

Customizing Music on Hold for the Linksys Voice System SPA9000

Connected Office Business Organization Solutions Engineering

Corporate Headquarters
Linksys, a Division of Cisco
121 Theory
Irvine, CA 92617-3045
USA
<http://www.linksys.com>
Tel: (800) 546-5797
(800) 326-7114 (Technical Support)
Fax: (949) 823-3007

Contents

Introduction	3
Using Your Own Audio File for Music on Hold	3
Configuring a TFTP Server	3
Creating Your Audio File	4
Uploading the File to the SPA9000	7
Restoring the Default Music on Hold File	8
Using a Streaming Audio Source for Music on Hold	9
Verifying Your New Music on Hold	10

Introduction

The Linksys Voice System (LVS) SPA9000 IP Telephony System has an internal music source that plays an internally stored music file repeatedly while a caller is on hold. The SPA9000 ships with a default music file (*Romance de Amor*). You can customize the music on hold feature on the SPA9000 by using your own audio file and a personal computer with trivial file transfer protocol (TFTP) software, or by connecting an external audio source, such as a CD player or a radio, to the SPA9000. This document describes how to customize the SPA9000 music on hold feature.

Using Your Own Audio File for Music on Hold

To use your own audio file as the music on hold, you'll need the following:

- personal computer on the same LAN as the SPA9000
- IP address of the personal computer on the LAN
- TFTP server software
- Audio source file
- Microphone if you are recording a personal message to on-hold callers

Configuring a TFTP Server

Ensure that a TFTP server application is running on the PC. You can download TFTP server applications from many sites, such as:

- <http://tftpd32.jounin.net/>
- http://www.solarwinds.com/products/freetools/free_tftp_server.aspx

Linksys does not endorse any TFTP applications; these links are provided only as a suggestion.

You will normally configure the following TFTP application parameters:

- **TFTP Root Directory:** The directory containing the music on hold files that you want to upload to the SPA9000.
- **Security:** Ensure that you have enabled the TFTP server to transmit files.

Creating Your Audio File

The audio file you want to use as the music on hold file must be in G711 u-law format at 8000 samples per second with no header information. The maximum audio length is 65.5 seconds. You can use any digital audio editor that produces these results. The following section uses Audacity, a free digital audio editor, for the instructions and examples.

Linksys does not endorse any digital audio editing application. The following configuration information is provided only as an example. The name Audacity is a registered trademark of Dominic Mazzoni, and is covered by the GNU license.

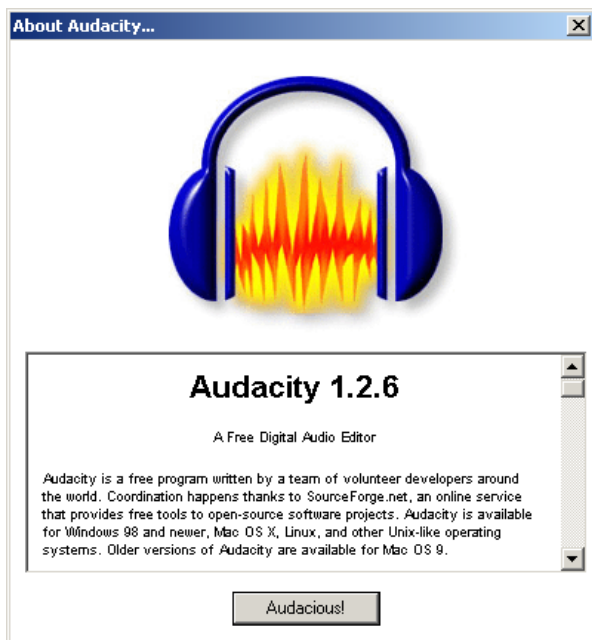
Use these procedures if you do not already have a file in the correct format to use as your music on hold file.

To create your audio file:

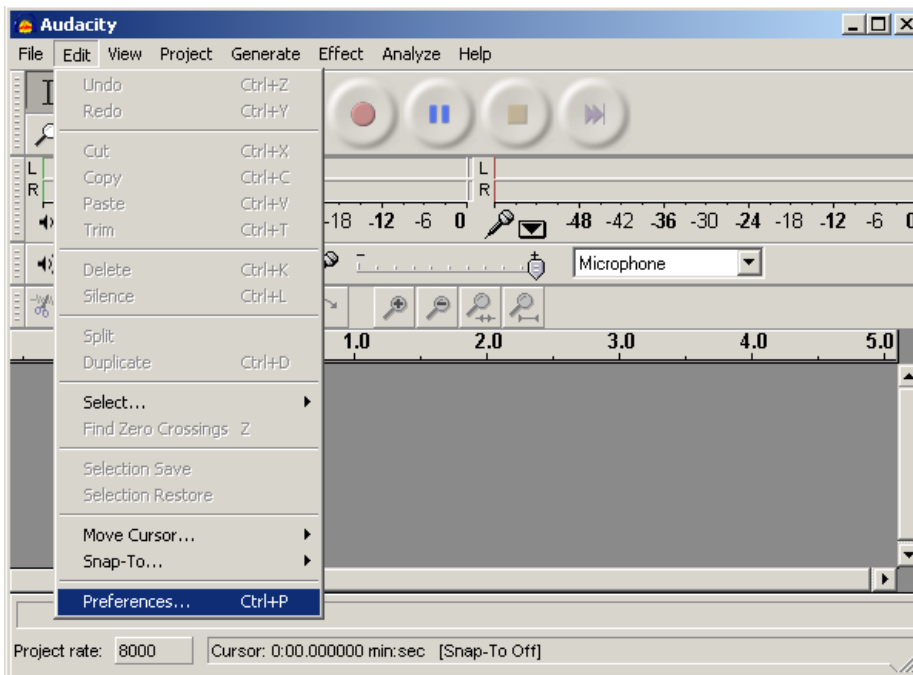
1. Download and install Audacity from:

<http://audacity.sourceforge.net/>

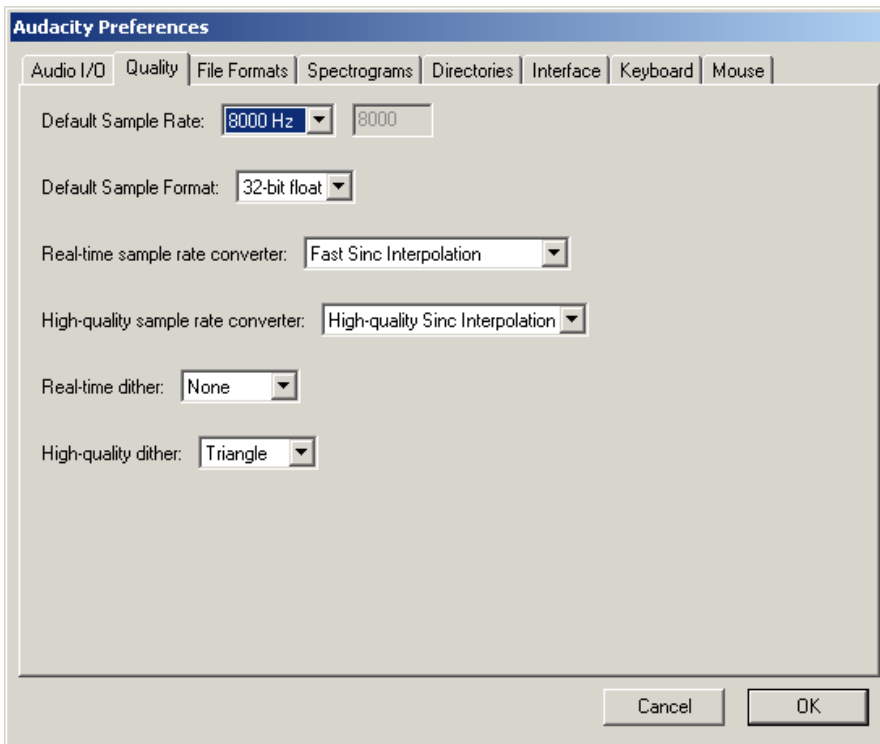
Audacity comes in a number of operating system formats, including UNIX, Macintosh, and Microsoft Windows. This example uses version 1.2.6.



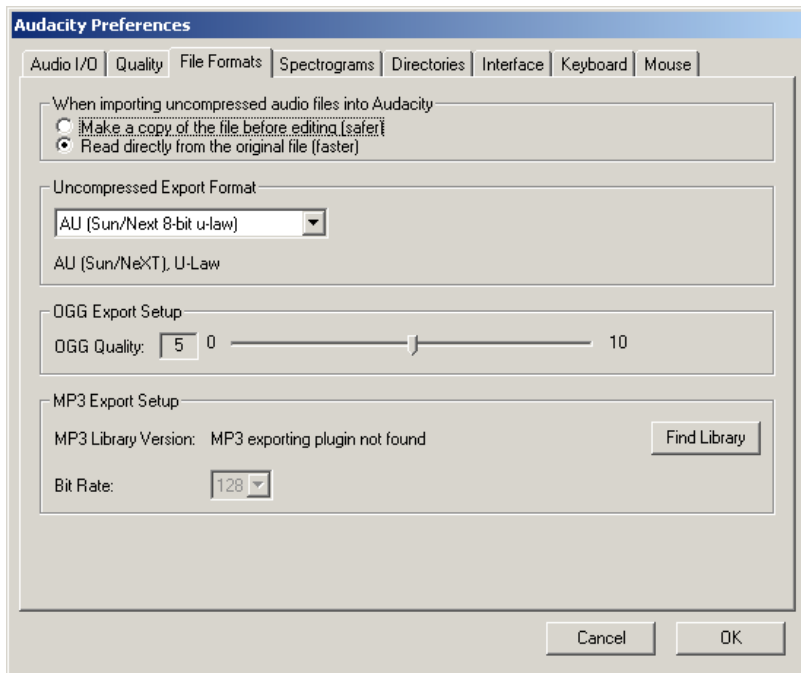
2. Select **Edit > Preferences**.



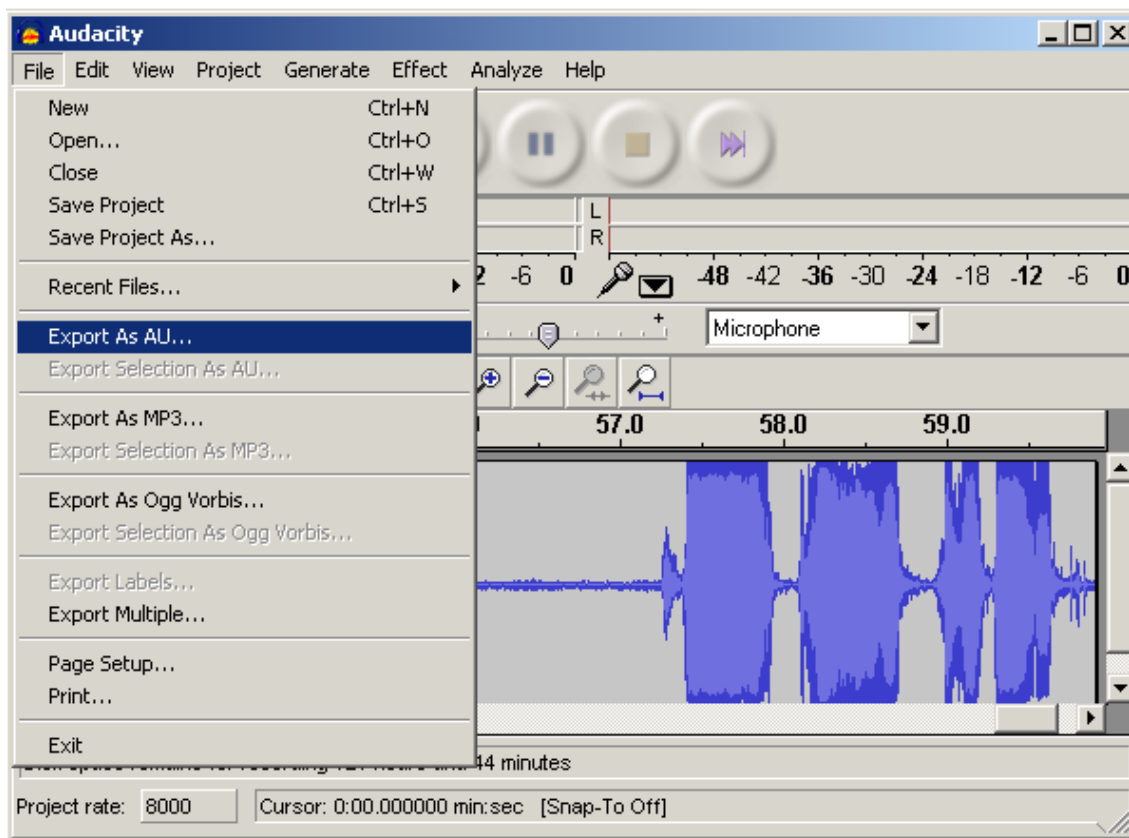
3. In the **Quality** tab, click **Default Sample Rate** and choose 8000Hz.



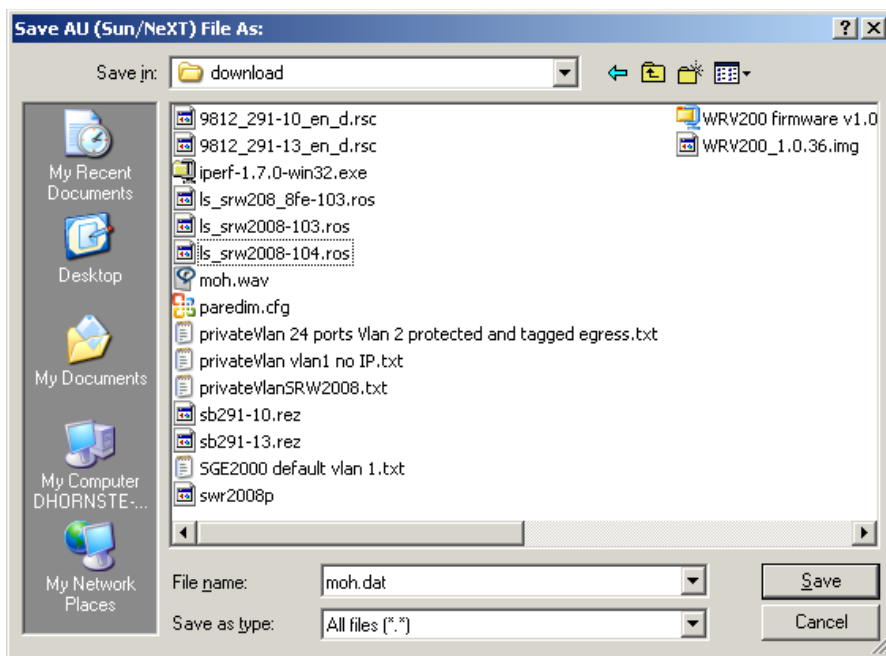
- In the **File Formats** tab, in the **Uncompressed Export Format** field, choose **AU (Sun/Next 8 bit u-law)** as shown below.



- Record the audio message that will be used as your music on hold file.
- When finished recording, from the **File** menu, choose **Export as AU**.



7. In the **Save As** dialog box, be sure to save the file with the extension **.dat** (**not .au**)—for example, *moh.dat*. You must either save the file to your TFTP root directory (see “Configuring Your TFTP Server”) or you must copy the file to that directory after you save it.



Your software may give you an error message about saving the file with a .dat extension. Ignore this message and click Yes to save the file.

Uploading the File to the SPA9000

Perform the following steps to configure the SPA9000 to retrieve the new music on hold file from your TFTP server:

1. Access the SPA9000 Configuration Web Interface with your web browser by doing one of the following:
 - Entering the IP address of the SPA9000 into your browser’s toolbar, then clicking **Admin Login** and **Advanced**.
 - Entering the following into your browser’s toolbar:
`http://spa9000_ip/admin/voice/advanced`
 where *spa9000_ip* is the IP address of the SPA9000.

If you do not know the IP address of the SPA9000, plug an analog phone into the phone port on the unit and press **. Then press 110# to hear the IP address.**

- Click the **Voice** tab and choose the **SIP** tab.
- Scroll to the **Internal Music Source Parameters** section.

Internal Music Source Parameters			
Internal Music URL:	tftp://192.168.200.160/moh.dat		
Internal Music Script:			
Internal MOH Refresh Intvl:	0	Internal Music LBR Codec:	G729a
Internal Music Preferred Codec:	G711u	Internal Music Use Pref Codec Only:	no

- In the **Internal Music URL** field, replace the *server_IP_address* with the location of the new music on hold file that is located on your TFTP server. The location is in the following format:

tftp://ip_address:port/directory/filename.dat

?????In my SPA9000, I do not have to enter tftp:// - just the IP address. Is the tftp:// part necessary???

where *ip_address* is the local IP address of the computer you are using as the TFTP server. The port is the port number used by the TFTP server (by default, it is 69). Replace *directory* with the location of the file (for example, the TFTP root directory you set up in "Configuring the TFTP Root Directory"). The filename is the name of an audio file in the correct format with the .dat extension.

For example, if the computer's local IP address is 192.168.200.160, the TFTP root directory is named musicdir, and the converted music file is named moh.dat, you would enter *tftp://192.168.200.160/musicdir/moh.dat* in the Internal Music URL field. (The default port number, 69, is used.)

- Click **Submit All Changes**. The SPA9000 reboots. After rebooting, the SPA9000 retrieves the audio file from the TFTP server and stores it in flash memory.

The file is loaded only once, not each time the SPA9000 reboots.

Restoring the Default Music on Hold File

To restore the default music on hold file (*Romance de Amor*) that ships with the SPA9000, you'll need to download the **romance711u2.zip** file from the following URL:

<http://www.sipura.net/download/spa9000/romance711u2.zip>

Do the following:

- Unzip the file and put the *romance711u2.dat* file into the TFTP root directory that you configured in "Configuring a TFTP Server."
- Follow the instructions in "Uploading the File to the SPA9000." Be sure to enter *romance711u2.dat* as the filename in Step 4.

Using a Streaming Audio Source for Music on Hold

You can configure the SPA9000 to use a streaming audio source, such as a CD player or radio, to play for callers on hold. To set up a streaming audio source, you'll need the following:

- Audio source with output port
- Cable to connect the SPA9000 to the audio source. This cable must terminate in an RJ-11 adapter on one end (to connect to the FXS port on the SPA9000). The other end must have an adapter compatible with the output port of the audio source. For example, if you are connecting the SPA9000 to a computer's sound card, you need an RJ-11 adapter on one end of the cable and a 3.5mm TRS stereo minijack adapter on the other end.

To use a streaming audio source for music on hold:

1. Connect the RJ-11 end of the cable to an FXS port on the SPA9000 (Phone 1 or Phone 2).
2. Connect the other end of the cable to the audio source.
3. Access the SPA9000 Configuration Web Interface with your web browser by doing one of the following:
 - Entering the IP address of the SPA9000 into your browser's toolbar, then clicking **Admin Login** and **Advanced**.
 - Entering the following into your browser's toolbar:

`http://spa9000_ip/admin/voice/advanced`

where *spa9000_ip* is the IP address of the SPA9000.

If you do not know the IP address of the SPA9000, plug an analog phone into the phone port on the unit and press **. Then press 110# to hear the IP address.**

4. Click the **Voice** tab.
5. Click the FXS tab of the port into which you plugged the RJ-11 adapter. For example, if you plugged the cable into Phone Port 1, click the **FXS1** tab.
6. Under the **Streaming Audio Server** section, in the **Streaming Audio Server** field, choose **Yes**.

Streaming Audio Server (SAS)

SAS Enable: SAS DLG Refresh Intvl:

SAS Inbound RTP Sink:

7. In the **Call Feature Settings** section, in the **MOH Server** field, enter the User ID configured for the line attached to the audio source.

????? Where is this user ID configured? I don't understand....

8. Click **Submit All Changes**. The SPA9000 reboots and connects to the music on hold source.

Verifying Your New Music on Hold

To verify that your new audio source is playing for callers on hold, you can either call into the system and place yourself on hold, or, if you are using an LVS phone with a display screen:

1. On your phone, choose the **Directory** softkey.
2. Press **2** to select the **Corporate Directory**.
3. Press **4** to choose **Internal Music/imusic**. The current music on hold file plays.

