

**MultiTech**<sup>®</sup>  
Systems



# Using FaxFinder<sup>®</sup> with ShoreTel<sup>®</sup>

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Application Notes

## Using FaxFinder® with ShoreTel® Application Notes

ShoreTel Part Number IN-14045, Document Version 0.08

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#### Knowledge Base

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#### Support Portal

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#### Support

Business Hours: M-F, 9am to 5pm CT

Country	By Email	By Phone
Europe, Middle East, Africa:	<a href="mailto:support@multitech.co.uk">support@multitech.co.uk</a>	+(44) 118 959 7774
U.S., Canada, all others:	<a href="mailto:support@multitech.com">support@multitech.com</a>	(800) 972-2439 or (763) 717-5863

# Abstract

Integrating the FaxFinder fax server with ShoreTel Voice Switches provides a complete voice and fax telephony solution.

This document describes how to integrate the ShoreTel Voice Switch with the FaxFinder fax server (FF240-IP or FFx40). It provides product specifics, interoperability test results, typical setup configurations, troubleshooting steps and other important product-related information.

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# Overview

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The FaxFinder fax server is a network-attached device that replaces legacy paper-based fax machines and allows users to send and receive faxes electronically. The FaxFinder can be set up with the ShoreTel system in one of two ways:

[Application 1: Fax Redirect - One Main Number for Both Voice and Fax](#)

[Application 2: User with a Unique Voice Extension and a Unique Fax Extension](#)

All inbound faxes can be forwarded to the FaxFinder where they can be routed to a user's email inbox, a network share, or a network printer. Outbound faxes can be submitted via three methods, Multi-Tech's print to fax client (for Windows), a web browser, or any existing email client. FaxFinder fax servers combine quality hardware and software designed to integrate with existing and new telephony systems and IP-based networks, providing reduced costs while enhancing productivity by sending and receiving faxes using existing email and network resources.

## Features and Benefits

- Replaces legacy paper-based fax equipment and expensive online subscription services
- Centralizes fax operations to the IT server room
- Supports industry-specific regulations, such as HIPAA and SOX
- Integrates fax with other applications using the open-source web services API
- Send outbound faxes electronically using client software (included), web interface, or existing email client
- Route inbound faxes to email inbox, network folder, or network printer
- Manage network settings and fax settings using administrative software

## FaxFinder with ShoreTel Voice Switch

When connected to ShoreTel Voice Switch, the FaxFinder functions as a network fax server with two-way fax service. Multiple extension numbers (DID numbers) are dedicated to incoming fax traffic which is routed to FaxFinder. FaxFinder converts the incoming faxes into graphic files that can be sent as email attachments, to a network share, to a printer, or to trash. Because faxes can be delivered as email, the fax recipient can be at any reachable email address. For example, a sales person can receive faxes while traveling by using a regular company fax number and picking up the email messages remotely. Each fax-dedicated extension number can be associated with a particular email address.

## FaxFinder IP Fax Server (FF240-IP)

The FaxFinder IP is a 2-channel SIP Trunk based fax server, which can be upgraded to a 4-, 6-, or 8-channel server based on an organization's needs. The SIP Trunk implementation is SIP via UDP, supporting T.38 and G.711 media. DID information can be in the "SIP To" header or the "SIP Diversion" header.

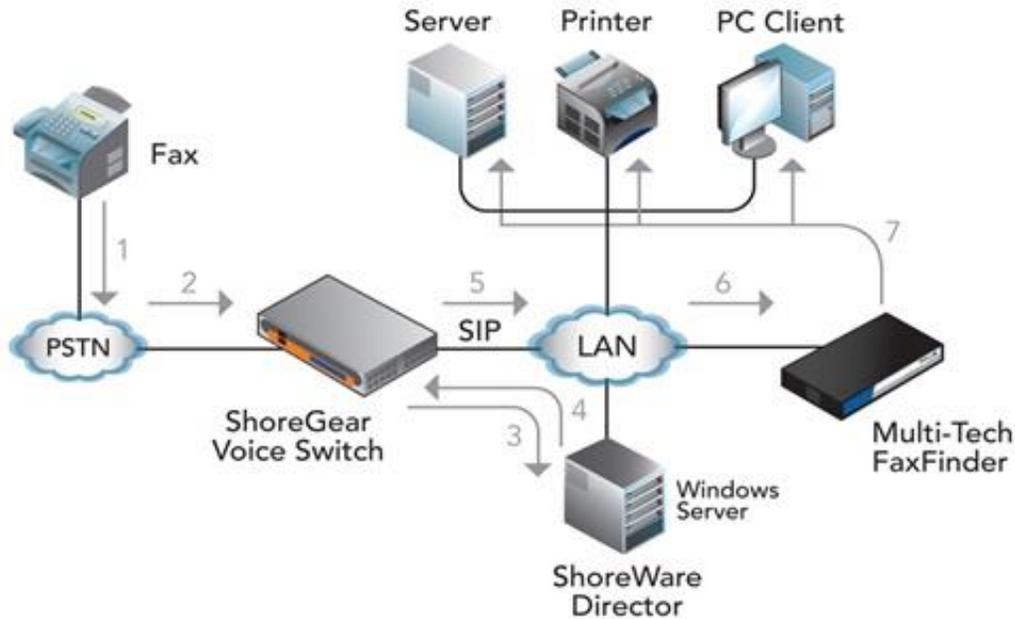
## FaxFinder Analog Fax Servers (FFx40)

The FaxFinder analog fax server is available as a 2-port (FF240), 4-port (FF440), or 8-port (FF840) model, ideal for use in applications that include POTS lines, IP Phone systems with analog station ports, and legacy phone systems. Analog fax models can be expanded up to 24-ports using the FaxFinder Expansion Modules (FFEX8 and FFEX16). DID information is obtained via detecting DTMF tones passed to the FaxFinder by the PBX.

# Architecture Overview Using FF240-IP

## Call Flow When Receiving Faxes

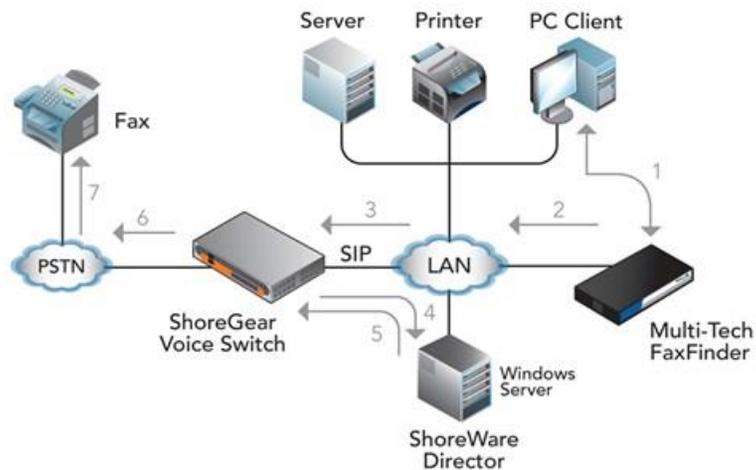
When the ShoreTel system detects that an inbound call from the PSTN is a fax, ShoreTel routes the call to the SIP trunk that exists between ShoreTel and FaxFinder. FaxFinder answers the call and receives the fax. After the fax transmission completes, FaxFinder delivers the received fax document to the defined destination or destinations. Delivery Destinations are defined within the FaxFinder fax server on a per DID (extension) number basis. A DID number can have one or more destination defined, in any combination of the delivery methods (email, writing to a share or sending to a printer), depending on the inbound routing rules.



**Figure 1** – FaxFinder IP Receiving Fax Call Flow Diagram

## Call Flow When Sending Faxes

FaxFinder users schedule outbound faxes electronically by submitting PDF or TIFF documents via FaxFinder Client Software, email, or web browser. Windows users can use FaxFinder Client software to fax Microsoft Office documents (a print to fax process that converts the document and allows the user to schedule the outbound fax, define fax to contact details, select a cover page, and set other scheduling options). Users on any platform can use any email client or any web browser to schedule outbound faxes. A scheduled outbound fax resides in the FaxFinder fax server's outbound queue. The FaxFinder fax server processes outbound faxes based on scheduling details defined by the user and by port availability. To initiate the outbound call, the FaxFinder fax server signals to the ShoreTel via the SIP trunk. The ShoreTel system passes the outbound call request to the Public Switched Telephone Network and ultimately to the fax destination (dialed number). After the fax transmission completes, FaxFinder sends a Fax Status report back to the user who submitted the fax (if the user defined this option).



**Figure 2 – FaxFinder IP Sending Fax Call Flow Diagram**

# Certification and Limitations

## Version Support

**Table 1** - Supported Software Versions

ShoreTel Version	FF240-IP	FFx40
14.2 Build 19.43.1700.0	3.2.7	3.2.7

## Special considerations

When using the FF240-IP, use the T.38 protocol when possible. If the ShoreTel switch does not support T.38, then use the G.711 Pass Through configuration. The following ShoreTel switches do not support T.38 protocol:

- ShoreGear – 8
- ShoreGear – 12
- ShoreGear- 120
- ShoreGear – T1
- ShoreGear – E1
- ShoreGear – TW
- ShoreGear – 24 and ShoreGear – 24a

# Certification Testing Results Summary

## FaxFinder IP (FF240-IP) and T.38 Test Cases

**Table 2** – Basic feature test cases using T.38 trunk configuration

ID	Name	Description	Results
1.1.1	Sending faxes from FaxFinder to fax machine	ShoreTel Certification Lab uses the FaxFinder Client to fax to a fax machine using FF240-IP and the ShoreGear SIP Proxy switch.	Pass
1.1.2	Receiving faxes from fax machine to FaxFinder and fax delivery	ShoreTel Certification Lab sends a fax from a fax machine via the ShoreGear SIP Proxy switch to the FF240-IP. Verify that the correct extension digits were received on the FaxFinder and that it correctly routed the fax. Verify that the email with the fax was received.	Pass
1.1.3	Sending multi-page documents.	ShoreTel Certification Lab uses the FaxFinder Client to send a 10-page fax to a fax machine using FF240-IP and the ShoreGear SIP Proxy switch. Verify that all pages were received and are of good quality.	Pass
1.1.4	Receiving multi-page documents.	ShoreTel Certification Lab sends a 10-page fax from a fax machine via the ShoreGear SIP Proxy switch to FF240-IP. Verify that all pages were received and are of good quality.	Pass
1.1.5	Sending high resolution image documents.	ShoreTel Certification Lab uses the FaxFinder Client to send a Hi Resolution Image fax to a fax machine using FF240-IP and the ShoreGear SIP Proxy switch. Verify that the received fax has good image quality.	Pass
1.1.6	Receiving high resolution image documents.	ShoreTel Certification Lab sends a high resolution fax image from a fax machine via the ShoreGear SIP Proxy switch to FF240-IP. Verify that the received fax has good image quality.	Pass
1.1.7	Send and Receive Faxes Simultaneously	ShoreTel Certification Lab uses the FaxFinder Client to send a 3-page fax to a fax machine using FF240-IP and the ShoreGear SIP Proxy switch. While the FF240-IP is sending, the ShoreTel Certification Lab also sends a 3-page fax from a fax machine via the ShoreGear SIP Proxy switch to the FF240-IP. Verify that all pages were sent and received, and that the quality of each page was good.	Pass

**Table 3** – Fault insertion using T.38 trunk configuration

ID	Name	Description	Results
1.2.1	All FF240-IP channels busy	All channels busy should result in a busy signal to caller.	Pass
1.2.2	IP connectivity failure between ShoreGear SIP Proxy switch and FF240-IP	IP connectivity failure should result in easily recognizable symptoms.	Pass
1.2.3	SMTP connection failure	SMTP delivery failure should not prevent faxes from being transmitted.	Pass

**Table 4 – Voice/Fax Redirect using T.38 trunk configuration**

ID	Name	Description	Results
1.3.1	Send fax from FF240-IP configured as a SIP server	ShoreTel Certification Lab uses the FaxFinder Client to fax to a fax machine using FF240-IP configured as a SIP Server and the ShoreGear SIP Proxy switch.	Pass
1.3.2	Receive fax with voice/fax redirect and with FF240-IP configured as a SIP Server	With the ShoreTel configured for Voice/Fax Redirect, the ShoreTel Certification Lab sends a Fax from a fax machine via the ShoreGear SIP Proxy switch to the FaxFinder IP.  Verify that the correct extension digits were received on the FaxFinder IP, and that it routed the fax correctly. Verify that the email with the fax was received.	Pass
1.3.3	Receive voice call with voice/fax redirect	With the ShoreTel configured for voice/fax redirect, the ShoreTel Certification Lab makes a voice call to the ShoreTel System and verify that the voice call is routed correctly.	Pass

## FaxFinder IP (FF240-IP) and G.711 Pass Through Test Cases

**Table 5 – Basic feature test cases, using G.711 Pass Through SIP trunk configuration**

ID	Name	Description	Results
2.1.1	Sending faxes from FaxFinder to fax machine	ShoreTel Certification Lab uses the FaxFinder Client to fax to a fax machine using FF240-IP and the ShoreGear SIP Proxy switch.	Pass
2.1.2	Receiving faxes from fax machine to FF240-IP and fax delivery	ShoreTel Certification Lab sends a fax from a fax machine via the ShoreGear SIP Proxy switch to the FF240-IP. Verify that the correct extension digits were received on the FF240-IP, and that it routed the fax correctly. Verify that the email with the fax was received.	Pass
2.1.3	Sending multi-page documents	ShoreTel Certification Lab uses the FaxFinder Client to send a 10-page fax to a fax machine using FF240-IP and the ShoreGear SIP Proxy switch. Verify that all pages were received and are of good quality.	Pass
2.1.4	Receiving multi-page documents	ShoreTel Certification Lab sends a 10-page fax from a fax machine via the ShoreGear SIP Proxy switch to the FF240-IP. Verify that all pages were received and are of good quality.	Pass
2.1.5	Sending high resolution image documents	ShoreTel Certification Lab uses the FaxFinder Client to fax a high resolution image to a fax machine using FF240-IP and the ShoreGear SIP Proxy switch. Verify that the received fax has good image quality.	Pass
2.1.6	Receiving high resolution image documents	ShoreTel Certification Lab faxes a high resolution image from a fax machine via the ShoreGear SIP Proxy switch to the FF240-IP. Verify that the received fax has good image quality.	Pass
2.1.7	Send and receive faxes simultaneously	ShoreTel Certification Lab uses the FaxFinder Client to send a 3-page fax to a fax machine using FF240-IP and the ShoreGear SIP Proxy switch. While the FF240-IP is sending, the ShoreTel Certification Lab also sends a 3-page fax from a fax machine via the ShoreGear SIP Proxy switch to the FF240-IP. Verify that all pages were sent and received, and that the quality of each page was good.	Pass

# FaxFinder IP (FF240-IP) with ShoreTel Virtual Switch Test Cases

**Table 6** – ShoreTel Virtual Switch

ID	Name	Description	Results
4.1.1	Send T.38 fax	ShoreTel Certification Lab uses the FaxFinder Client to fax to a fax machine using FF240-IP and the ShoreTel Virtual Trunk Switch. Verify that T.38 protocol was used.	Pass
4.1.2	Receive T.38 fax	ShoreTel Certification Lab sends a Fax from a fax machine via the ShoreTel Virtual Trunk Switch to the FF240-IP. Verify that the correct extension digits were received on the FF240-IP and that it routed the fax correctly. Verify that the email with the fax was received. Verify that T.38 protocol was used.	Pass
4.1.3	Send G.711 Pass Through fax	ShoreTel Certification Lab uses the FaxFinder Client to fax to a fax machine using FF240-IP and the ShoreTel Virtual Trunk Switch. Verify that G.711 Pass Through was used.	Pass
4.1.4	Receive G.711 Pass Through fax	ShoreTel Certification Lab sends a fax from a fax machine via the ShoreTel Virtual Trunk Switch to the FF240-IP. Verify that the correct extension digits were received by the FF240-IP and that it routed the fax correctly. Verify that the email with the fax was received. Verify that G.711 Pass Through was used.	Pass

# FaxFinder Analog (FF840) and ShoreGear SIP Proxy Switch Test Cases

**Table 7** – Basic feature test cases

ID	Name	Description	Results
3.1.1	Sending faxes from FF840 to fax machine	ShoreTel Certification Lab uses the FaxFinder Client to fax to a fax machine using FF840 and the ShoreGear SIP Proxy switch.	Pass
3.1.2	Receiving faxes from fax machine to FaxFinder and fax delivery	ShoreTel Certification Lab sends a fax from a fax machine via the ShoreGear SIP Proxy switch to the FF840. Verify that the correct extension digits were received on the FF840, and that it routed the fax correctly. Verify that the email with the fax was received.	Pass
3.1.3	Sending multi-page documents.	ShoreTel Certification Lab uses the FaxFinder Client to send a 10-page fax to a fax machine using FF840 and the ShoreGear SIP Proxy switch. Verify that all pages were received and are of good quality.	Pass
3.1.4	Receiving multi-page Documents	ShoreTel Certification Lab sends a 10-page fax from a fax machine via the ShoreGear SIP Proxy switch to the FF840. Verify that all pages were received and are of good quality.	Pass
3.1.5	Sending high resolution image documents	ShoreTel Certification Lab uses the FaxFinder Client to fax a high resolution image to a fax machine using FF840 and the ShoreGear SIP Proxy switch. Verify that the received fax has good image quality.	Pass
3.1.6	Receiving high resolution image documents	ShoreTel Certification Lab faxes a high resolution image from a fax machine via the ShoreGear SIP Proxy switch to the FF840. Verify that the received fax has good image quality.	Pass
3.1.7	Send and receive faxes simultaneously	ShoreTel Certification Lab uses the FaxFinder Client to send a 3-page fax to a fax machine using FF840 and the ShoreGear SIP Proxy switch. While the FF840 is sending, the ShoreTel Certification Lab also sends a 3-page Fax from a fax machine via the ShoreGear SIP Proxy switch to the FF840. Verify that all pages were sent and received, and that the quality of each page was good.	Pass

**Table 8** – Fault insertion test cases

ID	Name	Description	Results
3.2.1	All ports busy on FaxFinder	All ports busy should result in a busy signal to caller.	Pass
3.2.2	Connectivity failure between ShoreGear SIP Proxy switch and FF840	Connectivity failure should result in easily recognizable symptoms.	Pass
3.2.3	SMTP connection failure	SMTP delivery failure should not prevent faxes from being transmitted.	Pass

## Multi-Tech Overview and Contact Information

Multi-Tech Systems manufactures award-winning external and embedded modems and Unified Communications products that allow users to connect data over cellular and analog networks from anywhere in the world. As an industry leader for over 40 years, Multi-Tech's reputation for reliability and innovative design is evident with 80+ patents, 20+ million devices being used by thousands of customers worldwide, and certifications from more than 30 carriers and over 80 countries.

For general sales questions, please contact your reseller or contact Multi-Tech Systems directly at 800.328.9717

# FaxFinder IP (FF240-IP) Fax Applications

## Application 1 – One Main Number for Both Voice and Fax – Fax Redirect

In this application, one main number receives all fax and voice communications. The ShoreTel system manages all incoming fax communications, routing them via SIP Redirect Method to the FaxFinder 240-IP. The FaxFinder then routes the fax according to the FaxFinder's inbound routing configuration.

**Note:** Enable a ShoreGear SIP Proxy switch to be the SIP proxy for the site where you want to add the SIP UM server. This switch is referred to as the site SIP proxy switch.

## ShoreTel Configuration

Use this section describes the ShoreTel system configuration to support Voice/Fax Redirect using the FaxFinder IP. Follow configuration steps in the order listed.

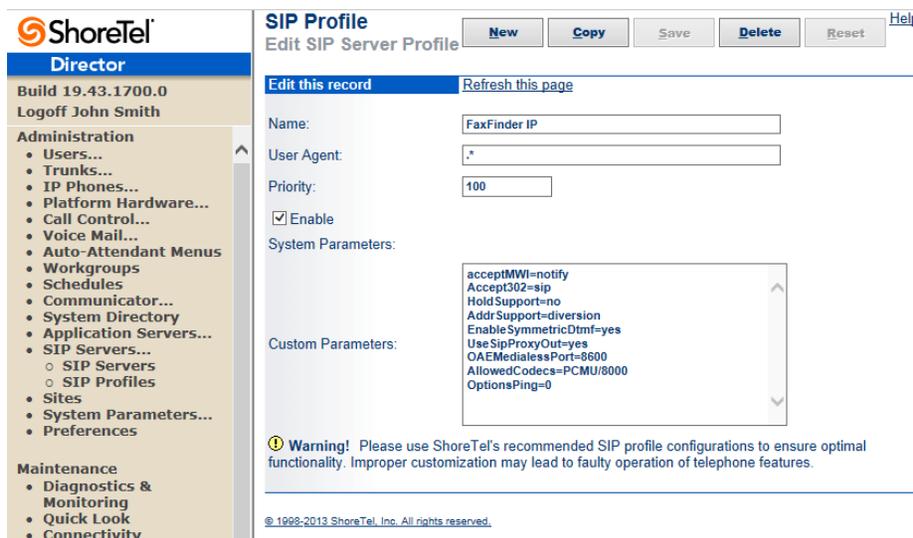
## Configuring the SIP Profile

The first step is to configure the SIP Profile settings for the ShoreTel system:

1. Go to **Administration > SIP Servers > SIP Profiles**.



2. Click **New** to enter SIP Server information.



3. Enter the SIP profile information as described in the SIP Profile Details table. Fields are case sensitive.

#### 4. Save changes.

**Note:** Do not disable the default SIP Profiles. Disabling the system profiles may keep ShoreTel from adding FaxFinder to the system. Refer to the *ShoreTel Administration Guide* for more information.

### SIP Profile Details

Field	Description
Name	Label the Director uses to refer to the profile
User Agent	The name ShoreWare uses to identify devices covered by the profile. SIP servers do not use this. Required, you can't save the profile without a value in this field. You can define it as period asterisk (.*)
Priority	Lists the profile status. Leave the default value of 100.
Enabled	Check this box to enable the profile. The default is unchecked (disabled).
System Parameters	Device characteristics and default settings.
Custom Parameters	Lists additional device settings or overwrites default settings listed in System Parameters. These are case sensitive and should be set as follows: acceptMWI=notify Accept302=sip HoldSupport=no AddrSupport=diversion EnableSymmetricDtmf=yes UseSipProxyOut=yes OAEMedialessPort=8600 AllowedCodecs=PCMU/8000 OptionsPing=0

## Configuring the FaxFinder as a SIP UM Server

To configure the FaxFinder as a SIP UM Server:

1. Go to **Administration > SIP Servers > SIP Servers.**



2. Click **New**. New SIP Server displays.

Name:   
 Site:   
 Protocol:   
 Host (Name / Address / Domain):    
 Override Default Port:   
 Allow External Voice Mail for Extension-Only User  
 Allow Fax Redirect to This Server  
 Extension:   
 Assigned User Group:   
 SIP Profile:   
 Digest Authentication:   
 Username:   
 Password:

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3. Enter the **SIP Server** information for the new server as described SIP Server table.
4. Click **Save** to store your changes

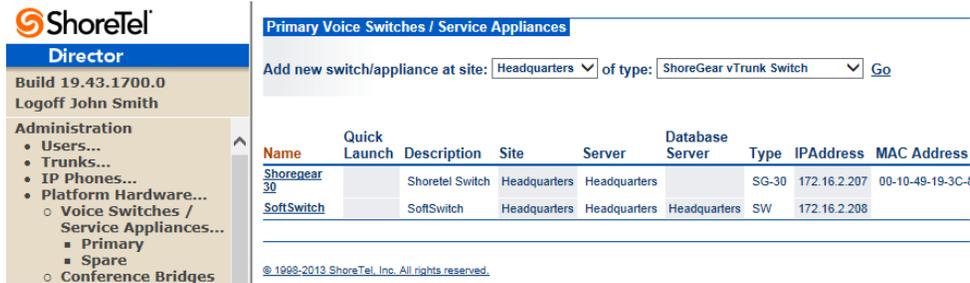
### SIP Server Information

Field	Description
Name:	Enter an appropriate descriptive server name
Site:	Select the appropriate site location
Protocol:	Select UDP
Host (Name/Address/Domain):	Enter the IP address of the FaxFinder IP server
Override Default Port:	Enter 5060
Allow Ext. Voice Mail for Extension-Only User	Leave unchecked
Allow Fax Redirect to This Server	Check this parameter
Extension:	The system will automatically assign the next available extension, however you can define a different unused extension.
Assigned User Group:	Assign an appropriate user group that has access to the necessary trunks, in this example we selected the "Executives" user group.
SIP Profile:	Enter the SIP profile created in previous step.
Digest Authentication:	Leave this as <None>
User ID:	Leave blank
Password:	Leave blank

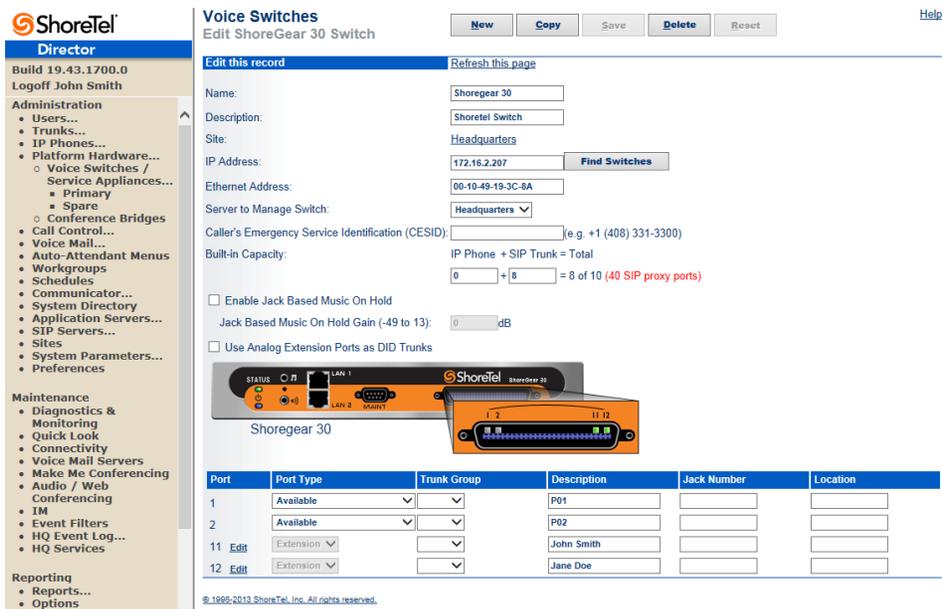
# Enabling SIP Proxy Ports on ShoreGear Switch

To allocate proxy ports for SIP extensions:

1. Go to **Administration > Platform Hardware > Voice Switches / Service Appliances > Primary.**



2. Click a switch name to configure that switch. Edit Switch displays. In the image, the ShoreGear 30 switch was selected.



3. Change one Available Port Types to **100 SIP Proxy**.
4. Click **Save**.

**Note:** If the ShoreGear switch you select has built-in capacity for IP phones and SIP trunks (for example, ShoreGear 50/90/220T1/E1), you can also remove 5 ports from the total number available to provide the 100 SIP Proxy configuration necessary.

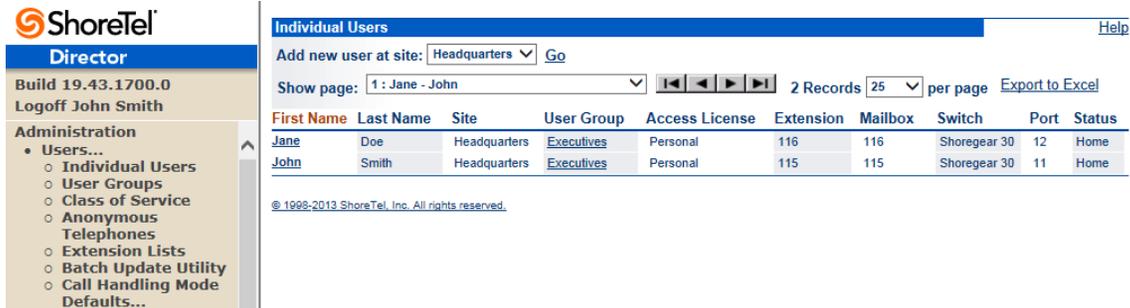
For every 5 ports that you remove from the total available, the system will make 100 SIP Proxy ports available.

One dedicated ShoreGear 120 switch can act as a proxy for the entire site and support up to 2400 SIP phones.

# Modifying Individual Users for Fax – Creating a SIP Extension

To redirect a user's fax calls to the FaxFinder server:

1. Go to **Administration > Users > Individual Users**.



ShoreTel  
Director  
Build 19.43.1700.0  
Logoff John Smith

Administration  
• Users...  
o Individual Users  
o User Groups  
o Class of Service  
o Anonymous Telephones  
o Extension Lists  
o Batch Update Utility  
o Call Handling Mode Defaults...

Individual Users Help

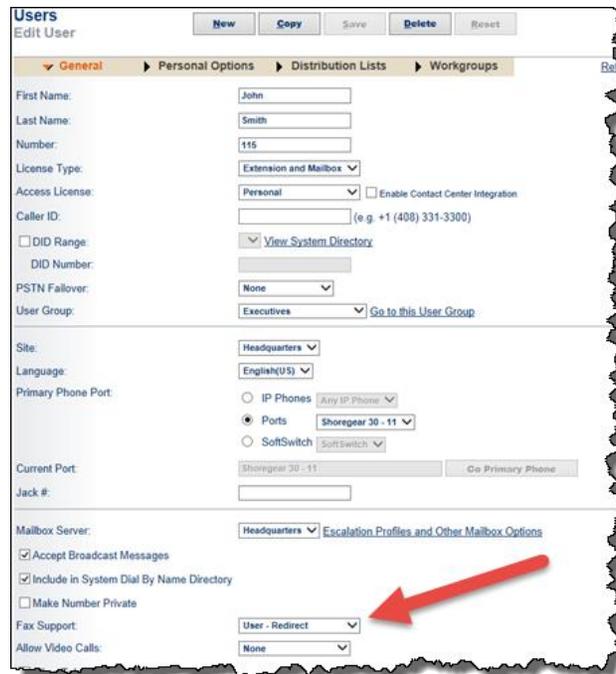
Add new user at site: Headquarters

Show page: 1 : Jane - John   2 Records 25 per page [Export to Excel](#)

First Name	Last Name	Site	User Group	Access License	Extension	Mailbox	Switch	Port	Status
Jane	Doe	Headquarters	Executives	Personal	116	116	Shoregear 30	12	Home
John	Smith	Headquarters	Executives	Personal	115	115	Shoregear 30	11	Home

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2. To redirect fax calls to FaxFinder for an existing user, click that user's **First Name**. For a new user, click any existing user name and then click **New**.
3. For Fax Support, select **User – Redirect** from the drop down list.



Users  
Edit User

General Personal Options Distribution Lists Workgroups

First Name: John  
Last Name: Smith  
Number: 115  
License Type: Extension and Mailbox  
Access License: Personal  Enable Contact Center Integration  
Caller ID: (e.g. +1 (408) 331-3300)  
 DID Range: View System Directory  
DID Number:  
PSTN Follower: None  
User Group: Executives [Go to this User Group](#)

Site: Headquarters  
Language: English(US)  
Primary Phone Port:  
 IP Phones Any IP Phone  
 Ports Shoregear 30 - 11  
 SoftSwitch SoftSwitch  
Current Port: Shoregear 30 - 11   
Jack #:

Mailbox Server: Headquarters [Escalation Profiles and Other Mailbox Options](#)

Accept Broadcast Messages  
 Include in System Dial By Name Directory  
 Make Number Private

Fax Support: User - Redirect  
Allow Video Calls: None

4. Click **Save**.
5. Repeat these steps for each user whose calls you want redirected to FaxFinder.

## Modifying the Site Settings

To administer the sites:

1. Go to **Administration > Sites**.

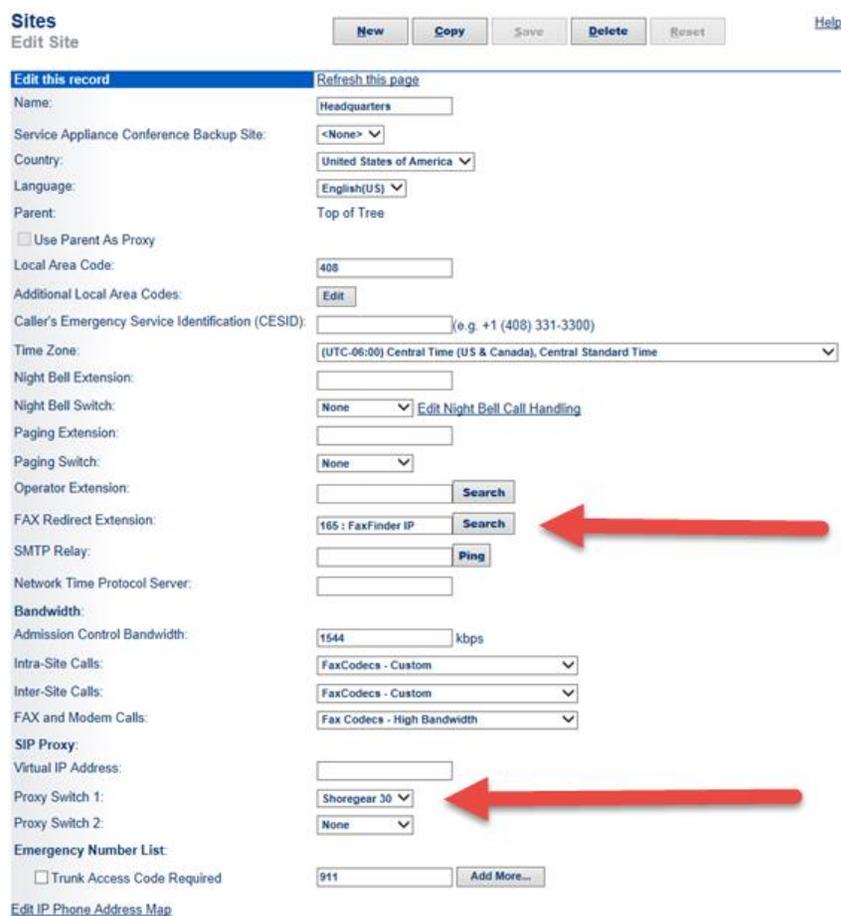


The screenshot shows the ShoreTel Director Administration interface. The left sidebar contains the Director logo and navigation menu. The main content area shows the 'Sites' page with a table of existing sites and an 'Add new site in:' dropdown menu.

Site	Country	Area Code	Bandwidth	Switches	Servers
<a href="#">Headquarters</a>	United States of America	408	1544	2	<a href="#">Headquarters</a>

2. To configure an existing site, click the site name where users will use the fax service. In the example, Headquarters is the site where users are located.

To create a new site, select the site location in **the Add new site** drop down and click **Go**. Enter a name for the site.



The screenshot shows the configuration page for the 'Headquarters' site. The page contains various settings for the site, including Name, Country, Language, Parent, Local Area Code, Additional Local Area Codes, Caller's Emergency Service Identification (CESID), Time Zone, Night Bell Extension, Night Bell Switch, Paging Extension, Paging Switch, Operator Extension, FAX Redirect Extension, SMTP Relay, Network Time Protocol Server, Bandwidth, Admission Control Bandwidth, Intra-Site Calls, Inter-Site Calls, FAX and Modem Calls, SIP Proxy, Virtual IP Address, Proxy Switch 1, Proxy Switch 2, and Emergency Number List. Two red arrows point to the 'FAX Redirect Extension' and 'Proxy Switch 1' fields.

3. In the **Fax Redirect Extension** field, click **Search** and select the FaxFinder server created earlier. In the example, the fax redirection number is the SIP UM server extension created earlier, 165: FaxFinder IP.
4. For **Proxy Switch 1**, select the **ShoreTel SIP Proxy Switch**.
5. Click **Save**.

**Note:** Bandwidth of 1544 is just an example. Please refer to the ShoreTel Planning and Installation Guide for additional information on setting Admission Control Bandwidth.

For additional details on configuring SIP Proxy or Virtual IP Address, refer to the ShoreTel Administration Guide.

## Configuring Codecs for T.38 or G.711 Pass Through

Configure the ShoreTel system for either T.38 or G.711 Pass Through. T.38 is recommended, but in cases using full-width switches, please consider using G.711 Pass Through Configuration, as T.38 is not supported on legacy full-width switches. For more information, please refer to [ShoreTel T.38 Configuration](#) or [G.711 Pass Through Configuration](#).

# Application 2 – User with a Unique Voice Extension and a Unique Fax Extension

ShoreTel requires that the user or voicemail answer the call in order to redirect the fax call to the proper fax extension. Rather than receiving a call with fax tones, you may prefer to have fax calls go to a separate fax number (DNIS/DID) that routes fax calls directly to FaxFinder. FaxFinder then delivers the fax to the user’s email.

If you require a fax number that is different from the voice number, configure the ShoreTel system and FaxFinder for SIP trunks using Off System Extensions (OSEs) rather than a SIP UM server.

## ShoreTel Configuration

Use this section to configure the ShoreTel system for faxing using SIP Trunks and Off System Extensions (OSEs).

### Configuring Switch Settings to Allocate Ports for SIP Trunks

To modify switch settings:

1. Login to **ShoreWare Director** and go to **Administration > Switches > Primary**. Primary Switches appears.



2. Click a switch name to configure that switch. Edit ShoreGear displays.



3. Select the number of SIP trunks from the ports available. Each port designated as a SIP trunk port type enables the support for five individual SIP trunks.

**Note:** ShoreTel trunk groups only support Static IP Address SIP endpoint Individual Trunks.

## Changing Trunk Group Settings

1. Go to **Administration > Trunks > Trunk Groups**. Trunk Groups displays.

The screenshot shows the ShoreTel Director interface. On the left is a navigation sidebar with the following menu items: Administration, Users..., Trunks... (selected), Individual Trunks, Trunk Groups, SIP Profiles, ISDN Profiles, and Local Prefixes. The main content area is titled 'Trunk Groups' and includes a 'Help' link. Below the title is a form to 'Add new trunk group at site: Headquarters' (selected) 'of type: Analog DID' (selected) with a 'Go' button. A table lists existing trunk groups:

Name	Type	Site	Trunks	DID	Destination	Access Code
<a href="#">Analog Loop Start</a>	Analog Loop Start	Headquarters	0	No	700	9
<a href="#">Digital Loop Start</a>	Digital Loop Start	Headquarters	0	No	700	9
<a href="#">Digital Wink Start</a>	Digital Wink Start	Headquarters	0	No	700	9
<a href="#">FaxFinder IP</a>	SIP	Headquarters	8	Yes	700	8

At the bottom of the page, it says: © 1998-2013 ShoreTel, Inc. All rights reserved.

2. Select a site to configure from the **Add new trunk group** at site drop down list.
3. Select **SIP** from the **of type** drop down list.
4. Click **Go**. Edit SIP Trunk Group displays.

The screenshot shows the 'Edit SIP Trunk Group' form. At the top, there are buttons for 'New', 'Copy', 'Save', 'Delete', and 'Reset', along with a 'Help' link. The form fields are as follows:

- Name:** FaxFinder IP
- Site:** Headquarters
- Language:** English(US)
- Enable SIP Info for G.711 DTMF Signaling
- Profile:** Default Tie Trunk
- Digest Authentication:** <None>
- Username:** [Empty field]
- Password:** [Empty field]

5. Enter a trunk group name in the **Name** field.
6. Verify that **Enable SIP Info for G.711 DTMF Signaling** is **not** checked. This is only used with SIP tie trunks between ShoreTel systems.
7. Leave the Profile field at **Default Tie Trunk** and the Digest Authentication at **<None>**.

**Inbound:**

Number of Digits from CO:

DNIS

DID

Extension

Translation Table:

Prepend Dial In Prefix:

Use Site Extension Prefix

Tandem Trunking

User Group:

Prepend Dial In Prefix:

Destination:

8. Set the **Number of Digits from CO** to match what the ShoreGear SIP trunk switch receives from this public network. This is usually configured to match the systems extension length.
9. Verify that **Extension** and **Tandem Trunking** are checked. For additional information on these parameters refer to ShoreTel's Planning and Installation Guide.
10. Check **Outbound**.

**Outbound:**

**Network Call Routing:**

Access Code:

Local Area Code:

Additional Local Area Codes:

Nearby Area Codes:

Billing Telephone Number:  (e.g. +1 (408) 331-3300)

**Trunk Services:**

Local

Long Distance

International

Enable Original Caller Information

n11 (e.g. 411, 611, except 911 which is specified below)

Emergency (e.g. 911)

Easily Recognizable Codes (ERC) (e.g. 800, 888, 900)

Explicit Carrier Selection (e.g. 1010xxx)

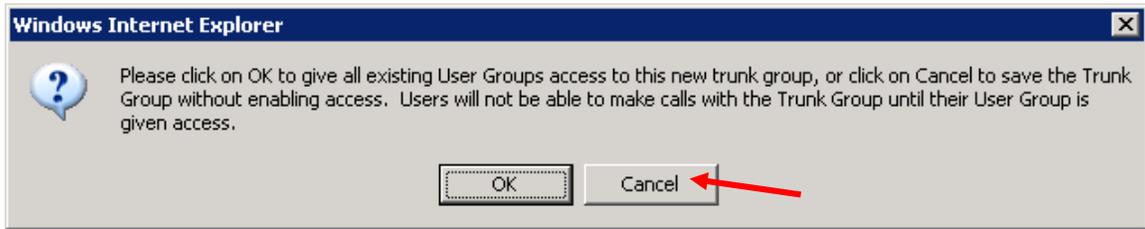
Operator Assisted (e.g. 0+)

Caller ID not blocked by default

Enable Caller ID ( Please confirm with the Carrier(s) or the Service Provider(s) on how the end-to-end caller name is delivered)

When Site Name is used for the Caller ID, overwrite it with:

11. Enter the trunk **Access Code** and **Local Area Code**.
12. Check **Caller ID not blocked by default**. This determines if the call is sent out as <unknown> or with caller information (Caller ID).
13. Click **Save**, so that you can define an Off System Extension. You will be prompted to give all user groups access to this newly created trunk group.
14. Click **Cancel**; you do not need to grant access as connectivity is through Off System Extensions



## Granting User Groups Access to New Trunk Group

The Off System Extension range can be any extension not currently in use on the ShoreTel system. To define an Off System Extension range, scroll to the Trunk Digit Manipulation section and to the following:

**Trunk Digit Manipulation:**

Remove leading 1 from 1+10D  
*Hint: Required for some long distance service providers.*

Remove leading 1 for Local Area Codes (for all prefixes unless a specific local prefix list is provided below)  
*Hint: Required for some local service providers with overlay area codes.*

Dial 7 digits for Local Area Code (for all prefixes unless a specific local prefix list is provided below)  
*Hint: Local prefixes required for some local service providers with mixed 7D and 1+10D in the same home area.*

Dial in E.164 Format

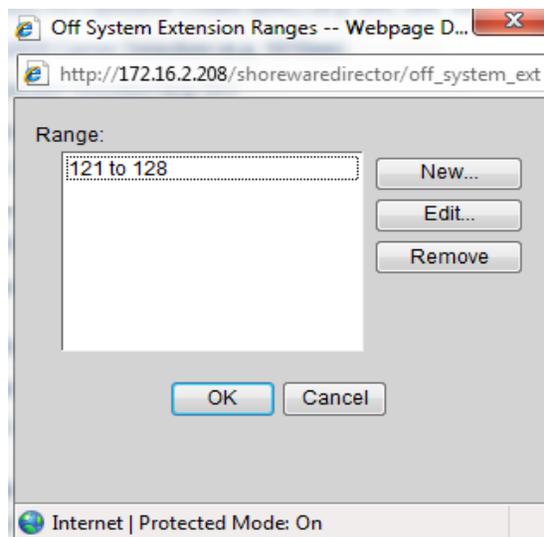
Local Prefixes:  [Go to Local Prefixes List](#)

Prepend Dial Out Prefix:

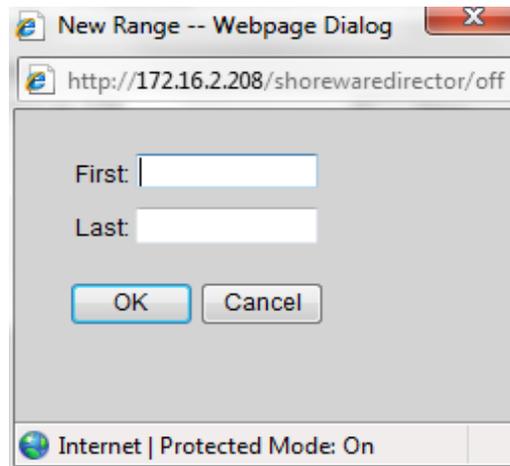
Off System Extensions:  

Translation Table:

1. Click **Edit** for Off System Extensions field.



2. Click **New** to open the New Range page.



The image shows a web browser dialog box titled "New Range -- Webpage Dialog". The address bar contains the URL "http://172.16.2.208/shorewaredirector/off". The main content area has two text input fields labeled "First:" and "Last:". Below these fields are two buttons: "OK" and "Cancel". At the bottom of the dialog, there is a status bar that reads "Internet | Protected Mode: On".

3. Define a single extension range that is within your ShoreTel PBX extensions. This range must match the extension range of the users defined on the FaxFinder IP server.
4. Click **OK**.

**Note:** Each individual Off System Extension will be an individual user's fax destination. Be certain to add a sufficient OSE range to cover all the individual users that require faxing capabilities.

## Configure Individual Trunks

To configure the individual trunks:

1. Go to Administration > **Trunks** > **Individual Trunks**.

**Trunks by Group** [Help](#)

Add new trunk at site:  in trunk group:

Show page:    8 Records  per page

<input type="checkbox"/>	Name	Group	Type	Site	Switch	Port/Channel	SIP IP Address
<input type="checkbox"/>	<a href="#">FaxFinder IP</a>	<a href="#">FaxFinder IP</a>	SIP	Headquarters	Shoregear 30	0	172.16.2.206
<input type="checkbox"/>	<a href="#">FaxFinder IP (1)</a>	<a href="#">FaxFinder IP</a>	SIP	Headquarters	Shoregear 30	0	172.16.2.206
<input type="checkbox"/>	<a href="#">FaxFinder IP (2)</a>	<a href="#">FaxFinder IP</a>	SIP	Headquarters	Shoregear 30	0	172.16.2.206
<input type="checkbox"/>	<a href="#">FaxFinder IP (3)</a>	<a href="#">FaxFinder IP</a>	SIP	Headquarters	Shoregear 30	0	172.16.2.206
<input type="checkbox"/>	<a href="#">FaxFinder IP (4)</a>	<a href="#">FaxFinder IP</a>	SIP	Headquarters	Shoregear 30	0	172.16.2.206
<input type="checkbox"/>	<a href="#">FaxFinder IP (5)</a>	<a href="#">FaxFinder IP</a>	SIP	Headquarters	Shoregear 30	0	172.16.2.206
<input type="checkbox"/>	<a href="#">FaxFinder IP (6)</a>	<a href="#">FaxFinder IP</a>	SIP	Headquarters	Shoregear 30	0	172.16.2.206
<input type="checkbox"/>	<a href="#">FaxFinder IP (7)</a>	<a href="#">FaxFinder IP</a>	SIP	Headquarters	Shoregear 30	0	172.16.2.206

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2. Select the site where you want to add the trunk from the **Add new trunk at site** drop down list.
3. Select the **trunk group** from the drop down list.
4. Click **Go** to display the Edit Trunk window.

**Trunks** [Help](#)

Edit Trunk

---

[Edit this record](#) [Refresh this page](#)

Site:

Trunk Group:

Name:

Switch:

IP Address:

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5. Enter a trunk **Name**. We recommend that you give individual trunks the same name as the trunk group so you can easily track the trunk type.
6. Select the ShoreGear switch that you defined to have SIP trunks from the **Switch** drop down list.
7. Enter the FaxFinder's **IP Address**.
8. Click **Save** to commit the changes.

After setting up the trunk groups and individual trunks, refer to the ShoreTel Planning and Installation Guide to make the appropriate changes for the User Group settings.

## Configure Codecs for T.38 or G.711 Pass Through

Configure the ShoreTel system for either T.38 or G.711 Pass Through. T.38 is recommended, but in cases using full-width switches, please consider using G.711 Pass Through Configuration, as T.38 is not supported on legacy full-width switches. For more information, please refer to [ShoreTel T.38 Configuration](#) or [G.711 Pass Through Configuration](#).

## Application 2 – Virtual Trunk Switch (alternate configuration)

ShoreTel Virtual Trunk Switch requires you to deploy a virtual device using a VMware vSphere client on a vSphere ESXi server. For details, refer to *Virtual Switches and Service Appliances* in the *ShoreTel 14.2 Install Guide*. Below are some of the steps used for configuring the ShoreTel Virtual Trunk Switch from that guide.

### Installing a Virtual Device

To install a virtual device, follow these steps:

1. Create a virtual machine (VM) for the switch and allocate the required resources, depending on the capacity of the virtual phone or virtual trunk switch you want to create.
  - 250, 500, or 1000 IP phones
  - 100, 250, or 500 SIP trunks
2. Run vSphere Client and connect to an EXSi server, version 5.0 or higher.
3. Select **File > Deploy OVF/OVA**.
4. Enter the URL to the OVA file for the type of device you want to install and click **Next**.
  - To install a ShoreTel Virtual Phone and Virtual Trunk Switch, enter the following URL:  
http:<HQ or DVS IP address>/ftproot/tsv/BareMetalInstall.ova
  - To install a ShoreTel Virtual Service Appliance, enter the following URL:  
http:<HQ or DVS IP address>/ftproot/tsu/VMWareShoreTelVSA.ova
5. Enter virtual switch name and click **Next**.
6. On the Storage page, highlight the **datastore1 hard drive** and click **Next**.
7. On the Disk Format page, accept the default option, **Thick Provision Lazy Zeroed**, and click **Next**.
8. On the Ready to Complete page, check **Power On after deployment**.
9. Following the on-screen instructions to finish installing.

The installation process creates a virtual machine with the default hardware configuration. For details, refer to *Default Configurations* in the *ShoreTel 14.2 Install Guide*.

**Note:** The ShoreTel system analyzes the allocated resources and determines the capacity of the switch. To change the capacity of the switch, you must change the allocated VM resources.

You can also download the OVA file directly from ShoreTel Director. Click Download switch image from the Edit ShoreGear vPhone Switch or Edit ShoreGear vTrunk Switch page.

You can only increase the disk size before you power on the virtual machine. If you need to have more disk space for conference recording, you must change it before you power on the virtual machine.

10. Power on the virtual machine.
11. Open the console on the virtual switch you want to configure and log in with the following credentials:
  - User ID: root
  - Password: ShoreTel
12. Enter **DHCP** and **server IP** information that the server uses to download firmware updates.
13. Restart the virtual switch.
 

The updated firmware begins downloading and installing automatically. After the firmware upgrade completes, the virtual machine reboots automatically.
14. When the virtual switch comes back online, open its console and log in using the previous credentials.
15. To open ShoreTel parameters, enter **stcli**.
16. Record the IP address and MAC address, which you'll need to configure the virtual switches.
17. Configure the virtual device.
  - To configure virtual switches, refer to *Configuring Voice Switches* in the *ShoreTel System Administration Guide*.
  - To configure virtual Service Appliances, refer to *Configuring the Service Appliance* in the *ShoreTel Conferencing and Instant Messaging Planning and Installation Guide*.

## Configure ShoreGear vTrunk Switch

To configure the Virtual Trunk Switch, first add a new ShoreGear vTrunk Switch to the site and then create a trunk group with individual trunks.

To Create ShoreGear vTrunk Switch:

1. Go to **Administration > Platform Hardware > Voice Switches/Services Appliances > Primary**.

The screenshot shows the ShoreTel Director interface. On the left is a navigation menu with 'Administration' expanded to 'Platform Hardware' > 'Voice Switches / Service Appliances' > 'Primary'. The main content area is titled 'Primary Voice Switches / Service Appliances'. It features a form to 'Add new switch/appliance at site: Headquarters' of type 'ShoreGear vTrunk Switch'. Below this is a table listing existing switches:

Name	Quick Launch	Description	Site	Server	Database Server	Type	IPAddress	MAC Address
<a href="#">Shoregear 30</a>		Shoretel Switch	Headquarters	Headquarters		SG-30	172.16.2.207	00-10-49-19-3C-8
<a href="#">SoftSwitch</a>		SoftSwitch	Headquarters	Headquarters	Headquarters	SW	172.16.2.208	
<a href="#">vTrunk Switch</a>		Virtual Trunk Switch	Headquarters	Headquarters		SG-vTrunk	172.16.0.37	00-0C-29-99-7A-1

At the bottom of the interface, there is a copyright notice: © 1998-2013 ShoreTel, Inc. All rights reserved.

2. Select where you want to create a vTrunk from the **Add new switch/appliance at site** drop down list.
3. Select **ShoreGear vTrunk Switch** from the **of type** drop down list.
4. Click **Go**. The **Edit ShoreGear vTrunk Switch** window displays.

## Voice Switches

Edit ShoreGear vTrunk Switch

New

Copy

Save

Delete

Reset

Edit this record

[Refresh this page](#)

Name:	<input type="text" value="vTrunk Switch"/>	<a href="#">Download switch image</a>
Description:	<input type="text" value="Virtual Trunk Switch"/>	
Site:	<input type="text" value="Headquarters"/>	
IP Address:	<input type="text" value="172.16.0.37"/>	<input type="button" value="Find Switches"/>
Ethernet Address:	<input type="text" value="00-0C-29-99-7A-D6"/>	
Server to Manage Switch:	<input type="text" value="Headquarters"/>	
Built-in SIP Trunk Capacity:	<input type="text" value="100"/>	

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5. Enter a unique name and a description for the ShoreGear vTrunk Switch.
6. Set the **IP Address** and **Ethernet Address** to the values that you set while installing the Virtual Device. To do this, click **Find Switches** and select the Virtual Device.
7. Make sure the **Site** and **Server to Manage Switch** fields are set to your site.
8. Click **Save**.

## Configure Trunk Group for ShoreGear vTrunk Switch

To add a new Trunk Group for ShoreGear vTrunk Switch:

1. Go to **Administration > Trunks > Trunk Groups**.

ShoreTel Director  
Build 19.43.1700.0  
Logoff John Smith

Administration

- Users...
- Trunks...
  - Individual Trunks
  - Trunk Groups
  - SIP Profiles
  - ISDN Profiles
  - Local Prefixes
- IP Phones...
- Platform Hardware...
  - Voice Switches /

Trunk Groups [Help](#)

Add new trunk group at site:  of type:  [Go](#)

Name	Type	Site	Trunks	DID	Destination	Access Code
<a href="#">Analog Loop Start</a>	Analog Loop Start	Headquarters	0	No	700	9
<a href="#">Digital Loop Start</a>	Digital Loop Start	Headquarters	0	No	700	9
<a href="#">Digital Wink Start</a>	Digital Wink Start	Headquarters	0	No	700	9
<a href="#">FaxFinder IP</a>	SIP	Headquarters	8	Yes	700	8

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2. Select where you want to create a **Trunk Group** from the **Add new trunk group at site** drop down list.
3. Set the **of type** option to **SIP**.

4. Click **Go**.

**Trunk Groups**  
Edit SIP Trunk Group

[New](#) [Copy](#) [Save](#) [Delete](#) [Reset](#)

---

**Edit this record** [Refresh this page](#)

Name:

Site:

Language:

Enable SIP Info for G.711 DTMF Signaling

Profile:

Digest Authentication:

Username:

Password:

5. Enter a trunk group **Name**.
6. Verify that **Enable SIP Info for G.711 DTMF Signaling** is **not** checked. This is only used with SIP tie trunks between ShoreTel systems.
7. Leave the Profile field at **Default Tie Trunk** and the Digest Authentication at **<None>**.
8. Set the **Number of Digits from CO** to match what the ShoreGear SIP trunk switch receives from this public network. This is usually configured to match the systems extension length.
9. Verify that **Extension** and **Tandem Trunking** are checked. For additional information on these parameters refer to *ShoreTel's Planning and Installation Guide*.
10. Check **Outbound**.

**Outbound:**

**Network Call Routing:**

Access Code:

Local Area Code:

Additional Local Area Codes:

Nearby Area Codes:

Billing Telephone Number:  (e.g. +1 (408) 331-3300)

**Trunk Services:**

Local

Long Distance

International

Enable Original Caller Information

n11 (e.g. 411, 611, except 911 which is specified below)

Emergency (e.g. 911)

Easily Recognizable Codes (ERC) (e.g. 800, 888, 900)

Explicit Carrier Selection (e.g. 1010xxx)

Operator Assisted (e.g. 0+)

**Caller ID not blocked by default**

Enable Caller ID ( Please confirm with the Carrier(s) or the Service Provider(s) on how the end-to-end caller name is delivered)  
When Site Name is used for the Caller ID, overwrite it with:

**Trunk Digit Manipulation:**

Remove leading 1 from 1+10D  
*Hint: Required for some long distance service providers.*

Remove leading 1 for Local Area Codes (for all prefixes unless a specific local prefix list is provided below)  
*Hint: Required for some local service providers with overlay area codes.*

Dial 7 digits for Local Area Code (for all prefixes unless a specific local prefix list is provided below)  
*Hint: Local prefixes required for some local service providers with mixed 7D and 1+10D in the same home area.*

Dial in E.164 Format

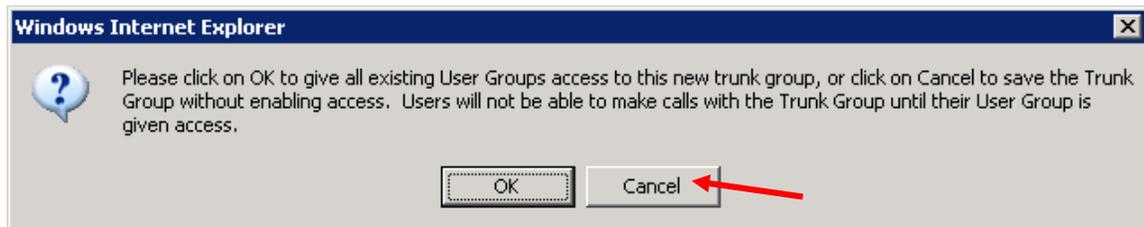
Local Prefixes:  [Go to Local Prefixes List](#)

Prepend Dial Out Prefix:

Off System Extensions:

Translation Table:

11. Enter the trunk **Access Code** and **Local Area Code**.
12. Check **Caller ID not blocked by default**. This determines if the call is sent out as <unknown> or with caller information (Caller ID).
13. Click **Save**, so that you can define an Off System Extension. You will be prompted to give all user groups access to this newly created trunk group.
14. Click **Cancel**; you do not need to grant access as connectivity is through Off System Extensions.



## Grant User Groups access to new Trunk Group

The Off System Extension range can be any extension not currently in use on the ShoreTel system. To define an Off System Extension range, scroll to the Trunk Digit Manipulation section and to the following:

**Trunk Digit Manipulation:**

Remove leading 1 from 1+10D  
*Hint: Required for some long distance service providers.*

Remove leading 1 for Local Area Codes (for all prefixes unless a specific local prefix list is provided below)  
*Hint: Required for some local service providers with overlay area codes.*

Dial 7 digits for Local Area Code (for all prefixes unless a specific local prefix list is provided below)  
*Hint: Local prefixes required for some local service providers with mixed 7D and 1+10D in the same home area.*

Dial in E.164 Format

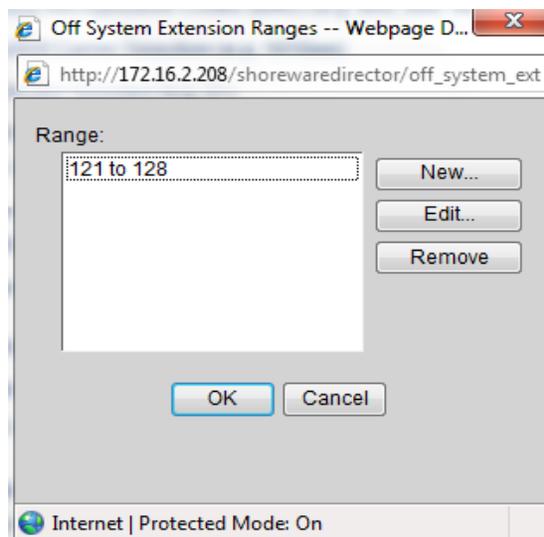
Local Prefixes:  [Go to Local Prefixes List](#)

Prepend Dial Out Prefix:

Off System Extensions:  

Translation Table:

1. Click **Edit** for Off System Extensions field.



Off System Extension Ranges -- Webpage D...

http://172.16.2.208/shorewaredirector/off\_system\_ext

Range:

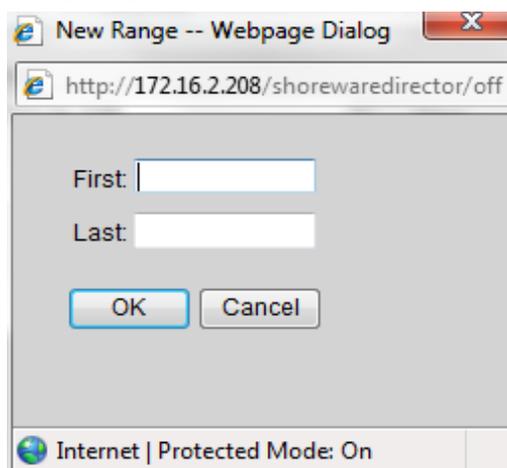
121 to 128

New...  
 Edit...  
 Remove

OK Cancel

Internet | Protected Mode: On

2. Click **New** to open the New Range page.



New Range -- Webpage Dialog

http://172.16.2.208/shorewaredirector/off

First:

Last:

OK Cancel

Internet | Protected Mode: On

3. Define a single extension range that is within your ShoreTel PBX extensions. This range must match the extension range of the users defined on the FaxFinder IP server.
4. Click **OK**.

**Note:** Each individual Off System Extension will be an individual user’s fax destination. Be certain to add a sufficient OSE range to cover all the individual users that require faxing capabilities.

## Configure Individual Trunks

To configure the individual trunks:

1. Go to **Administration > Trunks > Individual Trunks**.

**Trunks by Group** [Help](#)

Add new trunk at site:  in trunk group:

Show page:    8 Records  per page

<input type="checkbox"/>	Name	Group	Type	Site	Switch	Port/Channel	SIP IP Address
<input type="checkbox"/>	<a href="#">FaxFinder IP</a>	<a href="#">FaxFinder IP</a>	SIP	Headquarters	Shoregear 30	0	172.16.2.206
<input type="checkbox"/>	<a href="#">FaxFinder IP (1)</a>	<a href="#">FaxFinder IP</a>	SIP	Headquarters	Shoregear 30	0	172.16.2.206
<input type="checkbox"/>	<a href="#">FaxFinder IP (2)</a>	<a href="#">FaxFinder IP</a>	SIP	Headquarters	Shoregear 30	0	172.16.2.206
<input type="checkbox"/>	<a href="#">FaxFinder IP (3)</a>	<a href="#">FaxFinder IP</a>	SIP	Headquarters	Shoregear 30	0	172.16.2.206
<input type="checkbox"/>	<a href="#">FaxFinder IP (4)</a>	<a href="#">FaxFinder IP</a>	SIP	Headquarters	Shoregear 30	0	172.16.2.206
<input type="checkbox"/>	<a href="#">FaxFinder IP (5)</a>	<a href="#">FaxFinder IP</a>	SIP	Headquarters	Shoregear 30	0	172.16.2.206
<input type="checkbox"/>	<a href="#">FaxFinder IP (6)</a>	<a href="#">FaxFinder IP</a>	SIP	Headquarters	Shoregear 30	0	172.16.2.206
<input type="checkbox"/>	<a href="#">FaxFinder IP (7)</a>	<a href="#">FaxFinder IP</a>	SIP	Headquarters	Shoregear 30	0	172.16.2.206

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2. Select the site where you want to add the trunk from the **Add new trunk at site** drop down list.
3. Select the **trunk group** from the drop down list.
4. Click **Go** to display the Edit Trunk window.

**Trunks** [Help](#)

Edit Trunk

---

[Edit this record](#) [Refresh this page](#)

Site:

Trunk Group:

Name:

Switch:

IP Address:

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5. Enter a trunk **Name**. We recommended that you give individual trunks the same name as the trunk group so you can easily track the trunk type.
6. Select the ShoreGear switch that you defined to have SIP trunks from the **Switch** drop down list.

7. Enter the FaxFinder's **IP Address**.
8. Click **Save** to commit the changes.

After setting up the trunk groups and individual trunks, refer to the *ShoreTel Planning and Installation Guide* to make the appropriate changes for the User Group settings.

## Configure Codecs for T.38 or G.711 Pass Through

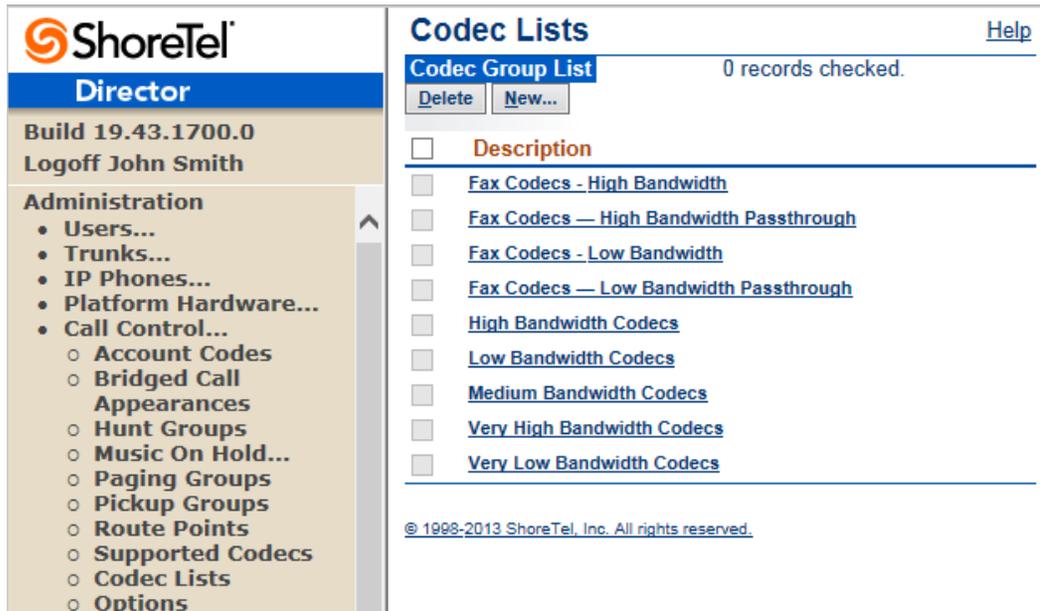
Configure the ShoreTel system for either T.38 or G.711 Pass Through. T.38 is recommended, but in cases using full-width switches, please consider using G.711 Pass Through Configuration, as T.38 is not supported on legacy full-width switches. For more information, please refer to [ShoreTel T.38 Configuration](#) or [G.711 Pass Through Configuration](#).

# ShoreTel T.38 Configuration

This section describes how to setup ShoreTel for T.38 faxing. T.38 is the recommended codec for faxing; use it if the ShoreTel Switch supports it. When configuring for T.38 faxing, the Codec Lists should include T.38.

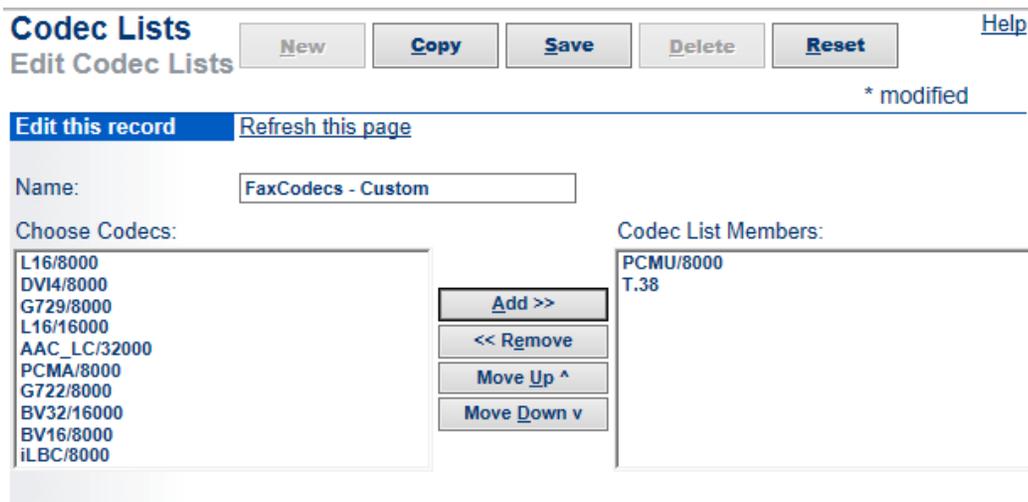
## Create Custom Codec List

1. Login to ShoreWare Director and go to **Administration > Call Control > Codec Lists**.



The screenshot shows the ShoreTel Director web interface. On the left is a navigation menu with 'Administration' expanded to 'Call Control...' and 'Codec Lists' selected. The main content area is titled 'Codec Lists' and shows a table with one column 'Description'. The table is currently empty, with a message '0 records checked.' and buttons for 'Delete' and 'New...'. Below the table is a copyright notice: '© 1998-2013 ShoreTel, Inc. All rights reserved.'

2. Click **New** to create a new codec list.



The screenshot shows the 'New Codec List' configuration page. At the top, there are buttons for 'New', 'Copy', 'Save', 'Delete', and 'Reset'. Below these is a form with a 'Name' field containing 'FaxCodecs - Custom'. Underneath, there are two lists: 'Choose Codecs' and 'Codec List Members'. The 'Choose Codecs' list contains various codecs like L16/8000, DVI4/8000, G729/8000, L16/16000, AAC\_LC/32000, PCMA/8000, G722/8000, BV32/16000, BV16/8000, and iLBC/8000. The 'Codec List Members' list contains 'PCMU/8000' and 'T.38'. Between the lists are buttons for 'Add >>', '<< Remove', 'Move Up ^', and 'Move Down v'. At the bottom, there is a copyright notice: '© 1998-2013 ShoreTel, Inc. All rights reserved.'

3. Enter a custom Codec List **Name**.
4. Select **T.38** in the **Choose Codecs** list and click **Add** to move it to the **Codec List Members**.
5. Add any other needed codecs to the **Codec List Members**.

**Note:** We recommend limiting the codecs to only what is needed. We also recommend including either PCMU/8000 (G.711 Mu-Law) or PCMA/8000 (G.711 A-Law), but not both.

6. Click **Save** changes.

## Configuring the Site Bandwidth Options



1. Login to ShoreWare Director and go to **Administration > Sites**.
2. Click the name of an existing site where users will use the fax service. In the example, Headquarters is the site where the users are located.

**Sites**  
Edit Site

[New](#) [Copy](#) [Save](#) [Delete](#) [Reset](#) [Help](#)

[Refresh this page](#)

Name:

Service Appliance Conference Backup Site:

Country:

Language:

Parent:

Use Parent As Proxy

Local Area Code:

Additional Local Area Codes:

Caller's Emergency Service Identification (CESID):  (e.g. +1 (408) 331-3300)

Time Zone:

Night Bell Extension:

Night Bell Switch:  [Edit Night Bell Call Handling](#)

Paging Extension:

Paging Switch:

Operator Extension:

FAX Redirect Extension:

SMTP Relay:

Network Time Protocol Server:

**Bandwidth:**

Admission Control Bandwidth:  kbps

Intra-Site Calls:

Inter-Site Calls:

FAX and Modem Calls:

**SIP Proxy:**

Virtual IP Address:

Proxy Switch 1:

Proxy Switch 2:

**Emergency Number List**

Trunk Access Code Required

[Edit IP Phone Address Map](#)

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3. Set **Intra-Site Calls** and **Inter-Site Calls** to the custom Codec List you create. In the example, it is **FaxCodecs – Custom**.
4. Set **Fax and Modem Calls** to **FaxCodecs – Highbandwidth**.
5. Click **Save**.

**Note:** T.38 is included in the default Codec Lists (Fax Codecs – High Bandwidth and Fax Codecs – Low Bandwidth)

# G.711 Pass Through Configuration

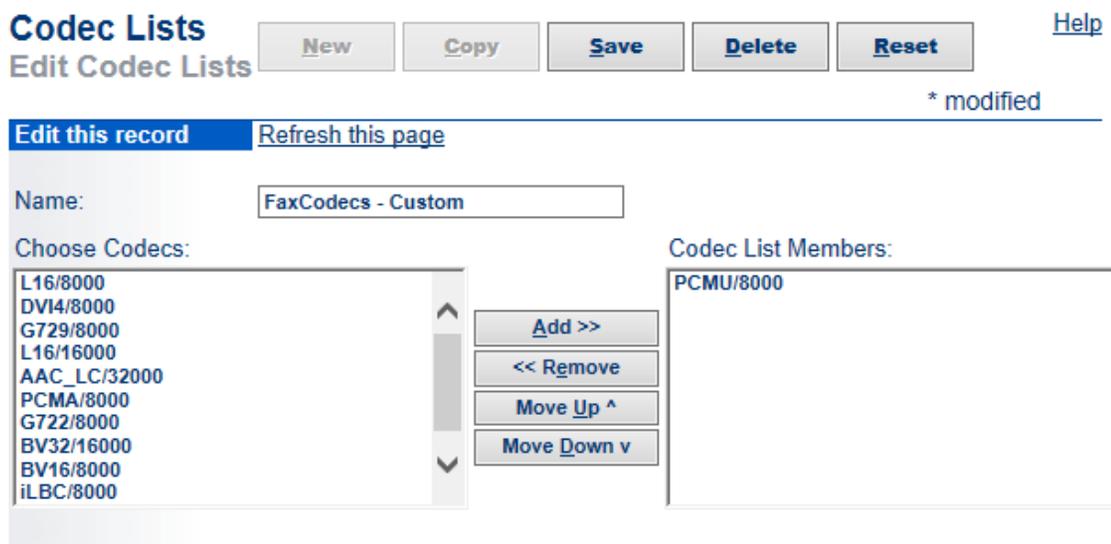
This section describes how to setup the ShoreTel for G.711 Pass Through faxing. Use this only if T.38 isn't supported on the ShoreTel Switch. Make sure that T.38 is not listed in the Codec Lists used on the Site.

## Create Custom Codec List

1. Login to ShoreWare Director and go to **Administration > Call Control > Codec Lists**.



2. Click the site name where the users will use the fax service. In the image, this is Headquarters .



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3. Enter a **Name** for the custom Codec List
4. Add **PCMU/8000** to the Codec List Members if not already included.
5. Make sure **T.38** is **NOT** in the Codec List Members.
6. Add other codecs to the Codec List Members as needed.

**Note:** We recommend limiting the codecs to only what is needed. We also recommend including either PCMU/8000 (G.711 Mu-Law) or PCMA/8000 (G.711 A-Law), but not both.

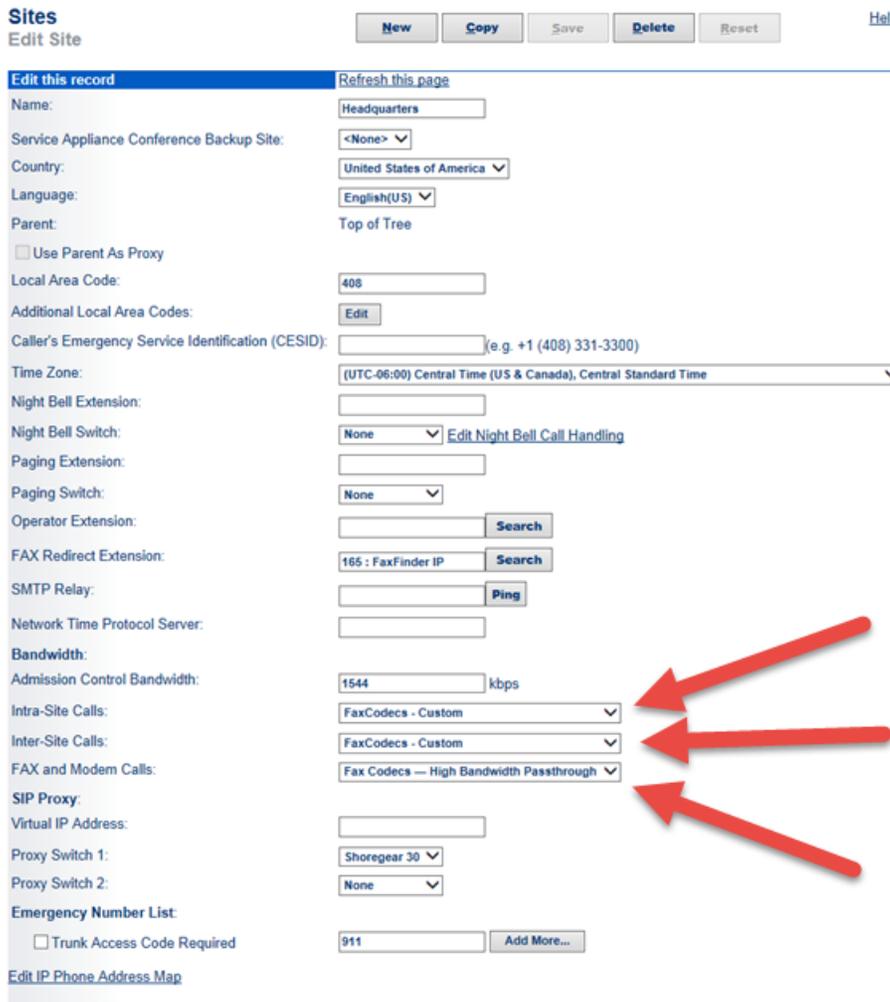
7. Click Save to save the changes made to the Codec List.

# Configuring the Site Bandwidth Options

1. Login to ShoreWare Director and go to **Administration > Sites**.



2. Click the site name where the users will use the fax service.



3. Set **Intra-Site Calls** and **Inter-Site Calls** to the custom Codec List you created. In the image, this is **FaxCodecs – Custom**.
4. Set **Fax and Modem Calls** to **FaxCodecs – Highbandwidth Pass Through**.
5. Click **Save**.

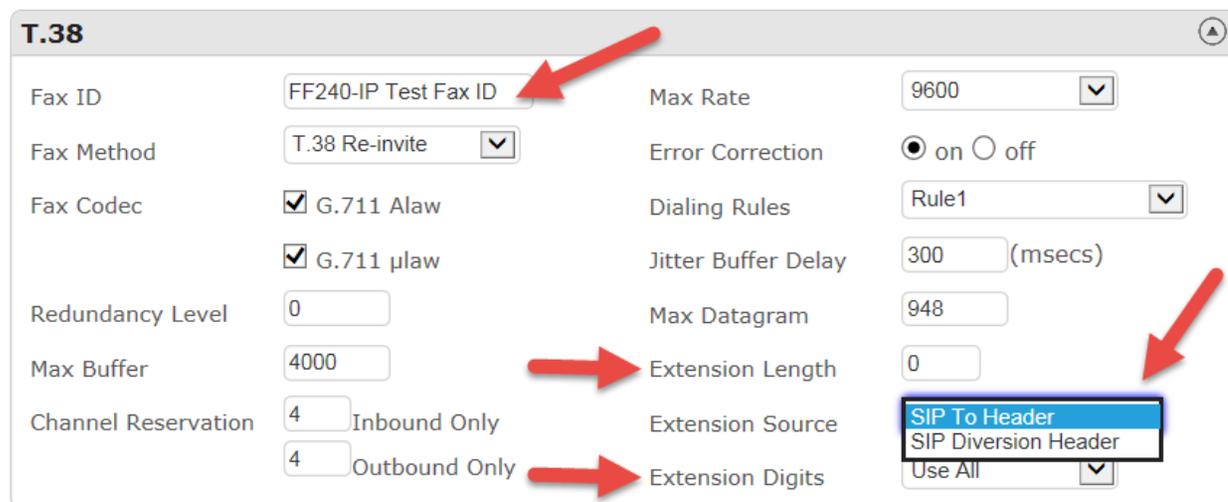
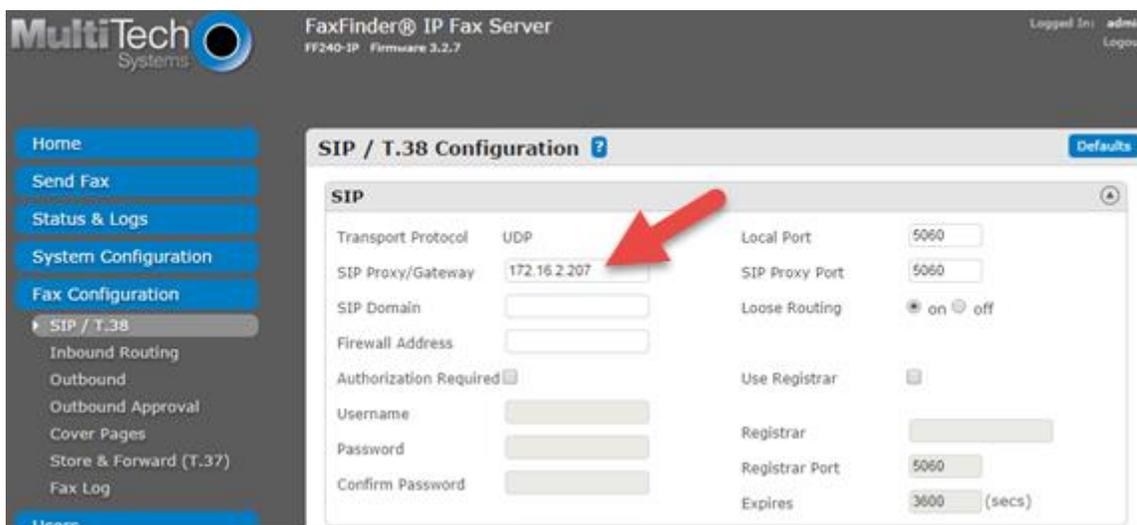
**Note:** T.38 is included in the default Codec Lists (Fax Codecs – High Bandwidth and Fax Codecs – Low Bandwidth)

# FaxFinder IP (FF240-IP) Configuration

This section provides a brief overview of FF240-IP needed to work with ShoreTel. For configuration details and help with other options, details, refer to the *FaxFinder Fax Server FF240-IP Administrator Guide*. To download this, go to [www.multitech.com/support](http://www.multitech.com/support) and select FaxFinder IP from the drop down list.

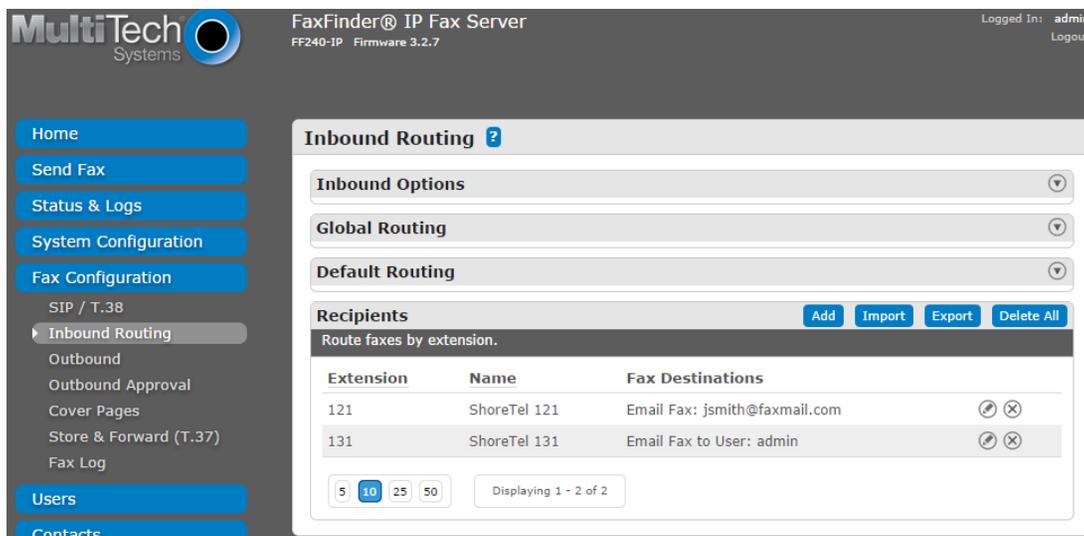
Install the FF240-IP on an IP network with the ShoreTel Switch. Basic configuration is detailed in the Administrator Guide. To verify configuration, configure inbound fax routing and test fax delivery by sending a fax from the FF240-IP

1. Install the FF240-IP using the basic configuration describe in the *FF240-IP Administrator Guide*. Verify the fax routing by Sending a Loop Back Test Fax as described in the Administrator Guide.
2. In FF240-IP, go to **Fax Configuration > SIP/T.38** and change the SIP Proxy/Gateway to point to the ShoreTel Switch. If using a Virtual Trunk Switch, set this to the IP address of the Virtual Trunk Switch, this appears in the ShoreTel Individual Trunk menu.



3. If you configured ShoreTel to use each extension for both voice and fax, set the T.38 Extension Source to **SIP Diversion Header**. If using an extension for fax only, set this to **SIP To Header**.

4. If the FF240-IP will not use all the digits ShoreTel sends to it for fax routing, adjust the **Extension Digits** and **Extension Length**. Otherwise, leave these fields at the default settings.
5. If using T.38 to fax, set the **Fax Method** to **T.38 Re-Invite**. If using G.711 Pass Through, set the Fax Method to **T.30 Pass Through**.
6. Configure **Inbound Routing** to match the extension numbers that the ShoreTel Switch is faxing to.



## View Fax Progress

To view inbound or outbound fax progress go to **Status & Logs > Fax Status**.

- Home
- Send Fax
- Status & Logs
  - System Status
  - Fax Status**
  - Mail Queue
  - Mail Log
  - Inbound Fax Log
  - Outbound Fax Log
  - Call Log
- System Configuration
- Fax Configuration
- Users
- Contacts
- Logout

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### Fax Status ?

#### Channel Status

#	State	Pages	Fax	Connect Time	
1	Receiving		121	09/15/2014 02:06:41 PM	⊞
2	Waiting For Ring				⊞
3	Waiting For Ring				⊞
4	Sending		121	09/15/2014 02:06:41 PM	⊞
5	Waiting For Ring				⊞
6	Waiting For Ring				⊞
7	Waiting For Ring				⊞
8	Waiting For Ring				⊞

Last updated: 01:45:41

#### Inbound Fax Status

State	Start Time	Channel	Fax	Recipient	Remote ID	Recv'd	
receiving	09/15/2014 02:06:41 PM	1	121	ShoreTel 121	FF240-IP	0	⊗

#### Outbound Fax Status

<input type="checkbox"/>	State	Created At	Scheduled For	Sender	Fax Details
<input type="checkbox"/>	sending	09/15/2014 02:06:27 PM	09/15/2014 02:06:41 PM	admin (Administrator)	(1 page)

Auto Refresh Last updated: 01:45:46

## FaxFinder IP Troubleshooting

To troubleshoot FF240-IP, login it's web interface and go to **System Configuration->Debug**. Set the log level to **INFO**. Save and restart the system. Click on logs and save the file in the local computer. You can then contact the MultiTech support as described below and provide them the debug information.

# FFx40 Fax Application

For an analog FaxFinder, create a user in ShoreWare Director for each modem on the fax server. Then configure that user to use the correct extension and set the Fax Method.

## Modify Individual Users for FaxFinder

1. Go to **Administration > Users > Individual Users**.

First Name	Last Name	Site	User Group	Access License	Extension	Mailbox	Switch	Port	Status
FaxFinder	Channel 1	Headquarters	Executives	Personal	116	116	Shoregear 30	12	Home
FaxFinder	Channel 2	Headquarters	Executives	Personal	115	115	Shoregear 30	11	Home

2. If creating a new user, select the site from the **Add new user at site drop down list** and click **Go**. For an existing user, click that user's first name.

Users  
Edit User

**General** | Personal Options | Distribution Lists | Workgroups

First Name:

Last Name:

Number:

License Type:

Access License:   Enable Contact Center Integration

Caller ID:  (e.g. +1 (408) 331-3300)

DID Range:

DID Number:

PSTN Failover:

User Group:

Site:

Language:

Primary Phone Port:

IP Phones

Ports

SoftSwitch

Current Port:

Jack #:

3. For a new user, enter the user's **First Name** and **Last Name**.
4. Enter the user's phone extension in **Number**.

5. Select **Ports** for **Primary Phone Port** and select the port to use on the ShoreTel Switch.

Mailbox Server: Headquarters [Escalation Profiles and Other Mailbox Options](#)

Accept Broadcast Messages

Include in System Dial By Name Directory

Make Number Private

Fax Support: Fax Server 

Allow Video Calls: None

Allow Telephony Presence

Shared Call Appearances

Associated BCA:

Allow Use of Soft Phone

Allow Phone API

---

Mobility Options:

Allow Mobile Access

Allow Enhanced Mobility with Extension

---

Delayed Ringdown

Extension:

External Number:  (e.g. 9+1 (408) 331-3300)

Ringdown Delay:  sec

Client Username: FaxFinder-ch1 

Client Password:

Voice Mail Password:    Must Change On Next Login

SIP Password:

Email Address: ffch1@multitech.com

Conferencing Settings:

Appliance: <None>

Instant Messaging Settings:

Server / Appliance: <None>

[Edit System Directory Record](#)

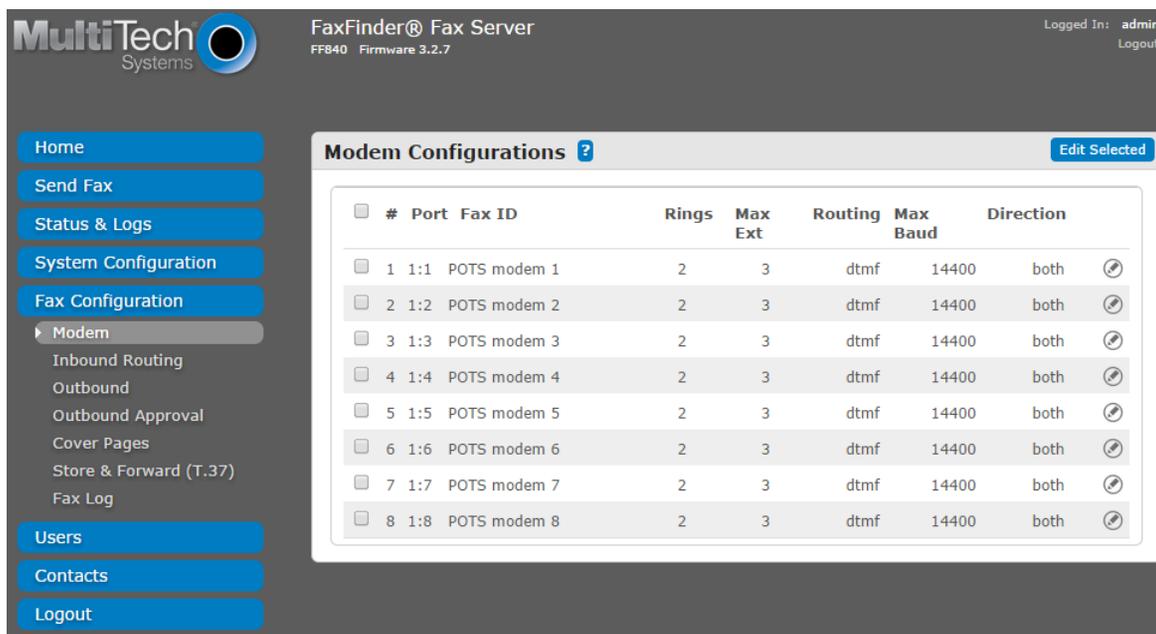
6. For **Fax Support Field**, select **Fax Server** from the drop down list. This sets the ShoreTel Switch to output the extension's digits after the FaxFinder answers the call.
7. Enter the **Client Username**.
8. Click **Save**.
9. Repeat these steps for each FFx40 modem.

# FaxFinder Analog (FFx40) Configuration

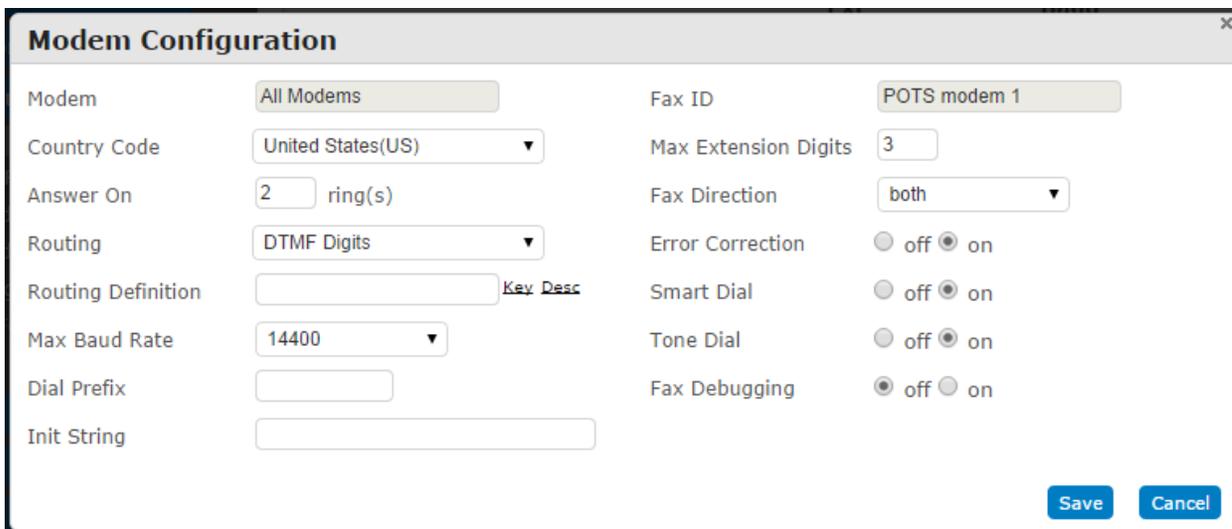
This section provides a brief overview of FFX40 configuration needed to work with ShoreTel. For configuration details and help with other options, refer to the *FaxFinder Fax Server FF240, FF440, FF840 Administrator Guide*. To download this, go to [www.multitech.com/support](http://www.multitech.com/support) and select FaxFinder Analog from the drop down list.

## Configure FaxFinder Modems

1. Login to FaxFinder and go to **Fax Configuration > Modem**.

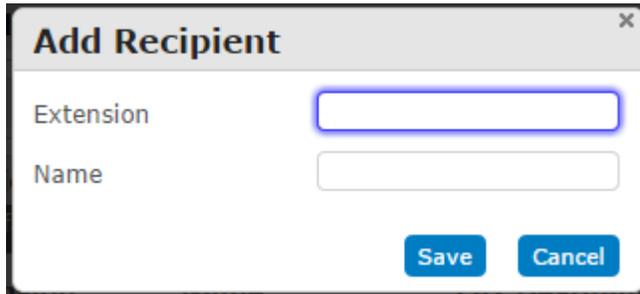


2. Check to select the modems you want to edit and click **Edit Selected** to open Modem Configuration.



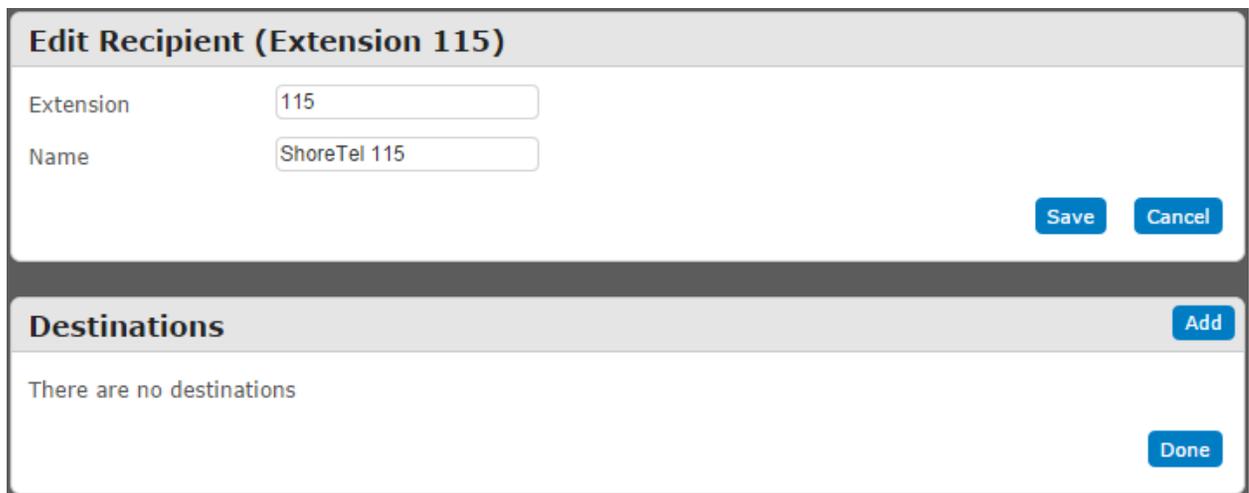
3. Set **Routing** as **DTMF Digits**.
4. Set a **Max Baud Rate** of **14400**.
5. Set the **Max Extension Digits** to the number of digits that will be received by the ShoreTel system.
6. Click **Save**.

## Configure Inbound Routing



The 'Add Recipient' dialog box contains two input fields: 'Extension' and 'Name'. The 'Extension' field is highlighted with a blue border. At the bottom right, there are 'Save' and 'Cancel' buttons.

1. Login to FaxFinder and click **Fax Configuration > Inbound Routing**.
2. Under Recipients, click **Add**.
3. For **Extension**, enter the ShoreTel extension for this Recipient.
4. Enter a unique **Name** for this Recipient.
5. Click **Save**. Edit Recipients opens.



The 'Edit Recipient (Extension 115)' dialog box shows the 'Extension' field with '115' and the 'Name' field with 'ShoreTel 115'. 'Save' and 'Cancel' buttons are at the bottom right. Below this is a 'Destinations' section with an 'Add' button. The text 'There are no destinations' is displayed, and a 'Done' button is at the bottom right.

6. Under Destinations, click **Add**.



The 'Add Destination (Extension 115)' dialog box features a 'Destination Type' dropdown menu with 'Email Fax to User' selected and an 'Add' button next to it. Below is a 'Select User' dropdown menu with 'admin' selected. At the bottom right, there are 'Save' and 'Cancel' buttons.

7. Select how you want the fax delivered from the **Destination Type** drop down list. Options are:
  - Email Fax to User
  - Email Notification to User
  - Email Fax
  - Email Notification
  - Share
  - SFTP
  - Print
  - Trash

For details on these settings, refer to the *FaxFinder FF240, FF440, FF840 Administrator Guide*.

8. Depending on your Destination Type, you'll be prompted to enter a user, email address, share, server, or printer.
9. Click **Save**.
10. Add additional destinations as needed for this recipient.
11. When you finish adding destinations, click **Done**.
12. Add additional recipients for each ShoreTel User created for the FaxFinder.

## View Fax Progress

To view inbound or outbound fax progress go to **Status & Logs > Fax Status**.

The screenshot shows the FaxFinder FF840 Administrator interface. The top navigation bar includes 'Home', 'Send Fax', 'Status & Logs', 'System Configuration', 'Fax Configuration', 'Users', 'Contacts', and 'Logout'. The 'Status & Logs' section is expanded to show 'Fax Status'.

**Fax Status**

**Modem Status**

#	Port	State	Page	Connect Time	Fax
1	1:1	Sending Page 1	1	09/16/2014 03:12:35 PM	115
2	1:2	Receiving Page 1	0	09/16/2014 03:12:38 PM	115
3	1:3	Waiting For Ring	0		
4	1:4	Waiting For Ring	0		
5	1:5	Waiting For Ring	0		
6	1:6	Waiting For Ring	0		
7	1:7	Waiting For Ring	0		
8	1:8	Waiting For Ring	0		

Last updated: 02:49:46

**Inbound Fax Status**

State	Start Time	Line	Fax	Recipient	Remote ID	Recv'd
receiving	09/16/2014 03:12:25 PM	2	115	ShoreTel 115	POTS modem 1	1

**Outbound Fax Status** Send Now Abort

State	Created At	Scheduled For	Sender	Fax Details
sending	09/16/2014 03:11:51 PM	09/16/2014 03:12:01 PM	admin (Administrator)	(1 page)

Auto Refresh Last updated: 02:49:46

# Application Note Feedback

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Send any feedback for this document to [TPPfeedback@shoretel.com](mailto:TPPfeedback@shoretel.com). Include the TPP app note number and the document data when providing feedback.