

Spectrum Enterprise SIP Trunking Service Digium Switchvox Firmware Free 1.0-9525 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 Digium Switchvox 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 Digium Switchvox 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	Digium Switchvox
Firmware	Free 1.0-9525

TWC Network Equipment:

ESG	InnoMedia ESBC 9378-4B
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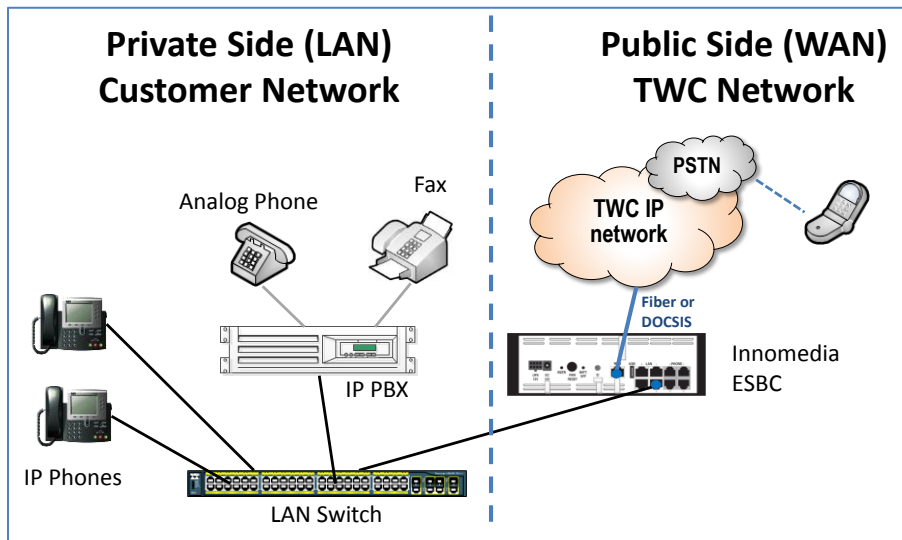
SIP Trunk Components

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.

Digium Switchvox Configurations

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

Once logged into the Switchvox GUI as an Administrator, follow these steps to configure SIP Trunk Service.

Adding Extensions

1. Navigate to Extensions > Manage Extensions. Click **Create a New Extension** button.

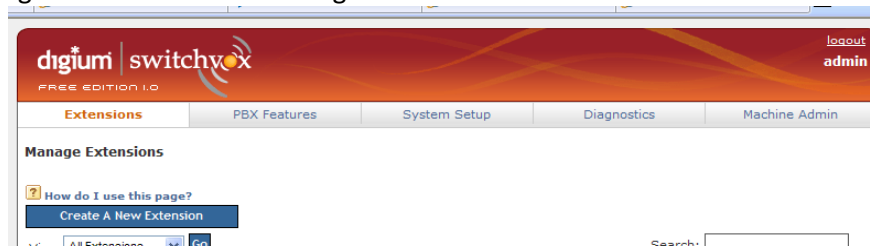


Figure 1 Create a New Extension

2. Choose Extension Type. Click **Create A New Extension** button.

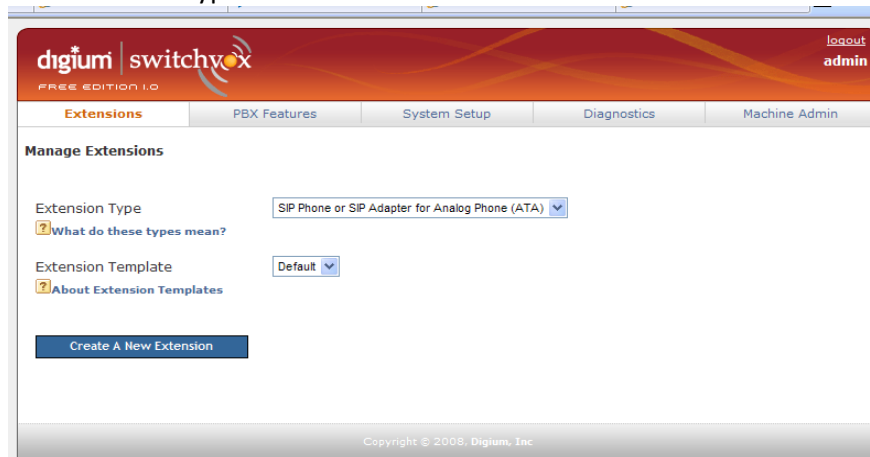


Figure 2 Manage Extension

1. Extension Type:
SIP Phone or SIP Adapter for Analog Phone (ATA) - Set up a SIP phone or an analog phone plugged into a SIP Adapter.
2. Extension Template: a set of default values that you can define for the extension creation process.
3. Setting Extension. Configuring the extension number you need.

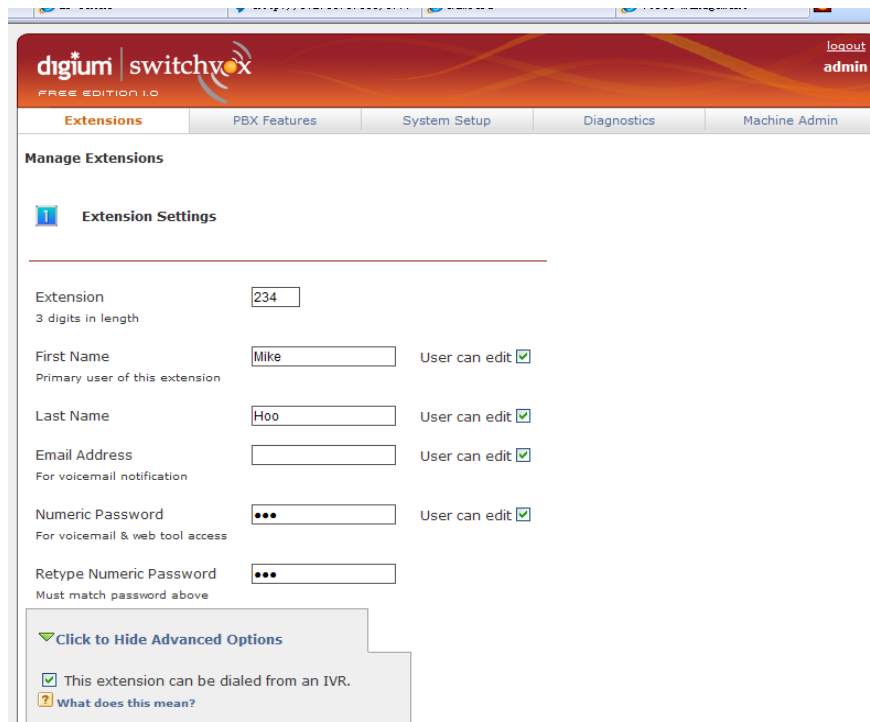


Figure 3 Extension Settings

Adding VoIP Provider

1. Navigate to **System Setup > VOIP Providers**. Choose **SIP Provider**. Click **Go** button.

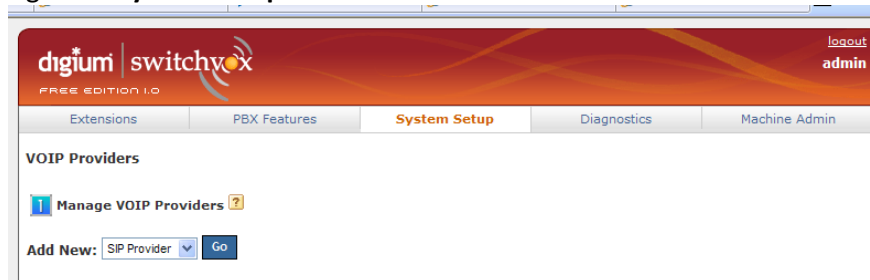


Figure 4 SIP Provider Configuration

2. Setting VOIP Provider

The screenshot shows the 'Add a New SIP Provider' form in the Digium Switchvox admin interface. The form is titled 'Add a New SIP Provider' and is located under the 'System Setup' tab. The form contains the following fields and options:

- SIP Provider Name:** Text input field containing '2404983504'. A help icon and the text '? What is this used for?' are visible below the field.
- Your Account ID:** Text input field containing '2404983504'. A help icon and the text '? What's an Account ID?' are visible below the field.
- Your Password:** Password input field with masked characters (dots).
- Hostname/IP Address:** Text input field containing '172.16.252.1'. A help icon and the text '? What does this mean?' are visible below the field.
- Callback Extension:** Text input field containing '234'. A help icon and the text '? What's the Callback Extension?' are visible below the field.
- DTMF Mode:** Dropdown menu set to 'RFC2833'. A help icon and the text '? What is DTMF Mode?' are visible below the field.

Below the form, there is a link that says 'Click to Show Advanced Options' and a button labeled 'Add SIP Provider'.

Figure 5 Configuring VoIP Providers

1. **SIP Provider Name**
SIP Provider Name can be any string that you like and is only used for referring to this SIP Provider in other sections.
2. **Your Account ID**
This is the account id provided to you by your SIP Provider. It may also be called Login, or Authentication ID.

This should be set as the **User ID of SIP UA**.
3. **Your Password**
This should be set as the **PBX Auth Password of SIP UA**.
4. **Hostname/IP Address**
This should be set as the **LAN IP Address of ESBC**.
5. **Callback Extension**
This should be set as the **DID Extension for this provider**.

Adding Outgoing Call Rules for Each Extension

1. Navigate to System Setup >Outgoing Calls. Click **Add New Outgoing Rules** button.

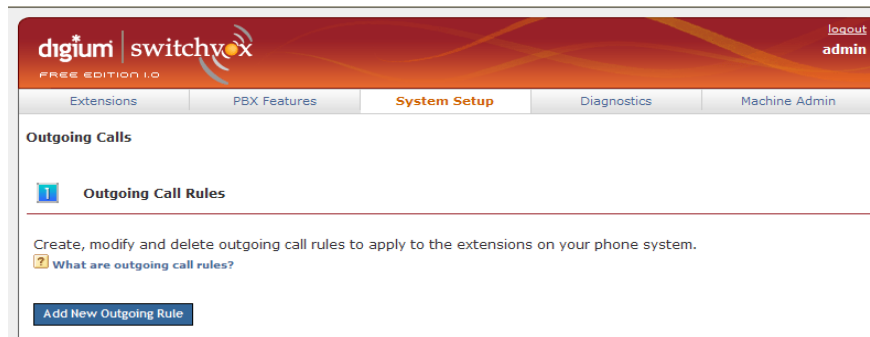


Figure 6 Configuring Outgoing Call Rules

2. Setting Outgoing Call Rule

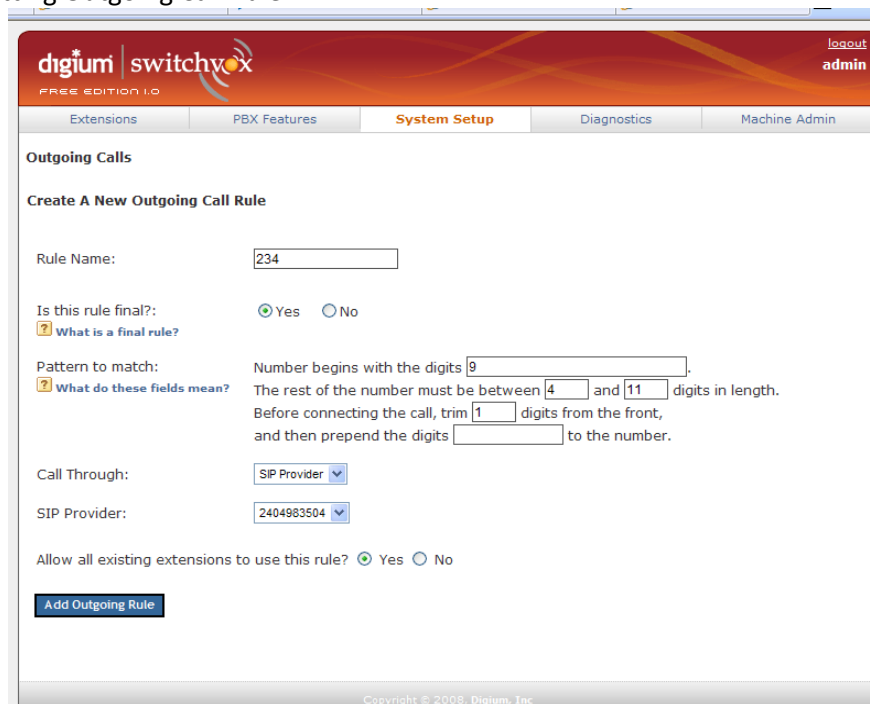


Figure 7 Creating A New Outgoing Call Rule

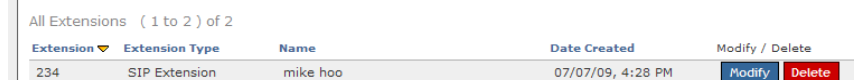
6. **Pattern to match**

This should be set according to the dial pattern of SIP Server.

Assigning Outgoing Call Rules to Extensions

Assigning Outgoing Call Rules to Extensions

1. Navigate to **Extension >Manage Extensions**. Choose the extension you want to set. Click the **Modify** button.

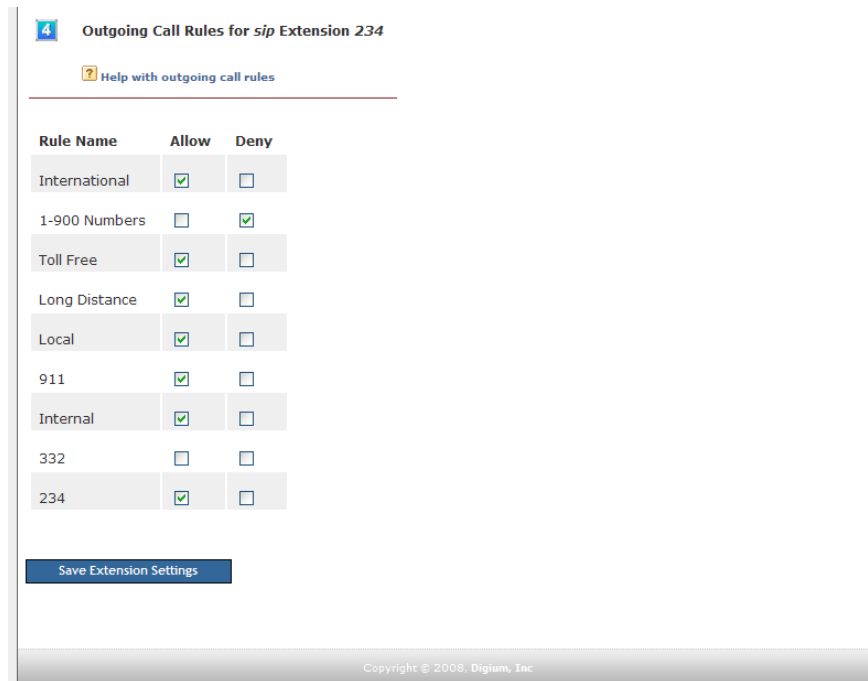


All Extensions (1 to 2) of 2

Extension	Extension Type	Name	Date Created	Modify / Delete
234	SIP Extension	mike hoo	07/07/09, 4:28 PM	Modify Delete

Figure 8 Configuring Extension with Outgoing Call Rules

Set Outgoing Call Rules. For example, if you assign 2404983504 as DID SIP Provider for extension 234. 2404983504 is set to rule '234' (refer to 'Setting Outgoing Call Rule'). You should choose rule '234' for extension 234.



4 Outgoing Call Rules for sip Extension 234

[Help with outgoing call rules](#)

Rule Name	Allow	Deny
International	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1-900 Numbers	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Toll Free	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Long Distance	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Local	<input checked="" type="checkbox"/>	<input type="checkbox"/>
911	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Internal	<input checked="" type="checkbox"/>	<input type="checkbox"/>
332	<input type="checkbox"/>	<input type="checkbox"/>
234	<input checked="" type="checkbox"/>	<input type="checkbox"/>

[Save Extension Settings](#)

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Figure 9 Set Outgoing Call Rules for an Extension

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.