everything starts here.

SmartSwitch

How to Program a Development Kit

NKK SWITCHES

Introduction

Purpose:

- Demonstrate how to program NKK's SmartSwitch OLED Development Kit.

Objective:

- Switches that Make you Smarter
- The Universal Communicator
- The 3 Steps for Programming a SmartSwitch Development Kit
- Creating Images for the IS-DEV Kit-7
- Loading Images and Inputting Attributes
- Using the Universal Communicator
- Downloading Images and Attributes
- Development Kits and SmartSwitch Support for Rapid Prototyping

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Switches that Make you Smarter

The NKK SmartSwitch provides designers with enhanced decision-making capabilities by upgrading the ease-of-use for operators giving more accurate guidance to complete tasks.

The SmartSwitch increases efficiency by reducing the time to train operators while delivering a significant reduction or elimination in operator errors.

NKK's programmable OLED device has a wide viewing angle and can be seen from a distance allowing operators to quickly see any changes to their critical environments.

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The Universal Communicator

- The Universal Communicator is software that communicates with the following SmartSwitch Development Kits
  - IS-DEV Kit-5, 6, 7 and 8

- This software allows the user to download images, video and manipulate the actions of NKK's SmartSwitch

- Download the Universal Communicator here and get started on programming your Development Kit:
  - http://www.nkkswitches.com/SmartSwitch-Download-Software.aspx

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The 3 Steps for Programming a Development Kit

- Creating and saving images in a folder.
    - Create images in any graphic software
    - Image size must be 64x48 pixels, saved as 24-bit Bitmap
    - Name images in the order you want them for loops and slide show (A to Z)

- Loading images into the Universal Communicator and inputting attribute values.
    - Users can input attributes which are a set of addresses that tells the controller how to change images based on switch activity and time.

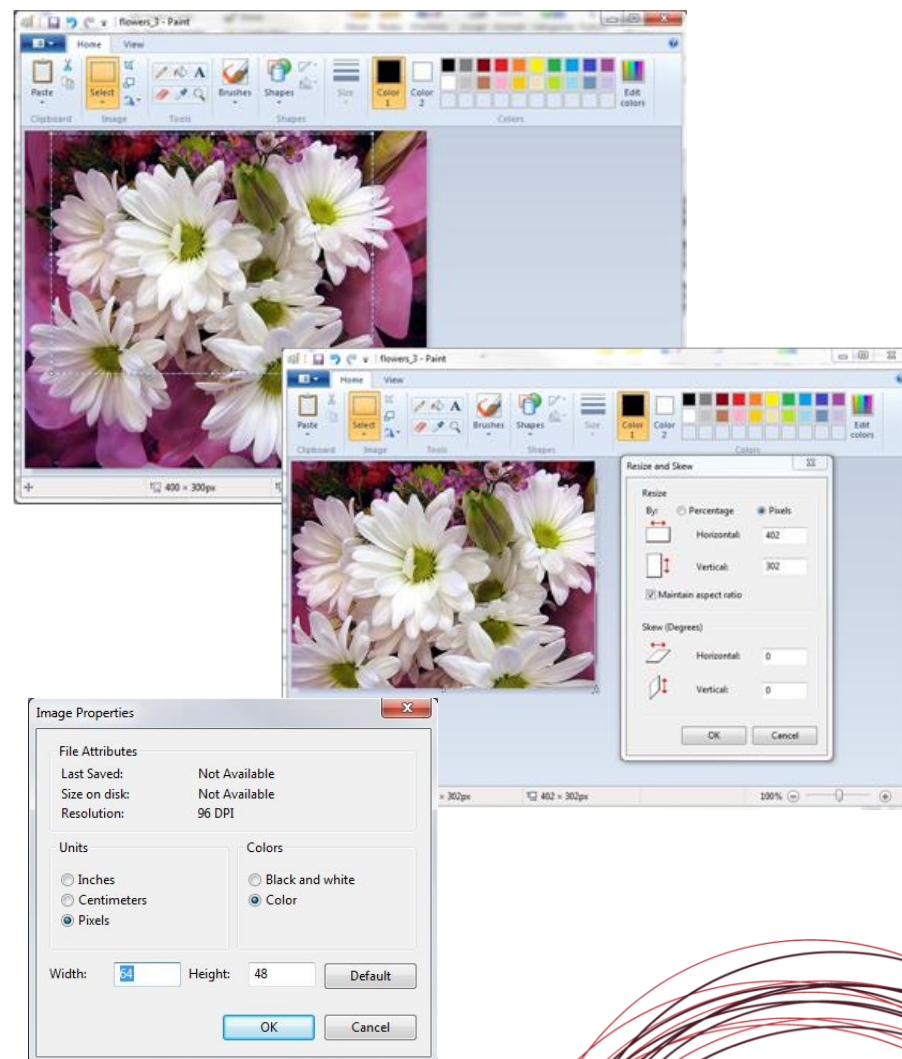- Downloading the images and attributes to the Development Kit.

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Creating Images for the IS-DEV Kit-7

Creating Images from a Picture:

- Open image in Microsoft Paint

- Select the portion of the image you want displayed on the device and "crop" the image

- Click on the "resize" option to resize the image to 64x48

- Select "properties" from the drop down menu to ensure the image is 64x48 in size
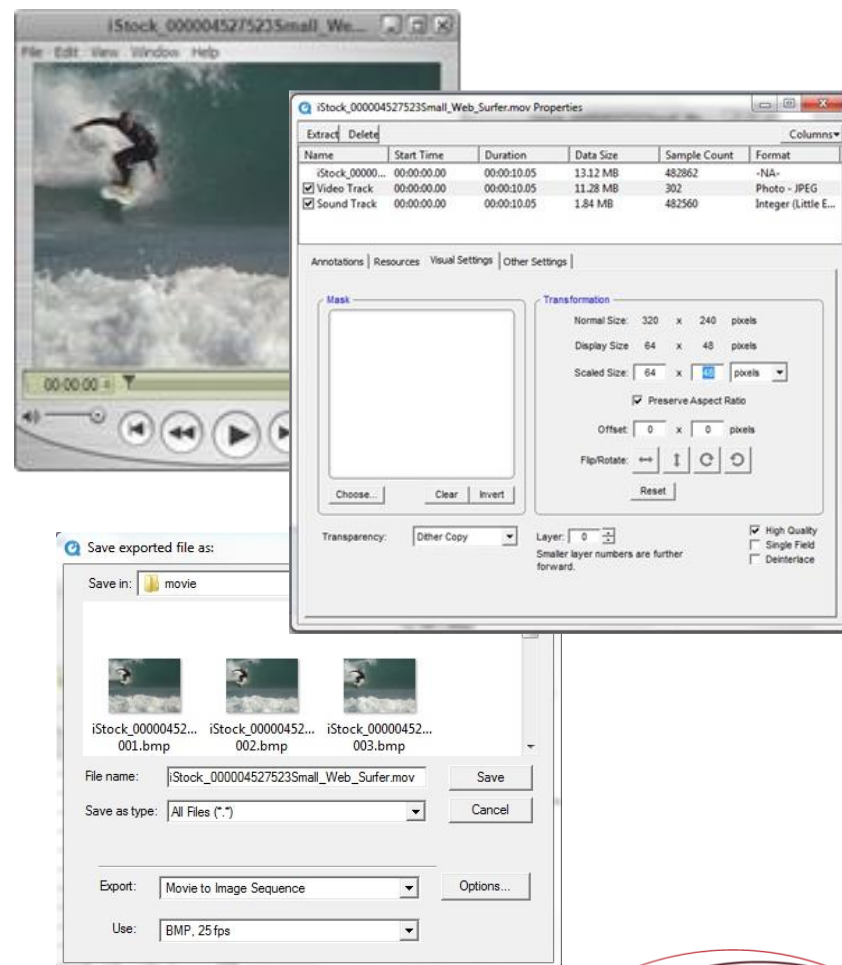
- Save image as a 24-bit Bitmap

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Creating Still Images from Video for the IS-DEV Kit-7
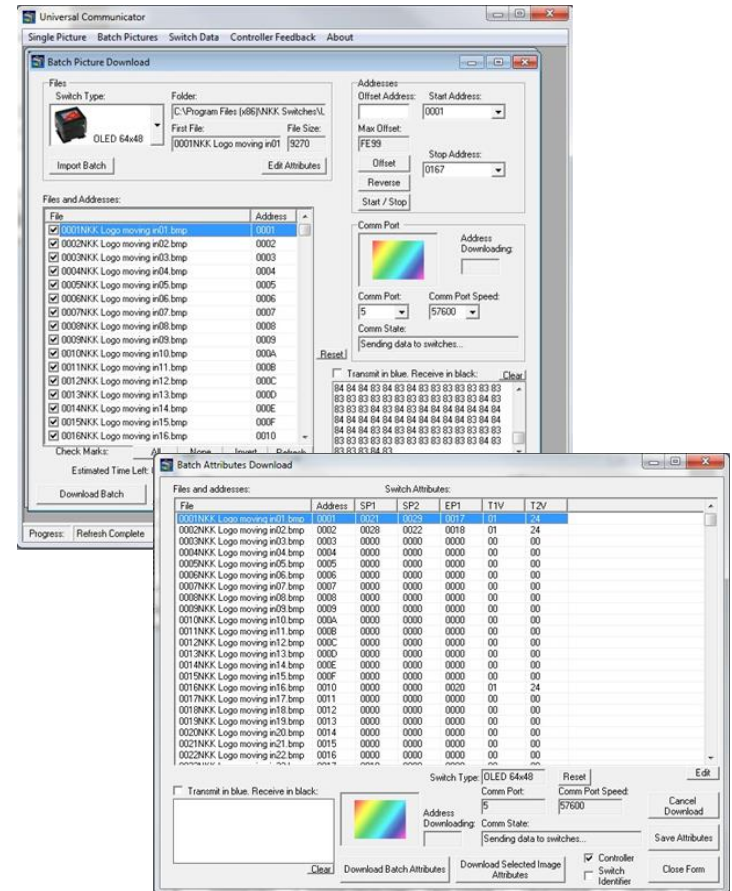
Creating Images from a Video:

- Open QuickTime

- Select "file" then "open file" from the drop down menu

- Select "window" from the drop down menu then "show movie property"

- Click "video track" then "visual setting" then change the scale size to 64x48

- Export the video and select folder from "save in" menu
    - Enter file name into "file name" field
    - Next from the "export" menu click "movie to image sequence"
    - Next from "use" drop down select BMP, 25fps
    - Click save

- Select the portion of the image you want to display and crop

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Loading Images and Inputting Attributes

- Open the Universal Communicator and click "batch picture"

- Select switch type "OLED 64x48"

- Click on "import batch" and select the folder containing images

- Select images to upload and click open

- Click "edit attribute"

- Each image will have an attribute block associated with it"

- Attributes can be inputted by selecting and typing values

Inputting Attributes by Pressing the OLED Pushbutton Switch

- Switch #1 (SP1):
  - If SP1 is not equal to 0000 the image of the address is displayed on switch 1 and becomes the active attribute.
  - If SP1 is 0000 then switch 1 will not be affected.

- Switch #2 (SP2):
  - If SP2 is not equal to 0000 the image of the address is displayed on switch 2 and becomes the active attribute.
  - If SP2 is 0000 then switch 2 will not be affected.

File	Address	SP1	SP2	EP1	T1V	T2V
Image1	0001					

Switch #1 and #2

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Inputting Attributes Using a Timing Sequence

- Each image from the current address through EP1 will sequentially be displayed for the amount of time indicated in the T1V and T2V field.
  - If T1V has a 00 value no changes occur.

- Switch #1 (SP1):
  - If SP1 is not equal to 0000 the image is displayed on switch #1 and becomes the active attribute.
  - If SP1 is 0000 there are no changes unless the loop belongs to switch #1 (loop will start at beginning of the address)

- Switch #2 (SP2):
  - If SP2 is not equal to 0000 the image is displayed on switch #2 and becomes the active attribute.
  - If SP2 is 0000 there are no changes unless the loop belongs to switch #2 (loop will start at the beginning of the address).

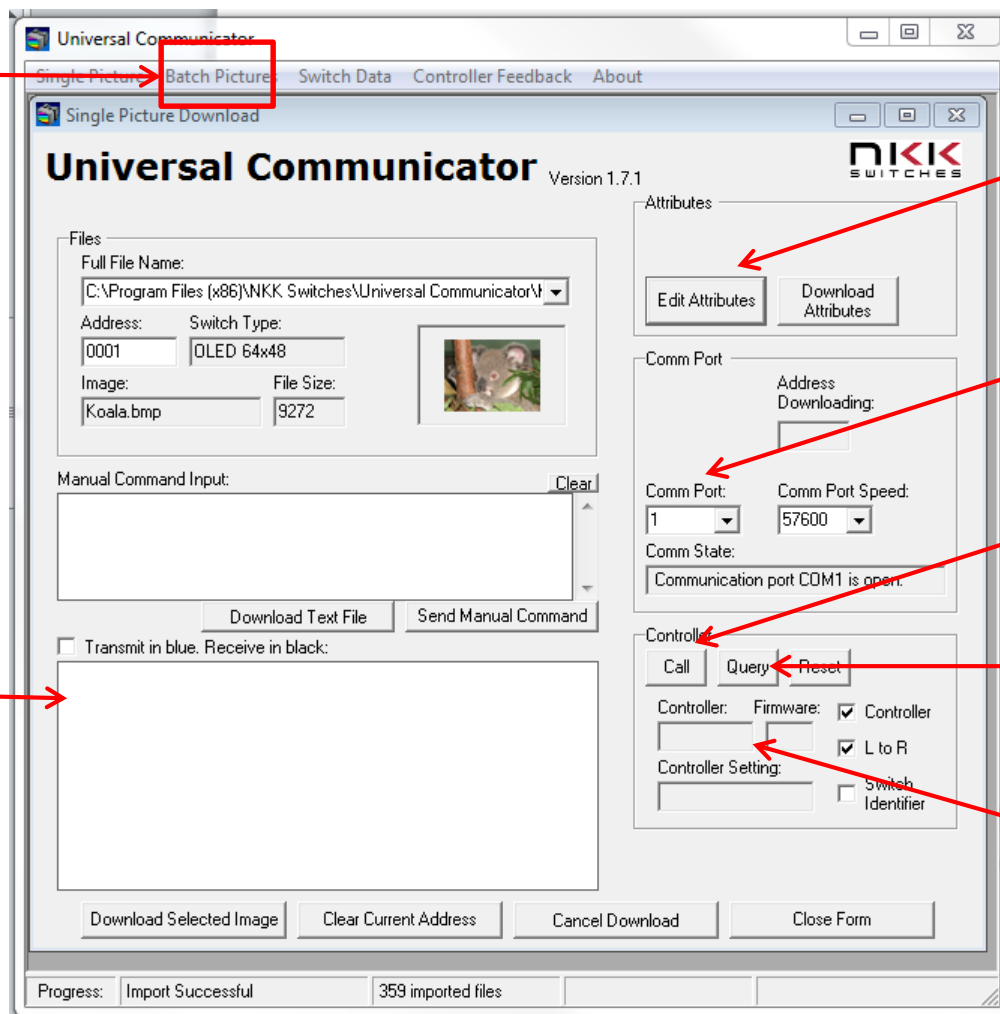| File	Address	SP1	SP2	EP1	T1V	T2V
Image1	0001					

Timing Attributes

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Using The Universal Communicator

Batch Picture

Edit Attributes

Comm Port

Call

Query

Controller

Communication with the controller is displayed here. Transmit to controller in blue. Receive from controller in black
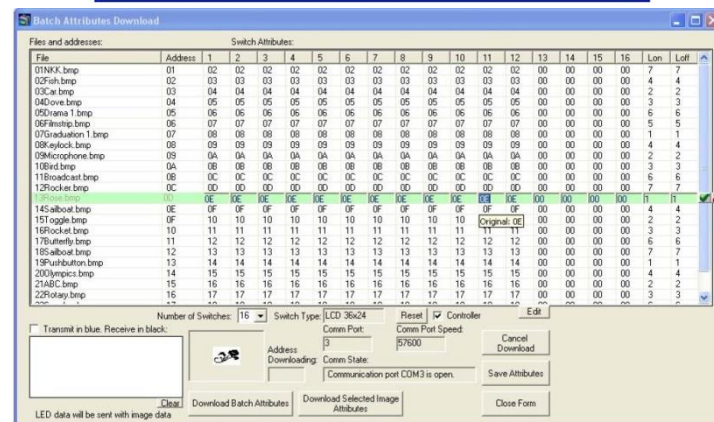
Downloading Images and Attributes

- Connect Development Kit to a computer using a RS232 cable or USB adapter
- Open The Universal Communicator and select the Comm Port number (57,600 port speed)
- Turn the Development Kit on and press "call" – kit should respond with "61"
- Press "query" it will identify the attached controller
- Load images by clicking "batch pictures," select switch type, then click "import batch" and select the image folder and click "open"
- Click "edit attributes" then "download batch attributes"
- Once the attributes are downloaded click "close form"
- Finally select "download batch" to start downloading all the images

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Development Kits and SmartSwitch Support

SmartSwitch Support:

- SmartSwitch Support Center: http://www.nkkswitches.com/SmartSwitch-Support.aspx

- Software: http://www.nkkswitches.com/SmartSwitch-Download-Software.aspx

- Engineering Documents: http://www.nkkswitches.com/SmartSwitch-Engineering-Documentation.aspx

DISPLAY	PIXELS	DESCRIPTION	DEV KIT NUMBER
OLED	96 x 64	Rocker	IS-DEV Kit-8
OLED OLED	64 x 48 52 x 36	Pushbutton Display	IS-DEV Kit-7 IS-DEV Kit-7D
LCD LCD LCD	64 x 32 64 x 32 64 x 32	Pushbutton Compact Pushbutton Display	IS-DEV Kit-6 IS-DEV Kit-6C IS-DEV Kit-6D
LCD LCD LCD	36 x 24 36 x 24 36 x 24	Pushbutton Compact Pushbutton Display	IS-DEV Kit-5 IS-DEV Kit-5C IS-DEV Kit-5D

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Thank you!

Have questions? Contact NKK Switches at 877.2BUYNKK

NKK also provides FREE switch samples and online 3D CAD Models. Got to www.nkkswitches.com to get yours today!

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