APS Timing

This document
The basic Matlab codes to run the APS timing were written by Tom Bewley, and his Website (http://renaissance.ucsd.edu/Talktimer.html) has most recent versions of one form of the codes, together with essential instructions and tips. There is a help file and description of the most recent APS modifications in the \description folder of the distribution. This document is meant to be read as a supplement to this basic information. It concerns the versions of the timing codes used in the Minneapolis and Long Beach meetings in 2009 and 2010 respectively.

Matlab codes
The codes themselves come in two operational models. The scripts from Tom Bewley are best used in the N-computer for N-room configuration. Each screen message, and individual schedule timing can be customised. The 2009/2010 meetings used a 1-computer/N-room model where the signal from one single time-keeper was distributed to all rooms in the meeting. The basic timing code is APS_DFD.m. The most important ancillary files involved with this are loadTiming_Data.m, and APS_DFD2010_setup.dat. The latter file is a simple tab-delimited text file that can be edited in Notepad or Excel.

Procedure
Load up APS_DFD.m in Matlab and run it. APS_DFD calls loadTiming_Data, which has the filename APS_DFD2010_setup.dat hardwired in it. The main year-to-year modification is in making this Excel-compatible text file that reflects the particular schedule and timing for the meeting. There is a location in APS_DFD where the number of lines in this text file is specified. This number can change from year-to-year, so make sure it correctly reflects any updates in the setup.dat file. In principle, the APS_DFD program can be run beginning at sometime before the beginning of the schedule on Day#1, and then left alone.

What could possibly go wrong?
General set-up
Because something always goes wrong it is highly recommended to have a main and backup computer running the same program, with the same timing, at all times. The VGA outputs are switchable so transition from primary to backup takes about a second. Whenever the APS_DFD program is started, it must read the correct current day number from the setup.dat file. Change this number at the beginning of each day, so that restarts will synchronise correctly. In the event of power glitches, it is wise to have a UPS for the computers. Make sure, in advance, that there is power available at the location where you install the timing controls.

Matlab
There is a memory leak in the Java-driven screen io in Matlab 2010a and 2010b running on Windows 7. The initial Matlab program size is about 80MB. This increases to about 88MB when running APS_DFD. After one day it will be about 1.3GB in size. It

continues to grow until Matlab crashes. Previous versions of Matlab (2006a, 2007a) on Vista and XP do not have this problem. The initial program size is considerably smaller in R2006a (about 32MB) and it does not grow substantially. We have not tried all possible combinations. The solution is to: (a) use the 2010a,b Matlab and quit the program (quit Matlab, not just APS_DFD) each evening, restarting next morning, or (b) use older versions, which can run uninterrupted for the three days.

Computer set-up

-- The timing computers may be laptops, or desktop. For desktops, it is most convenient if there are dual-head outputs on the graphics cards. (This is the norm for laptops where the internal screen is one output, and the external VGA port is the other). In any event, make sure you know which part of the desktop/windows setup goes to which output.

-- Make sure that all network functions are disabled so that no pop-up messages suddenly appear requesting attention. For the same reason disable all virus-checkers, instant messengers.

-- Turn windows update off.

-- Turn off screen savers ('Settings' on desktop) and energy savings settings on monitors ('Displays' in Control Panel). The screen output must not be interrupted for at least one full day.

-- Check the memory usage (see above for importance) and have a program-killing utility (such as Task Manager in Windows) open at all times, for prompt response to the unexpected.

AV set-up

-- The signal distribution system takes an entire VGA-encoded window and sends it to all rooms connected to the main switches. If the Matlab-generated window is set to full-screen, the default output will still have the upper and lower screen borders. These horizontal lines can be easily trimmed off at the distribution center.

-- There are switchable input modes on the distribution boxes that may have settings like COMP/VIDEO. Only one of these will work. Chances are it is the COMP setting.

-- Not all power outlets and not all video/RCA outlets will be working in every room. Not all TV monitors will work. Check each monitor, in each room.