

Radio Service

Overview

Radio Service allows tuning of rtl-sdr based devices to radio stations and receive respective audio stream.

Verbs

Name	Description	JSON Parameters
subscribe	subscribe to radio events	<i>Request:</i> {"value": "frequency"}
unsubscribe	unsubscribe to radio events	<i>Request:</i> {"value": "frequency"}
frequency	get/set tuned radio frequency	<i>Request:</i> {"value": 101100000}
band	get/set current band type (e.g. AM, FM)	<i>Request:</i> {"band": "FM"} <i>Response:</i> {"band": "FM"}
band_supported	check if a certain band is supported	<i>Request:</i> {"band": "FM"} <i>Response:</i> {"supported": 1}
frequency_range	get frequency range for band type	<i>Request:</i> {"band": "FM"} <i>Response:</i> {"min": ..., "max": ...}
frequency_step	get frequency step/spacing for band type	<i>Request:</i> {"band": "FM"} <i>Response:</i> {"step": 200000}

| start | start radio playback | |

| stop | stop radio playback | |

| scan_start | start scanning for station | *Request:* {“direction”:
“forward” or “backward”} |

| scan_stop | stop scanning for station | |

| stereo_mode | get/set stereo or mono mode | *Request:* {“value”:
“stereo” or “mono”} |

Events

frequency Event JSON Response

JSON response has a single field **frequency** which is the currently tuned frequency.

station_found Event JSON Response

JSON response has a single field **value** of the frequency of the discovered radio station.

AGL Radio Tuner Binding

FM Band Plan Selection

The FM band plan may be selected by adding:

```
fmbandplan=X
```

to the [radio] section in /etc/xdg/AGL.conf, where X is one of the following strings:

US = United States / Canada

JP = Japan

EU = European Union

ITU-1

ITU-2

Example:

```
[radio]
fmbandplan=JP
```

Implementation Specific Configuration

USB RTL-SDR adapter

The scanning sensitivity can be tweaked by adding:

```
scan_squelch_level=X
```

to the [radio] section in /etc/xdg/AGL.conf, where X is an integer. Lower values make the scanning more sensitive. Default value is 140.

Example:

```
[radio]
scan_squelch_level=70
```

M3ULCB Kingfisher Si4689

The scanning sensitivity can be tweaked by adding:

```
scan_valid_snr_threshold=X
scan_valid_rssi_threshold=Y
```

to the [radio] section in /etc/xdg/AGL.conf, where X and Y are integers between -127 and 127. The SNR value is in units of dB, and the RSSI is in

units of dBuV. Lower values make the scanning more sensitive. Default values in the Si4689 are 10 and 17, respectively. You may determine the values that the Si4689 is seeing when tuning by examining the results of tuning in the systemd journal, looking for lines like:

Example:

```
[radio]
scan_valid_snr_threshold=7
scan_valid_rssi_threshold=10
```

Known Issues

M3ULCB Kingfisher

Initial setup for a new Kingfisher board requires booting an image with Kingfisher support and running the commands:

```
si_init  
si_firmware_update
```

This installs the provided firmware into the flash attached to the Si4689.

Since all operations are currently done by calling a patched version of Cogent Embedded's `si_ctl` utility, scanning currently cannot be interrupted.

Additionally, sometimes a failure in scanning seems to result in muted state that currently has not been debugged.