CallFinder® DID
DID-to-Analog Adapter

Model CF220-DID

User Guide

MultiTech®
Systems

User Guide

CallFinder® DID
   DID-to-Analog Telephony Adapter
Model CF220-DID

S000436C

Record of Revisions

Revision	Date	Description
A	06/15/07	New chassis version. Model renamed from CF220 to CF220-DID. New software release.
B	11/20/07	Update support information and format. Add mechanical mounting.
C	03/14/08	Update with new chassis drawing.
	05/13/09	Added website link for warranty information.

Patents
This device covered by the following patent: **5,673,268**

Trademarks
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All other products and technologies are the trademarks or registered trademarks of their respective holders.

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Warranty
To read the warranty statement for your product, please visit: http://www.multitech.com.

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Chapter 1 – Product Description and Specifications

Product Description

The CallFinder® is a DID-to-analog telephony adapter. It brings analog DID services to a key telephone system or PBX that is not DID-enabled. When equipped with the CallFinder, the phone system can route incoming calls directly to end-user extensions. The CallFinder has two DID channels. Each channel is connected to the telco DID line on one side and to the PBX/key system on the other side. A CallFinder extension port can be connected either to a trunk port or to a station port on a PBX. The choice between trunk port or station port connections depends on port availability, logging requirements, and/or on whether it is necessary for incoming DID calls to be treated like outside calls instead of intra-PBX calls.

The CallFinder product consists of the hardware unit with pre-installed configuration software and additional management software on a CD.

Product Features

- Direct routing of incoming calls to end-user extensions
- Two Direct Inward Dial (DID) ports
- Two extension ports programmable as FXS or FXO
- Extension ports also programmable as "FXS Pass Through" for inter-operation with Multi-Tech FaxFinder fax servers
- DID ports support wink/delay-start, immediate-start, and reverse-on-disconnect service types
- Interfaces with most call-processing systems
- Supports audio ring back and busy pass-through
- Web interface for system configuration and management
- PC-based software to manage multiple CallFinders in same system
- Flash memory for easy updates
- Small footprint external chassis
- Two-year warranty

Prerequisite: the DID Line(s)

To operate the CallFinder system, you will need two DID (Direct Inward Dial) lines in your office. You must order the DID line from your local telephone operating company (telco). A DID line allows one phone line to be associated with multiple directory numbers. However, only one call can occur on this line at any given time.

DID lines are sold in groups. For example, a telco in New York City might offer a DID line with a set of 20 directory numbers in the range of 212-555-4101 through 212-555-4120.

When ordering your DID line(s), ask the telco representative for these details about the DID service. These details will be important when setting up your CF220-DID unit.

Parameter	Value Required by Telco
Number of digits used to designate the DID extension (usually 3, 4, 6, or 7)	
Type of "DID Start" used (*wink*, *immediate*, or *delay dial*)	

You will need this information to configure your CallFinder DID-to-Analog Adapter (see *Chapter 3: CallFinder Server Installation*).

Safety Warnings

- Use this product only with UL- and CUL-listed computers (US).

- Never install phone wiring during a lightning storm.

- Never install a phone jack in a wet location unless the jack is specifically designed for wet locations.

- Never touch uninsulated phone wires or terminals unless the phone line has been disconnected at the network interface.

- Use caution when installing or modifying phone lines.

- Avoid using a phone during an electrical storm; there is a risk of electrical shock from lightning.

- Do not use a phone in the vicinity of a gas leak.

- To reduce the risk of fire, use only 26 AWG or larger telephone line cord.

- This product must be disconnected from power source and telephone network interface when servicing.

Technical Specifications

The CF220-DID CallFinder meets the following specifications:

Connectors	Four RJ11-FXO/FXS Jacks, One RJ45 - Ethernet Jack
Size	6" L x 6.4" W x 1.2" H 15.2 cm x 16.3 cm x 3.0 cm
Weight	0.55 kg 1.2 lb
Power Consumption	9Vdc @ 800 mA
Operating Environment	32-120 degrees F (0-50 degrees C) relative humidity 20 to 90% noncondensing
EMC Approvals	FCC Part 15 Class B, Canada Class B, EN 55022 Class B, EN55024
Safety Approvals	UL, cUL, UL60950, CSA 950, EN60950, AS3260, CCIB (China)
Telecom Approvals	FCC Part 68, CS03

Multi-Tech manuals and other resources are available on the Multi-Tech Web site at www.multitech.com.

Mechanical Mounting

The CallFinder can be surface mounted with screws spaced according to the measurements shown.
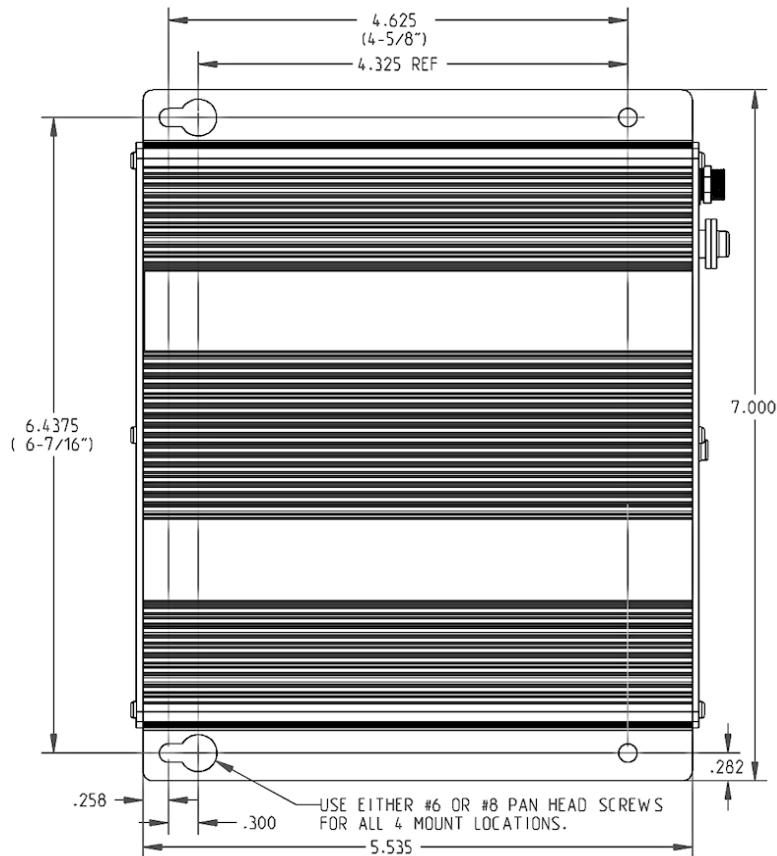

Figure 1-1: Mounting holes

Chapter 2 – Sample System

Introduction

The Widget Vacuum Cleaner Company wants to use DID lines for its Field Support and Purchasing Departments. Alas, the company's PBX is not equipped for DID service and a new PBX will not be in the budget anytime soon.

This chapter shows how this fictitious company might use Multi-Tech's CF220-DID CallFinder to solve its problem.

For years, the receptionist/operator has been routing calls to various specialists within the company, but, as the company has grown, this has become increasingly difficult. Widget's Field Support Department wants to give customers a permanent set of incoming phone numbers so they can reach employees who have expertise with different kinds of vacuum cleaner systems. Widget's Purchasing Department wants to give vendors a permanent set of incoming phone numbers so they can reach purchasing agents responsible for different kinds of parts. Widget wants flexibility in routing calls because employees must cover different shifts and sometimes substitute for each other (during vacations, etc.). Yet they want to avoid moving employees from office to office. They want to cross-train employees in different specialties. Widget also wants to use an automated timed billing system to charge for Field Support calls.

Widget Field Support Specialties		Widget Purchasing Specialties
Upright		Bags
Canister		Belts
Wet/Dry		Motors
Battery		Frames
Commercial		Attachments

Widget Sample Company Implementation

In the following pages we show the setup for a CallFinder system that meets the company's needs. For each step of the setup, we show first the practical intent of the setup, followed by its corresponding technical implementation, as done through the CallFinder's built-in software (accessible via web browser).

Widget's Initial Situation
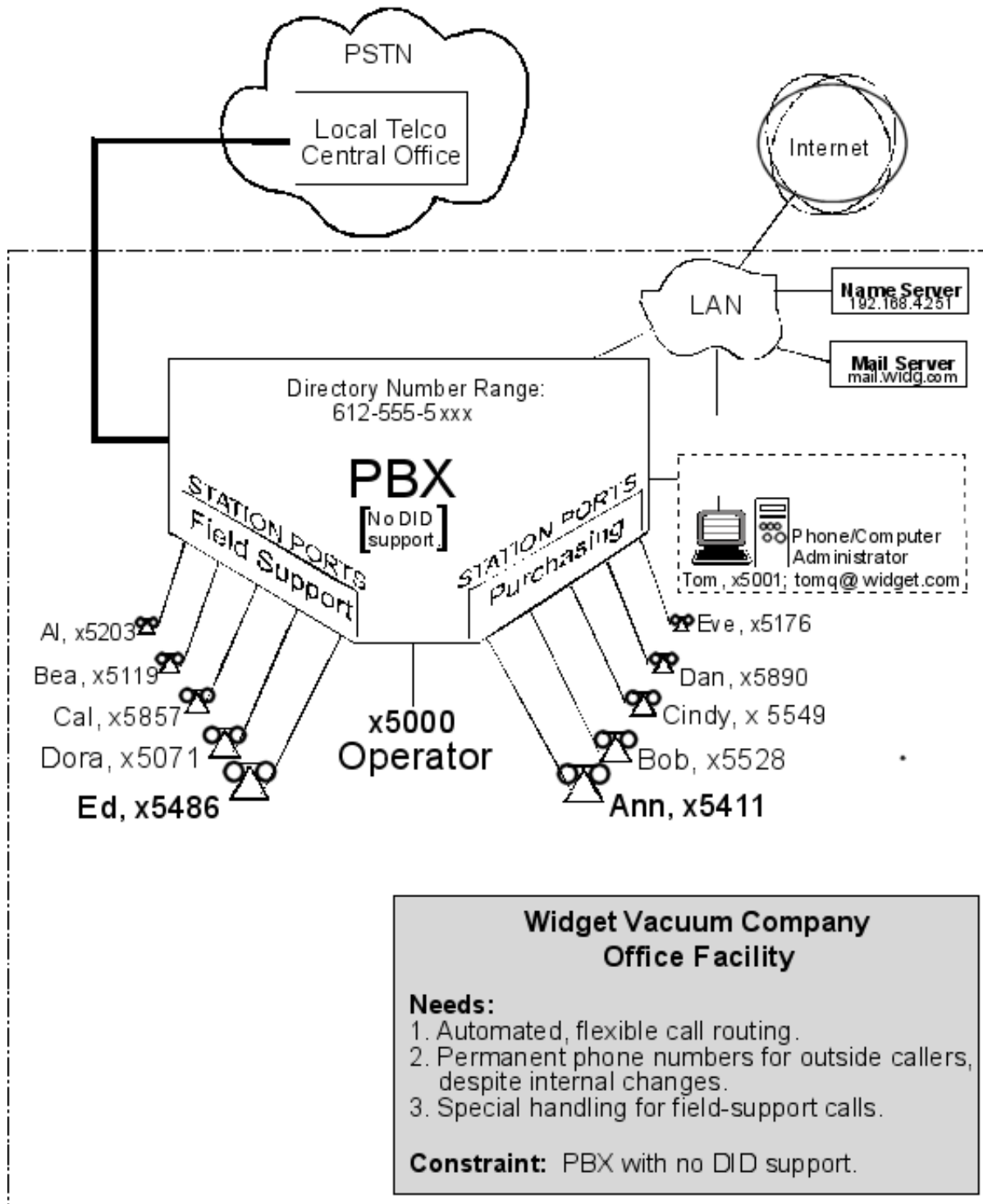
Figure 2-1: PBX and no DID

Step 1a Practical: Add CallFinder and connect to network.
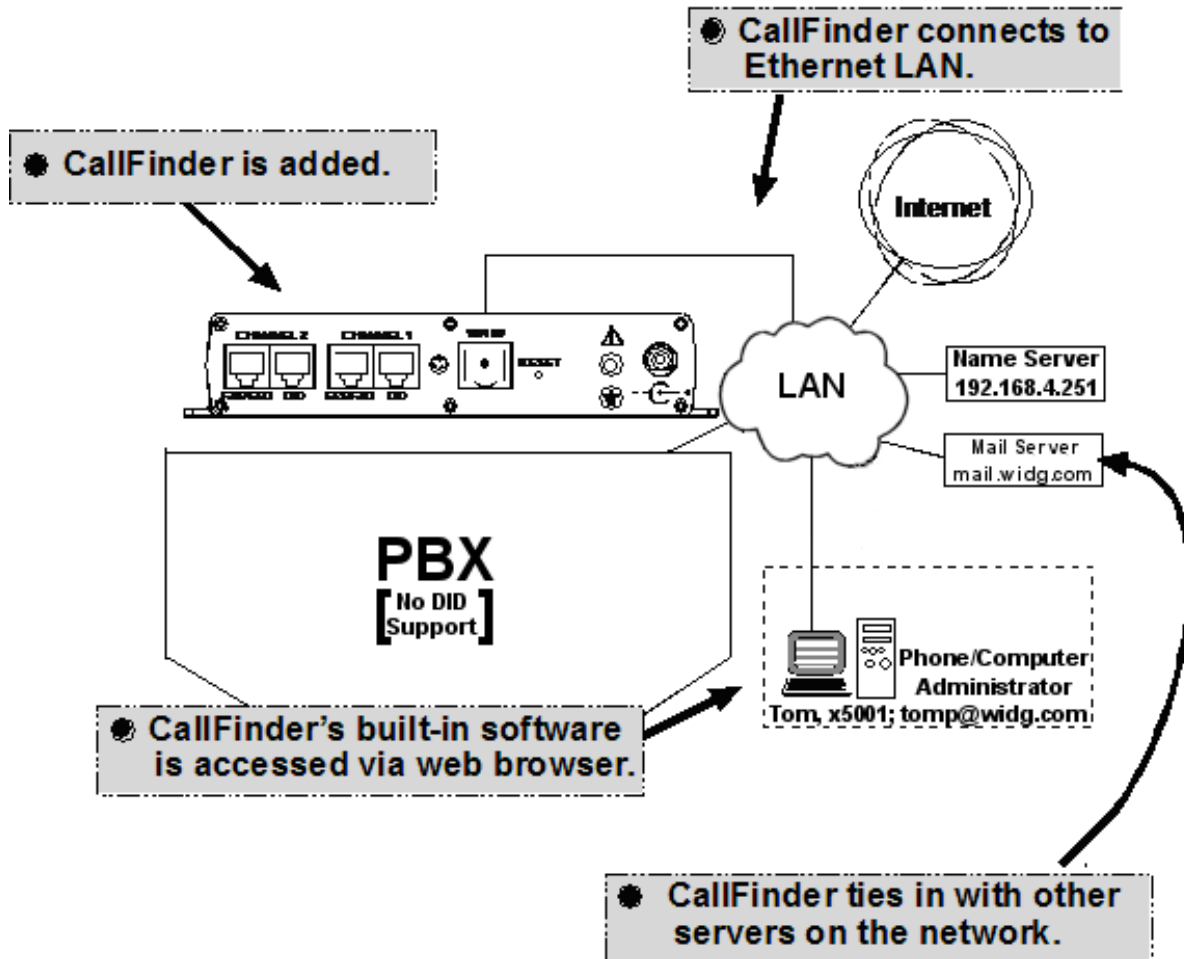
Figure 2-2: Adding a CallFinder

Step 1b Technical: Enter addresses of network servers in CF software.

Once assigned an IP address on the network, the CallFinder's software (configured via web browser) can link it to other servers on the network.
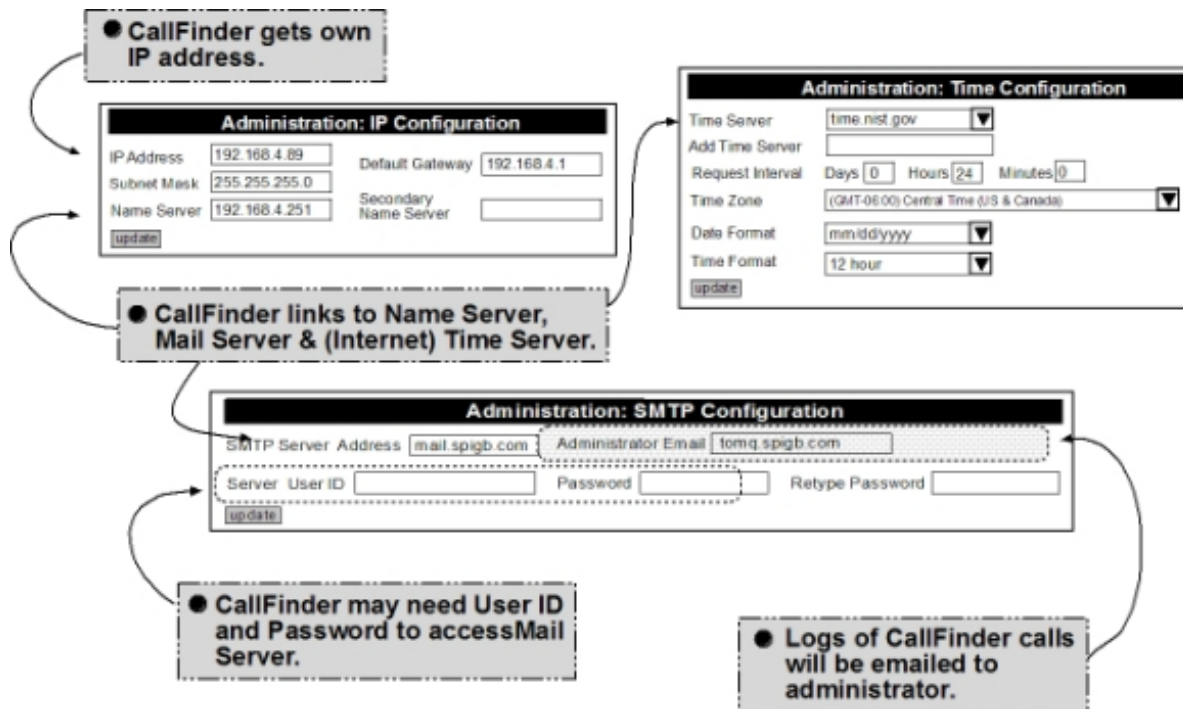
Figure 2-3: Entering addresses to software

Step 2a Practical: Add DID lines and connect to CallFinder.
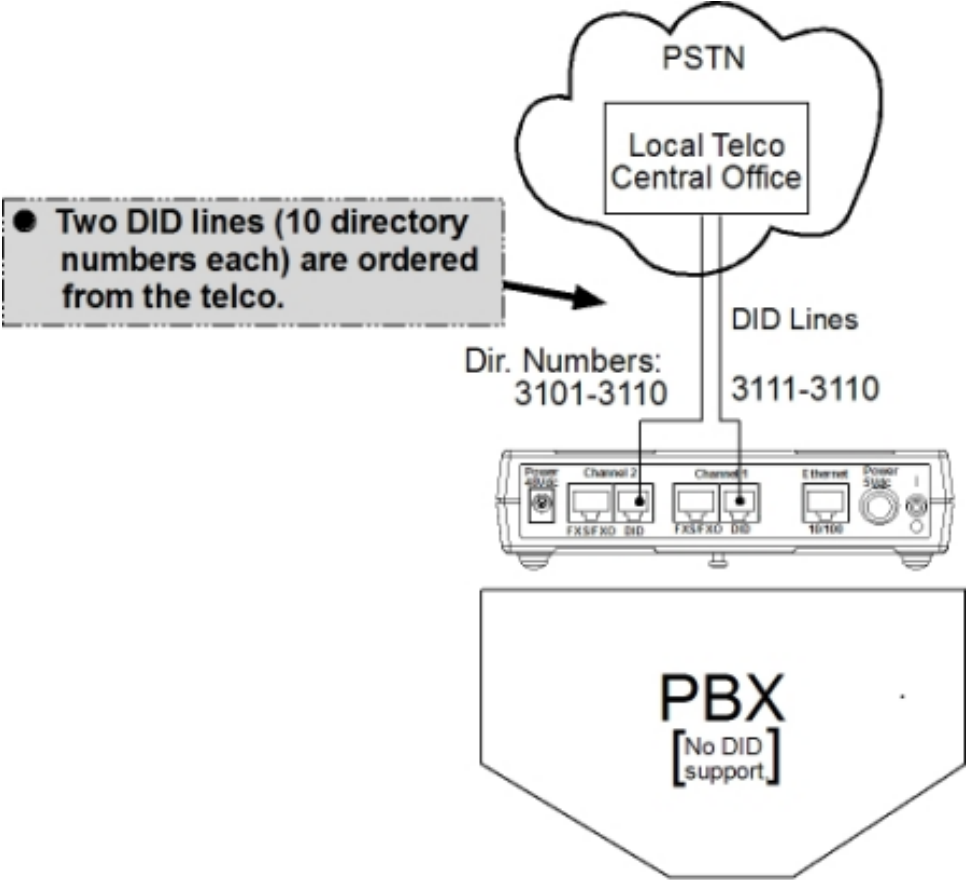
Figure 2-4: Adding the DID lines

Step 2b Technical: Enter operating parameters of DID lines.

Each DID line has 3 user-specified technical parameters. They are set in the CallFinder software.
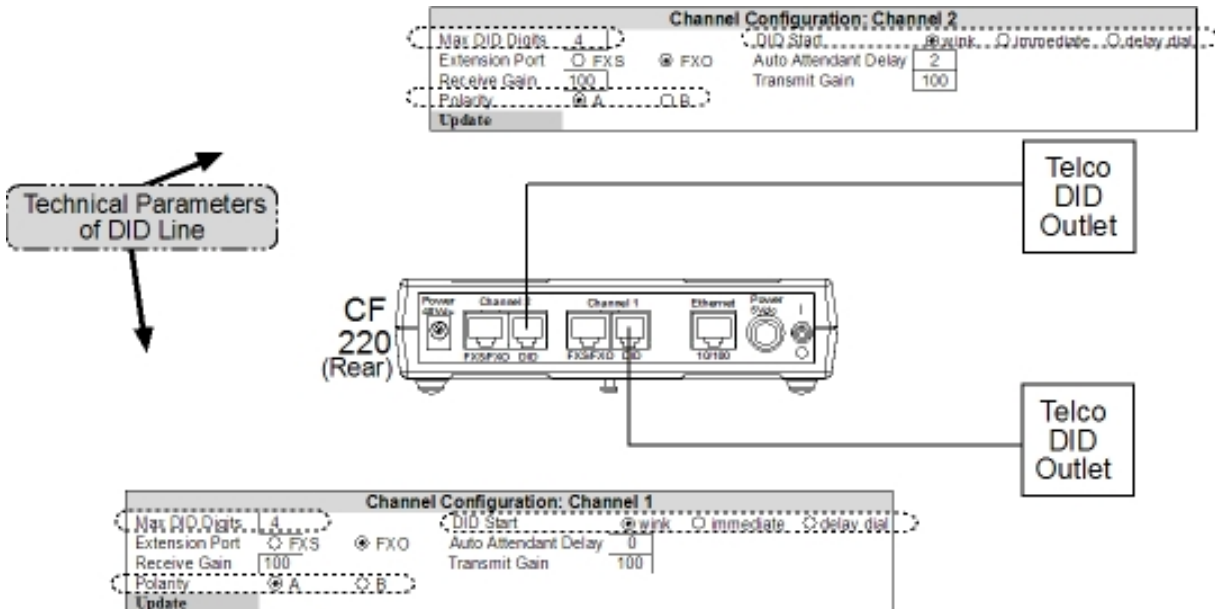
Figure 2-5: Configure the lines

Technical Parameters Related to DID Line

| Parameter	Value	Comments
Max DID Digits	4	Number of digits received on DID line.
Polarity	try A	This is a trial-and-error setting. The DID line is a twisted pair. Only when installed can you know polarity. You determine the polarity by performance – with wrong polarity, connections cannot be made.
DID Start	ask telco	Start mode varies with different implementations of DID.

Step 3a Practical: Connect CallFinder port (FXO) to PBX for conventional DID service
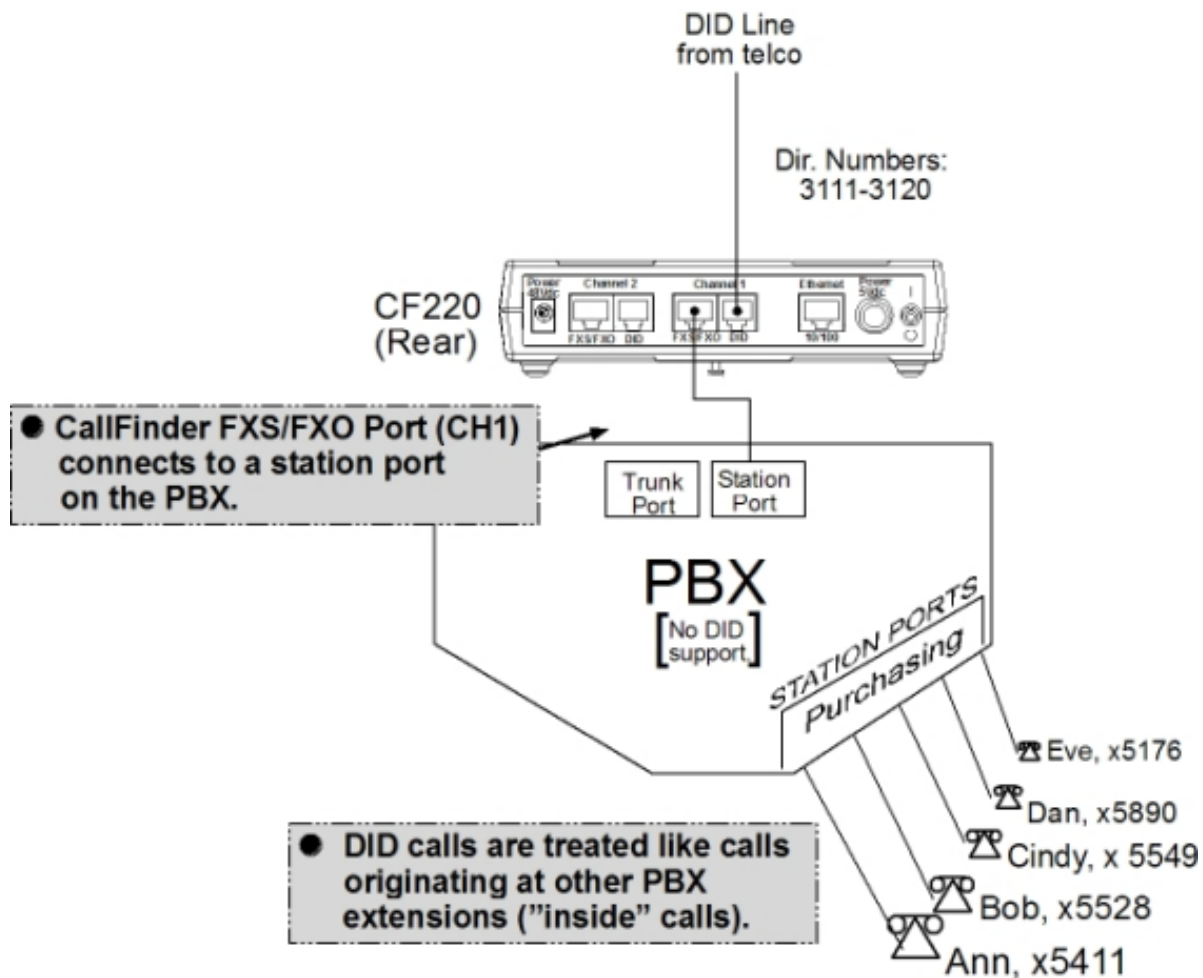
Figure 2-6: Connect FXO to PBX

Step 3b Technical: Enter operating parameters of CallFinder channel (FXO)

Each of the CallFinder's DID-channel modems has two user-specified parameters. You set them in the CallFinder software.
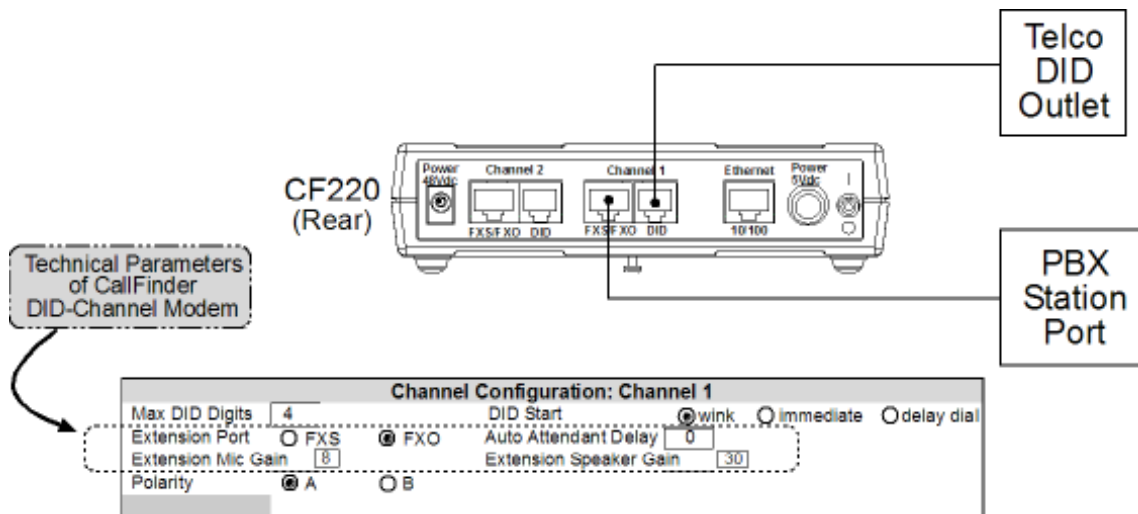
Figure 2-7: Operating parameters

Technical Parameters Related to CallFinder's Extension Port Line

Parameter	Values	Comments
Extension Port	FXO	Use FXO whenever CallFinder channel connects to PBX station port.
Auto Attendant Delay	1-5 (in seconds)	Describes how long the CallFinder waits before dialing. Default = 2. Note that values higher than 5 seconds can be entered, but these higher values are likely to be considered excessive to the party calling in and waiting to be connected to an extension. Also, a value of 0 can be entered but should not be used because it may cause the PBX to miss dialed digits.

Step 4a Practical: Connect CallFinder port (FXS) to PBX for special DID service

DID Line
from telco

Dir. Numbers:
3101-3110

CF220
(Rear)

● CallFinder FXS/FXO Port (CH2)
connects to a trunk port
on the PBX.

Trunk
Port

Station
Port

PBX
[No DID
support]

STATION PORTS
Field Support

Al, x5203

Bea, x5119

Cal, x5857

Dora, x5071

Ed, x5486

● DID calls are treated like calls
originating outside of the
PBX.

Billing
Computer

● Because calls are handled as external calls,
more functionality can be added. Spigglebrim
here is adding call-billing capability.

Figure 2-8: FXS to PBX

Step 4b Technical: Enter operating parameters of CallFinder channel (FXS)

Figure 2-9: Channel settings

Step 5a Practical: Map PBX Extensions to DID Numbers

Figure 2-10: Mapping PBX to DID

Step 5b Technical: Create CallFinder Phonebook
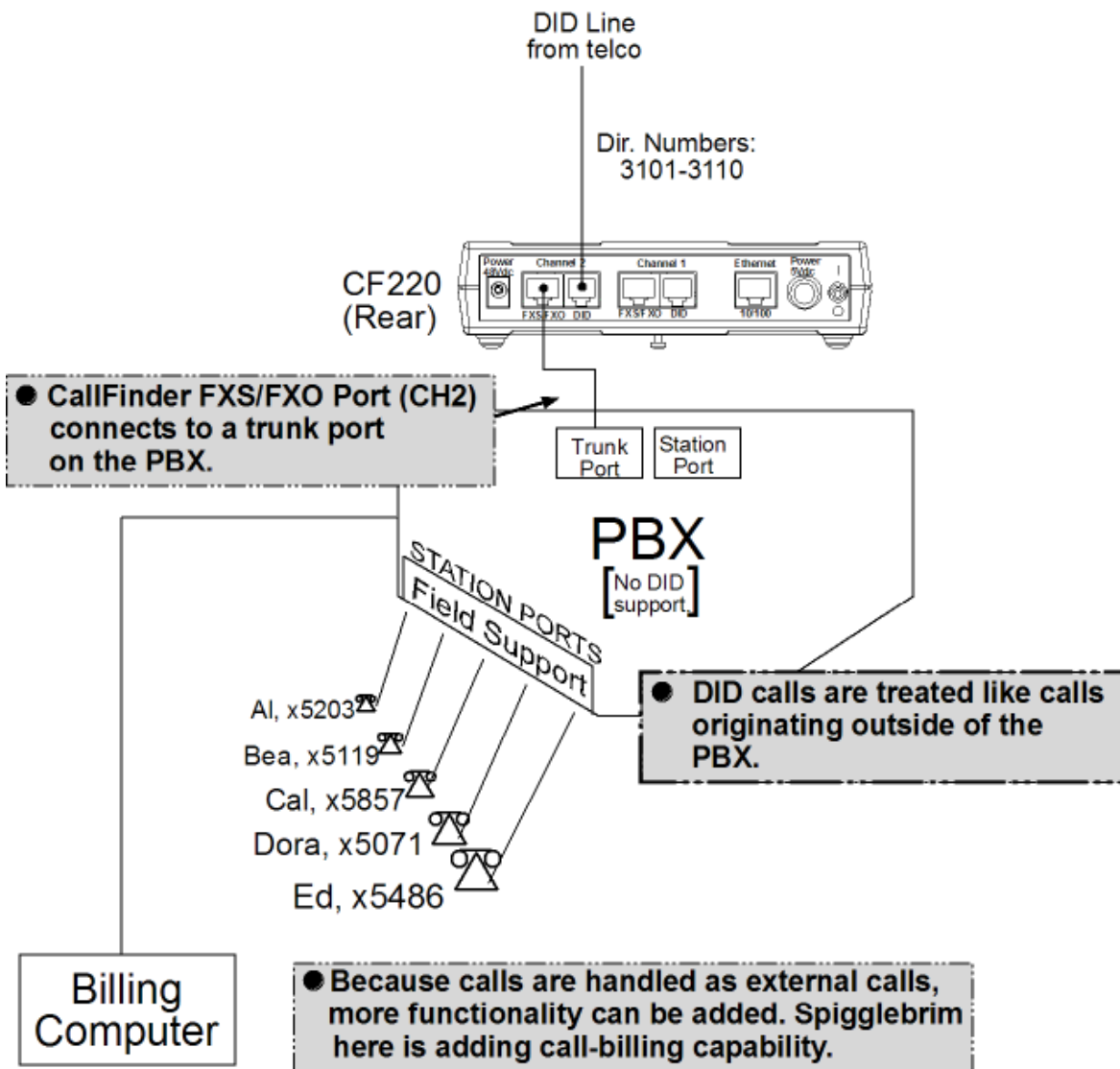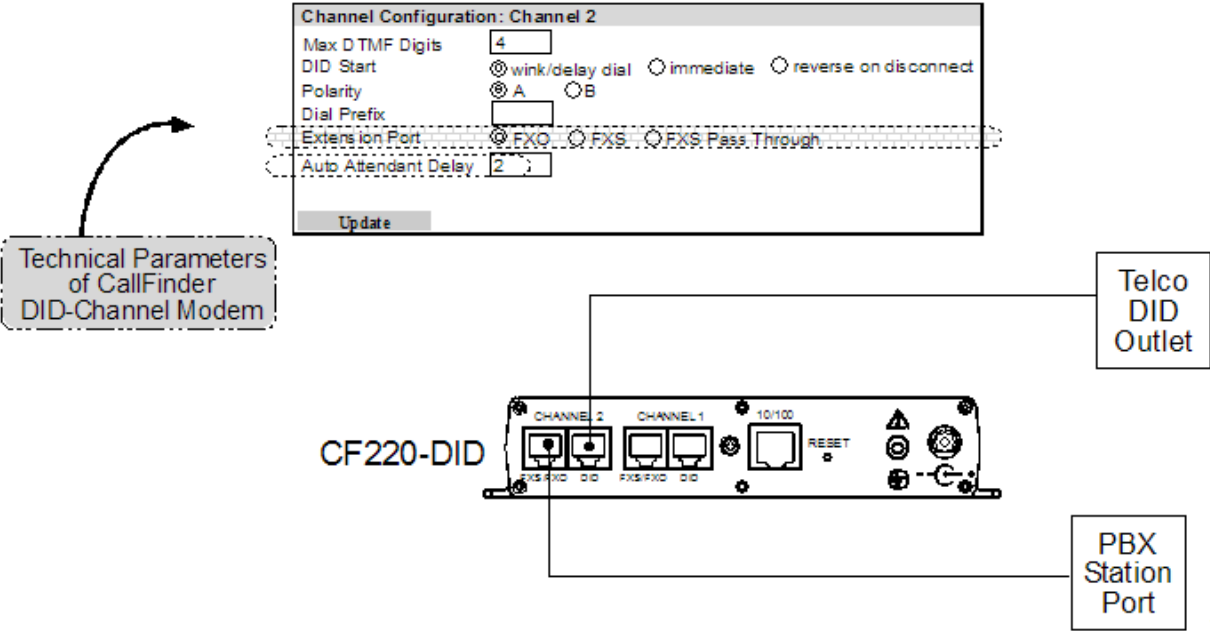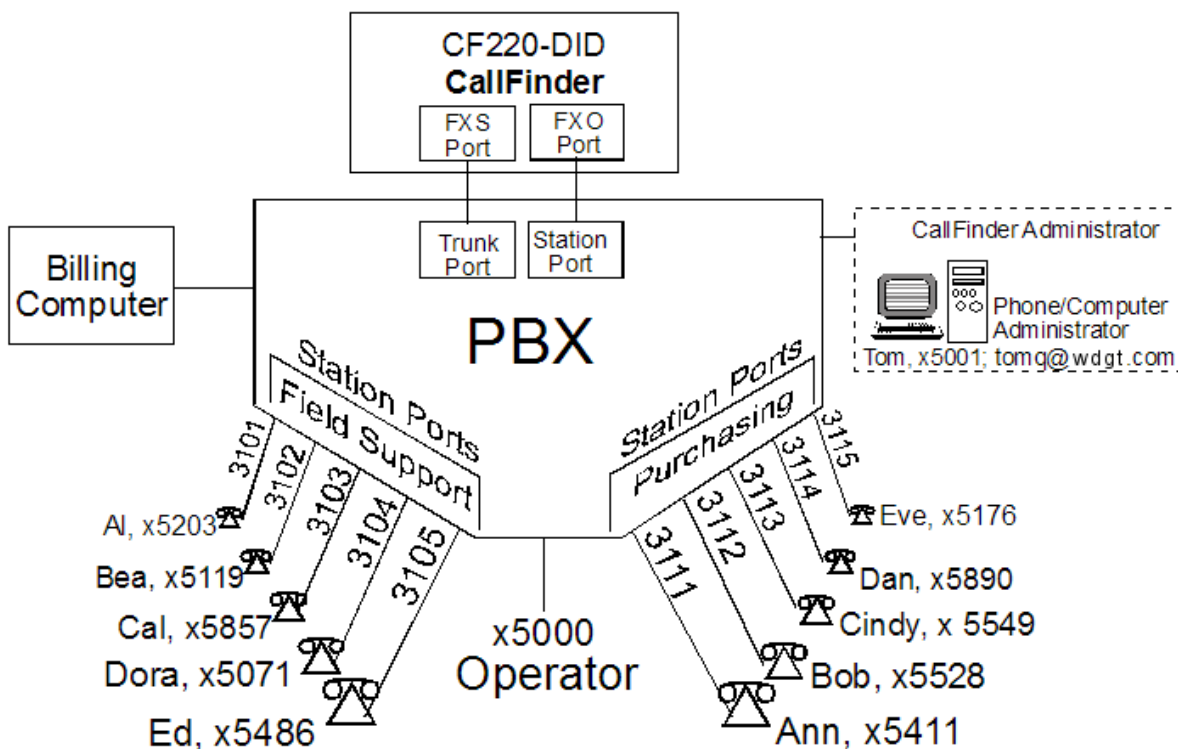

Phone Book			
Name	**DID #**	**Extension**	**Function**
Administrator			Update
Unassigned Number 1		5000	Update
Unassigned Number 2		5000	Update
Al	3101	5203	Update Delete
Bea	3102	5119	Update Delete
Cal	3103	5857	Update Delete
Dora	3104	5071	Update Delete
Ed	3105	5486	Update Delete
Ann	3111	5411	Update Delete
Bob	3112	5528	Update Delete
Cindy	3113	5549	Update Delete
Dan	3114	5890	Update Delete
Eve	3115	5176	Update Delete
			add

(Field Support: Al, Bea, Cal, Dora, Ed; Purchasing Dept.: Ann, Bob, Cindy, Dan, Eve)

Figure 2-11: Creating the Phonebook

This phonebook arrangement connects the five Field Support users to the CallFinder through one of the PBX's trunk ports (using DID numbers 3101 through 3105). This facilitates the use of a billing computer for Field Support calls. The five Purchasing Department users are connected to the CallFinder through one of the PBX's station ports (using DID number 3111 through 3115). Because station ports are always more numerous than trunk ports in PBXs, CallFinder channels are more likely to be connected to PBX station ports than to PBX trunk ports in most systems.

If any outside caller dials 612-555-3106 or any other unused DID number, the caller will reach the receptionist operator (x5000).

Step 6: Administering the CallFinder System

Multi-Tech CallFinder® DID-to-Analog Adapter
Model CF220-DID -- Version 1.03

Username [   ]
Password [   ]
[Login]

For initial Login, use:
admin
admin
Then change Login later.

Administration: SMTP Configuration

SMTP Server Address [mail.spigb.com]
SMTP Port [25]
Administrator Email [tomo@spigb.com]

SMTP Server User ID [   ]
SMTP Password [   ] Retype SMTP Password [   ]
[update]

Designate an administrator to receive call-logs via email.

Determine whether company's email server requires User-ID and Password for login authentication. Give CallFinder such a user-ID and password if needed. *This is different than administrator's Username & Password.*

Home | Login | Call Log | Current Status | Logout
Administration | Phone Book | Channel Config | Password Admin

Phone Book

Name	DID #	Extension	Function
Administrator			[update]
Unassigned Number 1		5000	[update]
Unassigned Number 2		5000	[update]
Al	3101	5203	[update] [delete]

Designate someone to take calls made to unassigned DID numbers that may come in on either channel.

Figure 2-12: Administration

Install Device Manager software. This allows you to:
- Add more CallFinders to system
- Update firmware
- Synchronize phone books among multiple CallFinders in system
- Identify by IP address CallFinder units connected to your network
- Access logs of device activity

Multi-Tech Device Manager

File   Edit   Help

Devi		tus	Version
192.	Synchronize Phonebooks		1.03
192.	Add Device		1.02B
192.	Auto-Discover Devices	in failure - devic...	unknown
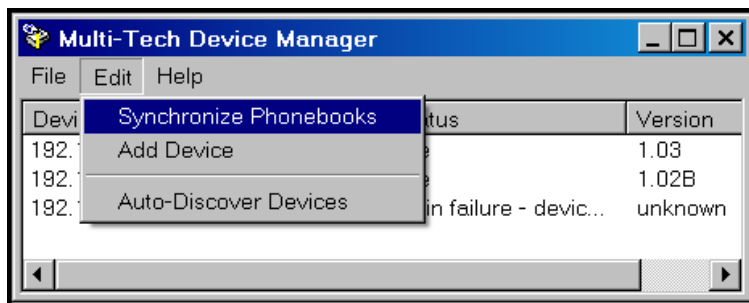
Conclusion

The CallFinder solved Widget's problem. It added DID functionality to their existing PBX. Al in the Field Support Department can now receive calls from the outside (dialed to 612-555-3101) while taking both internal and external calls using his 5203 PBX extension number. Al's Field Support calls are handled as outside calls and they can be registered with a billing computer. Ann in the Purchasing Department receives external calls (dialed to 612-555-3111) while taking both internal and external calls using her 5411 PBX extension number. If either Al or Ann go on vacation, their incoming DID lines can be re-directed in the CallFinder to another employee who knows their specialties. Widget Vacuum Cleaners will be humming along for years to come.

Chapter 3 – CallFinder Server Installation

Introduction

This chapter shows you how to set up your Multi-Tech Model CF220-DID CallFinder.
The setup process entails cabling the CF220-DID unit and configuring the CallFinder software. The CallFinder software resides on the CallFinder unit and does not need to be installed.

First step: Ordering the DID Line(s)

To use the CallFinder system, you will need one or two DID (Direct Inward Dial) lines in your facility. You must order the DID line(s) from your local telephone operating company (telco). A DID line allows one phone line to be associated with multiple directory numbers. However, only one call can occur on this line at any given time.

DID lines are sold in groups. For example, a telco in New York City might offer a DID line with a set of 20 directory numbers in the range of 212-555-4101 through 212-555-4120.

When ordering your DID line, ask the telco representative for these details about the DID service. These details will be important when setting up your CF220-DID unit.

Parameter	Value Required by Telco
Number of digits used to designate the DID extension (usually 3, 4, 6, or 7)	
Type of "DID Start" used (wink, immediate, or delay dial)	

You will need this information to configure your CallFinder (see step 9).

Necessary Equipment

We Supply
- A CallFinder (CF220-DID) with factory-installed software
- A two-piece 9 V dc power supply with power cord
- Four common telephone cables (1 for each port; RJ-11 at both ends)
- A product CD that contains: (a) a system management software package for the administrator's PC, and (b) additional documentation for administrators
- A printed Cabling Guide

You Supply
- A nearby AC power outlet
- Two nearby connections to a PBX or key phone system
- One or two nearby analog DID trunk lines each with a block of associated DID telephone numbers
- A connection to your Ethernet LAN
- A PC with an Ethernet connection and a web browser from which to configure the CallFinder unit. (Windows or Linux can be used to access the CallFinder software. Windows NT, Windows 2000, or Windows XP are required to access the Device Manager software).

Installation, Part A: Cabling Instructions

Summary: Place the CallFinder in a convenient location, and then connect it to earth ground, to your AC power outlet, to your Ethernet network, and to your telco DID service. You cannot connect the CallFinder's Extension Ports (FXS/FXO) to your PBX until after you have configured the CallFinder software. In the CallFinder software, you will configure the Extension Ports as either FXS or FXO, and this must be done before they can be connected to your PBX.

1. Connect CallFinder to Earth Ground

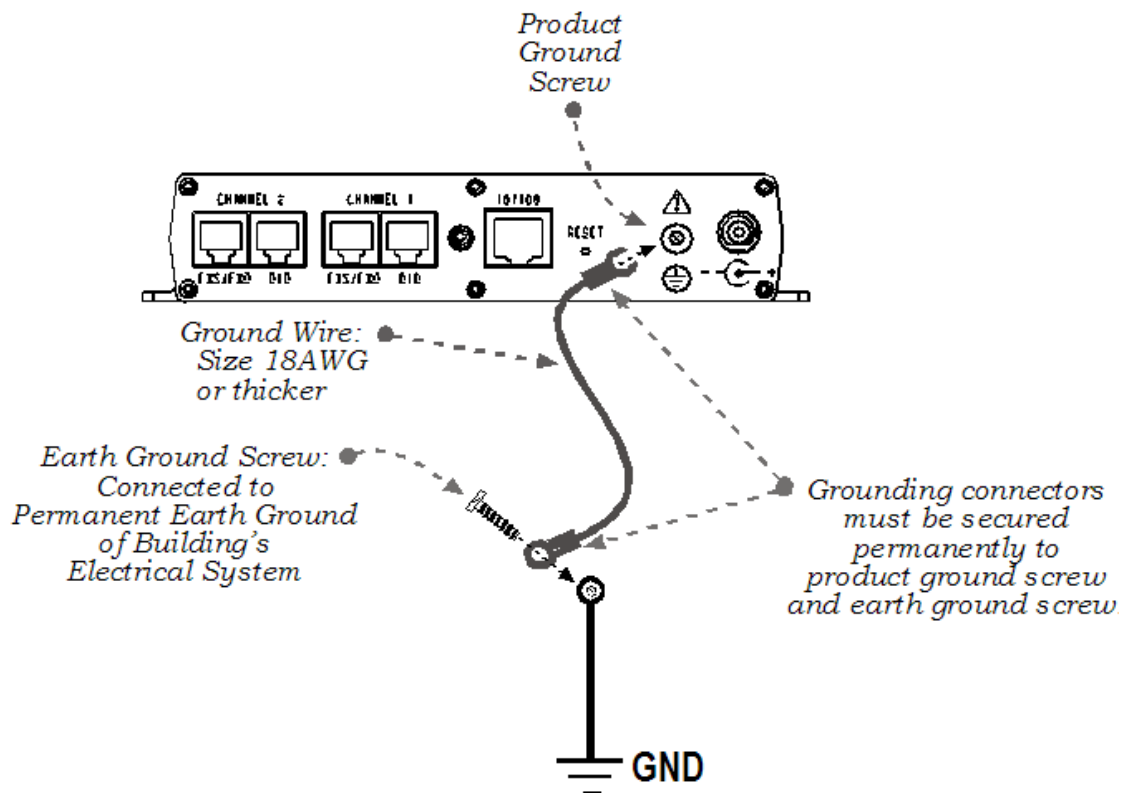Connect the CallFinder's ground connector to a true earth ground (the ground of your building's electrical system).

Figure 3-1: Grounding the unit

2. Connect CallFinder to Power

Insert the 9 V dc power connector into the CallFinder's power receptacle and fasten it with the lock nut. Connect the female end of the AC cord to the power block. Then plug the AC cord into the power outlet.

> **Caution:** Use only the 9 V dc power transformer supplied with the CallFinder. Use of any other transformer voids the warranty and can damage the CallFinder.
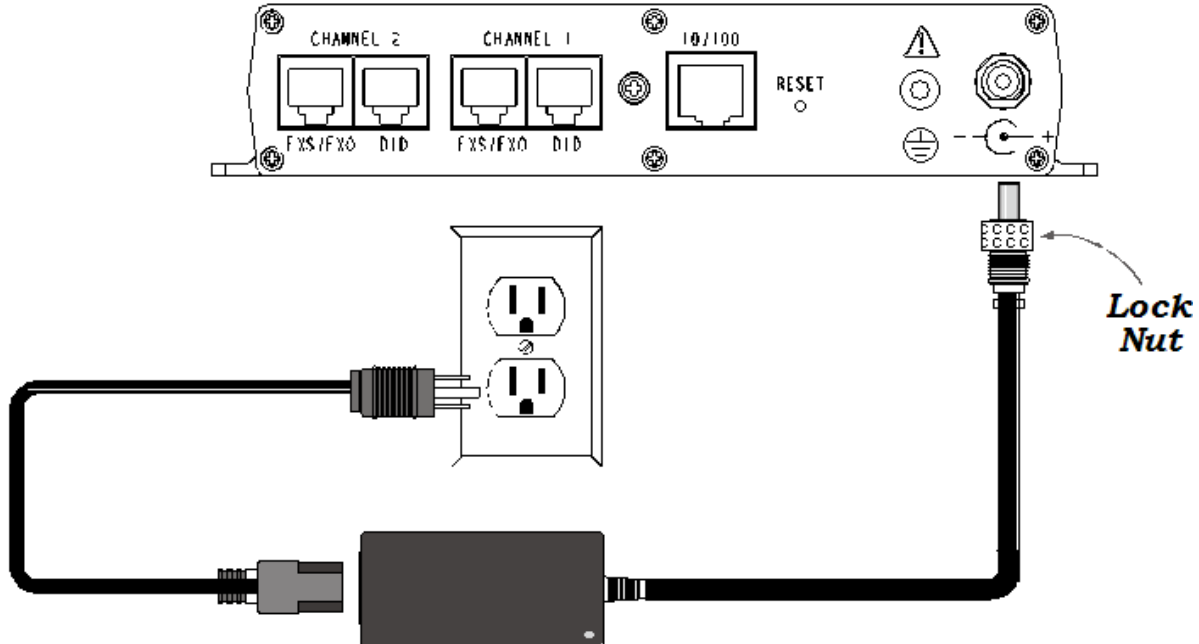
Figure 3-2: Connect to power

3. Verify powering.

After power is applied, the **PWR** LED comes on immediately but there is a 4-second delay before the **Status** LED comes on. In normal operation, the **Status** LED will be flashing.

When you apply power, the CallFinder performs a diagnostic self-test. The **Status** indicator flashes when the embedded processor is up and running. If the **Status** indicator does not flash, check that the power supply is solidly connected and that the AC outlet is live.

Figure 3-3: Front panel LEDs

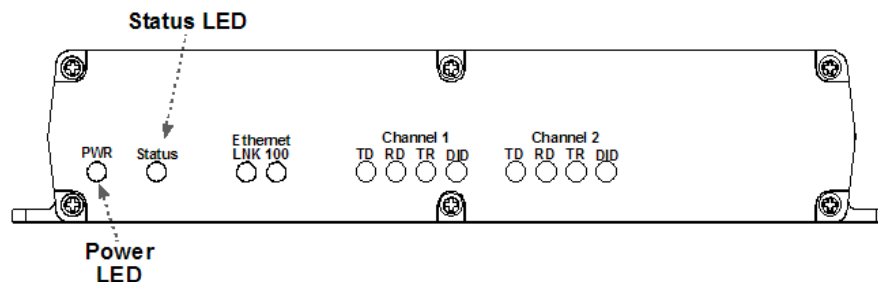## 4. Connect CallFinder to Ethernet Network

Plug one end of your RJ45 Ethernet cable into the CallFinder's Ethernet jack (labeled "10/100") and the other end into your network Ethernet hub. This Ethernet cable is not included with your CallFinder unit.

Note: Before connecting to the Ethernet Network, make sure that the network to which you are connecting the CallFinder is not a 192.168.2.x subnet.

If it is a 192.168.2.x subnet, it may clash with the CallFinder because the CallFinder's default IP address is 192.168.2.1. To correct this, connect an RJ45 cable directly from the Admin PC to the CallFinder until the CallFinder's IP address has been configured. Then connect the CallFinder into the network.
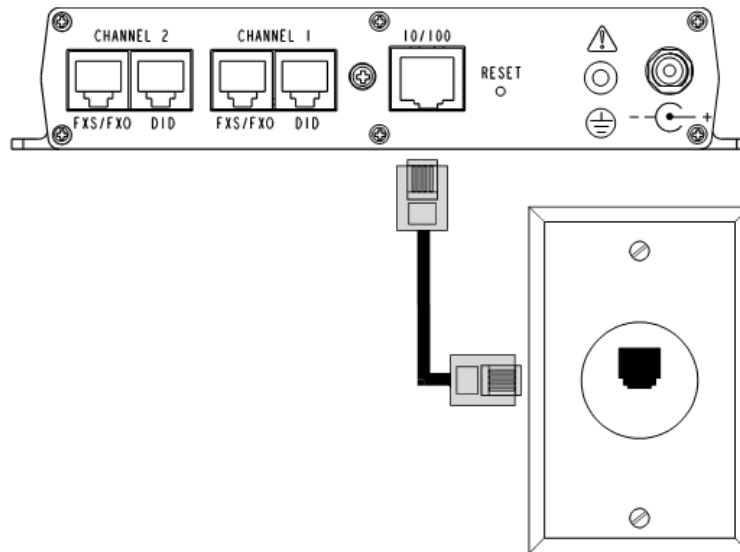

Figure 3-4: Ethernet connection

5. Connect CallFinder to DID Lines

Plug one end of the phone cable into the CallFinder's Channel 1 DID jack and the other end into an analog DID trunk line jack. The DID Line cable is included with your CallFinder.

Caution: Never plug the DID connector into a standard POTS Line. This may damage the CallFinder or the central office equipment. Use only an analog DID Line.

Repeat for the CallFinder's Channel 2 DID port.

6. Identify CallFinder's Extension Ports (FXS/FXO) for Later Hookup

Caution: You must wait until after the CallFinder software has been configured before connecting the cables between the CallFinder's Extension (FXS/FXO) Ports and the PBX. Because the CallFinder and the PBX can both supply battery power, the cable connections must be done properly. Otherwise equipment damage could occur.

Before making connections to the CallFinder Extension (FXS/FXO) channels, you must know the type of PBX port to which each CallFinder port will be connected and set the "Extension Port" field in the CallFinder **Channel Configuration** screen appropriately.

- When connecting to a PBX Station Port, set the CallFinder channel to FXO.
- When connecting to a PBX Trunk Port, set the CallFinder channel to FXS.
- When connecting to a FaxFinder fax server, set the CallFinder channel to FXS-Pass-Through.

When the **Channel Configuration | Extension Port** software field has been set properly for both CallFinder channels, you can proceed to connect the cable between each of the CallFinder's FXS/FXO ports and the corresponding PBX port.

Installation, Part B: Configuring the CallFinder Server

1. Collecting Configuration Data

The table below lists the information you will need to fill in on the various CallFinder Server screens. The User-ID and Password from the CallFinder software are also used in the Device Manager software.

Gathering this information in advance will expedite the CallFinder configuration process.

Server Parameters (for Server Admin screen)	Values for this CallFinder
IP Address (of CallFinder unit)	
Subnet Mask	
(Domain) Name Server	
Secondary Name Server (optional)	
Default Gateway	
Time Server (typically time.nist.gov)	
SMTP (Mail) Server Address	

Administrative User Parameters	
CallFinder screen & field	Values for this CallFinder
Administration: SMTP Configuration	
Administrator E-mail	
SMTP Server User ID	
SMTP Password	
Phone Book	
Unassigned Number 1 Recipient PBX Extension	
Unassigned Number 2 Recipient PBX Extension	
Password Administration	
User ID	*Note 1.*
Password	*Note 2.*
Device Manager screen & field	
Add Device (Address)	
Username	*Note 1.*
Password	*Note 2.*

Note 1: These user identifiers must be identical.
Note 2: These passwords must be identical.

Ordinary User Parameters (for CallFinder Phonebook)		
Name	**DID Number**	**PBX Extension**

2. Setting Admin PC to Startup IP Address

a. Connect a PC to your network.

b. Set the PC's IP address to **192.168.2.x** subnet (using any address excluding 192.168.2.1).

Windows XP	Windows 2000
a. From the Windows desktop, right-click on "My Network Places," and select "Properties." **b**. In the **Network Connection** screen, right-click on "Local Area Connection." **c**. In the **Local Area Connection Properties** screen, on the "General" tab, scroll to the "Internet Protocol (TCP/IP)" entry and select it. Click "Properties." **d**. In the **Internet Protocol (TCP/IP) Properties** screen, record the existing IP address. Then reset the IP address to 192.168.2.2.	**a**. From the Windows desktop, right-click on "My Network Places," and select "Properties." **b**. In the **Network and Dialup Connections** screen, right-click on "Local Area Connection" and select "Properties." **c**. In the **Local Area Connection Properties** screen, select the "Internet Protocol (TCP/IP)" entry. Click "Properties." **d**. In the **Internet Protocol (TCP/IP) Properties** screen, record the existing IP address. Then reset the IP address to 192.168.2.2.

3. Logging In (I)

a. Bring up a Web browser on your PC. At the browser's address line, type the default IP address of the CallFinder (**http://192.168.2.1**) and then press **Enter**.

b. The **Login** screen will appear.

At this point you can be assured that the CallFinder is connected to the network.

If the **Login** screen does not appear, see item #1, "What if I can't see the web page for my CallFinder?" in the *Troubleshooting* section.

c. At the **Login** screen, enter **admin** (all lower case) in the User Name field.

d. Enter **admin** (all lower case) in the Password field.

e. Click the **Login** button. The Web Management **Home** screen will appear. From this screen, you can access all of the CallFinder software screens.

4. Setting CallFinder IP Addresses

a. In the CallFinder **Administration** screen, go to the **IP Configuration** fields.

Administration: IP Configuration

IP Address	192.168.4.89	Default Gateway	192.168.4.1
Subnet Mask	255.255.255.0	Secondary Name Server	
Name Server	192.168.11.251		

update

Figure 3-5: IP configuration

b. Fill in the IP information that applies to your CallFinder Server unit. The fields for "IP Address," "Subnet Mask," "Default Gateway" and "Name Server" are required. A "Secondary Name Server" may be considered optional.

c. Click **Update**. The CallFinder will adopt the new IP address 5 seconds after the Update command is invoked.

5. Resetting Admin PC to Its Regular IP Address

In step #2 above, you recorded the original IP address of the administrator's PC and then reset it to the IP address required to allow communication with the CallFinder unit. You must now set the IP address of the administrator's PC to a value that allows you to reach the CallFinder at its new IP address.

6. Logging In (II)

Having reset the IP address of the administrator's PC, you must log into the CallFinder software again. Go to the **Login** screen, enter **admin** as User Name and **admin** as Password.

Note: If you changed the IP address of your PC to accommodate the CallFinder, you will need to log out your original session. At the **Login** screen, after entering your username and password, you will be prompted to log another user out. Select "Yes." (Clicking **Yes** cancels the logged-in status you had earlier when your PC was at its previous IP address).
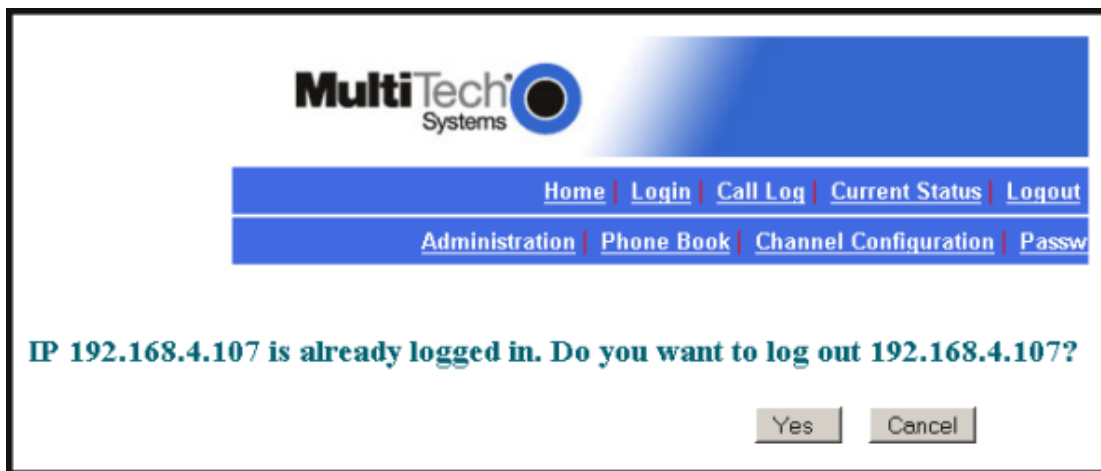

Figure 3-6: Log out original session

7. Setting Administrative Functions

Go to the CallFinder **Phone Book** screen.

Figure 3-7: Phone Book screen

a. Administrator Row: Specifying DID# and PBX Extension

- The first row (marked Administrator) of the Phone Book screen, is *always* for the party who performs the 'administrator' function. Even if the **Name** field of this first row is changed (which is permissible) it still pertains to the administrator function (which includes receiving call-log emails).

- If you changed the Name field, click on **Update** in the first row. The **Login** screen will re-appear. Log in again.

b. "Unassigned Number 1/2" Rows: Specifying PBX Extensions

- In the second row (marked "Unassigned Number 1" by default) of the **Phone Book** screen, enter the name and PBX Extension of the party that you want to receive calls made to unassigned DID numbers (if there are any). This second row is *always* for the party who receives calls made to unassigned DID numbers that come in on Channel 1. Even if the **Name** field of this second row is changed (which is permissible) it still pertains to the function of receiving calls made to unassigned numbers. All incoming calls made to activated DID numbers for which no PBX extension has been assigned will go to the party listed in the second row. (Calls involving corrupted DID numbers will also go to the Unassigned Number PBX extension.) Typically an operator (or administrator) might handle such calls. However, any name can be entered in this second row.
  The third row (marked "Unassigned Number 2" by default) is for the party who receives calls made to unassigned DID numbers that come in on Channel 2. This party can be the same or different than the party who receives 'Unassigned Number 1' calls.

- Click on **Update** in the second and third rows. The message "Success: [name] was updated" will appear above the Phone Book list.

8. Setting Up the Mail Server

The CallFinder uses a mail server to send, by email, call log reports to the administrator. An email is also sent to the administrator each time the CallFinder is powered up. In all cases, you must specify the address of the mail server and the email address of the administrator. Some email servers require authentication before allowing the CallFinder access. In these cases, the CallFinder unit must be assigned an SMTP Server User Name and a password. If the mail server does not require authentication, the last three **SMTP Configuration** fields ("SMTP Server User ID," "Password," and "Retype Password") must be left blank.

a. In the CallFinder **Administration** screen, go to the **SMTP Configuration** fields.

Figure 3-8: SMTP configuration

b. Fill in the network IP address or domain name of your mail server.

c. The default SMTP Port value of 25 is standard. Change it only if you have a compelling reason.

d. Enter the email address of the administrator (the party that you want to receive call log reports).

e. Email Server Authentication Parameters. If your email server requires authentication in order to give the CallFinder access, fill in the lower three fields (**SMTP Server User ID**, **SMTP Password**, and **Retype Password**). If you can enter the network email program and send messages *without* entering a User ID and Password, then you *must* leave these fields blank.
However, if your network email program *does* require a User ID and Password in order to send email messages, you *must* fill in these three fields. If authentication is required and these fields are left blank, then the error "SMTP Authentication Error" will appear on the **Current Status** screen in the "Email Status" field. If authentication is not required and these fields *are* filled in, then an error will also occur. *You must know how your email server works in this regard and complete the* **Administration: SMTP Configuration** *screen accordingly.*

f. Click **Update**. The SMTP Configuration information will be saved in the CallFinder.
At this point the Administrator should receive an email from your CallFinder saying that the mail server address has been updated.

g. If you do not receive an email saying that the mail server address has been updated, see item #2 "What if I don't get an email when I set the mail server address?" in the Troubleshooting section of this manual.

9. Configuring the CallFinder's Channels

The CallFinder's channels direct inbound calls to their proper destinations.

a. In the CallFinder software, go to the **Channel Configuration** screen.

b. Under **Channel Configuration: Channel 1**, enter the values that match the characteristics of your DID phone line in the fields provided. Four parameters relate to the DID line coming into the CallFinder channel. Another four parameters relate to the PBX extension line to which the CallFinder channel connects.

Figure 3-9: Channel configuration

DID Line Parameters

Consult the telco supplying the DID line about these parameters. See the section "Prerequisite: Ordering the DID Lines" on page 7 (and 23).

Max DID Digits: number of digits the CallFinder receives from the telco central office on the DID line.

DID Start: wink/delay, immediate, or reverse-on-disconnect.

Polarity: This refers to the DID battery polarity. This parameter must be set on a trial-and-error basis.
Signs of incorrect polarity:
(1) outside party originating call to DID number gets immediate busy signal after dialing;
(2) line suddenly disconnects just when call should go through.

DID Transmit Gain: This is the setting for the amplification factor (in dB) on the DID line. This parameter has a range of -6 dB to 6 dB. The default value is 0 dB and, in general, this should be the correct level. Alter the value only if the voice level as heard by the incoming caller is unacceptable.

PBX Extension Line Parameters

Dial Prefix: This is an access digit (or digits) needed to access an outside line on the PBX.

Extension Port: default = FXO (this prevents damage from wrongly applied battery and ring voltages)

Set as FXO when the CallFinder is to be connected to a PBX station port (a port that is normally connected to a normal analog telephone).

Set as FXS when the CallFinder is to be connected to a PBX trunk port (a port that would normally be connected to an ordinary POTS phone line from the telco central office).

Set as FXS Pass Through when you want to connect the port to a FaxFinder server or other device. When set to FXS-Pass-Through, the CallFinder simply conveys the DTMF digits received from the DID line to the extension port. This mode differs from the standard FXS mode in that it does not compare the incoming DID number to an entry in the Phone Book in order to find a new number to dial on the extension port. Instead, it simply dials the same number on the extension port that it received from the DID line.

Auto Attendant Delay: The Auto Attendant Delay value, x, determines how long the CallFinder will pause before dialing on the PBX.
If the CallFinder channel is configured as an FXS port OR *FXS-Pass-Through*, it will ring the PBX and wait x seconds before dialing the proper extension after the PBX seizes the line. Set x in the range of 1 to 5 seconds.
If the CallFinder channel is configured as an FXO port, x is the length of time that the CallFinder will wait before dialing after the CallFinder itself has seized the line from the PBX. Set x in the range of 1 to 5 seconds.
Do not set this parameter to 0. A setting of zero may cause the PBX to miss dialed digits.

EXT Transmit Gain: This is the setting for the amplification factor (in dB) on the PBX extension. The default value is 5 dB and, in general, this should be the correct level. This parameter has a range of -6 to 6 dB. Alter the value only if the voice level as heard by the party receiving the call is unacceptable.

c. Click **Update**.

d. Click on **Current Status**. Watch the **Current Status: Channel-1/Channel-2** portion of the screen. The "State" of each DID Modem should be "IDLE."

10. Connecting CallFinder to PBX or other device

Now that the Extension Ports have been configured (as FXS or FXO) you can connect the cables between the CallFinder's Channel 1 and Channel 2 connectors and the appropriate PBX port.

Remember:
 (a) to connect a CallFinder channel to a PBX trunk port, the channel must be set to FXS;
 (b) to connect a CallFinder channel to a PBX station port, the channel must be set to FXO;
 (c) to connect a CallFinder to a FaxFinder server, the channel must be set to FXS-Pass-Through.

11. Testing the Channel with a Call

a. From another phone (either from another PBX extension or from an ordinary POTS phone independent of the PBX), call one of the DID phone numbers that is active in the system. Dial the DID phone number as you would from an outside line (it will not work to dial the number as if it were an ordinary 3- or 4-digit extension of the PBX).

b. In the **Current Status: Channel 1/2** screen, the "State" field should go through several changes briefly (RECV DIGITS, RING LINE, and DIAL DIGITS) and then become "CONNECTED" (for the duration of the call) indicating that the voice connection to the assigned PBX extension has been made. (The **Current Status** screen is updated automatically each time you open the screen and every two minutes or so thereafter).

Figure 3-10: Current status

c. If you observe both the "Connected" state and verify the presence of voice, then the CallFinder's Channel has been configured properly.

If either of these is absent, see item #3 "What if the CallFinder channel doesn't answer a call on the DID line?" in the *Troubleshooting* section of this manual.

12. Changing Administrator's Password for CallFinder SW

a. In the **Password Administration** screen, enter a new User ID and Password for the CallFinder Administrator (preferably something other than "admin" and "admin"). This User ID and password are used to give the administrator access to the CallFinder's built-in software. Re-enter the password in the "Confirm Password" field. Passwords can be as short as 1 character, as long as 40 characters, and are case-sensitive.

Figure 3-11: Password administration

b. Click **Update** for this row. The **Login** screen will appear.

13. Assigning DID Numbers to PBX Users (Extensions)

a. In the **Phone Book** screen just below the entries for the CallFinder administrator and the two Unassigned Number rows, make phonebook entries for the other persons in your office to whom DID numbers have been assigned.

For each such DID user, enter the name, DID number (the digits that the DID line will be sending to the CallFinder to reach this user), and PBX extension (the number that the CallFinder must dial on the PBX to reach the user) in the appropriate fields.

b. Click on **Add** for each row completed. The message "Success: [name] was updated" will appear above the Phone Book list.

Figure 3-12: Phone book entries

Chapter 4 – CallFinder Software Screens

Introduction

In this chapter, we present the screens of the CallFinder software. We describe each field in each screen and some of the command buttons. (We do not describe command buttons that have functions that would be readily understood by users of Windows software. Examples of such self-evident functions include buttons like "OK," "Cancel," "Next," etc.)

Home Screen

The CallFinder **Home** screen offers access to all other CallFinder software screens through a top navigation bar.
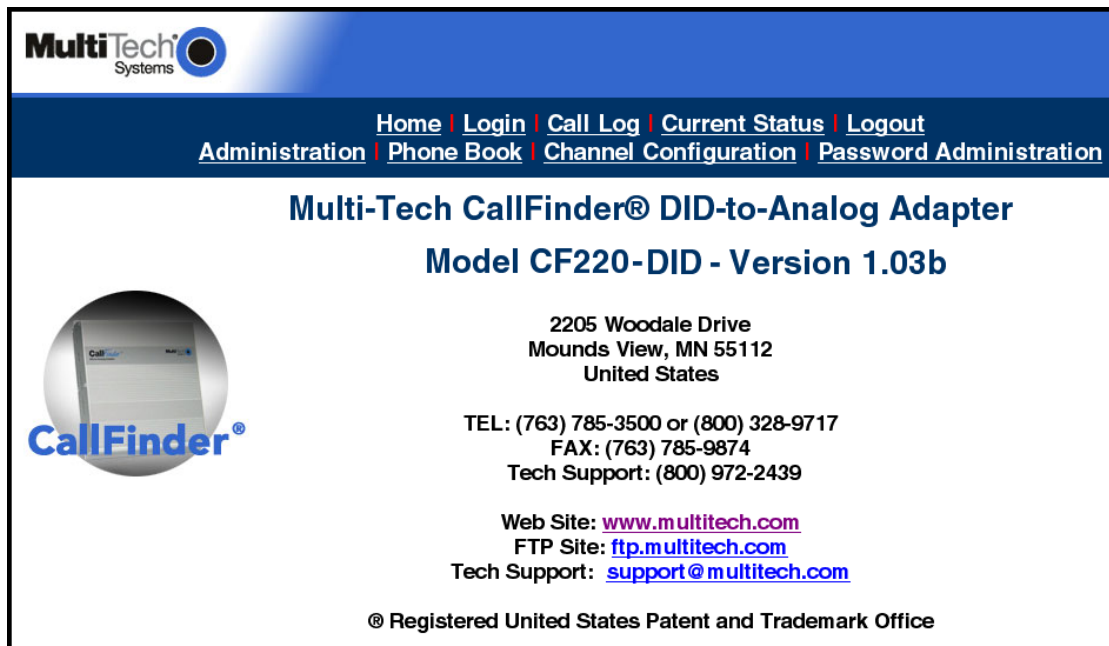
Figure 4-1: Home screen

Login Screen

The CallFinder Server **Login** screen is the primary security device for the Server software.
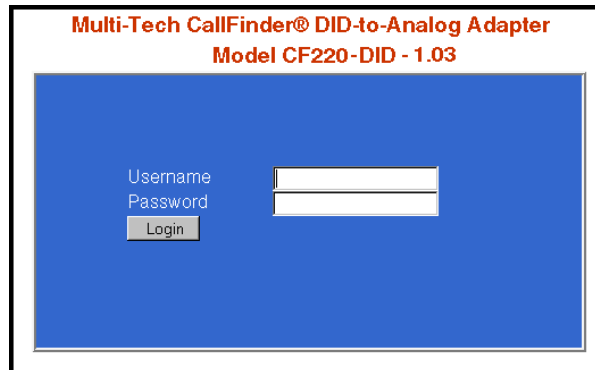
Figure 4-2: Login screen

The CallFinder has a default setting that allows use of "admin" as both the User Name and the Password at initial startup. After you have begun configuring your CallFinder unit, you should change the password in the **Password Administration** screen described later in this chapter.

If you try to log in while another party is logged in, a confirmation screen lets you decide whether or not to login *in place of* that party. Remember: when you log in, that other party will be logged out. (Only one party can be logged in at a time).
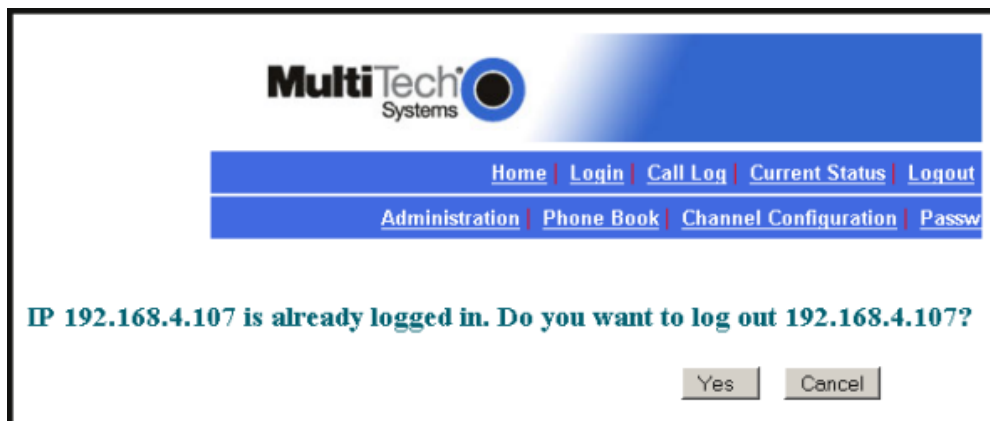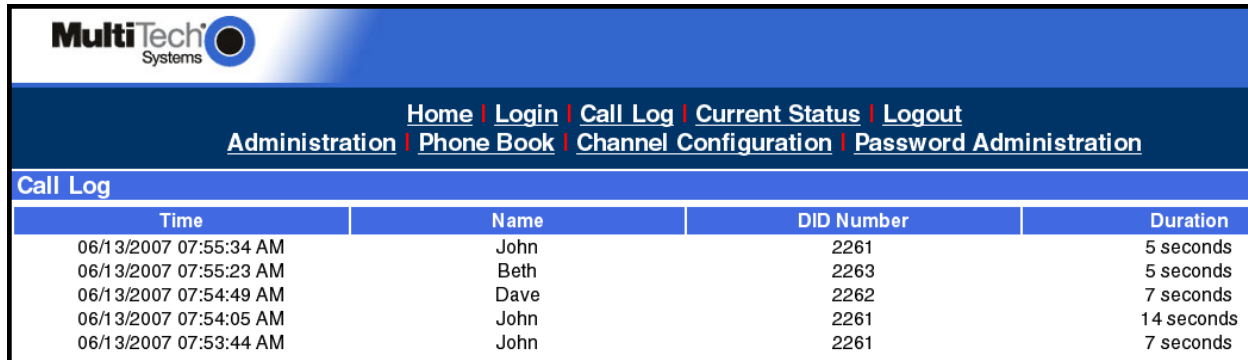
Figure 4-3: Login bumping

Call Log Screen

Figure 4-4: Call log screen

Call Log Screen Field Definitions		
Column	**Values**	**Description**
Time	mm/dd/yyyy + hh/mm/ss + AM/PM dd/mm/yyyy + hh/mm/ss + AM/PM yyyy/mm/dd + hh/mm/ss + AM/PM	Date and time at which call was received.
Name	alphanumeric	Party receiving call.
DID Number	numeric	DID number on which the call was received.
Duration	*mmm* (minutes) *ss* (seconds)	How long the call lasted.

Current Status Screen

Figure 4-5: Current Status screen

Current Status Screen Field Definitions		
Field Name	**Values**	**Description**
System fields		
Current Time	weekday, mo, dd hh:mm:ss yyyy	The present time of day.
Pending Msgs	numeric	Emails that have arrived in the CallFinder unit that have not yet been conveyed to clients. These include administrative emails of several kinds: call log messages, debug log messages, call error messages, mail server change notification message (relating to the "SMTP Server Address" field of **Administration** screen), reboot message indicating that the CallFinder is online.
Email To:	a@b.com	Recipient of administrative email about CallFinder operation or performance.
Subject:	alphanumeric	Subject line of email version of pending/last message.
Time Server Status	Initializing, No Errors, SNTP Error: *type*	The CallFinder synchronizes its call time stamps to an Internet source, usually a government standards site. It will attempt contact with the standards web site 5 times in 20 seconds. If contact fails, it will try 5 times again 5 minutes later. If contact succeeds, the CallFinder will update its stamping time periodically per an interval set in the **Administration** screen.
Up Time	*x* days *yy* hours: *zz* minutes	Operation time since last reboot.
Email Status	No Errors, Bad MailServer Address, Mail Server Connect Failed, SMTP Invalid Response, SMTP Client Timeout	Indicates whether or not the CallFinder can communicate properly with an email server.
Channel 1 & 2 fields		
State	INIT:	Initializing modem.
	IDLE:	Ready to take a call.
	RECV DIGITS:	Currently receiving DTMF digits from DID line.
	RING LINE:	In FXS mode, currently ringing extension line; not used in FXO mode.
	AUTO DELAY:	Interval between extension going off-hook and the beginning of dialing.
	DIAL DIGITS:	Indicates that digits are being dialed on the PBX extension.
	CONNECTED:	Indicates call has been connected on the channel and is in progress.
	BUSY OUT:	Channel is intentionally made busy even though no ordinary call is in progress on the channel.
Start Time	mm/dd/yyyy, hh:mm:ss	Date and time at which the current connection began.
Elapsed Time	*a* Hrs, *b* Min, *c* Secs	The duration of the current call.
Initialize Channel (button)		Initializes the modem, clearing a busied-out state.
Make Busy (button)		Imposes a busied state on the channel.

Logout Option

When you click on Logout in the CallFinder **Home** screen, you will be logged out of the CallFinder software. The **Login** screen will appear to allow access to re-enter the program.

Administration Screen

Figure 4-6: Administration screen

Administration Screen Field Definitions		
Field Name	**Values**	**Description**
IP Configuration Fields		
IP Address	n.n.n.n for n = 0-255	The IP address of the CallFinder.
Subnet Mask	n.n.n.n for n = 0-255	This subnet mask is the subnet for the network to which the CallFinder is connected. A subnet mask is used in conjunction with the IP address to determine if a data destination is on the same immediate network or not (in the case of networks made of hubs and ethernet cards). The default value, often used, is 255.255.255.0.
Name Server	n.n.n.n for n = 0-255	The IP address of a local DNS server.
Default Gateway Name	n.n.n.n for n = 0-255	Address used to route data out of the immediate network.
Secondary Name Server	n.n.n.n for n = 0-255	The IP address of a backup DNS server, which is typically at a separate location.
Update (button)		Click on this button to make changes to IP Configuration fields take effect.
SMTP Configuration Fields		
SMTP Server Address	n.n.n.n for n = 0-255	Domain name or IP address for mail server (SMTP must be supported on mail server).
SMTP Port	25 (default) Range: 0 - 65535	The IP port on which the SMTP server is listening.
Administrator Email	alphanumeric	Email address to which call log reports will be sent. An email is also sent to the administrator each time the CallFinder is powered up and when mail configuration settings are updated.
SMTP Server User ID	alphanumeric	Identifier used by CallFinder when interfacing with mail server. CallFinder uses mail server to send call reports to administrator. Some email servers require authentication when accessed for this purpose. To satisfy this authentication requirement (where needed), a User ID must be specified for the CallFinder unit. Leave this field blank if authentication is not needed.
SMTP Password	alphanumeric	Password used by CallFinder server unit when accessing mail server. Leave this field blank if authentication is not needed.
Retype SMTP Password	alphanumeric	Reiteration of above password.
Update (button)		Click on this button to make changes to SMTP Configuration take effect. Updating triggers the sending of an email to the administrator.

Administration Screen Field Definitions (continued)		
Field Name	**Values**	**Description**
Time Configuration Fields		
Time Server	URL	Location of time-tracking computer that supports SNTP. This server is the functional substitute for a real-time clock in the CallFinder unit. Clock sources can be found on the Internet. In the absence of an Internet connection, a time source within the CallFinder network must be established. The clock is used for call logging.
Add Time Server	URL	Used to add a user-supplied time server.
Request Interval	*a* Days *b* Hours *c* Minutes	This value (to be set by user) indicates how often the CallFinder will update its clock from the Time Server.
Use Daylight Savings Time (DST)	checkbox (Y/N)	Use this checkbox to choose whether or not your system will observe Daylight Savings Time.
Time Zone	alphanumeric	Indicates the time zone in which the CallFinder unit is located.
Date Format	mm/dd/yyyy, OR dd/mm/yyyy, OR yyyy/mm/dd	The date can be set to one of three orders, where **mm** is the month, **dd** is the day of the month, and **yyyy** is the year.
Time Format	12-hour or 24-hour	Indicates whether time is presented in a 12-hour scheme with an am/pm designation or in a 24-hour scheme.
Update (button)		Click on this button to make changes to Time Configuration settings take effect.
Reset Unit fields		
Reset Unit (button)		Click on this button to re-boot the server.

Phone Book Screen

The **Phone Book** screen maps the PBX extension phone numbers of clients to their respective external DID numbers.

Phone Book Screen Field Definitions		
Field Name	**Values**	**Description**
Name column	alphanumeric	For each client entry, this column shows the client's name.
DID Number column	alphanumeric	The DID number assigned to the user named in this row. This is the phone number at which this user can be reached by direct dialing because of the CallFinder's inbound routing functionality. Typically, these DID numbers are three-digit or four-digit numbers. The quantity of these DID phone numbers available from a single DID line depends on the telco. Telcos commonly offer DID service by alloting twenty DID numbers to a single DID phone line. However, other line quantities may be offered.
Extension column	numeric and comma (,)	The PBX extension to which calls to the listed DID number will be directed. A comma can be used in the dialing string. Typically, a comma is used after an access digit (often an 8 or 9) to introduce a pause of one second to allow time for the PBX to supply dial tone. Multiple commas can be used.
Function column	Buttons for Update, Delete, and Add functions	For each user entry, this column presents functions that can be invoked upon the entry.
First row	alphanumeric	Administrator row. **NOTE**: This first row can be renamed as desired. However, its function will always remain the same: it is the party who serves as administrator for the CallFinder system. *Do not enter the Name of an ordinary user in this field. No DID number or phone extension can be entered in this field.*
Second row (with default label "Unassigned Number 1")	alphanumeric	Ideally, a PBX extension is assigned to every available DID number. If, however, there are DID phone numbers *arriving on Channel 1* to which no PBX extension has been assigned, calls to these unassigned numbers will go to the destination specified in this field. (Calls involving corrupted DID numbers also go to the party handling the Unassigned Number function.) Such calls might reasonably go either to the extension of a receptionist/switchboard-operator or to an extension that plays a recorded message. **NOTE**: This second row can be renamed as desired. However, its function will always remain the same: it is the destination for calls to DID numbers to which no PBX extension has been assigned. *Do not enter the Name and DID number of an ordinary user in this field.*
Third row (with default label "Unassigned Number 2")	alphanumeric	Serves the same"Unassigned Number" function for Channel 2.

Channel Configuration Screen

Figure 4-7: Channel configuration screen

"Channel Configuration: Channel 1 & Channel 2" Screen Field Definitions		
Field Name	**Values**	**Description**
Max DTMF Digits	1-7	The number of digits that the telco supplies to the DID line when an incoming call is received. *Default = 4.*
DID Start	wink/delay dial, immediate, reverse on disconnect	Indicates the signaling method that the DID line uses to indicate readiness to receive digits. The telco must specify which 'start type' is to be used. For **Wink/Delay Start**, the CallFinder detects the off-hook condition. Then the CallFinder reverses battery polarity for a specified time (140-290 ms; a "wink") and then becomes ready to receive DTMF digits. For **Immediate Start**, the CallFinder detects the off-hook condition initiated by the telco central-office call and becomes ready to receive DTMF digits immediately. The **Reverse on Disconnect** setting allows the CallFinder to bring fax service to the PBX by operating in conjunction with a Multi-Tech fax server unit (FF-120/220/420/820). The Reverse on Disconnect setting works with a PBX (3-Com) that uses line supervision for its FXO ports. Line supervision monitors the battery voltage to identify call disconnection (the battery polarity will reverse on disconnection). This is not a true DID line type. In a DID system the battery may reverse at several points - during the wink, to indicate a connection, to busy out the line. In Reverse on Disconnect mode the line polarity is reversed only when the call has been terminated to indicate a disconnection.
Polarity	A or B	Orientation of DID battery voltage. Polarity of the battery voltage on the DID line is very important for the DID line to work properly. Since the line comes from the telco as a twisted pair the required polarity can only be determined through trial and error. The modem is defaulted to Polarity A. If an immediate busy signal is received when dialing a DID number or if the call is dropped shortly after connecting, then the battery polarity is probably wrong and the alternate battery voltage should be tried. Default = A.
Dial Prefix	Numeric string, 5 characters, max.	This is the digit that must be dialed to access an outside line (that is, a line on the PSTN rather than extensions of the PBX or key telephone system). Often a "9" or an "8" is used for this purpose.
Extension Port	FXO, FXS, or FXS Pass Through	Denotes the interface type of the port (Channel 1 or Channel 2). Each CallFinder port can be set up either as an FXO port, as an FXS port, or for FXS-Pass-Through. If a port is configured as FXS, it would commonly be connected to a PBX trunk line. If a port is configured as FXO, it would commonly be connected to a PBX station line. If a port is configured for FXS-Pass-Through, it would commonly be used to pass DTMF digits on directly to another device (like a FaxFinder). For FXS. The CallFinder rings the PBX. The PBX seizes the line. The CallFinder waits n seconds before dialing the proper PBX extension. Use a value of n = 1 second or more. Default = 2 For FXO. The CallFinder seizes the line from the PBX. Auto Attendant Delay value (n) must be set to be greater than 0. A setting of 0 would cause the PBX to miss digits. If n > 0, then the CallFinder waits n seconds before dialing. Default: n = 2. For FXS Pass Through. When set to FXS-Pass-Through, the CallFinder simply conveys the DTMF digits received from the DID line to the extension port. This mode differs from the standard FXS mode in that it does not compare the incoming DID number to an entry in the phonebook in order to find a new number to dial on the extension port. Instead, it simply dials the same number on the extension port that it received from the DID line. This setting is used when a FaxFinder fax server is connected to the CallFinder.

"Channel Configuration: Channel 1 & Channel 2" Screen Field Definitions (continued)		
Field Name	**Values**	**Description**
DID Transmit Gain	-6 to 6 (in dB)	This is the setting for the amplification factor (in dB) on the DID line. This parameter has a range of -6 dB to 6 dB. The default value is 0 dB and, in general, this should be the correct level. Alter the value only if the voice level as heard by the incoming caller is unacceptable.
EXT Transmit Gain	-6 to 6 (in dB)	This is the setting for the amplification factor (in dB) on the PBX extension. This parameter has a range of -6 to 6 dB. The default value is 5 dB and, in general, this should be the correct level. Alter the value only if the voice level as heard by the party receiving the call is unacceptable.
Auto Attendant Delay	n= 1-5 in seconds	The CallFinder receives calls on the DID line and then passes them on to the PBX. Some PBXs have an auto-attendant for directing calls to PBX extensions. When the CallFinder directs an incoming call to the PBX it must sometimes wait some duration for a PBX auto-attendant before dialing the extension. The Auto Attendant Delay parameter specifies the length of time that the CallFinder will wait for the auto attendant in this context. Default = 2.
Update (button)		Click on this button to save and activate the changes to the channel configuration.

Password Administration Screen

The CallFinder software admits only one user, the administrator. As shipped, the administrator's Username (User ID) is "admin" and the administrator's password is also "admin." You can use the **Password Administration** screen to change the administrative password parameters.

Figure 4-8: Password administration

"Password Administration" Screen Field Definitions		
Field Name	**Values**	**Description**
Name	alphanumeric	Identifies party with administrative rights to configure and control the CallFinder server unit. This party will generally receive call log reports. This field cannot be changed in this screen. However, if you change the first (Administrator) row of the Phone Book screen, that change will be carried over into this screen after you update the row and log in again. Default = Administrator
User ID	alphanumeric	User-specified descriptor for administrator. This field is case-sensitive. Default = admin
Password	alphanumeric	The user-specified alphanumeric string used to prevent unauthorized access to the CallFinder software. The Password is case-sensitive and can be 2 to 40 characters long. Default = admin
Confirm Password	alphanumeric	After the password has been entered in the preceding field, it must be entered verbatim a second time here. This second entry prevents the problem of establishing a non-reproducible password by inadvertently hitting a wrong key when establishing the password.
Function	update button	Pressing **Update** saves the password-related information as part of the CallFinder's configuration data.

Chapter 5 – CallFinder Server Operation
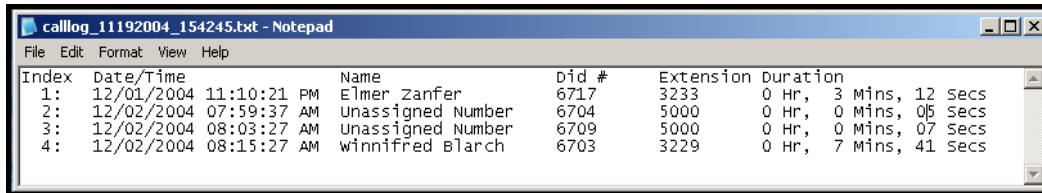
Front Panel LEDs

Label Identifier	Name	Description
General LEDs		
PWR	Power	On if unit is powered on.
Status	Status	**Flashing Green** = unit is functioning properly **Solid Green** = *unit is having its software updated.* DO NOT DISCONNECT POWER if Status LED is solid green. **Off** = system is booting or power is off
Ethernet LEDs		
LNK	Data Link	Lit when packets are being transmitted by any device on the Ethernet network (not necessarily by the CallFinder).
100	Data Rate	Indicates speed of Ethernet connection. If lit, data rate is 100 Mb/sec; if not lit, data rate is 10 Mb/sec.
Channel 1 LED		Presents status of Channel 1.
TD	Transmit Data	Channel 1 is being configured.
RD	Receive Data	Channel 1 is reporting.
TR	Terminal Ready	When lit, channel 1 is ready to receive a call. Lit when DTR to DID modem is high.
DID	DID	The telco central office is drawing power from the DID line which means that a call is in progress.
Channel 2 LEDs		Presents status of channel 2.
TD	Transmit Data	Channel 2 is being configured.
RD	Receive Data	Channel 2 is reporting.
TR	Terminal Ready	When lit, channel 2 is ready to receive a call. Lit when DTR to DID modem is high.
DID	DID	The telco central office is drawing power from the DID line which means that a call is in progress.

Updating CallFinder Firmware

Successive editions of CallFinder server firmware will be issued over time. When issued, such updated firmware files will be accessible on the Multi-Tech web site. However, updating is done by the Device Manager software. To install updated firmware, see "Updating Firmware" in *Chapter 6: Device Manager Installation and Operation*.

Call Log Email Messages

The CallFinder keeps track of the calls it handles. In a call log file, the CallFinder records who called, when, for how long, which DID number the call came in on, and which extension the call was completed to. The CallFinder sends the call log file to the administrator as an email attachment.
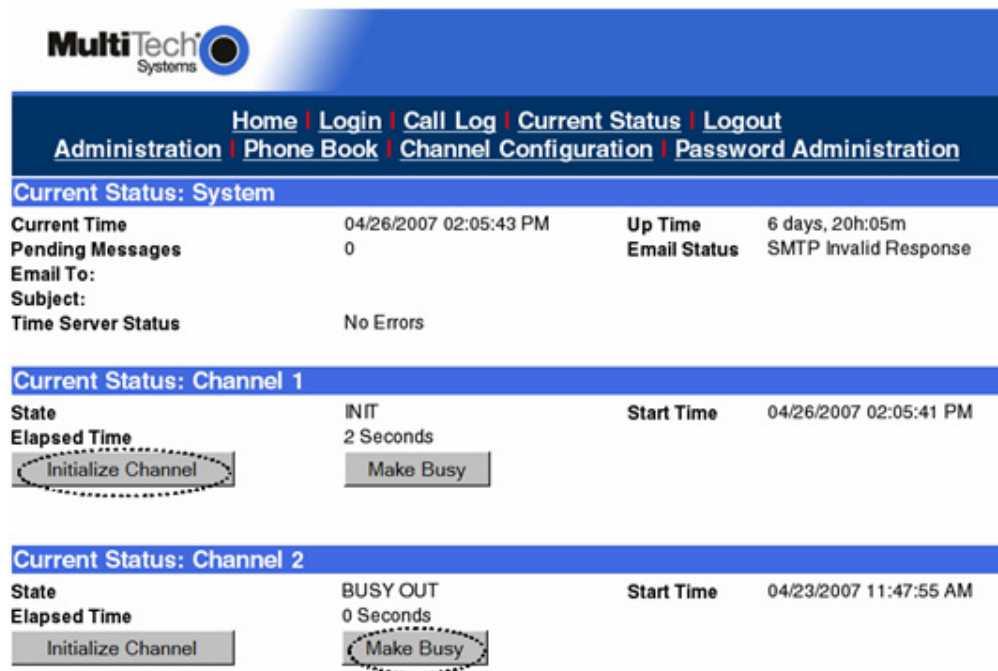
Figure 5-1: Call log

Initializing and Busying DID Channel Modems

The state of each DID channel modem is indicated in the **Current Status** screen.

Figure 5-2: Initialize and Make Busy

If the **State** field value for a DID channel does not correspond to the known actual situation (for example, **State** value says "Connected" when no calls are in progress), then the INIT command (which initializes the channel modem) command can be used to clear the channel modem and return it to a 'ready' state (IDLE).

> **Note**: After the INIT command has been invoked, it may take up to 2 minutes for this new status (IDLE) to appear on the screen. To see the new state sooner, click on **Current Status**.

For service, testing, or other purposes, it may be useful to keep a channel modem in a **Busy Out** state for a period of time. To cancel the busy state and return the modem to a 'ready' state (IDLE), use the INIT command.
The INIT command will end a call in progress.

Chapter 6 – Device Manager Installation & Operation

Installing Device Manager Software

The process of installing the Device Manager software is explained in the illustration below.
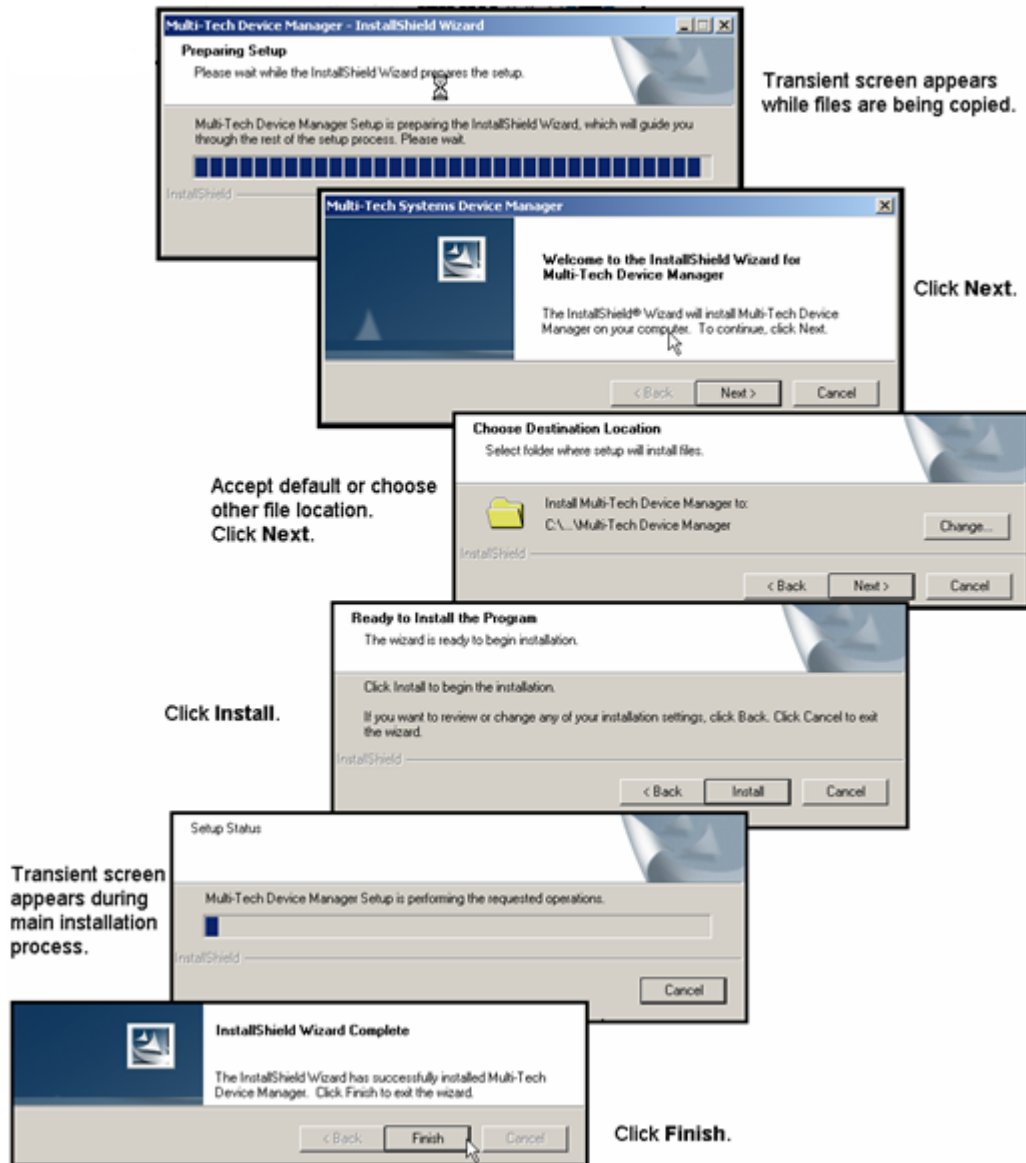
Figure 6-1: Installation process

Commands

Access to Commands

The commands of the **Device Manager** software are accessible in the program's pull-down **File** and **Edit** menus, and through a right-click menu that becomes available when a particular device (FaxFinder, CallFinder, or Multi-Access unit) is selected in the program's main screen.

Device Manager Command Summary

How to Access Command	Command Name	How to Access Command
File Menu	Options	Allows configuration of the logging function.
	Exit	Closes the Device Manager program.
Edit Menu	Synchronize Phonebooks	For FaxFinder and CallFinder, this command copies entries of main (primary) phonebook into the phonebooks of other subordinate units in the system. For Multi-Access units, this command copies the entries of the main user list into the user lists of other subordinate units in the system.
	Add Device	Makes another device (FaxFinder, CallFinder, or Multi-Access unit) part of the system.
Right-Click on listed device	Delete (Device)	Removes a device (FaxFinder, CallFinder, or Multi-Access unit) from the system and from the control/influence of the Device Manager software.
	Save Configuration	Saves a group of telephony and IP settings for a device (FaxFinder, CallFinder, or Multi-Access unit).
	Restore Configuration	Re-installs a previously saved group of telephony & IP settings into a device (FaxFinder, fax server, CallFinder, or Multi-Access unit).
	Update [Firmware]	Updates "server" firmware and modem firmware of a device (FaxFinder, CallFinder, or Multi-Access unit). Also updates boot code for FaxFinders and Multi-Access units.
	Set Phonebook Sharing	Determines whether a device (FaxFinder, CallFinder, or Multi-Access unit) in a system has the main phonebook, receives a copy of the phonebook, or operates independently. For Multi-Access units, this command determines whether the unit has the main user list, receives a copy of the user list from another unit, or operates independently.
	[View] Properties	Shows IP address and Username of the device (FaxFinder, CallFinder, or Multi-Access unit).

Device Manager › Main Screen

To launch the Device Manager program from the Windows desktop, go to **Start** | **Programs** | **Multi-Tech Device Manager** | **Multi-Tech Device Manager**.

The Device Manager's main screen lists the devices (FaxFinders, CallFinders, or Multi-Access units) that are working together as a system. In a FaxFinder system, for example, the system generally can consist of one CallFinder functioning as a master or server unit (designated as **Primary**) and one or more CallFinders functioning as client or slave units (designated as **Copy**). CallFinder units functioning without reliance on a server unit (designated as **Independent**) can also be part of the system. The Device Manager is in contact with all the units of its system through the Ethernet network to which all are connected.
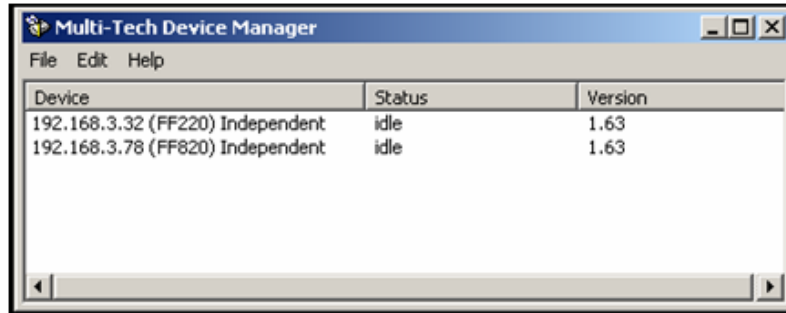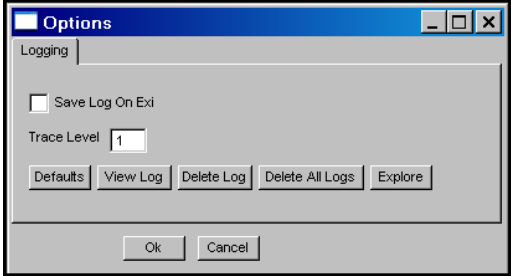
Figure 6-2: Main screen

Main Screen Menu or Column	Description
File menu	Also contains the **Exit** command which closes the Device Manager program. From here, you can launch the **Options** screen from which the Logging function can be configured.
Edit menu	Allows you to add a device (FaxFinder, CallFinder, or Multi-Access unit) to the system. Allows you to synchronize phonebooks from **Primary** FaxFinder units to **Copy** FaxFinder units within the system. Lists of other devices (the phonebooks of CallFinders and the user lists of Multi-Access units) can undergo synchronization, as well. Allows automatic discovery of devices.
Help menu	Online help is not currently supported. An **About** screen can be launched here showing the version of the software.
Device column	Lists the devices in the system indicating the IP address, model number, and phonebook sharing status for each.
Status column	Indicates the current operating condition of the Device Manager software with respect to the device. Possible states are: **not logged in**: Device Mgr software is not logged into device; **logging in**: Device Mgr software is in process of logging into device; **idle**: status during normal device operation; **updating device [FaxFinder, CallFinder, or Multi-Access]**: new version of firmware is being loaded onto the device; **updating modem**: new version of firmware is being loaded onto a modem in the device; **login failure – device busy**: appears when the Device Manager software tries to log into the device while it is handling a call; **login failure – device not found**: appears when server cannot be contacted by Device Manager.
Version column	Indicates the version of server software operating on the device.

Device Manager › File Menu

File Menu Command	Description of Fields & Buttons
Options *Options dialog window showing "Logging" tab with "Save Log On Exi" checkbox, "Trace Level" field set to 1, and buttons: Defaults, View Log, Delete Log, Delete All Logs, Explore, Ok, Cancel*	The Device Manager logging function is only for use in conjunction with Multi-Tech Tech Support personnel. The AdminLog files record the activities of the Device Manager program itself. The UpdateLog files record information about devices that the Device Manager program is tracking. The Logging function is a program trace. **Save Log on Exit**: If checked, an AdminLog file will be saved whenever the Device Manager program is closed. By default, this is disabled. **Trace Level**: Denotes the amount of trace output recorded by Device Manager. Range = 1-9. (Default= 5) The higher the number, the more details are being recorded about the activities of the Device Manager program. **Defaults**: Sets to default status the "Save Log On Exit" function (default is off) and the "Trace Level" function (default is 5). **View Log**: Launches the AdminLog currently being made in a Notepad window. **Delete Log**: Deletes the current AdminLog. **Delete All Logs**: Deletes all UpdateLog files and all AdminLog files from the log directory. Users are prompted to confirm whether or not they really want to delete the logs of either type. **Explore**: Takes you to the directory (in Windows Explorer) where log files are stored.
Exit	Closes the Device Manager program.

Device Manager › Edit Menu

Edit Menu Command	Description
Synchronize Phonebooks	Transfers phonebook data from a **Primary** FaxFinder unit to all FaxFinders designated as **Copy** units. The phonebook sharing statuses of the FaxFinders (Primary, Copy, or Independent) involved must be set in advance. That is, one FaxFinder must be set as the **Primary** unit. One or more other FaxFinders must be set as **Copy** units designated to accept phonebook data from that particular Primary FaxFinder. **Independent** FaxFinders may be in the system but they do not participate in phonebook sharing. *This synchronization also applies to CallFinder phonebooks and Multi-Access user lists.* During synchronization, administrative phonebook parameters are not copied. In this way, the **Copy** units retain their entries for **Unassigned Numbers**, **Administrator Password**, and other parameters that must remain unique to each FaxFinder unit (or other device). When the Synchronize Phonebooks command is invoked, the Primary unit copies its phonebook data into each Copy unit, one at a time, in sequence until all Copy units have received the data. Control screens appear before each Copy unit receives its download and the download can be canceled for any particular Copy unit.
Add Device	Brings up the **Add Device Address** screen. On this '**Add**' screen, you enter the IP address, User Name, and Password of devices (FaxFinders, CallFinders, or Multi-Access units) to be included in your system. See "Adding Devices" procedure later in this chapter.
Auto-Discover Devices 	This command initiates a search for relevant devices (FaxFinders, CallFinders, or Multi-Access units) on the network. It will only detect FF100, FF110, FF200, and CF220-DID units that have been restarted within the past 10 minutes. This limitation does not apply to other FaxFinder units. This monitor allows you to change username, password, and IP-related characteristics of devices.

Synchronizing Phonebooks

As noted earlier, this command applies to FaxFinders, CallFinders, and to Multi-Access units. The steps of the procedure are described below using a FaxFinder as an example device.

When FaxFinder phonebooks are synchronized, all non-administrative listings match. One FaxFinder unit (the **Primary** unit) holds the master list that is transmitted (using the **Synchronize Phonebooks** command) to other FaxFinder units in the system (**Copy** units). FaxFinder units can operate in same system but have independent phonebooks, in which case they are designated **Independent**.

Synchronizing phonebooks entails three steps:

1. *Designating the phonebook of one FaxFinder (or CallFinder or Multi-Access unit) as the master (or Primary) phonebook*. In the main **Device Manager** screen, right-click on the unit to be designated as master, scroll to **Set Phone Book Sharing**, and select **Primary**.
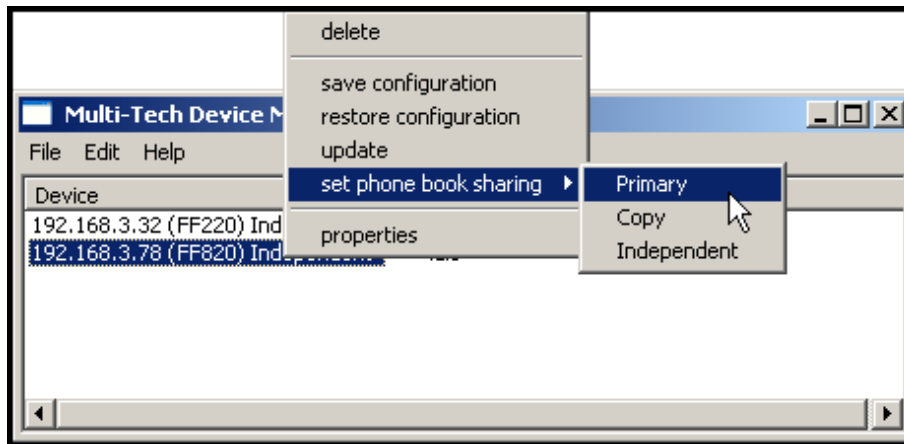
Figure 6-3: Set as Primary

2. *Designating all other FaxFinder units (or CallFinder or Multi-Access units) participating in phonebook sharing as Copy units*. In the main **Device Manager** screen, right-click on each unit to share the master phonebook and select **Copy**.
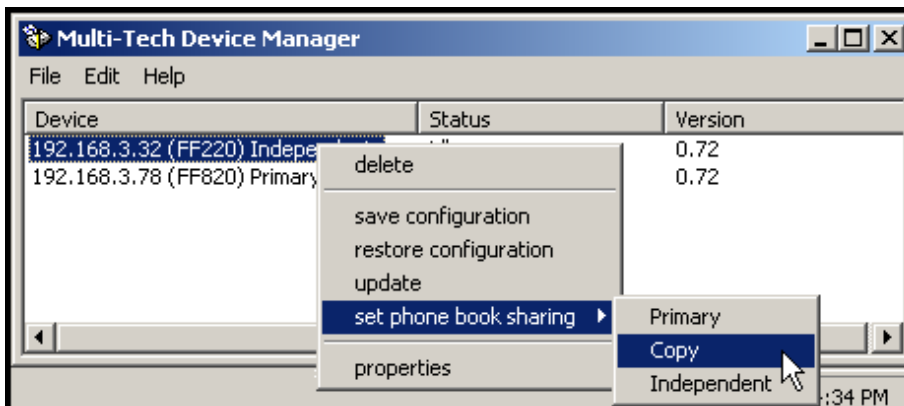
Figure 6-4: Copy units

3. *Invoking synchronization*. In the main **Device Manager** screen, open the **Edit** menu and select **Synchronize Phonebooks**. The **Synchronize Phone Books** screen will appear along with a series of transient screens (TFTP data transfers) and confirmation screens (where you click **OK** to proceed).
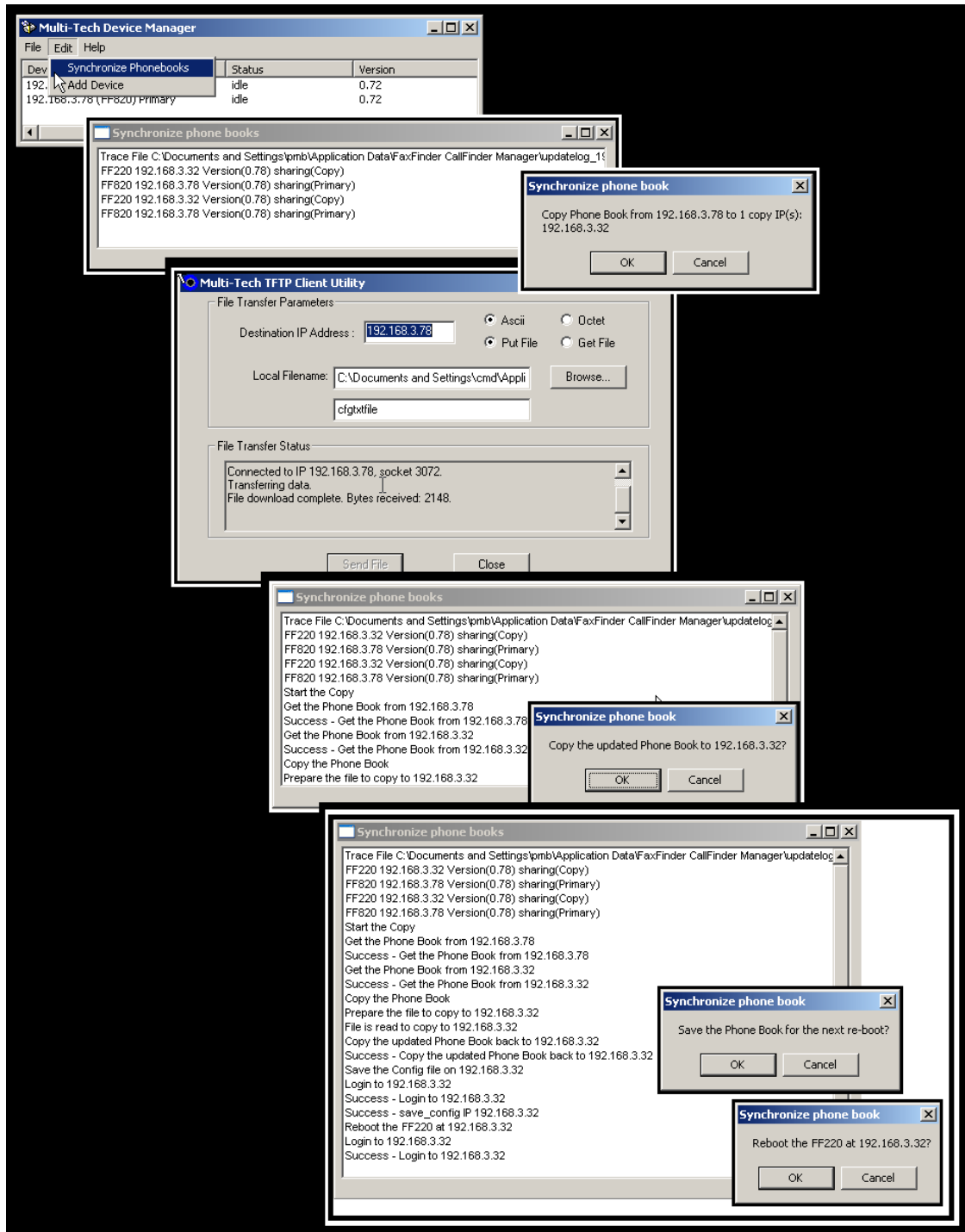
Figure 6-5: Synchronize phone books

After the master phonebook has been transferred to the first **Copy** FaxFinder unit and that unit has been rebooted, the **Device Manager** will automatically begin synchronizing the additional **Copy** FaxFinder unit in the system (if any) until all have been synchronized.

To see the newly synchronized phonebook list in each **Copy** FaxFinder unit, you must update the Phone Book screen by clicking on the **Phone Book** button (to the right of **Administration**) in the list at the top of the screen.

Adding Devices

Any FaxFinder/CallFinder/MultiAccess unit to be added to the system and come under the management of the Device Manager software must be connected to the same IP network as the computer running the Device Manager software.

To add a FaxFinder/CallFinder/MultiAccess unit to the system, start at the main Device Manager screen. Open the **Edit** menu and select **Add Device**. When the **Add Device** screen appears, enter the IP address, Username, and Password for the unit you are adding to the system. Then click **OK**.

Figure 6-6: Add device

Using the Auto-Discovery Monitor

The **Auto-Discover Devices** command of Device Manager will automatically search the network for FaxFinder, CallFinder, or Multi-Access units. The **Auto-Discover Devices** command is in the Edit Menu. When invoked, the **Auto Discovery Monitor** screen will appear and will display FaxFinders, CallFinders, and Multi-Access units on the system and identify each (with Host Name, IP Address, and Mac Address). It will not discover devices outside 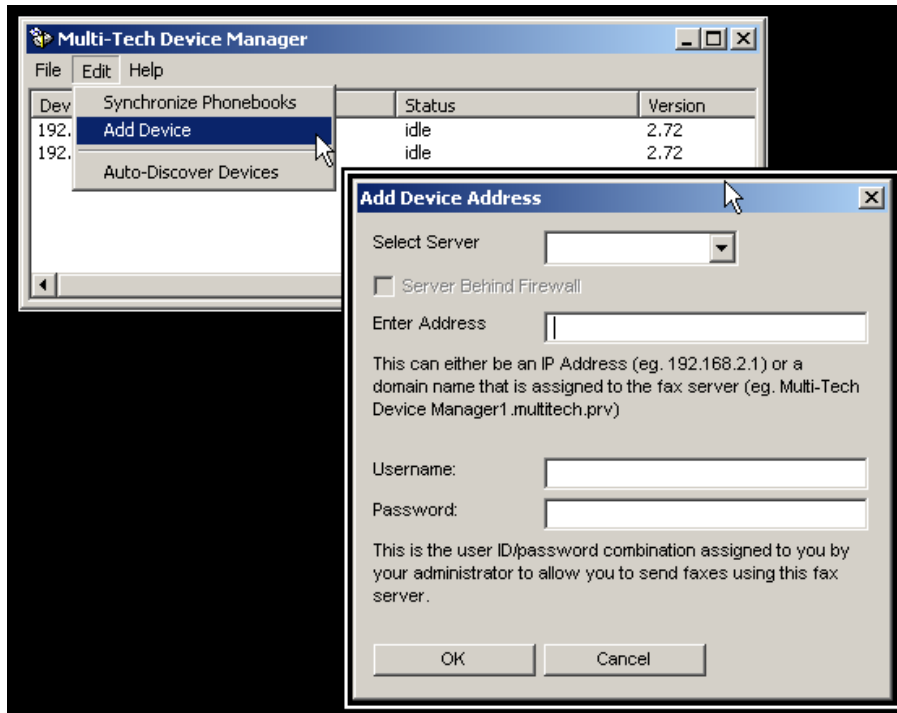your network. For example, if the IP address of the computer running Device Manager is 134.146.8.90, this feature would discover such devices only in the 134.146.8.x network, but not in 134.146.10.x or other networks.

Auto Discovery. You initiate the command from the **Edit** menu. A list of devices will soon appear in the **Auto Discovery Monitor** window.
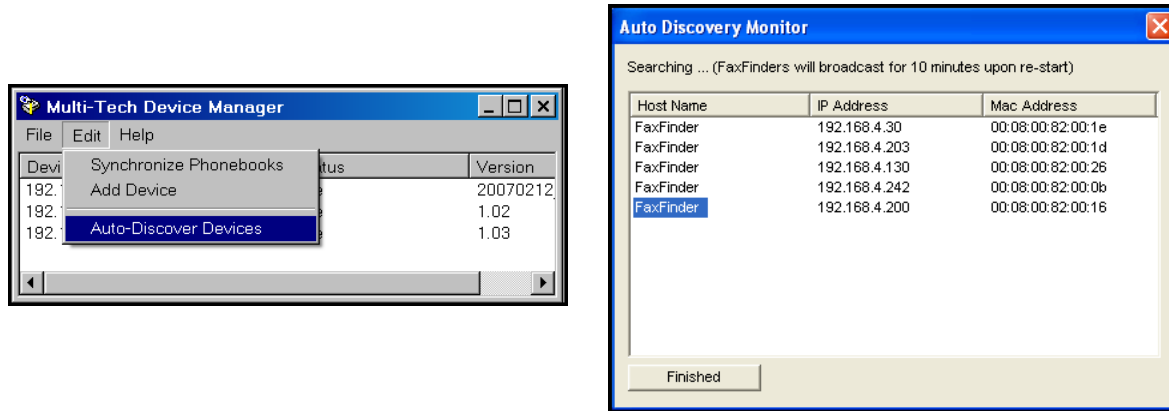
Figure 6-7 & 6-8: Auto discovery

The polling process takes a few minutes to complete. (The Auto Discovery Monitor will only detect FF100, FF110, FF200, and CF220-DID units that have been restarted within the past 10 minutes. This limitation does not apply to other models.) After a device has been detected you can add it to the group of devices that the Device Manager software is serving by entering the appropriate Username and Password for the discovered unit in the Device Manager's **Add Device Address** screen.

Viewing Parameters of a Selected Device. If you double-click on a device in the list in the Auto-Discovery Monitor's main screen, another screen with details about that device will appear. That second screen specifies the device's Mac Address, IP-related parameters, and presents blank fields for its Username (User ID), and password.
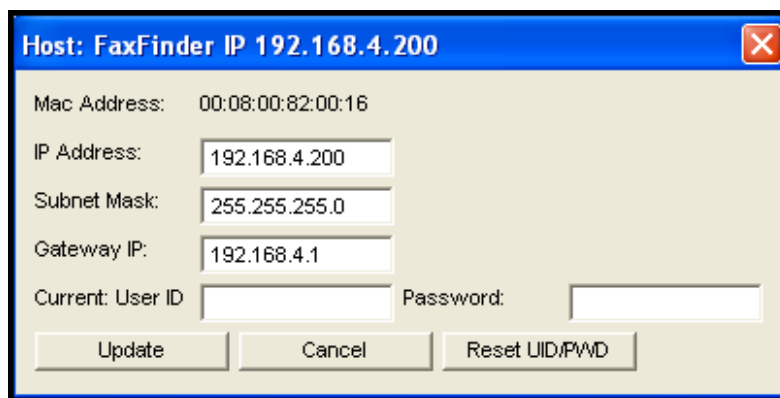
Figure 6-9: Device details

Changing Parameters of a Selected Device. If a device has been discovered, you can reset its Username (User ID) and Password to their default values (**admin** and **admin**) using the **Reset UID/PWD** button. You can also change the "IP Address," "Subnet Mask," and "Gateway IP" fields for the selected device. However, to make this change you must first enter the valid userID and password of the FaxFinder/CallFinder/MultiAccess server. To finalize the changes to any of these parameters, click **Update**. After the changes are made, the main **Auto Discovery Monitor** screen will return.

Clicking **Finished** will simply close the Auto Discovery Monitor screen.

Right-Click Command Menu for Selected Device

| Right-Click Menu Command	Description
Delete	Dis-associates the selected device (FaxFinder, CallFinder, or Multi-Access unit) from the system of devices listed in the Device Manager software **Device** column.
Save Configuration	Saves the settings of the device's built-in software, including the phonebook, on the PC on which the Device Manager software is running.
Restore Configuration	For the selected device, this command re-imports a previously saved version of the unit's software settings (including phonebook, for FaxFinders and CallFinders) back into that unit.
Update [firmware]	Lets you install the latest firmware for the device and/or its modems.
Set Phone Book Sharing	Lets you designate the selected unit (FaxFinder, CallFinder, or Multi-Access unit) as either "Independent," "Primary," or "Copy." The Primary phone book is the source list that can be transferred to devices in the system that have been designated as Copy. Independent devices do not share phone book information. (Default = Independent)
Properties	Displays IP address, user name, and password of selected device. (For the password, only the number of characters is shown.)

Deleting a Device

Invoking the **Delete** command removes the selected device (FaxFinder, CallFinder, or Multi-Access unit) from the system. Once deleted, the device will no longer be under the management of the **Device Manager** software. Click **Yes** at the 'confirmation' screen to complete the deletion command.
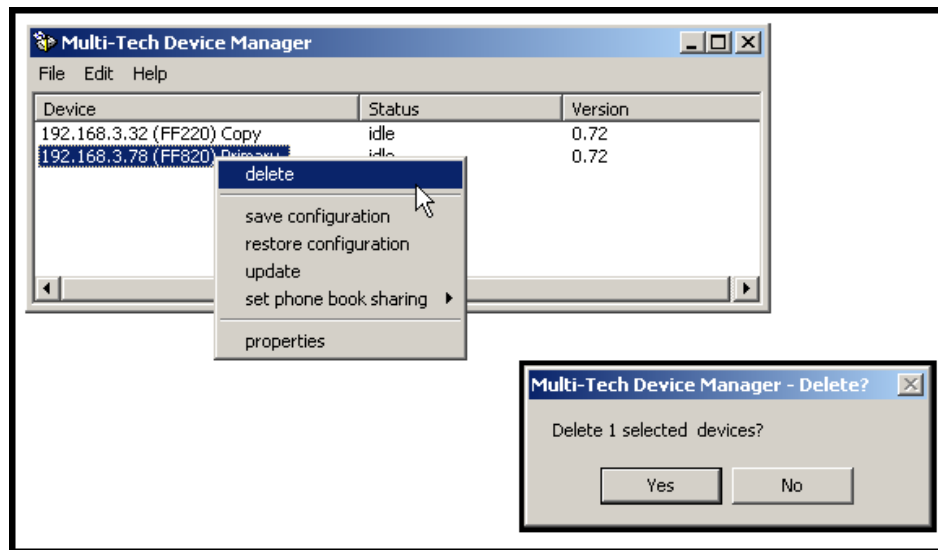
Figure 6-10: Deleting a device

Saving a Configuration

Each type of device in the FaxFinder/CallFinder/MultiAccess family saves all of its settings (IP address, password, modem parameters, DID channel parameters, phone book settings, etc.) internally. This group of settings is its configuration. This same group of settings can be saved on the computer running the Device Manager software. Once saved, the configuration can be retrieved from the computer and re-installed onto the device using the **Restore Configuration** command.

To save the configuration for a particular device, select the unit in the main Device Manager screen, right-click on it, and select **Save Configuration**. Choose the location at which the configuration file will be stored and click **OK**. Then, at the 'confirmation' screen, click **OK** again.
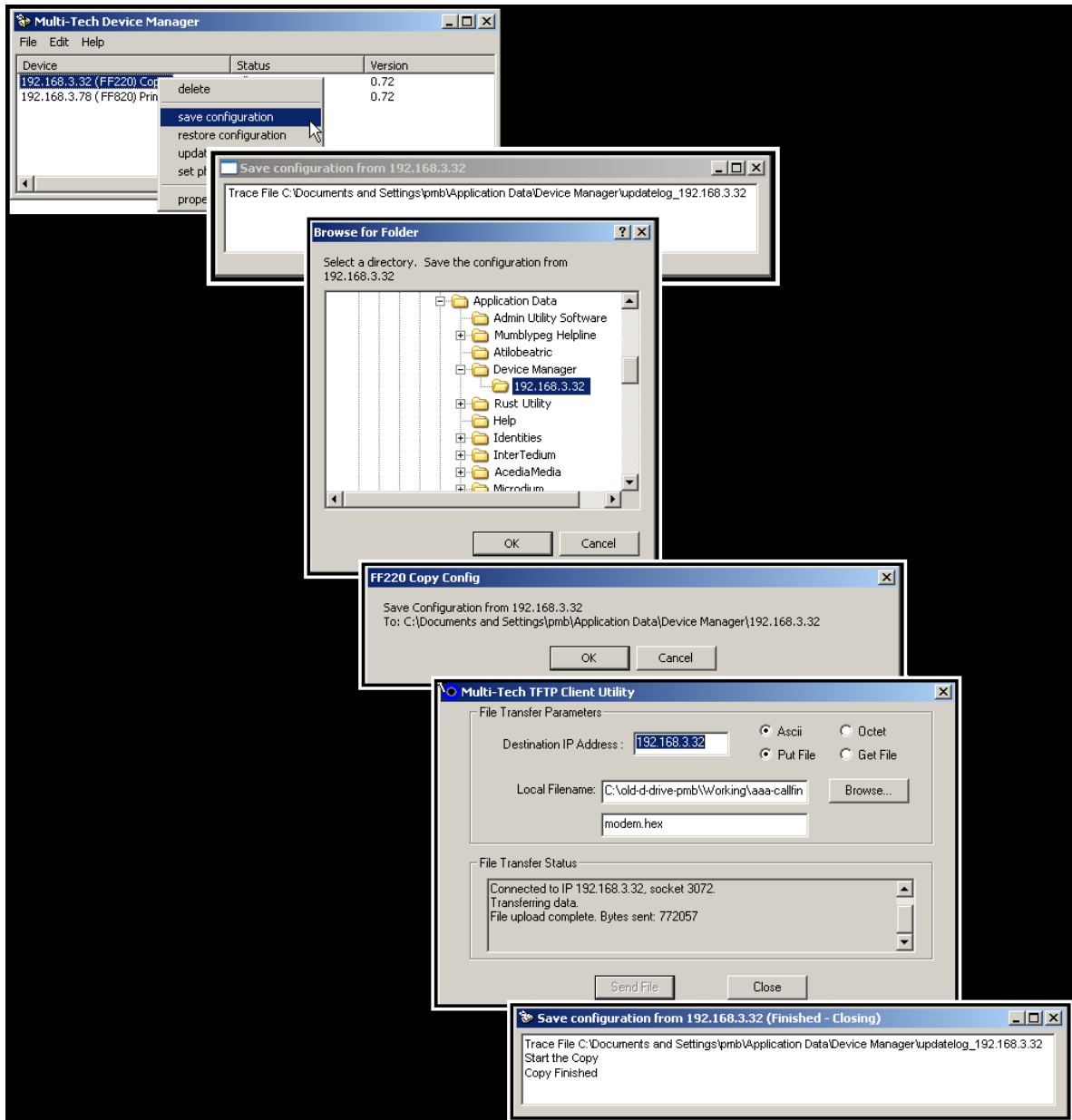
Figure 6-11: Saving a configuration

Restoring a Configuration

To re-install on the device (FaxFinder, CallFinder, or MultiAccess unit) a group of settings (configuration) previously saved on the computer running the **Device Manager** software, use the **Restore Configuration** command. Device Manager will browse, by default, to an automatically determined directory that contains a saved configuration.
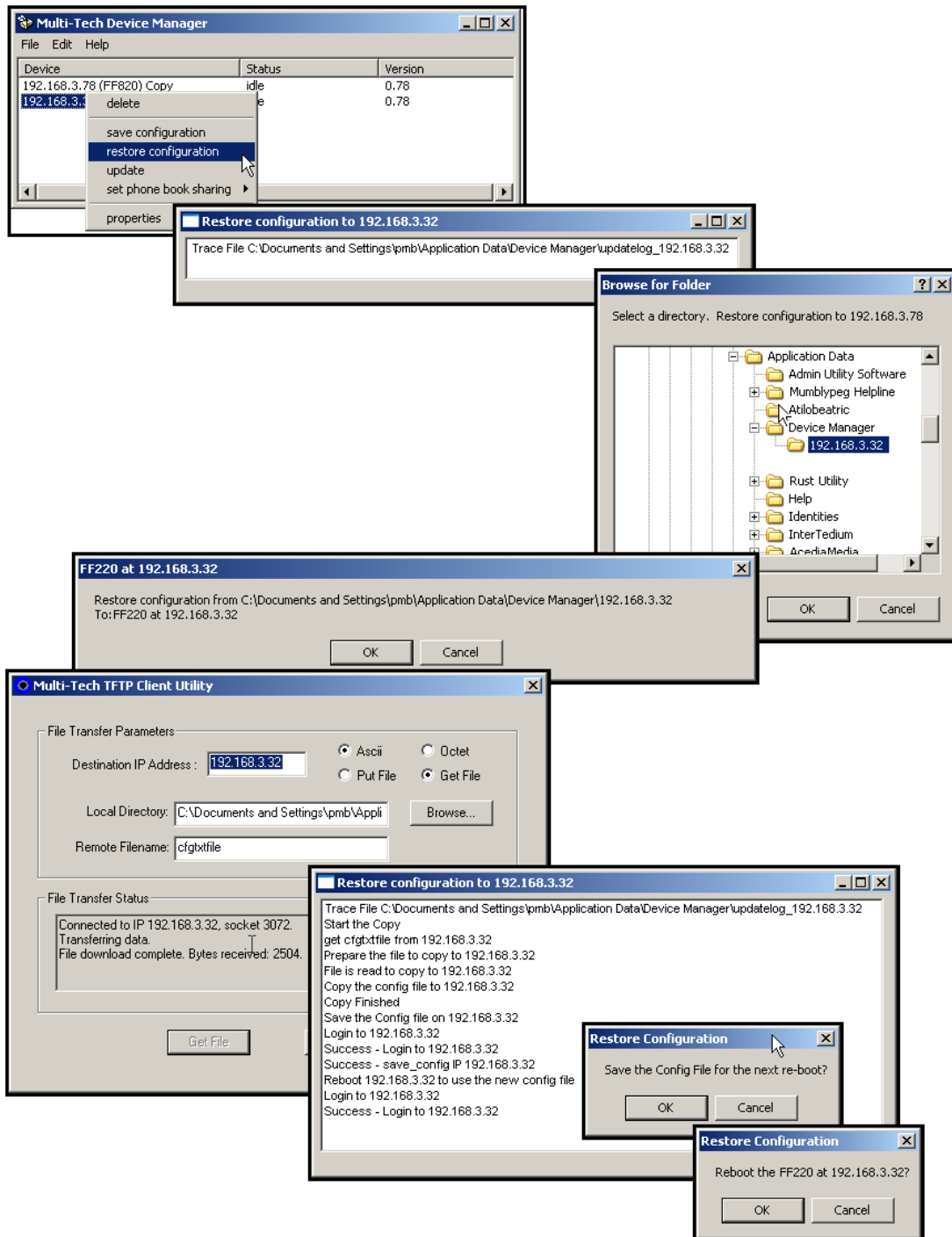
Figure 6-12: Restoring a configuration

Updating Firmware

Preparation. Before you begin any firmware update procedure, you must obtain the newest firmware file with which to do the update. Generally, you can obtain this from the Multi-Tech web site. It may be available as an **.exe** file and need to be extracted into a **.bin** or **.hex** format before installation.

When the **Update** command is invoked, a screen will appear prompting you to save the current configuration. We highly recommend clicking **Yes**.
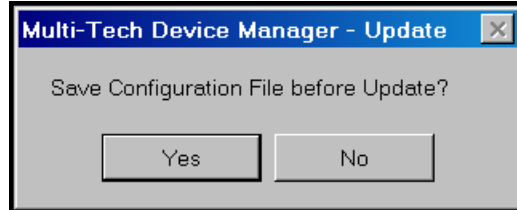
Figure 6-13: Save prompt

In saving the configuration, you will be led through a sequence of screens (see the section "Saving a Configuration" presented earlier in this chapter).

After the configuration has been saved, the **Update [*Device*] at *n.n.n.n*** screen appears. From this screen you specify which type of code to update (server, boot, or modem code) and Browse to the appropriate up-to-date file. The "Get Versions" button allows you to check the firmware versions currently installed in the device (FaxFinder, CallFinder, or MultiAccess unit) to confirm that the update file you intend to install does indeed represent an update. When ready, you click **Start Update** to begin the updating process.

The illustration below shows the **Update [*Device*] at *n.n.n.n*** screen after completion of an update. (In this case, a POTS modem in an FF820 FaxFinder was updated.)

Figure 6-14: Update device

Update [Device] at *n.n.n.n* Screen Field Descriptions

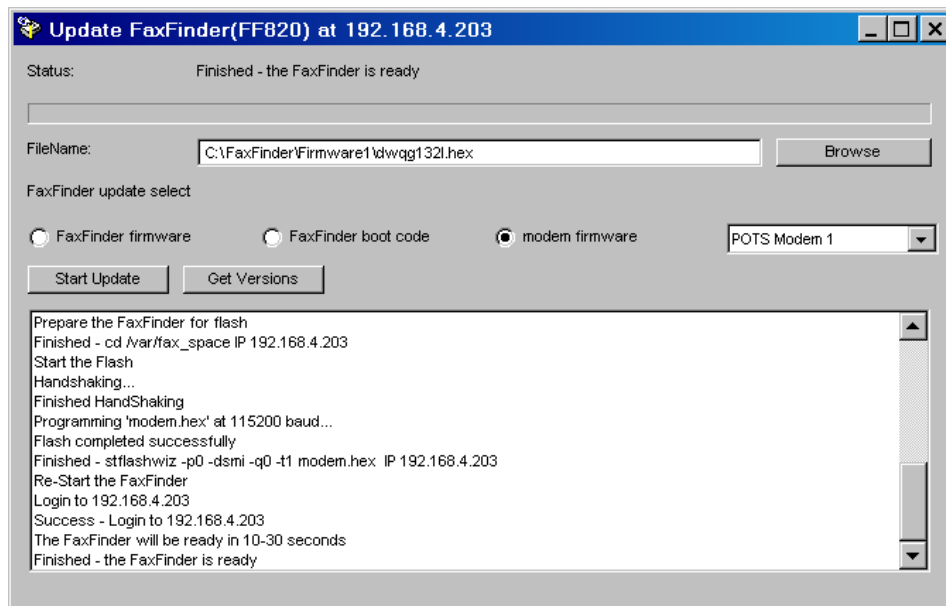| Field Name	Description
Status	Identifies the current condition of the device or the current process underway.
Progress Bar	Shows how far the current process is from completion. Completion of the update is announced in text form in the Status field.
File Name	Lists the file name of the firmware to be used to update the device (i.e., server firmware, boot code, or modem firmware).
Browse button	Use this to locate firmware file to be installed.
[*Device*] update select	Identifies which type of code (i.e., server firmware, boot code, or modem firmware) is to be updated in the device. Boot code should be updated only with assistance from Multi-Tech Tech Support personnel. And note that CallFinders do not have boot code. Modem firmware is of two types: POTS modems or DID modems. The **All Modems** option in the drop-down menu allows all of a device's modems to be updated with a single command. (For the FF110, its POTS modem and its DID channel modem would have to be updated with separate commands because they use separate updating files.) CallFinder DID modems do not require nor can they be updated.
Start Update button	Initiates flashing of firmware.
Get Versions button	Click to see listing of versions of firmware currently installed in the device (FaxFinder, CallFinder, or MultiAccess unit).
main pane of window	Presents status of the device (FaxFinder, CallFinder, or MultiAccess unit) as well as details of updating processes as they occur.

Table of available updates

	Server Firmware	Boot Code	Modem Firmware
CallFinder	Yes. File name format is: <*model*>_X_Y.bin where *X* is the primary version number and *Y* is the extension.	None.	None.
Note: Update files can be downloaded from the Multi-Tech web site. They are available as .exe files and the required .hex or .bin file must be extracted after downloading.			

Setting Phone Book Sharing

The phonebook of a **Primary** FaxFinder unit is a source or central phonebook. Phone numbers should be entered into this phonebook. The central phonebook list is downloaded (by use of **Synchronize Phonebooks** command) from the Primary FaxFinder unit into the phonebook of each **Copy** FaxFinder unit. If phone numbers are added to the phonebook of a **Copy** FaxFinder phonebook, they will be overwritten and lost at the next **Synchronize Phonebooks** command.
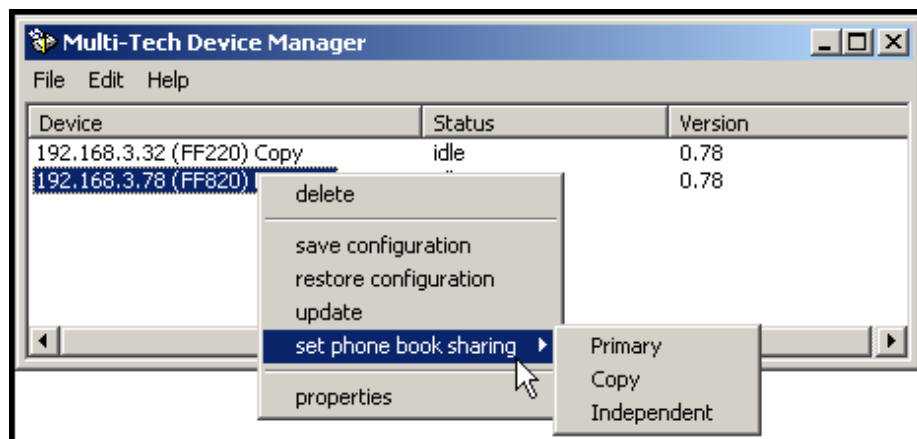

Figure 6-15: Phone book sharing

Viewing Properties

The **Properties** command brings up the **Multi-Tech Device Manager – *n.n.n.n*** screen on which you can view the IP Address and Username of the Device (FaxFinder, CallFinder, or MultiAccess) and determine the number of characters in its Password.

Figure 6-16: Properties screen

Firmware Updating Process - Detailed

Over time, new versions of FaxFinder/CallFinder/MultiAccess firmware may be issued. When these newer versions become available, you may want to get the firmware files (typically by downloading them from the Multi-Tech web site) and install them.

Updating server firmware for the FaxFinder/CallFinder/MultiAccess unit

The File name format is **<model>_X_Y.bin**
where *X* is the primary version number and *Y* is the extension.

NOTE: *You must have the update files on your computer **before** beginning this procedure.* The latest version of these files will be available on the Multi-Tech web site. Put them in a directory on a computer connected to the network on which the FaxFinder/CallFinder/MultiAccess unit is running.

NOTE: Updating the FaxFinder/CallFinder/MultiAccess unit will take it out of operation for a few minutes (allow 10 minutes for each update if you already have the new firmware in a directory on the host computer). Do the update at a time that is not critical to your organization's usage of the unit.

To update firmware, follow the steps shown below.

Server Firmware Update

1. Bring up the **Device Manager** software main screen. In the **Device** column, identify the FaxFinder/CallFinder/MultiAccess unit on which the update is to be done. Be sure that the Status of that unit is **idle** before continuing. (You cannot update the FaxFinder/CallFinder/MultiAccess unit while it is handling a call.) Select that FaxFinder/CallFinder/MultiAccess unit and right-click on it. In the menu that appears, select **Update**. Before the Update can be invoked, you will be prompted to save your current configuration.
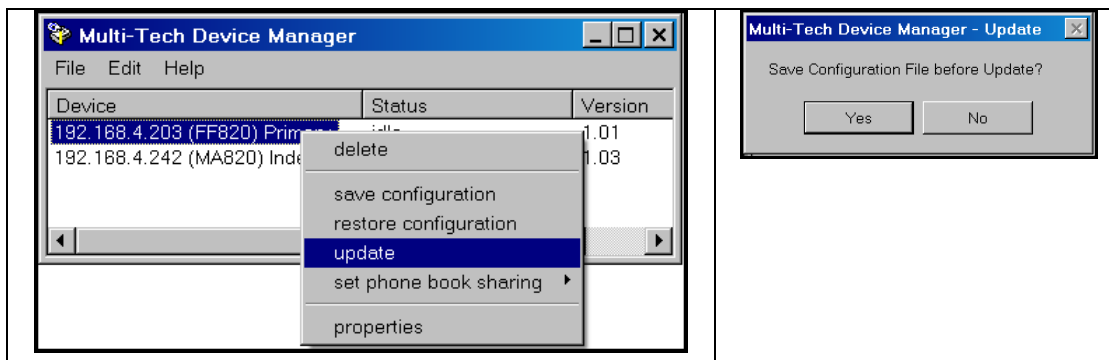
Click **Yes** and the software will lead you through the steps shown in the procedure "Saving a Configuration" presented earlier in this chapter.

For the remainder of this procedure, we will illustrate server updating with an 8-port FaxFinder (FF820). The procedure will be essentially the same for other FaxFinders, for CallFinders, and for Multi-Access units.

2. The **Update FaxFinder *n.n.n.n*** screen will appear. The current firmware versions for the FaxFinder server and for all of its modems will be listed in the main window.
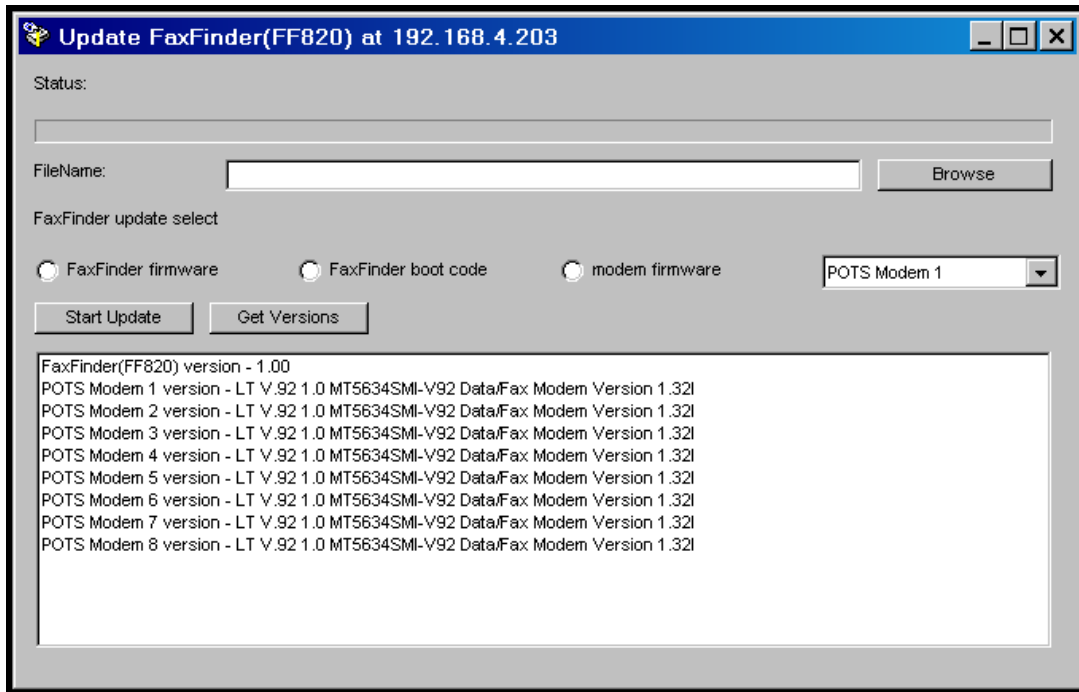
Figure 6-17: Update screen

In the bottom (and largest) pane of the **Update FaxFinder *n.n.n.n*** window, read the list and write down the version of firmware currently in use for the FaxFinder server. Compare this version with the update file that you plan to use. Make sure that the server firmware file to be installed really does supersede the one currently installed on the unit.

In the **FaxFinder Update Select** field, select "FaxFinder firmware."

3. Browse to the location of the most recent firmware file. Again, confirm that the update file has a higher version level than the firmware file that it will replace.
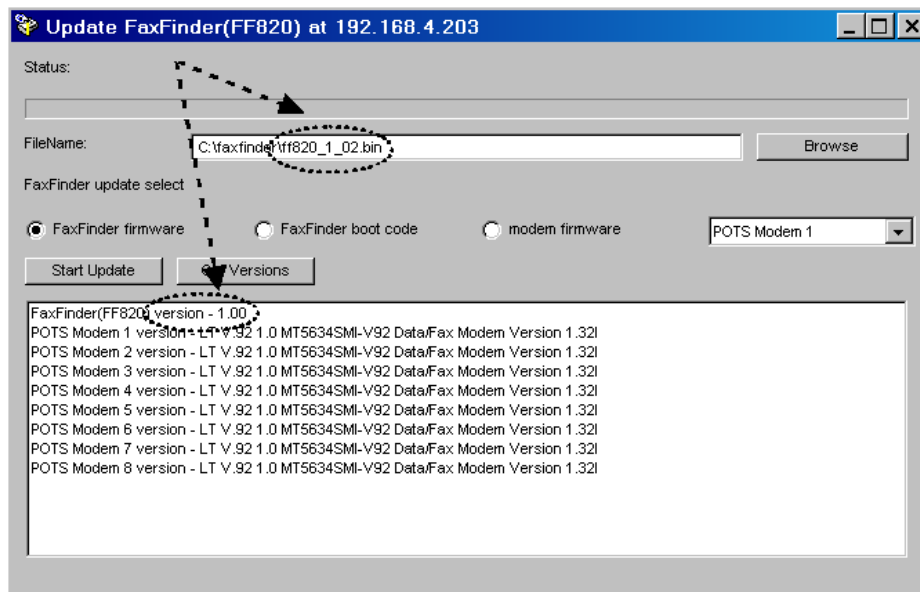
Figure 6-18: Verify version

4. Click **Start Update**.

5. The **FaxFinder – Confirm Update** screen will appear. Click **OK**.
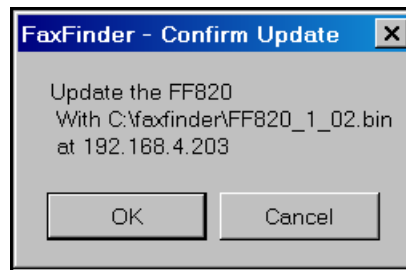
Figure 6-19: Confirmation

6. The updating process will take as long as a minute. During this time, several messages will appear in the **Update FaxFinder** *n.n.n.n* window. A transient **TFTP** screen may appear briefly. If the updating process has been successful, the final message line will say "Finished – The FaxFinder/CallFinder/MultiAccess is ready."
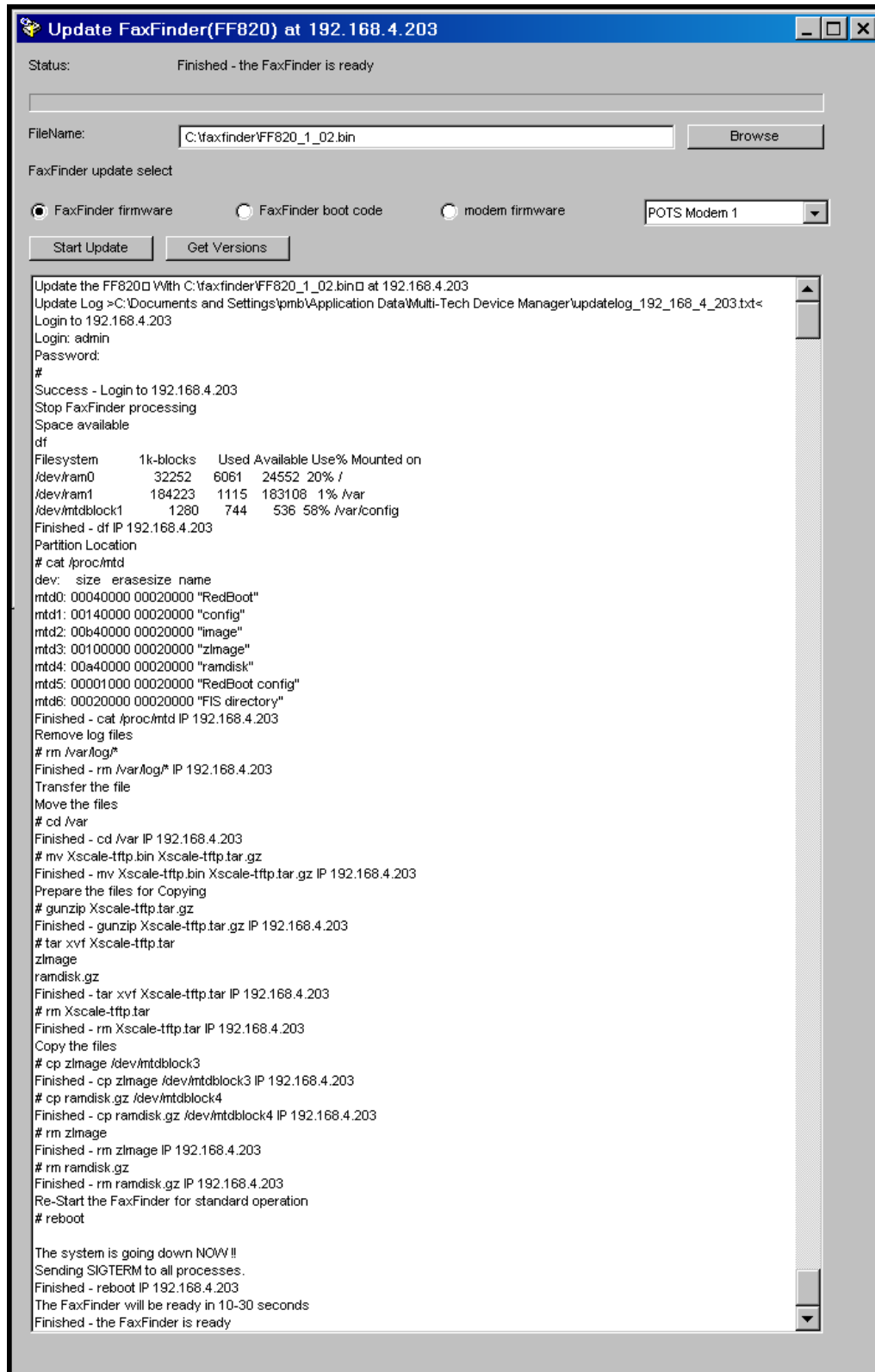
Figure 6-20: Update finished

7. Close the **Update FaxFinder** *n.n.n.n* window. In the main **Device Manager** window, the updated version will be listed.
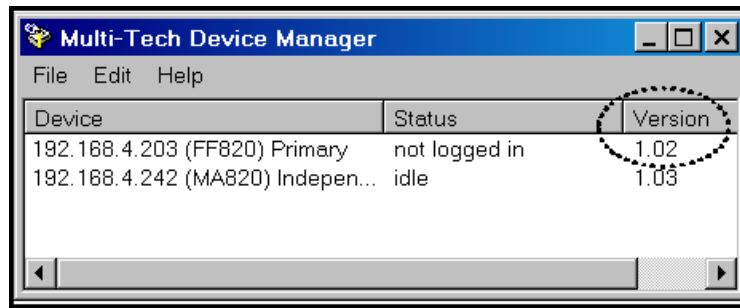
Figure 6-21: Version verification

8. Repeat steps 1-7 for each FaxFinder (or CallFinder or Multi-Access) unit in the system.

> **NOTE**: For proper operation of the FaxFinder (or CallFinder or Multi-Access) system, including the sharing of Phone Book data, the server firmware version for all units must be the same.

9. The updating process is now complete.

Chapter 7 – Troubleshooting

1. What if I can't see the web page for my CallFinder ?

REMEDY: Is the status LED on the CallFinder unit blinking? If not, then the unit is either malfunctioning or not turned on. If the Status LED is blinking, then verify that the Admin PC is actually on the same subnet as the CallFinder and that the CallFinder can be "pinged."

Launch a Command Prompt.

In WinNT, go to **Start | Programs | Command Prompt**.
In WinXP, go to **Start | All Programs | Accessories | Command Prompt**.
In Win2000, go to **Start | Programs | Accessories | Command Prompt**.

Type **ipconfig** to verify that the Admin PC's IP address is in the same network as the CallFinder's IP address.

Then type **ping 192.168.2.1** and press **Return**.

If the CallFinder unit does reply to the ping and you are still unable to view the CallFinder web page, then call Multi-Tech Tech Support for more assistance (1-800-972-2439).

2. What if I don't get an email when I set the mail server address?

This pertains to the procedure "Setting Up the Mail Server."

The email may have failed due to one of three causes:

(A) The name server cannot resolve (in this case, "Bad Mail Server Address" will appear in the **Email Status** field of the **Current Status** screen),

(B) The mail server cannot be contacted; or

(C) The client PC running the mail software cannot connect to the mail server.

**CAUSE A:** During transmission, the name server's address could not be resolved (that is, the CallFinder unit could not contact your name server).

RESPONSE A: Contact the CallFinder unit using telnet and try to ping the name server.

telnet 192.168.x.x
user: admin
password: admin

ping 192.168.y.y (where this is the address of the name server)

If the name server ping fails, you must determine why it failed.

The name server may not be contact-able because it is on a different subnet. The name server ping could also fail because the default gateway has been set incorrectly.

If the name server ping succeeds, then try to ping the mail server using its domain name.

ping mail.ourcompany.com

If pinging the mail server by its domain name fails, then try pinging it by using its IP address (if this can be determined). If you succeed in pinging the mail server by its IP address but yet it cannot be pinged via its domain name, then the name server is not functioning correctly (or the device at the name server's IP address is not actually a name server).

If the mail server can be pinged neither by its domain name nor by its IP address, then consider item B below.

CAUSE B: The mail server is not running or cannot be contacted from the CallFinder unit.

RESPONSE B: Verify that the mail server is running by sending an email to yourself using your email software.

If you cannot send an email to yourself using your email software, then the mail server is not running and you should find out why.

If you can send an email to yourself using the email software, then there is a problem between your mail server and the CallFinder unit. Call Multi-Tech Tech Support (1-800-972-2439).

Username/Password Issues. Some mail servers require that the CallFinder use its Username and Password to log into the mail server. Others do not. This Username and Password are specified in the **Administration: SMTP Configuration** screen. If the mail server requires the CallFinder to have a Username and Password and none is provided, access will be denied. Conversely, if the mail server does not require a Username and Password and these have been specified anyway, again access will be denied. If call logs are not reaching the administrator, it may be because of such Username/Password issues.

CAUSE C: The client PC running the mail software cannot connect to the mail server.

RESPONSE C: If you, as a client, cannot send yourself an email, then contact your administrator; there may be a problem with your mail server.

3. What if the CallFinder channel doesn't answer a call on the DID line?

REMEDY. Use this procedure if Channel Configuration cannot be confirmed (that is, if you fail to hear voice, and if, during a test call to one of the system's DID phone numbers, you fail to see the State progressing through the stages RECV DIGITS, RING LINE, AUTO DELAY (optional), and DIAL DIGITS in the **Current Status: Channel-1/Channel-2** screen). Both the state and the sound must be observable).

A. Situate yourself in a place where you can see the CallFinder unit and, simultaneously, use a phone on a regular POTS line.

B. From that ordinary POTS phone, dial one of the DID phone numbers that is active in the system.

C. As the call is completed, watch the LEDs on the front panel of the CallFinder unit.

If the DID LED remains off, then there is probably a telephony problem. That is, the DID phone line has not been activated or configured properly. Call the telephone company.

If the DID LED comes ON, then there is something wrong with the CallFinder software. Call Multi-Tech Tech Support (1-800-972-2439).

D. **Polarity Check**. Incorrect DID polarity could also prevent calls from being answered.

Signs of incorrect polarity:

(1) outside party originating call to DID number gets immediate busy signal after dialing;

(2) line suddenly disconnects just when call should go through.

E. **Call Logs**. If calls have failed, you can check the CallFinder's call logs to see the actual DID number that the CallFinder received. Sometimes corrupted DID numbers are presented to the CallFinder. In any event, the call logs can help to track down the error involved.

4. What if the CallFinder presents the wrong time of day?

Or, what if the CallFinder marks calls with the wrong time of day? What if the message "SMTP Error …" appears in the *Time Server Status* field of the **Current Status** screen?

REMEDY: The CallFinder may have lost contact with the time server. By default, the CallFinder obtains its time from an Internet source. If the CallFinder is isolated from the Internet, then you must provide a different time source within the private Ethernet network.

5. What if an immediate busy signal is received when dialing in on the DID line?

REMEDY

A. Check for "BUSY OUT" condition of channel on **Current Status** screen. If the channel is busied out, click "Initialize Channel."

B. Reverse DID line polarity in **Channel Configuration** screen.

6. What if the line suddenly disconnects just when a call is about to be connected?

REMEDY: Reverse DID line polarity in **Channel Configuration** screen.

Appendix A – Regulatory Information

FCC Part 68 Telecom

1. This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. Located on this equipment is a label that contains, among other information, the registration number and ringer equivalence number (REN) for this equipment or a product identifier in the format:

> For current products is **US:AAAEQ##Txxxx**.

> For legacy products is **AU7USA-xxxxx-xx-x**.

If requested, this number must be provided to the telephone company.

2. A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable 47 CFR Part 68 rules and requirements adopted by the ACTA. It's designed to be connected to a compatible modular jack that is also compliant.

3. The ringer equivalence number (REN) is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format US:AAAEQ##Txxxx. The digits represented by ## are the REN without a decimal point (*e.g.*, 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

4. If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

5. The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

6. If trouble is experienced with this equipment, please contact Multi-Tech Systems, Inc. at the address shown below for details of how to have the repairs made. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

7. Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

8. No repairs are to be made by you. Repairs are to be made only by Multi-Tech Systems or its licensees. Unauthorized repairs void registration and warranty.

9. If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this equipment does not disable your alarm equipment.

   If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.

10. Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

11. This equipment is hearing aid compatible.

12. Manufacturing Information:

Manufacturer:	Multi-Tech Systems, Inc.
Trade Name:	CallFinder
Model Number:	CF220-DID
Registration No:	US: AU7OTNANCF220
Ringer Equivalence:	0.4B
Modular Jack (USOC):	RJ11C or RJ11W (single line),

Service Center in USA: Multi-Tech Systems, Inc.
2205 Woodale Drive
Mounds View, MN 55112, U.S.A.
(763) 785-3500
(763) 785-9874 Fax

FCC Part 15 Regulation

This equipment has been tested and found to comply with the limits for a **Class B** digital device, pursuant to FCC Part 15 regulations. The stated limits in this regulation are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Plug the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC rules. Operation of this device is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference that may cause undesired operation.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Fax Branding Statement

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device, including fax machines, to send any message unless such message clearly contains the following information:

- Date and time the message is sent
- Identification of the business or other entity, or other individual sending the message
- Telephone number of the sending machine or such business, other entity, or individual

This information is to appear in a margin at the top or bottom of each transmitted page or on the first page of the transmission. (Adding this information in the margin is referred to as *fax branding*).

Any number of fax software packages can be used with this product. Refer to the fax software manual for setup details. Typically, the fax branding information must be entered via the configuration menu of the software.

Canadian Limitations Notice

Notice: The ringer equivalence number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the ringer equivalence numbers of all the devices does not exceed 5.

Notice: The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The Industry Canada label does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment or equipment malfunctions may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

Industry Canada

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Reglement Canadien sur le matériel brouilleur.

Appendix B – Waste Electrical and Electronic Equipment

July, 2005

Waste Electrical and Electronic Equipment (WEEE)

The WEEE directive places an obligation on EU-based manufacturers, distributors, retailers and importers to take-back electronics products at the end of their useful life. A sister Directive, ROHS (Restriction of Hazardous Substances) complements the WEEE Directive by banning the presence of specific hazardous substances in the products at the design phase. The WEEE Directive covers all Multi-Tech products imported into the EU as of August 13, 2005. EU-based manufacturers, distributors, retailers and importers are obliged to finance the costs of recovery from municipal collection points, reuse, and recycling of specified percentages per the WEEE requirements.

Instructions for Disposal of WEEE by Users in the European Union
The symbol shown below is on the product or on its packaging, which indicates that this product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.

Appendix C – C-ROHS HT/TS Substance Concentration

依照中国标准的有毒有害物质信息

根据中华人民共和国信息产业部 (MII) 制定的电子信息产品 (EIP)
标准－中华人民共和国《电子信息产品污染控制管理办法》（第 39 号），也称作中国
RoHS，下表列出了 Multi-Tech Systems Inc. 产品中可能含有的有毒物质 (TS) 或有害物质 (HS)
的名称及含量水平方面的信息。

成分名称	有害/有毒物质/元素					
	铅 (PB)	汞 (Hg)	镉 (CD)	六价铬 (CR6+)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板	O	O	O	O	O	O
电阻器	X	O	O	O	O	O
电容器	X	O	O	O	O	O
铁氧体磁环	O	O	O	O	O	O
继电器/光学部件	O	O	O	O	O	O
IC	O	O	O	O	O	O
二极管/晶体管	O	O	O	O	O	O
振荡器和晶振	X	O	O	O	O	O
调节器	O	O	O	O	O	O
电压传感器	O	O	O	O	O	O
变压器	O	O	O	O	O	O
扬声器	O	O	O	O	O	O
连接器	O	O	O	O	O	O
LED	O	O	O	O	O	O
螺丝、螺母以及其它五金件	X	O	O	O	O	O
交流-直流电源	O	O	O	O	O	O
软件/文档 CD	O	O	O	O	O	O
手册和纸页	O	O	O	O	O	O
底盘	O	O	O	O	O	O

X 表示所有使用类似材料的设备中有害/有毒物质的含量水平高于 SJ/Txxx-2006 限量要求。

O 表示不含该物质或者该物质的含量水平在上述限量要求之内。