

15+

Free Apps

for Broadcasters

Why?

- Save money
- Faster bug fixes
- More security conscious
- More specialized software
- Allows customization
- Infrequent professional quality work

Why Not?

- Limited support
 - Stability
- Data or privacy issues
 - Licence limitations

Licencing

Licences determine the rights and responsibilities you have as a user of the software.

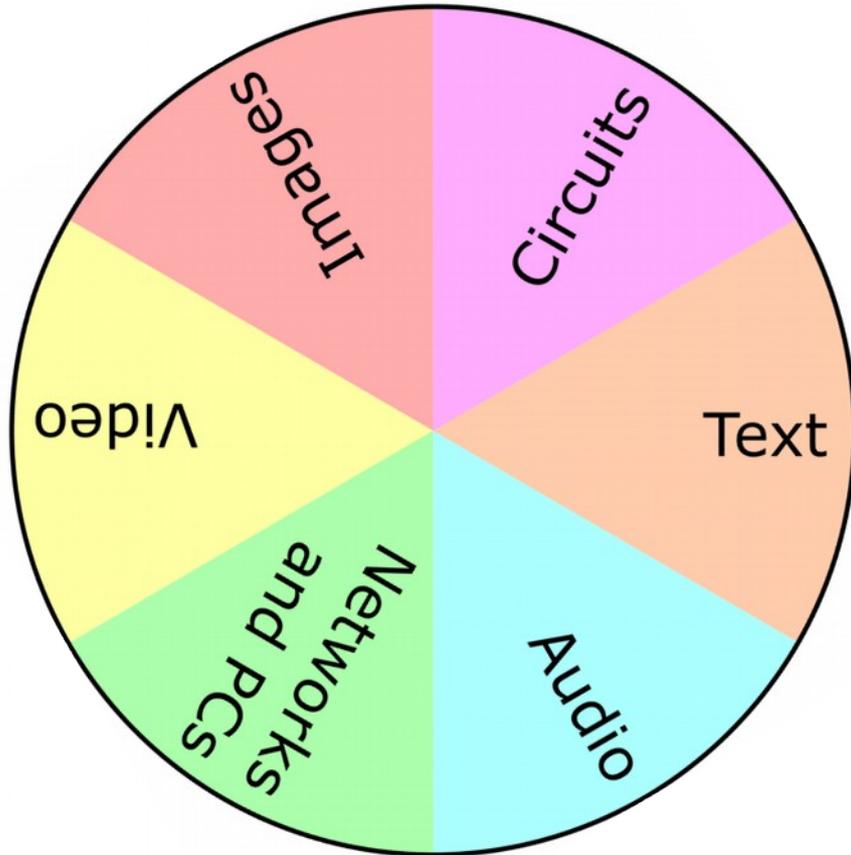
Common licence groups are:

- Apache
- BSD
- Creative Commons
- GNU (GPL and LGPL)
- MIT
- Mozilla

Read the software licence before or during installation to make sure you're following it.

License	Commercial use	Distribution	Modification	Patent use	Private use	Disclose source	License and copyright notice	Network use or distribution	Same license	State changes	Liability	Trademark use	Warranty
BSD Zero Clause License	●	●	●		●						●		●
Academic Free License v3.0	●	●	●	●	●		●			●	●	●	●
GNU Affero General Public License v3.0	●	●	●	●	●	●	●	●	●	●	●	●	●
Apache License 2.0	●	●	●	●	●		●			●	●	●	●
Artistic License 2.0	●	●	●	●	●		●			●	●	●	●
BSD 3-Clause License	●	●	●		●		●				●		●
"Simplified" License	●	●	●		●		●				●		●
BSD 3-Clause Clear License	●	●	●	●	●		●				●		●
BSD 3-Clause "New" or "Revised" License	●	●	●		●		●				●		●
Boost Software License 1.0	●	●	●		●		●				●		●
Creative Commons Attribution 4.0 International	●	●	●	●	●		●			●	●	●	●
Creative Commons Attribution Share Alike 4.0 International	●	●	●	●	●		●	●	●	●	●	●	●
Creative Commons Zero v1.0 Universal	●	●	●	●	●		●				●	●	●
CeCILL Free Software License Agreement v2.1	●	●	●	●	●	●	●	●	●		●		●
Educational Community License v2.0	●	●	●	●	●		●			●	●	●	●
Eclipse Public License 1.0	●	●	●	●	●	●	●	●	●		●		●
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European Union Public License 1.1	●	●	●	●	●	●	●	●	●	●	●	●	●
European Union Public License 1.2	●	●	●	●	●	●	●	●	●	●	●	●	●
GNU General Public License v2.0	●	●	●	●	●	●	●	●	●	●	●	●	●
GNU General Public License v3.0	●	●	●	●	●	●	●	●	●	●	●	●	●
ISC License	●	●	●		●		●				●		●
GNU Lesser General Public License v2.1	●	●	●		●	●	●	●	●	●	●	●	●
GNU Lesser General Public License v3.0	●	●	●	●	●	●	●	●	●	●	●	●	●
LaTeX Project Public License v1.3c	●	●	●	●	●	●	●	●	●	●	●	●	●
MIT License	●	●	●		●		●				●		●
Mozilla Public License 2.0	●	●	●	●	●	●	●	●	●		●	●	●
Microsoft Public License	●	●	●	●	●		●					●	●
Microsoft Reciprocal License	●	●	●	●	●	●	●	●	●			●	●
University of Minnesota/NC-SA Open Source License	●	●	●		●		●				●		●
ODC Open Database License v1.0	●	●	●	●	●	●	●	●	●		●	●	●
SQL Open Font License 1.1	●	●	●	●	●	●	●	●	●	●	●	●	●
Open Software License 3.0	●	●	●	●	●	●	●	●	●	●	●	●	●
PostgreSQL License	●	●	●		●		●				●		●
The Unlicense	●	●	●		●		●				●		●
Universal Permissive License v1.0	●	●	●	●	●		●				●		●
Do What The F*ck You Want To Public License	●	●	●	●	●		●				●		●
0th License	●	●	●		●		●			●	●		●

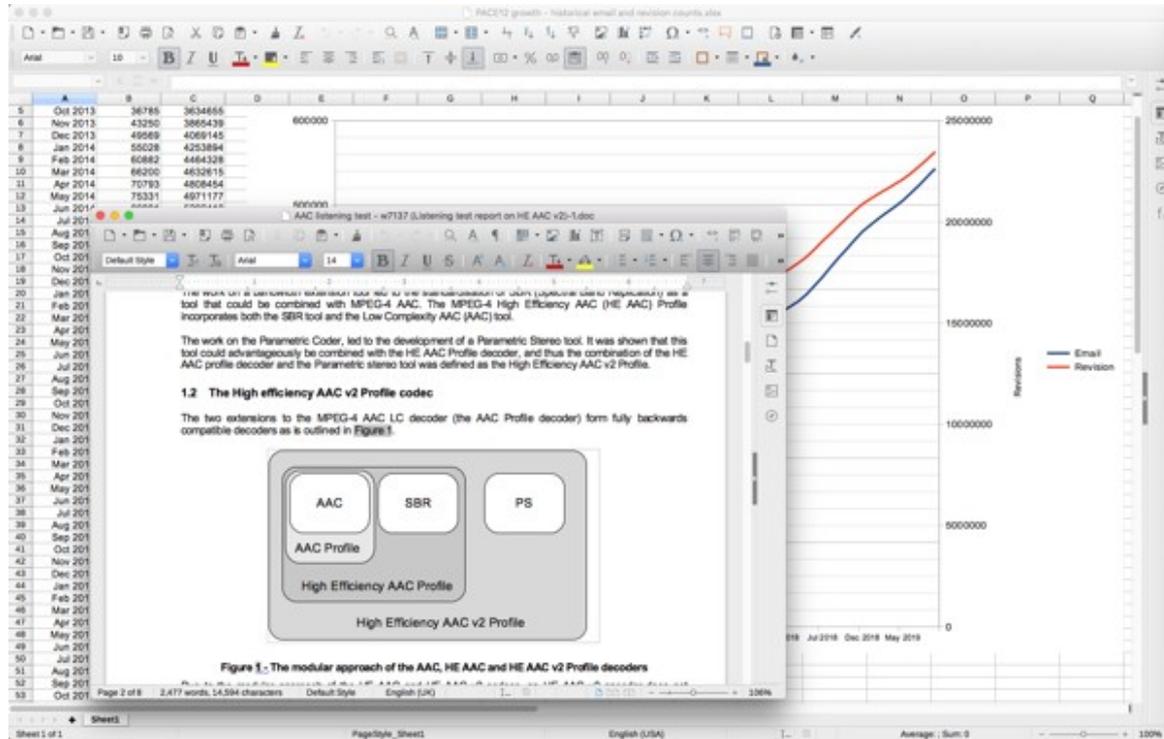
From <https://choosealicense.com/appendix/>





LibreOffice

libreoffice.org



- Full-featured office suite – word processor, spreadsheet, presentation, drawing, and database
- Opens and saves common file formats

Notepad++

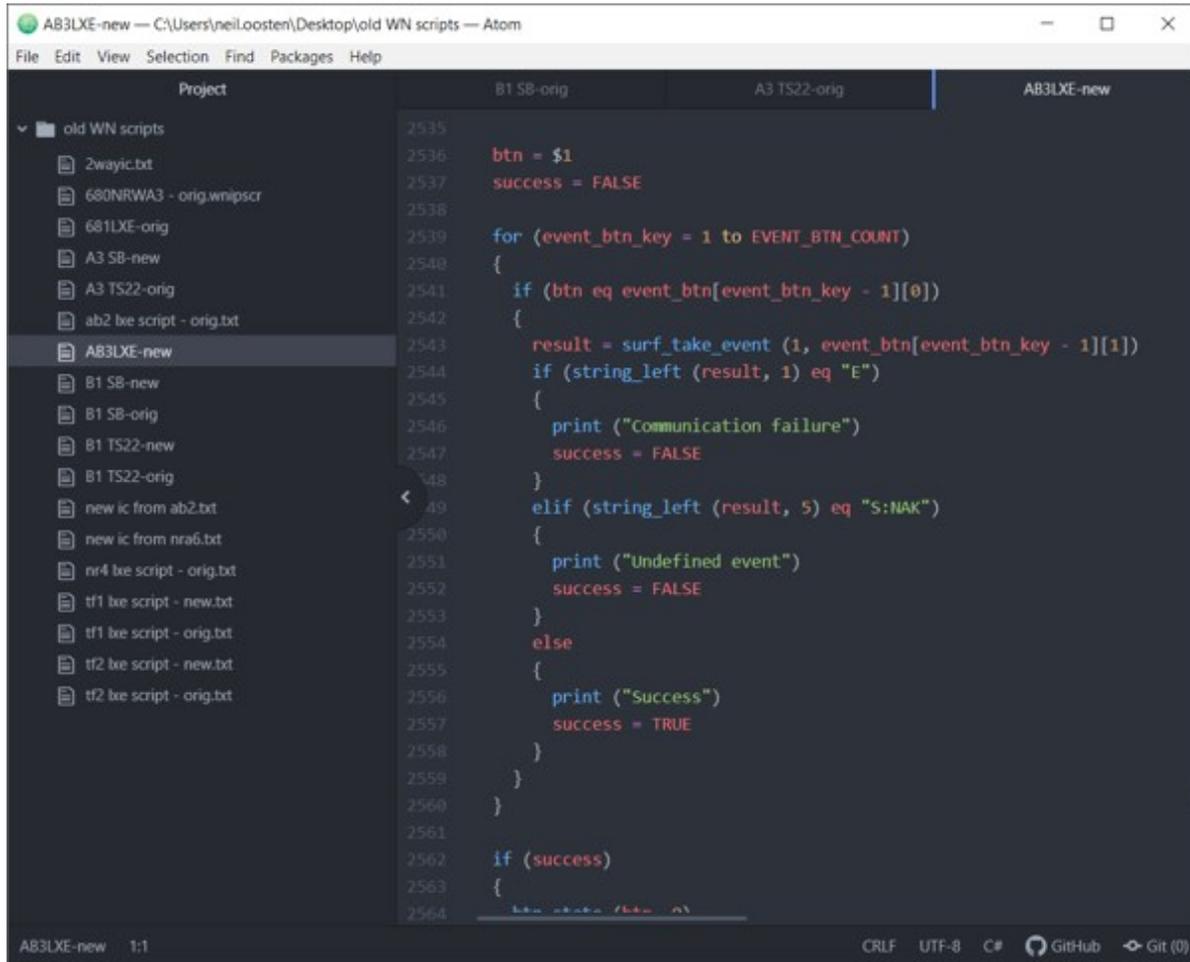
notepad-plus-plus.org

- Lightweight text editor
- Tabbed interface and syntax highlighting



```
CAUsers\neil.oosten\Desktop\IPLink304MIBS\HARRIS.MIB - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
INTRAPLEX-harrisPinkChannels.mib | new 38 | new 35 | new 40 | new 39 | new 41 | new 43 | new 44 | new 45 | new
93 -- Further pruned the Harris Corp Tree: removed the MCD and GCSD branches.
94 -- Branches for other Harris divisions, such as MCD, will be defined in
95 -- their respective product's corporate MIBs.
96
97 -- Steven Semanki, Harris Intralex, 04/29/2002
98 -- Pruned the Harris Corp Tree to resolve conflicts our Harris Corp MIB
99 -- is having with MCD counterpart.
100
101
102 HARRIS-MIB DEFINITIONS ::= BEGIN
103
104 -- Imports
105
106 IMPORTS
107     enterprises          FROM RFC1155-SMI
108     DisplayString       FROM RFC1213-MIB
109     OBJECT-TYPE         FROM RFC-1212
110     TRAP-TYPE           FROM RFC-1215;
111
112 -- This MIB divides Harris by Sector, Division, and Groups. The
113 -- Sector grouping represents any group of objects related to activity
114 -- within that Sector only. Likewise with the Division grouping.
115 --
116 -- The Groups grouping represents actual products or services that the
117 -- particular division produces and any temporary objects that may be
118 -- related to studies, research and development projects, and the like.
119 --
120 -- PLEASE NOTE that any objects in the temporary groupings are not
121 -- centrally administered by Harris Corporate and, thus, are not to be
122 -- diseminted outside of Harris.
123 --
124 -- ANY additions to this MIB *must* be registered with the Harris MIB
125 -- administrator to avoid any possible inconsistencies. This is particularly
126 -- true if this MIB is to be used in a government or commercial product.
127 -- Contact the Harris MIB administrator at CHQ to register all proposed
128 -- changes, deletions, and/or additions.
129
130
131 -- Categories
132
133 harris OBJECT IDENTIFIER ::= { enterprises 290 }
```

Abstract Syntax Notation length : 8,981 lines : 256 Ln: 1 Col: 1 Sel: 0 | 0 Windows (CR LF) UTF-8 INS

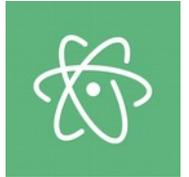


```
2535
2536 btn = $1
2537 success = FALSE
2538
2539 for (event_btn_key = 1 to EVENT_BTN_COUNT)
2540 {
2541     if (btn eq event_btn[event_btn_key - 1][0])
2542     {
2543         result = surf_take_event (1, event_btn[event_btn_key - 1][1])
2544         if (string_left (result, 1) eq "E")
2545         {
2546             print ("Communication failure")
2547             success = FALSE
2548         }
2549     }
2550     elif (string_left (result, 5) eq "S:NAK")
2551     {
2552         print ("Undefined event")
2553         success = FALSE
2554     }
2555     else
2556     {
2557         print ("Success")
2558         success = TRUE
2559     }
2560 }
2561
2562 if (success)
2563 {
2564     do_stuff $btn $1

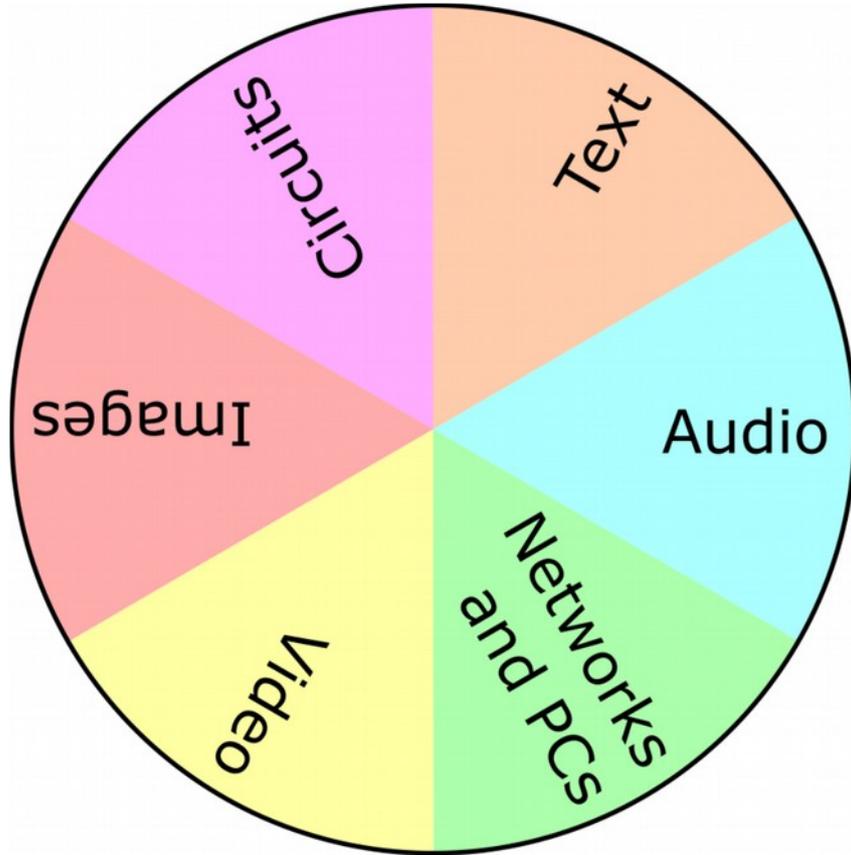
```

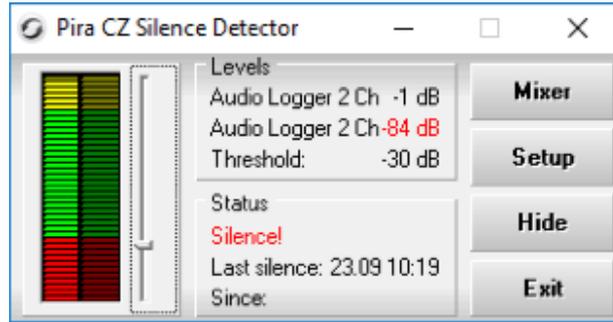
Atom

atom.io



- Cross-platform text editor
- Lots of customization options
- Allows plugins





Pira CZ Silence Detector

pira.cz/show.asp?art=silence

- Run tasks when alarm begins and ends
- Tasks include sending email, taking a screenshot, running an application, and rebooting the computer





Liquidsoap

liquidsoap.info

- Programming language built for audio and video
- Create and change streams (including metadata)
- Send to various formats and outputs

```
#!/usr/bin/liquidsoap -v
set("log.file.path", "/srv/logger/logs/liquidsoap/liquidsoap.log")
set("log.file.perms", "0640")

audioin = input.alsa(device='hw:0,0,0')
left = amplify(2., mean(stereo.pan(pan=1., audioin)))
right = amplify(2., mean(stereo.pan(pan=-1., audioin)))
sdr = mkSAFE(input.external("dd if=/tmp/sdr.pcm 2>/dev/null"))

#audioin = vumeter(audioin)

#output.alsa(audioin)
#output.alsa(bufferize = false, audioin)

# Detect silence and recovery. For threshold, choose the peak level and subtract approximately 10.
# For radio, use max 10, min 0.1, thres -25.
left = on_blank(
    max_blank=900.,
    min_noise=6.,
    on_noise=fun()->system("/srv/logger/scripts/silence-detect.sh NOISE 1"),
    threshold=-50.,
    track_sensitive=false,
    fun()->system("/srv/logger/scripts/silence-detect.sh BLANK 1"),
    left
)

# For radio, use max 10, min 0.1, thres -29.
right = on_blank(
    max_blank=10.,
    min_noise=0.1,
    on_noise=fun()->system("/srv/logger/scripts/silence-detect.sh NOISE 2"),
    threshold=-29.,
    track_sensitive=false,
    fun()->system("/srv/logger/scripts/silence-detect.sh BLANK 2"),
    right
)

# Send "both" audio to Icecast - high quality
output.icecast(
    %mp3(bitrate=320, samplerate=44100, stereo=true),
    host="localhost", port=8000, password=
    mount="/both",
    name="Both",
    description="",
    genre="",
    url="",
    public=true,
    failible=true,
    audioin
)

# Send "both" audio to Icecast - low quality
```



ocenaudio

ocenaudio.com

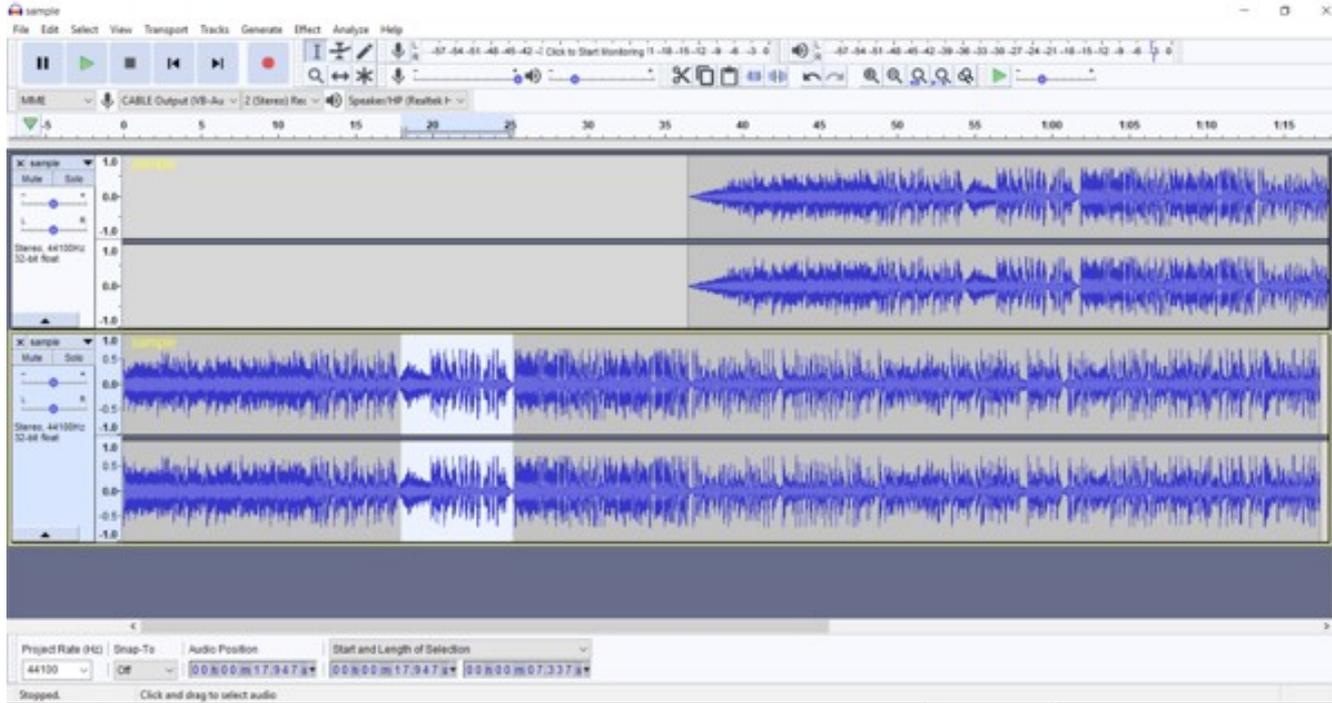


- Modern single-track audio editor
- Opens and saves many common file formats
- Built-in effects and VST plugin support



Audacity

audacityteam.org

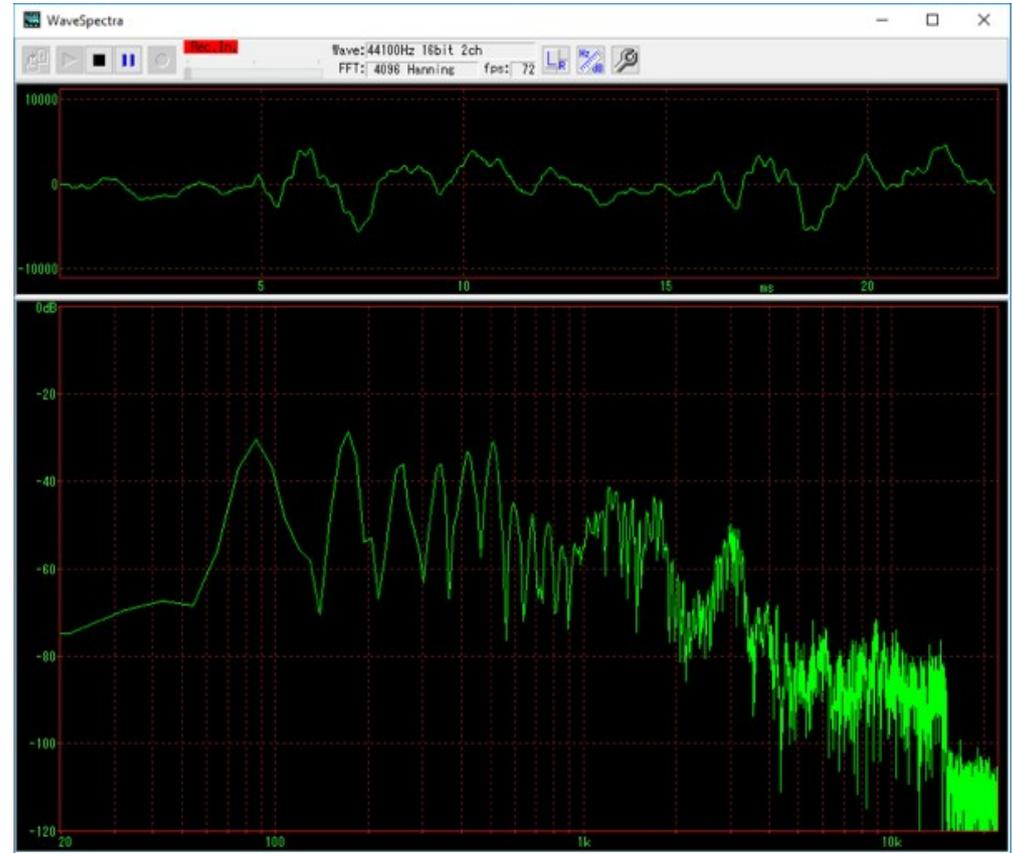
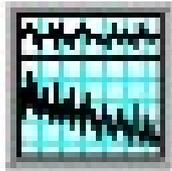


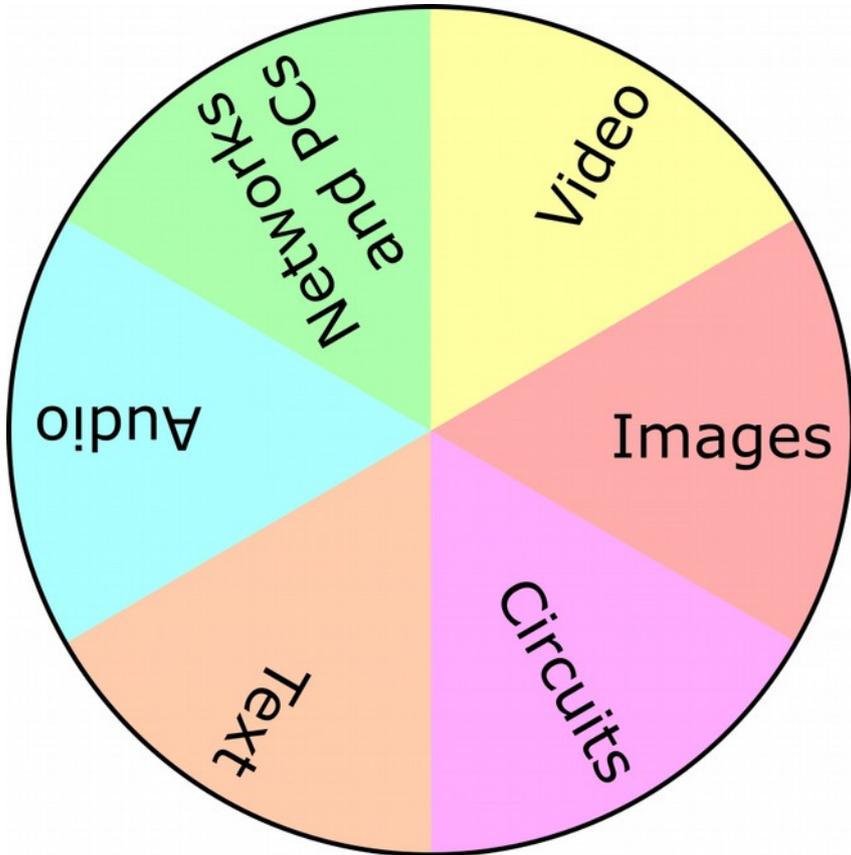
- Multi-track audio editor

WaveSpectra

efu.jp.net/soft/ws/ws.html

- Audio analysis of sound card input or WAV file







Paint.NET

getpaint.net



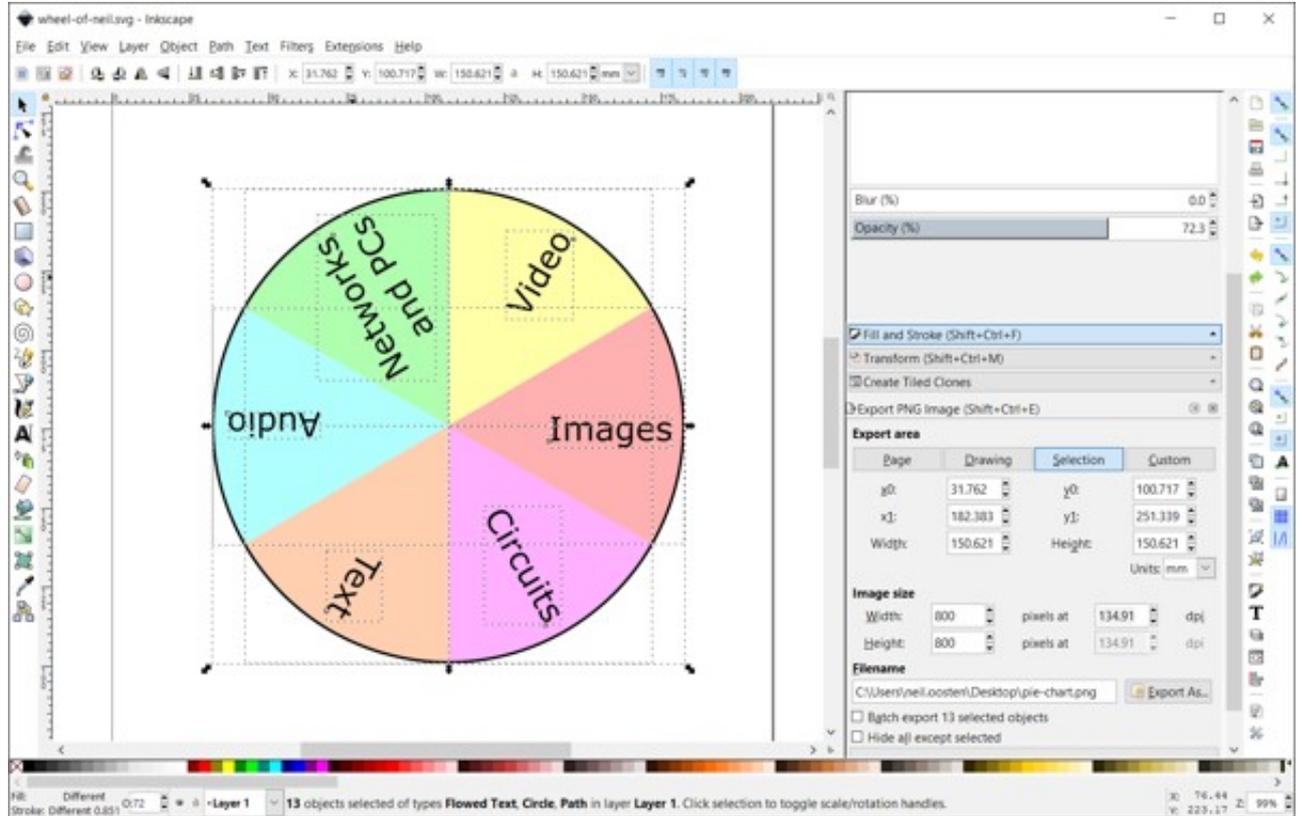
- Image and photo editor
- Support for layers and transparency

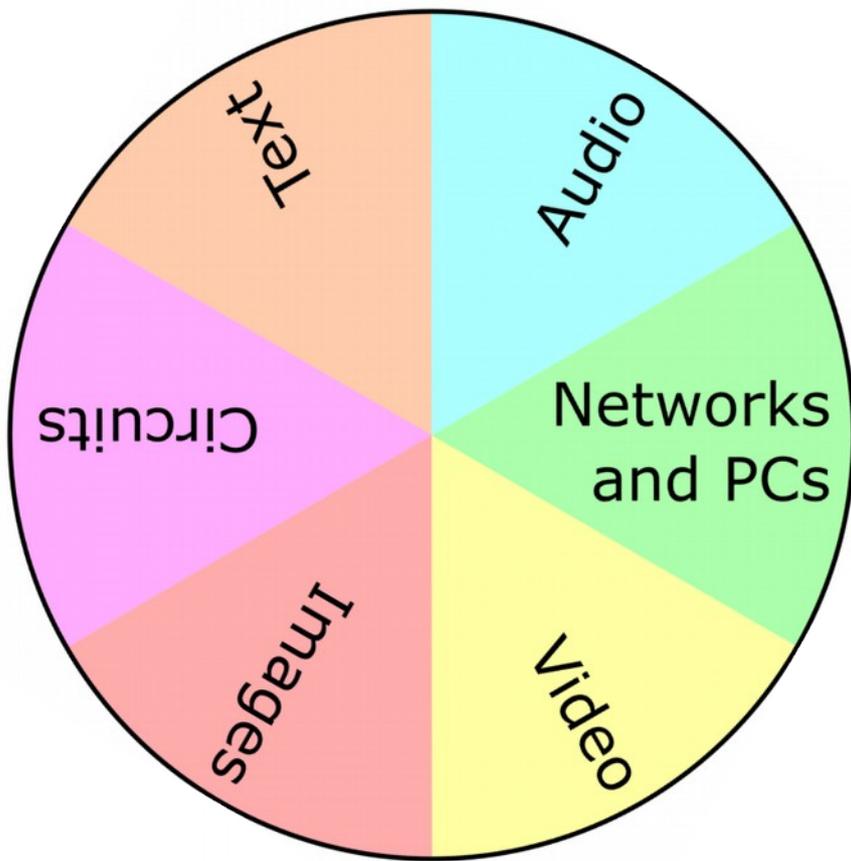
Inkscape

inkscape.org



- Vector graphic editor
- Can convert to PNG file format





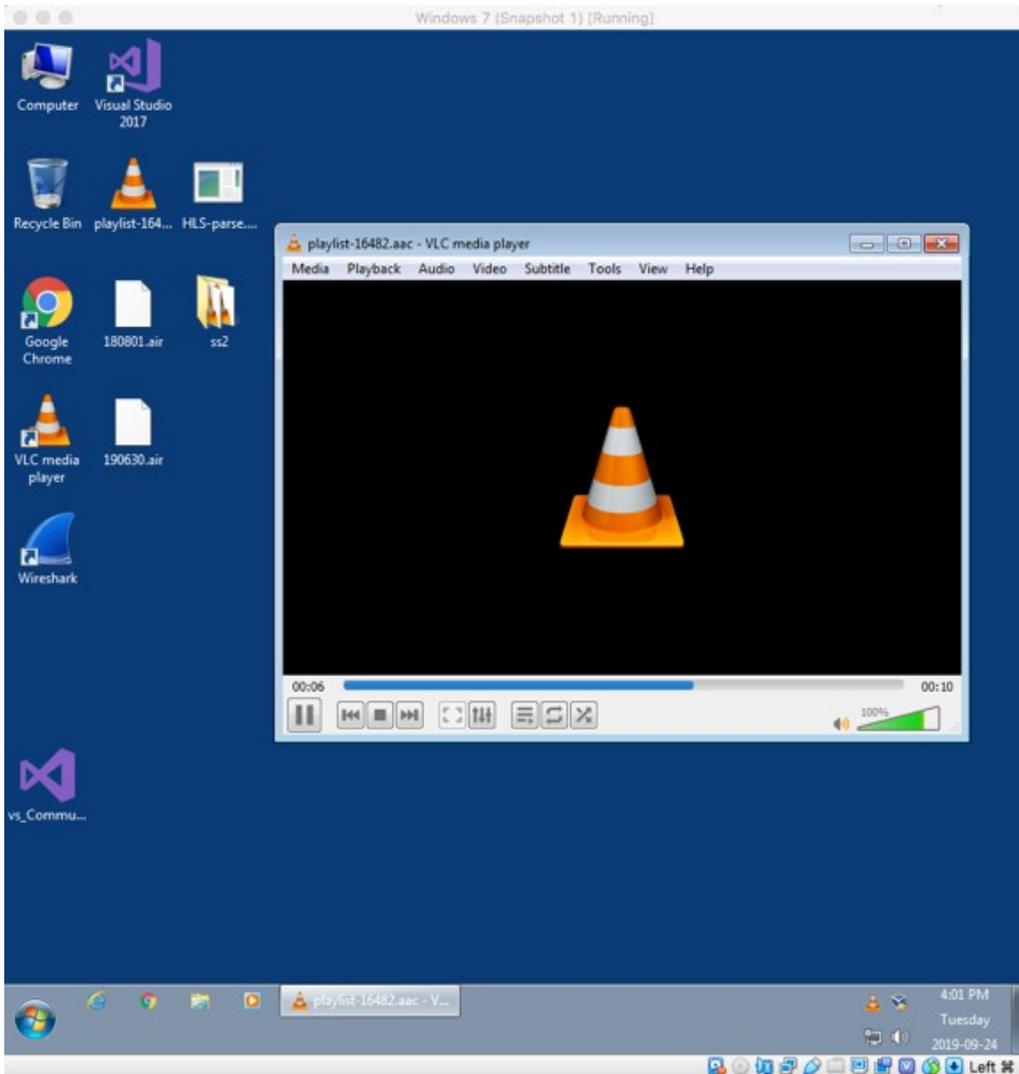


Zabbix

zabbix.com

- Monitor devices and applications
- Level-based alerts depending on problem
- Data collection and history





VirtualBox

[virtualbox.org](https://www.virtualbox.org)



- Run a virtual machine on your computer
- Good for testing or when an application is not available for your OS

Wireshark

wireshark.org

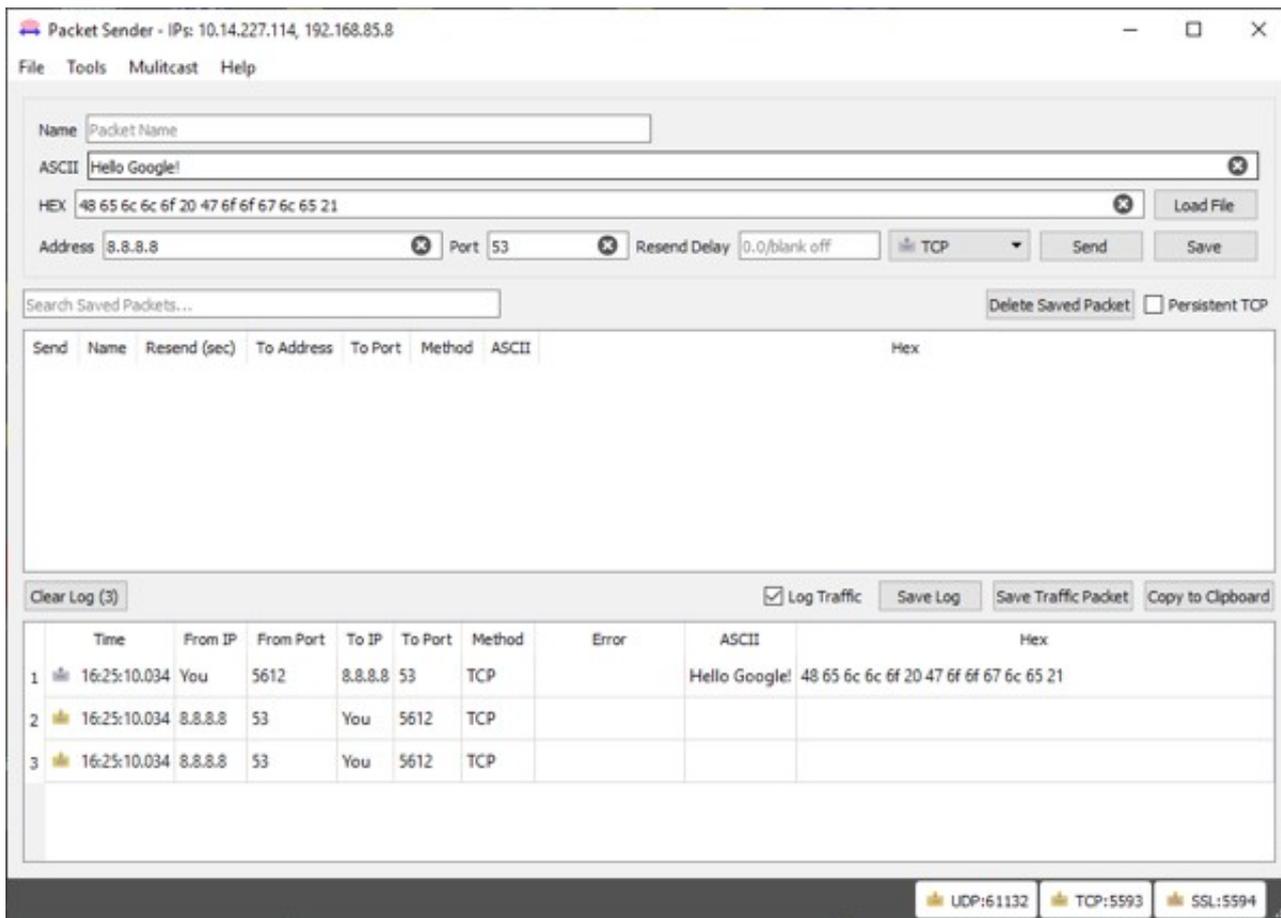
- Network packet analyzer
- Many filters to find relevant information

A screenshot of the Wireshark network protocol analyzer interface. The top window shows a list of captured packets with columns for No., Time, Source, Destination, Protocol, Length, and Info. Packet 4806 is selected and expanded in the bottom pane, showing details for a Transmission Control Protocol (TCP) segment. The details pane includes fields for Source Port (57771), Destination Port (443), Sequence number (0), Acknowledgment number (0), and Flags (SYN). The packet bytes pane at the bottom shows the raw hexadecimal and ASCII data of the captured packet.

No.	Time	Source	Destination	Protocol	Length	Info
4793	90.146457	192.168.2.99	23.195.218.30	TCP	66	[TCP Out-Of-Order] 57762 → 443 [FIN, ACK] Seq=1058 ...
4794	90.156819	23.195.218.30	192.168.2.99	TCP	66	443 → 57762 [ACK] Seq=20177 Ack=1059 Win=31104 Len=...
4795	90.156951	192.168.2.99	23.195.218.30	TCP	66	[TCP Dup ACK 4793#1] 57762 → 443 [ACK] Seq=1059 Ack=...
4796	90.351371	Cisco-L1.fc1f6c70	Spanning-tree(1f0...	STP	50	Conf. Root = 32768/8/20; Max Age: 40; Priority: 0; Cost = 0 P...
4797	90.660568	23.4.114.19	192.168.2.99	TLSv1	97	Encrypted Alert
4798	90.660678	192.168.2.99	23.4.114.19	TCP	66	57740 → 443 [ACK] Seq=12003 Ack=2420794 Win=1048544...
4799	90.660856	192.168.2.99	23.4.114.19	TCP	66	57740 → 443 [FIN, ACK] Seq=12003 Ack=2420794 Win=10...
4800	90.660891	23.4.114.19	192.168.2.99	TCP	66	443 → 57740 [FIN, ACK] Seq=2420794 Ack=12003 Win=44...
4801	90.660925	192.168.2.99	23.4.114.19	TCP	66	[TCP Out-Of-Order] 57740 → 443 [FIN, ACK] Seq=12003...
4802	90.660241	23.4.114.19	192.168.2.99	TCP	66	443 → 57740 [ACK] Seq=2420795 Ack=12004 Win=44832 L...
4803	90.660409	192.168.2.99	23.4.114.19	TCP	66	[TCP Dup ACK 4801#1] 57740 → 443 [ACK] Seq=12004 Ac...
4804	91.276200	192.168.2.99	192.168.2.4	DNS	85	Standard query 0x92e4 A getpocket.cdn.mozilla.net
4805	91.308035	192.168.2.4	192.168.2.99	DNS	225	Standard query response 0x92e4 A getpocket.cdn.mozil...
4806	91.309450	192.168.2.99	23.64.57.215	TCP	78	57771 → 443 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 KS...
4807	91.327470	23.64.57.215	192.168.2.99	TCP	74	443 → 57771 [SYN, ACK] Seq=0 Ack=1 Win=28960 Len=0...
4808	91.327550	192.168.2.99	23.64.57.215	TCP	66	57771 → 443 [ACK] Seq=1 Ack=1 Win=131744 Len=0 TSva...
4809	91.329177	192.168.2.99	23.64.57.215	TLSv1	638	Client Hello
4810	91.347139	23.64.57.215	192.168.2.99	TCP	66	443 → 57771 [ACK] Seq=1 Ack=573 Win=30288 Len=0 TSv...
4811	91.347545	23.64.57.215	192.168.2.99	TLSv1	212	Server Hello, Change Cipher Spec, Encrypted Handsha...

```
> Frame 4806: 78 bytes on wire (624 bits), 78 bytes captured (624 bits) on interface 0
> Ethernet II, Src: Apple_bd:46:5e (0c:4d:e9:bd:46:5e), Dst: Ubiquiti_7e:e2:f1 (fc:ec:da:7e:e2:f1)
> Internet Protocol Version 4, Src: 192.168.2.99, Dst: 23.64.57.215
v Transmission Control Protocol, Src Port: 57771, Dst Port: 443, Seq: 0, Len: 0
  Source Port: 57771
  Destination Port: 443
  [Stream index: 46]
  [TCP Segment Len: 0]
  Sequence number: 0 (relative sequence number)
  Acknowledgment number: 0
  Header Length: 44 bytes
  Flags: 0x002 (SYN)
  Window size value: 65535
  [Calculated window size: 65535]
  Checksum: 0x1455 [unverified]
  [Checksum Status: Unverified]
  Urgent pointer: 0
  Options: (24 bytes), Maximum segment size, No-Operation (NOP), Window scale, No-Operation (NOP), No-Operation (NOP), Timestamps, SAC...
```

```
0000 fc ec da 7e e2 f1 0c 4d e9 bd 46 5e 00 00 45 00  ...M..F...E.
0010 00 40 f7 75 40 00 40 06 00 00 c0 a8 02 63 17 40  .@.u@.....c.@
0020 39 d7 e1 ab 01 bb b4 43 75 a3 00 00 00 00 02 9...C U.....
0030 ff ff 14 55 00 00 02 04 05 b4 01 03 03 05 01 01  ...U.....
0040 00 0a 24 47 c3 9d 00 00 00 00 04 02 00 00  ..$G.....
```

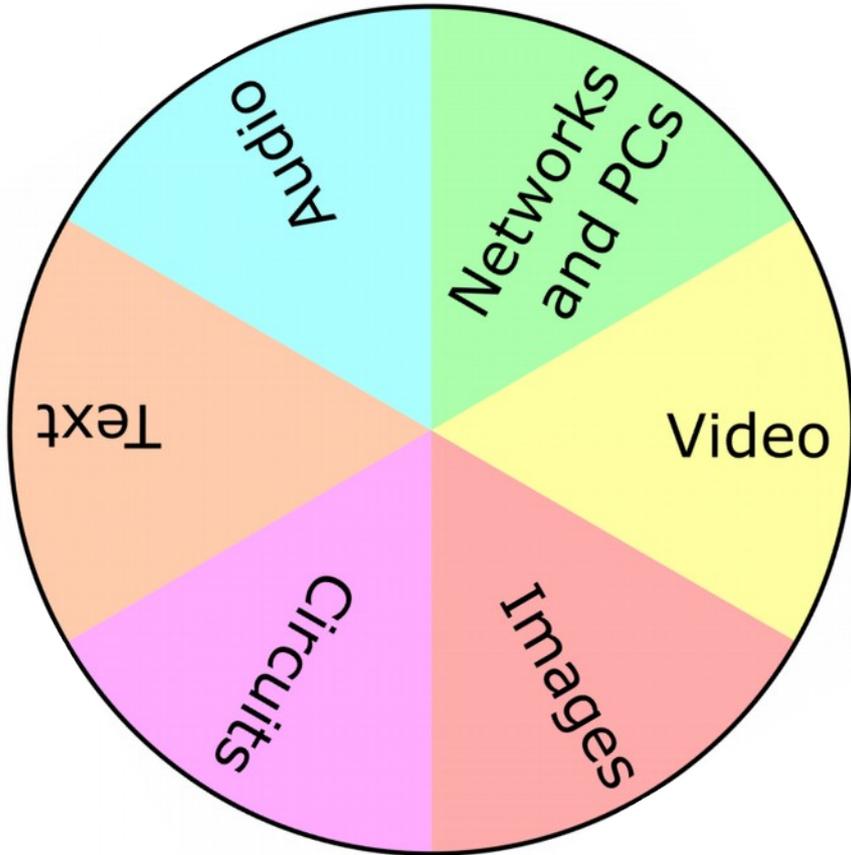


Packet Sender

packetsender.com



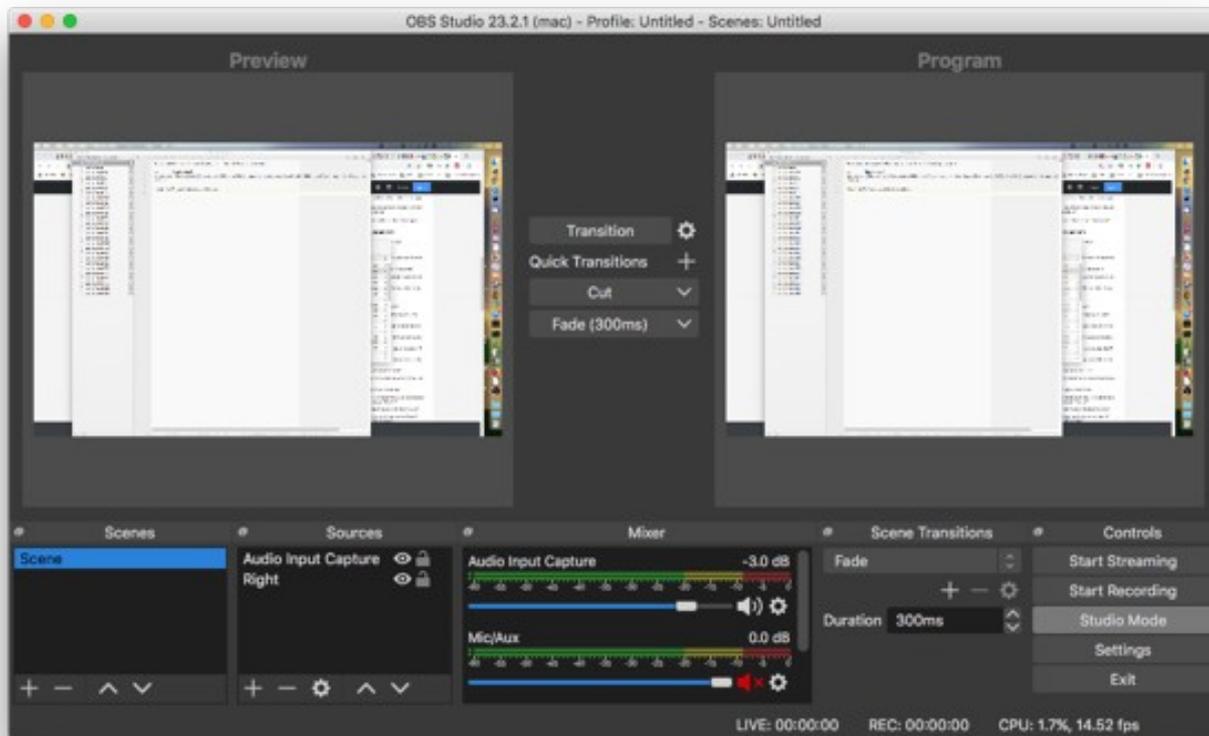
- Sends and receives network packets
- Good for testing metadata and APIs



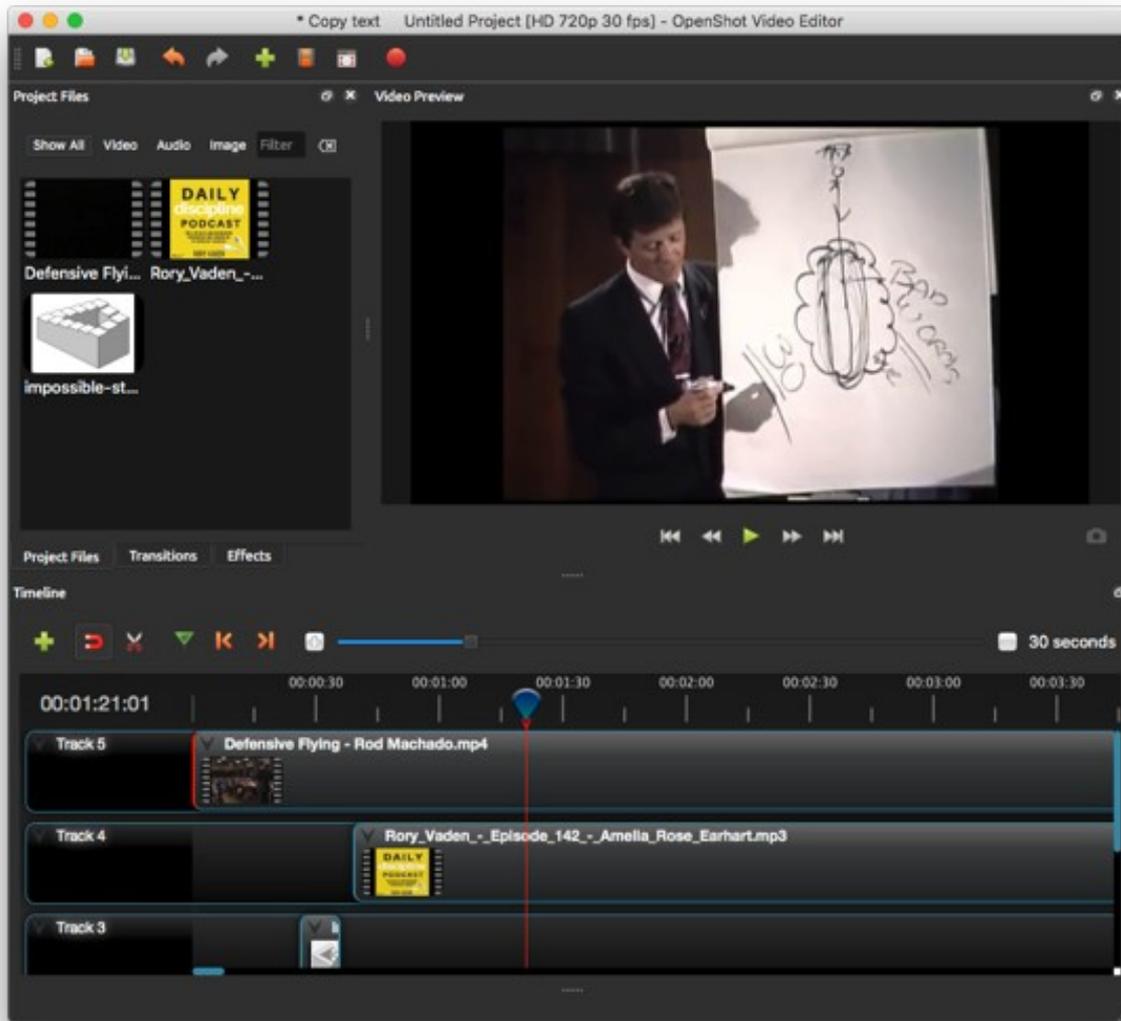


OBS Studio

obsproject.com



- Video recording and streaming
- Can capture cameras or desktop

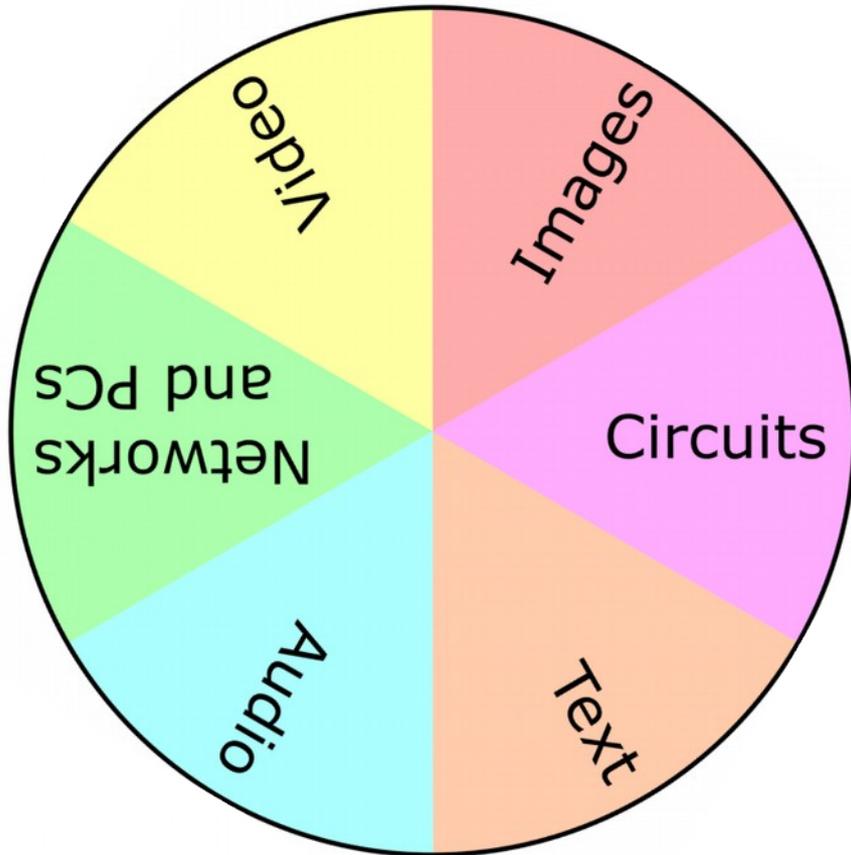


OpenShot Video Editor

openshot.org



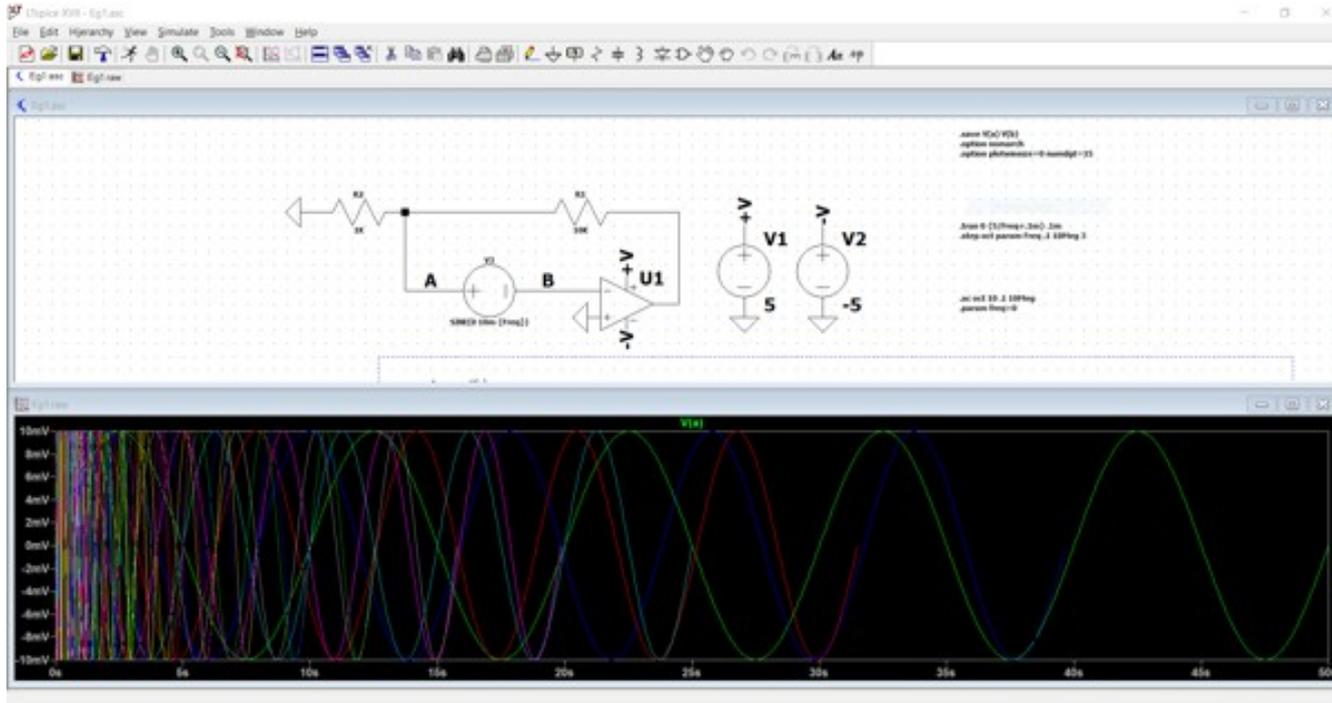
- Cross-platform video editor
- Includes animations, effects, and transitions



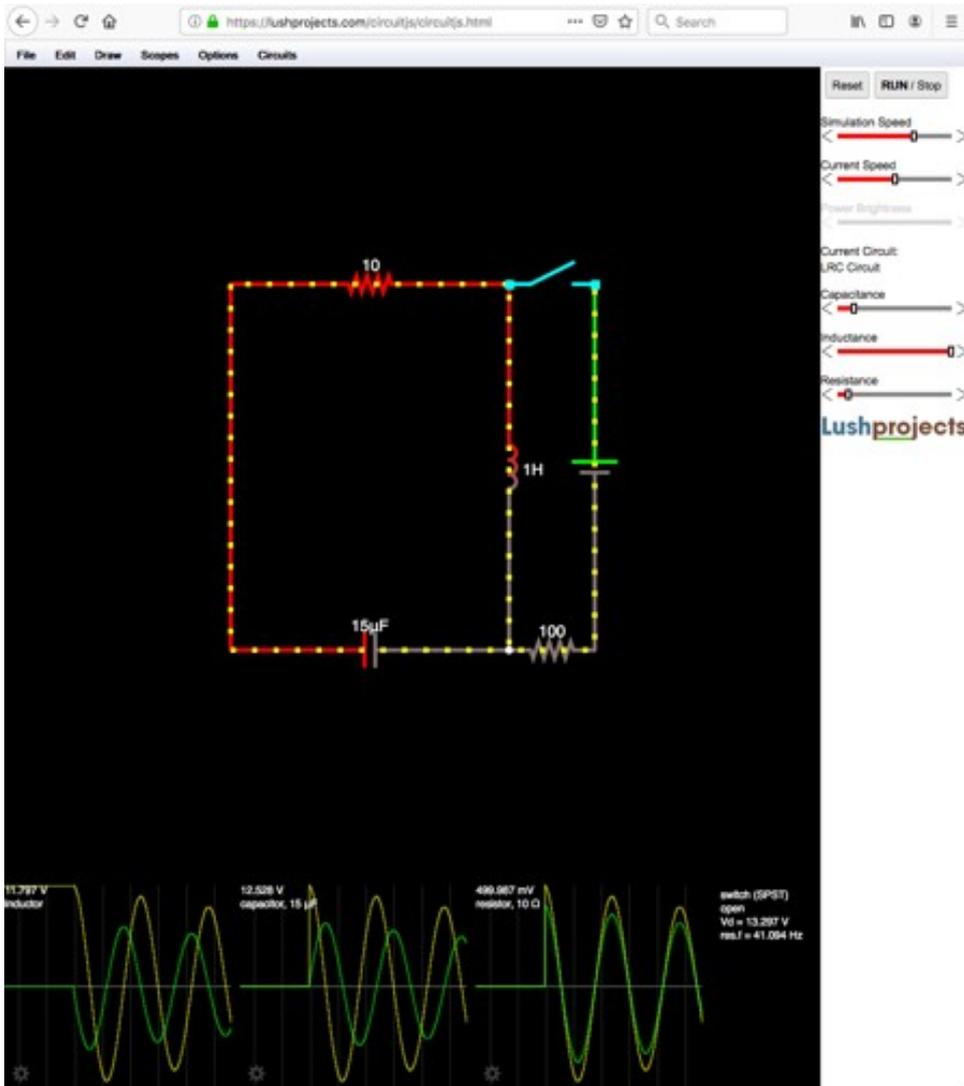


LTspice

analog.com/LTspice



- Draw schematics
- “Run” the circuit to analyze with virtual instruments



Interactive Electronic Circuit Simulator

lushprojects.com/circuitjs/

- Draw electronic circuit within web browser
- Good way to visualize what's happening

Add to Your Toolbox

AlternativeTo

- Software recommendations
- alternativeto.net

Portable Apps

- Carry ready-to-run software and settings on a USB drive
- portableapps.com

GitHub

- Source code storage and collaboration
- github.com

Neil Oosten

hello@neiloosten.com

neiloosten.com

15+

Free Apps

for Broadcasters