Model DSA.net
Ethernet Interface

Configuration Manual

9237578A

ISO 9001
SYSTEM
CERTIFIED

CE

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The information in this document describes the product as accurately as possible, but is subject to change without notice.

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Preface

Designed expressly for remote MCA control, the DSA.net Ethernet Interface connects the DSA-1000 MCA to an Ethernet network via the MCA's RS-232 port. Though ideally suited for controlling remote MCAs, the DSA.net Interface can also be used in place of an RS-232 connection between a local MCA and the host computer. The latter system may see a lower throughput when compared to a direct USB connection.

Notes

1. Hardware Setup

This chapter describes the Interface's rear panel's indicators and connectors (Figure 1) and tells you how to connect the system's cables (page 3).

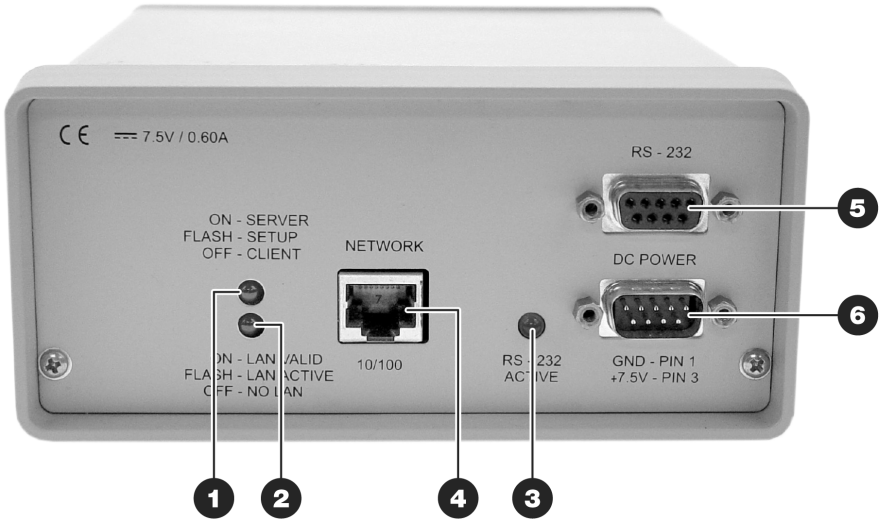

Figure 1 The DSA.net's Rear Panel

Indicators

There are three indicators on the DSA.net's rear panel: Server/Client, LAN status and RS-232 status.

Server/Client LED ①

- On – The instrument is in the Server Mode.
- Off – The instrument is in the Client Mode.
- Regular Flashing – The instrument is in the Setup Mode.
- Irregular Flashing – Power On Self Test Mode.

LAN Status LED ②

- On – The LAN connection is valid.
- Off – There is no LAN connection.
- Flashing – The LAN is active (the activity might not be related to this unit).

RS-232 Status LED ③

- Flashing – The RS-232 computer interface is active.
- Off – The RS-232 computer interface is not active.

Connectors

There are two data connectors and one power connector on the DSA.net's rear panel.

Network Connector ④

The network cable transfers data and commands between the host computer and the DSA.net unit via a 10 Base-T/100 Base-T Ethernet connection using the TCP/IP protocol. You must supply your own Ethernet network cable. For CE compliance, it must be a shielded CAT5 cable.

RS-232 Connector ⑤

The RS-232 connection transfers data and commands between the DSA.net Ethernet Interface and the DSA-1000 MCA. For detailed information about the use of this connection, refer to "Using the RS-232 Port" in the *DSA-1000 User's Manual*.

DC Power Connector ⑥

The preamp cable from the DSA-1000 MCA supplies operating power to the DSA.net Interface.

CAUTION Using the DSA-1000's original (small) AC Adapter can result in poor resolution when used with the DSA-1000 / DSA.net system.

For best results, power the DSA-1000 / DSA.net system with the larger AC Adapter supplied with the DSA.net.

Connecting the DSA.net Cables

This section provides step-by-step instructions for connecting the DSA.net Interface to the DSA-1000 MCA (Figure 2). For the remaining DSA-1000 connections, refer to the *Controls and Connectors* chapter in the *DSA-1000 User's Manual*.

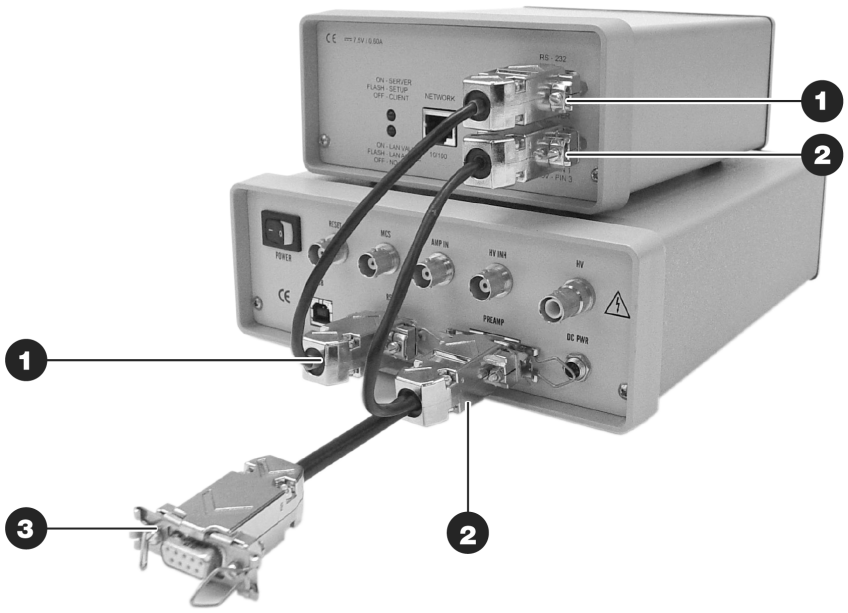

Figure 2 Connecting the DSA.net Interface

1. Connect the double-ended cable between the DSA.net's RS-232 jack ① and the DSA-1000's RS-232 jack ①.

2. Connect the three-connector cable between the DSA-1000's PREAMP jack ② and the DSA.net's DC POWER jack ②.

3. Connect the 9-pin male connector on the Preamp cable to the 9-pin female connector on the free end of the three-connector cable ③.

4. Connect the Ethernet cable to the DSA.net's NETWORK jack.

Note: You must supply your own Ethernet cable. For CE compliance, it must be a shielded CAT5 cable.

2. Creating the MID File

The first step in using your DSA.net Interface is to create an MCA Input Definition (MID).

You'll use the MID Wizard, described in the next section, to set up your Input Definition quickly and easily.

If you want to change an existing definition, you'll have to use the MID Editor. Refer to *The MCA Input Definition Editor* section of the *DSA-1000 Digital Spectrum Analyzer Hardware Manual*

The MID Wizard

To use the MID Wizard, open the Genie 2000 folder and select the MID Wizard icon to start the definition process.

Beginning the Definition

Defining the operating parameters for the DSA.net Interface is a five-step process, each of which is detailed in the paragraphs that follow.

Note: To complete the process, you'll need to get the following data from your System Adminstrator: the static IP Address, the Subnet Mask, and the Gateway Address.

Step 1 – Selecting the MCA

The first screen (Figure 3) asks you to choose the MCA you want to create a definition for.

Click on the plus sign next to Network MCA to expand its list, then select DSA.net as your MCA.

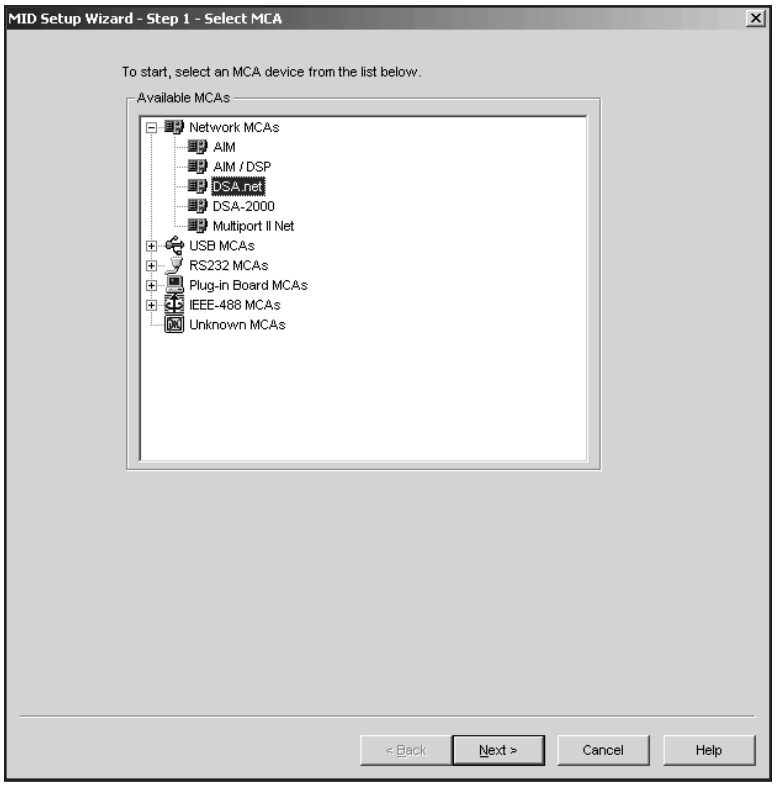

Figure 3 Selecting the MCA

Step 2 – Configuring the MCA

The second screen (Figure 4) lets you define the MCA.

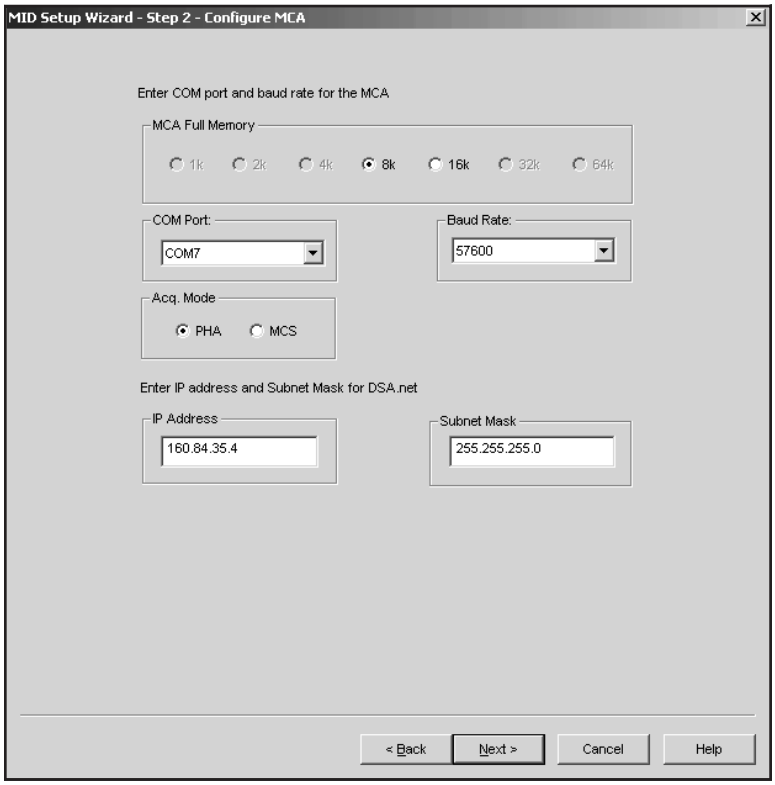

Figure 4 Configuring the MCA

MCA Full Memory

Select the MCA's memory size, 8k or 16k.

Com Port

Select the communications port, COM7–COM24.

Baud Rate

Select the communications port's baud rate, 57600 or 115200.

Acq Mode

Select PHA or MCS

IP Address and Subnet Mask

Enter the static IP Address and Subnet Mask supplied by your System Administrator.

Step 3 – Configuring the Detector

The third screen (Figure 5) asks you to configure the detector.

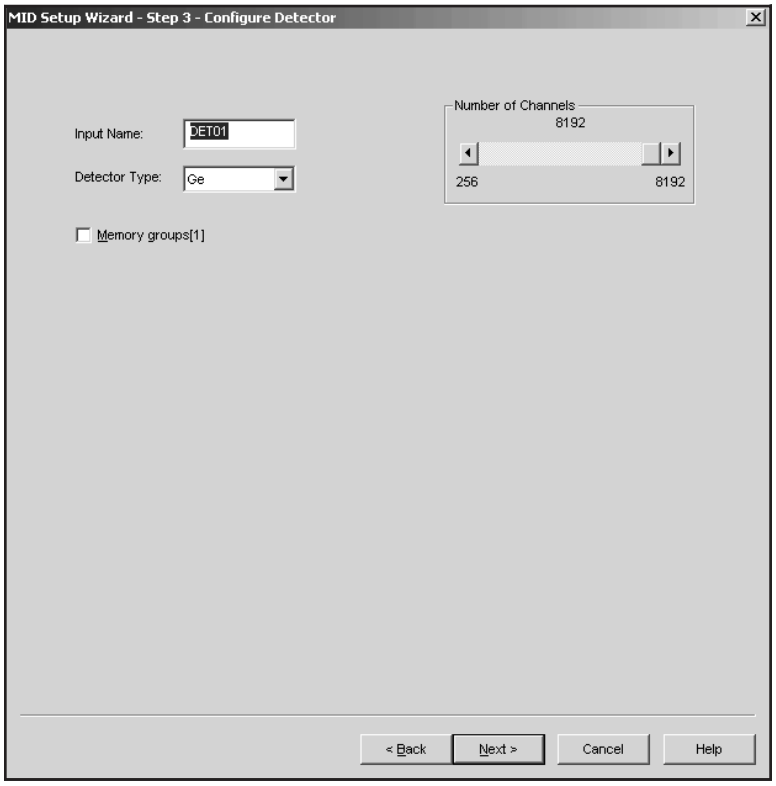

Figure 5 Configuring the Detector

Input Name

The default, DET01, can be changed to a more meaningful name.

Detector Type

Specify the type of detector you're using, Ge, Alpha or NaI.

Number of Channels

Use the slider to set the number of memory channels assigned to this MCA.

Memory Groups

Check this checkbox if you want to divide the assigned memory into two equally sized groups. The box's legend will change from Memory Groups(1) to Memory Groups(2).

Steps 4 and 5 – Not Used

You won't see the screens for Steps 4 and 5; they are not used when configuring the DSA.net Interface.

Step 6 – Configuring the HVPS

The next step (Figure 6) configures the High Voltage Power Supply.

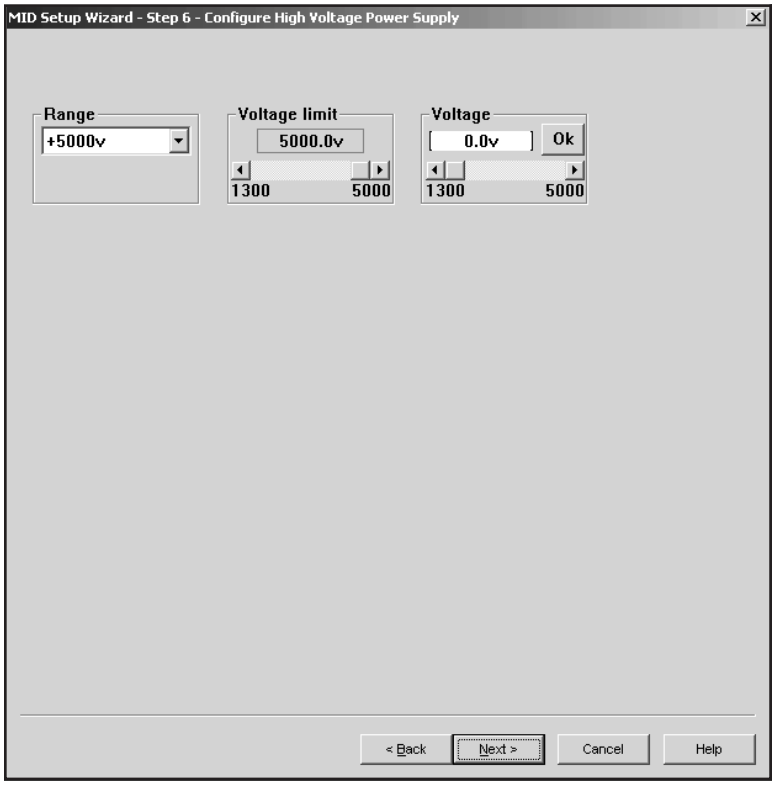

Figure 6 Configuring the HVPS

Range

Select the HVPS's output Range.

Voltage Limit

Set the HVPS's maximum Voltage Limit within the chosen range.

Voltage

Specify the actual output voltage.

Step 7 –Reviewing the Definition

Step 7 (Figure 7) lets you review a summary of the Input Definition and asks you to enter the definition's MID FileName.

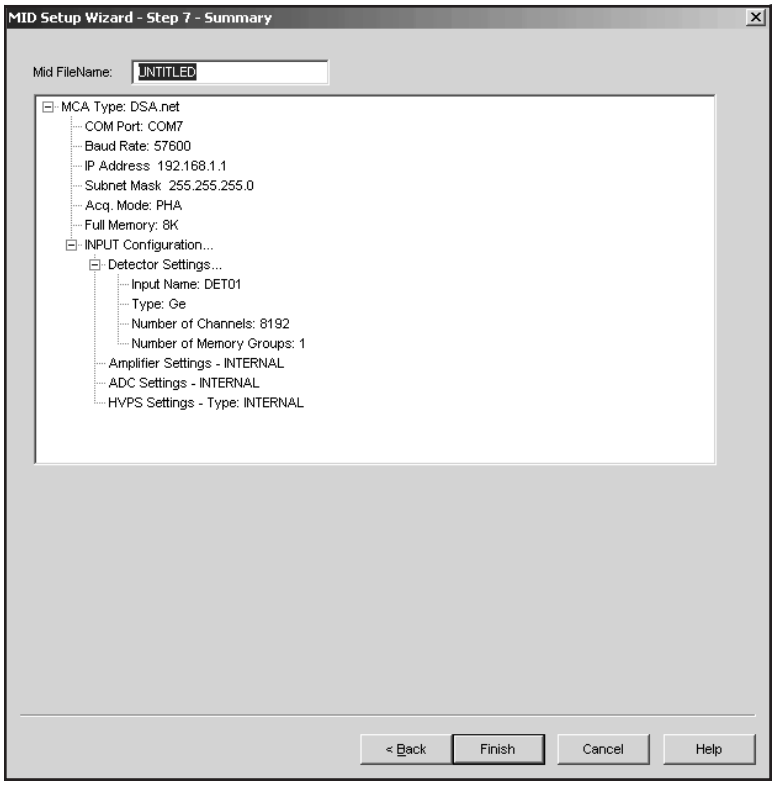

Figure 7 Summarizing the Definition

Ending the Definition

To complete the Definition, select **Finish**. The input that you just defined will be stored as an MID file named FileName.MID in the ?:\Genie2k\MIDFiles directory.

The Input Name field at the top of Figure 7 defaults to UNTITLED, which you'll probably want to change to something more meaningful. If the name you enter is the same as that of an existing MID file, the system will ask if you want to overwrite the existing file.

Note: Normally, the saved file is automatically loaded into Genie 2000's Runtime Configuration Database, but the DSA.net definition requires further information, entered via a configuration utility before the definition is complete.

The next screen (Figure 8) advises you *not* to load it before running the Serial IP Configuration Utility (page 11).

Figure 8 Don't Load the File Into the Database

Finally, you'll be asked if you would like to define another input. Answer **Yes** to define another MID file or **No** to close the Wizard.

3. Serial IP Configuration

The DSA.net Configuration Utility is used to change the default settings of the Serial IP Server. This includes changing the default IP address to a static IP address assigned by the System Administrator and setting the communications protocols.

When configuration is complete, the Serial /IP Control Panel (page 16) will be launched to link the virtual Com Port defined in the MID file to the Server's new IP address.

- You must have defined one or more MID files (page 4) before you can work with the Serial IP Configuration Utility.
- The Utility cannot be used with a MID file that is loaded into Genie-2000's MCA Runtime Configuration Database.
- To unload a MID file from the database, close all running Genie applications except the MID Editor then use its "Database | Unload from" command.

Launching the Configuration Utility

The Utility cannot be launched if any Genie 2000 applications are running. Be sure to close them before launching the Utility.

- The first time the Utility is run, it will automatically install the third party "Tactical's Serial IP for DCB, Inc." software. If the installation fails, run ?:\GENIE2K\EXEFILES\Redirect_DCB_Canberra424.exe, where ? is the drive Genie 2000 is installed on. Note: Administrator privileges are required for installation.
- Insure the DSA.net Interface is powered on and connected to the network. The flashing green LED on the unit's rear panel indicates network activity.
- Browse to and run ?:\GENIE2K\EXEFILES\DSANETConfig.exe, where ? is the drive Genie 2000 is installed on.
- To avoid duplicate IP addresses on the network, connect only one new (factory default settings) DSA.net Interface unit at a time.

Step 1 – Selecting a Device

Figure 9 shows the Utility with three DSA.net Interfaces listed.

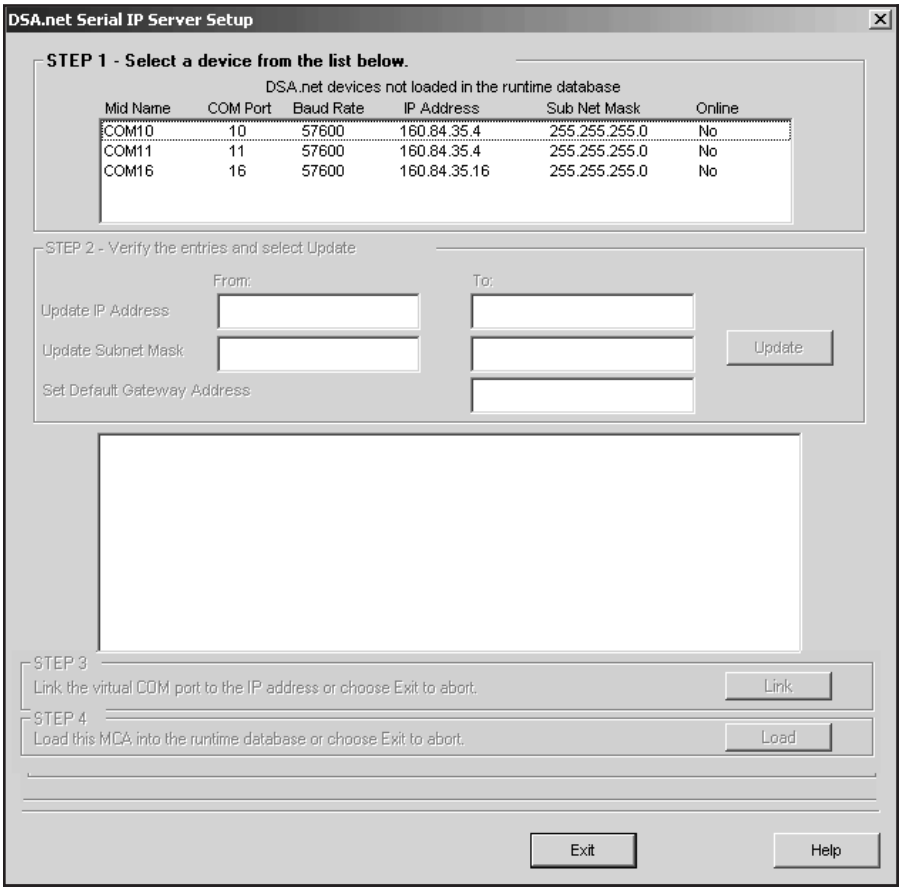

Figure 9 The Utility with Example Devices Listed

Step 2 – Verifying the Entries

1. To configure a device, double click on device's entry in the list. The Step 2 data fields will be populated (Figure 10).

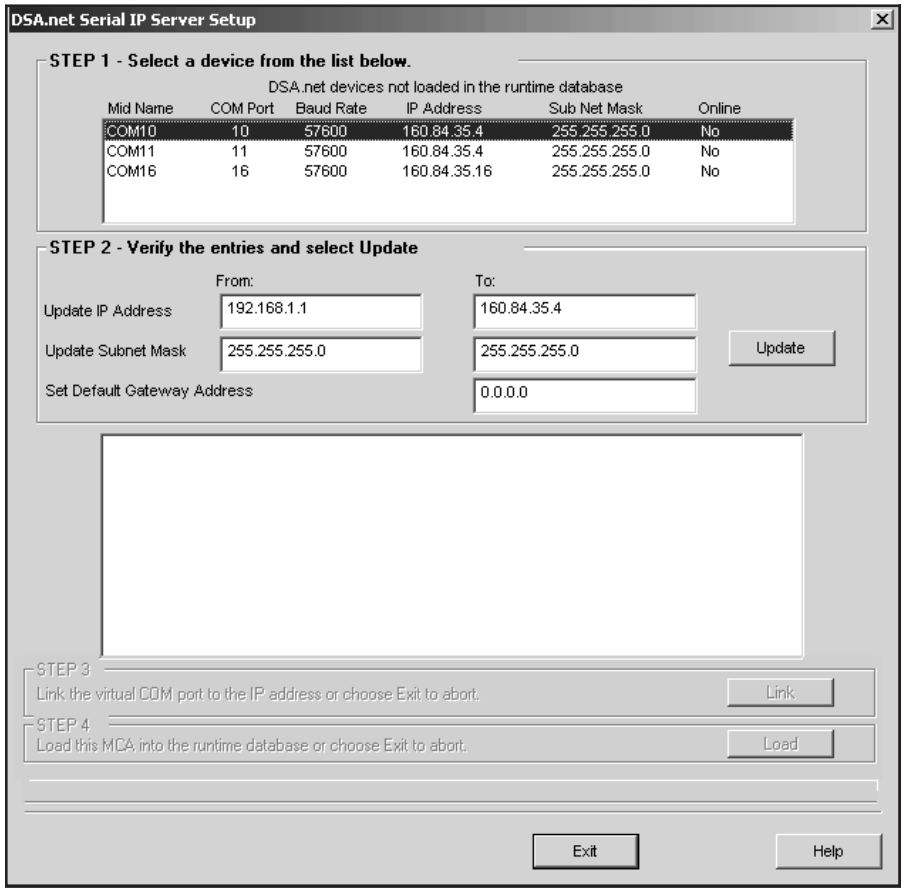

Figure 10 Parameters Loaded

- If the device's IP Address is off line, the factory defaults for the Serial IP server will populate the "From" fields. The "To" fields will contain the values from the MID file.

- If the device's IP Address is on line, the values from the MID file will be used to populate the "From" fields. The "To" fields will be blank.

- The Set Default Gateway Address defaults to 0.0.0.0, limiting the DSA.net Interface's network access to computers on the same network node.

- To access the DSA.net Interface from any computer on a multi-node network, you must change the default Gateway Address in Step 2. Your System Administrator will provide the address for the node on which the DSA.net's IP address resides.

2. Modify the parameters as required.

3. Click the **Update** button to start the configuration process. Progress and status messages will be displayed in the Status box (Figure 11).

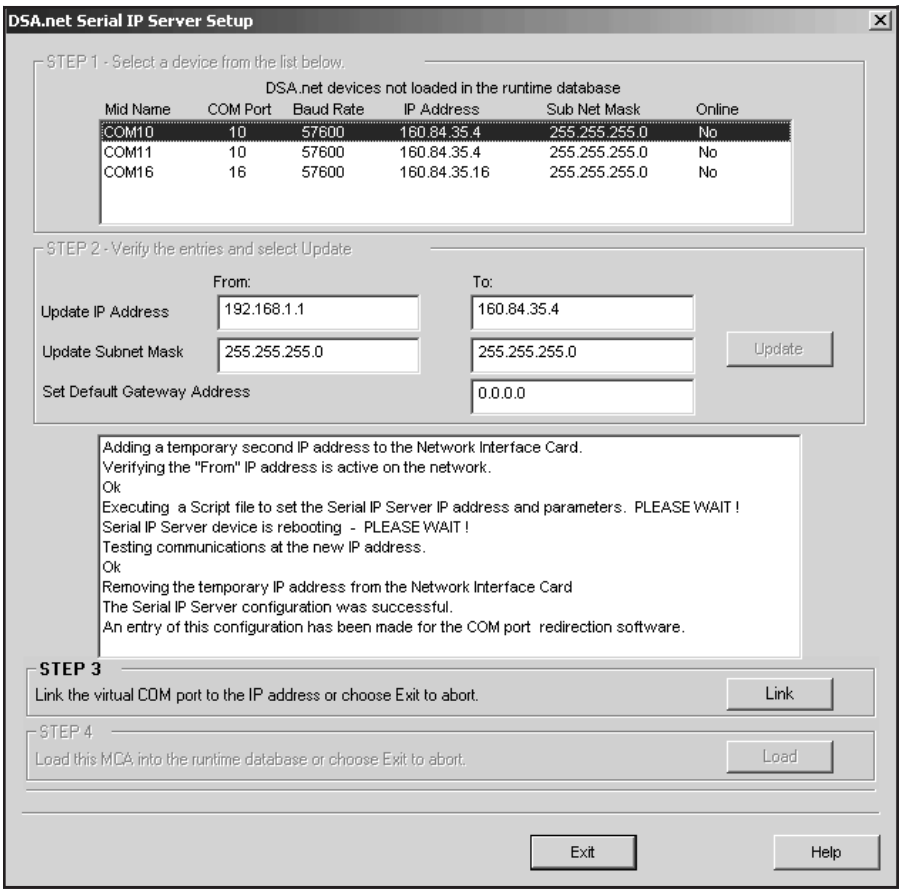

Figure 11 Progress Messages Displayed

4. When the parameters have been downloaded to the Serial IP Server, the Server will reboot and Step 3 will be enabled.

CAUTION Please wait until the Step 2 Update process finishes and Step 3 is enabled. If you use the keyboard or mouse during this time, incorrect data can be transmitted and the process will fail.

Step 3 – Linking the COM Port

> Note: The Serial/IP Configuration software's "Select Ports" option is the only one used by DSA.net. No other options are supported by Canberra.

When you click the **Link** button, the Serial /IP Control Panel (Figure 12) will be launched. In addition to the port you're configuring now, any previously configured port (COM7 in the illustration) will also be listed.

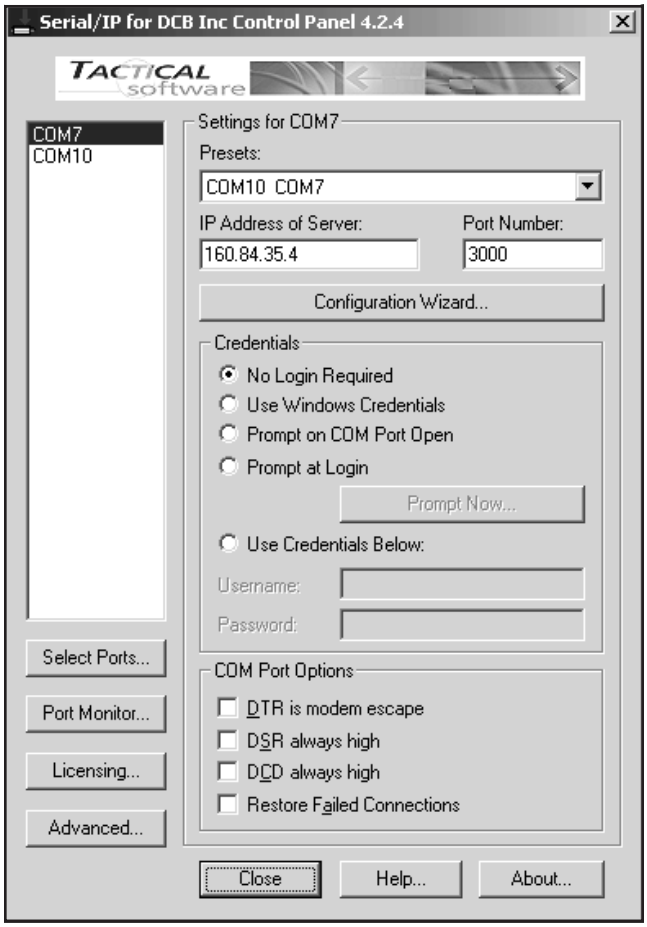

Figure 12 The Serial /IP Control Panel

1. To confirm the assigned ports, click the **Select Ports** button to open the Ports dialog (Figure 13).

2. You'll see a check mark next to the Com Port being configured as well as any previously configured ports (COM7 in the illustration).

CAUTION The settings in the Select Ports dialog are presented for information only. Changing any of them will cause undesired system operation.

3. Click the **OK** button then the **Close** button.

4. The Serial /IP Control Panel window will close and you'll be returned to the Configuration Utility with Step 4 enabled.

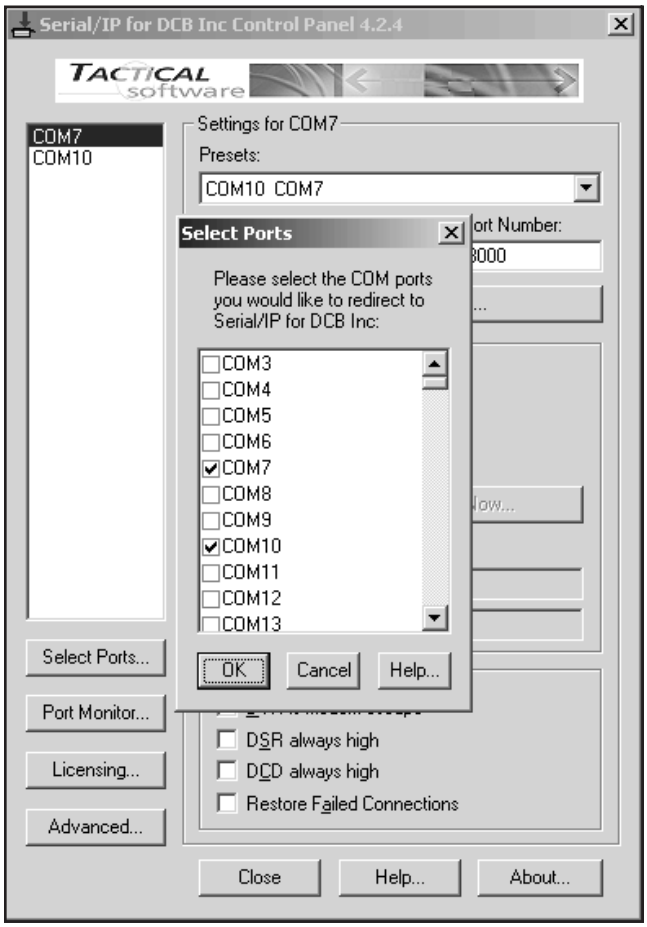

Figure 13 Linking the Com Port to the IP Address

Step 4 – Loading the MID File Into the Database

In Step 4, click the **Yes** button to load the MID file into the Genie 2000 MCA Runtime Database and remove it from the list box.

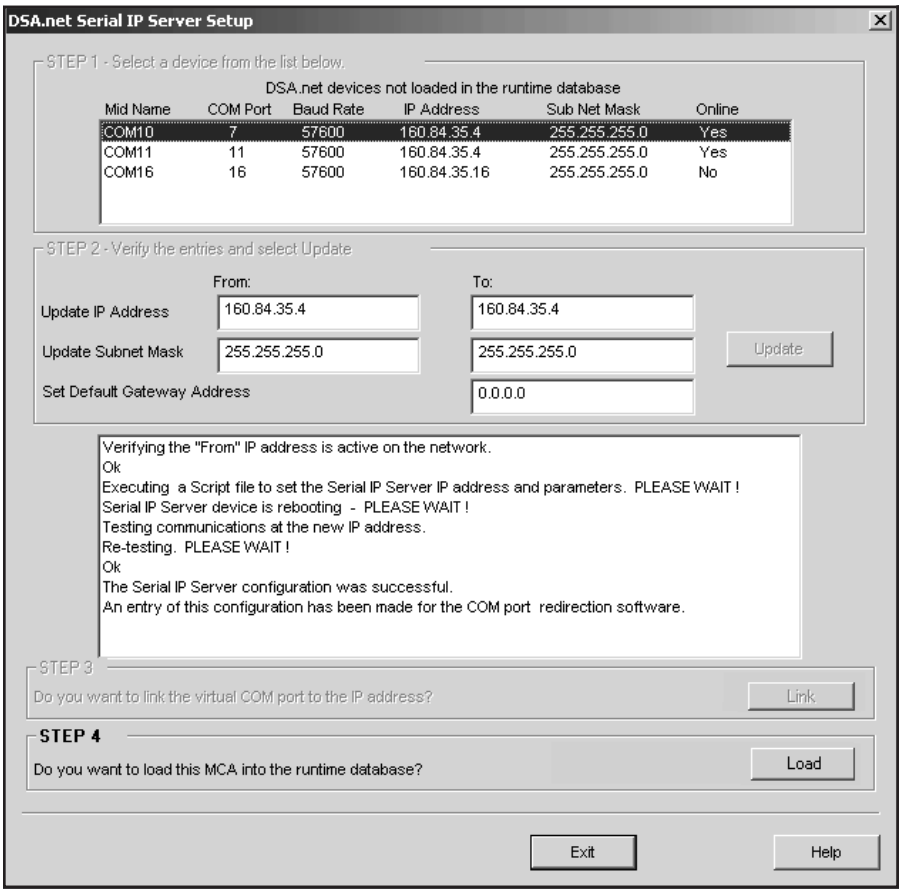

Figure 14 Load the MCA into the Database

You can either repeat the process for another DSA.net Interface in the list box or click the **Exit** button to close the application.

The DSA.net setup is complete.

Note: You can also load the file into the database by closing all running Genie applications except the MID Editor and using its “Database | Load to” command.

A. Specifications

Inputs/Outputs

NETWORK – The network cable transfers data and commands between the host computer and the DSA.net unit via a 10 Base-T/100 Base-T Ethernet connection using the TCP/IP protocol. You must supply your own Ethernet network cable. For CE compliance, it must be a shielded CAT5 cable.

RS-232 – The RS-232 connection transfers data and commands between the DSA.net Ethernet

Power

DC POWER – DC power input from DSA-1000 rear panel connector; nominal 7.5 V dc at 0.6 A.

Indicators

SERVER/CLIENT – ON when the instrument is in the Server Mode; OFF when the instrument is in the Client Mode; irregular FLASHING during Power On Self Test Mode; regular FLASHING when the instrument is in the Setup Mode.

LAN – ON when the LAN connection is valid, FLASHING when there is LAN activity, OFF when there is no LAN connection.

RS-232 ACTIVE – ON when activity is present on the RS-232 bus, OFF when no activity is present.

Environmental

OPERATING TEMPERATURE – 0 to 50° C.

OPERATING HUMIDITY – Up to 80%, non-condensing.

Physical

ENCLOSURE – Metal and Plastic.

SIZE – 6.4 x 14.0 x 16.8 cm (2.5 x 5.5 x 6.6 in.) (HWD)

WEIGHT – 0.73 kg (1.6 lb).

B. Installation Considerations

This unit complies with all applicable European Union requirements. Compliance testing was performed with application configurations commonly used for this module.

During the design and assembly of the module, reasonable precautions were taken by the manufacturer to minimize the effects of RFI and EMC on the system. However, care should be taken to maintain full compliance. These considerations include:

- The use of a shielded CAT5 cable for Ethernet connection.
- Compliant grounding and safety precautions for any internal power distribution.
- The use of CE compliant accessories such as fans, UPS, etc.

Any repairs or maintenance should be performed by a qualified Canberra service representative. Failure to use exact replacement components, or failure to reassemble the unit as delivered, may affect the unit's compliance with the specified EU requirements.

Preventive Maintenance

Preventive maintenance is not required for this unit.

Cleaning the Unit

When needed, the unit may be cleaned with a soft cloth dampened with warm water. Remove power from the unit before cleaning. Be certain that unit is fully dry before restoring power.

C. Reset to Default

If you forget, or don't know, your DSA.net's IP address, you can reset the unit to the factory default status with DSA.net's Terminal Configuration program.

1. Connect a null-modem cable between the 9-pin RS-232 connector on the DSA.net (number ⑤ in Figure 1) and the RS-232 connector your PC (COM1 or COM2).

2. Run a terminal emulation program, such as HyperTerminal, on your PC. Be sure that the communications port you specify in this program (COM1 or COM2) is the same as the one you plugged the cable into in Step 1.

   Set the emulation program's COM port parameters to:

Baud rate	9600
Data bits	8
Parity	None
Stop bits	1
Flow control	None

3. Press the momentary action pushbutton switch behind the small hole on the right side of the DSA.net. This switch can be pressed with a tiny screwdriver or a stiff wire, such as a straightened paper clip.

4. Choose Menu Option 6 to restore all values to their default state.

> Note: Menu options 1, 6 and 7 are the only ones used for Reset to Default. No other menu options are supported by Canberra.

5. If necessary, you can view the default configuration by choosing Menu Option 1.

6. Choose Menu Option 7 to store the default parameters and exit the configuration program,

CANBERRA

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