

Viion Systems

Settings Management for TrafficCam

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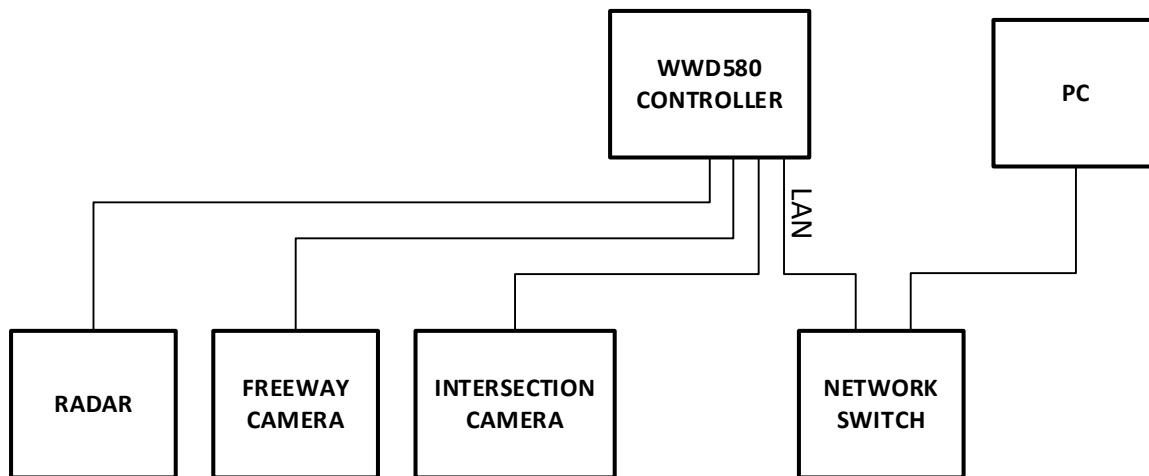
1 SETTINGS MANAGEMENT

The settings on a TrafficCam unit are set through the Web Interface. These settings control how a given unit will operate by defining the functional behavior, and how the unit will communicate.

An interface has been provided that allows the settings on a given TrafficCam to be saved via an offload process. Once settings have been saved, they may be manipulated, and then applied to other TrafficCam units. This facilitates scalable configuration during the manufacturing process. This document provides details on the process of offloading, manipulating, and uploading TrafficCam settings.

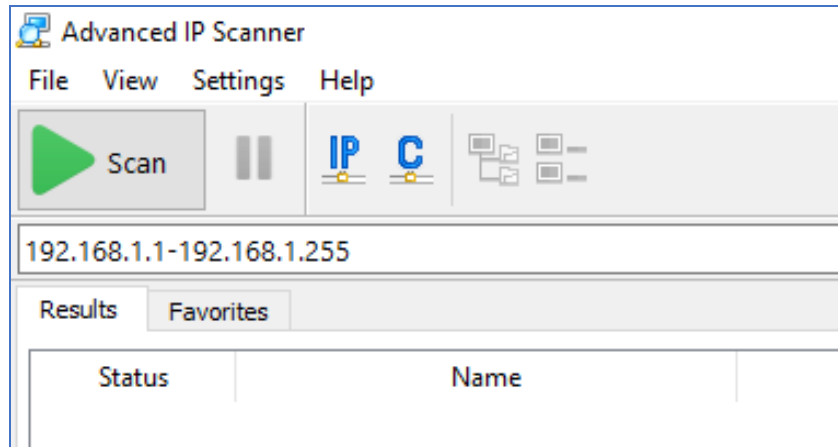
1.1 CONNECTING TO THE CAMERA

1.1.1 In order to upload settings on a new camera from Viion, it has to be connected to a WWD580 as per normal and connected to the programming PC through a switch configured to DHCP so that it will automatically assign an IP address to the camera.

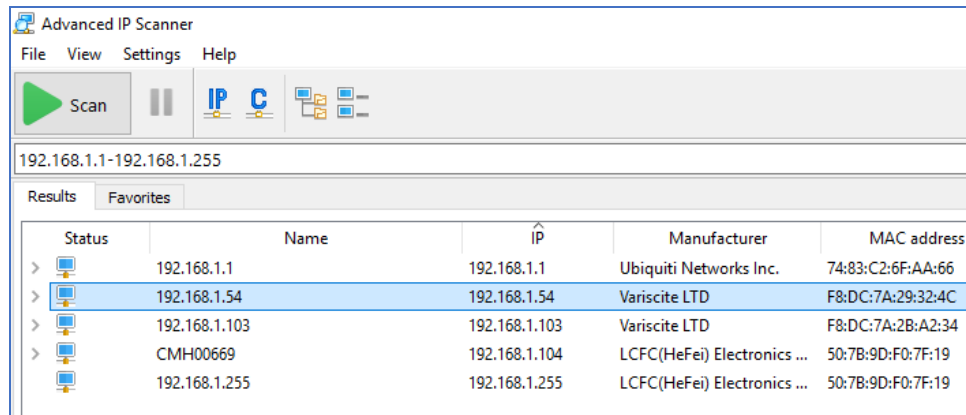


1.1.2 Once this occurs and the camera is connected correctly to the WWD580, it will flash blue as it has yet to connect to the internet. It is now possible to search for the IP address of the camera that is connected.

1.1.3 Knowing the IP address range of the switch will narrow down the addresses which will need to be reviewed. In this instance, the switch has an address of 192.168.1.1 and above. As such, the search range will look like the image below:



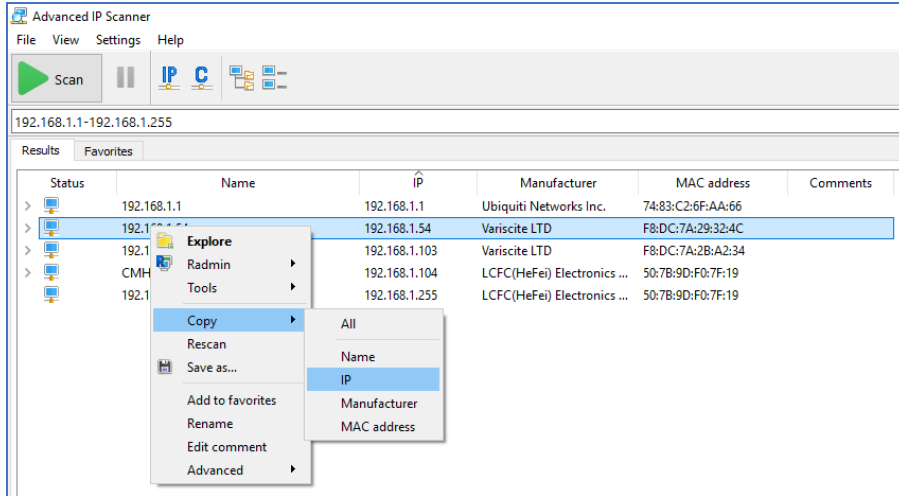
1.1.4 Press “Scan” and review the results, if a complete system is connected, it should look something like this:



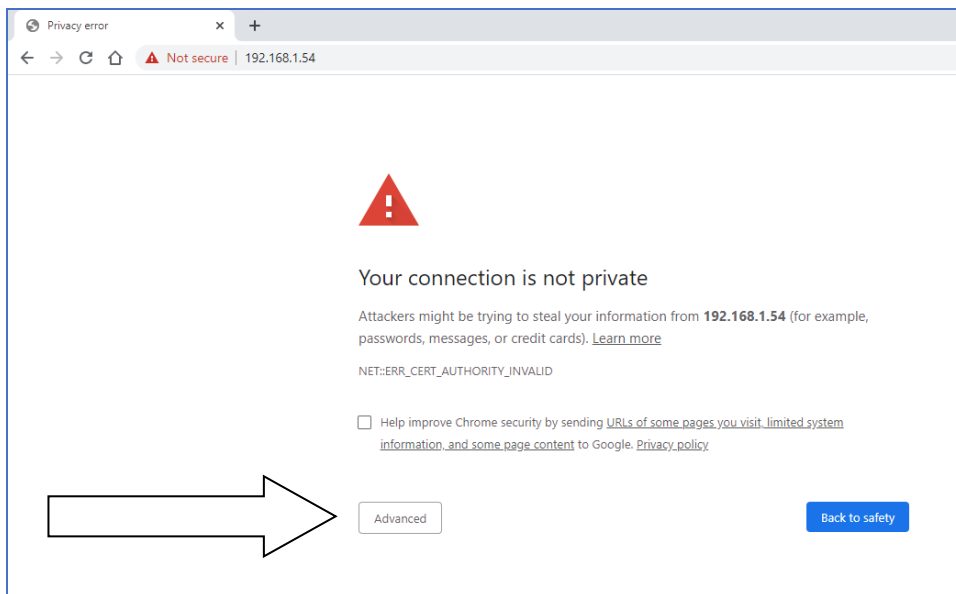
1.1.5 Comparing the MAC addresses of the connected devices on the physical camera label will establish which IP address will be entered into the web interface. In this case, the highlighted address 192.168.1.54 is the camera that will be programmed.



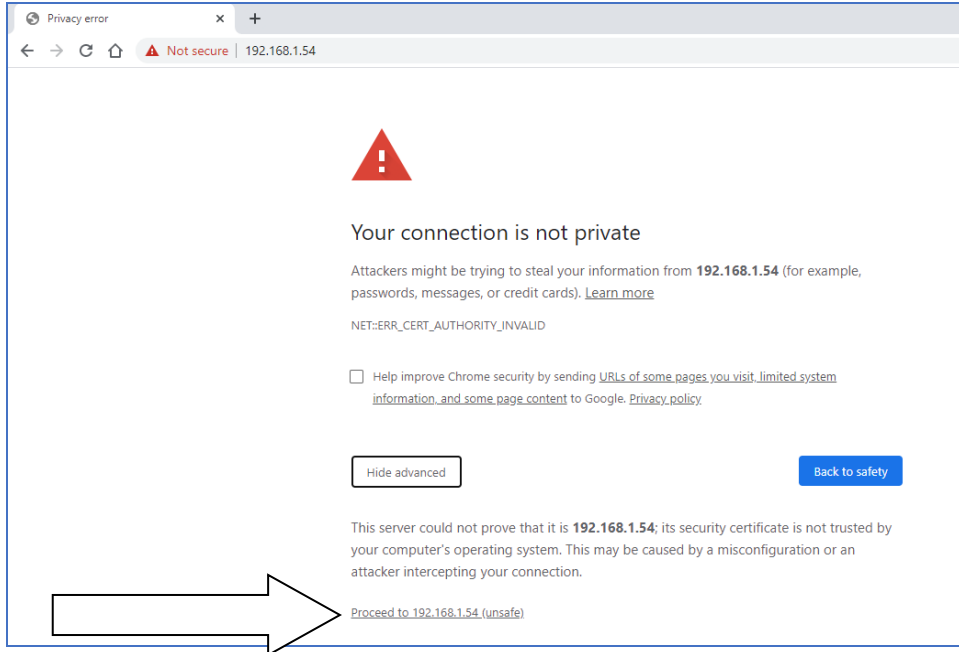
1.1.6 Copy the IP address from the IP scanner software.



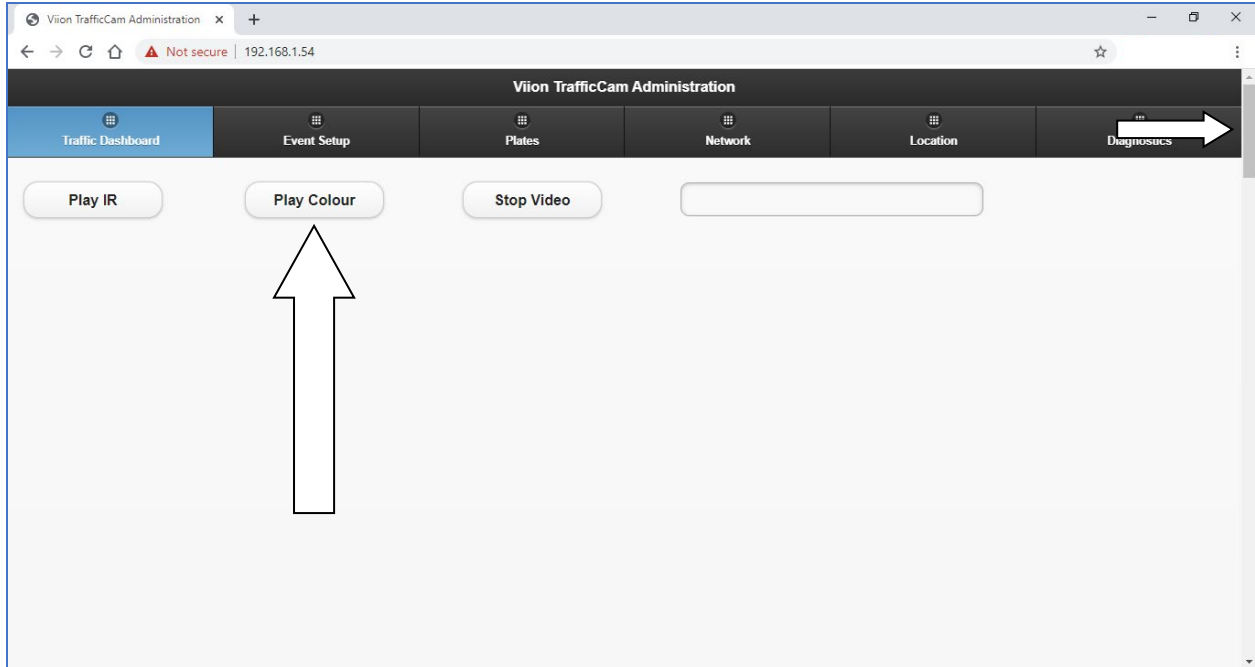
1.1.7 Paste IP Address into Chrome browser, press “Enter” then select the “Advanced” button.



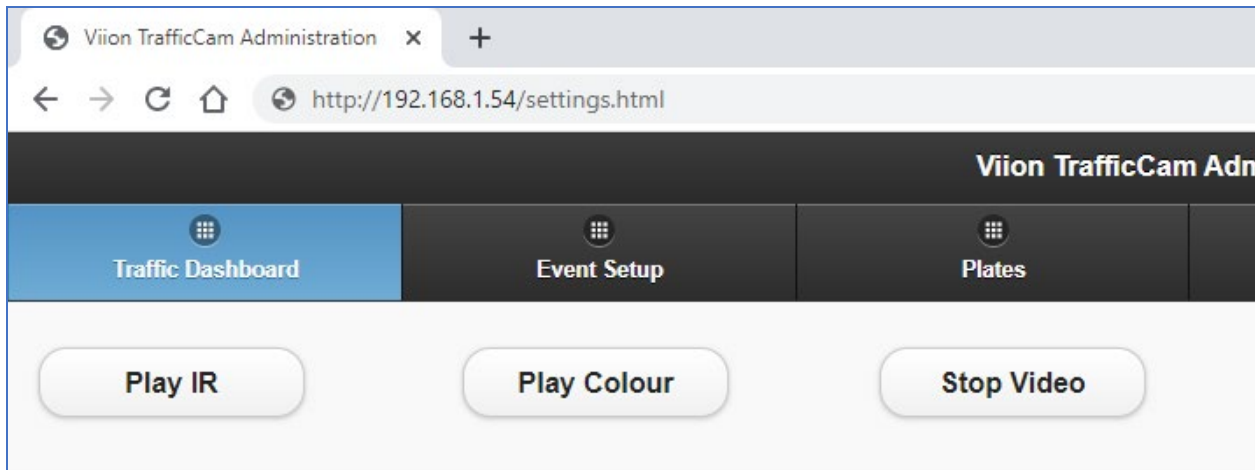
1.1.8 Select “Proceed to...” hyperlink to get to the camera’s web interface page.



- 1.1.9 The camera web interface will now be displayed. Note the camera about to be programmed can be verified by selecting the “Play Colour” button and checking the video feed. Also, to validate that the page has loaded correctly, scroll down the page and observe that there are values.

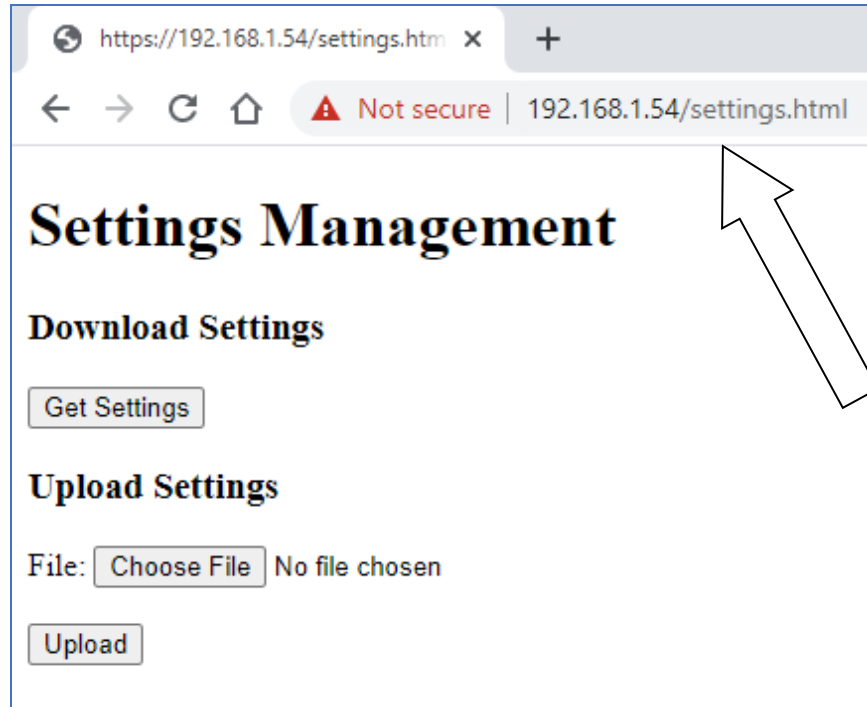


1.1.10 When ready to program the camera, type “/settings.html” after the device IP address and press “Enter”.



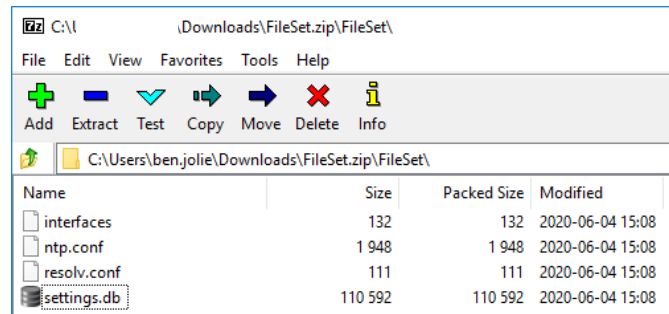
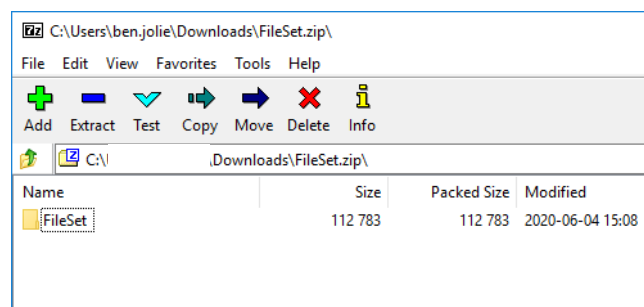
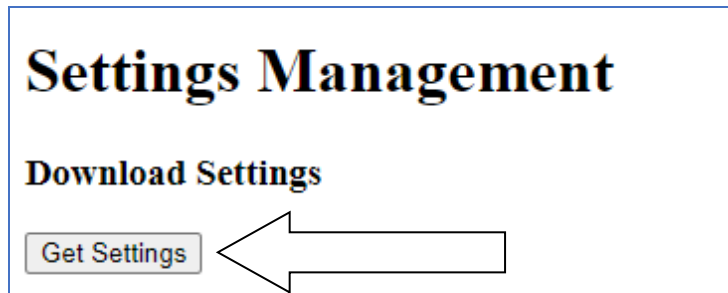
1.2 UPLOADING SETTINGS TO CAMERA

1.2.1 The settings interface is accessed through a web browser (eg. Chrome) using the camera's IP address followed by "XXX.XXX.X.XXX/settings.html". For example, for a camera with IP address 192.168.1.54, the page is accessed as follows:



1.3 DOWNLOAD SETTINGS

1.3.1 Under Download Settings, the “Get Settings” button will cause all TrafficCam settings to be pulled from the camera to a .zip file that is stored in your download folder on the local machine.

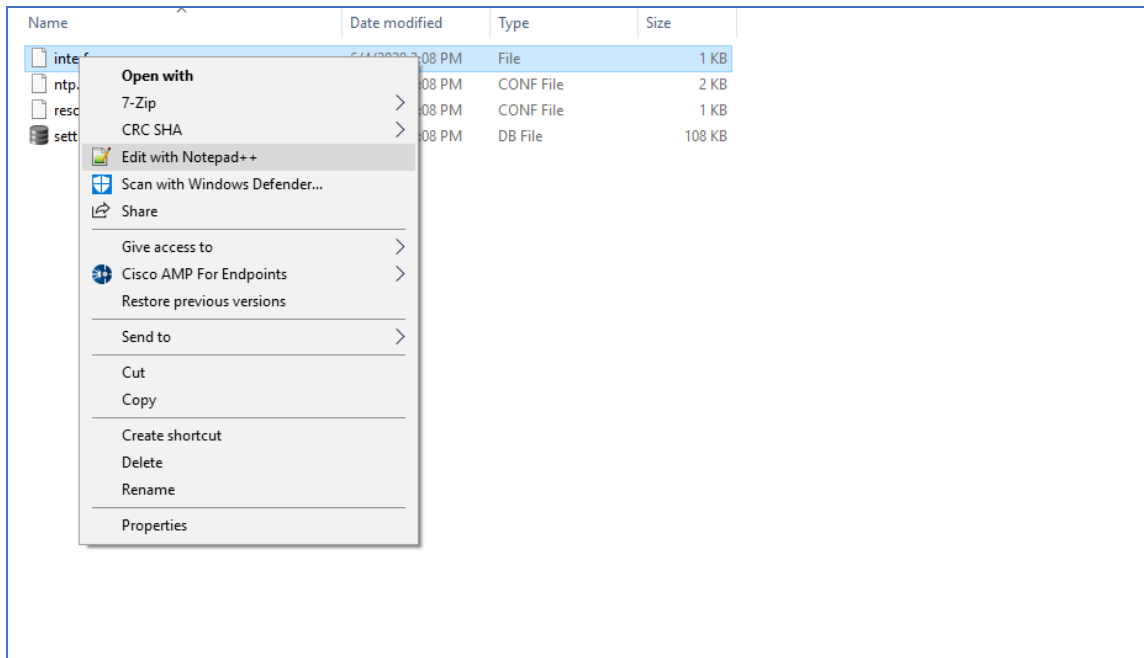


1.3.2 The file is named “FileSet.zip” and contains all information the uniquely defines the configuration of a given TrafficCam. It contains the following 4 files:

1. Interfaces → Network – Ethernet Settings
2. ntp.conf → NTP Server Settings
3. resolv.conf → DNS Server Settings
4. settings.db → Camera Settings

The purpose and contents of these files is outlined below. Note that these files may be altered in order to prepare a package for uploading to a different TrafficCam, and they also may be removed from a package if there is no need to provide updates for specific settings. The process for editing and updating is outlined below.

1.3.3 To edit “**interfaces**”, “**ntp.conf**” and “**resolv**” right click and use text editor such as Notepad++:



1.3.4 **interfaces file** - Network – Ethernet Settings

This is a standard file used in Linux to define whether or not DHCP will be used to assign an IP address, or if not, it is used to define the devices fixed IP address. In cases where units are assigned fixed IP addresses, it may not be appropriate to include this file when configuring new units since the fixed IP address can be set through Viion’s Web Interface. In this case the interfaces file may be removed from the .zip package that will be uploaded to new units.

For units that have DHCP configured, the contents of the interfaces file will be as follows:

```
auto lo
iface lo inet loopback

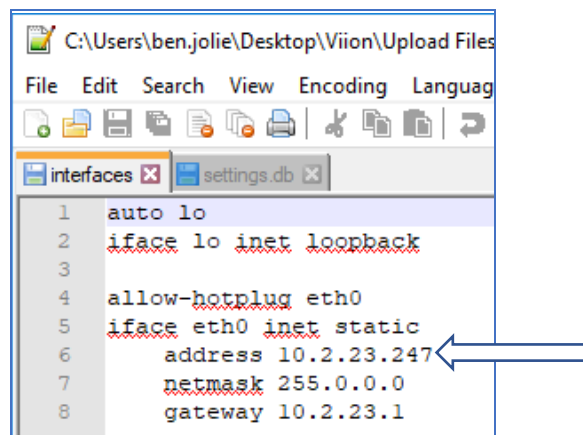
allow-hotplug eth0
iface eth0 inet dhcp
```

For units where a fixed IP address has been assigned, the contents of the interfaces file will have the following form:

```
auto lo
iface lo inet loopback

allow-hotplug eth0
iface eth0 inet static
    address 10.2.23.247
    netmask 255.0.0.0
    gateway 10.2.23.1
```

In this case, the fixed IP address is 10.2.23.247, the subnet mask is 255.0.0.0, and the default gateway is 10.2.23.1.



```
C:\Users\ben.jolie\Desktop\Viion\Upload Files
File Edit Search View Encoding Language
interfaces settings.db
1 auto lo
2 iface lo inet loopback
3
4 allow-hotplug eth0
5 iface eth0 inet static
6     address 10.2.23.247
7     netmask 255.0.0.0
8     gateway 10.2.23.1
```

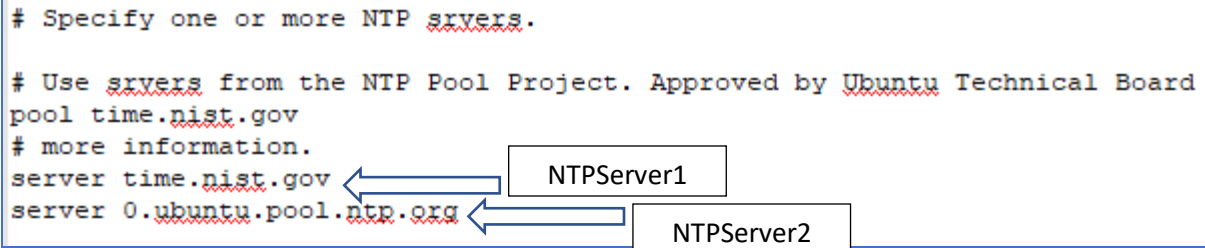
1.3.5 ntp.conf file - NTP Server Settings

This is a standard file used in Linux to define the sources for synchronizing the TrafficCam to a network time source. The file contains many commented lines (starting with #). The lines that specify the server location are in the following block:

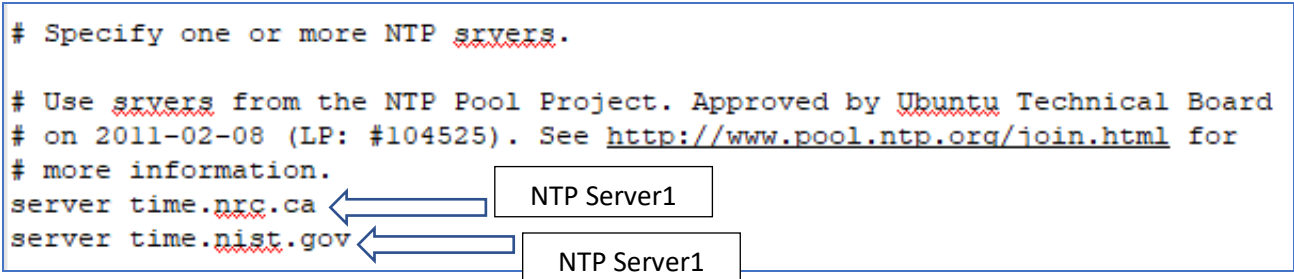
```
# Use servers from the NTP Pool Project. Approved by Ubuntu Technical Board
# on 2011-02-08 (LP: #104525). See http://www.pool.ntp.org/join.html for
# more information.
server time.nrc.ca
server time.nist.gov
```

Viion sets two default time servers as time.nrc.ca and time.nist.gov. In some locations it may be necessary to use other servers – for example ones on a local network when the default server locations are not available through the internet. If the TrafficCam is able to see the Internet the default settings will work fine, and the ntp.conf file could be removed from any configuration packages.

ntp.conf - NTPServer1 + NTPServer2 – FREEWAY CAMERA



ntp.conf - NTPServer1 + NTPServer2 – INTERSECTION CAMERA

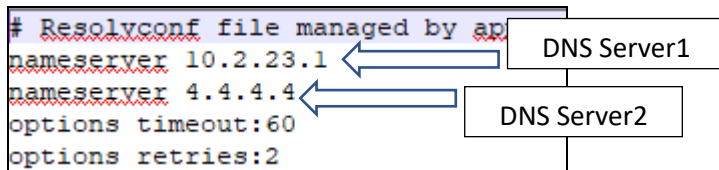


1.3.6 resolv.conf file – DNS Server Settings

This is a standard file used in Linux to define the name servers that will be used to resolve hostnames to IP addresses. Viion uses two default servers 8.8.8.8, and 4.4.4.4. If the TrafficCam is able to see the Internet, these values will work well. In some cases where a local network prevents access to the Internet, one or two local DNS server addresses may be provided.

When fixed DNS addresses are employed, the file will have the following contents:

```
# Resolvconf file managed by app
nameserver 10.2.23.1
nameserver 4.4.4.4
options timeout:60
options retries:2
```



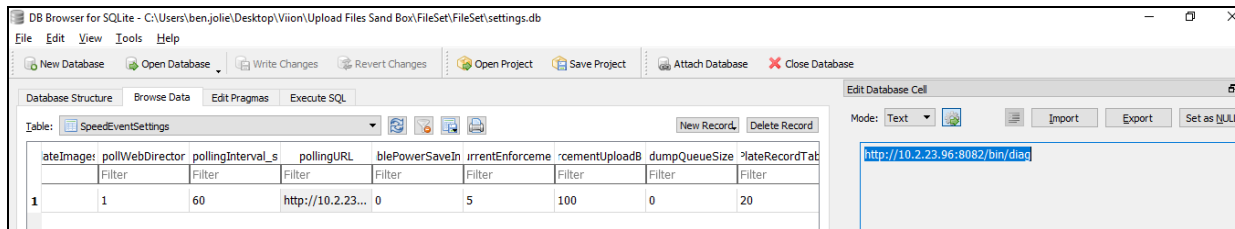
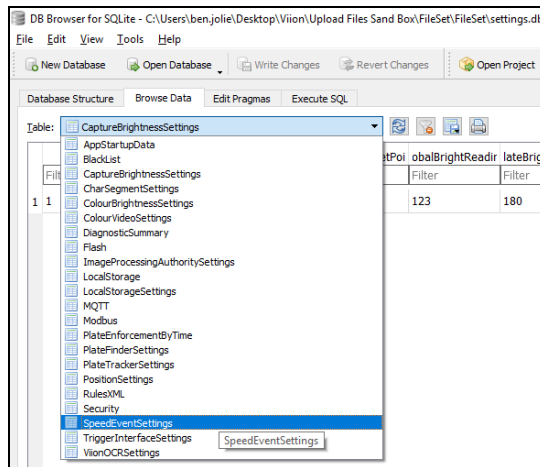
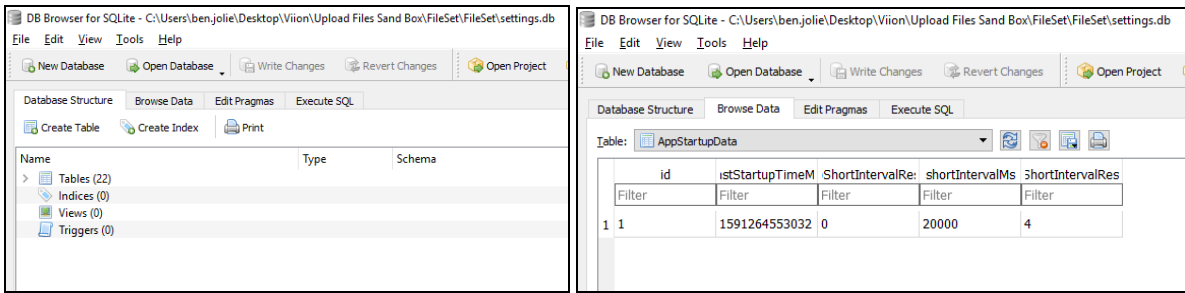
In this case, two custom DNS server addresses have been provided 172.29.240.3, and 172.30.240.3. If the TrafficCam is able to see the Internet the default settings will work fine, and the resolv.conf file could be removed from any configuration packages.

1.3.7 settings.db file – Camera Settings

This file contains all the Viion-specific application settings. There are a number of tables that correspond to the configuration values that appear on Viion’s Web Interface. The details of these settings are covered in the TrafficCam User Manual.

In a typical manufacturing setting, one unit will be configured with the desired set of configuration settings using the Web Interface. These settings will then be offloaded, and can be applied directly when setting up other units. This is analogous to a cloning process – where each unit will get an identical configuration. In order to differentiate units, it is recommended that the cameraName field (under Event Setup/SpeedEventSettings) be altered to reflect the desired camera ID following the cloning process.

In the case where a user needs to edit the settings.db file, we recommend using the tool DB Browser for SQLite (<https://sqlitebrowser.org/>).



1.4 EDITING A .ZIP ARCHIVE

The contents of the FileSet.zip archive may be altered, by either removing one or more of the 4 content files, or by altering one or more file contents. We recommend using a tool such as 7-zip (<https://www.7-zip.org/>) to unpack, and then re-pack the .zip archive. We have found that the Windows native tools do not preserve the structure of the archive correctly.

When editing a .zip archive, the steps are as follows:

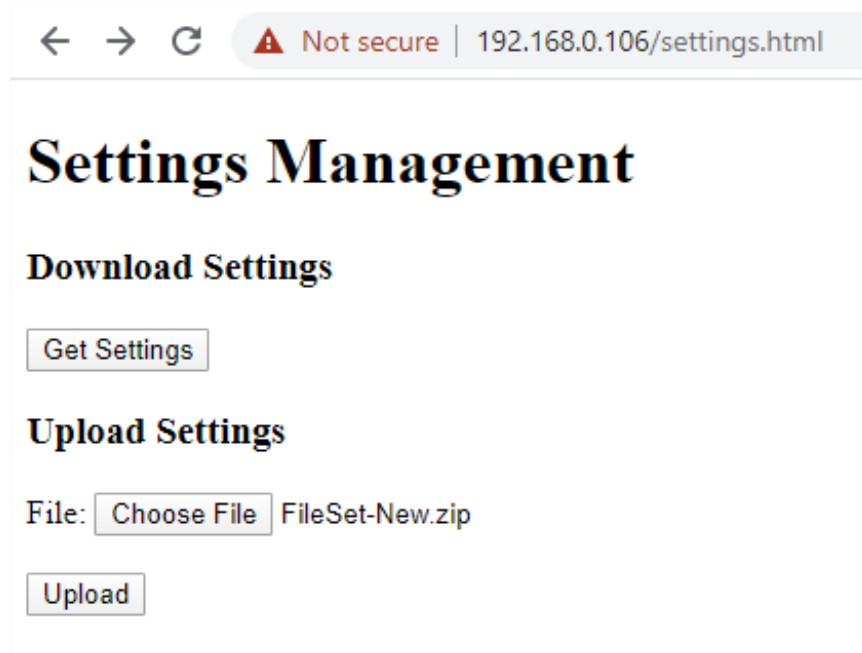
Uncompress FileSet.zip to a folder called FileSet

Navigate to the new folder, and edit/delete files are required

Re-compress the archive to a .zip file having an arbitrary name. Following this step, make sure that the archive contains a folder labelled "FileSet", and that this folder contains one or more of the required files outlined above.

1.5 UPLOAD SETTINGS

Given a .zip file that is to be installed on a TrafficCam unit, the same web interface is page is used (see Figure 1). The first step is to press the Choose file button. This will open a navigation tool that will allow you to browse to your .zip file. The example below shows that a file named "FileSet-New.zip" has been selected.



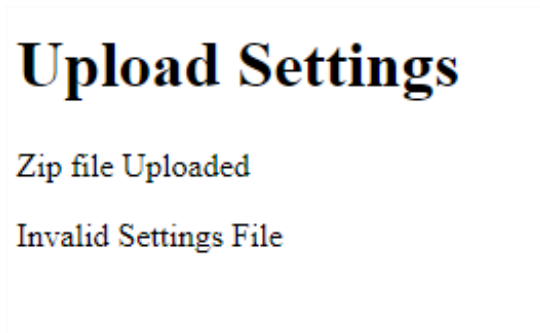
Once the desired .zip archive is selected, press the Upload button. The upload process may take 30 sec to complete depending on the contents of the upload package. If the upload was successful, the interface will indicate this as follows



Figure 1: Example of a successful upload where 4 files were uploaded in the .zip file.

Note that if fewer than 4 files were included in the uploaded .zip file, this will be reflected in the response text.

If the .zip archive could not be interpreted correctly, the interface will reflect an error as follows.



Following a successful upload of the .zip archive, it is necessary to power cycle the TrafficCam. Following this the uploaded settings may be validated through the Web Interface.

1.6 PROGRAMMING THE WWD580 CONTROLLER

The tools outlined above have also been made available for Viion's WWD580 units. There are a few small differences that are worth highlighting here.

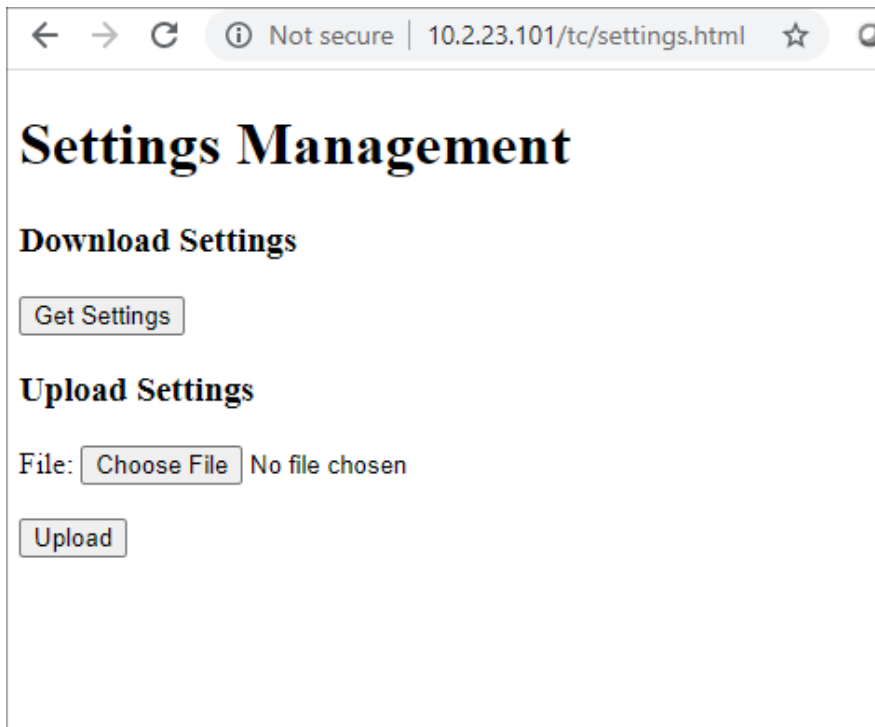
For WWD580 units, the web interface is accessed as follows:

aa.bb.cc.ddd/tc/index.html

Where aa.bb.cc.ddd is the device's IP address. On WWD580 units, the settings interface is accessed as follows:

aa.bb.cc.ddd /tc/settings.html

This gives the same interface is outlined above for downloading and uploading settings (see Section 1.1).



One other important difference is in the contents of the FileSet zip file. With WWD580 units, the offloaded .zip file will contain a file settingsTS2.db instead of the settings.db file outlined above.