

Sun City Summerlin Computer Club

**Digital Music
SIG
March 20, 2003**

Tom Burt

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Agenda

- Introduction & General Business
- Roundtable discussion, questions and answers
- Presentation (45 min) MIDI and Karaoke
 - Your sound card as a music synthesizer
 - Comparison – MIDI to Digital Music
 - MIDI Basics
 - Karaoke Files
 - Demo
- March Web Links
 - Where to Find MIDI and Karaoke Files

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**Round Table
Questions and Answers**

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Sound Card As Synthesizer

- <http://computer.howstuffworks.com/sound-card.htm>
- Able to create analogue stereo sound from digital output stream (D to A).
- Able to convert analogue stereo in to a digital sound input stream (A to D).
- Contains a programmable sound synthesizer.
 - Number and richness of voices varies.
 - Used for MIDI music output.
 - Wavetable synthesizer is best (very realistic).
- Connects to CD drive so PC can "play" music CDs.
- Card has line in, line / speaker out, and microphone jacks.

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MIDI Files vs Digital Music

- Digital music files (.WAV, .MP3, .CDA)
 - Represent sound as a digital stream sampled 44,100 times per second for each of two stereo tracks.
 - 10.6 MB of disk space per minute of sound in .WAV format.
 - Very high fidelity.
 - Played via the D to A converter of the sound card.
- MIDI and Karaoke files (.MID, .KAR)
 - MIDI = Musical Instruments Digital Interface.
 - Represent sound as a set of commands to the synthesizer.
 - Files are relatively small (e.g. 100 KB).
 - Sound not as rich – depends on the sound card's synthesizer.
 - Only 16 concurrent possible instrument "voices" possible.
 - Instrumental only – no human singing.

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MIDI Basics

- A MIDI file can have up to 16 concurrent "tracks" (instruments) playing.
- Each track has a sequence of discrete notes of some duration.
 - E.g. play middle C for one half a second.
 - E.g. play G above middle C for one second.
- Each track selects the instrumental sound (e.g. guitar, piano, violin...)
 - MIDI standard now includes 100s of instrumental sounds.
 - MIDI includes drum tracks.
- MIDI files must be "played" by a MIDI player (a "sequencer").
- Windows Media Player includes a MIDI sequencer.
- MIDI files are "composed" using special software programs.
- Karaoke files are MIDI files with the lyrics embedded along with timing
- Karaoke files must be played with a Karaoke player.

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Demo of MIDI and Karaoke

- Playing some MIDI files
- Compare to a .MP3 file.
- Playing some Karaoke files.
- Where to find MIDI and Karaoke music on-line.

March Web Links

- Download Musicmatch: www.MusicMatch.com
- AudioGrabber: <http://www.audiograbber.com-us.net/>
- Download Van Basco: <http://www.vanbasco.com/>
- WinKaraoke: <http://www.sonic.net/~fli/wink/index.html>
- Free Karaoke: <http://www.freekaraoke.com/>
- DMOZ.Org MIDI: http://dmoz.org/Arts/Music/Sound_Files/MIDI/
- FindMIDIs: <http://www.findmidis.com/>
- Online Used Music CD sources:
 - www.secondspln.com (used CDs, great prices)
 - www.ebay.com (used CDs, very good prices)
 - www.half.com (by E-Bay - used CDs, very good prices)
