



# Cisco INA2320 Setup Tool

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## Introduction

The Cisco INA2320 Setup Tool is designed to guide new users through the initial setup of their Cisco INA2320 Interactive Network Adapter.

When you have finished the initial setup, use the supplied Cisco Cable DVB/DAVIC Management Program to manage the Cisco INA2320, that is, to set all parameters and monitor data traffic.

For detailed information on this process, refer to the *Cisco DVB Interactive Network Adapter INA2320 Installation and Configuration Guide before You Start*

Cisco recommends that, before you begin the setup, you install the Cisco Cable DVB/DAVIC Management Program and the Cisco INA2320 FTP files on an FTP server.



### Tips

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If you choose *not* to install the Cisco INA2320 FTP files, you will be able to boot the Cisco INA2320 only from its internal Flash memory.

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A copy of the Cisco Cable DVB/DAVIC Management Program and the Cisco INA2320 FTP files are included on the CD-ROM supplied with the Cisco INA2320. If you have a Cisco service and support contract, these files can also be downloaded from the Cisco website at [www.cisco.com](http://www.cisco.com) >Service & Support > Software Center.

If you intend to use the FTP test function during setup, you must have Microsoft Internet Explorer version 4.x installed on the PC running the setup tool.



### Note

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If you intend to use an FTP server to set up the Cisco INA2320, Cisco recommends that you create an INA account that requires a username and password to log on, because the Cisco INA 2320 does *not* accept anonymous connections.

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## Minimum Requirements for the Cisco INA2320 Setup Tool

- Cisco INA2320



- A Pentium-powered PC with 10 megabytes of free hard space and an Ethernet network interface card (NIC), running one of the following:
  - Windows NT or Windows 2000, running Service Pack 4 or later
  - Windows 95 or Windows 98
  - TCP/IP network protocol
  - Microsoft Internet Explorer, v. 4.x or later (only if using the FTP test function during setup)
- FTP server (optional)
- Serial cable
- Ethernet cable

## Installing the Cisco INA2320 Setup Tool

To install the Cisco INA2320 Setup Tool, follow these instructions:

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- Step 1** Copy the program folder onto your PC's hard disk.
  - Step 2** Open the folder and read the file readme.txt.
  - Step 3** Click the relevant version: Windows 9x or Windows NT/2000.
  - Step 4** Double-click **setup.exe** and follow the screen instructions.
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## Uninstalling the Cisco INA2320 Setup Tool

To uninstall the Cisco INA2320 Setup Tool, follow these instructions:

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- Step 1** From the Windows Start menu, choose: **Settings>Control Panel>Add/Remove Programs**.
  - Step 2** Select **Cisco INA2320 Setup Tool** and click **Remove**.
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## Preparing for Setup

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- Step 1** Check that the TCP/IP network protocol is installed on your setup PC.
  - Step 2** If you want to use the FTP test function during setup, ensure that your PC has Microsoft Internet Explorer 4.0 or later.
  - Step 3** Attach the serial cable from one of the PC's dedicated serial ports (COM1-4) directly to the connector labelled COM on the front plate of the Cisco INA2320's CPU-LAN module.
  - Step 4** Connect the PC to the same segment of the Ethernet LAN as the Cisco INA2320. When connecting the Cisco INA2320 to a hub or a switch, use a straight-through Ethernet cable. When connecting the Cisco INA2320 directly to your setup PC, use a crossed Ethernet cable.

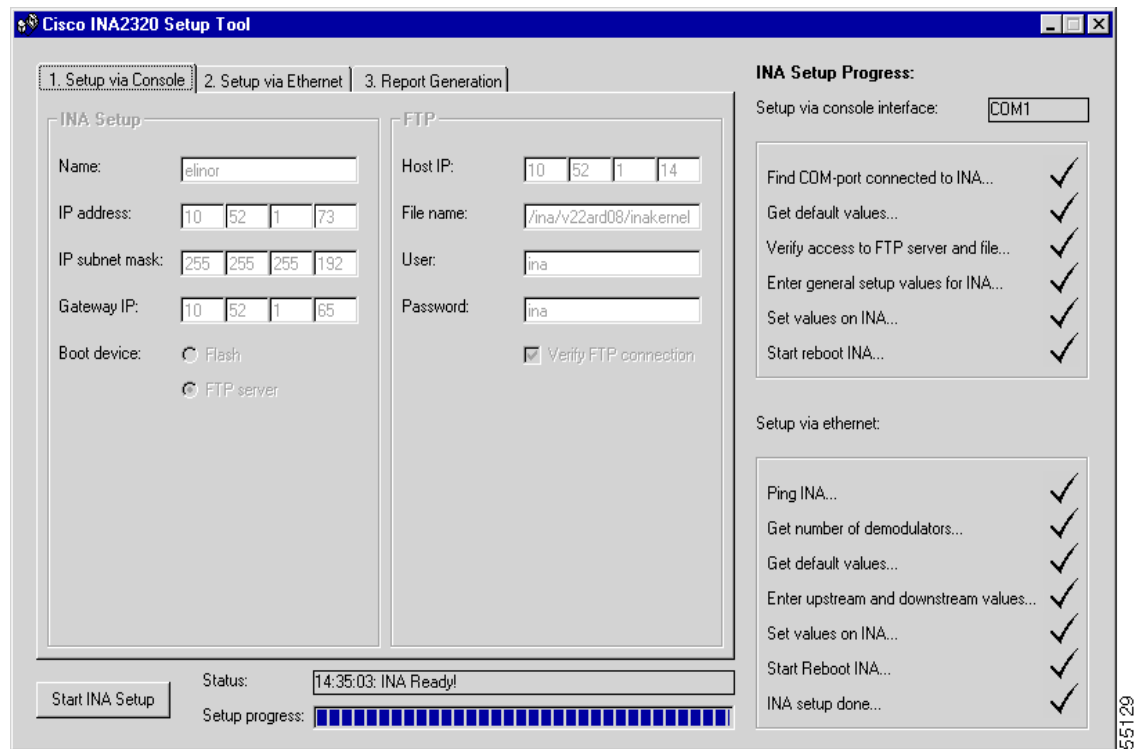
- Step 5** Have details of your FTP server and the “ina” account available (IP address of the FTP server, path, and file name).

## Starting the Cisco INA2320 Setup Tool

To start the application, follow these instructions:

- Step 1** Make sure that the Cisco INA2320 is turned off.
- Step 2** Click the Cisco INA2320 Setup Tool desktop shortcut, or choose the application from the Start menu. A program splash page appears, followed by the main screen (see Figure 1). A prompt directs you to click the **Start INA Setup** button to begin the process. Click **OK**.

**Figure 1** INA Setup Tool Overview



The screen is made up of three main elements:

- The top left has three tabs: Setup via Console, Setup via Ethernet, and Report Generation.
  - Beneath the tabs is the Start INA Setup button, which initiates the setup process, and the Status and Setup progress indicators.
  - On the right side is a list of the various actions and steps involved in the INA setup procedure.
- Step 3** Click **Start INA Setup** to activate the setup via the Console tab. This tab lets you edit basic INA and FTP setup parameters and to save these parameters using the INA-console connection. You can use the <Prev> and <Next> buttons to move backward and forward through the fields if you want to make any changes.

**Step 4** Power up the Cisco INA2320 (using the black switch on the right side of the front panel). The Cisco INA2320 Setup Tool now establishes contact with the Cisco INA2320 via your PC's COM port. You can follow its progress by viewing the Status and Setup progress fields at the bottom of the screen.

**Step 5** **Name:** Enter a name for the Cisco INA2320 so that you can identify the device when connecting via the Cisco Cable DVB/DAVIC Management Program, and press **Enter** to confirm your entry. Use letters and numbers only—special characters are not supported.

Example: Island44

Default: INA001

**Step 6** **IP Address:** Type the IP address you want assign to the Cisco INA2320.

Default: 192.168.1.1

**Step 7** **IP Subnet Mask:** Type the IP subnet mask for the INA IP subnet.

Default: 255.255.255.0

**Step 8** **Gateway IP:** Type the IP address of the default gateway of the Cisco INA2320. This gateway is typically the interface of the router that accesses the Internet. The INA default gateway *must* be in the same subnet as the INA IP address for the Ethernet interface. If there is no router in your setup, the INA default gateway is the PC running the FTP server or the Cisco Cable DVB/DAVIC Management Program, or both.

Default: 192.168.1.2

**Step 9** **Boot Device:** Select the device from which the Cisco INA2320 loads the software (operating system) during startup. The first option, **Flash**, refers to the Cisco INA2320 internal Flash memory. This is the typical boot device when the Cisco INA2320 is in service. The other option is **FTP server**, an external FTP server set up to allow the Cisco INA2320 to boot on a different (newer) software than the one currently stored in the internal Flash memory.

Default: Flash



**Tips**

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Loading new software via an FTP server is the *only* way to upgrade your Cisco INA2320. When the Cisco INA2320 has completed booting on the new software, the software can be copied to the internal Flash memory using the Cisco Cable DVB/DAVIC Management Program, and is first available for use during the next INA power up.

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**Step 10** **Host IP:** Type the IP address of the FTP server containing the Cisco INA2320 FTP files. If you do not have an FTP server, leave the default value in this field.

Default: 192.168.1.2

**Step 11** **File name:** Type the path of the Cisco INA2320 FTP files. The path should typically be specified from the INA FTP root and down, depending on the FTP server used, and contain only letters and numbers—special characters are not supported. The path *must* end with the filename /inakernel. If you do not have an FTP server, leave the default value in this field.

Default: /ina/inakernel

**Step 12** **User:** Type the login name for the Cisco INA2320 to use when connecting to the FTP server.

If you do not have an FTP server, leave the default value in this field.

Default: ina

**Step 13** **Password:** Type the login password for the Cisco INA2320 to use when connecting to the FTP server.

If you do not have an FTP server, leave the default value in this field.

Default: ina

- Step 14 Verify FTP Connection:** Select if you want the program to verify the FTP connection.

The program checks that the FTP server is accessible, that the username and password are valid, and that the Cisco INA2320 files are present. If you do not have an FTP server, or do not want to confirm the connection, leave this box unchecked.

Default: (checked)

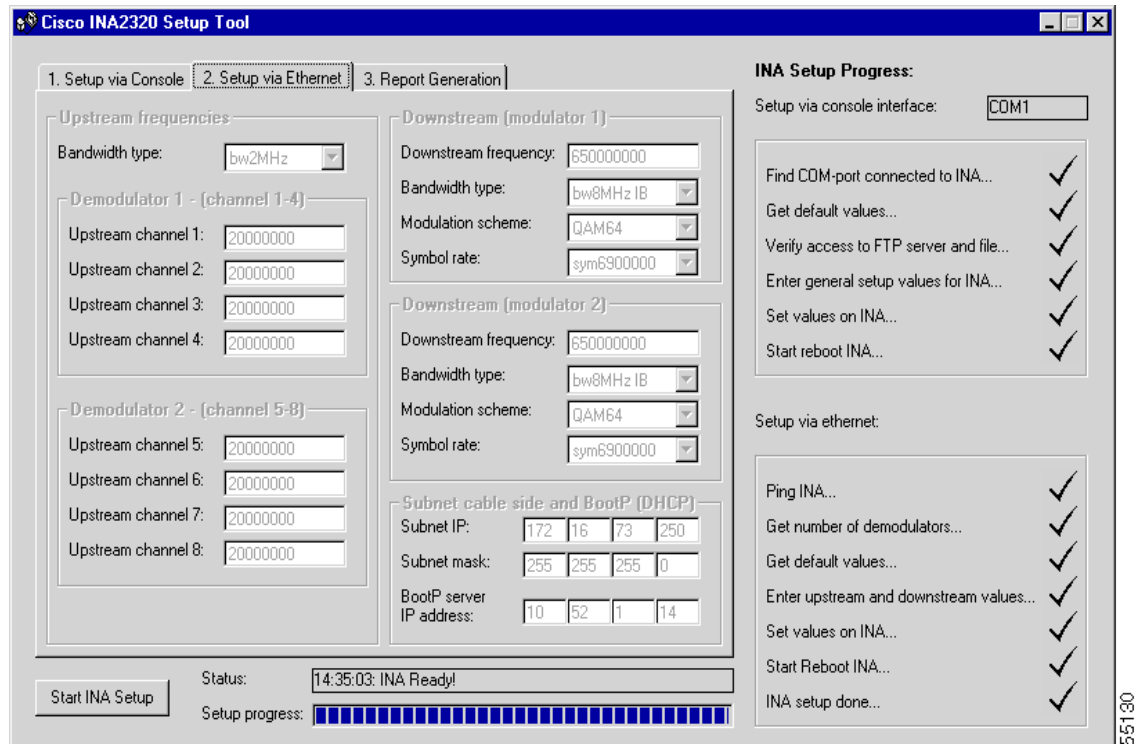
- Step 15** Once you have entered valid values in each field on the Setup via Console tab, the application transmits the information to the Cisco INA2320. You can follow this process by watching the status fields at the bottom of the screen and the check list on the right side. A prompt appears advising you that the Cisco INA2320 now needs to be rebooted before the Ethernet setup can be initiated. Click **OK**.

The reboot can take up to five minutes.

## Setup via Ethernet

The Setup via Ethernet tab lets you specify upstream and downstream properties for your Cisco INA2320, as well as subnet and BootP IP addresses. See Figure 2.

**Figure 2 Setup via Ethernet Tab**



These are then automatically saved to the Cisco INA2320 by the Cisco INA2320 Setup Tool using SNMP. Proceed as follows:

**Step 1 Bandwidth Type:** Select the bandwidth type to be used for the upstream signals. For more information, see Chapter 3 of the *Cisco DVB Interactive Network Adapter INA2320 Installation and Configuration Guide*.

Default: bw2MHz

An image of the corresponding cable layout appears (see Figure 3). You are then prompted to enter from one to eight frequencies, depending on the number of directions you have selected.

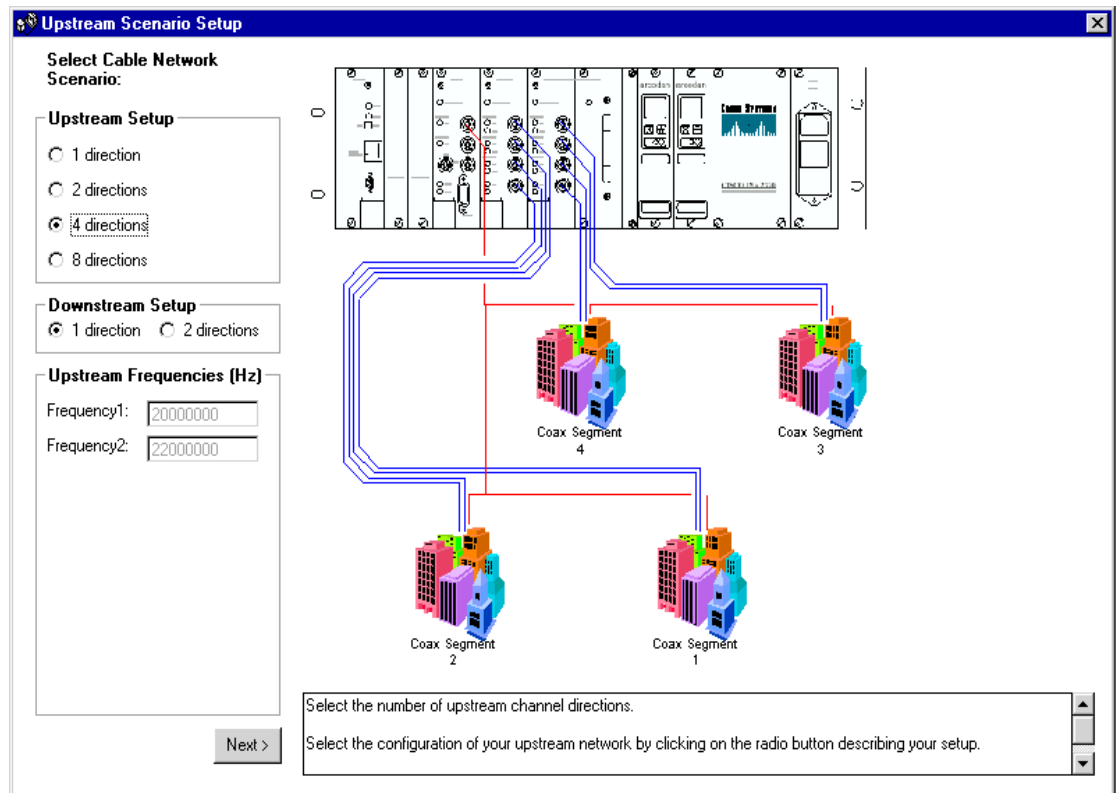
**Step 2 Number of Downstream Channel Directions:** Select the number of downstream channel directions that matches the configuration of your downstream network by clicking on the appropriate radio button:

- 1 Direction
- 2 Directions

**Step 3 Number of Upstream Channel Directions:** Select the number of upstream channel directions that matches the configuration of your upstream network by clicking on the appropriate radio button:

- 1 Direction
- 2 Directions
- 4 Directions
- 8 Directions

**Figure 3** The Upstream Scenario Setup Screen



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**Step 4 Upstream frequency 1 ... 8:** Type in the relevant number of upstream frequencies. Note that the first upstream frequency is also the frequency of the service channel. If the signal from this upstream channel is combined with other upstream channels, make sure that the frequencies do not overlap. When using 2 MHz bandwidth, the frequencies should be at least 2 MHz apart.

Valid range: 5000000 - 65000000 [Hz]

Default: 20000000

**Step 5 Downstream Frequency:** Type in the center frequency for the downstream channel.

For the Cisco INA2320 equipped with VHF upconverters (Arcodan module Type 94312):

Valid range: 118000000 - 450000000 [Hz]

For Cisco INA2320s equipped with UHF upconverters (Arcodan module Type 94313):

Valid range: 470000000 - 858000000 [Hz]

Default: 650000000 [Hz]



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**Note** Cisco recommends the VHF upconverter (Arcodan module Type 94312) for out-of-band (OOB) transmissions.

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**Step 6 Bandwidth Type:** Select the bandwidth and enter the parameters for the Cisco INA2320 downstream signal.

If you are connecting cable modems or set-top boxes (STBs) that support DVB In-Band signaling to the Cisco INA2320, select **bw8MHz IB**.

If you are connecting STBs that do *not* support DVB in-band signaling, select **1 or 2 MHz OOB**.

Default value: bw8MHz IB

**Step 7 Modulation Scheme:** Select the modulation scheme for the Cisco INA2320 downstream signal.

If you are connecting cable modems that support DVB in-band signaling to the Cisco INA2320, you can choose any of the available modulation schemes, provided that they are supported by the cable modem.

For noise and network design reasons, Cisco recommends using QAM64.

If you intend to use the Cisco INA2320 on a microwave link or equivalent, Cisco recommends that you select the modulation scheme **QPSK**.

Default value: QAM64

**Step 8 Symbol Rate:** Select the symbol rate you want to use for the Cisco INA2320 downstream signal.

For In-Band operation, select **6.9 Msymbols/s**.

For use with QPSK modulation, 6.875 Msymbols/s is typically used.

Default value: sym6900000

**Step 9 Downstream 2:** If you selected two downstreams, to add the second downstream, repeat Step 5 through Step 8 above.

**Step 10 Subnet IP:** Type the IP address to be used on the hybrid fiber-coaxial (HFC) interface of the Cisco INA2320 (primary subnet). This is the default gateway used by the connected cable modems or STBs and *must* be on a different subnet than the subnet for the Cisco INA2320 Ethernet IP address.

Default value: 192.168.2.1

**Step 11 Subnet Mask:** Type the IP subnet mask for the Cisco INA2320 HFC IP subnet (primary subnet).

Default value: 255.255.255.0

**Step 12 IP address:** Type in the IP address of the Dynamic Host Configuration Protocol (DHCP)/BootP server. This causes the Cisco INA2320 to forward DHCP/BootP requests directly to this IP address, rather than to use broadcasts. This is the primary IP helper address—from the Cisco Cable DVB/DAVIC Management Program. It is possible to enter a secondary IP helper address as a backup.

If you have no DHCP/BootP server on your network, or you do not want to direct DHCP/BootP requests directly to a specific IP address, leave the default value in this field.

Default value: 0.0.0.0

**Step 13** You must now set the upconverter downstream frequency indicated by the Cisco INA2320 Setup Tool. Go to the Cisco INA2320 and identify which upconverter module you need to use, VHF or UHF.



**Note**

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The upconverters are the Arcodan modules on the front panel of the Cisco INA2320. The VHF is Type 94312 (recommended for OOB use), and the UHF is Type 93313.

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Now follow these steps:

- a. Simultaneously hold down the **UP** and **DOWN** buttons of the appropriate module until **PROG MODE** appears in the display (approximately 2 seconds).
- b. Press the **DOWN** button to find the **CENTER** menu.
- c. Press the **ENTER** button.
- d. Press the **UP** or **DOWN** button to select the frequency **XXX.XX MHz**.
- e. Press the **ENTER** button again.
- f. Simultaneously hold down the **UP** and **DOWN** buttons until **STORE DATA** appears in the display (approximately 2 seconds).

**Step 14** Now return to your setup PC and click **OK** on the Setup via Ethernet tab to continue.

**Step 15** A new prompt appears advising you to click **OK** to reboot the Cisco INA2320 and thereby activate the new settings. If you are satisfied that you have entered the correct values, click **OK**.

The Cisco INA2320 now reboots. This can take up to 5 minutes.

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## Report Generation

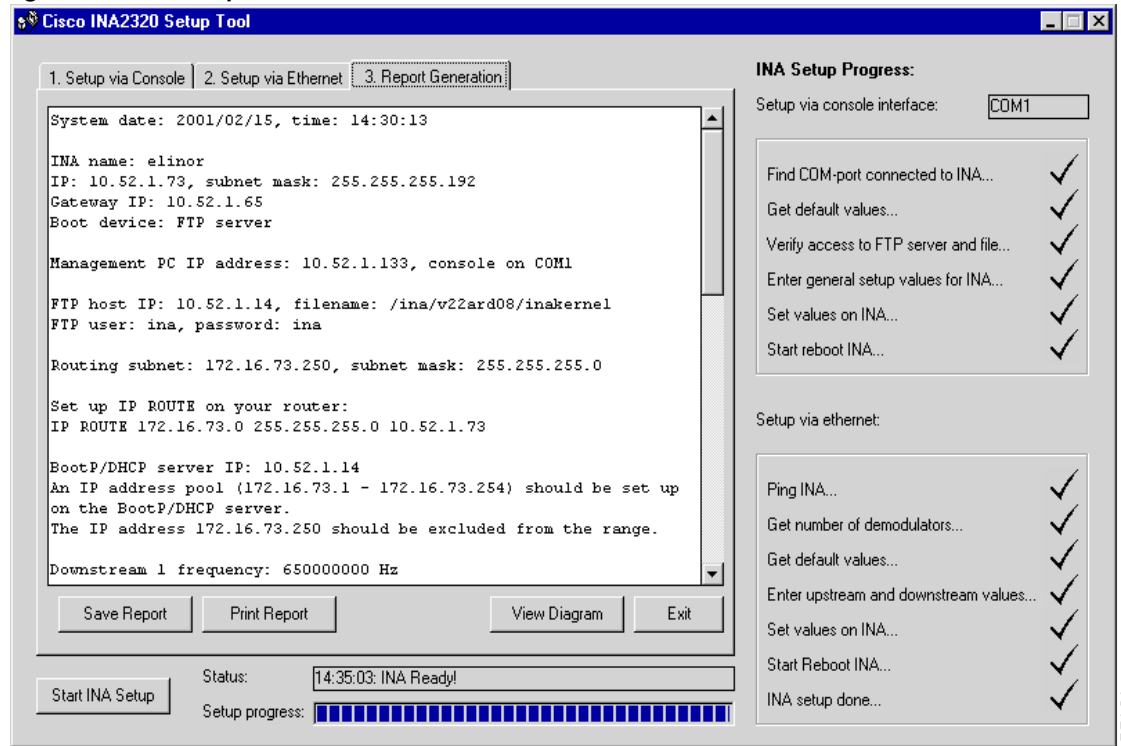
When the reboot is completed, the Report Generation tab appears (see Figure 4).

This lists the values for each of the parameters you have entered. It also contains additional remarks concerning the router and Dynamic Host Configuration Protocol setup.

The report can be printed or saved as a text file, or both.



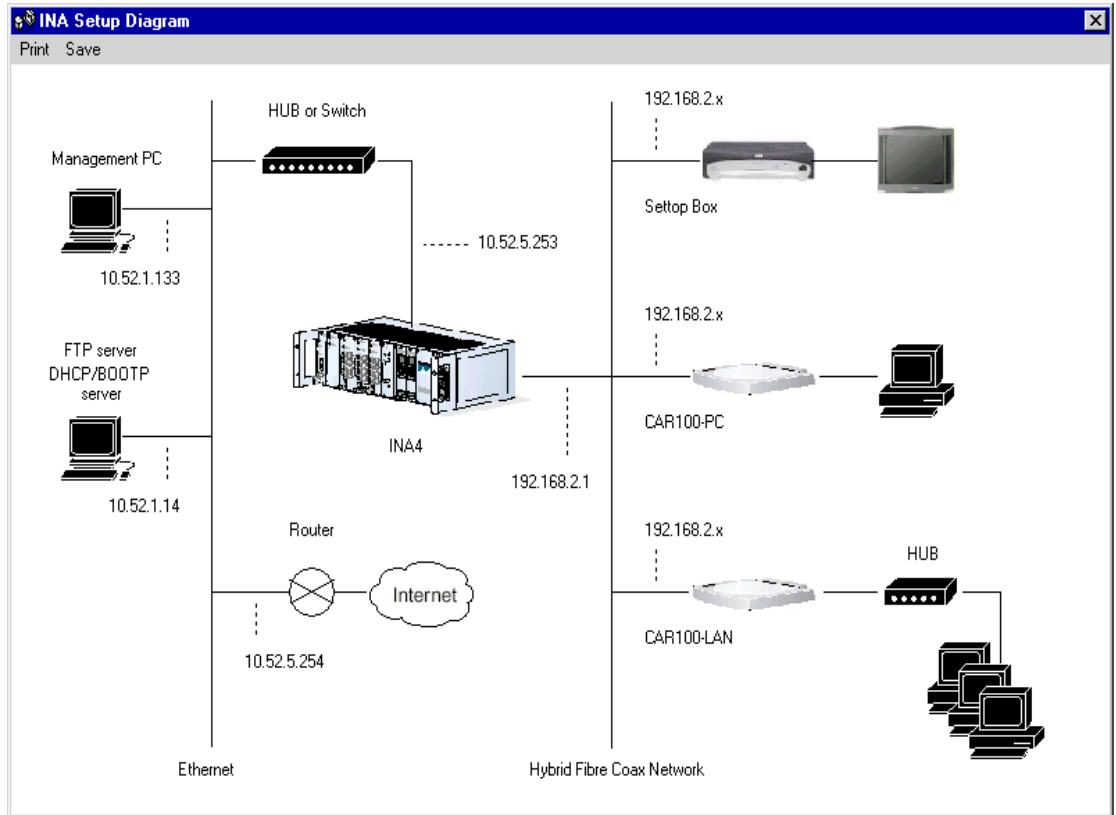
Figure 4 The Report Generation Screen



Clicking **View Diagram** causes a graphical representation of your specific network setup to appear (see Figure 5).

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Figure 5 The INA Setup Diagram



This diagram shows the IP addresses both on the cable and on the Ethernet side of the network. The diagram can also be printed by clicking the **Print** button.

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