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About the SRT AddOn by TxRx Data

SRT AddOn is an after market application that adds SRT functionality to Adtec EN and RD series Encoders and Decoders.

SRT AddOn does not change or impede the functionality of the Adtec EN or RD devices; it adds SRT Caller and Listener functionality to the Adtec devices.

Disclaimer

[SRT AddOn](#) is not supported or authorized by [Adtec](#). Support for the SRT AddOn is only provided and supported by TxRx Data. Please email Kevin Ancelin, TxRx Data Founder, for questions, support and or to add SRT AddOn to your legacy Adtec EN and RD devices.

Contact TxRx Data

Questions and support, please contact Kevin Ancelin at kancelin@txrxdata.com.

[SRT AddOn](#)

[By TxRx Data LLC](#)

Initial SRT AddOn Installation

Uploading the SRT AddOn Application

Use the Adtec File Upload to load the SRT AddOn application to a local directory on the Adtec device. The Upload button is located in the top right area of the Adtec device web page (GUI). It is between the Logs and Thumbnail buttons.

Licensing the SRT AddOn Application

Once installed, the SRT AddOn will require a license key to function. The Product ID field has a hyperlink that emails the ID to TxRx Data.

SRT AddOn Web Page

The SRT AddOn application resides on top of the Adtec EN and RD devices. It has its own Web Server and Web Page compatible with modern browsers like Chrome. The SRT AddOn also



includes the SRT library and the TxRx Data software. The SRT AddOn is accessible at the same IP Address (IPA) of the Adtec device with :8000 appended to the IPA of the Adtec device.

There is no UN or Password required to access the SRT AddOn.

IP Address (IPA) Example Table

Example IP Address (IPA) of the Adtec GUI	SRT IPA - add :8000 after the IPA.
192.168.1.155	192.168.1.155: 8000
10.10.12.13	10.10.12.13: 8000

URL Example to access the SRT AddOn on an Adtec Device

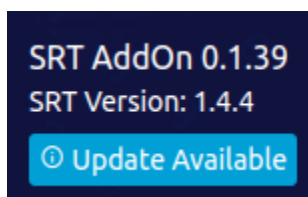
192.168.1.155:8000

SRT AddOn Upgrades

After the initial manual installation of the SRT AddOn application on your Adtec device, future updates will be notified and completed within the SRT AddOn application. The SRT Header will inform the user that an update is available. The update resides on a TxRx Data server in the cloud and will be downloaded and executed to the device once the user clicks on Update Available. The file is less than 7 MB and depending on your internet connection speed, the download itself will only take a few seconds.

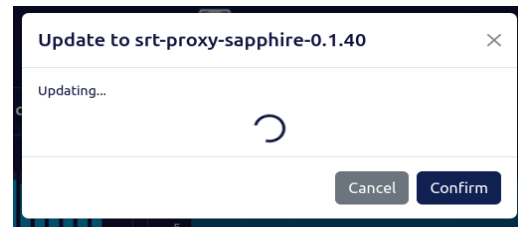
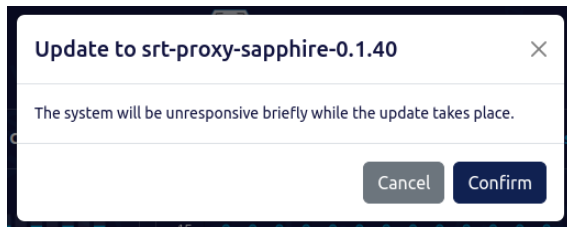


Update Available notification shown below. Click on Update Available to start the update process.



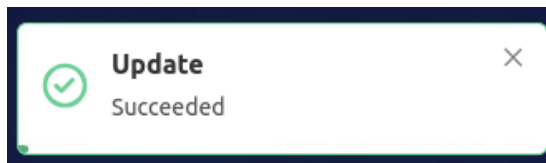


Models showing options and status after Update Available is clicked.

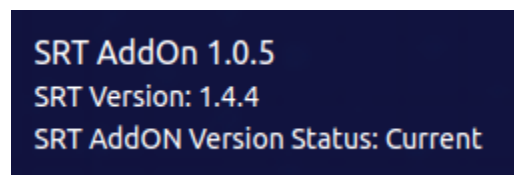


The SRT AddOn uses an internal timer that watches the SRT AddOn application to ensure it's always running. This timer triggers once a minute to ensure the SRT AddOn application is running and we use it to restart the SRT AddOn applications once its updated. Depending when you click Confirm to start the upgrade, it will take between 5 and 60 seconds to complete and return to operational state showing the new version number of the SRT AddOn and SRT AddOn Version Status to Current.

Control and Upgrade confirmation are visible in the lower right corner of the SRT AddOn web page.



SRT Header showing SRT AddOn Status: Current after the upgrade process.





SRT AddOn GUI

The SRT AddOn application resides on top of the Adtec EN and RD legacy platform. It has its own Web Server, the SRT library and TxRx Data software that glues it all together. SRT AddOn is addressable at the same IP Address (IPA) of the Adtec device plus the **:8000**.

IP Address (IPA) Example Table

Example IP Address (IPA) of the Adtec GUI	SRT IPA - add :8000 after the IPA.
192.168.1.155	192.168.1.155:8000
10.10.12.13	10.10.12.13:8000

SRT AddOn Web Page GUI Zones

Label	Purpose
A	Status header for SRT AddOn Application Version, SRT Library Version, TxRx Data Link (logo), Adtec model and serial, Adtec Ethernet addresses and Product ID for SRT AddOn version
B	Status of Adtec and SRT link including Adtec video thumbnail, audio status, SRT data rate graph and SRT packet bar graph.
C	Configuration of the SRT AddOn. Ping test. Resync, Apply, Reaquire and Clear options.
D	SRT Status.
E	SRT Logs



SRT AddOn Web Page

A

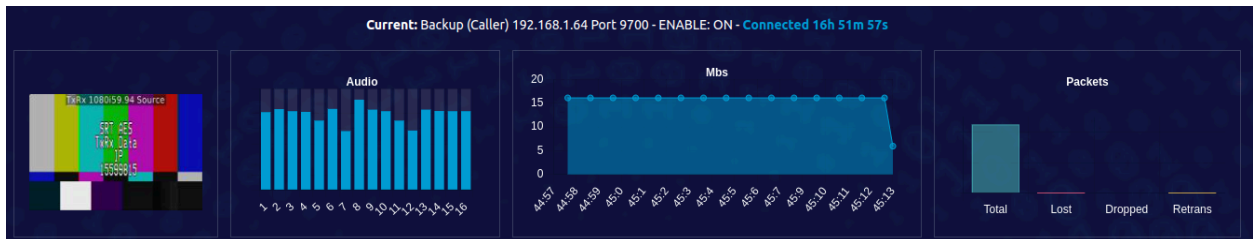


A - SRT Header





B - SRT Adtec Status with SRT Graphs



C - SRT Configuration

Ping [Help](#)

Primary

Select

Backup

Active

D - SRT Statistics

Status			
Mbs	PACKETS	CONNECTED TIME	CURRENT ACTIVE
16.121374	90391936	16h 56m 43s	Backup
RTT (MS)	DROPPED	CONNECTED ENDPOINT	
0.842	0	192.168.1.64:9700	
LATENCY	LOST	ID	
116	237	ENCRYPTION	
LINK SPEED	RETRANSMITTED	AES256	
1000	236		

E - SRT Logs

Logs

```
Mar 31 21:18:45 : msRcvBuf[0118] RTT[2.316] pktRcvDrop[0000] pktRcvLoss[0098] mbpsBandwidth[20.688] mbpsRecvRate[13.435] msRcvTsbPdDelay[0120]
Mar 31 21:13:44 : msRcvBuf[0115] RTT[27.494] pktRcvDrop[0000] pktRcvLoss[0097] mbpsBandwidth[40.716] mbpsRecvRate[13.435] msRcvTsbPdDelay[0120]
Mar 31 21:08:43 : msRcvBuf[0118] RTT[1.371] pktRcvDrop[0000] pktRcvLoss[0095] mbpsBandwidth[25.104] mbpsRecvRate[13.435] msRcvTsbPdDelay[0120]
Mar 31 21:03:42 : msRcvBuf[0123] RTT[1.174] pktRcvDrop[0000] pktRcvLoss[0094] mbpsBandwidth[13.284] mbpsRecvRate[13.435] msRcvTsbPdDelay[0120]
```



Adtec EN and RD Devices

Adtec delivered two host platforms over the long life cycle of the EN and RD platforms. They include the **Iolite** and **Sapphire**. See the table below for information on each and the expected performance of their respective platforms.

Table of Adtec EN and RD Devices

Model	Host Platform	SRT AES Support	AAC Audio	Tested performance
RD60	Iolite	No	No	10 Mbs with no encryption or decryption and no AAC audio decode
RD70	Iolite	No	No	10 Mbs with no encryption or decryption and no AAC audio decode
RD71	Sapphie	Yes	Yes	15 Mbs with no encryption or decryption with optional AAC audio decode.
EN40/80/81	Iolite	No	No	10 Mbs with no encryption or decryption and no AAC audio.
EN91	Iolite	No	No	10 Mbs with no encryption or decryption and no AAC audio decode
EN100	Iolite	No	Yes	10 Mbs with no encryption or decryption with optional AAC audio. Listener mode may be slower.
EN200/210	Sapphire	Yes	Yes	15 Mbs with no encryption or decryption with optional AAC audio.

TxRx Data has Adtec documentation and last known firmware [here](#).

Adtec Requirements

Adtec devices are not aware of the SRT AddOn. To use the EN and RD devices with the SRT AddOn installed, the user must facilitate a few configuration settings.



Global System Requirements

Please ensure your Adtec device has the recommended and tested firmware at this [link](#).

Adtec EN81 (example) System Tab

Apply

Cancel

Uptime: ⓘ 1 Days, 0 Hours, 57 Minutes, 47 Seconds

Device Name: ⓘ

Reboot Device

Gateway Address: ⓘ

Ethernet Port (eth0)

☐ DHCP: ⓘ

Ethernet Address: ⓘ

Subnet Mask: ⓘ

Nameserver IP: ⓘ

GigE Port (eth1)

☐ DHCP: ⓘ

GigE Address: ⓘ

Subnet Mask: ⓘ

GigE Management: ⓘ

NTP Address: ⓘ

Date: ⓘ

Time Zone: ⓘ

Time: ⓘ

SNMP: ⓘ

Read Only Password: ⓘ

Trap Community: ⓘ

Read-Write Password: ⓘ

Trap Sink: ⓘ

Apply

Cancel

It is required that the Adtec device is connected to a local or wide area network. If using a WAN and transporting media over the internet, the Adtec device requires a Nameserver IPA to use domain names (DNS). Commonly the gateway address on your router will provide this. You may also use common DNS servers on the internet, such as Google's 8.8.8.8.

Note: Included in SRT AddOn version 1.0.7, the installation sets the Name Server IP Address to 8.8.8.8.



To confirm you are on the internet and have a name server, simply click Ping in section C. If ping fails using Google.com, try 8.8.8.8. If 8.8.8.8 works, you have no or an invalid DNS entry in the Adtec System tab Nameserver. Ping will allow you to test the devices own IPA, the Gateway, Google and the other device you wish to call or listen to. Ping is your friend.

EN System Requirements

The EN series Encoders implement an internal DMA to interface with the SRT AddOn. There are no SRT dependencies in the EN series outside the SRT AddOn GUI configurations. Configure your video and audio in the Adtec UI and make sure the rates are compliant with the tested performance in this [table](#).

RD System Requirements

The RD series Decoders leverage a local host IP loopback from the SRT AddOn application and the Adtec Input / RD Services / IP Params configuration. The SRT AddOn **REQUIRES** the configurations shown in the Table Below.

Note: Included in SRT AddOn version 1.0.7, the installation sets the IP Rx Mode. Address and Port. Please make sure the Connector is set appropriately.

RD IP Params Configuration Table

Variable	Required or Recommended Setting
IP Rx Mode	UDP/RTP Rx
Connector	lolite: Ethernet, GigE. Use the connector with the Gateway for WAN or same subnet for LAN flows. Sapphire: IP1, IP2. Use the connector with the Gateway for WAN or same subnet for LAN flows.
Address	127.0.0.1
Port	9261
Source Address	0.0.0.0
Latency (milliseconds)	50



	Using the SRT AddOn reduces the need for the Latency (dejitter). SRT handles network dejitter with the SRT Latency variable for Adtec. It is recommended to use 50 .
Time Out (milliseconds)	200 . Default 1000
Error recovery (milliseconds)	1000 . Default 10000

Remember to be aware of the platform performance dependency rates as tested in this [table](#).

Adtec RD Services and IP Params GUI

RD Services Configuration

RD-70
Version 2.02.24
Temperature: 25(C) / 77(F)

Decoder Status: ● DECODING IP
Status: ● DECODING IP
Transmux Rate: 11400007 (b/s)
Service ID-Name: 42-Prism 122
Service Provider: TxRx Data
Bars/Tones/ID: OFF/OFF/ON
Decrypt Status: ● Free To Air

IP Rx Status: ● PLAYING
Status: ● PLAYING
IP Addr/Port: 127.0.0.1/9261
Average Bitrate: 11400007 (b/s)
Buffer %/Level: 3% / 231 (ms)
Protocol: UDP

Video Status:
Video Rate: 10312209 (b/s)
CODEC/Chroma: H264 / 420
Bit Depth: 8
Format: 1920x1080 29.97i
SDIOUT Scale: OFF
SDIALT Scale: OFF
Video / PCR PID: 258 / 257

Audio Status: ●●●●●●●●
A1: ● MPEG 1 Layer 2 / DECODE
PID: 274 / 192 (kb/s)
A2: ● MPEG 1 Layer 2 / DECODE
PID: 275 / 192 (kb/s)
A3: ● MPEG 1 Layer 2 / DECODE
PID: 276 / 192 (kb/s)
A4: ● MPEG 1 Layer 2 / DECODE
PID: 277 / 192 (kb/s)
A5: ☐ --N/A--
A6: ☐ --N/A--
A7: ☐ --N/A--
A8: ☐ --N/A--

IP Tx Status: ●●●●●●●●

RD Services Configuration:

Logs >> Upload Thumbnail Logout X

Input Profile Video Audio CAS VBI TS Output System Security Upgrade Help

RD Services IP Params Bars Tones & ID

Advanced Input Sel.

ASI Reset ☐ Select first found

Select	Service ID	Service Name	Service Provider	Details
-- No Services Found --				

IP Reset ☒ Select first found

Select	Service ID	Service Name	Service Provider	Details
Current	42	Prism 122	TxRx Data	Details

MAKE SURE the Select First Found radio button is selected in the IP Table.

RD IP Params Configuration

Note: Included in SRT AddOn version 1.0.7, the installation sets the IP Rx Mode. Address and Port. Please make sure the Connector is set appropriately.



RD Services	IP Params	Bars Tones & ID
<div>Apply Cancel</div>		
IP Rx Mode: ?	UDP/RTP Rx	Connector: ?
ETHERNET		
Address: ?	127.0.0.1	Port: ?
9261		
Source Address: ?	0.0.0.0	Latency(ms): ?
50		
Timeout(ms): ?	200	Error Recovery(ms): ?
1000		

It is REQUIRED that the variables in your RD model (RD70 shown above) match. The exception is the Connector. See this [table](#) for guidance.

SRT AddOn Quick Reference

SRT AddOn is an after market application that adds SRT functionality to Adtec EN and RD series Encoders and Decoders. The SRT AddOn does not change or impede the functionality of the Adtec EN or RD devices; it adds SRT Caller and Listener functionality to the Adtec devices.

What is the IP Address (IPA) of the SRT AddOn application?

The SRT AddOn web server resides inside the Adtec device. In Chrome enter the IPA of the Adtec device appended with colon (:) :8000 to resolve the SRT AddOn application.

IP Address (IPA) Example Table

Example IP Address (IPA) of the Adtec	SRT AddOn IPA - add :8000 after the Adtec IPA.
192.168.1.155	192.168.1.155:8000
10.10.12.13	10.10.12.13:8000

Are there credentials for the SRT AddOn application?

There are **NO** credentials on the SRT AddOn. The SRT AddOn resolves at the IPA and port 8000 on the Adtec device and there are no credentials (user name or password) required.



About SSL and Security on Adtec Devices

Adtec EN and RD devices were very innovative when initially developed. They used early internet tools and received upgrades over time. They are not modern internet devices and they do not support SSL certificates and HTTPS. All Adtec devices resolve at their IPA on the standard HTTP port 80. They are credentialled and require a user name and password. If you have an Adtec device behind a firewall and want access to it on port 80 and the SRT AddOn on port 8000, both ports must be Network Address Translated ([NAT](#)) to access them remotely. Adtec device quick start guides, manuals and last known Adtec firmware are located [here](#).

IP Address (IPA) Port and Credential Table

Adtec Device IPA	Adtec Device Port	User Name / PW	SRT AddOn IPA	Port
192.168.1.155	80	UN adtec PW: none	192.168.1.155:8000	8000

Initial SRT AddOn Installation

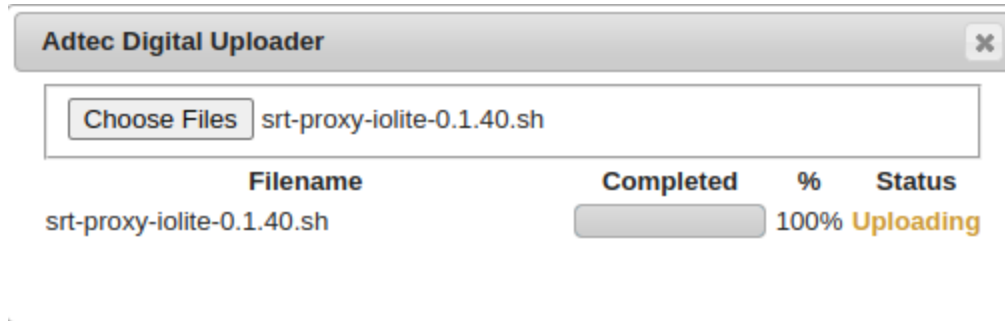
Download the SRT AddOn Application and Documentation

TxRx Data keeps the SRT AddOn application [here](#). You can download the SRT AddOn application for your Adtec Device's host platform (iolite or sapphire), the quick start (this document) and the manual too. The applications on the download site are **.zip** files and must be decompressed prior to uploading to your Adtec device. The Adtec devices will only install the file ending in **.sh**. The zip file assists with the download only.

Uploading the SRT AddOn Application

Use the Adtec File Upload to load the SRT AddOn application to the Adtec device. **Only load the .sh file, not the .zip file to the Adtec device.** The Upload button is located in the top right area of the Adtec device web page (GUI). It is between the Logs and Thumbnail buttons.





To execute the application for the first time, the user must SSH into the Adtec device and run the ***srt-proxy-<host platform>-x.yy.zz.sh*** file. **Do NOT upload the .zip file to the Adtec.**

SSH and executing the initial SRT Application

```
x@4202x-ws21-lab:~$ ssh root@192.168.1.155
root@192.168.1.155's password: (contact TxRx data for SSH root password)
Successfully logged in.
```

```
root@RD-70-201511015:~# sh /media/hd0/media/srt-proxy-iolite-0.1.40.sh
Verifying archive integrity... MD5 checksums are OK. All good.
Uncompressing package_dir installer
Starting srt-proxy daemon...Done.
root@RD-70-201511015:
```

Adtec devices were early internet devices and SSH has matured significantly. It is probable that your terminal and the Adtec device may not be compatible. If you are challenged with this reply after entering: `ssh root@<your IP Address>`.

"Unable to negotiate with <your IP Address> port 22: no matching key exchange method found.

Use the following ssh command to resolve this challenge.

```
ssh -o KexAlgorithms=+diffie-hellman-group1-sha1 -o HostKeyAlgorithms=+ssh-dss -o
MACs=+hmac-sha1 root@<your IP Address>
```

TxRx Data will provide remote SSH implementation via Teamviewer or will support a technician familiar with SSH.



Table of Adtec EN and RD Devices

Model	Host Platform	SRT AES Support	AAC Audio	Tested performance
RD60	Iolite	No	No	10 Mbs with no encryption or decryption and no AAC audio decode
RD70	Iolite	No	No	10 Mbs with no encryption or decryption and no AAC audio decode
RD71	Sapphie	Yes	Yes	15 Mbs with no encryption or decryption with optional AAC audio decode.
EN40/80/81	Iolite	No	No	10 Mbs with no encryption or decryption and no AAC audio.
EN91	Iolite	No	No	10 Mbs with no encryption or decryption and no AAC audio decode
EN100	Iolite	No	Yes	10 Mbs with no encryption or decryption with optional AAC audio. Listener mode may be slower.
EN200/210	Sapphire	Yes	Yes	15 Mbs with no encryption or decryption with optional AAC audio.

TxRx Data has Adtec documentation and last known firmware [here](#).

Licensing the SRT AddOn Application

Once installed, the SRT AddOn will require a license key to function. Resolve to the SRT AddOn application at the Adtec device's IPA:**8000**. Example **192.168.1.155:8000** for an Adtec device at the IPA of **192.168.1.155**.

The Product ID field has a hyperlink that emails the Product ID to TxRx Data.

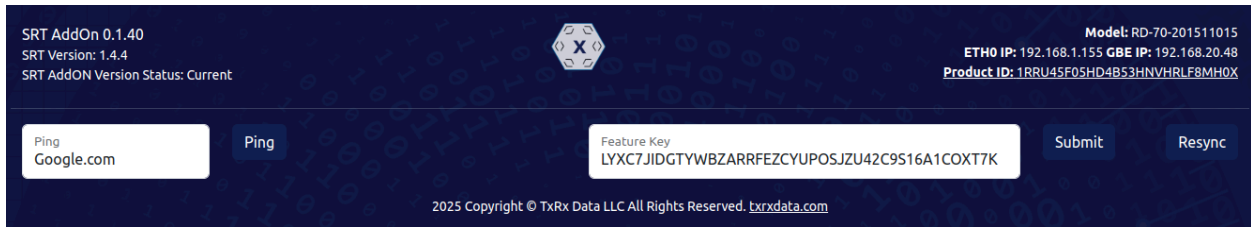
SRT AddOn 0.1.40
SRT Version: 1.4.4
SRT AddOn Version Status: Current

Model: RD-70-201511015
ETH0 IP: 192.168.1.155 GBE IP: 192.168.20.48
Product ID: 1RRU45F05HD4B53HNVHRLF8MH0X

Ping Google.com Ping Feature Key Submit Resync

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Paste the Feature key you receive from TxRx Data in the Feature Key field and click submit.



SRT AddOn header showing valid Product ID feature key. It is recommended to copy and paste this key somewhere to keep in your records.



Please reference the SRT AddOn [Manual](#) for Adtec device configuration requirements and use of the SRT AddOn application.

Preserving your SRT AddOn Licensing Key

Please copy the Key provided to you and save it to a text file. If you change the firmware on your Adtec device, the SRT AddOn application and key will be removed during that process.



REST API Examples

Thumbnail URL:

`[unit-ip:8000]/api/thumb`

Post:

`[unit-ip:8000]/api/cfg/set`

Request body:

```
{
  "uris": [
    {
      "idx": 0,
      "enable": true,
      "uri": "srt://[IP ADDR]:[PORT]?mode=caller[&optional srt uri
parameters]"
    },
    {
      "idx": 1,
      "uri": "srt://"
    }
  ]
}
```

Optional srt set uri parameters:

```
streamid=[String]
pbkeylen=[0, 16, or 32]
passphrase=[String]
```

Success Response (200):

```
{
  "status": true,
  "message": "Success"
}
```

Get:

`[unit-ip:8000]/api/cfg/get`

Return (200):

```
{
```



```
"uris": [  
  {  
    "enable": true,  
    "idx": 0,  
    "uri": "srt://[IP ADDR]:[PORT]?mode=caller"  
  },  
  {  
    "enable": true,  
    "idx": 1,  
    "uri": "srt://"  
  }  
]  
}
```

Get:

[unit-ip:8000]/api/stats

Return (200):

```
{  
  "audio_levels": "[32147,32112,0,0,0,0,0,0,0,0,0,0,0,0,0,0]",  
  "current_idx": 0,  
  "endpoint": "[IP-ADDR]:[PORT]",  
  "link": {  
    "bandwidth": 77.076,  
    "bps": 7556291,  
    "maxBandwidth": 1000,  
    "rtt": 0.201  
  },  
  "recv": {  
    "endpoint": "[IP-ADDR]:[PORT]",  
    "msRcvBuf": 105,  
    "packets": 73909136,  
    "packetsDropped": 0,  
    "packetsLost": 32,  
    "packetsRetransmitted": 32  
  },  
  "time": 106418,  
  "window": {  
    "congestion": 8192,  
    "flight": 0,  
    "flow": 8192  
  }  
}
```



Get:

[unit-ip:8000]/api/caps

Return (200):

```
{
  "addresses": [
    {
      "ETH0": "192.168.1.137"
    },
    {
      "GBE": "192.168.2.203"
    }
  ],
  "packed_fs": true,
  "platform": "sapphire",
  "product": "RD-71",
  "serial": "202006110",
  "srt_addon_version": "0.1.41",
  "srt_addon_version_value": 297,
  "srt_version": "1.4.4"
}
```

Get:

[unit-ip:8000]/api/feature/get

Return (200):

```
{
  "product_id": "Z55U6JFPPU0GFREF2QTYGHOEHZ1",
  "srt_addon_feature_key": true
}
```
