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Neoview Middlebox User Guide

Chandran, Sugesh
NEOVIEW.IE

Contents

Purpose:

This document is intended to serve as a guide for the initial middlebox setup and the options to setup cameras.
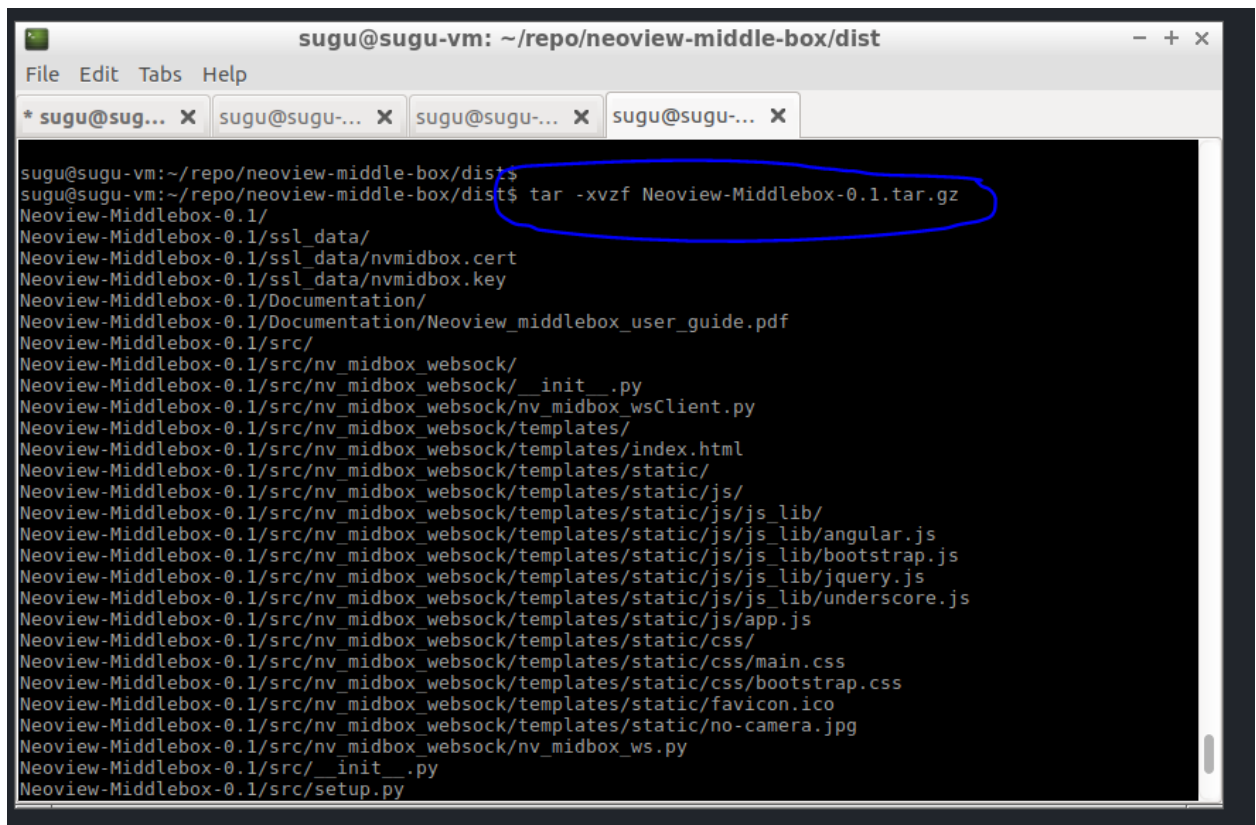
Overview

Neoview middlebox is a software module that is running on one of the servers in the local network. Middlebox relays the camera feed to the webserver. More details about the neoview middlebox can be found in the following link.

https://github.com/sugchand/neoview-middle-box

Initial Middlebox setup(Installation)

Middlebox software is shipping to customers as a tarball. The installation has to be done only one time on a server. To set up the middlebox for the first time on a local server, the steps are as follows:

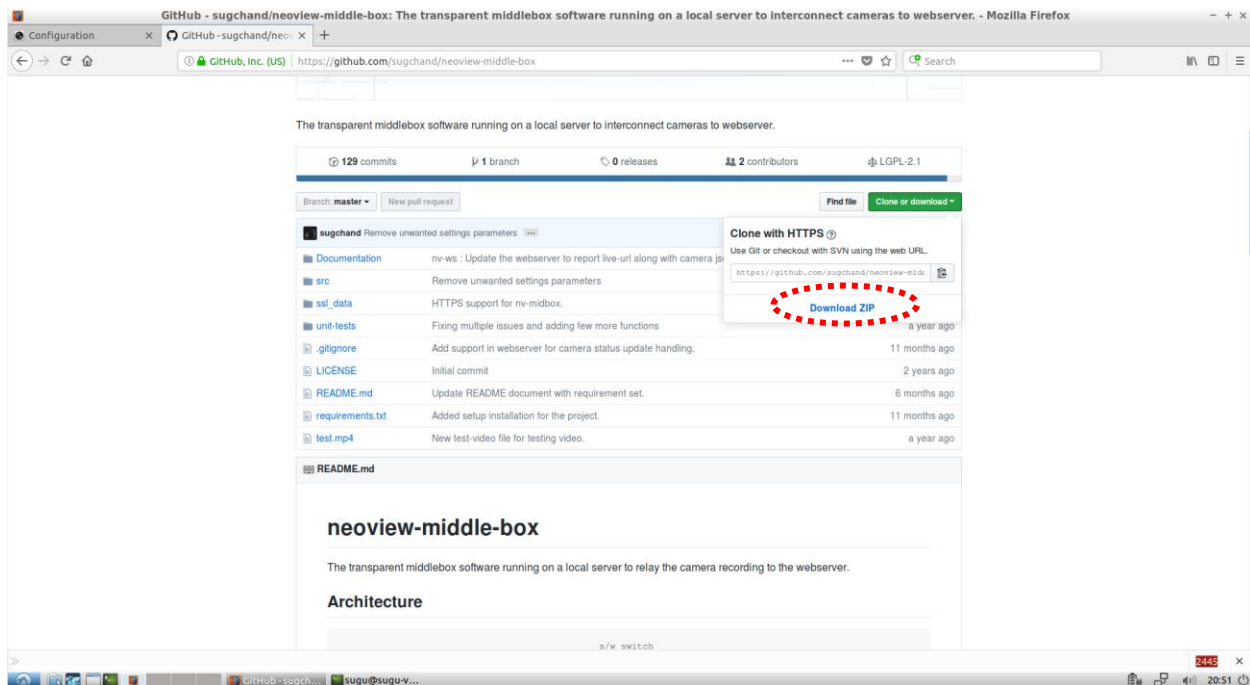- Extract the tarball to specific installation location.

If user doesn't have the tar bar, they can download the middlebox software from source as explained in the next two steps. SKIP NEXT TWO STEPS IF USER HAS MIDDLEBOX TAR BALL.

- Download the middlebox software from the following link, in case user doesn't have tarball.

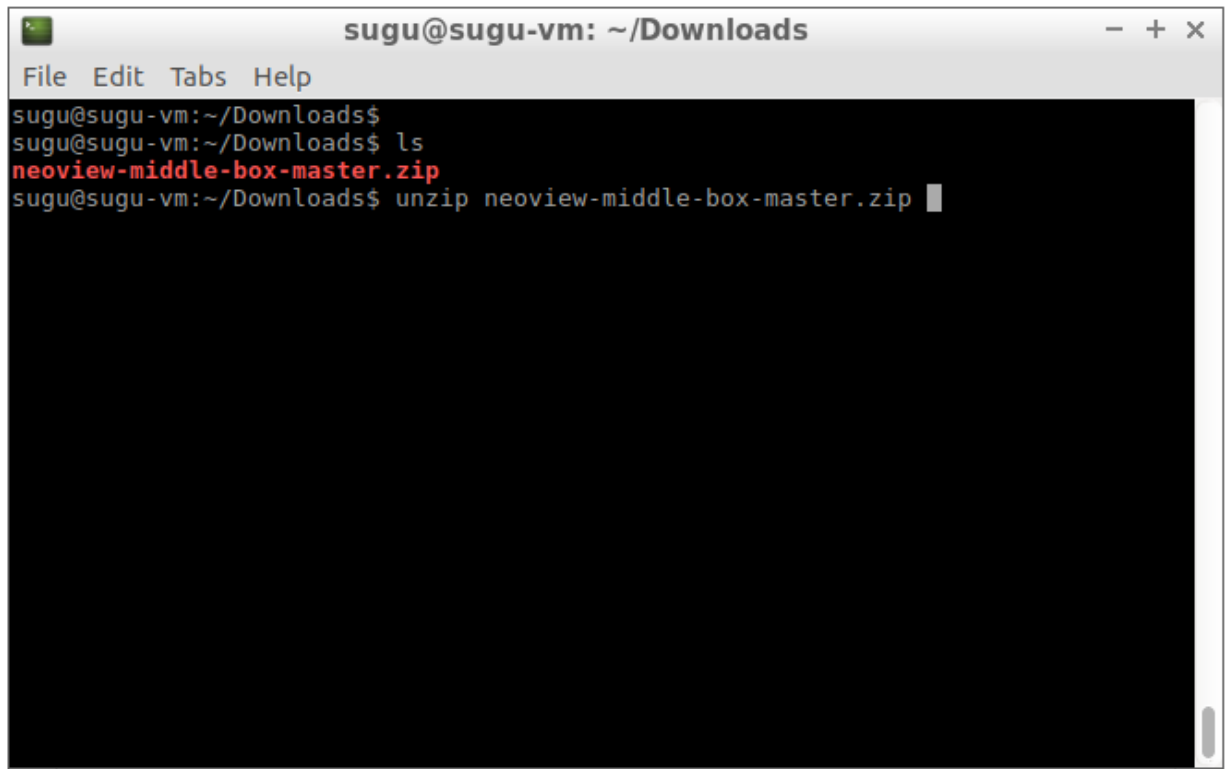https://github.com/sugchand/neoview-middle-box

- Unzip the middlebox software on the local server,
  From the command-line, navigate to the directory/folder where the file is downloaded.
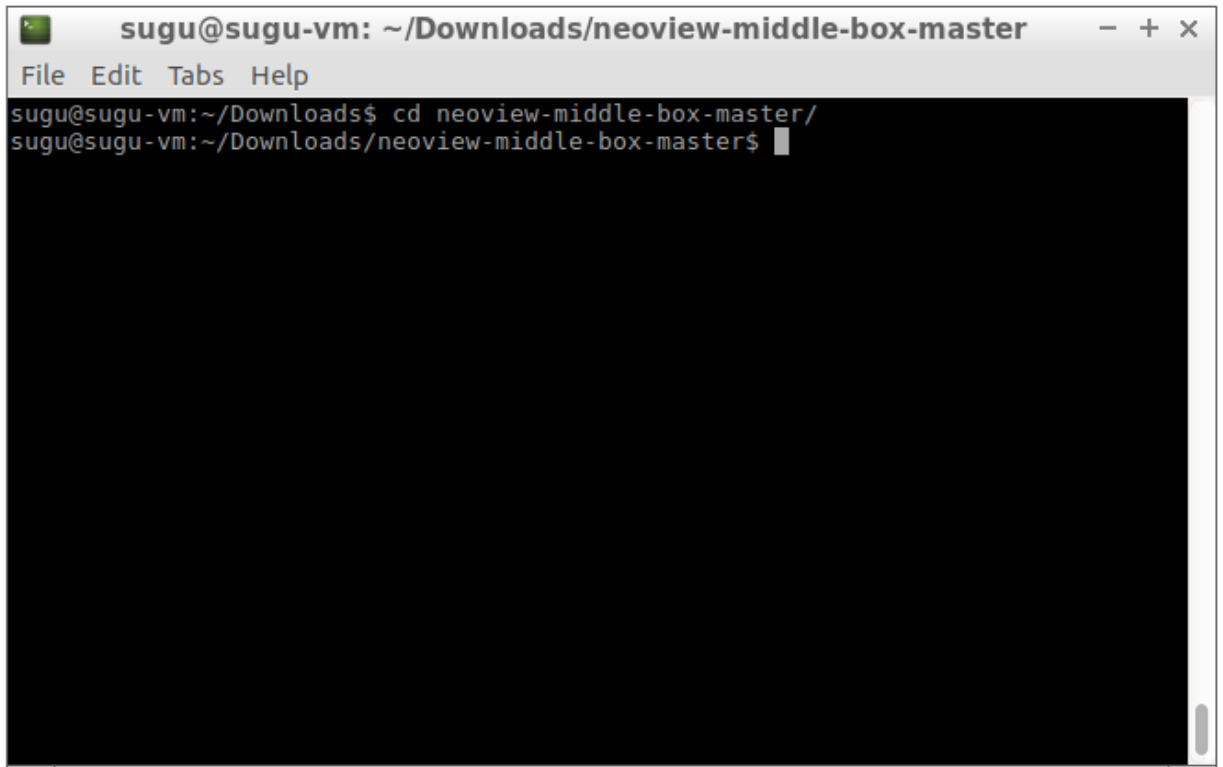
  To unzip the file, execute
  ```
  unzip neoview-middle-box-master.zip
  ```

- Navigate to the application directory.

  cd <name of the directory>

- Install the media player library vlc and non-X window libraries. To install the libraries on an Ubuntu(Debian) machine,

    ```
    apt-get install vlc
    apt-get install vlc-nox
    apt-get install ffmpeg
    ```

- Install dependency packages for the middlebox by running the following command:

    ```
    apt-get install python-pip python3-pip python-dev python3-dev libffi-dev
    libssl-dev libxml2-dev libxslt1-dev libjpeg8-dev zlib1g-dev
    pip3 install cryptography
    ```

- [OPTIONAL] Install the virtual environment if it is not present. This step is needed only when middlebox is running in a virtual environment.

    ```
    apt-get install virtualenv
    ```

- [OPTIONAL] Create a new virtual environment.

    ```
    virtualenv middlebox
    ```

    *middlebox is the name of new virtualenv.

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- [OPTIONAL] Activate the virtualenv

  source middlebox/bin/activate

  or

  . middlebox/bin/activate

- Install the prerequisite libraries for the software.

  pip3 install -r requirements.txt

- Update initial middlebox static configuration in the file *src/settings.py* (only if necessary)
- By default the middlebox logs can be found in the file *'/tmp/nv_middlebox.log'*

- Start the middlebox software:

  ./src/nv_middlebox.py
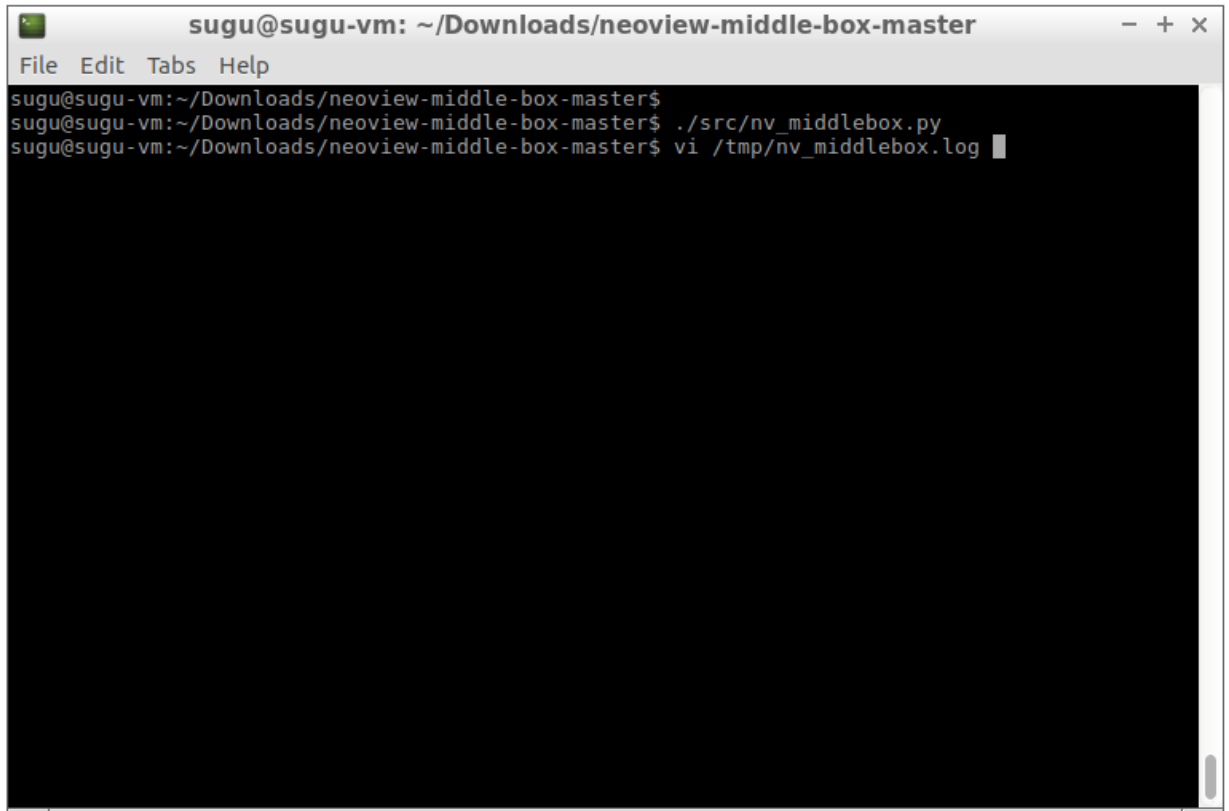
Running Neoview Middlebox

- Start the neoview middlebox application by running the following command from the neoview middlebox directory.

  ./src/nv_middlebox.py
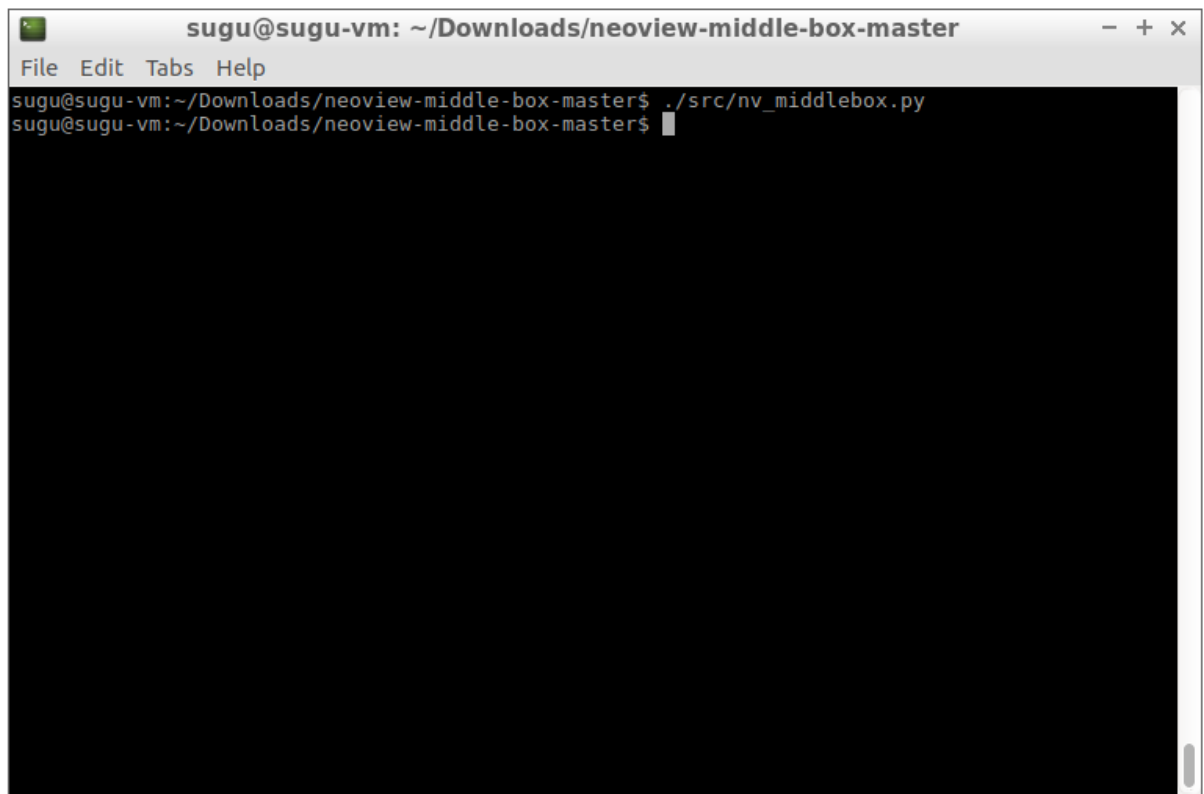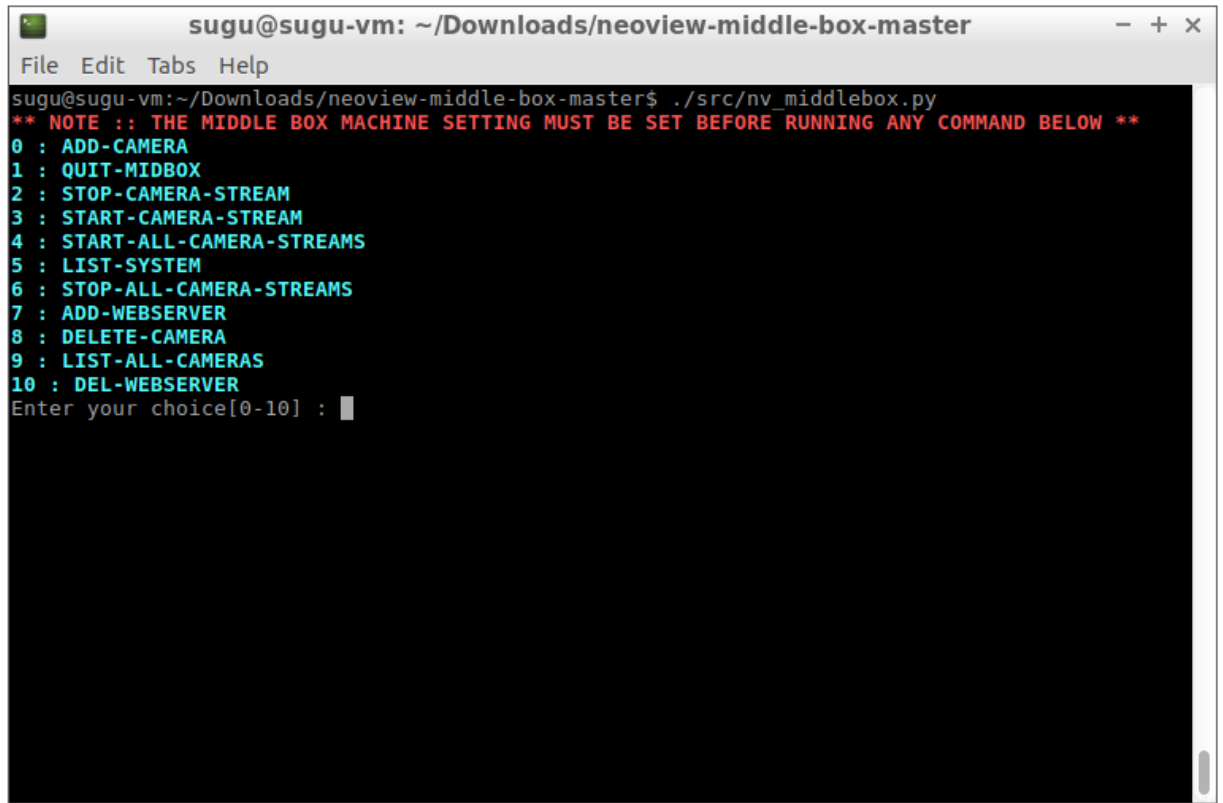
While starting the middlebox, user will not see any messages if it fails (see the image above). The application will be stopped in the background without any error message. The log entries for the middlebox will be available in *'/tmp/nv_middlebox.log'*

- The errors found in the error log will have to be resolved to start the middlebox again. If the middlebox is started successfully, the user will see the following command-line options as in the main menu.

The middlebox switch ON/OFF page can be found at

http://<middlebox-server-ip>:9000

Add a Camera to the System.

The camera must be added to the system, before it can start streaming to the middlebox.
Following camera details are needed to add a camera to the system.

- IP address of the camera.
- MAC address of the camera
- User Name and Password of the camera.

User can find the IP and MAC address of the camera from the camera webpage (See picture below).
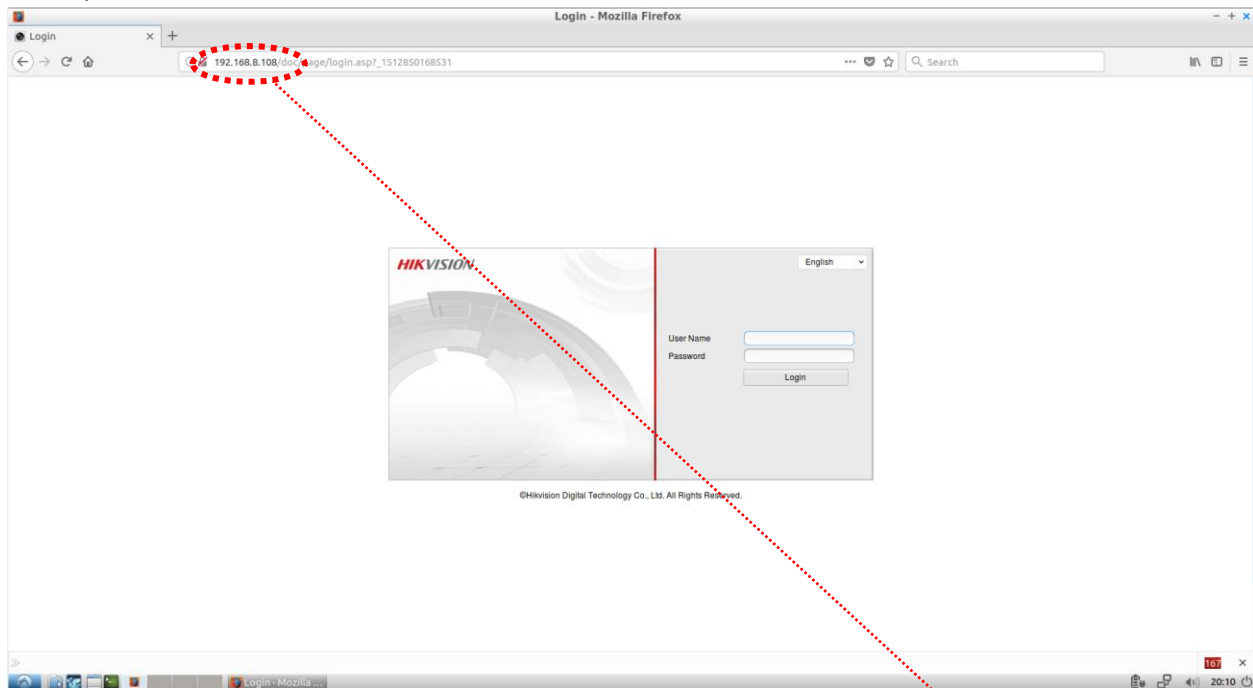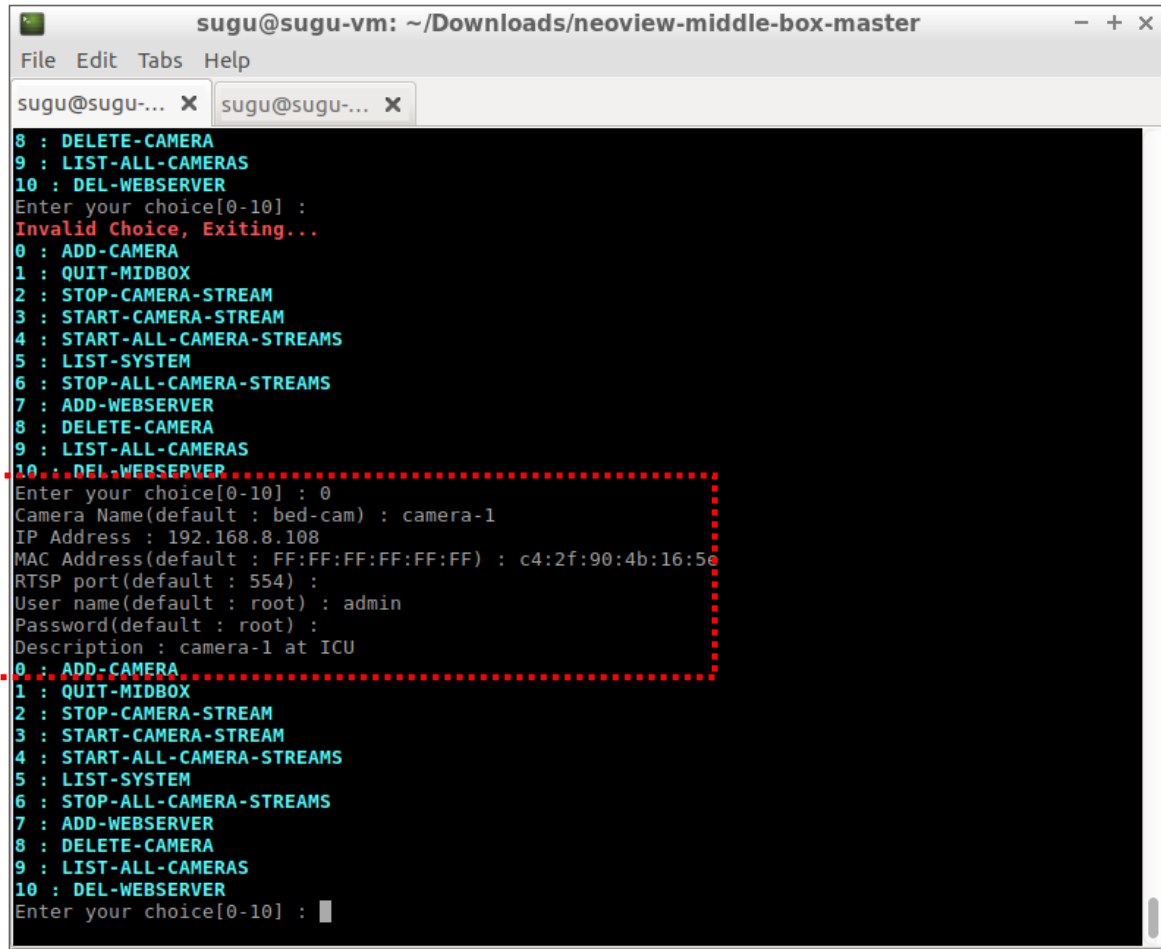
IP address :
192.168.8.108
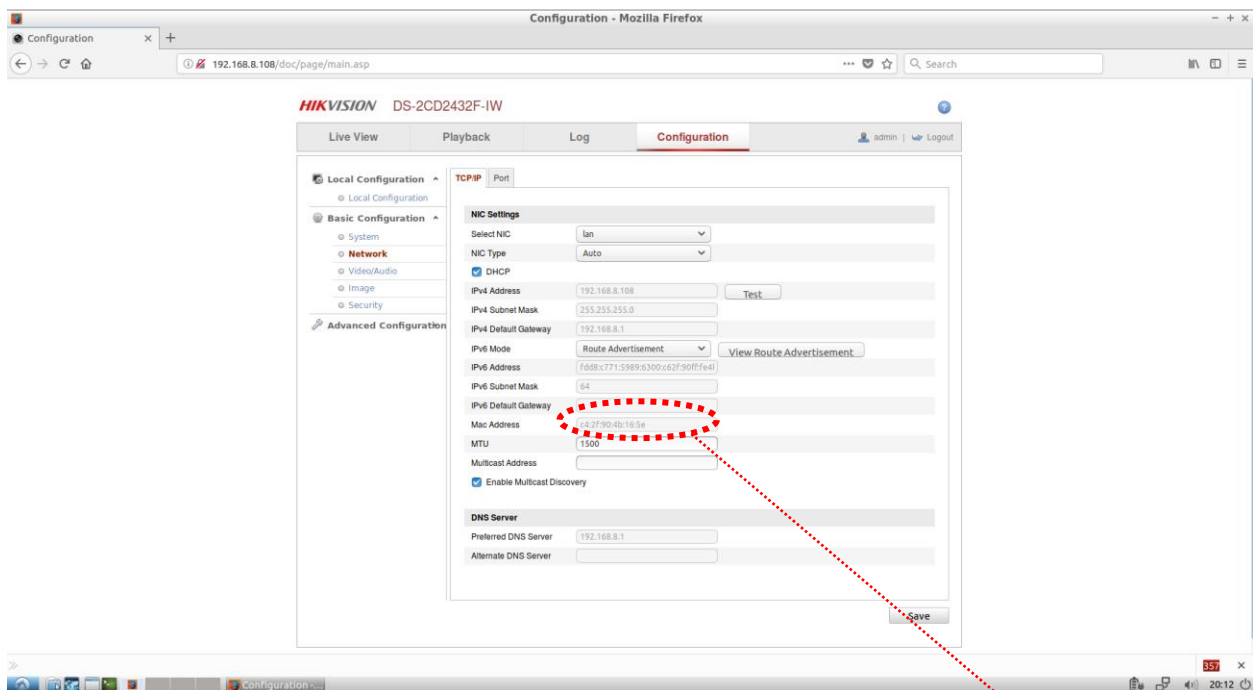
MAC :
c4:2f:90:4b:16:5e

Configure the middlebox with camera details as below.

```
                 sugu@sugu-vm: ~/Downloads/neoview-middle-box-master      – + ×
 File  Edit  Tabs  Help
 sugu@sugu-...  ✕   sugu@sugu-...  ✕
8 : DELETE-CAMERA
9 : LIST-ALL-CAMERAS
10 : DEL-WEBSERVER
Enter your choice[0-10] :
Invalid Choice, Exiting...
0 : ADD-CAMERA
1 : QUIT-MIDBOX
2 : STOP-CAMERA-STREAM
3 : START-CAMERA-STREAM
4 : START-ALL-CAMERA-STREAMS
5 : LIST-SYSTEM
6 : STOP-ALL-CAMERA-STREAMS
7 : ADD-WEBSERVER
8 : DELETE-CAMERA
9 : LIST-ALL-CAMERAS
10 : DEL-WEBSERVER
Enter your choice[0-10] : 0
Camera Name(default : bed-cam) : camera-1
IP Address : 192.168.8.108
MAC Address(default : FF:FF:FF:FF:FF:FF) : c4:2f:90:4b:16:5e
RTSP port(default : 554) :
User name(default : root) : admin
Password(default : root) :
Description : camera-1 at ICU
0 : ADD-CAMERA
1 : QUIT-MIDBOX
2 : STOP-CAMERA-STREAM
3 : START-CAMERA-STREAM
4 : START-ALL-CAMERA-STREAMS
5 : LIST-SYSTEM
6 : STOP-ALL-CAMERA-STREAMS
7 : ADD-WEBSERVER
8 : DELETE-CAMERA
9 : LIST-ALL-CAMERAS
10 : DEL-WEBSERVER
Enter your choice[0-10] : ▮
```

If the camera has been added successfully, the switch page will display the camera as below.
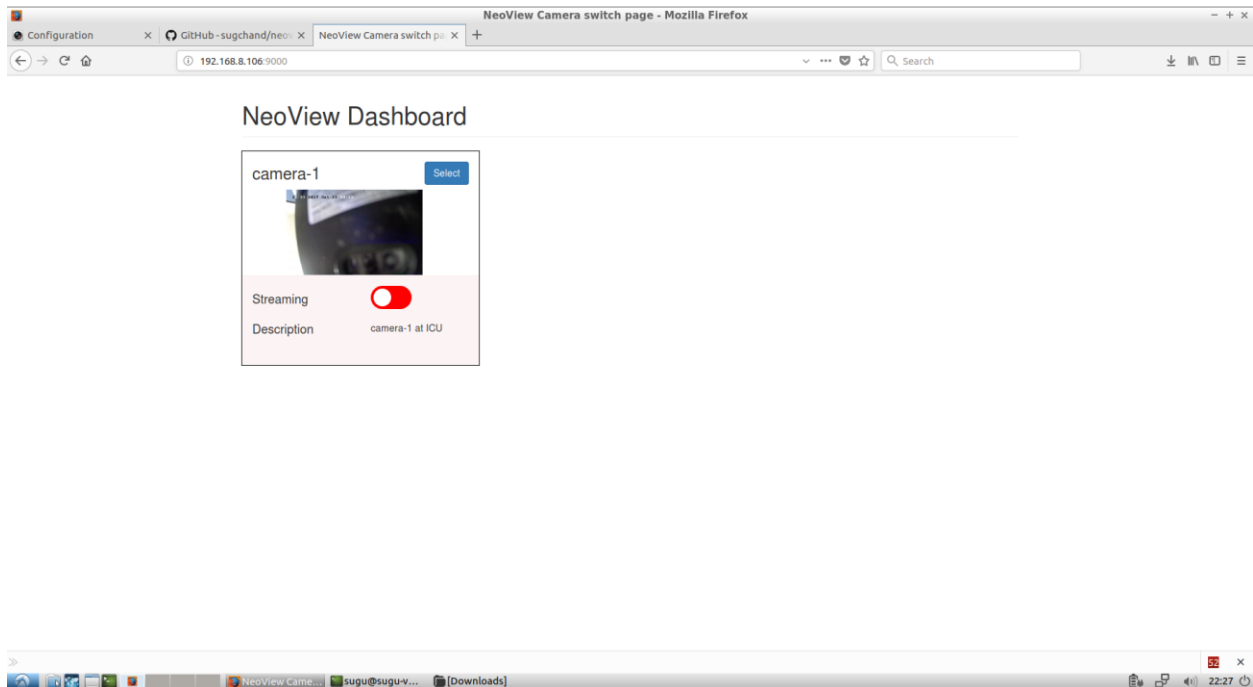
In this setup '192.168.8.106' is the middlebox machine IP. User must use the corresponding middlebox IP to access the switch page.

Delete a camera from the system.
User can delete a camera from system as below
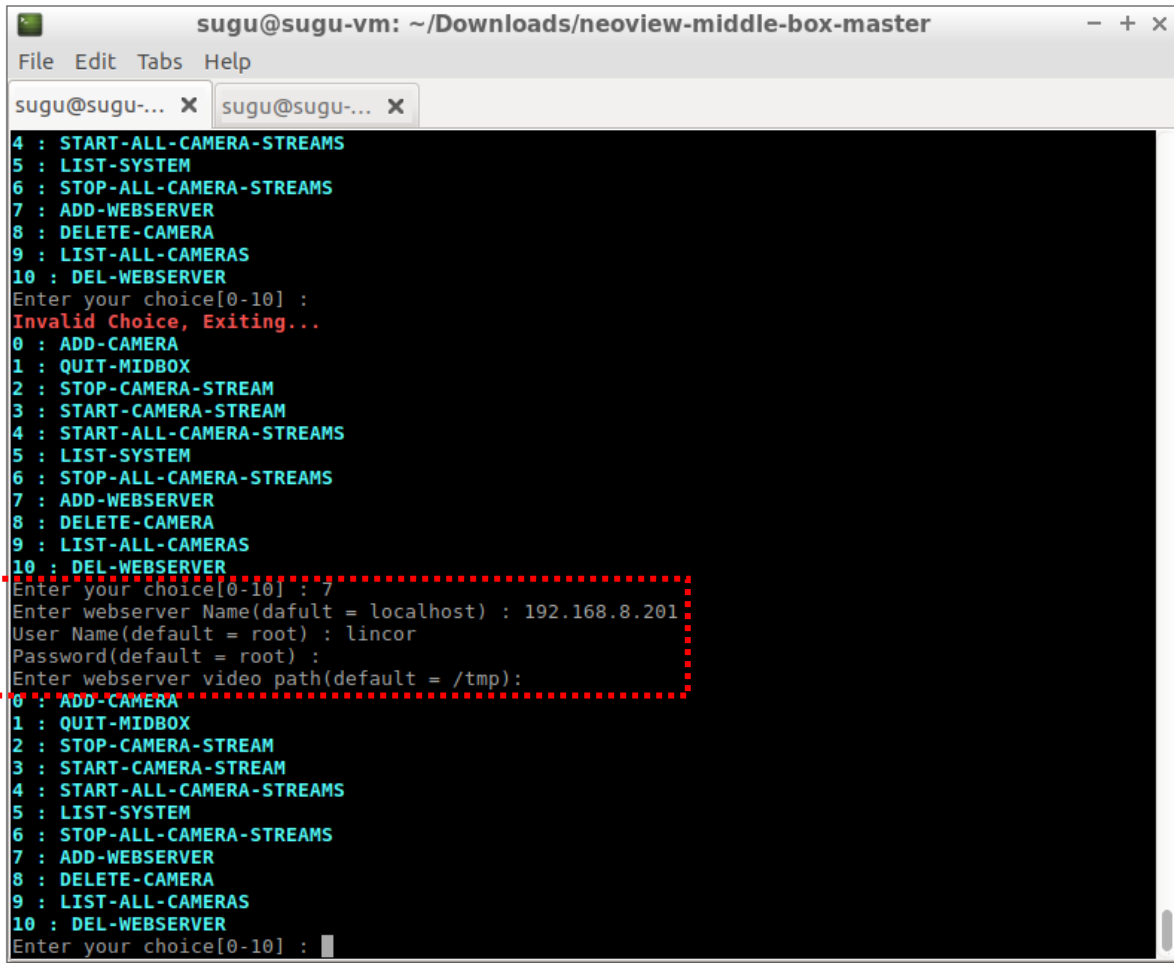
```
1 : QUIT-MIDBOX
2 : STOP-CAMERA-STREAM
3 : START-CAMERA-STREAM
4 : START-ALL-CAMERA-STREAMS
5 : LIST-SYSTEM
6 : STOP-ALL-CAMERA-STREAMS
7 : ADD-WEBSERVER
8 : DELETE-CAMERA
9 : LIST-ALL-CAMERAS
10 : DEL-WEBSERVER
Enter your choice[0-10] :
Invalid Choice, Exiting...
0 : ADD-CAMERA
1 : QUIT-MIDBOX
2 : STOP-CAMERA-STREAM
3 : START-CAMERA-STREAM
4 : START-ALL-CAMERA-STREAMS
5 : LIST-SYSTEM
6 : STOP-ALL-CAMERA-STREAMS
7 : ADD-WEBSERVER
8 : DELETE-CAMERA
9 : LIST-ALL-CAMERAS
10 : DEL-WEBSERVER
Enter your choice[0-10] : 8
Enter Camera Name: camera-1
0 : ADD-CAMERA
1 : QUIT-MIDBOX
2 : STOP-CAMERA-STREAM
3 : START-CAMERA-STREAM
4 : START-ALL-CAMERA-STREAMS
5 : LIST-SYSTEM
6 : STOP-ALL-CAMERA-STREAMS
7 : ADD-WEBSERVER
8 : DELETE-CAMERA
9 : LIST-ALL-CAMERAS
10 : DEL-WEBSERVER
Enter your choice[0-10] :
```

Add a webserver to the middlebox

The webserver must be configured in the middlebox. This configuration enables the middlebox
to relay the camera feed to the the webserver. Webserver cannot stream the camera feed to the
users, if the webserver details are not configured correctly.
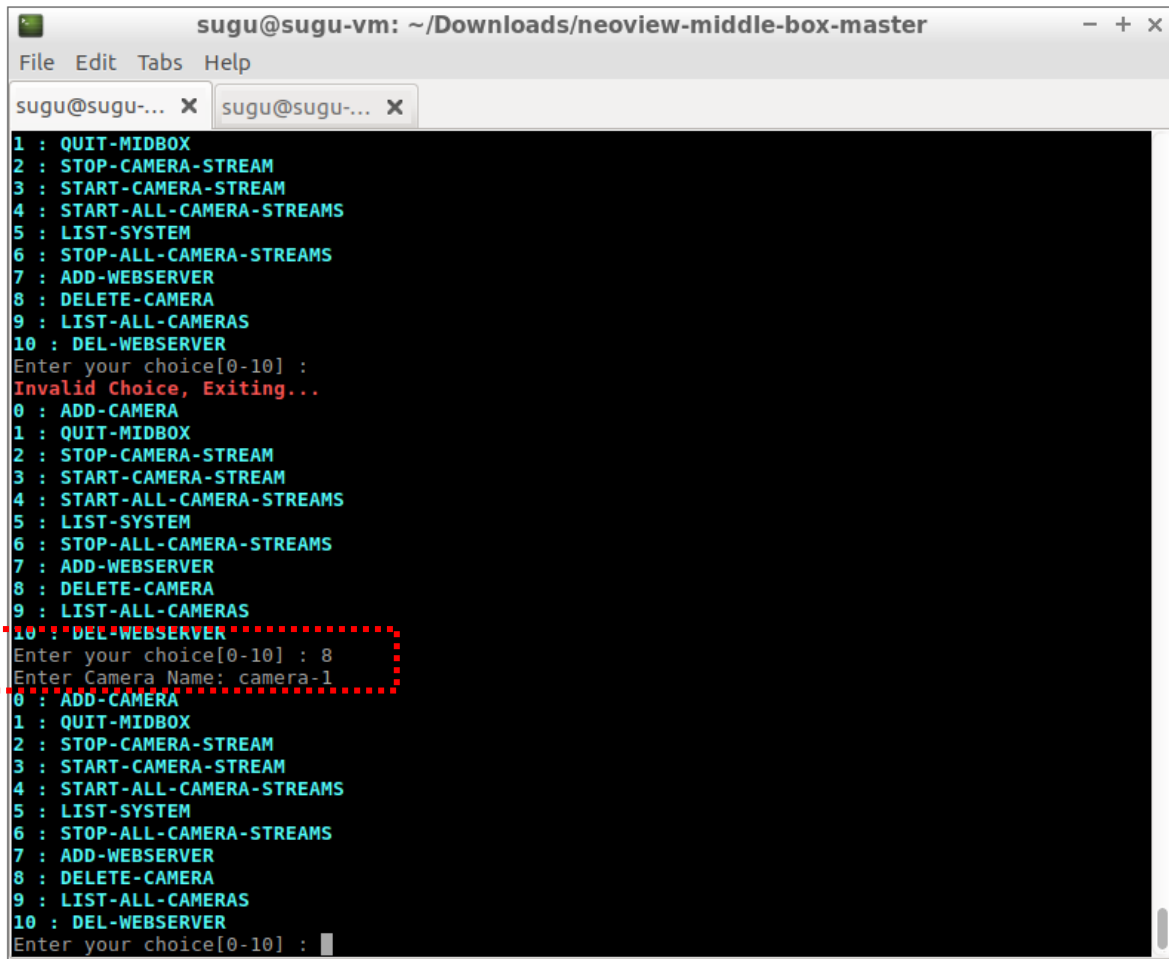
```
                sugu@sugu-vm: ~/Downloads/neoview-middle-box-master        ─  +  ✕

 File  Edit  Tabs  Help

  sugu@sugu-...  ✕   sugu@sugu-...  ✕

 4 : START-ALL-CAMERA-STREAMS
 5 : LIST-SYSTEM
 6 : STOP-ALL-CAMERA-STREAMS
 7 : ADD-WEBSERVER
 8 : DELETE-CAMERA
 9 : LIST-ALL-CAMERAS
 10 : DEL-WEBSERVER
 Enter your choice[0-10] :
 Invalid Choice, Exiting...
 0 : ADD-CAMERA
 1 : QUIT-MIDBOX
 2 : STOP-CAMERA-STREAM
 3 : START-CAMERA-STREAM
 4 : START-ALL-CAMERA-STREAMS
 5 : LIST-SYSTEM
 6 : STOP-ALL-CAMERA-STREAMS
 7 : ADD-WEBSERVER
 8 : DELETE-CAMERA
 9 : LIST-ALL-CAMERAS
 10 : DEL-WEBSERVER
 Enter your choice[0-10] : 7
 Enter webserver Name(dafult = localhost) : 192.168.8.201
 User Name(default = root) : lincor
 Password(default = root) :
 Enter webserver video path(default = /tmp):
 0 : ADD-CAMERA
 1 : QUIT-MIDBOX
 2 : STOP-CAMERA-STREAM
 3 : START-CAMERA-STREAM
 4 : START-ALL-CAMERA-STREAMS
 5 : LIST-SYSTEM
 6 : STOP-ALL-CAMERA-STREAMS
 7 : ADD-WEBSERVER
 8 : DELETE-CAMERA
 9 : LIST-ALL-CAMERAS
 10 : DEL-WEBSERVER
 Enter your choice[0-10] : ▉
```

Other CLI options

Similar to the above CLI options, there are other options to interact with middlebox system. The CLI options are quite self-explanatory, hence each option is not explained separately in this document.

FAQ:

- Why does some of the cameras not show any live view in the switch page?
  Ans : When a camera's connectivity is interrupted, the middlebox will turn off the camera streaming automatically. It's a security feature in middlebox to keep the camera in off state when the connectivity is lost.
- How to bring the camera back online when it lost connectivity?
  Ans :
  - A. Check if a camera is physically ON?
  - B. Check if a camera is connected to the network?

C. If the above has been verified, First remove the faulty camera from the middlebox(Follow the delete camera option above). And re-add the camera to the middlebox.