Captaris

RightFax

Version 9.0

Fax Board Guide

Edition

Information in this document applies to version 9.0 of the Fax Board Guide.

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Chapter 1

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 your server's Windows operating system 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 boards.

For a complete list of fax boards supported by this version of RightFax, see Appendix A, "Supported Fax Boards". This list also provides important information about, and restrictions relating to your fax boards, including the maximum number of fax boards per server chassis.

RightFax allows you to configure "remote BoardServer" computers that let you install and run fax boards in computers other than the RightFax server. Remote BoardServers can be used to off load fax board-related processing from the RightFax server, or to add additional fax boards beyond the storage capacity of the RightFax server chassis. Remote BoardServers also provide redundancy in that if one BoardServer goes down, the RightFax server will automatically transfer its workload to the remaining Boardservers. For information on installing and using remote BoardServers, refer to the *RightFax Administrator's Guide*.

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 fax board manufacturers.

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Chapter 2

Brooktrout Analog Fax Boards

For a complete list of Brooktrout analog fax boards supported by this version of RightFax, see Appendix A, "Supported Fax Boards".

Before installing any ISA 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 ISA 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 TR114 Series Analog Fax Boards

Caution *Brooktrout TR114 fax boards cannot be combined in the same computer with Brooktrout TR1034 fax boards. Combining these board types will prevent the RightFax BoardServer service from starting.*

Important *Bfax.sys is a plug-and-play fax board driver that Windows uses to recognize and automatically assign system resources to PCI and uPCI Brooktrout TR114 boards. Windows 2003 comes with Bfax.sys already installed and it will be used automatically for all PCI and uPCI TR114 boards installed on computers running this operating system. If you are running Windows 2000, you may need to install and run the Bfax.sys driver if you have upgraded your server's BIOS to the latest available version and the fax board is not recognized by the server or the server regularly blue-screens after installing the boards. Windows 2000 does not include this driver by default, but it can be requested from the RightFax support group. For information about the Bfax.sys plug-and-play fax board driver, refer to Appendix C, "Using the Bfax.sys Plug-and-Play Fax Board Driver".*

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 "Brooktrout TR114 Series Digital Fax Boards" on page 16.)

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 42). 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.

Set the I/O address on ISA boards

Before installing Brooktrout TR114 ISA fax boards 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 2a TR114 Switch Settings for Base I/O Addresses (Values Are Hex)

Base 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.

Set the hardware interrupt on ISA boards

Brooktrout TR114 ISA analog fax boards also require 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 ISA fax boards installed in the same computer must use the same interrupt setting. If a TR114 ISA board is already installed and operating, and you add another TR114 ISA 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 ISA 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.*

Mount the fax boards in the server chassis

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.

Install the RightFax software

If it is not already installed, install either the RightFax server or remote BoardServer software, and the fax board drivers on the computer in which the fax boards are located. For information on installing the RightFax server and fax board drivers, refer to the *RightFax Installation Guide*.

Configure the RightFax BoardServer module

The RightFax BoardServer module is the interpreter between the fax board drivers and the RightFax Server module. It handles requests to schedule outgoing faxes for transmission and informs the Server module when a new fax has been received and needs to be processed.

Although the default configuration of the RightFax BoardServer module allows you to send and receive fax documents, you should configure the BoardServer module to meet the needs of your enterprise immediately after installing the RightFax server software. For information on configuring the RightFax BoardServer module, refer to the *RightFax Administrator's Guide*.

Test the 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" on page 11, and "Testing Brooktrout DID Boards" on page 12.

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.

Important *Bfax.sys is a plug-and-play fax board driver that Windows uses to recognize and automatically assign system resources to PCI and uPCI Brooktrout TruFax boards. Windows 2003 comes with Bfax.sys already installed and it will be used automatically for all PCI and uPCI TruFax boards installed on computers running this operating system. If you are running Windows 2000, you may need to install and run the Bfax.sys driver if you have upgraded your server's BIOS to the latest available version and the fax board is not recognized by the server or the server regularly blue-screens after installing the boards. Windows 2000 does not include this driver by default, but it can be requested from the RightFax support group. For information about the Bfax.sys plug-and-play fax board driver, refer to* Appendix C, "Using the Bfax.sys Plug-and-Play Fax Board Driver".

Mount the fax boards in the server chassis

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. TruFax 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.

Install the RightFax software

If it is not already installed, install either the RightFax server or remote BoardServer software, and the fax board drivers on the computer in which the fax boards are located. For information on installing the RightFax server and fax board drivers, refer to the *RightFax Installation Guide*.

Configure the RightFax BoardServer module

The RightFax BoardServer module is the interpreter between the fax board drivers and the RightFax Server module. It handles requests to schedule outgoing faxes for transmission and informs the Server module when a new fax has been received and needs to be processed.

Although the default configuration of the RightFax BoardServer module allows you to send and receive fax documents, you should configure the BoardServer module to meet the needs of your enterprise immediately after installing the RightFax server software. For information on configuring the RightFax BoardServer module, refer to the *RightFax Administrator's Guide*.

Test the 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 11.

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 only if you have installed Brooktrout TR1034 fax boards or a PCI TR114 boards.*

If you have installed ISA 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/0+4 NumChannels*

   where *BaseI/0+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 11) 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 3

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. Be sure to record the I/O addresses, DMA channels, and interrupts selected for each installed fax board because 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.*

Brooktrout TR1034 Series Digital Fax Boards

For a complete list of TR1034 digital fax boards supported by this version of RightFax, see Appendix A, "Supported Fax Boards".

Caution *Brooktrout TR1034 fax boards cannot be combined in the same computer with Brooktrout TR114 fax boards. Combining these board types will prevent the RightFax BoardServer service from starting.*

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.

Because either a T1 or E1 network interface is built into each TR1034 fax board, no external network interface card is required.

Note *TR1034 fax boards do not support binary file transfer. For more information on binary file transfer, see the RightFax Administrator's Guide.*

Set 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.

Mount the fax boards in the server chassis

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.

Download 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:

   flashupd.bat *module*

   Where *module* is the module number assigned to the board.

Install the RightFax software

If it is not already installed, install either the RightFax server or remote BoardServer software, and the fax board drivers on the computer in which the fax boards are located. For information on installing the RightFax server and fax board drivers, refer to the *RightFax Installation Guide*.

Configure the RightFax BoardServer module

The RightFax BoardServer module is the interpreter between the fax board drivers and the RightFax Server module. It handles requests to schedule outgoing faxes for transmission and informs the Server module when a new fax has been received and needs to be processed.

Although the default configuration of the RightFax BoardServer module allows you to send and receive fax documents, you should configure the BoardServer module to meet the needs of your enterprise immediately after installing the RightFax server software. For information on configuring the RightFax BoardServer module, refer to the *RightFax Administrator's Guide*.

Brooktrout TR114 Series Digital Fax Boards

For a complete list of TR114 digital fax boards supported by this version of RightFax, see Appendix A, "Supported Fax Boards".

Caution *Brooktrout TR114 fax boards cannot be combined in the same computer with Brooktrout TR1034 fax boards. Combining these board types will prevent the RightFax BoardServer service from starting.*

Important *Bfax.sys is a plug-and-play fax board driver that Windows uses to recognize and automatically assign system resources to PCI and uPCI Brooktrout TR114 boards. Windows 2003 comes with Bfax.sys already installed and it will be used automatically for all PCI and uPCI TR114 boards installed on computers running this operating system. If you are running Windows 2000, you may need to install and run the Bfax.sys driver if you have upgraded your server's BIOS to the latest available version and the fax board is not recognized by the server or the server regularly blue-screens after installing the boards. Windows 2000 does not include this driver by default, but it can be requested from the RightFax support group. For information about the Bfax.sys plug-and-play fax board driver, refer to* Appendix C, "Using the Bfax.sys Plug-and-Play Fax Board Driver".

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 7.

If you are installing TR114 ISA boards, you must configure the base I/O address, interrupt header, and MVIP settings of your digital fax board and network interface card. For instructions, refer to your Brooktrout documentation.

Supported network interface cards for TR114 digital fax boards

Each of the supported TR114 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 data bus.

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

Table 3a Supported Network Interface Cards

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

When 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.

Installing Digital Fax Boards and Network Interface Cards

These instructions will help you install and configure one or more Digital Brooktrout 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

Install the fax boards (and network interface cards if necessary) according to the instructions provided by your board manufacturer.

Install the RightFax software

If it is not already installed, install either the RightFax server or remote BoardServer software, and the fax board drivers on the computer in which the fax boards are located. For information on installing the RightFax server and fax board drivers, refer to the *RightFax Installation Guide*.

Configure the RightFax BoardServer module

The RightFax BoardServer module is the interpreter between the fax board drivers and the RightFax Server module. It handles requests to schedule outgoing faxes for transmission and informs the Server module when a new fax has been received and needs to be processed.

Although the default configuration of the RightFax BoardServer module allows you to send and receive fax documents, you should configure the BoardServer module to meet the needs of your enterprise immediately after installing the RightFax server software. For information on configuring the RightFax BoardServer module, refer to the *RightFax Administrator's Guide*.

Important *Each time you add a digital fax board, a Digital Configuration Wizard will run to help you configure the fax board. For more information on completing the Digital Configuration Wizard, refer to the next section.*

Completing the Digital Configuration Wizard

When you add a digital Brooktrout fax board in the BoardServer configuration program, a **Digital Configuration** option appears at the top of the tree in the left pane and the Digital Configuration Wizard opens. The Digital Configuration Wizard helps you configure each fax board and network interface card.

The first screen of the Digital Configuration Wizard lets you specify the type of network interface card you have installed. The options and settings in this wizard are different depending on the type of digital fax board and network interface card you select. For information on how to correctly fill-in the options in the Digital Complete Wizard, click the **[?]** icon in the top right corner of the dialog box and then click the box or option you want help with. Options that are unavailable (grayed-out) either do not apply to the board type or settings you have selected, or the settings are not optional.

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Chapter 4

Brooktrout TR1034 T.38-Compatible Fax Boards

The following Brooktrout TR1034 fax boards support the T.38 fax protocol:

- TR1034+P4H-T1-1N
- TR1034+P8H-T1-1N
- TR1034+P16H-T1-1N
- TR1034+P24H-T1-1N
- TR1034+P4H-E1-1N
- TR1034+P8H-E1-1N
- TR1034+P16H-E1-1N
- TR1034+P10H-E1-1N
- TR1034+P20H-E1-1N
- TR1034+P30H-E1-1N

The T.38 fax over IP protocol lets you connect to another T.38-compatible device for fax transmission. T.38 fax over IP requires that you have a T.38 and SIP-compatible router such as those manufactured by Cisco.

Before installing any fax board into the RightFax server, you must first configure the board to operate correctly and without hardware conflicts. Be sure to record the I/O addresses, DMA channels, and interrupts selected for each installed fax board because you may need this information when configuring the fax boards in RightFax.

Because either a T1 or E1 network interface is built into each TR1034 fax board, no external network interface card is required.

T.38-compatible fax boards require the same hardware configuration prior to installation in the computer chassis. For information on preparing these fax boards prior to installation, see Chapter 3, “Brooktrout Digital Fax Boards”.

Configuring T.38-Compatible Fax Boards

When you have one or more T.38-compatible fax boards installed, or any combination of T.38 and non-T.38 TR1034 fax boards, and you intend to use these fax boards for fax over IP, you must run a Brooktrout configuration program in the RightFax BoardServer module different from the RightFax Digital Configuration Wizard used for non-T.38 fax boards.

After you have installed the fax boards, you must configure each in the RightFax BoardServer module (described in the *RightFax Administrator's Guide*). Run the BoardServer configuration from the DocTransport module in Windows Control Panel. For each installed fax board, highlight the board name in the pane on the left and click **Configure Brooktrout**. This runs a board configuration program provided by Brooktrout. For information on completing the configuration options, refer to the documentation provided with your Brooktrout hardware.

After you have completed the Brooktrout configuration for all installed fax boards, you should confirm that the settings in the Brooktrout configuration file have been set correctly. Navigate to the folder RightFax\RFBoard\Boston and edit the file callctrl.cfg with a text editor. Locate the following two parameters:

- t38_fax_max_buffer
- t38_fax_max_datagram_recv

It is important that the value for t38_fax_max_datagram_recv is less than the value for t38_fax_max_buffer. You may need to change these values in this file. Typical values for these parameters are:

- t38_fax_max_buffer=200
- t38_fax_max_datagram_recv=72

The exact values required for your system may differ slightly.

Sending faxes using the T.38 fax protocol

To send documents using T.38 fax over IP, you must create dialing rules that route the documents based on the fax numbers or e-mail addresses entered by your RightFax client for outbound faxes.

In order for RightFax dialing rules to be routed properly by the Cisco router, the router must be configured with dial-peers that recognize the destination phone number and route to another T.38 device appropriately. Refer to your Cisco documentation for information on configuring routing tables using dial-peers.

To create a dialing rule that send a fax via T.38 fax over IP

1. Run Enterprise Fax Manager and create a new dialing rule (described in the *RightFax Administrator's Guide*.)
2. On the **Rule Edit** dialog box, click the **Matching** tab.
3. In the **Pattern** box, enter the outbound phone number that you want to reroute to a T.38 fax device.
4. Click the **Number Adjustments** tab.
5. In the **Append** box enter the following string:

   @RouterIPAddress

   Where *RouterIPAddress* is the IP address of your Cisco router. Appending this string to the end of the user-supplied phone number will create a dial string like the following:

   5551212@111.11.1.111

   When this dial string is sent by one of your T.38 fax boards, it is recognized as a fax over IP address and automatically routes the message to the Cisco router for delivery to the intended destination.
6. If you have a combination of T.38 and non-T.38 TR1034 fax boards, you must also configure the dialing rule to use only those fax channels on your T.38 boards.

   Click the **Other** tab. Under **Send on Specific Range of Channels**, enter the range of channels that reside on your T.38 boards. If the fax server attempts to sent T.38 documents on channels belonging to non-T.38 fax boards, the boards will not be able to properly process the destination address.
7. Click **OK** to save and exit.

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Chapter 5

Intel Dialogic Analog Fax Boards

Warning *Intel fax boards will not function properly when installed on RightFax servers running the Windows 2003 operating system.*

For a complete list of Dialogic analog fax boards supported by this version of RightFax, see Appendix A, "Supported 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 Intel® 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 6, "Intel Dialogic Digital Fax Boards".

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.*

Set 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 CPi/100 fax board the I/O address is set using six DIP switches located on the mounting bracket. On the Dialogic 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* “Set the board identifier” *on* page 23.

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 5a Mounting Bracket I/O Address Switch Settings

Physical channel number	I/O address	1	2	3	4	5	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

Table 5a Mounting Bracket I/O Address Switch Settings (Continued)

Physical channel number	I/O address	1	2	3	4	5	6
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

Table 5a Mounting Bracket I/O Address Switch Settings (Continued)

Physical channel number	I/O address	1	2	3	4	5	6
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 5b SW1 Unit I/O Address Switch Settings

Channel A address	Channel B address	Channel C address	Channel D address	1	2	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

Set 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.

Mount the fax boards in the server chassis

Note *For information on installing Dialogic CPD/220 fax boards, see* "Mounting CPD/220 fax boards in the server chassis" *on* page 23.

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 CPi/100 boards can be installed into either an 8-bit or 16-bit slot. All other Dialogic 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.

Mounting CPD/220 fax boards in the server chassis

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.

Install the RightFax software

If it is not already installed, install either the RightFax server or remote BoardServer software, and the fax board drivers on the computer in which the fax boards are located. For information on installing the RightFax server and fax board drivers, refer to the *RightFax Installation Guide*.

Configure the RightFax BoardServer module

The RightFax BoardServer module is the interpreter between the fax board drivers and the RightFax Server module. It handles requests to schedule outgoing faxes for transmission and informs the Server module when a new fax has been received and needs to be processed.

Although the default configuration of the RightFax BoardServer module allows you to send and receive fax documents, you should configure the BoardServer module to meet the needs of your enterprise immediately after installing the RightFax server software. For information on configuring the RightFax BoardServer module, refer to the *RightFax Administrator’s Guide*.

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 6

Intel Dialogic Digital Fax Boards

Warning *Intel fax boards will not function properly when installed on RightFax servers running the Windows 2003 operating system.*

For a complete list of Dialogic digital fax boards supported by this version of RightFax, see Appendix A, "Supported 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 Intel 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, PRI-ISDN, and BRI 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.*

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 Dialogic 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 RightFax software

If it is not already installed, install either the RightFax server or remote BoardServer software, and the fax board drivers on the computer in which the fax boards are located. For information on installing the RightFax server and fax board drivers, refer to the *RightFax Installation Guide*.

Configure the RightFax BoardServer module

The RightFax BoardServer module is the interpreter between the fax board drivers and the RightFax Server module. It handles requests to schedule outgoing faxes for transmission and informs the Server module when a new fax has been received and needs to be processed.

Although the default configuration of the RightFax BoardServer module allows you to send and receive fax documents, you should configure the BoardServer module to meet the needs of your enterprise immediately after installing the RightFax server software. For information on configuring the RightFax BoardServer module, refer to the *RightFax Administrator's Guide*.

Configure the fax board firmware

1. When you add a Dialogic digital fax board in the BoardServer module, the **GammaLink/Dialogic Configuration** dialog box opens.
2. Select **DCM Utility**. The utility opens and the fax board displays as a detected device.
3. Select the fax board, then choose **Device > Restore Defaults**.
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 6a 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. Choose **Settings > System/Device Autostart > Start System**.
7. Click **Start All Enabled Systems**, 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. In the **Select phone line type** installed dialog box, choose the type of ISDN phone line to be used with the fax board. T1 robbed bit is unavailable.
5. 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*.
6. 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 6b CPi/2400CT-T1 and CPi3000CT-E1 Profiles

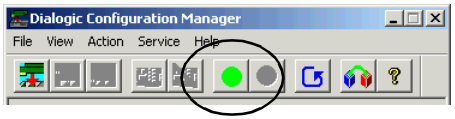
Profile	Phone line type
gdk_cas_em_CPi2400CTT1.prf	Robbed-bit T1 using E&M start
gdk_cas_gs_CPi2400CTT1.prf	Robbed-bit T1 using ground start
gdk_cas_ls_CPi2400CTT1.prf	Robbed-bit T1 using loop start
gdk_isdn_4ess_CPi2400CTT1.prf	ISDN PRI using 4ESS protocol
gdk_isdn_5ess_CPi2400CTT1.prf	ISDN PRI using 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 6.1 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 Fax\Tools 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 7

Eicon Fax Boards

RightFax supports the following Eicon fax boards:

- Eicon Diva Server BRI-2M
- Eicon Diva Server 4BRI-8M
- Eicon Diva Server PRI/E1/T1
- Eicon Diva Server PRI/E1-30

Eicon Diva Server version 7.5 must be installed on the RightFax server or remote BoardServer computer where the Eicon boards are installed.

Eicon fax boards are added in the DocTransport module and then configured using the board configuration tool provided by Eicon. No BoardServer configuration is required for Eicon boards. For information on adding and configuring Eicon fax boards in the DocTransport module, refer to the *RightFax Administrator's Guide*.

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Appendix A

Supported Fax Boards

RightFax supports fax boards manufactured by Brooktrout, Intel Dialogic, and Eicon. For fax boards that are supported by the RightFax server but that are no longer supported by their manufacturers (listed as “Retired” under the Support Level column), Captaris will make a good faith effort to resolve technical issues, but cannot guarantee success.

Caution *TR1034 and TR114 boards cannot be combined in the same computer. If you want to use both types of fax boards, you must run one or both types of boards in separate remote BoardServer computers.*

Supported Brooktrout Fax Boards

The following table lists all Brooktrout fax boards supported by this version of RightFax.

Table A1 Supported Brooktrout Fax Boards

Board Type	Slot Type	Max. Boards per Server	PSTN Interface	Support Level	Comments
NetAccess BRI-ISA8	ISA	2	BRI	Retired	
NetAccess BRI-PCI8	PCI	2	BRI	Supported	
PRI-ISALC-1E	ISA	2	E1	Retired	
PRI-PCI24V	PCI	2	T1	Supported	

Table A1 Supported Brooktrout Fax Boards (Continued)

Board Type	Slot Type	Max. Boards per Server	PSTN Interface	Support Level	Comments
PRI-PCI24VC	PCI	2	T1	Supported	
PRI-PCI32V	PCI	2	E1	Supported	
PRI-PCI48V	PCI	2	T1	Supported	
PRI-PCI48VC	PCI	2	T1	Supported	
PRI-PCI64V	PCI	2	T1	Supported	
TR1034+P2-1B	uPCI	4	BRI	Supported	Does not require the Digital Configuration Wizard.
TR1034+P2-2L	uPCI	4	LOOP	Supported	Does not require the Digital Configuration Wizard.
TR1034+P4-2B	uPCI	4	BRI	Supported	Does not require the Digital Configuration Wizard.
TR1034+P4-4L	uPCI	4	LOOP	Supported	Does not require the Digital Configuration Wizard.
TR1034+P4H-E1-1N	uPCI	2	T1	Supported	Supports T.38 fax protocol.
TR1034+P4H-T1	uPCI	2	T1	Supported	
TR1034+P4H-T1-1N	uPCI	2	T1	Supported	Supports T.38 fax protocol.
TR1034+P8-8L	uPCI	4	LOOP	Supported	Does not require the Digital Configuration Wizard.
TR1034+P8H-E1	uPCI	2	E1	Supported	
TR1034+P8H-E1-1N	uPCI	2	E1	Supported	Supports T.38 fax protocol.
TR1034+P8H-T1	uPCI	2	T1	Supported	
TR1034+P8H-T1-1N	uPCI	2	T1	Supported	Supports T.38 fax protocol.
TR1034+P10H-E1	uPCI	2	E1	Supported	
TR1034+P10H-E1-1N	uPCI	2	E1	Supported	Supports T.38 fax protocol.
TR1034+P16H-E1	uPCI	2	E1	Supported	

Table A1 Supported Brooktrout Fax Boards (Continued)

Board Type	Slot Type	Max. Boards per Server	PSTN Interface	Support Level	Comments
TR1034+P16H-E1-1N	uPCI	2	E1	Supported	Supports T.38 fax protocol.
TR1034+P16H-T1	uPCI	2	T1	Supported	
TR1034+P16H-T1-1N	uPCI	2	T1	Supported	Supports T.38 fax protocol.
TR1034+P20H-E1	uPCI	2	E1	Supported	
TR1034+P20H-E1-1N	uPCI	2	E1	Supported	Supports T.38 fax protocol.
TR1034+P24H-T1	uPCI	2	T1	Supported	
TR1034+P24H-T1-1N	uPCI	2	T1	Supported	Supports T.38 fax protocol.
TR1034+P30H-E1	uPCI	2	E1	Supported	
TR1034+P30H-E1-1N	uPCI	2	E1	Supported	Supports T.38 fax protocol.
TR114+I1L	ISA	4	LOOP	Retired	
TR114+I12V	ISA	4	N/A	Retired	
TR114+I16V	ISA	4	N/A	Retired	
TR114+I2BRI	ISA	4	E1 BRI	Retired	
TR114+I2C	ISA	4	LOOP/DID	Retired	
TR114+I2D	ISA	4	DID	Retired	
TR114+I2L	ISA	4	LOOP	Retired	
TR114+I2V	ISA	4	LOOP	Retired	
TR114+I4BRI	ISA	4	E1 BRI	Retired	
TR114+I4C	ISA	4	LOOP/DID	Retired	
TR114+I4D	ISA	4	DID	Retired	
TR114+I4L	ISA	4	LOOP	Retired	
TR114+I4V	ISA	4	N/A	Retired	
TR114+I8V	ISA	4	N/A	Retired	
TR114+I8V-T1	ISA	2	T1	Retired	

Table A1 Supported Brooktrout Fax Boards (Continued)

Board Type	Slot Type	Max. Boards per Server	PSTN Interface	Support Level	Comments
TR114+P1L	PCI	4	LOOP	Supported	
TR114+P16V	PCI	4	N/A	Retired	
TR114+P2B Australia	PCI	4	BRI E1	Supported	
TR114+P2B EURO	PCI	4	BRI E1	Supported	
TR114+P2B uPCI	uPCI	4	BRI E1	Supported	
TR114+P2B uPCI Australia	uPCI	4	BRI E1	Supported	
TR114+P2B uPCI EURO	uPCI	4	BRI E1	Supported	
TR114+P2C	PCI	4	LOOP/DID	Supported	
TR114+P2C uPCI	uPCI	4	LOOP/DID	Supported	
TR114+P2D	PCI	4	DID	Supported	
TR114+P2D uPCI	uPCI	4	DID	Supported	
TR114+P2L	PCI	4	LOOP	Supported	
TR114+P2L uPCI	uPCI	4	LOOP	Supported	
TR114+P2L Australia	PCI	4	LOOP	Supported	
TR114+P2L uPCI Australia	uPCI	4	LOOP	Supported	
TR114+P2L EURO	PCI	4	LOOP	Supported	
TR114+P2L uPCI EURO	uPCI	4	LOOP	Supported	
TR114+P2L uPCI Israel	uPCI	4	LOOP	Supported	
TR114+P2V	PCI	4	N/A	Retired	
TR114+P4B Australia	PCI	4	BRI E1	Supported	
TR114+P4B uPCI Australia	uPCI	4	BRI E1	Supported	
TR114+P4B EURO	PCI	4	BRI E1	Supported	
TR114+P4B uPCI EURO	uPCI	4	BRI E1	Supported	
TR114+P4C	PCI	4	LOOP/DID	Supported	

Table A1 Supported Brooktrout Fax Boards (Continued)

Board Type	Slot Type	Max. Boards per Server	PSTN Interface	Support Level	Comments
TR114+P4C uPCI	uPCI	4	LOOP/DID	Supported	
TR114+P4D	PCI	4	DID	Supported	
TR114+P4D uPCI	uPCI	4	DID	Supported	
TR114+P4L	PCI	4	LOOP	Supported	
TR114+P4L uPCI	uPCI	4	LOOP	Supported	
TR114+P4L Australia	PCI	4	LOOP	Supported	
TR114+P4L Australia uPCI	uPCI	4	LOOP	Supported	
TR114+P4L EURO	PCI	4	LOOP	Supported	
TR114+P4L EURO uPCI	uPCI	4	LOOP	Supported	
TR114+P4V	PCI	4	N/A	Retired	
TR114+P8V	PCI	4	N/A	Retired	
TR114+P8V-T1	PCI	2	T1	Retired	
TRNIC-I24T	ISA	2	T1	Retired	
TRNIC-P24T	PCI	2	T1	Retired	
TruFax 100	PCI	4	LOOP	Supported	Cannot be used in combination with digital TruFax boards.
TruFax 100 uPCI	uPCI	4	LOOP	Supported	Cannot be used in combination with digital TruFax boards.
TruFax 200 BRI	uPCI	4	BRI	Supported	Cannot be used in combination with analog TruFax boards.
TruFax 200 uPCI	uPCI	4	LOOP	Supported	Cannot be used in combination with digital TruFax boards.
TruFax 400 BRI	uPCI	4	BRI	Supported	Cannot be used in combination with analog TruFax boards.

Supported Intel Dialogic Fax Boards

The following table lists all Intel Dialogic fax boards supported by this version of RightFax.

Table A2 Alphabetical Listing of Supported Dialogic Fax Boards

Board Type	Slot Type	Max. boards per server	PSTN interface	Support level	Comments
BRI/2VFD	PCI	4	BRI	Supported	
CPi/2400CT-T1 uPCI	uPCI	4	T1	Supported	
CPi/3000CT-E1 uPCI	uPCI	3	E1	Supported	
GammaFax CPD220	ISA	4	DID/LOOP	Retired	The voltage level supplied by the CPD220 fax board is considered dangerous. Never operate the system when the chassis cover has been removed.
GammaFax CPi100	ISA	4	LOOP	Retired	
GammaFax CPi100BE	PCI	4	LOOP	Supported	
GammaFax CPI200	ISA	4	LOOP	Retired	
GammaFax CPi200 BRI	ISA	4	BRI	Supported	
GammaFax CPi200 PCI	PCI	4	LOOP	Supported	Superseded by CPi/200B
GammaFax CPi200 PCI EURO	PCI	4	LOOP	Supported	
GammaFax CPi200B	PCI	4	LOOP	Supported	Superseded by CPi/200B(2)
GammaFax CPi200B2 PCI(v.34)	PCI	4	LOOP	Supported	
GammaFax CPI400 BRI EURO	ISA	4	BRI	Supported	
GammaFax CPi400 PCI	PCI	4	LOOP	Supported	Superseded by CPi/400B
GammaFax CPi400 PCI BRI	PCI	4	BRI	Supported	
GammaFax CPi400B	PCI	4	LOOP	Supported	Superseded by CPi/400B2
GammaFax CPi400B2 PCI(v.34)	PCI	4	LOOP	Supported	
GammaFax XPi200	ISA	4	LOOP	Retired	

Supported Eicon Fax Boards

The following table lists all Eicon fax boards supported by this version of RightFax.

All Eicon fax boards require Eicon Diva Server version 7.5 be installed. These fax boards are configured entirely through the RightFax DocTransport module (described in the *RightFax Administrator's Guide*). No BoardServer module configuration is required.

Table A3 Alphabetical Listing of Supported Eicon Fax Boards

Board Type	Slot Type	Max. boards per server	PSTN interface	Support level	Comments
Eicon Diva Server BRI-2M	PCI	N/A	BRI	Supported	
Eicon Diva Server 4BRI-8M	PCI	N/A	BRI	Supported	
Eicon Diva Server PRI/E1/T1	PCI	N/A	E1/T1	Supported	This board supports E1 only.
Eicon Diva Server PRI/E1-30	PCI	N/A	E1	Supported	

Appendix B

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:

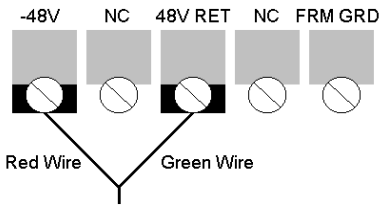
- Set **Trunk Type** to “Loop Start.”
- Set **Service Type** to “Wink Start.”
- Set **Signalling** to “DTMF (Touch-Tone).”
- Set **Digit Length** to “4.”

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 7.1 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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Appendix C

Using the Bfax.sys Plug-and-Play Fax Board Driver

Bfax.sys is a plug-and-play fax board driver that Windows uses to recognize and automatically assign system resources to PCI and uPCI Brooktrout TruFax or TR114 fax boards. It should not be used with any other type of fax board.

Warning *If you have a combination of ISA and PCI fax boards in a single computer, then you cannot use the Bfax.sys driver.*

Windows 2003 comes with Bfax.sys already installed and it will be used automatically for all PCI and uPCI TruFax and TR114 fax boards installed on computers running this operating system.

If you are running Windows 2000, you may need to install and run the Bfax.sys driver if you have upgraded your server's BIOS to the latest available version and the fax board is not recognized by the server or the server regularly blue-screens after installing the boards. Windows 2000 does not include this driver by default, but it can be requested from the RightFax support group.

The Bfax.sys driver is incompatible with the following RightFax features:

- DTMF routing when Initial Speech is configured
- Human Answered Fax
- Disabling only the lower number fax channels. (For example, disabling the first two channels on a TR114+P4C will result in only the first two channels (loop start) being activated.)

Configuring Your Fax Boards to Use Bfax.sys

If you have installed Brooktrout TruFax or TR114 fax boards on a server running Windows 2003, these boards automatically use the Bfax.sys driver. On Windows 2000, the RightFax support group may have provided and helped you install the Bfax.sys driver for your Brooktrout TruFax or TR114 boards.

If, when running the Bfax.sys driver, the RightFax BoardServer module fails to start, follow these steps to correct the problem:

1. Edit the Windows Registry and add a REG_DWORD value called Boardinit to HKEY_LOCAL_MACHINE\Software\RightFax\BoardServer and set the value data to 0 (zero).
2. Set the BoardServer module to manual startup.

3. Create a batch file containing the following commands:

   "C:\Program Files\RightFax\RFBoard\Faxinit.exe" -n
   net start rfboard

4. Create a scheduled task with a **Run** line that contains the name of the batch file you created in the previous step. Configure the schedule task to start "When my computer starts." Ensure that the scheduled task runs with the credentials of an account that is a member of the local administrators group on the RightFax server.
5. Reboot the computer to apply the new configurations.

Disabling the Use of Bfax.sys

Follow these steps if you are using the Bfax.sys driver, and need to disable it:

1. Delete the Windows Registry value "Boardinit" from HKEY_LOCAL_MACHINE\Software\RightFax\BoardServer.
2. Remove the scheduled task you created that runs Faxinit.exe (described in the previous section).
3. Rename the bfax.inf and the bfax.pnf files located in the Windows\inf folder to bfax.old and bfax.old2.

1. Open Device Manager, right-click on the Brooktrout board(s), and then select **Uninstall**.

1. Delete the Windows Registry value "BFax" from HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\
2. Reboot the computer. The **Found New Hardware** wizard will open.
3. Select **Install the software automatically (Recommended)**. Click **Next**.
4. The **Found New Hardware** wizard will prompt that it cannot install the hardware. Select **Don't prompt me again to install this software** and then click **Finish**.
5. Open the RightFax Boardserver module, ensure your fax board is present and click **OK**.

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