Application Note

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ShoreTel Ring Tones: A Step-by-Step Guide

Description: This application note describes the creation and application of ring tones to ShoreTel IP telephones.

Environment: ShoreTel IP-PBX versions 10, 11 & 12

Introduction

This Application Note provides details on the creation and application of .WAV files to be used for IP Phone ring tones within the ShoreTel IP-PBX system. This document supplements other ShoreTel documentation and previous application notes, and provides a step-by-step process that can be easily replicated and utilized.

Also included are some lesser known information points that allow you to apply ring tones in a Bridged Call Appearance environment.

Finally, this document will include steps for modifying and converting pre-existing .WAV files in a batch manner into a format to work on a ShoreTel telephone.

Contents

Overview

The ShoreTel phone system comes standard with 4 ring tone settings available for each IP Phone. Within each of these four settings, there is a separate and distinct .WAV file used for both internal calls and external calls. Ringtones can be applied to individual telephones by either the administrator or the end user.

In addition to IP phone-based ring tones, the ShoreTel Communicator desktop application gives the end user the flexibility to configure specific uses of ring tone settings for certain call events and features such as Personalized Call Handling, a feature of the Professional Access Level (and higher) clients.

Although the standard ringtones fulfill most business requirements, sometimes individualized ringtones are desired or required, such as:

- Noisy environments where there is a high concentration of phones.
- Specific, distinctive rings for specific call types
- Users, such as Executives, who can benefit from a unique, classy touch

Configuration

Adding ringtones is covered in the ShoreTel Administration Guide and various Knowledgebase articles. That information will also be covered here for the sake of completeness.

Distinctive/Personalized ringtones became available starting with ShoreTel 7. This feature offers the ability to load custom ring tones onto IP phones so that each phone can have a unique ring tone. This feature is supported on all ShoreTel IP phones except the IP100.

Note: Refer to ShoreTel 7 Server Release Notes for additional details.

Custom ring tones are not provided by ShoreTel, but numerous web sites offer files that can be downloaded for free.

Ringtone .WAV Files

Ring tone files must confirm to a specific file format in order for them to be successfully applied to the telephones.

- Custom ringtone files must be loaded in .WAV format. Other file formats, such as .MP3, are not supported
- Only the following .WAV formats are supported by the phone:
  - u-law: 8-bit, 8 kHz, 16 kHz, Mono
  - a-law: 8-bit, 8 kHz, 16 kHz, Mono
  - 16-bit, 8 kHz, Mono
  - 16-bit, 16 kHz, Mono
- Only two custom tones can be loaded on a single phone. The sum total file size of both files must be less than 750kb. Files exceeding this size will not be downloaded.
- If an individual .WAV file has a total length of less than 6 seconds, the phone will repeat the ringtone to achieve a full 6-second length

Once a set of custom ring tones has been created, the system administrator loads these ring tone files onto a user's IP phone via the FTP service running on the ShoreTel server. These files can reside on any folder accessible to the FTP server.

Ring tone files can be deployed in two separate ways. If you desire to apply the custom pair of ringtones to all phones of a certain model or type (for example, all IP-230g phones), then a change to a single custom text file can be used to achieve these results.

If you desire to apply a pair of custom ring tones to a specific, single telephone, you will need to manually create a MAC-Address-specific text file and store it in the same directory as the standard IP phone configuration text files.

The following describes how to implement both techniques.

Adding Ringtones to all Phones of a Specific Type

If you desire to add custom ringtones to all instances of a specific model of phone, you will use the custom.txt files that are pre-made for this purpose.

As stated earlier, ring tones are applied to the ShoreTel phones by way of the FTP service residing on the ShoreTel Server. When an IP phone boots up, it will display information on its screen indicating the files it is receiving from the FTP server.

Specifically you should see:

- "Looking for FTP server x.x.x.x"
  Where x.x.x.x is the IP address of the ShoreTel server
- "Contacted FTP server x.x.x.x"
  This indicates that the FTP server has been located and the phone is communicating with the server

If you do not see these messages, it means the phone cannot reach the FTP server.

Assuming the FTP server is successfully reached, you will then see information in the display of the phone about various .TXT files that are being downloaded. These .TXT files provide configuration characteristics to the phone such as VLAN configuration, Ethernet port settings, country specific data, language settings, and finally a model-specific custom file that is used to provide custom configurations to the telephone model.

In a default deployment, the model-specific, custom text files are present in the FTP directory on the ShoreTel server but contain no data. The files are used to apply specific changes to specific models of telephones such as audio adjustments, wallpaper changes and custom ring tones.

These custom files reside on the ShoreTel server at the following default location:

C:\inetpub\ftproot

Within the "C:\inetpub\ftproot" folder you will find several .TXT files with the following naming convention:

"XXXXcustom.txt"

A different custom .TXT file is used for each model of telephone. The custom files correspond to the models as follows:

Text File name	ShoreTel Phone Model
s01custom.txt	IP115
s12custom.txt	IP212k
sevcustom.txt	IP230
sevgcustom.txt	IP230G
s36custom.txt	IP265
s6custom.txt	IP560
s6gcustom.txt	IP560G
s6ccustom.txt	IP565
swecustom.txt	IP655

The default content of each file contains only a comment with no actual configuration settings.

This comment is:

```
# Please consult Shoreline support before editing or deleting this file
```

Note: Comment lines begin with the '#' symbol.
Comment lines can be added or removed as desired.

Locate and edit the custom .TXT file on the ShoreTel server for the model of IP phones you desire to deploy the custom ringtones to. You will need to add the configuration parameter commands which indicate which of the 4 ring tones are being displaced (1, 2, 3 or 4) and where the pair of new .WAV files are located.

The required parameters are: **`WaveRinger1`** and **`WaveRinger2`**

These two parameters are used to assign a custom ringtone file to the Internal and External ringtone of one of the four default ringtone locations.

The format of the parameters is:

```
WaveRinger1 L/rxx IPaddress/path/filename.wav
WaveRinger2 L/rxx IPaddress/path/filename.wav
```

Note: The text for each entire line (parameter and value) cannot exceed 64 characters.

The "rxx" parameter is replaced by the specific setting for the ring tone you want to replace according to the following chart:

Ring Tone	Symbol
Standard - External ring	L/rg
Standard - Internal ring	L/r1
Ring 2 - External ring	L/r10
Ring 2 - Internal ring	L/r11
Ring 3 - External ring	L/r12
Ring 3 - Internal ring	L/r13
Ring 4 - External ring	L/r14
Ring 4 - Internal ring	L/r15

For example, if you want to use the file "bell_system_ringer.wav" for both internal and external ring tones and you want to replace the "standard" ring location (Ring 1) on all IP-265 phones you would do the following:

1. Make sure the .WAV file is in a format that is usable by the ShoreTel system (see above). Improperly formatted files will be ignored.
2. Place the .WAV file on a server in a folder accessible by the FTP server service. This will often be the ShoreTel HQ server. Files can be stored directly in "C:\inetpub\ftproot" or they can be copied to a subfolder within the ftproot folder or another folder that has been added to the FTP service. For this example, a folder called "audio" has been created within the "ftproot" folder on the server and the .WAV file has been placed there.
3. Open the custom .TXT file associated with this telephone model. For the IP-265 model phone you would edit "s36custom.txt" located at "C:\inetpub\ftproot."
4. Add the following lines to the file:

   ```
   WaveRinger1 L/rg 192.168.0.20/audio/bell_system_ringer.wav
   WaveRinger2 L/r1 192.168.0.20/audio/bell_system_ringer.wav
   ```

   Where 192.168.0.20 is the IP address of the ShoreTel HQ/FTP server.

5. Reboot one IP-265 telephone to test. Watch the display of the telephone, looking to see the .WAV file being transferred from the FTP server to the telephone.

6. Place a test call both from an internal ShoreTel extension and from an external PSTN phone to the newly modified IP Phone. You should hear your new ring tone.
7. Adjust the .WAV file, if desired, using a 3rd party audio editor, until you achieve the sound you desire for both ring tones. You can use a different file for the internal and external ringtones or the same file (as in this example).
8. Once successful, reboot all the remaining IP265 telephones to apply these changes to all of these models.

Adding Ringtones to one Specific Phone

Instead of applying custom ring tones to all phones of a specific type you may choose to apply custom ring tones only to a few select IP phones.

In such cases, you need to create a file for that specific telephone device. This is done by creating a phone-specific file which contains the MAC address of the target phone where the ring tone will be loaded.

The name of the phone-specific configuration file should be as follows:

`shore_aabbccddeeff.txt`

Where "aabbccddeeff" is the MAC address of the target IP phone. The MAC address can be found on the sticker on the back of each phone.

This new .TXT file must be stored in the same directory as the standard IP phone configuration files:

C:\inetpub\ftproot

To modify the ring tones on a specific phone, use the same configuration commands and syntax referenced earlier for any of the four ring tone sets being replaced.

*NOTE: It is important that you **create** the new the file directly on the ShoreTel HQ/FTP server rather than **copying** the file to the server directory. FTP permissions are inherited correctly for files that are created in the "ftproot" folder but permissions are not inherited correctly for files that are copied into the folder.*

If you believe you have made all your changes correctly but the customer .TXT file is not being found or read when the IP phone boots up, delete the file in question and recreate a new file in the "ftproot" folder and re-add the proper parameters. Save and retest.

Testing & Troubleshooting

To verify that the files are being applied, do the following:

- As the telephone boots up, observe the display and see if the file is being grabbed from the FTP server. You will see the filename of the .WAV file on the IP Phone display. If no information about the specific .WAV file is seen, then the path to the file could be referenced incorrectly. If you see the error "fail file_name.wav" then the file size could be too large or the .WAV files may not be in the correct format.
- Once the file is loaded, make sure the phone is configured to use the specific ringer. You can change the selected ringer on the handset by pressing the "Options" button. When prompted, enter your telephone's password (same as the user's numeric voice mail password) and press "OK". Scroll down to "Change Ring" and select the ringer (Standard, Ring 2, Ring 3 or Ring 4) that you changed with your download.
- You can also change the selected ringer within ShoreWare Director by choosing "Administration > Users > Individual Users", find the user who's telephone you have modified, choose "Personal Options" and edit "Ring Type". Choose the ringer you have modified: Standard, Ring 2, Ring 3 or Ring 4.
- If there are problems with the file (wrong format, too large, etc.) your phone will attempt to load the file(s), fail and continue booting using its previous settings. The new ringtones will not be applied.

Things to Remember

1. When creating the files for individual telephones, the filename must be in lower case as in "shore_aabbccddeeff.txt"
2. If a MAC address-based file is found, it will be used to provide configuration parameters for the phone. If it is not found, the phone uses the model-specific "xxxxcustom.txt" file for configuration.
3. Do not precede the configuration commands with "#".
   The pound, or hash, symbol indicates that the line is a comment (informational only) and the line will be ignored by the system.

Bridged Call Appearance Ring Tones

Bridged Call Appearances (BCAs) are a feature that allows a single extension (or line) to be shared by many users. It can be used in a variety of ways but is frequently used to emulate a "squared" key-system configuration where a group of phones might want a set of keys on the telephones referenced as "line 1", line 2", "line 3", etc.

With such a configuration, when a call arrives on a particular key (or "Line") the call will appear on the same key and display the proper state (ringing, in use, on hold) across all the configured telephones.

A user can, for example, put the key labeled "Line 1" on hold and pick up the caller on another telephone with the same button key labeled "Line 1". This is an effective feature for use in a retail environment where a key-system-type arrangement might be preferred.

In such configurations, it may be desirable to have the BCA extensions use a different ringer than standard calls to that IP Phone. That way, calls directed to the BCA can be audibly distinguished from other station calls.

You use the same methods described above to assign ringtones for use by BCA call appearances on an IP Phone. To do this ShoreTel adds a new Symbol to the previously defined list:

Ring Tone	Symbol
Standard - External ring	L/rg
Standard - Internal ring	L/r1
Ring 2 - External ring	L/r10
Ring 2 - Internal ring	L/r11
Ring 3 - External ring	L/r12
Ring 3 - Internal ring	L/r13
Ring 4 - External ring	L/r14
Ring 4 - Internal ring	L/r15
BCA ring	L/r2

To apply a different ring tone for BCA calls, the following configuration command would need to be applied:

```
WaveRinger1 L/r2 IPaddress/path/filename.wav
```

Things to Remember

1. There is only <u>one</u> configuration command for this type of extension.
2. BCA ringtones can be applied via the custom file for all models of a particular phone or the MAC address-based file for specific IP phones.
3. If using custom BCA Ringtones, other ringtones *cannot* be applied to the telephone.

Creating Usable .WAV Files for ShoreTel

It can sometimes be difficult to find files in the appropriate format to work on the ShoreTel system. A simple tool that can be used is the Microsoft Sound Recorder software that comes free with MS Windows XP. Sound Recorder allows you to take an existing sound file and convert it to a format usable by ShoreTel. This application can only be found on Windows XP machines but works fine on Vista and Windows 7 if you copy the .EXE file to those platforms.

NOTE: Newer versions of Sound Recorder, such as found in Windows 7, do not provide the options needed for this conversion.

Individually, this is a good tool to use for converting single files. When combined with the scripting information below, a quick and simple method is created to allow you to change multiple .WAV files into a format that is usable on the ShoreTel system.

Batch Converting .WAV Files for use with ShoreTel

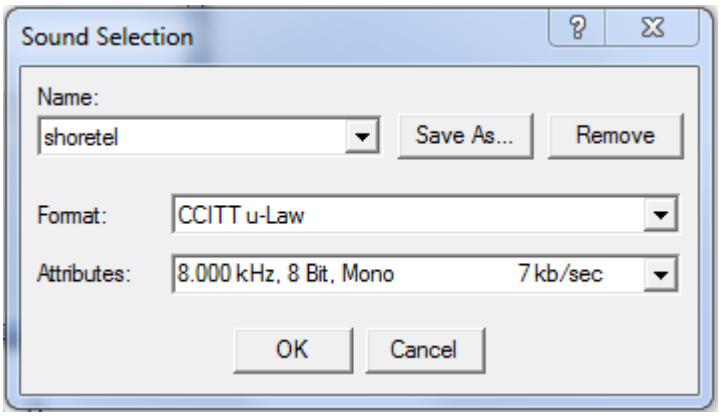
You will need the following:

1. Windows PC
2. Sound Recorder (sndrec32.exe) from a Windows XP Machine
3. A program called AutoHotkey (http://www.autohotkey.com/), a free Mouse and Keyboard Macro Program

Follow the steps below to batch convert:

1. Install AutoHotkey
2. Create a folder on the root of the Communicator: drive of the machine you are using to convert the files called "WAVConvert" (e.g. "C:\WAVConvert")
3. Place a copy of sndrec32.exe in the "C:\WAVConvert" folder
4. Create a folder within "C:\WAVConvert" called "files" (e.g. "C:\WAVConvert\files")
5. Place all of the .WAV files you want converted into the "files" directory. Make sure you keep a copy of these files in another location as this process will overwrite the files.
6. Open sndrec32.exe from the "WAVConvert" folder (Vista/Windows 7 users will need to right-click and choose "Run as Administrator")
7. Select "File > Save As"
8. Click the "Change" button at the bottom of the window

9. Select "CCITT u-Law" as the format and "8.000 kHz, 8 bit, Mono 7kb/sec" as the attributes.



10. Click the "Save As" button and name the setting "ShoreTel". This will create a saved profile for the type of conversion we want to perform on each file.
11. Press OK, Cancel, then close Sound Recorder

Now we need to create a script for AutoHotKey to follow.

Open a text editor such as NOTEPAD.EXE and copy/paste in the following:

```
#NoEnv ; Recommended for compatibility with future releases.
SendMode Input ; Recommended for superior speed and reliability.
SetWorkingDir %A_ScriptDir% ; Ensures consistent starting directory.

Loop, C:\WAVConvert\files\*.wav,0,0
{
Run C:\WAVConvert\sndrec32.exe %A_LoopFileFullPath%
Sleep 3000
Send {Alt}
Send {f}
Send {a}
Sleep 3000
Send !{c}
Send {s}
Send {Enter}
Send {Enter}
Send {Enter}
Sleep 3000
Send !{F4}
}
Return
```

Save the file as "ShoreTel_WAV_Convert_loop.ahk" in the "C:\WAVConvert" folder

Right-click "ShoreTel_WAV_Convert_loop.ahk" and choose "Run Script".

Things to Remember

1. This solution runs a macro. You will not be able to use the PC while it is running this script. You may need to adjust the sleep values based on the speed of your computer.
2. Depending upon the original file format, it is possible that this conversion will introduce noise and distortion in the .WAV file. Test for suitable fidelity after usage.

Conclusion

Custom ring tones are an effective tool to allow users to distinguish specific call types in a business where there are multiple phones in a small area or where certain types of calls need to be identified and answered quickly.

This document is intended to detail this information in a manner that allows partners and customers an easy method of addressing this need.

Additional Resources

- ShoreTel 7 Server Release Notes
- ShoreTel Administration Guide (releases 10-12), Chapter 8, section 8.4
- ShoreTel Knowledge Base Articles KB690 & KB704
- ShoreTel Forums: http://www.shoretelforums.com/forums/administrators/5555-batch-convert-wav-files-use-shoretel.html (login and password required)

Version	Date	Contributor	Content
1.0	October, 2011	JCarroll	Original App Note