

Spectrum Enterprise SIP Trunking Service Cisco SPA 9000 Firmware 6.1.5 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

This document will serve as a reference guide to configure the Cisco SPA 9000 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 SPA 9000 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	Cisco SPA 9000
Firmware	6.1.5

TWC Network Equipment:

ESG	InnoMedia ESBC 9378-4B
-----	------------------------

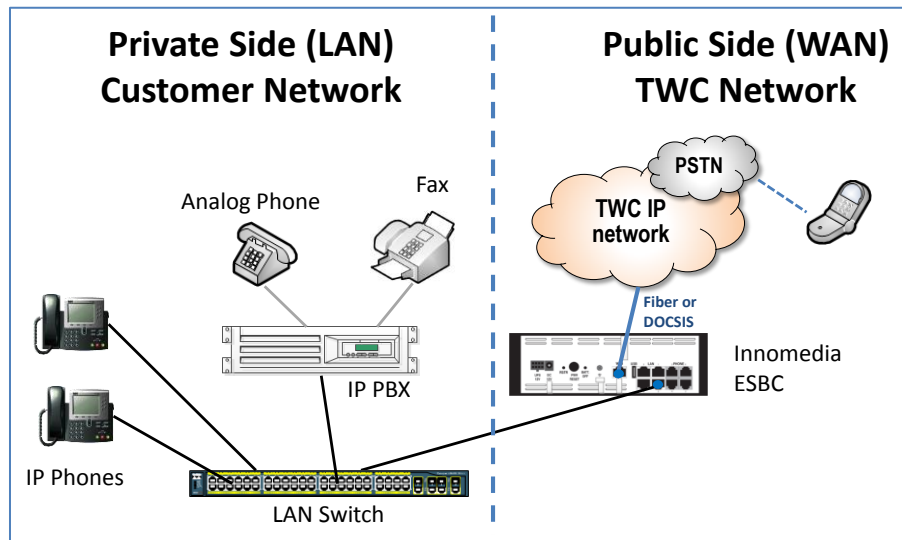
SIP Trunk Components

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	IP: xxx.xxx.xxx.xxx	
To setup LAN configuration for signaling of voice traffic to the ESG	Subnet: 255.255.xxx.xxx	
		TWC could provide IP address

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

Network Configuration

Log in SPA9000

Navigate to **Router** tab > **WAN Setup** tab

Select **“Static IP”** for Connection Type, and enter IP with the same subnet as ESBC LAN

The screenshot shows the Linksys SPA9000 configuration interface in a web browser. The browser address bar shows `http://172.16.25.120/advanced`. The page title is "LINKSYS® A Division of Cisco Systems, Inc. Linksys Phone Adapter Configuration". The navigation tabs include "Router" (selected), "Voice", "Status", "Wan Setup" (selected), "Lan Setup", and "Application". There are also links for "Admin Login", "basic", and "advanced".

The "Wan Setup" section is highlighted with a red border and contains the following settings:

Internet Connection Settings			
Connection Type:	Static IP		
Static IP Settings			
Static IP:	172.16.25.120	NetMask:	255.255.0.0
Gateway:	172.16.0.1		
PPPoE Settings			
PPPOE Login Name:		PPPOE Login Password:	
PPPOE Service Name:			
Optional Settings			
HostName:		Domain:	as.iop1.broadworks.net
Primary DNS:	199.19.193.12	Secondary DNS:	4.2.2.1
MAC Clone Settings			
Enable MAC Clone Service:	no	Cloned MAC Address:	
Remote Management			
Enable WAN Web Server:	yes	WAN Web Server Port:	80
QoS Settings			
QoS QDisc:	NONE	Maximum Uplink Speed:	128 (Kbps)

Figure 1 – Configuring WAN IP

Adding SIP Trunk and Subscriber(s) and Extension(s)

Add a Subscriber

1. Log in SPA9000
2. Navigate to **Voice** tab
3. Go down to “**Subscriber Information**” section
 1. Enter provided subscriber information – User ID, Password, Auth ID
 2. Change “Contact List” as desired. Contact list is line extension. Default fault settings are 101 for Line 1, 102 for Line 2, etc.

Subscriber Information			
Display Name:	2418884815	User ID:	2418884815
Password:		Use Auth ID:	no
Auth ID:	2418884815	Call Capacity:	unlimited
Contact List:	101		
Cfwd No Ans Delay:	20		

Figure 2 – Adding a Subscriber

Configure Proxy

While in the Voice configuration WEB UI

4. Go down to “**Proxy and Registration**” section
5. Enter provided proxy and registration information – Proxy IP is ESG LAN IP address.

Proxy and Registration			
Proxy:	172.16.250.1		
Outbound Proxy:			
Use Outbound Proxy:	no	Use OB Proxy In Dialog:	yes
Register:	yes	Make Call Without Reg:	no
Register Expires:	7200	Ans Call Without Reg:	no
Use DNS SRV:	no	DNS SRV Auto Prefix:	no
Proxy Fallback Intvl:	3600	Proxy Redundancy Method:	Normal
Mailbox Status:		Mailbox Subscribe URL:	
Mailbox Deposit URL:		Mailbox Subscribe Expires:	2147483647
Mailbox Manage URL:		VMSP Bridge:	None
CFWD Bridge Mode:	none	XFER Bridge Mode:	none

Figure 3 Configuring Proxy and Registration

Configuring Outgoing Dial Rules

1. Navigate to **Voice** tab > **SIP**
2. Go down to “**PBX Phone Parameters**” section

PBX Phone Parameters			
Next Auto User ID:	103	Phone Ext Password:	
Phone Upgrade Rule:			
Phone Dial Plan:	(9,[3469]1150 9,<:1408>[2-9]xxxxx 9,<:1>[2-9]xxxxxxxxS0 9,1[2-9]xxxx)		
Phone Config XML:			
Use LVS_PROXY:	no	CTI Enable:	no

Figure 4 – Configuring Dial Plan

Phone Dial Plan – controls how calls will be dialed on this trunk. Take “9,<:1408>[2-9]XXXXXX”, for example. PBX removes the dialing prefix “9” from the number, and but would only pass 1408[2-9]XXXXXX to the trunk.

Registration

1. Navigate to **Voice** tab
2. Go down to “Proxy and Registration” section
 1. Select “Register – yes”
 2. Set “Register Expires ” to desired time.
 3. Select “Make Call Without Reg” to designed an option – by selecting “no”, unregistered line will not allowed to make calls.
 4. Select “Ans Call Without Reg” to desired an option – by selecting “no”, unregistered line will be able to receive calls.

Proxy and Registration			
Proxy:	172.16.250.1		
Outbound Proxy:			
Use Outbound Proxy:	no	Use OB Proxy In Dialog:	yes
Register:	yes	Make Call Without Reg:	no
Register Expires:	7200	Ans Call Without Reg:	no
Use DNS SRV:	no	DNS SRV Auto Prefix:	no
Proxy Fallback Intvl:	3600	Proxy Redundancy Method:	Normal
Mailbox Status:		Mailbox Subscribe URL:	
Mailbox Deposit URL:		Mailbox Subscribe Expires:	2147483647
Mailbox Manage URL:		VMSP Bridge:	None
CFWD Bridge Mode:	none	XFER Bridge Mode:	none

Figure 5 – Configure Registration

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.