Capturing a Device Screen

Introduction

This guide covers how to take screenshots and video recordings of a connected Android, iOS, ChromeOS or Video Source (HDMI video capture card, inbuilt camera, external webcam, etc.) device.

This document applies to the following applications		
ADFPRO Mobile & Computer Triage	DEI Digital Evidence Investigator	MDI Mobile Device Investigator

Why Capture a Device Screen?

Taking a screenshot or a video recording of the connected device consists in making a copy of what is displayed on the device's screen. When taking a screenshot, a single image is captured. When recording a video, it captures the entire interaction with the device. This approach allows the collection of information that might be inaccessible through logical acquisition, either due to data protection measures or the inability to perform the acquisition on the device.

The types of devices available for capturing screenshots or video recordings rely on the product license.

- ADFPRO Mobile & Computer Triage MDI Mobile Device Investigator : Android, iOS
- ADFPRO Mobile & Computer Triage DEI Digital Evidence Investigator : ChromeOS, Video Source (requires an active Video Source license add-on)

Taking Video Recordings and Screenshots (Android 5 or newer and iOS via AirPlay)

The **Screen Recordings and Screenshots Capture** screen is offered before the logical acquisition of a device and the data collected is part of a logical acquisition. There are 2 methods to access the **Screen Recordings and Screenshots Capture** screen:

- By navigating to **Home** > **Investigate Device** > **Screen Capture**.
- When starting an Android, iOS or ChromeOS device scan from the **Scan** menu, if the Search Profile contains the **APPLICATIONS > Screen Recordings and Screenshots** Capture, the **Screen Recordings and Screenshots Capture** screen will be displayed prior to starting the scan.

To start the screen recordings or screenshots, a connection with the device must first be established. See the complete instructions in the Acquiring an iOS, Android or ChromeOS Device guide.

Forms can be added before taking screenshots and screen recordings as explained in the Managing Forms guide.

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Connecting iOS Device Wirelessly for Screen Recordings

After the iOS device connection has been established, an additional connection via the AirPlay protocol needs to be established. This connection works wirelessly between the iOS device and the ADF desktop application.
Follow the instructions from the on-screen message wizard to establish this connection.



When a wireless access point (WAP) is available from a router, it is generally easier for both the iOS device and the ADF workstation to connect to that same WAP.
If you prefer connecting the iOS device directly to the ADF workstation (which might be preferable for on-scene investigations), a program has to be executed that creates a WAP on the ADF workstation. We have successfully tested these two applications: NoWiFi and MyPublicWiFi, and there may be more.

Connecting to a Video Source

To connect to a video source for capturing screen recordings and screenshots:

- Ensure that your video source is properly connected to your computer. Video sources can include built-in or external USB webcams. If you have a target device with HDMI output (such as a game console, camera or other media device), connect it to your computer using an HDMI video capture card adapter.
- Once your device is connected, all available video sources will be listed in the **Source** field for selection.
- After connecting the video source, you can begin capturing screen recordings and screenshots.

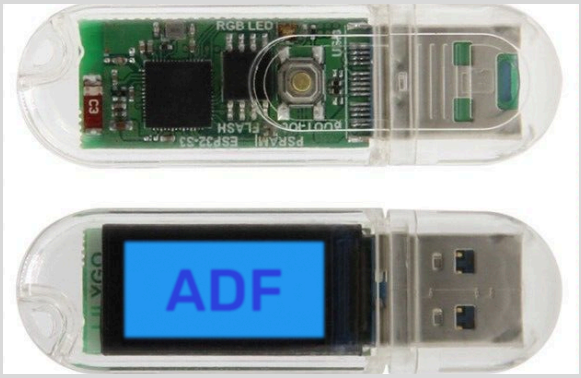


A Video Capture Card adapter decodes and sends the video signal from an HDMI source (such as a camera, a game console, a laptop, etc) to the host computer. On the host computer, the ADF application processes the video signal to create screen recordings and screenshots to be used during your investigation.

Using the ADF Bluetooth Dongle for Auto Scroll

The ADF application can automatically scroll up or down long pages while taking screenshots to accelerate the capture of long conversations for example.
This capability is available for connected Android and ChromeOS devices. It is also possible to use the provided ADF Bluetooth Dongle to remote control devices that support Bluetooth keyboards such as iPhones, iPads and more.

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Steps for Connection:

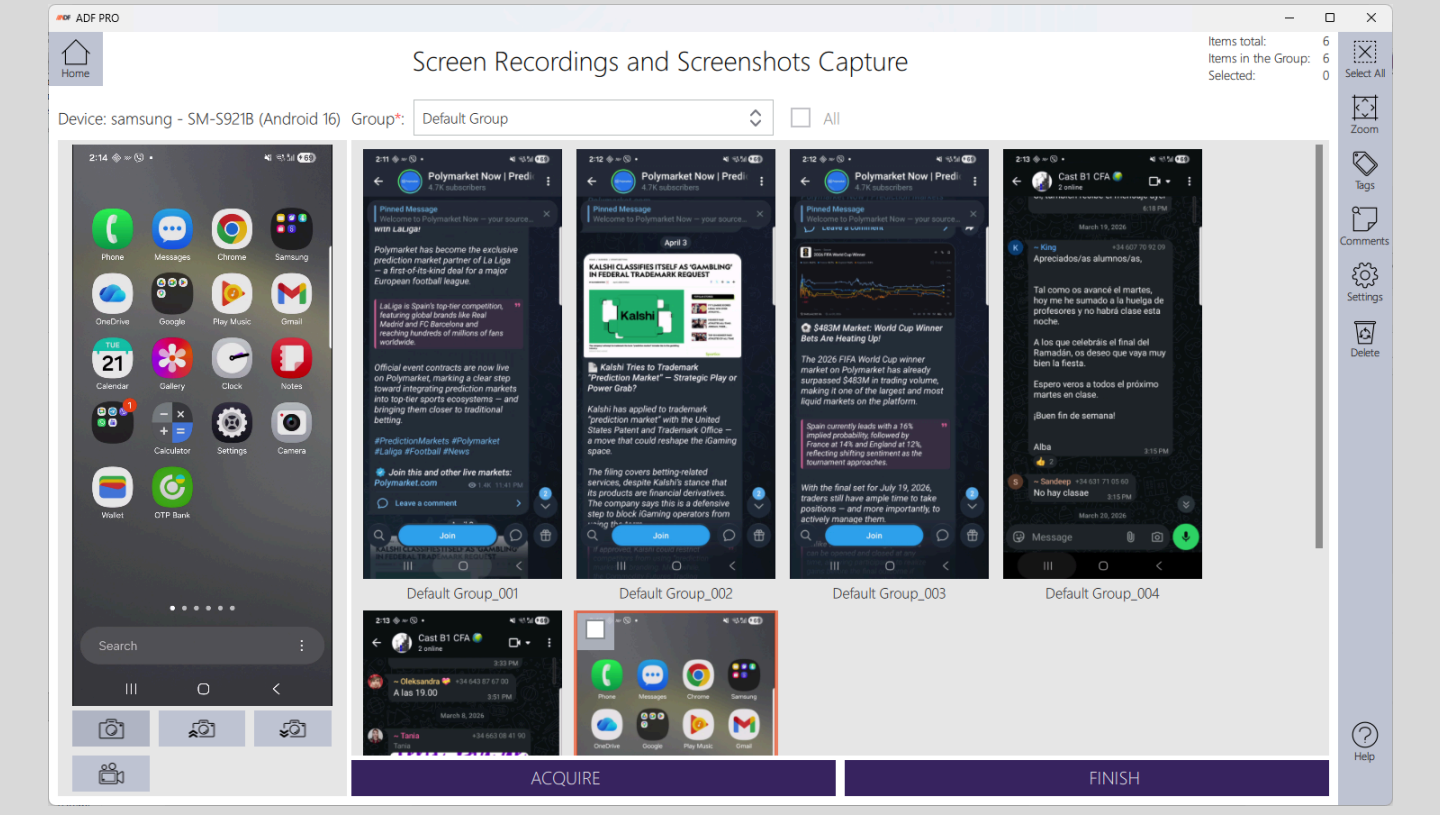
1. Connect the ADF Bluetooth Dongle.
    - Insert the ADF Bluetooth Dongle into the computer running the ADF application.
2. For iOS Devices:
    - Navigate to **Settings** > **Bluetooth** on the target device and enable Bluetooth.
    - Under the **OTHER DEVICES** list, select "**ADF**" and complete the pairing process.
    - Then, go to **Settings** > **Accessibility** > **Touch** > **AssistiveTouch**, enable **AssistiveTouch** and adjust TRACKING SENSITIVITY to a value between 10% and 20% to allow interaction for auto-scrolling and screenshots.
3. For Devices Connected via the HDMI Video Capture Card:
    - On the target device, go to Bluetooth settings, select "ADF", and complete the pairing process.

Screen Recordings and Screenshots Capture Screen

The **Screen Recordings and Screenshots Capture** screen can be viewed in either portrait or landscape mode. Both modes offer the same features, differing only in the size of the device screen mirroring or preview panel and the captured screenshots/screen recordings panel.

Choosing between portrait and landscape modes depends on the content being captured and the preferred display orientation. The **Screen Recordings and Screenshots Capture** screen orientation is selected when connecting to the device. See the complete instructions in the Acquiring a Mobile Device guide.

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The **Screen Recordings and Screenshots Capture** screen displays the following panels:

- **Device Screen Mirroring Panel**: This panel shows a mirror image of the connected device. It is possible to control the device using the mouse on this panel (on Android Only). At the bottom of the panels are the action buttons:
  - **Screenshot** button: takes a screenshot and assigns the group, name, and comments to it.
  - **Auto Scroll Up and Screenshots** button: starts the process of taking a screenshot, then moving one screen up, and repeating these two steps until it is no longer possible to scroll up. A single TIFF image file is created that contains each screenshot as a frame. It is possible to stop the collection by clicking on the **Stop** button.
  - **Auto Scroll Down and Screenshots** button: starts the process of taking a screenshot, then moving one screen down, and repeating these two steps until it is no longer possible to scroll down. A single TIFF image file is created that contains each screenshot as a frame. It is possible to stop the collection by clicking on the **Stop** button.
  - **Screen Recording** button: starts the screen recording that needs to be stopped by clicking on the **Stop** button when done.
- **Group Selection:** each screenshot or screen recording is saved in the group identified in the Group dropdown. The "Default Group" is selected by default. To create a new group, simply type its name in the Group edit box and press Enter.
- **Screenshots/Screen recordings**: shows the screenshots and screen recordings that have been taken in the selected group. Use the "All" checkbox to display all screenshots and screen recordings from all the groups. Clicking on the thumbnail displays it in the Preview panel (which replaced the screen mirroring panel).
  It is possible to assign one or more tags to a screen recording or screenshot (see the Tagging section).

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It is also possible to assign one or more comments to a screen recording or screenshot (see the Commenting section).

- **Preview Panel**: displays the selected screenshot or video recording. At the bottom of the panels are the action buttons:
  - **Left and right arrow** buttons: navigates through the frames of an auto scroll tiff file.
  - **Play** button: plays the screen recording.
  - **Video** seeker: seeks through the video to jump to a specific time stamp.
  - **Delete** button: deletes the selected item.
  - **Close** button: closes the Preview panel and goes back to the Device Screen Mirroring panel.
- **ACQUIRE** button (Android, IOS and ChromeOS only): clicking on this button will continue with the logical acquisition of the mobile device and place the screenshots and screen recordings in the same acquisition folder.
- **FINISH** button: to terminate the screen casting.
- **Function Toolbar:** A function toolbar is located vertically on the right-hand side of the screen and includes:

 Select/Deselect All	To select (check) or deselect (uncheck) all the captured screen recordings and screenshots.
 Zoom	To resize the thumbnails.
 Delete	To delete the selected screen recordings and screenshots.
 Tags	To apply tags for selected screen recordings and screenshots. Renaming of Tags is available here.
 Comments	To apply a comment to the selected screen recordings and screenshots in the current view.
 Settings	To apply settings preferences.

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 Help	To view instructions on how to make screen recordings and screenshots.

Tagging

Tags are useful to help screen recordings or screenshots stand out and to select what to include in a report.

Tags may also be assigned automatically during a scan to screen recording or screenshot that match keywords or hash values. screen recordings or screenshots that have been tagged automatically have their Auto-Tagged property set to true. This property is reset to false if other tags are applied or removed from these screen recordings or screenshots.

The Tags panel, accessible from the function toolbar, presents the 10 available tags, each with a unique name and color.

The default tags are named Level 0 through Level 9 and can be renamed in the Settings screen. Tags renamed in the Tags panel will not affect other scan results.

Action	Method
Tag one or more records.	After selecting the screen recording(s) or screenshot(s): ● Open the Tags panel and check the appropriate tag checkboxes. ● Or, press the number key 0-9 as appropriate. Note that after assigning a tag to one screen recording or screenshot, the next record is automatically selected. Tags are represented by a rectangle at the bottom of the thumbnail. By default, selected checkboxes remain checked after assigning a tag. Select the **Setting** icon in the **Function Toolbar** to modify this behavior.
Untag one or more records.	After selecting the screen recording(s) or screenshot(s): ● Open the Tags panel and uncheck the appropriate tag checkboxes. ● Or, press the number key 0-9 corresponding to the tag to be removed. ● Or, Delete key.

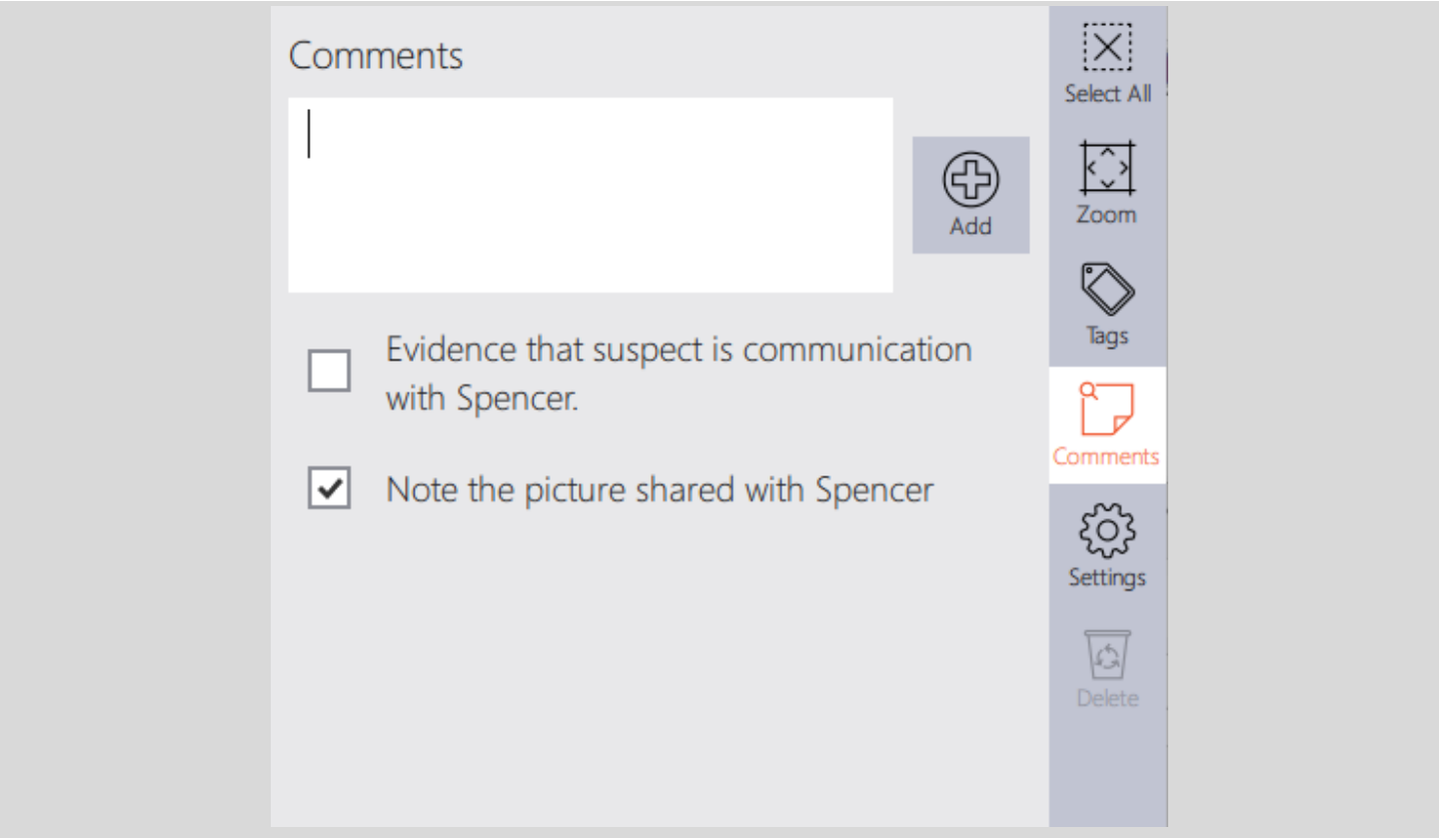
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Commenting

Comments are useful to annotate and group screen recordings or screenshots and they are included in a report.

Comments may also be assigned automatically during a scan to screen recordings or screenshots that match keywords or hash values.

The Comments panel, accessible from the function toolbar, presents the available comments and makes it possible to create new comments.



Action	Method
Assign a new comment to one or more records.	After selecting the screen recording(s) or screenshot(s): ● Open the Comments panel and type the new comment in the edit box, then click the Add button. Comments are represented by the Comment icon on the right-hand side of the thumbnail.

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Assign one or more existing comments to one or more records.	After selecting the record(s): ● Open the Comments panel and check the existing comment checkboxes in the list.
Edit an existing comment.	Open the Comments panel and mouse-over the comment to see the Edit button. After clicking this button, the comment can be edited. Modification to a comment affects all the records associated with it.
Delete an existing comment.	Open the Comments panel and mouse-over the comment to see the Delete button. After clicking this button, the comment is deleted and no longer associated with any records.
Unassign a comment to one or more records.	After selecting the screen recording(s) or screenshot(s): ● Open the Comments panel and uncheck the appropriate comment checkboxes.



Comments are a useful way to annotate important records and they appear in a report.

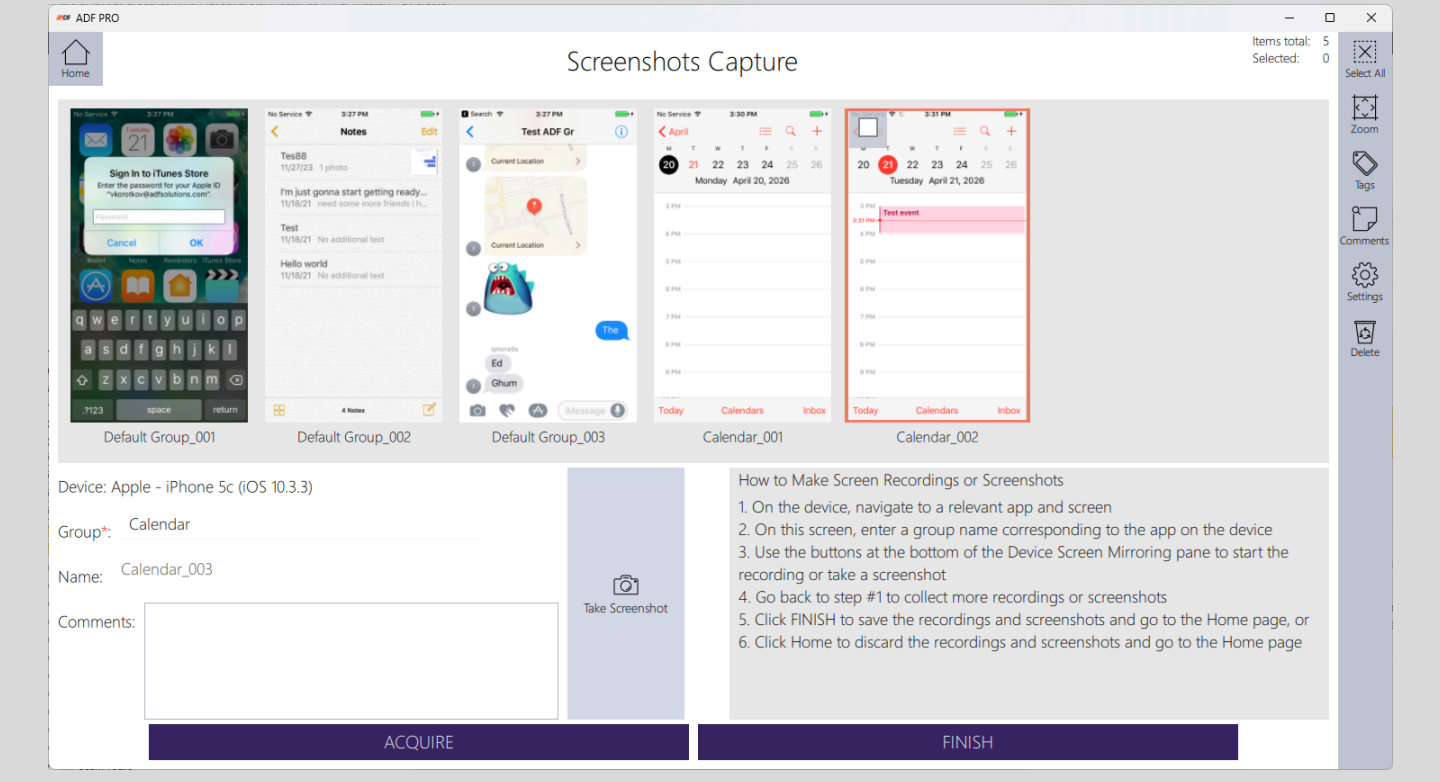
Taking Screenshots (Android 4 and older and iOS wired connection)

The **Screenshots Capture** screen is offered before the logical acquisition of a mobile device and the data collected is part of a logical acquisition. There are 2 methods to access the **Screenshots Capture** screen:

- By navigating to **Home** > **Investigate Device** > **Screen Capture**.
- When starting a mobile device scan from the **Scan** menu, if the Search Profile contains the **APPLICATIONS > Screen Recordings and Screenshots** Capture, the **Screenshots Capture** screen will be displayed prior to starting the scan.

To start the screen recordings or screenshots, a connection with the mobile device must first be established. See the complete instructions in the Acquiring an iOS, Android or ChromeOS Device guide.

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The **Screenshots Capture** screen displays the following panels:

- **Screenshots (N)**: shows how many screenshots have been taken, a thumbnail for each screenshot and its name. Mouse-over a thumbnail to make the **Delete** button visible.
- **Device**: is the mobile device name.
- **Screenshot group**: is used to group screenshots together. The screenshots are displayed in groups on the Screenshots view in the Viewer. See the Screenshots View paragraph of the Reviewing Scan Results guide.
- **Screenshot name**: is assigned automatically and is a combination of the group name with an index for that group.
- **Comments**: a comment can be assigned to the next screenshot taken. This comment is visible in the Viewer and can be part of the report.
- **Take Screenshot** button: clicking on this button will take a copy of what is displayed on the device's screen.
- **ACQUIRE** button: clicking on this button will continue with the logical acquisition of the mobile device.
- **FINISH** button: this button is only offered when acquiring the mobile device instead of scanning it. When clicking **FINISH**, the logical acquisition will only contain the screenshots and no other data.
- **Function Toolbar:** A function toolbar is located vertically on the right-hand side of the screen and includes the same actions described in the section above.

For iOS 16 versions, it is required to enter the new Developer Mode in order to take screenshots (unless you elect to use the wireless AirPlay connection method described previously). The ADF desktop application will activate the Developer Mode when required which will trigger a device reboot.

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Processing the Screenshots and Screen Recordings

After the screenshots/screen recordings have been collected, they are part of the logical acquisition and need to be scanned to be processed and appear in a scan result.
Make sure the **Screen Recordings and Screenshots** Capture is part of the Search Profile in order to process the screenshots and screen recordings. This Capture will extract 50 frames from the videos and perform Optical Character Recognition on the frames and screenshots.
If the device was scanned with a Search Profile containing the Screenshots Capture then all screenshots will be processed as part of the scan.
If the device was acquired, then the logical acquisition needs to be scanned by selecting the **Add Device** button on the **Scan** screen.

Once processed, the screenshots appear in the Screenshots Capture view.

Screenshots Not Working on Particular iOS Versions

The screenshot process relies on a developer image of iOS that matches the version of the iOS installed on the target device. You may need to obtain the developer image and save it in the ADF application folder as described in this knowledge base article.

Optical Character Recognition (OCR) of Screenshots

It is possible to modify the set of languages that can be recognized in the mobile devices screenshots. To enable a language its file has to be moved to the “C:\Program Files\ADF Solutions Inc\ADF Digital Evidence Investigator\ocr_languages” folder from the “Disabled languages” sub-folder. To disable a language, move its file back to the “Disabled languages” sub-folder. Note that processing time increases as more languages are enabled.

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