

LibRIST TUN

Who Needs Exciting When It Just Works?

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Boring Is Beautiful

- We present a new use of a new feature: TUN support.
 - Security camera feed and PTZ (point-tilt-zoom) software commands via RIST.
 - Demonstrates RIST can now be applied to every day production tasks.





udp/TS (sends from camera),
and PTZ service listens for
camera manipulation
commands.

RIST sender

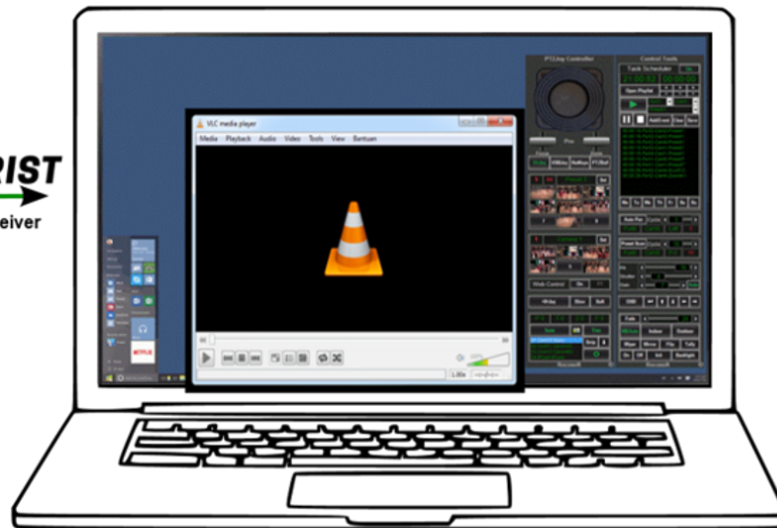


lib >>> **RIST**

lib >>> **RIST**

RIST receiver

libRIST exposes a TUN
network bridge for PTZ
control



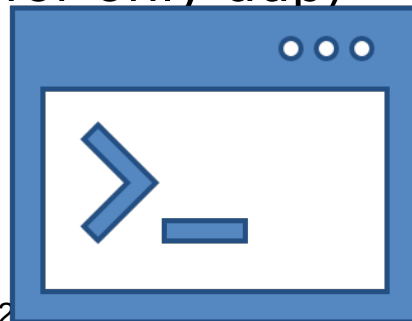
VLC plays video from rist receiver
PTZ software controls camera.

Just Two Command Line Options to Add

- -t tun# (your previously defined TUN device, as in -t tun11)
- -m # (0 for all protocols, 1 for all but udp, 2 for only udp)
- Example with TUN creation and proxy arp:

- ip tuntap add mode tun dev tun11
- ip addr add 192.168.101.102/24 dev tun11
- ip link set dev tun11 up
- (setup proxy arp)

```
ristsender -t tun11 -m 0 -i 'udp://127.0.0.1:12345' -o 'rist://@127.0.0.1:12345' -c 'rist:127.0.0.1:12345' -cname=SENDER&bandwidth=10000&buffer-min=1000&buffer-max=1000&rtt-min=25&rtt-max=105&reorder-buffer=25&virt-dst-port=1968&weight=0&congestion-control=1&aes-type=128&secret=blarg&username=user01&password=RuXprE3d' -p 1 -v 6
```



Command Line Help

```
johni@sfflinux:~  
BALDOMERUS:/data/rist_test# ristsender --help  
1632236187.687257|0.01[INFO] Starting ristsender version: 0.2.6 libRIST library: v0.2.6-3-g1fa3eef-dirty API ver  
sion: 4.1.1  
1632236187.687331|0.01[INFO] ristsender  
Usage: %s [OPTIONS]  
Where OPTIONS are:  
-i | --inputurl udp://... or rtp://... * | Comma separated list of input udp or rtp URLs  
| Use tun://@ to read udp data from a tun device defined  
| using the -t option  
-o | --outputurl rist://... * | Comma separated list of output rist URLs  
-b | --buffer value | Default buffer size for packet retransmissions  
-s | --secret PWD | Default pre-shared encryption secret  
-e | --encryption-type TYPE | Default Encryption type (0, 128 = AES-128, 256 = AES-256)  
-p | --profile number | Rist profile (0 = simple, 1 = main, 2 = advanced)  
-n | --null-packet-deletion | Enable NPD, receiver needs to support this!  
-S | --statsinterval value (ms) | Interval at which stats get printed, 0 to disable  
-v | --verbose-level value | To disable logging: -1, log levels match syslog levels  
-r | --remote-logging IP:PORT | Send logs and stats to this IP:PORT using udp messages  
-F | --srpfile filepath | When in listening mode, use this file to hold the list  
| of usernames and passwords to validate against. Use the  
| ristsrppasswd tool to create the line entries.  
-t | --tun name | Create a tun device and use it for data communications  
-m | --tun-mode number | Data management on the tun interface:  
| 0 = all data is accepted into and out of oob channel  
| 1 = only non udp data is accepted (default)  
| 2 = no data goes into or out of oob channel  
-f | --fast-start value | Controls data output flow before handshake is completed  
| 0 = hold data out  
| 1 = start to send data immediately  
-h | --help | Show this help  
-u | --help-url | Show all the possible url options  
* == mandatory value  
Default values: %s  
--profile 1  
--statsinterval 1000  
--verbose-level 6  
version 0.2.6 libRIST library: v0.2.6-3-g1fa3eef-dirty API version: 4.1.1  
BALDOMERUS:/data/rist_test#
```

Demo

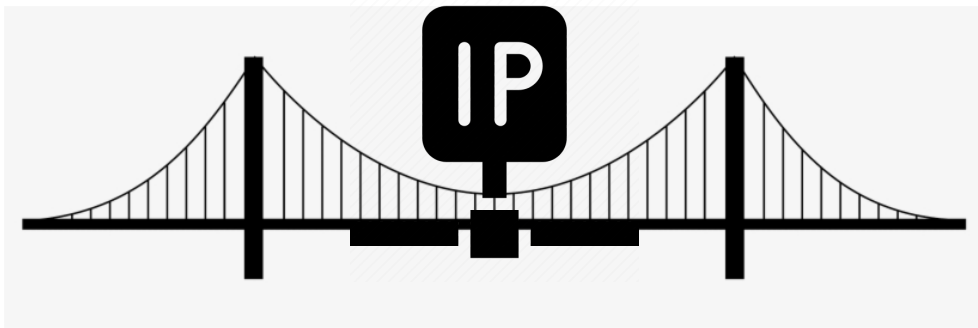


Demo



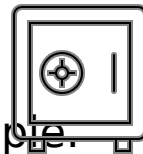
What We Just Demonstrated

- Private IP Network Tunneling Through the Internet Has Always Been a Part of RIST
- The New TUN Feature Simply Exposes the Functionality to Other Applications Without Affecting the RIST Stream
- To One or More Applications, the Other Side of the TUN is Just Another Host Accessible by IP Address



Why TUN is Important

- Userland Tunnel Across Internet Between Two Devices
- Secure, AES Encryption and libRIST Authorization Offers the Same Strong Security and Robust Error Correction to Communications Between Your Other Application(s).
 - Which is why we showed a security camera as a particular example.
- You Can Have Two-Way Communication Thru the TUN
 - Such as a chat app. There doesn't even have to be a relation between the media stream conveyed by RIST and applications using the TUN



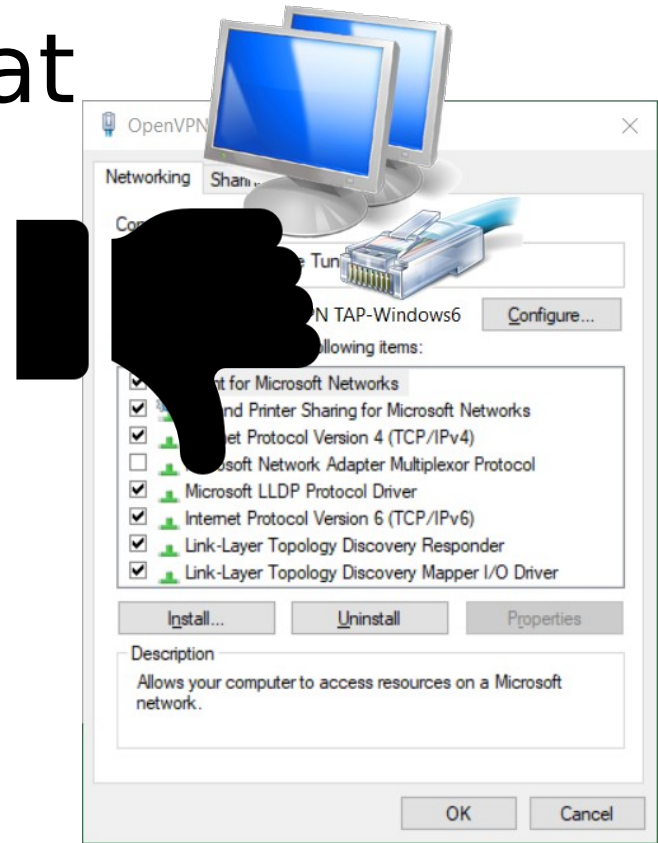
Taking the Security Cam App Further

- Multiple Peer Support Could Add Geographic Flexibility
 - One TUN can support multiple cameras located at one remote
 - One PTZ app can support multiple sites via multiple peers
- EAP Authentication to peers combined with Robust AES Encryption With No Third Party Service Required



One Caveat

- Linux or Mac OS Only Right Now.
- Though there *is* a TAP/TUN adapter widely available for Windows, it doesn't do IP networking in TUN mode!
- Solution: use a linux machine running rist as a proxy-arp bridge to your windows client.



Summary

- It Just Works
- Highly Secure
- *The Very Fact That a RIST Video Demo Can Be This Boring Is a Tribute to RIST Maturity!*



Thank you!

