Standard Operating Procedure

<UsingLibrary>

include;

0.121(db)

superapi::supercore; superapi::superfftw; superapi::superfiledialog; superapi::supergroupbox; superapi::superlogger;

```
superapi::supermultimedia;
                            superapi::supernotedialog;
                            superapi::superplot;
                            superapi::supertab;
                            superapi::supertabwidget;
                            superapi::superwindow;
             public;
                            wasapibox public superapi::supertab;
                            waspaibox::formatdialog public superapi::superwindow;
<WasapiBox>
                Refresh Audio Devices
                            clicked;
                                          add output,input device to combobox;
                                          operate related widgets;
                   Format Config
                            clicked;
                                          show audiosink, audiosource dialog;
              Speakers / Headphones (Realtek Audio)
                            textactivated;
                                          add current audio device index to output lineedit;
                                          if wavfile lineedit is empty, set audio format by device;
                                          else set audio format by wav files;
                                          refresh output audio format;
                                          add device maxchannel to channel combobox;
              Microphone Array (Realtek Audio)
                            textactivated;
                                          add current audio device index to input lineedit;
                                          set audio format by device;
                                          refresh input audio format;
               0
                            nousercontrol;
                                          display current audio device index;
                        Play
                            clicked;
                                          if wav file lineedit is empty, play signal by signal setting;
                                          else play wav file;
                   Stop Play Audio
                            clicked;
                                          stop play audio;
             ✓ Signal
                            statechanged;
                                          play signal or wav file;
                                          operate related widgets;
              peak
                            textactivated;
                                          generate pcm data depend on current parameter;
              sine
                            textactivated;
                                          change signal type;
                                          only develop sine wave now;
```

```
userinput;
              mousewheel;
                             set signal wave amplitude value;
1000(hz)
              userinput;
              mousewheel;
                             set signal wave frequency value;
0.00(s)
              userinput;
              mousewheel;
                             set signal wave continues time(seconds);
Both
              textactivated;
                             set signal wave channels;
I.han/Documents/My Music/周杰伦 - 以父之名.wav
              nousercontrol;
                             display wav file selected;
              clicked;
                             open filedialog and split .wav file;
     Generate Wavfile
              clicked;
                             generate wav file by signal parameter;
         Analysis
              clicked;
                             operate related widgets;
                             repaint time and fft tab;
                             record wav files;
                             analysis wav datas' amplitude, frequency, thd;
   Stop Analysis Audio
              clicked;
                             operate related widgets;
                             stop paint time and fft tab;
                             save or delete recorded data;
                             stop analysis wav data;
✓ Record
              clicked;
                             if this selected;
                             when stop analysis audio,record data at ./_depycache_/_wavrecord_;
                             control + Key_O open cache path quickly;
                             else delete data;
peak
              textactivated;
                             select analysis wav data info;
                             peek or rms;
 -26.564,-26.564(dbv)
              nousercontrol;
                             display wav data amplitude value;
                             left,right or single;
893.401,920.474(hz)
              nousercontrol;
                             display wav data frequency value;
                             left,right or single;
0(degree)
              textchanged;
                             change thd degree;
                             if 0,adapter to max degree;
47.610,47.518(thd)
              nousercontrol;
                             display wav data thd value;
                             left,right or single;
✓ Autoplot
```

nousercontrol;

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display current plot's rescaleaxes mode; include auto, manual; 4000(sample) userinput; change wav record samples counts pertime; Time clicked; change to time tab; Timeplot mousedoubleclicked; change display mode; include auto, manual; mousewheel; change display zone; Frequency clicked; change to frequency tab; **Fftplot** mousedoubleclicked; change display mode; include auto, manual; mousewheel; change display zone;

<WasapiBox::FormatDialog>

Clicked;

change to audio sink tab;

Input

clicked;

change to audio source tab;

2(channel)

textchanged;

change current audio device's channel counts;

44100(hz)

textchanged;

change current audio device's samplerate;

16(bits)

textchanged;

change current audio device's bits;

Version Logs

<20220322 Version 1.12>

update maxsize parameter 512mb as 256mb;

<20220321 Version 1.11>

fix not record wav data and add memory bugs; add record limit function,include size,length;

<20220209 Version 1.10>

update signal datatemp 0.1s to 0.01s;

<20220209 Version 1.09>

use supertab,supertabwidget,supergroupbox api;

<20220121 Version 1.08>

optization play signal class; optization update figure class; optization play wav ui user experience;

<20220107 Version 1.07>

generate wav file function update;
include select path, input wav file name,
relayout;

<20211208 Version 1.06>

add audio format parameter interface; include samplerate,bits,channel counts; fix play last time signal flashback bug;

----hyman,wade,qink;

<20211207 Version 1.05>

add generate signal data depend rms options; add auto range frequency tab plot function;

----hyman,wade,qink;

<20211126 Version 1.04>

add open path tips after record file;

<20211029 Version 1.03>

add generate wav file function;

<20211019 Version 1.02>

optization user experience; delete limit double spinbox; delete limit checkbox;

<20211013 Version 1.01>

fix change dbv mode function;

<20211003 Version 1.00>

first release;