

IOTA Video Playback, Version 1

January 18, 2018

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1 Introduction

The IOTA Video Playback application is used for reviewing the video frames in an AVI file. If the AVI file has been created by IOTA Video Capture Version 2.1 or later it will detect if the file has dropped frames and permit the user to position the video at any dropped frame to see if it occurs close to the occultation event time. The user interface is designed for smaller displays by dividing the application into multiple windows, primarily a main window that displays the video and has a menu bar, a controls window with large buttons that are easily activated either by mouse or touch screen, and a user messages window that displays relevant information.

2 Installation

Application development is based in the Visual Studio Community IDE. As a result it targets the Windows operating environment, specifically Windows 8.1. Applications developed in the Windows 8.1 environment also run in Windows 10. The application may run in other windows environments such as Windows 7, but no formal testing has been done to verify other environments.

The application is delivered as a self installing executable whose name depends on the application version number. The name has the form "iota_vp_n_n_setup.exe" where the first 'n' is the major release version number and the second 'n' is the minor version number – absent if a major release. If the executable is delivered as an e-mail attachment, the file name will have ".sav" appended to the end in order to pass through e-mail security systems. Upon saving the executable file in a local directory, you must remove the ".sav" extension.

To start the install process, simply run the self installing executable, typically by double clicking the file name. The Windows OS may ask if it is OK to let the install process make changes to your computer. Either answer yes if you want to continue with the install, or no to exit the install. The IOTA Video Playback application can be installed in a folder of your choice or you can use the default folder. DO NOT install into a folder where a different IOTA application is installed because an uninstall conflict will occur.

If you install this release into an existing directory into which you have previously installed the application, uninstall the previous version prior to doing the new install. In order to uninstall the previous version, execute the file "unins000.exe" from the install directory which will perform the uninstall.

3 Start Up

You can start the IOTA Video Playback application without paying any attention to start up variables, that is, the application windows will simply appear on the display. You can then move the windows around on the display (they will initially overlap) and use the application to play AVI video files. However, the first time the application is started you may choose to save the windows positions in an options file (see options below). If you save the positions, then subsequent start ups will place the windows in the same position as when they were saved.

4 Video Playback

Use standard Windows mechanisms to start the application, for example by double clicking on the desktop icon or double clicking the ".exe" file in File Explorer. This action will pop up the three windows mentioned in the introduction. The primary window is the display window which as mentioned in the introduction contains a menu bar.

The second window is for user messages. It displays information relevant to the playback operation and usually precedes each piece of information with the current UTC time. Current local time is never shown; however, the first message displayed is the time zone setting for the computer. The "File" menu on the menu bar is used to save the user messages to a log file.

The third window to pop up is a playback controls window containing buttons that control the application. There are six control buttons initially shown and the function of each is described later in this document. Upon application start up all the buttons are disabled since there is no open AVI file.

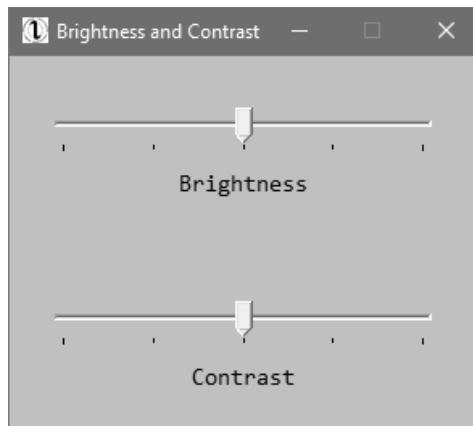
4.1 Main Display Window

The main display window contains an embedded window that shows the video from an opened AVI file. Initially it will be blank since no file is open. The window contains a menu bar with four menus that provide interfaces to most of the user tasks.



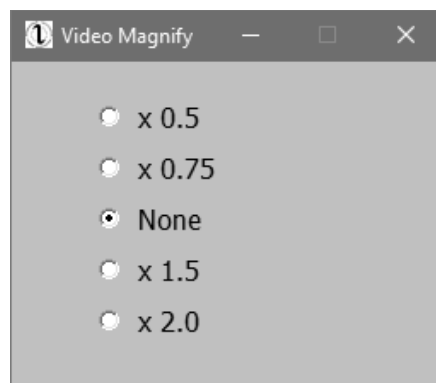
The File menu has four submenus, "Open" "Close" "Information" and "Exit". Choosing "Open" pops up a standard Microsoft file selection dialog that permits selecting only files with a ".avi" extension. The "Close" submenu is not active unless there is an open AVI file, and selecting it closes the open file. "Information" is also not active unless there is an open AVI file, and selecting it sends file information to the User Messages window. Choosing "Exit" causes the application to shut down which closes all open child windows and the main display window.

The Display menu is not active unless there is an open AVI file. It has two submenus, "Brightness/Contrast..." and "Magnify...", where the "..." at the end of each submenu means that selecting it pops up a dialog. Selecting "Brightness/Contrast..." pops up the following dialog.



If it is difficult to discern details in the video of the opened AVI file this dialog may help by permitting adjustment of the brightness and/or contrast of the display. The dialog can be closed by selecting the 'X' in the upper right corner of the dialog or by re-selecting the submenu. When the dialog is closed the display reverts back to what it looked like before the dialog was popped up.

Selecting "Magnify..." pops up the following dialog.



With this dialog you can either shrink or enlarge the video display. No matter what magnification is chosen the entire border of the main display window will remain within the boundaries of the monitor screen. If the window width or height would otherwise be larger than the screen width or height, then scroll bars are used. There is also a minimum window size, thus a shrink setting may show a gray area outside of the embedded clipping window.

The Options menu has only one submenu which is "Set Windows Positions". This selection captures the positions of the windows on the display monitor and stores the values in the options file so that the next time the application is started the windows will appear at the same positions. The position of an iconified window is not captured.

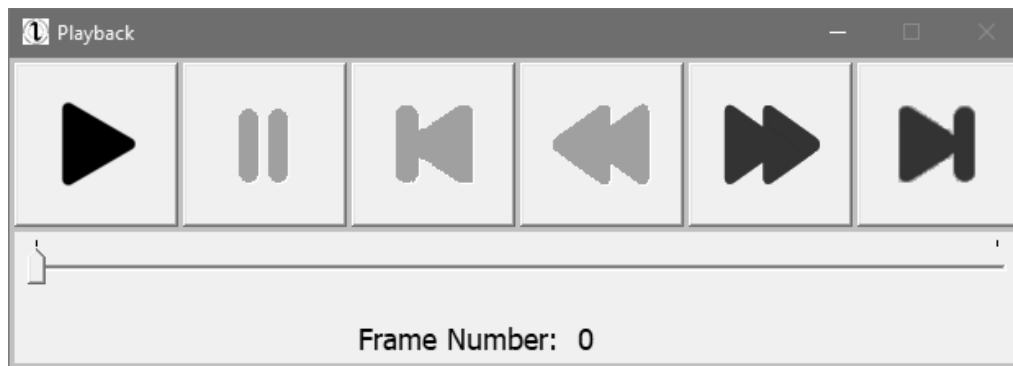
The final menu on the main window menu bar is "Help". When that is selected a help->about submenu can be selected which displays the version number of the installed IOTA Video Playback in the User Messages Window. The message also explains how to report application issues.

4.2 User Messages

This window is for displaying relevant information to the user. It has a menu bar with one menu, namely "File". The "File" menu has two submenus, "Save Messages" and "Save Messages and Clear". The "Save Messages" selection saves the contents of the window to a file with a ".txt" extension. It leaves the contents of the window intact. In contrast, the "Save Messages and Clear" selection also creates a log file with the window contents but then deletes the window contents. User messages are saved in a subfolder of the install directory named "LogFiles". The automatically generated name of the file is log_mm_dd_yyyy_hh_mm_ss.txt where mm_dd_yyyy_hh_mm_ss represents the date time at the moment the file is saved.

4.3 Control

Video playback involves opening an AVI file and examining the contents by streaming the video and stopping the video at frame locations of interest. To perform these actions a playback control window is displayed at application startup. The controls are initially disabled and stay that way until an AVI file is opened. The following is how the control window looks when an AVI file is opened where the file either has not been generated by IOTA Video Capture 2.1 or it does not have any dropped frames.



The control buttons have the following meaning in order from left to right.

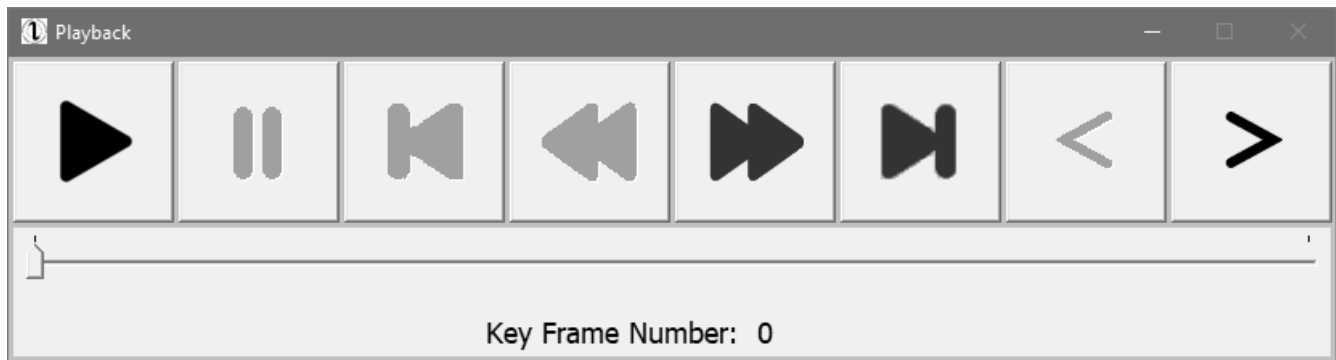
- ◆ Start playback
- ◆ Pause
- ◆ Go to start of file
- ◆ Go back one frame
- ◆ Go forward one frame
- ◆ Go to end of file

The control buttons are enabled or disabled according to the playback position. For example when the file is

initially opened the pause, go to start of file, and go back one frame are disabled as shown above. The initial frame in the file is labeled as “Frame Number: 0” (real programmers start counting from zero). The last frame is shown as a blank frame, thus indicating that you are at the end of the file.

The slider bar can also be grabbed with the mouse and moved in order to quickly get to a file position. You can also click on the slider bar (the dark area) to move the position to the left or right (previous or next). And finally, if you activate the slider bar by clicking on it with the left mouse button, you can use the left and right keys on the keyboard to move to the previous and next frames.

If an opened AVI file has been created by IOTA Video Capture Version 2.1 or later and if it contains dropped frames then the Control window will have an additional two buttons on the right.



The two new buttons are for going to the previous dropped frame or going to the next dropped frame. Either of these two buttons might be disabled depending on the frame position. The text at the bottom of the control now states that the current frame is either a key frame or a dropped frame.

5 Release History

- Version 1, January 18, 2018