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OV Security™

SOFTWARE MANUAL

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INTRODUCTION.

OV Security™ is an easy to use, digital X-Ray system with live video output for real-time inspection and reporting. The OV Security utilizes a patent-pending combination of a c-arm mounted 70 kV X-Ray source and a digital imager.

For security-related inspections, the OV Security can be quickly deployed for inspecting suspicious items within minutes. The patent-pending ergonomic features, improved weight distribution, and customizable handling features allow the operator to maximize their attention on the item being inspected. Pictures and real-time videos are recorded and downloaded with the touch of a button for rapid review and inclusion in inspection reports.

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EQUIPMENT SPECIFICATIONS.

Table 1 OV Security™ Specifications			
Imaging Area (Field of View)	4 in. x 6 in. (10 cm x 15 cm)		
Dimensions X-Ray Tube to Imager Throat Depth Imager Thickness X-Ray Tube Thickness	9.5 in. (24 cm) to 20.9 in. (53 cm) 21 in. (58 cm) 2.5 in. (6.4 cm) 3.4 in. (8.7 cm)		
Startup Time (est.)	30 seconds		
Shutdown Time (est.)	5 seconds		
X-Ray Energies Low Medium High	Voltage (kV) 40 55 70	Current (mA) 0.300 0.218 0.171	Dose @ 12 in (30.5 cm) from beam port 50 R/hr (0.5 Sv/hr) 80 R/hr (0.8 Sv/hr) 95 R/hr (0.95 Sv/hr)
Beam Collimation (Approximate)	18° Horizontal 10° Vertical		
Image Resolution	250 microns (0.01in)		
Battery Life Continuous duty with 5 Ah battery Standby	 3 hours 8 hours		
System Weight C-arm Monitor w/ handle (optional) Packaged system (shipping weight)	 15 lbs. (6.8 kg) 2 lbs. (.9 kg) 50 lbs. (23 kg)		
Operating Temperature	-20° F to 120° F (-29° C to 49° C)		
Storage Temperature	-20° F to 140° F (-29° C to 60° C)		
Display Options	HDMI Monitor: 7 in. LCD, 1920 x 1200 pixels Wi-Fi Tablet: 10 in Touchscreen, 1400 x 900 PirateEye: 854 x 480 pixels Also compatible with any device that accepts HDMI signals		
Recording (OV Security) Internal storage Resolution Image / video transfer	 128 GB 1280 X 720 USB		
Recording (Wi-Fi Tablet) Internal storage Resolution Image / video transfer	 4 GB with expandable 128 GB memory 1280 X 720 USB		
Shipping Dimensions	32 in. x 20.5 in. x 12.5 in (82 cm x 52 cm x 32 cm)		
FDA Accession #	1680071-000		

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The OV Security is built in compliance with ISO 9001:2015 and meets the following standards when used as directed:

- ANSI/HPS N43.5 (2005)
- Ionizing Radiation Regulations (2017)
- ISTA 3A Over the Road vibration standard
- MIL-STD-810, Method 514, Annex C, Cat 4
- REACH/ROHS

•CE

Heads Up Display (HUD)

- ANSI Z87.1+, US Federal OSHA
- US Mil Spec MIL-PRF-31013
- CE EN 166 FTKN

Battery/Charger

(BC)   California Energy Commission

c(UL)us Underwriters Laboratory for Canada and U.S.

Revision Record

Revision	Date	Description
A	10/2020	Production Release for OV Security and 3.1.0 Software revision
B	02/2023	X-Ray Tube Manual Warm Up

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SAFETY PRECAUTIONS.

⚠️ WARNING
Do not perform any unauthorized modifications to the OV Security™ system or components of the system.
It is important that trained and qualified personnel perform or supervise a daily safety inspection of the OV Security system for obvious defects before using the system. Do not compromise on safety. Always perform the daily inspection of the system prior to use.
Any foreign material (dirt, mud, ice, etc.) must be removed before using the system. Inspect, clean, and test the equipment as described in this manual to ensure long-term safety and reliability.
Do not use any component that is not approved for use with the OV Security system or any after-market component as they may compromise the safety features designed into the system.
Defective equipment that is discovered during the daily inspection must be removed from service until repaired or replaced.
The user of this equipment must follow the operating instructions, in the order shown, to ensure safe operations and compliance with government regulations.

Personnel operating this equipment must be completely familiar with this manual and they must read and understand these important safety alerts before proceeding.

IMPORTANT SAFETY ALERTS
NOTICE: Can cause minor problems and reminders.
CAUTION: Can cause equipment damage or potential problems.
WARNING: Can cause serious or fatal injury.

⚠️ WARNING: JOB SITE SAFETY PRECAUTIONS
Surveillance Only trained and qualified individuals, or assistants working under their direct supervision, may operate the OV Security system. The qualified individuals must be physically present at the site and able to control and limit access to the vicinity of the work.
Locking Keep the OV Security controller locked while assembling the system and when not being used to perform scanning. Locked is defined as the controller key switch in the Off position with the key removed. Store the key in a secure location.

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Operating Conditions

OV Security™ is designed for applications where the equipment will not be exposed to harsh handling or environmental extremes. See Equipment Specifications for more information.

X-Ray Training

It is required that OV Security operators are properly trained and qualified to perform radiographic inspections. This manual does not address radiographic inspection techniques or procedures.

Precautions

The OV Security system is designed for portability and is ruggedized for industrial environments. However, it does contain fragile components. Use care to avoid strong vibrations and shock conditions (e.g., equipment drops or transportation outside the approved case) to the main housing, imager housing, and display(s).

CAUTION
Do not attempt to open or modify the imager housing, main housing, or X-Ray tube. Opening any of these components will void the system warranty and may expose the operator to a high voltage shock hazard.

CAUTION
Do not allow liquids to come into contact with any part of the OV Security system. The main and imager housings have been made water resistant, but they are not "Waterproof". Appropriate care should be taken to protect all cabling and connectors to ensure reliable and safe operation of the OV Security system.

⚠️ WARNING: Class 2 Target Laser
Because the blink reflex (glare aversion response to bright lights) will limit the exposure to no more than 0.25 seconds, Class 2 laser pointers are considered to be safe. Furthermore, Class 2 lasers do not harm eyes unless a person deliberately stares into the beam, making laser protective eyewear not necessary. A Class 2 laser is not a skin or materials burn hazard. NEVER aim any laser towards an aircraft or vehicle in motion.

OV Security^{TM} SOFTWARE.

Power Cycling

Each OV Security™ unit utilizes an embedded microprocessor to handle and coordinate all aspects of safety and normal operating functions. With such a system, it requires several seconds to initialize before starting normal operations. Following the Startup and Shutdown sequences below is critical for normal operation; (Figure 1) for key and indicator locations.
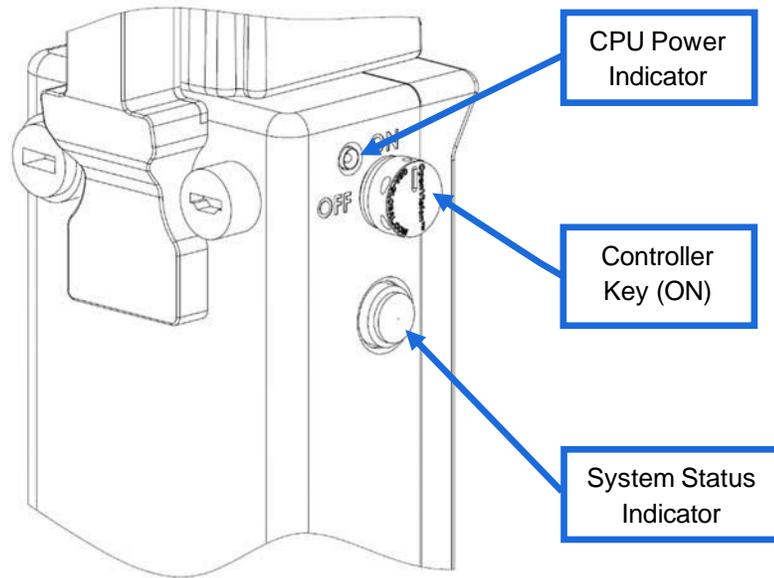

Figure 1 Indicators and Power Switch Details

Startup

When the Controller Key is turned to its ON position, the CPU indicator will immediately turn on (green). A boot up screen will be displayed during initialization, and the System Status Indicators will also illuminate. When these indicators turn green and the *Home Screen* (Figure 2) is displayed, system startup is complete and ready for normal operation.

Shutdown

Turning the Controller Key to its OFF position will begin the shutdown sequence. The Status Indicator Lights will turn off after one to three seconds, but the system will not be fully powered down until the CPU Power Indicator LED is turned off. Once off, remove the key, and place the unit in storage. No additional cool down is required.

CAUTION
Failure to allow the system to properly shutdown may corrupt internal memory, and unit may not be able to restart.

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Home Screen

The *Home Screen* (Figure 2) displays the output of the targeting camera (outlined in red) and the *Settings* menu across the bottom (outlined in yellow).

Figure 2 Home Screen

Settings Menu

The *Settings* menu will always be displayed when the *Home Screen* is active. On the *Home Screen*, the *Settings* menu is inactive (i.e., unable to change values) by default. The *Settings* menu can be activated from either the *Home Screen* or the *X-Ray Imaging Screen* by holding the hat switch in its down (towards push button) position for three seconds (Figure 3).

Figure 3 Hat Switch

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When the X-Ray Voltage becomes highlighted in yellow (Figure 4), the *Settings* menu is active, and can be navigated using the hat switch's left/right positions. Up/down positions change the value of the highlighted setting.

The *Settings* menu becomes disabled when the hat switch is in its neutral (center) position for 15 seconds.

Note: While the *Settings* menu is active, the hat switch <u>cannot</u> be used to navigate to another screen.
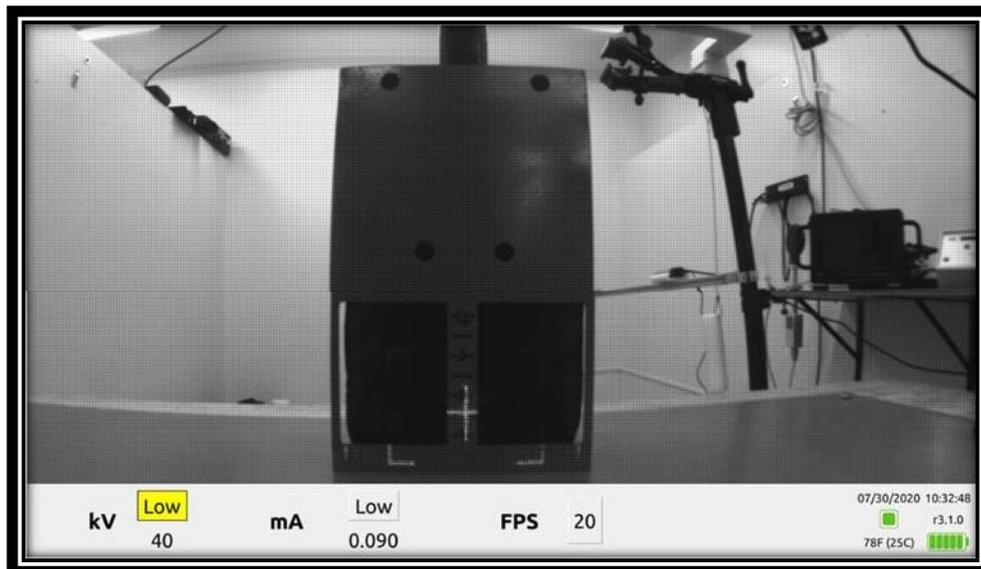

Figure 4 Active Settings Menu

Table 2 shows the settings and user adjustable values available in the *Settings* menu:

Table 2 - *Settings* Menu Parameters

Setting (Units)	Possible Values
X-Ray Voltage (kV)	Low, Medium, High (default Low)
X-Ray Current (mA)	Low, Medium, High (default Low)
Framer per Second (FPS)	5,10,15,20,25 (default 20)

The *Settings* menu also displays the following system information on the right-hand side:

- System date and time
- Software version
- Current battery level (OV Security)
- X-Ray tube temperature
- OV Security online status indicator

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Firing X-Rays
X-Ray Tube Warm Up

If your OV Security System <u>has not been run for an extended period of time</u> (10 days or more), you need to perform a <u>Manual Warm Up</u> of the X-Ray Tube as follows in steps 1-6:

1. Install controller key and turn to ON and allow time for system to initialize. System status indicators (located on either side of main housing) will turn GREEN when system is ready.
2. Set the kV and mA to the LOW settings
3. Turn on x-rays for 30 seconds
4. Reset the kV and mA to the MEDIUM settings
5. Turn on x-rays for another 30 seconds
6. The unit is now ready to run on any setting – LOW, MEDIUM or HIGH for normal inspection

- Verify kV and mA settings on main status screen refer to OV Security software manual (MAN-064).
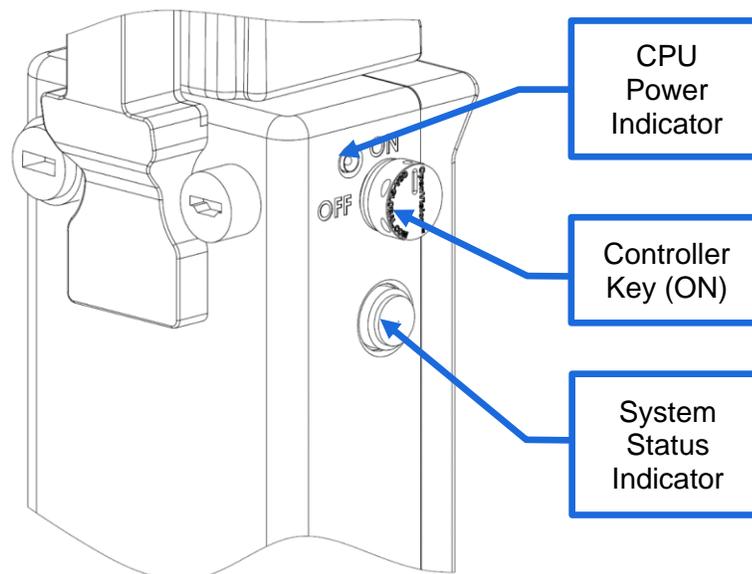- Safely perform test shot to verify X-ray functionality.

Figure 1 Indicators and Power Switch Details

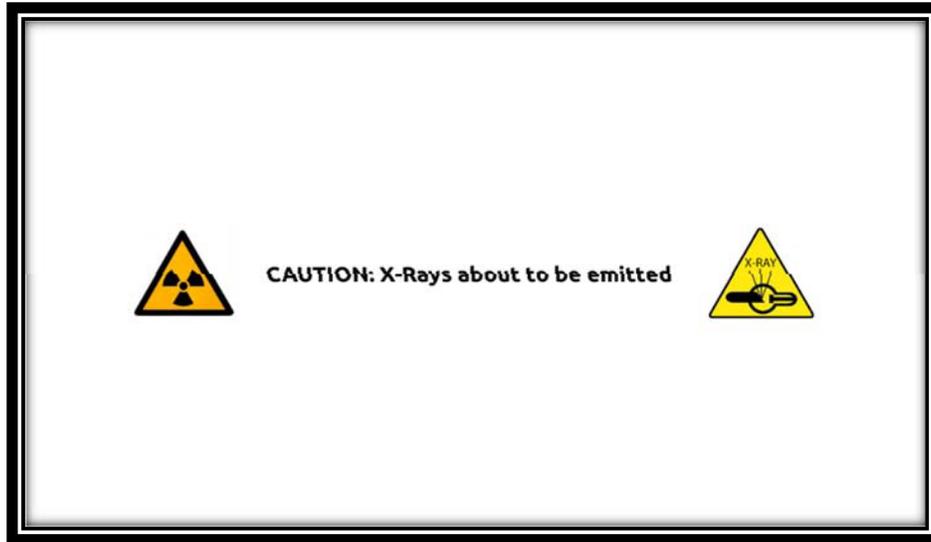# Perform a manual x-ray tube warm up if needed – see page 12

Figure 5 X-Ray Warning Screen

Press and hold the palm switch and then the red trigger switch (Figure 6) to start firing X-Rays. Firing will stop when red trigger switch is released.

System will transition to the *X-Ray Warning Screen* (Figure 5) for five seconds, during which the buzzer will pulse at one-second intervals. The System Status Indicators (on either side of main housing) will also turn amber.

Figure 6 Trigger

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X-Ray Live Image Screen

Figure 7 X-Ray Live Image Screen

After five seconds, the system will emit X-Rays, and transition to the *X-Ray Live Image Screen* (Figure 7) *Settings* menu is hidden by default). System Status Indicators remain amber-colored, and the buzzer pulse rate changes to two-second intervals.

To change settings while emitting X-Rays (i.e., on-the-fly), hold down the hat switch for three seconds (Figure 3) to show and activate the *Settings* menu (Figure 8).

Figure 8 Settings Menu Re-Activated

The *X-Ray Live Image Screen* remains active until the red trigger is released, or 90 seconds has elapsed. When either occurs, the following will happen:

- System stops emitting X-Rays
- Buzzer turns off
- System Status Indicators turn green
- *Home Screen* is displayed

Image Capture

An image (or snapshot) can be captured from either the *Home Screen* (targeting camera image) or the *X-Ray Live Image Screen* (X-Ray image). Snapshots are taken by pressing and releasing the round Image Capture button (Figure 9).

IMAGE CAPTURE

Figure 9 Image Capture Button

The system will display the snapshot in the upper left-hand corner (Picture-in-Picture) of the current screen for five seconds (Figure 10) and is automatically saved to internal storage in PNG image format.

Figure 10 Image Capture Retained (upper left corner)

Video Capture

Like snapshots, videos can be recorded from either the *Home Screen* (targeting camera image) or the *X-Ray Live Image Screen* (X-Ray image). Videos are taken by pressing <u>and holding</u> the capture button for at least two seconds. Within one second, the system will commence recording video, indicated by a notification 'Recording in progress...' appearing in the upper right-hand corner of the display (Figure 11). After two seconds, the operator can release the capture button. When the button is pressed again, the recording stops and is automatically saved to internal storage in MPEG4 video format.

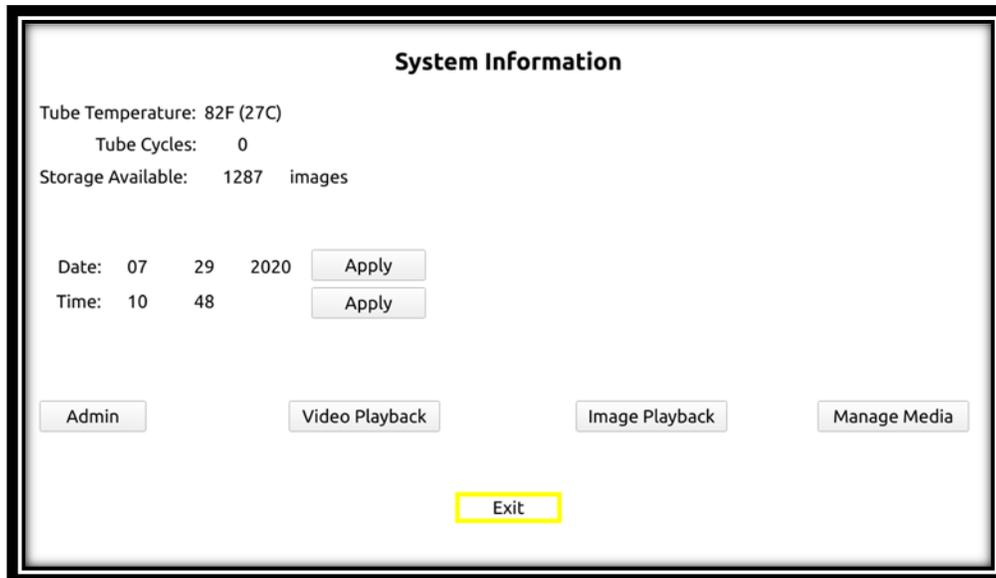**Figure 11   X-Ray Video Recording in Progress**

System Information

Figure 12   System Info Screen

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The *System Info Screen* (Figure 12) is accessible from the *Home Screen* (when the *Settings* menu is inactive) by holding the hat switch in the left position for three seconds. The *System Info Screen* includes:

- X-Ray tube temperature
- X-Ray tube cycle count
- Approximate number of images system's internal storage can hold (*Storage Available*)
- Current system date and time (can be modified)
- Access to *Admin Screen*
- Image and Video Playback
- Media management (e.g., deleting a folder)

This menu is navigated by the hat switch's left/right positions. Up/down positions change the value of the highlighted setting. On-screen buttons (e.g. *Apply*) are actuated with the Image Capture button (Figure 9) *Exit* transitions back to the *Home Screen*.
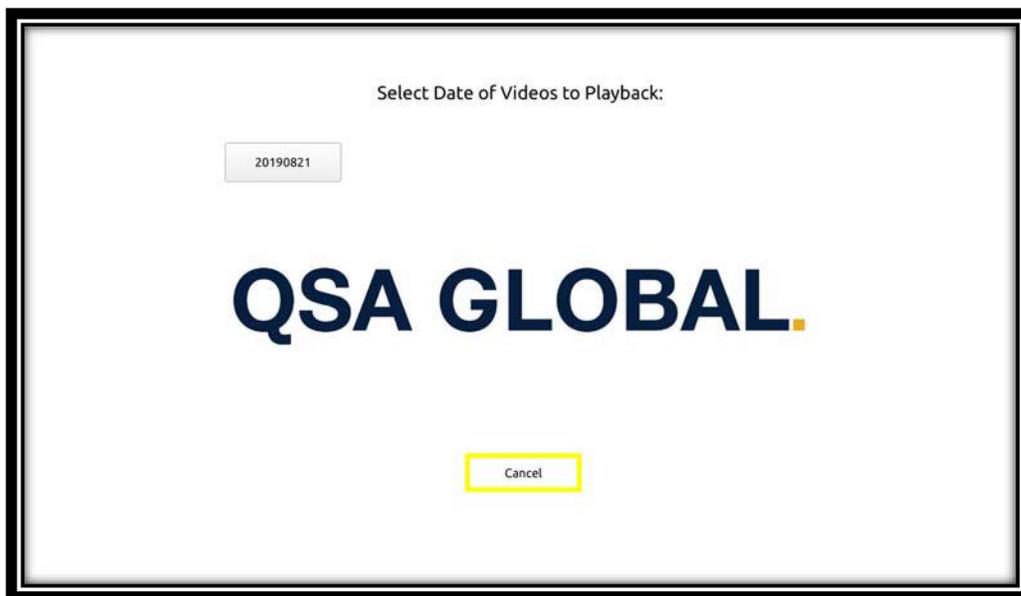
Image Playback

Select Date of Videos to Playback:

20190821

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Cancel

Figure 13 *Playback Selection Screen*

Image Playback (*System Info Screen*, Figure 12) brings up the *Playback Selection Screen* (Figure 13). Image directories (if any) are shown on this screen, labeled by date. Newest directories are displayed first. Selecting the *Oldest* on-screen button shows additional folders (if any). Select desired folder to view playback videos and still images. As always, the Image Capture button (Figure 9) actuates on-screen buttons/folders.

Left/right hat switch positions navigate between images/videos within an image folder. The hat switch's down position exits image playback mode.

The organization of images on the OV Security is by directories that are named with a date stamp of the format 'YYYYMMDD'. If the directory does not exist at the point the first snapshot for the day is taken, the directory will be automatically created. Images within the directory are named in the format 'YYYYMMDD-HHMMSS.png' to ensure that unique names are created for each image taken.

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USB Drive Configuration for Media Transfer

USB drives must be configured before images/videos can be transferred from the OV Security™ system. A properly configured USB drive includes an 'ovdx' directory at the drive's top-level, and an 'images' directory within the 'ovdx' directory (see Figure 14). Unless these directories are on the USB drive as indicated, the software will not transfer images/videos.
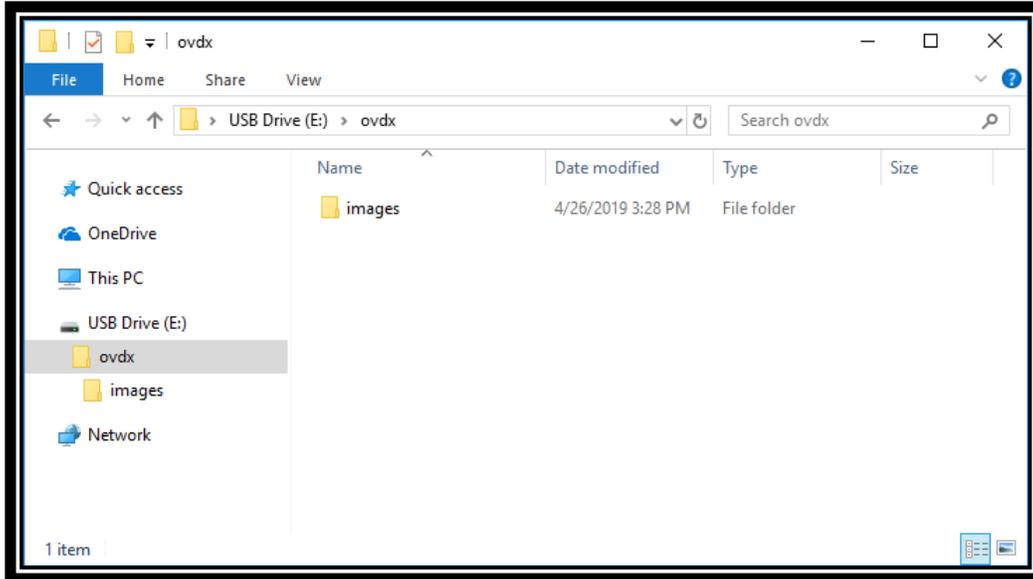

Figure 14 USB Drive Folder Format

CAUTION
To ensure that the USB drive does not become corrupted, <u>always</u> wait until the system transitions back to the *Home Screen* (Figure 2) before removing the USB drive from OV Security.

Image Transfer

Inserting a properly configured (file structure shown in Figure 14) USB drive in the external USB port (Figure 15) of the OV Security™ transitions to the *Media Transfer Screen* (Figure 16). Navigate to desired folder to copy, then press and release the Image Capture button (Figure 9) to initiate file transfer.
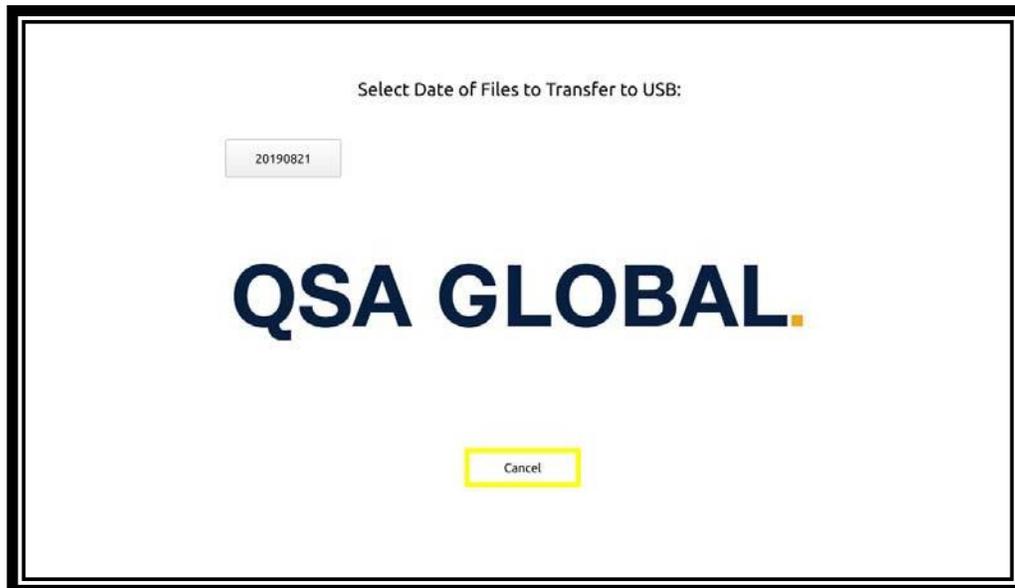

Figure 15 - USB Port

Figure 16 Media Transfer Screen

When no image directories are found on the OV Security, the message "No Images to transfer" message (Figure 17) will be displayed. Selecting [Cancel] will transition to the *Home Screen* and the USB drive can then be safely removed.
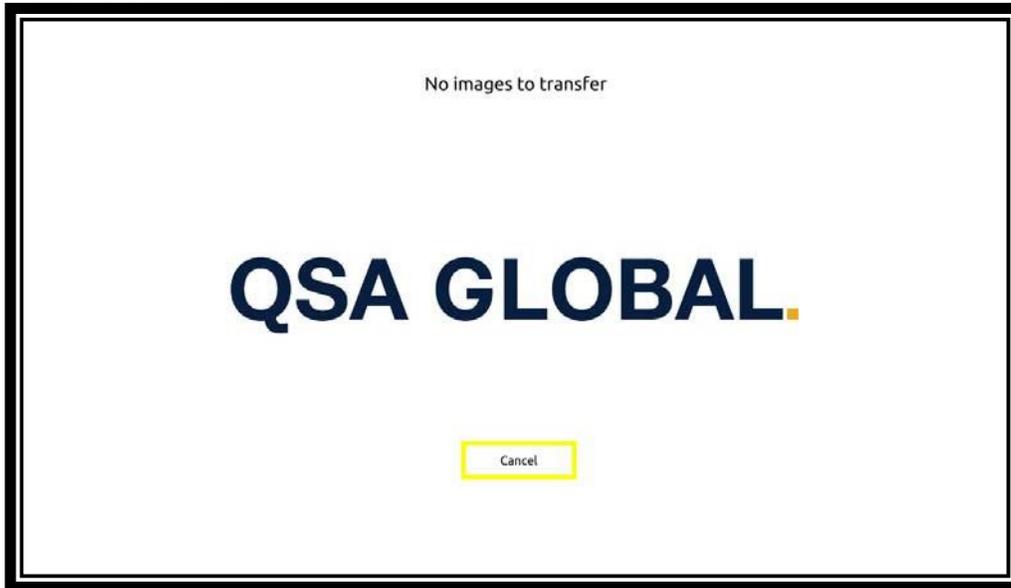
Figure 17 No Images Present

When one or more image directories are found, the *Media Transfer Screen* (Figure 16) will appear displaying up to four buttons at one time with names of the directories that exist on the OV Security. To select a directory for transfer, navigate to the desired date stamp button and select the button. This will transition the user to the *Image Transfer Confirmation Screen* (Figure 18).

NOTICE: only one directory of images will be transferred to the USB drive per insertion. Following the last step of a transfer the screen will transition to the home screen. To initiate another transfer, remove the USB drive from the OV Security and reinsert.

Figure 18 Image Transfer Confirmation

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This screen presents the user with *Yes* and *No* to confirm the image transfer. Selecting *No* will transition to the *Home Screen* and the USB drive may be safely removed. Selecting *Yes* will transition to the *Transfer in Progress* S*creen* (Figure 19). No additional user action is required. The amount of time this screen is displayed is determined by the number of images in the image directory. At the completion of the transfer, the system will transition to the *Image Deletion Confirmation Screen* (Figure 20).
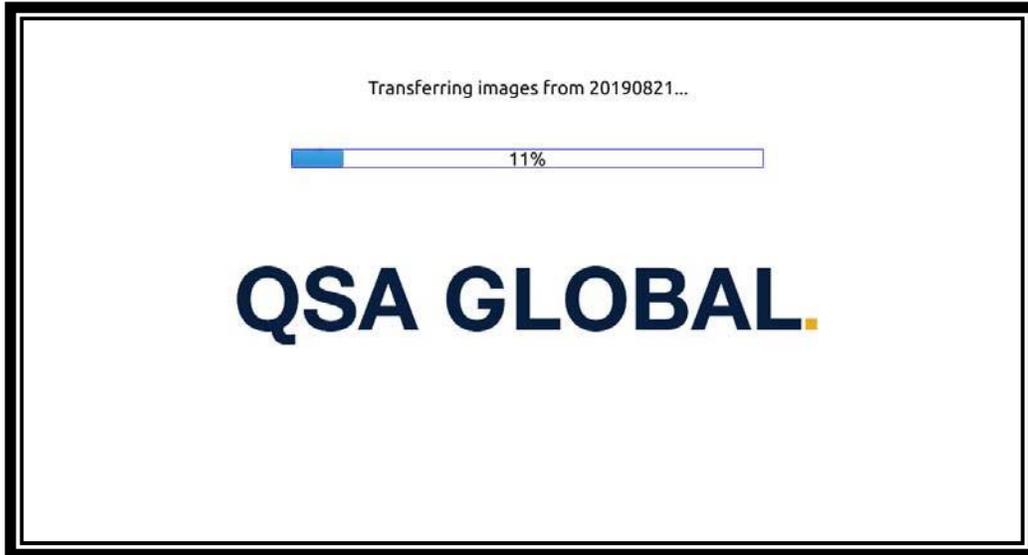
Transferring images from 20190821...

11%

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Figure 19 Transfer in Progress

This will delete all images for 20200729! Confirm?

Yes   No

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Figure 20 Image Deletion Confirmation

This screen presents the user with *Yes* and *No* to confirm the image deletion for the selected date. Selecting *No* will transition to the *Home Screen* and the USB drive may be safely removed (no images will be deleted from the OV Security). Selecting *Yes* will cause images in that specified folder to be deleted from the OV Security and then the system will transition to the *Home Screen*.
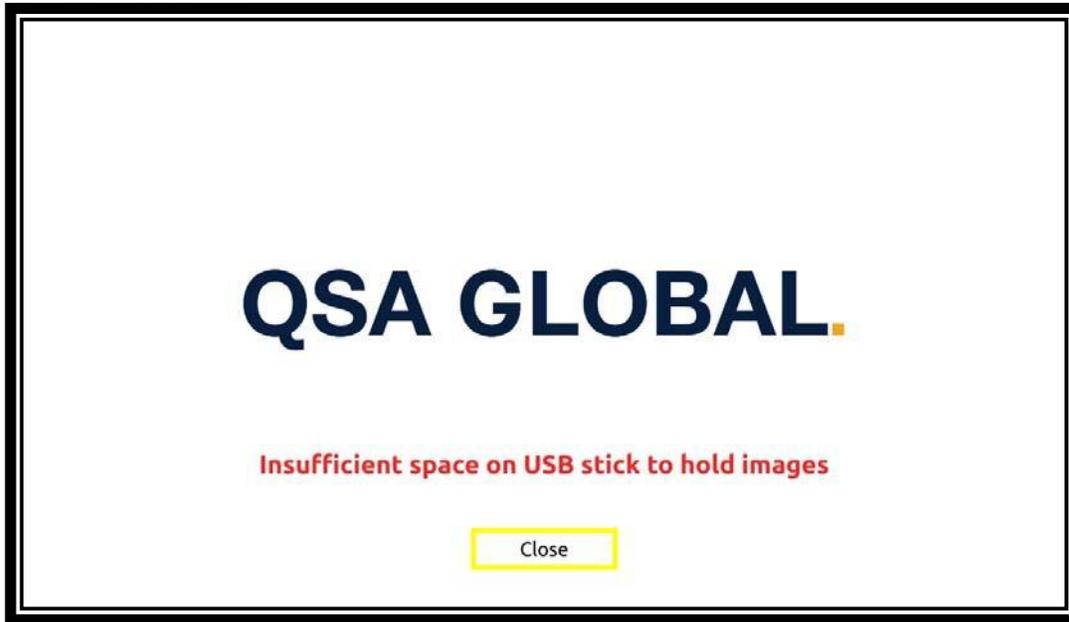
Figure 21 Insufficient Space Warning

When the user has confirmed the image transfer, the software performs a check to determine if there is enough space on the USB drive to hold all the images contained in the selected folder. If there is insufficient space, this screen will be displayed (Figure 21). Selecting the *Close* button will cause the system to transition to the *Home Screen* and the USB drive can be safely removed.
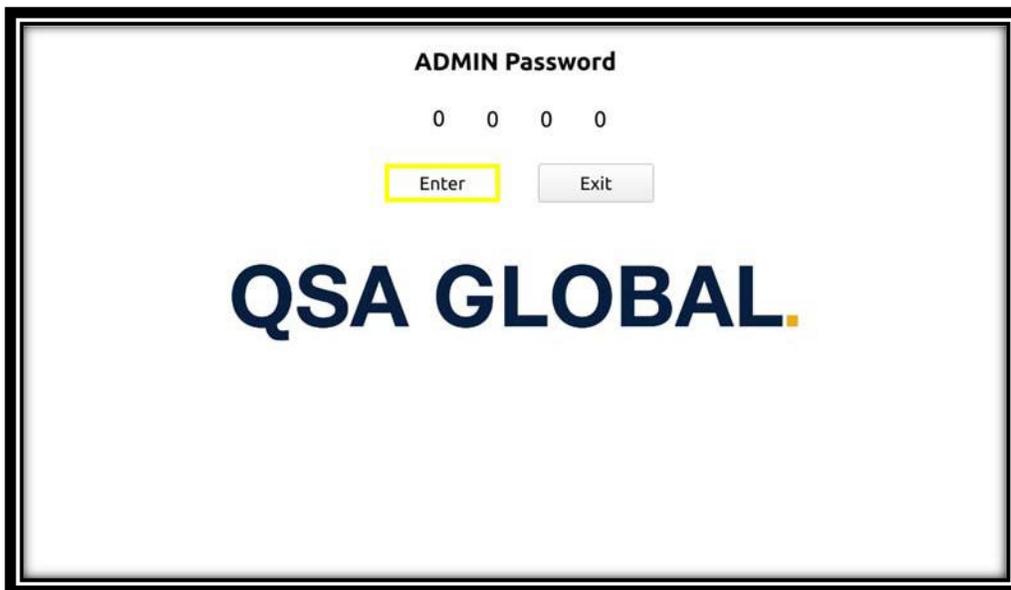
Admin Password Screen

Figure 22 Admin Password Screen

Selecting the *Admin* in the *System Info Screen* (Figure 12) transitions to the *Admin Password Screen* (**Error! Reference source not found.**22). The hat switch's left/right positions navigate between *Enter*, *Exit*, and the password digits. Pressing *Exit* will transition back to the *Home Screen*. If the correct password has been entered, selecting *Enter* transitions to the *Admin Screen*.

System Administration

Figure 23 Admin Screen

In the *Admin Screen*, the hat switch's left/right positions navigate between settings, and the up/down positions changes the highlighted setting. Settings that can be changed (and their value ranges) are shown in Table 3.

Table 3 - Admin Screen Settings

Admin Screen Setting	Possible values*
Voltage, Low (kV)	40 - 70 kV
Voltage, Medium (kV)	40 kV to 70 kV
Voltage, High (kV)	40 kV to 70 kV
Voltage, Super (kV)	40 kV to 70 kV
Current, Low	0.090 mA to 0.300 mA
Current, Medium	0.090 mA to 0.300 mA
Current, High	0.090 mA to 0.300 mA
Current, Super	0.090 mA to 0.300 mA
Super Mode	Enable/Disable
Require Scatter Shield	Enable/Disable
Admin Password	0000-9999
Factory Reset	Resets OV Security to factory settings

*Power is limited to 12 W (kV x mA) max. (e.g., 70 kV @ .171 mA = 12 W, 40 kV @ .300 mA = 12 W)

Select *Apply Settings* to save any changes. Otherwise, select *Cancel*. Either action will transition back to the *Home Screen*.

Super Mode

Super Mode provides the ability for fine control of voltage and current settings while on the *Home Screen* and during operation of the OV Security™. With Super Mode enabled the operator can adjust (through the settings menu) voltage in 1 kV increments and current in .001 mA increments.

Figure 24 Home Screen with Super Mode enabled.

The *Admin Screen's* Super Mode (Figure 23) must be checked. Once the user selects the *Apply Settings* button, the user interface will return to the *Home Screen.* Both kV and mA displays (in the *Settings* menu) will indicate Super instead of Low, Med, or High (Figure 24). To change either value, activate the *Settings* menu (see **Settings Menu** section on page 10), navigate to either the kV or mA setting, and press the up/down hat switch.

![QSA GLOBAL logo]

OV SECURITY™ WI-FI TABLET.

Figure 25 OV Security Wi-Fi Tablet

GO Support

Go Support is required for Wi-Fi functionality of the OV Security and Tablet. Go Support must be selected in the OV Security *System Administration* screen for the Wi-Fi functionality to operate. This is set at the factory (Figure 26).

Figure 26 GO Support selected

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Startup and Power Down of Tablet

The OV Security™ tablet is a touch screen tablet. To power up, press the power button on the tablet's upper-left corner. The OV Security APP will automatically launch on power up. To power down the tablet, press the *Home Screen's* power button (Figure 27). Press the *Okay* button to verify shutdown.
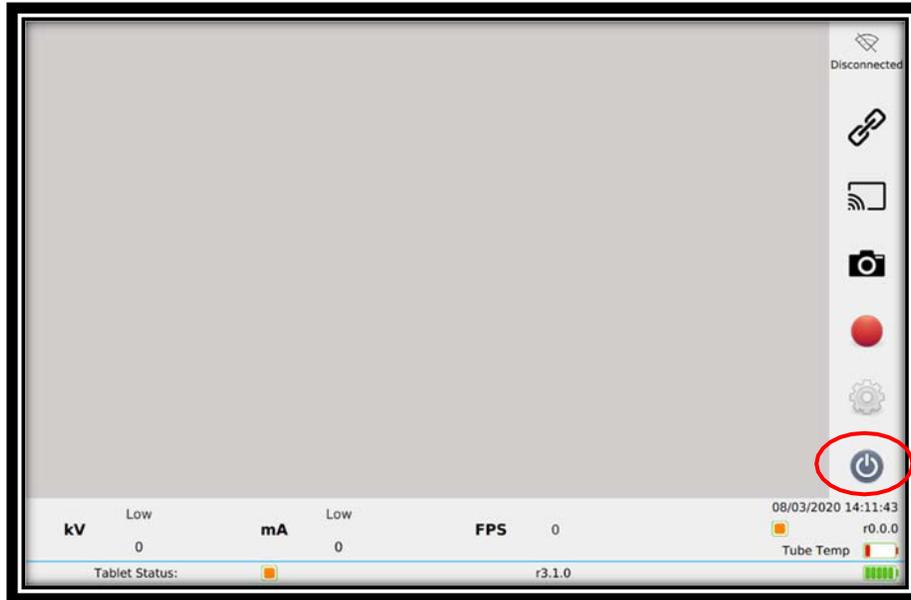

Figure 27 Software Power Button

Home Screen

The home screen is divided into three main sections: Viewing window (center), *Settings* menu (bottom, outlined in yellow), and *Control Panel* which can be user-selected to appear on the left or right side (shown on right in Figure 28, outlined in red).

Figure 28 OV Security APP Home Screen

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Establishing Wi-Fi Connection, Link, and Streaming

Tablet will automatically connect to Wi-Fi when the APP launches, which may take a few seconds. The Wi-Fi symbol will show "Connected" when a Wi-Fi connection has been established (Figure 29).

Figure 29 Wi-Fi Connected to OV Security

Once connected to Wi-Fi, the tablet can then be linked to the OV Security by pressing the link icon (⌘). Once the link is established (⌘), the settings from the system will update (along bottom of screen, as shown in Figure 30).

Figure 30 Wi-Fi LINK to OV Security

With the tablet linked to the OV Security, image data can be streamed by pressing the streaming icon (▤, Figure 30). To stop streaming, press the stop button (■, Figure 31).
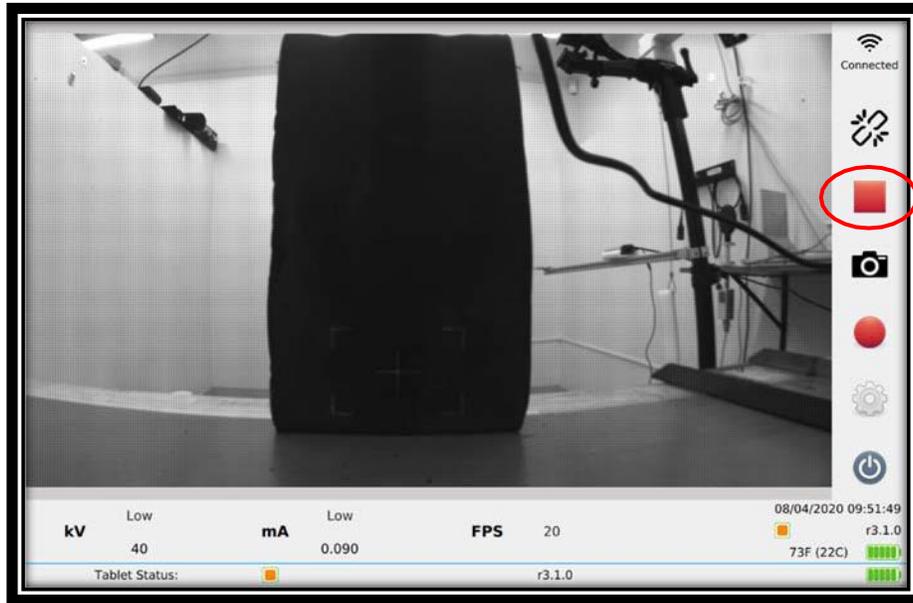
Figure 31 Streaming Image Data to Tablet

Image and Video Capture

Pressing the camera icon (📷, Figure 31) takes a snapshot. Once pressed, a picture-in-picture will appear in the upper-left corner (Figure 32). Snapshots work for both targeting and X-Ray images.

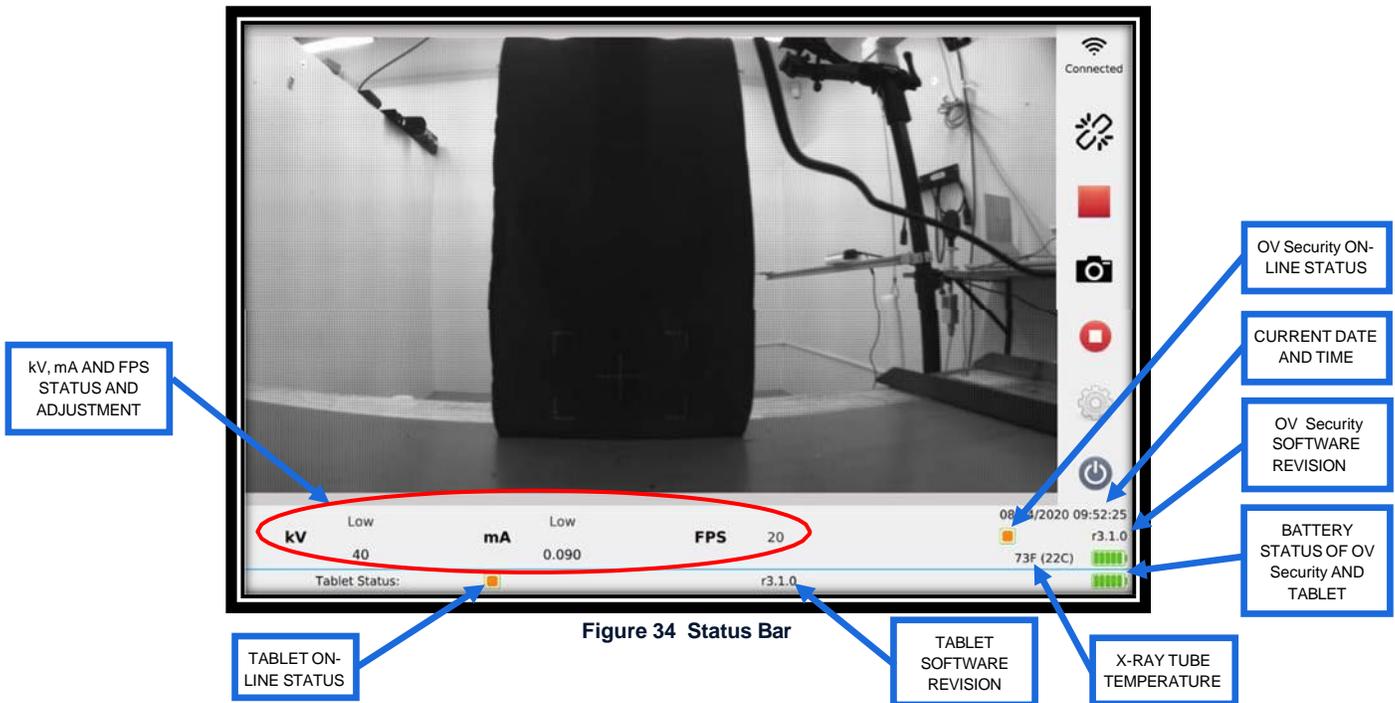**Figure 32 Image Snapshot Picture-in-Picture**

Pressing the video record icon (● ,Figure 32) starts a recording. The icon will change (■ , Figure 33) to indicate video recording in progress. Press this button again to stop recording. Tablet can perform seamless targeting to X-Ray videos.

Figure 33 Video Capture

OV Security™ Screen Displays

In addition to live image streaming, the tablet will display most OV Security data and information screens. The status bar (Figure 34) includes: kV, mA and Frame Rate (FPS) adjustments, on-line connection status between the OV Security and tablet (■), current date and time, software revision installed on both system and tablet, X-Ray tube temperature, and the battery level of the tablet and the OV Security.

kV, mA AND FPS STATUS AND ADJUSTMENT

OV Security ON-LINE STATUS

CURRENT DATE AND TIME

OV Security SOFTWARE REVISION

BATTERY STATUS OF OV Security AND TABLET

TABLET ON-LINE STATUS

TABLET SOFTWARE REVISION

X-RAY TUBE TEMPERATURE

Figure 34 Status Bar

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X-Ray Caution Screen (Figure 35), error screens (Figure 36), *ADMIN screen*, etc.

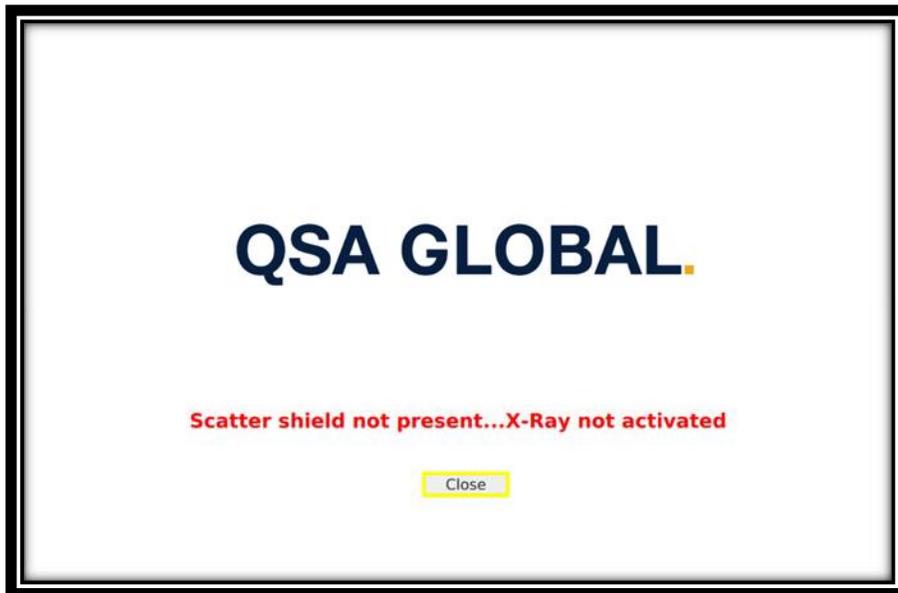**Figure 35 Caution Screen**

Figure 36 Error Screen Example

Local Settings Screen

Media Transfer

Images and videos can be downloaded to a USB drive from the tablet. Plug an appropriately sized USB drive into the USB port located on the right side of the tablet using the provided adapter (Figure 37).
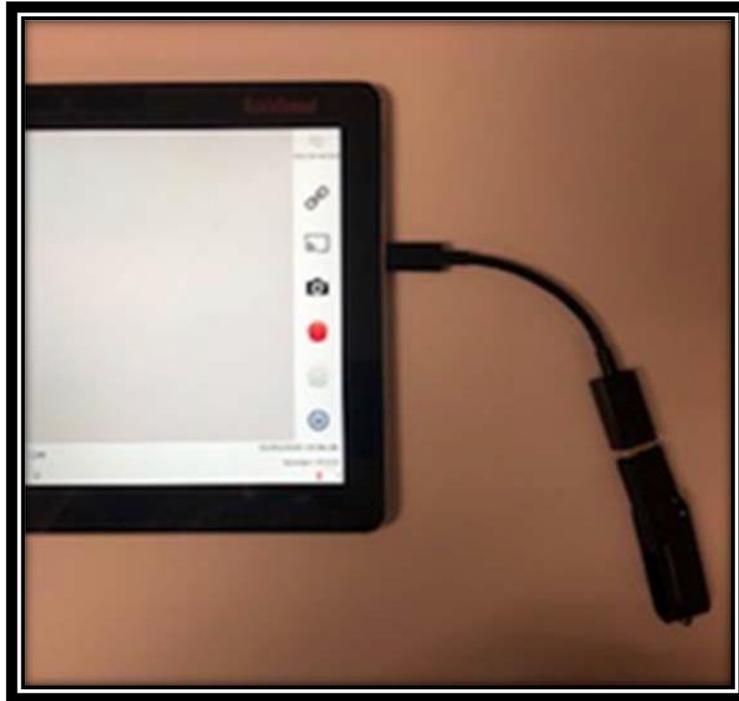

Figure 37 USB Adapter and Drive Connected to Tablet

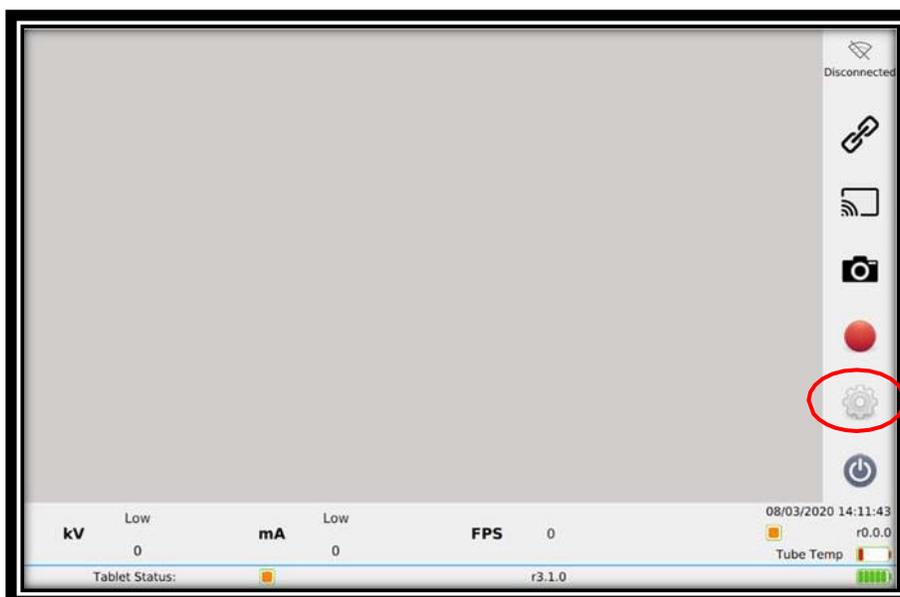Press the Local Settings button (,) to go to the *Local Settings* screen (Figure 38).

Figure 38 Local Settings Button

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Pressing the *OV Media Transfer* button (Figure 39) will transition to the *OV Media Transfer* screen. Pressing the *Tablet Media Transfer* button will transition to the *Tablet Media Transfer* screen
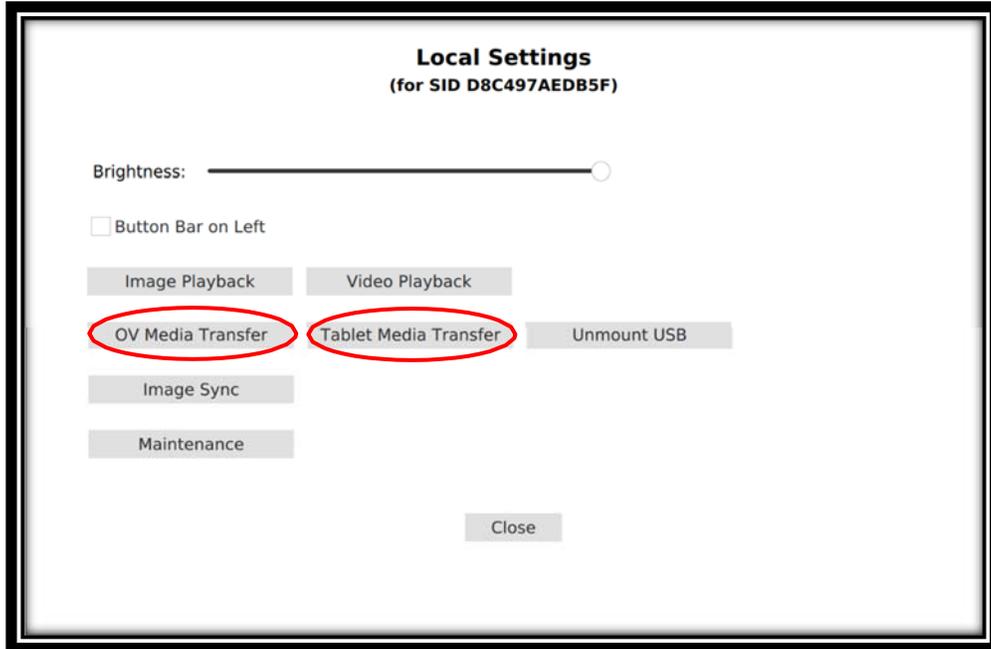

Figure 39 Local Settings Screen

Select desired folder to transfer and press the *Open* button (Figure 40). All media in that folder (snapshots and videos) will automatically transfer to the attached USB drive. A <u>Transfer in Progress</u> pop-up window (Figure 41) will be displayed during transfer.
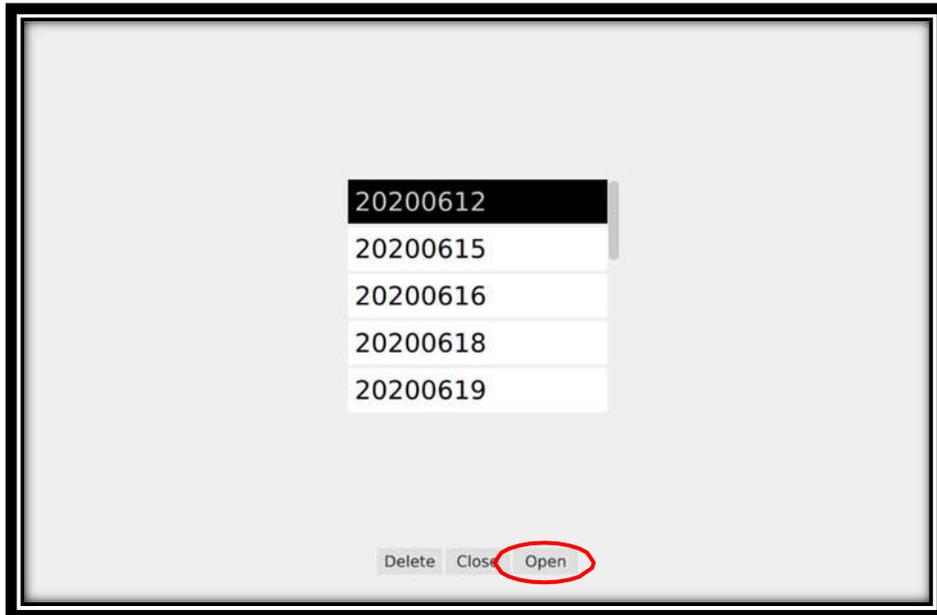

Figure 40 Media Transfer Screens

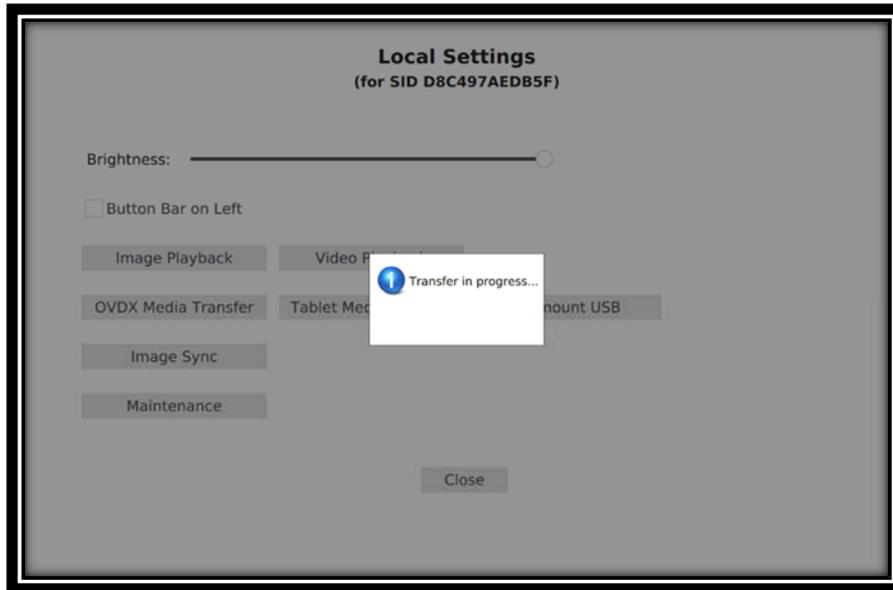| CAUTION |
| --- |
| **DO NOT REMOVE** USB drive until "Unmount USB" operation has been completed. Otherwise, USB files may become corrupt and unusable. |

Figure 41 Transfer in Progress

Once the media transfer is complete, tablet will transition back to the *Local Settings* screen. Press the *Unmount USB* button (Figure 42) prior to removing the USB drive. This will assure the USB drive is properly unmounted. If this step is not completed, some files may be corrupted.
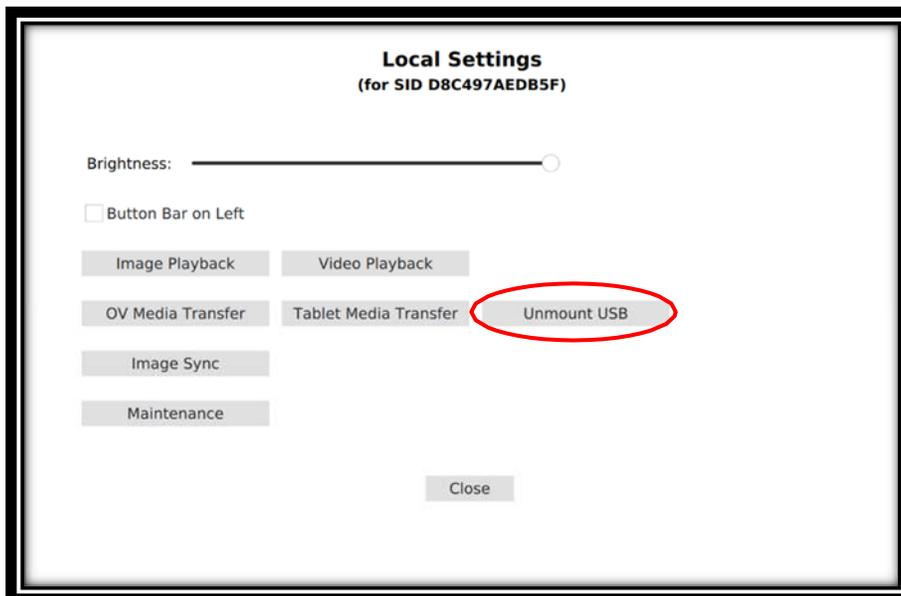

Figure 42 Unmount USB

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Image Playback

In the Local Settings screen, select the *Image Playback* button (Figure 43). OV images will only appear if an Image Sync has been performed (see video stitching section).

Local Settings
(for SID D8C497AEDB5F)

Brightness: ━━━━━━━━○

☐ Button Bar on Left

Image Playback	Video Playback	
OV Media Transfer	Tablet Media Transfer	Unmount USB
Image Sync		
Maintenance		

Close

Figure 43 Image Playback Button

Press *Select OV Folder or Select Tablet Folder* button (Figure 44) to select the device.

Close   Select OV Folder   Select Tablet Folder   ◁◁   ▷▷

Figure 44 Image Playback Device Selection

Select a folder from the list (Figure 45). If only one folder is available, you can directly scroll through ALL images. Folders can also be deleted from the *Folder List* screen.

Figure 45 Image Folder List

Once the folder is open, you can scroll though images (Figure 46).

Figure 46 Image Scroll

Video Playback

For Video Playback, transition *to Local Settings* screen (see Figure 38), and press *Video Playback* button (Figure 47). OV Security videos will only appear if an Image Sync has been performed. Folder navigation and delete functions are identical to image playback.
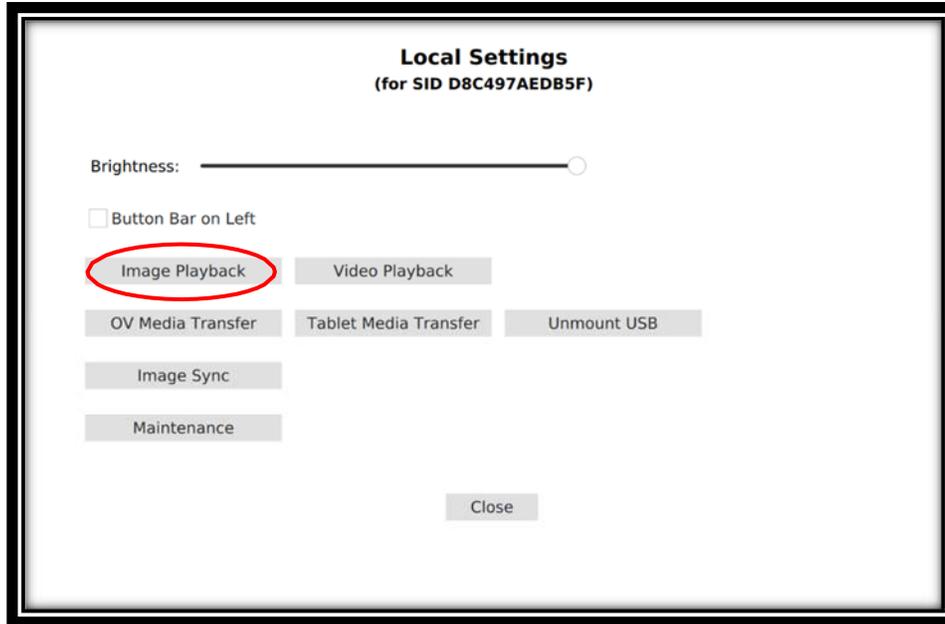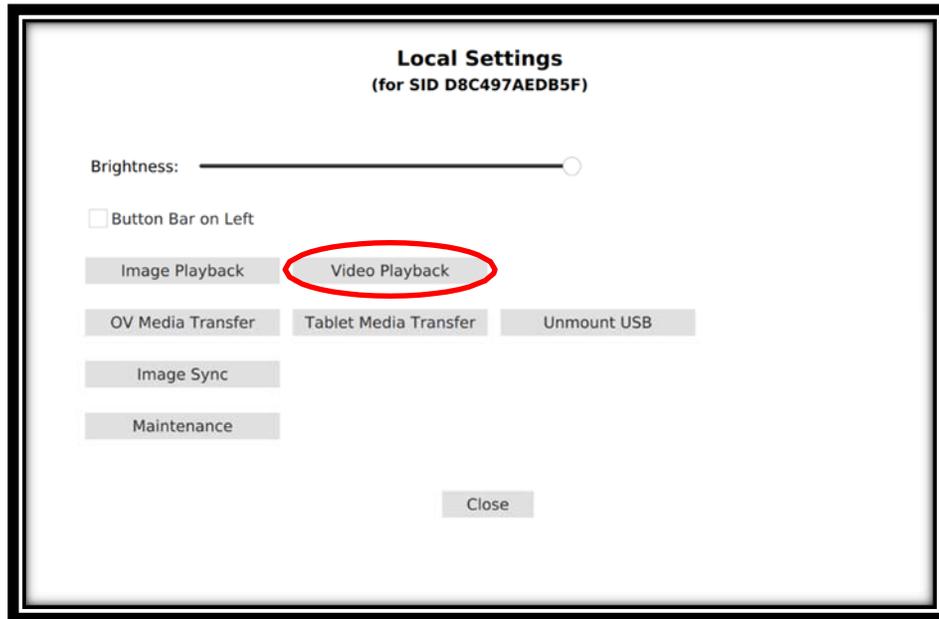

Figure 47 Video Playback Button

Press *Select OV Folder* or *Select Tablet Folder* button (Figure 48) to select the device.

Figure 48 Video Playback Device Selection

Select a folder from the list (Figure 49). If only one folder is available, you can directly scroll through ALL images. Folders can also be deleted from the *Folder List* screen.

Figure 49 Video Folder List

Standard video playback controls are available to the selected video (Figure 50).

Figure 50 Video Playback

Video Stitching

Video stitching allows the OV Security target camera videos and X-Ray image videos to be viewed seamlessly on the tablet. Video Stitching must be selected in the OV Security **System Administration** screen for the Video Stitching functionality to operate (Figure 51).
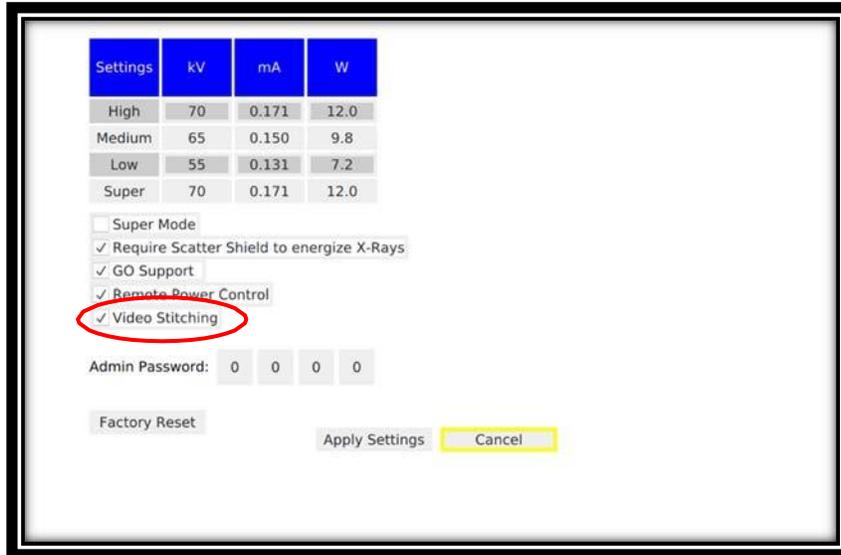

Figure 51 - Video Stitching Selection

When a video recording is started on the OV Security, it will record video from both target and X-Ray cameras. When the files are transferred to the tablet (via the Image Sync command), they will be "stitched" together. The Image Sync and stitching process takes time; it is recommended that this is performed only when time allows (i.e., not during inspection). Also, please verify both the tablet and OV Security batteries are fully charged before performing this operation.

To begin the Image Sync and Video Stitching, select *Image Sync* from the *Local Settings* screen (Figure 52). This will begin transferring and stitching all videos from the OV Security. All images and videos from the OV Security will be transferred to the tablet. It is recommended that files be Sync'd daily.
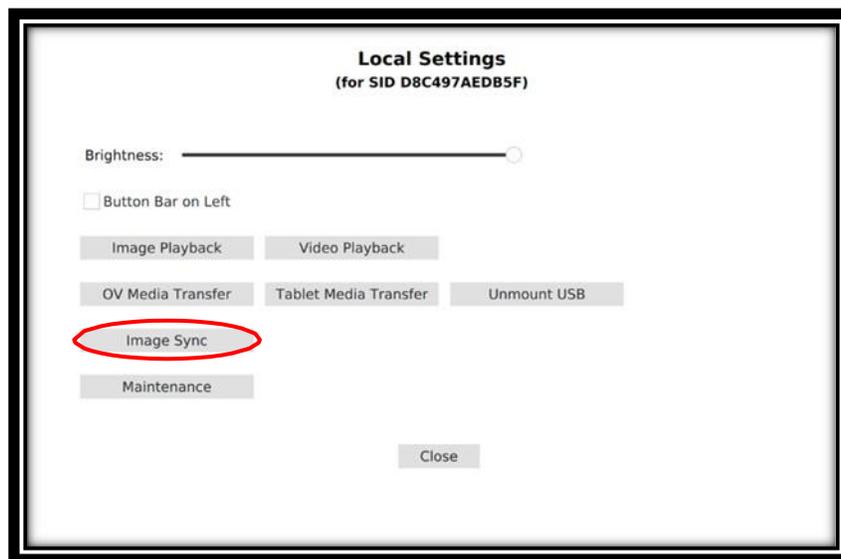

Figure 52 - Image Sync Selection

Image sync progress screen appears (Figure 53).
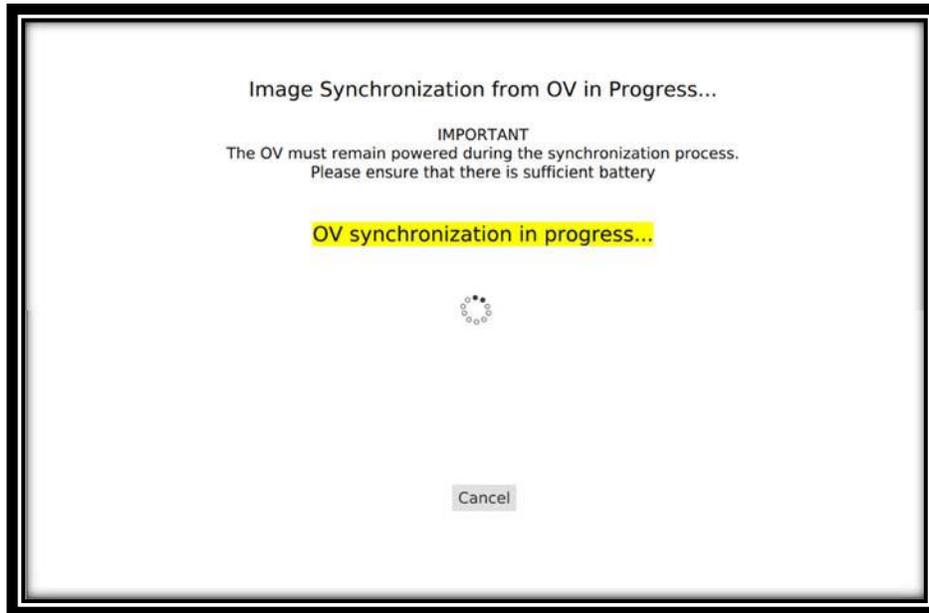
Figure 53 Image Sync in Progress

If stitching is required, a progress screen appears (Figure 54). You can cancel the Sync process at any time.
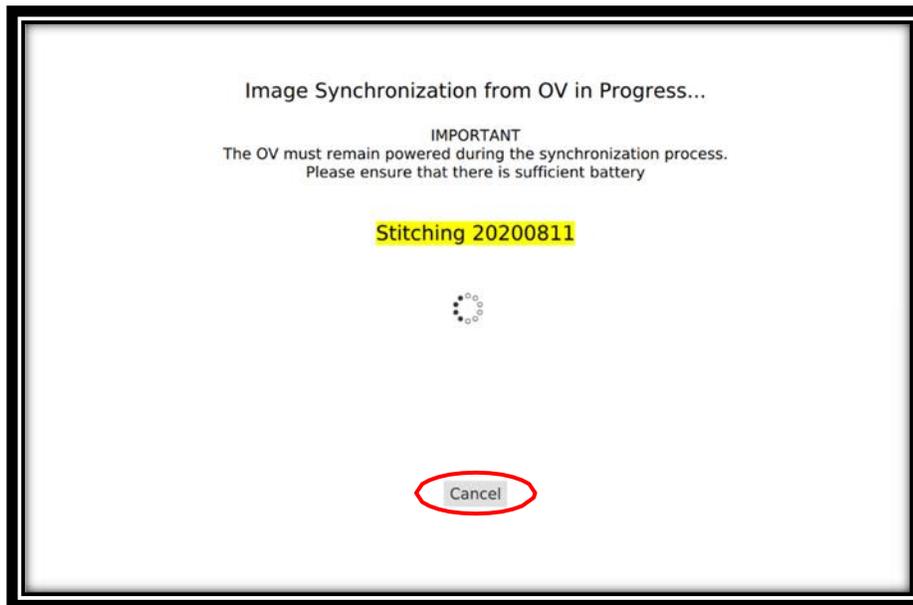
Figure 54 Stitching Progress

A COMPLETED message will appear when the image sync is complete (Figure 55). If the battery dies during this process it will need to be repeated. All data transferred prior to the OV Security unit shutting down will remain so the next SYNC process should be shorter.

Figure 55 Sync Completed Screen

Brightness Adjustment

Within the *Local Settings* screen, the tablet's screen brightness can be adjusted by sliding the bar left or right (Figure 56).
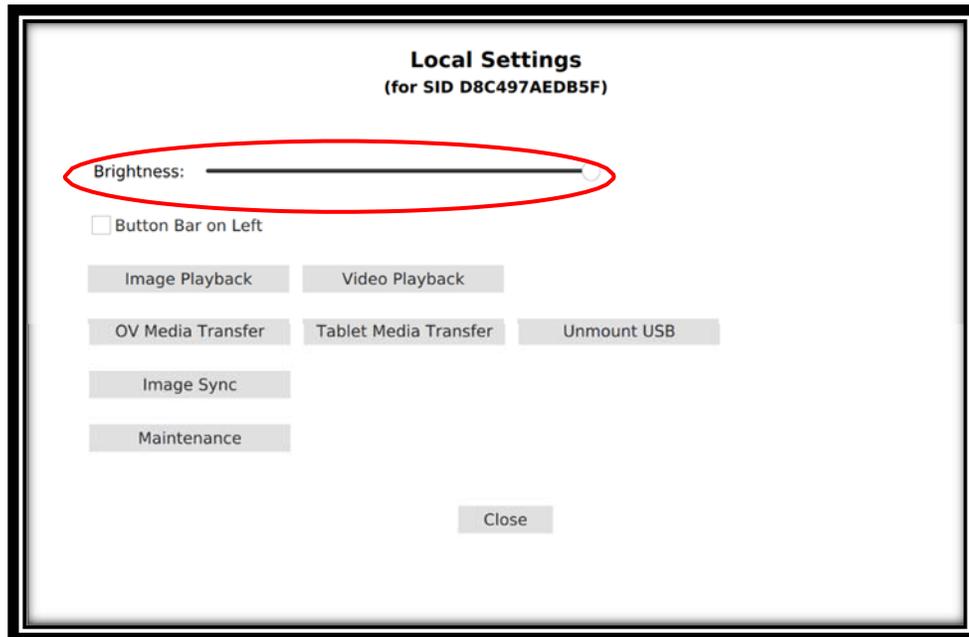
Figure 56 Brightness Control

Control Panel Configuration (Button Bar)

As mentioned before, the Control Panel on the *Home* screen (Figure 28) can be shifted to the left or right side of the tablet. Default is on the right; the check box on the *Local Settings* screen (Figure 57) allows you to position it on the left.
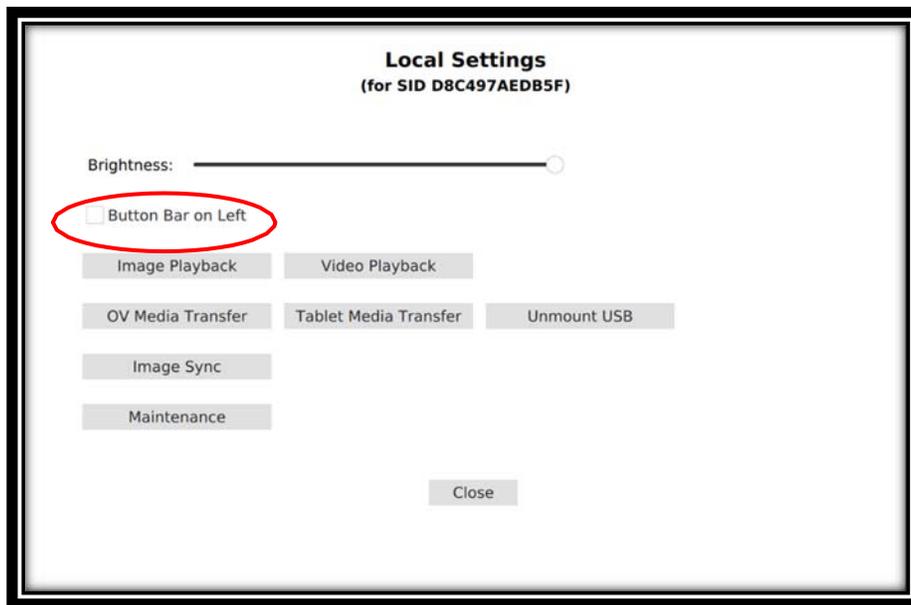
Figure 57 Control Panel Configuration

NOTE: The *Maintenance* button is for QSA Global, Inc. use only.

Remote Power Control

The Remote Power Control option allows the user to adjust kV and mA via the tablet. To enable this feature, the Remote Power Control option must be selected (Figure 58) in the OV Security™ *Software Administration* screen.

Figure 58 Remote Power Control Selection

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The kV, mA and FPS can now be selected and adjusted via the tablet by pressing on the kV, mA or FPS. A corresponding window will pop-up and you can adjust kV (Figure 59), mA (Figure 60) or FPS (Figure 61) by pressing either ▭ or ✛ buttons and then pressing the *Apply* button.

Figure 59 kV Selection and Adjustment

Figure 60 mA Selection and Adjustment

Figure 61 FPS Adjustment

REMOTE SOFTWARE UPDATES.

The OV Security™ is capable of remote software updates. These updates can be performed with or without the tablet and are performed at the customer's discretion. An ethernet connection is required (described below) in order to perform remote software updates.

For information on the latest software revision please visit:

https://www.qsa-global.com/openvision-software-updates or contact your local QSA representative.

Performing a Software Update *WITH* a Wi-Fi Tablet

Turn on the tablet and allow the OV Security APP to launch. Turn on the OV Security and wait for the green LED's.

Plug the ethernet dongle (provided with all OV Security units) into the USB C slot of the tablet (Figure 62).

Figure 62 USB Dongle to Tablet

Connect the dongle to an ethernet connection (Figure 63).

Figure 63 Ethernet Connection

The system will automatically update after several minutes.

Performing a Software Update *WITHOUT* a Wi-Fi Tablet

Turn on the OV Security™ and wait for the green LED's.

Put the USB A-C adapter on the ethernet dongle (both provided with all OV Security units) (Figure 64).

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Figure 64 USB A-C Adapter

Plug the dongle into the USB port on the OV Security (Figure 65).

Figure 65 Ethernet Connection to OV Security

Connect the dongle to the ethernet connection (Figure 63).

The system will automatically update after several minutes.

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MAINTENANCE.

The OV Security™ has been designed to require minimal maintenance by the operator. QSA Global, Inc. recommends daily visual inspection of the system. Specific attention should be paid to the following:

- M18™ battery and its mount (on top of Main Housing) – Ensure both are clean, and in sound shape.
- HDMI cable – Inspect for any cracks or wear.
- Allen/thumb screws – Check for tightness.
- Imager bag – Check for excessive wear.

Use a soft, damp cloth to clean to remove dirt and grime from the OV Security.

CAUTION
Do not use solvents or apply cleaning agents directly on the OV Security as this can damage the components and/or corrode the electronics.

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TROUBLESHOOTING.

CAUTION
Opening the OV Security potentially will damage the system and will void any warranty. If faced with any issues with the OV Security, contact your QSA Global, Inc. representative immediately for guidance.

The OV Security™ has been designed as a rugged, safe, reliable system. A series of interlocks and self-checks are built into the system to ensure safe operation. These checks may trigger an error code which will prevent normal operation of the OV Security. Use Table 4 as a reference guide for system error codes.

NOTICE: Prior to any troubleshooting, please ensure that a fully charged M18™ battery is installed.   A low battery may cause system to report false error codes.

Table 4 Error Code Guide.

Error Code	Description	Corrective Action
001	Memory Failure	Hard drive and/or system memory error or failure. If restart does not clear error, contact your QSA Global, Inc. representative for repair options.
002	LED Failure	Status Indicator LED(s) are not functioning properly. If restart does not clear error, contact your QSA Global, Inc. representative for repair options.
003	X-Ray Tube Failure	X-Ray tube is not communicating or has malfunctioned. If restart does not clear error, contact your QSA Global, Inc. representative for repair options.
004	X-Ray Over Temperature	X-Ray tube has exceeded its operating temperature, forcing system to stop emitting X-Rays. Perform following actions to recover from this error: • Turn off unit • Place in cooler environment for 30 minutes • Turn unit on
005	Board Over Temperature	Main control board has overheated. Perform following actions to recover from this error: • Turn Off unit • Place in cooler environment for 30 minutes • Turn unit on
006	Imaging Camera Failure	Communication error and/or failure with targeting camera. Perform a system restart, if a restart does not clear the error, contact your QSA Global, Inc. representative for repair options.
007	Targeting Camera Failure	Communication error and/or failure with targeting camera. Contact your QSA Global, Inc. representative for repair options.
008	Low Voltage	M18™ battery has insufficient charge; change battery.

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Error Code	Cause	Description
009	Camera Communication Error	Communication error with internal camera. Cycle system power to clear error.
010	Camera Communication Error	Communication error with internal camera. Cycle system power to clear error.

WARRANTY.

Warranty and Limitation of Liability

QSA Global, Inc. (herein referred to as the manufacturer) warrants its product which it manufactures and sells to be free from defects in material and workmanship for a period of one year from the date of shipment. This warranty shall not apply to any product or parts which have been subjected to misuse, improper installation, repair, alteration, neglect, accident, abnormal conditions of operation, or use in any manner contrary to instructions.

The manufacturer's liability under such warranty shall be limited to replacing or repairing, at its option, any parts found to be defective in such respects, which are returned to the manufacturer, transportation prepaid; or at its option, to returning the purchase price thereof.

The warranty on other manufacturer's components shall be that of the original manufacturer whose warranty shall be binding. In no event shall the manufacturer be liable for any incidental or consequential damages, whether or not such damages are alleged to have resulted from the use of such product in accordance with instructions given by or referred to by the manufacturer.

QSA Global, Inc. assumes no liability or responsibility for the usage of this device for the generation of penetrating radiation. The use of such generators in any manner other than prescribed in a State registration or permitted by any State X-Ray regulations may constitute a violation of such license or regulatory terms.

All other warranties, except those warranties expressly stated herein, including without limitation warranties of merchantability and implied warranties of fitness, are expressly excluded.

The warranty on this device is specifically limited to its use only with parts, and accessories manufactured by QSA Global, Inc. QSA Global, Inc. shall not be liable for any errors or omissions contained herein and the provision by QSA Global, Inc. of the information set out in this manual does not in itself constitute acceptance of any liability on the part of QSA Global, Inc.

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ADDENDUM

This addendum provides updated contact information not currently described in QSA Global, Inc. Handling Instructions and Operation and Maintenance Manuals.

The phone number to contact the EMEA + India Sales & Service center has been updated to **+ 00 420 377 183 838**.

Impacted Handling Instructions and Operation and Maintenance Manuals include:

- HI-018 (Safety Guidance for Radiography Sources) Issue 11
- HI-077 (Model 424-69 Handling Instructions) Issue 1
- HPI-115 (3605B Container Operating Instructions) Issue 5
- MAN-010 (Model 865 Operation and Maintenance) Issued October 2022
- MAN-020 (Model 650L Source Changer Operation and Maintenance) Issued May 2021
- MAN-027F (Model 880 Series Operation and Maintenance - French Translation) Issued November 2023
- MAN-027RU (Model 880 Series Operation and Maintenance - Russian Translation) Issued May 2021
- MAN-037 (Model 989 SCAR Operation and Maintenance Instruction Manual) Issued October 2022
- MAN-038 (Model Sentry 110 & Model Sentry 330 Operating and Maintenance Manual) Issued May 2021
- MAN-039 (Model 867 Operating Manual) Issued May 2021
- MAN-040 (Model 360 Series Operating Manual) Issued May 2021
- MAN-049 (Model 880SC Operating Manual) Issued May 2021
- MAN-054 (Model 1075 Operation and Maintenance Manual) Issued May 2021
- MAN-055 (Model 771 Radiographic Source Changer and Type A Transport Package) Issued November 2022
- MAN-056 (Sentinel Storage Container Instructions) Issued December 2022
- MAN-057 (Model 989M Operation & Maintenance Instruction Manual) Issued December 2022
- MAN-059 (OpenVision DX - OVDX-NDT-70 Hardware Manual) Revision D
- MAN-059F (OpenVision DX - OVDX-NDT-70 Hardware Manual – French Translation) Revision C
- MAN-062 (OV Security Hardware Manual) Revision D
- MAN-062F (OV Security Hardware Manual – French Translation) Revision D
- MAN-063 (OpenVision DX - OVDX-70 Software Manual) Revision E
- MAN-064 (Open Vision Security Software Manual) Revision B
- MAN-065 (Remote Controls SAN886 & 887 Series Operating Manual) Issued July 2021
- MAN-065CZ (Remote Controls SAN886 & 887 Series Operating Manual) Issued July 2021
- MAN-065RU (Remote Controls SAN886 & 887 Series Operating Manual) Issued July 2021

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- MAN-066 (OpenVision HD Software Manual) Revision B
- MAN-067 (OVHD-NDT-70 Hardware Manual) Revision C
- MAN-068 (OVHD-NDT-70 Hardware Manual) Revision A
- SI14050.CON (GammaMat TI, TI-F & TI-FF Manual) Issued May 2024

Should you have any questions regarding this addendum, please contact QSA Global, Inc. for further assistance.