

Spectrum Enterprise SIP Trunking Service Fonality Trixbox Firmware 2.8.01/Base Asterisk 1.6.09 IP PBX Configuration Guide

About Spectrum Enterprise:

Spectrum Enterprise is a division of Charter Communications following a merger with Time Warner Cable and acquisition of Bright House Networks. Spectrum Enterprise is a national provider of scalable, fiber technology solutions. The Spectrum Enterprise portfolio includes networking and managed services solutions, including Internet access, Ethernet and Managed Network Services, Voice, TV and Cloud solutions. Our industry-leading team of experts works closely with clients to achieve greater business success.

About this document:

Spectrum Enterprise assures IP PBX compatibility by conducting interoperability testing to ensure any potential compatibility issues have been resolved prior to installation. Please review the IP PBX configuration instructions in this guide prior to your installation date.

Be advised that this document may contain references to Time Warner Cable Business Class. All references to Time Warner Cable Business Class, TWCBC or TWC should be read as Spectrum Enterprise.

Thank you,

Spectrum Enterprise

Document Purpose and Target Audience

This document will serve as a reference guide to configure the Fonality Trixbox IP PBX to interoperate with Time Warner Cable (TWC) SIP Trunk Service.

This guide is not intended to be a replacement of the PBX manufacturer's user or configuration guide. It is intended to provide additional guidance on configuring the PBX in preparation to receive voice service from the SIP Trunk. It provides detailed instructions and best practices for a successful installation with TWC SIP Trunks.

There are many options for establishing and maintaining service using the Fonality Trixbox series. This guide focuses on the minimum configurations essential for successful interoperability with Time Warner Cable Business Class SIP Trunks.

This configuration guide is based on:

Customer Premise Equipment:

Model	Fonality Trixbox
Firmware	2.8.01/Base Asterisk 1.6.09

TWC Network Equipment:

ESG	InnoMedia ESBC 9378-4B
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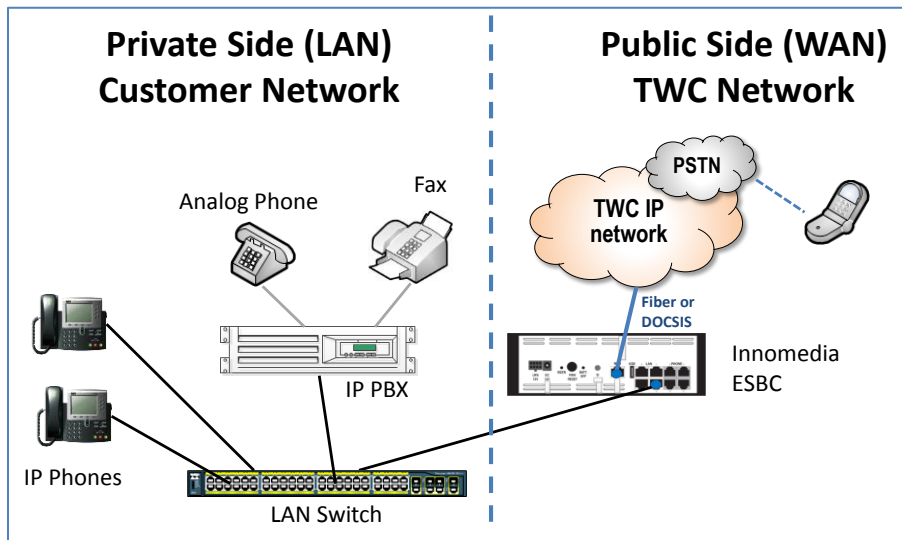
SIP Trunk Components

The Time Warner Cable Business Class (TWCBC) SIP Trunks product is an IP-based, voice only trunk that uses Session Initiation Protocol (SIP) to connect an IP PBX to the PSTN. The IP PBX uses SIP to exchange signaling information with the service provider and to deliver and receive voice in IP packets.

The IP PBX is connected to the TWC Enterprise SIP Gateway (ESG), which provides network access for voice traffic. The customer is responsible for the LAN infrastructure and configuration, including the physical connection to the LAN port 2 on the ESG.

The ESG is the demarcation point to the TWC network. The ESG is connected to a dedicated router for SIP Trunks delivered over a fiber connection or to a cable modem when delivered over a DOCSIS connection.

SIP Trunk components located on the customer premise, including connections to the TWC network, are illustrated below.



All TWC SIP Trunk calls are routed over Time Warner Cable's IP network and are not routed over the public internet.

Getting Started

You will need to have the TWC “**SIP Trunk Questionnaire**” and “**Business Class (BC) SIP Trunks: Customer Cut Sheet**” in order to configure your IP PBX for TWC Business Class SIP Trunk service.

Confirm that your **IP PBX model number and software versions** recorded on the **Customer Cut Sheet** match those associated with your current equipment. If they do not, be sure to alert your TWC sales engineer or TWC project manager as this can impact how TWC designs your service configuration.

Example from Customer Cut Sheet for Cisco UC 560:

SERVICE INFORMATION	
PRODUCT	Business Class SIP TRUNK
IP-PBX MAKE	Cisco
IP-PBX MODEL	UC560
IP-PBX SOFTWARE VERSION	15.1(4)

While configuring your IP PBX for BC SIP Trunk service, you will need to know your Lead Telephone Number and the IP address of your IP PBX.

The **Lead Number** is confirmed on the **Customer Cut Sheet** as seen below:

Trunk Groups				
TWC TRUNK Group ID	DID Range	Lead Number	Inbound Call Blocking	Outbound Call Blocking

The **IP Address** of the IP PBX was recorded on the **SIP Trunk Questionnaire**, Section 5. Signaling and Media as shown below:

5- Signaling and Media		
IP Address for PBX or SBC To setup LAN configuration for signaling of voice traffic to the ESG	IP: xxx.xxx.xxx.xxx	TWC could provide IP address
	Subnet: 255.255.xxx.xxx	

This document is intended as an aid to help configure a customer’s IP PBX for interoperability with TWCBC SIP Trunk Service.

Trixbox Configurations

The instructions provided in this section are intended to help configure the Fonality Trixbox to connect to the TWC ESG. They are not intended for advanced functionality setups. It is further assumed that there is already knowledge of Trixbox operations.

1. Navigate your web browser to the IP address of your Trixbox SIP Server. Upon opening the Trixbox webpage, you will be in user mode. Select “switch” in the upper right corner.

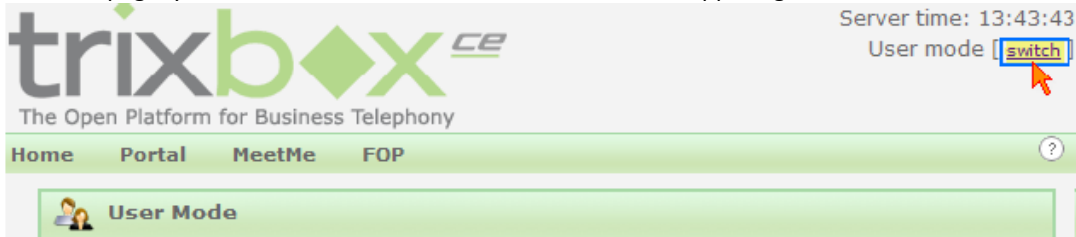


Figure 1 trixbox Welcome page

2. Login with the appropriate credentials. (The default username is “maint” and “password” is the default password.)

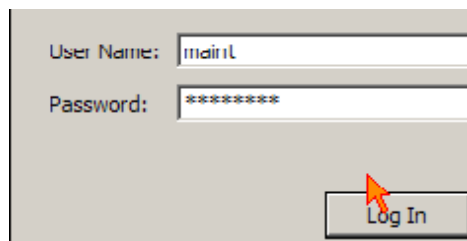


Figure 2 Login

3. After logging in as your administrative user, mouse over “PBX” until it drops down a sub-menu. In the sub-menu, select “PBX Settings”.

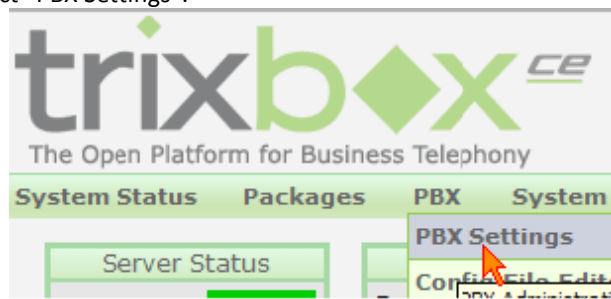


Figure 3 PBX Settings

Adding Extensions

1. Navigate to **Setup - Extensions** and add your extension.
2. Choose **Device - Generic SIP Device**. Click **Submit** button.
3. Setting Extension. Configuring the **User Extension** and **secret** (a “secret” is generally considered a “password”.) you need.
4. Click **Submit** button.



Figure 4 Add an Extension

trixbox CE
The Open Platform for Business Telephony

System Status Packages PBX System Settings Help
Admin Reports Panel Recordings Help

Setup Tools |
Admin
System Status
Module Admin
Basic
Extensions
Feature Codes
General Settings
Outbound Routes
Support
Trunks
Administrators
Inbound Call Control
Inbound Routes
Zap Channel DIDs
Announcements
Blacklist
CallerID Lookup Sources
Day/Night Control
Follow Me
IVR
Queues
Ring Groups
Time Conditions
Time Groups
Internal Options & Configuration
Conferences
DISA
Languages
Music on Hold
PIN Sets
Paging and Intercom

Add SIP Extension

Add Extension

User Extension
 Display Name
 CID Num Alias
 SIP Alias

Extension Options

Outbound CID
 Ring Time
 Call Waiting
 Call Screening
 Emergency CID

Assigned DID/CID

DID Description
 Add Inbound DID
 Add Inbound CID

Device Options

This device uses sip technology.

secret
 dtmfmode

Figure 5 Extension Settings

Adding SIP Trunks

1. Navigate to **Setup > Trunks**.



Figure 6 Add a Trunk

1. Then click on "**Add SIP Trunk**"
2. Enter your **Phone Number** in **Outbound Caller ID** field. (Billing TN)
3. Check the **Never Override CallerID** check box
4. Leave **Outbound Dial Prefix** and the **Outgoing dialing rule** field blank.
5. In **Outgoing settings** set trunk name and **PEER details**
6. In **Incoming settings** set **USER Context** and **PEER details**
7. The final setting is your **Register String**.
8. Click **Submit** button.

trixbox CE
The Open Platform for Business Telephony

System Status Packages PBX System Settings Help
Admin Reports Panel Recordings Help

Setup Tools Admin
System Status
Module Admin
Basic
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Feature Codes
General Settings
Outbound Routes
Support
Trunks
Administrators
Inbound Call Control
Inbound Routes
Zap Channel DIDs
Announcements
Blacklist
CallerID Lookup Sources
Day/Night Control
Follow Me
IVR
Time Groups
Internal Options & Configuration
Conferences
DISA
Languages
Music on Hold
PIN Sets
Paging and Intercom
Parking Lot
System Recordings
VoiceMail Blasting

Add SIP Trunk

General Settings

Outbound Caller ID: <2404983503>
 Never Override CallerID:
 Maximum Channels:
 Disable Trunk: Disable Enable
 Monitor Trunk Failures: Enable

Outgoing Dial Rules

Dial Rules:

 Dial Rules Wizards: (pick one)
 Outbound Dial Prefix:

Outgoing Settings

Trunk Name: 2404983503-out
 PEER Details:

```
type=peer
user=2404983503
secret=3503
host=172.16.1.20
insecure=very
```

Incoming Settings

USER Context: 2404983503
 USER Details:

```
type=friend
host=172.16.1.20
context=from-trunk
```

Registration

Register String:
 2404983503:3503@172.16.1.20/2404983503

Figure 7 Configuring SIP Trunks

Adding Outgoing Call Rules to Each Extension

1. Navigate to **Setup >Outbound Routes**.
2. Setting Outgoing Call Rule

The screenshot shows the Trixbox CE Admin interface. The top navigation bar includes 'System Status', 'Packages', 'PBX', 'System', 'Settings', and 'Help'. Below this, there are sub-menus for 'Admin', 'Reports', 'Panel', 'Recordings', and 'Help'. The left sidebar menu is expanded to show 'Setup' and 'Tools', with 'Admin' selected. Under 'Admin', 'Outbound Routes' is highlighted. The main content area is titled 'Add Route' and contains the following fields:

- Route Name: 0R-9
- Route Password: [empty]
- PIN Set: None
- Emergency Dialing: [checkbox]
- Intra Company Route: [checkbox]
- Music On Hold?: default
- Dial Patterns: 9|. [text area]
- Dial patterns wizards: (pick one)
- Trunk Sequence: SIP/2404983503-out

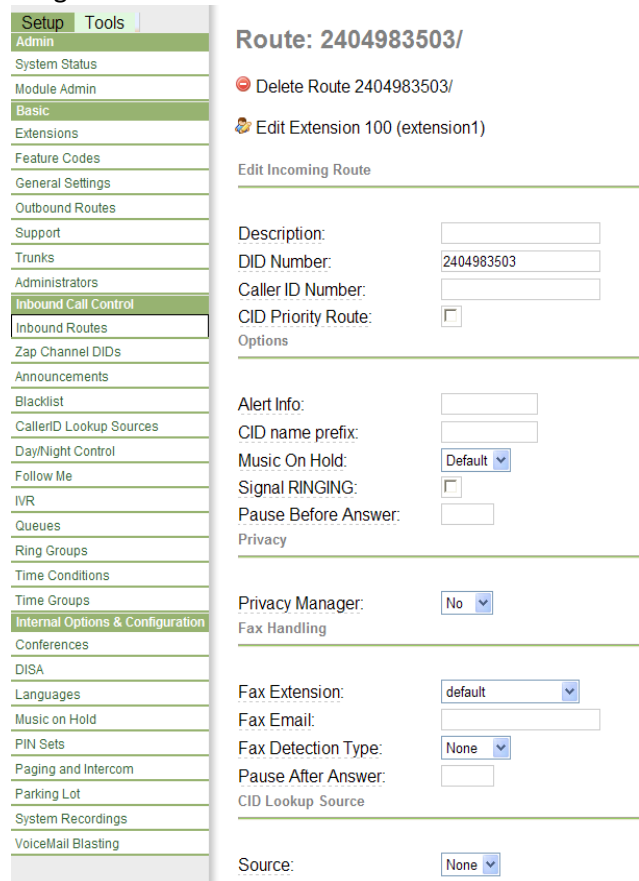
A 'Submit Changes' button is located at the bottom of the form.

Figure 8 Add A New Outbound Route

1. **Dial Patterns**
This should be set according to the dial pattern of SIP Server. By default this outbound rule is using prefix **9**. You can change this in **Dial Patterns** as per your requirements.
2. Then select the **Trunk Sequence** drop down list **0**.
3. Click **Submit** button.

Adding Inbound Routes for Each Extension

1. Navigate to **Setup >Inbound Routes**.
2. Setting Incoming Call Rule



Setup Tools

Admin

System Status

Module Admin

Basic

Extensions

Feature Codes

General Settings

Outbound Routes

Support

Trunks

Administrators

Inbound Call Control

Inbound Routes

Zap Channel DIDs

Announcements

Blacklist

CallerID Lookup Sources

Day/Night Control

Follow Me

IVR

Queues

Ring Groups

Time Conditions

Time Groups

Internal Options & Configuration

Conferences

DISA

Languages

Music on Hold

PIN Sets

Paging and Intercom

Parking Lot

System Recordings

VoiceMail Blasting

Route: 2404983503/

Delete Route 2404983503/

Edit Extension 100 (extension1)

Edit Incoming Route

Description:

DID Number: 2404983503

Caller ID Number:

CID Priority Route:

Options

Alert Info:

CID name prefix:

Music On Hold: Default

Signal RINGING:

Pause Before Answer:

Privacy

Privacy Manager: No

Fax Handling

Fax Extension: default

Fax Email:

Fax Detection Type: None

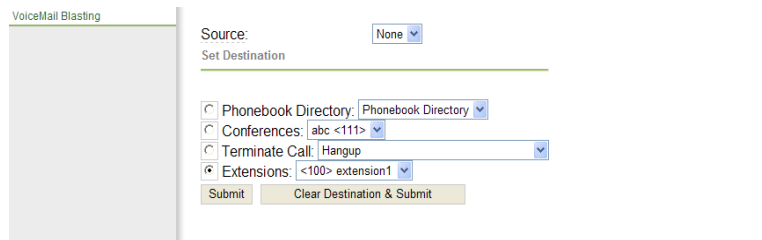
Pause After Answer:

CID Lookup Source

Source: None

Figure 9 Setting Inbound DID Number

3. **DID Number:** this should be the same as the SIP UA number that you assign for this extension
3. Choose Destination.



VoiceMail Blasting

Source: None

Set Destination

Phonebook Directory: Phonebook Directory

Conferences: abc <111>

Terminate Call: Hangup

Extensions: <100> extension1

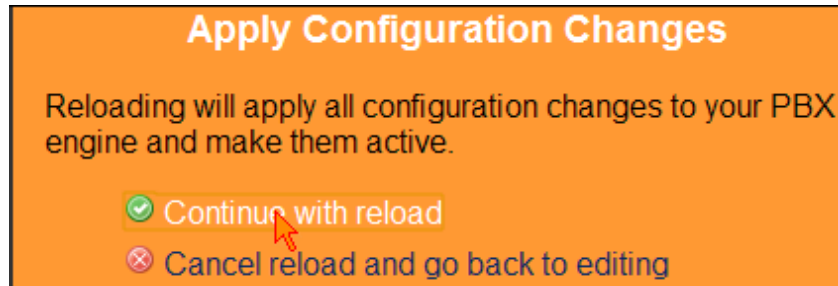
Submit Clear Destination & Submit

Figure 10 Set Destination to extension

4. Click **Submit** button.

Apply Configuration Changes

You will now be prompted to “Apply Configuration Changes”. If you are finished creating the extension, select “Continue with reload”. If not, simply select “Cancel reload and go back to editing”.



After reloading the configuration, the process of adding an extension to your SIP server will be complete. You may now add your SIP endpoint settings (“User Extension”, “secret” and SIP server IP address) to your SIP device.

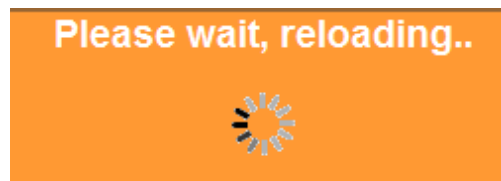


Figure 11 Apply Configuration Changes

Appendix

TWC Turn-up Testing Procedure

To ensure proper service between the IP PBX and the TWC network, test calls from the IP PBX will be made. Typically, the following call types will be used (call testing varies depending on service configuration)

1. Outbound/Inbound call to a local number
2. Outbound/Inbound call to a long distance number
3. Calls to 411 and 611
4. Outbound calls to a blocked number to verify call blocking settings
5. Other calls based on customer request , e.g. FAX testing using T.38 or calls to an auto-attendant to verify DTMF

Questions

If you have questions, please contact your Time Warner Cable Business Class Account Executive.