MITEL APPLICATION NOTE

for

Recite Call Recording Application

Date:	September 2017
App Note Number:	TC - 18009
For use with:	Recite Call Recording
Product:	Mitel Connect ONSITE
System:	ST Connect 21.82.2142.0
	Recite 3.0.3.9

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Contents

ShoreTel tests and validates the interoperability of the Member's solution with ShoreTel's published software interfaces. ShoreTel does not test, nor vouch for the Member's development and/or quality assurance process, nor the overall feature functionality of the Member's solution(s). ShoreTel does not test the Member's solution under load or assess the scalability of the Member's solution. It is the responsibility of the Member to ensure their solution is current with ShoreTel's published interfaces.

The ShoreTel Technical Support organization will provide Customers with support of ShoreTel's published software interfaces. This does not imply any support for the Member's solution directly. Customers or reseller partners will need to work directly with the Member to obtain support for their solution.

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Introduction

This Configuration guide describes the steps required to integrate the Recite TAPI/Wav and Passive Call Recording Applications with a ShoreTel Connect Onsite System.

Recite Overview

Recite is the single most versatile unified communications recording solution for businesses and service providers, featuring over 300 customization options, a Windows 10-like tile dashboard, and enhanced Omni-channel playback. All advanced features are included at no extra charge and you have 100% control over how you experience your recordings and your agent/customer data.

Features

- Automated recording system health monitoring - Numonix Advisor proactively monitors the health of your system in real time to ensure zero down time
- Versatility - RECITE recording solution offers 80 customizable widgets and dashboards, 100 replay permission levels, 8 recording modalities, 50 canned and modifiable reports, and 4 types of built-in storage support
- Omni-channel playback - Our multimedia player offers the call audio, the agent's screen video, call details and online chat all in a single window for full interaction replay as it occurred
- RECITE Service Provider Edition - Offers multi-tenancy with tenant-unique URL access, OPEX pricing, and storage to NAS, SAN, Microsoft Azure or Amazon Web Services.
- RECITE's PBX-hybrid functionality saves BPOs, service providers and multi-site contact centers money by enabling users to record multiple telephony environments from the same recorder.

Benefits

- With RECITE, companies can record precisely how they want to without being locked into rigid, pre-set parameters. This way, they can garner the specific customer intelligence they need enhance service levels, as well as compliance and dispute resolution capabilities.
- Clients **save money** when using RECITE over competitive solutions because most of our enhanced features (including quality monitoring) are included at no extra charge.
- As call recordings are critical to many business today, with RECITE, clients will know immediately if any issues exist with the recorder.
- Companies can easily integrate RECITE into their current contact center environment regardless of their existing equipment, locations, etc.

Contact Information

Numonix Technical Support	Numonix Sales	Technical Contact
+1-561-952-2600 opt 2	+1-561-952-2600	Evan Kahan
support.numonixrecording.com	Sales@numonixrecording.com	evan.kahan@numonixrecording.com

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Configuration Overview

Network Topology
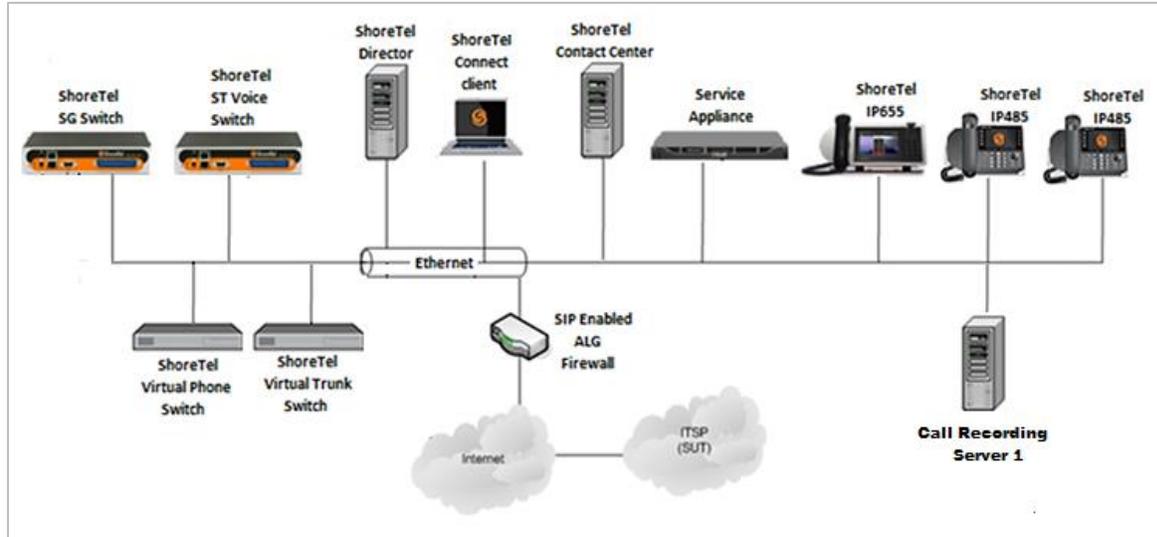
Test Environment

- ShoreTel Connect Onsite HQ and DVS Server
- Recite Configured to TAPI/WAV
- Recite configured for passive recording
- ShoreTel Voice Switch
- ShoreGear Switch
- ShoreTel 565 IP Phones
- ShoreTel 560 MGCP IP Phones
- ShoreTel 480G IP Phone
- ShoreTel Virtual Phone Switch
- ShoreTel Virtual Trunk Switch
- ST Connect Contact Center

Call Recording Requirements

1. Refer to the following list of the requirements for the Recite Server, to ensure the recording compatibility with the ShoreTel platform
2. Recite OS: 2012 R2 Standard or higher editions are supported
3. Windows 8.1 Pro, Windows 10 Pro are supported
4. Two (2) NIC ports are recommended on the Recite Server to separate data network, port spanned traffic and/or TAPI service when using Passive Recording. One adapter is required when using active TAPI-WAV recording
5. Microsoft SQL Server 2008, 2012, 2014, 2016 database applications are supported
6. Optional RAID 1, 5, or 10 configured internal hard drives, which is recommended for resiliency
7. ShoreTel TAPI Application License are required to communicate with the ShoreTel Server

TAPI/WAV SIP Trunk Recording

A direct copy of the audio is sent from the ShoreTel Switch to the Recite Server through a TAPI-WAV port. The ShoreTel TAPI client obtains all the call event data such as call start, call end, dialed digits, etc. The ShoreTel TAPI-WAV method records all the inbound and outbound calls at a ShoreTel Switch level, as a result station-to-station calls cannot be recorded.

TAPI-WAV provides an active (non-spanning) recording solution through active trunk-side recording. This recording method uses the ShoreTel TAPI-WAV ports to record phone calls. Each call desired to be recorded will be sent directly to the Recite Server.

Recording SIP trunks with TAPI/WAV requires SIP media proxy ports to be allocated on the ShoreTel Switches. One SIP media proxy port is required for each active call recording. Each trunk call can be monitored only one time, so 2N recording redundancy can only be supported with TAPI/WAV and another recording option such as port spanning.

NOTE: Station-to-station calls cannot be recorded using the TAPI/WAV method
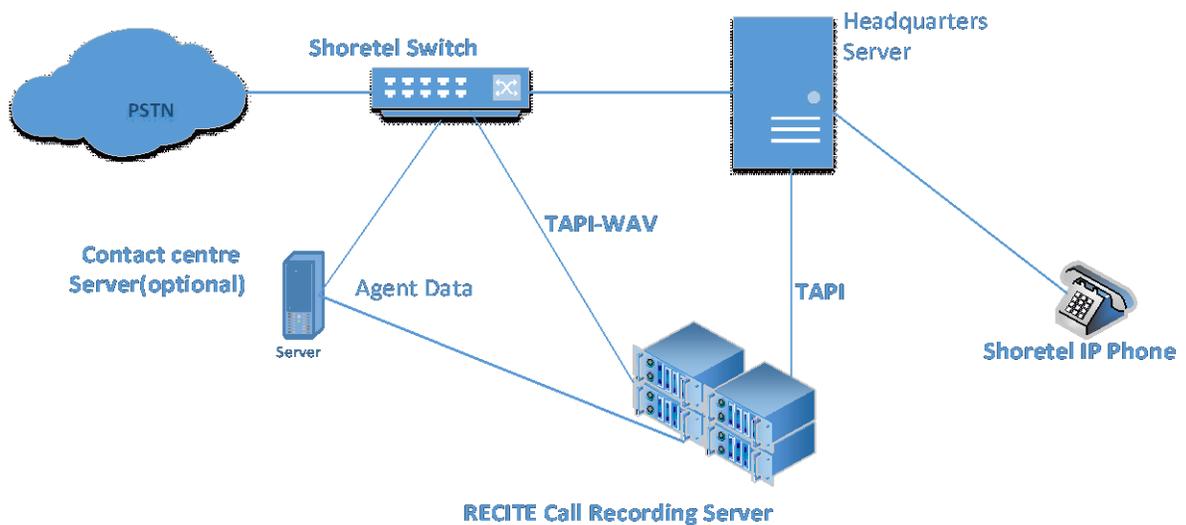
Passive Recording with TAPI (port-mirroring/spanning)

The phone ports were "spanned or port mirrored" to a dedicated VLAN on the network where the Numonix Recite Recording application uses TAPI as the CTI connection point. The recording server was configured with a second NIC interface to capture the phone conversations.

The targeted or monitored phones only included MGCP standard IP phones. ShoreTel SIP phones conversations were capture only in conversation with a MGCP IP phone. Conversations captured included internal and external calls for both inbound and outbound calls.

Support for passive SIP-Trunk recording with CDR to avoid procurement of additional proxy ports which are not required when the trunk type is digital or analog.

The port spanning or mirroring method is ideal for networks requiring station-to-station recording. Using the correct network configuration, station-to-station calls can be recorded to verify critical voice communications or simply pinpoint inefficiencies.

NOTE: *With the correct network configurations, the SPAN method can be used to record station- to-station calls. It will be the responsibility of the reseller and/or end user to configure the network to properly deliver the "spanned" packets to the Recite Server.*
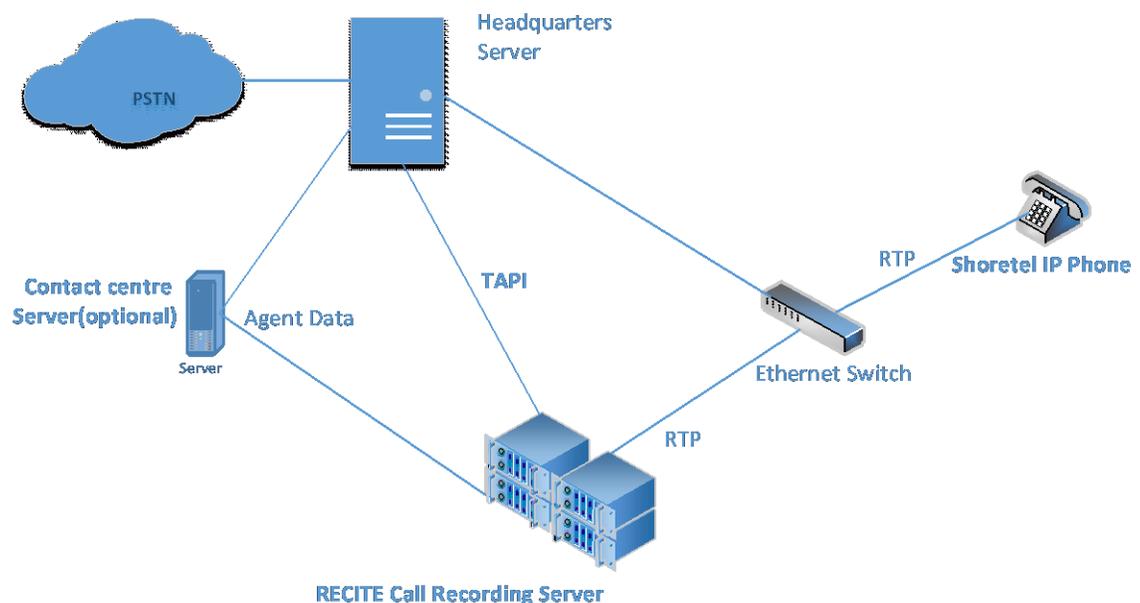
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Special Notes

The following are the caveats and limitations of Recite with a ShoreTel Connect Onsite system. At this time, we are unable to provide additional information on a resolution of these limitations, but suggest to periodically refer to both ShoreTel Connect Onsite and Recite Software Release Notes for the updates, which can be found at the following location:

http://www.support.shoretel.com

http:/Numonixrecording.com

TAPI/WAV Call Recording

- Internal Calls like Station-to-Station calls cannot be recorded
- Call recordings are only available for external calls via trunk, either incoming or outgoing.

Passive Recording with TAPI

- The majority of the testing was performed with the media mirrored at the phone ports. Any monitored phone conversation was recorded regardless of the call feature invoked e.g. Conference, Find Me, etc.
- Office anywhere and Find Me calls were recorded when outbound external number is a DID of monitored phone.
- In the case of the ShoreTel Voice switch G729 codec testing, the mirroring was performed at the switch for this test. The phone(s) were always sending G711 by default regardless of the ordering given in the defined inter/intra codec listing for the switch site.
- SRTP Media Encryption currently not supported
- SIP phones were not tested as monitored phones as the application does not support Encryption with TAPI. However, they were tested in the calls with monitored phones.

ShoreTel License

A ShoreTel TAPI Application Server license is required for each Recite Server. One additional Real Time Adherence (RTA) Connection or Real Time Group Feed license is required to communicate with Recite for Enterprise Contact Center (ECC) agent ID integration

ShoreTel Switch Support

The following switch types were tested with Recite

- Virtual Trunk Switch
- ShoreTel Voice Switch

SIP Trunk Media Proxy

"SIP Media Proxy" is required for the Call Recoding over SIP Trunks. "SIP Media Proxy" is enabled by default on ShoreTel Virtual Trunk switches, but needs to be assigned manually on the new ShoreTel Voice Switches as well as for legacy half-width ShoreGear Switches. For further information on the "SIP Media Proxy", please refer to Chapter 19 of the ShoreTel Connect Onsite System Administration Guide.

NOTE: *This Application Note assumes the setup, configuration and licensing of the Virtual/Physical Switches has already been completed. If you require additional information, please refer to the ShoreTel Connect Onsite Planning and Installation guide at the following location:*

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ShoreTel Server Configuration

This section outlines the steps to configure a ShoreTel system for the Recite ®.

Class of Service

1. Log in to the ShoreTel Connect Director with administrative rights at the following location:

    http://<Director IP>/shorewaredirector

2. Navigate to **Administration → Users → Class of Service → Telephony Features Permission**

3. Select an existing class to modify or click **NEW** to create a new class. "Fully Featured" was used in this test effort.

4. **Allow recording of own calls:** Checked

5. Go to Record other's calls and select checkbox **Allow Initiation** and radio button for **Accept – All**

6. All other settings should remain at default values

7. Click **SAVE**

User Group

Create a User Group for the Recite using the Class of Service created above:

1. Navigate to **Administration → Users → User Groups**

2. Click **NEW** to create a new user group or select an existing user group to modify. "Executives" was used in this test effort.

3. Assign the class of service created above by selecting it in the **COS – Telephony** dropdown box. "Fully Featured" was used in this test effort.

4. Assign the **COS - Call Permissions** to unrestricted by selecting "No Restrictions" in the dropdown menu

5. Assign the **COS - Voice Mail** by selecting "No Mail Box" in the dropdown menu

6. Within the **Outgoing Trunk Groups (Access Code)** window, select the trunk groups with permissible to be recorded

7. All other settings can remain at default values

8. Click **SAVE**

Application Server

Create a new application server for Recite to connect to the ShoreTel HQ Server:

1. Go to **Administration → Appliances/Servers → Platform Equipment**
2. Click **NEW** to create a new application server at the Headquarters site
3. Select **ShoreGear soft switch**
4. Enter **Name** and **Description** of the Recite Server
5. Enter the **IP address** and **FQDN** of the Recite Server

6. *Uncheck* the checkbox **Allow Voice Mailboxes**
7. Select the "Executives" User Group modified above in the **User Group** dropdown menu
8. All other settings can remain at default values
9. Click **SAVE**

TAPI/WAV Configuration

When using the TAPI/WAV recording option, the following additional configuration steps are required:

1. Create the Recite Route Point

2. Go to **Administration → Features → Call Control → Route Points**

3. Click **NEW** to create a new Route Point

4. Enter the **Name** for a Route Point

5. Enter the **Extension** value or use the auto-assigned number

6. Set the **Call Stack Depth** value to 200

7. Select the user group created previously in the **User Group** dropdown menu. "Executives" was used for this testing.

8. In the **Server** dropdown menu, select the Call Recording Server created previously

9. *Uncheck* **Enable mailbox** checkbox

10. Select the **Routing** tab

11. Select "Never" for the **Call forward** option

12. Leave all other settings at default values

13. Click **SAVE**

Recite Configuration

This section describes the steps to configure the Recite with ShoreTel Connect Onsite system using TAPI/Wav and Passive recording.

Install the ShoreTel Remote Server

ShoreTel remote Server Software must be installed since it provides a TAPI interface for the recorder which is used for recording audio and gathering call details.

Change the Computer name to some variation which is appropriate.

The computer name is used for security purposes by the ShoreTel software. It cannot be changed after the ShoreTel Remote Server software has been installed. Restart the server.

Set a static IP address for the server. This will allow the ShoreTel HQ server to reliably find the Remote server.

Follow the ShoreTel installation guide to add the Application and Web Server roles. Where the ShoreTel installation notes describe selecting FTP publishing Service this has been built into the Web Server role and is Available to select under FTP server. Select all FTP server options.

SMTP
Add SMTP as a server feature as noted in the ShoreTel installation notes. Note: the FTP service is listed in the Service window as "Microsoft FTP Service"

Setup CTI Management
Navigate to
1. C:\Program Files (x86)\Numonix\Recite\CTILink
2. Open the CTILinkService.app.config file in a text viewer.
3. Locate the Links as mentioned below.

```
<Link001>
    <LinkName Value="SHORETEL" />
    <LinkType Value="SHORETEL" />
    <Address Value="XXX.XXX.XXX.XXX" />
    <Port Value="9500" />
    <KeepAliveInterval Value="30" />
    <MessageParser>
```

```
<MapID Value="0" />
<MapDescription Value="" />
<Plugins>
  <TypeName Value="" />
  <AssemblyPath Value="" />
</Plugins>
</MessageParser>
<LinkDevicePort Value="9200" />
<IPAddressFilters Value="LOCAL,REMOTE" />
<UserID Value="" />
<UserName Value="" />
<PayloadTypes Value="PCMU,PCMA,RTA_NB" />
<LinkExtension>
  <Plugins>
    <TypeName Value="" />
    <AssemblyPath Value="" />
  </Plugins>
</LinkExtension>
<MediaCaptureTypes Value="AUDIO,CHAT,VIDEO,SCREEN" />
<EnableCustomEventTriggers Value="false" />
<EnablePacketTracker Value="true" />
<EnableNATMapping Value="false" />
<IPMonitorServiceID Value="IPM1" />
<AsyncCommandProvider>
  <MinInvokeID Value="0" />
  <MaxInvokeID Value="4000" />
  <MaxConcurrentCommandOperations Value="3" />
  <CommandOperationTimeout Value="5" />
  <CommandOperationRetryCount Value="2" />
</AsyncCommandProvider>
<RemotePartyHeaderName Value="Remote-Party-ID:" />
<AllowSipMethods Value="INVITE, BYE, ACK, PRACK, CANCEL, INFO, UPDATE, REFER,
NOTIFY, OPTIONS, SUBSCRIBE, REGISTER, MESSAGE" />
<EnableHoldPending Value="false" />
<UserPassword Value="" />
<ApplicationInstanceID Value="" />
<Priority Value="1" />
<MessageCredentialType Value="Windows" />
<PlainTextPassword Value="" />
<EnableTargetActivationTimer Value="true" />
<EnableAutoStopReplacedCalls Value="false" />
</Link001>
```

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Configure the Configuration Server

1. Go to settings → **Configuration server**

2. Click **NEW** to create a new configuration server

3. Enter **Name** and **IP Address**

4. Click Save

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Configuring the Extensions

1. Navigate to **Settings → Extensions**
2. Select an existing Extension to modify or click **Add Extension** to create a new extensions
3. Enter Extension number of the ShoreTel phone configured in ShoreTel Switch.
4. Select Connection type as **Dynamic**
5. All other settings should remain at default values
6. Click **SAVE**

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Call Records Listings

Call listings will show all the calls which are recorded by application

1. Go to **calls → Call Listings**
2. Enter Filter details to search **From** and **To**
3. Click **Search** to show results

ShoreTel Connect Client

The ShoreTel Connect Client application allows a user to answer their phone via a soft client interface on their PC. It has two main modes of operation:

- Primary phone-In this mode the soft client will answer the phone but the audio will still be presented on the physical phone via a handset or headset etc. In this mode the recorder will record the audio present on the physical ShoreTel phone.
- Soft phone- In this mode the soft client will answer the phone and the audio will be present on the client PC's sound card. In this mode the recorder will record the audio present on the PC sound card.

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Summary of Tests and Results

N/S = Not Supported   N/T= Not Tested   N/A= Not Applicable

Recite TAPI/WAV Call Recording

Primary Switch Test Plan (ShoreTel Virtual Trunk Switch)

ID	Result	Name	Description	Notes
1.1	PASS	Setup and Initialization	Verify successful setup and initialization of the Call Recording solution	
1.2	PASS	Outbound External Call	Verify outbound calls are recorded	
1.3	PASS	Inbound External Call	Verify calls received by the SUT are recorded	
1.4	PASS	Call Hold with MOH	Verify the two calls (pre-Hold and post-Hold) are properly recorded and retrievable on the server.	
1.5	PASS	Blind Transfer	Verify both call legs are properly recorded and retrievable on the server.	
1.6	PASS	Consultative (Attended) Transfer	Verify both call legs are properly recorded and retrievable on the server.	
1.7	PASS	Blind Conference Calls	Verify the media for all three parties is properly recorded and retrievable on the server.	
1.8	PASS	Consultative Conference Calls	Verify the media for all three parties is properly recorded and retrievable on the server.	
1.9	PASS	Make Me Conference Calls – 4 party conference	Verify the media for all four parties is properly recorded and retrievable on the server.	
1.10	PASS	Inbound External Call – Silent Monitor	Verify call is properly recorded and silent monitor works properly.	
1.11	PASS	Office Anywhere Call	Verify OAE call is properly recorded and retrievable on the server.	

ID	Result	Name	Description	Notes
1.12	PASS	Inbound Call to Voice Mail and trigger Find Me	Verify call is properly recorded and retrievable on the server.	
1.13	PASS	Inbound Call to ECC Agent	Verify call to Agent is properly recorded and retrievable on the server.	
1.14	PASS	Conference	Verify call is properly recorded and retrievable on the server.	
1.15	PASS	Inbound / Outbound G.711 Calls	Verify call is properly recorded and retrievable on the server.	
1.16	PASS	Inbound / Outbound G.729 Calls	Verify call is properly recorded and retrievable on the server.	

Secondary Switch Test Plan (ShoreTel Voice Switch)

ID	Result	Name	Description	Notes
1.1	PASS	Setup and Initialization	Verify successful setup and initialization of the Call Recording solution	
1.2	PASS	Outbound External Call	Verify calls outbound calls are recorded	
1.3	PASS	Inbound External Call	Verify calls received by the SUT are recorded	
1.4	PASS	Call Hold with MOH	Verify the two calls (pre-Hold and post-Hold) are properly recorded and retrievable on the server.	
1.5	PASS	Blind Transfer	Verify both call legs are properly recorded and retrievable on the server.	
1.6	PASS	Consultative (Attended) Transfer	Verify both call legs are properly recorded and retrievable on the server.	
1.7	PASS	Blind Conference Calls	Verify the media for all three parties is properly recorded and retrievable on the server.	

ID	Result	Name	Description	Notes
1.8	PASS	Consultative Conference Calls	Verify the media for all three parties is properly recorded and retrievable on the server.	
1.9	PASS	Make Me Conference Calls – 4 party conference	Verify the media for all four parties is properly recorded and retrievable on the server.	
1.10	PASS	Inbound External Call – Silent Monitor	Verify call is properly recorded and silent monitor works properly.	
1.11	PASS	Office Anywhere Call	Verify OAE call is properly recorded and retrievable on the server.	
1.12	PASS	Inbound Call to Voice Mail and trigger Find Me	Verify call is properly recorded and retrievable on the server.	
1.13	PASS	Inbound Call to ECC Agent	Verify call to Agent is properly recorded and retrievable on the server.	
1.14	PASS	Conference	Verify call is properly recorded and retrievable on the server.	
1.15	PASS	Inbound / Outbound G.711 Calls	Verify call is properly recorded and retrievable on the server.	
1.16	PASS	Inbound / Outbound G.729 Calls	Verify call is properly recorded and retrievable on the server.	

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Passive Recording with TAPI

Switch Test Plan (ShoreTel Virtual Phone Switch)

ID	Result	Name	Description	Notes
1.1	PASS	Setup and Initialization	Verify successful setup and initialization of the Call Recording solution	
1.2	PASS	Outbound Internal Call	Verify calls outbound calls are recorded	
1.3	PASS	Inbound Internal Call	Verify calls received by the SUT are recorded	
1.4	PASS	Call Hold with MOH - Internal	Verify the two calls (pre-Hold and post-Hold) are properly recorded and retrievable on the server.	
1.5	PASS	Blind Transfer – Internal	Verify both calls legs are properly recorded and retrievable on the server.	
1.6	PASS	Consultative (Attended) Transfer - Internal	Verify both calls legs are properly recorded and retrievable on the server.	
1.7	PASS	Blind Conference Calls - Internal	Verify the media for all three parties is properly recorded and retrievable on the server.	
1.8	PASS	Outbound External Call	Verify calls outbound calls are recorded	
1.9	PASS	Inbound External Call	Verify calls received by the SUT are recorded	
1.10	PASS	Call Hold with MOH - External	Verify the two calls (pre-Hold and post-Hold) are properly recorded and retrievable on the server.	
1.11	PASS	Blind Transfer – External	Verify both calls legs are properly recorded and retrievable on the server.	
1.12	PASS	Consultative (Attended) External Transfer	Verify both calls legs are properly recorded and retrievable on the server.	

ID	Result	Name	Description	Notes
1.13	PASS	Conference	Verify the media for all three parties is properly recorded and retrievable on the server	
1.14	PASS	Consultative Conference Calls	Verify the media for all three parties is properly recorded and retrievable on the server	
1.15	PASS	Make Me Conference Calls – 4 party conference	Verify the media for all four parties is properly recorded and retrievable on the server	
1.16	PASS	Inbound External Call – Silent Monitor	Verify call is properly recorded and silent monitor works properly	
1.17	PASS	Office Anywhere Call	Verify OAE call is properly recorded and retrievable on the server	
1.18	PASS	Inbound Call to Voice Mail and trigger Find Me	Verify call is properly recorded and retrievable on the server	
1.19	PASS	Inbound Call to ECC Agent	Verify call to Agent is properly recorded and retrievable on the server	
1.20	PASS	Inbound / Outbound G.711 Calls	Verify call is properly recorded and retrievable on the server	
1.21	PASS	Inbound / Outbound G.729 Calls	Verify call is properly recorded and retrievable on the server	

Switch Test Plan (ShoreTel Voice Switch)

ID	Result	Name	Description	Notes
1.1	PASS	Setup and Initialization	Verify successful setup and initialization of the Call Recording solution	
1.2	PASS	Outbound Internal Call	Verify calls outbound calls are recorded	
1.3	PASS	Inbound Internal Call	Verify calls received by the SUT are recorded	
1.4	PASS	Call Hold with MOH - Internal	Verify the two calls (pre-Hold and post-Hold) are properly recorded and retrievable on the server	
1.5	PASS	Blind Transfer – Internal	Verify both calls legs are properly recorded and retrievable on the server	
1.6	PASS	Consultative (Attended) Transfer - Internal	Verify both calls legs are properly recorded and retrievable on the server	
1.7	PASS	Blind Conference Calls - Internal	Verify the media for all three parties is properly recorded and retrievable on the server	
1.8	PASS	Outbound External Call	Verify calls outbound calls are recorded	
1.9	PASS	Inbound External Call	Verify calls received by the SUT are recorded	
1.10	PASS	Call Hold with MOH - External	Verify the two calls (pre-Hold and post-Hold) are properly recorded and retrievable on the server	
1.11	PASS	Blind Transfer – External	Verify both calls legs are properly recorded and retrievable on the server	
1.12	PASS	Consultative (Attended) External Transfer	Verify both calls legs are properly recorded and retrievable on the server	
1.13	PASS	Conference	Verify the media for all three parties is properly recorded and retrievable on the server	

ID	Result	Name	Description	Notes
1.14	PASS	Consultative Conference Calls	Verify the media for all three parties is properly recorded and retrievable on the server	
1.15	PASS	Make Me Conference Calls – 4 party conference	Verify the media for all four parties is properly recorded and retrievable on the server	
1.16	PASS	Inbound External Call – Silent Monitor	Verify call is properly recorded and silent monitor works properly	
1.17	PASS	Office Anywhere Call	Verify OAE call is properly recorded and retrievable on the server	
1.18	PASS	Inbound Call to Voice Mail and trigger Find Me	Verify call is properly recorded and retrievable on the server	
1.19	PASS	Inbound Call to ECC Agent	Verify call to Agent is properly recorded and retrievable on the server	
1.20	PASS	Inbound / Outbound G.711 Calls	Verify call is properly recorded and retrievable on the server	
1.21	PASS	Inbound / Outbound G.729 Calls	Verify call is properly recorded and retrievable on the server	

Conclusion

Recite Call Recording Solution – TAPI/WAV and Passive Recorder with TAPI has been successfully validated and approved with ShoreTel Connect Onsite system

Additional Resources

[ShoreTel Connect ONSITE System Administration Guide](#)

[ShoreTel Connect ONSITE Planning and Installation Guide](#)

[ShoreTel Connect ONSITE Client User Guide](#)

Version	Date	Contributor	Content
1.0	Sept 2017	Pradeep Nagubandi	Original App Note
1.1	Nov 2017	Pradeep Nagubandi	ShoreTel requested revisions

ShoreTel. Brilliantly simple business communications.

ShoreTel, Inc. (NASDAQ: SHOR) is a leading provider of brilliantly simple IP phone systems and unified communications solutions powering today's always-on workforce. Its flexible communications solutions for on-premises, cloud and hybrid environments eliminate complexity, reduce costs and improve productivity.

World Headquarters	+1 (800) 425-9385 Toll Free	**EMEA**	**APAC**
960 Stewart Drive	+1 (408) 331-3300 Tel	Inspired	8 Temasek Boulevard#41-03
Sunnyvale, CA 94085	+1 (408) 331-3333 Fax	Easthampstead Road	Suntec Tower 3
USA		Bracknell, RG12 1YQ	Singapore 038988
shoretel.com		+44 (0) 1344 208800 Tel	+65 6517 0800 Tel