SIP Trunking Configuration Guide
for
ShoreTel ShoreWare
ShoreTel 13.2
1 Audience
This document is intended for the SIP trunk customer’s technical staff and Value Added Retailer (VAR) having installation and operational responsibilities.

1.1 tekVizion Labs

tekVizion Labs™ is an independent testing and Verification facility offered by tekVizion PVS, Inc. (“tekVizion”). tekVizion Labs offers several types of testing services including:

- Remote Testing – provides secure, remote access to certain products in tekVizion Labs for pre-Verification and ad hoc testing
- Verification Testing – Verification of interoperability performed on-site at tekVizion Labs between two products or in a multi-vendor configuration (“solution Verification”)
- Product Assessment – independent assessment and verification of product functionality, interface usability, assessment of differentiating features as well as suggestions for added functionality, stress and performance testing, etc.

tekVizion is a systems integrator specifically dedicated to the telecommunications industry. Our core services include consulting/solution design, interoperability/Verification testing, integration and solution support services. Our services helps service providers achieve a smooth transition to packet-voice networks, speeding delivery of integrated services. While we have expertise covering a wide range of technologies, we have extensive experience surrounding our Fast-forward practice areas which include: SIP Trunking, Packet Voice, Service Delivery, and Integrated Services.

The tekVizion team brings together experience from the leading service providers and vendors in telecom. Our unique expertise includes legacy switching services and platforms, and unparalleled product knowledge, interoperability and integration experience on a vast array of VoIP and other next-generation products. We rely on this combined experience to do what we do best: help our clients advance the rollout of services that excite customers and result in new revenues for the bottom line. tekVizion leverages this real-world, multi-vendor integration and test experience and proven processes to offer services to vendors, network operators, enhanced service providers, large enterprises and other professional services firms. tekVizion’s headquarters, along with a state-of-the-art test lab and Executive Briefing Center, is located in the Telecom Corridor® in Richardson, Texas.

(For more information on tekVizion and its practice areas, please visit tekVizion Labs’s web site at www.tekVizionlabs.com.)
2 SIP Trunking Network Components

The network for the SIP trunk reference configuration is illustrated below and is representative of a ShoreTel ShoreWare configuration.

![Figure 1 - SIP Trunk Lab Reference Network](Image)

The lab network consists of the following components:

- ShoreTel ShoreWare PBX for voice features, SIP proxy and SIP trunk termination.
- Shoregear 90 switch.
- Various MGCP and SIP phones on the local LAN.
- inGate.
3 Shoreware Configuration

3.1 Create SIP Trunk

1. Navigate to Trunks > Trunk Groups.
2. Set Add new trunk group at site to Headquarters.
3. Set of type to SIP.
4. Click Go.

5. Set Name: Intelepeer Trunk group is used for example.
6. Set Enable SIP Info for G.711 DTMF Signaling: checked.
7. Set Profile: Default ITSP
8. Set Digest Authentication: None
9. Set Number of Digits from CO: 10
10. Set DNIS: Checked
11. Set DID: Checked
12. Click Edit DID Range: Enter the Base Phone Number and number of Phone Numbers and click on “Add this record” to add the DID Numbers.
13. Click Save.
14. Click on “back” button in the top left corner of the browser to get back to trunk group configuration.
17. Set Outbound: Checked.
18. Set Access Code: 9 is used for this example.
19. Set Local Area Code: This code depends on the given DID range. 347 is used for this example.
Figure 3: Trunk group

20. Set **Billing Telephone Number**: “+1(347)542-5760” is used for this example.
21. Set **Trunk Services**: Checked.
22. Set **Local**: Checked.
23. Set **Long Distance**: Checked.
24. Set **International**: Checked.
25. Set **Enable Original Caller Information**: Checked.
26. Set **n11** (e.g. 411, 611, except 911 which is specified below): Checked.
27. Set **Emergency** (e.g. 911): Checked.
28. Set **Easily Recognizable Codes (ERC)** (e.g. 800, 888, 900): Checked.
29. Set **Explicit Carrier Selection** (e.g. 1010xxx): Checked.
30. Set **Operator Assisted** (e.g. 0+): Checked.
31. Set **Caller ID not blocked by default**: Checked.
32. Confirm **Enable Caller ID**: Unchecked.
33. Set **Trunk Digit** Manipulation:
34. Set **Remove leading 1 from 1+10D**: Unchecked.
35. Confirm **Remove leading 1 for Local Area Codes**: Unchecked.
36. Confirm **Dial 7 digits for Local Area Code**: Checked.
37. Confirm **Dial in E.164 Format**: Unchecked.
38. Set **Local Prefixes**: None.
39. Set **Translation Table**: None.
40. Click **Save**.
Trunk Services:

- Local
- Long Distance
- International

☐ Enable Original Caller Information

- n11 (e.g. 411, 611, except 911 which is specified below)
- Emergency (e.g. 911)
- Easily Recognizable Codes (ERC) (e.g. 800, 888, 900)
- Explicit Carrier Selection (e.g. 1010xxx)
- Operator Assisted (e.g. 0+)
- Caller ID not blocked by default

☐ Enable Caller ID (Please confirm with the Carrier(s) or the Service Provider(s) on how the end-to-end caller name is delivered. When Site Name is used for the Caller ID, overwrite it with: 

Trunk Digit Manipulation:

☐ Remove leading 1 from 1+10D

 Hint: Required for some long distance service providers

☐ Remove leading 1 for Local Area Codes (for all prefixes unless a specific local prefix list is provided below)

 Hint: Required for some local service providers with overlay area codes.

☐ Dial 7 digits for Local Area Code (for all prefixes unless a specific local prefix list is provided below)

 Hint: Local prefixes required for some local service providers with mixed 7D and 1+10D in the same home area.

☐ Dial in E.164 Format

- Local Prefixes:

Prepend Dial Out Prefix:

Off System Extensions:

Translation Table.

Figure 4: Trunk group conti.
3.2 Create User Group

1. Navigate to Users > User Groups > Add new

![User Groups Page]

**Figure 5 Create User Group**

2. Set Name: Intelepeer User group is used for this example.
3. Set **COS-Telephony**: Fully Featured is selected from the pull down menu.
4. Set **COS-Call Permissions**: No Restrictions is selected from the pull down menu.
5. Set **COS-Voice Mail**: Large Mail Box is selected from the pull down menu.
6. Check **Send Caller ID** as Caller’s Emergency Service Identification (CESID)
7. Check **Send DID as Caller’s Emergency Service Identification (CESID)**
8. Set **Account Code Collection**: Disabled is selected from the pull down menu.
9. Set **Outgoing Trunk Groups (access Codes)**: Intelepeer Trunk Group(9) is checked.
10. Confirm all the rest of the options in “**User Profile**”, “**Phone Application**”, “**Ring tone**” are: None which are set by default.
3.3 Create Individual Trunks

1. Navigate to Trunks > Individual Trunks.
2. Set *Add new trunk at site*: Headquarters from the pull down menu.
3. Set in *trunk group*: Intelepeer Trunk Group from the pull down menu.
4. Click *Go*.
5. Set **Name**: is given for this example.
6. Select **Switch**: ShoreGear90 is selected for this example from the pull down menu.
7. Set **IP Address**: This is the IP address of LAN side of Ingate. Please use the actual IP address of Ingate for your network. The IP Address used in this configuration is 10.65.1.50. The Ingate IP address may/will be different from this example.
8. Select **Number of Trunks**: 3 is selected for this example.
9. Click **Save**.

![Figure 8 Individual Trunk cont.]

### 3.4 Add a New User
1. Navigate to **Users > Individual users**.
2. Set **Add a new user at site**. Headquarters is selected for this example.
3. Click **Go**.

![Figure 9 Add a New User]

4. Set **First Name**: For this example Dave is given as first name.
5. Set **Last Name**: For this example Phone3 is used.
6. Set **Number**: This 4 digit extension number should be in the DID Range. For this example 5761 is used.
7. Set **License Type**: External and Mailbox is selected from the pull down menu.
8. Set **Access License**: personal is selected from the pull down menu.
9. Set **Caller ID**: The DID number which is assigned is given in the format as shown in figure.
10. Check **DID Range**.
11. Select the DID Range from the pull down menu.
12. Set **DID number**: This will be the number assigned to the phone. This number should be in the DID Range selected.
13. Set **PSTN Failover**: Select None from the pull down menu.
14. Set **user groups**: For this example Intelepeer is selected from the pull down menu.
15. Set **Primary Phone Port**:
16. Check **IP Phones**: Select the MAC address of the appropriate phone connecting to the user.
Figure 10 Add a New User cont.

1. Set **Client User ID**: dPhone3 is given for this example.
2. Set **Email Address**: dphone3@tekvizion.com is given for this example
3. Click **Save**.
4 InGate Configuration

4.1 Select Model
1. Click Start up Tool TG Tool.
2. Set Please Select Model: Ingate Firewall/SIParator is selected.
3. Click Next.

![Select Product Type](image)

*Figure 11 Select Model*

4.2 Connect Ingate
1. Under First select what you would like to do:
2. Check Change or update configuration of the unit.
3. Check Configure SIP trunking.
4. Under Establish contact:
5. Set IP Address: This is the IP address of LAN side of Ingate. Please use the actual IP address of Ingate for your network. The IP Address used in this configuration is 10.65.1.50. The Ingate address may/will be different from this example.
6. Enter Password: *********.
7. Click Contact.
### 4.3 Network Topology

1. Set **Product Type**: Standalone SIParator is selected from the pull down menu.
2. Under **Inside (Interface Eth0)**:
   - **Set IP address**: This is the IP address of LAN side of Ingate. Please use the actual IP address of Ingate for your network. The IP Address used in this configuration is 10.65.1.50. The Ingate address may/will be different from this example.

3. **Set Netmask**: This is the Netmask for the IP address of “Inside (Interface Eth0)” entered in Network Topology.

4. Under **Outside (Interface Eth1)**:

5. **Confirm Use DHCP to obtain IP**: Unchecked
6. **Set IP Address**: Set IP address: This is the IP address of WAN side of Ingate. Please use the actual IP address of Ingate for your network. The Ingate WAN address may/will be different from this example.
7. **Set Netmask**: This is the Netmask for the IP address of Outside (Interface Eth1) entered in Network Topology.

8. **Confirm Allow https access to web interface from Internet** is Unchecked.
9. **Set Gateway**: Please use the actual Gateway IP address for your network. IP address may/will be different from this example.
10. **Set DNS Server (Primary)**: The primary DNS Server used here is 10.64.1.3. The IP address may/will be different from this example.

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Figure 12 Connect Ingate
4.4 IP-PBX

1. Set **Type**: ShoreTel ShoreGear.
2. Set **IP Address**: Please the actual IP address of ShoreTel PBX for your network. The IP Address used in this configuration is 10.65.1.4. The PBX IP address may/will be different from this example.
3. Conform **Use Domain Name** is Unchecked.
4.5 Service Provider

1. Select Name: Generic(register main)
2. Under Provider Address
3. Set IP Address: Please use the actual IP address of signaling IP that is provided by the service provider. The IP address may/will be different from this example
4. Confirm Use domain name is Unchecked.
5. Uncheck Authentication.
4.6 Upload Configuration
1. Under **Verbose Logging** (SIP debug): gs
2. Check **Enable**.
3. Under **Final step**:
4. Check **Logon to web GUI and apply settings**.
5. Click **Upload**.
4.7 SIP Trunk

1. In Ingate Web GUI:
2. Navigate to SIP Trunks > Trunk1.
4. Check Enable SIP Trunk.
5. Under SIP Trucking Service:
6. Check Define SIP Trunk Parameters.
7. Set Service name: Generic (Register main).
8. Set Service Provider Domain: Signaling IP address provided by Service Provider.
   Please use the actual IP address. The IP Address used in this configuration is 208.79.53.214. The IP address may/will be different from this example.
9. Set Restrict to calls from: WAN.
10. Set From header domain:
11. Check as entered.
12. Set From Domain: Please use the actual IP address of Ingate WAN for your network. The Ingate WAN IP address may/will be different from this example.
Figure 17 SIP Trunk
Figure 18: SIP Trunk conti..
Figure 19: SIP Trunk

The End.