

ITRI

Industrial Technology
Research Institute

Demo Start

Write Prebuilt Image to SD Card

1. Min. 16GB is required, for the SD or micro SD cards.
2. Once you have completed the image decompression, you may use Win32DiskImager to write image file to the SD card.
3. After completing the image on the SD card, you will find following files in the main partition
 - BOOT.bin
 - Image.ub

#Note: These files include the FPGA bit-stream and OS. If you want to build it yourself, you can refer [Petalinux tutorial](#) then replace BOOT.bin and image.ub.
4. Another extension partition (ext4 files system) saves the inference codes and multi-media. You may store the images (224*224 suggested) or videos (up to full HD) in this partition.

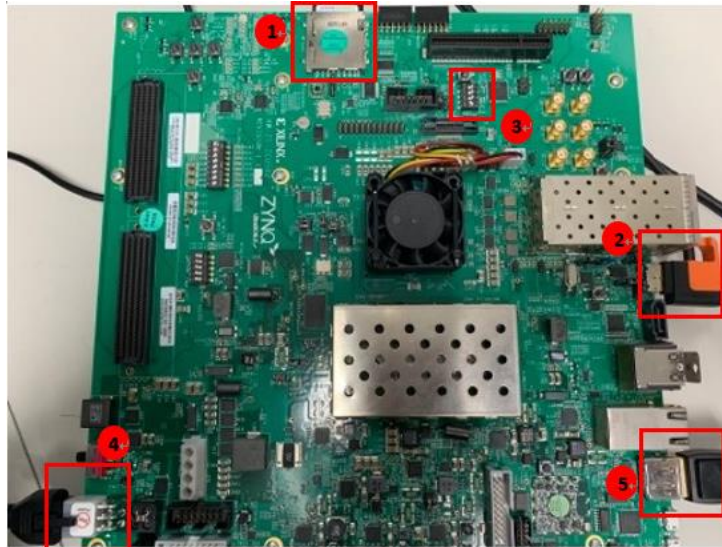
ZCU102 and ZCU104 Board Setup:

1. Insert SD card into the SD card slot J100.
2. Connect mouse and keyboard to board J96 USB 3 ULPI connector via USB hub. Observe mouse and keyboard to be working.
3. Set the SW6 switches as shown. This configures the boot settings to boot from SD:

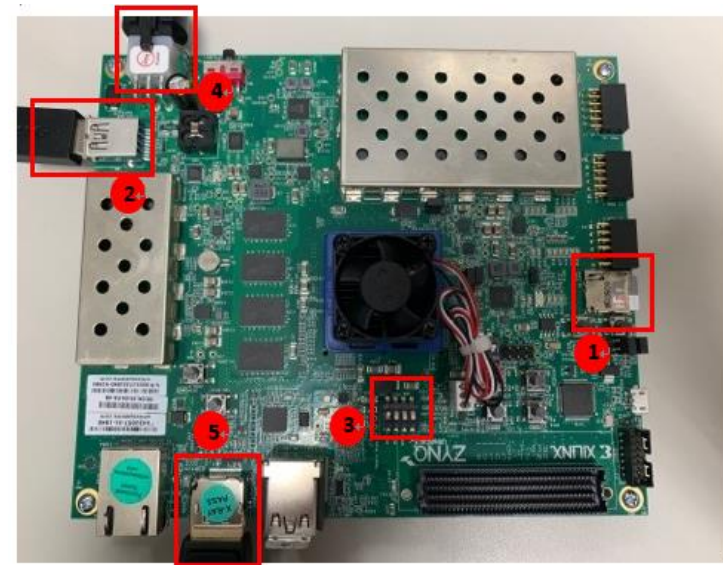
Boot Mode	Mode Pins [3:0]	Mode SW6 [4:1]
JTAG	0000	on, on, on, on
QSPI32	0010 ⁽¹⁾	on, on, off, on
SD	1110	off, off, off, on

4. Connect 12V Power to the board 6-Pin Molex connector.
5. Connect a display port monitor using DisplayPort cable to U50 (ZCU102) or P11 (ZCU104).

Note: if you would like use a DP-to-HDMI or DP-to-VGA converter, the DP of these boards are picky. A tested converter us the" Active Eyefinity DP-to-VGA cable" for your reference.



ZU102

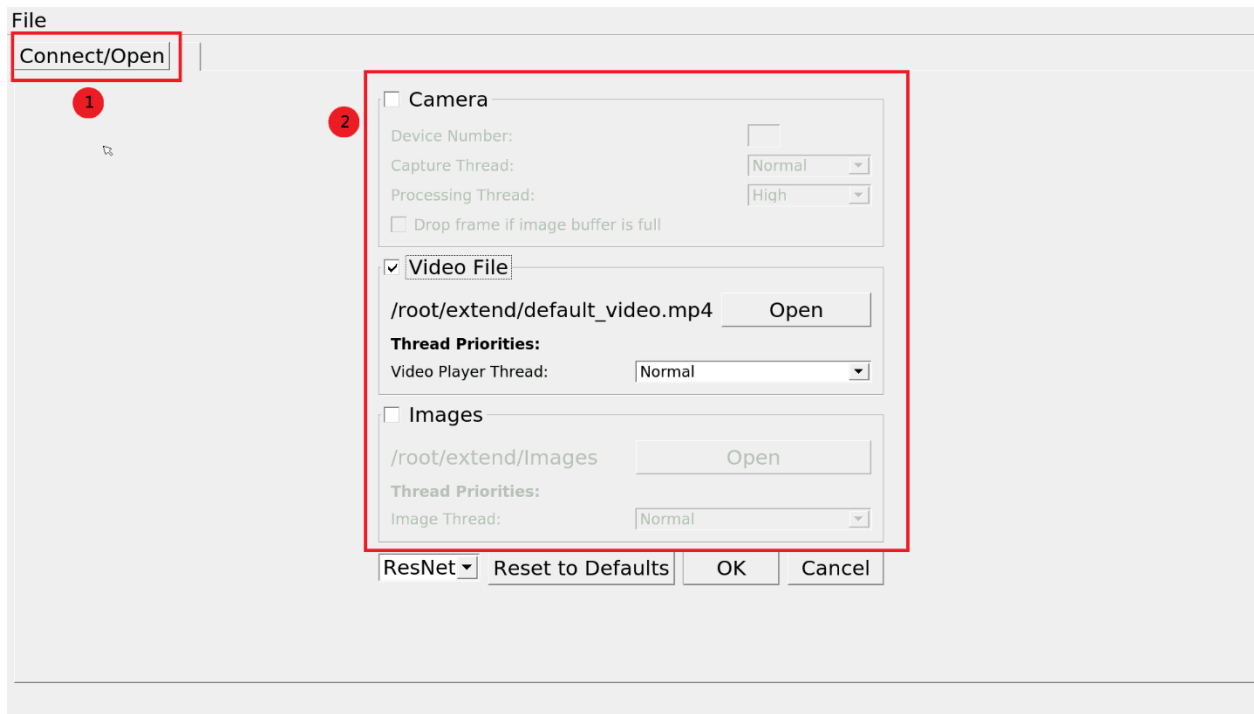


ZCU104

❖ Nv_small_64 150MHZ

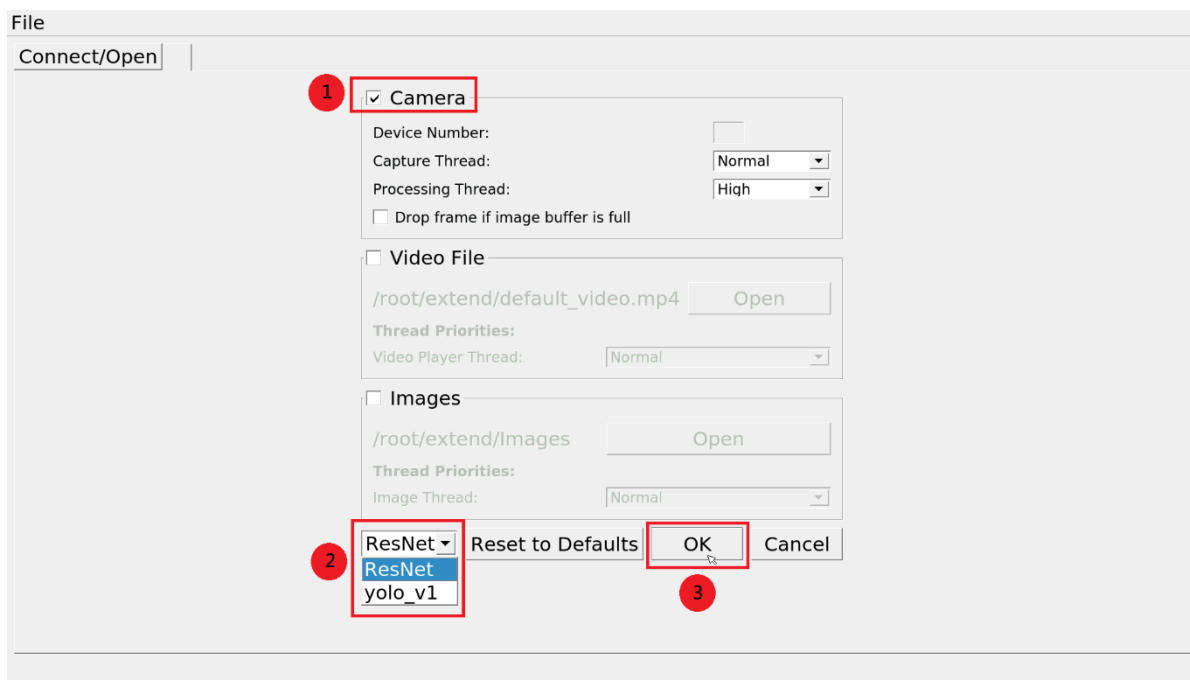
- ◆ After power-on, the GUI interface will automatically show on the DP monitor.

1. As you see the GUI as following figure, please press the "Connect/Open" button.
2. There are three modes of operation



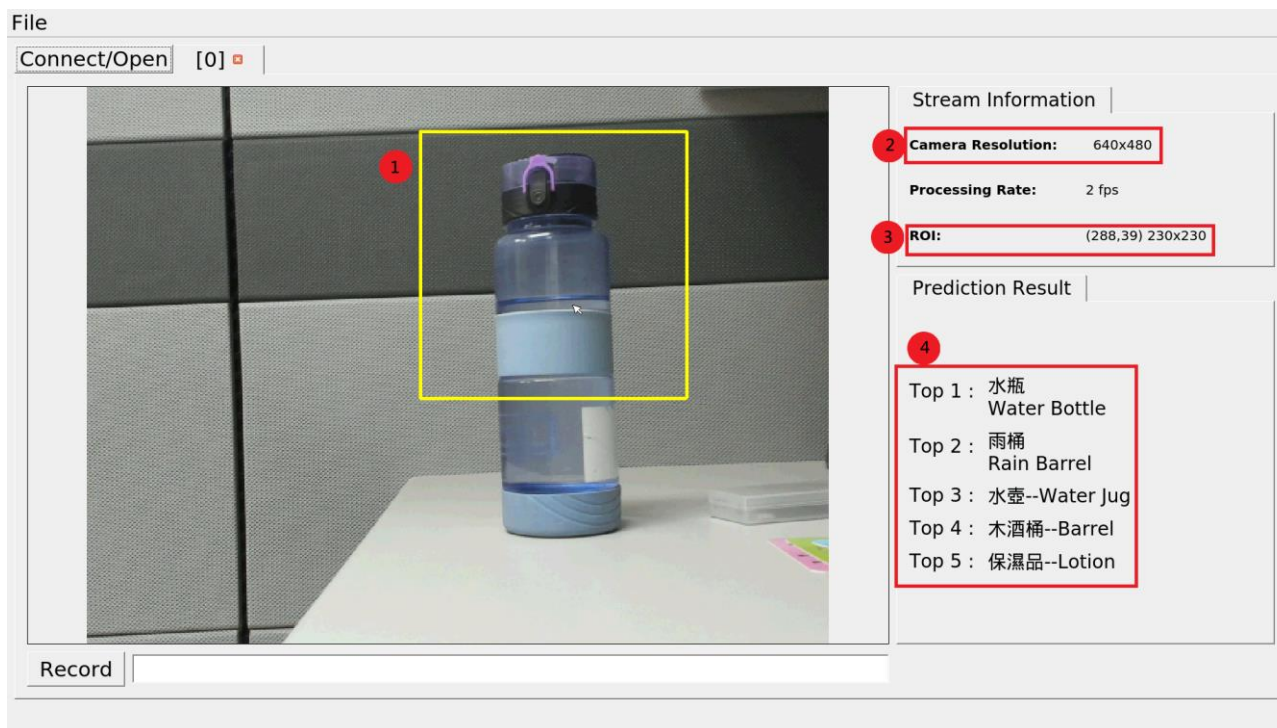
Camera Mode (Resnet50 and Tiny-yolov1)

1. Camera mode selection
2. Network selection
3. Click “OK” button



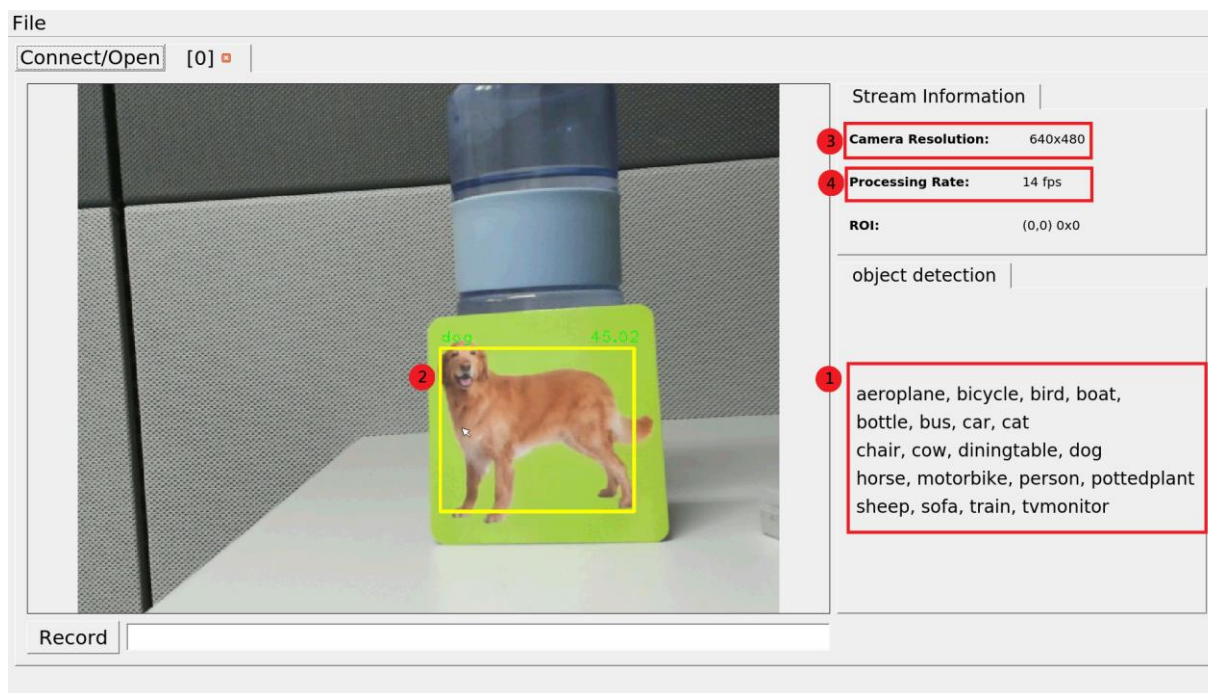
Camera Mode (Resnet50 and Tiny-yolov1)

- ◆ If you want to use Resnet50, you will enter the screen shown in Figure
 1. When you click the mouse, you will see a yellow box, which will be classified.
 2. The camera resolution is 640x480
 3. ROI is the position and size of the center point of the yellow box
 4. Will show the top-5 classes



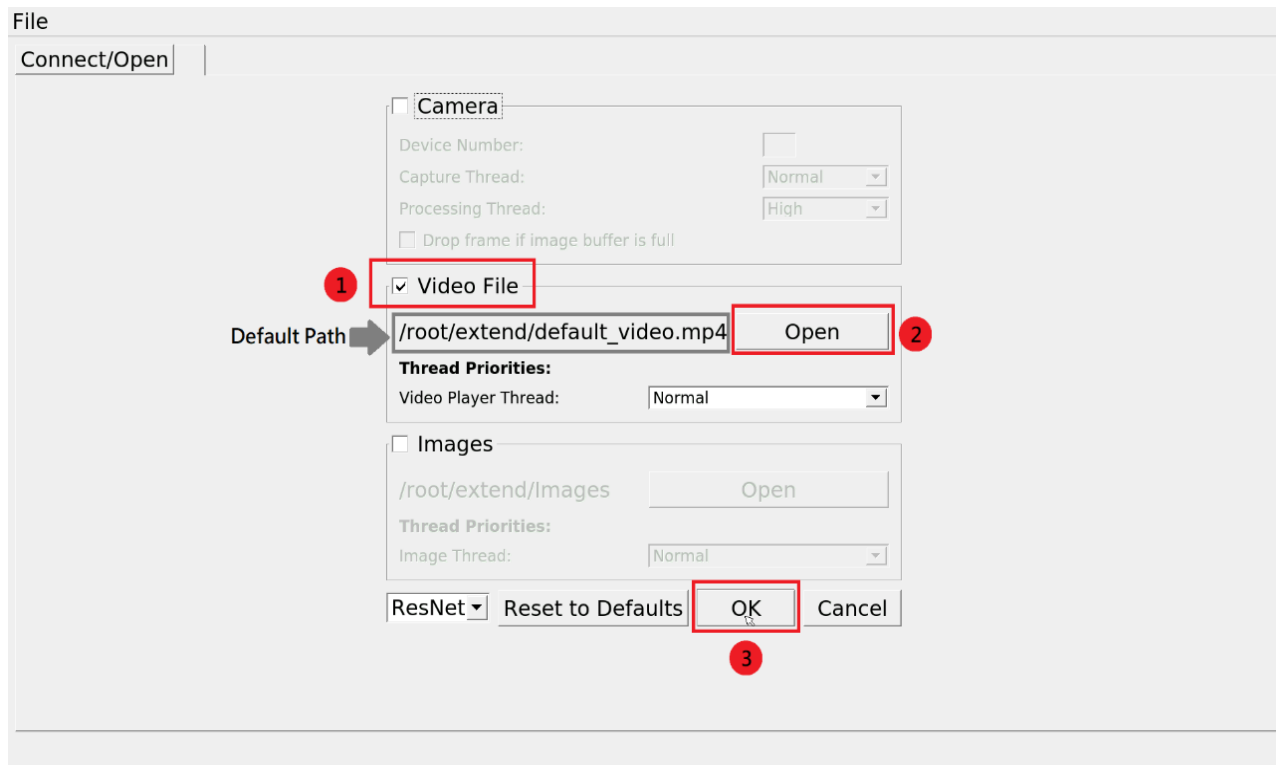
Camera Mode (Resnet50 and Tiny-yolov1)

- ◆ If you want to use yolov1, you will enter the screen shown in Figure
 1. This information is for 20 classes
 2. Camera resolution
 3. Detected objects
 4. Execution time (in this mode, we use 2 threads, one thread reads and writes the image to the screen, and another thread passes the image to NVDLA for calculation. After the calculation, draw the detection result on the screen)



Video Mode

- ◆ If you want to classify objects, complete the following steps (only resnet50)
 1. Select image mode
 2. Select the path of the mp4
 3. Click the OK button



Video Mode

❖ Waiting to load the weight time, after a few seconds, it will enter the screen shown in Figure.

1. Select play button
2. The video will be shown here



Video Mode

- ◆ Play video as shown in Figure.
- 1. Use your mouse and click on the video
- 2. Pause the video
- 3. Stop the video
- 4. Video resolution
- 5. The center point position of the yellow box
- 6. This information shows TOP-5 classes.

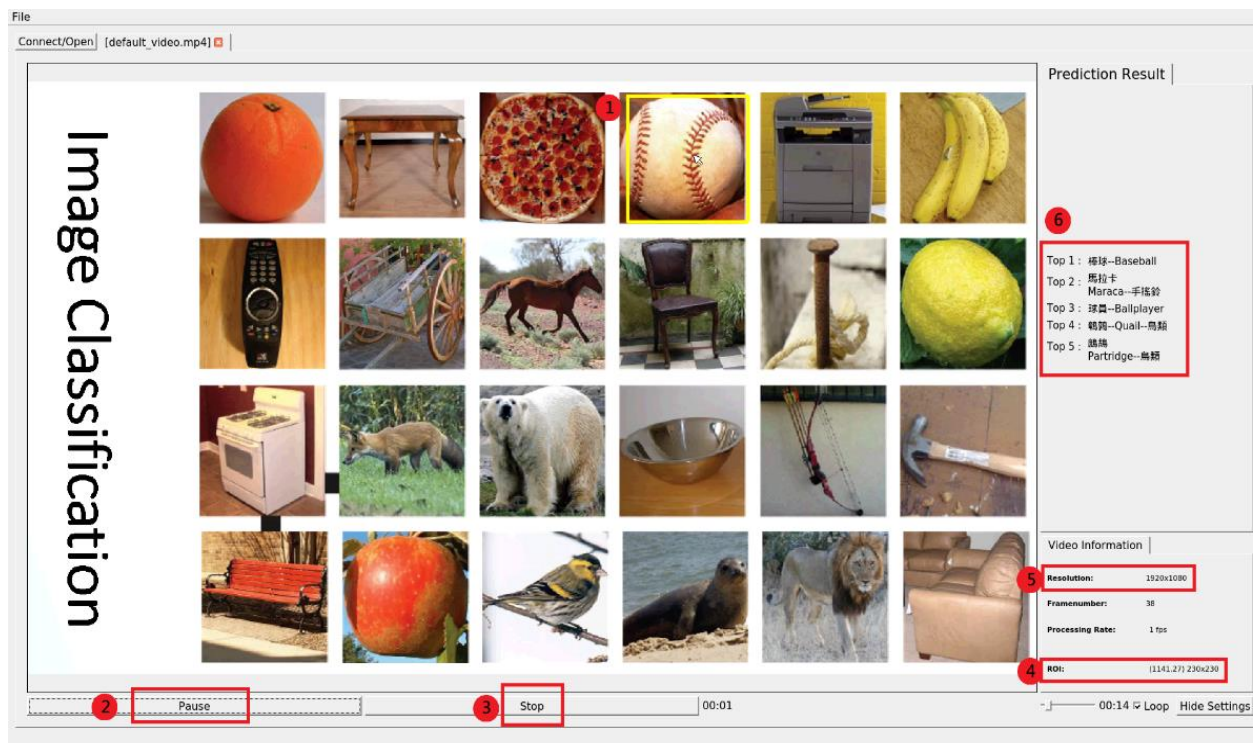


Image Mode

1. Select the image mode (only resnet50)
 2. Select the path of the images (Images file into the default path)
 3. Click OK button
- # Note: If you want to add an image, put it in the test folder

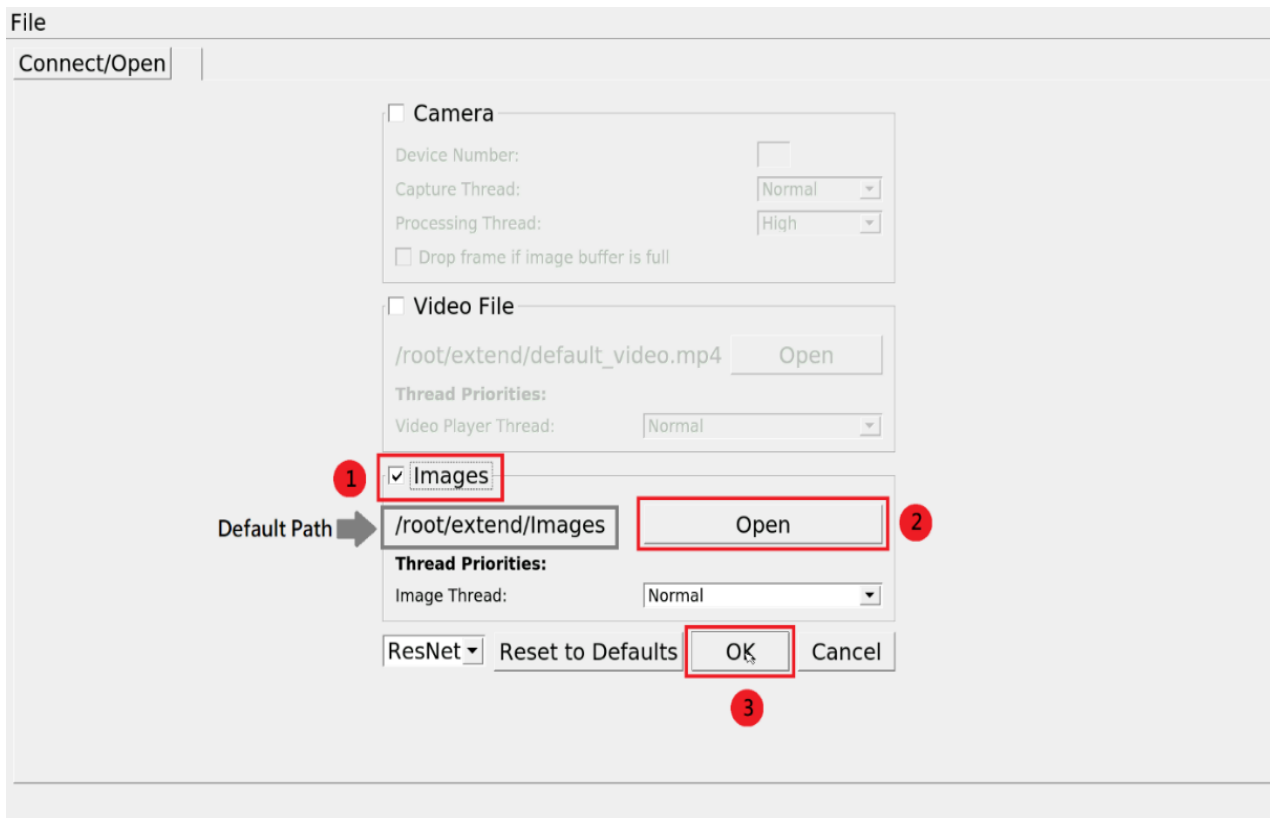


Image Mode

- ◆ Waiting to load the weight time, after a few seconds, it will enter the screen shown in Figure
 1. Start the play button
 2. This area will display an image
 3. Select image folder



Image Mode

- ◆ Pictures will be played in turn
 1. Pause the picture
 2. Picture number
 3. Time information bar (Framerate is only ResNet time, Total Framerate is ResNet + Load Resize time)
 4. This is top 5 classes
 5. Changeable folder

