Ethernet Adapter	33
	Accessory Port	33
	Serial Port	33
	Secure ASD Smart Ethernet Adapter	34

Chapter 7	Updating the Firmware in the ASD Smart Ethernet Adapter	35
Chapter 8	Troubleshooting Ethernet Communication	45
	Common Communication Fixes	45
	Does Not Connect to the ASD Smart Ethernet Adapter.....	45
	Verify the Fiber Optic Cables	47
	Index	49

Chapter 1 Introduction

These setup instructions apply to the FieldSpec™Pro and LabSpec™Pro spectroradiometers.

The purpose is:

- to upgrade the ASD application software; and
- to configure the Smart Ethernet Adapter between the instrument controller and the ASD spectroradiometer.

1.1 Computer Requirements

The *instrument controller* is a computer that manages the instrument controller software, stores data, and processes the results.

The minimum requirements for the instrument controller are:

- 1.2 GHz Pentium or better notebook or PC-w/monitor
- 256 MB RAM or more
- 20 GB of free disk space
- 1024 x 768 or better graphics resolution
- 24-bit color or better - 32-bit recommended
- Ethernet port: 10/100 Base T Ethernet interface
- (Optional) Ethernet wireless (WiFi) adaptor: PCMIA, USB, or built-in that is compatible with the 802.11b standard
- (Optional) Serial communications port (or USB port) for GPS receiver. Only needed if you want to use GPS.
- (Optional) NMEA compatible GPS receiver

The instrument controller requires the following software:

- Either RS³ Software or Indico Software from ASD.
- Microsoft Windows® 95/98/NT/2000/ME/XP Operating System.
- Microsoft Internet Explorer 6.0 or better.

Users need a basic understanding of the Microsoft Windows operating system including software installation.

International customers using non-English versions of Windows must alter the **Regional Settings** under **Start->Settings->Control Panel**. The default language must be set to English (United States) in order for the software to be registered and operate correctly. The numbering format must also be set to English.

Chapter 2 Software Installation

The ASD software is usually installed on the (optional) instrument controller (computer) prior to delivery. If an instrument controller was not purchased with the Smart Ethernet Adapter, proceed with upgrading the software. The software for RS3 must be version 4.0.24 or higher and Indico Pro must be version 5.0.10 or higher.

2.1 Upgrading the Software

To upgrade the ASD application software, follow these steps:

- Step 1 Insert the flash memory stick that was supplied with the ASD RS3 or Indico Pro software into the USB port of *a computer that has Internet access*. This *may not be* the same computer as the instrument controller.
- Step 2 Open Windows Explorer and navigate to the “Removable Disk” icon and open.
- Step 3 Double click on “ASDInstall.exe” and open the ASD Product Installation window.



- Step 4 Select the software application to upgrade and follow the instructions.

Note: Select “Ethernet” for the Instrument Interface.

Step 5 Copy or move your data files stored from the previous versions of the instrument controller software.

- For RS3

The folder location for RS3 prior to version 4.0 is c:\Program Files\RS3. The new installation folder for RS3 is c:\Program Files\ASD\RS3.

- For Indico Pro

The folder location for Indico Pro prior to version 4.0 is c:\Program Files\IndicoPro. The new installation folder for Indico Pro is c:\Program Files\ASD\IndicoPro.

Chapter 3 Network Configuration

The ASD Smart Ethernet Adapter contains an Ethernet interface. To communicate through this the Ethernet interface, an IP Address must be configured for the instrument controller and the ASD Smart Ethernet Adapter.

The following sections will assist you in:

- Determining the type of network configuration to choose.
- Setting the IP Address for the instrument controller and the ASD Smart Ethernet Adapter.

3.1 TCP/IP Background

TCP/IP is a network protocol that most computers use to communicate with other computers and devices. Each computer is assigned a unique IP (Internet Protocol) address.

IP addresses are used to route packets of data from place to place on an intranet or the Internet. If there is not an established network and the Ethernet segment is isolated, any IP address can be chosen. Otherwise, an IP address should be obtained from a Network Administrator.

An IP address consists of four numbers between 0 and 255, separated by periods, such as **192.168.0.1**.

Another important item in the TCP/IP network is the subnet mask. The subnet mask defines where the computer or device resides. The subnet mask are the first three octets of the IP address. For the example in the previous paragraph, the subnet mask would be **192.168.0.xxx**.

The subnet mask becomes more important in large networks. Large networks are usually broken down into several subnets to assist in the management of the IP addresses. In small networks, all computers and devices reside on the same subnet.

3.2 Network Hardware

Earlier models of the ASD spectrometer only supported either parallel or serial communication. In order to take advantage of network (Ethernet) communication, you must have an ASD spectrometer with a Ethernet port or an ASD Smart Ethernet Adapter, as shown in [Figure 3-1](#).

Figure 3-1 ASD Smart Ethernet Adapter.



Note: Ensure that the instrument controller (computer) has an appropriate Ethernet card installed. Refer to the documentation provided with your instrument controller and your Ethernet card for details.

3.3 Determine the Network Configuration

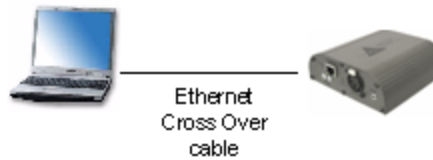
When using an ASD spectrometer with (Ethernet) network communication ([Figure 3-1](#)), you can choose between the following networking configurations.

- [Isolated Network \(Default\)](#)
- [Established Network](#)

3.3.1 *Isolated Network (Default)*

An isolated network usually consists of the instrument controller plugged directly into the ASD Smart Ethernet Adapter, as is shown in [Figure 3-2](#). This configuration requires the special Ethernet cross-over cable included with the spectrometer.

Figure 3-2 Direct-connect Ethernet communication between the instrument controller and the ASD Smart Ethernet Adapter.



For Static IP Addresses

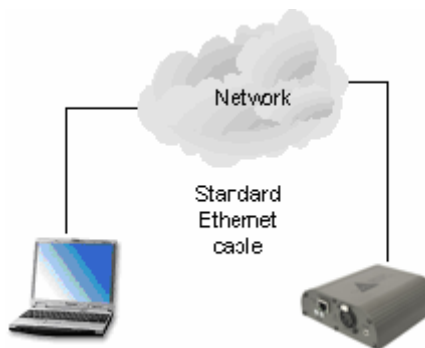
- Step 1 Refer to “[Configuring Static IP Addresses](#)” on page 9 to obtain information about setting IP addresses on the instrument controller and the spectrometer.
- Step 2 Connect the ASD Smart Ethernet Adapter RJ-45 connector to the instrument controller's RJ-45 connector with the Ethernet cross over cable. A link light turns on the RJ-45 connector of the ASD Smart Ethernet Adapter if the network cable is connected correctly to the instrument controller.

3.3.2 Established Network

An established network usually consists of two or more computers connected together.

In this configuration the instrument controller and the ASD Smart Ethernet Adapter will be connected to a network (over a router or hub) with standard Ethernet cables ([Figure 3-3](#)).

Figure 3-3 Network Ethernet communication between the instrument controller and ASD Smart Ethernet Adapter.



Note: The speed of the data acquisition can be delayed if there is a lot of activity on the network. It can compromise the data collection.

For Static IP Addresses

- Step 1 Refer to your network administrator to obtain IP addresses for your environment.

- Step 2 Obtain an IP Address and network mask from the network administrator.
- Step 3 Refer to [“Configuring Static IP Addresses”](#) on page 9 to obtain information about setting IP addresses on the instrument controller and the ASD Smart Ethernet Adapter.
- Step 4 Connect the ASD Smart Ethernet Adapter RJ-45 connector to the RJ-45 connector of a HUB or faceplate on the wall with a standard Ethernet cable. A link light turns on the RJ-45 connector of the ASD Smart Ethernet Adapter if the network cable is connected correctly to the network.

For Dynamic IP Addresses

If the network utilizes DHCP, then an IP address and network mask will not be required.

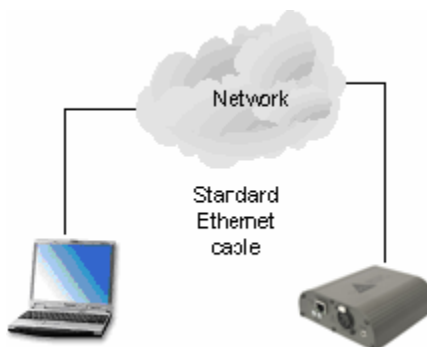
- Step 1 Refer to [“Configuring Dynamic IP Addresses”](#) on page 17 to obtain information about setting IP addresses on the instrument controller and the ASD Smart Ethernet Adapter.
- Step 2 Connect the ASD Smart Ethernet Adapter RJ-45 connector to the RJ-45 connector of a HUB or faceplate on the wall with a standard Ethernet cable. A link light turns on the RJ-45 connector of the ASD Smart Ethernet Adapter if the network cable is connected correctly to the network.

Chapter 4 Configuring Static IP Addresses

If you would like to use the ASD Smart Ethernet Adapter in a network configuration involving a network access port, such as is depicted in [Figure 4-1](#) and [Figure 4-2](#), your network administrator might require that you change static IP addresses. This requires that two settings be carried out:

- “[Configuring Windows XP with a Static IP Address](#)” on page 10
- “[Configuring the ASD Smart Ethernet Adapter with a Static IP Address](#)” on page 14

Figure 4-1 Network Ethernet communication between the instrument controller and ASD Smart Ethernet Adapter.



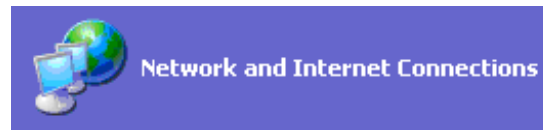
4.1 Configuring Windows XP with a Static IP Address

This section describes the configuration of a static IP address within the Microsoft Windows XP operating system software on the instrument controller (computer).

Note: Other Microsoft Windows operating system versions have networking capabilities which can be configured to communicate with the ASD Smart Ethernet Adapter. It is beyond the scope of this manual to document those procedures, because Windows XP has been the exclusive Windows operating system available on all new hardware since 2001. The configuration settings will be identical to what is specified here, but the steps and dialog boxes may be different.

- Step 1 Click on the **Start** button.
- Step 2 Click on the **Control Panel**.
- Step 3 Click on **Network and Internet Connections**.

Figure 4-2 Network and Internet Connections from the Windows Control Panel



- Step 4 Click **Network Connections**.

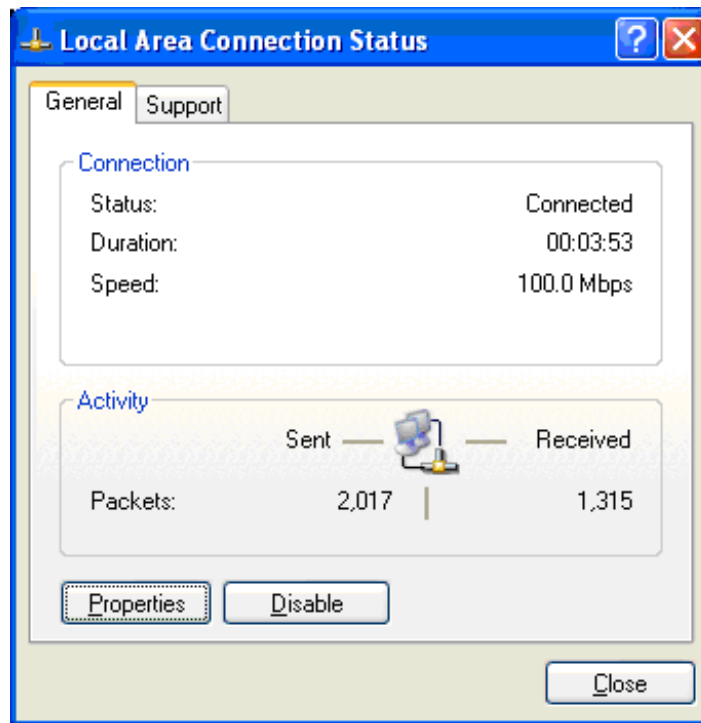
Figure 4-3 Network Connections.



- Step 5 Click on the **Local Area Connection (LAN)**.

The Status dialog for this connection will be displayed, as is shown in [Figure 4-4](#).

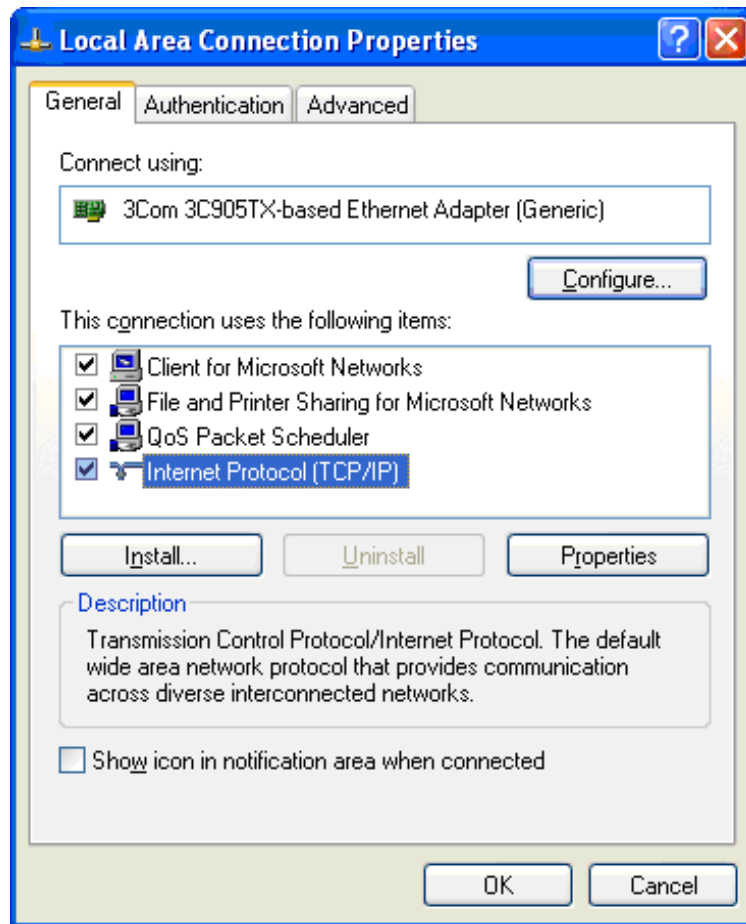
Figure 4-4 Local Area Connection Status dialog box.



Step 6 Click on the **Properties** button from the **Local Area Connection Status** dialog box.

This opens the **Local Area Connection Properties** dialog box.

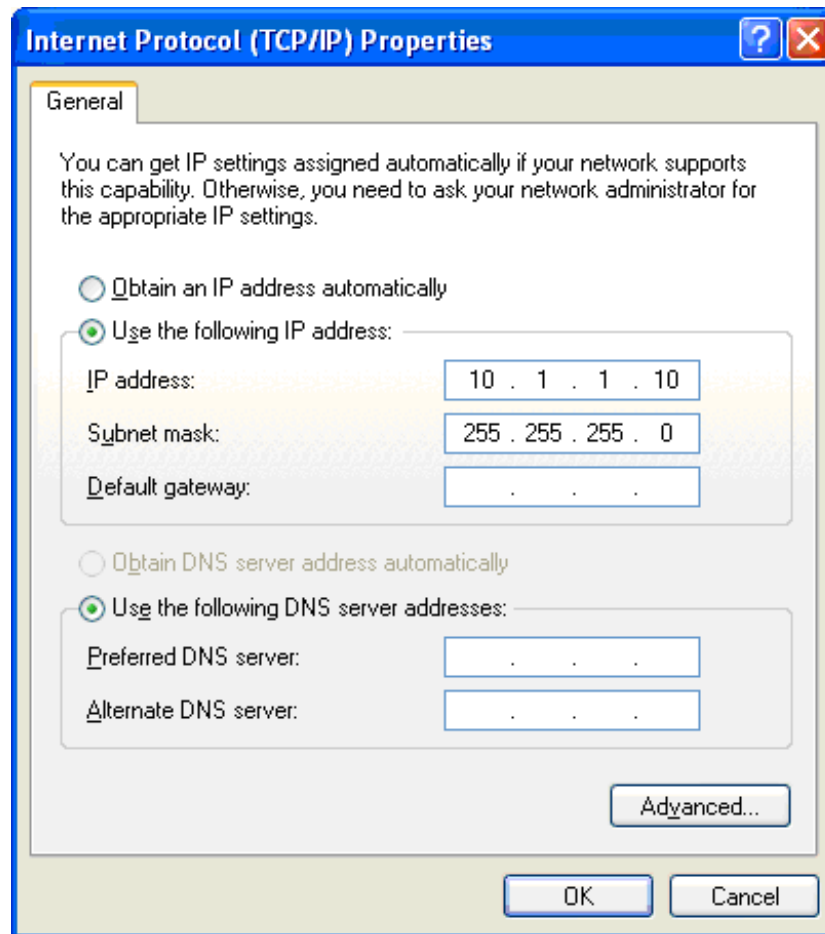
Figure 4-5 Local Area Connection Properties.



Step 7 In the **Local Area Connection Properties** dialog box, select **Internet Protocol (TCP/IP)** from the list of components and then click on the **Properties** button.

The **Internet Protocol (TCP/IP) Properties** dialog will be displayed.

Figure 4-6 Internet Protocol (TCP/IP) Properties.



Step 8 Within the **Internet Protocol (TCP/IP) Properties** dialog box, use the following settings to set a static IP Address.

- **IP address:** 10.1.1.10
- **Subnet Mask:** 255.255.255.0
- **Default gateway:** (leave blank)
- **Preferred DNS Servers:** (leave blank)
- **Alternate DNS Servers:** (leave blank)

Note: If connecting to an established network and your system administrator wants another IP configuration, use their **IP address** and **Subnet Mask**.

Step 9 Select **OK** to save the settings of the **Internet Protocol (TCP/IP) Properties** dialog box.

Step 10 Select **OK** from the **Local Area Connection Properties** dialog box.

Step 11 Select **Close** from the **Local Area Connection Status** dialog box.

4.2 Configuring the ASD Smart Ethernet Adapter with a Static IP Address

This section describes how to configure the ASD Smart Ethernet Adapter with a static IP Address.

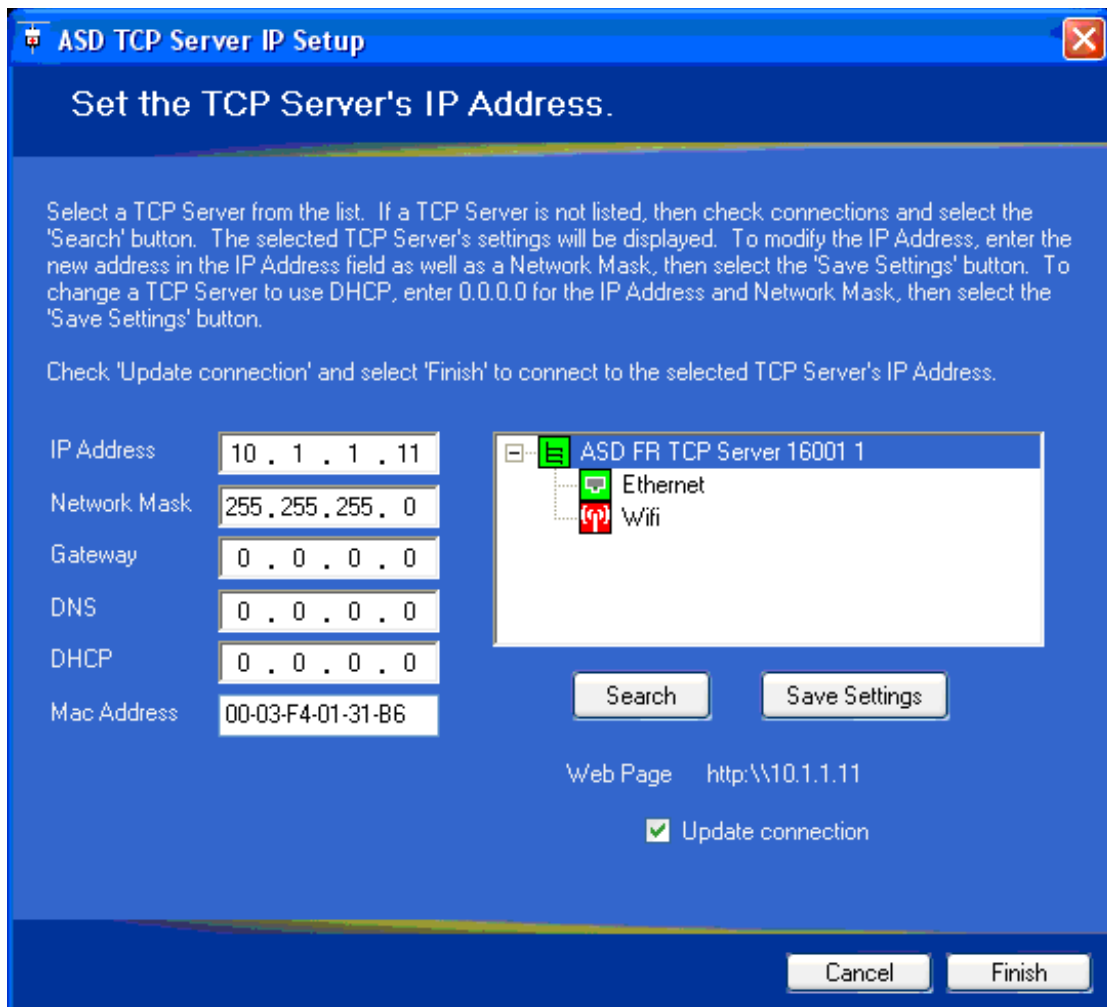
Step 1 Connect the instrument controller and the instrument together with the supplied Ethernet cross-over cable.

Step 2 Start the IPSetup application.



- For RS³, select **Start>Programs>ASD Programs>RS3 Tools>IPSetup.**
- For Indico Pro, select **Start>Programs>ASD Programs>Indico Pro Tools>IPSetup.**

Figure 4-7 ASD TCP Server IP Setup



Step 3 Select an ASD TCP Server from the list.

If a TCP Server is not listed, then check connections and select the Search button.



If the node is green, then the interface is connected.



If the node is red, the interface is not connected.

Step 4 Use the following to setup a static IP Address.

- **IP address:** 10.1.1.11
- **Network Mask:** 255.255.255.0
- **Gateway:** 0.0.0.0
- **DNS:** 0.0.0.0
- **DHCP:** 0.0.0.0

Step 5 Select the **Save Settings** button to set the TCP Server's IP Address.

Step 6 Select the **Search** button to verify the IP Address was assigned.

Step 7 Make sure the **Update** connection check box is selected.

Step 8 Select the **Finish** button.

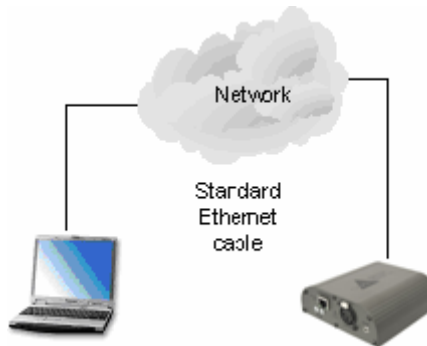
Notes:

Chapter 5 **Configuring Dynamic IP Addresses**

If you would like to use the ASD Smart Ethernet Adapter in a network configuration involving a network access port, such as is depicted in [Figure 5-1](#) and [Figure 5-2](#), your network administrator might require that you change from static IP addresses to dynamic IP addresses (DHCP). This requires that two settings be carried out:

- [“Configuring Windows XP with a DHCP”](#) on page 17
- [“Configuring the ASD Smart Ethernet Adapter with DHCP”](#) on page 21

Figure 5-1 Network Ethernet communication between the instrument controller and the ASD Smart Ethernet Adapter.



5.1 **Configuring Windows XP with a DHCP**

This section describes the configuration of a dynamic TCP/IP protocol within the Microsoft Windows XP operating system software on the instrument controller (computer).

This section assumes there is an established network utilizing DHCP.

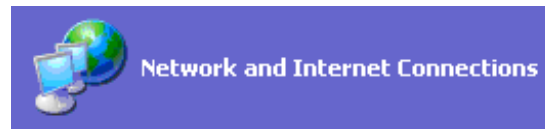
Note: Other Microsoft Windows operating system versions have networking capabilities which can be configured to communicate with the ASD Smart Ethernet Adapter. It is beyond the scope of this manual to document those procedures, because Windows XP has been the exclusive Windows operating system available on all new hardware since 2001. The configuration settings will be identical to what is specified here, but the steps and dialog boxes may be different.

Step 1 Click on the **Start** button.

Step 2 Click on the **Control Panel**.

Step 3 Click on **Network and Internet Connections**.

Figure 5-2 Network and Internet Connections from the Windows Control Panel



Step 4 Click **Network Connections**.

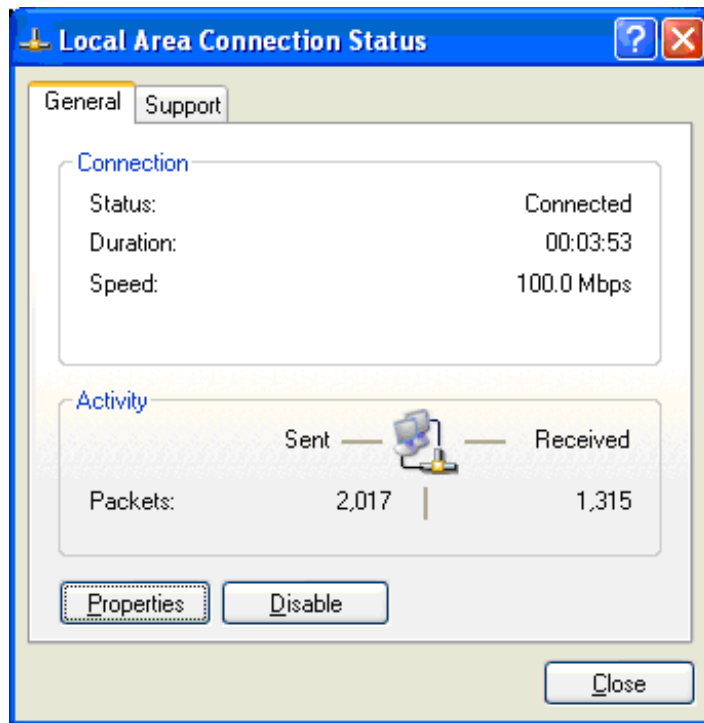
Figure 5-3 Network Connections.



Step 5 Click on the **Local Area Connection (LAN)**.

The Status dialog for this connection will be displayed, as is shown in [Figure 5-4](#).

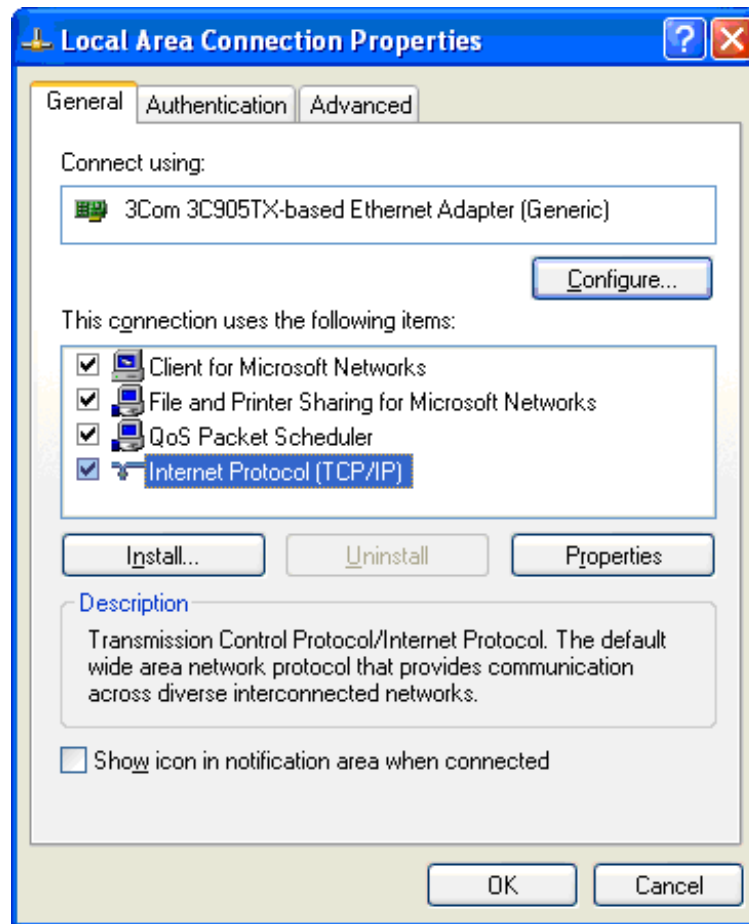
Figure 5-4 Local Area Connection Status dialog box.



Step 6 Click on the **Properties** button from the **Local Area Connection Status** dialog box.

This opens the **Local Area Connection Properties** dialog box.

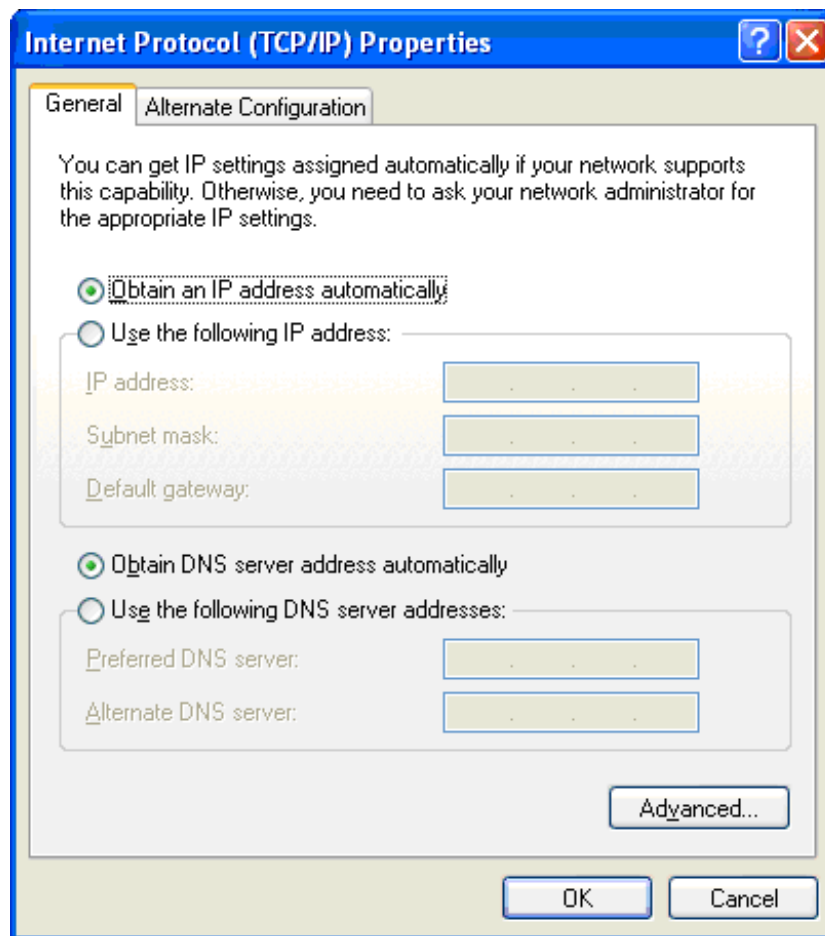
Figure 5-5 Local Area Connection Properties.



Step 7 In the **Local Area Connection Properties** dialog box, select **Internet Protocol (TCP/IP)** from the list of components and then click on the **Properties** button.

The **Internet Protocol (TCP/IP) Properties** dialog will be displayed.

Figure 5-6 Internet Protocol (TCP/IP) Properties.



- Step 8 Within the **Internet Protocol (TCP/IP) Properties** dialog box, use the following settings to set a dynamic IP Address.
- Select **Obtain an IP address automatically**
 - Obtain **DNS server address automatically**
- Step 9 Select **OK** to save the settings of the **Internet Protocol (TCP/IP) Properties** dialog box.
- Step 10 Select **OK** from the **Local Area Connection Properties** dialog box.
- Step 11 Select **Close** from the **Local Area Connection Status** dialog box.

5.2 Configuring the ASD Smart Ethernet Adapter with DHCP

This section describes the configuration of a dynamic TCP/IP protocol on the ASD Smart Ethernet Adapter. This section assumes there is an established network utilizing DHCP.

Step 1 Connect the instrument controller and the Ethernet to Parallel Interface Box to the Access Port of an existing LAN using *standard Ethernet cables*.

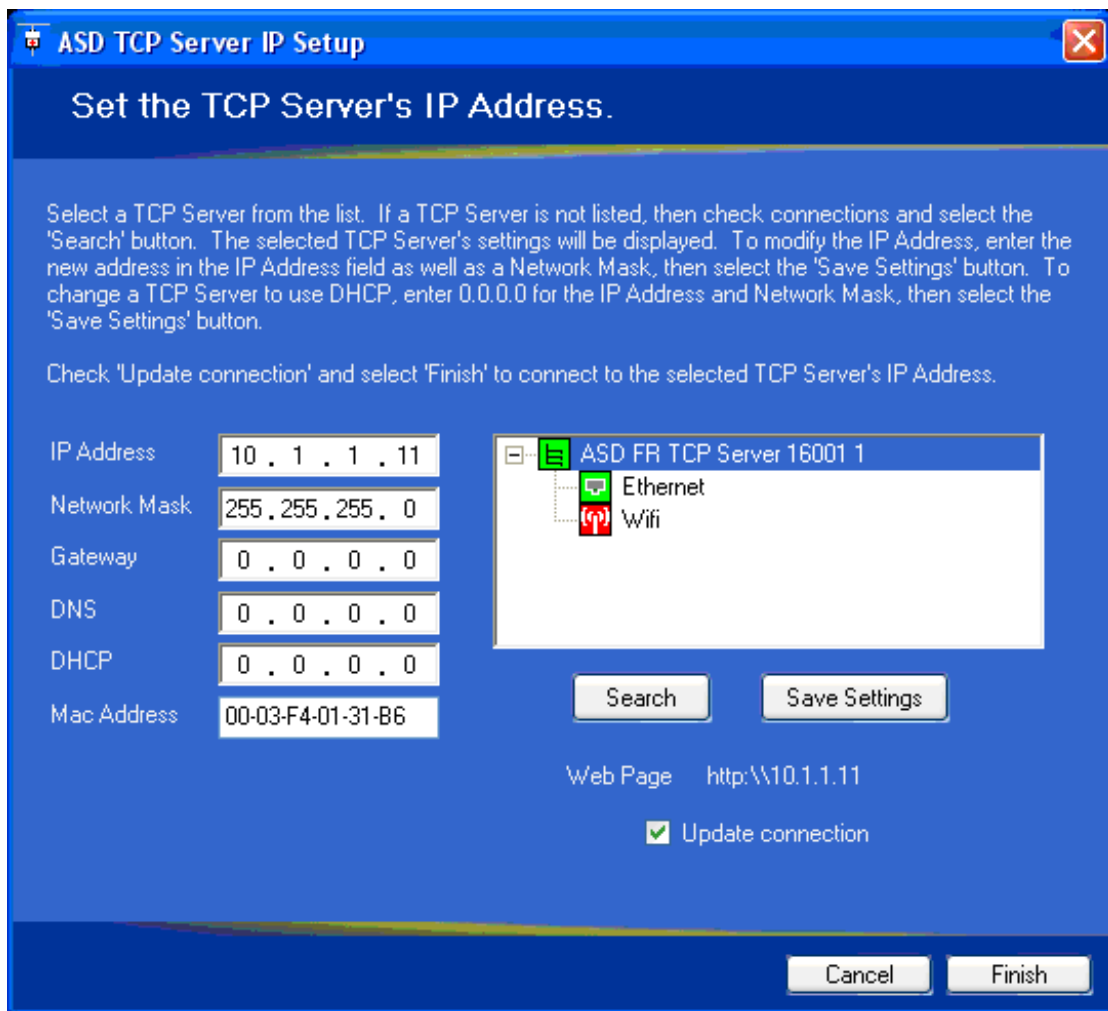
WARNING! Do not use the Ethernet Cross Over cable supplied with the Ethernet to Parallel Interface Box.

Step 2 Start the IPSetup application.



- For RS³, select **Start>Programs>ASD Programs>RS3 Tools>IPSetup.**
- For Indico Pro, select **Start>Programs>ASD Programs>Indico Pro Tools>IPSetup.**

Figure 5-7 ASD TCP Server IP Setup.



Step 3 Select an ASD TCP Server from the list.

If a TCP Server is not listed, then check connections and select the Search button.



If the node is green, then the interface is connected.



If the node is red, the interface is not connected.

Step 4 Use the following to setup a dynamic IP Address.

- **IP address:** 0.0.0.0
- **Network Mask:** 0.0.0.0
- **Gateway:** 0.0.0.0
- **DNS:** 0.0.0.0
- **DHCP:** 0.0.0.0

Step 5 Select the **Save Settings** button to set the TCP Server's IP Address.

Step 6 Select the **Search** button to verify the IP Address was assigned.

Step 7 Make sure the **Update** connection check box is selected.

Step 8 Select the **Finish** button.

Notes:

Chapter 6 **Connecting the Hardware Components**

This chapter discusses connecting the ASD Smart Ethernet Adapter, the instrument controller (computer), and the instrument. The ASD Smart Ethernet Adapter can be used in the laboratory environment or with the ASD Backpack. In either case, the connections between the instrument controller (computer), the ASD Smart Ethernet Adapter, and the instrument are the same.

6.1 **Verifying the Hardware Connections**

With the ASD spectrometer, ASD Smart Ethernet Adapter, and the instrument controller turned **OFF**, verify the cable connections.

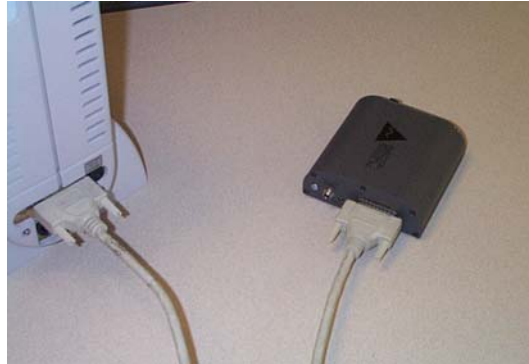
Note: Refer to Figure 6-4 for a diagram of the cable connections.

6.1.1 **ASD Smart Ethernet Adapter Connections**

The ASD Smart Ethernet Adapter communicates with the ASD Spectrometer through the parallel interface. The instrument controller communicates with the ASD Smart Ethernet Adapter through Ethernet.

- Step 1 Insert the Parallel Port cable into the DB-25 port on the ASD Smart Ethernet Adapter by connecting the male end of the cable and securing it with (2) thumbscrews. This end of the cable contains the ferrite loop. The ferrite loop should always be in close proximity to the ASD Smart Ethernet Adapter. Connect the female end of the cable to the instrument's DB-25 port and secure with (2) thumbscrews (shown in [Figure 6-1](#)).

Figure 6-1 ASD Smart Ethernet Adapter showing the Parallel port cable connected to the ASD Spectrometer.



Step 2 Insert the shielded cross over Ethernet cable supplied to the instrument controller's RJ-45 jack. Connect the Ethernet cable end that has the ferrite loop closest to the ASD Smart Ethernet Adapter's RJ-45 jack (shown in [Figure 6-2](#)).

Figure 6-2 ASD Smart Ethernet Adapter showing the cross over Ethernet cable connected to the instrument controller.



Step 3 Verify that the parallel cable and the Ethernet cables are connected and that the power cable is not connected.

6.2 Power ON Sequence

Once you have verified all cable connections are in place, you may initiate the power ON sequence.

- Step 1 Turn **ON** the ASD Spectrometer **first** using the power switch on the front of the instrument.
- Step 2 Insert the power cable to the ASD Smart Ethernet Adapter power jack with the ferrite loop in close proximity to the ASD Smart Ethernet Adapter. Secure this connection by turning the locking nut on the connector until it is snug. Connect to the opposite end of the instrument Auxiliary (AUX) port as shown in [Figure 6-3](#).

Note: The ASD Smart Ethernet Adapter expects input power to be 12 VDC. The three options for providing the appropriate DC voltage are:

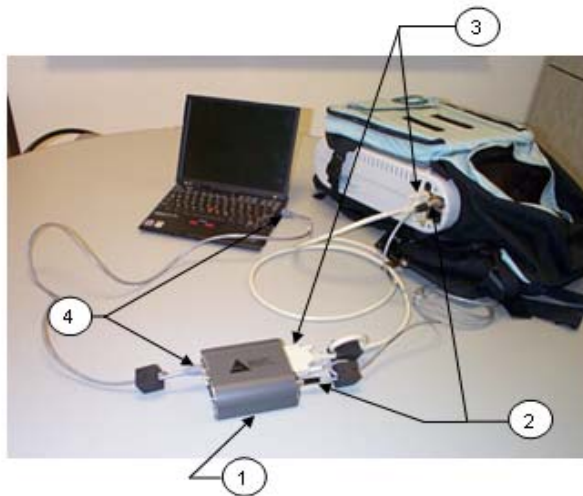
- An external power supply which converts Standard US 110 VAC to 12 VDC.
- An external battery pack which delivers 12 VDC.
- 12 VDC supplied through the AUX port on the ASD spectrometer platform.

Figure 6-3 ASD Smart Ethernet Adapter showing the power cable connected to the instrument.



- Step 3 Turn **ON** the instrument controller.

Figure 6-4 View of ASD Smart Ethernet Adapter Connections



Cable Assembly Connections for the ASD Smart Ethernet Adapter:

1. The ASD Smart Ethernet Adapter
2. Grey Power Cable
3. White 6' Parallel Cable
4. Grey 5' Cross-over Cable

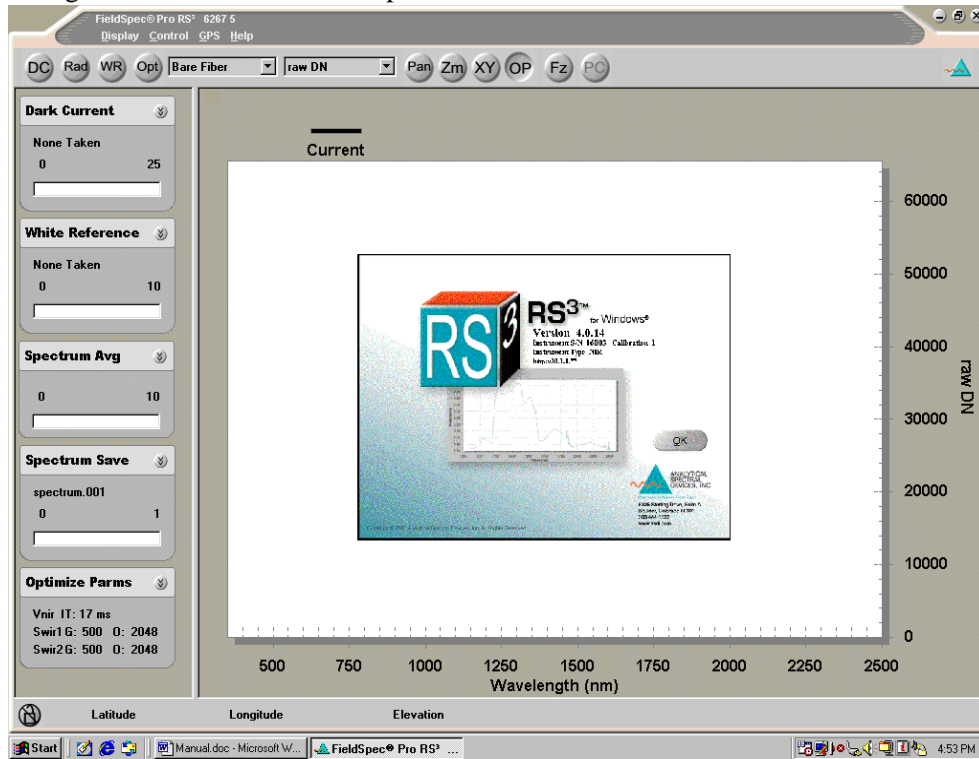
6.3 Software Applications

6.3.1 RS³ Application Software

- Step 1 Turn **ON** the instrument controller or computer with the RS³ application software.
- Step 2 Start the RS³ application. Options for starting it are:
- Through the Desktop icons:
 - » RS³ desktop with a color scheme suitable for indoor use.
 - » **High Contrast** RS³ icon launches RS³ with a different color scheme that allows for easier viewing outdoors on most laptop LCD screens.
 - From the **Start** menu under **All Programs->ASD Programs->RS³**.
 - From navigating your hard-disk and its default location, launch the executable file: C:\Program Files\ASD\RS3\RS3.exe \

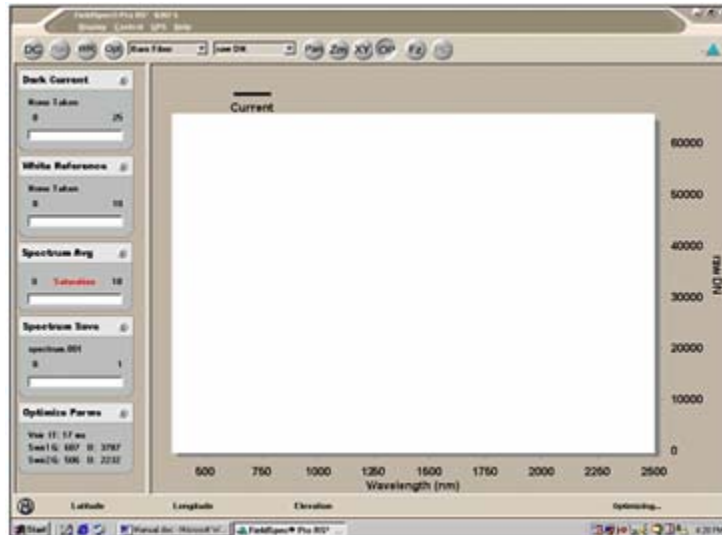


Figure 6-5 RS³ software splash screen



Step 3 When the RS³ application finishes loading, the main navigation screen seen (Figure 6-6) will open. At this point you may notice the software is already running and the collection of data has begun.

Figure 6-6 RS³ main navigation screen



The RS³ main navigation screen contains a graph region in the middle, and a menu toolbar at the top. The main navigation screen is sizable and can be controlled by the window buttons in the upper right hand corner of the window.

Step 4 Verify that the **Connection Status** is correct for communicating with the ASD Smart Ethernet Adapter.

The **Connection Status** is located at the bottom of the main window and shows the communication connection to the ASD Smart Ethernet Adapter. When the RS³ application is first started, the status is updated to the balloon type window.

The **Connection Status** will also display any warnings during operation of the instrument.

- Ethernet displays the IP address it is connected to
- Parallel displays the LPT port number
- Serial displays the COM port number

Figure 6-7 Ethernet connection between RS³ and the ASD Smart Ethernet Adapter is connected

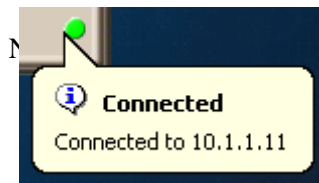
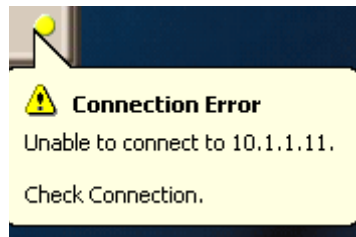


Figure 6-8 Ethernet connection between RS³ and the Smart Ethernet Adapter is not connected



6.3.2 Indico Pro Application Software

Step 1 Turn **ON** the instrument controller or computer with the Indico Pro application software.

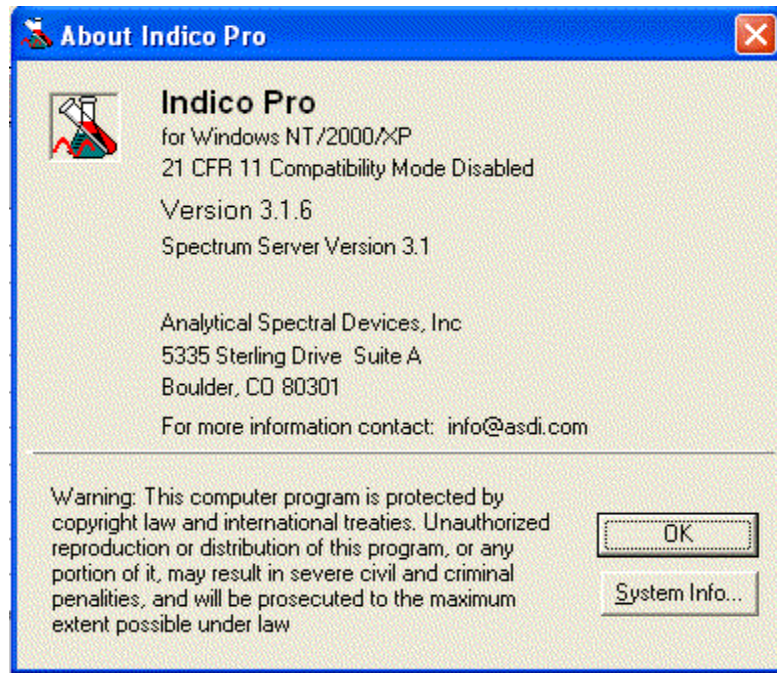
Step 2 Start the Indico Pro application. Options for starting it are:

- Through the Desktop icons:
 - » Indico Pro desktop with a color scheme suitable for indoor use.
 - » **High Contrast** Indico Pro icon launches Indico Pro with a different color scheme that allows for easier viewing outdoors on most laptop LCD screens.
- From the **Start** menu under **All Programs->ASD Programs->Indico**



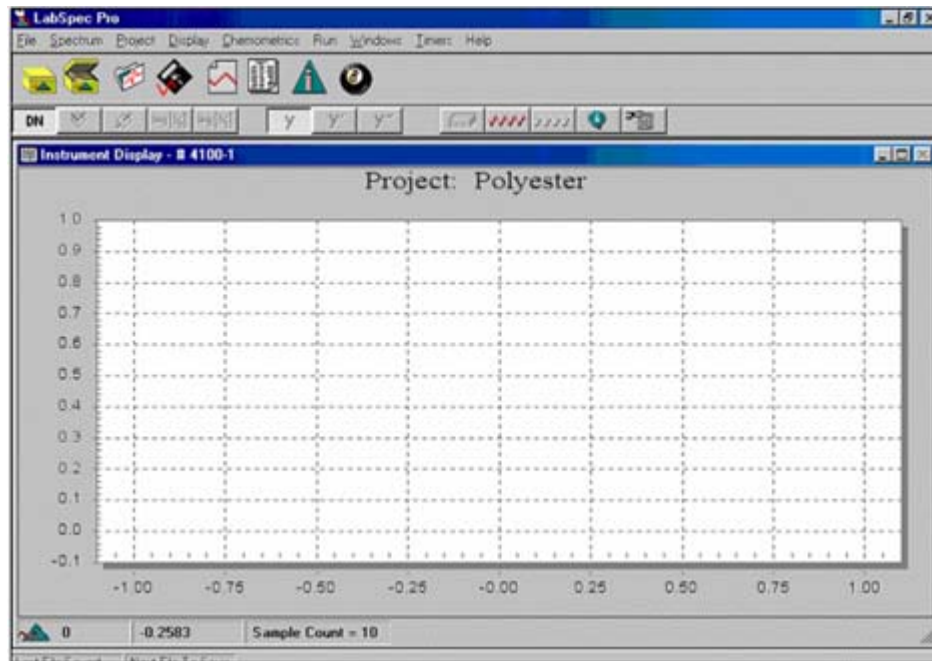
- From navigating your hard-disk and its default location, launch the executable file: C:\Program Files\ASD\Indico\Indico.exe \

Figure 6-9 Indico Pro software splash screen



Step 3 When the Indico Pro application finishes loading, a screen opens that requires you to either create a new project or open an existing project.

Figure 6-10 Indico Pro main navigation screen with a project file open



The main Indico Pro navigation screen contains a graph region in the middle and a toolbar at the top.

Step 4 Verify that the **Connection Status** is correct for communicating with the ASD Smart Ethernet Adapter.

The **Connection Status** is located at the bottom of the main window and shows the communication connection to the ASD Smart Ethernet Adapter. When the Indico Pro application is first started, the status is updated to the balloon type window.

The **Connection Status** will also display any warnings during operation of the instrument.

- Ethernet displays the IP address it is connected to
- Parallel displays the LPT port number
- Serial displays the COM port number

Figure 6-11 Ethernet connection between Indico Pro and the ASD Smart Ethernet Adapter is connected

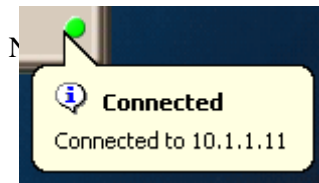
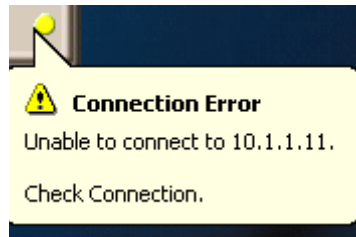


Figure 6-12 Ethernet connection between Indico Pro and the Smart Ethernet Adapter is not connected



6.4 Port Overview and Securing the ASD Smart Ethernet Adapter

6.4.1 Accessory Port

Figure 6-13 shows the accessory port on the front panel of the ASD Smart Ethernet Adapter. This port provides any required DC power to external devices.

Figure 6-13 Enhanced view of the accessory power jack for probe.



6.4.2 Serial Port

Figure 6-14 shows the serial port to provide access to the device for debugging and maintenance.

Figure 6-14 Enhanced view of the serial port.



6.4.3 Secure ASD Smart Ethernet Adapter

The ASD Smart Ethernet Adapter is equipped with a clip to secure to your belt or to the back pack (shown in Figure 6-13 and Figure 6-14).

Figure 6-15 View of the ASD Smart Ethernet Adapter attached to a belt.



Figure 6-16 View of the ASD Smart Ethernet Adapter using the ASD BackPack



Chapter 7 *Updating the Firmware in the ASD Smart Ethernet Adapter*

This section describes how to update the ASD Smart Ethernet Adapter firmware application and INI settings.

This section is only applicable if your ASD spectrometer was originally a full range spectrometer with all of its detectors installed from the factory.

As such, it is possible to change the firmware within the spectrometer so that it captures a narrower spectrum.

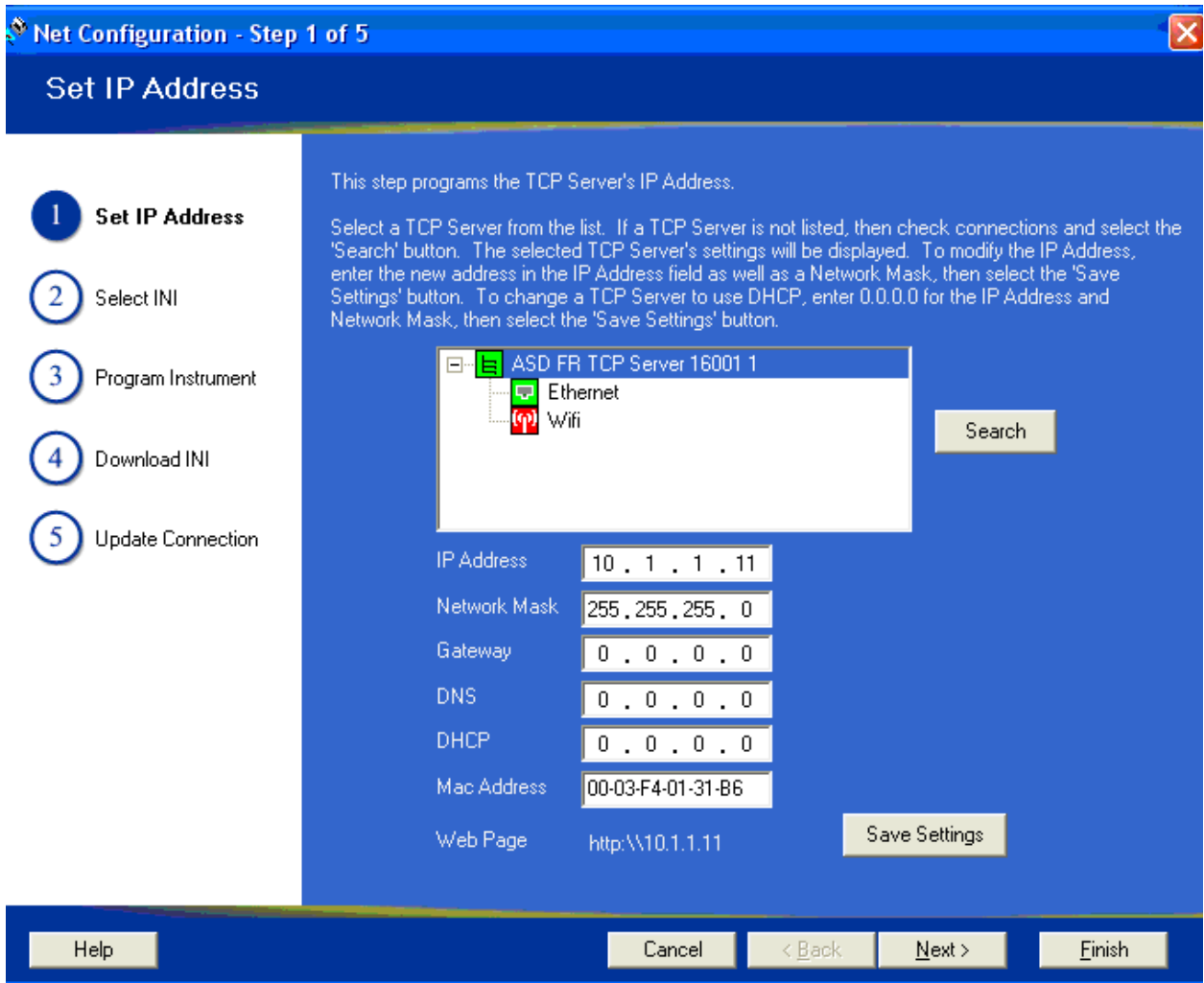
The firmware changes that are possible include:

- VNIR only
- SWIR1 only
- VNIR - SWIR1
- SWIR2 only
- VNIR - SWIR2
- SWIR1 - SWIR2
- FULL RANGE (VNIR, SWIR1, and SWIR2)

To change the ASD Smart Ethernet Adapter's firmware:

- Step 1 Connect the ASD Smart Ethernet Adapter to the instrument controller using a network configuration given in previous chapters.
- Step 2 Start the **Net Configuration** application.
- For RS3, select
Start>Programs>ASD Programs>RS3 Tools>Net Configuration
 - For Indico Pro, select
Start>Programs>ASD Programs>Indico Pro Tools>Net Configuration

Figure 7-1 Step (1) Set IP Address



Step 3 Select an ASD TCP Server from the list.



If a TCP Server is not listed, then check connections and select the **Search** If the node is green, then the interface is connected.



If the node is red, the interface is not connected.

Step 4 Use the following to setup a static IP Address.

- Isolated Network
 - » **IP address:** 10.1.1.11
 - » **Network Mask:** 255.255.255.0
 - » **Gateway:** 0.0.0.0
 - » **DNS:** 0.0.0.0
 - » **DHCP:** 0.0.0.0
- Established Network

If applicable, obtain an IP Address and Network Mask from your Network Administrator.

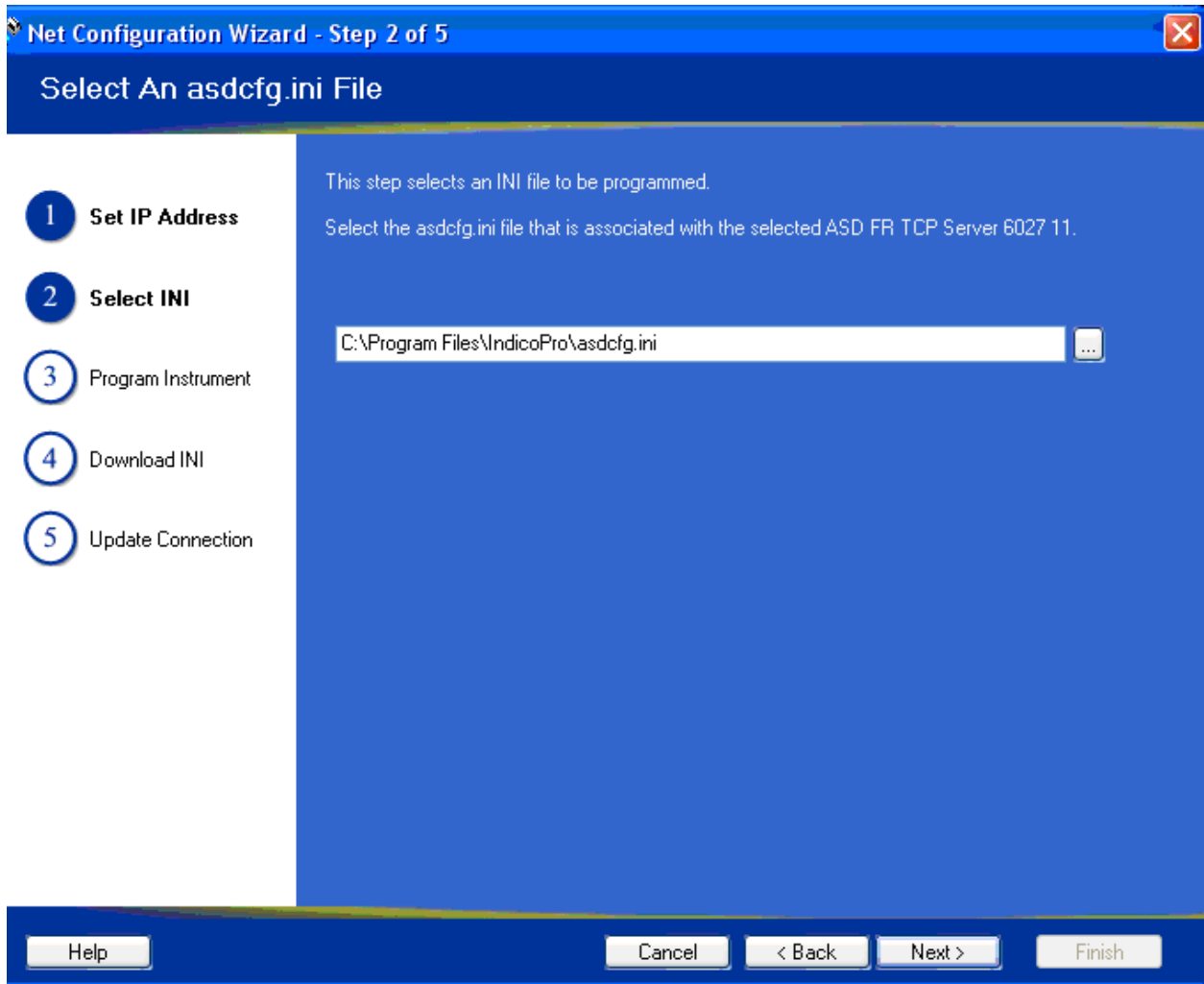
- » **IP address:** (provided by network administrator)
- » **Network Mask:** (provided by network administrator)
- » **Gateway:** (provided by network administrator)
- » **DNS:** (provided by network administrator)
- » **DHCP:** (provided by network administrator)

If the network utilizes DHCP, then an IP Address and Network Mask will not be required. Enter the following for a DHCP network.

- » **IP address:** 0.0.0.0
- » **Network Mask:** 0.0.0.0
- » **Gateway:** 0.0.0.0
- » **DNS:** 0.0.0.0
- » **DHCP:** 0.0.0.0

- Step 5 Select the **Save Settings** button to set the TCP Server's IP Address.
- Step 6 Select the **Search** button to verify the IP Address was assigned.
- Step 7 Select the **Next** button to continue.

Figure 7-2 Step (2) Select an asdcfg.ini File



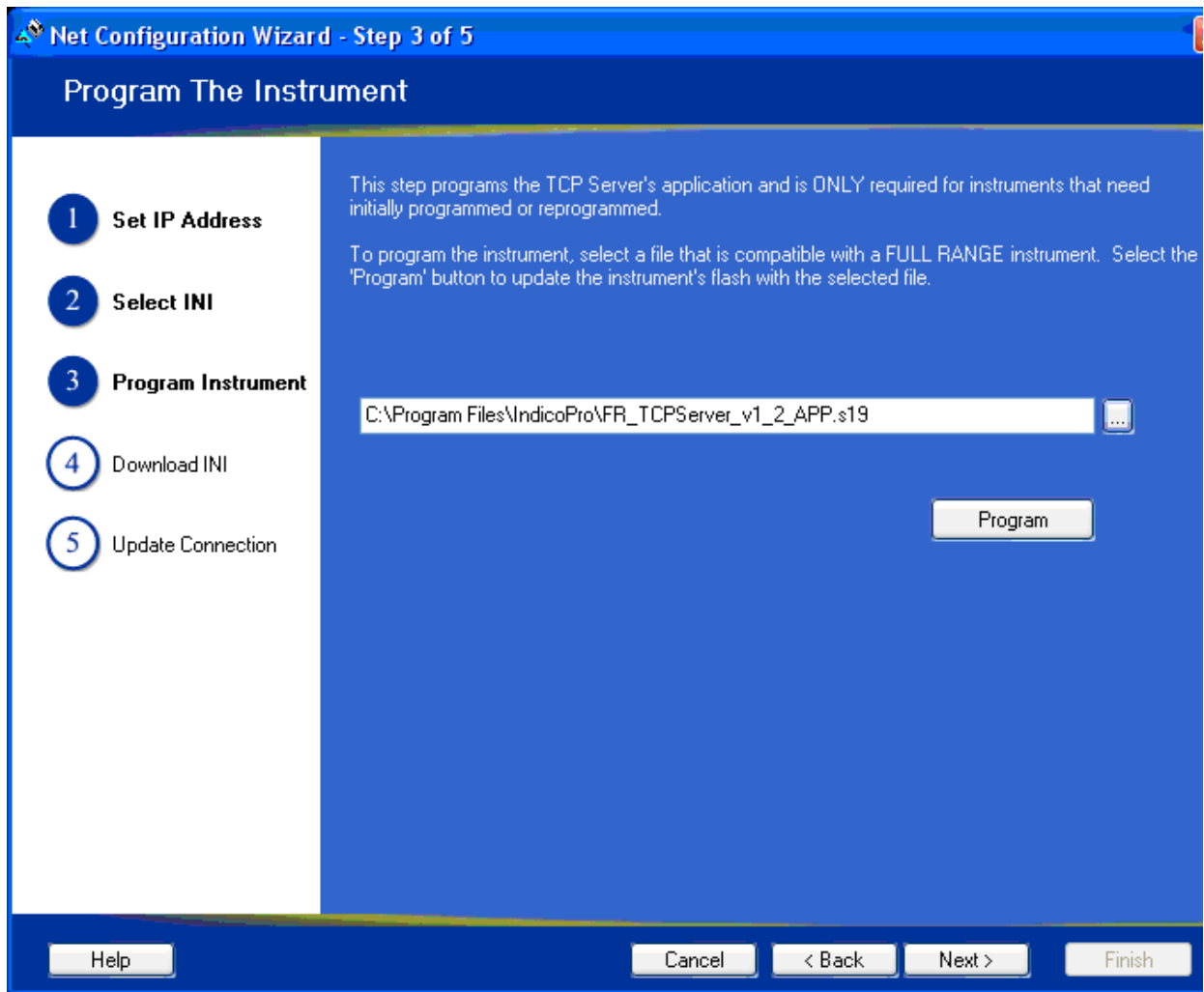
Step 8 Select an asdcfg.ini file.

The asdcfg.ini file is normally located in the installation folder. The default installation folder is:

- For RS³ is C:\Program Files\ASD\RS3
- For Indico Pro is C:\Program Files\ASD\Indico Pro
- If the asdcfg.ini file is located in another location then use the ... (Browse) button to browse to the file.

Step 9 Select the **Next** button to continue.

Figure 7-3 Step (3) Program The Instrument.



WARNING! This step is normally performed ONLY when ASD Smart Ethernet Adapter is initially programmed or reprogrammed by ASD personnel.

Step 10 Use the ... (Browse) button to look for the ASD Smart Ethernet Adapter firmware application file.

The ASD Smart Ethernet Adapter firmware application file has a specific naming convention.

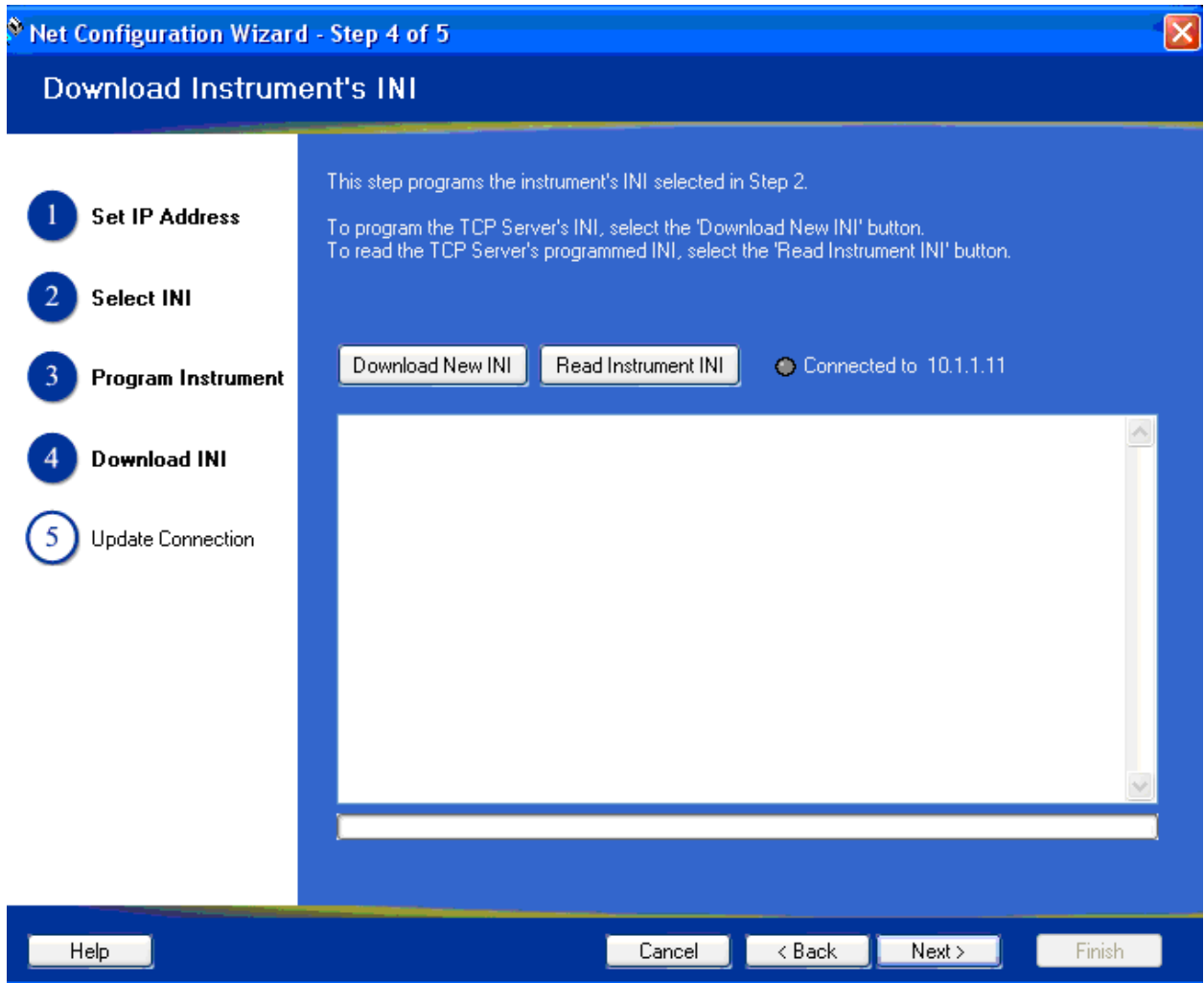
For example, FR_TCPServer_v1_0_APP.s19 can be broken down into three parts:

- The first part of the file name is the type of spectrometer (FR_TCPServer). The following is a list of spectrometer types:
 - » **V_TCPServer** - VNIR only spectrometer
 - » **S1_TCPServer** - SWIR1 only spectrometer
 - » **VS1_TCPServer** - VNIR - SWIR1 spectrometer
 - » **S2_TCPServer** - SWIR2 only spectrometer
 - » **VS2_TCPServer** - VNIR - SWIR2 spectrometer
 - » **S1S2_TCPServer** - SWIR1 - SWIR2 spectrometer
 - » **FR_TCPServer** - FULL RANGE spectrometer
- The second part is the version number (_v1_0).
- The third part is the extension (_APP.s19).

Step 11 Select the **Program** button to program the ASD Smart Ethernet Adapter's flash with the selected file.

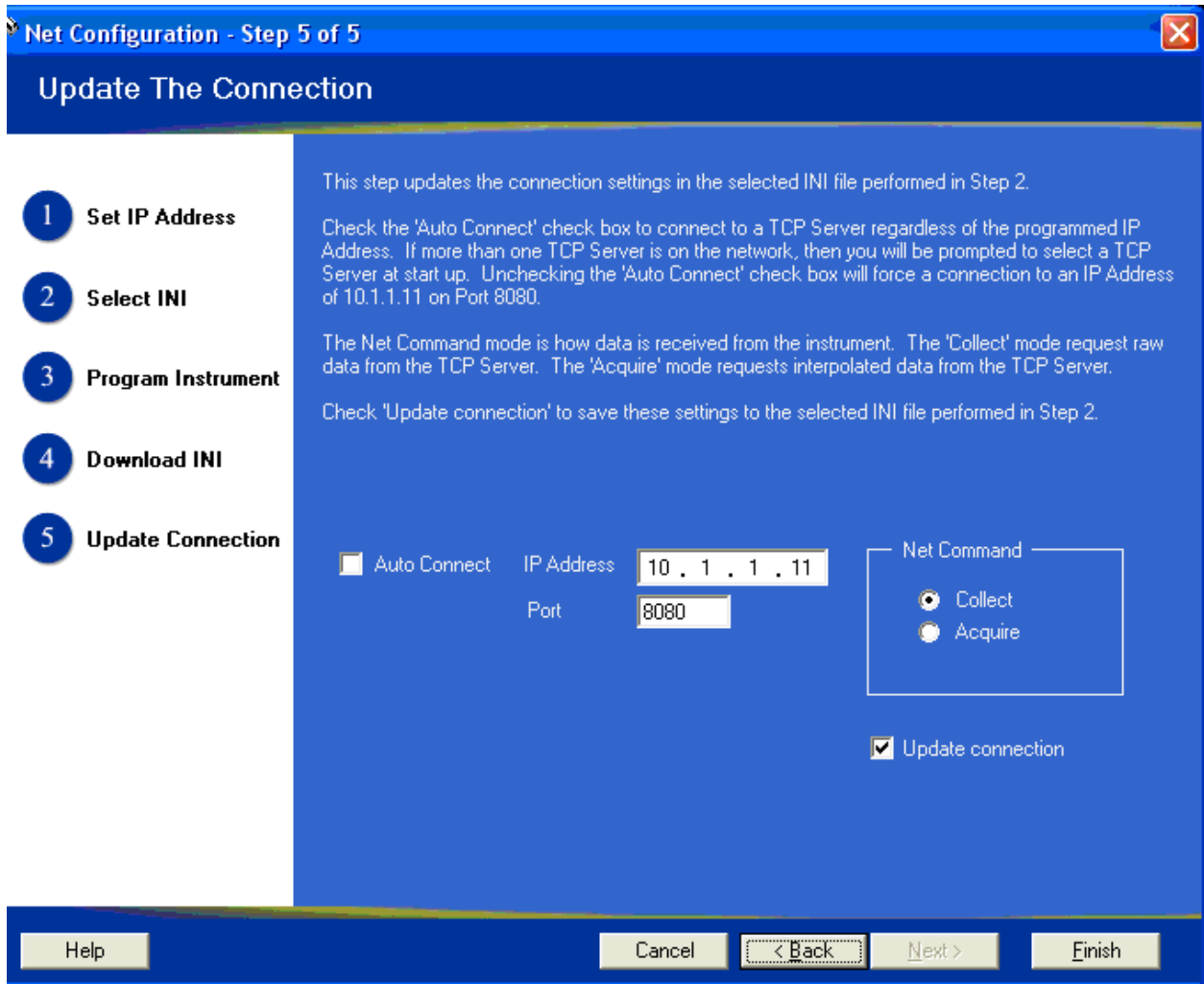
Step 12 Select the **Next** button to continue.

Figure 7-4 Step (4) Download Instrument's INI.



- Step 13 Select the **Download New INI** button to download the ASD Smart Ethernet Adapter's INI file. This will write the `asdcfg.ini` file selected in step 2 to the ASD Smart Ethernet Adapter's flash.
- Step 14 To read the ASD Smart Ethernet Adapter's INI, select the **Read Instrument INI** button. The contents will be displayed in the list box.

Figure 7-5 Step (5) Update The Connection.



Step 15 The **Update The Connection** step updates the selected `asdcfg.ini` file from step (2).

Auto Connect: Will connect to a TCP server automatically regardless of the programmed IP Address. If more than one TCP Server is on the network, then you will be prompted to select a TCP Server at start up. Unchecking the **Auto Connect** check box will force a connection to the displayed IP Address and Port.

IP Address: The IP Address to make a connection to. Only valid if the Auto Connect box is unchecked.

Port: The IP Port to make a connection to. Only valid if the Auto Connect box is unchecked.

Net Command: Receives data from the ASD Smart Ethernet Adapter. The **Collect** mode requests raw data from the TCP Server. The **Acquire** mode requests interpolated data from the TCP Server.

- Step 16 Check **Update connection** to add the required entries into the asdcfg.ini file.
- Step 17 Select the **Finish** button to exit the **Net Configuration Wizard**.

Notes:

Chapter 8 *Troubleshooting Ethernet Communication*

This section describes solutions to problems that can occur during installation.

8.1 Common Communication Fixes

To fix many communication errors (particularly if the instrument has been functioning at some point), power cycle the instrument, ASD Smart Ethernet Adapter and/or the instrument controller.

The sequence to use will vary depending on the computer manufacturer. Either:

- Leave the computer on. Turn off the instrument. Unplug all cables from the ASD Smart Ethernet Adapter. Wait for 10 seconds. Turn the instrument back on. Connect the ASD Smart Ethernet Adapter.
- Or, turn off the computer and the instrument. Unplug all cables from the ASD Smart Ethernet Adapter. Turn on the instrument. Connect the ASD Smart Ethernet Adapter. Then turn on the instrument controller.

For the best performance, you should assure a clear line-of-sight between the spectroradiometer and instrument controller. Obstructions or radio frequency interference in close proximity can cause loss of communication or significantly shorten the communication range.

8.2 Does Not Connect to the ASD Smart Ethernet Adapter

- Refer to section [8.1, Common Communication Fixes](#).
- Check that the Ethernet cable is securely inserted into the ASD Smart Ethernet Adapter and host computer. Check that the Ethernet LED is on.
- For an isolated network, check that the Ethernet cable is a cross-over Ethernet cable.

- For an established network, check that the Ethernet cable is a standard Ethernet cable.
- Check that the IP Address is in the same range or subnet as the ASD Smart Ethernet Adapter. The same subnet means that the first three octets of the IP address (xxx.xxx.xxx.___) match the ASD Smart Ethernet Adapter and the computer.
- Do a ping test to make sure the ASD Smart Ethernet Adapter is responding.
 - » Open up a command window by select **Start->Run**
 - » Type **cmd** in the **Run** window.
 - » Select **OK** to open the window.
 - » For an Ethernet connection, type: ping 10.1.1.11

Figure 8-1 **Run** window with **cmd**.

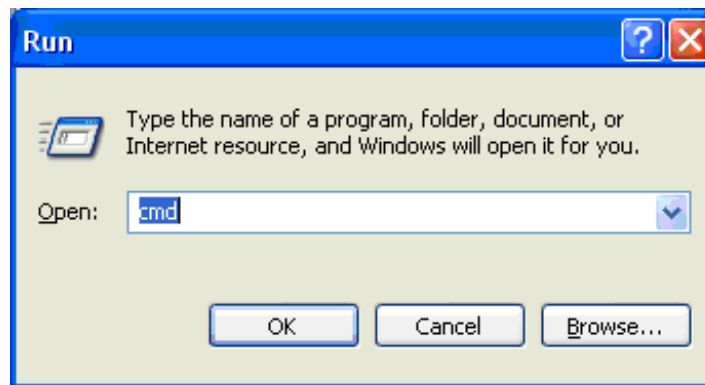
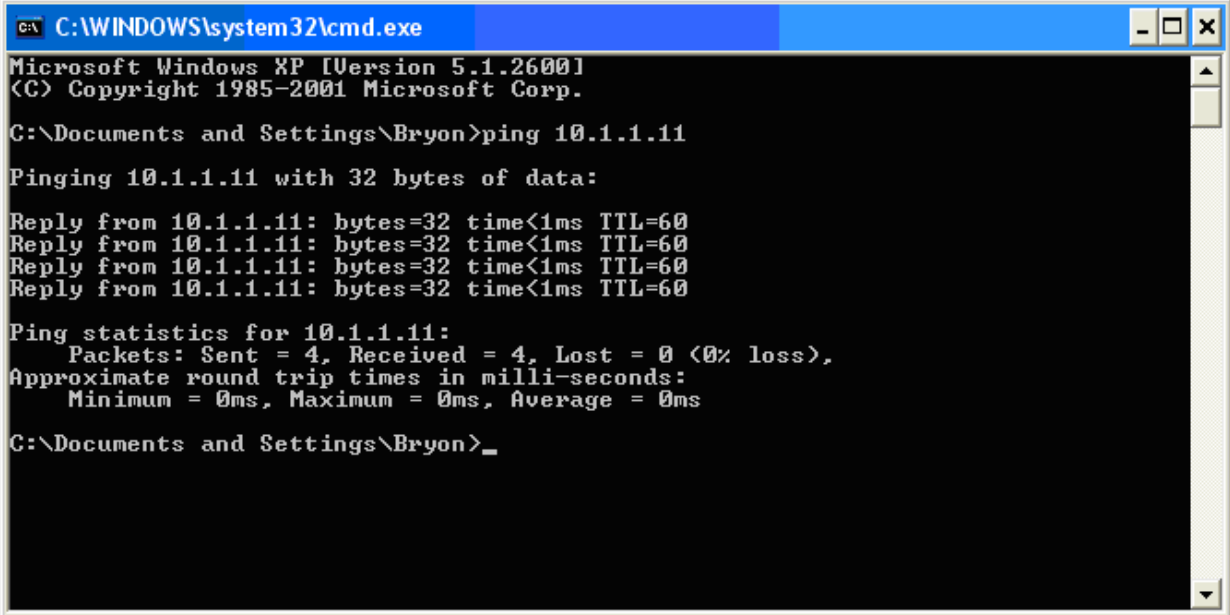


Figure 8-2 Successful result of a **ping** operation.

```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Bryon>ping 10.1.1.11

Pinging 10.1.1.11 with 32 bytes of data:

Reply from 10.1.1.11: bytes=32 time<1ms TTL=60
Reply from 10.1.1.11: bytes=32 time<1ms TTL=60
Reply from 10.1.1.11: bytes=32 time<1ms TTL=60
Reply from 10.1.1.11: bytes=32 time<1ms TTL=60

Ping statistics for 10.1.1.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Documents and Settings\Bryon>_
```

The default IP Address for the ASD Smart Ethernet Adapter is:

- 10.1.1.11 for the Ethernet interface, or

The default subnet mask is 255.255.255.0.

The computer's Ethernet adapter or wireless adapter must have a unique IP address in the same range as the ASD Smart Ethernet Adapter, such as 10.1.1.x where **x** is a unique number. The subnet mask must also be the same as the ASD Smart Ethernet Adapter. such as 255.255.255.0.

8.3 Verify the Fiber Optic Cables

The “Fiber Check” application will not function within the ASD Smart Ethernet Adapter.

Index

A

accessory ports 33

C

computer requirement 1

D

DHCP 17

dynamic IP 21

F

firmware

changing 35

H

hardware

network 6

I

instrument controller 1

IP address

dynamic 8, 17, 21

static 7, 10, 14

isolated network 6

L

language settings, Windows 2

N

Netcfg 47

network

configuration 6

established 7

isolated 6

network hardware 6

P

power 27, 34

power on sequence 27

S

software

upgrade 3

software requirement 1

spectrometer 21

DHCP 21

does not connect 45

firmware 35

static IP address 14

support iii

T

TCP/IP 5

technical support iii

trademarks iii

U

upgrade 3

W

Windows language settings 2

Windows XP

DHCP 17

static IP address 10

wireless interface

disabled 47

