



# **RTPParser Script for Cameras and Doorbells**

## **User Guide**

November 2018

# Table of Contents

Introduction.....3

Download Instructions .....3

How to gather pcap logs using HAT .....4

How to execute RTPParser script .....5

Bug Filing Instructions .....6

Revision History .....7

NOTICE OF PROPRIETARY PROPERTY: THIS DOCUMENT AND THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: (I) TO MAINTAIN THIS DOCUMENT IN CONFIDENCE, (II) NOT TO REPRODUCE OR COPY IT, (III) NOT TO REVEAL OR PUBLISH IT IN WHOLE OR IN PART, (IV) ALL RIGHTS RESERVED.

ACCESS TO THIS DOCUMENT AND THE INFORMATION CONTAINED HEREIN IS GOVERNED BY THE TERMS OF THE MFI LICENSE AGREEMENT. ALL OTHER USE SHALL BE AT APPLE'S SOLE DISCRETION.

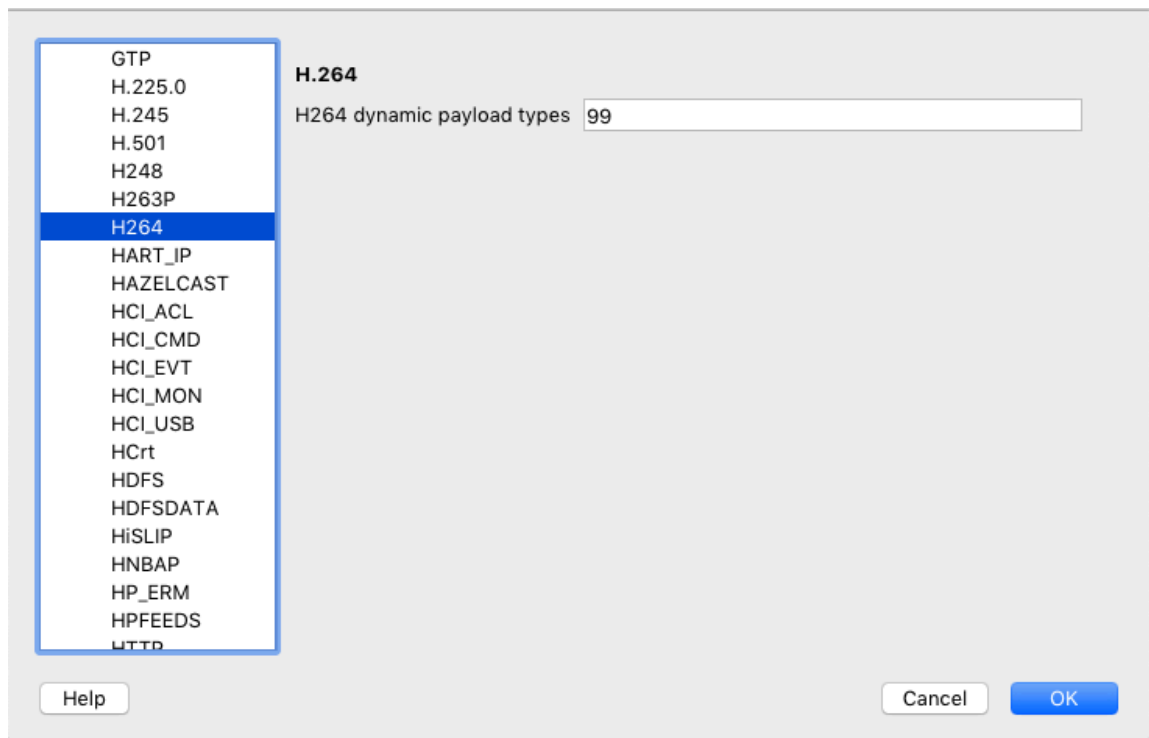
## Introduction

This document describes how to download and use the RTPParser script to validate IP video/audio streams and the accessory's RTP implementation (e.g. packet structure, frame rate) to ensure that they adhere to the specification required to correctly display on iOS devices.

## Download Instructions

To download the prerequisites and configure the settings for this tool, please perform the following steps:

1. Download and install Wireshark: [macOS 10.6 and later Intel 64-bit .dmg](https://2.na.dl.wireshark.org/osx/Wireshark%202.6.4%20Intel%2064.dmg) (<https://2.na.dl.wireshark.org/osx/Wireshark%202.6.4%20Intel%2064.dmg>).
2. Launch Wireshark and navigate to Wireshark>Preferences>Protocols>H264 and configure "H264 dynamic payload types" to "99."



3. Download and install Xcode: <https://developer.apple.com/xcode/>.
4. Launch Xcode and allow installation of additional components.
5. Download and install "pip." In terminal run:

```
$ curl https://bootstrap.pypa.io/get-pip.py -o get-pip.py
$ sudo python get-pip.py
```

6. Download and install "pyshark." In terminal run:

```
$ git clone https://github.com/KimiNewt/pyshark-legacy
$ cd pyshark-legacy/src/
$ sudo python setup.py install
$ Xcode-select --install
$ sudo pip install biplist
$ sudo pip install termcolor
```

## How to gather pcap logs using HAT

1. Download and launch the latest version of HAT. This is available in the Certification Tools section of the MFi Portal Document Center.

2. In the bottom-left section of HAT click the "+" and choose "Create IP Controller."

3. In the top-left section of HAT select "Controller 1" under "IP Controllers."

4. Under "Discovery" click "Start" and allow HAT a moment to discover the accessory.

5. In the top-left section of HAT under "Controller 1" click on the IP Camera that will be tested.

6. Under "Pairing" click "Start Pairing" and enter the setup code then press enter.

7. Once pairing is complete click "Discover" under the "Summary" section of the accessory.

8. In the left column of the accessory in HAT click on "Camera RTP Stream Management Service."

9. Set the resolution config to a supported resolution and frame rate by using the drop down menu in "Select Initial Configuration".

10. Set the encryption to "None" under "Select Crypto Suite" and click "Negotiate."

11. Click "Start Streaming" and begin a timer for 120 seconds.

12. After 120 seconds has passed click "Stop Streaming."

13. In the bottom-right section of HAT click "Trace".

14. After the Trace opens, navigate to File>Save As, and save the HAT Trace locally.

Note: You may need to quit and relaunch HAT after each iteration of this test.

## How to execute RTPParser script

1. Navigate to the folder that contains the saved HAT trace and right-click and choose "Show Package Contents".
2. Move the "hat-traffic.pcap" and the "StreamConfiguration.plist" to the location of the CamParser folder.
3. In terminal cd to file where RTPParser is and run:  
`$ python RTPParser.py`

```
$ python RTPParser.py
Enter max supported framerate? -> 30
Enter 0 for one-way audio and 1 for two-way audio? -> 1
Running Initial Setup Tests
Test Passed!

Running MTU Size test
Test Passed!

Running Framerate Test
Test Passed!
Your average framerate is: 27.7268340754

Running Timestamp incremental test
Test Passed!

Running Non-Interleaved Video Test
Test Passed!

Running RTCP-FB TMMBN Test
Delay in receiving tmmbn is: 0.256134
Frame number: 1479
Delay in receiving tmmbn is: 0.262329
Frame number: 8587
Delay in receiving tmmbn is: 0.477493
Frame number: 11884
Delay in receiving tmmbn is: 0.389315
Frame number: 13720
Delay in receiving tmmbn is: 0.267632
Frame number: 13872
Delay in receiving tmmbn is: 0.387598
Frame number: 15344
Delay in receiving tmmbn is: 0.362904
Frame number: 17079
Delay in receiving tmmbn is: 0.333786
Frame number: 18893
Delay in receiving tmmbn is: 0.366129
Frame number: 20538
Test Passed!

Running PLI Response Verification Test
Test Passed!

Running RTCP Video SR Test
Test Passed!

Running Periodic Key Frames Test
Test Passed!

Running Audio Setup Tests
Test Passed!

Running Audio Timestamp Tests
kAVCCodecTypeOpus24K timestamp interval should be: 480
Test Passed!

Running Audio SR Test
Test Passed!

Total tests = 12
Total tests passed = 12
Total tests failed = 0

1. MTU Size : Passed
2. Average Framerate : Passed
3. Timestamp Increments : Passed
4. Non Interleaved Video : Passed
5. TMMBN Feedback : Passed
6. PLI Response : Passed
7. RTCP-Video SR : Passed
8. Periodic Stap and FU : Passed
9. Audio RTP Ports : Passed
10. Audio SSRC : Passed
11. Audio Time Stamps : Passed
12. RTCP-Audio SR : Passed
```

## Bug Filing Instructions

To ensure that we address your issue as effectively as possible:

- Report all RTPParser issues to [bugreport.apple.com](https://bugreport.apple.com) under "HomeKit Accessory Development | Certification Tools."
- In the version/build section, include the build number for HAT and RTPParser.
- In the configuration section, include the build number for macOS.
- In the configuration section, include the MFi Product Plan ID for your accessory and the firmware version. Describe your results and how they differ from what is expected.
- In the "Additional notes" section, explain the impact on your development (e.g., inconvenience, blocking certification, etc.).
- In the "Additional notes" section, include any additional configuration, spec language, workarounds, or other relevant information.
- A trace or screenshot with annotations is strongly recommended to help understand your issue in a timely manner. Additional logs and/or videos will help expedite a fix.

# Revision History

Date	Description
November 2018	Initial Release