

IP Office Edition Release 5.0 SIP Trunking Configuration Guide

SKYPE™ for SIP Interoperability

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1. Introduction

This document provides an overview of the configuration and settings used during interoperability testing with SKYPE™ for SIP and can be used as a guide to assist administrators in connecting Avaya IP Office 5.0 SIP trunks to SKYPE™ for SIP. The testing was performed by tekVizion Labs™ in Richardson, TX. tekVizion Labs™ is a third-party, independent lab that performs certification and verification testing on VoIP products and applications. This document is based on the SIP Trunk Interoperability Verification Test Plan and Report for Avaya IP Office, Revision 1.3, furnished by tekVizion Labs™ in October, 2009.

Configuration values used in this document are for reference and have local relevance to this configuration guide. Actual values used will be specific to networks used in production implementations. The information and results contained in this document apply only to the product versions used in this testing. Complete test results can be found in the formal test document. An end-to-end approach was used to test interoperability between IP Office R5.0 and SKYPE™ for SIP. Performance testing, OAM&P was not verified as part of this effort.

1.1 Document Change History

Date	Version	Summary of Changes
October 8, 2010	0.1	First DRAFT

2. Acronyms

ATA	Analog Telephone Access
CPE	Customer Premise Equipment
DID	Direct Inward Dial
FW	Firewall
IAD	Integrated Access Device
NAT	Network Address Translation
OAM&P	Operations Administration Maintenance & Provisioning
PBX	Private Branch Exchange
PSTN	Public Switched Telephone Network
QOS	Quality of Service
SIP	Session Initiation Protocol
STUN	Simple Traversal of UDP over NAT.
VOIP	Voice over Internet Protocol

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3. Configuration

3.1 Network Diagram

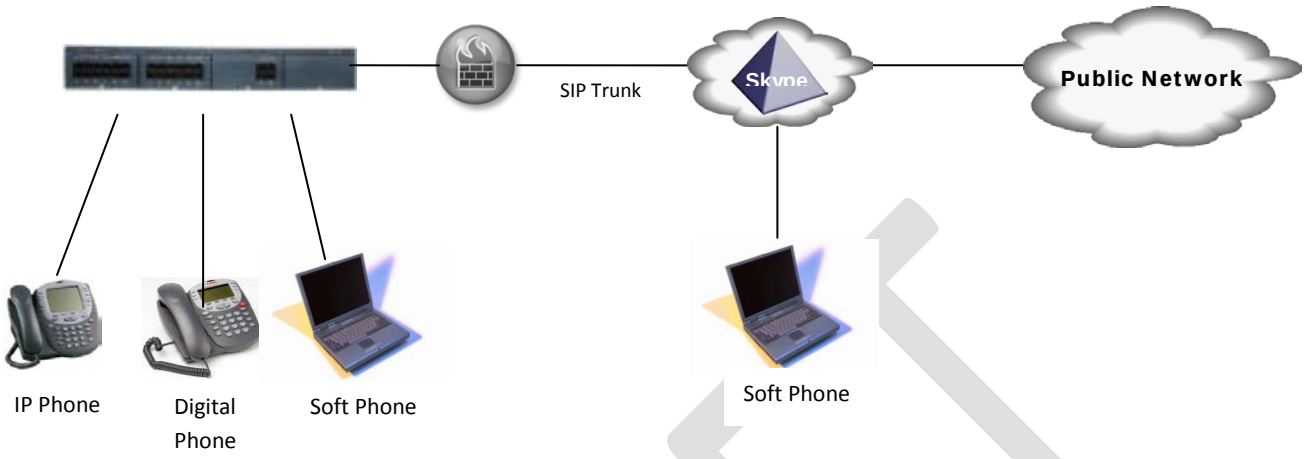


Figure 1: Test network for IP Office interoperability with SIP for Skype™.

The diagram shows an IP500 system running Release 5.0, deployed inside a private network and linked to the PSTN via a Skype SIP trunk.

The following Avaya endpoint types were used for testing:

Endpoint	Type
Avaya 5410	Digital phone
Avaya 4620SW	IP Phone

3.2 IP Office Configuration

This configuration guide specifies the Avaya IP Office System screens that must be configured to support SIP lines to a Skype network.

In order to enable SIP communication a valid SIP Trunk Channels license is required. SIP Trunk licenses can be obtained in bundles of 1, 5, 10, or 20 channels. SIP channels. The IP Office IP500 control unit should also be fitted with a VCM card and a VCM license.

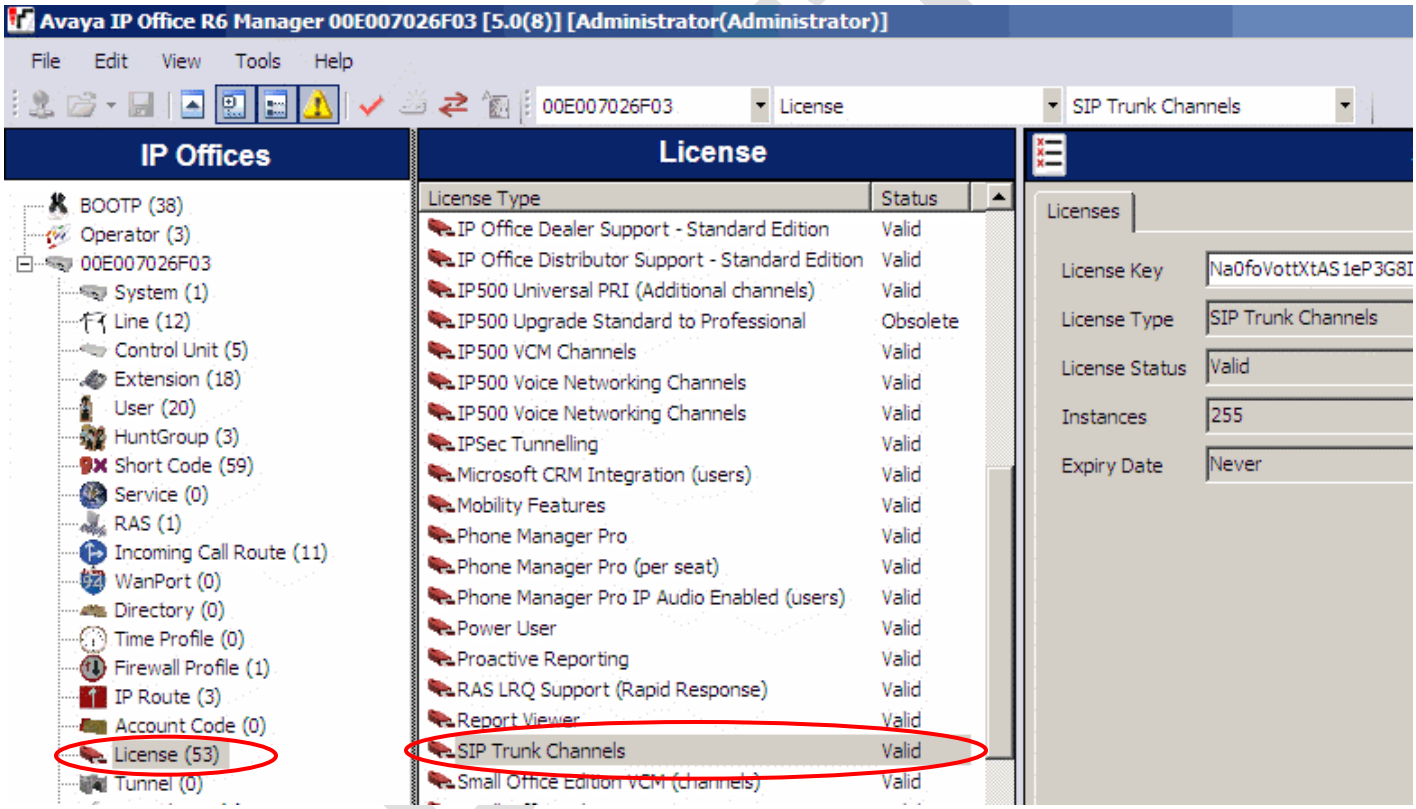
All configuration steps for Avaya IP Office were performed using the IP Office Manager application. This application presents the administrator with a hierarchical Configuration Tree with fields for each of the various components which can be configured. IP Office Manager can be obtained from the support.avaya.com website and must be installed on a

PC that has connectivity to the IP Office control unit to be configured. The version of IP Office Manager used for configuration must match the version of software that is installed on the IP Office control unit.

3.2.1 Licenses

A license is required for ***SIP Trunk Channels***, which can be confirmed by right clicking on the ***License*** item in the Manager Configuration Tree and selecting "New". It is recommended that the license be installed by cutting and pasting the 32-character license key from a supplied file containing the license(s).

The status of the newly installed license will show ***Unknown*** next to the name of the license until the configuration is saved and the control unit is rebooted. After the reboot use Manager to retrieve the configuration again and check that the status of the license is ***Valid***. If the status is ***Invalid***, the license key characters were most likely entered incorrectly. Repeat process.



3.2.2 System

General system attributes can be configured via the "System" item in the Manager Configuration Tree. Enter the parameters shown in the following table:

Tab	Parameter	Usage
System	Name	Enter a name to be assigned to IP Office for identification purposes. By default the MAC address is used but a distinctive name should be used for ease of identification .
	Locale	Select the locale for the installation from the drop-down menu.
LAN1 – LAN Settings	IP Address	Enter the IP address assigned to IP Office.
	IP Mask	Enter the network mask assigned to IP Office.
LAN1 – Network Topology	Binding Refresh Time	Enter 30 seconds for the IP Office to send recurring 'SIP Options requests' to the remote proxy terminating the trunk. Those requests will keep the port open through the firewall.
	Run STUN on startup	Select if the IP Office is behind a NAT/FW and IP Office is going to be doing Local NAT compensation. STUN (Simple Traversal of UDP through NAT) is a mechanism used with UDP SIP to overcome the effect of NAT firewalls.
	Run STUN	Click the Run STUN button to test STUN operation if the IP Office is behind a NAT/FW and IP Office is going to be doing Local NAT compensation.
DNS	DNS Service IP Address	This is the IP address of a DNS Server.

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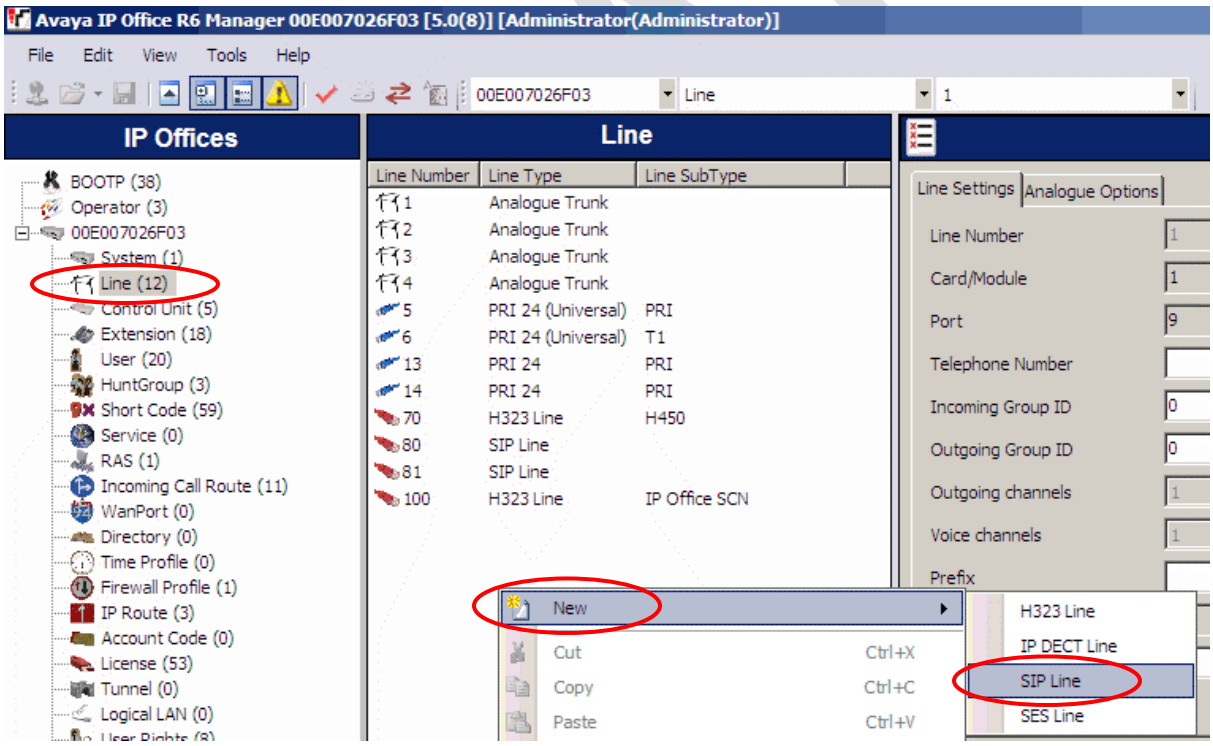
3.2.3 IP Route

The ***IP Route*** item in the Manager Configuration Tree is used to create a default route used to determine where data traffic should be forwarded. Configure the ***IP Route*** tab with the parameters shown in the following table:

Parameter	Usage
IP Address	Enter "0.0.0.0".
IP Mask	Enter "0.0.0.0".
Gateway IP Address	Enter the IP address of the default router.
Destination	Select "LAN1" from the drop-down list.

3.2.4 SIP Lines

The ***Line*** item in the Manager Configuration Tree is used to configure lines on IP Office. Right click in the Line field and select 'New' then 'SIP'.



The next available line number will automatically be chosen on the new SIP Line form. Enter the SIP parameters shown in the following table.

Tab	Parameter	Usage
SIP Line	Line Number	This value is assigned automatically when the line is created.
	ITSP Domain Name	Set this field to: sip.skype.com
	ITSP IP Address	The ITSP IP Address should be 0.0.0.0 if DNS was configured in the System – DNS tab. If DNS was not configured in the System – DNS tab then enter the IP address for sip.skype.com.
	Registration Required	Select so the SIP trunk will register with Skype using the value in the ITSP Domain Name field.
	International Prefix	This prefix is added to calls identified as not being national.
SIP Credentials	User name	Add a New SIP Credential where User name for Skype registration authentication is the Skype SIP User like 99051000111234
	Authentication name	The Authentication name should match the User name above.
	Password	Enter the Skype SIP User password provided for the registration authentication.
SIP URI- Add a SIP URI for the Skype SIP User.	Local URI	Select “Use Authentication Name”.
	Contact	Select “Use Authentication Name”.
	Display Name	Select “Use Authentication Name”.
	Registration	Select the account credentials configured on the line's SIP Credentials tab.
	Incoming Group	Enter the number used in SIP Line - Line Number which was assigned

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		automatically when the line is created.
	Outgoing Group	Enter the same number selected for “Incoming Group” for this SIP URI.
SIP URI- Add a SIP URI for each incoming call phone number of the Skype SIP User.	Local URI	Enter the incoming call phone number of the Skype SIP User like: 19785281234
	Contact	Enter the same number entered for Local URI.
	Display Name	Enter the same number entered for Local URI.
	Registration	Select “0: <None>”.
	Incoming Group	Enter a number different to that used in by other SIP URI – Incoming Groups. The Incoming Group ID to which a line belongs is used to match it to incoming call routes in the IP Office configuration. The matching incoming call route is then used to route incoming calls.
	Outgoing Group	Enter the same number selected for “Incoming Group” for this SIP URI.
SIP URI- Add a SIP URI for each Skype business account with an extension number for incoming calls that is associated with the Skype SIP User.	Local URI	Enter the extension number for incoming calls of the Skype business account associated with the Skype SIP User.
	Contact	Enter the same number entered for Local URI.
	Display Name	Enter the same number entered for Local URI.
	Registration	Select “0: <None>”.
	Incoming Group	Enter a number different to that used in by other SIP URI – Incoming

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		Groups. The Incoming Group ID to which a line belongs is used to match it to incoming call routes in the IP Office configuration. The matching incoming call route is then used to route incoming calls.
	Outgoing Group	Enter the same number selected for "Incoming Group" for this SIP URI.
VoIP	Compression Mode	This field can be changed to define the compression mode (codec) or modes offered during call setup. The Skype supported codecs are G.711 ALAW 64K, G.711 ULAW 64K, G.729(a) 8K CS-ACELP.
	Re-invite Supported	Select so Re-Invite can be used during a session to change the characteristics of the session.
	Fax Transport Support	Ensure Fax Transport Support is not selected.

A SIP URI must be added for each of the following:

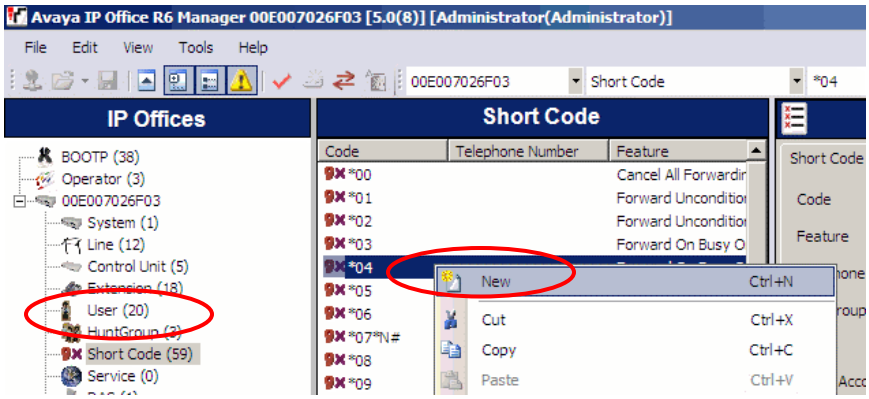
1. Skype SIP User.
2. Each incoming call phone number of the Skype SIP User.
3. Each Skype business account with an extension number for incoming calls that is associated with the Skype SIP User.

3.2.5 Call Routing

Outgoing Call Routing

Short codes are used in IP Office for outgoing call routing. Right click in the ***Short Code*** field in Manager to create a new shortcode, which will be used to route outgoing calls from the IP Office to the Skype Network. The IP Office user will dial this number, followed by the phone number *N* (which is the PSTN number of the party being called).

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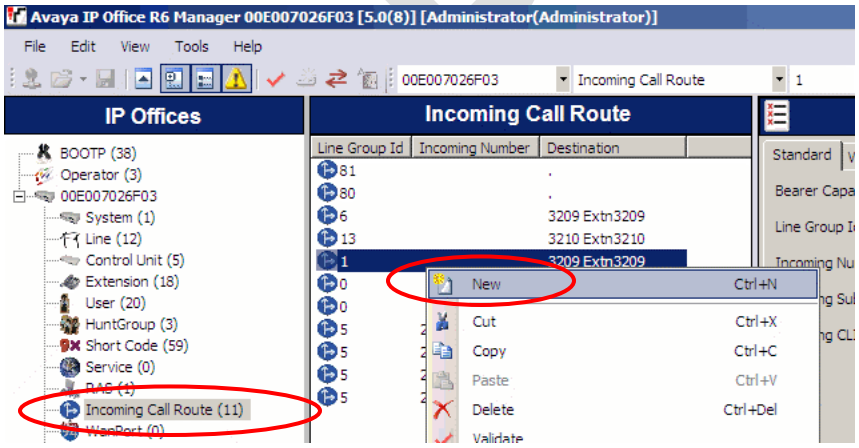


Enter the following parameters into the new Short Code:

Parameter	Usage
Code	Enter: <digit>N; For example: 8N;
Feature	Select "Dial" from the drop-down menu.
Telephone Number	Enter N
Line Group Id	Select the Line Group Id from the drop-down list that matches the SIP URI – Outgoing Group of the Skype SIP User.

Incoming Call Routing

Incoming call routes are used to match calls received with destinations on the IP Office. Routes can be based on the incoming line group, the type of call, incoming digits or the incoming call's ID. Right click in the ***Incoming Call Route*** field in Manager and select 'New'.



Enter the following values in the following table for each SIP URI:

1. Skype SIP User.
2. Each incoming call phone number of the Skype SIP User.
3. Each Skype business account with an extension number for incoming calls that is associated with the Skype SIP User.

Tab	Parameter	Usage
Standard	Line Group Id	Select the Line Group Id from the drop-down list that matches the SIP URI – Incoming Group of the Skype SIP User.
	Incoming Number	Leave the blank default.
Destinations	Destination	Either enter the destination manually or select the destination for the call from the drop-down list.

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