User Manual for SAMM M.D.
By Sound Imaging
Version 2.0
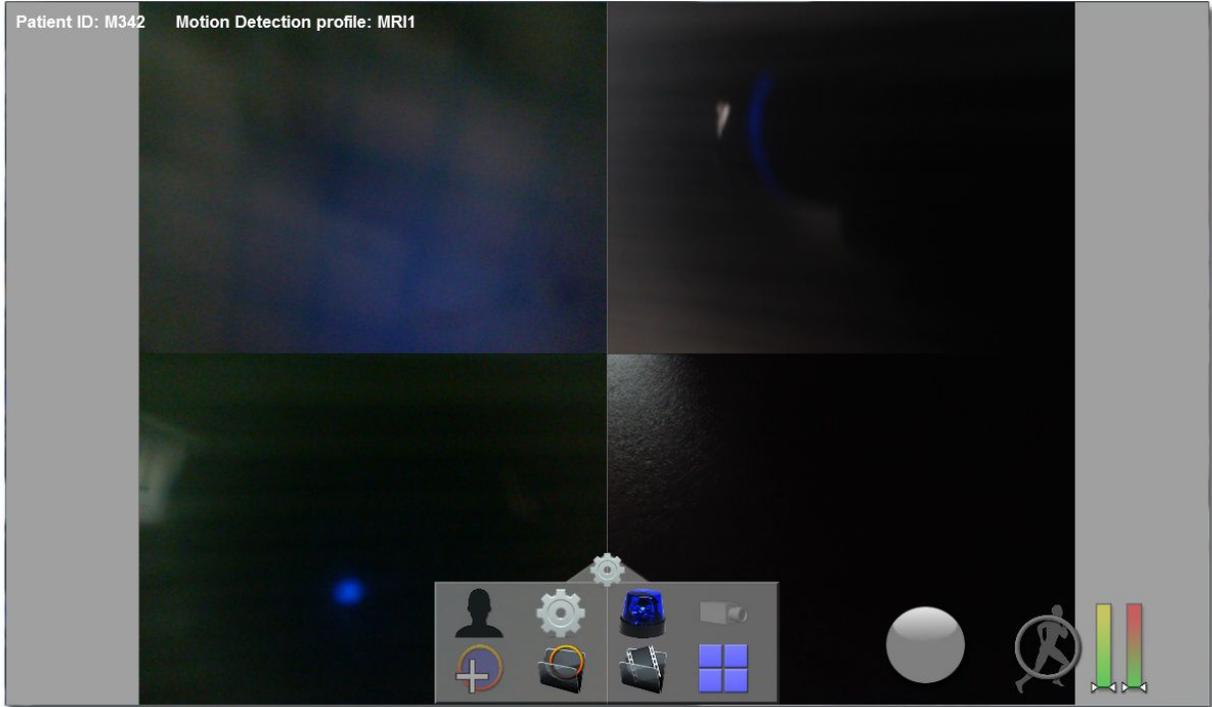

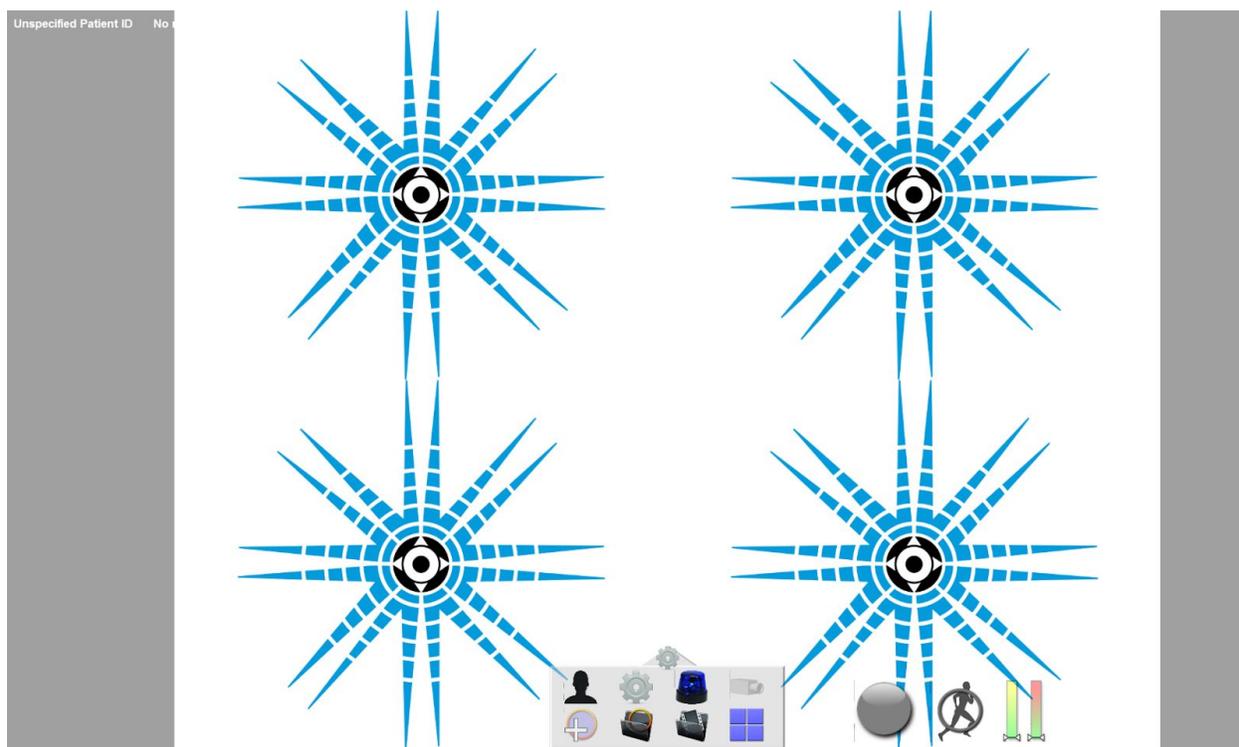**Table of Contents:**

The software is designed to:

- Display a live image feed from multiple cameras in a window, which can each be set to full screen.
- Perform mild/extreme motion detection using HotSpots and trigger an on-screen message and audio alert.
- Record video files and keep text event logs.
- Perform searches on previously recorded video files, and burn them to CD or DVD.
- Perform after hours suite security motion monitoring and video recording ("Night/Weekend mode").

Upon Program Start

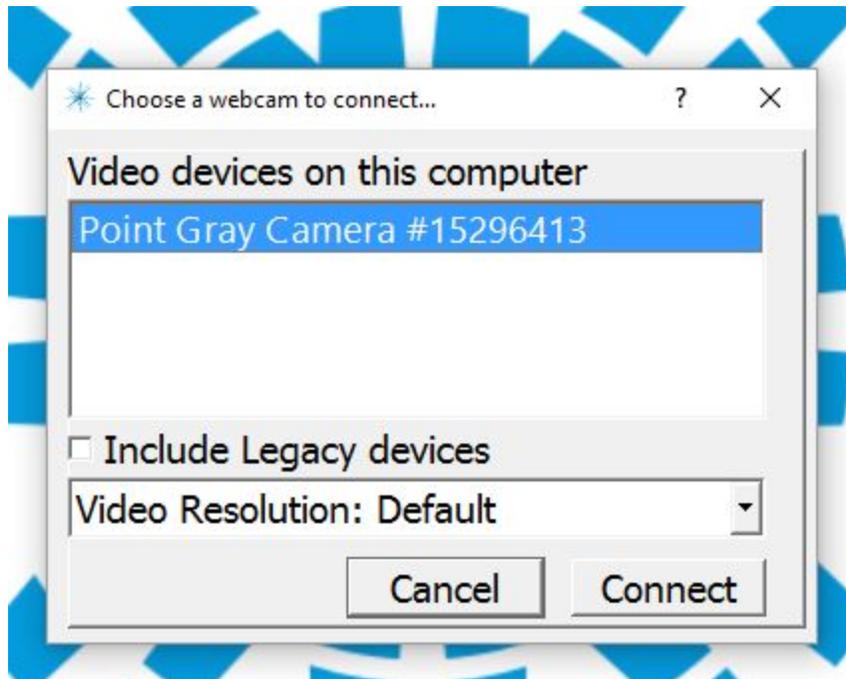After starting the program, your screen should resemble this:

Click on individual screen to bring to *edit mode* and click on to set up a camera for the selected workspace.

** For Camera Set Up Only**
1. Select Screen to pair camera with

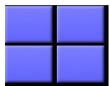2. Select the camera button
3. Should be presented a pop up panel as such :

   a.
4. Select Camera you wish to pair and click Connect
** End Camera Setup**

 The cameras can be displayed in a tiled fashion. In order to modify a camera or its settings in any way, it is necessary to click on one of the camera slots.

 When one of the camera slots is not connected, it is displayed as a big X.
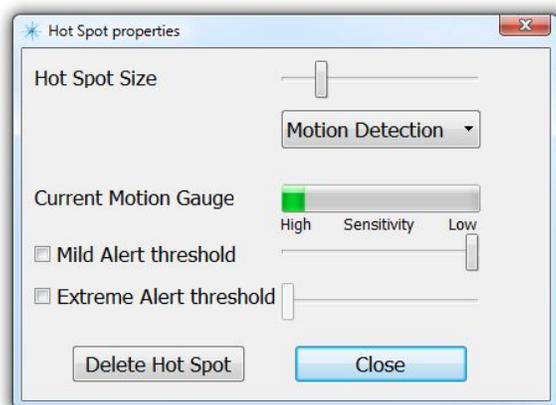
 In order to set up motion detection, it is necessary to select (or create) a Motion Detection profile. Click on the button to see the profile options. The software supports up to 20 profiles. Once a profile is selected, it is possible to

create motion detection HotSpots using the button. Up to 15 HotSpots per camera can be set up on each profile.

Double Click on Hotspots to see and edit their properties, it is possible to change the HotSpot's size, and set the HotSpot's sensitivity for both Mild or Extreme alerts.

Check boxes are used to specify if the HotSpot can generate Mild or Extreme alerts, or both. It is also possible here to delete a HotSpot. Each HotSpot has gauge displaying the current noise measure. If motion occurs in the HotSpot, the gauge will increase to the right. The sliders beneath the gauge indicates the threshold at which any more motion will generate a trigger.

If the slider is near the right end, the HotSpot is less sensitive because it requires more motion to trigger. This process must be tuned and tested by the operator for each HotSpot in the profile. The Mild slider should be more sensitive (more to the left) than the Extreme slider.

By default, a new HotSpot is set to "Motion Detection", but the type can be changed to "Reference Position". In this case the HotSpot can be set to a reference image, and the sensitivity becomes the difference between the reference images and the live feed. The reference images for each HotSpot are not saved, and must be "Set" each time the program runs.

When the "Night/Weekend" HotSpot Profile is selected, there will not be "Mild" and "Extreme" sliders, only a single slider will be displayed.

HotSpots turn blue when they detect enough motion to trigger. The HotSpots should be sized and placed so that the area of the interest is covered. It should be set to tightly monitor the patient, and no other moving object or blinking light (or reflections or moving shadows) should be present in the HotSpot. The operator can move the HotSpot by dragging it with the mouse.

Note: In order to perform a reliable motion detection, the software requires a good quality input image. *This means a focused image, and reasonable lighting in the room*. Not enough light means the camera will increase power to the sensor, resulting in a noisy image, which hinders motion detection.

- The Settings panel (gray box at the bottom of the window) can be hidden. At

  any time the operator can click on the gear icon to show/hide the panel.

These settings are set by Sound Imaging and are only available to a Sound Imaging Technician.

Operating in Normal Mode

Here are the steps that should occurs during a normal MRI session with SAMM M.D.:
1. The patient enters the room.

2. The operator must click on the button to set the Patient ID, and can enter the patient's ID using the keyboard.
   If a DICOM interface is present, the operator can select the patient from the current shared list. The Patient ID is important as it will be used in the saved file names, and also in the session logs. Then select the Motion Detection Profile or

create a new scan profile using the function and clicking " Create New Profile" and setting the appropriate HotSpots.

3. The operator clicks on the button , a video file is created for each camera, recording starts.

4. The patient is set on the bed, ready for scan.

5. The operator clicks on the button to enable the motion detection for mild and extreme movements.

6. If the patient moves mildly, an on-screen message and audio warning will occur.

7. When the patient scan is done, the operator can click on both and buttons to stop the recording and the monitoring.

8. If the operator wishes to make a backup of some video files, he can click on the

 button. This will present the "Video File Search" window, where the operator can search for recorded video files by patient ID or date range. The files can be played, and can be selected for CD/DVD-Burning.

Note: The video files are all located in this
C:\Users\...\Documents\SAMMmd

Setting Up Nights/Weekend Mode

In this security-type mode, Hotspots are also used to detect motion and generate alerts. As in Normal mode, the operator can add many HotSpots on any camera. Before switching to this mode, the software must not be recording or monitoring

(and are not blinking). Also, before using this mode, the motion detection must be adjusted. In order to setup the motion detection, the operator should click and select "Edit Nights/Weekend profile" in order to set up the HotSpots that will be active in Nights/Weekend mode.

Notes: There is no Mild/Extreme detection in the HotSpot properties for Nights/Weekend Mode.

Operating in Night/Weekend Mode

When ready to leave, the operator can enable Nights/Weekend mode by clicking on

the button. A 60 second countdown will appear before the monitoring starts. At any time the operator can click the "Now" button to skip the countdown. When in Nights/Weekend mode, the police light with blink to indicate that it is monitoring. When motion occurs, the software will immediately start recording on all connected cameras. The default recording duration is 45 seconds, and this amount of time will be extended each time motion is detected while recording. The files will be saved in this folder: **C:\Users\...\Documents\SAMMmd**
Videos saved in Nights/Weekend mode will have the word "Security" instead of a patient ID in the file names. Additionally, a JPG file will be saved when motion is first detected, this image will be attached to the email notification (see below).

There will be no feedback on screen that motion has been detected. An alert email can be sent if an address has been entered in the settings. Upon detection, the software will wait 30 seconds before sending the email; it will not send the email if the operator exits Nights/Weekend mode within that time. At any time, the operator can click on the screen to exit Night Mode. A pop-up will ask for the password. Providing the correct password will bring back normal mode.

Notes:
If the lights in the room are turned off, it is likely that the camera will try to adjust to the lighting by increasing its sensor's sensitivity, resulting in a noisy or grainy image. This can make it harder for the operator to adjust motion detection sensitivity, and can lead to detection misses. If the input image is low-quality, the detection will

suffer, there is no way around it. It may be necessary to tune the room for optimum results for Night Mode (provide night-time lighting, move or remove objects with blinking lights…) or **place HotSpots over strategic high-contrast areas.**

Exiting the software

The software is designed to function in full screen, and does not have a title bar. The only way to gracefully exit is to use the keyboard and hit Alt-F4. This is not available while in Nights/Weekend mode.