

[i]cell technology™ systems Content and Programming

[i]cell technology is a versatile exhibit and media tool that can be used with a variety of content and programmed to have a variety of behaviors. This guide is intended to provide the tools and information you need to understand the programming and for use in preparing the graphics and content incorporated into a display.

The cells on the display are organized in a grid system that makes it very easy to plan and implement both graphics and content. The cell tiles are each 6x6 inches and are arranged to be within arm's reach of a viewer. Each tile responds to the user by triggering a set of programmed actions on a computer that includes the playing of content to a monitor and the lighting up of the tile under the user's hand. The display is also configured with a default video mode that plays when there is no activity. The content files for the display use file names based on a grid system to identify them to the controlling program. By naming the files according to the grid location, content can easily drop into the program and if desired, be easily replaced in the future.

Media

The display can be configured for still images and video images. Any cell can be programmed to play either format. There is a default video and program loop that runs when the interactive has not been activated by a user after a period of time (typically 30 seconds).

If the cell activates a **still image**, the image will remain up for approximately 4 seconds (adjustable) or as long as the cell is activated, as in a hand rests over the cell keeping it lit. The display reverts to the default video 4 seconds after the cell is released.

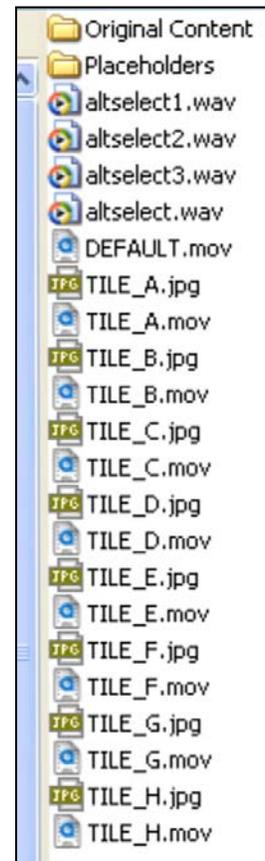
If the cell activates a **media file**, the video or similar would play. A user could interrupt the playback by activating another cell. Selecting the same cell location while its video file is running will pause the playback. Selecting again will release the pause and the video will continue. The base version of the program uses MOV files and QuickTime Player OR MPG files and Windows Media player for videos. The format to be used will be decided from the outset and, once chosen, all video formats are to be the same. The basic use and content management remains the same for either format. These instructions reference the MOV format for the examples. Simply substitute MPG in the examples if using that format.

Content

Content Management is simple but needs thought and active attention when being set up. All of the content used in the interactive is read from the main portion of the Content Folder (see Content Directory illustration right). A shortcut to the directory is on the desktop. All of the file names and formats in the content folder need to be present regardless of whether or not they are used. For instance, Tile A may be assigned to activate a JPEG image; however, a Tile A MOV file must still be present in the folder as a placeholder. The program first checks that all potential media formats for each tile are present. Then it reads which content is set to be activated by a cell.

When installing the content, overwrite the appropriate files in the main portion of the content folder with the new ones. This new content will now be activated in the display. The same action can be used to update or change the content on specific cells. As mentioned above, never delete a file from this directory, even if you have changed media type from JPEG to MOV or reverse.

A subfolder in this directory is called “Placeholders.” These files are the system default and Tile ID files. If for some reason, an unassigned media file is accidentally deleted or if the program is giving errors about finding content, COPY the missing file or file(s) from this directory back into the main directory.



Another subfolder is called “Original Content.” This can be the first folder to receive the original user content from an external source (use a USB Flash Drive to transfer files). Other folders and subfolders can be created to help manage, rename and check project content. Once the content is clear and complete and the transferred files renamed appropriately, they can replace the files in the main content folder.

Content Files should be formatted as JPEG files (RGB) for images and MOV files for Video and Animations. The program has been pre-set for a resolution **1366x768, 16:9 format**. Both the JPEGs and/or MOV files should be sized to this resolution and format and the Display Monitor set to this size to assure the content is shown full screen. The program also allows the user to choose from a default or 3 other predefined “select” sounds (WAV format) to be played each time a cell is selected or when a MOV file is paused. It is also possible to use a custom sound.

There are additional considerations for video, animations or similar files. There should be no specialty video codecs required other than what typically comes with the free QuickTime player download. Video files should also be done in a way to keep the size of the files as low as possible to ensure smooth running. A basic guide is if it runs well using

standard QuickTime on a typical windows machine, it should run well within the program. However, machine capabilities vary considerably and may not insure a smooth transition to the kiosk machine.

The Default video runs at boot-up and after the display has been unattended for a set period of time. This video/media could be a simple loop animation of some kind or a loop of selected content from the display. When this runs, the cells self-illuminate in a random fashion. The purpose of this video and the cells flashing is to “attract” attention and therefore, is called “Attract Loop.” Activating any cell stops this mode and immediately puts the activated cell’s content on the monitor. The default video file is to be a MOV file like the other video files.

A Matrix document and an illustration of the arrangement help in planning and mapping the content. Following please find the cell matrix and corresponding illustration for this display.

Matrix and Illustration Examples

Cell Location corresponds to the layout of the cells and the cell location within a Grid. Please see the illustration on next page.

File Name is what the program will look for when the cell is activated. To enable ease of changing content, all new files would be renamed to these file names and dropped into the content folder. When creating original content, include some indication of the intended location (i.e., tile name as defined below) as part of the file name.

Media is media type, JPEG, WAV or MOV and will be the extension to the File Name.

Description is for content like Photo; Illustration; Sound; Animation or Slideshow

Cell Graphic Notes describe the actual image or graphic that will go over the cell and be illuminated when the cell is activated.

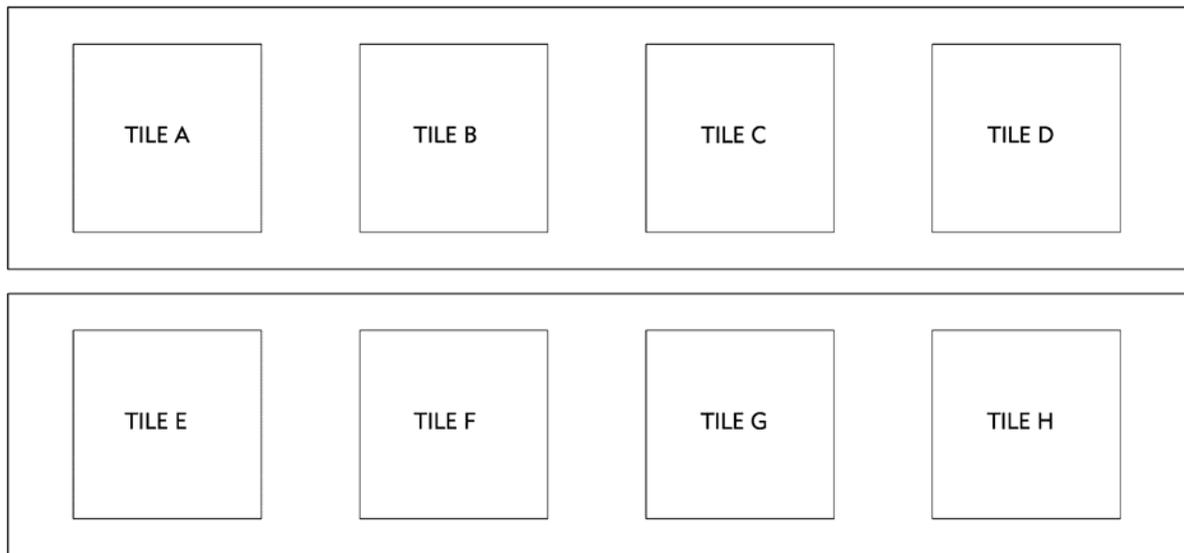
Screen Content Notes can be used to describe what is being seen on the screen or heard when the cell is activated.

Use the matrix on the next page or your own similar format grid to plan and place your content. See the example in the last line of the table as to how the grid should be filled in. Filling out this matrix will help assure the accurate placement and programming of your content.

Matrix Grid

Cell Location	File Name	Media	Description	Cell Graphic Notes	Screen Content Notes
None	Default	MOV	Attract Loop	None	
None	altselect	WAV	User Select Sound	None	None
A	Tile_A				
B	Tile_B				
C	Tile_C				
D	Tile_D				
E	Tile_E				
F	Tile_F				
G	Tile_G				
H	Tile_H				
EXAMPLE					
J	Tile_J	JPG	Newsletter HiLites	"News" Text	4 Items from Corp. Newsletter

Display Layout Illustration (Front) used with the Matrix Grid:



Using the matrix and taking the time in advance to plan and map out the content will make the transfer and managing of the content much easier. It will also help in making informed decisions on the best placement of the content in the display.

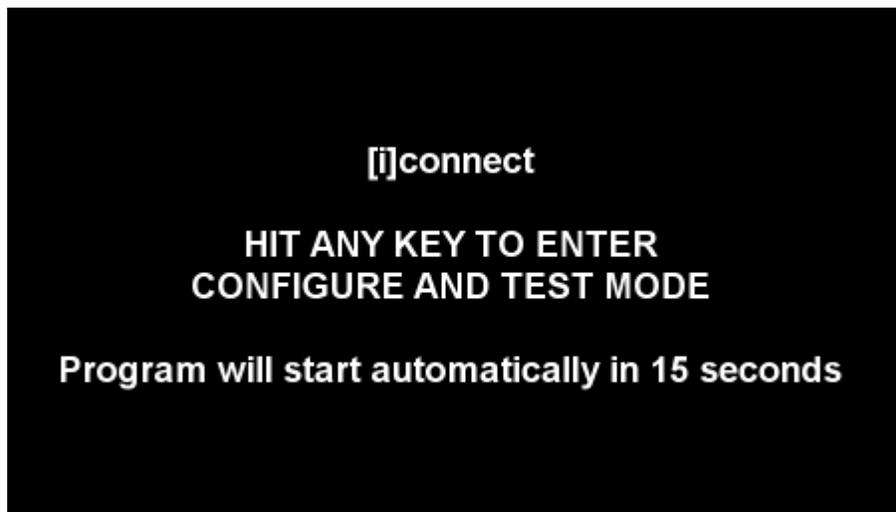
Programming

Instructions on user programming have been written with the assumption there is sufficient knowledge of Windows and Windows Explorer basics. This would include knowledge and understanding of how to rename files, create folders, “drag and drop,” overwriting files and other file management skills. The programming information does not include instruction on these basic concepts.

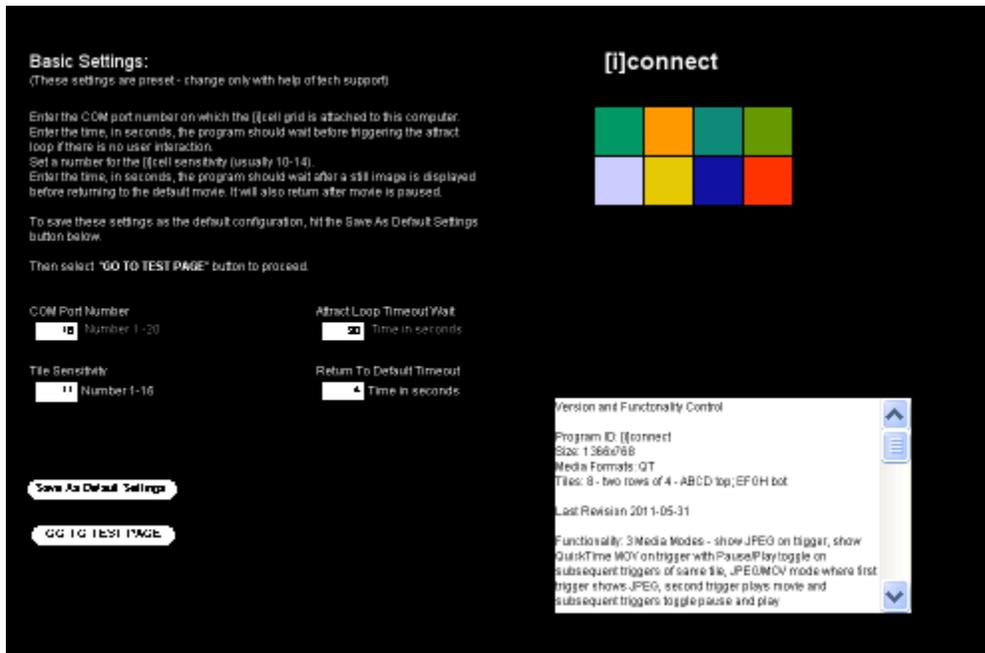
The software has been set-up to auto-start after the display computer has finished booting-up. If there is no need for changes to the underlying program, either in settings or media content (i.e., a cell that once activated an image is to now activate a video) then do not hit a key when prompted in the Welcome Screen and allow the program to finish. Once loaded, the cells will dimly light and the default video will run. The interactive is now running.

Initial Programming involves assigning the media format to be activated by a particular cell. The software has already been pre-set up and installed to run on the provided display computer. All Com and Sensitivity settings as well as settings for Inaction Time Outs have been set to defaults. There should be no need to adjust these settings. However, in case some adjustment is necessary, please contact Tech Support for guidance and recommendations.

Following are reference illustrations of sample settings on the initial screens shown when starting the program:



Welcome screen at program start-up. If no key is selected in the time allotment, the interactive will start with the current saved settings and content type mapping. If there is any initial program error, the next configuration screen will come up to correct it.



Basic Settings screen, the program is preset to default parameters in advance. They should be changed only after consultation with Tech Support.

COM port number is the port ID on which the serial data communicates between the cell grid and computer. The default value is 3.

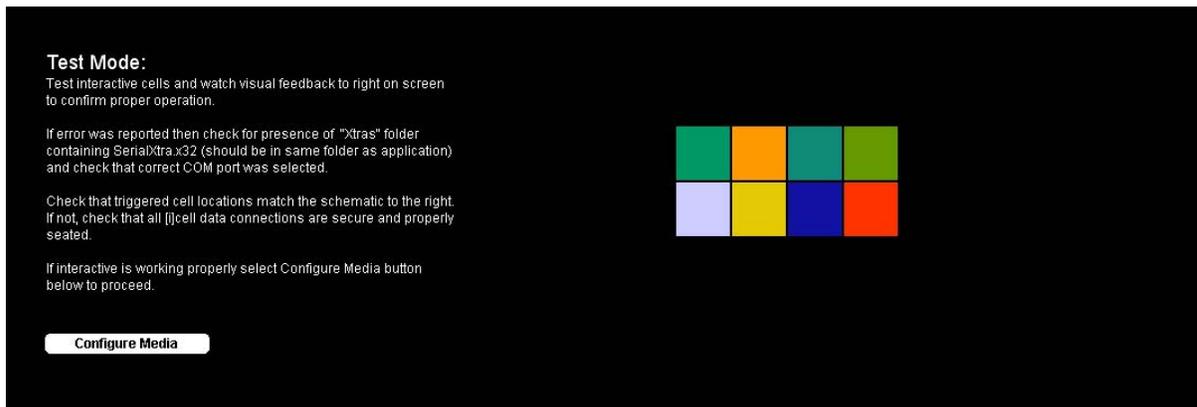
Attract Loop Timeout Wait is the length of time the program should wait before triggering the Attract Loop (default video with random flashing cells) after lack of any activity. Default value is 30 seconds.

Tile Sensitivity sets how sensitive the cells are. A higher number represents more sensitivity. Too much sensitivity and the cells could trigger too easily, too little sensitivity and they might not trigger at all. The default value is 13.

Return to Default Timeout is the length of time the program waits after a still image is activated (or a video is paused). If a cell is not triggered within that time frame, the program will restart the default video. This value is preset to 4 seconds. With video content, the default video restarts right after the content ends.

Save any changes in the Default settings using the Save as Default Settings button when finished.

Go To Test Page button moves on to next screen, Test Mode.

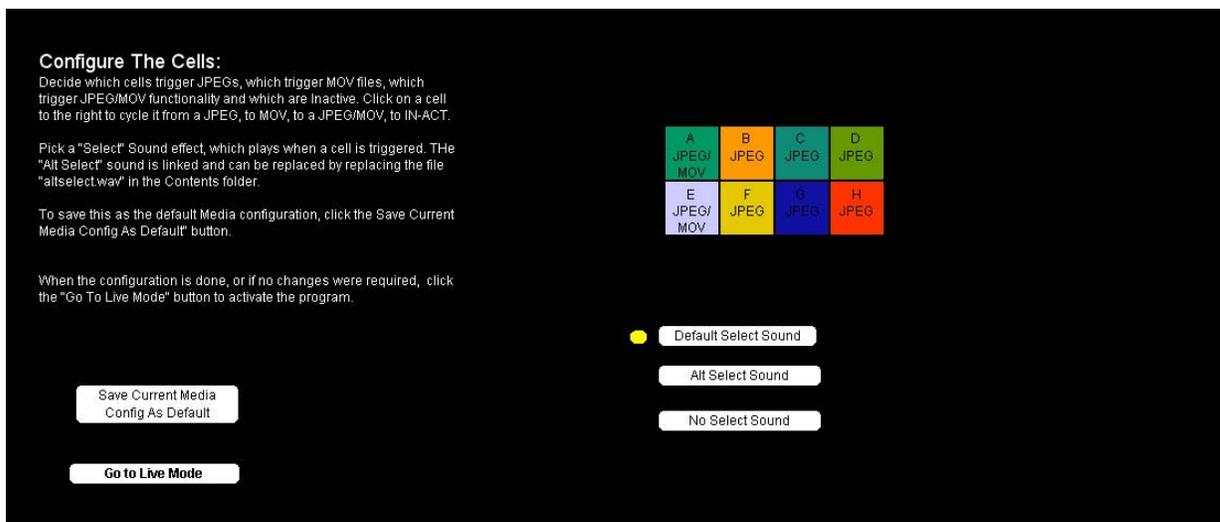


Test Mode screen is for use in testing COM communication, program communication and that cell locations have identified and mapped appropriately.

If there was an initial error reported, check for the presence of the "Xtras" folder and check that the correct COM port was selected.

On this page, trigger the cells in the display and check that its location matches that of the schematic. If not, check that all [i]cell data connections in the rear are secure and properly seated.

Configure Media button moves on to next screen, Configure The Cells.



Configure The Cells screen is where the media defaults are set depending on content formats, JPEG or MOV and functionality JPEG/MOV and IN-ACT and the Select Sound is chosen.

With the Matrix as a guide, select which functionalities should be triggered when the cell location is activated. Clicking on the cell image on the page will cycle it through the different functions.

The JPEG/MOV functionality uses both types of media files. First trigger on a cell brings up the JPG image. A second trigger on the same cell starts the MOV video file. The pause and continue function is active when playing the video as it is for all video files. With this function, to return to the initial JPEG image, another cell must be selected first and then return to the original cell. With this functionality, a user does not have to go on to the video file and can continue browsing other sections. The IN-ACT functionality “turns off” a cell that may not have any user content assigned to it. The cell will still glow like the others but will not get brighter or start any content if selected.

This Configure screen also allows for an alternate “Select” sound to be used when a cell is activated including the option of not having any sound at all. In the main content folder there are 3 different sounds saved as WAV files (altselect1, 2, 3) that can be used to overwrite/replace the altselect.wav file in the same directory. A user can also create their own altselect.wav file with a custom sound and use that instead.

Once finished with the configuration, select “Save Current Media Config as Default,” then select “Go to Live Mode.” The interactive will start. Next time the program starts up it will use this configuration and there will be no need to go through this process again.

These are the basic parameters for this Interactive Display. Many other more advanced features can be programmed such as the cells lighting in different colors, multiple content or paging of multiple images under a single cell and using 3 cells as a “media controller.” Additional programming time is required to enable these functions.

Exiting and Launching the Program is done by using a keyboard and mouse (either a wireless combo or wired, depending on the option selected at purchase). Hitting the ESC key will stop the program and go to the desktop. To start the program from the desktop, use the shortcut called “START UP.”

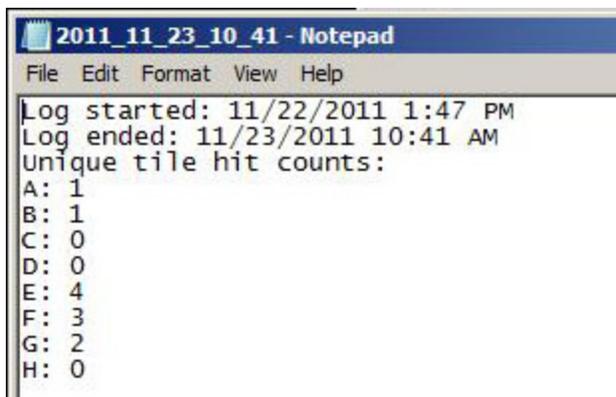
To leave the program and turn off the machine all at once, hold a hand over Tile A (upper left location) for approximately 10secs. At that point a shut down warning window appears with an 8 sec countdown. Continue holding hand over Tile A until countdown is complete. Removing one’s hand before the countdown is complete re-activates the program and starts the default video. This shut down sequence does not work under any other cells. Avoid simply cutting the power or turning off of the computer while the program is running. After the computer has shutdown, unplug the display and re-plug it to start it up again. The interactive program will start automatically once boot-up is completed.

It is not necessary to shut down the interactive at all and it can remain on running indefinitely. The display computer does not need to be connected to the internet or a network. There is a back-up copy of the entire program, folder structure and the QuickTime installer in a BACK UP directory on the main drive of the display computer.

Metrics and Log files If chosen as a program option, the kiosk can count cell activations while the program is running and create a Log File (see illustration below) in a Log Folder. The log file is in .txt format. The file name is the date and time the file is created. A log file is created every time the program is stopped, when the machine is shut down through the program's auto-shutdown feature or every week if the program is not otherwise stopped.

The log file counts unique hits to each cell and lists them by cell location using the tile designation letter. Consecutive multiple hits on the same cell will only be counted as one hit. The log won't show an additional hit until a user selects another cell and comes back.

Log files will accumulate and do not overwrite each other. A log file is not created if the kiosk is abruptly turned off as in the display computer switched off directly; the kiosk being unplugged; the outlet switched off or other power failure. Any information on hits up to that point will be lost.

A screenshot of a Notepad window titled "2011_11_23_10_41 - Notepad". The window has a menu bar with "File", "Edit", "Format", "View", and "Help". The text content of the window is as follows:

```
Log started: 11/22/2011 1:47 PM
Log ended: 11/23/2011 10:41 AM
Unique tile hit counts:
A: 1
B: 1
C: 0
D: 0
E: 4
F: 3
G: 2
H: 0
```