

**Sun City Summerlin Computer Club
Seminar**

iTunes 2018

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Agenda

- **Basics of *Digital* Music**
- **Audio File Formats and Standards**
- **Building Your Personal Music Collection**
- **iTunes Tutorial**
 - **Ripping Music CDs**
 - **Organizing Your Music Library**
 - **Burning Music CDs**
 - **Downloading Music to Your Hand-held**
 - **Internet Radio**
- **Streaming Media Services**
- **Useful Web Links for More Information**

Basics of *Digital Music*

- **Music is represented as a stream of numbers.**
 - Measurements of recorded electrical voltage level at an instant.
 - Use 16 bits (2 bytes) per measurement (sample).
 - For stereo, two streams – one for each channel (left / right).
 - Standard audio CD sample rate is 44,100 times per second.
 - Can later convert the stream of numbers back to voltages.
- **Number stream may be saved in various ways**
 - On an audio CD.
 - In a music file on a PC hard disk (.WAV, .MP3 or .AAC)
 - Music files may be compressed in various ways or left uncompressed.
- **Let's look at a MP3 file with GoldWave Music Editor**

Audio File Formats (1)

- **Microsoft WAVE (.WAV)**
 - 44,100 samples/sec, stereo, 16-bit samples each channel.
 - Each 16-bit value can range from -32768 to + 32767.
 - Uncompressed, consumes about 10.6 MBytes per minute of sound (44,100 * 2 * 2 * 60).
 - Audio CD Quality (same specs).
- **Motion Picture Experts Group 1 - Audio Layer 3 (.MP3)**
 - Compressed, size varies based on sample rate.
 - .MP3 is “lossy” – removes very high and low frequencies.
 - 128 Kbits/sec (near CD quality), 64 Kbits/sec (FM quality).
 - At 128 Kbits/sec, uses about 1 MB per minute of sound (10% of .WAV).
 - Little point in going higher than 256 Kbits/sec for MP3.

Audio File Formats (2)

- **Apple Advanced Code (.AAC)**
 - Compressed, size varies based on sample rate.
 - Supports Digital Rights Management standards.
 - Proprietary to Apple.
- **Other Formats:**
 - Ogg-Vorbis (.ogg), Free-Lossless (.FLAC)
- **More Information**
 - <http://ekei.com/audio>

Building Your Own Music Library

- **Convert *your* music CD collection to music files.**
 - Use iTunes or any of the many other popular CD “rippers”.
- **Buy “used” CDs (save about 50%) to convert.**
- **Borrow music CDs to convert.**
 - From friends, public library.
- **Buy digital music on-line.**
 - \$.99 per song, \$9.99 per “album” sometimes less)
 - Most stores now sell “unlocked” MP3 files.
 - Amazon.com and iTunes.com are now the biggest.
- **Record Internet streaming audio**
 - Use a recording tool like Total Recorder
- **Convert your old analog audio tapes and LPs to music files.**
 - Need a “line-in” recording tool (e.g. Spin It Again or GoldWave).
 - After recording, need to separate and “clean-up” the recorded sound.

Demo - Ripping An Audio CD

- We'll use *iTunes*, but Media Player, WinAmp, Roxio or Nero can also rip audio CDs.
- **First - Get Your Settings Right (Only need to do this once):**
 - Click Edit > Preferences. Then click “Import Settings”.
 - Choose Import using MP3 encoder in the drop down.
 - For setting, click “Custom”. In the popup dialog, choose “256 kbps”.
 - Click OK as needed to get back to the main preferences screen.
 - Click the Advanced tab.
 - For “iTunes Media Folder Location”, click Browse and choose the folder on your hard drive where you want ripped songs to go.
 - Click OK as needed to exit the Preferences dialog.
- Insert the audio CD to be ripped.
- iTunes will ask if you want to import. Click “Yes”

Digital Music Editors

- **GoldWave (Shareware)**
 - Does line-in recording
 - Full-featured music editor
- **Audacity (Open Source)**
 - Does line-in recording
 - Full-featured music editor

Organizing Your Music Library

- **Physical Placement of your music files.**
 - Folder and file hierarchy important.
 - Common scheme is Artist > Album > Song name.
 - Default is your personal “My Music” or “Music” folder.
 - If you have two hard drives, consider placing on the non-boot drive.
- Use iTunes to *index* your files into a Library.
- Set up Descriptive “tags” in music files
 - Artist name, song name, album name, genre, date
 - Tedious work. But, once done, these are recognized by all players and jukebox programs.
- Adjust physical file names based on tags.

Adding Files to Library / Editing Tags

- **Demo – Add Files to an iTunes Library / Edit Tags**
 - File > Add Folder to Library
 - Browse to the Top-level folder containing the Files and Folders you wish to add.
 - Click “Select Folder”.
 - iTunes will scan and index the collection and build the library, indexed by Genre, Artist, Album and Song Title.
- **Demo – Edit the tag information for a set of MP3 files.**
 - Click the “Songs” button (or you can select a playlist)
 - Select one or a set of files by clicking, shift clicking, right clicking.
 - Right click on the file or set and then select “Get Info”.
 - Click the Info tab in the dialog that appears.
 - Make changes as needed and then click OK to save the changes.

CD Burning Tips

- Use good quality media. **Clean it before inserting!**
- Use media rated to desired speed (e.g. 40X).
- Burners should have full access to the CPU and HD.
- Enable “Burn Proof” buffer mode if available.
- Shut down background programs, especially those that access the Internet. For example:
 - Web browsers.
 - E-mail client (Outlook, Windows Mail or AOL).
 - Stock tickers, indexers, power managers.
 - Screen savers.

Demo - Burning MP3 CDs

- **Demo – creating and burning an iTunes Play List**
 - File > New Play List.
 - Drag and drop songs from the Library to the Play List (about 200).
 - Keep track of total playing time (< 650 minutes)
 - Drag songs in the play list into preferred order or turn on shuffle.
 - Edit > Preferences > Advanced (check your settings).
 - Click the “Burn Disc” item on the File menu.
 - Set the CD burning parameters for “MP3 CD”.
 - iTunes will check the collection and then begin the burn.

Demo – Downloading MP3s

- **Can use iTunes to download to iPhone, iPod, iPad**
 - <http://ipod.about.com/od/ipad/qt/download-music-to-ipad.htm>
 - <http://www.aimersoft.com/tutorial/transfer-itunes-music-video-on-ipad.html>
- **Demo – Downloading an iTunes Play List**
 - Plug in your i-Thing to a USB port with iTunes running.
 - Select or create a Play List (see previous slide).
 - Adjust settings for the Device (see web tutorial above).
 - Tell iTunes to synch just the selected Play List.
- **Can use Windows Explorer to download to an Android Hand-held.**
 - Plug in your Android device to a USB port.
 - Windows will “mount” it with a drive letter.
 - Copy music files from your hard drive’s “Music” folders to folders on your Android device.
 - Or copy music files to a micro-SD card and plug it in to your device.

Streaming Media Services

- <http://www.Pandora.com>
- <http://www.amazon.com> (Amazon Prime)
- <http://us.napster.com> (formerly Rhapsody)
- <http://www.Netflix.com>
- <http://www.youtube.com>
- <http://www.hulu.com>
- **Shoutcast (Internet Radio stations)**
 - Available via iTunes & other Jukebox programs
- **Music channels on Cox, DirecTV & Dish**