Application Note

ST AppNote (AN13034)

December 2012

Properly Format Audio Files for use with File Based MoH

Description: This application note provides detailed information on creating .WAV files in the proper format for use as ShoreTel File Based Music on Hold.

Environment: ShoreTel IP-PBX, versions 13.1 +
Audacity version 2.0.2

Overview

ShoreTel 13.1 introduces an enhancement to the Music on Hold (MoH) options in the system. The introduction of File Based MoH allows the administrator to configure additional MoH sources, in addition to the "Jack Based" source on the appliances. These additional sources are .WAV files stored on the HQ, DVS and V Switches in the ShoreTel Architecture.

The .WAV file required format is μ-Law, 8 kHz, 8 Bit Mono. Since most stored media files today are in MP3 format the installer may have to format the file in order to be utilized by the System.

This Application Note will describe the steps for creating a properly formatted .WAV audio file using Audacity (a free, cross-platform sound editor) to import and use as a ShoreTel IP-PBX system prompt. This Application Note is not intended to provide configuration guidance of the options with the File Based MoH, once imported in the System, please refer to the 13.1 Partner Guide, System Administrator Guide Chapter 2 and Planning and Installation Manual for configuration steps.

Contents

ShoreTel File Based Music on Hold

ShoreTel 13.1 now supports file based Music on Hold in addition to the "Jack Based" source on the Voice Appliances. The MoH files are added to the ShoreWare Director via the Administration -> Call Control -> Music on Hold Menu.

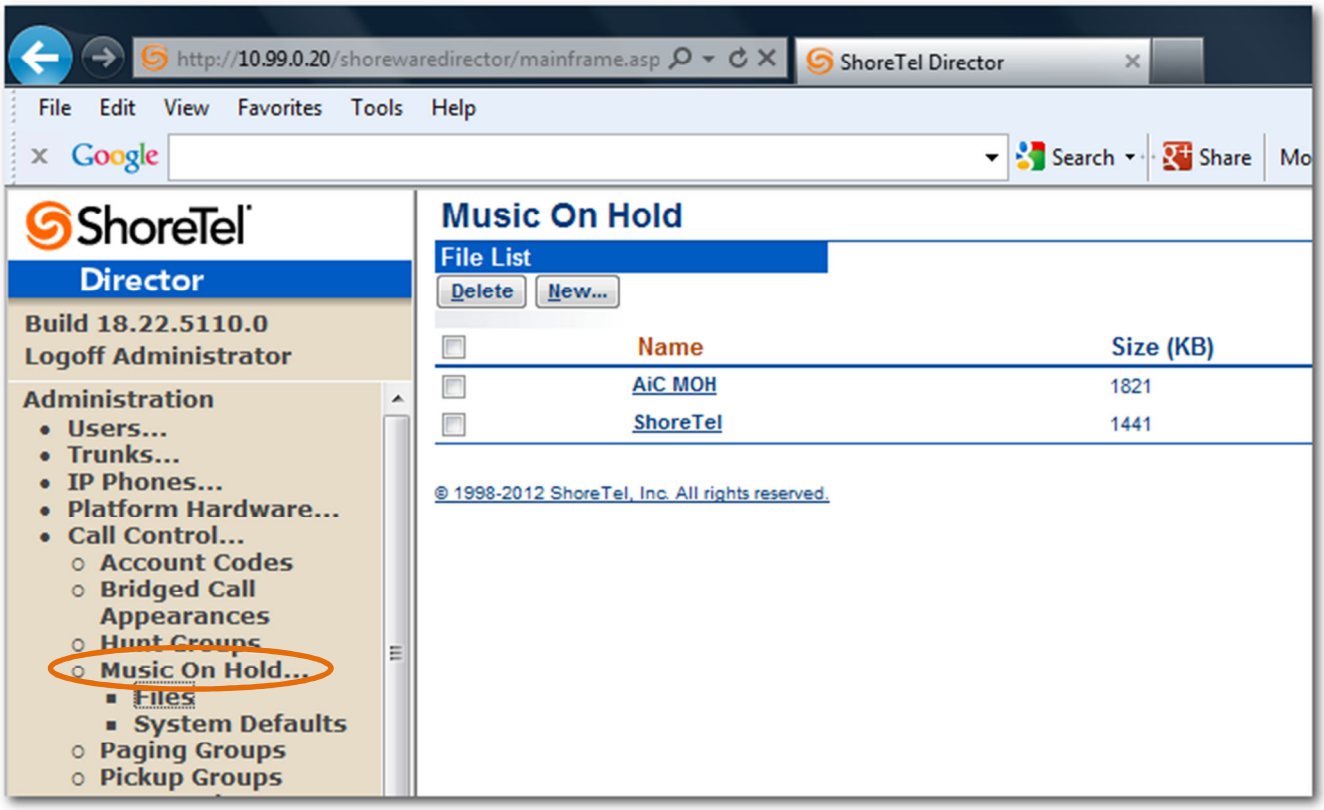

Figure 1 – ShoreWare Director MoH File List

In order for the ShoreTel System to play the music files, the administrator must format the file to the ShoreTel Media standards, shown in Table 1 below.

MoH File Format	
File Format	*.WAV*
Channel	*Mono*
Algorithm	*CCITT μ-Law*
Sampling Rate	*8 kHz*
Coding	*8 Bit*
Max File Size (SMTP Transfer Limit)	*6385 KB*

Table 1 – File Format Standards

Later in the Application Note we will discuss the steps to import the files once they have been resampled to the standards above.

Note: ShoreTel recommends that you review the legal impacts of using copyrighted music files for use with the File Based Music on Hold features. The customer is responsible for any royalty fees that may be required. Additional information can be found at http://www.bmi.com/licensing/entry/music_on_hold or http://www.ascap.com/licensing/licensingfaq.aspx. These sites are not the only resources for licensing questions, they are provided as a starting point to the research for the legal impacts of broadcasting copyrighted materials.

Note: Larger files can be used; however the default SMTP limit will not allow the files to be transferred to a DVS or a V Switch. See Chapter 2 of the System Administrator Guide for more details on adjusting the default limits of the transfer.

In the next section we will discuss ways to use an audio editor called Audacity to format any pre-existing music files, to the proper format, for use with the ShoreTel system.

Using Audacity to Convert Audio Files

Audacity is a free, open-source software package, which can be used to easily import and convert between many different audio file types. Audacity is easy to use, and allows you to:

- Record Live Audio
- Import and Export audio into a number of different formats, data rates and encodings (including .WAV, AIFF, AU, OGG, MP2 and MP3)
- Edit sound files
- And much more

Audacity is available at: http://audacity.sourceforge.net

The information below will help you convert pre-existing audio files into the proper format for use as an audio prompt within the ShoreTel IP-PBX.

The ShoreTel system is compatible with the widely used .WAV format, but not just any .WAV file will be recognized. ShoreTel requires that .WAV files be encoded in an 8-Bit, CCITT U-Law format. Audacity makes it easy to convert your files into the proper format.

Using Audacity

First, make a copy of your original file for backup purposes.

Next, download, install and launch the Audacity program from http://audacity.sourceforge.net.

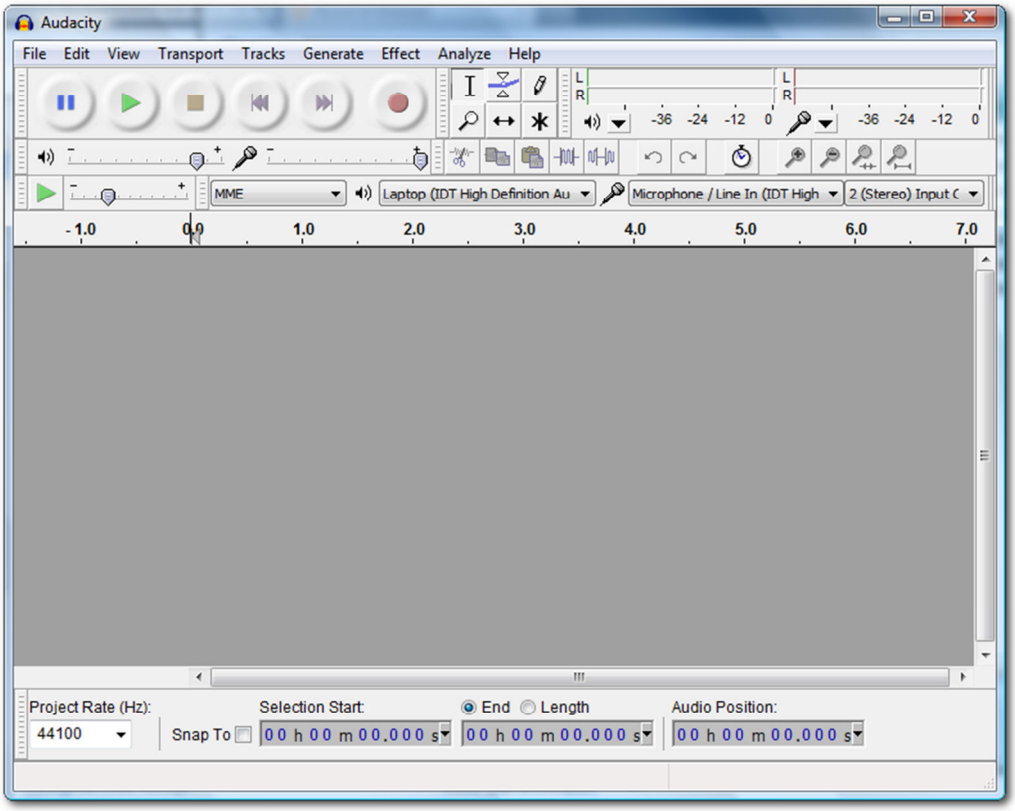

Figure 2 – Audacity 2.0.2 Program

Use the "File > Open" command to open your pre-existing source audio file.

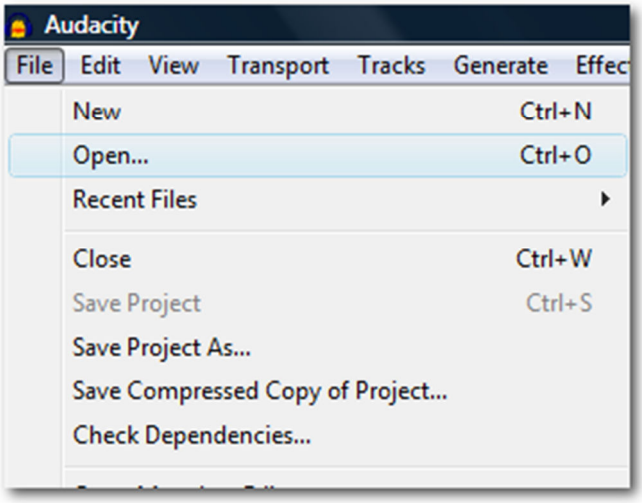

Figure 3 – Audacity File Open

We will select a file called On Hold 1 for this example.

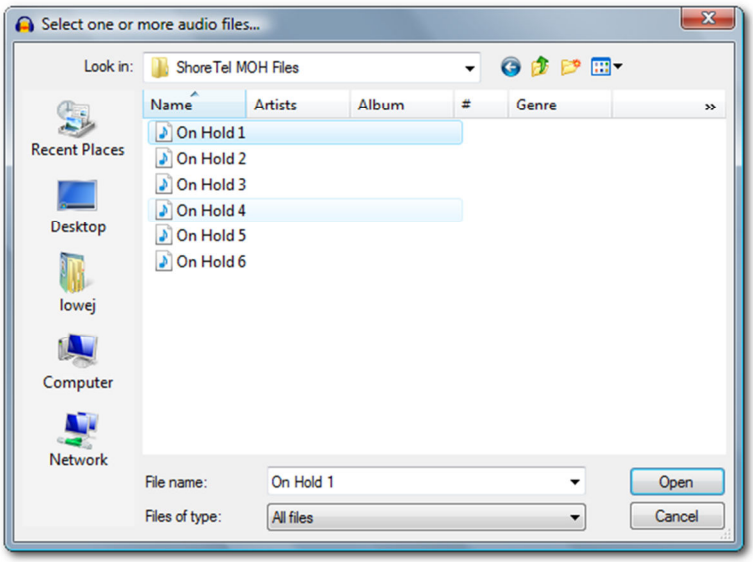

Figure 4 – Select Audio File for Import

While the File is being imported into Audacity, you will see the following dialog, this is normal & expected behavior.

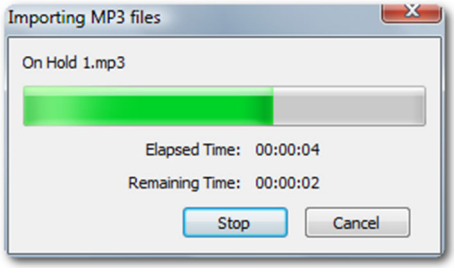

Figure 5 – Import Progress Dialog

Once Audacity has imported the existing file, the main application window will appear with two channels as shown below.

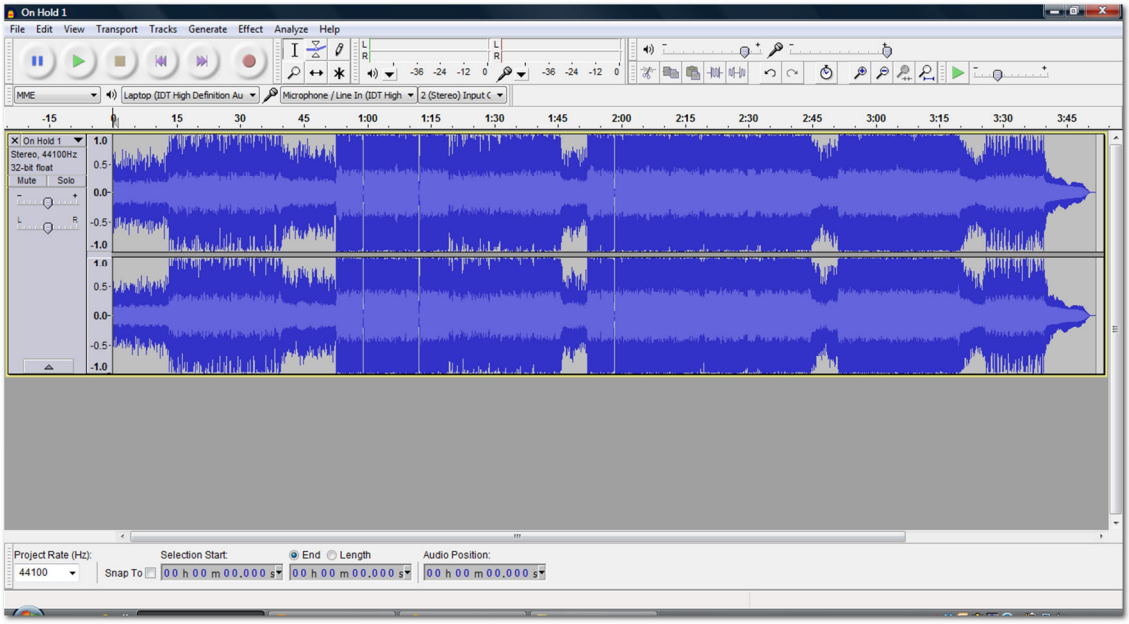

Figure 6 – Audacity MP3 Project

The first step to achieve the best recreation of the file to the ShoreTel preferred format is to resample the track from Stereo to Mono. In order to accomplish this task select 2 (Stereo) Input pull down menu from the toolbar and change the selection to 1 (Mono) Input.

Figure 7 – Channel Input Modification

In order to finish the channel modification, next we will access the Track Menu item and select Stereo to Mono option as shown below in Figure 8.

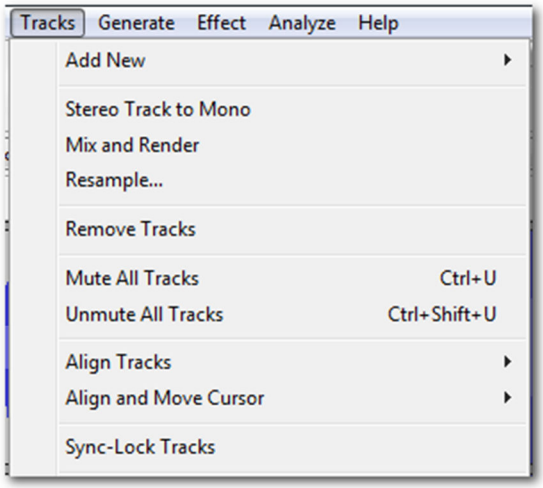

Figure 8 – Stereo to Mono Conversion

The new project will now appear as a single channel track as shown in Figure 9.

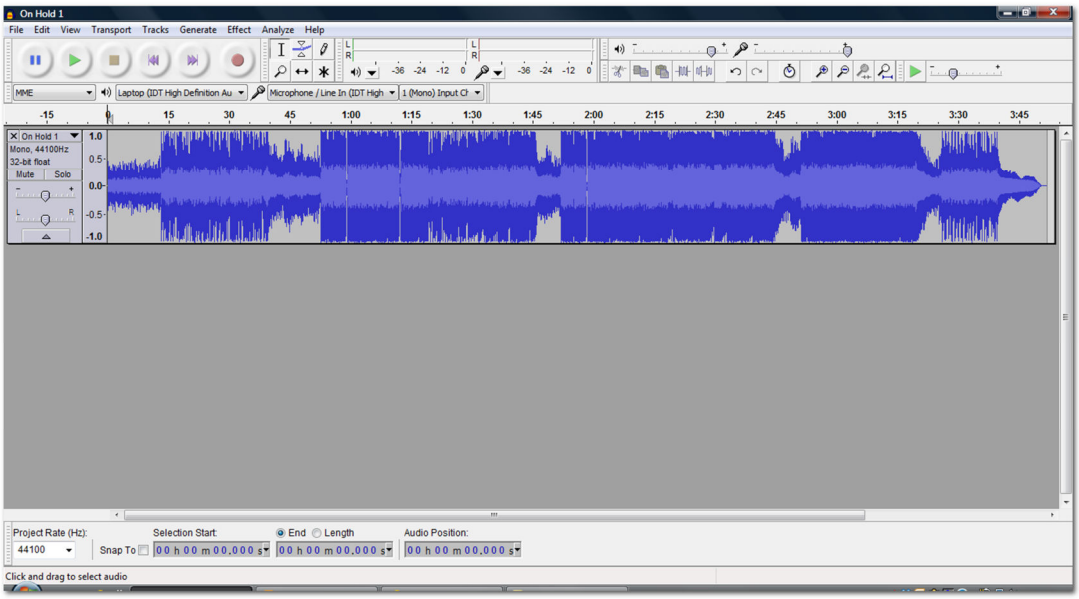

Figure 9 – Converted Mono Track

Next we need to convert the project to correct sampling rate 8000 Hz. In order to accomplish this task the administrator will first select the Project Rate pull-down menu from the lower left hand corner of the project window.

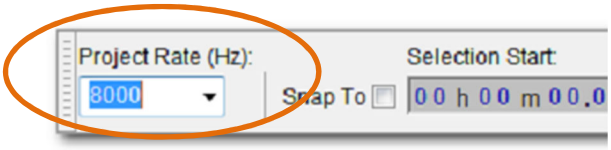

Figure 10 – Project Rate modification

Once the new project rate is selected we need to resample the track for the correct rate. In order to accomplish this task, access the Track Menu from the tool bar and select resample.

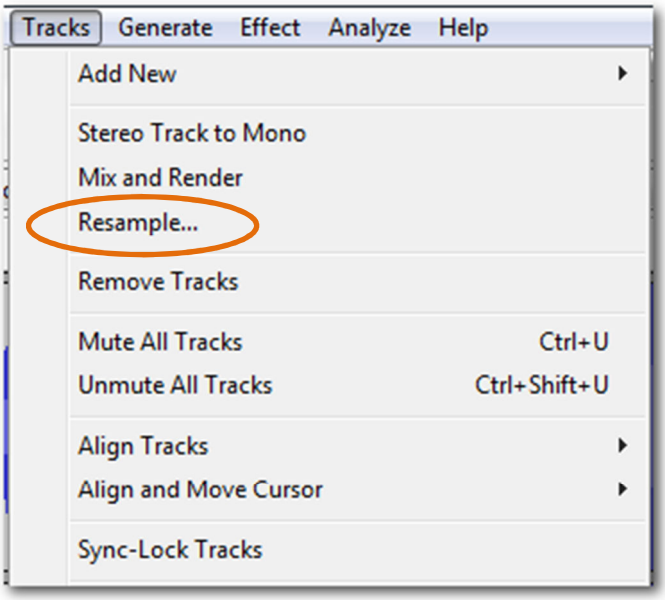

Figure 11 – Resample Menu

Make sure to confirm the new sample rate as 8000 Hz in the dialog box as shown in Figure 12.

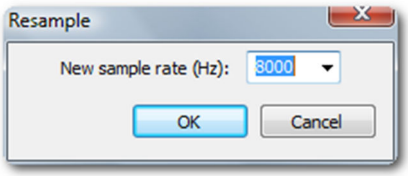

Figure 12- Track Sample Rate

During the resampling of the track the progress bar will indicate the status of the track. See Figure 13 for an example of the expected progress bar.

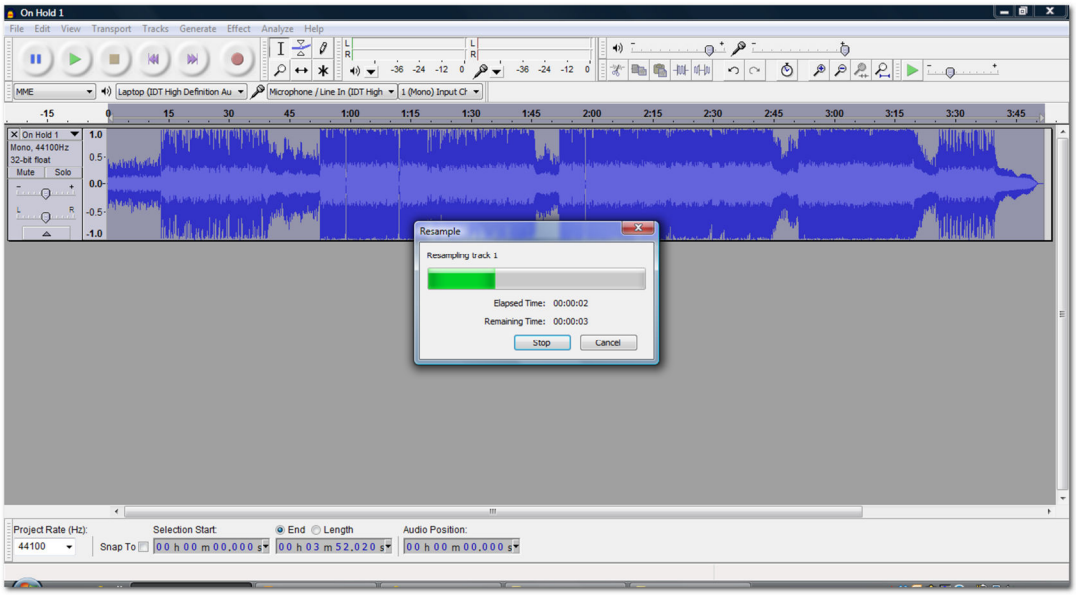

Figure 13 – Resampling Progress Dialog

The conversion is now complete and we must export the project so that the administrator can upload the track to the ShoreWare Director and configure the MoH properties. In order to export the project, access the File menu from the Menu Bar and select export.

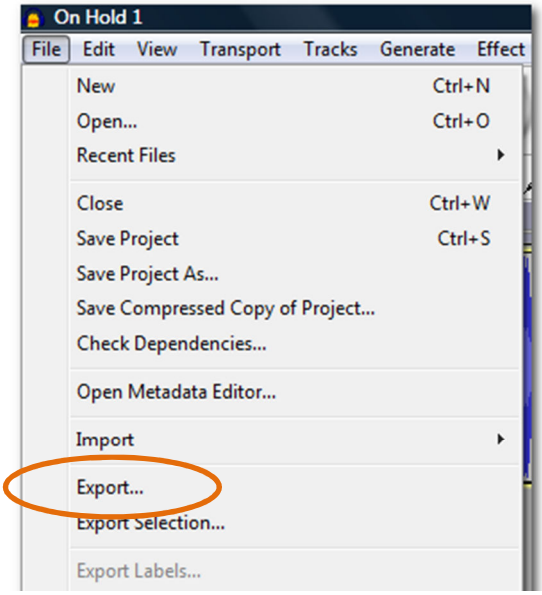

Figure 14 – Export Menu

Upon selection of the Export Option, the Windows Save as Dialog box will open. In this window select the folder location that will be accessible by the ShoreTel Administrator and create the file name.

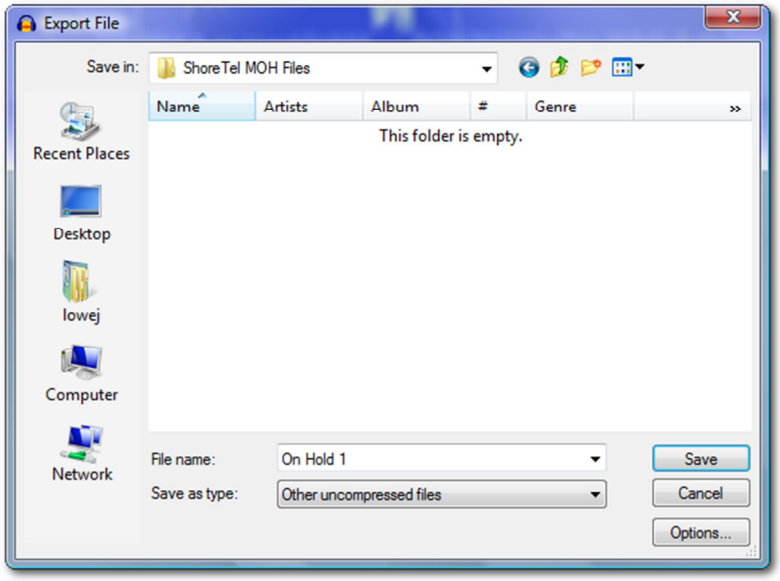

Figure 15 – Export Folder Window

For the "Save as Type" select other uncompressed files, which will open another dialog window and allow you to select the μ-Law WAV format as shown in Figure 16 below.

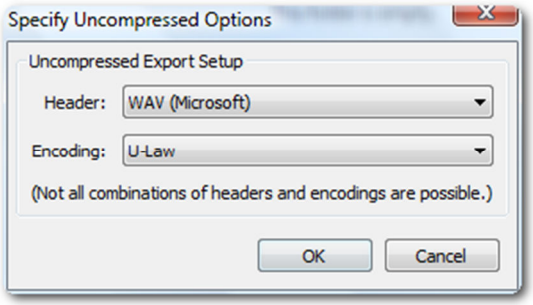

Figure 16 – Export File Options

Select Ok on the Specify Uncompressed Options window then save on the Export File window and complete the Metadata dialog window with any optional information about the track you wish to store with the file.

Importing the .WAV file to ShoreWare Director

The steps to import the converted .WAV file into ShoreWare Director are detailed in Chapter 2 of the System Administrator Guide. They are also highlighted below for quick reference.

Access ShoreWare Director using the Administrator account.

Select Administration -> Call Control -> Music on Hold -> File, as show below in Figure 17.

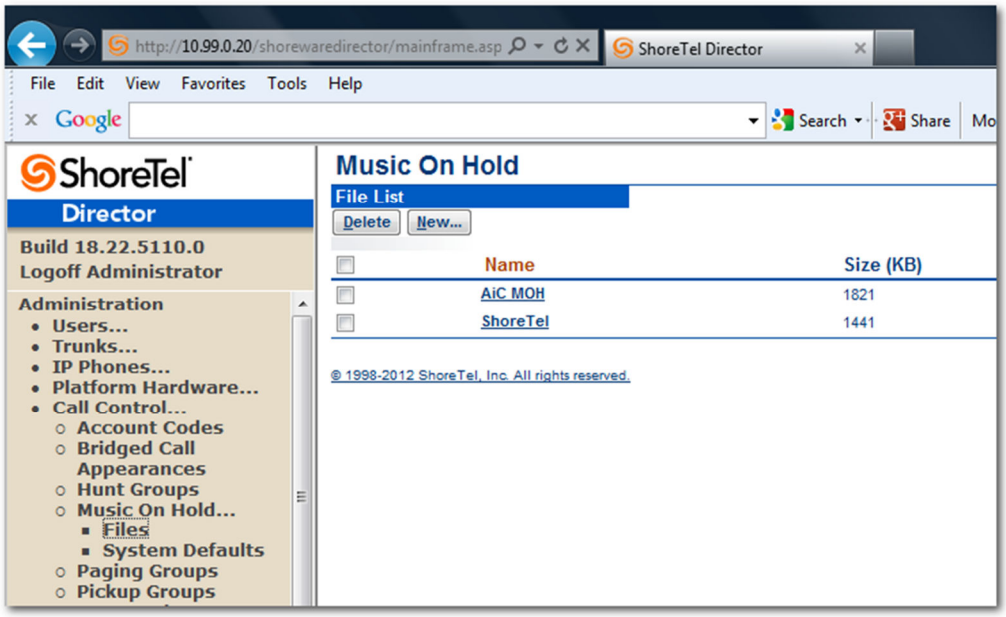

Figure 17 – MoH File Menu

Select the New Radio Button and type a logical name for the MoH file and select the file from the folder saved in the previous step.

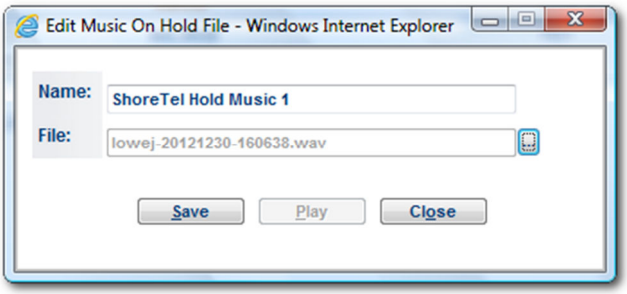

Figure 18- MoH File Save Dialog Window

Finally select Save and assign the file as a music source following the steps in the System Administrator Guide Chapter 2.

Troubleshooting

If your file does not import properly, as indicated by the warning shown in Figure 19, double check your settings. You must set the Project Rate (Hz) to 8000, select Mono and save as a μ-Law .WAV file.

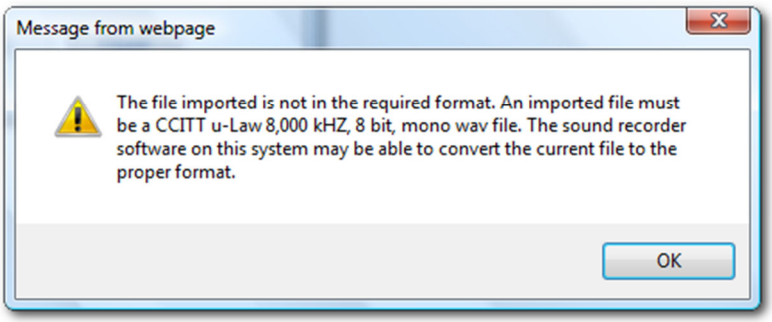

Figure 19 – Upload Error Message

When calling into the system and you get no audio at all, Ensure the ☑ Enable File Based Music on Hold is selected in the Application Servers -> HQ/DVS -> (local server).

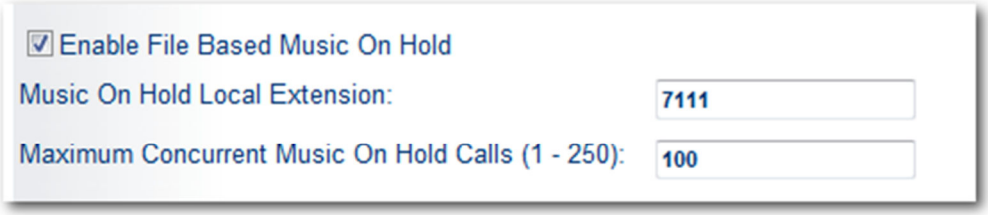

Figure 20 – Enable File Based MoH Options

In order to check the quality of the file once it has been imported into the ShoreWare Director, you can dial the extension assigned to the Application Server for the MoH Local Extension. If multiple files are stored on the Application Server, you can press [#] to skip to the next file.

Figure 21 – Direct dial MoH DN

Finally, the ShoreTel system allows the administrator several options on how to configure the MoH file or source based on a number of variables, including DNIS and User Group. If the incorrect file is not playing as expected, review the configuration of the MoH assignment. Reference the System Administrators Guide for any additional assistance.

Conclusion

ShoreTel File Based Music on Hold enhancement has added a greater level of flexibility to provide different music sources or files based on caller criteria. In order take full advantage of the feature ShoreTel administrators should be familiar with the procedures required to format the MoH files to the ShoreTel Standard.

The process can be easily accomplished using Audio editing software such as Audacity.

Additional Resources

- ShoreTel System Administration Guide, Chapter 2
- AN10382 – "Creating and Formatting Audio Prompts"
- KB11266 – "Correct Format of Audio Wave File"
- KB15833 – "Using Windows Recorder to covert .WAV files"
- Audacity: The Free, Cross Platform Sound Editor – http://audacity.sourceforge.net

Version	Date	Contributor	Content
1.0	Dec, 2012	J. Lowe	Original AppNote