

The basics: Testing the MU box by interacting with g7play.exe in the command window.

What you need:

1. 'MU' box (the small white box)
 2. USB cable connection between the MU box and your computer (the other box input is for your loudspeaker, you don't need this now)
 3. g7play software (e.g. 'g7play.exe') from the course website
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1. Download the g7play software from the course website
 - (a) Go to <https://web.engr.illinois.edu/~jontalle/uploads/403/G7-software/>
 - (b) Simple: Find the g7play program for your operating system and download that program only.
Advanced: Download 'all.tgz' to get all programs for use later in the course (you may need a specialized program to unzip this folder - in Windows, you can use a program called '7-Zip').
 2. Testing g7play in the command line (you don't need the MU box for this)
 - (a) Open a command prompt and navigate to the folder where the g7play program is located (e.g., using the command **cd** to 'change directory' - if you aren't familiar with the command line, find a web tutorial).
 - (b) Type **g7play -h**. This command should return detailed information regarding the use of g7play (Fig. 1).
 - (c) Try typing **g7play** (this command alone will run g7play using all default parameters). If the MU box is not connected, this should return an error message 'Not connected.'
 3. Testing g7play with the MU box
 - (a) Connect the MU box to your computer via USB. The LED on the box will blink blue while connecting. Once the LED turns green, the MU box is ready.
 - (b) Try typing **g7play**. With the default parameters (shown in Fig. 1) g7play is sending 100 blocks of length 1024 samples playing a sine wave at approximately 440 [Hz]. You should see many messages such as 'got 2 blocks from g7_read_input...' showing that data blocks are being returned (these are empty, because you have no loudspeaker plugged in).
 - (c) Try modifying the g7play parameters (e.g. using commands such as **g7play -b 10 -f 1000**).
 4. Advanced: View data (or in this case view noise - since there is no transducers hooked up!)

- (a) Try running the program 'sim.m' which calls g7play from Matlab. *If 'sim.m' crashes try copying the g7play program for your operating system to the same directory level as the program 'sim.m' (TA comment: I had to do this!)*
- (b) Try running the program 'sim_blockbyblock.m' which allows you to view the data (noise) block by block.

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C:\> Command Prompt
Microsoft Windows [Version 10.0.10586]
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C:\Users\Sarah>cd Documents

C:\Users\Sarah\Documents>cd g7play

C:\Users\Sarah\Documents\g7play>g7play -h
Usage: g7play [/H] [/B blocks] [/Q blocks] [/S samples] [/F hz] [/L loop] [/A ip:port]
        [/Cch file] [/Uch prefix] [/R file] [/T] [/I] [/G path] [/D mask] [/P] [/X]
Arguments can be upper or lower case, prefixed with / or -
/H or /? prints usage information
/K specifies the codec sample rate (e.g., 48000)
/B specifies the number of blocks to send (default = 100)
/Q specifies the number of blocks of quiet to send before data blocks (default = 10)
/E specifies the number of blocks of quiet to send after data blocks (default = 1)
/S specifies the number of samples per block (16.65536, default = 1024)
/F specifies the approximate sine wave frequency (default = 440 Hz)
/M specifies the sine wave amplitude (0.0 to 1.0) (default = 1.0)
/L selects loopback (default = none), choices are:
    none (No loopback)
    server (Loopback within server software)
    i2s (Loopback on 1-bit digital path to codec)
/A specifies IP address and port (default = 10.77.65.1:1024)
/Cx saves captured audio from channel X to the specified file
/Ux saves each block N of captured audio from channel X to a separate file named prefix.N
/Rx reads playback audio for channel X from specified file
/T uses non-audio test pattern instead of sine wave
/Z (zero) uses silence instead of sine wave
/W requests ramp-up and ramp-down blocks
/I specifies infinite timeouts for server communication, for debugging
/Nx analyze input channel X (only one channel may be analyzed)
/G specifies log path (defaults to stdout if not specified)
/D specifies g7client debug mask (defaults to 0 if not specified)
/P capture response to all output, even quiet and ramp blocks
/X send single extended sequence; requires /R; ignores /B /F /M /T /Z /W /N

C:\Users\Sarah\Documents\g7play>_

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Figure 1: The command **g7play -h**, and resulting information about g7play.