Captaris

RightFax

8.5 Fax Board Guide

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Contents

Introduction

The *RightFax Fax Board Guide* is designed for administrators who will be installing and configuring fax boards for use with RightFax. This guide assumes you have knowledge of the Windows NT and Windows 2000 operating systems as well as general knowledge of computer hardware installation procedures and conventions. In addition, this guide assumes that you have read and understand all documentation provided with your fax board.

RightFax supports a maximum of 15 fax boards or 96 fax channels per machine. To expand your organization's fax capacity beyond these limits, you must use remote BoardServers (described in the *RightFax Administrator's Guide*) or BoardServers on separate fax server machines.

The *RightFax Fax Board Guide* is intended only to supplement the documentation provided by your fax board manufacturer and is not intended as a replacement. Although Captaris makes every effort to ensure that the information in this guide is current, the functionality of the fax boards described here is subject to change by the board manufacturers.

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Chapter 1
Brooktrout Analog Fax Boards

Before installing any fax board into the RightFax server, you must first configure the board to operate correctly and without hardware conflicts. If you are installing multiple fax boards of the same or different types, watch for special notes specific to such instances. Be sure to record the I/O addresses, DMA channels, and interrupts selected for each installed fax board; you may need this information when configuring the fax boards in RightFax.

> ***Warning*** *Static discharge can severely damage your fax board. Exposing your fax board to static electricity will void all warranties on the board. Always use caution when handling fax boards.*

Installing Brooktrout TR1034 Series Analog Fax Boards

The Brooktrout TR1034 series of analog fax boards supports the v.34 fax standard, which allows fax transmission at up to 33.6 kBPS. Instructions in this section apply to all supported Brooktrout TR1034 analog fax boards unless otherwise noted. (If you are installing Brooktrout TR1034 series *digital* fax boards, see "Supported Brooktrout TR1034 Series Digital Fax Boards" on page 17.)

The following table lists all of the Brooktrout TR1034 series analog fax boards supported by RightFax.

Table 1A Supported Brooktrout TR1034 Series Analog Fax Boards

Board model	Description
TR1034-P2L	Two loop-start channel PCI analog fax board.
TR1034-P4L	Four loop-start channel PCI analog fax board.

In Brooktrout's naming scheme, "TR1034" is the board model, "P" stands for PCI, followed by the number of channels, and then "L" for the loop-start phone line interface.

Setting the module number

Each installed Brooktrout TR1034 board must be assigned a unique "module number." The module number is set using a rotary switch located on the fax board. Refer to your Brooktrout documentation for the location of the rotary switch on your particular fax board model.

> ***Warning*** *Do not use a pencil or any other object that conducts electricity to move the rotary switch on the Brooktrout TR1034 board. Using graphite and other electrically conductive materials may cause severe damage to the board.*

The module number must be unique for each Brooktrout TR1034 fax board installed in a single computer (i.e., you cannot have two TR1034 boards in the same computer with the same module number setting). Module numbers do not need to be sequential. Also, do not set the module number on any Brooktrout TR1034 board to 0 or 1 (these values are reserved by Brooktrout for diagnostic purposes.)

Make a note of the module numbers you assign to each installed TR1034 fax board. You will need to enter this information when configuring the RightFax software to communicate with the boards.

Installing Brooktrout TR1034 fax boards

Fax boards can be installed in the RightFax server or in a separate computer called a "remote BoardServer." For information on using remote BoardServers, refer to the *RightFax Administrator's Guide*.

After you have properly set the module numbers on each of your Brooktrout TR1034 fax boards, you are ready to install them. Always turn your computer off before inserting or removing any board, and take all necessary precautions to prevent static discharge when handling any fax board. Brooktrout TR1034 fax boards can be installed in any PCI bus slot.

After the fax boards are properly installed, refer to your Brooktrout documentation for instructions on connecting the loop-start phone cables.

Downloading firmware to the Brooktrout TR1034

After your Brooktrout TR1034 fax boards have been installed, you must download the fax firmware to the installed Brooktrout TR1034 boards.

To download the TR1034 fax firmware

1. Open a command prompt and change to the RightFax\RFBoard folder on the RightFax server.
2. Enter the following command:

   ```
   Firmload.bat c channels path module
   ```

   Where *channels* is the total number of channels on all of the installed TR1034 fax boards, *path* is the path to the RFBoard\Boston folder on the RightFax server (this command only supports short file names, so you may need to truncate folder names such as "Program Files"), and *module* is the module number you have assigned to the board. If you have multiple TR1034 fax boards installed, leave the *module* parameter out. This forces the program to scan for all module numbers from 3 through F.

   Example

   ```
   Firmload.bat c 4 c:\Progra~1\RightFax\RFBoard\Boston 3
   ```

Completing the installation of your Brooktrout TR1034 fax boards

After your Brooktrout TR1034 fax boards have been installed and the fax firmware has been downloaded to them, you should test the fax channels to ensure that the boards have been properly configured and installed. For information on testing your fax channels, see "Testing the ability to send a fax" on page 15.

When you have completed installing and testing your Brooktrout TR1034 fax boards, you must configure the RightFax software to communicate with the boards. For information on configuring RightFax to work with your fax boards, refer to the chapter on configuring the RightFax BoardServer in the *RightFax Administrator's Guide*.

Installing Brooktrout TR112 Fax Boards

The Brooktrout TR112 series of fax boards are two channel analog boards supported by RightFax but no longer manufactured by Brooktrout. These boards require you to set an I/O address and hardware interrupt before installing. For details on these settings, see the following section, "Installing Brooktrout TR114 Series Analog Fax Boards."

Please refer to your Brooktrout documentation for instructions on setting the I/O and hardware interrupts on your TR112 fax board.

Installing Brooktrout TR114 Series Analog Fax Boards

The Brooktrout TR114 series of analog fax boards consists of models with up to four channels of some combination of loop-start and/or DID channels. Instructions in this section apply to all supported Brooktrout TR114 analog fax boards unless otherwise noted. (If you are installing Brooktrout TR114 series *digital* fax boards, see "Supported Brooktrout TR114 Series Digital Fax Boards" on page 18.)

The following table lists all of the Brooktrout TR114 series of analog fax boards supported by RightFax.

Table 1B Supported Brooktrout TR114 Series Analog Fax Boards

Board model	Functionality
TR114-I1L	One loop-start channel ISA analog fax board.
TR114-I2C	One loop-start and one DID channel ISA analog fax board. Requires Tellabs 8012 power supply.
TR114-I2D	Two DID channel ISA analog fax board. Requires Tellabs 8012 power supply.
TR114-I2L	Two loop-start channel ISA analog fax board.
TR114-I4C	Two loop-start and two DID channel ISA analog fax board. Requires Tellabs 8012 power supply.
TR114-I4D	Four DID channel ISA analog fax board. Requires Tellabs 8012 power supply.
TR114-I4L	Four loop-start channel ISA analog fax board.
TR114-P1L	One loop-start channel PCI analog fax board.
TR114-P2C	One loop-start and one DID channel PCI analog fax board. Requires Tellabs 8012 power supply.
TR114-P2D	Two DID channel PCI analog fax board. Requires Tellabs 8012 power supply.
TR114-P2L	Two loop-start channel PCI analog fax board.
TR114-P4C	Two loop-start and two DID channel PCI analog fax board. Requires Tellabs 8012 power supply.
TR114-P4D	Four DID channel PCI analog fax board. Requires Tellabs 8012 power supply.
TR114-P4L	Four loop-start channel PCI analog fax board.

In Brooktrout's naming scheme, "TR114" is the board model, "I" or "P" indicates ISA or PCI, followed by the number of channels, and then a letter indicating the type of phone line interface (loop-start, DID, or combination).

Brooktrout TR114 boards that support DID interfaces require an external –48V DC power supply. Brooktrout recommends the Tellabs 8012 regulated power supply, which provides 250 mA of current (see "Connecting a Tellabs 8012 power supply to a DID fax board" on page 33). This must be purchased separately from your fax board. Phone cables of the appropriate type for your phone lines (RJ-45 or RJ-11) are also required.

Setting the I/O address

Before installing the Brooktrout TR114 fax board into the RightFax server, you must manually set the base I/O address of the board. The base I/O address is set on the board using switches 2 through 8 on the unit marked "SW1." Refer to your Brooktrout documentation for the location of the SW1 unit on your particular fax board model.

> ***Warning*** *Do not use a pencil or any other object that conducts electricity to move the switches on the Brooktrout TR114 board SW1 unit. Using graphite and other electrically conductive materials may cause severe damage to the board.*

The first fax channel on the board uses an address four greater than the base address, and each channel after that uses an address four greater than the previous one. For example, if a Brooktrout TR114-I4L board has its base address set to 260, the four fax channels on the board will use addresses 264, 268, 26C, and 270. The recommended (factory set) base address for your first Brooktrout TR114 board is 260. If you have multiple fax boards installed, be careful not to assign overlapping I/O addresses.

The following table lists commonly used base address settings for TR114 fax boards. Using these addresses may make it easier to prevent overlapping I/O addresses when you have multiple boards installed.

Table 1C TR114 Switch Settings for Base I/O Addresses (Address Values Are Hexadecimal)

Base I/O address	Switch 2	Switch 3	Switch 4	Switch 5	Switch 6	Switch 7	Switch 8
100	On	On	On	On	On	Off	On
140	On	On	On	Off	On	Off	On
180	On	On	On	On	Off	Off	On
200	On	On	On	On	On	On	Off
220	On	On	Off	On	On	On	Off
240	On	On	On	Off	On	On	Off
260	On	On	Off	Off	On	On	Off
280	On	On	On	On	Off	On	Off
2A0	On	On	Off	On	Off	On	Off
2C0	On	On	On	Off	Off	On	Off

After you set the I/O addresses on each of your TR114 boards, make sure that switch #1 on the SW1 unit is set to the **On** position for one and only one TR114 fax board. If you have only one TR114 board installed, this switch must be set to **On**. If you have multiple TR114 boards installed, this switch should be set to **On** on one board, and set to **Off** on all the others.

Setting the hardware interrupt

The Brooktrout TR114 series of analog fax boards also requires you to configure an interrupt setting on each board. The interrupt value is selected on the board using a jumper (which looks like a small plastic cap covering two wires). Refer to your Brooktrout documentation for the location of the interrupt header on your fax board model.

All Brooktrout TR114 fax boards installed in the same computer must use the same interrupt setting. If a TR114 is already installed and operating, and you add another TR114 board, you must set the hardware interrupt on the new board to the same value as the currently installed board.

The default interrupt setting for all Brooktrout TR114 series fax boards is 5. You can use this setting or use any other interrupt setting that does not conflict with other devices on the computer. On some computers, interrupt 3 may cause a conflict with the second serial port, and interrupt 4 may conflict with the first serial port. If all of the Brooktrout TR114 boards are installed in 16-bit slots, interrupts 10, 11, and 15 are often your best choices.

> ***Note*** *If you have a combination of ISA and PCI TR114 fax boards, you must set the interrupts used by your ISA cards as "ISA only" in your server BIOS.*

Installing Brooktrout TR114 fax boards

Fax boards can be installed in the RightFax server or in a separate computer called a "remote BoardServer." For information on using remote BoardServers, refer to the *RightFax Administrator's Guide*.

> ***Warning*** *Never insert a loop-start line into a DID port. Doing so will damage the fax board and void all warranties. If you have any doubts, test the phone line with a volt meter prior to connecting it to a DID port to ensure that no current exists on the line.*

After all of your Brooktrout TR114 fax boards are configured to use the proper I/O addresses and hardware interrupt, you are ready to install them. Always turn your computer off before inserting or removing any board, and take all necessary precautions to prevent static discharge when handling any fax board. ISA TR114 boards can be installed into either an 8-bit or 16-bit slot in an ISA or EISA computer. PCI boards can be installed in any PCI bus slot.

After the fax boards are properly installed, refer to your Brooktrout documentation for instructions on connecting the DID and/or loop-start phone cables and optional power supply.

Completing the installation of your Brooktrout TR114 fax boards

After your Brooktrout TR114 fax boards have been installed, you should test the fax channels to ensure that the boards have been properly configured and installed. For information on testing your fax channels, see "Testing Brooktrout Loop-Start Boards" (page 14), and "Testing Brooktrout DID Boards" (page 15).

When you have completed installing and testing your Brooktrout TR114 fax boards, you must configure the RightFax software to communicate with the boards. For information on configuring RightFax to work with your fax boards, refer to the chapter on configuring the RightFax BoardServer in the *RightFax Administrator's Guide*.

Installing Brooktrout TruFax Boards

The Brooktrout TruFax series of analog fax boards consists of models with one or two loop-start channels. Multiple TruFax boards can be installed on a single computer, but TruFax boards cannot be used in combination with any other type of fax board. Instructions in this section apply to all supported Brooktrout TruFax boards unless otherwise noted.

The following table lists all of the Brooktrout TruFax series fax boards supported by RightFax.

Table 1D Supported Brooktrout TruFax Series Fax Boards

Board model	Functionality
TruFax	Two loop-start channel ISA analog fax board.
TruFax 100 PCI	One loop-start channel PCI analog fax board.
TruFax 200 PCI	Two loop-start channel PCI analog fax board.

Setting the I/O address

This section applies to the ISA TruFax board only. You do not need to set an I/O address on either the TruFax 100 PCI or TruFax 200 PCI.

Before installing ISA TruFax boards, you must manually set the base I/O address on each board. The base I/O address is set on the board using switches 1 through 8 on the address selection dip switch unit on the fax board. Refer to your Brooktrout documentation for the location of this unit on your board.

> ***Warning*** *Do not use a pencil or any other object that conducts electricity to move the switches on the SW1 unit. Using graphite and other electrically conductive materials may cause severe damage to the board.*

Each fax channel on the TruFax uses four consecutive I/O addresses. The address specified on the address selector switch defines the base I/O address for the first channel. The second fax channel on the board uses an address four greater than the first channel. For example, if the TruFax has its base address set to 140, the two fax channels on the board will use addresses 140 and 144. If you have multiple ISA TruFax boards installed, be careful not to assign overlapping I/O addresses.

The following table lists commonly used base address settings for TruFax fax boards. Using these addresses may make it easier to prevent overlapping I/O addresses when you have multiple boards installed.

Table 1E TruFax Switch Settings for Commonly Used Base I/O Addresses

Base I/O address	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Switch 6	Switch 7	Switch 8
100	Off	On	Off	Off	Off	Off	Off	Off
108	Off	On	Off	Off	Off	Off	On	Off
110	Off	On	Off	Off	Off	On	Off	Off
118	Off	On	Off	Off	Off	On	On	Off
120	Off	On	Off	Off	On	Off	Off	Off
128	Off	On	Off	Off	On	Off	On	Off
130	Off	On	Off	Off	On	On	Off	Off
138	Off	On	Off	Off	On	On	On	Off
140	Off	On	Off	On	Off	Off	Off	Off
148	Off	On	Off	On	Off	Off	On	Off
150	Off	On	Off	On	Off	On	Off	Off
158	Off	On	Off	On	Off	On	On	Off
160	Off	On	Off	On	On	Off	Off	Off
168	Off	On	Off	On	On	Off	On	Off

Setting the hardware interrupt on the ISA board

Note *This section applies to the ISA TruFax board only. You do not need to set a hardware interrupt on either the TruFax 100 PCI or TruFax 200 PCI.*

The ISA TruFax board requires you to configure an interrupt setting on each board. The interrupt value is selected on the board using a jumper (which looks like a small plastic cap covering two wires). Refer to your Brooktrout documentation for the location of the interrupt header on your particular fax board model.

All ISA TruFax boards installed in the same computer must use the same interrupt setting. If a TruFax board is already installed and operating, and you add another TruFax board, you must set the hardware interrupt on the new board to the same value as the currently installed board.

You can use any interrupt setting that does not conflict with other devices on the computer. On some computers, interrupt 3 may cause a conflict with the second serial port, and interrupt 4 may conflict with the first serial port. If all of the TruFax boards are installed in 16-bit slots, interrupts 10, 11, and 15 are often your best choices.

Installing Brooktrout TruFax boards

Fax boards can be installed in the RightFax server or in a separate computer called a "remote BoardServer." For information on using remote BoardServers, refer to the *RightFax Administrator's Guide*.

After all of your TruFax boards are configured to use the proper I/O addresses and hardware interrupt (if necessary), you are ready to install them. Always turn your computer off before inserting or removing any board, and take all necessary precautions to prevent static discharge when handling any fax board. The ISA TruFax board can be installed into either an 8-bit or 16-bit slot in an ISA or EISA computer. The PCI boards can be installed in any PCI bus slot.

After the fax boards are properly installed, refer to your Brooktrout documentation for instructions on connecting the loop-start phone cables.

Completing the installation of your Brooktrout TruFax fax boards

After your Brooktrout TruFax fax boards have been installed, you should test the fax channels to ensure that the boards have been properly configured and installed. For information on testing your fax channels, see "Testing Brooktrout Loop-Start Boards" on page 14.

When you have completed installing and testing your Brooktrout TruFax fax boards, you must configure the RightFax software to communicate with the boards. For information on configuring RightFax to work with your fax boards, refer to the chapter on configuring the RightFax BoardServer in the *RightFax Administrator's Guide*.

Testing Brooktrout Loop-Start Boards

After you have installed Brooktrout loop-start analog fax boards, you should test them to ensure that the I/O addresses and hardware interrupts have been set properly and that faxes can be sent.

If the RightFax BoardServer service is running on the RightFax server, you must stop it before performing these tests. To stop the BoardServer module, open a command prompt and enter the following command:

```
net stop rfboard
```

Testing the I/O address settings

Note *You do not need to run this program if you have installed Brooktrout TR1034 fax boards only.*

If you have installed Brooktrout TR112, TR114, or TruFax boards, you must run the Faxinit program to confirm that your fax board I/O settings are correct. This program scans the file Faxinit.cfg for I/O addresses, and then checks those addresses for Brooktrout fax channels.

To test the fax board I/O address settings

1. Create a new text file called Faxinit.cfg on your RightFax server in the RightFax\RFBoard folder. List the I/O addresses of your Brooktrout fax channels in the format:

   ```
   addrs BaseI/O+4 NumChannels
   ```

   where *BaseI/O+4* is the base I/O address of the board plus four (to represent the first channel on the board), and *NumChannels* is the number of channels on the board.

   Example The following entry is used for a four-channel board with a base I/O of 260:

   ```
   addrs 264 4
   ```

2. After you have entered your fax channel I/O addresses for all installed Brooktrout fax boards, save and close the file.
3. Open a command prompt and change to the RightFax\RFBoard folder on the RightFax server.
4. Enter the following command:

   ```
   Faxinit Faxinit.cfg
   ```

   The Faxinit program will confirm that the I/O addresses you entered in Faxinit.cfg correspond to Brooktrout fax channels. If Faxinit.exe reports errors, you may have an address conflict. Check the I/O addresses of each board and make changes if necessary.

Testing the ability to send a fax

Fax.exe is a command line utility that lets you send and receive faxes to test the functionality of Brooktrout loop-start analog fax boards and the phone lines connected to them. Before running Fax.exe, run the Faxinit program (see "Testing the I/O address settings" on page 14) and make sure that no errors are generated.

To test the ability to send a fax

1. Connect a phone line to the loop-start jack on the Brooktrout fax board.
2. Open a command prompt and change to the RightFax\RFBoard folder on the RightFax server.
3. Enter the following command:

   ```
   Fax -u Channel -s ,,FaxNumber test1.ipk
   ```

   Where *Channel* is the number of the channel you are testing (use 0 (zero) for the first channel, 1 for the second channel, etc.), and *FaxNumber* is the number of a fax machine where you will receive the test fax. Include any additional digits or pauses you need to get an outside line or for accounting codes.

   Example

   ```
   fax -u 0 -s ,,9,5551212 test1.ipk
   ```

4. When the test is successful, you will see the following message:

   ```
   Remote ID: ''
   Total pages: 1
   Page: 1 bad lines 0 total lines 1058
   Done
   ```

   Go to your fax machine and verify that the fax was received.

   If an error is reported or the fax does not arrive at the specified fax machine, you may have a hardware interrupt conflict. Verify that no other boards are using the same interrupt setting and re-run the test.

Testing Brooktrout DID Boards

You can test boards with both loop-start and DID channels or with DID channels only.

Testing boards with both loop-start and DID channels

If you have a board with both loop-start and DID lines, you can perform a loopback test to verify the operation of both types of channels at the same time. In this test, you will send a fax from the loop-start channel to the DID channel. You can test only two channels at a time.

To perform a loopback test

1. Connect your DID power supply to the DC input jack and the fax board.
2. Using the cables supplied with the fax board, connect the RJ-45 ends to the fax board.
3. Using female-to-female adapters, connect the RJ-11 connectors at the other end of the cable to each other.

   Note *There will be two RJ-11 ends if you have a two channel board and four RJ-11 ends if you have a four-channel board. Connect cable A to cable A and cable B to cable B.*

4. Open a command prompt and change to the RightFax\RFBoard folder on the RightFax server.

5. Enter the following command:

   ```
   Fax -u Channel -r test2.ipk
   ```

   Where *Channel* is the number of the DID channel that will be receiving the test fax (use 0 (zero) for the first channel 1 for the second channel, etc.)

6. Without closing the first command prompt window, open a second command prompt window and change to the RightFax\RFBoard folder on the RightFax server.

7. Enter the following command:

   ```
   fax -u Channel -s ,,1234 test1.ipk
   ```

   Where *Channel* is the number of the loop-start channel that will be sending the test fax (use 0 (zero) for the first channel, 1 for the second channel, etc.)

8. Watch both command prompt windows. You should be able to see status messages as the fax is sent and received by the board. If you receive error messages, you may have a problem with your fax boards or the board configuration settings.

Testing boards with DID channels only

1. Open a command prompt and change to the RightFax\RFBoard folder on the RightFax server.

2. For each channel to test, enter the following command:

   ```
   Fax -u Channel -r test2.ipk
   ```

   Where *Channel* is the channel number to test (use 0 (zero) for the first channel, 1 for the second channel, etc.)

3. Connect a standard analog (not PBX) telephone to the DID cable coming from the board that corresponds to the channel number you are testing.

4. Pick up the handset, dial any four digits, and then listen for a fax tone.

   - If you hear the digits as you dial them but do not hear a fax tone, confirm that you have correctly plugged the cable that corresponds to the channel number you are testing into the telephone.
   - If you do not hear the digits as you dial them, check that the DID power supply is properly connected to the board and plugged into a powered outlet.

   If you hear a fax tone but have problems receiving faxes on this channel, then the problem most likely lies with the phone company's configuration of your DID circuit.

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Chapter 2
Brooktrout Digital Fax Boards

Before installing any fax board into the RightFax server, you must first configure the board to operate correctly and without hardware conflicts. If you are installing multiple fax boards of the same or different types, watch for special notes specific to such instances. Be sure to record the I/O addresses, DMA channels, and interrupts selected for each installed fax board; you may need this information when configuring the fax boards in RightFax.

Warning *Static discharge can severely damage your fax board. Exposing your fax board to static electricity will void all warranties on the board. Always use caution when handling fax boards.*

Supported Brooktrout TR1034 Series Digital Fax Boards

The TR1034 family of digital fax boards consists of models with up to thirty channels for T1, E1, or PRI-ISDN telephone lines. Instructions in this chapter apply to all supported TR1034 digital boards unless otherwise noted. If you are installing analog fax boards, see "Installing Brooktrout TR1034 Series Analog Fax Boards" on page 7. RightFax currently supports the following TR1034 series digital fax boards.

Table 2A Supported TR1034 Series Digital Fax Boards

Board model	Description
TR1034-P16H+E1	16 channel PCI digital fax board with built-in E1 interface.
TR1034-P24H+T1	24 channel PCI digital fax board with built-in T1 interface.
TR1034-P30H+E1	30 channel PCI digital fax board with built-in E1 interface.
TR1034-P8H+E1	8 channel PCI digital fax board with built-in E1 interface.

Because either a T1 or E1 network interface is built into each of these boards, no external network interface card (NIC) is required.

Supported Brooktrout TR114 Series Digital Fax Boards

The TR114 family of digital fax boards consists of models with up to 16 channels for your T1, E1, PRI-ISDN, or BRI telephone lines. Instructions in this chapter apply to all supported TR114 digital boards unless otherwise noted. If you are installing analog fax boards, see "Installing Brooktrout TR114 Series Analog Fax Boards" on page 9. RightFax currently supports the following TR114 series digital fax boards.

Table 2B Supported TR114 Series Digital Fax Boards

Board model	Description
TR114-I12V	12 channel MVIP-only ISA digital fax board. Requires TRNIC network interface card.
TR114-I16V	16 channel MVIP-only ISA digital fax board. Requires TRNIC network interface card.
TR114-I2+BRI	2 channel ISA digital fax board with built-in BRI interface (supported in Europe only). Does *not* require TRNIC network interface card.
TR114-I2P	2 channel PEB-only ISA digital fax board. Requires TRNIC network interface card. Although this board is fully supported by RightFax, you must configure and install the board exactly as you would the MVIP version TR114-I2V.
TR114-I2V	2 channel MVIP-only ISA digital fax board. Requires TRNIC network interface card.
TR114-I4+BRI	4 channel ISA digital fax board with built-in BRI interface (supported in Europe only). Does *not* require TRNIC network interface card.
TR114-I4P	4 channel PEB-only ISA digital fax board. Requires TRNIC network interface card. Although this board is fully supported by RightFax, you must configure and install the board exactly as you would the MVIP version TR114-I4V with one exception.When prompted for a bus interface, select PEB.
TR114-I4V	4 channel MVIP-only ISA digital fax board. Requires TRNIC network interface card.
TR114-I8P	8 channel PEB-only ISA digital fax board. Requires TRNIC+I24T network interface card. This board must be configured in the RightFax board configuration as a TR114+I8V (when prompted for a bus interface, select PEB) and installed using the instructions that come with the fax board.
TR114-I8V	8 channel MVIP-only ISA digital fax board. Requires TRNIC network interface card.
TR114-I8V+T1	8 channel MVIP-only ISA digital fax board with built-in T1 interface. Does *not* require TRNIC network interface card.
TR114-P16V	16 channel MVIP-only PCI digital fax board. Requires TRNIC network interface card.
TR114-P2+BRI	2 channel PCI digital fax board with built-in BRI interface (supported in Europe only). Does *not* require TRNIC network interface card.
TR114-P2V	2 channel MVIP-only PCI digital fax board. Requires TRNIC network interface card.
TR114-P4+BRI	4 channel PCI digital fax board with built-in BRI interface (supported in Europe only). Does *not* require TRNIC network interface card.
TR114-P4V	4 channel MVIP-only PCI digital fax board. Requires TRNIC network interface card.
TR114-P8V	8 channel MVIP-only PCI digital fax board. Requires TRNIC network interface card.
TR114-P8V+T1	8 channel MVIP-only PCI digital fax board with built-in T1 interface. Does *not* require TRNIC network interface card.

In Brooktrout's naming scheme, "TR114" is the board model, "I" or "P" indicates ISA or PCI, followed by the number of channels, and then a letter indicating the type of bus used to communicate with network interface card (MVIP or PEB). "+T1" in the board model number indicates that the board includes an on-board digital interface and does not require a separate network interface card.

For information on configuring the base I/O address, interrupt header, and MVIP settings of your digital fax board and network interface card, please refer to your Brooktrout documentation.

Supported Network Interface Cards

Each of the supported digital fax boards must be connected to a separate network interface card, which provides the digital interface appropriate to your phone line type. The network interface card is physically connected to one or more of your digital fax boards via an MVIP or PEB data bus. (PEB bus fax boards are supported only for T1 interfacing in conjunction with the Brooktrout TRNIC-I24T and Dianatel EA24 network interface cards.)

The following table lists all network interface cards supported by RightFax including the types of digital phone lines supported by the card.

Table 2C Supported Network Interface Cards

NIC model	Supports PRI-T1	Supports T1	Supports PRI-E1	Supports E1	Supports BRI
Brooktrout TRNIC I24T	No	Yes	No	No	No
Brooktrout TRNIC P24T	No	Yes	No	No	No
Dianatel EA24	No	Yes	No	No	No
Netaccess BRI-ISA8	No	No	No	No	Yes
Netaccess BRI-PCI8	No	No	No	No	Yes
Netaccess ISALC-1E	No	No	Yes	Yes	No
Netaccess ISALC-1T	Yes	Yes	No	No	No
Netaccess ISALC-1T-csu	Yes	Yes	No	No	No
Netaccess ISALC-2E	No	No	Yes	Yes	No
Netaccess ISALC-2T	Yes	Yes	No	No	No
Netaccess ISALC-2T-csu	Yes	Yes	No	No	No
Netaccess PCI-24V	Yes	Yes	No	No	No
Netaccess PCI-24V-csu	Yes	Yes	No	No	No
Netaccess PCI-32V	No	No	Yes	Yes	No
Netaccess PCI-48V	Yes	Yes	No	No	No
Netaccess PCI-48V-csu	Yes	Yes	No	No	No
Netaccess PCI-64V	No	No	Yes	Yes	No

Installing Digital Fax Boards and Network Interface Cards

If you are combining digital fax boards with network interface cards, the boards should all be installed into your RightFax server in a layout that allows easy connection of the MVIP ribbon cable between the boards.

You can attach your network interface card to as many fax boards as it has channels available. For example, a network interface card with 24 channels can be connected via MVIP ribbon cable to three separate fax boards with eight channels each. In addition, you can install and configure two separate network interface cards per RightFax server. The network interface card and fax boards do not need to be connected in any particular sequence on the MVIP cable.

To configure RightFax to recognize fax and network interface cards

1. Install the network interface card and digital fax boards according to the instructions provided by your board manufacturer.
2. On the RightFax server, run the BoardServer configuration program from Enterprise Fax Manager.

3. Click **Add Brooktrout Board** and add each of your installed digital fax boards to the list under **Global Board Settings**.

4. Click each installed board in the list and complete its configuration information. For more information on configuring fax boards in the BoardServer, refer to the *RightFax Administrator's Guide*.

After you have set up your fax boards in the BoardServer configuration program, you must configure RightFax to recognize your network interface card. When you add a digital Brooktrout fax board in the BoardServer configuration program, a new **Digital Configuration** option appears at the top of the tree in the left pane. Click this option to run the digital configuration wizard. Complete the wizard according to your network interface card types. For a description of any box, click the **[?]** icon in the top right corner of the dialog box and then click the box you want help with. Options that are unavailable either do not apply to the board type or settings you have selected, or the settings are not optional.

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Chapter 3
Dialogic Analog Fax Boards

Before installing any fax board into the RightFax server, you must first configure the board to operate correctly and without hardware conflicts. If you are installing multiple fax boards of the same or different types, watch for special notes specific to such instances. Be sure to record the I/O addresses, DMA channels, and interrupts selected for each installed fax board; you may need this information when configuring the fax boards in RightFax.

Do not load any Dialogic® software included with the fax board. RightFax software includes all the necessary drivers and programs for your fax board.

> ***Warning*** *Static discharge can severely damage your fax board. Exposing your fax board to static electricity will void all warranties on the board. Always use caution when handling fax boards.*

Installing Dialogic Analog Fax Boards

Supported Dialogic analog fax boards include models with up to four loop-start or DID channels. Instructions in this chapter apply to all supported Dialogic analog fax boards unless otherwise noted. (If you are installing Dialogic *digital* fax boards, see Chapter 4, "Dialogic Digital Fax Boards".

The following table lists all of the Dialogic analog fax boards supported by RightFax.

Table 3A Supported Dialogic Analog Fax Boards

Board model	Description
CP	One loop-start channel ISA analog fax board. You can install up to 16 Dialogic CP boards in a single computer.
CP4/LSI	Four loop-start channel ISA analog fax board.
CPD	One DID channel ISA analog fax board. You can install up to 16 Dialogic CPD boards in a single computer. Requires an external –48V DC power supply.
CPD/220	Two loop-start and two DID channel ISA analog fax board. If your computer has a 220 watt power supply, you can install a maximum of two CPD/220 boards in one computer. If your computer has a 300 watt power supply, you can install a maximum of three CPD/220 boards.
CPi	One loop-start channel ISA analog fax board. You can install up to 16 Dialogic CPi boards in a single computer.
CPi/100	One loop-start channel ISA analog fax board. You can install up to 16 Dialogic CPi/100 boards in a single computer.
CPi/200	Two loop-start channel ISA analog fax board.
CPi/200 PCI	Two loop-start channel PCI analog fax board.
CPi/400 PCI	Four loop-start channel PCI analog fax board. You can install up to six Dialogic CPi/400 boards in a single computer.
XPI	One loop-start channel ISA analog fax board.
XPI/100	One loop-start channel ISA analog fax board.
XPI/200	Two loop-start channel ISA analog fax board.

Warning *The voltage level supplied by the CPD/220 fax board is considered dangerous. Never operate the system when the chassis cover has been removed.*

Setting the I/O address

Before installing your Dialogic fax boards, you may need to manually set the base I/O address of each board.All fax boards are shipped from Dialogic with a default I/O address of 350. If more than one fax board is installed in the same computer, this will result in an I/O address conflict. All of the channels on each installed Dialogic board must have a unique I/O address.

Warning *Do not use a pencil or any other object that conducts electricity to move DIP switches on any fax board. Using graphite and other electrically conductive materials may cause severe damage to the board.*

On the Dialogic CP, CP1, CPi/100, and CPD fax boards, the I/O address is set using six DIP switches located on the mounting bracket. On the Dialogic CP4/LSI, CPi/200, and CPD/220 fax boards, the I/O address is set using three DIP switches on the unit marked "SW1" on the fax board. Refer to your Dialogic documentation for the location of the I/O address DIP switches on your particular fax board.

Note *The Dialogic CPi/200 PCI and CPi/400 PCI fax boards do not require you to set I/O address values. Instead, these board models include a rotary switch that lets you specify a unique identifier number for each installed board. For information on setting the unique identifier on these board models,* *see "Setting the board identifier" on page 24*.

The I/O setting represents the first channel on the board. Any additional channels on the board automatically use the next I/O addresses in sequence. If you are installing multiple boards, make sure that the I/O address settings do not overlap. Any changes to the I/O address DIP switches must be made before the fax board is installed.

The following table lists I/O addresses and their switch settings for Dialogic board models whose I/O addresses are set using six switches on the mounting bracket.

Table 3B Mounting Bracket I/O Address Switch Settings

Physical channel number	I/O address	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Switch 6
0 (default)	350–353	Off	Off	Off	Off	Off	Off
1	360–363	On	Off	Off	Off	Off	Off
2	370–373	Off	On	Off	Off	Off	Off
3	250–253	On	On	Off	Off	Off	Off
4	260–263	Off	Off	On	Off	Off	Off
5	270–273	On	Off	On	Off	Off	Off
6	150–153	Off	On	On	Off	Off	Off
7	160–163	On	On	On	Off	Off	Off
8	100–103	Off	Off	Off	On	Off	Off
9	104–107	On	Off	Off	On	Off	Off
10	108–10B	Off	On	Off	On	Off	Off
11	10C–10F	On	On	Off	On	Off	Off
12	110–113	Off	Off	On	On	Off	Off
13	114–117	On	Off	On	On	Off	Off
14	118–11B	Off	On	On	On	Off	Off
15	11C–11F	On	On	On	On	Off	Off
16	280–283	Off	Off	Off	Off	On	Off
17	284–287	On	Off	Off	Off	On	Off
18	288–28B	Off	On	Off	Off	On	Off
19	28C–28F	On	On	Off	Off	On	Off
20	290–293	Off	Off	On	Off	On	Off
21	294–297	On	Off	On	Off	On	Off
22	298–29B	Off	On	On	Off	On	Off
23	29C–29F	On	On	On	Off	On	Off
24	120–123	Off	Off	Off	On	On	Off
25	124–127	On	Off	Off	On	On	Off
26	128–12B	Off	On	Off	On	On	Off
27	12C–12F	On	On	Off	On	On	Off
28	130–133	Off	Off	On	On	On	Off
29	134–137	On	Off	On	On	On	Off
30	138–13B	Off	On	On	On	On	Off
31	13C–13F	On	On	On	On	On	Off

The following table lists I/O addresses and their switch settings for Dialogic board models whose I/O addresses are set using three switches on the SW1 unit on the board.

Table 3C SW1 Unit I/O Address Switch Settings

Channel A I/O address	Channel B I/O address	Channel C I/O address	Channel D I/O address	Switch 1	Switch 2	Switch 3
350	360	370	250	Off	Off	Off
260	270	150	160	On	Off	Off
100	104	108	10C	Off	On	Off
110	114	118	11C	On	On	Off
280	284	288	28C	Off	Off	On
290	294	298	29C	On	Off	On
120	124	128	12C	Off	On	On
130	134	138	13C	On	On	On

Setting the board identifier

Each installed Dialogic CPi/200 PCI and CPi/400 PCI fax board must be assigned a unique board identifier so the software can match the telephone numbers to the channels that reside on each board. The unique board identifier is set using a rotary switch on the board.

To adjust the rotary switch, insert a small flat-head screwdriver in the arrow slot in the center of the rotary switch. There are 16 available switch settings (from 0 to F hex). The arrow in the center of the switch points to the current switch setting. Set each installed board to a unique switch setting.

Dialogic recommends setting the rotary switch before the board is installed. If you need to change the board identifier after the board is installed, you must reboot the computer for the change to take effect.

Installing Dialogic analog fax boards

Note *For information on installing Dialogic CPD/220 fax boards,* *see "Installing CPD/220 boards" on page 25*

Fax boards can be installed in the RightFax server or in a separate computer called a "remote BoardServer." For information on using remote BoardServers, refer to the *RightFax Administrator's Guide*.

After all of your Dialogic fax boards are configured to use unique I/O addresses, you are ready to install them. Always turn your computer off before inserting or removing any board, and take all necessary precautions to prevent static discharge when handling any fax board. Dialogic CP, CPi, and CPi/100 boards can be installed into either an 8-bit or 16-bit slot. All other Dialogic CP series boards must be installed in a 16-bit slot.

After the fax boards have been installed, refer to your Dialogic documentation for instructions on connecting the phone cables.

Installing CPD/220 boards

Fax boards can be installed in the RightFax server or in a separate computer called a "remote BoardServer." For information on using remote BoardServers, refer to the *RightFax Administrator's Guide*.

After the CPD/220 fax boards are configured to use unique I/O addresses, you are ready to install them. Dialogic CPD/220 boards must be installed in a 16-bit slots. Always turn your computer off before inserting or removing any board, and take all necessary precautions to prevent static discharge when handling any fax board. To ensure that your system chassis is properly grounded, you *must* secure CPD/220 boards using the expansion slot mounting screws.

The CPD/220 is shipped with two Y-cables. Insert the loop start line RJ-11 connector into the port labeled "L" on the mounting bracket. Insert the DID line connector into the port labeled "D" on the mounting bracket. To begin loop-start service, plug the loop-start A and B cables into the loop-start phone jacks. When you are ready to begin continuous DID service, plug the DID A and B cables into the DID phone jacks.

> ***Warning*** *Never insert a loop-start line into a DID port. Doing so will damage the fax board and void all warranties. If you have any doubts, test the phone line with a volt meter prior to connecting it to a DID fax port to ensure that no current exists on the line.*

The DID line must be maintained at –48V or the phone company may "busy out" the line (effectively shutting down service). This means that the computer housing the CPD/220 must stay on. If you take the system off-line, you may have to notify the telephone company to re-engage the line.

Testing Dialogic Boards

Before you can perform the fax board tests described in this section, you must configure the RightFax software to communicate with the boards. For information on configuring RightFax to work with your fax boards, refer to the chapter on configuring the RightFax BoardServer in the *RightFax Administrator's Guide*.

To test your Dialogic fax boards

This test lets you confirm that your Dialogic boards are installed and working properly and are connected to working phone lines.

1. Open a command prompt on the RightFax server and enter the following command:

   ```
   net stop rfboard
   ```

   This stops the RightFax BoardServer service.

2. In the command prompt window, change to the RightFax\RFBoard folder.

3. Start the Dialogic service by entering the following command:

   ```
   net start gammafax
   ```

4. When the Dialog service is running, enter the following command:

   ```
   sendfax ,,FaxNumber test001.tif ChannelNum
   ```

   Where *FaxNumber* is the number of a working fax machine (including any prefixes necessary to dial out of your phone system) and *ChannelNum* is the channel number to test.

   If the test is successful, a test fax will arrive at the specified fax machine.

Checking the status of your fax channels

RightFax includes a utility that lets you ensure that the Dialogic drivers are running and properly communicating with all of the channels configured in RightFax. This may also be useful in locating channel problems.

To check the status of your Dialogic fax channels

1. Open a command prompt window and change to the RightFax\RFBoard folder.
2. Enter the following command:

   ```
   ntspy.exe
   ```

   The Ntspy program displays the real-time status of the configured Dialogic fax channels.

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Chapter 4
Dialogic Digital Fax Boards

Before installing any fax board into the RightFax server, you must first configure the board to operate correctly and without hardware conflicts. If you are installing multiple fax boards of the same or different types, watch for special notes specific to such instances. Be sure to record the I/O addresses, DMA channels, and interrupts selected for each installed fax board; you may need this information when configuring the fax boards in RightFax.

Do not load any Dialogic® software included with the fax board. RightFax software includes all the necessary drivers and programs for your fax board.

> ***Warning*** *Static discharge can severely damage your fax board. Exposing your fax board to static electricity will void all warranties on the board. Always use caution when handling fax boards.*

Installing Dialogic Digital Fax Boards

Supported Dialogic digital fax boards include models with up to 32 channels for T1, E1, or PRI-ISDN telephone lines. Instructions in this chapter apply to all supported Dialogic digital fax boards unless otherwise noted. If you are installing Dialogic analog fax boards, see "Installing Dialogic Analog Fax Boards" on page 21.

> ***Warning*** *RightFax versions 8.5 and later do not support the CP6/SC, CP12/SC, or CP4/SC PEB bus Dialogic digital fax boards. If you already have one or more of these fax boards installed, do not upgrade the RightFax server to version 8.5 or later.*

The following table lists all of the Dialogic digital fax boards supported by RightFax.

Table 4A Supported Dialogic Digital Fax Boards

Board model	Description	Connect to NIC via
CPi/200 BRI	2 channel ISA fax board with ISDN BRI support.	N/A
CPi/2400CT-T1	24 channel ISA digital fax board with built-in T1 and PRI-ISDN interface.	N/A
CPi/3000CT-E1	30/32 channel ISA digital fax board with built-in E1 and PRI-ISDN interface.	N/A
CPi/400 BRI	4 channel ISA fax board with ISDN BRI support.	N/A

Dialogic digital fax boards may require new I/O settings or other configuration settings in order to work with your specific phone line type. For more information, refer to the documentation included with your digital fax board.

Installing and Configuring the CPi/2400CT-T1 and CPi/3000CT-E1

These instructions will help you install and configure one or more Intel CPi/2400CT-T1 or CPi/3000CT-E1 fax boards for use with a RightFax server. To install one or more of these fax boards, complete all of these steps in the order they are listed.

Mount the fax boards in the server chassis

For information on the hardware requirements and physical installation of one or more CPi/2400CT-T1 or CPi/3000CT-E1 fax boards, refer to the documentation provided by the board manufacturer.

Install the fax server or remote BoardServer software

If it is not already installed, install either the RightFax server or remote BoardServer software on the computer in which the fax boards are located. For information on installing the RightFax server and running remote BoardServer software (which lets you operate fax boards from a computer other than your RightFax server), refer to the *RightFax Administrator's Guide*.

Install the fax board hardware drivers

Install fax board hardware drivers on all computers in which the fax boards are installed. This install program is provided with your RightFax server software on a separate CD.

1. Insert the "Fax Board Driver Install" CD. If AutoRun is not enabled, run \RightFax\Setup.exe. This starts the RightFax Hardware Module install wizard. Click **Next** at the introductory screen.
2. Enter your name and company name when prompted. Click **Next**.
3. In the **Setup Type** screen, select **Complete** and then click **Next**.
4. In the **Fax Hardware Selection** screen, select **Dialogic**, and then specify the DM3 models. Click **Next**.
5. Click **Install** to begin the installation.
6. Click **Finish** to complete the RightFax Hardware Module install wizard.
7. When prompted, re-start the computer.

Configure the fax board firmware

1. After the computer re-starts, the **GammaLink/Dialogic Configuration** dialog box opens.
2. Select **DCM Utility**.
3. In the **Computer Name** dialog box, select **Local** and click **Connect**.

4. In the **Assign Firmware File** dialog box, select a firmware file that corresponds to the type of phone lines you will connect to the fax board. Select one of the options from the following table.

Table 4B CPi/2400CT-T1 and CPi3000CT-E1 Firmware Files

Firmware file	Phone line type
gdk_t1_em.pcd	Robbed-bit T1 using E&M start
gdk_t1_gs.pcd	Robbed-bit T1 using ground start
gdk_t1_ls.pcd	Robbed-bit T1 using loop start
gdk_isdn_4ess.pcd	ISDN PRI using 4ESS protocol
gdk_isdn_5ess.pcd	ISDN PRI using 5ESS protocol
gdk_isdn_dms.pcd	ISDN PRI using DMS protocol
gdk_isdn_net5.pcd	ISDN PRI using NET5 protocol
gdk_isdn_ntt.pcd	ISDN PRI using NTT protocol

5. Click **OK**. A list of installed Dialogic devices opens.
6. Expand the list of devices and under **TDM Bus** double-click **Bus-0**.
7. In the **TDM Bus Configuration** dialog box, select **Media Type (User Defined)** in the list of parameters, and in the **Value** box select **MuLaw**.
8. Scroll down the list of parameters, select **NETREF One FRU (User Defined)**, and type "GDK_T1 0" or "GDK_E1 0" (depending on your board type) in the **Value** box.
9. Click **OK** to return to the list of installed Dialogic devices, and then close the Dialogic Configuration Manager window. This returns you to the **GammaLink/Dialogic Configuration** dialog box. Leave this dialog box open for the next set of steps.

Configure the RightFax BoardServer module

1. In the **GammaLink/Dialogic Configuration** dialog box, select **BoardServer CPL**.
2. In the **Board Configuration** dialog box, select **Detect GammaLink Board**.
3. When the **Board Detection** dialog box reports that GammaLink fax boards have been successfully detected, click **OK**.
4. Configure the remaining options on the **Board Configuration** dialog box for all fax boards and individual fax channels according to the instructions in the *RightFax Administrator's Guide*.
5. When you have completed the options in the **Board Configuration** dialog box, click **OK**. This returns you to the **GammaLink/Dialogic Configuration** dialog box. Leave this dialog box open for the next set of steps.

Import a configuration profile

1. In the **GammaLink/Dialogic Configuration** dialog box, select **Import Predefined Config**.
2. In the **Open Profile** dialog box, select a profile that corresponds to the type of phone lines you will connect to the fax boards. You must select one of the options from the following table.

Table 4C CPi/2400CT-T1 and CPi3000CT-E1 Profiles

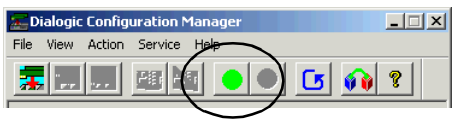
Profile	Phone line type
gdk_cas_em_CPi2400CTT1.prf	Robbed-bit T1 using E&M start
gdk_cas_gs_CPi2400CTT1.prf	Robbed-bit T1 using ground start
gdk_cas_ls_CPi2400CTT1.prf	Robbed-bit T1 using loop start
gdk_isdn_4ess_CPi2400CTT1.prf	ISDN PRI using 4ESS protocol
gdk_isdn_5ess_CPi2400CTT1.prf	ISDN PRI using 5ESS protocol
gdk_isdn_dms_CPi2400CTT1.prf	ISDN PRI using DMS protocol
gdk_isdn_net5_CPi3000CTE1.prf	ISDN PRI using NET5 protocol
gdk_isdn_ntt_CPi2400CTT1.prf	ISDN PRI using NTT protocol

3. Click **Open**.
4. When prompted to enter the number of trunks, select the number of telephone line trunks that will be connected to the fax board.
5. Click **OK**. This returns you to the **GammaLink ISDN Configuration** dialog box. Leave this dialog box open for the next set of steps.

Start the Dialogic service

1. In the **GammaLink/Dialogic Configuration** dialog box, select **DCM Utility**.
2. In the **Dialogic Configuration Manager** window, click the button with the green circle located on the toolbar. This starts the Dialogic service.

Figure 4.1 The Dialogic Service Start Button



3. When the Dialogic service is started, close the **Dialogic Configuration Manager** window, and then close the **GammaLink/Dialogic Configuration** dialog box.

Start the RightFax BoardServer service

1. Run Enterprise Fax Manager.
2. Select the local server in the Server tree.
3. In the list of services in the pane at the bottom of the screen, right-click on the **BoardServer Module** service, and select **Start Service** on the shortcut menu.

Testing Dialogic Boards

Before you can perform the fax board tests described in this section, you must configure the RightFax software to communicate with the boards. For information on configuring RightFax to work with your fax boards, refer to the chapter on configuring the RightFax BoardServer in the *RightFax Administrator's Guide*.

To test your Dialogic fax boards

This test lets you confirm that your Dialogic boards are installed and working properly and are connected to working phone lines.

1. Open a command prompt on the RightFax server and enter the following command:

   ```
   net stop rfboard
   ```

   This stops the RightFax BoardServer service.

2. In the command prompt window, change to the RightFax\RFBoard folder.

3. Start the Dialogic service by entering the following command:

   ```
   net start gammafax
   ```

4. When the Dialogic service is running, enter the following command:

   ```
   sendfax ,,FaxNumber test001.tif ChannelNum
   ```

   Where *FaxNumber* is the number of a working fax machine (including any prefixes necessary to dial out of your phone system) and *ChannelNum* is the channel number to test.

   If the test is successful, a test fax will arrive at the specified fax machine.

Checking the status of your fax channels

RightFax includes a utility that lets you ensure that the Dialogic drivers are running and properly communicating with all of the channels configured in RightFax. This may also be useful in locating channel problems.

To check the status of your Dialogic fax channels

1. Open a command prompt window and change to the RightFax\RFBoard folder.

2. Enter the following command:

   ```
   ntspy.exe
   ```

   The Ntspy program displays the real-time status of the configured Dialogic fax channels.

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Appendix A
Working with DID Lines

DID (direct inward dialing) lines support inbound phone service only. Loop-start lines must be used for outbound service. A DID interface assigns more than one telephone number to a pair of wires (a telephone trunk). This enables RightFax to provide automatic routing of faxes to the proper destination in a multi-user system.

For example, if a company is assigned one DID trunk and 100 telephone numbers ranging from 239-9400 to 239-9499, when any one of the numbers in this range is dialed and the DID trunk is available, the telephone company connects to the trunk and transmits the last few digits (usually three or four) of the dialed number to the board. By detecting these digits, the fax boards can detect which one of the 100 numbers was dialed by the caller.

If the 100 telephone numbers correspond to 100 different users on a RightFax system, each user could have a private fax telephone number. All with only one telephone trunk and one fax channel required.

If the trunk is busy receiving a fax for one of the users, callers to any of the other 99 numbers encounter a busy signal. Because of this, you may require more than one DID trunk to which the range of DID telephone numbers is assigned. The number of trunks required depends on the traffic demands on the system.

Since DID trunks only support inbound calls, a fax messaging system using DID requires one or more additional loop-start telephone channels for sending faxes.

> ***Warning*** *Never insert a loop-start line into a DID port. Doing so will damage the fax board and void all warranties. If you have any doubts, test the phone line with a volt meter prior to connecting it to a DID fax port to ensure that no current exists on the line.*

For DID telephone service, RightFax recommends the following options be configured:

- Set **Trunk Type** to "Loop Start."
- Set **Service Type** to "Wink Start."
- Set **Signalling** to "DTMF (Touch-Tone)."
- Set **Digit Length** to "4."

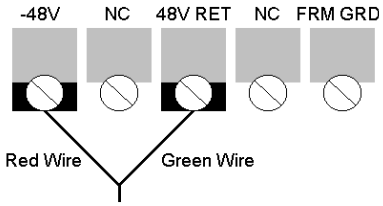
All DID fax boards must supply the DID trunk with continuous –48V DC power. Because no source of –48V DC exists in the computer, this power must be supplied from an outside source. A Tellabs 8012 (or equivalent) regulated power pack can supply the necessary power.

Connecting a Tellabs 8012 power supply to a DID fax board

1. Turn off the computer.
2. Locate the contact block on the back of the power supply (opposite the plug end) and loosen the contact labelled **48V RET**.
3. Locate the supplied power cord, consisting of two wires (one green and one red) with a plastic jack at one end and two metal prongs at the other end.
4. Connect the metal prong on the end of the green wire to the 48V RET contact and tighten the contact screw.

5. Loosen the contact labelled –48V.
6. Connect the metal prong on the end of the red wire to the –48V contact and tighten the contact screw. The connection should now look like the following illustration.

Figure A.1 Power Supply Connection



7. Plug the plastic plug on the other end of the power cable into the DC input jack in the fax board mounting bracket.
8. Turn on the computer.
9. Plug the Tellabs 8012 power supply into the wall socket.

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