TraSER User Manual

v.1.0

Iowa State University

01/27/2016

Contents

1 Introduction

The program is designed to show red light status, yellow light status, green light status, the pedestrian don’t walk status, pedestrian walk status, and pedestrian clearance status of 8 phases, and the detection status of 64 detectors of a 2070 ATC controller.

Since the program has only been tested on Windows OS, but not MAC OS, we are not sure if it works on MAC OS. Please use it under Windows OS.

2 Dynamic Object Setting up

2.1 Dynamic object requirements

This program requires the following settings in the NWSTestBox:

- The controller's Ethernet port number: ***25000***.
- Controller dynamic object: ***dynamic object 8***
- The required functions in the dynamic object:
  (1) phaseStatusGroupReds
  (2) phaseStatusGroupYellows
  (3) phaseStatusGroupGreens
  (4) phaseStatusGroupDontWalks
  (5) phaseStatusGroupWalks
  (6) phaseStatusGroupPedClears
  (7) vehicleDetectorStatusGroupActive

The (#) in the left side is the no of the function in the dynamic object function list. The definitions of these functions can be seen in the Appendix.

2.2 Run-time error problem

When using NWSTestbox, whenever a run-time error shows as shown in Figure 1: "**Component"***.OCX" ("….DLL") or one of its dependencies not correctly registered: a file is missing or invalid**", please do the following steps to fix the problem.

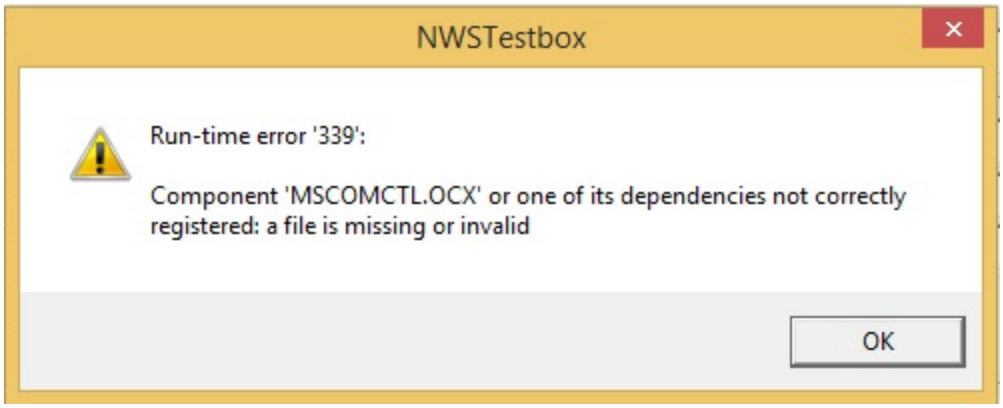


Figure 1. Run-time error when using NWSTestbox

Solution

If you have 64bit Operating System, follow the steps:

a. Click on Start menu and type cmd in the start search box.

b. Right click on cmd and click on ‘Run as administrator’.

c. Type the command “cd c:\windows\SysWoW64” and press Enter.

d. The prompt should change to: C:\Windows\SysWOW64

e. Then type: "regsvr32 mscomctl.ocx" and press Enter.

f. If you get a Window that pops up and says, "DllRegisterServer in mscomctl.ocx succeeded" then click OK

If you have 32bit Operating System, in Step c, type the command “cd c:\windows\System32” and press Enter. Other steps are the same.

2.3 Set up the dynamic object

The manual makes a simple introduction to the dynamic object setting. Please refer to the NWSTestBox manual for more details.

2.3.1 Open the NWSTestBox and then the ‘Dynamic Object Manager’.

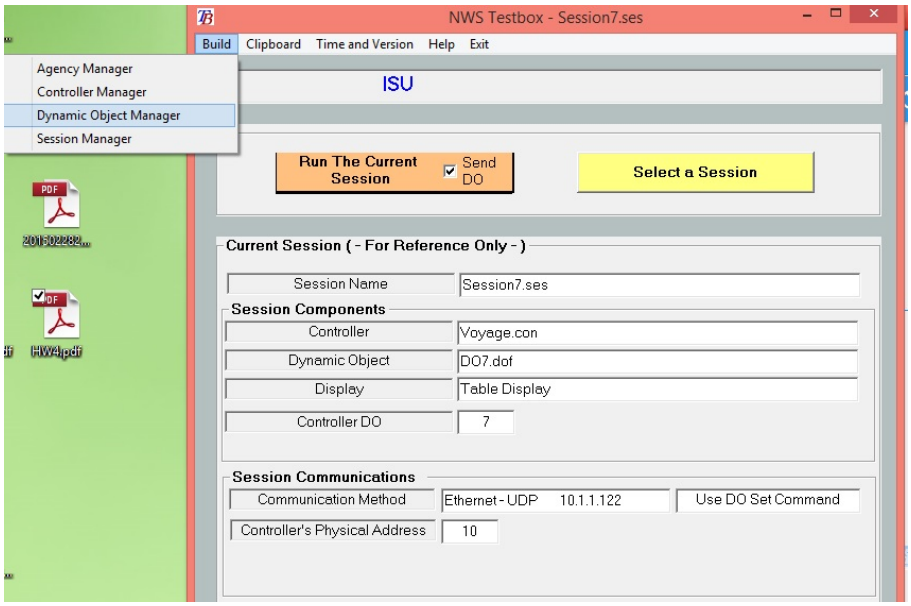


Figure 2. Open the dynamic object manager

After opening the dynamic object manager, an interface will be shown.

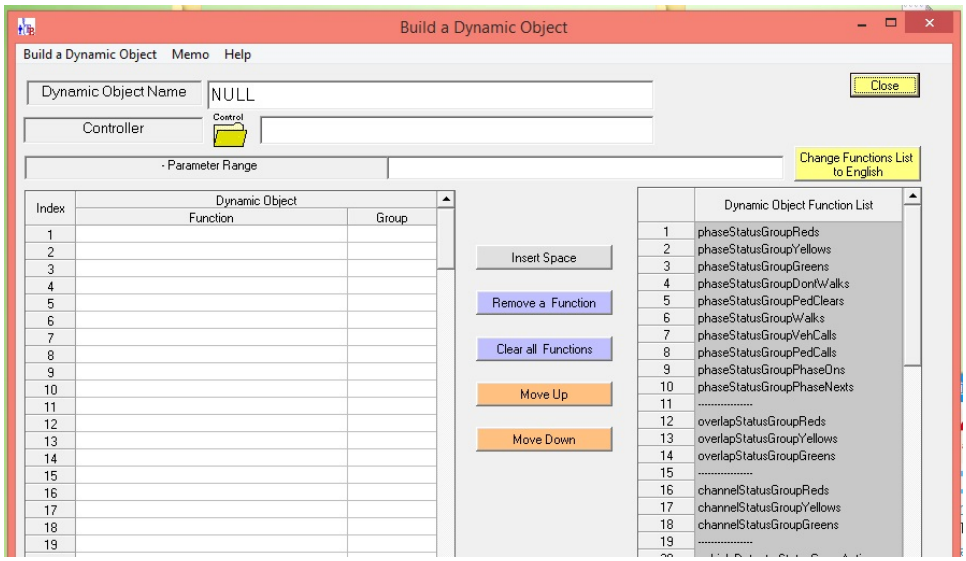


Figure 3. The dialog of a new dynamic object manager

2.3.2 Set a name and add a preset controller into the dynamic object.

Here we assume you have built a controller

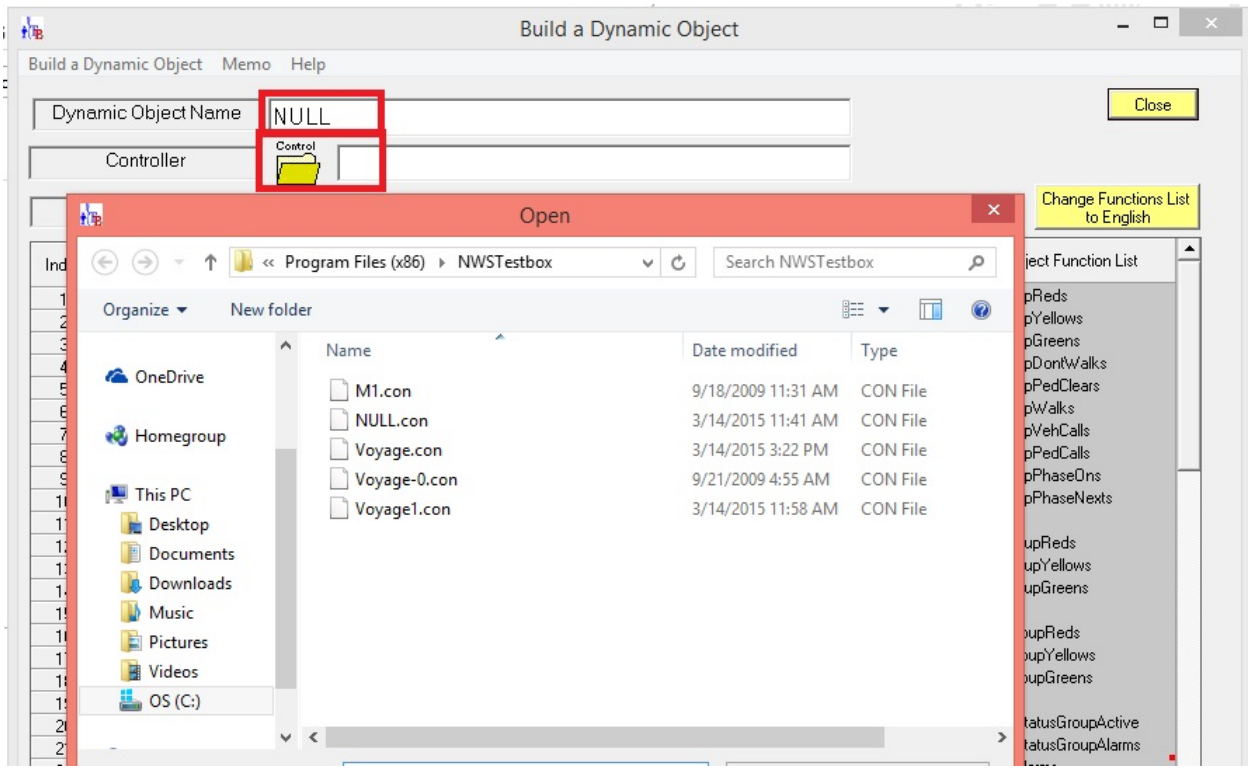


Figure 4. Add a controller in the dynamic object manager

2.3.3 Add the functions in the dynamic object

Click ‘phaseStatusGroupReds’, ‘phaseStatusGroupYellows’, ‘phaseStatusGroupGreens’, ‘phaseStatusGroupDontWalk’, ‘phaseStatusGroupWalk’, ‘phaseStatusGroupPedClears’, and ‘vehicleDetectorStatusGroupActive’ in the right ‘dynamic object function list’ column to add them into the left ‘dynamic object’ column orderly. ‘vehicleDetectorStatusGroupActive’ should be clicked eight times to add eight these functions in the dynamic object. After adding these functions, the left ‘Dynamic Object’ column should show as follows.

Attention: please do not change the order of these functions.

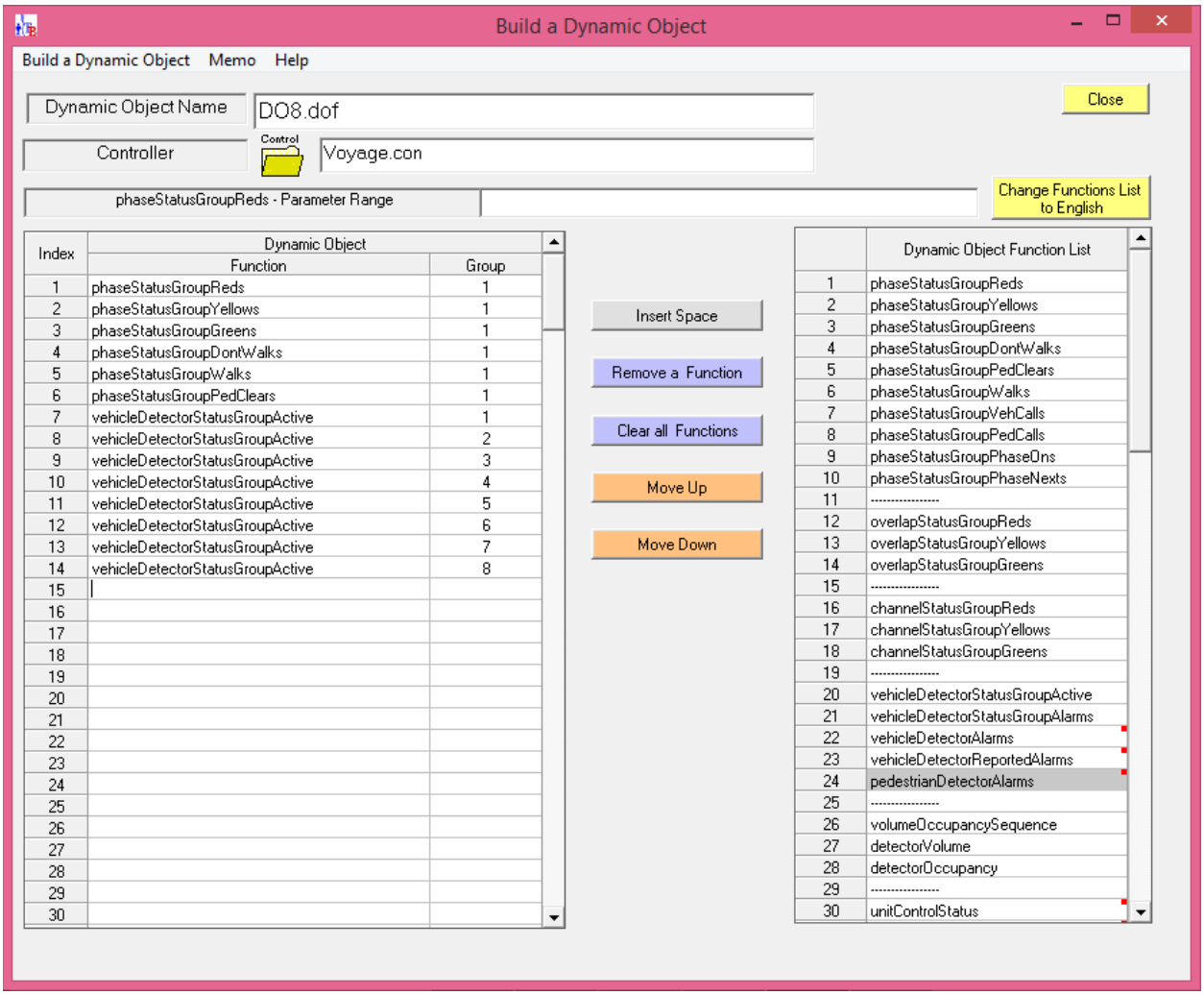


Figure 5. The dynamic object interface after adding two functions

2.3.4 Save and close the dynamic object

2.3.5 Open the session manager

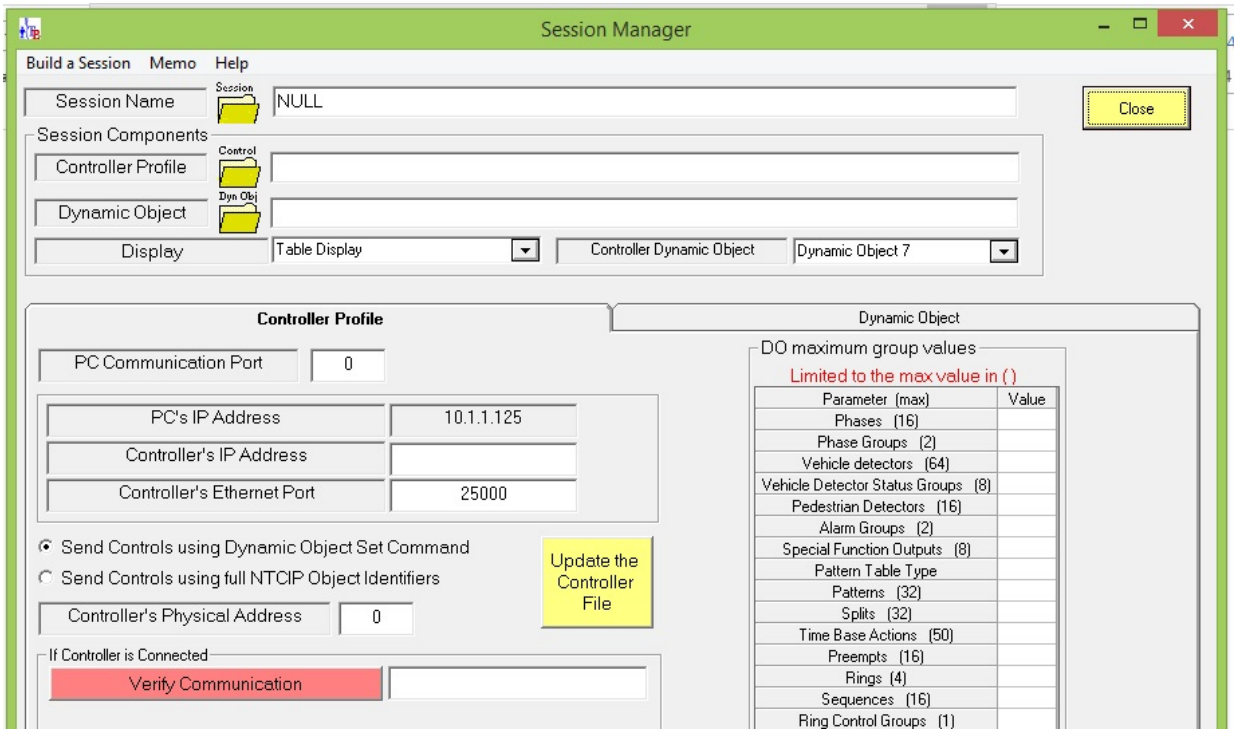


Figure 6. The dialog of a new session manager

2.3.6 Add the preset controller and dynamic object in the session.

Please refer to the NWSTestBox manual for details

Attention: the items in the red rectangles must be exactly the same as shown in the following figure.

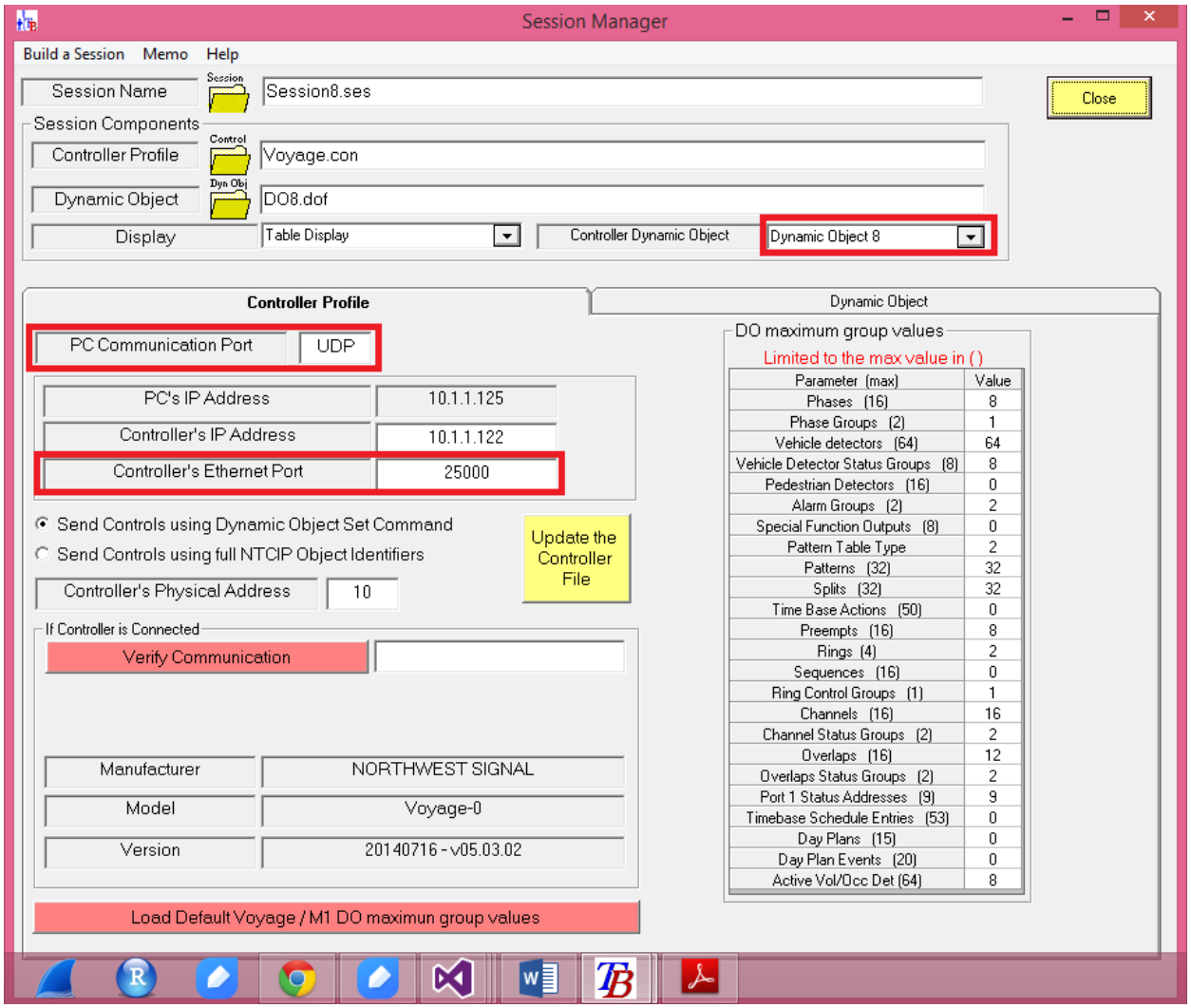


Figure 7. The interface of the desired session

2.3.7 Save and close the session

2.3.8 Test the session

Click the ‘Select a Session’ and load the preset session. Please refer to the NWSTestBox manual for details. If the session works, the following interface will be shown.

Attention: if ‘Front Panel’ is chosen in the ‘Display’ item in the session setting, a different interface will show.

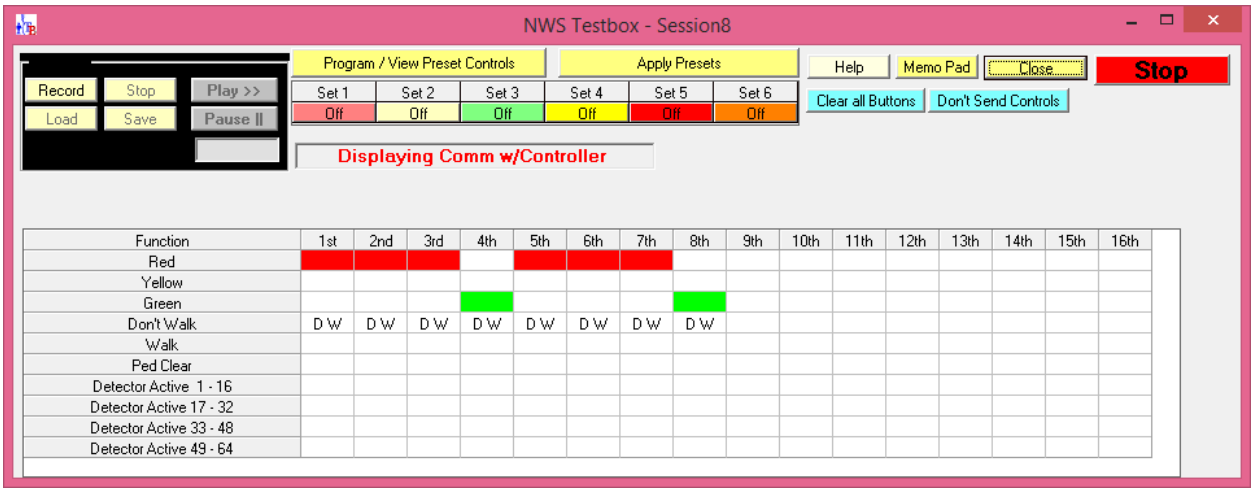


Figure 8. Table display of a session in operation

2.3.9 Close the NWSTestBox

3 TraSER Program Use

3.1 Check the files

The program folder is named as “TraSER”. It contains a ‘udp’ folder, a ‘accessory’ folder, and a ‘TraSER User Manual.pdf’.

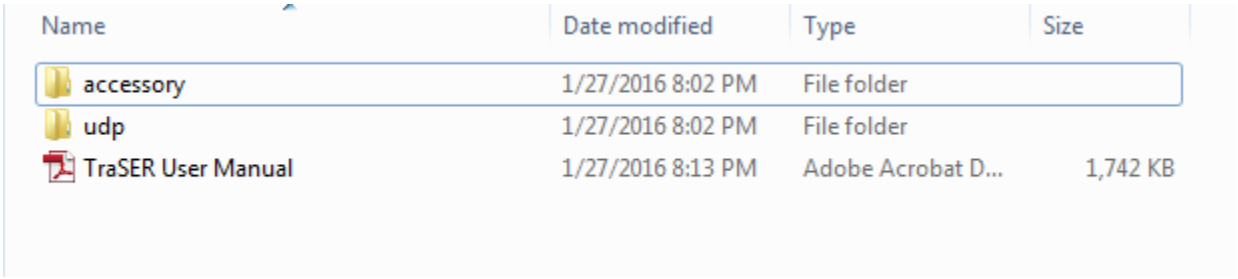


Figure 9. The TraSER folder

3.2 Open the ‘accessory’ folder

3.3 Click ‘vcredist_x86’ to install the software

3.4 Click ‘WinPcap_4_1_3(1).exe’ to install the software

3.5 Click ‘HC2Setup.exe’ to install the software

3.6 Return to the desktop to see HyperCam2

You should find an icon ‘HyperCam2’.

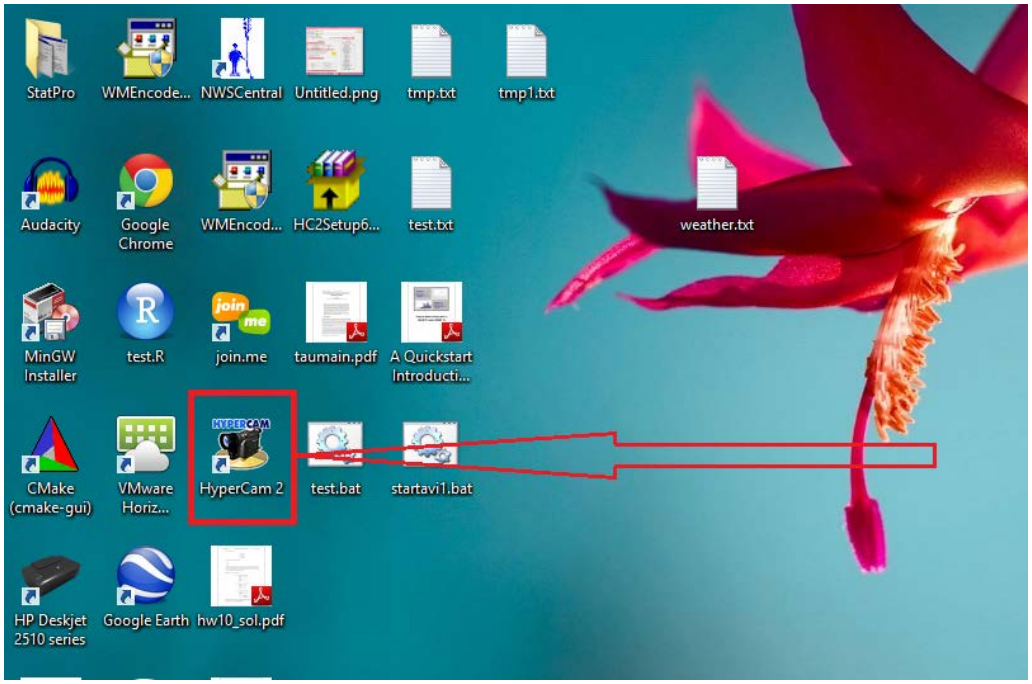


Figure 10. The HyperCam2

3.7 Right-click the icon of ‘HyperCam2’ and record the ‘Target’ value in Shortcut tab

You can record the value in a txt file.

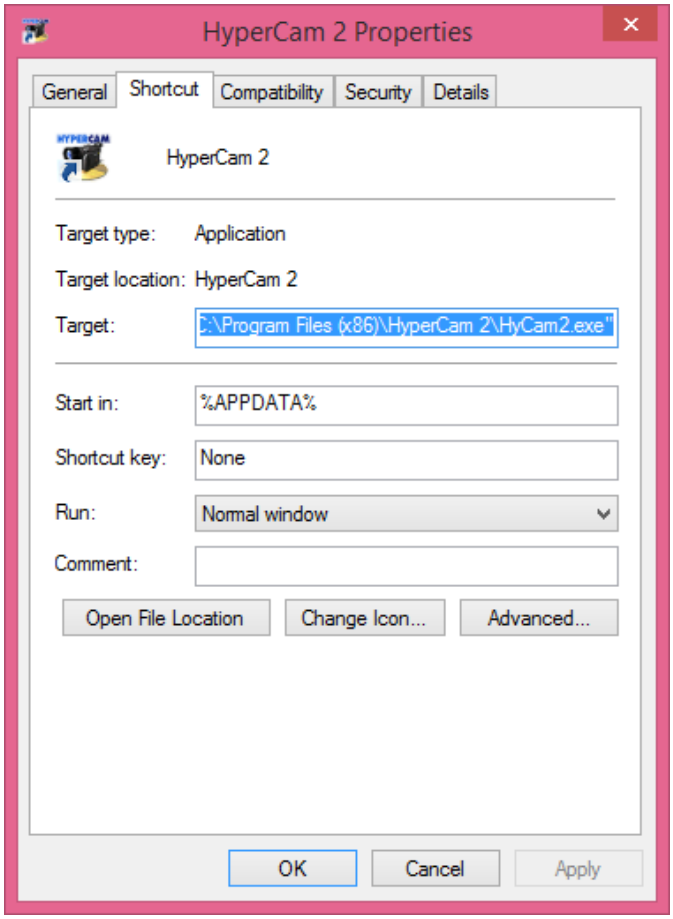


Figure11. The target of HyperCam2

3.8 Open the folder TraSER-> udp->udpUI->Release

You will see these items.

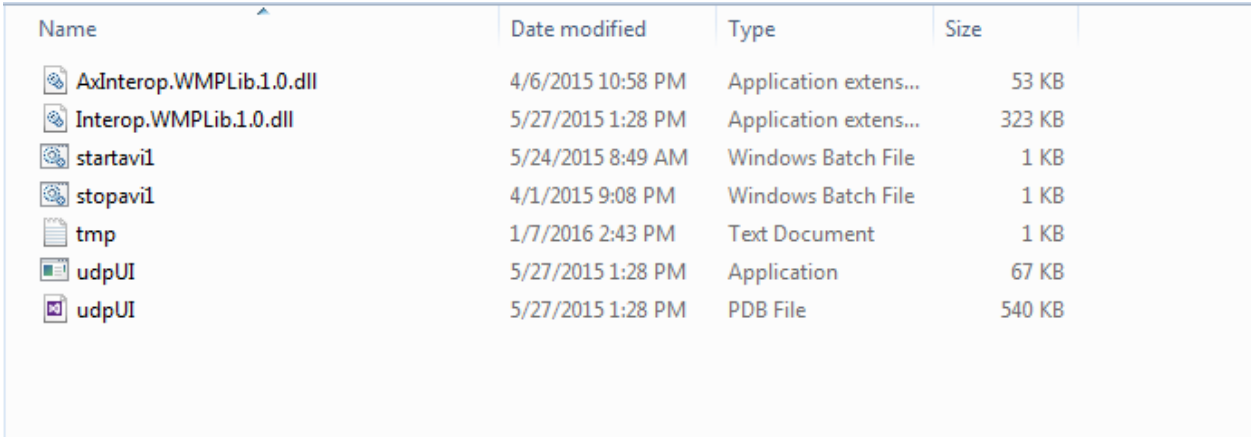


Figure 12. The target folder

3.9 Right-click ‘startavi1.bat’ and select ‘Edit’

Then, you will see an open file like this.

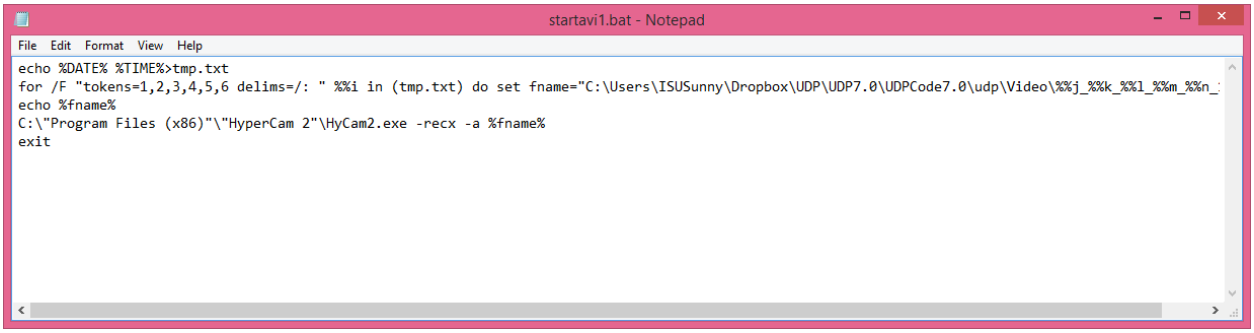


Figure 13. The opened ‘startavi1.bat’

3.10 Revise the contend of ‘startavi1.bat’

(a) Change this part into the recorded path in Figure 11 and save it.

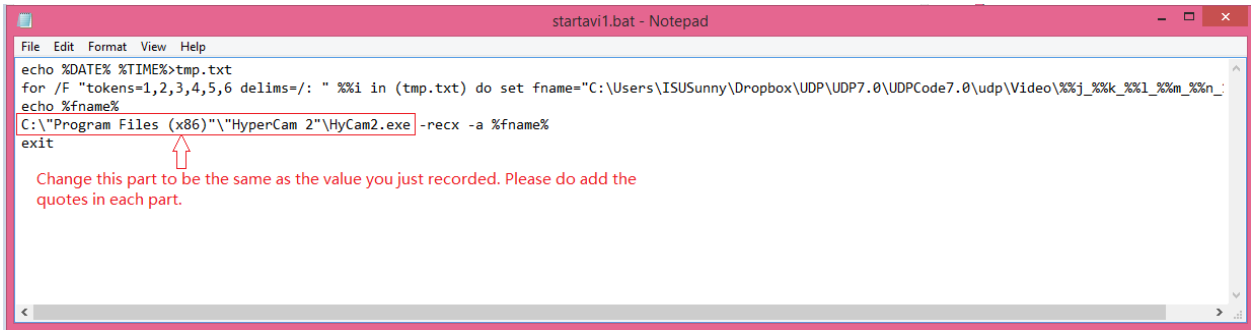


Table 14. Change the path of ‘HyCam2.exe’

(b) Go to TraSER->udp. Right-click the ‘Video’ folder and copy its path.

(c) Change the path into the recorded path in (b) . Then, save and close the file.

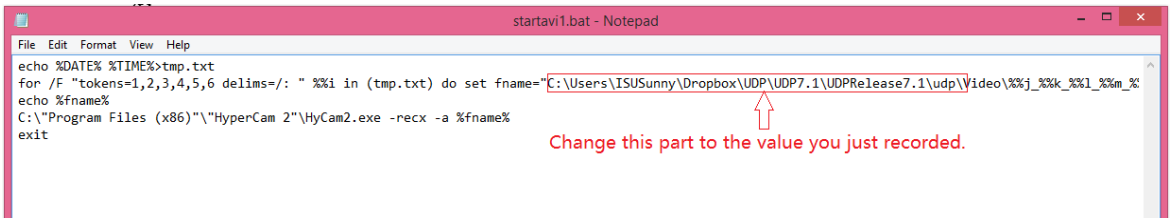


Figure 15. Change the path of the ‘Video’ folder

3.11 Open the Hyper Camera

3.12 Adjust the settings of Hyper Camera

(a) Click the ‘Select Region’ button to select the region you want to record

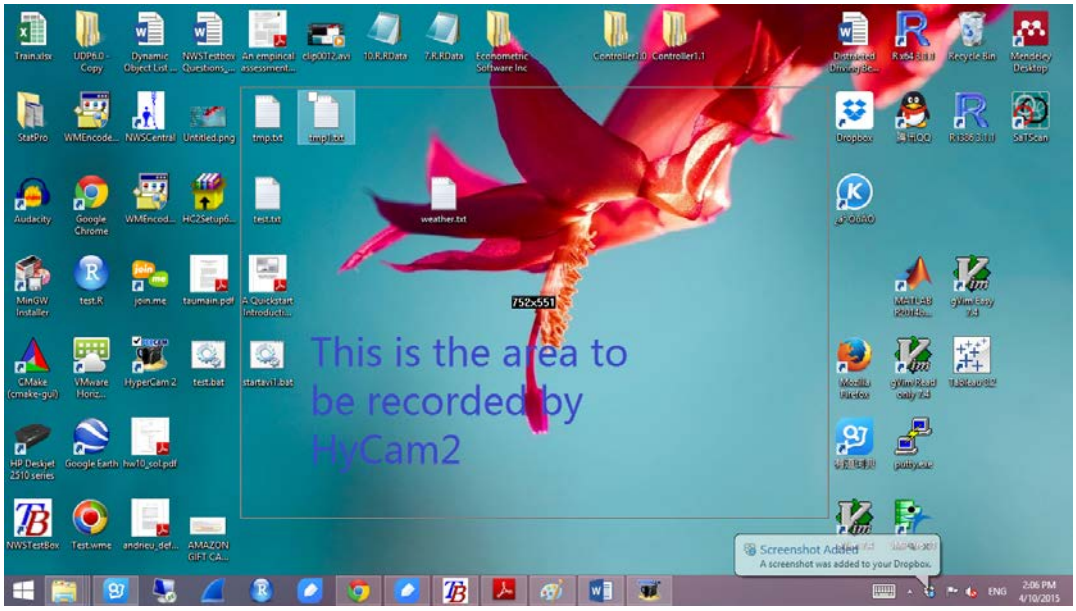


Figure 16. Select the area that HyCam2 will record

If you want to record the whole screen, you should select the whole screen.

(b) Click the checkbox of ‘Show rectangle around recorded area’

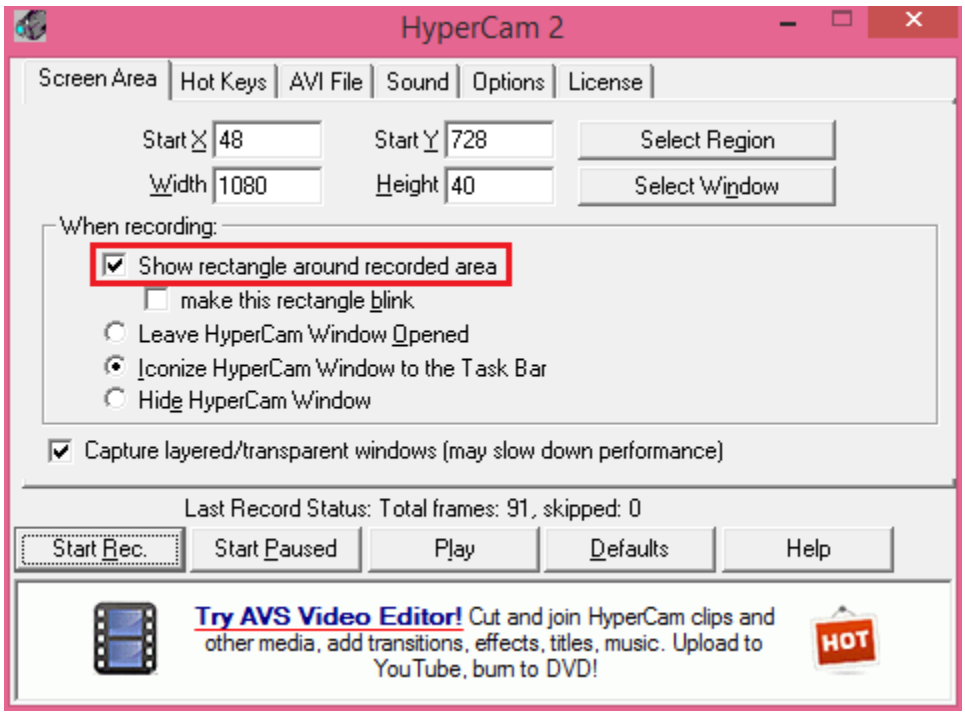


Figure 17. Click the checkbox of 'Show rectangle around recorded area'

(c) Click the checkbox of 'Iconize HyperCam Window to the Task Bar'

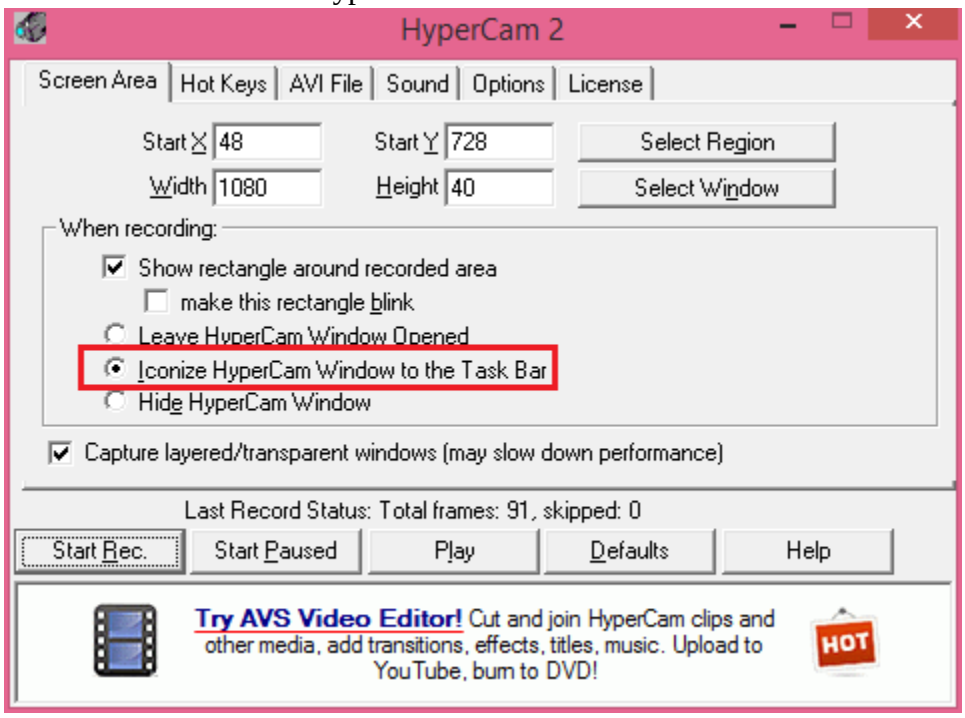


Figure 18. Click the checkbox of 'Iconize HyperCam Window to the Task Bar'

(d) Go the ‘AVI File’ tab and click the checkbox of ‘Add sequential number to the file name’

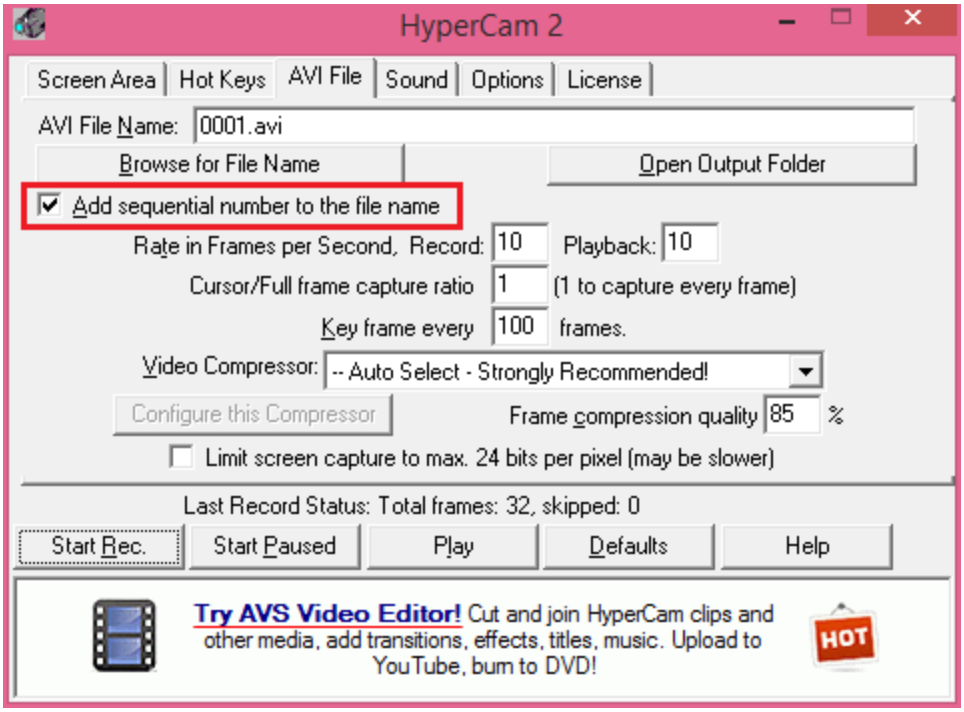


Figure 19. Click the checkbox of ‘Add sequential number to the file name’

(e) Close the HyCam2

3.13 Install and open the Wireshark

Go to TraSER->accessory and click ‘Wireshark-win32-1.12.4.exe’ to install it. If your computer has installed Wireshark, you can skip this step.

After opening the Wireshark, an interface will be shown as follows.

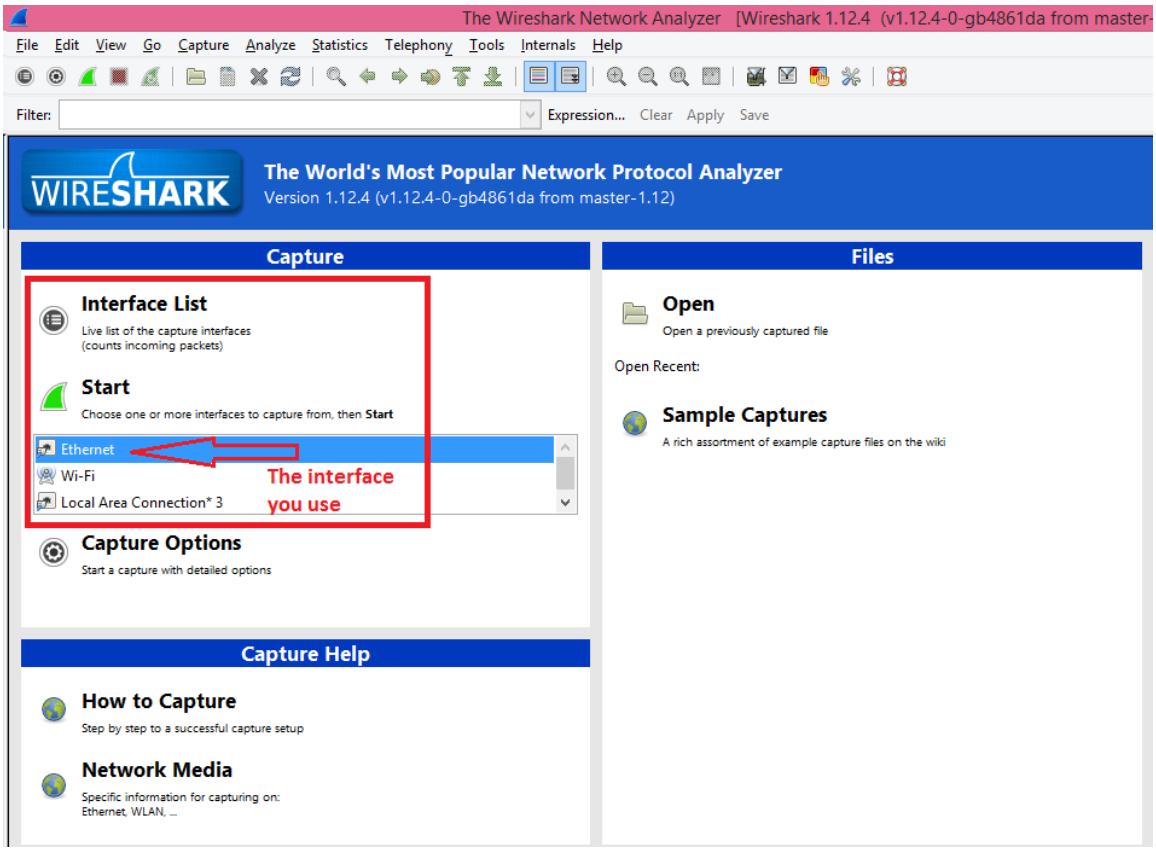


Figure 20. The startup screen of Wireshark

Check ‘Ethernet’ in the interface list. If the ‘Ethernet’ is the first one, the interface number is 1. If it is the second one, the interface number is 2. If there are two ‘Ethernet’s, you can click them for further check. Record the interface number.

3.14 Open the TraSER program

Go to TraSER->udp->udpUI->Release, and click ‘udpUI.exe’. Then, an interface will be shown as follows. Please close the background folder after activating the program.

You can also create a shortcut for the ‘udpUI.exe’ at any place for convenience.

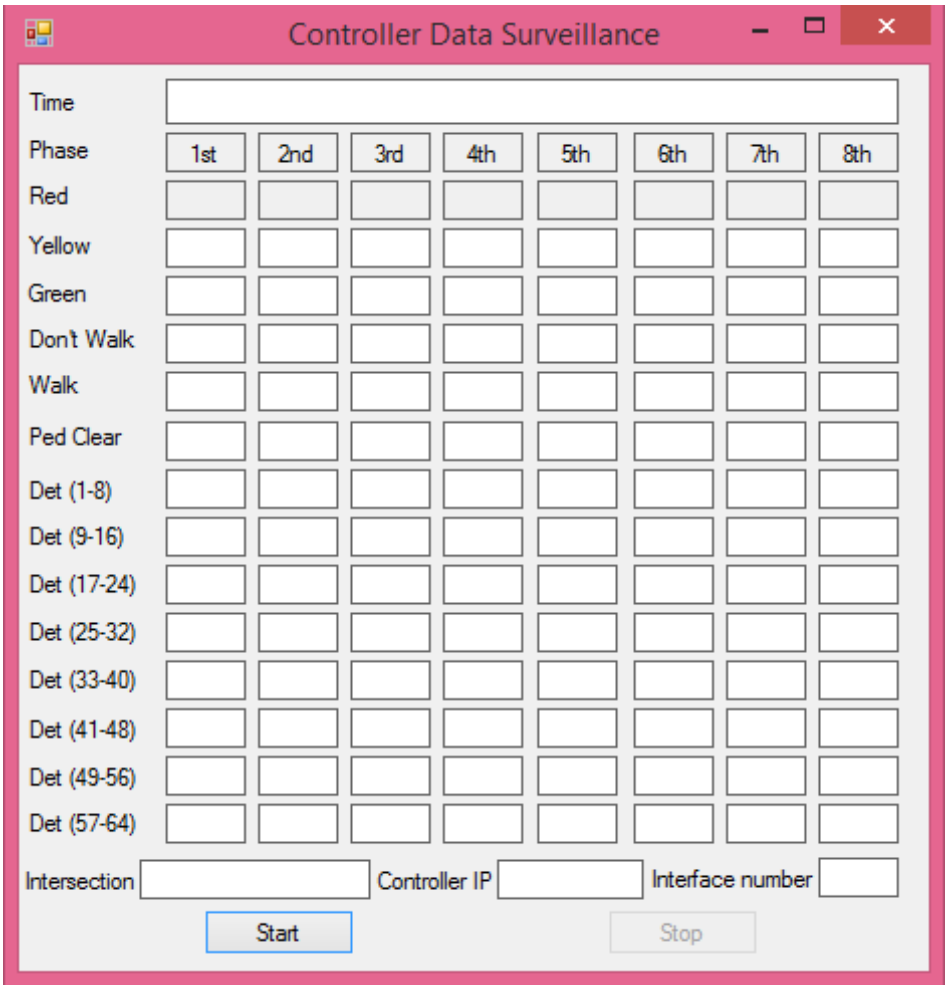


Figure 21. The startup screen of the TraSER program

3.15 Fill the intersection name, controller IP address and interface number

3.16 Click 'Start' button to start the program

Then, an interface should be shown as follows.

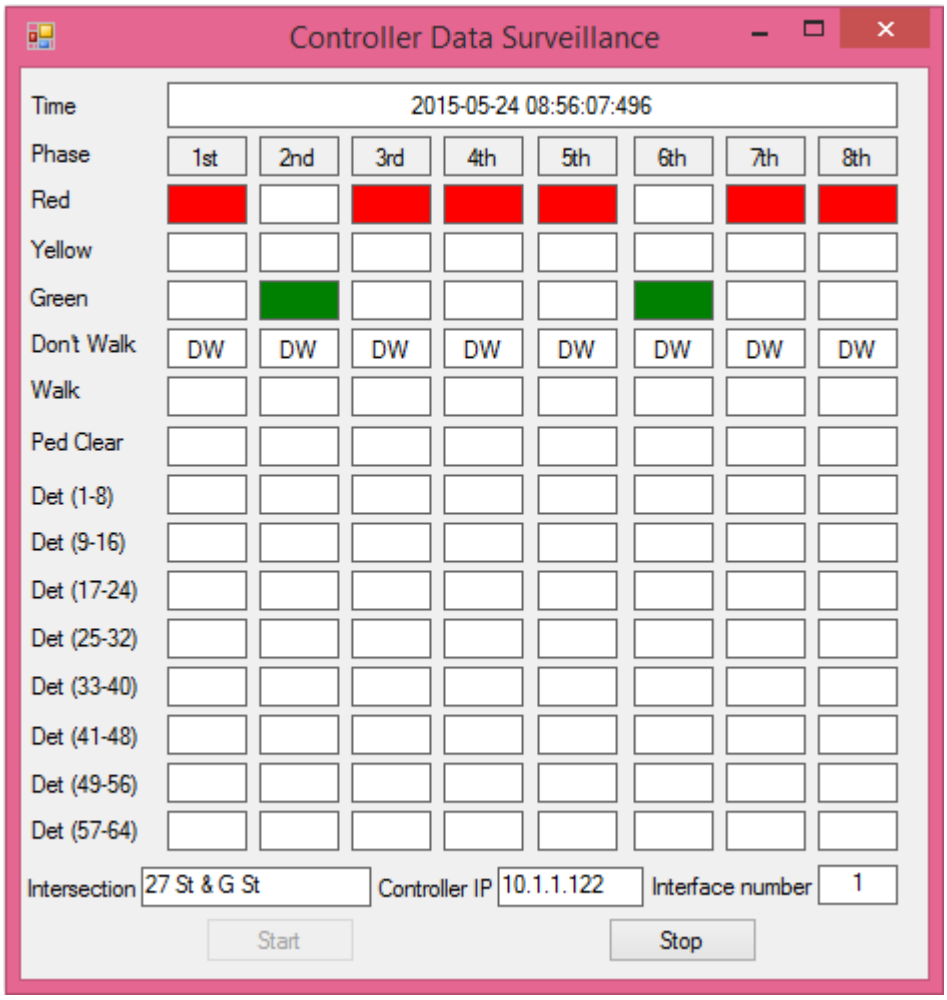


Figure 22. The running TraSER

On the interface, the first row is the current time of the computer. The second row is the phase number (1 2 3 4 5 6 7 8).

From the third row, there are the recorded information: red light status, yellow light status, green light status, pedestrian don't walk light status, pedestrian walk light status, pedestrian clearance light status, and detector status.

If a phase is in red light, the corresponding grid will be red in the 'Red' row. Otherwise, the grid is white. If a phase is in yellow light, the corresponding grid will be yellow in the 'Yellow' row. Otherwise, the grid is white. If a phase is in green light, the corresponding grid will be green in the 'Green' row. Otherwise, the grid is white.

If the pedestrian signal light of a phase is 'Don't Walk', 'DW' will be shown in the corresponding grid. Otherwise, the grid is blank. If the pedestrian signal light of one phase is 'Walk', 'WA' will be shown in the corresponding grid. Otherwise, the grid is blank. If the pedestrian signal light of one phase is 'Pedestrian Clearance', 'PC' will be shown in the corresponding grid. Otherwise, the grid is blank.

If some detector is active now, the number of that detector will be shown in the corresponding grid. Otherwise, it will be blank.

3.17 Check the taskbar of the computer

You should see an icon of HyCam2 now. It means the hyper camera has been activated.

Please do not close HyCam2 in the operation.

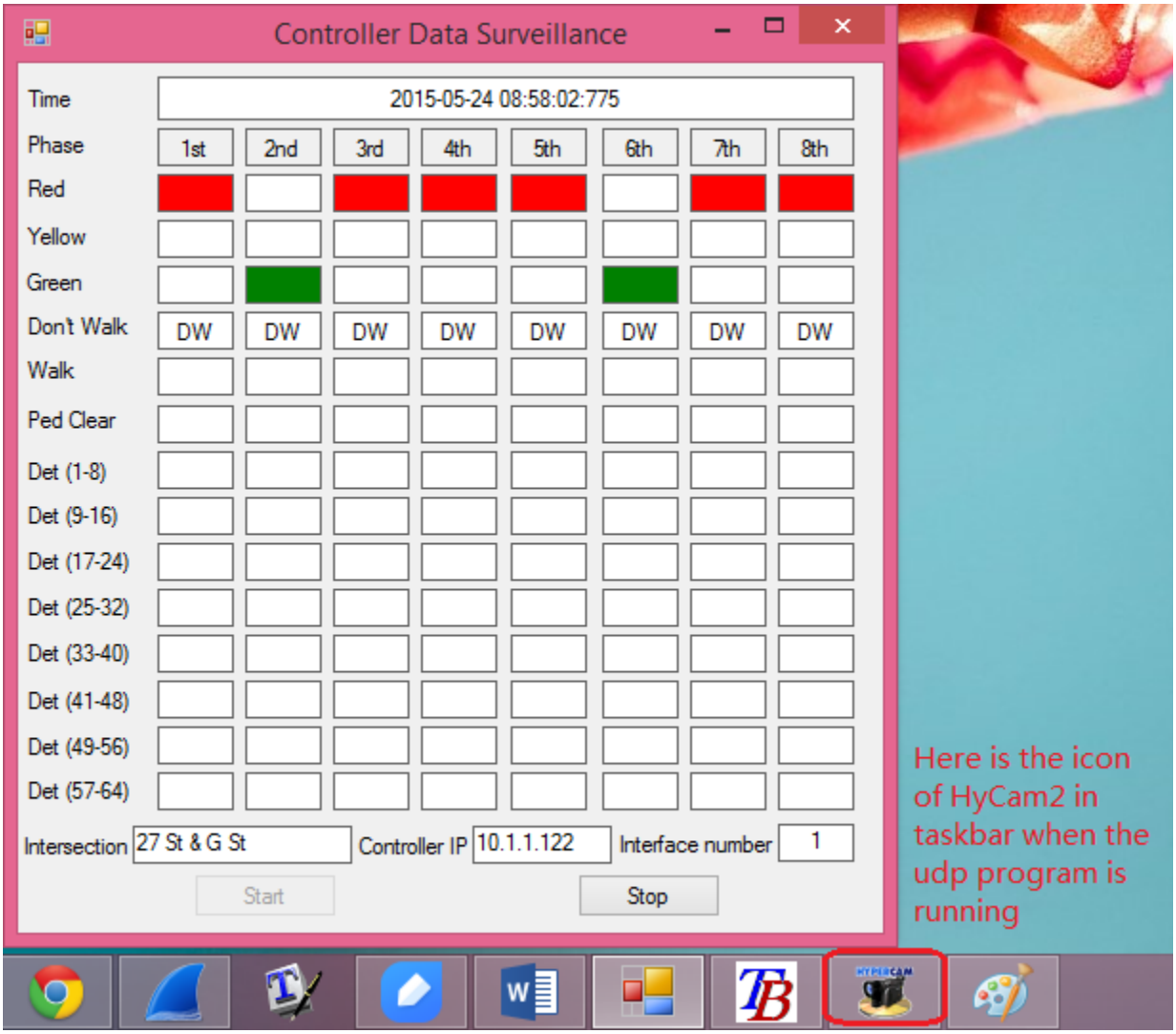


Figure 23. The icon of HyCam2 in operation

3.18 Stop the program before close it

Click the ‘Stop’ button and then close it by clicking ‘×’ in the upper-right corner.

4 Data and Video Record

4.1 Data record

Go to TraSER->udp->Data. This folder contains the recorded data. Whenever the traffic controller data is changed, either the signal light changes or the detector status changes, the data will be recorded. 1 means on, and 0 means off.

(a) The txt files the names of which end with 'ChgData' only contains the changed data whenever a data changes.

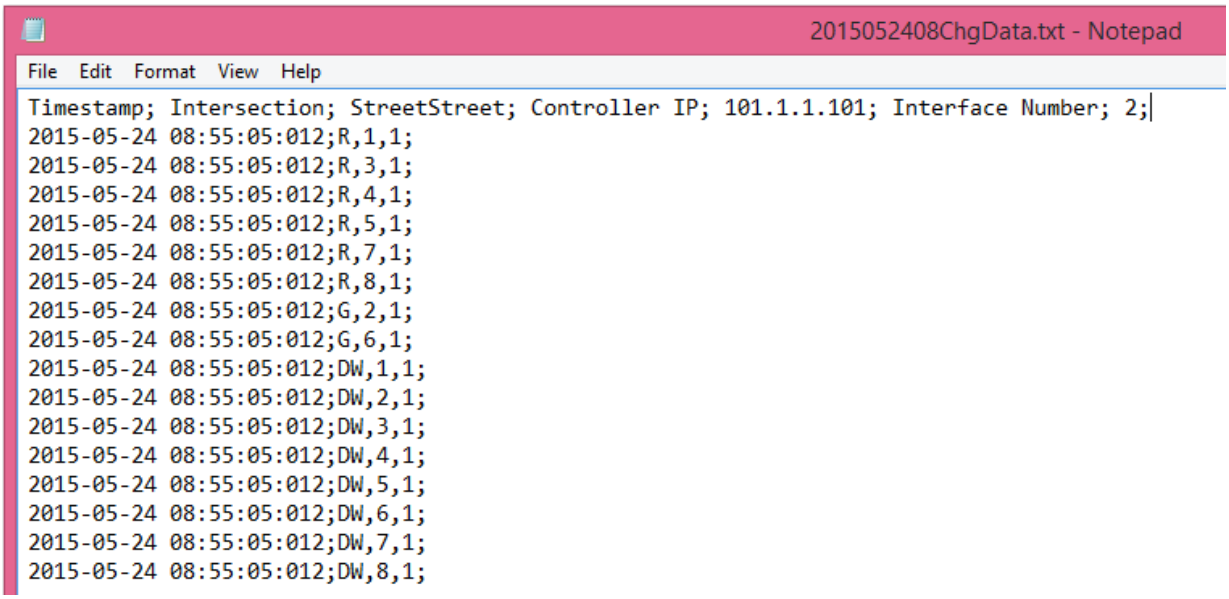


Figure 24. The content "****ChgData.txt"

The second row of the above figure shows that at 2015-05-24, 08:55:05:012, the red light status of 1st phase is in active. That is, the traffic light changes to red.

The timestamp is the current time of the computer, but not the controller time.

(b) The txt files the names of which end with 'CumData' contains all the data in that moment whenever one data changes.

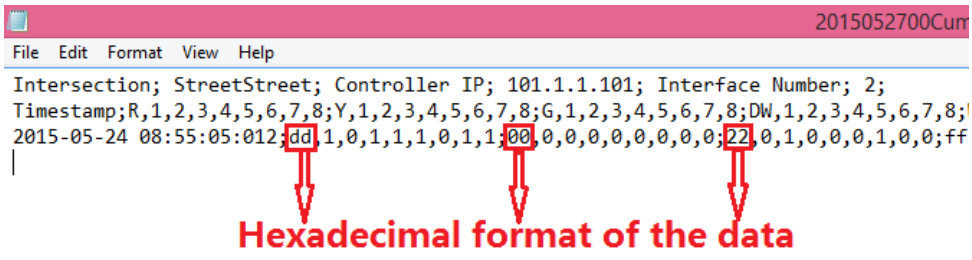


Figure 25. The content "****CumData.txt"

In above figure, the value under item (i.e. R, Y, G, DW, etc.), is the hex format of the data. This text file mainly designed for verification.

(b) Both the ‘ChgData’ and ‘CumData’ are stored by hour. That is, a ‘ChgData’ file and a ‘CumData’ fill will be created for each hour. The beginning part of the two files show the record date and time.

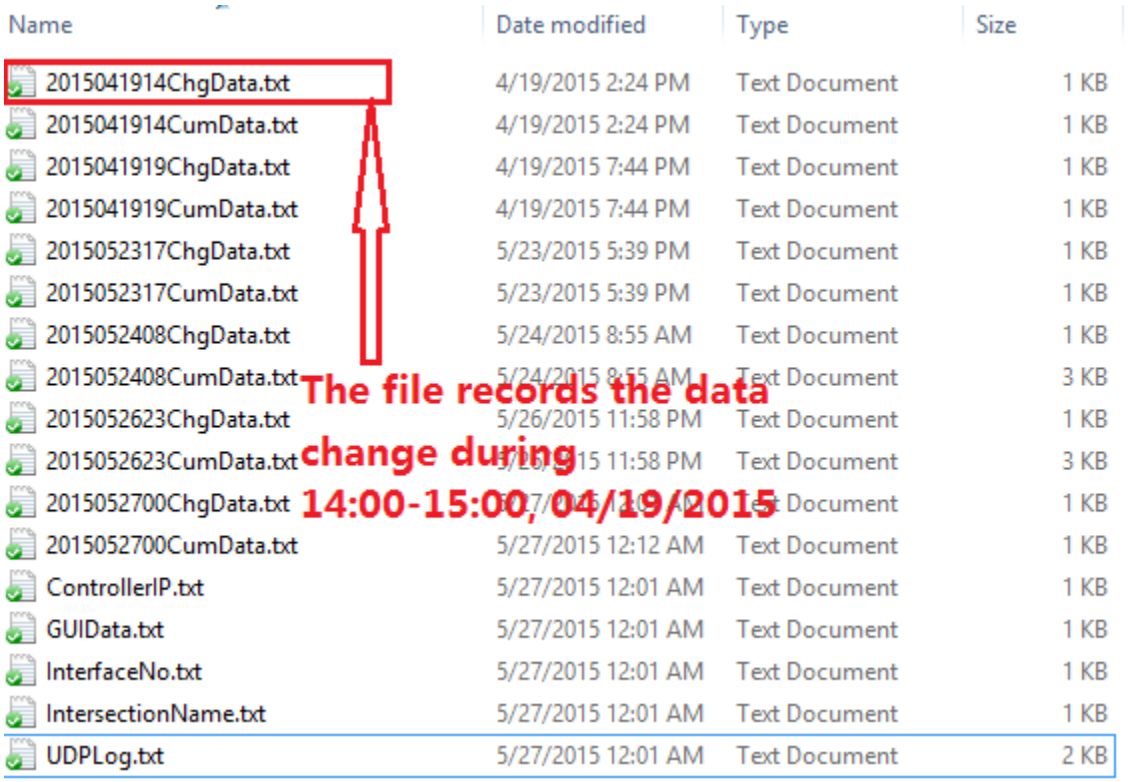


Figure 26. The beginning part of “****ChgData.txt”

”UDPLog.txt” logs the intersection name, controller IP address and interface number whenever TraSER is activated.

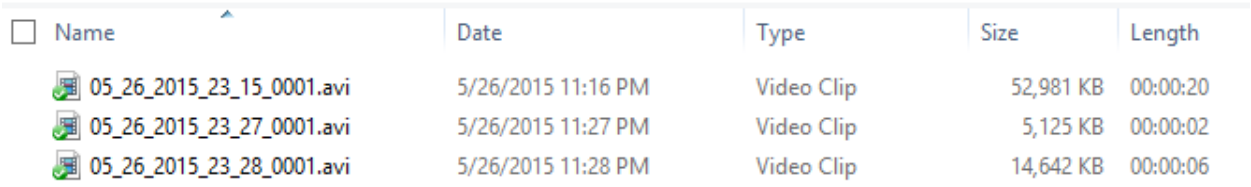
Besides, there are another three files, ‘IntersectionName.txt’, ‘ControllerIP.txt’,’GUIData.txt’ and ‘InterfaceNo.txt’. You do not need them for analysis.

Please do not revise, remove or delete any file during the operation.

4.2 Video record

Go to TraSER->udp->Video. This folder contains the recorded video. The video is also recorded by hour. The videos are named by date and time.

Please note that whenever HyCam2 is stopped and restarted during the operation, a new video will be created.



Name	Date	Type	Size	Length
05_26_2015_23_15_0001.avi	5/26/2015 11:16 PM	Video Clip	52,981 KB	00:00:20
05_26_2015_23_27_0001.avi	5/26/2015 11:27 PM	Video Clip	5,125 KB	00:00:02
05_26_2015_23_28_0001.avi	5/26/2015 11:28 PM	Video Clip	14,642 KB	00:00:06

Figure 27. The Video folder

Above figure shows that a video is created at 23:15, 05/26/2015. The last digit is the sequence number. You do not need to care about them.

About 1 GB storage space is needed to record the video for one hour. Thus, please make sure your computer has enough space before using the program.