Image Acquisition Toolbox Release Notes

The "Image Acquisition Toolbox 1.1 Release Notes" on page 1-1 describe enhancements and bug fixes included in the latest version of the Image Acquisition Toolbox.

The Image Acquistion Toolbox 1.0 was released as a Web download after Release 13. The "Image Acquisition Toolbox 1.0 Release Notes" on page 2-1 discuss the following topics:

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Printing the Release Notes

If you would like to print the Release Notes, you can link to a PDF version.

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Image Acquisition Toolbox 1.1 Release Notes

Enhancements

The Image Acquisition Toolbox, Version 4.1, includes the following enhancements.

- Region-of-Interest (ROI) configurations using the `ROIPosition` property are now supported for all hardware devices.
- A troubleshooting utility is now included in the `MATLABROOT/toolbox/imaq/imaq` directory called `AMCap.exe`. This utility can be used to verify that Windows video devices are working properly.
- Enhanced memory management is now provided to optimize image frame storage efficiency.
- A warning is issued when accessing Windows video hardware using an incorrect DirectX version.

Major Bug Fixes

The Image Acquisition Toolbox 1.1 includes several bug fixes made since Version 1.0. This section describes the particularly important Version 1.1 bug fixes.

- A memory leak associated with running `peekdata` has been fixed.
- The toolbox now stops acquisition hardware when you use Ctrl-C to interrupt the `getsnapshot` function.
- When using Matrox DCF camera files, the toolbox now configures all video source objects according to the camera file settings.
- A MATLAB segmentation fault that occurred when using old versions of the Matrox MIL library has been fixed. The toolbox now displays a message instead.
- A segmentation fault associated with accessing the Data Translation 3157 frame grabber has been fixed.

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Image Acquisition Toolbox 1.0 Release Notes

Introduction to the Image Acquisition Toolbox

The Image Acquisition Toolbox 1.0 is a new product from The MathWorks that enables you to connect to an image acquisition device from within a MATLAB session. Based on MATLAB object technology, the Image Acquisition Toolbox provides functions for creating objects that represent the connection to the device.

For example, the following command creates an object `vid` associated with a Matrox frame grabber. (Use the `imaqhwinfo` function to retrieve the object constructor syntax for the device installed on your system.)

```
vid = videoinput('matrox');
```

Using the properties of the `vid` object, you can control various aspects of the connection to the device.

For more information about the capabilities of the Image Acquisition Toolbox, refer to the documentation.

Software and Hardware Requirements

The toolbox requires the device drivers for the installed image acquisition hardware. For the most up-to-date list of supported hardware, go to the Image Acquisition Toolbox product page (`www.mathworks.com/product/imaq`).

Known Software Problems

This section describes some known software problems with this release of the Image Acquisition Toolbox.

- General issues
- Issues with generic Windows image acquisition devices
- Issues with Matrox image acquisition devices
- Issues with Data Translation acquisition devices

General Issues

- The preview window might distort displayed images when running MATLAB on a computer with an 8-bit display. Note, however, that the quality of the data logged is not affected.

- Warning messages indicating that the toolbox was unable to allocate memory may be displayed multiple times under the following scenario.

  a Preview window is opened

  b The `imaqmem` function is used to limit memory to a very small amount

  c Hardware trigger executes, initiating an acquisition

  To prevent this problem, close the preview window.

- You might encounter a problem logging data to an AVI file. For example, the value of the `DiskLoggerFrameCount` property may remain at `0` (zero). To remedy this problem, try changing the value of the AVI file object's `Compression` property to `'none'`.

Generic Windows Image Acquisition Devices

- There are known issues with the USB Creative WebCam drivers that may lead to crashes and computer reboots. It is recommended that users only install one of these devices per system.

- Some device drivers, most commonly Video for Windows (VFW) drivers, might request a device to be selected via a dialog box. By choosing a device from the dialog box, you can associate an image acquisition object with an installed device.

TV Tuner Devices

The following list covers known issues with TV Tuner Devices (devices with an `AnalogVideoFormat` video source property).

- Video input objects associated with a TV tuner card like the ATI Rage Theater Video Capture card, may be created with an invalid analog format selected. To correct this, modify the value of the `AnalogVideoFormat` property on the currently selected video source object. (Use the `getselectedsource` function to retrieve the currently selected video source object.)

- Some TV tuner cards may not honor the value of the `FrameGrabInterval` property. The ATI TV Wonder VE card is known to have this problem.

- While accessing a TV tuner card, a blue screen crash may occur if the preview window is repeatedly opened and closed.

- Some TV tuner cards may not be able to access video formats such as YVU9 or YV12. Although the `imaqhwinfo` function may report these formats as supported, attempts to acquire from them may fail. The ATI TV Wonder VE card is known to have this problem.

- Previewing is known to max out the CPU, making MATLAB unresponsive. It is recommended that users use a low resolution to reduce the CPU load.

DV Devices

- DV devices, such as camcorders, are limited to the default `'dvsd'` format provided by the device. Additional formats will be made available in a future toolbox release.

- When previewing DV devices, such as camcorders, a short lag may be visible between the preview window display, and what is actually captured by the device.

Matrox Devices

- Matrox's MIL or MIL-Lite library is required and must be installed before using the toolbox.
- The Gencout program, which is related to the Genesis board, will start when you first try to use the toolbox. This causes MATLAB to lose focus. To work around this behavior, uninstall the Genesis Native Library. Gencout is not used by the Image Acquisition Toolbox, but it is installed by default by the installation program for the Genesis drivers.
- It is recommended that MIL's non-paged, reserved memory be greater than the size of 4 incoming images. This value can be changed using Matrox's MIL Configuration utility, provided with MIL.
  - For standard RS170 and CCIR monochrome formats, at least 2MB of non-paged memory is recommended.
  - For standard NTSC and PAL color formats, at least 8MB is recommended.
- Two- and four-band images are not supported. Dual-channel video, however, is supported via a DCF file if the resulting image is a single band.
- UARTs are not supported.
- Acquisition devices that support image scaling might not scale images correctly if a video source other than the first video source object is selected. The toolbox only honors the XScaleFactor and YScaleFactor properties of the first video source object. If the currently selected video source object is not the first video source object, the values of the parent video input object's ROIPosition and VideoResolution properties can be incorrect.
- If the device supports exposure timers, they are exposed as video source object properties using the prefix "Timer". These properties are implemented using the manual bypass exposure model as described in the Matrox *MIL Users Guide*. Do not set these parameters while the object is previewing or running, to avoid invalid combinations of parameters while the object is accessing the device.

• User digital inputs are not currently supported. User digital output values are exposed as video source object properties using the prefix "UserOutputBit".

Data Translation Devices

• Device drivers should be updated to Imaging Omni CD 2.2 drivers. These drivers are available from the support page at www.datatranslation.com.

• Data Translation drivers allow for the reservation of non-paged, non-volatile memory. This value should be set as follows:

Devices	Reserved Memory Recommendations
3120, 313x, and 3152	Non-paged, reserved memory must be greater than the size of 4 incoming images. Recommended values: • For standard RS170 and CCIR monochrome formats, at least 2MB of non-paged memory • For standard NTSC and PAL color formats, at least 8MB This value can be changed in the DT driver properties; see the Data Translation *User's Guide* for your hardware for more information.
3152-LS, 3153, 3154, 3155, 3157	Non-paged, reserved memory must be greater than the size of the total number of frames provided by the hardware for a whole trigger. Use this equation to determine the size of the total number of frames: `total = FramesPerTrigger * FrameGrabInterval` where `FramesPerTrigger` and `FrameGrabInterval` are properties of the video input object. Refer to the Image Acquisition Toolbox documentation for more information on these properties.

• Line scan mode for the 3152-LS is not supported.

• For the 3152-LS, 3153, 3154, 3155, and 3157 devices in immediate trigger mode, the last image frame of a trigger and the first image frame of the next

trigger may not be adjacent frames in the incoming video; that is, one or more frames may be dropped between triggers.

- The 3152 may require certain color depths from your video card in order to fully function. To determine if the proper color depth is selected, start `DTAcquire` provided with your hardware and verify that both `'Passthru'` and `'Single Frame Acquire'` function properly. If `'Passthru'` fails, try using a different color depth, e.g., 24-bit truecolor instead of 32-bit truecolor.