



Zoom Phone and Twilio Elastic SIP Trunking Configuration Guide



Table of Contents

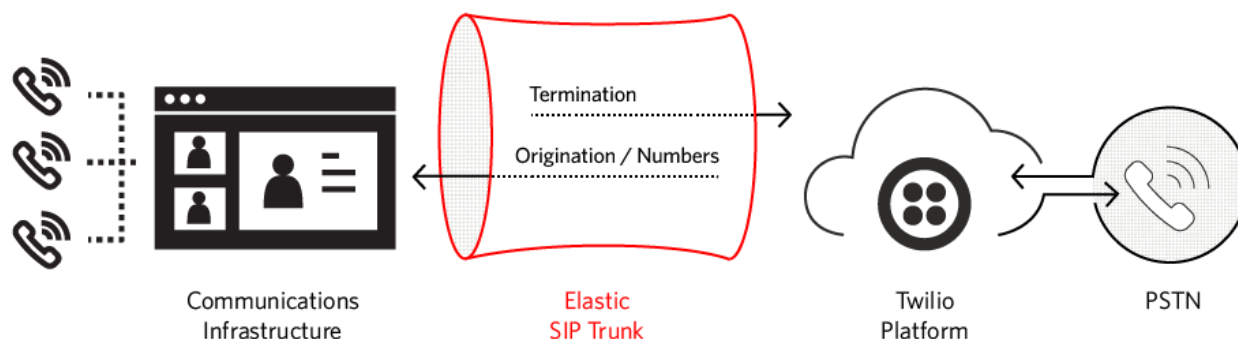
Table of Contents	1
Introduction	2
About Twilio's Elastic SIP Trunking	2
The Twilio Difference	2
About Zoom Phone	3
Zoom Phone using Twilio Elastic SIP Trunking for PSTN access	3
Configuration	4
Twilio Elastic SIP Trunk configuration	4
1. Create an IP-ACL rules	5
2. Create a new Trunk	6
3. Share with Zoom team	10
Zoom Phone Configuration	11
Prerequisites	11
Signalling IP addresses with Twilio	11
SIP Trunk Administration	12
Routing	12
Phone Number Management	12
Dial Plan Functionality	13
Conclusion	13

Introduction

This Configuration Guide describes how to set up your Twilio Elastic SIP Trunk when interconnecting to Zoom Phone. The document is intended for the telecommunications engineers responsible for installing and configuring the customer's SIP Trunking service for PSTN access.

About Twilio's Elastic SIP Trunking

Twilio's Elastic SIP Trunking is effectively a "pipe" that connects an enterprise's SIP infrastructure to the PSTN. This allows you to make calls from your network to the Public Domain for PSTN access (Termination), and receive calls on Twilio phone numbers on your network (Origination).



Your deployment may be more complex than this, involving IVRs, call centers, multiple sites, etc., but the general model is the same: Connect your SIP communications infrastructure to Twilio, which will route outbound (Termination) and inbound (Origination) PSTN traffic.

The Twilio Difference

Twilio meets the key challenges that enterprise IT managers and contact center engineers face as they transform their communications networks.

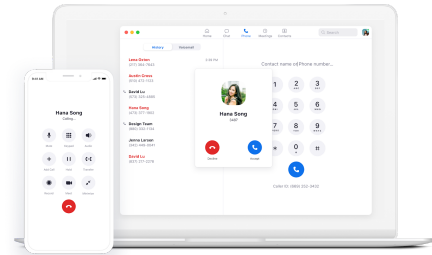
Increase business agility - On-demand service provisioning and unlimited capacity enables you to instantly scale up/down your network in response to business requirements. A rich set of innovative cloud-based communications features help you transform your communications.

Uniform global reach - A consistent set of services delivered across 100 countries improves user experiences, strengthens security and increases reliability. Twilio Elastic SIP Trunking provides uniform security features and fraud prevention, rich and deep phone number inventory across regions, plus robust disaster recovery capabilities.

Reduce costs - Simple usage-based pricing with no port/channel fees, combined with the reduced overhead that results by consolidating multiple regional trunking services onto the Twilio service, can dramatically reduce costs for multi-location enterprises.

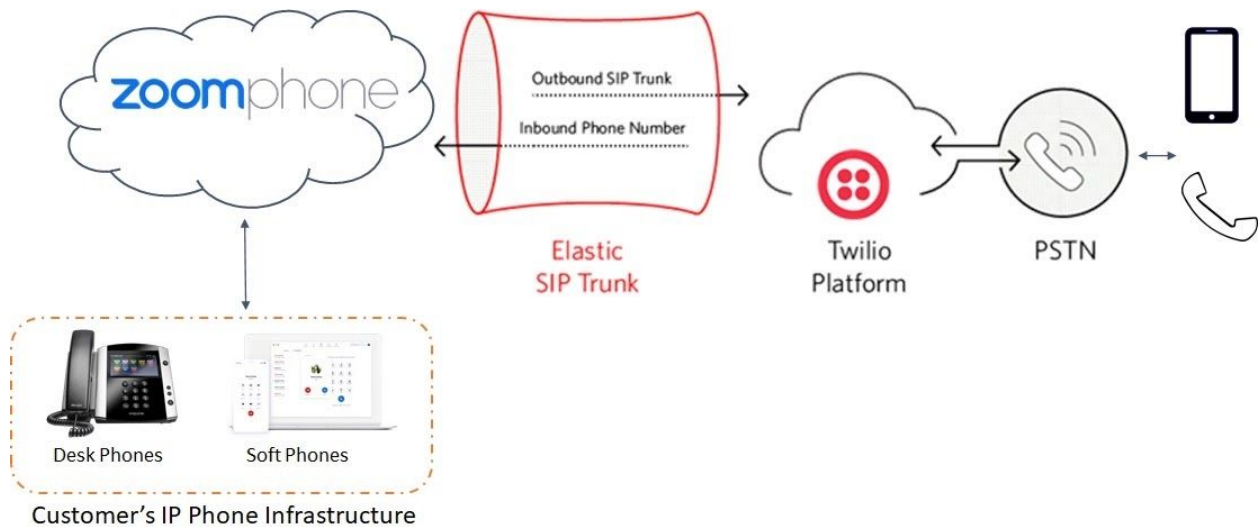
About Zoom Phone

[Zoom Phone](#) is an enterprise cloud phone system. Zoom Phone offers two “bring your own carrier” (BYOC) approaches, called “Zoom Phone Premise Peering PSTN” and Zoom Phone Carrier Peering PSTN, which both provide organizations the flexibility to select their voice services for Zoom Phone. This allows Zoom customers access to a range of PSTN connectivity services to fit their business needs. You can leverage global SIP trunking services from third-party providers, including Twilio, and realize geographic coverage, pricing, flexibility and other advantages.



Zoom Phone using Twilio Elastic SIP Trunking for PSTN access

To implement BYOC, you'll need to add the Zoom Phone Pro license to your Zoom service, which enables a SIP trunking interface in the Zoom cloud. The interface connects directly to your designated SIP trunking service provider.

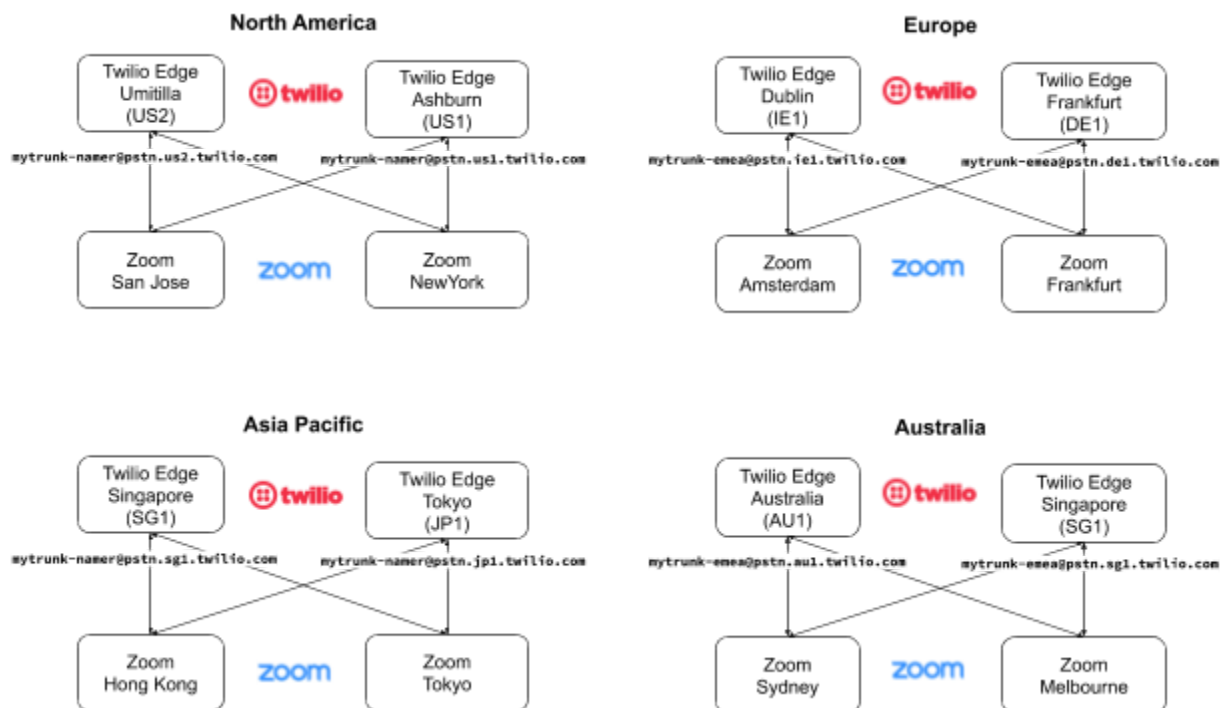


Both providers use virtualized session border controllers to protect the interface from external threats. All sessions are encrypted using the TLS protocol for signaling and SRTP for media.

Configuration


This section describes how to configure Zoom Phone to operate with Twilio Elastic SIP Trunking. Please note that the Zoom Trunk configuration is coordinated by the Zoom Phone account team. We'll walk you through the information you'll need to provide to them to have them set this up.

Zoom Phone has presence in 5 geographical locations (North America, South America, Europe, Asia Pacific & Australia), we recommend that you configure a separate Elastic SIP Trunk per geographical location as shown below, and we'll show you how to make sure you configure redundancy on each of those trunks.



The first step is the setup of the Twilio Elastic SIP Trunk(s) followed by the second step to set up the Zoom trunk(s) and configure your Zoom Phone System.

Twilio Elastic SIP Trunk configuration

From your [Twilio Console](#), navigate to the [Elastic SIP Trunking](#) area (or click on the  icon on the left vertical navigation bar).

SUPER NETWORK		
#	Phone Numbers	⌵
SIP	Elastic SIP Trunking	⌵

1. Create an IP-ACL rules

Click on [Authentication](#) in the left navigation, and then click on [IP Access Control Lists](#).

🏠	Elastic SIP Trunking
SIP	Dashboard
#	Trunks
🔑	Authentication
	IP Access Control Lists
⋮	Credential Lists

Create a new IP-ACL and call it "ZoomPhoneIPs"

Add the following IP addresses, representing the Zoom infrastructure - please confirm with Zoom that these are the most up to date IP addresses.

S

F Y[]cbs	@cWUhcbs	8Ygh]bUhcbs
Bcft\ '5a Yf]WUs	GUb`>cgYs BYk `Mcf_s 8Ybj Yfs	%* &"%&"&' ' ") - s %* &"%&"&' &") - s %* &"%&"&')",) s
9A 95s	5a ghYfXUa s : fUb_z fhs	&% "%- "%(("%- , s &% "&(("%- \$"%- , s
5i ghfU]Us	GmXbYms A YVci fbYs	%\$' "%&&"%* * "&(, s %\$' "%&&"%* + "&(, s
5D57s	<cb[?cb[s Hc_ncs	&\$- "- "&%%%%- , s &\$+"&&"% &"%- , s
South America	Sao Paolo New York	64.211.144.247 162.12.232.43

ZoomPhoneIPs

Properties

FRIENDLY NAME

IP-ACL SID ALb4bb8fb3d8912093f588fef0f9373936

ASSOCIATED SIP TRUNKS [Zoom, zoomphones-br](#)

ASSOCIATED SIP DOMAINS —

IP Address Ranges

IP ADDRESS RANGE
162.12.233.59 / 32 162.12.233.59 - 162.12.233.59
162.12.232.59 / 32 162.12.232.59 - 162.12.232.59
162.12.235.85 / 32 162.12.235.85 - 162.12.235.85
213.19.144.198 / 32 213.19.144.198 - 213.19.144.198
213.244.140.198 / 32 213.244.140.198 - 213.244.140.198
209.9.211.198 / 32 209.9.211.198 - 209.9.211.198
207.226.132.198 / 32 207.226.132.198 - 207.226.132.198
103.122.166.248 / 32 103.122.166.248 - 103.122.166.248
103.122.167.248 / 32 103.122.167.248 - 103.122.167.248

2. Create a new Trunk

For each geographical region desired (North America, Europe, Asia Pacific & Australia), create a new Elastic SIP Trunk.

Now click on **Trunks** again on the left vertical navigation bar, and create a new Trunk.

Create A New SIP Trunk ×

Name your new SIP Trunk, then configure it in the following steps.

FRIENDLY NAME

For your **General Settings** be sure you enable "Secure Trunking", and you may leave the other settings as default.

Secure Trunking ⓘ



TLS must be used to encrypt SIP messages on port 5061, and SRTP must be used to encrypt the media packets. Any non-encrypted calls will be rejected

In the **Termination** section, select a Termination SIP URI.

TERMINATION SIP URI

[Show Localized URIs](#)

Click on "Show localized URI's" and copy and paste this information as you will need to share this with Zoom in order for them to configure your Trunk.

Save the following information so you can share with Zoom.

[Hide Localized URIs](#)

If you wish to manually connect to a specific geographic region, you may do so by pointing your communications infrastructure to any of the following localized Termination SIP URIs:

NORTH AMERICA VIRGINIA	zoomphones.pstn.us1.twilio.com
NORTH AMERICA OREGON	zoomphones.pstn.us2.twilio.com
EUROPE IRELAND	zoomphones.pstn.ie1.twilio.com
EUROPE FRANKFURT	zoomphones.pstn.de1.twilio.com
SOUTH AMERICA SAO PAULO	zoomphones.pstn.br1.twilio.com
ASIA PACIFIC SINGAPORE	zoomphones.pstn.sg1.twilio.com
ASIA PACIFIC TOKYO	zoomphones.pstn.jp1.twilio.com
ASIA PACIFIC SYDNEY	zoomphones.pstn.au1.twilio.com

Assign the IP ACL ("ZoomPhones IPs") that you created in the previous step.

Authentication [View all Authentication lists](#)

The following IP ACLs and Credential Lists will be used to authenticate the INVITE for termination calls inbound to Twilio.

IP ACCESS CONTROL LISTS

CREDENTIAL LISTS

In the **Origination** section, we'll need to add Origination URI's to route traffic towards Zoom. The recommended practice is to configure redundant mesh per geographic

region (in this context a region is one of North America, Europe, APAC & Australia). This means that for each Trunk, you'll be configuring 4 Origination URIs.

Click on 'Add New Origination URI', we'll depict the configuration for North America:

Add Origination URL ×

ORIGINATION SIP URI

PRIORITY
Priority ranks the importance of the URI. Values range from 0 to 65535, where the lowest number represents the highest importance.

WEIGHT
Weight is used to determine the share of load when more than one URI has the same priority. Its values range from 1 to 65535. The higher the value, the more load a URI is given.

ENABLED ON

Cancel
Add

It's very important that you include the "transport=tls" parameter to ensure the SIP signalling is encrypted.

Continue to add the other 3 Origination URIs, so you have the following configuration:

Origination URIs

Configure the IP address (or FQDN) of the network element entry point into your communications infrastructure (e.g. IP-PBX, SBC).

Show more about provisioning for high service availability

+	ORIGINATION URI	PRIORITY	WEIGHT	ENABLED	
	sip:162.12.233.59;region=us2;transport=tls	1	10	✓	×
	sip:162.12.232.59;region=us1;transport=tls	2	10	✓	×
	sip:162.12.233.59;region=us1;transport=tls	3	10	✓	×
	sip:162.12.232.59;region=us2;transport=tls	4	10	✓	×

In this example, Origination traffic is first routed to Zoom SanJose from Twilio US2, if that fails then we'll route to Zoom NewYork from Twilio US1 region, if that fails then we'll route to Zoom San Jose from Twilio US1 and if that fails then we'll route to Zoom NewYork from Twilio US2.

Below you can find a table of what your Origination URIs should look like per Trunk/Region:

North America		
Origination URI	Priority	Weight
sip:162.12.233.59;region=us2;transport=tls	1	10
sip:162.12.232.59;region=us1;transport=tls	2	10
sip:162.12.233.59;region=us1;transport=tls	3	10
sip:162.12.232.59;region=us2;transport=tls	4	10

Europe		
Origination URI	Priority	Weight
sip:213.19.144.198;region=ie1;transport=tls	1	10
sip:213.244.140.198;region=ie1;transport=tls	2	10
sip:213.19.144.198;region=de1;transport=tls	3	10
sip:213.244.140.198;region=de1;transport=tls	4	10

APAC		
Origination URI	Priority	Weight
sip:209.9.211.198;region=jp1;transport=tls	1	10
sip:209.9.211.198;region=sg1;transport=tls	2	10
sip:207.226.132.198;region=jp1;transport=tls	3	10
sip:207.226.132.198;region=sg1;transport=tls	4	10

Australia		
Origination URI	Priority	Weight
sip:103.122.166.248;region=au1;transport=tls	1	10
sip:103.122.166.248;region=sg1;transport=tls	2	10
sip:103.122.167.248;region=au1;transport=tls	3	10
sip:103.122.167.248;region=sg1;transport=tls	4	10

South America		
Origination URI	Priority	Weight
sip:62.211.144.247;region=br1;transport=tls	1	10
sip:62.211.144.247;region=us1;transport=tls	2	10
sip:162.12.232.43;region=br1;transport=tls	3	10
sip:162.12.232.43;region=us1;transport=tls	4	10

In the **Numbers** section, add the Phone Numbers that you want to associate with each Trunk. Remember to associate the Numbers from a given country in the right Trunk. For example, associate US & Canada Numbers with the North American Trunk and European Numbers with the European Trunk etc.

3. Share with Zoom team

The Trunk configuration on Zoom is done by their operations team. You'll need to provide them with the following information:

- (a) For each Twilio Elastic SIP Trunk you created, the Localized Termination URIs and specify the Region that you intended that Trunk to be used for:
For example:

North America Trunk	zoomphones.pstn.us1.twilio.com zoomphones.pstn.us2.twilio.com
Europe Trunk	zoomphones-emea.pstn.ie1.twilio.com zoomphones-emea.pstn.de1.twilio.com
APAC Trunk	zoomphones-apac.pstn.sg1.twilio.com zoomphones-apac.pstn.jp1.twilio.com
Australia Trunk	zoomphones-aus.pstn.au1.twilio.com

(b) Twilio IP addresses: <https://www.twilio.com/docs/sip-trunking#ip-addresses>

Zoom Phone Configuration

Zoom Phone Premise/Carrier Peering, or BYOC, enables you to use Twilio's Elastic SIP Trunking for PSTN access. Please work with your Zoom account team to have the Zoom trunks configured with Twilio. Be sure to provide them with the information you collected in the previous section.

This section provides guidelines of key areas to look at when configuring your Zoom Phone system, but for detailed instructions please contact your Zoom account team.

Prerequisites

Zoom Phone Pro (formerly BYOC) calling plan is required.

Signalling IP addresses with Twilio

Zoom's peering has the following regions available:

s

F Y[]cbs	5 F YWfXs	8 Ygh]bUh]cbs
Bcft\ '5a Yf]WUs	i g\$dYYf\$%gWncca "i gs i g\$dYYf\$%bm'ncca "i gs i g\$dYYf\$%Xj "ncca "i gs	%* &"%&"& ' ') - s %* &"%&"& &) - s %* &"%&"& ') ,) s
9A 95s	i g\$dYYf\$%Ua "ncca "i gs i g\$dYYf\$%Z"ncca "i gs	&% "%- "%(("%- , s &% "%(("%(\$"%- , s
5i gfu]Us	i g\$dYYf\$%gm'ncca "i gs i g\$dYYf\$%a Y"ncca "i gs	%\$' "%&"%* * "&(, s %\$' "%&"%* + "&(, s

5D57s	i g\$dYYf\$%_ncca "i gs i g\$dYYf\$%m'ncca "i gs	&\$- "- "%%%, s &\$+"&&* "% &"%, s
South America	us01peer01.sp.zoom.us us01peer201.ny.zoom.us	64.211.144.247 162.12.232.43

SIP Trunk Administration

SIP Trunks: [7i g hca Yfg'WUbj \]Yk 'hY\]f'DfYa \]gY'DYYf\]b\['G-Ð'fbi b_g'VmbUj \] \[Uh\]b\['hc'D\cbYs Gmg hYa 'A UbU\[Ya Ybh2'7 ca dUbm-ÐZc'2'5Wwci bhGYH\]b\[g'2'G-Ð'Hfi b_ \]b'hY\]f'Ncca s](#)

UXa]b]ghfUh]cb'dcftU"'H\Y'dfcj]XYX']bZcfa Uh]cb'XYfU]g'hY'fbi b_'bUa YZ'fbi b_'hmdYz'fY[]cb'UbXs Ncca 'G67'fbi b_'UVY"'5'G-Ð'fbi b_'k]h'hY'7Uff]Yf'hmdY' 6MC7 'k]'VY'fYei]fYX'Zc'f'DfYa]gYs DYYf]b['DGHB "'H\]g]g'U'fYUX'cb'mj]Yk 'cZ'hY'G-Ð'fbi b_g'WcbZ[i fYX'cb'Ub'UWwci bh'B'YhbYk s G-Ð'fbi b_g'WbbchVY'WcbZ[i fYX'h'fci [\ 'h\]g'gYW]cb'Uh'h\]g'hja Y"'Z'UXX]h]cbU'Wcb'bbYW]cbg'UFYs fYei]fYX'zd'YUgY'fYUW'ci h'hc'mci f'Ncca 'UWwci bh'f'Ua "s

Routing

In your Zoom account under “Phone System Management > Company Info > Account Settings > Routing”, take note of the following:

SIP Group: Define SIP Groups and assign Trunk Groups to them, so as to route the calls placed by BYOC numbers, import external contacts for Global Directory, or apply the policy of Location Based Routing. Any outgoing calls from the SIP Groups will be routed to the specific Trunk Groups.

Name	Trunk Group	Description
<input type="checkbox"/> Twilio Brazil	TG_51444937_11	This Trunk is pointed to Twilio SA zone for testing purposes. Edit

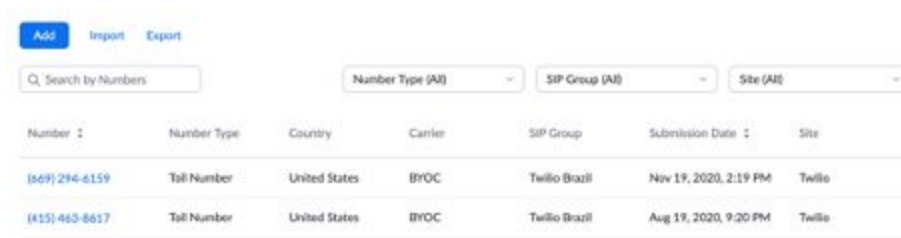
Trunk Group: Trunk Groups for BYOC, importing external contacts for Global Directory, or applying the policy of Location Based Routing. Each Trunk Group is composed of one or more pre-defined (read-only) SIP trunks.

Name	Carrier	Region Name	Distribution	SIP Trunk
TG_51444937_11	BYOC	US West (N. California) US Central (Colorado) US East (New York)	Top/Down	Managed By Zoom

Phone Number Management

Navigate to [Phone System Management -> Phone Numbers -> External](#) from the Zoom administration portal. From here, administrators can add numbers statically, import bulk number

blocks via comma-separated values (CSV) files or export their existing external numbers for ease of management.



The screenshot shows the Twilio console interface for managing external numbers. At the top, there are buttons for 'Add', 'Import', and 'Export'. Below these are search and filter options: 'Search by Numbers', 'Number Type (All)', 'SIP Group (All)', and 'Site (All)'. The main content is a table with the following columns: Number, Number Type, Country, Carrier, SIP Group, Submission Date, and Site. Two rows of data are visible:

Number	Number Type	Country	Carrier	SIP Group	Submission Date	Site
(669) 294-6159	Toll Number	United States	BYOC	Twilio Brazil	Nov 19, 2020, 2:19 PM	Twilio
(415) 465-6617	Toll Number	United States	BYOC	Twilio Brazil	Aug 19, 2020, 9:20 PM	Twilio

Dial Plan Functionality

The dial plan functionality is intended to provide users and administrators with a seamless experience for interoperability within the Zoom Platform.

Outbound routing is determined by the Calling Plan assigned to a user. Based on the Calling Plan assigned, a user will have the ability to place a call to the PSTN leveraging Native Zoom Phone and/or Premise Peering PSTN (BYOC). Zoom Phone is aware of what carrier a given number should use based on whether it's a Native Zoom Phone number or External (BYOC) number.



The screenshot shows the Twilio console interface for managing SIP trunks. At the top, there are buttons for 'Assign Package', 'Apply Settings', 'Move Site', and 'Remove'. Below these are search and filter options: 'Name', 'Ext.', 'Package', 'Number(s)', 'Desk Phone(s)', 'User Status', and 'Site'. The main content is a table with the following columns: Name, Ext., Package, Number(s), Desk Phone(s), User Status, and Site. One row of data is visible:

Name	Ext.	Package	Number(s)	Desk Phone(s)	User Status	Site
Twilio Elastic SIP Trunking	1225	Zoom Phone Pro	(415) 465-6617	--	Active	Twilio

Should a user have both a Native Zoom Phone and Premise Peering PSTN (BYOC) Calling Plan the call will be routed based on the calling and called numbers. If the calling number is associated with a Zoom Phone carrier, that call will be routed via Zoom Phone as the carrier. If the calling number is an External Twilio number, that call will be routed as determined by the Premise Peering PSTN (BYOC) routing table to the pre-configured Twilio BYOC trunks. Should multiple SIP trunks be required for a customer environment Zoom will coordinate with the customer to establish the desired outbound routing.

Conclusion

Congratulations you are Done! Assuming that your Zoom Phone system is configured accordingly, calls made by your users are now sent to your Twilio Elastic SIP Trunk and routed to the PSTN and any calls received on your Twilio phone numbers, will be routed to Zoom Phone who will then route to the right extension/user.

Twilio Elastic SIP Trunking is a field proven global PSTN connectivity solution for Zoom Phone customers. We have experience working jointly with Zoom to deploy our SIP trunking services in

multinational organizations. Twilio can help customers reduce usage costs and extend a local customer experience to users in up to 100 countries.

To learn more, visit our [Elastic SIP Trunking User Documentation](#).

We can't wait to see what you build!

