INSTRUCTIONS FOR USE
WatchDog™ Endo AI Software
User Guide

Revision History

Rev	DCO #	Date	Description of Change	Initiator
A	DCS-01	1/30/2023	Initial Field Release, Ver. 1.11.1	M. Humason
B	DCS-02	3/14/2023	Second Release, Ver. 1.14.8	M. Humason
C	DCS-04	9/27/23	Third Release, Ver. 1.21.6	M. Humason
D				
E				

WatchDog™ Endo User Guide Update October 5, 2023

WatchDog™ Endo

WatchDog AI™

User Guide

October 5, 2023
Version 1.21.6

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WatchDog™ Endo User Guide Update October 5, 2023

1. Introduction

WatchDog Endo™ is intended for use in conjunction with flexible medical instrument inspection scopes, also known as borescopes. During borescope inspection of flexible endoscopes, WatchDog Endo provides a user interface that incorporates elements of Artificial Intelligence (AI) to automate detection of defects such as scratches and fluid droplets. WatchDog Endo allows users to identify the serial number of each endoscope to be inspected so that the data from each inspection are associated with that particular endoscope. Videos are captured and stored, and still images may also be taken. Review functions are provided allowing post-inspection review of videos, still images and color-coded findings on identified defects.

2. System Requirements

- Microsoft Windows v. 10 or greater
- CPU – Intel i7 equivalent or greater
- RAM – 16GB
- Internet connection
- *Optional* – Advanced GPU video card such as Nvidia GeForce RTX 3000 series or greater (required for WatchDog Platinum)

3. Getting Started

Download **WatchDog Endo™** with your authorized user credentials from https://wdog.ai
Double-click the application file to launch the install navigator. (If administrative privileges are required, please contact your computer support team to assist with the install process).

a. Select the appropriate install directory for your device based on your IT department policies and click Next

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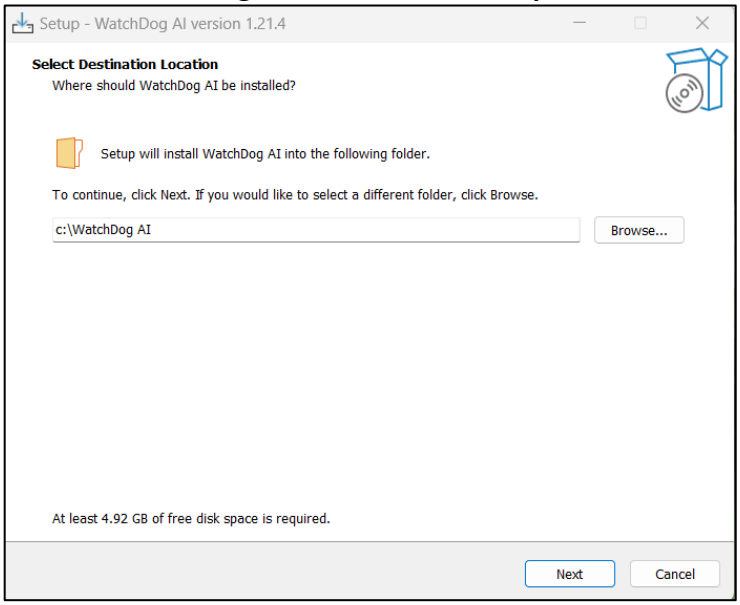
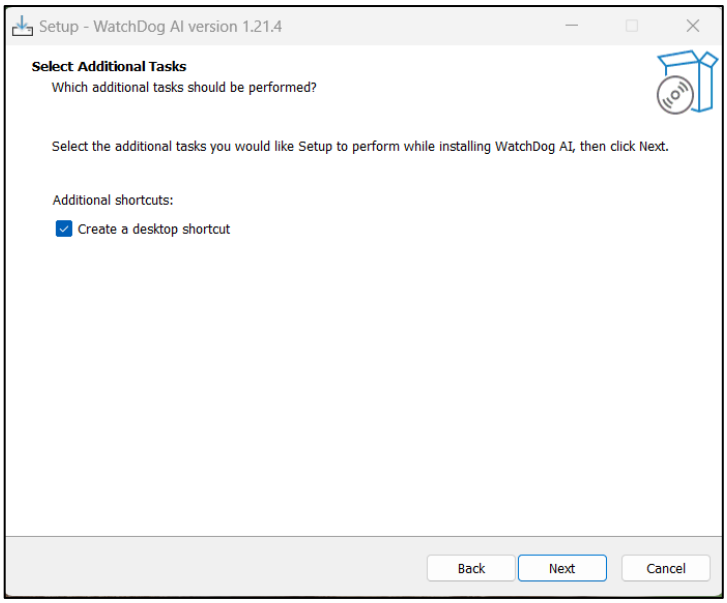


b. Take the default option to create a desktop shortcut, then click Next



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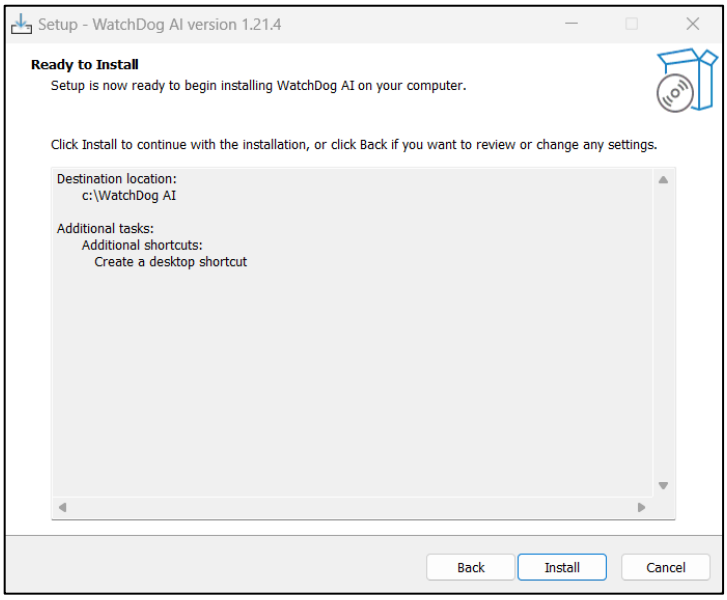
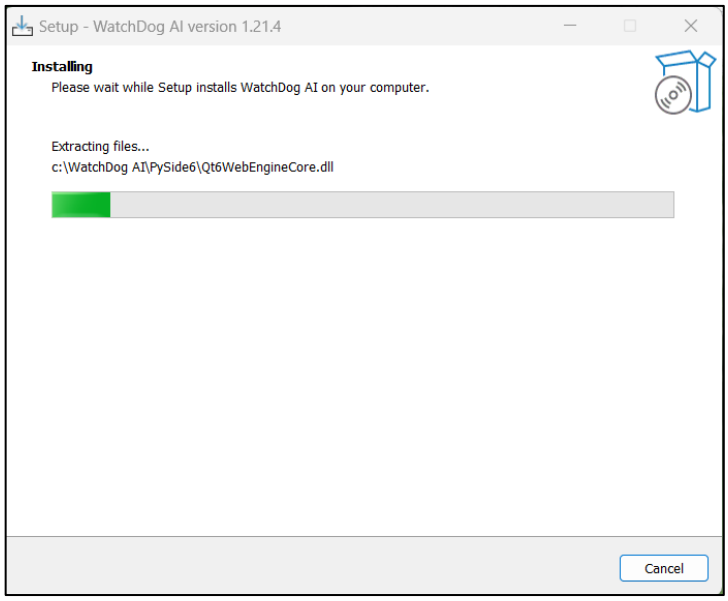
c. The Ready to Install screen will appear, review the selected settings, then click Install



d. The install progress screen will appear



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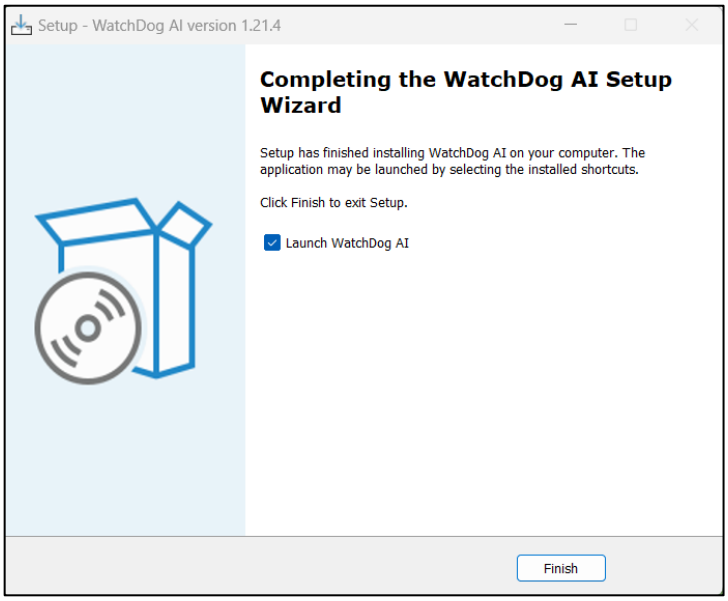
e. When installation has finished, select Finish and launch the WatchDog application



f. Installation is now complete

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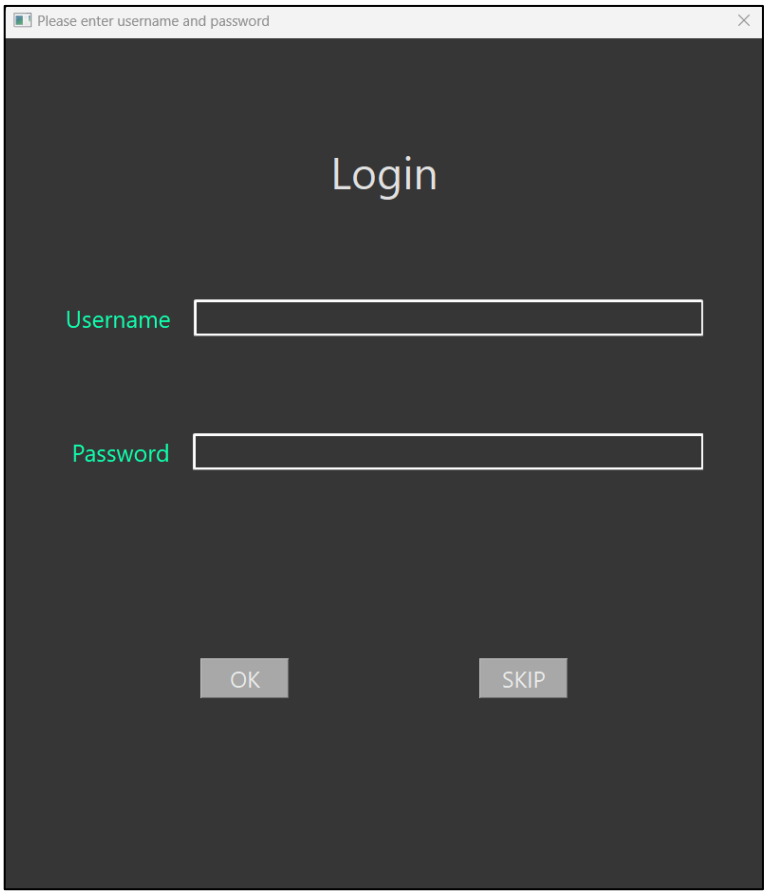
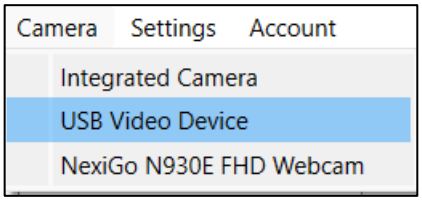
4. Launching and Configuring WatchDog

a. Connect the inspection borescope to the computer and launch WatchDog from the desktop shortcut. Login with your WatchDog credentials



b. After logging into WatchDog, select the CAMERA menu and select the connected USB Video Device from the menu to activate the borescope camera



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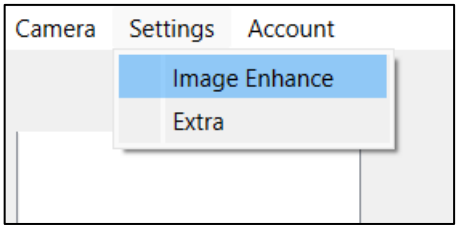
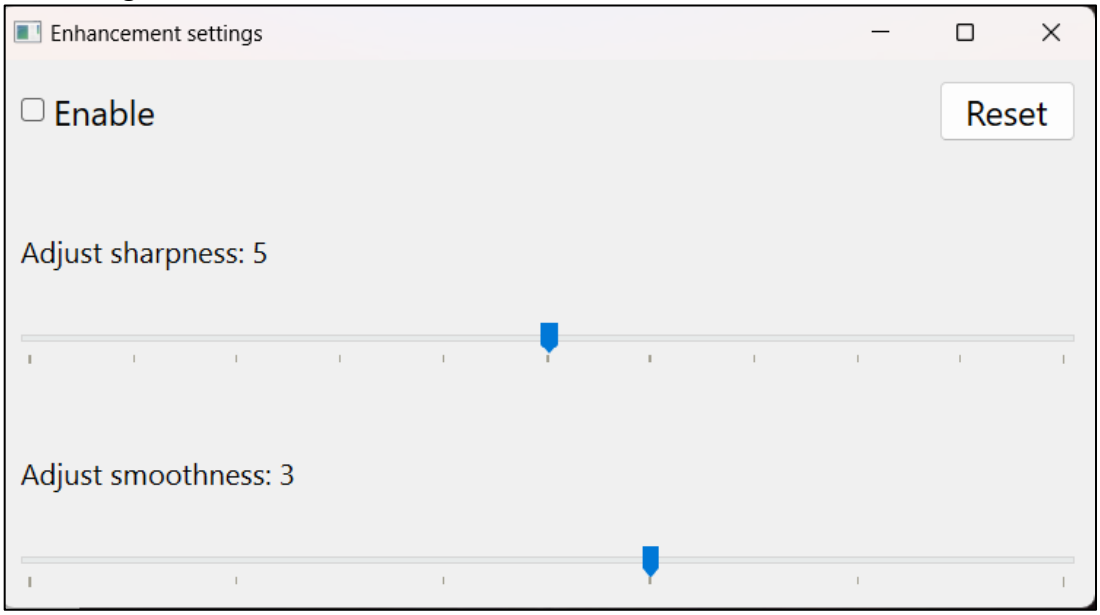
c. Camera configuration

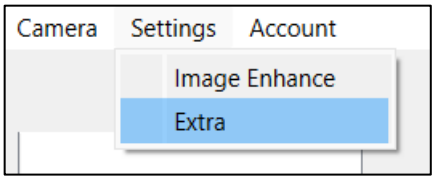
i. The camera configuration is automatically set during application installation. If changes or adjustments are needed to refine the image, additional configuration settings can be found in the Settings menu



ii. Image Enhance menu – This option provides image enhancement features for fine tuning the sharpness and smoothness of the video. To enable, select Enable and change the slide bars as needed



iii. Extra menu – Under the Settings menu, select Extra



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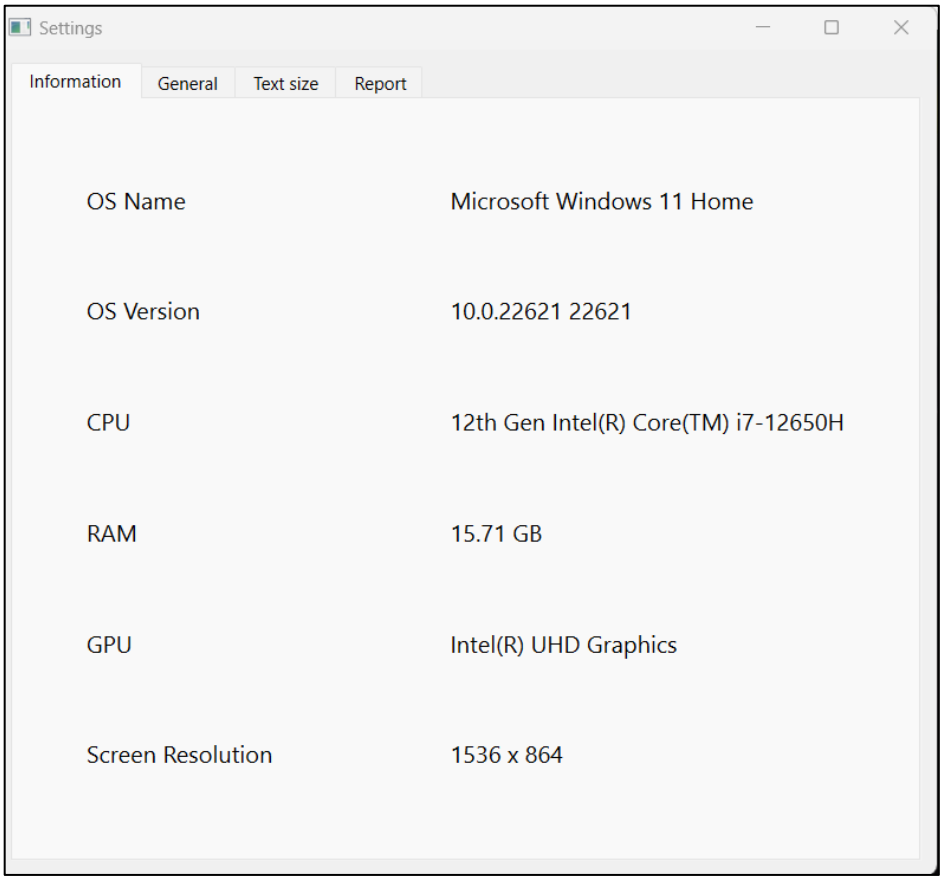
iv. Information tab – provides workstation information to assist in troubleshooting



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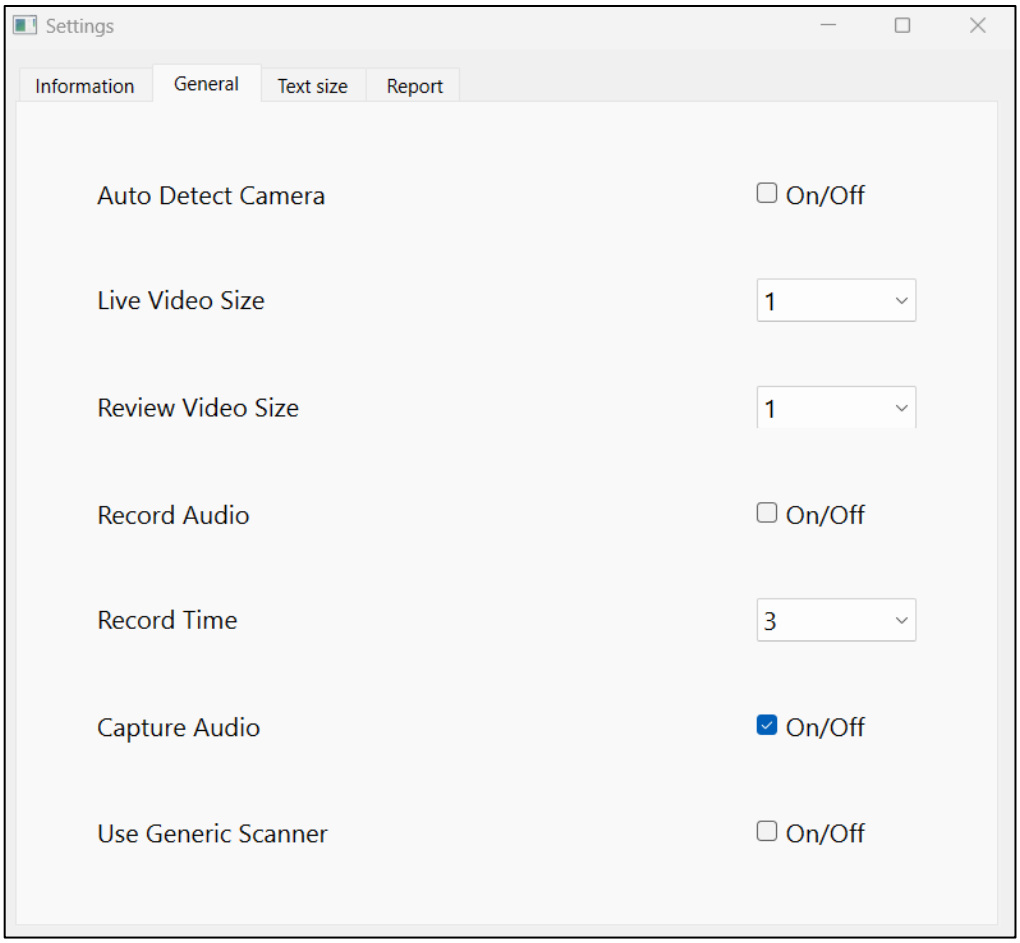
v. General tab – basic configuration screen for WatchDog functions such as camera detection, video sizing, recording time, and barcode scanner detection.
    1. **To change default recording timer** – select the drop-down list for Record Time to adjust the setting from 1 to 5 minutes duration; the installed default is 3 minutes. Close the settings dialog box when done.



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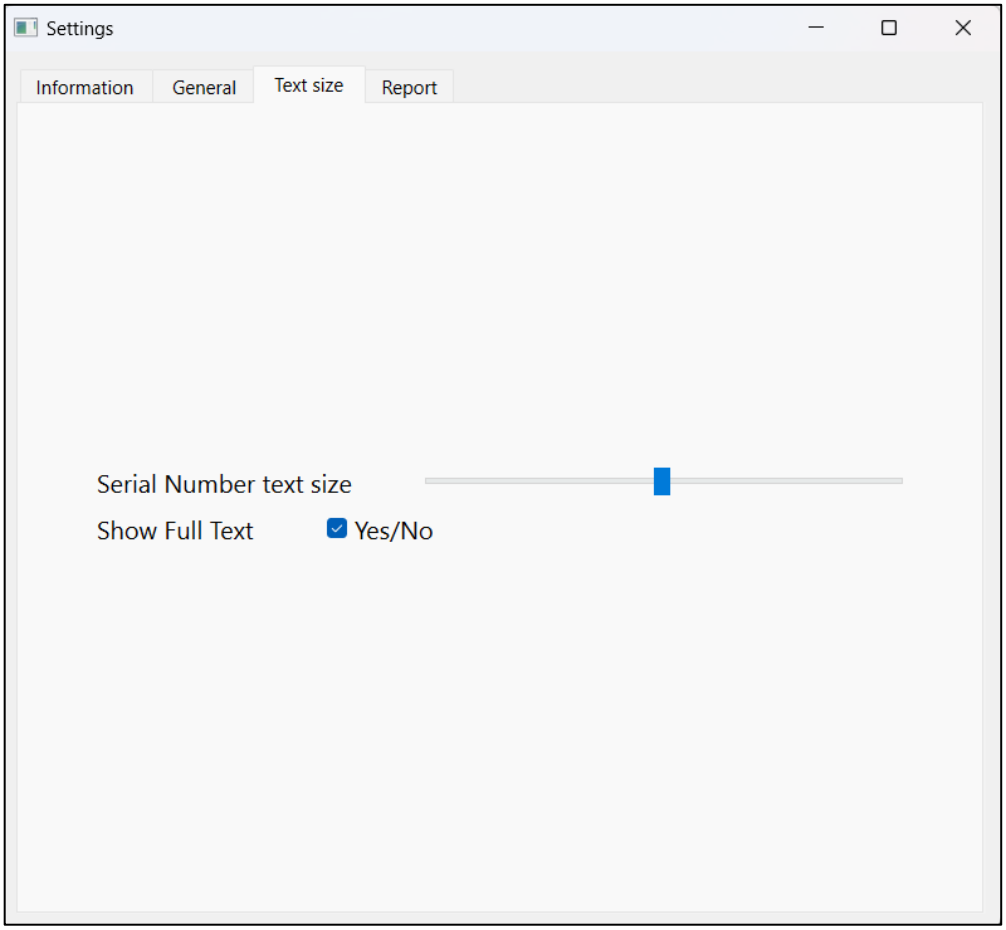
vi. Test size tab – controls the size of text as displayed on the video overlay during the inspection video recording



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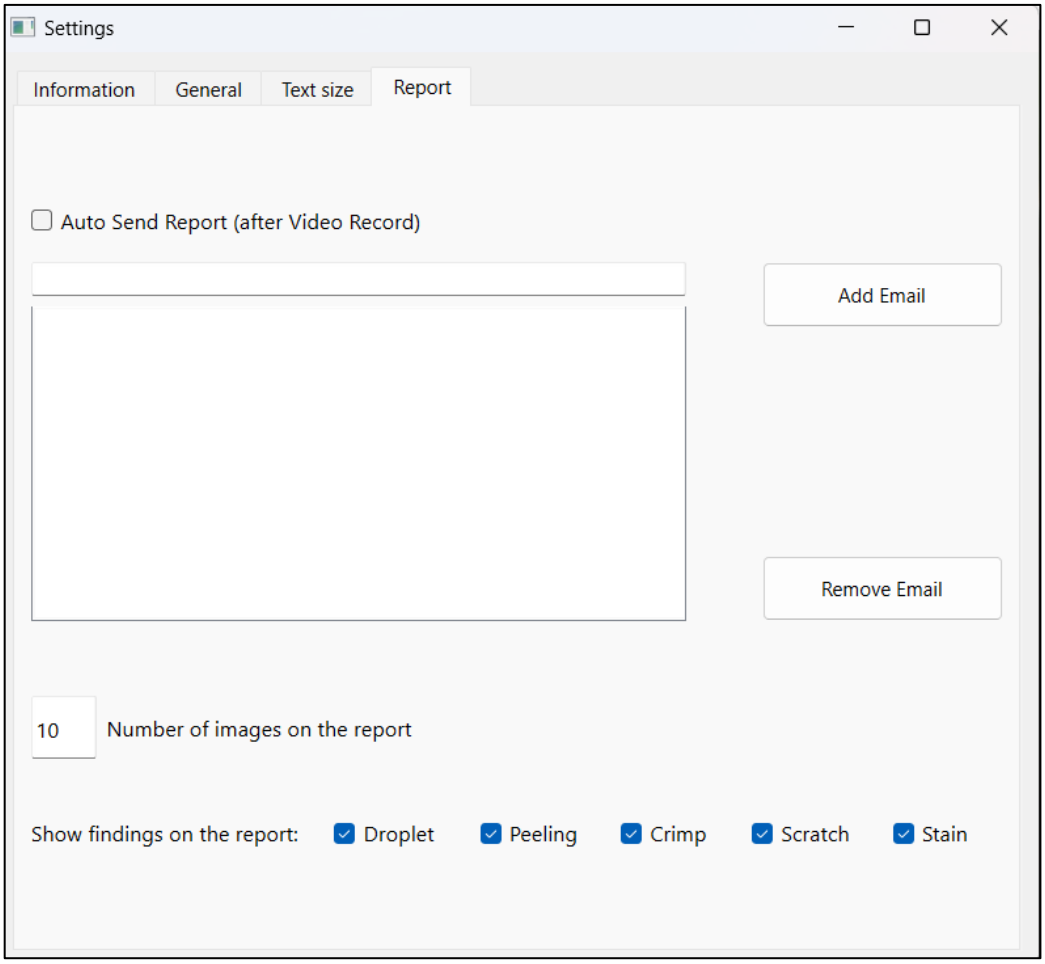
vii. Report tab – setup reporting after each inspection, by selecting the Auto Send check box and adding email addresses for team members to receive reports. Further customize the reports by indicating the number of images (photos) and the types of findings to display



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5. Using WatchDog

a. Launch WatchDog from the desktop shortcut. After logging in to the application, the User Interface will appear as in the illustration below:

Figure 1

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b. User Controls

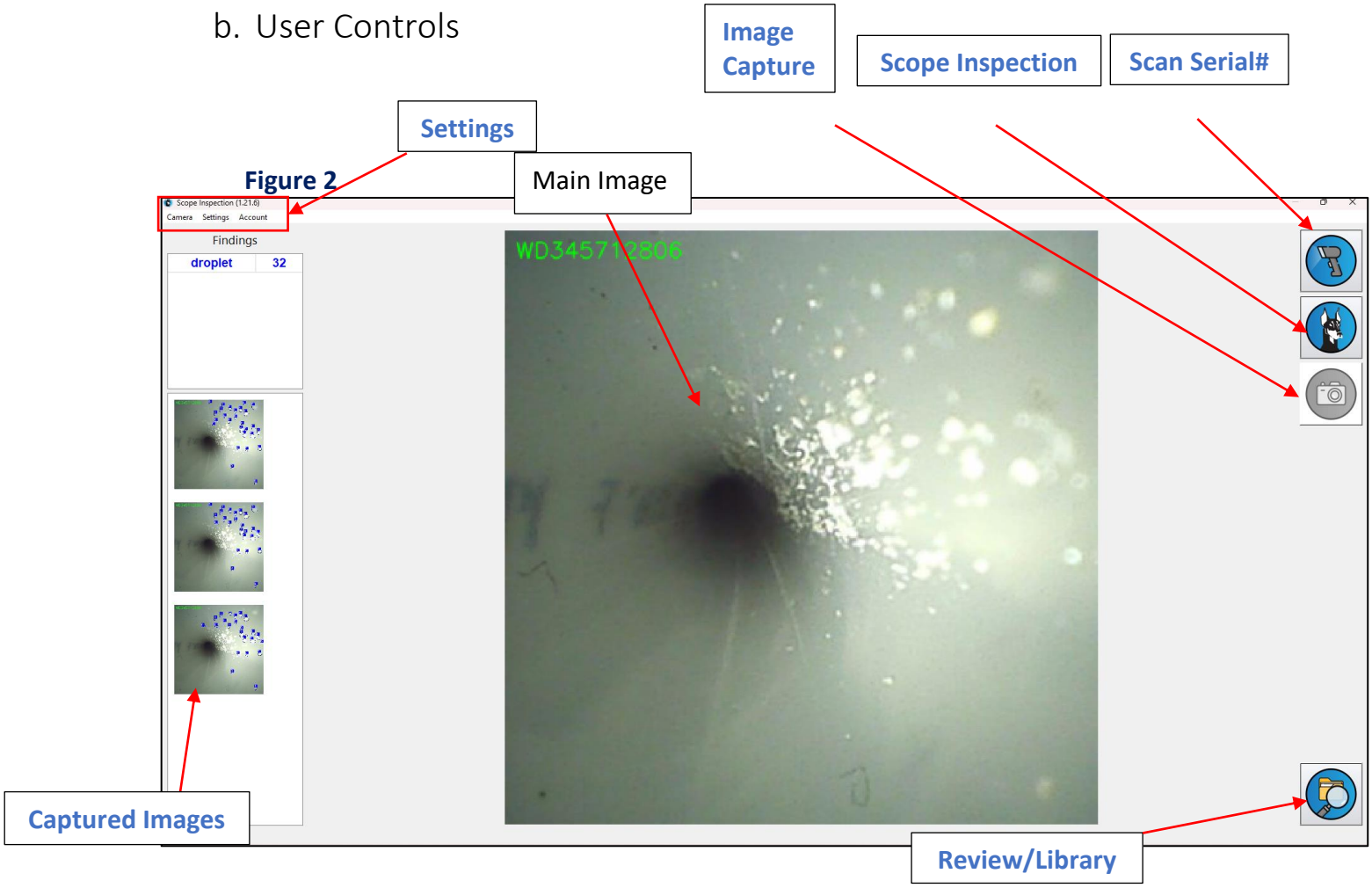

Figure 2

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c. Scan Serial Number

i. Step 1 in performing an instrument inspection is to **scan the serial number** of the endoscope being inspected. Once the borescope is connected and the User Interface is active, point the borescope camera at the serial number tag on the endoscope; make sure that the serial number is lined up correctly in the main image window. Click on the **"Scan Serial Number"** button; you will see a green box appear in the main image window, as in the illustration (figure 4) below. Center the green box over the serial number – you will see the number appear in the upper right-hand corner of the main image window. When you are satisfied that the number is correct, click on the **"Scan Serial Number"** button again. You will then see a dialog box labeled **"Confirm serial number".** You may manually enter or correct the serial number here. Make sure to also enter the model number of the scope to be inspected, then click **"OK";** see Figures 3 - 5.

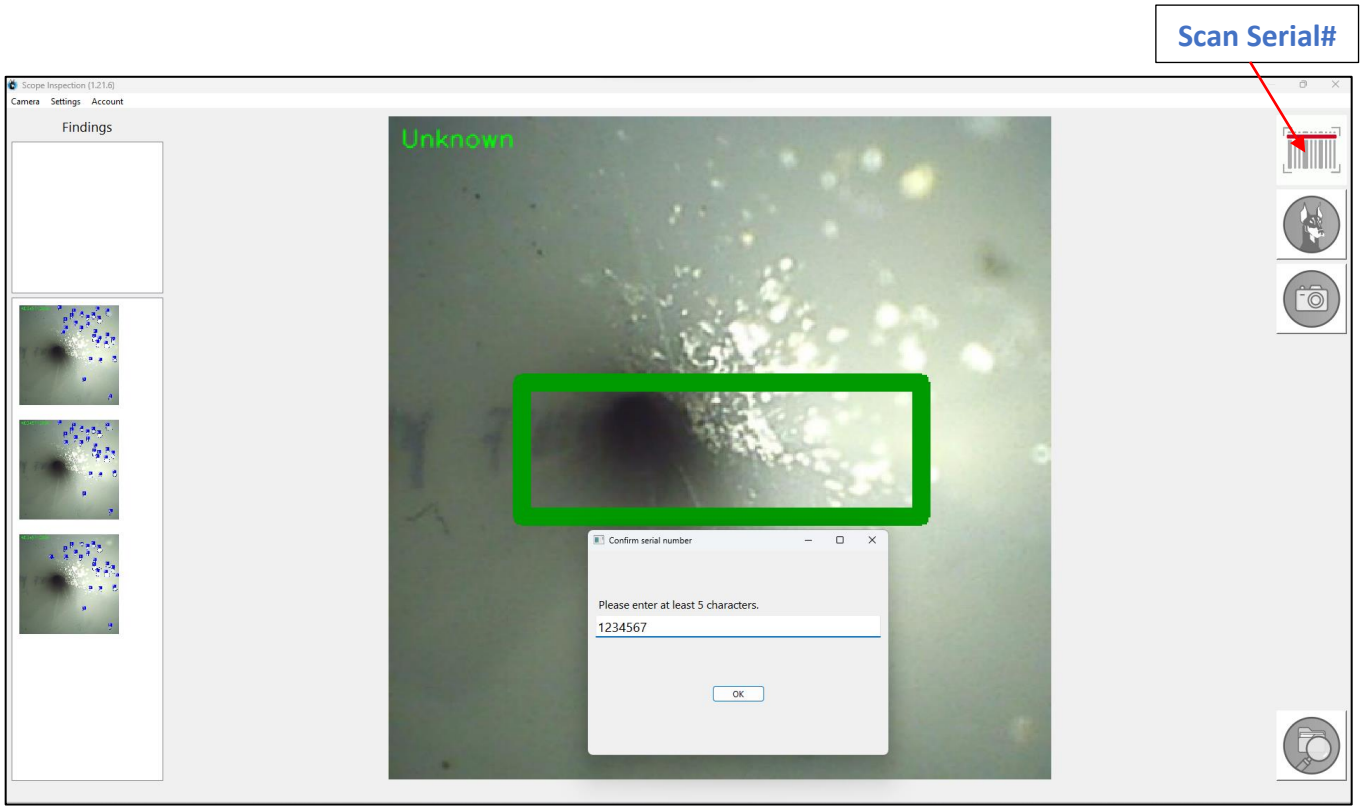

Figure 3

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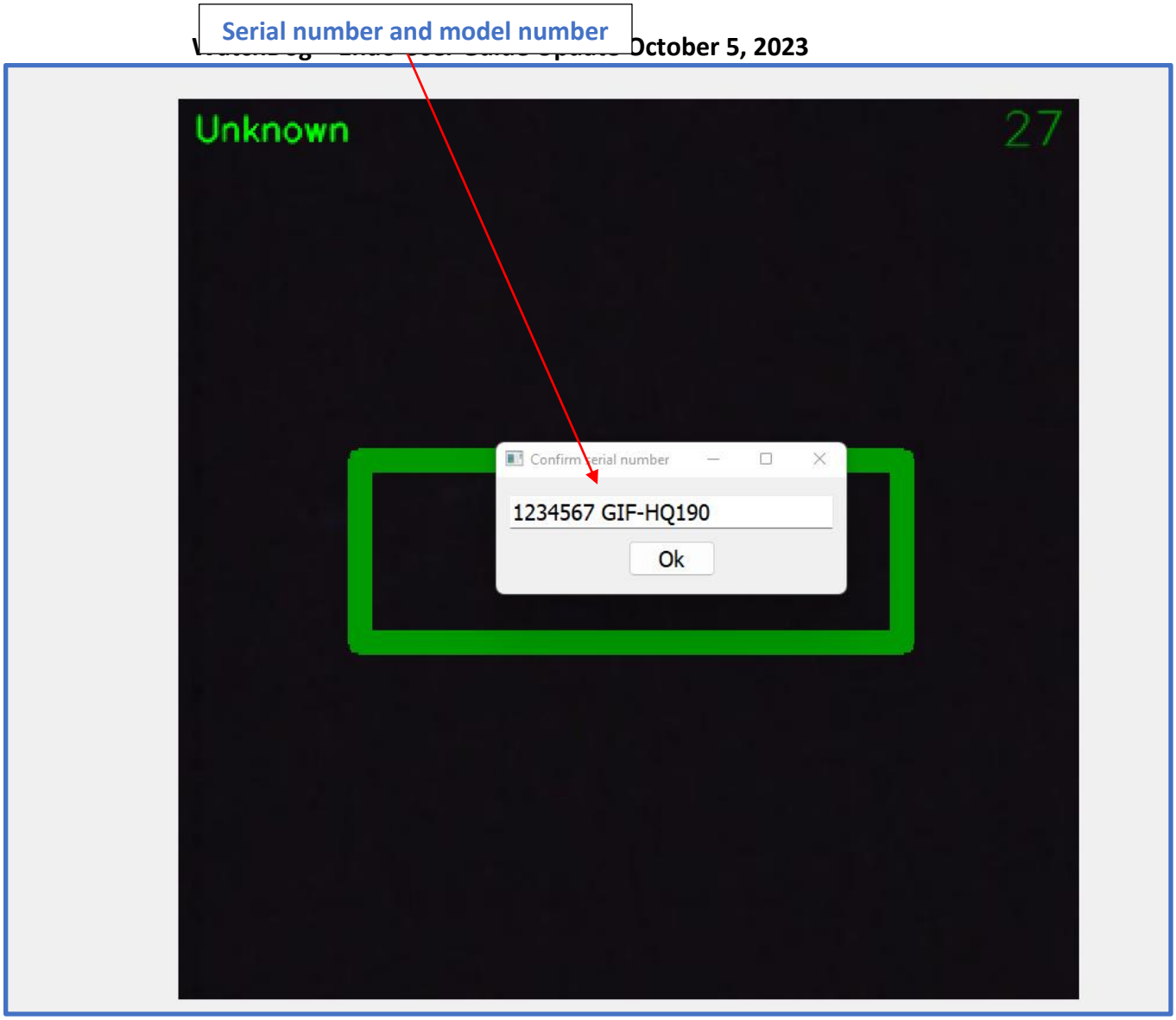

Figure 4

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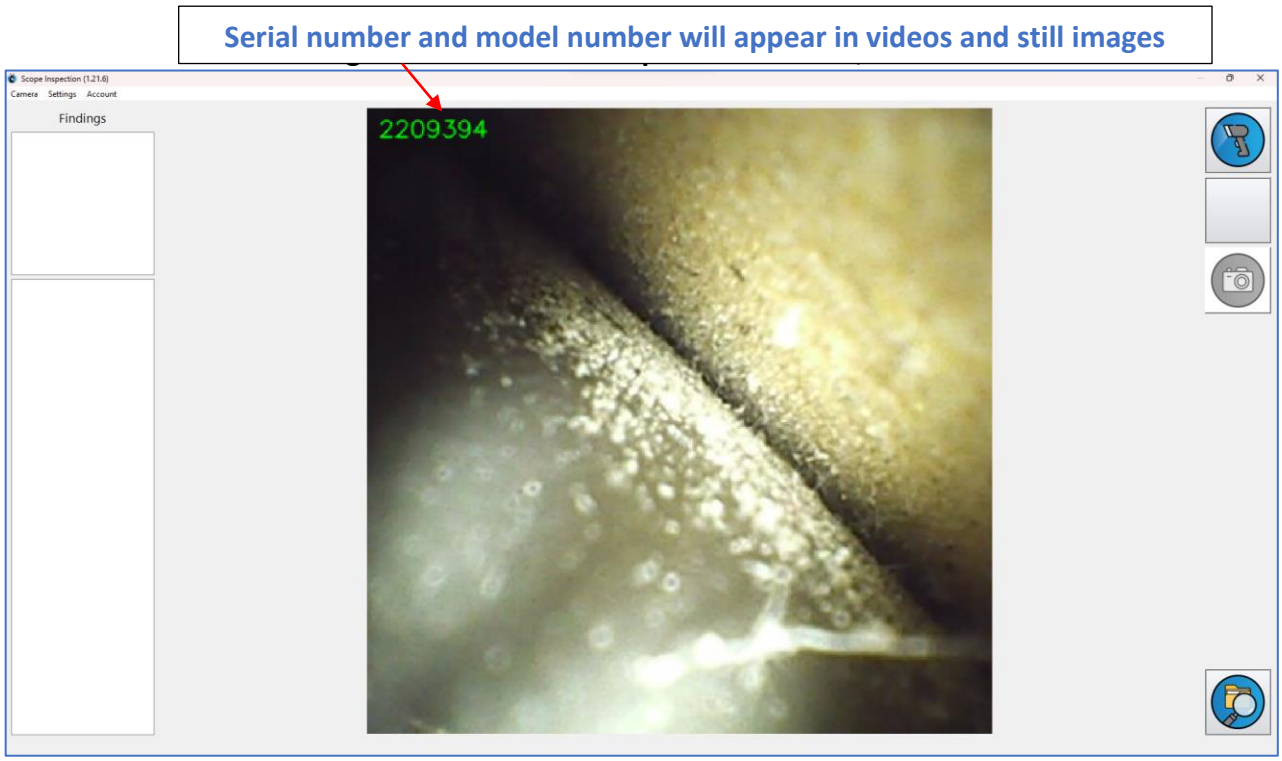
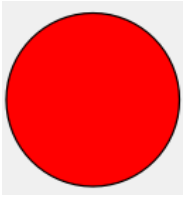


Figure 5

d. Scope Inspection

i. To perform an endoscope inspection using **WatchDog Endo™** you must first complete the steps in c. **Scan Serial Number**, above. Once that's done, put the tip of the borescope into the endoscope, then click on the **Scope Inspection** button.

A red recording dot will appear when active 

ii. Push the borescope into the endoscope working channel – on the User Interface you will see live images from the channel. To the right of the main image window you will see a vertical green bar that represents the amount of time remaining before the recording shuts off. The default time is 3 minutes and is adjustable in **Settings**. Done properly, using the AI features of WatchDog Endo, a scope inspection should be able to finish within this period of time.

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iii. For WatchDog Platinum users - You will see color-coded outlines (polygons) of anomalies that WatchDog Endo detects. Scratches are shown in green, as in **Figure 6** below. Droplets are in blue. Peeling/shredding is in orange, and crimps are outlined in magenta, as seen in **Figure 7** below. (WatchDog Plus users will not see real-time polygons during inspection) In the upper left of the screen, you will see a tally of findings in their respective colors.

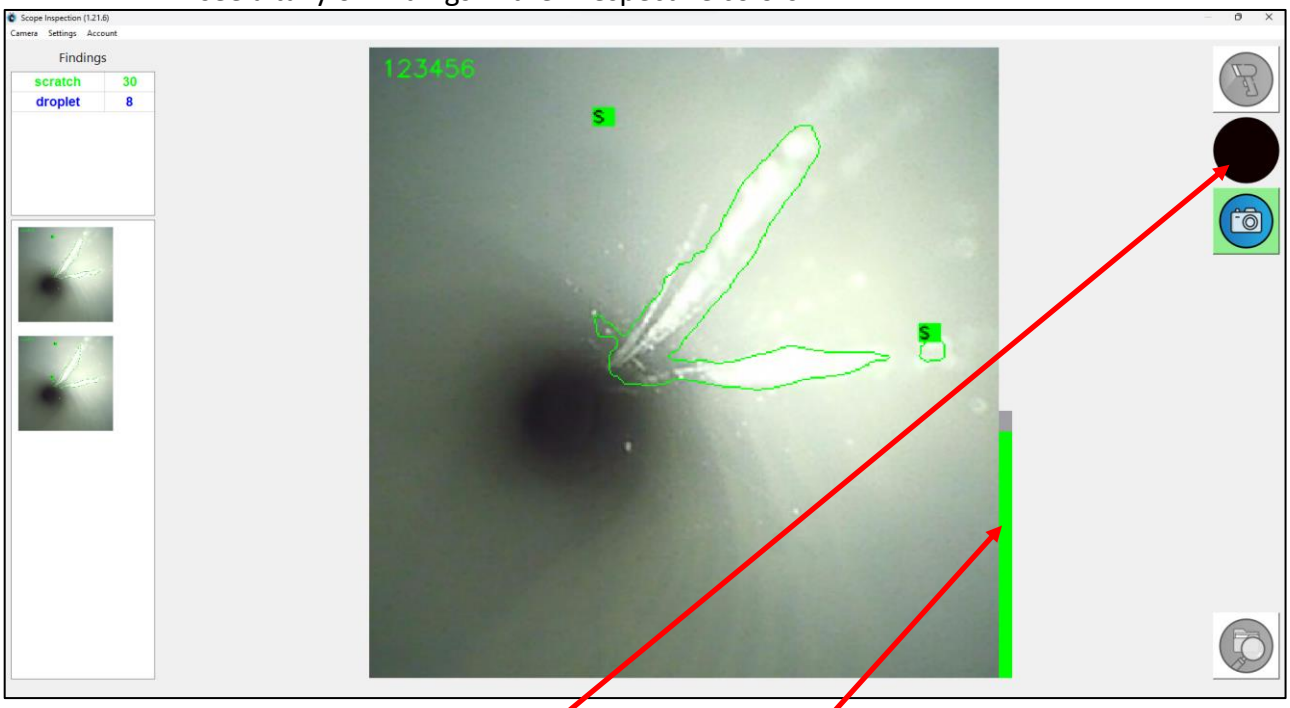

Figure 6

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Figure 7

iv. When your inspection is complete, click on the **Scope Inspection** button again. The red dot and the vertical green timer will disappear. After a moment, you will see a rotating dial icon in the center of the main image window. This tells you that the data you've recorded is being saved. **Do not close WatchDog Endo application until the rotating icon has disappeared; doing so may cause your data to be lost.**

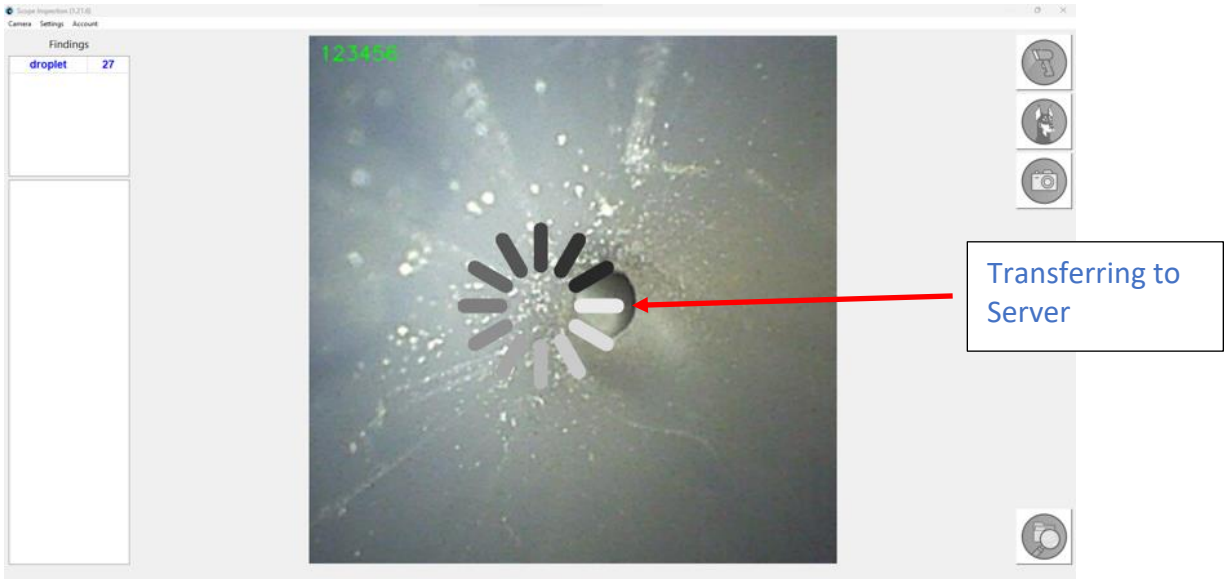

Figure 8

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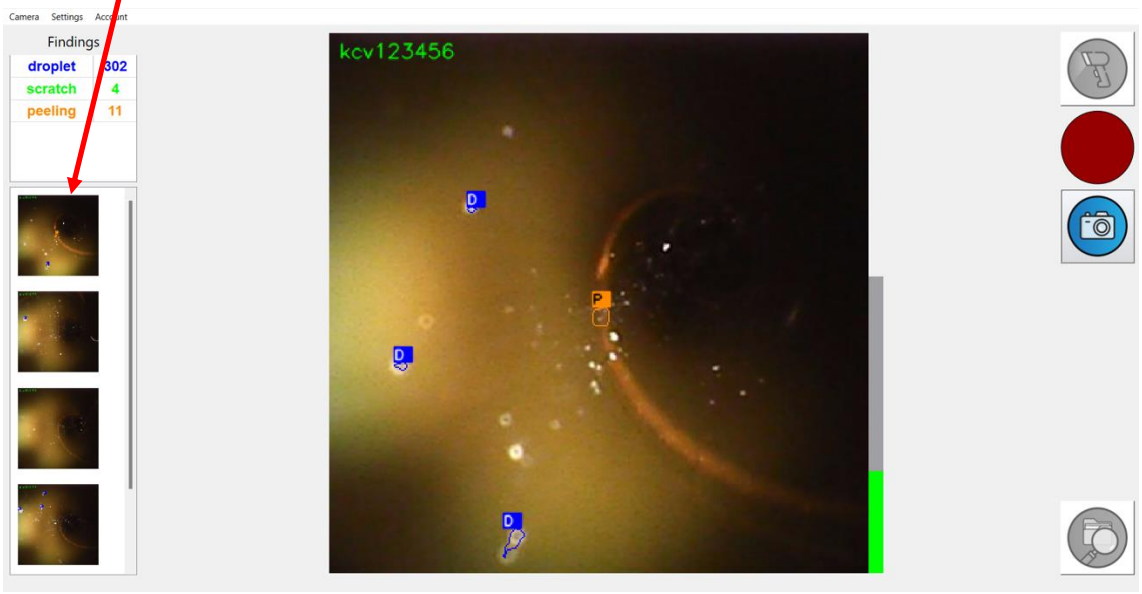
e. Image Capture

i. To capture a still image of any area of interest, hold the borescope camera steady on the area, then click on the **Capture Image** button.

You will see thumbnails of images captured in the bar on the left of the User Interface.



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f. Review

i. To review the inspection images captured, click on the **Review** button.

You will be taken to a new screen, as in Figures 9 and 10 below. You can select a date in the left-hand column. Clicking on the Play button at the bottom of the screen will play back the captured inspection video. By clicking on any thumbnail in the Thumbnails column, you will see it appear in the main image window. The "Select a Finding" button in the upper right lets you choose any particular finding type and review images of that type only. By clicking on the Previous and Next buttons, you can go back and forth between images in order. You can delete dates and images by selecting and then clicking on one of the "Delete" buttons at the bottom of the User Interface.

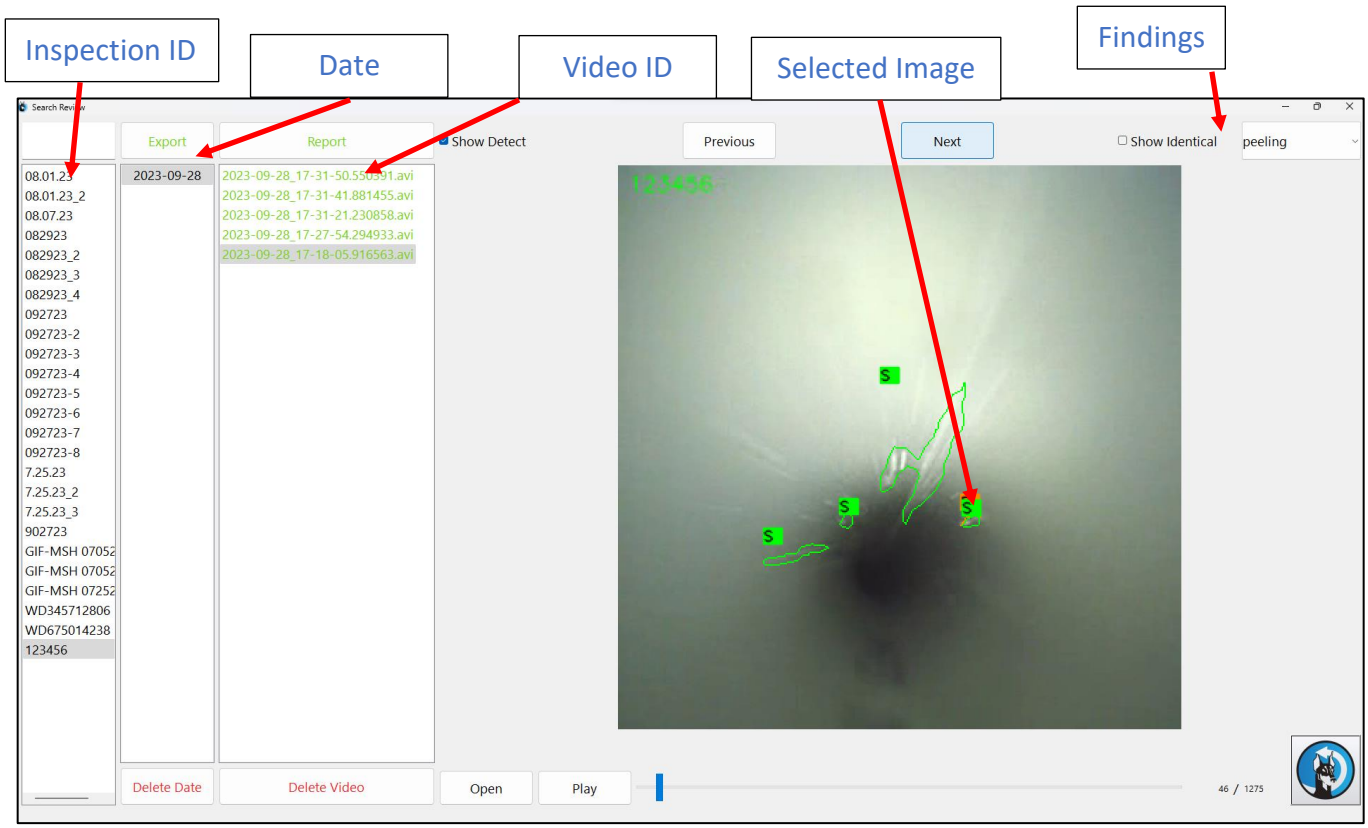

Figure 9

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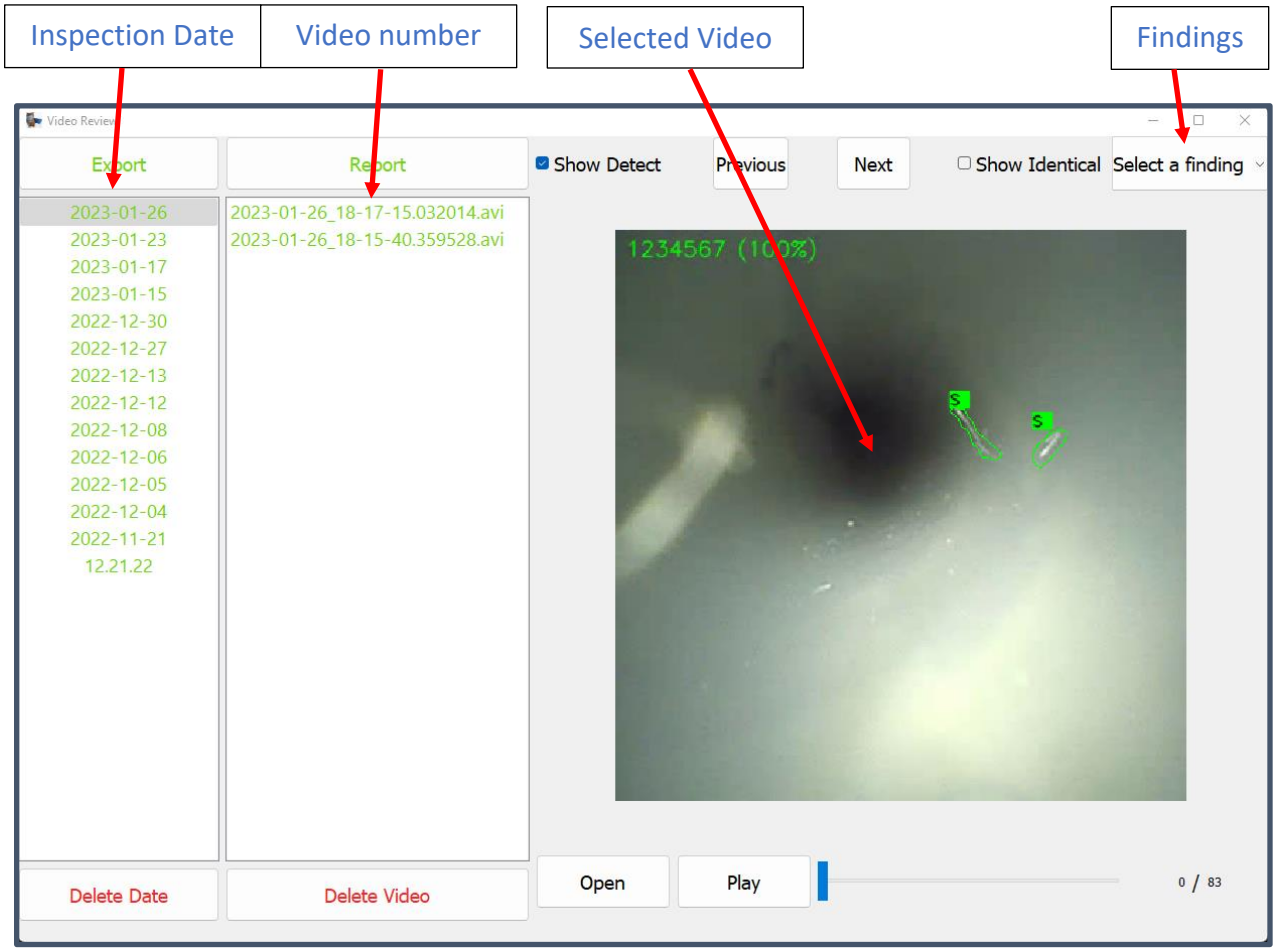

Figure 10

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6. Warranty

WatchDog Endo™ software is warranted to work 99.9 percent of required use time, when used in accordance with operating instructions. Further details are provided in the User License Agreement.

1. Notices

a. WatchDog Endo, WatchDog Endo AI, and WatchDog Lite are trademarked by BH2 Innovations Inc.
b. *WatchDog Endo™ is a Decision Support tool and should not be relied upon beyond that. It is the responsibility of the end user to render decisions based on information obtained though WatchDog, withing the context of facility policies, procedures, training, and other factors.
c. *WatchDog Endo™ is not intended as an accessory to a medical device and is not intended for use in diagnosis or treatment of patients.
d. *WatchDog Endo does not identify biological materials and should not be relied upon as a biologic test modality.