Draft - A guide to OpenIPC Adaptive-Link

Firstly. The drone and ground station need to be already working. You should already have working video. Consider trying high mcs and high bitrate because if it can't do it now, neither can alink do it.

Either Johhn's radxa GS image or CC's radxa GS image should work (everything keeps changing tho so who knows which one will break first). Will try to keep up with changes

INSTALL ON GROUND STATION

Easiest way to install alink on GS is bring up a shell and execute the following (GS will need internet to grab files from github)

curl -L -o alink_install.sh https://raw.githubusercontent.com/sickgreg/OpenIPC-Adaptive-Link/refs/heads/main/alink_install.sh

sudo chmod +x alink_install.sh

sudo ./alink_install.sh gs install

That should create the alink_gs service and start it, and set loginterval to 100

Test for log_interval 100 (for responsive adaptive-link)

run wfb-cli gs and see if updates are every 100ms or still 1 whole second (default)

another way to test is *cat /etc/wifibroadcast.cfg* and see if the line log_interval 100 is there

On gs, a file */config/alink_gs.conf* will be created and in there we can "tune" alink by min/max rssi and min/max snr ranges (if needed)

INSTALL ON DRONE

EASY WAY ####### AUTO INSTALL #####

Have drone connected to internet and run:

cd /etc

curl -L -o alink_install.sh https://raw.githubusercontent.com/sickgreg/OpenIPC-Adaptive-Link/refs/heads/main/alink_install.sh

chmod +x alink_install.sh

./alink_install.sh drone install

reboot

HARD WAY - skip ahead if already auto-install ####### MANUAL INSTALL with no internet #########

Without internet? Cant fetch it from github. Copy files manually instead

Go to releases page,

assets (for latest alink release)

- save *alink_drone* to */usr/bin* and make it executable

- *save alink.conf* to */etc*

- save *txprofiles.conf* (in the case of possessing s specific config use that one)

edit */etc/rc.local* and add this line

alink_drone &

Proposed Configuration running on Ground station

Ground Station Receive Sensitivity settings

RSSI value to trigger lowest link speed

rssi_min -87 [set in /config/alink_gs.conf]

RSSI value to trigger highest link speed

rssi_max -50 [set in /config/alink_gs.conf]

SNR value to trigger lowest link speed

snr_min 10 [set in /config/alink_gs.conf]

SNR value to trigger highest link speed

snr_max 30 [set in /config/alink_gs.conf]

Buttons

[(Re)start alink_gs service] (sudo systemctl restart alink_gs)

[Stop alink_gs service] (sudo systemctl stop alink_gs)

[Disable alink_gs service] (sudo systemctl disable alink_gs)

[Enable alink_gs service] (sudo systemctl enable alink_gs)

[Edit /config/alink_gs.conf manually]

Select txprofiles.conf to send to drone

onlyMCS1.txprofiles.conf [upload to drone]

description

MarioAIO.txprofiles.conf [upload to drone]

description

AF1-20,40.txprofiles.conf [upload to drone]

description

EU2.txprofiles.conf [upload to drone]

description

etc, etc

Buttons

[(Re)start alink_drone] (on drone run: killall alink_drone, alink_drone > /dev/null &)

[Stop alink_drone] (on drone run: killall alink_drone)

[Disable alink_drone](on drone: run command that removes `alink_drone > /dev/null &` from rc.local)

[Enable alink_drone] (on drone: run command that adds `alink_drone > /dev/null &` command to rc.local)

[Manually edit /etc/alink.conf on drone]

[Manually edit /etc/txprofiles.conf on drone]

How to better tune alink for your setup

choose drone txprofile: onlyMCS1.txprofiles.conf

```999 - 999 long 1 8 12 3999 10 44 0,0,0,0 20 -12

1000 - 2001 long 1 8 12 4000 10 44 0,0,0,0 20 -12```

Fly far away or behind objects and monitor your RSSI and SNR readings in the OSD.  You're looking for the minimum flyable values (some glitching is ok) .  Set these as snr_min and rssi_min.

Fly close by and monitor your RSSI and SNR readings in the OSD.  You're looking for the highest values you can obtain in flight.  Set these as rssi_max and snr_max.

This way, alink_drone will attempt to set the lowest (most resiliant) link-speed when we are far away and highest (least resilliant) link-speed when we are close, and everything in between.
```