



Version 9.4
Fax Board Guide

v. 1.0
August 21, 2008

Edition

Information in this document applies to version 9.4 of the RightFax® Fax Board Guide. This guide was last updated on August 21, 2008.

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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 <http://www.captaris.com/support/documentation/rightfax/supporterboards.html>. 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 <http://www.captaris.com/support/documentation/rightfax/supportboards.html>.



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 Analog 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 analog fax boards consists of models with up to eight channels for analog or DID telephone lines. Instructions in this chapter apply to all supported TR1034 analog boards unless otherwise noted.

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.

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 DocTransport module

The RightFax DocTransport module lets you configure the methods by which RightFax will be able to transmit documents. This module lets you configure 1034-based fax boards for conventional fax transmission. 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 DocTransport module allows you to send and receive fax documents, you should configure the DocTransport module to meet the needs of your enterprise immediately after installing the RightFax server software. For information on configuring the RightFax DocTransport module, refer to the *RightFax Administrator's Guide*.

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 B, "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 14](#).)

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 24](#)). 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.

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 10](#), and [“Testing Brooktrout DID Boards” on page 11](#).

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 B, “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 10](#).

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 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 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

Brooktrout TR1034 Series Digital Fax Boards

For a complete list of TR1034 digital fax boards supported by this version of RightFax, see <http://www.captaris.com/support/documentation/rightfax/supportboards.html>.



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.

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.

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 DocTransport module

The RightFax DocTransport module lets you configure the methods by which RightFax will be able to transmit documents. This module lets you configure 1034-based fax boards for conventional fax transmission. 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 DocTransport module allows you to send and receive fax documents, you should configure the DocTransport module to meet the needs of your enterprise immediately after installing the RightFax server software. For information on configuring the RightFax DocTransport 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 <http://www.captaris.com/support/documentation/rightfax/supportboards.html>.



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 B, "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 8](#).

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 TR-114-series 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 T.38-Compatible Faxing

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

and

- SR140

For a full list of supported fax boards in RightFax, please visit <http://www.captaris.com/support/documentation/rightfax/supportboards.html>.

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 or H323-compatible router. A separate network interface card must be installed to allow SIP communication with the Cisco gateway.

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 DocTransport module.

After you have installed the fax boards, you must configure each in the RightFax DocTransport module (described in the *RightFax Administrator's Guide*). Run the DocTransport module from the 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_rcv

It is important that the value for t38_fax_max_datagram_rcv 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_rcv=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.

■ ■ ■

Chapter 5

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/T1-8
- Eicon Diva Server PRI/E1-30
- Eicon Diva Server PRI/T1-24
- Eicon Diva Server Analog-4P
- Eicon Diva Server Analog-8P

For a full list of supported fax boards in RightFax, please visit <http://www.captaris.com/support/documentation/rightfax/supportboards.html>.

Eicon Diva Server version 7.5 or higher must be installed on the RightFax server or remote DocTransport 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*.

Eicon Fax Transmission

Using the Eicon Diva Software, RightFax can transmit fax documents using analog, BRI, T1, E1, and PRI-ISDN telephone lines.

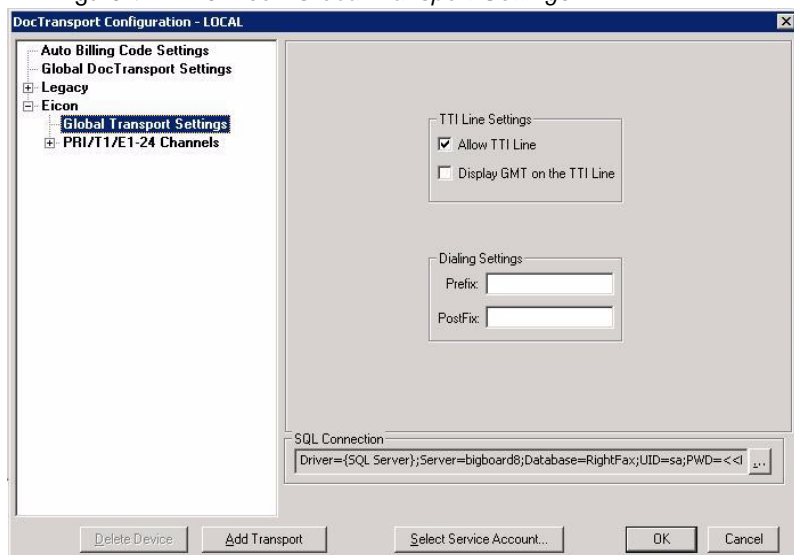
Installing and configuring the Eicon Diva software

To enable Eicon channels on your RightFax server, you must first install Eicon Diva version 7.5 or higher on the RightFax server or remote DocTransport computer. Currently, Eicon Diva requires a dongle be installed on the RightFax computer to license and enable the Eicon channels. After the software and accompanying dongle have been installed, you must run the Eicon configuration tool to enable the channels and configure the transmission settings. For assistance with installing and configuring the Eicon Diva software, please contact an Eicon support representative.

Configuring Eicon Global Transport Settings

Eicon Global Transport Settings are global settings that apply only to the Eicon transport methods. To configure Eicon Global Transport settings, select **Global Transport Settings** in the left pane. The rest of this section describes the options on this screen.

Figure 5.1 The *Eicon Global Transport Settings*



Allow TTI Line The transmit terminal information (TTI) line is a line of text that prints at the top of each received fax page. The TTI line includes the transmitting fax machine, the date and time of the transmission, the fax page number, and the total page count.

Display GMT on the TTI Line Displays the local time relative to Greenwich Mean Time (GMT). If this option is *not* selected, the TTI line will display the local time at the fax's place of origin.

Dialing Settings Prefix This field specifies one or more dialing characters to add at the beginning of every outbound fax number dialed by the server. The default setting (WW) instructs the Eicon

channels to automatically detect a dial tone before dialing. For a list of valid dialing characters, please refer to the *Administrator's Guide*.

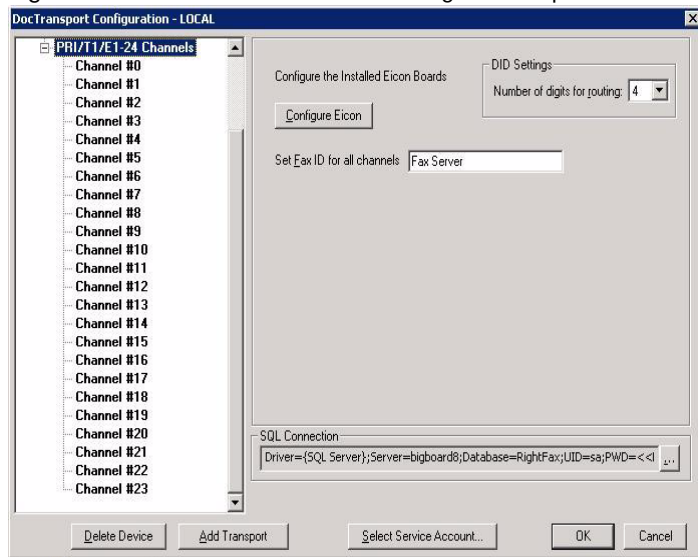
Dialing Settings Postfix This field specifies one or more dialing characters to add at the end of every outbound fax number dialed by the fax server. For a list of valid dialing characters, please refer to the *Administrator's Guide*.

Configuring Eicon channels in RightFax

After you have installed and configured the Eicon Diva software, you must configure the Eicon channels in the RightFax DocTransport module (described in the *RightFax Administrator's Guide*).

1. Run the RightFax DocTransport module in Windows Control Panel. This opens the **DocTransport Configuration** dialog box.
2. Click **Add Transport**. This opens the **Transport Selection** dialog box.
3. Highlight **Eicon Diva Server**. A list of supported Eicon transports appears in the pane on the right.
4. Select **Eicon Channels** in the list and then click **Select**. The **Transport Selection** dialog box closes and an **Eicon** option appears in the left pane of the **Transport Configuration** dialog box.
5. Expand the **Eicon** option in the list in the left pane and highlight **Eicon Channels**. This displays a set of Eicon configuration options.

Figure 5.2 The *Eicon Diva Server Configuration* options



7. Click **OK** to close the DocTransport configuration.

■ ■ ■

Configure Eicon Click this button to run the Eicon configuration program if necessary. However, this configuration should have been completed before enabling the channels in RightFax.

Set Fax ID for all Channels You can specify a fax ID for all the channels you add. The fax ID is transmitted by each channel to the receiving fax device. Usually, this is set to your company name or a general fax number.

Number of Channels Select the number of channels that you want to enable in RightFax. Eicon and RightFax must both be licensed to support the number of channels you specify.

6. After you have added all the channels, you can highlight each individual channel in the list and select an option to enable or disable the channel. All channels are enabled by default when you add them.

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:

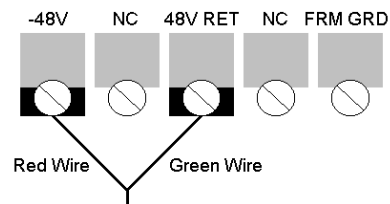
- Set **Trunk Type** to “Loop Start.”
- Set **Service Type** to “Wink Start.”
- Set **Signalling** to “DTMF (Touch-Tone).”
- Set **Digit Length** to “4.”

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 5.3 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.

■ ■ ■

Appendix B

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.
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**.

■ ■ ■

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**.

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