

## Spectrum Enterprise SIP Trunking Service 3CX Phone System Release 12.5 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

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This document will serve as a reference guide to configure the 3CX Phone System 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 3CX Phone System 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	3CX Phone System
Release	12.5

### TWC Network Equipment:

ESG	InnoMedia ESBC 9378-4B
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## SIP Trunk Components

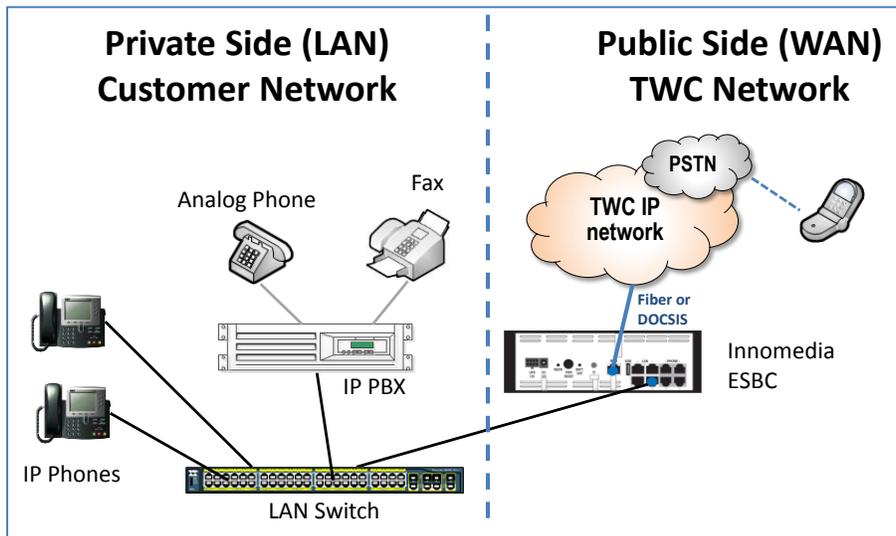
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The Time Warner Cable Business Class (TWCBC) SIP Trunks product is an IP-based, voice only trunk that uses Session Initiation Protocol (SIP) to connect an IP PBX to the PSTN. The IP PBX uses SIP to exchange signaling information with the service provider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

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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.

## 3CX Configurations

The instructions provided in this section are intended to help the customer configure the 3CX PBX to connect to the ESG. They are not intended for advanced functionality setups. It is further assumed that the customer already have knowledge of 3CX operations.

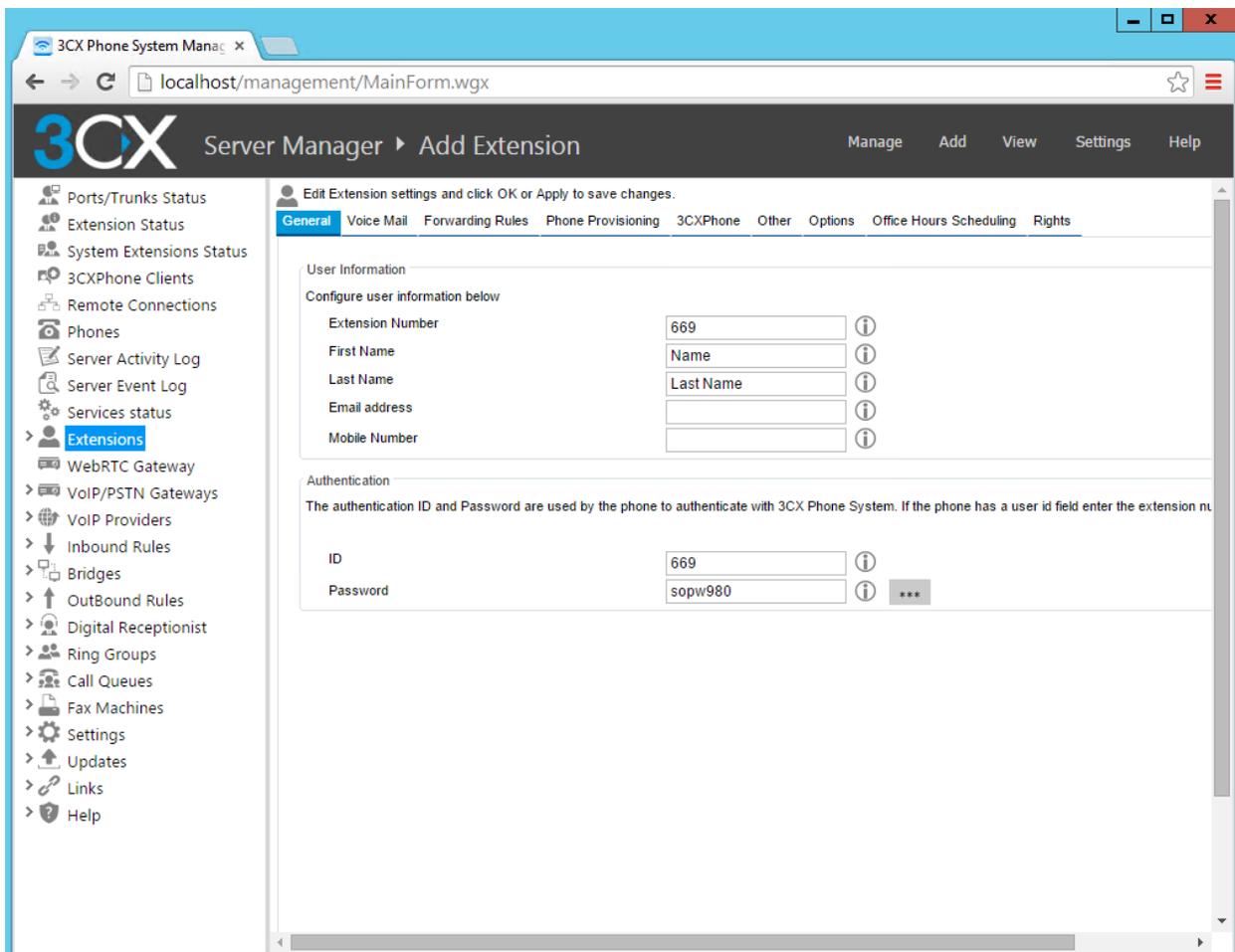
Once logged into the 3CX GUI as an Administrator, follow these steps to configure SIP Trunk Service.

Navigate your web browser to the IP address of your 3CX SIP PBX.

1. Create Extension
2. Create SIP Trunk

## Create a 3CX Extension

1. From your 3CX Administration console, click **Add Extension**. Referring to Figure 1



The screenshot shows the 3CX Server Manager interface for adding a new extension. The browser address bar shows 'localhost/management/MainForm.wgx'. The page title is '3CX Server Manager - Add Extension'. The left sidebar contains a navigation menu with 'Extensions' selected. The main content area is titled 'Edit Extension settings and click OK or Apply to save changes.' and has tabs for 'General', 'Voice Mail', 'Forwarding Rules', 'Phone Provisioning', '3CXPhone', 'Other', 'Options', 'Office Hours Scheduling', and 'Rights'. The 'General' tab is active, showing 'User Information' and 'Authentication' sections. The 'User Information' section includes fields for Extension Number (669), First Name (Name), Last Name (LastName), Email address, and Mobile Number. The 'Authentication' section includes fields for ID (669) and Password (sopw980).

Figure 1 Add Extension

Figure 2 Adding a new extension

2. Click **Apply** or **OK** button to save the configuration.

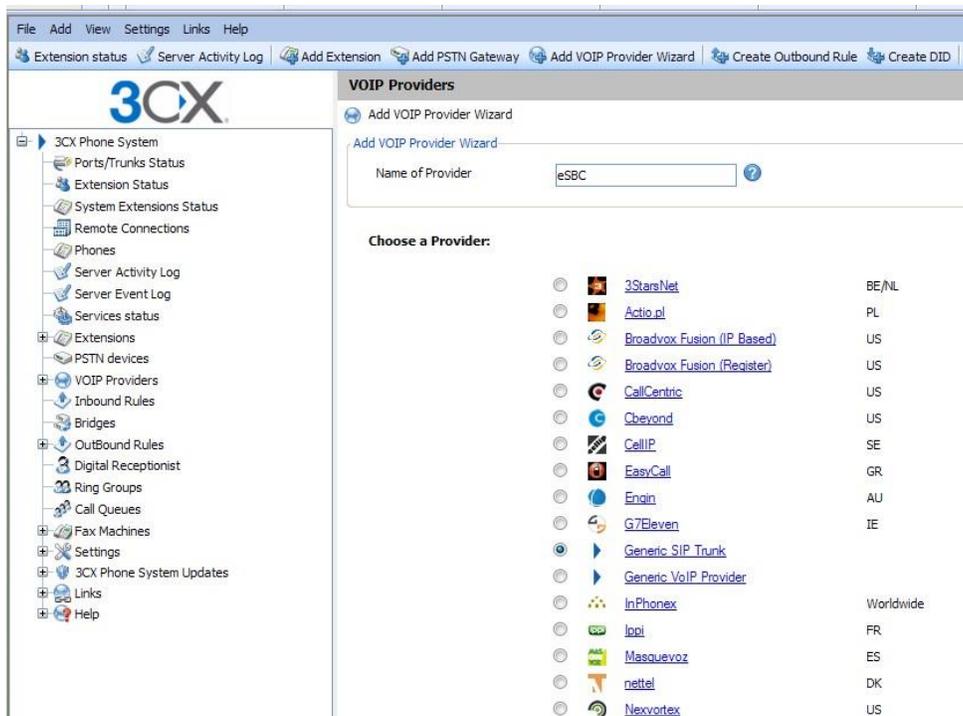
## Create a VoIP Provider

1. Navigate to **VOIP Providers**.



**Figure 3** Add Providers

2. Click the **Add Provider** button to create a new VOIP Provider.
3. Under Name of Provider, enter TWC SIP Trunk (or whatever name you want). Select “Generic SIP Trunk”



**Figure 4** Select Provider Type

4. Click **Next**, Under VOIP Providers Details, enter the SIP server IP address as ESG LAN IP address. Note: Please check the SIP account information we send you, the SIP Server or IP address will be different from the IP address below. It is just an example

**VOIP Provider Details:**  
Enter the hostname and port for your VOIP Provider's SIP Server

SIP server hostname or IP	172.16.1.20	?
SIP Server port	5060	?
Outbound proxy hostname or IP	172.16.1.20	?
Outbound proxy port (default is 5060)	5060	?

**Figure 5 Setting SIP Server Address**

- Click **Next**. Enter your SIP account information here according to SIP UA account of ESG. Enter DID (the number we assigned to you) as External Number, Enter authentication ID, Enter Authentication Password. Enter the maximum simultaneous call. The number should be matching our system setting.

**Account Details:**  
Enter the Authentication ID or SIP User, Password and number of your account

External Number	2404983506	?
Authentication ID (aka SIP User ID)	2404983506	?
Authentication Password	*****	?
3 Way Authentication ID	<input type="checkbox"/>	?

**Simultaneous Calls:**

Maximum simultaneous calls	10	?
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**Figure 6 Configuring SIP account**

- Click **Next**. Here you are required to setup the behavior of 3CX when receiving SIP trunk incoming call. You can connect the call to certain extension, or you can connect to Digital Receptionist (Auto Attendant), provided that you already have recorded the voice message. For initial testing purpose, we recommend you to connect the call to extension, so you can test the incoming call after setup.

**Office Hours:**  
Configure where calls should be routed during office hours.

End Call  
 Connect to Extension 3506 ?  
 Connect to Queue / Ring Group ?  
 Connect to Digital Receptionist ?  
 Voicemail box for Extension 3506 ?  
 Forward to Outside Number ?  
 Send fax to email of extension email of extension 8888 ?

Same as Out of Office hours

**Figure 7 Assign DID to an extension**

- Click **Next**. Here you need to setup the outgoing call behavior. In general, to distinguish the internal call between extension and outgoing call to outside number, you can setup a prefix so 3CX know how to route the call through SIP trunk. For example, you can add Calls to numbers starting with Prefix with "9". When you want to dial out from extension, simply dial 9+10 digital number you want to dial.

Create an Outbound Call Rule to configure on which PSTN port, VOIP provider or bridge an outbound calls should be placed on

**General**

Rule Name:  ?

Apply this rule to these calls

Define to which outbound calls the rule must apply

Calls to numbers starting with (Prefix):  ?

Calls from extension(s):  ?

Calls to Numbers with a length of:  ?

Calls from extension group:  ? ...

Make outbound calls on

Configure up to 3 routes for calls. The second and third route will be used as backup. For each route, digits can be stripped or added.

Route	Strip Digits	Prepend
1 <input type="text" value="eSBC"/> ?	<input type="text" value="1"/> ?	<input type="text"/> ?
2 <input type="text"/> ?	<input type="text" value="1"/> ?	<input type="text"/> ?
3 <input type="text"/> ?	<input type="text" value="1"/> ?	<input type="text"/> ?

**Figure 8** Configuring Outbound Call Rule

- Click **Finish** to complete the initial setup. You can observe if the trunk or extension is registering correctly by looking at Port/Trunks Status or Extension Status.

The screenshot shows the 3CX software interface. The left-hand navigation pane is expanded to 'Ports/Trunks Status'. The main window displays a table with the following data:

Status	Virtual Extension Number	Type	Name	IN/OUT	Caller ID	Destination
Connected	10000	Provider	eSBC-3506	OUT	2404983506	3506
Registered (idle)	10001	Provider	eSBC-3507		2404983507	3507
Registered (idle)	10002	Provider	eSBC-3508		2404983508	3508

**Figure 9** Ports/Trunk Status Screen

That completes the configuration of adding ESG SIP Trunk to 3CX.

## Appendix

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### 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

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