

# Tau User Created Splash Screen

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## Application Note



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## 1.0 Document

### 1.1 Revision History

Version	Date	Comments
100	10/27/2011	Initial Release
110	08/30/2012	Section 2.0: changed statement which previously stated that all Tau 2.X FPA types use 640x512 splash screens to instead read that beginning with Tau 2.1, splash-screen size is user selectable (320x256 or 640x512) and that symbol resolution matches splash-screen resolution.

### 1.2 Scope

This Application Note includes information describing how to implement a user defined splash screen for the Tau™ infrared imaging core from FLIR Systems®.

The FLIR website will have the newest version of this document as well as offer access to many other supplemental resources: <http://www.flir.com/cvs/cores/resources/>

Here is a sample of some of the resources that can be found:

Document Title	Document Number	Description
Tau Quick Start Guide	102-PS242-01	Quick Start Guide for first-time use
FLIR Camera Controller GUI User's Guide	102-PS242-02	Detailed Descriptions for functions and adjustments for FLIR cameras using the FLIR Camera Controller GUI
Tau 2 Electrical IDD	102-PS242-41	Written for Electrical Engineers to have all necessary information to interface to a Tau 2 camera
Tau 2/Quark Software IDD	102-PS242-43	Written for Software Engineers to have all necessary information for serial control of Tau 2 and Quark
Assorted Mechanical Drawings and Models	Various	There are drawings and 3D models for various camera configurations for mechanical integration
Application Notes	Various	Written for Systems Engineers and general users of advanced features such as Gain Calibration, Supplemental FFC Calibration, NVFFC Calibration, Bad Pixel Killing, detailed use of CameraLink, CameraLink Accessory Modifications, On-Screen Symbology, AGC/DDE explanation, Camera Mounting, Spectral Response, Optical Interface for lens design, and others.

There is also a large amount of information in the Frequently Asked Questions (FAQ) section on the FLIR website: <http://www.flir.com/cvs/cores/knowledgebase/>. Additionally, a FLIR Applications Engineer can be contacted at 888.747.FLIR (888.747.3547).

## 2.0 Creating a Custom Splash Screen File

The first step in implementing a custom splash screen for the Tau camera core is creating a splash screen file. Paint is a program in Windows that can be used to either create drawings on a blank drawing area or add to and edit an existing drawing.

Open the Paint program, and the blank drawing template is opened by default. To edit an existing image, select *File* and browse to open the desired image.

Under the Home tab in the Image section, select *Resize* or use the **Ctrl+w** shortcut to reach the “Resize and Skew” menu. Select *Pixels* under the “Resize By” options. Disable the *Maintain aspect ratio* option by clicking in the box.

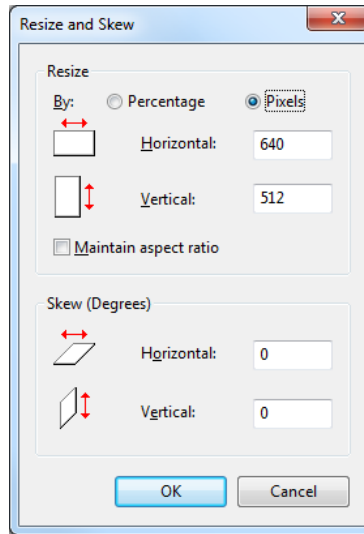
The resolution of the sensor in the camera core must be known to correctly set the horizontal and vertical pixel values. The camera type can be determined by the first two digits of the part number (PN), which is always displayed at the bottom of the GUI. If the first two digits of the Part Number are 41, 42, or 43, the camera connected is a FLIR Tau 1.X (previous releases of Tau 320 and Tau 640). If the first two digits are 46, 47, 48, the camera connected is a FLIR Tau 2. If the first two digits are 50, the camera connected is a FLIR Quark.



**Figure 1: FLIR Camera Controller GUI – Status Bar**

For Tau 1.X cameras, enter the Horizontal and Vertical pixel dimensions of the Tau camera focal plane array (FPA). This resolution information for a specific camera is provided at the bottom right corner of the Camera Controller GUI under the text reading “FPA” when connected with the Tau. For a Tau640 camera, the GUI will report “FPA Size: 640x512”, and the dimensions should be entered as in Figure 2 below (Horizontal = 640 and Vertical = 512). For a Tau320 camera, the GUI will report “FPA Size: 324x256”, and the dimensions should be set to Horizontal = 324 and Vertical = 256.

For Tau 2.X and Quark cameras, all FPA Types are capable of 640x512 resolution Splash Screens. Enter the Horizontal and Vertical pixel dimensions as in Figure 2 below (Horizontal = 640 and Vertical = 512). Beginning with the Tau 2.1 release, a 320x256 Splash Screen can also be used for any configuration. The resolution of symbol overlays matches the splash screen resolution.



**Figure 2: Microsoft Paint – Resize and Skew Dialog**

Note that for an NTSC monitor, the top and bottom 11 rows are cropped for a Tau640 camera. The image size can be set at 640x512 with careful consideration not to use the top and bottom 11 rows in the splash screen image. Otherwise, the image size can be set as 640x480 if an NTSC monitor will be the primary method of viewing the imagery.

After creating an image for the splash screen using the Paint tools or copying, pasting, and formatting a predefined image is completed, the file **MUST** be saved as a 256 Color Bitmap file type. Go to *File* and select *Save As*. The Save As Type must be “256 Color Bitmap”, as shown in the reference image below. Change the directory to the desired location, “C:\Desktop\My Manuals\Splashscreens” in the example below, and click *Save*. The image creation is now complete and ready to be uploaded to the Tau camera core as a splash screen.

**WARNING: The file type of the custom splash screen MUST be “256 Color Bitmap”. Uploading another file type can cause damage to the functionality of the Tau camera.**

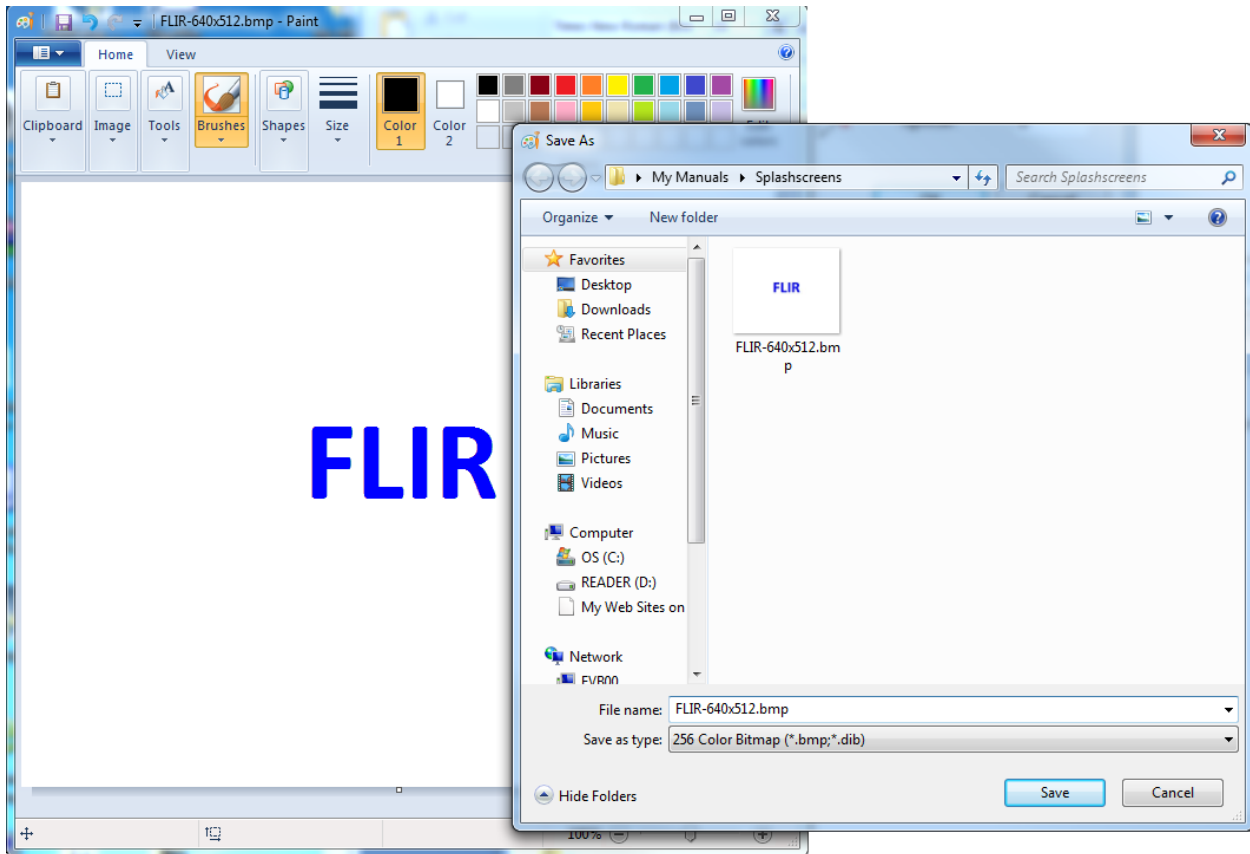


Figure 3: Microsoft Paint – Save As Dialog

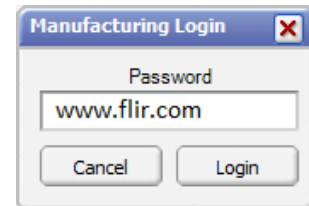
### 3.0 Uploading the Splash Screen via the Camera Controller GUI

This application note assumes an advanced Camera Controller GUI user level. The prerequisites listed below must be complete before proceeding with the instructions of this note. Refer to the Tau Quickstart Guide (document number 102-PS242-01) for detailed instructions for completing the prerequisites listed.

Prerequisites:

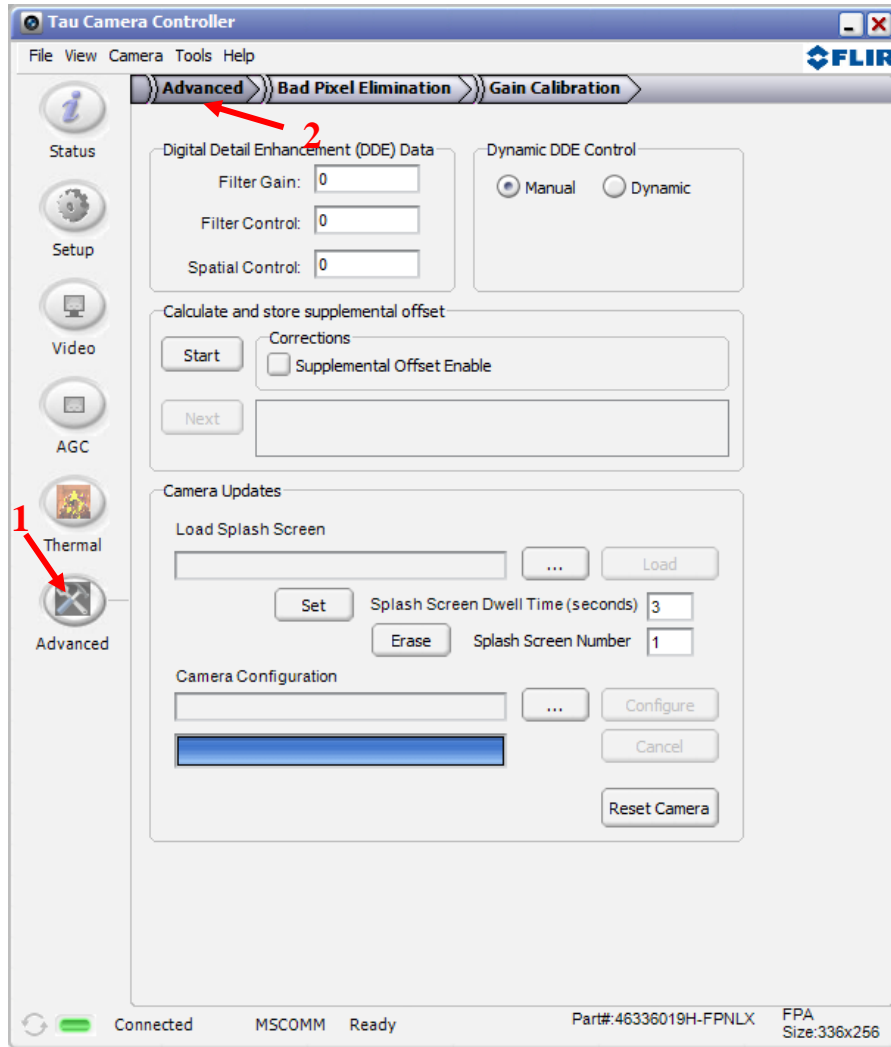
- Camera Controller GUI software downloaded and installed
- Tau camera accessories for serial communication obtained
- Familiarity with the Camera Controller GUI software (e.g. connecting to and adjusting settings of the Tau camera)

The Advanced Tab contains many features that can be considered to be for advanced users. For this reason, a special keystroke and password is required to display the Advanced Tab. The keystroke is **Ctrl+Shift+a** and the password is **www.flir.com**. After the keystroke is performed, the following dialog will appear. Note that the text in the following image is added and a password typed will display as asterisks.



The Advanced menu is now available in the GUI. Select the *Advanced* button on the left-hand side of the GUI display, labeled 1 in the image below, followed by the *Advanced* tab at the top of the display, labeled 2 in the image below.

Under the *Camera Updates* section and the *Load Splashscreen* title, select the ... button and browse to select the bitmap for the splash screen created in the previous section. Ensure the file selected for the splash screen is a 256 Color Bitmap file type as described in Section 2.0 of this document.



**Figure 4: FLIR Camera Controller GUI – Advanced Tab**

Notice that after selecting the desired bitmap in the Camera Controller GUI, another file is automatically created and saved in the same directory with the same name as the original file plus the addition of a “-RLE” appended to the end (e.g. FLIR-640x512.bmp generated FLIR-640x512-RLE.bmp). This automatically generated file uses a run length encoding (RLE) compression algorithm to compress the original file generated by the user. The RLE version of the file is ultimately the file loaded into the camera for the splash screen.

Use the Splash Screen Dwell Time box to enter the duration for the splash screen to be displayed. For Tau 1.X cameras, this cannot be changed after the splash screen is loaded and must be set prior to loading. For Tau 2.X and Quark cameras, it is possible to enter a value, and click *Set* to change the dwell time. The minimum dwell time is 2 seconds.

It is possible to save two separate splash screens that will display sequentially at startup, each for the prescribed dwell time. Use the *Splash Screen Number* box to select either 1 or 2.

**Note:** Erasing or loading a new splash screen into location 1 will remove the factory splash screen and it will not be recoverable. With Tau 2.X and Quark cameras, this will result in a 2 second black Splash Screen. Tau 1.X cameras will have no Splash Screen and will display uncorrected data for a brief moment.

Once the bitmap has been selected, press *Load* and wait until the blue progress bar is at 100% and the text below it reads "Download Complete". Note that it is not necessary to erase the existing splash screen prior to loading a new one.

To test the splash screen, on the same *Advanced* page, select *Reset Camera* or simply remove power and then re-apply. During the startup of the Tau camera, the custom designed splash screen will display while the camera is loading and will then be replaced by an infrared image after the prescribed dwell time is completed.

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This product is protected by patents, design patents, patents pending, or design patents pending.

If you have questions that are not covered in this manual, or need service, contact FLIR Commercial Systems Customer Support at 805.964.9797 for additional information prior to returning a camera.

This documentation is subject to change without notice.



This equipment must be disposed of as electronic waste. Contact your nearest FLIR Commercial Systems, Inc. representative for instructions on how to return the product to FLIR for proper disposal.

**FCC Notice.** This device is a subassembly designed for incorporation into other products in order to provide an infrared camera function. It is not an end-product fit for consumer use. When incorporated into a host device, the end-product will generate, use, and radiate radio frequency energy that may cause radio interference. As such, the end-product incorporating this subassembly must be tested and approved under the rules of the Federal Communications Commission (FCC) before the end-product may be offered for sale or lease, advertised, imported, sold, or leased in the United States. The FCC regulations are designed to provide reasonable protection against interference to radio communications. See 47 C.F.R. §§ 2.803 and 15.1 et seq.

**Industry Canada Notice.** This device is a subassembly designed for incorporation into other products in order to provide an infrared camera function. It is not an end-product fit for consumer use. When incorporated into a host device, the end-product will generate, use, and radiate radio frequency energy that may cause radio interference. As such, the end-product incorporating this subassembly must be tested for compliance with the Interference-Causing Equipment Standard, Digital Apparatus, ICES-003, of Industry Canada before the product incorporating this device may be: manufactured or offered for sale or lease, imported, distributed, sold, or leased in Canada.

**Avis d'Industrie Canada.** Cet appareil est un sous-ensemble conçu pour être intégré à un autre produit afin de fournir une fonction de caméra infrarouge. Ce n'est pas un produit final destiné aux consommateurs. Une fois intégré à un dispositif hôte, le produit final va générer, utiliser et émettre de l'énergie radiofréquence qui pourrait provoquer de l'interférence radio. En tant que tel, le produit final intégrant ce sous-ensemble doit être testé pour en vérifier la conformité avec la Norme sur le matériel brouilleur pour les appareils numériques (NMB-003) d'Industrie Canada avant que le produit intégrant ce dispositif puisse être fabriqué, mis en vente ou en location, importé, distribué, vendu ou loué au Canada.

**EU Notice.** This device is a subassembly or component intended only for product evaluation, development or incorporation into other products in order to provide an infrared camera function. It is not a finished end-product fit for general consumer use. Persons handling this device must have appropriate electronics training and observe good engineering practice standards. As such, this product does not fall within the scope of the European Union (EU) directives regarding electromagnetic compatibility (EMC). Any end-product intended for general consumer use that incorporates this device must be tested in accordance and comply with all applicable EU EMC and other relevant directives.