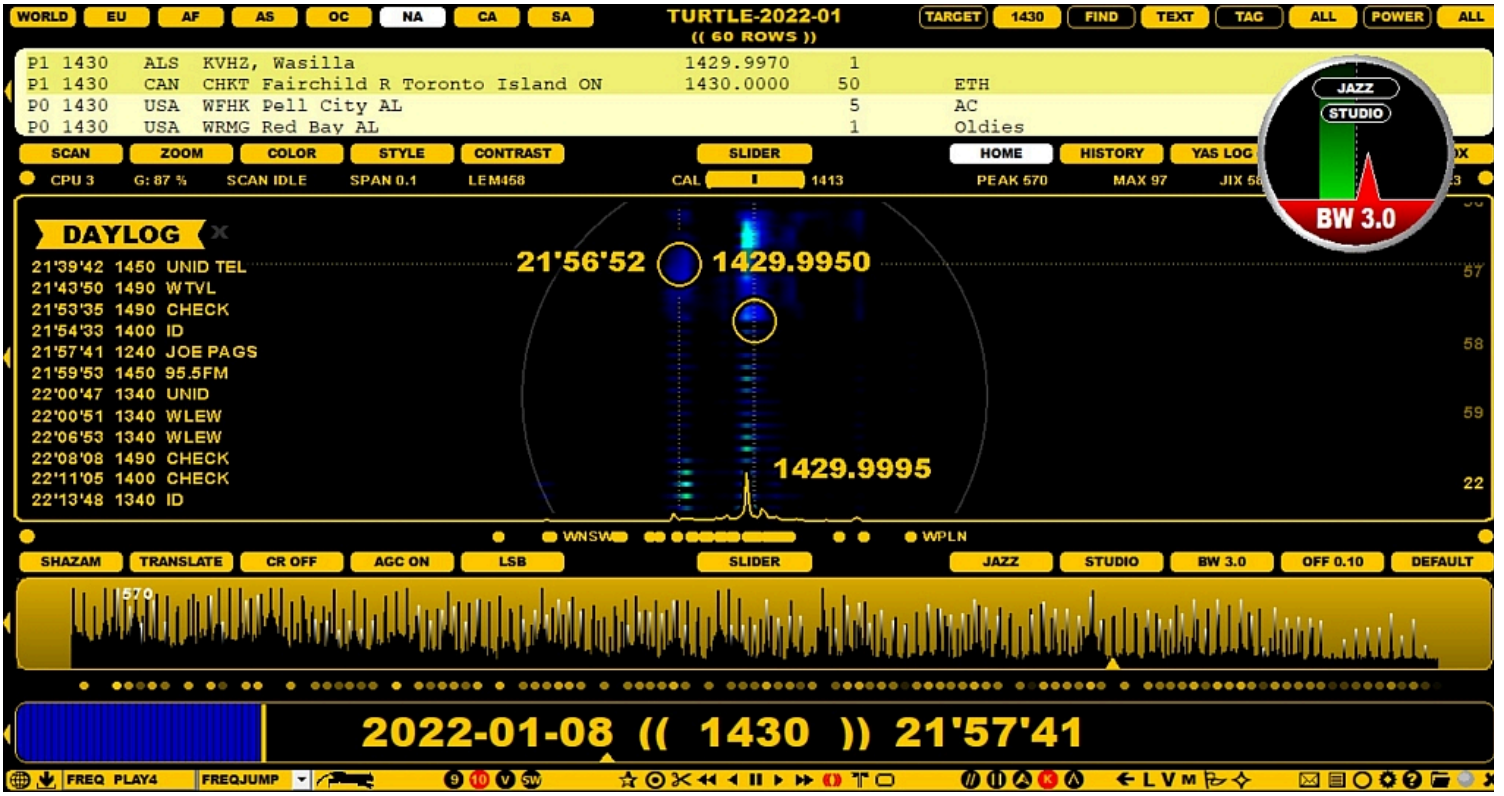

WORLD EU AF AS OC NA CA SA
TURTLE-2022-01
((60 ROWS))
TARGET 1430 FIND TEXT TAG ALL POWER ALL
P1 1430 ALS KVHZ, Wasilla 1429.9970 1
P1 1430 CAN CHKT Fairchild R Toronto Island ON 1430.0000 50 ETH
P0 1430 USA WFHK Pell City AL 5 AC
P0 1430 USA WRMG Red Bay AL 1 Oldies
JAZZ
STUDIO
BW 3.0
SCAN ZOOM COLOR STYLE CONTRAST SLIDER HOME HISTORY YAS LOG
CPU 3 G: 87 % SCAN IDLE SPAN 0.1 LEM458 CAL 1413 PEAK 570 MAX 97
DAYLOG
21'39'42 1450 UNID TEL
21'43'50 1490 WTVL
21'53'35 1490 CHECK
21'54'33 1400 ID
21'57'41 1240 JOE PAGS
21'59'53 1450 95.5FM
22'00'47 1340 UNID
22'00'51 1340 WLEW
22'06'53 1340 WLEW
22'08'08 1490 CHECK
22'11'05 1400 CHECK
22'13'48 1340 ID
21'56'52
1429.9950
1429.9995
57
58
59
22
WNSW
WPLN
SHAZAM TRANSLATE CR OFF AGC ON LSB SLIDER JAZZ STUDIO BW 3.0 OFF 0.10 DEFAULT
570
2022-01-08 ((1430)) 21'57'41
FREQ PLAY4 FREQJUMP

AGC

AGC (Automatic Gain Control) regulates the signal level of the audio output.

A good AGC normalizes RF signals to the standard output level, in spite of any amplitude changes. An amplitude control function includes elimination of signal overloads in static crashes, followed by a quick restore back to the standard level immediately after the overload.

Basically, all changes in the gain are bad for weak signals: every gain change also slightly modifies the "raw audio", and this is why many experienced DXers keep their AGC disabled, especially while studying some specific ID. As a result, you will need to set the gain manually in each individual case. Also, when making audio clips, one of the rules of thumb is to disable the AGC unless there is some specific reason to use it.

JAGUAR's AGC has three different modes: AGC ON (default), AGC OFF and AGC OFF+. When AGC is OFF, the gain level is fully controlled by the user.

AGC OFF+ is a special, "semi-locked average" mode which combines the best of the ON and OFF modes. Normally, AGC OFF would require constant tuning for the optimal gain level for each frequency, and this is where the semi-locked gain values come in.

When you tune in to a new frequency in the AGC OFF+ mode, JAGUAR will determine a "semi-lock gain value" within the first 500 ms of the playback. The gain value is then kept fixed during the playback of this frequency until an amplitude overflow happens, or a new "semi-lock" is created.

A new semi-lock value will be calculated (the gain value can also remain the same) in the following cases:

- the SSB mode is changed
- the frequency is changed
- the filter is changed
- the file is changed (provided that there is a time gap between the old and new file)

The AGC should not be mixed with the Click Remover (CR) even though both handle amplitude overflows. CR is good for recovering clicks caused by electric fences, i.e. very short audio bursts.

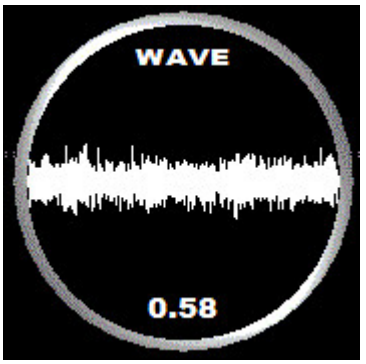
HOW TO

By default, AGC is always ON but ou can change the AGC status by clicking the AUDIOBAR > AGC button.

Clicking this button will rotate in the following order: AGC ON > AGC OFF > AGC OFF+. If you scroll (with the mouse wheel or the left/right arrow keys) instead of clicking, you will always enter into the manual gain control mode, and you will need to increase/decrease the gain value by yourself. If you had AGC ON, the mode would be changed to AGC OFF, and you can return from AGC OFF to AGC ON by clicking the AGC button.

The AGC behavior can be seen by monitoring the "gain value". The gain value is shown on the WAVE APPLET: in this example, the numeric value of 0.58 on the bottom of the applet is the current gain

value

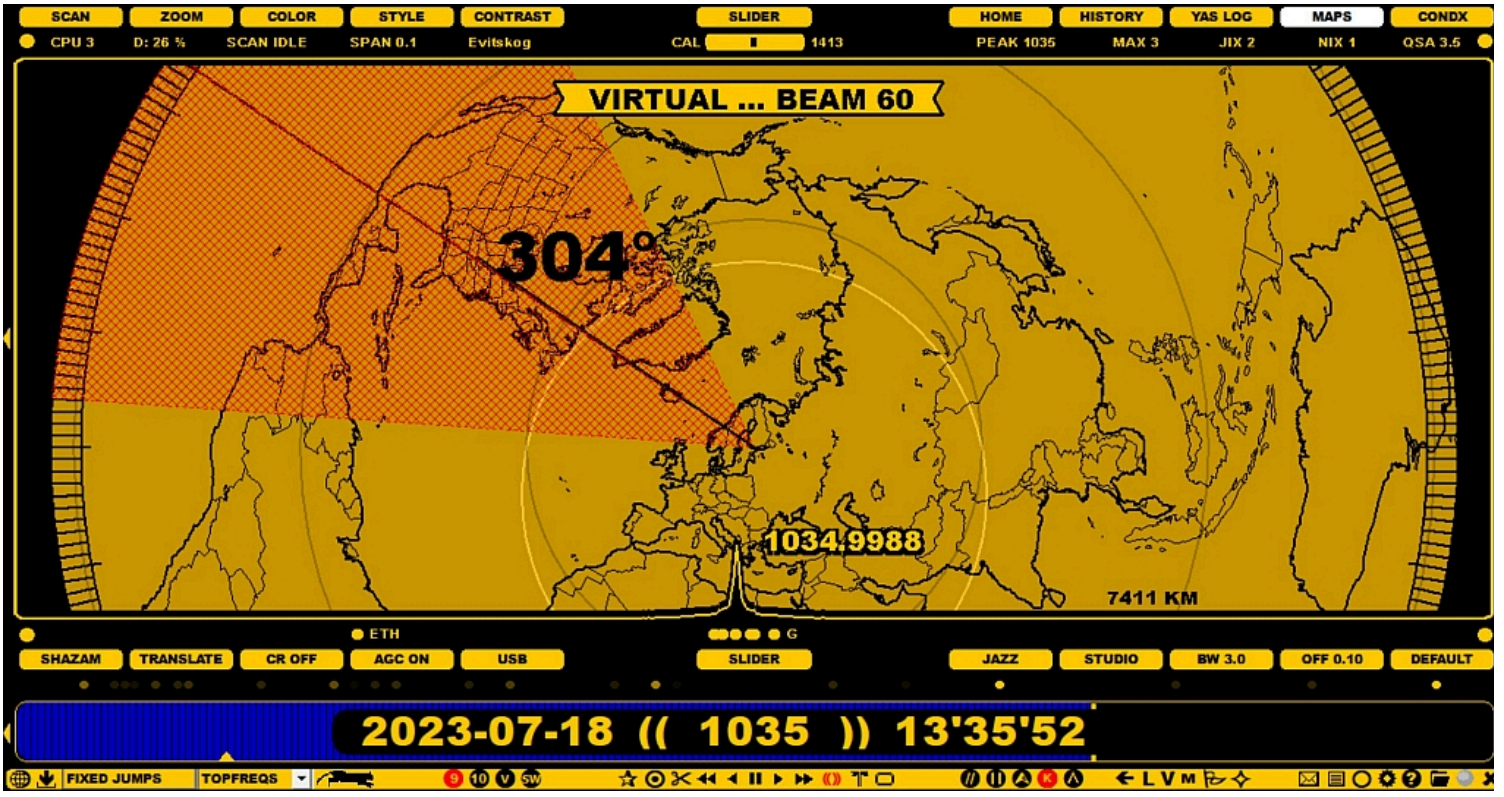


The background of the WAVE APPLET will flash as red when AGC performs major elimination actions ("AGC hits") of any quick signal burst (such as a lightning struck).

Also, JAGUAR's audio equalizer - the TINYEQ APPLET - has an effect on the gain.

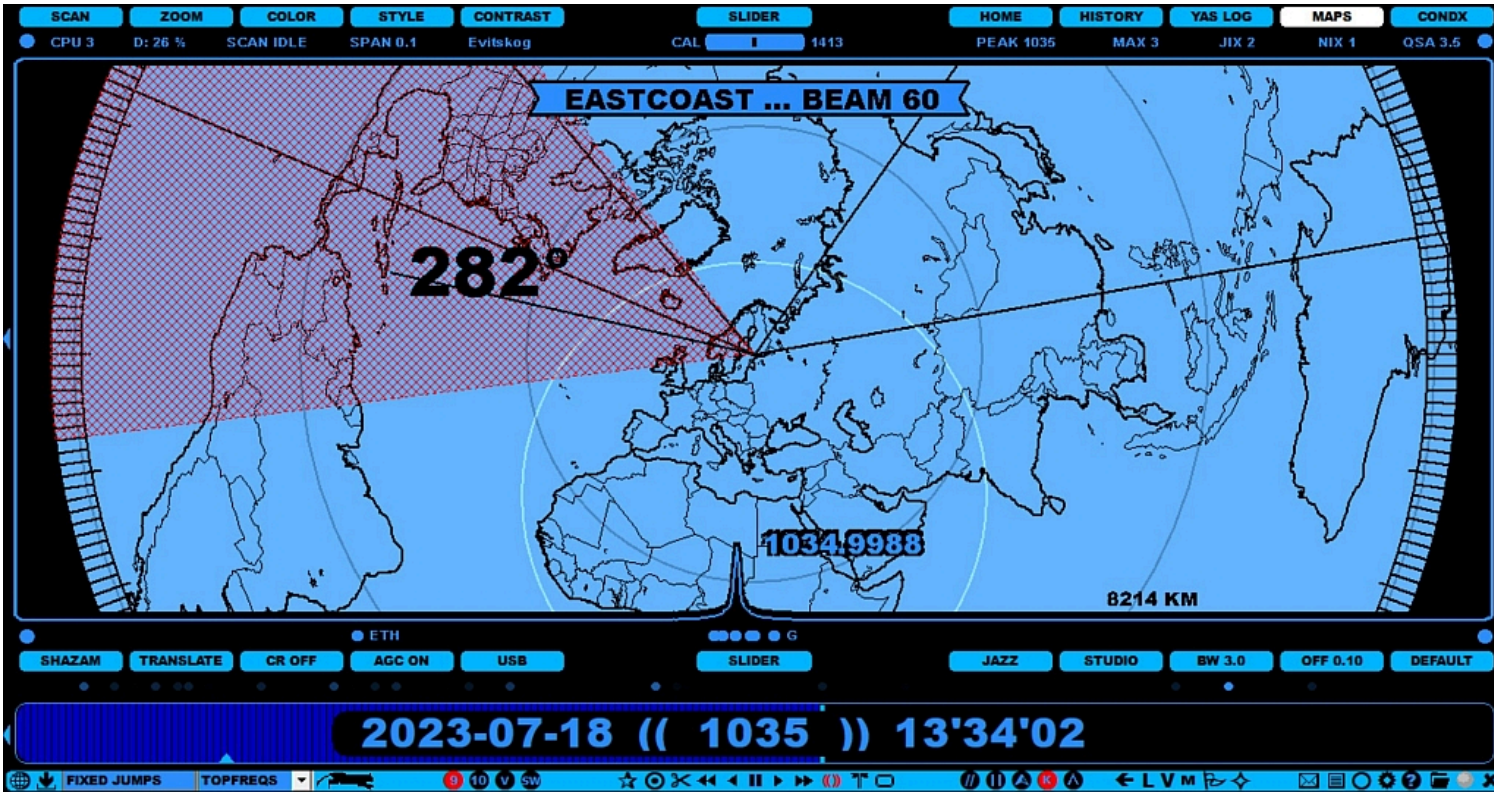
ANTENNAS

If you want to evaluate antenna beams and directions without any antenna definitions, you can use the ANTENNAS display for "virtual" antenna tests.



JAGUAR PRO ONLY

If you have defined your antennas in the SETTINGS > KIT > ANTENNAS window, the ANTENNAS display will show them accordingly. You can select an antenna for example by clicking it on the map, or by pressing the "A" key repeatedly until the desired antenna becomes red.



The selected antenna becomes your "current antenna", and the name defined for it will be added as a suffix to the file name of your recordings.

In addition, JAGUAR can also make a physical antenna change if you use either Devantech or Velleman relay boards (or a third-party antenna switcher which can be invoked from JAGUAR).

HOW TO

KEY = A

The ANTENNAS map can be shown by pressing the "A" key, or by clicking TOOLBAR > M > ANTENNAS. You can return to the original display by pressing "A" once again.

The ANTENNAS display has the following characteristics:

- You can move the display up/down with the standard mouse drag'n drop
- You can zoom in/out the display with the mouse wheel (or left/right arrow keys) when the mouse cursor is over the map
- You can show directions (0-359 degrees) by moving mouse over ANTENNAS map
- If you left click the map, a virtual antenna is drawn with a 60-degree beam

When the mouse cursor is over the red antenna beam, you can increase/decrease the beam with in steps of 5 degrees using the mouse wheel or left/right arrow keys.

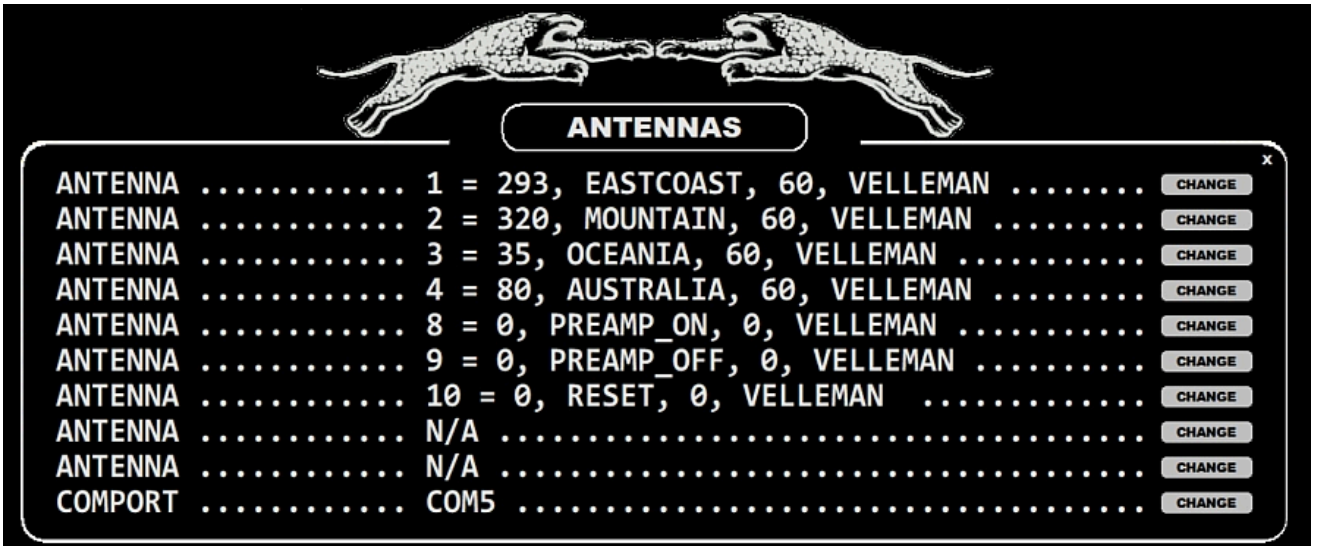
In addition, the distance (km) from your QTH to the position pointed by the mouse pointer is shown on the lower right corner of the display.

JAGUAR PRO ONLY

How to define your antennas in JAGUAR

You can define your JAGUAR antenna setup by opening the SETTINGS > KIT > ANTENNAS window and making a definition for each antenna. The defined antennas will be shown on the ANTENNAS map. Antenna switches are also supported; JAGUAR has a built-in support for the Velleman and Devantech antenna relay boards. These boards can also be used to switch the preamp on/off. If you have the Velleman/Devantech relay boards, their drivers must be installed first, and the COMPORT parameter (given by Windows OS, for example COM5) must be defined in the last row.

Let us assume that you have four beverage antennas, beamed at 293, 320, 35 and 80 degrees (with an estimated beam width of 60 degrees) and a preamp is also used. In the following example, the Velleman relay board is used: the slots 1-4 have the antennas and the slot 8 has the preamp. Each line is entered by clicking the "CHANGE" button, adding one antenna definition into the corresponding text box and then clicking "SAVE" for the added antenna).



Each ANTENNAS line consists of the antenna number and three parameters: direction, name, beam width (or scan target, see below). The fourth parameter is optional: it can be either "VELLEMAN" or "DEVANTECH" (if you use either of these antenna relay boards for the antenna switches) or it can be any third-party antenna switch that can be invoked from the command line - in that case the full path to that CMD/BAT file must be given as the fourth parameter.

The antennas can now be switched as follows:

- by pressing "A" on the keyboard. This will rotate the antennas 1-4.
- by clicking the antenna on the bearing map
- with the function keys PF1-PF4, and Preamp ON with PF8, Preamp OFF with PF9.
- scheduled in MESTOR.

The third parameter (beam width) can be replaced by the default scan target of the antenna (MW9 or MW10). If MW9 or MW10 is used (instead of the beam width), the system will change the LIVESCAN target automatically when the antenna is switched (see GUIDE > LIVESCAN for more details).

This is a handy feature when LIVESCAN is used: for example, a scheduled SET ANTENNA function will change both the antenna direction and the LIVESCAN scan target at the same time. If MW9/MW10 is defined for any antenna, the default width of 60 degrees is used as the beam width for that antenna on the ANTENNAS display.

APPLETS

JAGUAR PRO ONLY

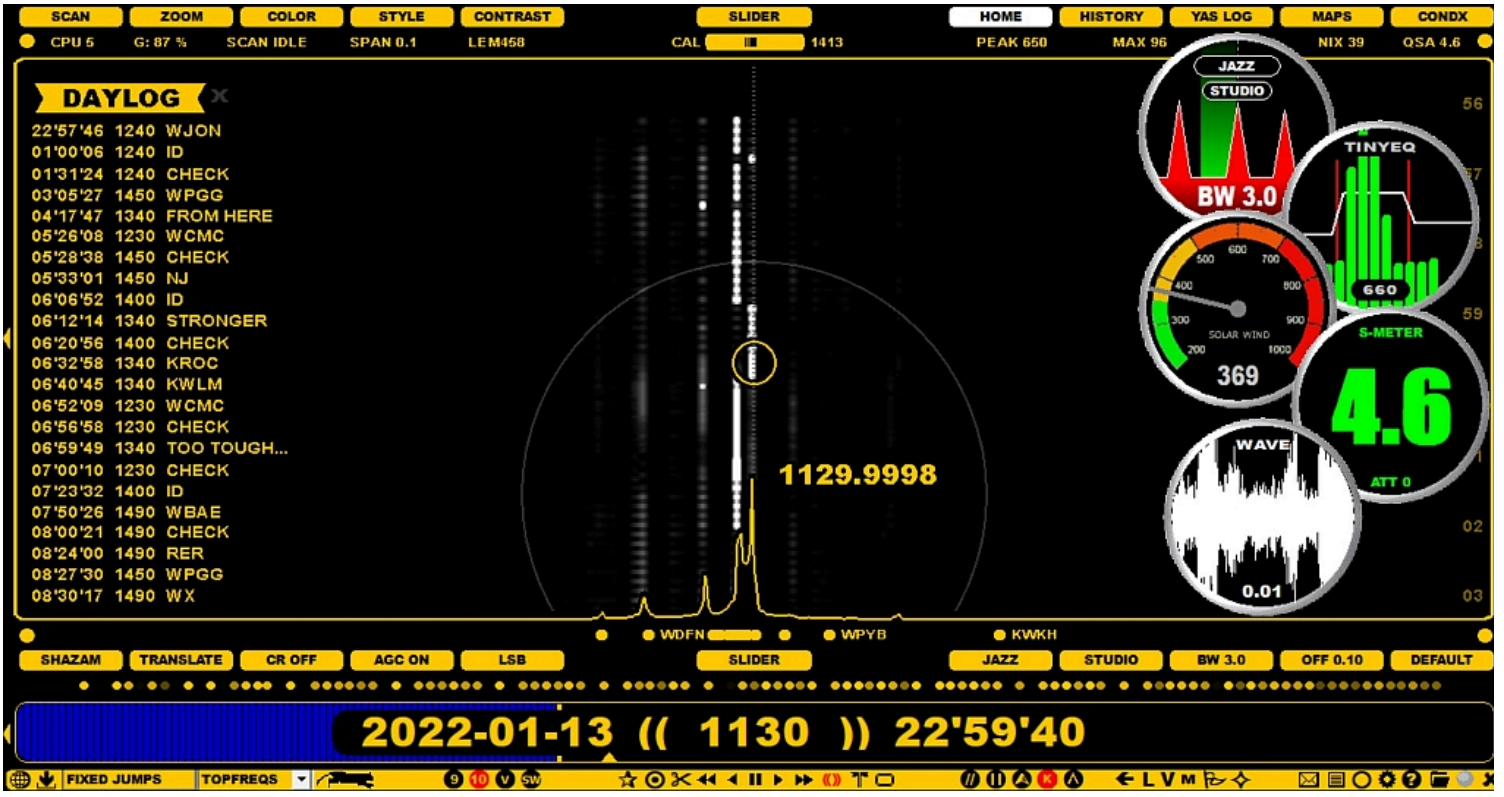
The APPLETS are small, round tool windows for extended JAGUAR control.Many of the functions included in the applets can be controlled via other JAGUAR bars/displays, but the applets are convenient as they can be positioned anywhere on the screen.

HOW TO

TOOLBAR > APPLETS

The applets can be invoked individually from TOOLBAR > APPLETS. The applets appear first in their base locations in the centre of the screen; the applets located in these base positions will not be remembered at JAGUAR restarts. Every applet becomes permanently active if you relocate it by dragging and moving it with the mouse to any location on the screen.

If you want to hide the active applets temporarily, click the TOOLBAR > CLEAR icon or right-click the TOOLBAR > APPLETS icon. Click the icon (or right click the APPLETS icon) once more to make them visible again.



Right-clicking an applet itself removes it from the screen and de-activates it. JAGUAR will remember the screen positions of all the active applets after a restart.

Here is the current applet portfolio:

FILTER

FILTER, RF filters. You can rotate all the available filters by clicking on the filter name button on the top. You can also rotate the filter mode (BASE/STEEP/STUDIO) by clicking the button below the filter name button. The bandwidth (BW) of the currently active filter is shown on the bottom of the applet (and on AUDIOBAR); the offset of the currently active filter is shown only on AUDIOBAR. Note that also the AM MODE filter has an "offset"; it is the shift of the filter center from the nominal.

You can change the SSB mode by clicking the left (LSB) or the right (USB) side of the applet (not available for the AM MODE filter).

When you hover the mouse over the applet, and one of the filter edges will be shown as red, you can:

- scroll either the inner or outer edge of the filter with the mouse wheel or with the left/right arrow keys. The target edge is shown in red. When changing either edge, also the filter bandwidth is changed automatically. The filter offset is changed when you change the inner edge.
- toggle AGC ON/OFF by moving the mouse cursor over the BW value and clicking the "AGC button" that appears (red button = AGC ON, black button = AGC OFF)
- only change the offset, maintaining the bandwidth, by dragging the filter area left or right; in this case, both edges are shown as red.

Note that filter characteristics (name, bandwidth, offset and and the BASE/STEEP/STUDIO mode) can also be changed via AUDIOBAR.

TINYEQ

TINYEQ, Tiny Equalizer is a simple 3-band equalizer which shows 10 audio frequency group bars. You can increase/decrease each of these frequency bands by moving the mouse over the band limit (the red line) and scrolling the mouse wheel or the left/right arrow keys. The band limit frequency is then shown on the top area. The number at the bottom of the applet shows the current maximum frequency in the audio spectrum. If that frequency remains unchanged, it usually means that the use of the notch is required.

When you have selected the bands you want to control, you can just move the mouse over that band area and increase/decrease the power of all the audio frequencies within that band with the mouse wheel or the left/right arrow keys.

If you move the mouse to the bottom and click "RESET", you can reset all 3 bands to their normal state. TINYEQ is probably the smallest and simplest possible equalizer that can exist. Nevertheless, it seems to be very efficient: the best way to test it is to tune in to a fully free frequency with plain noise. It is amazing how the noise level/quality varies depending on the selected equalizer settings.

However, normally, there is not much more you can get out of the audio itself by using a plain equalizer but sometimes it can be beneficial in shaping the "color" of the background noise.

The equalizer is always disabled when the TINYEQ applet is not visible.

SPACE WX

SPACE WX. Space weather center, reporting a selection of space weather indices. This service is enabled by default (it can be disabled via SETTINGS > KIT > OPTIONAL > SOLAR_DATA > NO). If enabled, in the LIVE mode, the current values will be shown, whereas in the ARCHIVE mode, the values at the time of the recording will be shown.

By default, this applet shows the SOLAR WIND value but you can toggle SOLAR WIND and ALL DATA by clicking on the applet.

There are four parameters which illustrate the current space weather in numbers and colors. The Bz value shows the current direction of the interplanetary (= the Sun's) magnetic field. When the Bz value turns to high negative values, it means disturbed conditions. KYOTO DST is a well-known indicator for trans-Atlantic openings, together with POLAR (= TromsÃ¸, Norway) A and K values. Highly increased PROTON flux values typically result in radio black-outs in the polar cap area. The threshold for storms is 10.

The following color scheme is used: GREEN = normal, YELLOW = unsettled, RED = storm/alert.

The "SPACE WX timestamp" is shown on the bottom of the applet in the ALL DATA mode.

S-METER

S-METER, Signal Strength Meter with a one-decimal (or two in GAUGE) accuracy. JAGUAR uses this format instead a more commonly-used dBm for displaying signals strengths. the S-METER applet has two different display formats available (the format can be changed by clicking on the applet): DIGITAL (default) > GAUGE.

WAVE

WAVE, Dynamic waveform for the last second played. If the audio has no issues, the background color of the applet is black. A red flash is a sign of an AGC hit, and a yellow flash is an AGC warning. A clear audio is shown as a continuous steady sinewave but this is seldom achieved with DX signals. Instead, the waveform is often irregular, trashy and/or full of noise.

CR (Click Remover). If you hover the mouse over this applet and scroll with the mouse wheel or the left/right arrow keys, you can fine-tune the level of click removals. Sometimes, a signal can be very low but there can be clicks just above the overall signal level, and you may need utmost fine-tuning. If CR is active, you can see the areas of effect: the grey hatched area can be scrolled up/down defining the CR cut limits, and when CR kicks in, this area is shown in red. In theory, CR is meant only for "independent clicks" in the audio (caused by horse fences, etc.); however some users have found it beneficial also in smoothing static crashes and splatters. But the cut limits must be far enough from the audio itself; otherwise CR will start to eat the real audio parts, too.

If you have activated CR, clicking the WAVE applet gives you another tuning tool: you can define the duration of CR operations. If the system has already made one or more CR cleanups, the real effect of the last CR process on the signal is shown on the WAVE applet: red spectrum shows the original audio, and the white spectrum shows the resulting audio after the CR process. The CR process cleans all the audio samples to zero (as seen in the example), and you can finetune the duration by keeping the mouse over the WAVE applet and scrolling the mouse wheel or left/right arrow keys. The duration of the CR process can be between 1 ms and 6 ms; clicks in the audio typically are 3-4 ms long.

ARCHIVE MODE

When you review your recorded files, JAGUAR is in the ARCHIVE MODE ("blue bar"). The Perseus hardware does not need to be connected while playing back archived files, but if you have Perseus plugged in, you can quickly toggle the LIVE MODE and ARCHIVE MODE anytime.

JAGUAR is currently the only SDR software available where users can play archived files while recording new files.

HOW TO

KEY = L

If you have Perseus plugged in, you can toggle the LIVE MODE and ARCHIVE MODE by pressing the "L" key, or by clicking TOOLBAR > L. In the ARCHIVE MODE, you will have several navigation options available, for example:

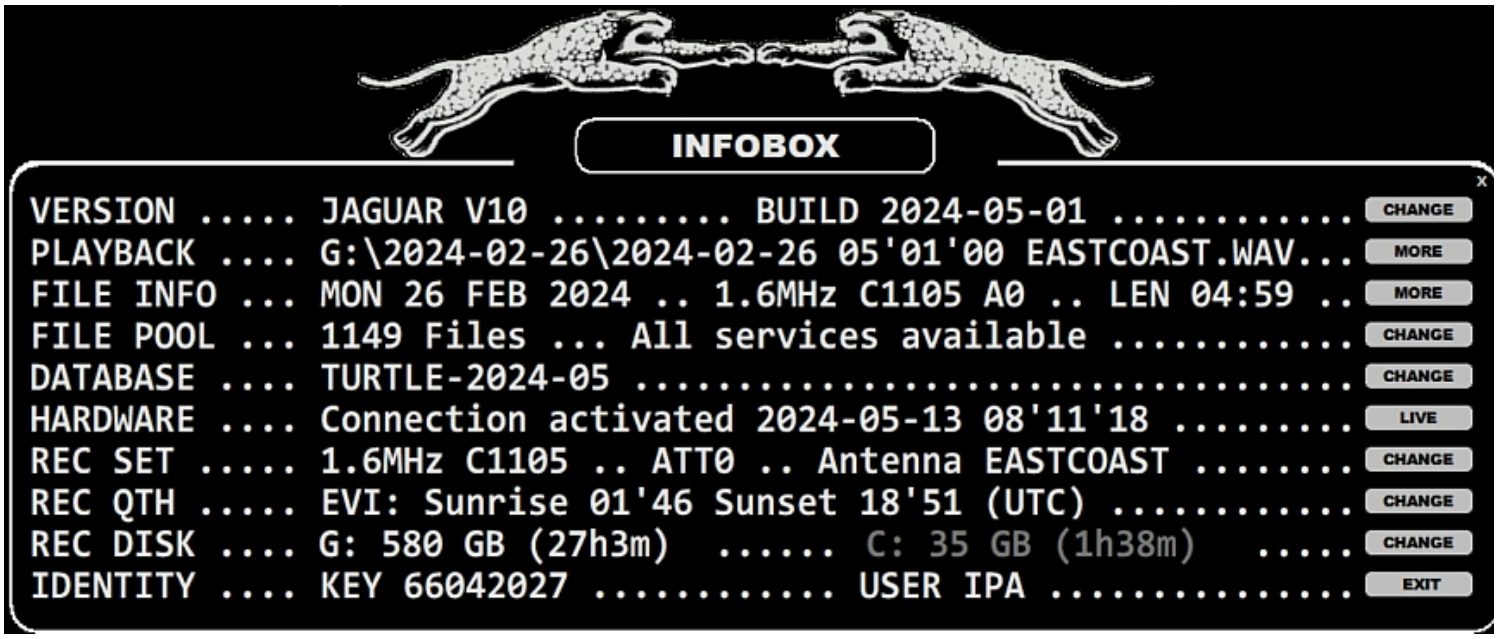
- Click PLAYBAR to jump to a new HH'MM'SS
- Press "N" or "P" to jump to the PREVIOUS or NEXT FILE. This is the same as clicking TOOLBAR > PREV FILE or TOOLBAR > NEXT FILE.
- Using TIMEWHEEL you will have the option to scroll days / hours / minutes / seconds

When you hover the mouse over the frequency display, you can always override the time-scrolling mode and move to the nominal frequency (based on the current stepping mode) with the mouse wheel or the left/right arrow keys.

The full documentation for the navigation features (time and frequency) can be found under the NAVIGATION help.

ATTENUATOR

JAGUAR supports the standard Perseus attenuation levels. The current attenuation level is shown on INFOBOX (KEY = I)



In the ARCHIVE MODE, the value is taken from the archive file header, showing the attenuation level used during recording.

For recording, the currently active ATT level is shown on the REC SET (Recording Settings) line.

HOW TO

KEY = ALT-P

You can rotate the attenuation level of the Perseus hardware by pressing ALT-P continuously: 0 (default, no attenuation) > 1 (-10 dB) > 2 (-20 dB) > 3 (-30 dB). The last used attenuation level is remembered at the next JAGUAR restart.

You can define the desired default attenuation level with the DEFAULT_ATT plugin (See SETTINGS > PLUGINS for more details):

```
PLUGIN ..... DEFAULT_ATT=1
```

You can also define different attenuation levels for scheduled daytime and nighttime recordings as described in SETTINGS > KIT > MESTOR (select the ATTENUATION template from the menu). Often, the overnight recordings are set to use the attenuation level of 1 (ATT1, -10 dB) but, in the morning, the attenuation level will be changed to the attenuation level of 0 (ATT0, no attenuation).

AUDIO

What are the best audio settings?

Simple answer: there is no such thing as "BEST AUDIO SETTINGS". Not only the situations vary but also personal preferences vary a lot. However, some audio-related aspects should be kept in mind. Note that in JAGUAR LITE not all of these options are available.

JAGUAR's audio quality

JAGUAR's base audio can be characterized as "hard, treble and clear", and such an audio can be a real advantage in many cases. On the other hand, a hard-sounding audio may be tiring during long listening sessions. The output characteristics can be modified by changing a filter / filter bandwidth / notching. For some reason, JAGUAR's audio works exceptionally well when there are several stations on the playback frequency.

However, when comparing the audio produced by SDR software, there is never one clear winner. Some users say they can dig out more data with Perseus.exe; on the other hand, we have seen cases to the contrary. For example, one user was able to dig out three personal new graveyard stations in a short test session. That is why it is often practical to check with your other favourite SDR application if a tough case cannot be easily cracked with JAGUAR. All that we often need is just 1-2 readable words more for a positive ID.

Filters

JAGUAR relies heavily on the SSB mode which has been the "standard mode" in MW DXing for decades. JAGUAR has four filters available in the filter menu - actually one of them is the AM FILTER using the JAZZ filter chain, and the output is generated in the AM demodulation mode. In addition, a special "CW" filter is available (press ALT-F) for MW DX tests where also Morse code is transmitted.

What is the best filter and optimal preset? Here again user preferences vary a lot. I have seen some users using solely very narrow bandwidths of around 2 kHz (and getting good DX results) and some users using "as wide bandwidths as possible" (and getting good DX results). Naturally this also depends on your location and existence of nearby AM powerhouses. The default preset setting (a bandwidth of 3.0 kHz with an offset of 0.3 kHz) is a good compromise when scanning the dial but when you "hit into something", it is quite likely that you can improve the output by testing various settings. Generally, the CALLIOPE and/or JAZZ filters with the STUDIO option are regarded the best in tough places. CALLIOPE and JAZZ are cascading filters with optional STEEP/STUDIO modes; STUDIO produces a "brickwall filter pipe". However, the AM FILTER should not be forgotten: when the frequency is free from nearby interference, the AM mode can often give the best audio output.

Automatic Gain Control, AGC

The Automatic Gain Control (AGC) is required to keep the output audio always on an "average level" to smooth the amplitude changes in time or when changing the frequencies. But when studying weak signals or making audio clips with CLIPPER, it is recommended that the AGC be disabled (click AGC to OFF). Every change in gain has a negative effect on the "real" audio.

Output audio format and compression

Typically, MW DXing focuses on solving the speech elements from the noise. The human speech consists of a fundamental (base) frequency and harmonics that together create the voice audio. The fundamental frequency of a male voice varies between 85 and 180 Hz and the female voice between

165 and 255 Hz. Normally, humans can hear the audio up to a maximum of 20 kHz but in the case of elderly OMs the maximum level can be way lower :-)

The output audio sampling rate is user-selectable: 8 kHz (WAV8), 16 kHz (WAV16) or 32 kHz (WAV32) if the bandwidth of 1.6 MHz is used, or 10 kHz (WAV10), 20kHz (WAV20) or 40 kHz (WAV40) if the bandwidth of 2 MHz is used; choose the one you prefer. The real audio range that our ears can get out of these sampling rates is the selected rate, divided by two:

```
WAV 8 kHz = 0-4 kHz
WAV 16 kHz = 0-8 kHz
WAV 32 kHz = 0-16 kHz
```

In MW DXing, we are interested in speech only, and WAV 8 kHz can often do the job, WAV 16 kHz can (sometimes) do better, and some prefer WAV32 because the audio quality becomes "softer". However, WAV32 brings also music frequencies and other high frequency tones into our ears. We are not interested in music so the highest audio frequencies are usually not so important. So, in theory, WAV8 should be OK in most cases. However, there are some speech elements which require WAV16 to become "fully formed"; the richness of s, c and z is formed there between 4-8 kHz. Thus, WAV16 is recommended unless you do not have other preferences.

When saving the final audio clip, use MP3 (CLIPPER > FORMAT), especially if the clip will be sent as an attachment to your reception report.

Notching

Notches are used to eliminate interfering heterodyne peaks from the audio. In JAGUAR, it is easy to get rid of whistles and the like: see detailed instructions in the AUDIO WINDOW help.

Click Remover, CR

The Click Remover (CR) removes clicks in the audio - or at least make those clicks smoother. CR should not be kept on by default because it can also make the audio quality worse by eliminating "real" audio parts. CR was originally implemented to tackle electric (horse) fence type of pulses but it may be useful for other types of clicks.

Equalizer, TINYEQ

The AF equalizer (TINYEQ) is part of JAGUAR's audio toolkit. Many users post-process their audio clips with an equalizer to adjust the frequency areas according to their personal preferences. More info in the TINYEQ help.

Noise Reduction, NR

There has been a lot of discussion about Noise Reduction (NR) in MW DXing. At the moment, JAGUAR does not include any real Noise Reduction tool. Such a tool can clearly improve the output for already good signals but, in MW DXing, we are often dealing with weak spoken words, just on or above the noise level. And in those cases, the user can often spend a lot of time with NR, all in vain: NR also removes too much real audio and we cannot achieve real improvement in weak signals.

However, the situations vary and **sometimes** you may indeed succeed in improving the output when using NR tools; it can be that you just happen to dig out one extra word after the NR process, and often it may be just enough for solving the station identity. Some experienced users use Adobe Audition, but there is a plenty of other tools available: Audacity is one of the most popular. If you have extra time, please test some NR audio tools and make up your own mind.

Instead of a special NR tool, JAGUAR offers several ways that can be used for noise reduction (because various audio frequency filters can be used for filtering/smoothing noise or changing the "color" of the noise):

- STUDIO for eliminating hum/"rumbling"/carrier waves
- TINYEQ for changing the general noise color
- even NOTCH can be used to eliminate a larger area of audio frequencies (not only the het peaks)

However, "white noise" type of noise (which is always in our recordings) is a tougher enemy!

External sound cards and headphones

This is another area where we have a wide variety of gear in use among DXers. And many have got good results with a standard laptop audio card and low-end headphones. However, external sound cards and good headphones may be the missing link between good and excellent results; the final step in securing a catch of your life.

External sound cards usually offer a higher amplitude resolution (24 bits are nowadays "the industry standard") and a higher frequency resolution (the sampling rate can be e.g. 96 kHz). The higher the bit rate and the higher the sample rate, the closer you get to the original (analog) sound. This is especially important in orchestral music and movie soundtracks but what about MW DXing? When playing back the audio produced by the SDR software with external sound cards, the original audio is transformed to the selected new specs.

A 24-bit sound is a tricky thing to assess. Does it provide for a greater amplitude resolution of sound? Definitely. Are you going to be able to hear that difference? Harder to judge. It is easier with high-quality music but what about weak signals where the meaningful audio level is very close to the noise level? On the other hand, there can be cases with several received signals bundled together, and in such cases, a higher amplitude resolution may help pick up the lower. A higher bit depth gives a more dynamic range between the loud and soft parts: it allows for quieter sounds to sound less distorted.

Some experienced DXers say that a higher sampling rate provides more "space" and makes the audio output "softer", making it possible to dig out more speech elements from the output. For example, a sample rate of 96 kHz captures frequencies up to 48 kHz, way beyond the human ear, but it will produce more accurate samples.

And, finally, the headphones: a common agreement is that "good headphones is a must" in MW DXing. Pay attention to the weight too as many MW DXers spend more time with headphones on than without :-)

To summarize: there are no "best audio settings" but because "some settings must be used" while scanning the dial, here are the good basic settings:

- use the CALLIOPE or JAZZ filter with the bandwidth of 3.0 kHz and an offset of 0.3 kHz
- use the STUDIO brickwall mode
- use the WAV16 output sampling mode
- keep NOTCH ON
- keep CR (Click Remover) OFF
- disable the AGC when studying some specific DX clips

HOW TO

The full documentation for audio-related tools can be found under the tool-specific guide pages.

AUDIOBAR

AUDIOBAR contains a set of buttons used for music and language recognition and quick finetuning of audio characteristics. If you need more tools and also want to see the exact effect of your changes in the audio frequency spectrum, you must open the BOTTOM WINDOW > AUDIO.

Audio finetuning: when clicked, the buttons normally toggle/rotate the allowed values. In addition to changing values by mouse-clicking, you can also move the mouse over any button and scroll with the mouse wheel, or use the left/right arrow keys.

HOW TO

AUDIOBAR is always visible when JAGUAR is active, containing the following buttons:

SHAZAM (JAGUAR PRO)

```
(( SONG ID BY SHAZAM: "LISTENING" ... ))
```

When clicked, the system tries to identify the music played, music audio data is collected and sent to the Shazam server. If the identification is successful, Jaguar triggers the Shazam web page for the music in reference. If the music can't be identified within 15 seconds, "NO MATCH" message is given. You can also cancel the process left- or right-clicking the button before 15 seconds has passed. More information can be found in the SHAZAM help.

TRANSLATE (JAGUAR PRO)

```
(( TRANSLATE BY WHISPER AND GOOGLE: "LISTENING", "ANALYZING" ))
```

The TRANSLATE function can be used for speech signal processing to identify the language and to transcript and translate it to English - all you need to do is to click the TRANSLATE button. You can also cancel the process left- or right-clicking the button before the analysis phase. More details in the TRANSLATE help.

CLICK REMOVER

```
(( CR OFF | CR xx ))
```

CLICK REMOVER - Toggle the Click Remover ON and OFF, or change the active ON level by scrolling between Low (CR LOW), Average (CR AVG), and High (CR HIGH). More about this in the CR and APPLETS > WAVE help.

AGC

```
(( AGC ON | AGC OFF | AGC OFF+ ))
```

AGC (Automatic Gain Control): Rotate the AGC modes by left-clicking the mouse: AGC ON > AGC OFF > AGC OFF+. Scrolling will change the gain to the desired value and will set the mode to OFF (i.e. to the manual gain control). More info in the AGC help.

SSB

```
(( LSB | USB ))
```

SSB (Single-Side Band): Toggle the Lower Sideband (LSB) and Upper Sideband (USB). Not availabe if the AM MODE filter is selected.

LOWER SLIDER BUTTON (JAGUAR PRO)

```
(( AUDIO | HISTORY | BANDVIEW ))
```

The BOTTOM WINDOW is opened / closed with the selected topic. See BOTTOM WINDOW for more details.

FILTER

```
(( STOCK | JAZZ | CALLIOPE | AM MODE ))
```

FILTER

Select the filter to be used: STOCK > JAZZ > CALLIOPE > AM MODE. The full range of filters is available only in JAGUAR PRO; in JAGUAR LITE, the only available filter is STOCK. More info in the FILTERS help.

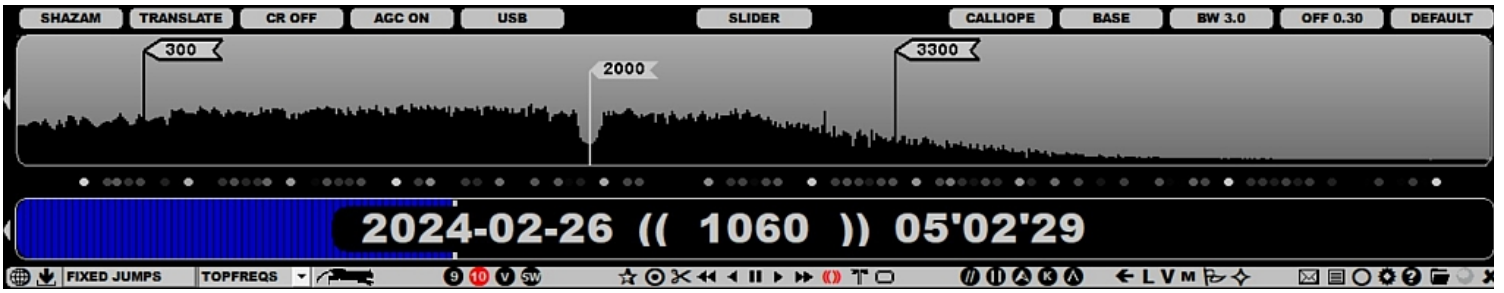
FILTER CURVE

```
(( BASE | STEEP | STUDIO ))
```

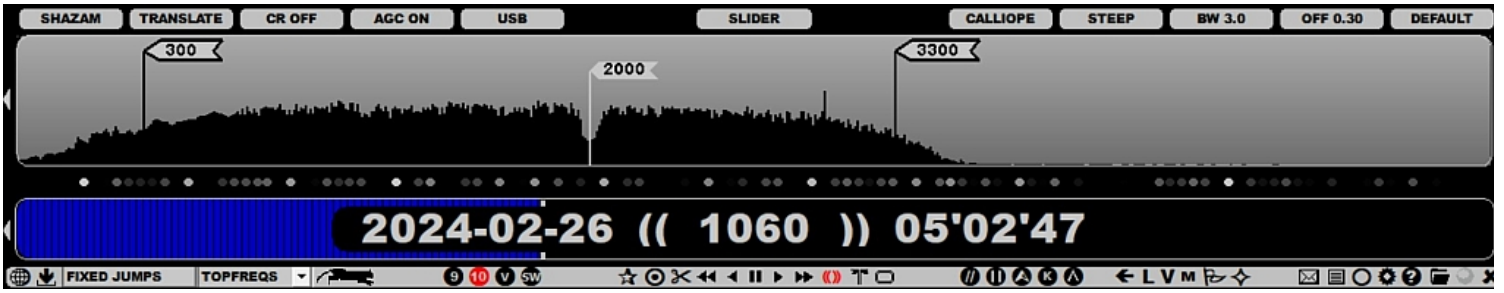
STEEP and STUDIO are the "power filter" modes. The BASE mode allows some audio frequencies to leak in from outside the offset/bandwidth range; the audio output is soft and sounds like an old tube radio. The STUDIO mode creates a "brickwall", eliminating low and high audio frequencies as can be seen in the AUDIO WINDOW; the audio output is harder and sounds more like a "scientific" SDR audio. Often you will get a better output from weak signals using the STEEP/STUDIO filter modes but some use also the BASE mode often.

The audio response of these three filter curves can be visualized in the BOTTOM WINDOW > AUDIO (JAGUAR PRO only):

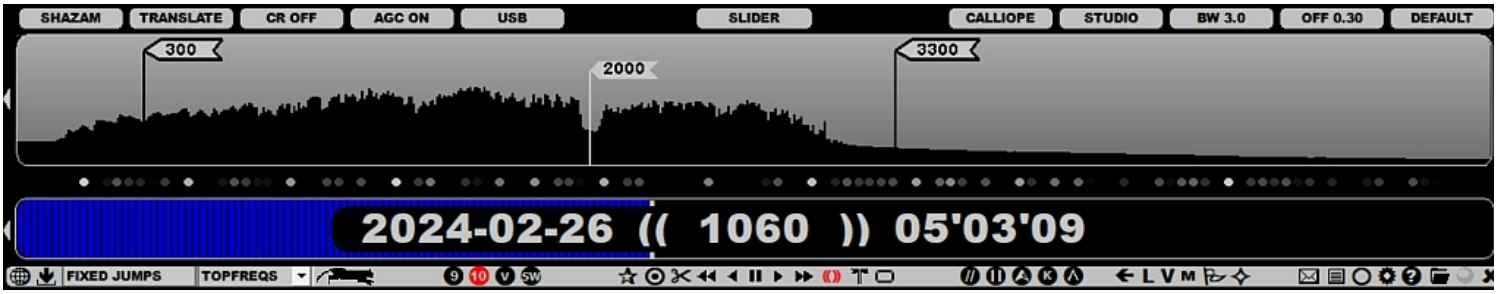
BASE is the basic audio filter curve:



STEEP cleans up more audio frequencies than the BASE mode. The effect of STEEP can be clearly heard in the headphones: audio with STEEP is crispier than in the BASE mode; however, we have lost some audio frequencies beyond the selected audio spectrum limits, but there is also a considerable suppression in the amplitude of the lowest (non-speech) audio frequencies. The filter curve is also much "steeper" at the filter edge than in the BASE mode.



STUDIO provides a more thorough clean-up of audio frequencies than the STEEP mode, and much more than the BASE mode. The effects of STUDIO can also be clearly heard in the headphones: the audio with STUDIO is the crispiest; however, we have lost more audio frequencies beyond the selected audio spectrum limits. In STUDIO, a lot of attention has been paid for eliminating the lowest frequencies. Even though most of these are located in the sub-audible frequency area, they may have some negative impact on the audio result / waveform. By default, in STUDIO we want to cut off everything as much as possible below the 80-Hz limit (= the lowest main frequency of the human speech). The filter curves are much steeper at the edges than in the other modes.



BANDWIDTH

```
(( BW x.x ))
```

Select the filter bandwidth in the range of 1.0 to 8.0 kHz in the steps of 0.1 kHz. Available only in JAGUAR PRO; in JAGUAR LITE, the only available filter bandwidth is 3.0 kHz. The available bandwidth range of the CW filter is 0.1 - 0.5 kHz (with a larger OFFSET range).

OFFSET

```
(( OFF x.x ))
```

Select the filter offset from DC (defaulted to 0.3 kHz). Available only in JAGUAR PRO; in JAGUAR LITE, the only available filter offset is 0.3 kHz.

DEFAULT (JAGUAR PRO)

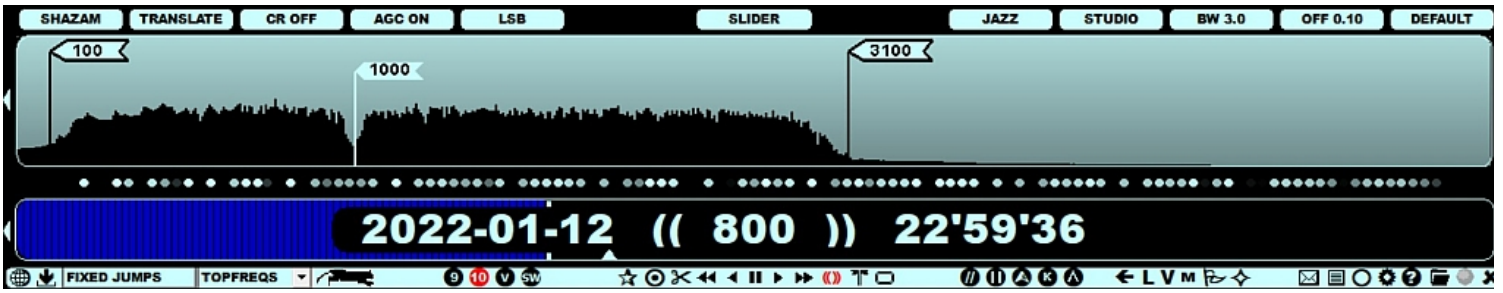
```
(( DEFAULT ))
```

The DEFAULT button can be used to restore your "favorite audio settings" (as defined in SETTINGS > AUDIO > DEFAULT_FILTER | DEFAULT_MODE | DEFAULT_BW | DEFAULT_OFF) for the currently played frequency.

AUDIO WINDOW

JAGUAR PRO ONLY

The AUDIO WINDOW can be used for finetuning the audio output: tuning filter offsets and edges, tuning automatic notches and adding/tuning manual notches. You can see the effect of any change made in the audio frequency spectrum shown in the window. The AUDIO WINDOW is one of the BOTTOM WINDOWs (see BOTTOM WINDOW for more details).



The AUDIO WINDOW has the following characteristics:

- Customizable window size: drag the window up/down from the lower SLIDER button
- Audio frequencies are visible up to 8000 Hz (depends on the X-resolution of your monitor)
    - If your audio output sampling rate is WAV8, your maximum audio frequency is 4000 Hz (WAV10: max 5000 Hz)
- Audio frequencies in the range of 0-500 Hz are extended
- GUI is based on flags: the leftmost framed flag is the filter OFFSET, the rightmost framed flag is the filter EDGE (= OFFSET + BW)
- Each active notch is shown as smaller "notch flags"
- If NOTCH is ON (autonotch is activated), there are 0-2 notch flags visible by default

HOW TO

The AUDIO WINDOW can be opened in three ways:

- by clicking the lower (SLIDER) button on AUDIOBAR (if "AUDIO" is not visible, scroll the button until you see "AUDIO"
- by pressing "J" key for "JAGASS" (both the AUDIO WINDOW and TURTLE are opened)
- by pressing "B" key for opening the BOTTOM WINDOW (repeat pressing "B" if needed, until you get "AUDIO")

The AUDIO WINDOW can be closed by clicking the lower (SLIDER) button (or pressing "J" key again).

The AUDIO WINDOW supports the following functions:

OFFSET TUNING

If you move the mouse over the OFFSET pole, a red "LEFT" flag is shown

- In this mode you can shift the OFFSET position with the mouse wheel or left/right arrow keys, or dragging the "LEFT" pole to a new position with the mouse
- Note that if you move the OFFSET position, the filter bandwidth does not change (meaning that the filter EDGE is moved correspondingly)

EDGE TUNING

If you move the mouse over the filter EDGE pole, a red "RIGHT" flag is shown

- In this mode you can shift the EDGE position with the mouse wheel or left/right arrow keys, or dragging the "RIGHT" pole to a new position with the mouse
- Note that if you move the EDGE position, the filter bandwidth is changed (while the OFFSET position remains unchanged)

NOTCHING

A new notch can be set by clicking anywhere in the audio spectrum. The default notch covers an audio range of 50 Hz. If you move the mouse over any notch pole, a red "NOTCH" flag is shown.

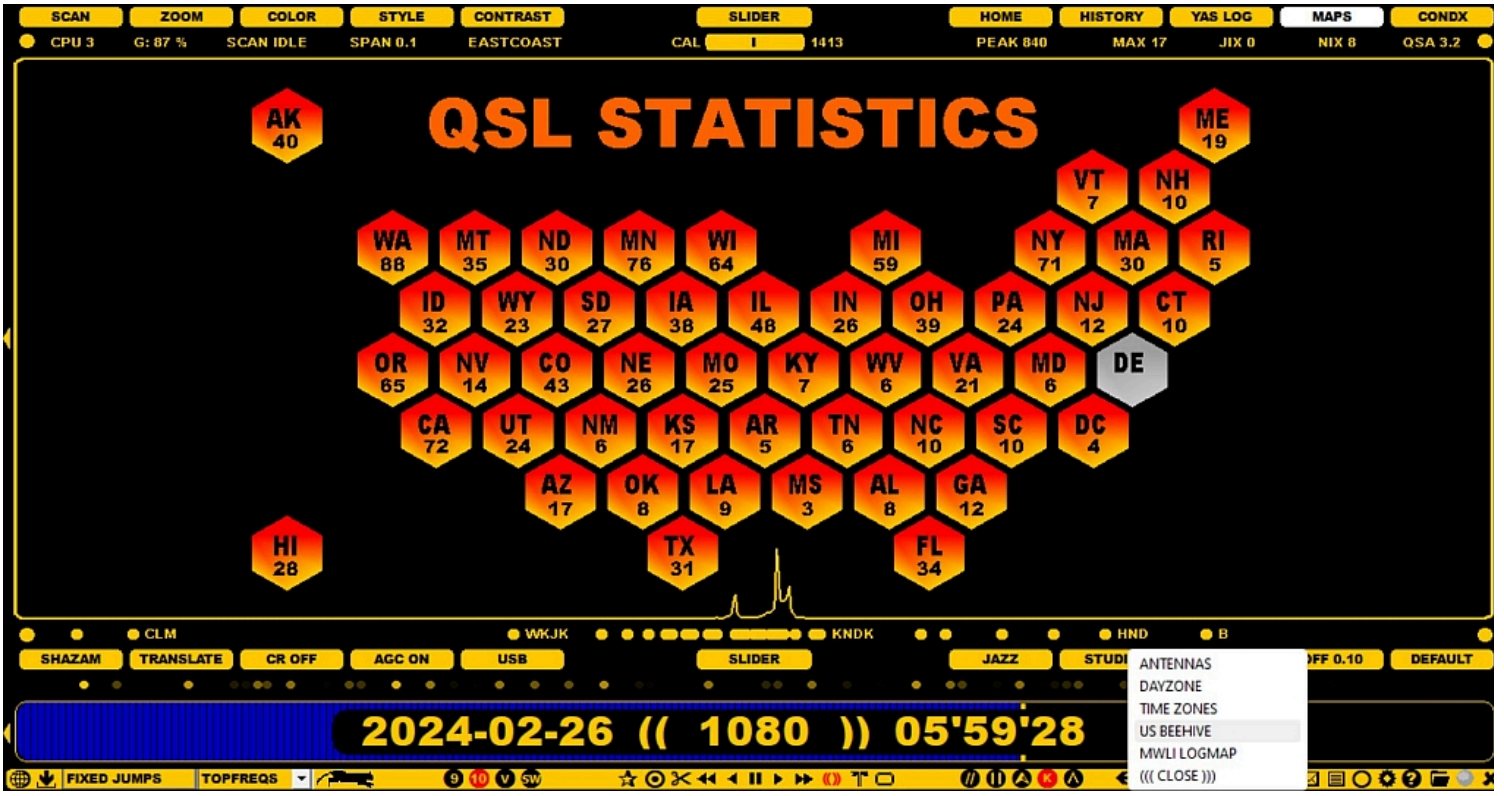
- In this mode you can increase/decrease the notch size with the mouse or left/right arrow keys
- If you left-click the red "NOTCH" flag, you can relocate the notch pole position in the audio spectrum ("notch finetuning") by scrolling the mouse wheel or left/right arrow keys
- If you right-click the red "NOTCH" flag, the notch will be removed

You can define a maximum of 20 manual notches.

BEEHIVE

JAGUAR PRO ONLY

BEEHIVE is a special state-based presentation map for U.S. DX results. BEEHIVE can be used for QSLs or for identified stations.



HOW TO

KEY = ALT-M

BEEHIVE can be invoked from TOOLBAR > M > US BEEHIVE, or with ALT-M.

BEEHIVE can be closed by:

- pressing ESC or W
- activating some other display from SLIDER

When BEEHIVE is opened, playback continues normally but several things are cleared from the screen. By default, BEEHIVE shows empty gray cells for U.S. states; you can colorize them via BEEHIVE.txt.

BEEHIVE.txt is a standard text file and it must be located in your JAGUAR folder; Notepad.exe can be used to create it.

BEEHIVE.txt can contain one "TITLE=my title" line and several "state lines". If you just want to get rid of the gray color for the states you have heard (or QSLed), just enumerate the states, add the states to BEEHIVE.txt, one state per line:

```
TITLE=STATES HEARD
AK
CA
CO
...
```

Or if you also want to define the number of stations per state (heard or QSLed), just type STATE=xx, one state per line. You can also copy-paste the following text to your BEEHIVE.txt file and overwrite the figures to match your score.

```
TITLE=QSL STATISTICS
AK=40
AL=8
AR=5
AZ=17
CA=72
CO=43
CT=10
DC=4
DE=0
FL=34
GA=12
HI=28
```

IA=38
ID=32
IL=48
IN=26
KS=17
KY=7
LA=9
MA=30
MD=6
ME=19
MI=59
MN=76
MO=25
MS=3
MT=35
NC=10
ND=30
NE=26
NH=10
NJ=12
NM=6
NV=14
NY=71
OH=39
OK=8
OR=65
PA=24
RI=5
SC=10
SD=27
TN=6
TX=31
UT=24
VA=21
VT=7
WA=88
WI=64
WV=6
WY=23
HI=28

BOTTOM BAR

JAGUAR PRO ONLY

BOTTOM BAR is an optional bar located below AUDIOBAR. The BOTTOM BAR mode can be one of the following:

- OFF
- FREQS (default): "Frequency balls", MW9 or MW10 channels (based on the active stepping) and their current signal power. The color varies from black to bright based on the power. You can jump to any frequency on FREQS by clicking the corresponding ball (red frequency pointer is displayed when the mouse cursor is over FREQS).

- TRACKER shows what HH'MM (hour:minute)/frequency pairs you have already listened to, and how much time you have spent on each HH'MM/frequency pair. TRACKER is fully aligned with PLAYBAR's playback time: each minute on PLAYBAR has a corresponding minute area below it, and you can see thickening vertical bars based on how many seconds you have spent on each particular minute on PLAYBAR.

HOW TO

The default setting (FREQS) can be changed in SETTINGS > GRAPHICS > BOTTOM_BAR > OFF | FREQS | TRACKER.

BOTTOM WINDOW

JAGUAR PRO ONLY

The BOTTOM WINDOW is an optional secondary graphical window that can be used for several additional services:

- AUDIO: Finetune the playback audio output

- HISTORY: Show the signal power variation on the currently played frequency (24 hour display)

- BANDVIEW: Show the full MW spectrum

HOW TO

KEY = B

The BOTTOM WINDOW can be opened in two ways:

- by pressing the "B" key
- by clicking the center button on the AUDIOBAR (the button label shows the currently active BOTTOM WINDOW format)

The BOTTOM WINDOW format can be changed by pressing the B key or by scrolling when the mouse cursor is over the AUDIOBAR center button.

The BOTTOM WINDOW height can be increased/decreased by dragging (drag the bar up/down when the mouse cursor is on the center button).

The BOTTOM WINDOW can be closed by clicking the center button on the AUDIOBAR.

AUDIO

See GUIDE > AUDIO WINDOW for the details.

HISTORY

HISTORY shows the signal power history on the currently played frequency as a "24 hour audio clip" view. HISTORY window can be used for jumping to any specific time (where the signal power looks promising). HISTORY feature does not use any extra resources.

BANDVIEW

BANDVIEW can be used for monitoring the whole MW status and jumping to any MW9/MW10 frequency. Overseas frequencies are shown white topped "glow worms". The MW PEAK (the strongest channel) frequency is listed on the top of the spectrum curve. The BANDVIEW feature does not use extra resources.

BREAKPOINT

When an active connection to the Perseus hardware has been created, JAGUAR always uses a buffer file on the hard disk, making it possible to play back several frequencies close to real time. By default, the buffer file size is 10 minutes (when using the bandwidth of 1.6 MHz) or 8 minutes (when using the bandwidth of 2 MHz).

A new file is always created when the buffer file reaches the upper limit.

When the Perseus connection is activated, the system does an "automatic minute adjustment" breakpoint so that TOHs and BOTs will be positioned to the center of the JAGUAR screen. This function is skipped if manual recording is activated before the breakpoint.

HOW TO

KEY = ALT-B

You can re-create a new buffer file also manually any time by pressing ALT-B. However that is seldom needed because the "automatic minute adjustment" relocates the file breakpoints to HH:55 (for 1.6MHz files) or HH:56 (for 2MHz files) for TOHs and HH:25 (for 1.6MHz files) or HH:26 (for 2MHz files) for BOTs. This ensures that a file breakpoint will never happen at the top of the hour (TOH) or at the bottom of the hour (BOT), and that the TOH / BOT times are exactly at the center of the JAGUAR display.

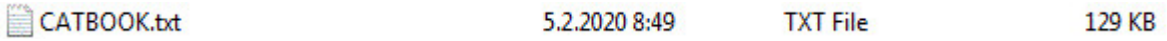
CATBOOK

JAGUAR PRO ONLY

CATBOOK ("Captain's Logbook") is a "collection database" for documenting your DX history (= your QSLs, loggings, audio clips, etc).

Every row (station) in CATBOOK is connected to a user-specified color code called P-TAG (see P-TAGS for details). This tag is added to all stations that are saved in CATBOOK, and they are used to define how the station will appear not only in CATBOOK but also on the standard MAPS and TURTLE displays.

CATBOOK is created automatically when you make the first logging / offset logging. Then a new station is added automatically to CATBOOK when it is logged; also other JAGUAR functions can be used to add stations to CATBOOK. CATBOOK data can be edited (and new data added to already saved stations) by using the CATBOX tool window.



The CATBOOK file itself is a simple text file ("CATBOOK.txt"), and it is located in the JAGUAR installation folder.

HOW TO

CATBOOK stays mostly "out of sight"; it just serves as a background data source for several JAGUAR displays.

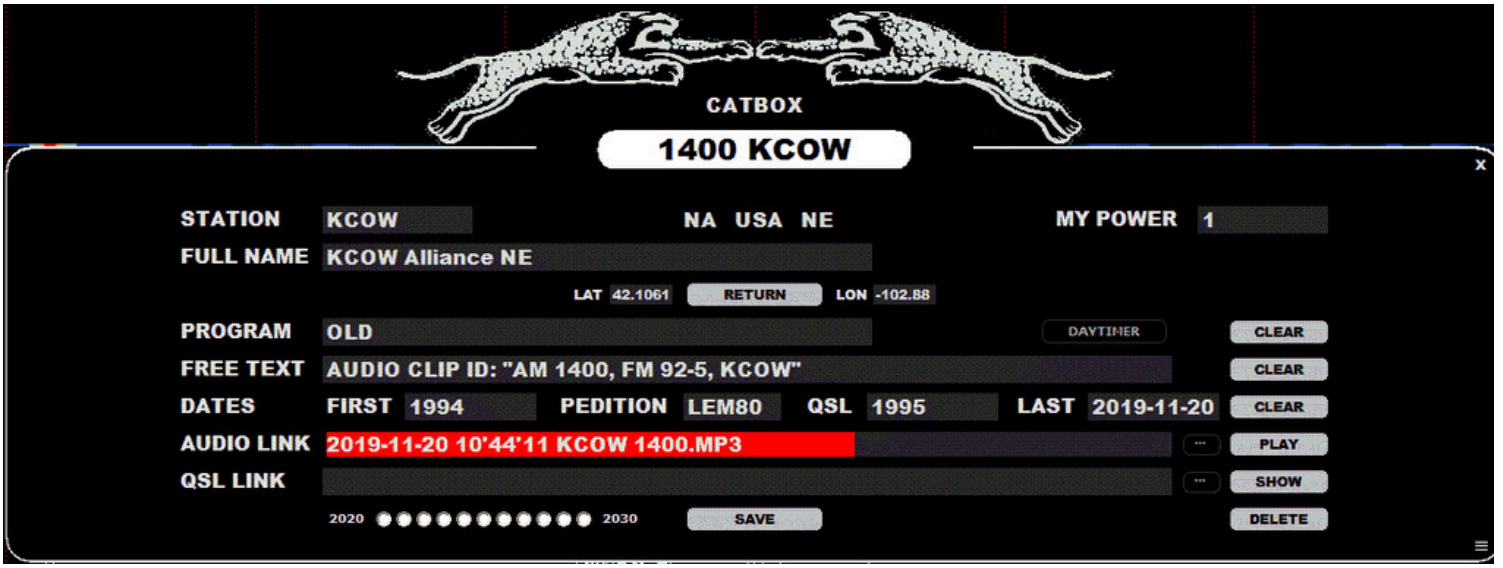
More information about maintaining the CATBOOK data can be found in the CATBOX help. In fact, you can edit CATBOOK.txt also directly (for example, with Notepad.exe), but it is not recommended because all the column positions must be exact and all the line breaks must be exactly at the end of the data row. If not, CATBOOK will get corrupted; it can happen easily if you edit it manually and are not careful enough.

At the moment, there are no tools for converting your old documentation (QSL statistics, etc.) to the CATBOOK format, but there are tools for quick setting of the color code for a bunch of stations (see STATION MENU > TAGGER for more information) and this way you can easily copy a large amount of stations from TURTLE to CATBOOK.

CATBOX

JAGUAR PRO ONLY

CATBOX is a toolbox for maintaining station data in CATBOOK. Many JAGUAR tools (logging, etc.) add/update the CATBOOK data automatically, and more data can be added via CATBOX. More details in the CATBOOK help.



HOW TO

Clicking any station on MAPS or TURTLE opens LOGBOX. In the middle of LOGBOX, there is a button "SHOW CATBOX" (or "CREATE CATBOX" if the selected station is not yet in CATBOOK). Click this button to open CATBOX.

CATBOX allows you to change all the data displayed (except the continent/country code/state) because CATBOX is "your own view to stations". So, for example, you can change the name of the station (sometimes the station naming format in MWLI/TURTLE is not the best possible), format and even the coordinates. MY POWER can be used to denote the power used at the time of reception (if the station has separate day/night transmitting powers).

You can change the color of P-TAGS by clicking the CATBOX title header. Repeated clicks rotate the allowed colors, as will scrolling the mouse wheel and the left/right arrow key presses.

You can add a DAYTIMER tag to the station by clicking the DAYTIMER button; the definition of "DAYTIMER" is not exact so you can decide what stations you want to tag as "daytimers".

AUDIO LINK (an audio clip file or the web address to the audio clip) can be added, and the audio clip can be played within CATBOX by clicking the PLAY button. Next to the PLAY button there is a small `(...)` button which can be used to load the audio file from JAGUAR's CLIPS folder. Only one CLIPS folder location is supported: the default CLIPS folder is used so the string must contain the file name only (not the full path).

QSL LINK will be used in the future. Currently, CATBOX has only this placeholder already implemented.

All logged stations can be tracked based on the years starting from 2020 (using the "2020-2030 buttons"); these buttons are updated automatically when a logging is made.

Clicking DELETE removes the selected station entry from CATBOOK.

If you need to add an older station entry to CATBOOK (no more listed in TURTLE), or you want to add a brand-new station (not yet listed in TURTLE), you can open an empty LOGBOX by pressing ALT-I. You can log this station (to file / daylog) if you like, and click the "CREATE CATBOX" button to insert this station to CATBOOK, too. In this case, you have to fill out the continent/ITU/state details and the coordinates.

After you have made all the changes, remember to click SAVE before closing the window.

CHOP

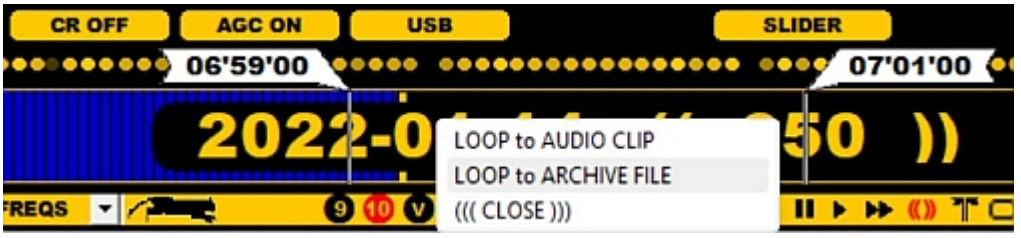
CHOP, or a wideband recording slicer, can be used to create smaller wideband files from the currently-playing file. Normally, wideband files cover a time period of 8 to 10 minutes, and sometimes there can be a need to send them over the Internet.

Unfortunately, these standard files are way too big for regular emailing. Often, the interesting time period is much shorter. For example, if a clip of 10 seconds around the top of the hour is needed, you can use CHOP to create a shorter and smaller wideband file.

HOW TO

Chopping is easy: first, create a standard audio LOOP on PLAYBAR (see the LOOP help) and then click the TOOLBAR > SCISSORS icon and select "LOOP to ARCHIVE FILE". A new wideband file will be created in your recording folder next to the original file.

In the example below, a LOOP covering two minutes around the TOH has been created and TOOLBAR > SCISSORS has been clicked. A popup menu appears and, after you click "LOOP to ARCHIVE FILE", JAGUAR will create a new archive file in the same day folder as the original file. The new file includes all the frequencies between 06:59 and 07:01. The original file remains intact.

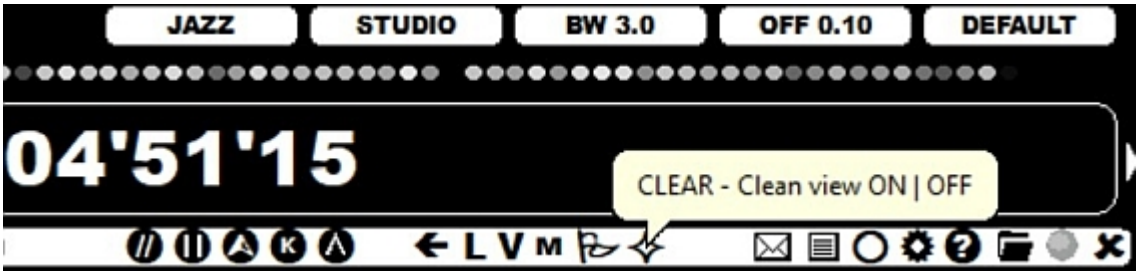


CLEAR

Sometimes we may want to "clear the table" temporarily from extra tools and data. For example, let's say that we need to see the full spectrum (all the carriers) or clear things up for creating presentation graphics. The special cleanup function that CLEAR offers can be used for this.

HOW TO

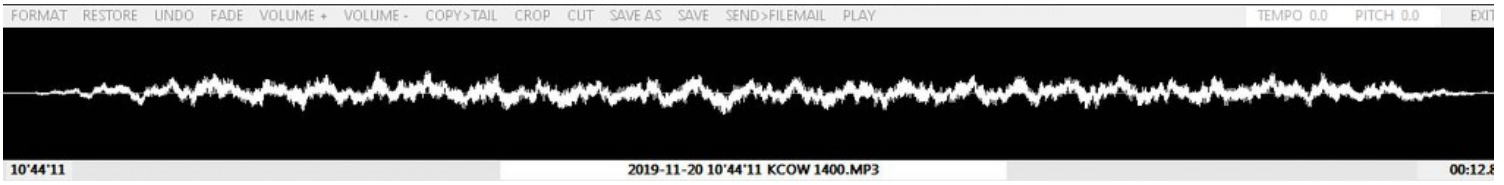
Clicking TOOLBAR > CLEAR toggles the CLEAR mode on/off.



The CLEAR mode leaves only the base graphics visible.

CLIPPER

CLIPPER is JAGUAR's built-in sound editor that can be used to create audio clips from wideband recordings.

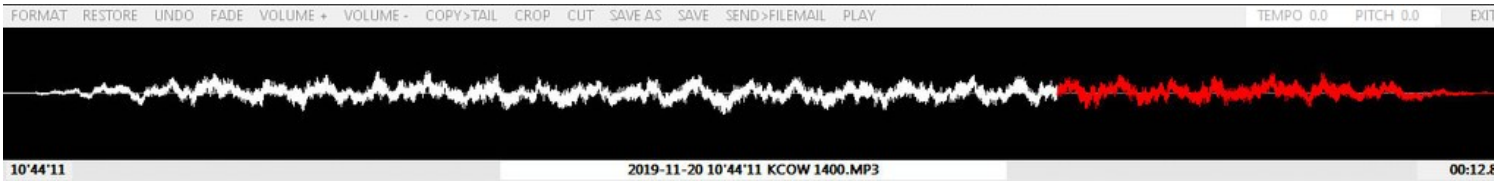


When you have the relevant audio material in the CLIPPER window, you can play/edit/process the clip before saving it (see the options below). The clip name is of the standard JAGUAR format unless you have defined your own clip name format in SETTINGS > PLAYBACK > CLIPNAME. The clip name is displayed on the bottom of the CLIPPER window, and this name can be edited. But do not change the WAV/MP3 suffix here, go to CLIPPER > FORMAT to do that.

HOW TO

KEY = C

CLIPPER can be started during the playback by pressing the "C" key, or by clicking the TOOLBAR > SCISSORS icon, or from STATION MENU > CLIPPER. Another press or click on the relevant key/icon/menu will stop the flow of the audible sound to the CLIPPER editor window. You can also click STOP on the CLIPPER menu. If you want, you can add more than one segment of audio to the same clip, using any of the ways described above to start CLIPPER.



You can play the audio clip by clicking on PLAY in the menu, or by clicking the waveform in the editor window at any position. You can also highlight an area in the waveform to limit the playback or editing to that specific area. Clicking the waveform outside the highlighted area will remove the highlight. If you edit the waveform without highlighting any particular area, the entire audio clip will be subject to these edits.

The CLIPPER menu contains the following options:

- FORMAT: Select the audio clip format (WAV | MP3). Note: FILEMAIL clips are always sent as MP3.
- RESTORE: Cancel all edits you have made and restore the original audio clip.
- UNDO: Undo the last edit.
- FADE: Standard fade function.
- VOLUME+: Increase the amplitude.
- VOLUME-: Decrease the amplitude.
- COPY>TAIL: Copy the highlighted area to the end of the clip.
- CROP: Keep the highlighted area, delete the rest.
- CUT: Delete the highlighted area.

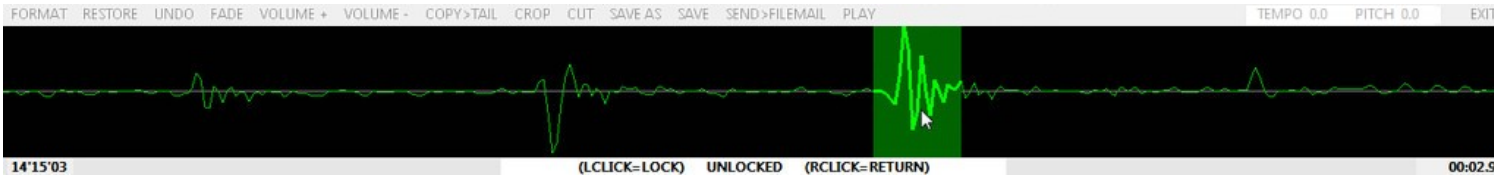
When you have finalized your edits, you have the following save options in the menu:

- SAVE AS: Select the save folder manually. While saving, you can still change the clip file name.
- SAVE: Save your clip to the CLIPS folder in your JAGUAR folder.
- SEND>FILEMAIL: Send the clip to your another JAGUAR PC.
- PLAY: Play the audio clip / highlighted area.
- TEMPO and PITCH: Extra options for modifying the tempo and pitch of the audio. These buttons are not available by default. See more information about these on the bottom.

CLIPPER contains also a precision tool for bit fiddlers to get the maximum out of the audio:

- If an audio area has been highlighted in CLIPPER, it can be zoomed in, even to the sample level. Use the mouse wheel or the left/right arrow keys to switch between FULL AREA, RED AREA, and GREEN AREA.

- The GREEN area is the lowest level. You can move the mouse and position the area to the desired audio peak: first, click once to lock the position, then increase or decrease the width of the GREEN area with the mouse wheel or the left/right arrow keys.
- You can use the FADE button to eliminate "runaway peaks" (= fade in/ fade out for the RED and GREEN areas)



- The GREEN area is actually a low-level sample microscope. It supports sample correction on individual samples, i.e. FADE is applicable even to one single sample in the audio, which can be useful in eliminating harmful clicks if JAGUAR's default internal CLICK REMOVER (CR) consumes useful audio too much.

You can close CLIPPER by clicking EXIT or by right-clicking the CLIPPER window.

TEMPO AND PITCH BUTTONS

Modifying the audio by changing tempo and/or pitch may help in some tough IDs. These functions use the 3rd party audio library called "SoundTouch" (http://surina.net/soundtouch/index.html).

Note that changing tempo does not change the pitch and changing pitch does not change tempo, but if you necessarily want, you can change both of them (in that case you get the classic "chipmunk/klingon" effect just as when changing the plain audio playback sampling rate.

How to use TEMPO and PITCH functions in JAGUAR:

- TEMPO and PITCH buttons are available in the CLIPPER only if a program called "soundstretch.exe" is downloaded and available in the JAGUAR installation folder.
- You can download Soundstretch via JAGUAR's download page http://jaguars.kapsi.fi/download > OPTIONAL FILES > SOUNDSTRETCH.zip) or directly from http://surina.net/soundtouch/download.html : select "SoundStretch 2.1.1 for Windows". Unzip the package contents to your JAGUAR installation folder.
- Changing tempo/pitch can be done by clicking TEMPO/PITCH buttons (< for decrease, > for increase) or using the "JAGUAR style": use mouse wheel and or left/right arrow buttons whenever the mouse cursor is over either of these buttons.
- Playback starts automatically after you have changed tempo/pitch. Note that any change targets the whole clip (can't be used for painted areas) and the playback is done outside CLIPPER (the output can't be saved). However the last used "external audio file" is saved as CLIPS\TEMP2.WAV.
- The stepping/scale of the values differ a bit from the original (in JAGUAR "TEMPO 5.0" means 50% increase for the tempo), otherwise the operation should be easy and intuitive.

SILENT CLIPPER (ALT-C)

You can also extract and record the audio by pressing ALT-C: this mode does not start the GUI (there's only "RECORDING AUDIO" text visible on the STATUSBAR when this mode is active). This mode will record ANY audio you will currently hear on the headphones: it can be the Jaguar audio, the Perseus audio, the internet stream played within or outside Jaguar, Youtube video, etc. This recording ends when you press ALT-C again, then you can save the audio clip in the mp3 format.

NOTE: Some Windows setups do not support this feature.

COBRA

COBRA, or "Continuous Offset Based Rockin' Audio". When activated, JAGUAR demodulates the audio from the highest peak offset found around the nominal frequency; the peak carrier frequency can vary all the time.

COBRA has nothing to do with SYNC detection, found in traditional receivers. The SYNC detection mode helps if the wanted station fades a lot, keeping that specific station "spot on" as much as possible. On the contrary, COBRA forgets that station and selects a new carrier for optimal playback.

COBRA can be used for "general listening" if you want to optimize the audio from each station that temporarily fades in. However, often at first, DXers spot visually the most interesting carrier and tune in to that offset manually (that carrier may or may not be among the strongest ones).

HOW TO

TOOLBAR > COBRA

The COBRA mode can be triggered on/off by clicking TOOLBAR > COBRA.

When COBRA is activated, its icon color is red. When changing a frequency while the icon color is red, COBRA will automatically find the strongest carrier peak on the new frequency for playback.

COMPARE

This is a function that compares the two frequencies for checking parallel (//) programming.

HOW TO

TOOLBAR > COMPARE

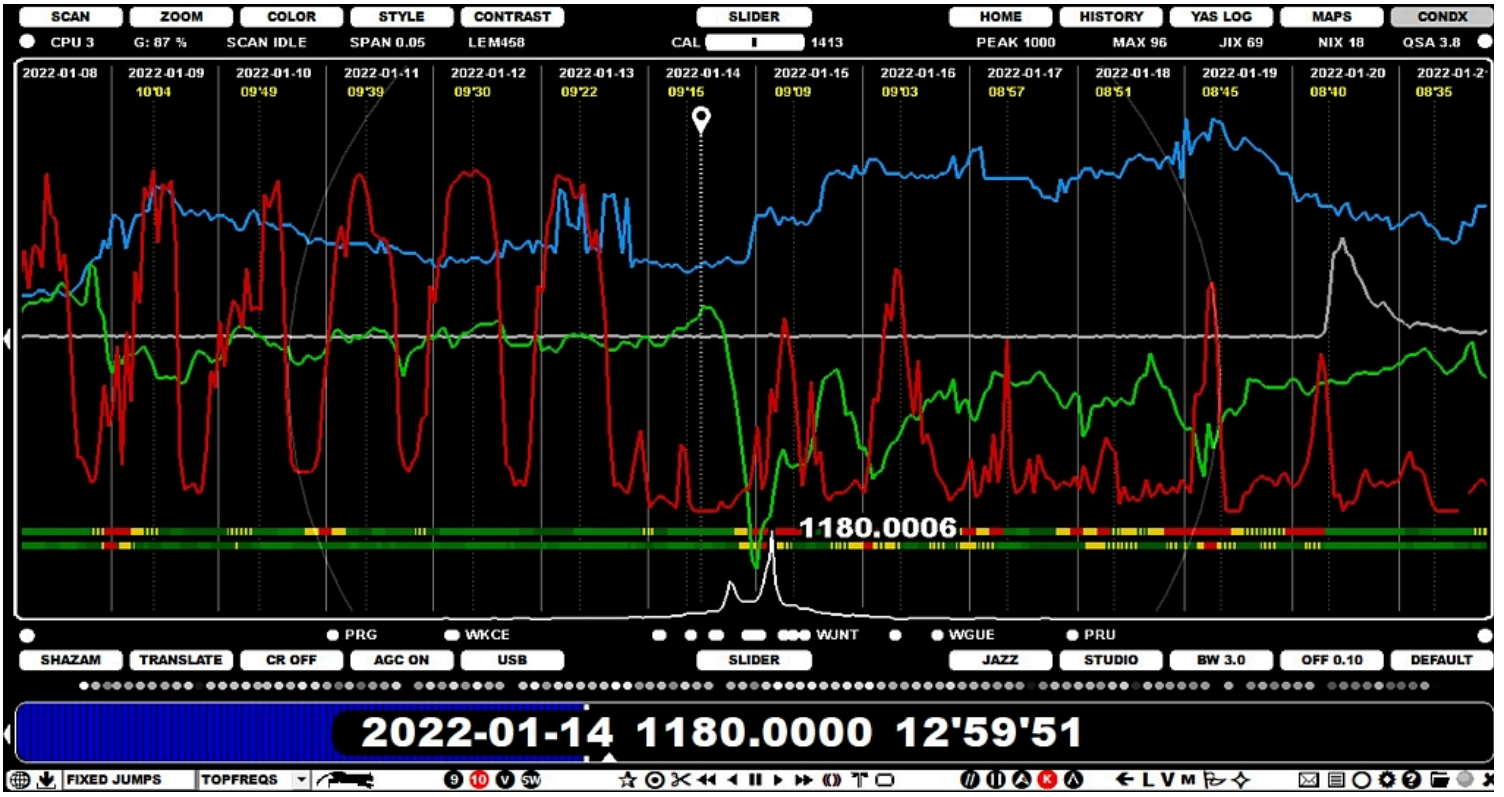
You can enable/disable the COMPARE mode by clicking TOOLBAR > COMPARE or pressing the keyboard key "/". When the COMPARE mode is enabled, the lower SLIDER button is changed to the COMPARE button with two frequency buttons next to it. Initially your current playback frequency is displayed on both of them. This playback frequency becomes the "master frequency" and it will be kept unchanged on the left frequency button.

You can tune to new frequencies when the COMPARE mode is enabled. In this case the master frequency remains intact but the comparison frequency is changed accordingly when tuned => you can quickly compare the "master frequency" to several other frequencies by clicking "COMPARE" or clicking the left left/right frequency buttons. DIALS or FREQLISTS are often used for selecting the // frequencies.

If you define a LOOP when the COMPARE mode is active, JAGUAR changes the frequency automatically when the LOOP ends (easy to detect // using short loops).

CONDX

JAGUAR is more than well connected to the current and historical online space weather data ("SPACE WX").



The solar data can be found in:

- CONDX display
- SPACE CX applet
- File HEADER
- SPACE WX in the WWW window

HOW TO

KEY = ALT-X

Just click SLIDER > CONDX or press the "ALT-X" key, and you will see a full screen of index developments from the past two weeks. If your playback time is not within the last two weeks, you can toggle between CURRENT and HISTORY graphs by clicking SLIDER > CONDX. HISTORY data will show the week around the playback day. In addition to the these weeks, you can review the nearby weeks by moving the mouse over the current week and scrolling the days backwards/forwards with the mouse wheel (dragging the area left/right is also possible). The maximum move in time is four weeks. To close the CONDX screen, just press "ALT-X" again, or select some other display from SLIDER.

On the CONDX screen you will see how the Kyoto DST (light green), Solar wind (blue) and Proton flux (gray) indices have developed over the days. Also, if you are using a PC which recorded the playback files, you will see the JIX (J-index) CURVE (red). The JIX CURVE shown here depends on the current frequency-stepping you have enabled (MW10 or MW9). See the JIX help for details.

One rule of thumb which can be deduced from these indices is this: whenever the Kyoto DST index plummets (goes to negative values, especially below -10), the global & polar A indices rocket, and, as a consequence, the conditions (trans-oceanic conditions in particular over the poles) will deteriorate.

The CURRENT display option shows also the LIVE situation on the right edge of the screen: POLAR K (Tromso) and GLOBAL K values are most often used cx indicators for the upcoming rx conditions.

Additional cx information can be displayed by selecting RIBBONS from SLIDER > STYLE > RIBBONS (instead of STANDARD). The RIBBONS option shows how the POLAR K, GLOBAL K and the electronic flux (if available) have developed over the days.

SPACE WX in the WWW window

In addition to the dedicated CONDX screen, an extended space weather report is readily available in the TOOLBAR > WWW (select SPACE WX from the JAGUAR home page). This space weather data is read in real-time from the Internet.

The explanations of the parameters shown in the space weather tables under the SPACE WX menu are as follows:

- SSN: Last measured daily sunspot number

- SSNm: Last predicted monthly smoothed sunspot number
- SFI: Last measured solar flux index
- 90-day SFI: 90-day mean solar flux index
- Au (N): Aurora index (north).
  - Max value is 10 (OBSOLETE!)
- Kt: Last measured Tromso (Norway) K index.
  - The threshold for disturbance = 5.
- At: Last calculated Tromso (Norway) A index. The same as Polar A index in the space weather screen.
- Kyoto Dst: The Kyoto Dst index.
- Bz: The direction of the IMF or interplanetary (the Sun's) magnetic field.
  - The Bz value is normally around 0. When this turns to high negative numbers, it means disturbed conditions.
- SW: Solar wind speed (in km/s, typically around 400 km/s)
- X-Ray: Last measured X-Ray value.
  - Class C, M and X solar flares indicate minor and major storms in a few days. The B class events produce no disturbances.
- PCA: 24-hour Polar Cap Absorption forecast (typically caused by proton events, therefore other proton measurements not mentioned).
  - "Green" means no Polar Cap Absorption is expected during the next 24 hours.
- Proton: Current proton flux.
  - The threshold for disturbance = 10
- Kp: Last measured planetary K index.
  - The threshold for disturbance = 5
- Ap: Last calculated planetary A index. The same as Global A in the space weather screen.
- Dst: Another Dst index
- 24-h Kt: The last eight K index values from Tromso (Norway)

These parameters are followed by yesterday's and today's X-Ray events, exceeding the C level. On the right table, a 3-day outlook (OUTLOOK) on the space weather is shown, in terms of the Solar Flux Index (SFI), Planetary A index (Ap) as well as the maximum values for K index (Kp) on the high latitudes (HL) and mid-latitudes (ML).

The rest of the table shows the forecasts for High Latitude Geomagnetic and Mid Latitude Geomagnetic Disturbances for up to the next 48 hours.

SPACE WX in other displays

All the rest SPACE WX data refer to a subset of the previous values monitored and saved during the time of the playback. Most often you will see the four main values (Solar wind, Kyoto DST, Polar A and K).

CR

CR, or the standard Click Remover, was originally designed to wipe out/silence clicks caused by electric fences and similar. It may be useful also in some other cases, for example in softening splatters from the nearby frequencies. The "CR hit power" (= the cut value of the click) can be adjusted, and, in JAGUAR PRO, also the duration of the CR hit can be set.

WARNING: Do not keep CR enabled in vain or keep the CR hit value too high. Otherwise, it will start to "eat" the real audio and cause stuttering and probably other audio anomalies.

HOW TO

KEY = ALT-A

The easiest way to activate CR is to click the TOOLBAR > CR button.

By default, CR is disabled, but it can be toggled on/off by clicking this button. Also the ALT-A key combination is available.

The "hit level" can be changed by moving the mouse over the CR button and scrolling the mouse or press the left/right arrow keys. The hit levels are grouped to three categories: Low (CR LOW), Average (CR AVG), and High (CR HIGH).

JAGUAR PRO ONLY

You can activate/finetune CR also via the WAVE APPLET. The applet offers more detailed CR stepping (9 different "cut levels" are available). In addition, the applet offers the option to change the CR hit duration. More info in the APPLETS help.

CUSTOMFREQS

JAGUAR PRO ONLY

CUSTOMFREQS (or customized filters on frequencies) can support selection of an optimal filter / SSB mode / bandwidth / offset / mode (BASE/STEEP/STUDIO), independently for each frequency.

In addition, CUSTOMFREQS remembers one manual notch (position and width) for each frequency.

The saved CUSTOMFREQS settings will be deployed automatically when you tune in to the frequency for which customized filter settings can be found.

The settings are saved to the CUSTOMFREQS file in the JAGUAR folder, and this file can be moved between computers.

HOW TO

Select SETTINGS > AUDIO > CUSTOMFREQS > YES to activate the frequency-specific filter settings.

After that the system saves the last used audio settings for each MW frequency and restores them automatically when tuning the MW frequencies.

DATABASE BAR

DATABASE BAR is hidden by default but easily accessible by clicking the upper SLIDER button. DATABASE BAR can be used for controlling the target continent (also for MAPS) and stations to be listed on the text area below DATABASE BAR (and on MAPS). By default all stations ("WORLD") are shown for the selected frequency using the TURTLE station database.

DATABASE BAR contains the following buttons:

- CONTINENT buttons for the quick selection of the target area for stations to be listed
- DATABASE selection buttons (when the mouse cursor is moved to the center of the bar)
- DATABASE FILTER/SEARCH buttons (including the free text search window) -- JAGUAR PRO ONLY

HOW TO

Click the SLIDER button (or press the "T" key) to get DATABASE BAR visible. Continents can be selected by clicking the corresponding button. "WORLD" can be used to select all the stations from all the continents.

When the mouse is moved to the center area, you will see the TURTLE and MORE buttons. TURTLE button can be used to select the station database (see TURTLE for more details), MORE button can be used to select an alternative database to be displayed: a small popup menu appears with entries for TOMCAT, USA TIS, CATBOOK and PAL:

- TOMCAT shows loggings made in Scandinavia (see TOMCAT for more details)
- USA TIS shows only the Travelers' Information Stations (see TURTLE for more details)
- CATBOOK shows only the stations the user has heard/logged/QSLed (see CATBOOK for more details)
- The PAL function downloads and opens the latest PAL (Pacific-Asian Log) in a separate window

The leftmost continent button ("WORLD") can be used to combine several continents into one "DX TARGET AREA" in the output: clicking WORLD (or scrolling over the WORLD button) rotates the available DX areas: either WORLD > EMEA > EAST (if your kHz stepping is 9 kHz) or WORLD > NAMEX > CASA (if your kHz stepping 1s 10 kHz). EMEA consists of Europe, Africa and Asia up to 62 degrees Eastern latitude (covering Iran etc.), EAST covers the rest of Asia. NAMEX covers the North America and Mexico, CASA covers the rest of the Americas.

JAGUAR PRO ONLY

DATABASE FILTER/SEARCH buttons can be used for further restriction of the stations listed/shown on the result list/MAPS/FLAGS. This section describes the DATABASE FILTERS/SEARCH available for TURTLE (see TOMCAT help for description of the filters available in TOMCAT database). You can move the mouse cursor next to the TARGET, FIND, TAG, POWER buttons (the button color changes when activated) and click or scroll (using the mouse wheel or the left/right arrow keys) to rotate the allowed values:

- TARGET (FREQ). This value is fixed as your current playback frequency. However, if you are viewing your DX history and selected CATBOOK as your database, you can toggle between the current playback frequency and "MW" by clicking this button. MW shows the results covering all frequencies on MW using the database filters you have activated.

  FIND (TEXT) > Triggers TEXTBOX, the free text search feature (more details below)

- TAG (ALL | WHITE | RED | BLACK | BLUE | GREEN). Show stations based on the P-TAGS (see P-TAGS for more information)

- POWER (ALL) stations > (1kW+) = show stations with tx power 1kW or more > (5kW+) = show stations with tx power 5kW or more > (10kW+) = show stations with tx power 10kW or more > INCLUDE (50kW+) = show stations with tx power 50kW or more.

You can make DATABASE BAR permanently visible (even if SLIDER window is closed) by defining SETTINGS > GRAPHICS > FAT_TOP > YES.

Clicking the EXIT button resets the corresponding database filter.

TEXTBOX, FREE TEXT SEARCH

If you click the (TEXT) button, TEXTBOX will appear:

The keyboard focus is automatically given to the textbox so you can type the desired search word. It can be any full or partial name, callsign, state, offset, network, slogan, etc. You don't have to worry about the big/small characters, all searches are non case-sensitive, so for example when searching stations located in Florida you can type FL, Fl or fl (note: if you have selected North America as the active continent and the search word contains only two characters, the search word is automatically interpreted as "US STATE" so any other row containing that string will not be included in the result).

After you have given the search word, press enter or click "GO" and the results will be shown in the TURTLE window/map. If you have any SPECTRUM display visible, the FLAGS are updated based on the search result.

TEXTBOX is not closed when you tune frequencies. This is useful if you find regional hotspot reception areas: you can keep the desired filter active all the time when changing frequencies. For example if you have made that "FL" search, tuning the frequencies will show only the stations located in Florida on each frequency. Or you can blank the text in TEXTBOX and keep it open by default (ready to serve when needed).

If NA (North America) continent has been selected, plain K given shows the stations with the call sign beginning with K and plain W shows the stations with the call sign beginning with W.

The search is done from the current frequency (if "TARGET (FREQ)" is active) or from the whole database (if "TARGET (MW)" is active, CATBOOK only).

PHONETIC CALL SIGN SEARCH (North America)

If you have selected "North America" as your active continent and give a US call sign as a search word to TEXTBOX, JAGUAR will fetch it - but not only that. In these cases JAGUAR will use the PHONETIC CALL SIGN SEARCH to display also other "photenically possible" alternatives (note that this will replace the earlier phonetic call sign search function, so here there's no need to give ? as the first character). For example, if you are on AM 1450 and hear something like "KVDK", you can type KVDK

and press ENTER. The result set contains all the stations on AM 1450 that can phonetically match that, in this case:

```
KEZJ
KVCK
KZZJ
```

Thanks to OJS for creating the phonetic character matching table. In addition, you can also use wild cards (* = any character is accepted) in your callsign query. For example, if you enter: KQ** on AM 1400, the result set gives the station callsigns starting with KQ and KU:

```
KQMS
KUKI
KUNX
KQDJ
KUNO
```

WILDCARD FM SEARCH (North America)

FM frequency given in the announcement can often help in nailing the identity of the NA station heard. However sometimes you can hear it only partially, in those cases JAGUAR's WILDCARD FM SEARCH can save a lot of time. You can add a wildcard (*) to the search word in TEXTBOX, for example

```
10*.9
```

or

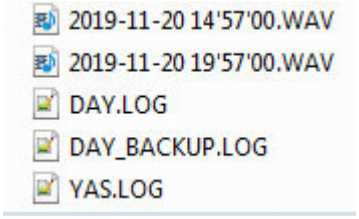
```
9*.1
```

and JAGUAR will fetch only the stations with matching FM frequencies. You can set the wildcard to any position in the FM frequency.

DAYLOG

JAGUAR PRO ONLY

DAYLOG is one of the main logging tools (see more in the LOGGING help). If this tool is used, loggings and bookmarks (= UNIDs, interesting spots to be studied later) are saved in a text file called DAY.LOG. Each DAY.LOG is saved in the same day folder where the actual recordings are saved. JAGUAR also takes backups of DAY.LOG before changes.



The DAY.LOG contents can be shown on every graphics display as a text overlay on the left edge of the display. The contents can be scrolled up/down, you can quickly jump to any frequency/timespot listed in DAY.LOG, and you can also use a handy small editor to change the data for any DAY.LOG row.

HOW TO

You can show the DAY.LOG contents by activating DAYLOG from the DAYLOG button on the lower left corner of the graphics area.

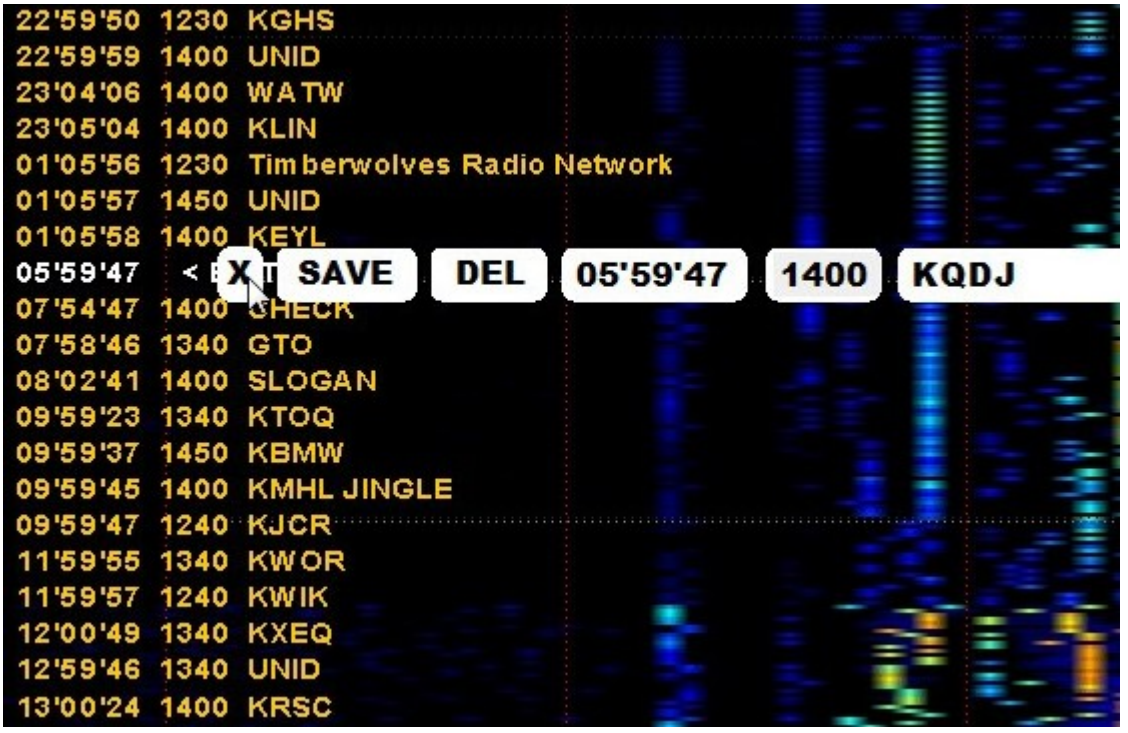
You can add a row to DAYLOG with four different ways:

- Logging a station via LOGBOX (more details in the LOGBOX help)
- Logging a station via DAYLOGGER (more details in the STATION MENU help)
- Adding a bookmark by clicking TOOLBAR > DAYLOG ("CHECK" label is added automatically) or you can just use the easiest and fastest way:
- Press ENTER and you'll see **** at the center of the display, replace that **** with the call/string you want to add and press ENTER again (or press ESC to cancel this entry).

If you have activated the DAYLOG text overlay display, you can drag or scroll it up/down with the mouse wheel when the mouse cursor is over the DAYLOG area.

If you move the mouse over HH'MM'SS, you'll see < JUMP > text and you can jump to that frequency/time by a left click.

If you move the mouse over the frequency, you'll see < EDIT > text and you can trigger the DAYLOG editor by a left click.

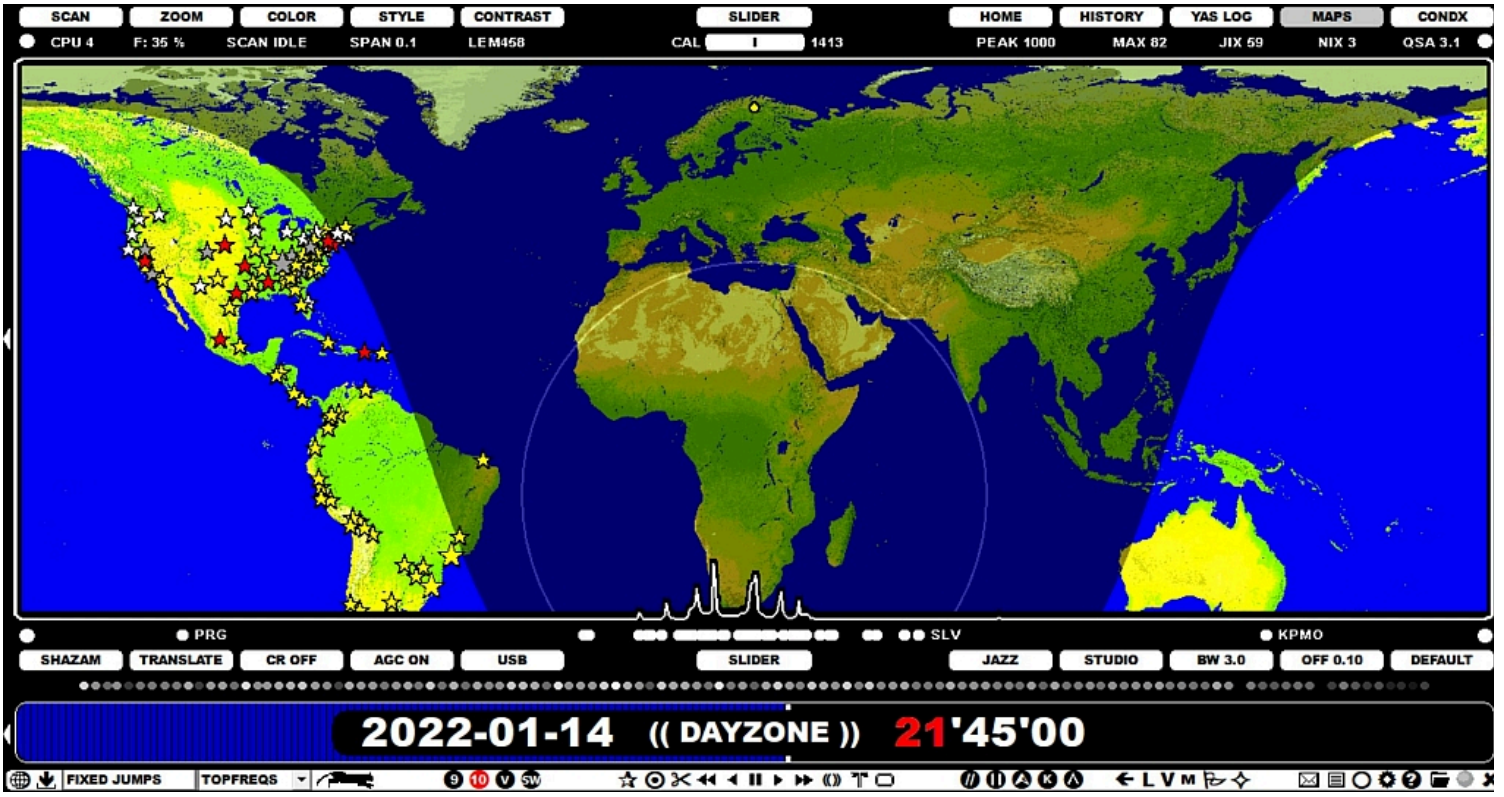


The DAYLOG editor allows you to change the text and/or time (but not the frequency!) and save the changes by clicking SAVE. Alternatively, you can delete the row from DAYLOG by clicking DEL.

You can also edit DAY.LOG files (located in the recording folders) directly with Notepad or any raw text editor, but you must keep the column positions unchanged.

DAYZONE

DAYZONE is an easy grayline/day/night zone simulator, based on the selected stepping (months, days, hours or minutes).



HOW TO

KEY = ALT-M

Open the DAYZONE simulator by pressing ALT-M until you see "DAYZONE" or by clicking the TOOLBAR > M and select DAYZONE from the popup menu.

When the DAYZONE simulator is enabled, you can hover the mouse over each individual component of the time on PLAYBAR, turning the component to red. Then, using the mouse wheel or the left/right arrow keys, you can scroll that time element forward/backward. Scrolling the years is not supported.

If the DAYZONE simulator is enabled, pressing the TAB key will rotate the active scrollable objects: MONTH > DAY > HOUR > MINUTE.

During a DAYZONE simulation you can change the continent (by clicking SLIDER > MAPS or pressing Q), or zoom the MAPS. You can also drag the map to relocate the position.

This DAYZONE simulator can be used without recordings so JAGUAR is a useful piece DX software even if you do not own the Perseus hardware.

The DAYZONE simulation can be ended by pressing ESC or W, or by selecting a new display directly from the SLIDER.

DIALS

JAGUAR PRO ONLY

You can define a maximum of 10 frequency lists for VFO. These frequency lists are called DIALS, and they are defined in SETTINGS > DIALS. Each DIAL definition contains a short label name and a list of frequencies.

DIALS can be used as "memory banks", e.g. for gathering frequencies that belong to the same area or network. When DIAL is activated in VFO, it is easy to spot parallel programs over several frequencies.

The DIALs can be created by area dominants, or by whatever criteria you prefer.

Only 10 user-defined lists are supported because JAGUAR offers faster and easier ways to build these lists dynamically: please check the FREQLIST and LOCATOR functions.

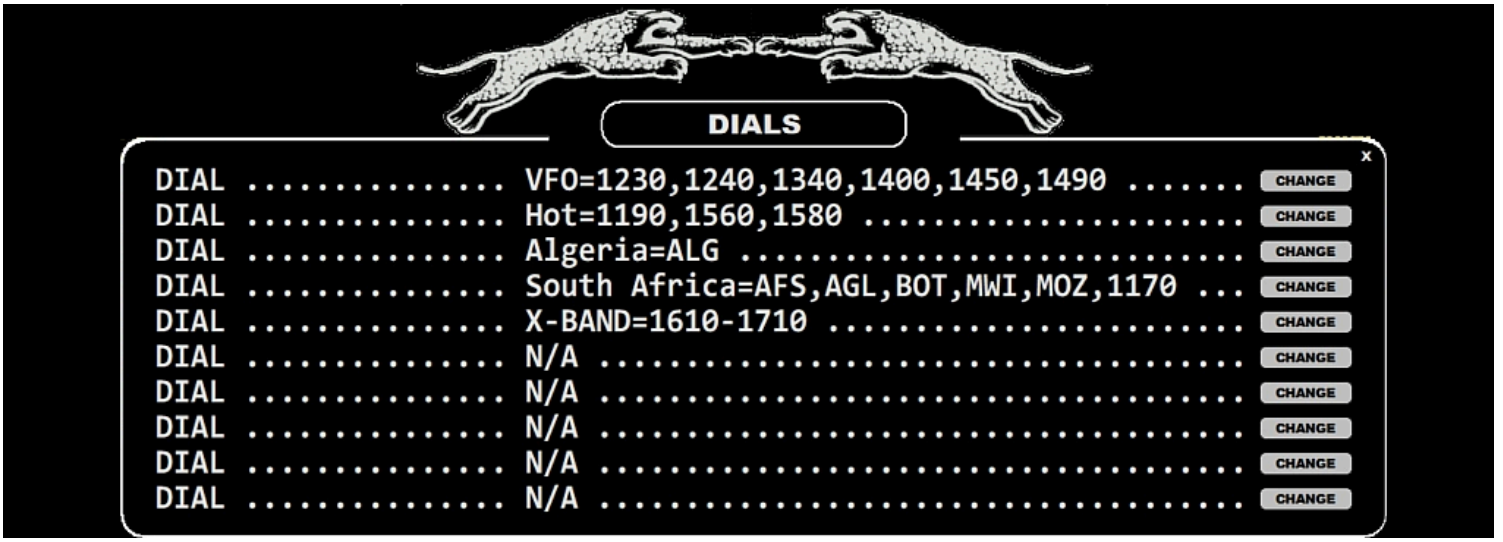
The DIAL summary:

- Give a name and add as many frequencies as needed
- Instead of plain frequency lists, also frequency ranges (FREQ1-FREQ2) and ITU codes (covering all MW frequencies for that country) can be used. In addition, these all can be combined together, separated by comma:

```
DIAL ..................... VFO=1230,1240,1340,1400,1450,1490
DIAL ..................... Hot=1190,1560,1580
DIAL ..................... Algeria=ALG
DIAL ..................... South Africa=AFS,AGL,BOT,MWI,MOZ,1170
DIAL ..................... X-BAND=1610-1710
```

HOW TO

When the DIALS window is open, a new dial can be added to the system by clicking the "CHANGE" button, typing one DIAL definition into the corresponding text box and then clicking "SAVE" for the added DIAL. For example, the DIAL window can look like this (note that the window itself can not show the full frequency list):



Any DIAL can be activated by clicking TOOLBAR > V (VFO) and selecting the desired DIAL.

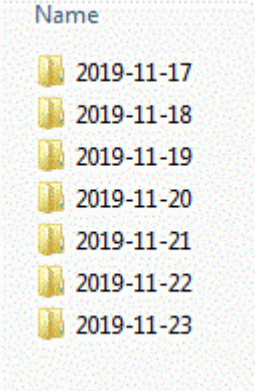
The installation package has one built-in default DIAL (named as "VFO") as an example, containing the graveyard frequencies, you can modify/delete this if needed.

After you have activated the DIAL, it becomes your default VFO frequency list, and when VFO is activated (instead of 9-kHz / 10-kHz stepping), the mouse wheel and left/right arrows scroll the DIAL frequencies if the frequency scroll mode is active.

You can toggle the 9-kHz/10-kHz stepping and the active VFO by clicking the their TOOLBAR icons

DX DAY

DX DAY refers to the time period from today's 20 UTC to next day's 20 UTC. This means that exactly at 20 UTC, JAGUAR will create a new folder ("day folder") onto the hard disk used for recordings, and all the recordings created after 20 UTC will be saved into this folder. 20 UTC has been selected, instead of 00 UTC, because this way in Europe, we can save all the overnight recordings into the same folder. DX DAY also serves as a breakpoint for all-day-running JAGUAR services, including YASLOG and SCANS.



HOW TO

The DX DAY functionality is controlled and handled automatically by JAGUAR; you just have to be aware of the time when the new DX DAY starts.

FILEMAIL

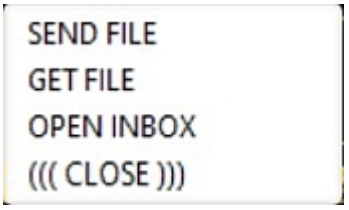
JAGUAR PRO ONLY

FILEMAIL offers an easy way to transfer files between your computers: no need to use email/ftp/cloud/dropbox/network shared folders/USB sticks, etc. anymore for quick small file transfers.

HOW TO

Sending FILEMAIL:

- Click TOOLBAR > FILEMAIL (the envelope icon)



- Select "SEND FILE" from the popup menu, and you will see the standard Windows file selection dialog.
- The selected file will be transferred.

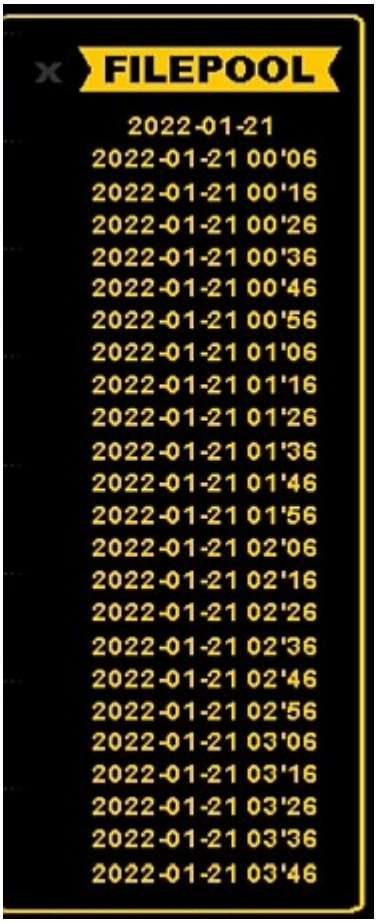
Receiving FILEMAIL:

- Click TOOLBAR > FILEMAIL and select "GET FILE" on the computer where you want to receive the file(s)
- Files will be downloaded to the "FILEBOX" folder located in your JAGUAR folder, and this folder is opened automatically
- **Tip**: Remote users can use FILEMAIL for transferring files from the remote JAGUAR computer to the local JAGUAR computer
- **Note**: WAV clips are always automatically converted to MP3 when FILEMAIL is used

FILEPOOL

JAGUAR PRO ONLY

FILEPOOL is a collection of days that contain JAGUAR recordings. One FILEPOOL contains several "day folders" and the file names are kept in the memory for quick navigation. MEGAPOOL is an enlarged pool that can contain FILEPOOLs from several disks.



The FILEPOOL can be shown on every graphics display as a text overlay on the right edge of the display. The contents can be scrolled up/down, you can quickly open any file from it, and you can also change days quickly.

HOW TO

KEY = ALT-O

You can open/close the FILEPOOL by pressing ALT-O or by clicking the FILEPOOL button on the lower right corner of the graphics area.

You can drag or scroll the FILEPOOL list up/down with the mouse wheel when the mouse cursor is over the FILEPOOL area.

You can toggle between day list and file list modes by clicking any of the days. Also the day list can be scrolled/dragged up/down.

If you want to combine FILEPOOLs from several disks, you can add a plugin line

MEGAPOOL=Y

By default the FILEPOOL covers only one disk. If MEGAPOOL is activated, the system creates a larger file pool offering a quick access to all files on all disks that are plugged to the PC (or to disks that contain the same path name as used in the currently played name). The idea is to hide the disks and the "DX DAY" structure from the users: using the FILEPOOL button or "ALT-O" key the user can navigate in files without knowing the physical location/folders/etc.

FILESCAN

JAGUAR PRO ONLY

JAGUAR incorporates a built-in scanner to produce detailed offset histories for all or selected frequencies. This scanner can be used in the LIVESCAN or FILESCAN mode.

While LIVESCAN can analyze the selected frequencies in the LIVE mode as long as the Perseus hardware is connected, FILESCAN can be used for collecting offset history data later from the recordings. Typically, you can do all the scans you need "on-the-fly" using LIVESCAN, but if you didn't have that option available in the LIVE mode, then you still have a chance to generate the spectrum history using FILESCAN.

What comes to performance, LIVESCAN is however superior in speed. Running FILESCANs can take a long time, depending on the amount of files and the number of frequencies to be scanned.

HOW TO

FILESCAN can be started by clicking the SLIDER > SCAN button when you are in the ARCHIVE mode (in the LIVE mode this button triggers the LIVESCAN settings):

You can define the following parameters for FILESCAN:

- SCAN_TARGET: Frequencies to be scanned. The current playback frequency is the default, click "CHANGE" for MW10/MW9/CUSTOM list.
- SCAN_TIME: HHMM-HHMM, the start and end time for the scan within the current DX day (2000-2000 UTC).
- SCAN_STEPPING: The time interval used for analysis, in seconds. Default = 10 seconds, change by scrolling.

When the parameters have been set, a FILESCAN run can be started by clicking the RUN button.

FILESCAN uses an external FILESCAN.exe program (included in the JAGUAR full package). JAGUAR will show the progress of the scan on the STATUSBAR.

FILESCAN can take a long time before finished. You can increase the speed allowing some potential spurious carriers mixed in the results, but having still generally good results. SPECTOR can be used to spot those spurious signals: missing peak in SPECTOR at the position of the spectrum track reveals a spurious carrier. If you want to utilize this improved speed, please define SETTINGS > KIT > OPTIONAL > HI_QUALITY > NO before you start the FILESCAN run.

Just as with LIVESCANs, the results of FILESCAN can be zoomed/viewed on the HISTORY spectrum displays. Whenever you run a new FILESCAN, the results will replace the earlier scan data for the target frequency/frequencies.

You can use the keyboard key "E" to toggle the current HISTORY screen and the HOME screen.

FILTERS

JAGUAR has a wide selection of different type of FILTERS and these can be tuned with several tools. However, JAGUAR LITE only offers one fixed filter (STOCK). JAGUAR's filtering is implemented in the time domain using 100-ms slices at a time (0.1 sec thus being the smallest operational "audio unit" in JAGUAR).

The following filters are available in JAGUAR PRO:

- STOCK
- CALLIOPE
- JAZZ
- AM MODE
- CW (additional option available via ALT-F only)

AM MODE is not actually a filter but a different demodulation mode; the filter itself uses JAZZ filter processing. It can be handy to have AM MODE as "one of the filters" when trying to find the optimal audio output in each case.

Each filter can be used in three modes: BASE / STEEP / STUDIO. These modes have different attenuation curves at the filter edges.

The bandwidth and offset of the STOCK filter cannot be set; STOCK is the fixed "reference filter".

HOW TO

KEY = F (JAGUAR PRO)

The filters can be rotated with the "F" key (however, the first "F" press does not change the filter, it just opens the FILTER applet). The desired filter can be selected also by:

- clicking/scrolling AUDIOBAR > FILTER name
- clicking the filter name in FILTER APPLET

The filter characteristics can be changed by means of:

- AUDIOBAR (Mode / BW / OFFSET)
- BOTTOM WINDOW > AUDIO

See the corresponding HELP for AUDIO, AUDIOBAR and BOTTOM WINDOW.

STOCK is the standard reference filter in JAGUAR. STOCK (as any JAGUAR filter) can be used in the BASE filter mode or in the STEEP / STUDIO filter modes. The bandwidth of the STOCK filter is 3.0 kHz and the filter offset is 0.3 kHz. The STEEP/STUDIO modes provide additional attenuation to the low and high ends of the filter. The effect can be seen in the AUDIO WINDOW and heard in the headphones. Sometimes you will get a clear improvement in the audio by using the STEEP mode.

CALLIOPE is a filter used for test purposes. The CALLIOPE filter can leak audio +/- 96 kHz away from a frequency of a nearby powerhouse. It is never a problem if you listen to the frequencies of your local continent but can be an issue when listening to trans-oceanic signals, and the frequency you are listening to is matching that 96-kHz difference from any nearby broadcaster.

JAZZ is probably the best JAGUAR filter in most cases.

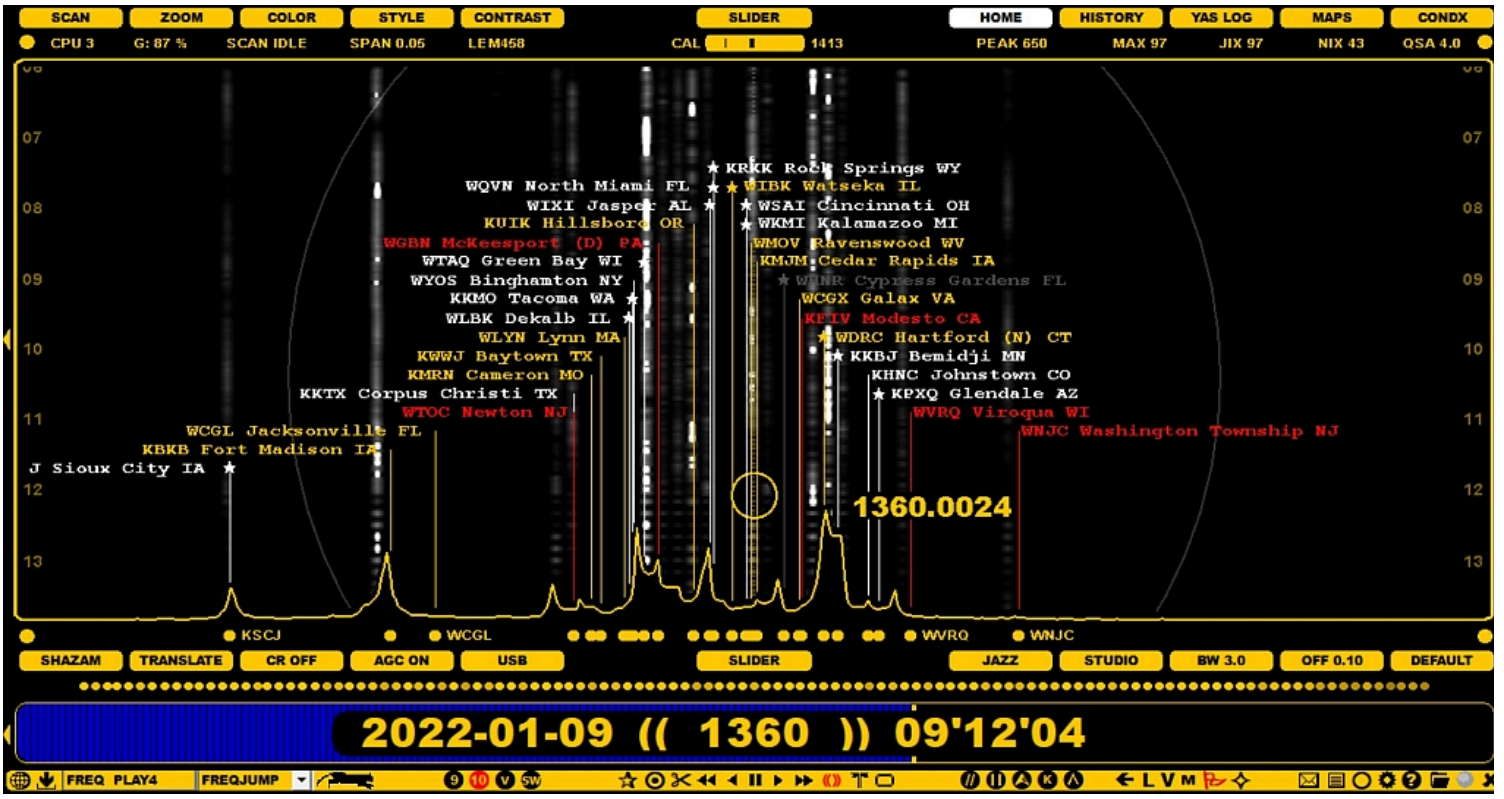
FLAGS

JAGUAR PRO ONLY

The FLAGS feature can be used to show the known offsets as vertical "flagpoles" on the SPECTRA displays. These flagpoles can be used on the displays to find matching spectrum tracks and thus help in the initial identification of the signal. However user should not trust too much on this feature: there are a lot of outdated or erroneous offsets listed so audio ID is still required for nailing the identity of any station. On the other hand FLAGS can offer a very useful tool for MW DXing.

FLAGS consist of the offsets logged to MWLI (taken from the TURTLE database, originating from the MWLI offset list) and our own Kapsi server (the offset values taken from the Kapsi server have a STAR marker on the top of the flagpole).

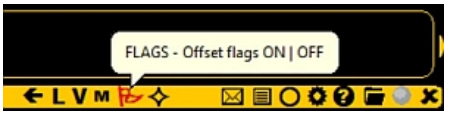
The FLAGS colors can be customised in many ways, for example based on the user's loggings/notifications:



HOW TO

KEY = X

FLAGS can be displayed/hidden by pressing X or clicking the TOOLBAR > FLAGS icon: the FLAGS mode can be toggled on/off. By default FLAGS are shown only on the SPECTRA displays.



Filtering FLAGS

The number of listed GLOBAL flags can be huge on some frequencies and the display may be crowded by the flagpoles making the graphics cluttered. And many of the stations are unlikely to be heard in your QTH. That's why it is often useful to filter out the "unwanted" offsets from the flagpole set. You can do it in several ways:

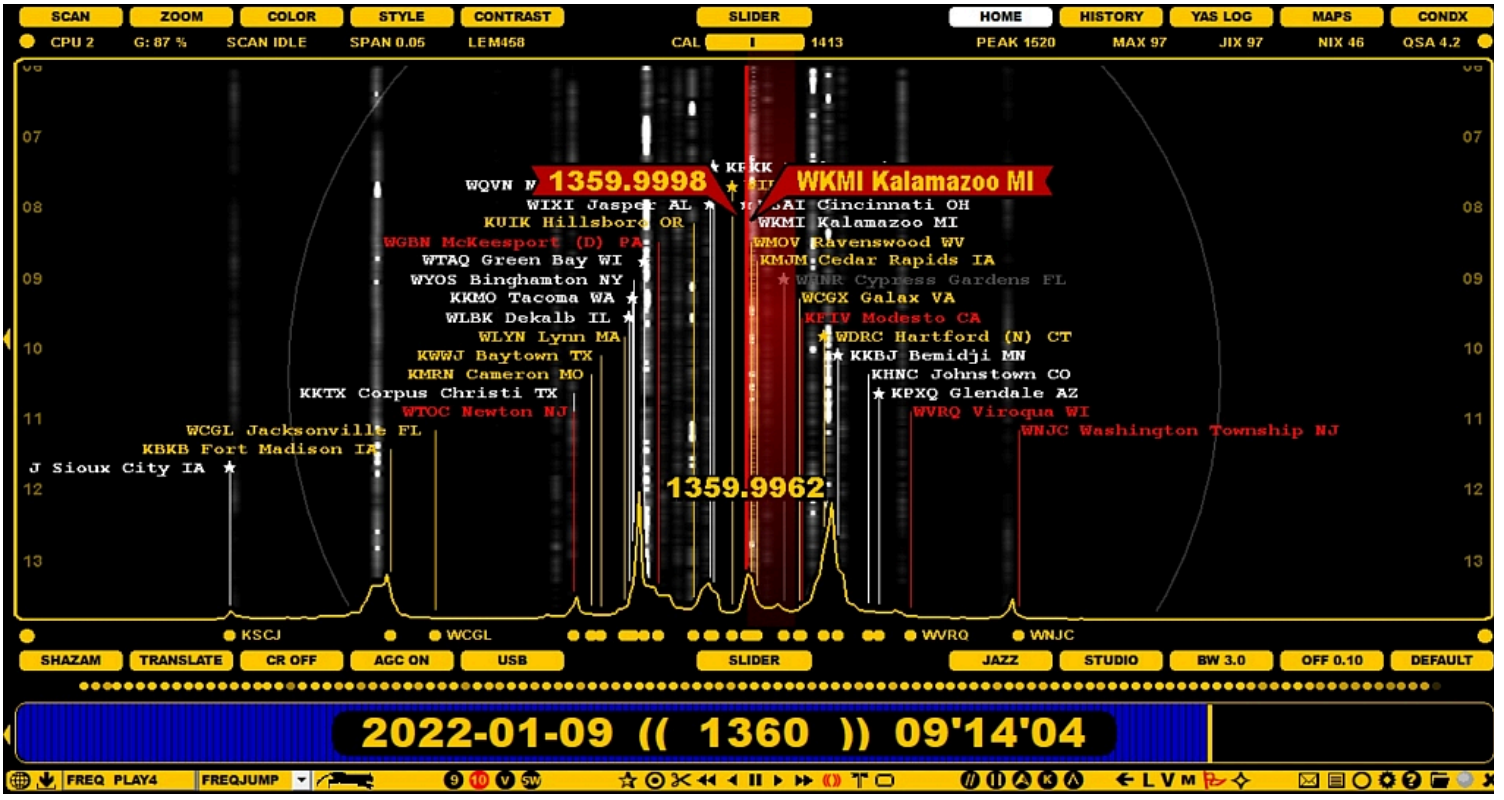
- Use the continent filter on the DATABASE BAR or select the continent by pressing Q repeatedly. However quite likely you want to have 2-3 continents included, so often the best option is to select EMEA/EAST or NAMEX/CASA using the DATABASE BAR > WORLD button
- Use the POWER filter on the DATABASE BAR: you can include only the stations that are the most powerful and most likely to be audible in your QTH
- ... or a combination of these methods

Customizing FLAGS

The default colors are based on SOURCE, but the color mode can be changed via SETTINGS > OFFSETS > FLAG_COLORS > SOLID | SOURCE | LOGGED | TAGS.

- SOURCE: FLAGS originating from MWLI are grey, FLAGS originating from Kapsi are white
- LOGGED: Logged stations are shown as bright, others are grey
- TAGS: Flag colors are based on the user's P-TAGS in CATBOOK
- HYBRID: Logged/QSLed = yellow, P2-tagged = red, others are white (Kapsi offsets) or gray (MWLI offsets)
- SOLID: All FLAGS have the same color

Each flag is positioned based on the last logged offset value. Many stations drift during time and if the user is interested in seeing that variation, please add a new line to PLUGINS: OFFSET_RANGE=Y. If this feature is active, the known offset range can be seen by moving the mouse cursor to the top of each flagpole:

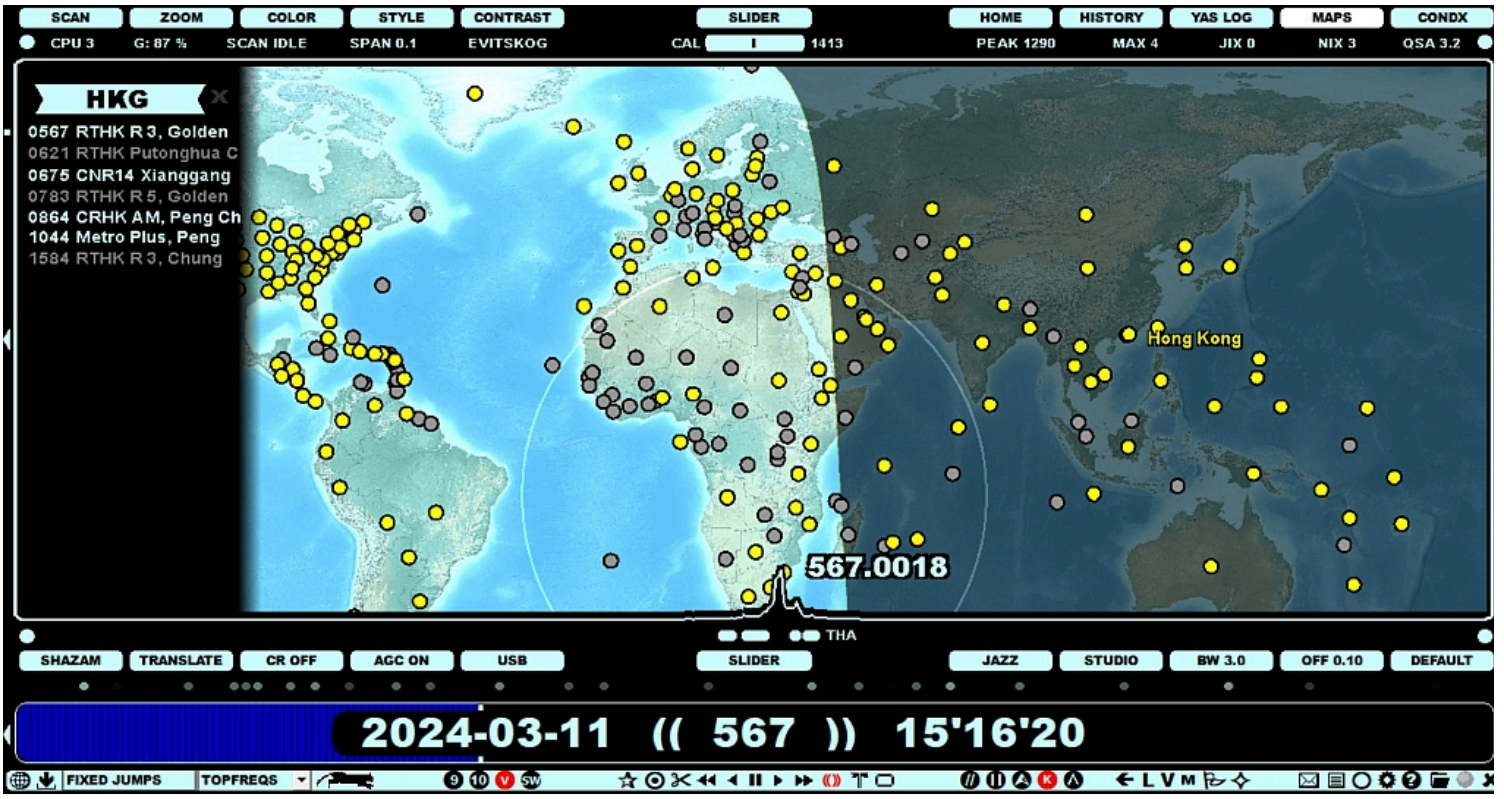


If you want to view FLAGS also over MAPS, you can add another line to PLUGINS: FLAGS_ON_MAPS=Y.

More FLAGS related information can be found in the OFFSETS section of this GUIDE: how to update a new offset value for a specific station etc.

FREQLIST

The FREQLIST function can be used to generate the frequency list for stations in the selected country or US state. In this example, the mouse cursor is hovered over Hong Kong, and the FREQLIST for the Hong Kong stations is shown on the left side of the display. If some country/US state contains more than one station on some frequency, only the country code (or US state code) is listed as the name.



Inactive radio countries (= no MW transmitters found in the currently active TURTLE) are shown on the map as grayed. The WORLD map does not show the country/US state names (on the continental maps all names are visible).

HOW TO

FREQLIST can be triggered from the MAPS display (press "M" for MAPS or click SLIDER > MAPS). In addition, the user has to select "FREQLIST" from SLIDER > STYLE (click or scroll until you see "FREQLIST").

Select the desired FREQLIST by moving the mouse cursor over the country/state button. Click the button to activate the FREQLIST: the frequencies in the FREQLIST will generate a "dial" to VFO and the control jumps to the first frequency of that list, unless the currently-played frequency is already on that list.

Now you can tune up/down that list by scrolling (mouse wheel and/or the left/right arrow keys) or jump directly to any frequency on that list by clicking it.

You can change the display keeping the FREQLIST still active. If you want to exit the FREQLIST mode, select "STATIONS" from SLIDER > STYLE.

DIRECT FREQLIST

Alternatively, you can select and activate the FREQLIST for any country/US state directly from the STATION MENU by right clicking the station from the desired country/US state on TURTLE/MAPS/FLAGS/OFFSET - no need to open the FREQLIST style via the MAPS.

HEADER

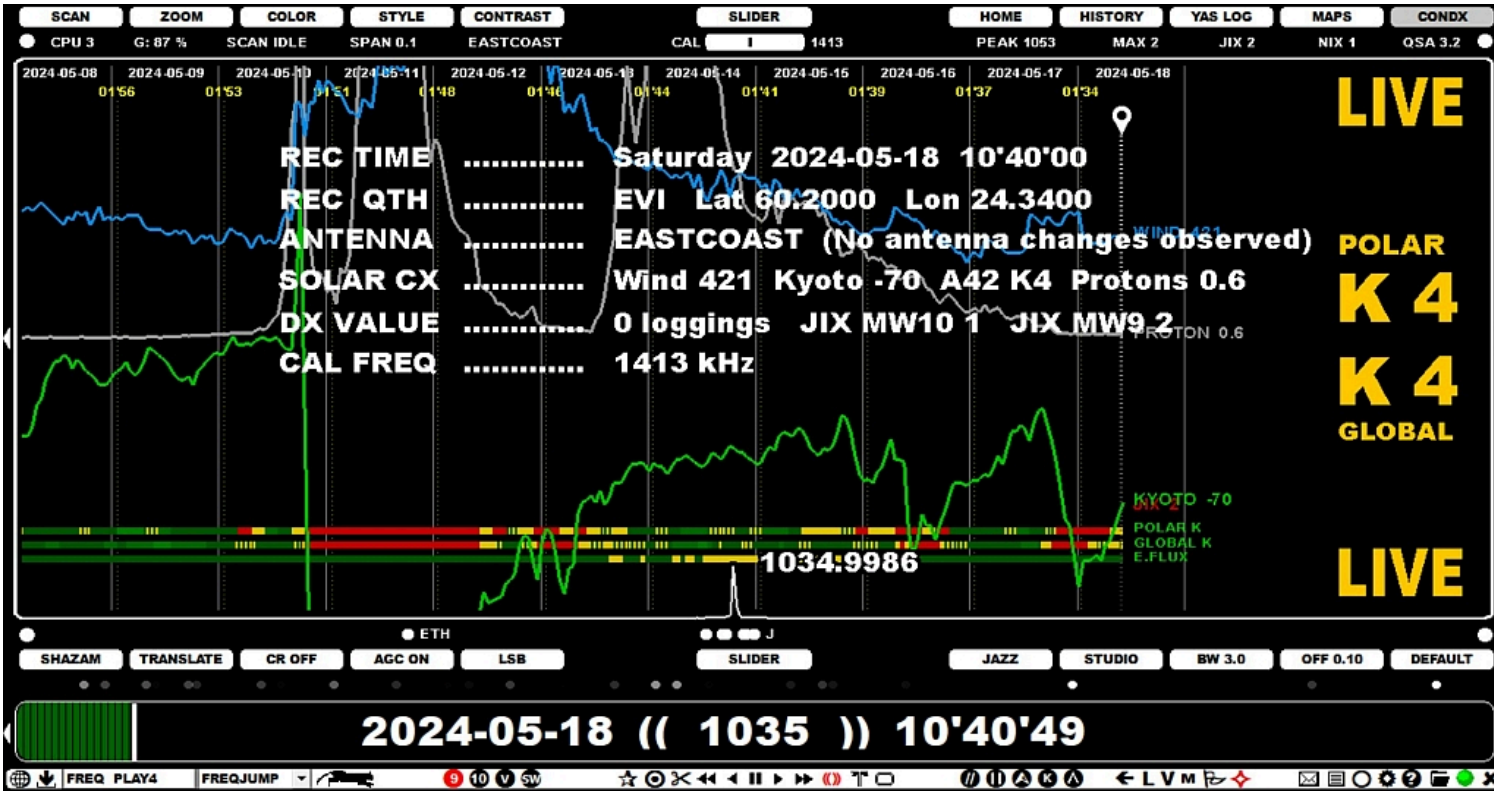
JAGUAR PRO ONLY

JAGUAR uses the beginning (the header) of wideband recording files for saving additional data:

- RECORDING TIME
- RECORDING QTH
- ANTENNA (and ANTENNA change history)
- SOLAR CX: Space weather values at the time of the recording (see CONDX for details)
- DX VALUE: Loggings made from this file and the JIX values for MW10 and MW9 (if available, see JIX for detais)
- CAL FREQ: Calibration frequency at the time of recording

This data can be reviewed, for example, when you are wondering whether a particular file is worth keeping saved or if it can be deleted.

The HEADER data can be shown as a text overlay on any JAGUAR graphics display.



HOW TO

KEY = ALT-H

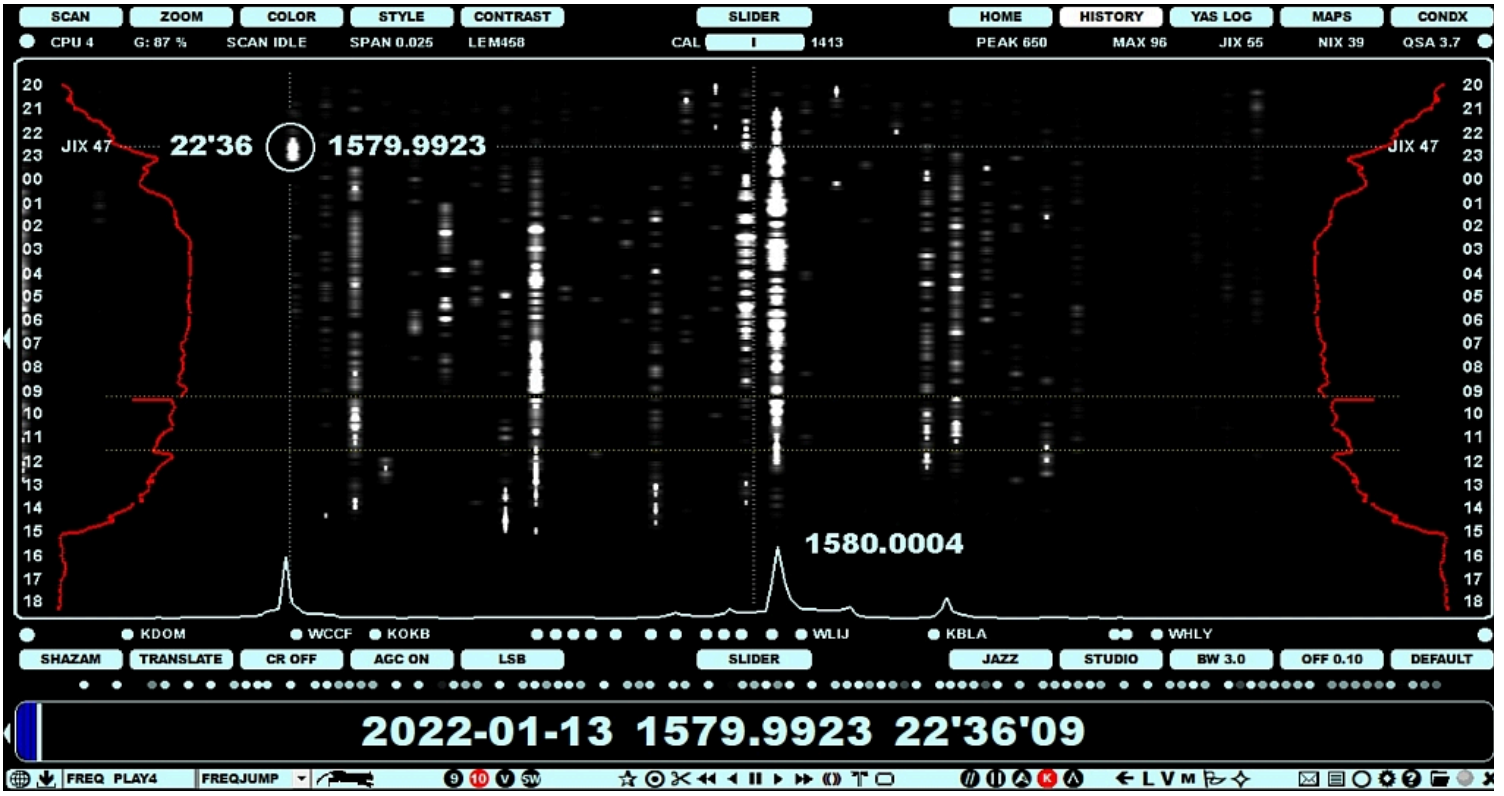
The HEADER data can be toggled on/off by pressing the ALT-H key.

HISTORY

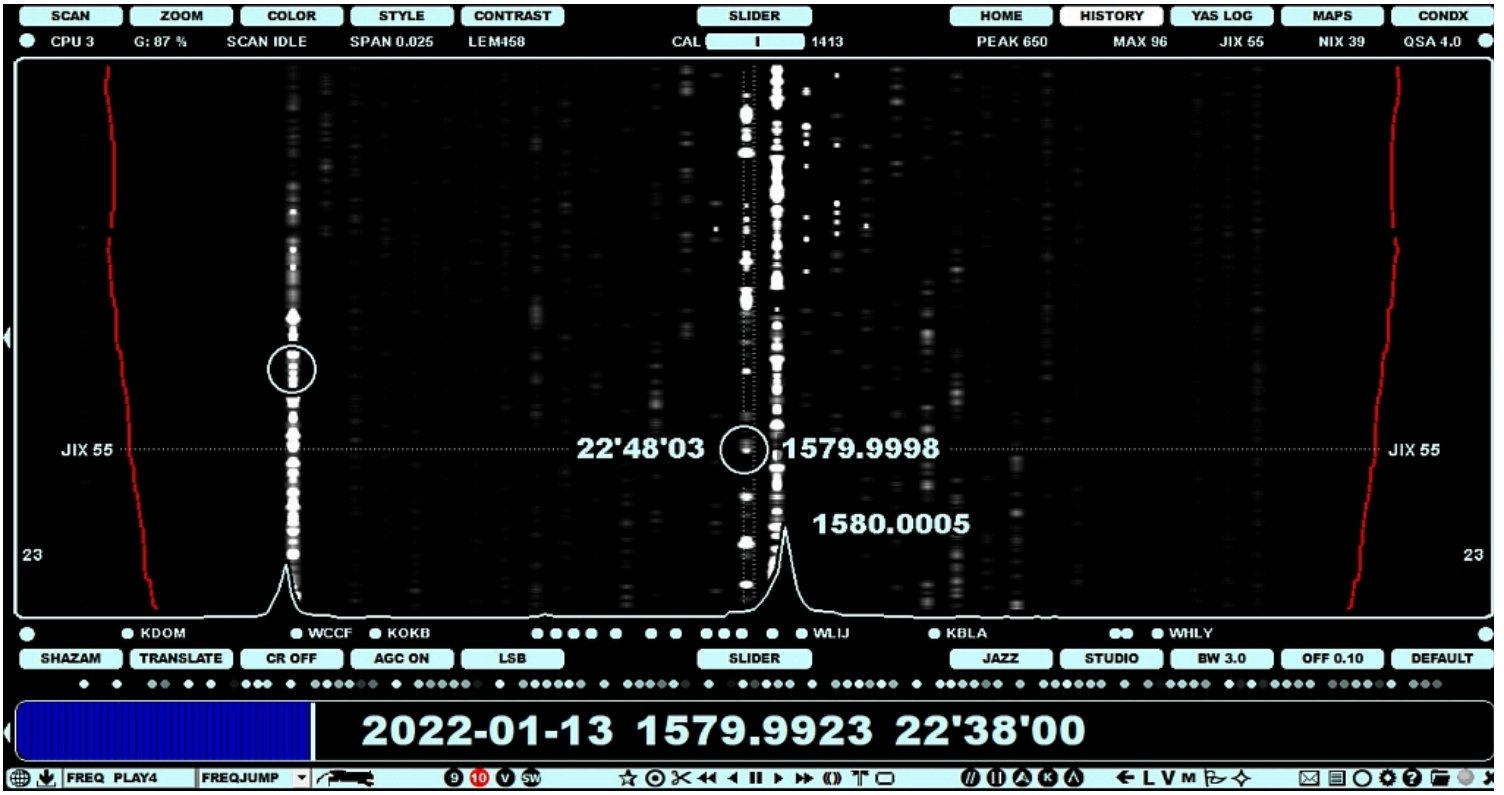
JAGUAR PRO ONLY

By default, the HOME display always appears first when JAGUAR is started. In addition, JAGUAR PRO offers extended spectrum displays (HISTORY) which contain the "offset history" produced by SCANS (see LIVESCAN and FILESCAN for more details).

The overview HISTORY display can compress 24 hours to the single display



but the detailed HISTORY displays can be very long (think about 24 hours of data, one line generated at every 10th second):



If there is no offset history (scan data) available, you will see just empty time frames. You can start FILESCAN (see FILESCAN) to run a short scan to see how the offset history data is displayed on the HISTORY screen.

These extended HISTORY views can be used to analyze the offset history throughout the day, revealing sign-on/sign-off times, and jump directly to the time spots where an interesting rising carrier levels are being observed. The normal point-and-shoot option is available: when the mouse cursor is bright, there is a recording available behind that spot, and clicking there brings you to that offset/time.

You can repeat FILESCAN as many times as necessary to achieve a higher resolution or scan for various time slots of the day. Earlier scan results are always replaced by the latest run for each scanned frequency. However, if you are interested in the offset history, it is highly recommended that you use LIVESCAN, which is "scanning made easy": everything is ready when you need the offsets, no need to wait long scan jobs to complete. However, you can always run FILESCAN afterwards using a higher resolution for those interesting times/frequencies seen in LIVESCAN results.

HOW TO

KEY = E

HISTORY can be opened by

- pressing the "E" key - this toggles HOME <> HISTORY (last used zoom level)
- moving the mouse to SLIDER > HISTORY and using the mouse click or wheel, or the left/right arrow keys.

You can move the spectrum location up/down on the screen by dragging the mouse. If you define SETTINGS > PLUGINS > DRAGGER=Y, you can also move the spectrum location left/right on the screen by dragging the mouse. Right-clicking the mouse restores the center location if you have relocated the position (if not, then the mouse right-click performs the standard user-defined right-click operation).

You can change the spectrum width (range) between 0.025 kHz and 50 kHz by clicking/scrolling the SLIDER > ZOOM.

When you place the mouse over a spectrum screen, you can move the spectrum location up/down on the screen by scrolling the mouse wheel.

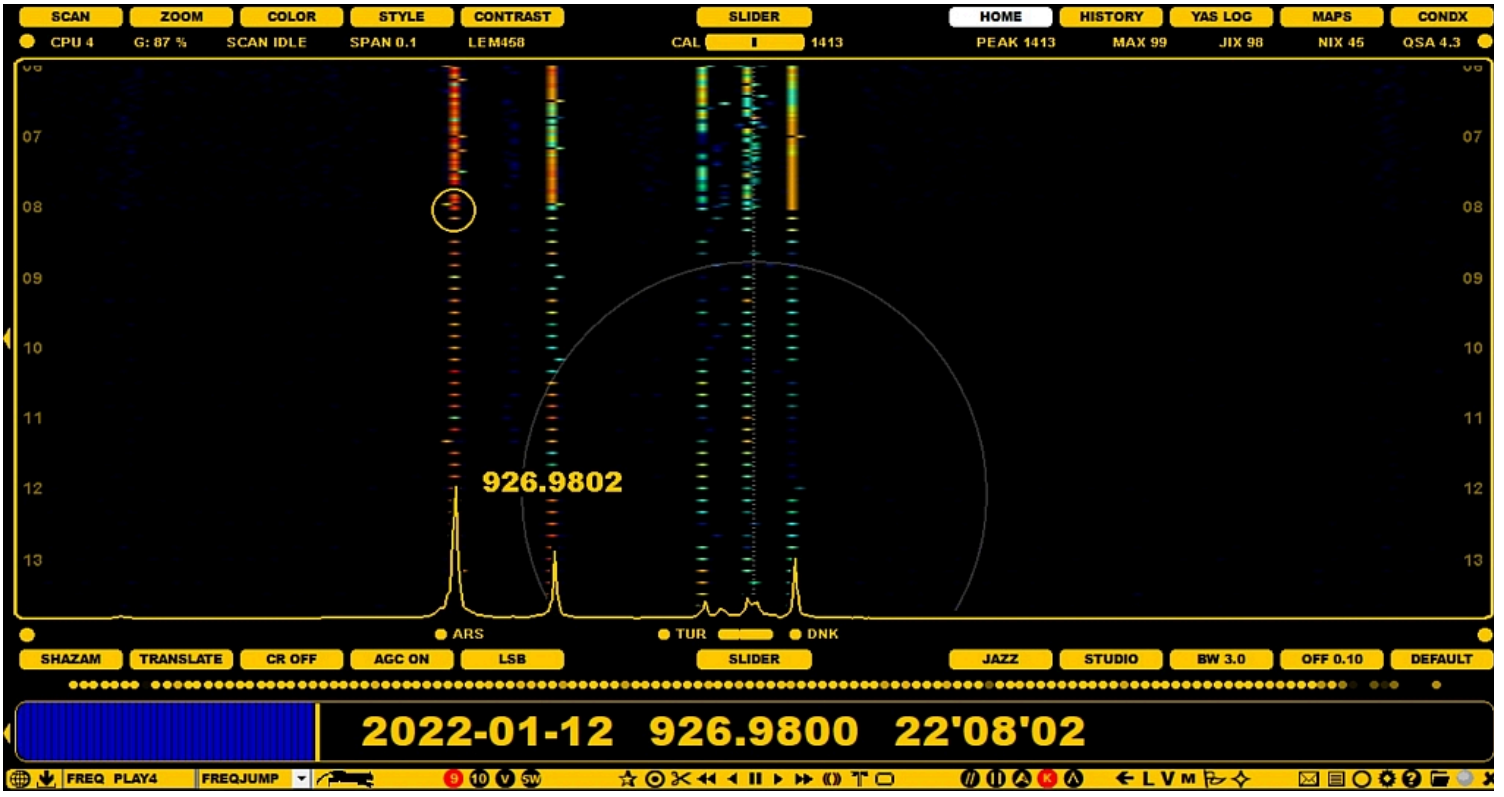
SLIDER has two important controls for customizing spectrum displays: STYLE (GLOW > XRAY > CATWALK) and CONTRAST (spectrum color strength). See SLIDER for more details.

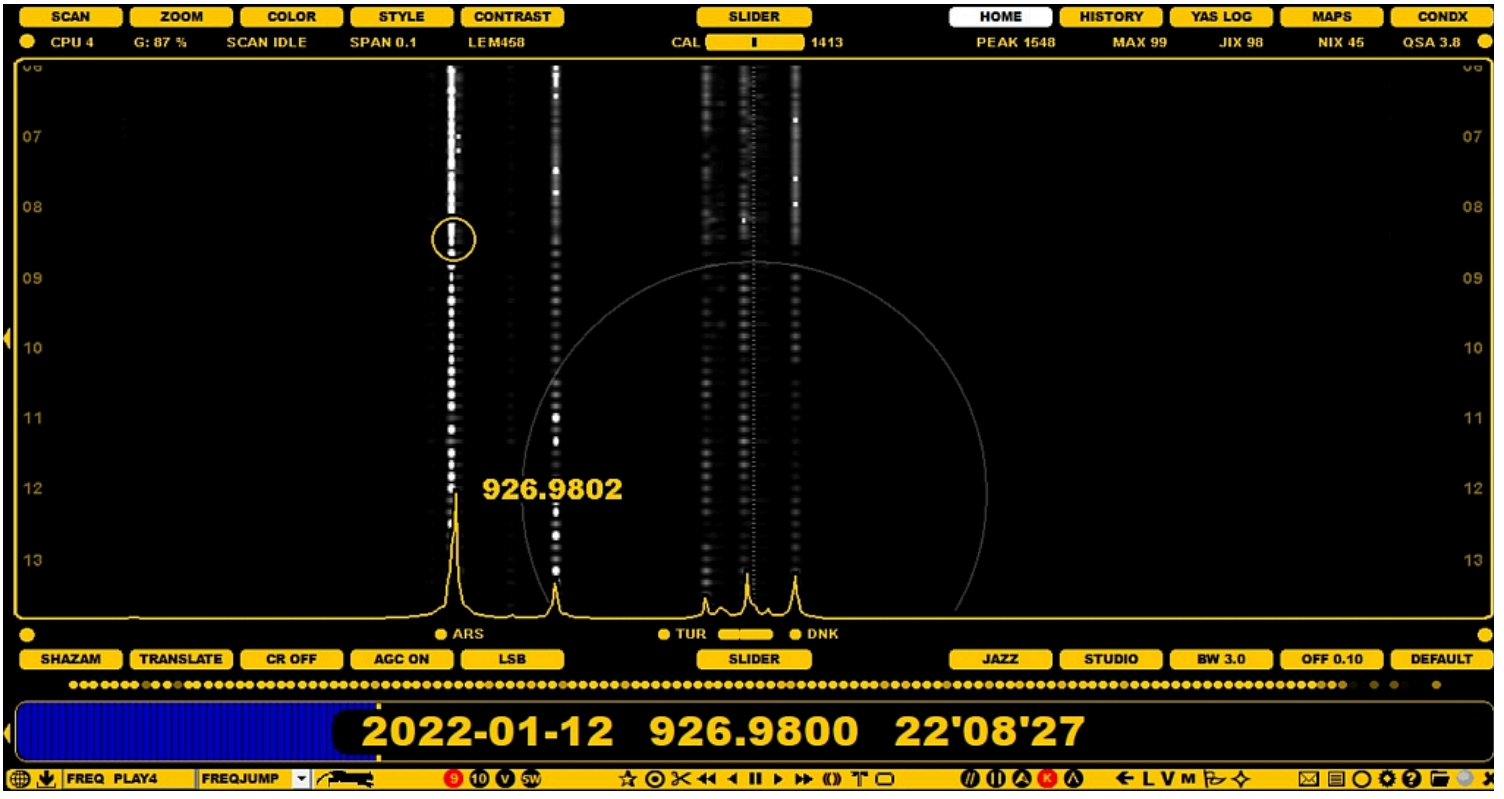
In today's MW DXing eyes are as important as ears, so the visual help given by HISTORY displays can save a lot of time when studying a huge number of recordings.

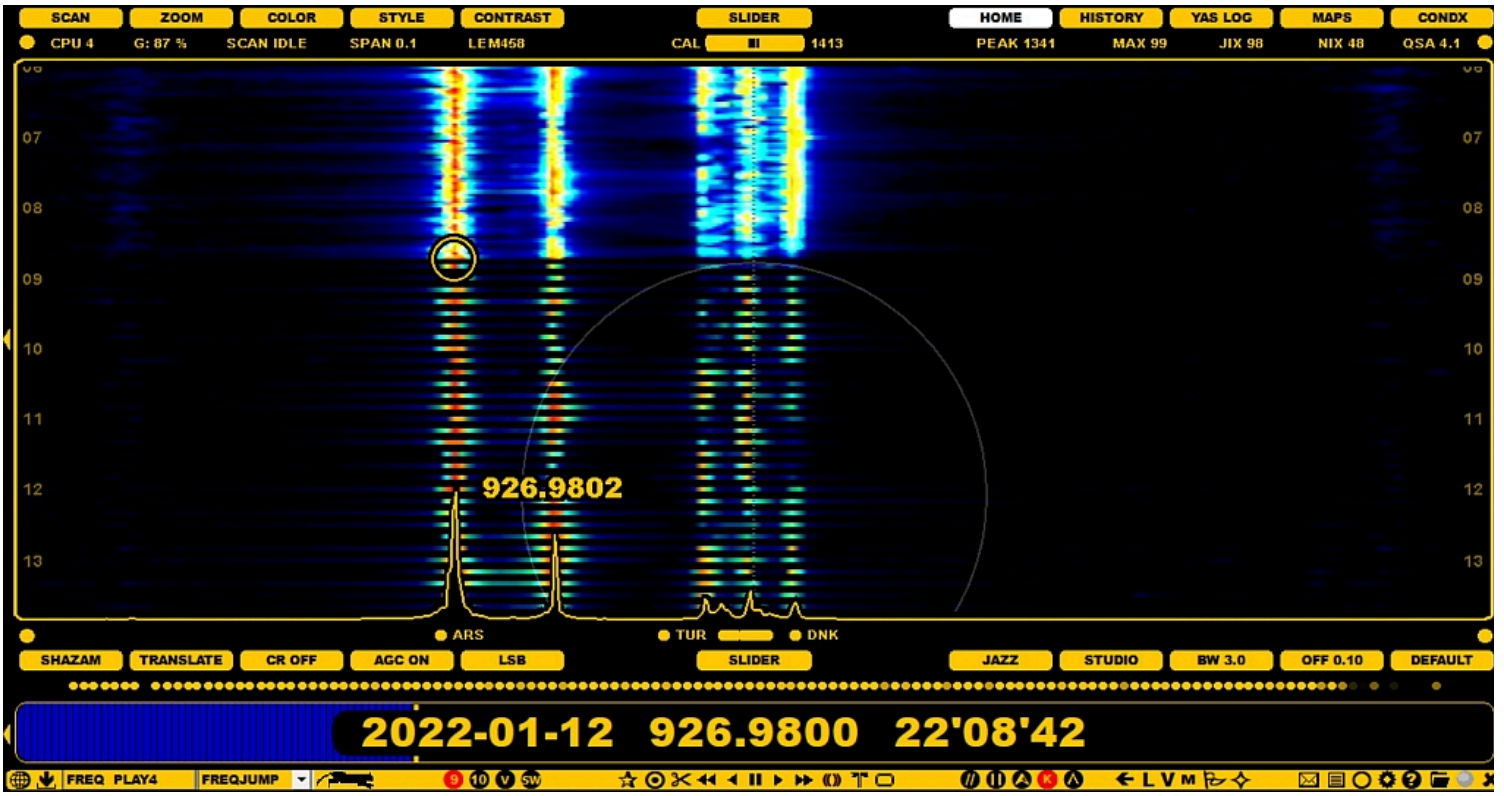
HOME

By default, the HOME display always appears first when JAGUAR is started. HOME is one of the JAGUAR's spectrum displays, presenting detailed spectrum information for the current frequency in the current playback file. HOME is also the only spectrum display available in JAGUAR LITE.

The available spectrum styles are "XRAY", "CATWALK" and "GLOW":







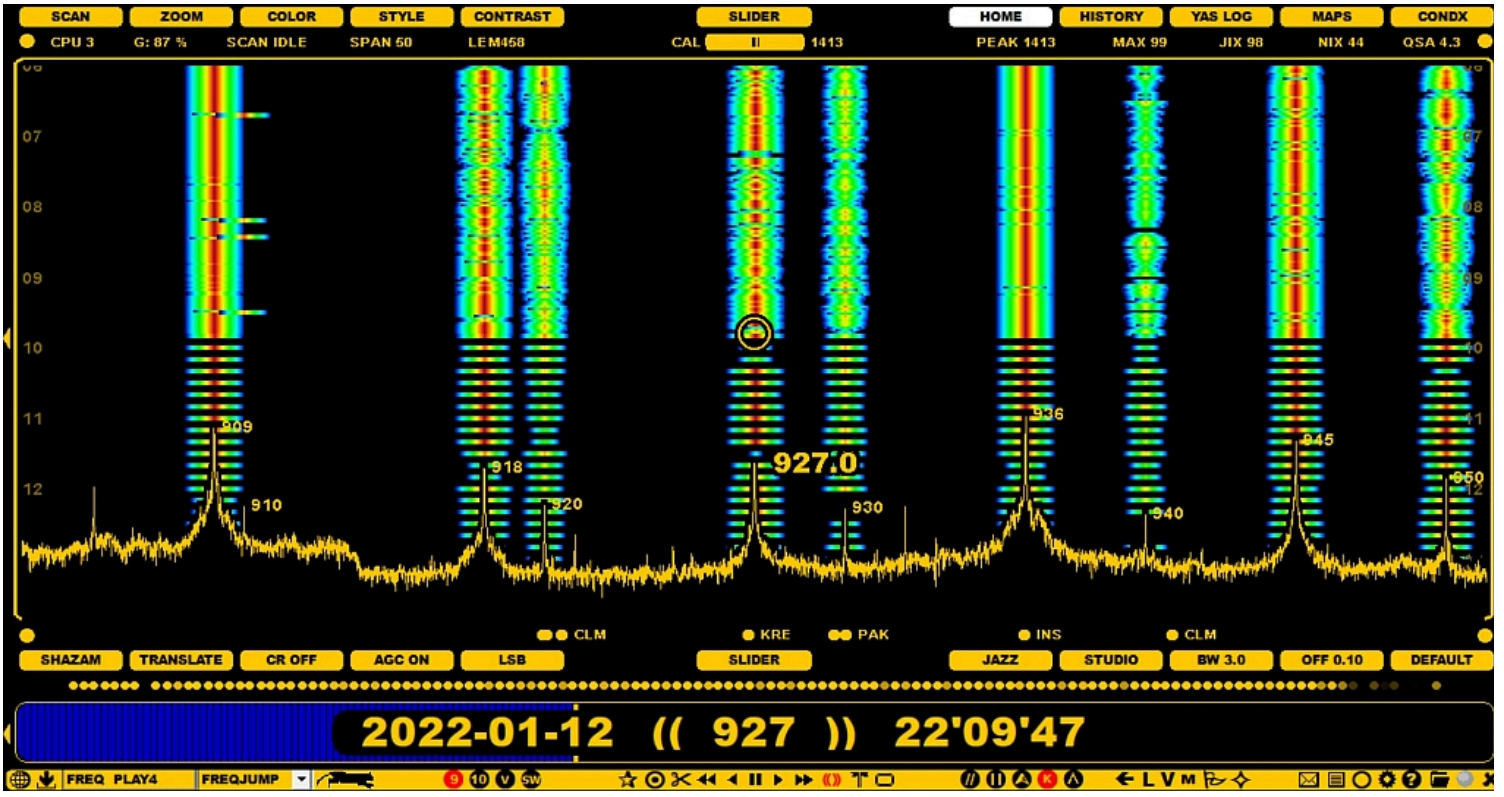
The HOME screen shows the spectrum of the currently-active frequency in the waterfall mode. The time span of the display covers the time period available in the recording. Note that, in the LIVE mode, there is always an active 10-minute playback buffer file (8 minutes if SAMPLING rate of 2000 is used). A small white circle ("runspot") shows the location in the currently-playing file. You can left-click the mouse to jump into any time point / offset within that file.

Note that the spectrum line locations (the exact offset positions) on the screen are not correct if you have not calibrated JAGUAR, or if the previous calibration is no more accurate. To re-calibrate, see KALIBRATE for details.

JAGUAR creates a preview of the spectrum ("HOMESCAN") on the HOME screen when you tune in to a new frequency. HOMESCAN is a sparse spectrum display that shows the skeleton of the offsets found on that frequency using 10 second interval by default. JAGUAR PRO users can change the resolution of HOMESCAN.

The spectrum area width is controlled with the ZOOM function. The SPAN (spectrum range) can vary between 0.025 kHz and 50kHz. The max precision of the spectrum tracks (+/- 0.5Hz) is lower than in SPECTOR (max +/- 0.1Hz), that's why the spectrum tracks and the SPECTOR peaks may not be fully aligned.

While the narrower SPANs are used for offset monitoring around each nominal frequency, the 50kHz SPAN is used for viewing a larger area / carriers between nominal frequencies / general noise level:



The most-often-used JAGUAR functions are scrolling in time and scrolling frequencies, and there are ample ways to do so for both. When "traveling in time" (or on the dial), the spectrum and/or the "runspot" will be refreshed automatically.

HOW TO

You can jump to HOME from any display by

- clicking SLIDER > HOME
- pressing the "W" key ("WALLPAPER") until HOME appears
- pressing the HOME key
- pressing the "E" key until HOME appears

You can move the spectrum location up/down on the screen by dragging the mouse. If you define SETTINGS > PLUGINS > DRAGGER=Y, you can also move the spectrum location left/right on the screen by dragging the mouse. Right-clicking the mouse restores the center location if you have relocated the position (if not, then the mouse right-click performs the standard user-defined right-click operation).

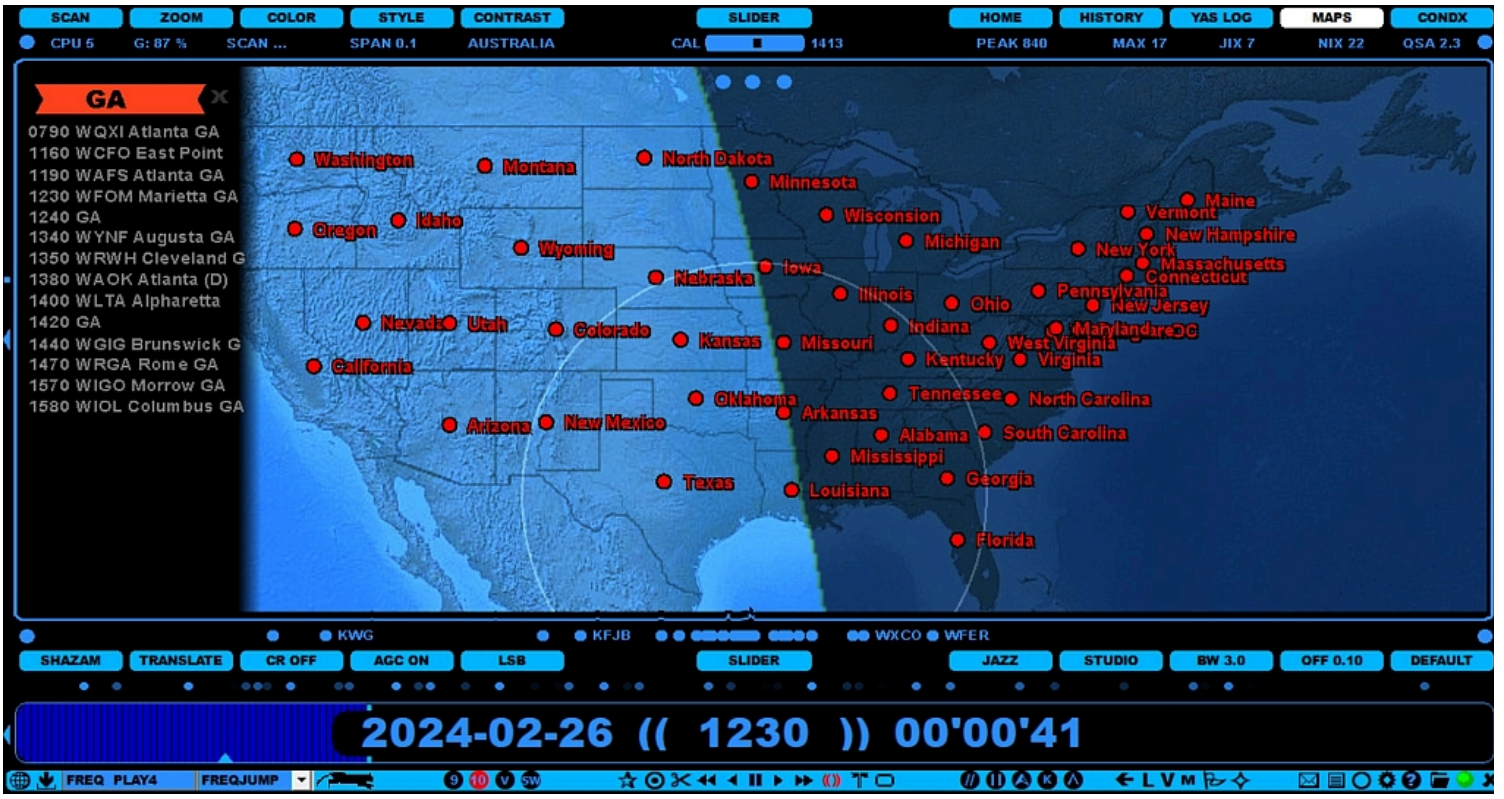
When you place the mouse over a spectrum screen, you can move the spectrum location up/down on the screen by scrolling the mouse wheel or left/right arrow keys.

The HOME (and HISTORY) spectrum can be customized via the SLIDER buttons (ZOOM, STYLE, CONTRAST - the changed values are kept only during the current session). JAGUAR PRO users can change the defaults permanently via SETTINGS > SPECTRUM (default ZOOM / CONTRAST / STYLE) and SETTINGS > PLAYBACK (default HOMESCAN stepping).

HOTLIST

Many DXers use "hunting lists" for new stations. In JAGUAR these lists can be created automatically if the user has tagged desired/"most wanted" stations with the red color (P-TAG P2 = "Hot station", see P-TAGS help for details). Jaguar can create "HOTLISTS" based on the stations tagged as red: a dynamic dial is generated based on the selected country / US state and this dial can be placed to VFO for tuning those frequencies one by one.

In this example, the mouse cursor is hovered over Georgia, and the HOTLIST for the GA stations is shown on the left side of the display. If some frequency contains more than one "hot" station, only the state code (or ITU code) is listed as the name.



HOW TO

HOTLIST can be triggered only from the MAPS display (press "M" for MAPS or click SLIDER > MAPS). In addition, the user has to select "HOTLIST" from SLIDER > STYLE (click or scroll until you see "HOTLIST"). Red HOTLIST buttons are shown for each country/US state that contains stations tagged as red.

Select the desired HOTLIST by moving the mouse cursor over the HOTLIST button. Click the button to activate the HOTLIST: the frequencies in the HOTLIST will generate a "dial" to VFO and the control jumps to the first frequency of that list, unless the currently-played frequency is already on that list.

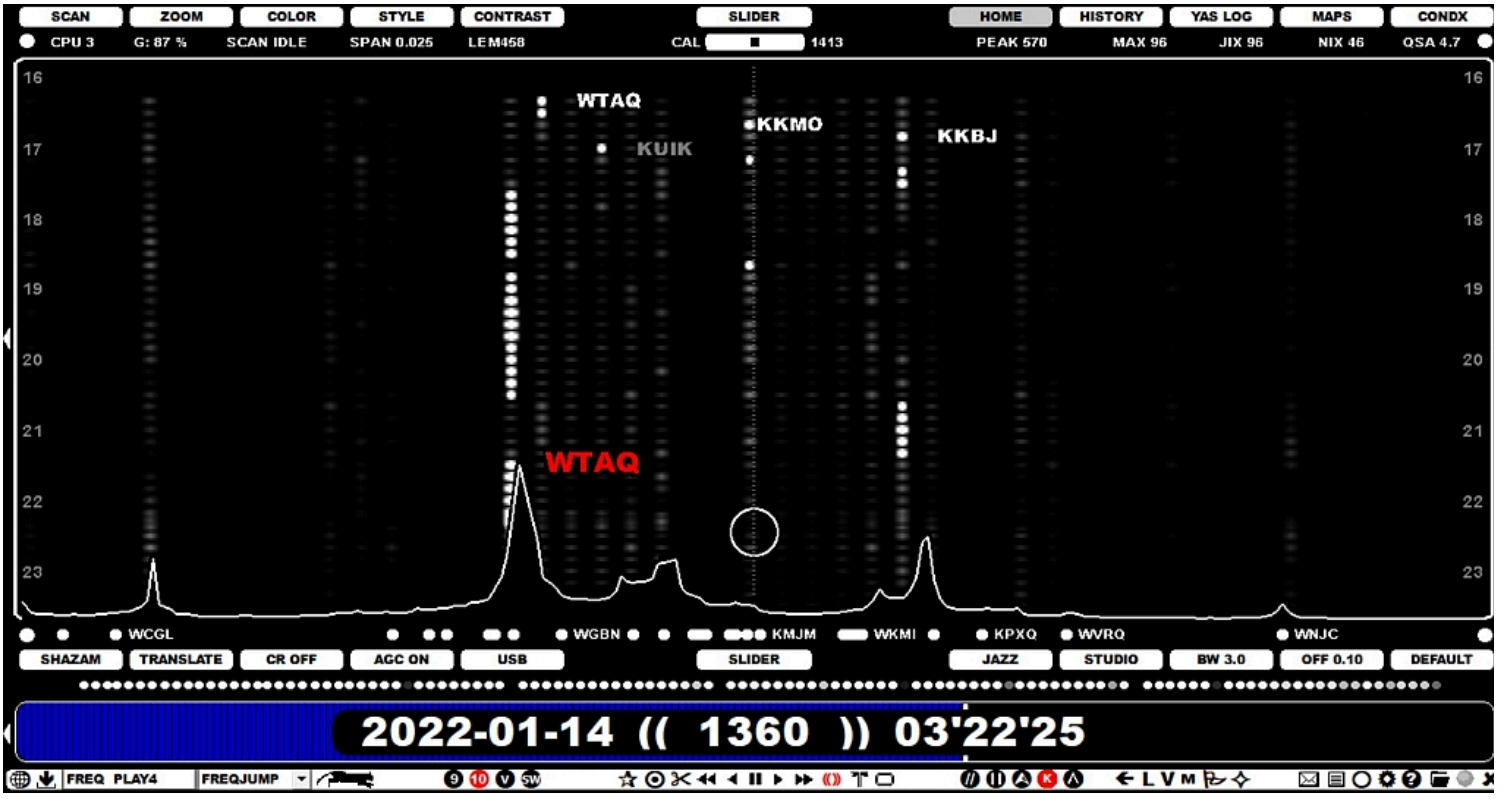
Now you can tune up/down that list by scrolling (mouse wheel and/or the left/right arrow keys) or jump directly to any frequency on that list by clicking it.

You can change the display keeping the HOTLIST still active. If you want to exit the HOTLIST mode, select "STATIONS" from SLIDER > STYLE.

IDENTIFIERS

JAGUAR PRO ONLY

The IDENTIFIERS feature tries to assign station labels to "peaking carriers" found in the spectrum on the HOME display. A "peaking carrier" is a carrier which has the strongest signal power at any time within the file - the CATWALK spectrum style is handy for spotting these, because if the carrier ever rises "topmost", it can be seen with white color on the spectrum and thus used for searching the IDENTIFIER (gray carriers are ignored). IDENTIFIERS uses various information (not only the listed offsets) in this task. Station labels listed with the white color have the best probability to be correct, other "good candidates" are listed as gray.



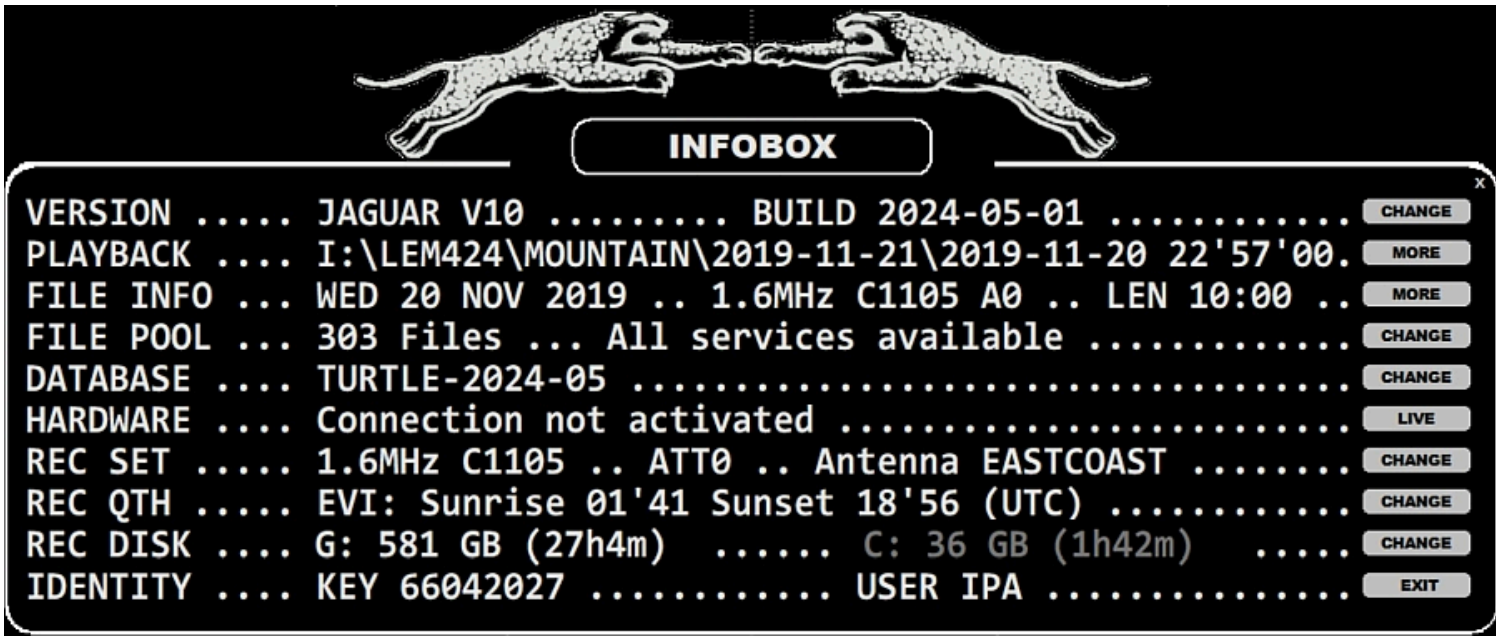
HOW TO

IDENTIFIERS can be enabled by defining SETTINGS > GRAPHICS > IDENTIFIERS > YES. In addition, in order to see the IDENTIFIERS, the mouse cursor must be moved to the SPECTOR peak frequency label: the label turns red showing the "best bet" for this peak and other candidates are shown on the HOME spectrum.

If you are maintaining the private OFFSET list, you can update your local OFFSETS.txt file by clicking that red label (see MY_OFFSETS for details).

INFOBOX

The INFOBOX window is shown when the "I" key is pressed.



INFOBOX shows several setup details described below. You can study/change your setup/environment by clicking on the corresponding button on the right.

- VERSION: JAGUAR version and level (PRO or LITE) and the build date.
- PLAYBACK: the name of the currently-playing file.
- FILE INFO: the date, sampling rate, center frequency, attenuation level, and length of the currently-playing file.
- FILE POOL: the number of files in the file pool and their service status. Certain JAGUAR functions require the use of the JAGUAR file name format. If all the files in the file pool have the correct format, the message "All services available" will be displayed.
- DATABASE: the currently-active station database.
- HARDWARE: the timestamp showing when the hardware connection was created.
- REC SET: the sampling rate, center frequency, attenuation level and the antenna for new recordings.
- REC QTH: the currently-active QTH (location) with today's sunrise and sunset times (in UTC).
- REC DISK: the primary and overflow disk details. Currently active recording disk is brightened.
- IDENTITY: Your JAGUAR key for this PC and your "JAGUAR signature".

When you want upgrade JAGUAR from LITE to PRO, you must copy the 8-digit key shown after "KEY", and send it to the JAGUAR support team.

HOW TO

KEY = I

You can open/close INFOBOX by pressing the "I" key or clicking TOOLBAR > INFO > INFOBOX. The gray buttons on the right edge of INFOBOX can be used for the following:

- VERSION - CHANGE: Upgrade/downgrade the JAGUAR.exe version.
- PLAYBACK - MORE: The latest LIVESCAN duration (if any) during the current JAGUAR session.
- FILE INFO - MORE: The number of files in the current rec folder.
- FILE POOL - OPEN: Open a new ARCHIVE file for playback.
- DATABASE - CHANGE: Change TURTLE database version.
- HARDWARE - LIVE: Connect to LIVE (or jump from ARCHIVE to LIVE).
- REC SET - CHANGE: Open RECORDING setting window for changes.
- REC QTH - CHANGE: Open RECORDING setting window for changes.
- REC DISK - CHANGE: Change the current recording disk between the two shown disks. If the Perseus connection has been activated, the change will become effective after the next breakpoint.
- IDENTITY - EXIT: Close INFOBOX.

INSTALLATION

JAGUAR can be downloaded as a zipped file and can be installed as any other portable application. There are no separate packages for JAGUAR LITE and JAGUAR PRO: whenever the user wants to upgrade from LITE to PRO, a small authorization file needs to be saved in JAGUAR's installation folder.

Note that antivirus software may flag JAGUAR as "malware". In that case you should exclude your JAGUAR folder from antivirus checks (or exclude JAGUAR.exe and LIFESAVER.exe on the process level).

HOW TO

If you don't have any earlier JAGUAR version installed on your computer, please jump to FRESH INSTALLATION.

UPGRADING TO V10

If you want to upgrade/test V10 and make the upgrade and potential fallback as smooth as possible, **do not create a new separate Jaguar folder for V10**.

Instead follow these instructions:

1. Backup your main installation folder (for example copy C:\JAGUAR and paste it as C:\JAGUAR_OLD)
2. Delete the SETTINGS folder from your main installation folder (C:\JAGUAR)
3. Download JAGUAR's latest full installation package from http://jaguars.kapsi.fi/download/ and extract it to your main JAGUAR installation folder (replacing the files in the destination)
4. Define your V10 settings (SETTINGS > RECORDING definitions are the most important, all the others can be changed later when you evaluate/test the V10 features)

This kind of upgrade will ensure that you do not have to change any desktop/taskbar shortcuts, Jaguar can fully utilize existing logs, offset data, etc. and if you ever need to restore the earlier full package, it can be done simply by deleting C:\JAGUAR and renaming C:\JAGUAR_OLD => C:\JAGUAR).

FRESH INSTALLATION

Only the Steps 1) and 4) are mandatory but below you will find many additional steps that can be reviewed in order to make the setup run as smoothly as possible. In addition in Step 4), you can also use other JAGUAR installation folder but C:\JAGUAR is recommended. If you skip all the other steps than 1) and 4), JAGUAR will run but it will use the defaults (e.g. recording to C:\ disk) and there may be some hiccups sometimes.

Here are the detailed installation steps:

1. Install the native Perseus software and verify that Perseus.exe runs flawlessly.
2. If you use an external harddisk for recording, plug it and enable write caching on the device:
    - DISK > PROPERTIES > HARDWARE > Select the external disk > PROPERTIES > GENERAL > CHANGE SETTINGS > POLICIES > BETTER PERFORMANCE

Whenever you change the recording disk/USB port, it is good to check this definition. BETTER PERFORMANCE is not the Windows default and without it your wideband recordings may not contain all the seconds and/or the file header may be not updated when the file switch happens (ending up a corrupted file - however JAGUAR can fix that).

3. If you use a mouse wheel on Windows 10 or higher, please change this:

    - Windows Settings > Devices > Mouse & touchpad > Scroll inactive windows when I hover over them > Off

    Mouse wheel scrolling can be used in JAGUAR for changing almost all objects and Windows blocks some of these scrolls if you don't set this Windows setting off.

4. Download JAGUAR's latest full installation package from http://jaguars.kapsi.fi/download/ and extract it for example to C:\JAGUAR (don't install JAGUAR to the Program Files folder because that folder is controlled by the Windows OS)

5. You can pin JAGUAR.exe to TASKBAR if you like or create a desktop shortcut. If you want to run JAGUAR 24x7 and automatically recover from power breaks and Windows OS updates, please do this: create a shortcut for LIFESAVER.exe and move it to the Windows start folder. That startup folder location is OS dependent, for example on W10 the folder can be opened by bringing up the Run box in Windows, typing shell:startup to it and pressing ENTER.

6. Start JAGUAR: INFOBOX opens up. Click LIVE to verify that the Perseus connection works.

7. Download the latest version: while in INFOBOX, click VERSION > CHANGE, then click the upper INSTALL button. Usually there is a newer version available than the one in the zip package.

8. The system runs in JAGUAR LITE mode by default. If you belong to the JAGUAR PRO team and don't have the JAGUARKEY.dat file for this PC, please ask for the PRO upgrade by picking the 8-digit KEY number from the INFOBOX (it can be opened by pressing "I") and sending it to this email address: jaguar4Perseus@gmail.com or to IPA.

9. Ensure that you have the latest TURTLE database: open the INFOBOX (by pressing "I"), and if the DATABASE name is out of date, click CHANGE and select DOWNLOAD LATEST.

10. After the basic installation is now done, quite likely you want to customize at least these basic settings: recording bandwith, center frequency, recording disk and your recording location.

    You can define these by opening TOOLBAR > SETTINGS and the "RECORDING" window on the left:

    - REC_BANDWIDTH > CHANGE 2 MHz to 1.6 MHz if you want to save 20% of the disk space used (JAGUAR PRO only), however please note that Perseus.exe can not play these 1.6 MHz files
    - CENTER_FQ > CHANGE the center frequency if needed (however, the defaults are optimal for MW)
    - REC_DISK1 > CHANGE the default C:\ to the desired target (the path given can also contain a folder)
    - LOCATION > CHANGE the default to match your own QTH. This setting is used on many graphics screens and also whenever you use sunrise/sunset based recordings: replace LONDON, 51.5, -0.12 with your own QTH and coordinates. Note that any longitude in the western hemisphere must be given as a negative value.

When you close the RECORDING window and exit the settings dashboard, your setup is ready to rock. JAGUAR has tons of additional settings and customization options but they can be changed later (if needed) after you become more familiar with the "JAGUAR style".

TIP: BIG BUTTONS

Nowadays the standard display resolution is usually 1920x1080 or higher and because Jaguar does not have a built-in scaling in the software itself, Jaguar texts and buttons are a little bit too small when using these higher resolutions. However in W10/W11, you can

- Go to JAGUAR installation folder and right click JAGUAR.exe
- Click "Properties"
- Click "Compatibility"
- Click "Change high DPI settings"
- Tick "Override high DPI behaviour. Scaling performed by ..."
- Select: "System" (don't select "Application" / "System (Enhanced)" !)
- Click OK
- Click OK

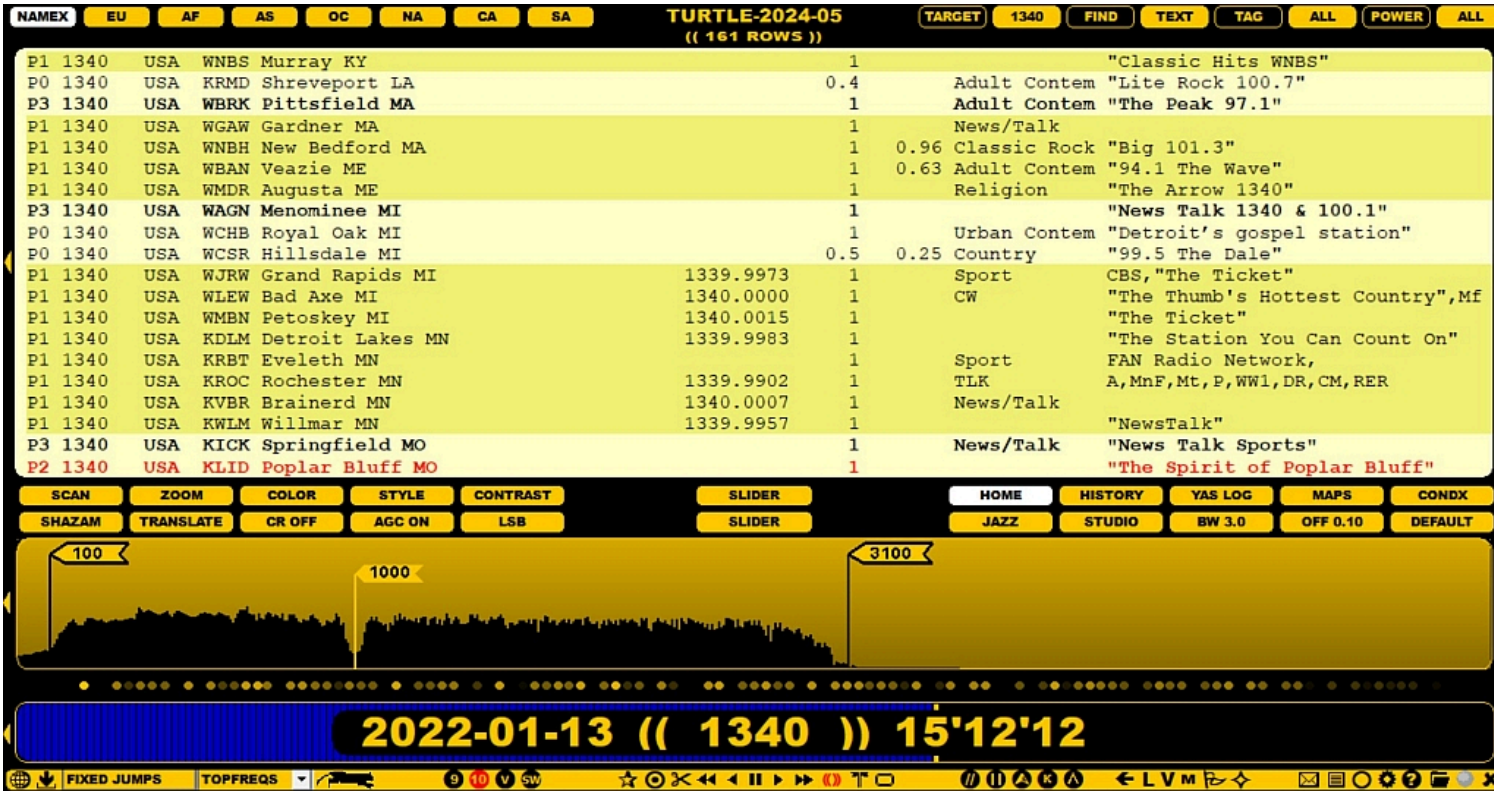
Start JAGUAR - and the internal resolution used in JAGUAR offers now the maximum button sizes.

JAGASS

JAGUAR PRO ONLY

JAGASS is a one-click function, designed to open two important JAGUAR tools at once for solving station IDs. These tools are:

- the TURTLE station database for studying the stations on the current frequency, and
- AUDIO WINDOW for optimizing the audio output



Whenever you hear some potential ID / something interesting, you can invoke JAGASS.

HOW TO

KEY = J

You can toggle JAGASS on/off by pressing the "J" key.

JAGRUN

You can fully automate your jumps in the frequency and/or time domain with JAGRUN scripts. JAGRUN uses a simple scripting language to set the playback time after each jump.

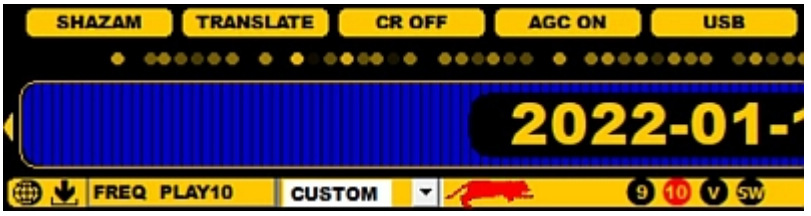
JAGUAR contains six pre-defined scripts, and you can customize any of the scripts before running them.

The built-in scripts are:

- TIMEJUMP: Jump 60 seconds after playing 4 seconds.
- FREQJUMP: Jump to the next/previous frequency after playing 4 seconds.
- TOPJUMP: Find and jump to next/previous TOH after playing 30 seconds at current TOH.
- TOPBOTS: Find and jump to next/previous TOH/BOT after playing 30 seconds at current TOH/BOT.
- DAYJUMP: Find and jump to next/previous day after playing 40 seconds.
- TOPFREQS: When started, TOPFREQS jumps to the next TOH and to the bottom of the MW band (to AM 530 or AM 531), and plays over TOH (XX:59:35-XX:00:15), then continues to the next frequency (playing that same TOH), then the next frequency, etc. This processing can't be customized.

After you have selected the desired script from the menu, you can optionally modify the jump/playback times and then control the jumps either manually or let JAGUAR do the job. In the example below, the FREQJUMP script is used and the playback time has been changed from 4 seconds to 10 seconds for each frequency before jumping to the next frequency. After this temporary change, the FREQJUMP script's name is changed to CUSTOM.

-



HOW TO

KEY = G (GO NEXT) and ALT-G (GO PREVIOUS)

If you click on the JAGRUN icon, the autorun mode starts. Click the icon again to stop the autorun mode.

If you want to use the keyboard for manual control of the jump: press "G" for jumping "one step" forward, and ALT-G for jumping "one step" backward. This is why "G" and ALT-G are sometimes called as "GOKEYS".

JAGUARKEY

JAGUAR PRO ONLY

A JAGUARKEY file is required for unlocking JAGUAR to the PRO version. The JAGUAR binary (jaguar.exe) itself is the same for both JAGUAR LITE and JAGUAR PRO, but JAGUAR PRO services are unlocked with the JAGUARKEY file only.

The JAGUARKEY file contains a string which is mix of the JAGUARKEY number (8-digit number shown in INFOBOX) with some PC/Windows characteristics. The file also contains the user's JAGUAR signature (= JAGUAR user id) so the JAGUARKEY file is PC/user dependent.

The JAGUARKEY file must be saved in the JAGUAR installation folder.

HOW TO

When a new user joins the JAGUAR PRO team, two things are needed:

- the JAGUARKEY number from INFOBOX (press I for INFOBOX: "KEY XXXXXXXX" is shown on the bottom line)
- the suggested JAGUAR signature (= JAGUAR user ID); a list of current JAGUAR signatures can be seen on https://jaguars.kapsi.fi/members.html

The JAGUAR PRO team members can run JAGUAR PRO on as many PCs as needed. Requests for the JAGUARKEY files for new PCs can be sent via email to the JAGUAR development team.

JIX

J-INDEX is an index value for measuring true MW reception conditions, kind of a "NASDAQ index for MW". Other common indices (such as A / K / solar flux and more) just describe space weather related geomagnetic characteristics but do not give a real MW-reception index value.

JIX is scaled from 1 to 100. By default, JIX is collected from the "overseas frequencies" based on the user's location. JAGUAR keeps track of signal levels on the first 100 MW frequencies (the overlapping NA/EU frequencies are excluded) and creates the averaged value which is named as the J-INDEX. The JIX values are being automatically calculated when the hardware is plugged in, and the values will be saved to the YAS LOG file ("DAY.YAS") at one-minute intervals.

To be exact, JAGUAR calculates and collects two separate JIX values: one for MW10 frequencies and second for MW9 frequencies. If you change the MW frequency stepping, the JIX shown changes accordingly.

JIX offers an excellent tool for finding interesting spots when studying the recorded files. In addition, JIX can be used for comparing antennas and even QTHs (however, the effect of using an external preamplifier must be taken into account when comparing signal levels in two different QTHs).

Additionally, JAGUAR collects hourly values for the MW10 and MW9 JIX to CONDX.LOG. This log is used on the CONDX display (more details in the CONDX help) to compare classical solar index values (A / K / Kyoto / etc) with real trans-oceanic reception results (JIX CURVE). These files are saved in the daily recording folders.

In addition to STATUSBAR and CONDX, the JIX values are shown as red curves on the HISTORY and YAS LOG displays. When reviewing the JIX CURVE, you should look for the curve peaks (the sharper, the better!). Even a small peak in the curve can indicate a good spot for DX. Also, you should look for the times when the JIX value is rising/falling rapidly. Experience has shown that those times often offer the most interesting reception periods, e.g. perhaps dominants may have not faded in yet or may already have faded out, and the dial can be full of surprises. While in a DXpedition, we often monitor these rapid changes as a trigger to be especially alert.

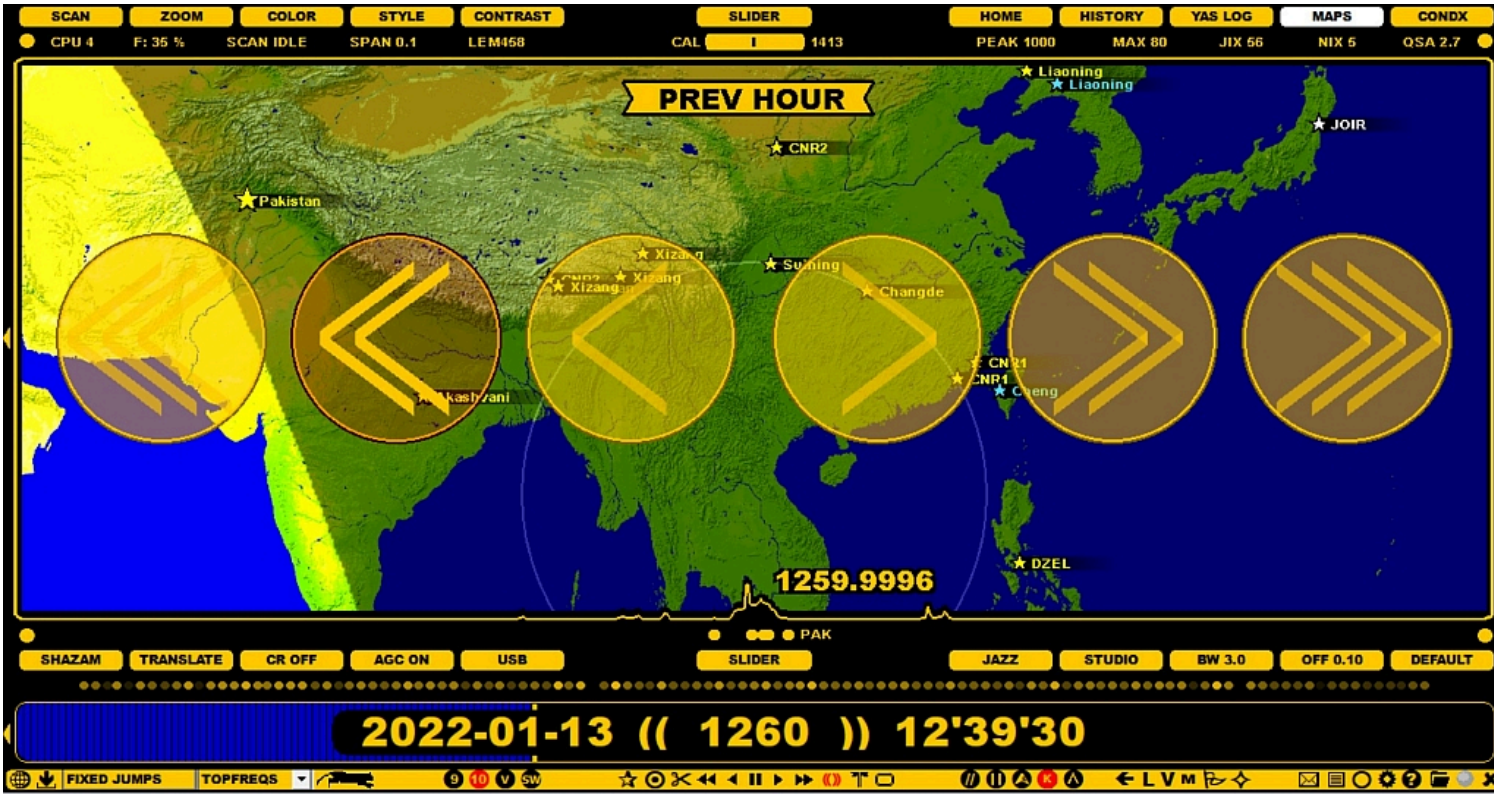
The JIX can also be used to automatically start recording when a user-defined threshold is reached (see AUTOREC in MESTOR). Even though today's megatrend in MW DXing is to record everything overnight and use various analysis tools to see/hear the results, many users still prefer to record only the TOH times. In this case, AUTOREC can be combined with scheduled TOH recordings. In this way, all the good out-of-TOH openings will be recorded automatically. Or why not record only the "good openings"?

HOW TO

JIX is controlled and handled automatically by JAGUAR; you just have to be aware of this feature.

JUMPERS

JUMPERS are large time-navigation buttons. You can invoke them by right-clicking on the graphics area. You can change the method of mouse-clicking in SETTINGS > SYSTEM > RIGHT_CLICK.



JUMPERS are extremely handy when accessing your remote station over a phone or table.

HOW TO

JUMPERS are six large buttons, offering a quick and easy way to jump in the time domain (keeping the frequency unchanged):

- PREVIOUS DAY (keeping HH'MM unchanged)
- PREVIOUS TOH
- PREVIOUS FILE
- NEXT FILE
- NEXT TOH
- NEXT DAY (keeping HH'MM unchanged)

JUMPERS can be closed by right-clicking on the graphics area again.

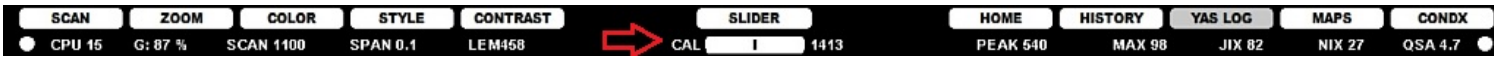
KALIBRATE

The SDR revolution has brought a new element into MW DXing: the use of offsets in signal analysis and pre-identification. In order to use any offset-based tool in JAGUAR, reliable calibration is required.

KALIBRATE is JAGUAR's calibration function. Compared to other SDR software, JAGUAR's calibration method is exceptionally easy, and it does not have to be made before recording. In addition, there is support for the "4th decimal" (a fraction of Hertz) accuracy.

The last fourth decimal is not necessarily always correct: already the mathematic error margin is +/- 0.1 Hz. Although the fourth decimal can be used, logging the fourth decimal requires extra attention and a bit a longer period of time spent in monitoring.

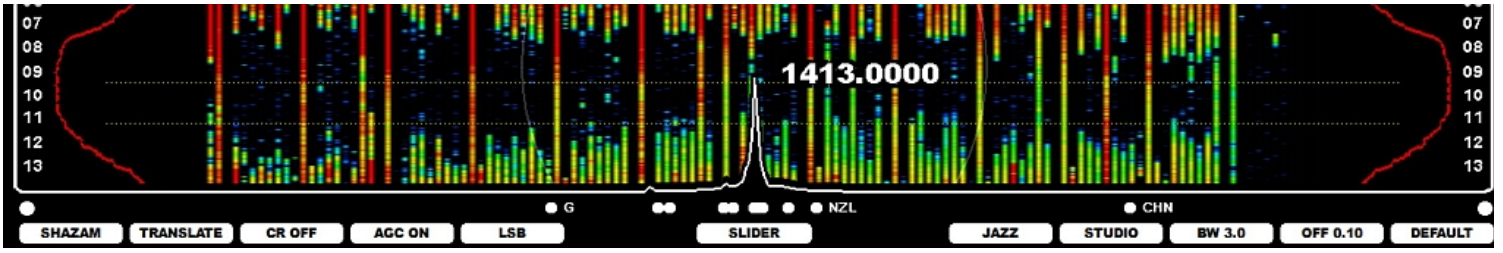
The calibration status can be seen on the CAL button on the STATUSBAR: a thin line at the center of the button means that the calibration is on spot.



HOW TO

KEY = K, or clicking the STATUSBAR > CAL, or clicking the TOOLBAR > K (KALIBRATION) icon.

By pressing the "K" key you can calibrate JAGUAR's frequency accuracy, based on the accuracy of the current frequency. You must tune in to a frequency where the station has a known and stable frequency with a sharp carrier peak visible. After the "K" key is pressed, the SPECTOR peak should show the exact .0000 frequency. You can repeat the process if the conditions make the peak to wobble, and it is difficult to get an exact calibration match. The calibration has an error range of 0.0001 kHz so the last fourth decimal is not necessary always correct - but it can be, you cannot be always sure. This is why some recommend to use only three decimals in official offset loggings.



You can repeat this process any time you see that the calibration is not "spot on". This may be caused due to many things, e.g. a change in the hardware temperature. Calibration can be done either in the LIVE mode, or while listening to any ARCHIVE file (in JAGUAR, calibration can be done also afterwards for old files).

JAGUAR can also be calibrated by clicking the STATUSBAR > CAL or the TOOLBAR > K (KALIBRATION) icon.

FAST CALIBRATION (JAGUAR PRO ONLY)

The method of pressing the "K" key requires that you are tuned to the nominal frequency of the station used in calibration. However, most of the JAGUAR PRO users use the FAST CALIBRATION method: you can KALIBRATE your setup being tuned to any frequency and press the "K" key (or click STATUSBAR > CAL). All what we need is a good solid calibration frequency for your setup. Naturally it must be available at any time you calibrate.

Normally, calibration is done with a station known to be on the exact .0000 frequency.

First, you must define your calibration frequency in SETTINGS > SPECTRUM > FAST_CALIBRATE. For example,

```
FAST_CALIBRATE ............ 1413
```

Now if you press the "K" key (when listening to any frequency!), JAGUAR performs the calibration in the background (the playback control does not jump to 1413). Of course, you can go to 1413 and check if that was done correctly but if it seems to be "always OK", quite likely you start to trust it and there is no need to check it after pressing "K". When you press "K" in "normal" calibration, JAGUAR prompts a "Do you really want to ..." confirmation box but there is no need for that if you use FAST_CALIBRATE: it does not harm if you press "K" accidentally because calibration is just done one more time using the correct frequency.

In many European setups, 1413 (Moldavia) is often visible (but not always audible in full daylight) so we in Europe can successfully do this "blind calibration" quite freely (situation in May 2024).

You can list several calibration frequencies to FAST_CALIBRATE (separated by comma) and change the calibration frequency any time by pressing ALT-K or clicking TOOLBAR > K (a popup menu is displayed). In addition, you can schedule the change of the calibration frequency in MESTOR using the SET CALFREQ option..

AUTOMATIC CALIBRATION

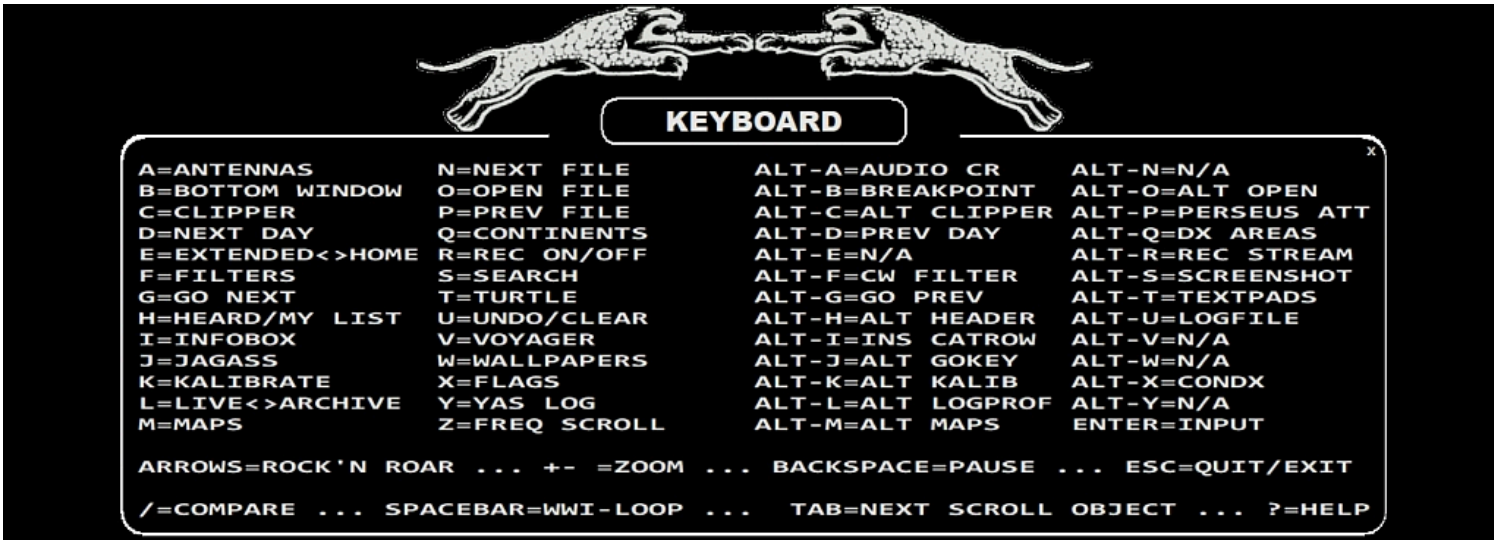
If you trust your calibration frequency (e.g. you have a GPSDO device or there is a good stable calibration frequency available 24x7), you will never need to calibrate manually. Instead, you can let JAGUAR keep the calibration spot on as a continuous background process: define

```
AUTO_CALIBRATE ............ YES
```

in SETTINGS > SPECTRUM > AUTO_CALIBRATE. This setting takes care of the calibration for SPECTOR and the spectrum graphs.

KEYBOARD

The list of the shortcut keys available in JAGUAR.



HOW TO

`TOOLBAR > ? (INFO) > KEYBOARD`

The list of the available keyboard keys (shortcuts) can be shown by clicking TOOLBAR > ? (INFO) and selecting "KEYBOARD" from the popup menu. Below you will find short descriptions for each keyboard key - most of the functions behind the shortcuts have their own detailed help sections in this GUIDE.

Standard Keys (a-z)

`a - ANTENNAS`

Open/close the ANTENNAS screen or rotate the "PLAYBACK ANTENNA".

If you have not defined any antennas in ANTENNAS, a subsequent press of the "a" key will close this window. Until then, you can evaluate antennas/directions by clicking the antenna map. A virtual antenna will be created on the screen.

If you have defined antennas in the ANTENNAS window, it will show the antennas defined (directions and beams) and a subsequent "a" press does not close the window but the current antenna is changed on the display. If you have an antenna switcher attached to JAGUAR, the current antenna displayed is also physically selected. In this case, you can close the antenna map e.g. by pressing "w".

If the PANTS (= PLAYBACK ANTENNAS) feature is enabled, pressing "a" rotates the playback disks (= "antennas") in the ARCHIVE mode (more details in the PANTS help).

`b - BOTTOM WINDOW`

Open/rotate the BOTTOM WINDOWs.

`c - CLIPPER`

Open JAGUAR's built-in audio clipping tool, CLIPPER.

Recording of the audio will start immediately after the "c" key is pressed. A subsequent "c" press stops the flow of audio to CLIPPER, and another press of "c" starts it again. When the desired audio clip has been recorded/modified, you can save it, and exit by pressing the EXIT button in CLIPPER.

Pressing the ESC key also cancels clip recording. A mouse right-click closes the CLIPPER window.

`d - NEXT DAY`

Change the day in playback, or "jump to the same point of time on the following day". The playback starts immediately if a matching recording is found on the following day. If there is no saved recording at that point of time, ((NO HITS)) message is given.

`e - HOME <> HISTORY (JAGUAR PRO)`

Toggle the HOME and HISTORY (extended spectrum) screens.

`f - FILTERS (JAGUAR PRO)`

Rotate the available RF filters: STOCK > JAZZ > CALLIOPE > AM FILTER. If the FILTER APPLET is not visible when "f" is pressed, the current FILTER applet will be displayed without changing the filter itself.

g - GO NEXT

Jump to the next time/frequency as specified by the active JAGRUN script. Often used together with ALT-g (GO PREVIOUS).

h - HEARD

"List of HEARD stations" on/off. Not only "heard stations" are listed, but "h" shows all the stations you have tagged (world-wide) on the current frequency.

i - INFOBOX

Open/close the INFOBOX.

j - JAGASS (JAGUAR PRO)

Open/close JAGASS (the TURTLE + AUDIO WINDOW combination).

k - KALIBRATE

Calibrate JAGUAR's frequency accuracy, based on the accuracy of the current frequency (JAGUAR LITE) and/or the FAST_CALIBRATE frequency (JAGUAR PRO). See the KALIBRATE help for more details.

l - LIVE <> ARCHIVE

Toggle the playback of the LIVE mode and the last-used archive file.

m - MAPS

Open/close the MAPS display.

n - NEXT FILE

Move the playback to the next file in the file pool.

o - OPEN FILE

Select a new file for playback.

p - PREVIOUS FILE

Move the playback to the previous file in the file pool.

q - NEXT CONTINENT

Rotate the active continents (in MAPS/TURTLE/FLAGS) in the following order: World > Europe > Africa- Middle East > Asia > Oceania > North America > Caribbean > South America.

r - RECORDING ON/OFF

Start/stop the manual recording mode. In the recording mode, the color of the progress bar is red in the LIVE mode. The current buffer file is saved to disk when the file becomes full, and the recording continues normally. If you stop recording by pressing the "r" key again, the current buffer file is saved, and the color of the progress bar returns back to green.

s - SEARCH

Start the SEARCH mode. More details in SEARCH help.

t - TURTLE

Open/close the TURTLE window.

u - UNDO/CLEAR

If there are no extra functions active, pressing "u" hides/shows the following graphical elements:

- SPECTOR grid
- the APPLETS

Pressing "u" purges the currently-active audio loop markers, and a subsequent press of "u" restores the earlier loop markers, "undoing the undo".

Pressing "u" cancels recording without saving the file if the recording mode is active. Confirmation will be asked before cancellation. Pressing "u" also stops some other active functions, e.g. flushing the audio to CLIPPER.

v - VOYAGER (JAGUAR PRO only)

Start the VOYAGER mode. More details in VOYAGER help.

w - WALLPAPERS

Rotate the main screens: HOME > HISTORY > YAS LOG > MAPS > CONDX.

x - FLAGS (JAGUAR PRO only)

Toggle the FLAGS on/off.

y - YAS LOG (JAGUAR PRO only)

Toggle the HOME and YAS displays.

```
z - FREQ SCROLL
```

Toggle the frequency-scrolling mode on and off. When frequency-scrolling is enabled, you will see the (( )) brackets around the frequency on PLAYBAR. While the brackets are visible, scrolling the mouse will change the frequency up/down, based on the current stepping mode, as long as the mouse hovers over PLAYBAR. Also, you can use the left/right arrow keys for frequency scrolling, regardless of the position of the mouse (unless the mouse points to some other scrollable object).

ALT Keys (A-Z or a-z)

These ALT-shortcut keys are available only for JAGUAR PRO, except ALT-D (PREVIOUS DAY), ALT-G (GO PREVIOUS), ALT-O (FILEPOOL), ALT-P (PERSEUS ATTENUATION), ALT-Q (PREVIOUS CONTINENT) and ALT-X (CONDX).

```
ALT-A - AUDIO CR
```

Toggle CLICK REMOVER on and off. CLICK REMOVER is designed to eliminate audio clicks, caused by electric fences and similar type of short audio overload bursts.

```
ALT-B - BREAKPOINT
```

Start a new file in the LIVE mode.

```
ALT-C - SILENT CLIPPER
```

Start/stop recording the audio that is audible in your headphones, CLIPPER is not opened. The audio can be produced by JAGUAR or from any external audio source. This function may not work in all Windows setups.

```
ALT-D - PREVIOUS DAY
```

Change the day in playback, or "jump to the same point of time on the previous day". The playback will start immediately if a matching recording is found on the previous day. If there is no saved recording at that point of time, ((NO HITS)) message is given.

```
ALT-E - Not in use
```

```
ALT-F - CW FILTER
```

Open/close the narrow CW filter.

```
ALT-G - GO PREVIOUS
```

Jump to the previous time/frequency as specified by the active JAGRUN script. Often used together with "g" (GO NEXT).

```
ALT-H - ALT HEADER
```

Open/close the wideband file HEADER text overlay.

```
ALT-I - INSERT CATROW
```

Insert a station to CATBOOK (a station which does not exist in TURTLE).

```
ALT-J - ALT GOKEY
```

Rotate your GOKEY list (= JAGRUN scripts) on TOOLBAR.

```
ALT-K - ALT CALIBRATION
```

If you have defined more than one calibration frequency in SETTINGS, ALT-K changes the calibration frequency and calibrates the system each time with a new frequency when ALT-K is pressed. The current calibration frequency can be seen on the CALIBRE applet.

```
ALT-L - ALT LOGPROFILE
```

Rotate/change the currently-active log profile. User may have set up several log profiles e.g. for creating loggings for different publications or locations with different formats. Note that LOGPROFILE can be changed also in LOGBOX.

```
ALT-M - ALT MAPSYSTEM
```

Rotate map displays: ANTENNAS > DAYZONE > TIME ZONES > US BEEHIVE.

```
ALT-N - Not in use
```

```
ALT-O - ALT OPEN
```

Open/close FILEPOOL for the alternate way to open files.

```
ALT-P - PERSEUS ATTENUATION
```

Rotate the attenuation level of the Perseus hardware: 0 (default, no attenuation) > 1 (-10 dB) > 2 (-20 dB) > 3 (-30 dB). Changing the attenuation manually overrides all the scheduled attenuation settings in MESTOR until the next JAGUAR restart.

```
ALT-Q - DX TARGET AREAS
```

Rotate the DX TARGET AREAS (WORLD > NAMEX > CASA or WORLD > EMEA > EAST, depending on the current kHz stepping).

```
ALT-R - REC STREAM
```

If JAGUAR's STREAMER is active, you can record the full Internet stream while listening to the JAGUAR audio. More details in the STREAMS help.

```
ALT-S - SCREENSHOT
```

Open the Windows "Snipping tool" for taking a screenshot (or video, if the OS supports it).

```
ALT-T - TEXTPADS
```

Open/rotate the built-in TEXTPADS.

```
ALT-U - LOGFILE
```

Open/close the log file.

```
ALT-V - Not in use
```

```
ALT-W - Not in use
```

```
ALT-X - CONDX
```

Toggle between the current display <> CONDX.

```
ALT-Y - Not in use
```

Other Keys

```
ARROW KEYS - MULTIPURPOSE KEYS
```

The arrow keys (LEFT / RIGHT / UP / DOWN) are the most important keys in the keyboard use.

ARROW LEFT/RIGHT keys can be used as an alternative to the mouse wheel scrolling anywere in JAGUAR. When the mouse cursor is positioned over the PLAYBAR, the arrow keys can scroll either time or frequency:

- ARROW LEFT: Scroll three seconds backward in time OR scroll the frequency down if the (( )) brackets are visible on PLAYBAR.
- ARROW RIGHT: Scroll three seconds forward in time OR scroll the frequency up if the (( )) brackets are visible on PLAYBAR.
- ARROW DOWN: Toggle the LSB (lower sideband) and USB (upper sideband).
- ARROW UP: Add an audio loop marker to PLAYBAR. The first press sets the start of the loop, the second press sets the end of the loop. The third press removes the loop markers.

```
BACKSPACE - PAUSE
```

Toggle the playback pause/mute on/off.

```
END - JUMP TO LAST ARCHIVE
```

Jump directly to the last recorded archive file.

```
ESC - STOP/CANCEL/DISABLE/QUIT
```

ESC is a multi-purpose stop/cancel/disable/quit key. When you have invoked a function, or opened a tool window, pressing ESC will stop/cancel that function. When all the extras have been stopped/disabled (one by one when ESC is pressed again), the last ESC will close JAGUAR (a confirmation will be asked). The ESC key is kind of a master key to restore the standard screen/services, offering an easy way to get rid of the extra stuff on the screen.

```
HOME - JUMP TO HOME SCREEN
```

Go to the HOME screen.

```
PAUSE - PAUSE
```

Toggle the playback pause/mute on/off (same as BACKSPACE).

```
PGDN - SCROLL DOWN
```

Scroll the TURTLE rows downward.

```
PGUP - SCROLL UP
```

Scroll the TURTLE rows upward.

```
TAB - SCROLL TO NEXT
```

Rotate the active scrollable objects in TIMEWHEEL: MONTH > DAY > HOUR > MINUTE > SECOND.

```
SPACEBAR - WHAT WAS IT?
```

Create/remove the WWI ("What Was It") audio loop. When hearing something interesting, you can quickly repeat the last few seconds by pressing SPACEBAR, and JAGUAR will automatically create a short audio loop. The default loop length is 10 seconds, and you can customize the duration in SETTINGS.

```
/ (FORWARD SLASH) - COMPARE
```

Toggle between two frequencies to compare their programming. This is the easiest way to check if parallel programming is present on those frequencies.

`+ (PLUS) and - (MINUS) - ZOOM`

General ZOOM key to increase/decrease the object (spectrum width, map, TURTLE font size) depending on the mouse cursor position.

`? (QUESTION MARK) - HELP`

Open/close the HELP window. This window is either the keyboard shortcut list on the title level (if the Internet connection is not available) or the target-specific WWW window in JAGUAR GUIDE (if the Internet connection is available). In the latter case, the page opened depends on the mouse position on the screen.

KIT

JAGUAR can also be minimized into a small "KIT bar", minimizing the consumption of computer resources while keeping all the defined services still active.

JAGUAR KIT is embedded into JAGUAR, but you can use KIT also as an independent application; ideal for battery-powered setups. More info available at https://jaguars.kapsi.fi/KIT.htm

HOW TO

JAGUAR can be minimized to the KIT mode by clicking TOOLBAR > KIT (= the icon next to the shutdown icon). Please note that JAGUAR will enter the KIT mode automatically if there is no user action (a keyboard key press / mouse function) in one hour. This auto-minimization can be blocked with SETTINGS > SYSTEM > KEEP_MAXIMIZED > YES.

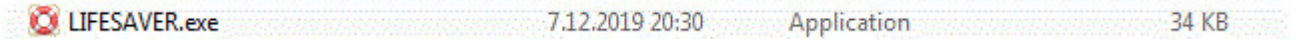
In addition to the the display panel (showing disk/scan status, realtime/playback frequency, cpu usage), KIT has six buttons:

- REC: Start/stop recording
- SHOW: Show the YAS log image (SETTINGS > KIT > OPTIONAL > YAS_IMAGES must be enabled)
- PLAY: Start/stop playback (the frequency can be changed by scrolling the mouse when the mouse is over the frequency)
- INFO: Open/close the status popup window
- SETTINGS: Open the SETTINGS > KIT panel
- EXIT: Return to JAGUAR

If needed, KIT can be moved to the left/right: click the center area of the bar and move the bar with the mouse to the desired location. Click again or move the mouse away from the KIT bar to lock the new position.

LIFESAVER

Many MW DXers have one or more JAGUAR setups "always on", monitoring the MW dial around the clock. JAGUAR is designed for continuous operation and, for example, YASLOG can collect data about MW conditions all the time. However, because every environment is vulnerable and uninterrupted operation is rare as there can be power cuts, Windows updates, hardware problem, JAGUAR crashes, an extra guardian angel called LIFESAVER is in place to put JAGUAR back on its feet when issues occur.



The tiny program called LIFESAVER.exe is included in JAGUAR's full-installation package. Do not start this program manually, just keep it in your JAGUAR folder if you want a 24/7 operation. LIFESAVER can recover from Perseus power breaks, hardware and I/O exceptions, program crashes and hang-ups even if they happen while recording. Therefore, no UPS is needed if you just run JAGUAR on a laptop. Create a shortcut to LIFESAVER.exe and move it to the Windows start-up folder if you want a secured 24/7 operation, including an automatic JAGUAR start-up after a Windows reboot.

Important: you must use a **shortcut** to LIFESAVER.exe, not the program itself!

LIFESAVER.exe and/or JAGUAR.exe write a row to an event log when issues are detected. You will find the log in the JAGUAR folder (as LIFESAVER.LOG). There is a special case when JAGUAR cannot continue processing without automated restart: for some reason, the bit stream from the Perseus hardware to the file buffer may be interrupted for a period of time, and JAGUAR hangs until restarted. You can simulate this case with JAGUAR.exe and PERSEUS.exe by unplugging the USB connection cable for a short while and then plugging it back and see what happens. In this case, LIFESAVER will wake up the Perseus connection to JAGUAR as soon as possible.

HOW TO

Make sure that you have placed the shortcut to LIFESAVER.exe into the Windows start-up folder.

LIVESCAN

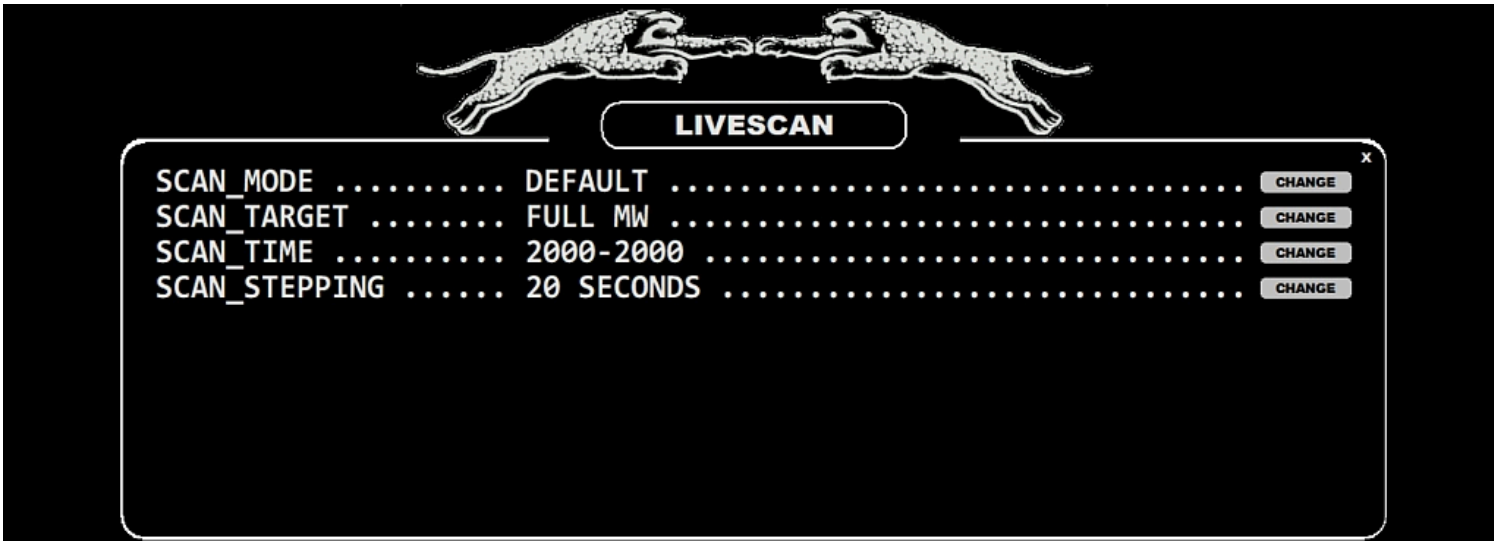
JAGUAR PRO ONLY

JAGUAR has a built-in scanner to produce detailed offset-related data for all or selected frequencies. This scanner can be used in the LIVESCAN or FILESCAN modes. LIVESCAN is easiest and fastest way to generate the offset history.

While FILESCAN can collect the offset data only after recording (using the recorded files), LIVESCAN can look for offset data on the selected frequencies live when the hardware is connected. LIVESCAN is running in the background. You just need to set the frequencies and JAGUAR takes care of timing.

HOW TO

LIVESCAN can be configured by clicking the SLIDER > SCAN button when you are in the LIVE mode (in the ARCHIVE mode this button triggers the FILESCAN settings).



LIVESCAN is the heart and soul of generating offset histories. It is disabled by default but if you are interested in investigating offsets, this feature is a must. LIVESCAN runs independently just the way you want.

You will need to define the following:

- SCAN_MODE: OFF | DEFAULT | CUSTOM
- SCAN_TARGET: FULL MW (if DEFAULT mode has been selected) or MW10/MW9/CUSTOM list (if CUSTOM mode has been selected).
- SCAN_TIME: HHMM-HHMM, the start and end time for scannning within the current DX day (2000-2000 UTC).
- SCAN_STEPPING: The time interval used for analysis, in seconds. Change by scrolling from these values: 10/20/30/60.

If you activate LIVESCAN, you can actually monitor the whole MW dial 24/7 even without making a single recording. However, usually DXers give the SCAN_TIME as there is no need to waste computing time during daytime when the AM band is more or less empty.

LIVESCAN is very fast but can use large amount of RAM. If you select SCAN_MODE = DEFAULT, the SCAN_TARGET is fixed as "FULL MW" (=covering all MW9 and MW10 frequencies) and the default SCAN_STEPPING is 60 (one FFT sweep per minute). Quite likely you can go down to SCAN_STEPPING 30 without issues if you do not have an outdated computer. If you have a high-end computer with a new Intel Core i7 processor, you can go to the ultimate SCAN_STEPPING 10 to generate a very high-resolution offset history for all MW9/MW10 frequencies and keep it running all the time. JAGUAR is designed for the total control of the MW dial around the clock!

You can increase the scan speed allowing some potential spurious carriers mixed in the results, but having still generally good results. SPECTOR can be used to spot those spurious signals: missing peak in SPECTOR at the position of the spectrum track reveals a spurious carrier. If you want to utilize this improved speed, please define SETTINGS > KIT > OPTIONAL > HI_QUALITY > NO.

Just as with FILESCAN, the results of LIVESCAN can be zoomed/viewed on the (extended) HISTORY spectrum screens. After LIVESCAN has produced the offset results, you can still run also FILESCAN for the data, e.g. if you want increase the resolution for certain portions of the data, provided you have recorded the time period of interest (see FILESCAN for details). Your LIVESCAN spectrum data will be replaced by these new FILESCAN results.

You can use the keyboard key "E" to toggle the current HISTORY screen and the HOME screen.

You can also schedule the change of the SCAN_TARGET (MW9 <> MW10) in MESTOR if you want, for example, to scan the MW10 frequencies during the night/morning hours, and the MW9 frequencies in the afternoon (see MESTOR > Advanced Usage for more details).

LIVE MODE

When the Perseus hardware connection is alive and you listen to MW in real time, then you are in the LIVE MODE. If you have some recordings available, you can quickly toggle the LIVE MODE and ARCHIVE MODE anytime. You can also jump to the ARCHIVE mode and, at the same time, make new wideband recordings.

When you are in the LIVE MODE, you can not only listen live, but you can also use the 10-minute buffer to study TOH announcements on all frequencies after TOH has passed, while in the LIVE MODE. So you have a plenty of time to decide if you want to keep the currently-running file. The recording mode can be powered ON/OFF any time.

A new buffer will be created automatically after each 10 minutes when using a samplig rate of 1.6 MHz, and after each 8 minutes with the sampling rate of 2.0 MHz. You can always start a new buffer by creating a breakpoint (see BREAKPOINT for details).

JAGUAR is the only SDR software available where you can use a maximum buffering time of 10 minutes.

HOW TO

KEY = L

If you have both Perseus connected and recordings available, you can toggle the LIVE MODE and ARCHIVE MODE by pressing the "L" key, or clicking TOOLBAR > L.

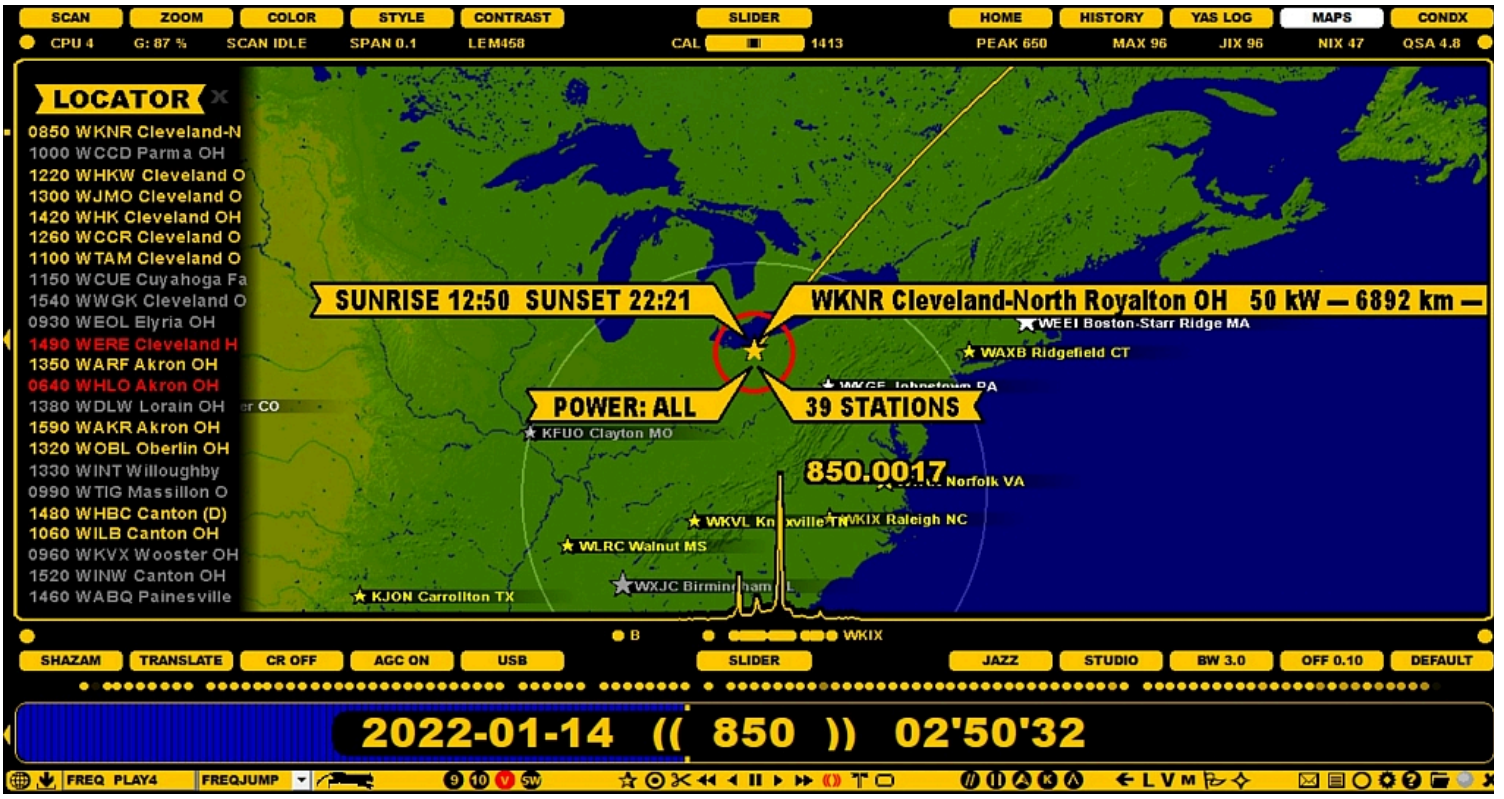
In LIVE MODE, you can jump to a new HH'MM'SS (within the current buffer) by clicking PLAYBAR. The vertical line on PLAYBAR shows your playback position in the buffer.

When you move the mouse over the frequency, you can always override the time-scrolling mode and change to the nominal frequency (based on the current stepping) using the mouse wheel or the left/right arrow keys.

LOCATOR

JAGUAR PRO ONLY

LOCATOR will zoom down on the map, showing the nearby area of the selected station. On the left column, you will see a list of the nearest stations within a 100-km radius by default, sorted by the distance to the selected station. You can increase/decrease the radius of the circle (stations to be included in the list), filter the stations on the list based on the transmitter power and you can also tune the stations on the list by scrolling/clicking.



HOW TO

The LOCATOR window can be invoked only via the STATION MENU. You can get that menu by right-clicking on any station on a map or on the TURTLE screen (more details in STATION MENU help).

A red circle will be visible around the selected station on the map: the range. You can increase and decrease this range by scrolling the mouse wheel or with the left/right arrow keys when the mouse cursor is positioned over the selected station and the circle is red. When the range changes, the station list on the left is updated accordingly.

You can filter the stations on the list based on the transmitter power by moving the mouse cursor over the POWER flag (the text on the flag becomes red) and scroll with the mouse wheel or left/right arrows keys: the categories available are All stations > stations with 1 kW or more > stations with 5 kW or more > stations with 10 kW or more > stations with 50 kW or more.

If you move the mouse cursor to the playbar, you can scroll the frequencies on the station list on the left, or you can click directly on any station name on the list.

You can exit LOCATOR by clicking the X button on the top left, or by pressing ESC, or right-clicking the map anywhere.

LOGDESK

LOG DESK is a toolkit created to support one of the best areas in MW DXing: LIVE DXing on a DXpedition. Sometimes the going can get hectic with the DX pileup - especially if US stations are flooding in almost 24x7 - and it is crucial to keep notes about "live loggings"/cx changes/what you have already listened to during the DXpedition.

LOG DESK combines DAYLOG, SPECTOR w/FLAGS and TOHLOG. In the LIVE mode the DXer surfs on the dial in real time and these three tools form an optimal toolset for keeping track/notes during the "hardcore DX pileup" action. Detailed information about these tools can be found in the DAYLOG, FLAGS and TOHLOG sections.

In addition, a big task is waiting for you after the DXpedition: what to listen at first, what files/days to skip, how to find the most interesting cx spots etc. LOG DESK gives a platform which can help enormously also in these "after-ski" studies.

HOW TO

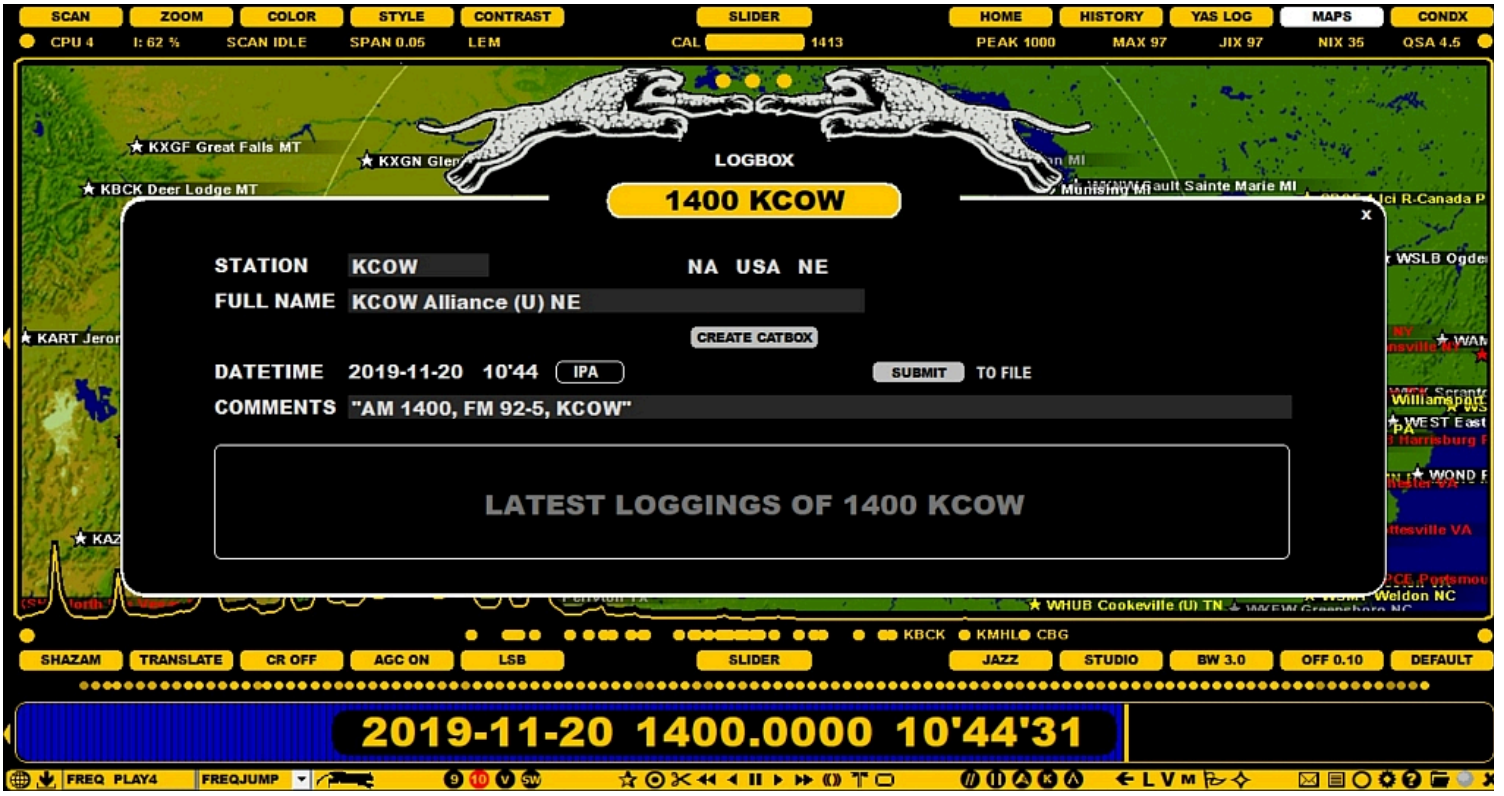
LOG DESK can be opened/closed by clicking TOOLBAR > > LOG DESK.

It is optimal to use WORLD | EMEA | EAST or WORLD | NAMEX | CASA ("DX TARGET AREAS") for filtering the visible offset flags. Use SLIDER > WORLD button or ALT-Q key to rotate the DX target areas..

LOGGING

JAGUAR PRO ONLY

LOGGING has been made easy in JAGUAR: you can submit your loggings to many targets with one single click using LOGBOX.



The classic logging to a text file supports several formats, and the logging format can be fully customized. JAGUAR's log file is named as LOG.CSV, and it is maintained in the LOGS folder under the JAGUAR installation folder.

In addition to the classic text-file based logging, JAGUAR supports the concept of DAYLOG (see DAYLOG for details). These day-based logs are named as DAY.LOG, and saved to the same day-folders where the recordings are being saved.

The MWLI users can also use the built-in logging interface to the MWLI logging database.

On top of all this, JAGUAR's own CATBOOK documentation database captures loggings automatically. You will have the stations "marked" in TURTLE and on MAPS with a minimum effort. Additional history data (personal notes) can be added via CATBOX (see CATBOX for details).

HOW TO

The LOGBOX window can be opened in four ways:

- Click the desired station on MAPS
- Click the desired station on TURTLE
- Click the desired station on FLAGS
- Type .CALL (= a station callsign preceded by a dot) and press ENTER (available only for US/CAN/MEX stations)

Before logging you should define your logging targets: FILE and/or DAYLOG and/or MWLI. This can be done in SETTINGS > LOGGING by enabling LOG_TO_FILE / LOG_TO_DAYLOG / LOG_TO_MWLI (see SETTINGS for more details).

Click SUBMIT, and JAGUAR asks for a confirmation and, if accepted, the logging will be sent to the selected targets.

The window of "LATEST LOGGINGS OF ..." will be used in the future.

After the station logging has been submitted, CATBOOK will be updated automatically as follows:

- a new station row is created in CATBOOK if it does not exist
- if the P-TAG of the station is P0, it is updated to P4 (blue) or to the user-defined P-TAG value (see the P-TAGS help)
- the station is marked as "logged in the year 20**" within the year buttons

This information can be seen in the CATBOX window.

Note: if you just want to make a logging to DAYLOG, there is a faster way: see more information in the DAYLOG section.

LOGMODE

While direct logging to MWLI and JAGUAR's built-in logging tools are widely used, many users still want to log stations also into a text file. By default, the logging output is based on OLL (Online Log, popular in Finland and Norway), but you can tailor the logging format in SETTINGS > LOGGINGS > LOGMODE.

```
LOGMODE ............ parameters
```

The output row can be freely customized with fixed literal strings and LOGMODE parameters. Each parameter is four characters long, preceded by #. JAGUAR fills the parameter value in during logging. The valid parameters are:

```
#NAME #FREQ #DATE #TIME #CALL #ITUC #USER #USRN #OFFS #QSAC #ZONE #YYYY #MMMM #DDDD #HHHH #LPRF
#MINS #MNTH #SECS #FILE #LINE #DIST #COMM #TENT #SINP #CLAT #CLON #SSBC #CALX #NAMX #ANTX #TABS
```

For example, when

```
LOGMODE ............. #FREQ #TIME #NAME #COMM #USER
```

is defined, LOGBOX generates log lines with frequency, time, station name, comments and userid.

```
LOGMODE ............. #FREQ;#CALX;#NAMX-#COMM;#SINP;#HHHH#MINS;#DDDD/#MMMM;USER
```

The above setting produces an optimal logging line for the MWC log format; #CALX and #NAMX generate strings designed for MWC in mind. USER must be replaced by the user initials used in MWC, which may be different from #USER which generates the JAGUAR userid. All values are separated by a semicolon, so the output file can also be opened in Excel.

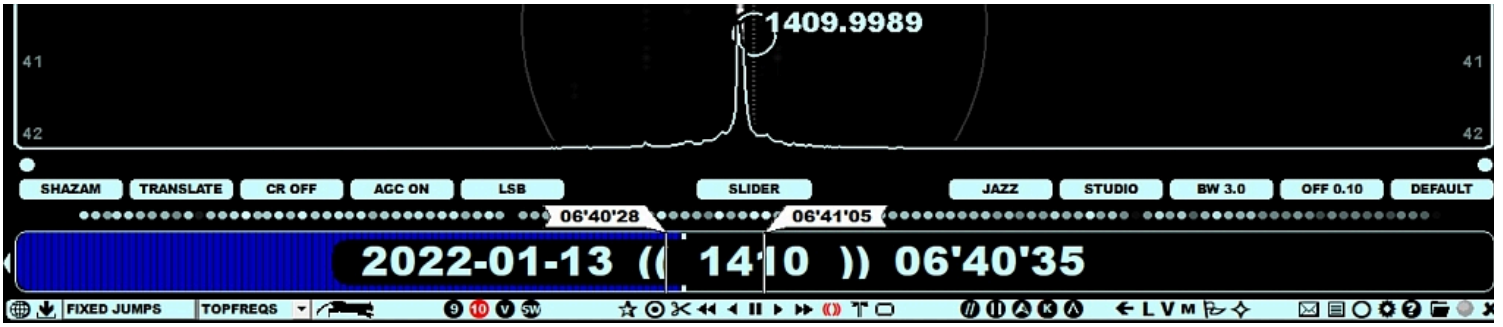
If you just want to quickly change the color of a station on MAPS / TURTLE (for example, to set the "heard" status for it on MAPS and TURTLE), you do not need LOGBOX; JAGUAR offers a special way of changing the color with "tagging". STATION MENU (see STATION MENU for details) contains a TAGGER function. When it is activated, you can change the color of many stations on the selected frequency just by clicking them on a map or TURTLE one by one. The color of the stations on MAPS is controlled by P-TAGS (see P-TAGS for details).

LOOP

JAGUAR offers several ways of creating audio LOOPs to constantly repeat a small segment of audio:

- a user-adjustable manual loop by pressing the UP ARROW key twice (once at loop start, and once at the end of the loop)
- this can also be done by clicking the TOOLBAR > LOOP icon twice (once at loop start, and once at the end of the loop)
- the "What Was It" (WWI) loop by pressing SPACEBAR (creating a 10-second-long LOOP by default)

Audio LOOPs are displayed on PLAYBAR with special flag markers.



HOW TO

The LOOP marker positions can be changed by moving the mouse over the marker flag. The flag color turns to red when ready for repositioning, and scrolling the mouse or pressing the left/right arrow keys. You can also drag the LOOP markers to the desired positions.

Pressing SPACEBAR creates a "What Was It" audio loop. The default duration is 10 seconds but you can change this value: the new duration is given with a plugin line WWI=xx (xx is the new LOOP duration). The WWI values between 0 and 100 seconds are allowed. 0 (zero) means that WWI loops are disabled, i.e. SPACEBAR will be ignored.

You can release the audio loop (and their markers) by pressing the UP ARROW key once again, clicking TOOLBAR > LOOP once again, pressing SPACEBAR once again, or simply by pressing the ESC key.

If you have an audio LOOP defined, pressing the C key (= CLIPPER) will create an audio clip from the segment defined by the LOOP markers. If you instead click TOOLBAR > SCISSORS, you will get a small popup menu, from which you can select either CHOP (see CHOP for details) or CLIPPER.

In addition, two handy LOOP tools are available: PAINT_LOOP and AUTOLOOP.

If SETTINGS > PLAYBACK > PAINT_LOOP is enabled, you can also use the mouse cursor for painting the loop area on PLAYBAR.

If SETTINGS > PLAYBACK > AUTOLOOP is enabled, when JAGUAR opens an ARCHIVE file that contains a TOH or BOT timespot, a LOOP around the TOH or BOT will be set automatically. The LOOP time around TOHs are always XX:59:35-XX:00:15 and the LOOP time around BOTs are always XX:59:50-XX:30:10.

MAIL

JAGUAR PRO ONLY

MAIL is a tool for automated creation of reception reports. Do not confuse this with FILEMAIL, which is intended for sending files between JAGUAR computers.

HOW TO

MAIL can be invoked from STATION MENU after you have selected the desired station (see the STATION MENU help).

Click the MAIL button to display a popup menu from which you can select the language of the reception report. The following languages are listed: English / French / Spanish / Portuguese / Russian / German. If JAGUAR cannot find a pre-formatted reception report template, the error message

```
((( TEMPLATE MISSING )))
```

will be displayed. If you want to use MAIL, please create your template(s) first as follows:

1. Create a folder called MAIL in JAGUAR's installation directory.
2. If you only work with English-language reception reports, create a file called MAIL.RTF (e.g. in Word or WordPad) with the following type of content and save it in the newly-made MAIL folder.

   Below you will find one example reception report template. Be sure to create a report template that is uniquely yours. Note the use of variables of #CALL, #NAME, #DATE, #FREQ and #TIME.

   ```
   TO: #CALL

   Dear Sirs:

   I have the pleasure to inform you that I have been listening to your station #NAME on
   #DATE on the frequency of #FREQ kHz at #TIME UTC. The overall reception quality was very
   good/good/moderate/fair/poor. Below are the details of the program. The same details can
   also be found in the attached audio clip.

   If you find this report correct, I would be pleased to receive a verification email,
   letter or card. My contact information is as follows.

   Best wishes,

   Danny DXer
   ```

Now, when you select English from the popup menu, JAGUAR will create the reception report in the MAIL folder. For example, if you have selected STATION MENU for TWR Parakou and click MAIL > English, you will get the following report for further modification:

```
TO: TWR

Dear Sirs:

I have the pleasure to inform you that I have been listening to your station TWR,
Parakou on 2020-01-29 on the frequency of 1566 kHz at 18'13'42 UTC. The overall
reception quality was very good/good/moderate/fair/poor. Below are the details of the
program. The same details can also be found in the attached audio clip.

If you find this report correct, I would be pleased to receive a verification email,
```

```
letter or card. My contact information is as follows.

Best wishes,

Danny DXer
```

If you write reports in any major languages of the world, rename MAIL.RTF (in the MAIL folder) to MAIL-EN.RTF. Then you can create reception report templates for the following languages:

- English (MAIL-EN.RTF)
- French (MAIL-FR.RTF)
- Spanish (MAIL-ES.RTF)
- Portuguese (MAIL-PT.RTF)
- Russian (MAIL-RU.RTF)
- German (MAIL-DE.RTF)

MAPS

JAGUAR incorporates high-quality built-in maps with station locations. In addition to the standard maps (as part of the main WALLPAPER rotation), JAGUAR can also display several "alternate maps", triggered from TOOLBAR > M (or pressing ALT-M). In this section only the standard MAPS and the related services are described.

The following map continents are available:

- World
- Europe
- Africa
- Asia
- Oceania
- North America
- Caribbean
- South America

JAGUAR offers three different map styles, the standard "wing" station pointer (a station pointer appears when you hover the mouse over a station) and a special optional station pointer for the U.S. stations. The stations are displayed as stars on the maps, and the station names will appear next to the star, depending on the zoom level. The stars are colored based on your loggings and other notifications. Any map can be zoomed/relocated.

MAPS support additional services for any selected station (see the STATION MENU for details) and the tx patterns for the U.S. stations.

HOW TO

KEY = W and KEY = M

The standard MAPS are an essential part of JAGUAR and they can be accessed in many ways.

MAPS are one of the main wallpapers in JAGUAR, and the main wallpapers can be rotated by pressing the "W" key (the rotation cycle: HOME > HISTORY > YAS LOG > MAPS > CONDX). You also jump directly to MAPS by pressing "M".

When the map window appears, the currently-active continent will be shown. The continents can be rotated with the "Q" key (ALT-Q rotates the "DX areas", but keeps the map continent unchanged), or left/right-clicking or scrolling SLIDER > MAPS. Each map shows the day/night terminator at the time of playback. This terminator is automatically updated during the playback.

JAGUAR offers three different map styles: use SETTINGS > GRAPHICS > MAP_LAYOUT to select your favourite. With SLIDER > CONTRAST you can adjust the darkness of the day/night areas.

When you hover the mouse over a map area, you can zoom the map in/out by scrolling the mouse wheel or using "+" and "-" keys. You can also shift the map's location by using the mouse's drag-and-drop functionality.

If there are MW stations in the visible area of the map on the currently-active frequency, those stations will be displayed with a star on the map. The world map only shows stars, the more detailed continental maps also show station names. The default name shown is the

call/short name for each station; full station names will appear when you zoom closer to the desired area.

The stars and names on the map can have different colours, based on user-customizable P-tags (see P-TAGS for more details).

Stations with the transmitter power of 50kW or higher are displayed with a bigger star than the others.

When you move the mouse over a station on the map, by default, JAGUAR will show the following details:

- Station name = the transmitter
- Power of the transmitter
- Distance from the receive QTH to the transmitter
- Bearing from the receive QTH to the transmitter
- Sunrise / sunset times (UTC) at the transmitter location at the playback date
- If the pointed station is a US station, the currently active tx pattern is shown (day or night, depending on the current playback time)
- If the station has a listed offset, this offset is shown on the OFFSET BAR at the corresponding position using a "red ball" as the offset marker

You can select a special station pointer for U.S. / Canadian stations from SETTINGS > GRAPHICS > MAP_POINTER. You can see the local time at the transmitter location, etc. (more in the SETTINGS help).

If you left-click a station star, LOGBOX will appear. LOGBOX can also be invoked by left-clicking a station on the TURTLE database (more details in the LOGBOX help).

If you right-click a station star, the station popup menu appears. It can also be invoked by right-clicking a station on the TURTLE database (more details in the STATION MENU help).

The North America map has three small buttons on the top of the display. Moving the mouse cursor over any of them displays additional information as long as the cursor is kept over the button:

- Left: Px formats are shown instead of the station names
- Center: Day tx patterns are shown for the stations
- Rigth: Night tx patterns are shown for the stations

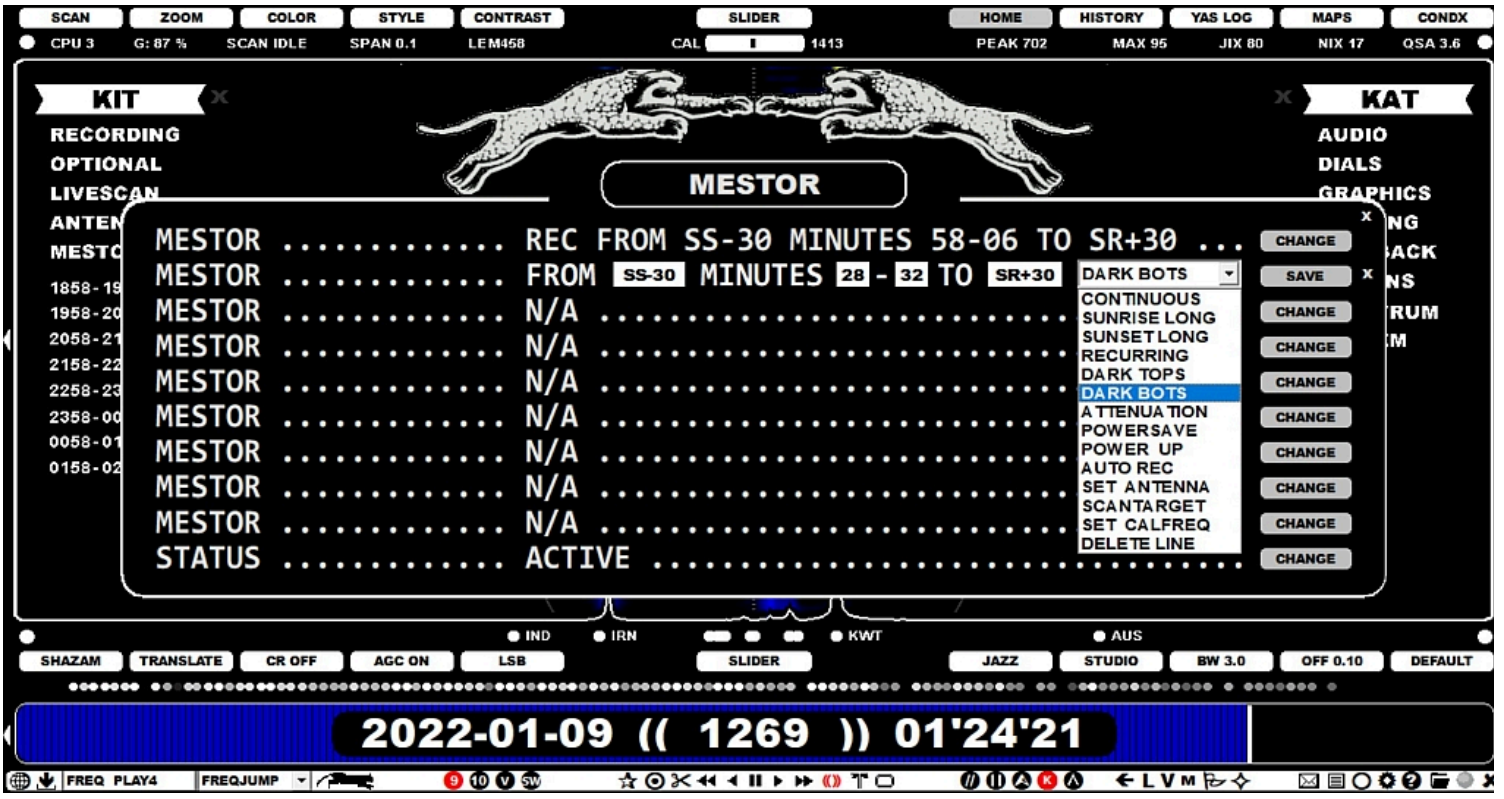
The pattern support requires requires that an additional pattern data package has been installed:

- Download the pattern data (of 40 MB in size, zipped) from TOOLBAR > WWW > DOWNLOAD > OPTIONAL FILES > PATTERNS.zip
- Unzip the data files into the folder named PATTERNS in your JAGUAR installation folder

You can exit MAPS by selecting any other display (for example by pressing the "W" key or by pressing the "M" key).

MESTOR

MESTOR is JAGUAR's schedule-based, automatic recording utility. All MESTOR definitions are given in the SETTINGS > KIT > MESTOR window. The currently active scheduler list is shown on the left panel of the SETTINGS dashboard; the list is sorted so that the next upcoming scheduled recordings are always on top. All times used in MESTOR are UTC (your PC time can be your local time).



You can define your basic operation environment (bandwidth, center frequency, recording disk, QTH, etc,) in the SETTINGS > KIT > RECORDING window; this MESTOR window is used to control the scheduled recordings only.

Most users leave JAGUAR running overnight in order to record TOHs (top-of-the-hours), BOTs (bottom-of-the-hours), or any other desired time periods, or even the whole night. The active scheduler list is automatically repeated daily. In addition, you can schedule changes in the operation environment (antenna, scan target) dynamically as part of the scheduling system.

In the example window above, a scheduler list has been defined which records top-of-the-hour periods beginning 30 minutes before the local sunset, these TOHs are recorded up to 30 minutes after the local sunrise. This definition can be done with a few mouse clicks thanks to the template driven "smart MESTOR". In addition to the TOHs, you can also schedule the recordings of the "bottom-of-the hours"; in the example that selection is just being made from the MESTOR template menu. The exact times/duration of recordings can be changed after the selection.

You have only nine rows available for defining the scheduler list for 24/7 recordings, makes it possible to record a maximum of 216 separate time periods (or independent files if the time periods are short) within one day; more than adequate for standard MW DX needs.

HOW TO

MESTOR can be opened by clicking TOOLBAR > SETTINGS > KIT > MESTOR. You can add/change the rows using the CHANGE button, left/right-clicking it.

The bottom row in the MESTOR window ("STATUS") is used to enable/disable the scheduler. You can disable it temporarily (for any reason: MW conditions are down, etc), just don't forget to enable it back again when leaving the setup unattended.

The rows above are reserved for the scheduler actions. The recording times defined by the MESTOR rows can be overlapping (MESTOR combines the settings into correct non-overlapping time slots) and also remembers the recording start times if JAGUAR is started in the middle of a recording slot. If you have defined a recording between 04:57-05:15 and you start JAGUAR at 05:03:22, JAGUAR will start recording at 05:04:00 and end it as scheduled at 05:15

Each MESTOR row definition is based on a template which is selected from the template menu. You can select any template to any row (ie. you use the same template multiple times) and even if some templates use sunrise/sunset based definitions (including "SS" or "SR", referring to your local sunrise and sunset times), you can replace any SS... or SR... with real fixed HHMM time in any textbox. Note that in order to use SUNRISE LONG/SUNSET LONG/DARK TOPS/DARK BOTS correctly, you must define your recording QTH and the corresponding coordinates first in the WORKSET > LOCATION window. On any MESTOR row you can freely edit the start/end times and any other value before saving the row (by pressing SAVE), after that the defined row is dynamically parsed and displayed as a real time scheduler list on the left frame.

NOTE: When exact hours and minutes are used in the templates, they must always be given as HHMM. The HH:MM format is not supported yet.

There are 13 pre-defined template options available:

- CONTINUOUS: define continuous recording giving start and end times
- SUNRISE LONG: define continuous recording around your local sunrise, exact start and end times are adjustable
- SUNSET LONG: define continuous recording around your local sunset, exact start and end times are adjustable
- RECURRING: define recordings giving the start and end times within one day and what minutes within each hour will be recorded
- DARK TOPS: record top-of-the-hours beginning around your local sunset and ending around your local sunrise
- DARK BOTS: record bottom-of-the-hours beginning around your local sunset and ending around your local sunset
- ATTENUATION: if you need attenuation for the night, define when you want to set the attenuation on and when off
- POWERSAVE: enable this feature if you are running a battery powered setup (JAGUAR will hibernate between recordings)
- POWER UP: enable this feature if you want to wake up JAGUAR for a specific period of time
- AUTO REC: enable this feature if you want JAGUAR to start recording when good cx appears on the MW dial
- SET ANTENNA: define a scheduled antenna switch
- SCANTARGET: define a scheduled change for the LIVESCAN target frequency set (MW10 <> MW9)
- SET CALFREQ: define a scheduled change for the calibration frequency (FAST_CALIBRATE)
- DELETE LINE: remove an active row from the scheduler

MESTOR EXAMPLES

To give you an idea of what you can do with MESTOR, here are a few examples. You can creatively combine these examples and templates for your own purposes.

Example 1: Classic "top-of-the-hour" 21-05: if you want to capture TOHs from 21 UTC to 05 UTC (8 minutes per TOH, creating files 2058-2106, 2158-2206, ..., 0458-0506), you can select the RECURRING template and edit the times as follows:

```
MESTOR ..... FROM 2055 MINUTES 58-06 TO 0510
```

Example 2: Short "top-of-the-hour" between 22-06 (2159-2201, 2259-2301, etc) plus the COPE breaks at 22:55-23:00 UTC: Add one row using the RECURRING template defining only two minutes for the exact TOH and another row using the CONTINUOUS template defining time slot 2254-2301 UTC.

The COPE break recording partially overlaps with the TOH definition but it does not matter. Also the exact FROM and TO times in RECURRING can be anything before and after the exact recording period (including the exact start minute of the first recording etc).

```
MESTOR ..... REC FROM 2159 MINUTES 59-01 TO 0601
MESTOR ..... REC FROM 2254 CONTINOUSLY TO 2301
```

Example 3: Prolonged "top-of-the-hour" recordings at night (15 mins starting at XX'54), long recording (3+ hours) in the morning starting at 0252 and using the attenuator during the night. We need one RECURRING template, one CONTINOUS template and one ATTENUATION template for this.

```
MESTOR ..... REC FROM 2150 MINUTES 54-09 TO 0210
MESTOR ..... REC FROM 0252 CONTINUOUSLY TO 0615
MESTOR ..... SET 0305 ATT0 SET 2000 ATT1
```

Here the attenuation can be set at any time before the start of the night time recording (JAGUAR will do the attenuation switches even JAGUAR is started after the exact defined switch time). Here the attenuation is set OFF (ATT0) at 0305 UTC (and also here JAGUAR will do it later if it notices that attenuation is ON even when the time is past 0305 UTC). Attenuation switches can be done during recording.

Example 4: Record "top-of-the-hours" (for 10 minutes, XX57-XX07) and "bottom-of-the-hours" (5 minutes, XX27-XX32) whenever it is dark in the recording QTH. This one is easy: pick the DARK TOPS and DARK BOTS templates and modify the times as follows:

```
MESTOR ..... REC FROM SS-30 MINUTES 57-07 TO SR+30
MESTOR ..... REC FROM SS-30 MINUTES 27-32 TO SR+30
```

The effective recording window here starts 30 minutes before the local sunset (changing daily) and ends 30 minutes after the local sunrise. These can be tuned as needed.

Example 5: Overnight recording. Let it roll from 2058 to 0910. Easy - one template (CONTINUOUS) needed:

```
MESTOR ..... REC FROM 2058 CONTINUOUSLY TO 0910
```

Example 6: Switch to the EASTCOAST antenna at 2030 and to the AUSTRALIA antenna at 1430. This requires that you have defined the ANTENNAS settings window. The switches can be done by activating two SET ANTENNA rows. Note that the antenna switches are "single events": if you start JAGUAR after the switch time has passed, you must make the antenna switch manually to the correct antenna.

```
MESTOR ..... SET ANTENNA EASTCOAST AT 2030
MESTOR ..... SET ANTENNA AUSTRALIA AT 1430
```

Example 7: Switch to LIVESCAN MW10 at 2030 and to LIVESCAN MW9 at 1430. The switches can be done by activating two SCANTARGET rows. Note that the scan target switches are "single events": if you start JAGUAR after the switch time has passed, you must make the scan target switch manually to the correct frequency set.

```
MESTOR ..... SET SCANTARGET MW10 AT 2030
MESTOR ..... SET SCANTARGET MW9 AT 1430
```

You can mix the CONTINUOUS/SUNRISE LONG/SUNSET LONG and RECURRING/DARK TOPS/DARK BOTS settings in any combination you like - or you can override any time setting in them from SR/SS to fixed HHMM and vice versa. SR and SS denote for local sunrise and local sunset, and you can shift the exact SR/SS times in the settings by adding or subtracting minutes from the exact SR/SS time, for example:

```
SR = exact local sunrise time
SR-30 = 30 minutes before the local sunrise time
```

```
SS+60 = 60 minutes after the local sunset time
etc.
```

However in this version the SET ANTENNA and SCANTARGET times require the HHMM format.

ADVANCED USAGE

Besides controlling the wideband recordings, MESTOR also offers some special timed services and a support for changing the "operating environment" on-the-fly.

POWERSAVE: If you are running JAGUAR in a battery-driven environment, the POWERSAVE option is recommended: activate the POWERSAVE template, no parameters are needed for this.

```
MESTOR ............. Hibernate when not recording
```

POWERSAVE requires that the following operating system settings are in place for correct functionality, i.e. that your computer must support wake-up timers, and they must be enabled. Also, the wake-up logon must be disabled in Windows:

- Control Panel > Hardware and sound > Power Options > Change plan settings > Change advanced power settings
- Sleep: Allow wake timers: Enabled
- (For current plan): Require a password on wakeup: No (This can be greyed out. If so, click "Change settings that are currently unavailable" > Now also "No" option becomes available)
- Other sleep options should be "Never"

AUTOREC: Using this option the system will activate recording whenever "good MW cx is detected". This can be the only recording option in MESTOR - or it can be bundled with other recordings if the user does not record continuously overnight. The "good MW cx" is not based on space wx indicators, instead it relies on the JIX value (see GUIDE > JIX for more details). The user can select the target (MW9 or MW10) and the JIX threshold value for recording. When this user defined JIX value exceeds the threshold, recording is triggered automatically up to when JIX goes down again.

This is kind of a "Mickey Mouse implementation" and not useful in Lapland where also during low JIX exotic stations can be heard; however, this system will be improved in the upcoming versions. For example, the AUTOREC trigger could be some specific offset ("start recording if the carrier on a given offset increases high enough") - that offset could belong to an indicator station for user's favorite signal area or that offset could belong to the user's "most wanted station" etc. In JAGUAR V10 only this JIX based AUTOREC is available using the AUTO REC template. In the example below recording is started when the MW10 JIX value exceeds 30 and ends when the JIX value goes below 30:

```
MESTOR ............. REC WHEN MW10 JIX > 30
```

TARGET SUNRISE/SUNSET RECORDER: An extra recording option is available for specific "DX target" hunting: it is also possible to record during the sunrise/sunset times of the desired target station(s). Any station can be selected: right click the station on TURTLE or MAPS and select "RECORD SR" (or "RECORD SS") from the STATION MENU. This creates automatically a MESTOR row for recording between 30 mins before that "target SR" (or "target SS") and 30 mins after that SR (or SS). Those start/end minutes can be edited if needed. When this is added to MESTOR, the system takes care of the target SR (or SS) updates every day.

For example, if "RECORD SR" is selected for R Gibraltar on 1458, the MESTOR entry will look like

```
MESTOR ............. REC FROM SR-30 (( R Gibralt )) TO SR+30
```

and JAGUAR will change the exact start time of the recording daily based on the exact sunrise time in Gibraltar.

MWLI

MWLI (www.mwlist.org) is a unique database of worldwide radio stations on longwave, mediumwave and shortwave. MWLI powers various things like the mediumwave section of fmscan.org, the mwoffsets file and an online logbook site.

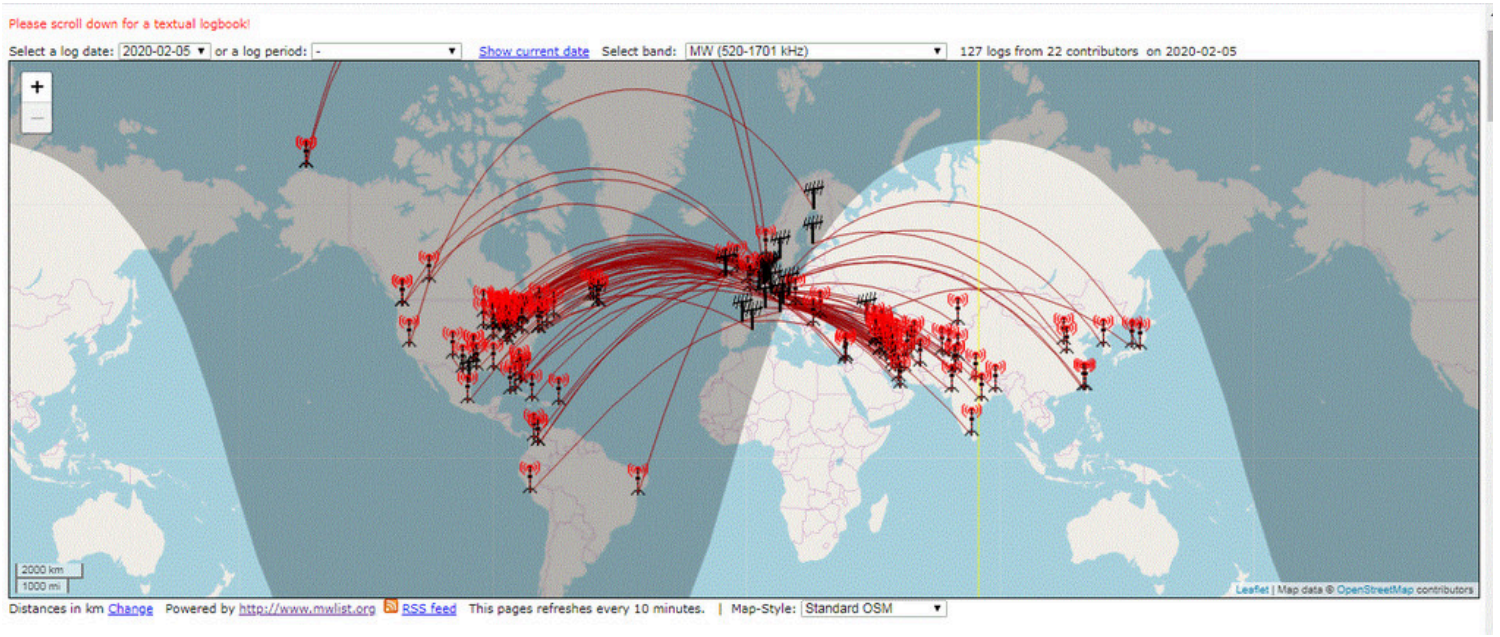
It is a non-commercial hobby project and open for everyone to contribute and use.

JAGUAR leverages several MWLI services:

- Monthly TURTLE database is based on the MWLI database, with additional important US/CAN-related information
- Direct access from JAGUAR to the MWLI Visual Logbook
- Direct submission of loggings to the MWLI Logbook from JAGUAR

The first two options are available for all JAGUAR versions. The third option is available in JAGUAR PRO provided that MWLI account credentials have been set in JAGUAR.

Below you will see an example of how the MWLI Visual Logbook looks like. When triggered from JAGUAR, the map opens up in a standard browser window with worldwide loggings made on the day currently playing in JAGUAR. The database-like logbook of the same can be found when you scroll the browser page down.



HOW TO

The monthly TURTLE databases can be downloaded from DATABASE BAR (see the DATABASE BAR help for details).

You can invoke the MWLI Visual Logbook from TOOLBAR > M > MWLI LOGMAP.

JAGUAR PRO ONLY

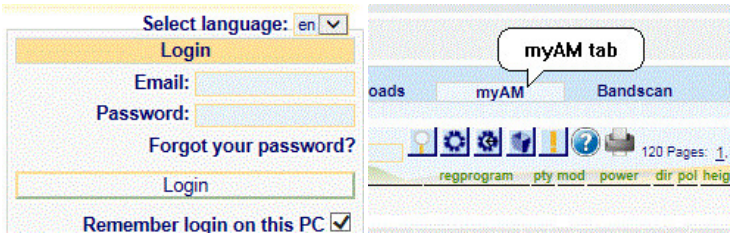
If you want to submit loggings to MWLI, you must enable it by defining SETTINGS > LOGGING > LOG_TO_MWLI > YES. When LOG_TO_MWLI is enabled, two new parameters (=your MWLI credentials) will appear in the SETTINGS box:

```
EMAIL ................ your.email@xxxx.com
OMID ................. omid value
```

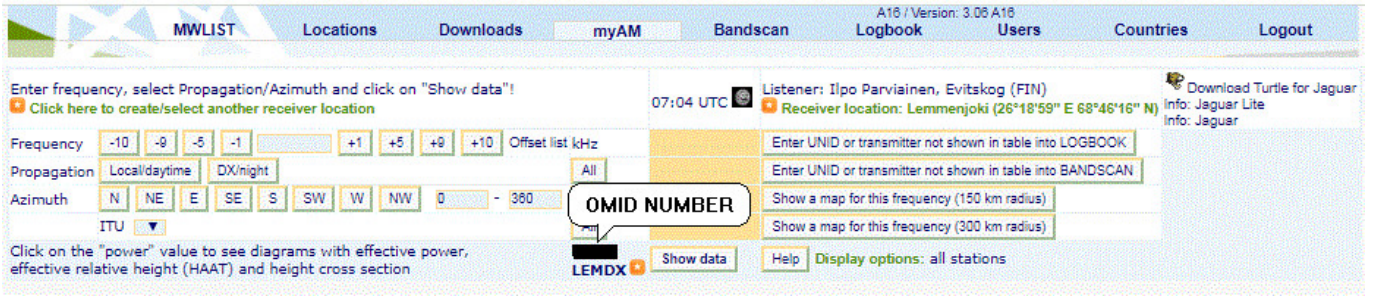
If you have set these two lines, you can then submit your loggings to MWLI.

- EMAIL = must contain the email address which you have registered with MWLI.
- **omid** is the numerical value found in your MWLI profile under MWLI's "myAM" properties tab.

If you are unsure of your omid number, you can check it by logging in to the MWLI at https://www.mwlist.org, clicking the "myAM" tab and picking up the number shown below the "myAM" on the details page.



In this example, the omid is blurred for security reasons.

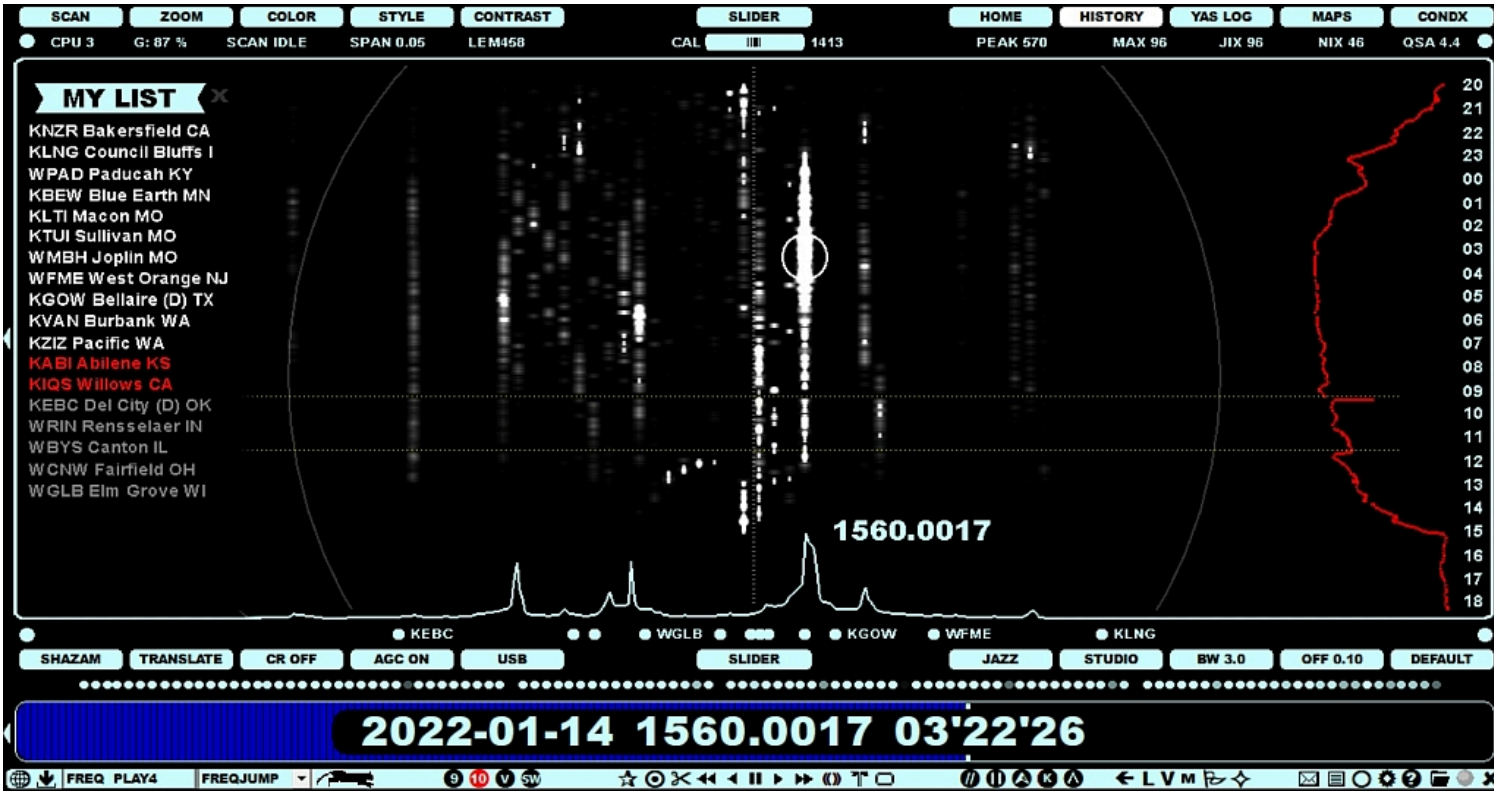


When you have set your MWLI credentials, you can submit a test logging to MWLI; instructions can be found in LOGBOX.

MY LIST

JAGUAR PRO ONLY

The MY LIST (or "HEARD") function lists all your tagged stations (see P-TAGS for details) on the left side, sorted by the P-TAG.



When MY_LIST is active, also FLAGS, OFFSETS (below SPECTOR) and the TURTLE rows will show only the stations that are tagged.

HOW TO

KEY = H (HEARD / MY LIST)

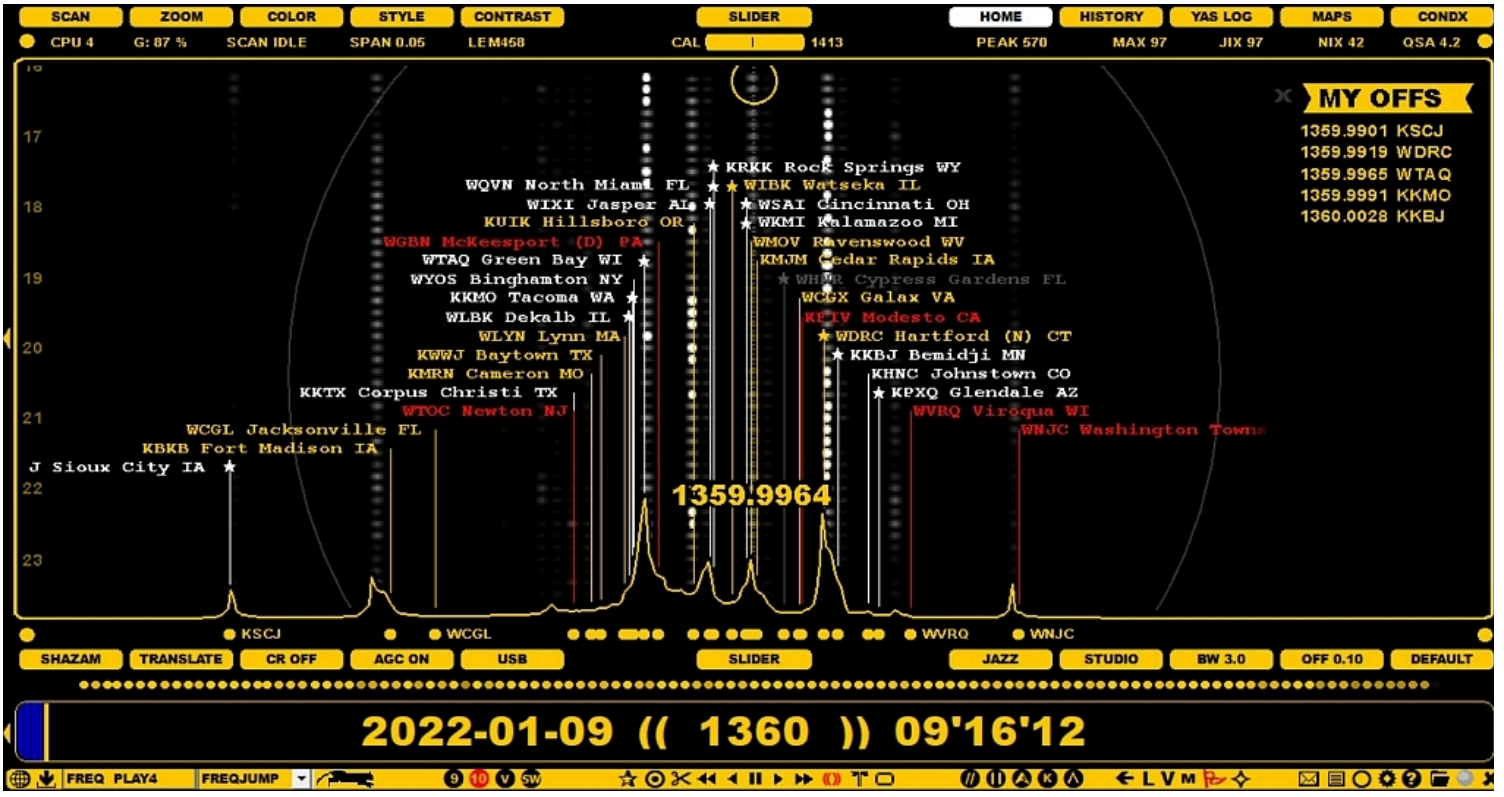
MY LIST can be opened/closed pressing the "H" key or clicking the "MY LIST" button on the left edge of the STATUSBAR.

The list can be scrolled/dragged up/down.

MY OFFSETS

JAGUAR PRO ONLY

There are two types of offsets in JAGUAR: public and private. Public offsets are presented as FLAGS (see FLAGS for more details), private offsets are available only as text format.

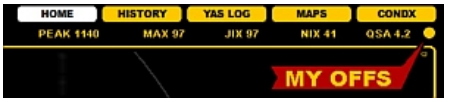


We highly recommend to share your offset observations with other users, that's the essential idea in using the offsets in MW DXing. The goal is to collect and share a lot of timestamped offset data so that in the future we'll get better matching offset displays, including "offset history" in a visual format. That's why the public offset logging has been made as easy as possible: just drag the flag with your mouse to the correct carrier location. The more reliable time specific offset information we'll get for the JAGUAR displays, the more successful our DX results will become in the future.

However, if you prefer to collect/maintain only your own offset list locally, this is also possible.

HOW TO

You can open/close your "private offset collection" by clicking the "MY OFFS" button on the right edge of the STATUSBAR.



User's private offsets are maintained in the OFFSETS.txt file, located in the Jaguar installation folder. You can edit that file manually, either using the standard Notepad or TOOLBAR > TEXTPADS > OFFSETS.

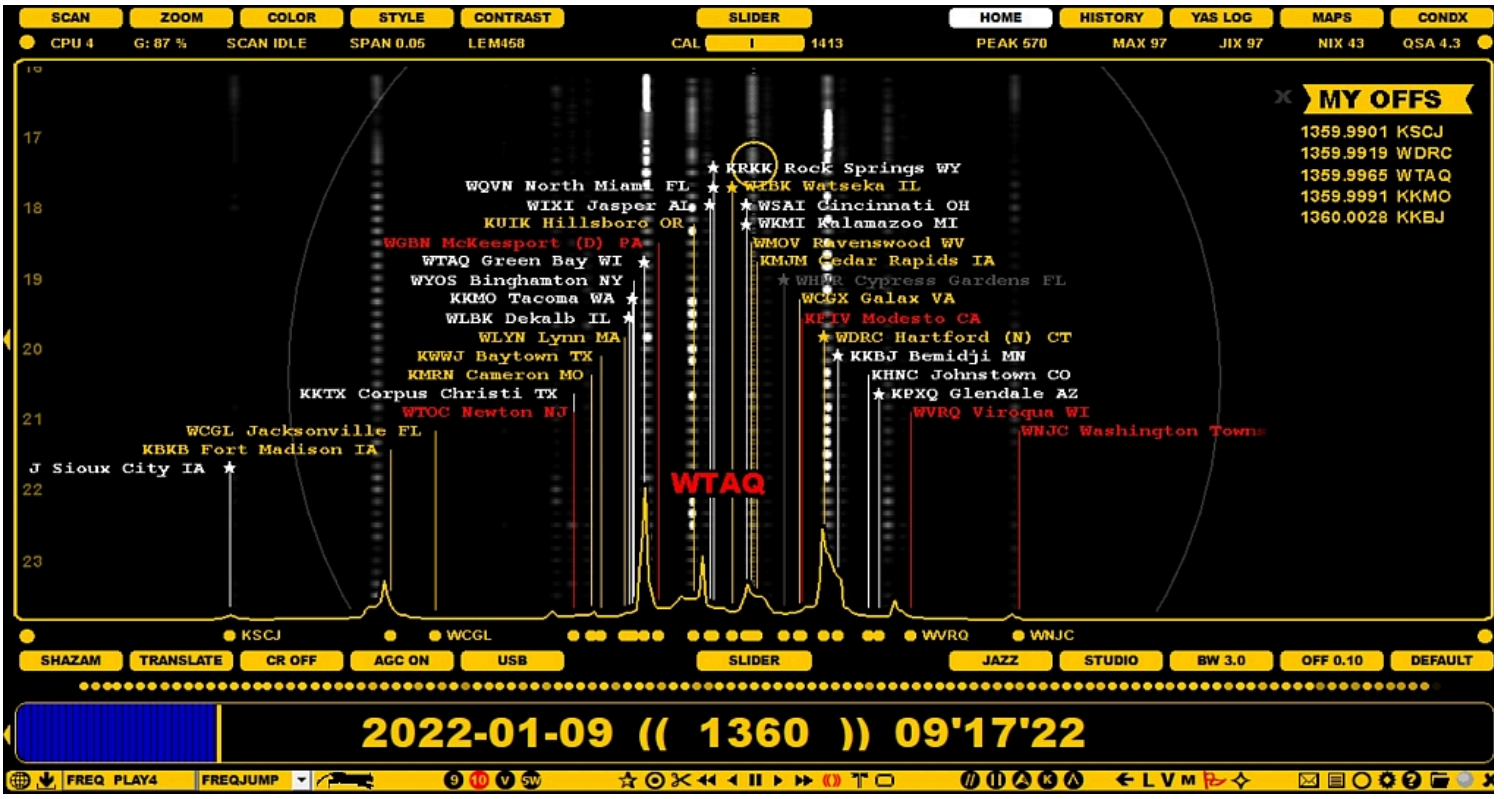
The OFFSET.txt file contains "frequency (with four decimals), short name (max 9 chars)"-pairs, one pair per line, for example

1240.0022, KDLR

Editing this file is straightforward and this way you can maintain your own offset collection without making them "public", but the power of the offset tool depends on sharing: the more we get time-stamped offset observation to our Kapsi server, the more DXers will benefit in the long run. Jaguar's "MY OFFSETS" and the "MWLI offset list" do not offer the time-stamp support, so you never know how valid the offset presented in these two systems are, that's why Jaguar's (public) OFFSETS system should be preferred as much as possible.

Sometimes you may find an interesting offset that needs to be monitored in the future. You can define a "trap marker" for this offset (see VOYAGER for more details).

If you find the manual editing of the OFFSETS.txt file too clumsy, you can activate SETTINGS > GRAPHICS > IDENTIFIERS > YES. If this feature is active and you move the mouse cursor over the SPECTOR peak, JAGUAR tries to identify the station on that carrier and shows the "best bet" for that peak (see IDENTIFIERS for more information):



If you click that "best bet", you'll get a small update panel:

You can click SAVE to update your OFFSETS.txt file (the public offset system is not updated) - or you can change the proposed station ID before SAVE, if the system has made a wrong bet.

Using IDENTIFIERS you can collect a local private offset collection without editing the OFFSETS.txt file itself.

NAVIGATION

During the playback, you can set the time point of the playback just by clicking anywhere on PLAYBAR; this is the most often used function in JAGUAR. Note that this is possible also in the LIVE mode, because JAGUAR constantly keeps a 10-minute (or 8-minute) temporary recording buffer.

In addition, there are multiple ways of navigation both in the time and in the frequency space. Your preferences may vary; some prefer navigation with the keyboard, some with the mouse, and often the two ways are combined.

Basic navigation can be done fully with the keyboard keys or with the mouse via PLAYBAR and TOOLBAR; however, normally, you utilize JAGUAR displays in navigation. Several displays show the mouse cursor based "flag pointer" which often shows the frequency and/or time. When the flag pointer has a bright color, you can jump to that frequency/time by clicking the corresponding spot. This is the "point-and-shoot" method. Note that if the pointer flag colour is dimmed, usually no recording exists at that time so you cannot use the "point-and-shoot" method.

The "point-and-shoot" method for frequencies is available on

- BOTTOM BAR (FREQS)
- SPECTOR (the bottom of SPECTOR, i.e. OFFSET BAR is available for jumping to the desired offset without changing the playback time)
- BOTTOM WINDOW (BANDVIEW)
- LOCATOR / FREQLIST / HOTLIST

The "point-and-shoot" method for times is available on

- CONDX
- LOG DESK (TOHLOG)
- BOTTOM WINDOW (HISTORY)
- FILEPOOL
- VOYAGER

The "point-and-shoot" method for both frequencies and time is available on

- HOME and HISTORY displays
- YAS LOG displays
- DAYLOG

Detailed descriptions about the displays can be found in the respective helps. This help only descibes the basic navigation tools available on PLAYBAR and TOOLBAR.

In addition, JAGUAR contains new easy large time-navigation buttons called "JUMPERS" (see JUMPERS), and the "NUMBERS" feature for keyboard heavy-users (see NUMBERS).

HOW TO

SUMMARY: PRIMARY NAVIGATION WITH KEYBOARD KEYS

- Press "O" to open a new file for playback
- Press "L" to toggle the LIVE mode and last played ARCHIVE file
- Type a frequency and press ENTER to jump to that frequency
- Press "N" or "P" to jump to the next/previous file
- Press SPACEBAR (or UP ARROW KEYS) to audio-loop a given time period

SUMMARY: PRIMARY NAVIGATION WITH MOUSE

- Click TOOLBAR > OPEN to open a new file for playback
- Click TOOLBAR > LIVE<>ARCH to toggle the LIVE mode and last played ARCHIVE file
- Click a frequency from BOTTOM BAR > FREQS to jump to that frequency
- Click TOOLBAR > NEXT FILE or TOOLBAR > PREV FILE to jump to the next/previous file
- Click TOOLBAR > NEXT TOH or TOOLBAR > PREV TOH to jump to the next/previous top-of-the-hour
- Click TOOLBAR > LOOP to audio-loop a given time period

Scrolling, either with the mouse wheel or left/right arrow keys, can also be used for changing the time points or the frequencies. The scroll target (time or frequency) depends on the mode you have selected: frequency scroll or time scroll. The currently-active mode can be easily seen on PLAYBAR.

FREQUENCY MODE

TIME MODE

SUMMARY: SCROLLING WITH KEYBOARD KEYS (MOUSE CURSOR ON PLAYBAR)

- Press "Z" to select the desired scrolling mode: frequency scroll or time scroll
- In the frequency-scrolling mode, you will see the "(( ))" brackets around the frequency. Scroll the frequencies up/down with the left/right arrow keys
- In the time-scrolling mode, the "(( ))" brackets disappear and you will see the exact frequency with 4 decimals. Scroll the seconds backward/forward with the left/right arrow keys

SUMMARY: SCROLLING WITH MOUSE WHEEL (MOUSE CURSOR ON PLAYBAR)

- Click the TOOLBAR > FREQ SCROLL "(( ))" icon to select the desired scrolling mode: frequency scroll or time scroll
- In the frequency-scrolling mode, you will see the "(( ))" brackets around the frequency. Scroll the frequencies up/down with the mouse wheel
- In the time-scrolling mode, the "(( ))" brackets disappear and you will see the exact frequency with 4 decimals. Scroll the seconds backward/forward with the mouse wheel

Note that the mouse wheel scroll for time and frequencies is available only when the mouse is over PLAYBAR.

Whenever the mouse cursor is over the frequency area, the "(( ))" brackets will appear around the frequency and you can change the frequency with the mouse wheel (or left/arrow keys).

TIPS

- Direct entry of the hour: you can type any of the full hours (0-23) and press ENTER. The control will jump to that TOH within the current DX DAY if a recording is available containing the given time point. More these kind of direct "keyboard jumps" are presented in the NUMBERS section.

- "TIMEWHEEL" is always available: it can be used to change the individual elements of the string on PLAYBAR by scrolling the mouse wheel or the arrow keys when the mouse is moved over the

element you want to to tune. See more details in TIMEWHEEL.

- "FILEWHEEL": Move the mouse cursor at either end of the PLAYBAR and scroll: files can be scrolled extremely quickly this way.

- - Stepping in frequency-scrolling is normally done in steps of 9 kHz or 10 kHz. The stepping mode can be changed by clicking TOOLBAR's stepping icons. Some special stepping modes (VFO, SHORTWAVE, COMPARE) can also be selected from TOOLBAR.

- TOOLBAR > COBRA can be activated if you want to select the "best offset" (strongest carrier peak) automatically for playback on the given frequency. See COBRA for more details. And finally:

- TOOLBAR > JAGRUN scripts can be selected and activated to fully automate the entire playback process: see JAGRUN for details.

NOTCH

Generally, NOTCH is used to eliminate sharp peaks in the audio spectrum, typically hets/whistles, but they can also be peaks on lower frequencies. JAGUAR PRO offers a special AUTONOTCH designed for MW listening. JAGUAR PRO also allows a maximum of 20 manual notches to be set.

AUTONOTCH is a "safe" notch as it can be kept always on without negative side effects in the audio.

HOW TO

AUTONOTCH is always on by default, but JAGUAR PRO users can toggle it also off in SETTINGS > AUDIO > AUTONOTCH.

Unlike "typical" autonotches, JAGUAR's autonotch is not based on continuous scanning of the audio spectrum so there can be carriers/interference anywhere in the spectrum not cleaned by the autonotch. Those must be handled manually. We know from experience that a "scanning autonotch" often causes more harm than benefit so experienced MW DXers normally do not use classic autonotches.

JAGUAR's autonotch never checks whether there really are hets/whistles/peaks in the audio; it just relies on the AM frequency spacing. A better name for this feature would be "Trans-Oceanic Autonotch". When you listen to 10-kHz-spaced frequencies, the autonotch works on the potential hets e.g. caused by nearby EU frequencies but when you listen to 9-kHz-spaced frequencies, the autonotch works on the potential hets caused by the 10-kHz-spaced frequencies. This is mostly useful for listeners in the USA. Otherwise, every other annoying het must be notched manually.

So, JAGUAR's autonotch handles only 1 kHz / 2 kHz / 3 kHz / etc. hets, based on the nearby EU (or U.S.) frequencies. When AUTONOTCH is enabled, it takes the hets away from both sides of the SSB modes, based on the frequency you are listening to. For example, if you are on AM 1030, the autonotch will always clean 4 kHz and 5 kHz when on LSB or USB.

JAGUAR PRO ONLY

The notch can be seen as a triangle if SETTINGS > GRAPHICS > AUDIO_ON_TOP has been enabled. The notch can be removed by clicking that triangle and new notches can be added by clicking any position (usually on a stable het peak) on that audio curve.

You cannot directly re-adjust the position of AUTONOTCH, but those notches can be tuned in AUDIO WINDOW. Notching (auto & manual) always removes a part of the "raw audio" so it is a challenging game. Some experienced DXers are very critical about classic autonotching but they can accept this type of "safe autonotching", and can keep AUTONOTCH always on by default.

MANUAL NOTCHES

MANUAL NOTCHES can be added/trimmed also in AUDIO WINDOW. See details in the AUDIO WINDOW help.

NUMBERS

Many DXers regard the keyboard shortcuts as the fastest way to control and operate an application. JAGUAR offers dedicated keyboard shortcuts for the most important functions (see KEYBOARD). In addition, the keyboard number keys can be used for quick navigation of frequencies and times.

All time jumps given by NUMBERS will happen within the current "DX DAY" (20:00-20:00 UTC), so the real date itself can change when the given hour is located beyond 00:00 UTC (DX DAY hours are 20, 21, 22, 23, 00, 01, 02, etc).

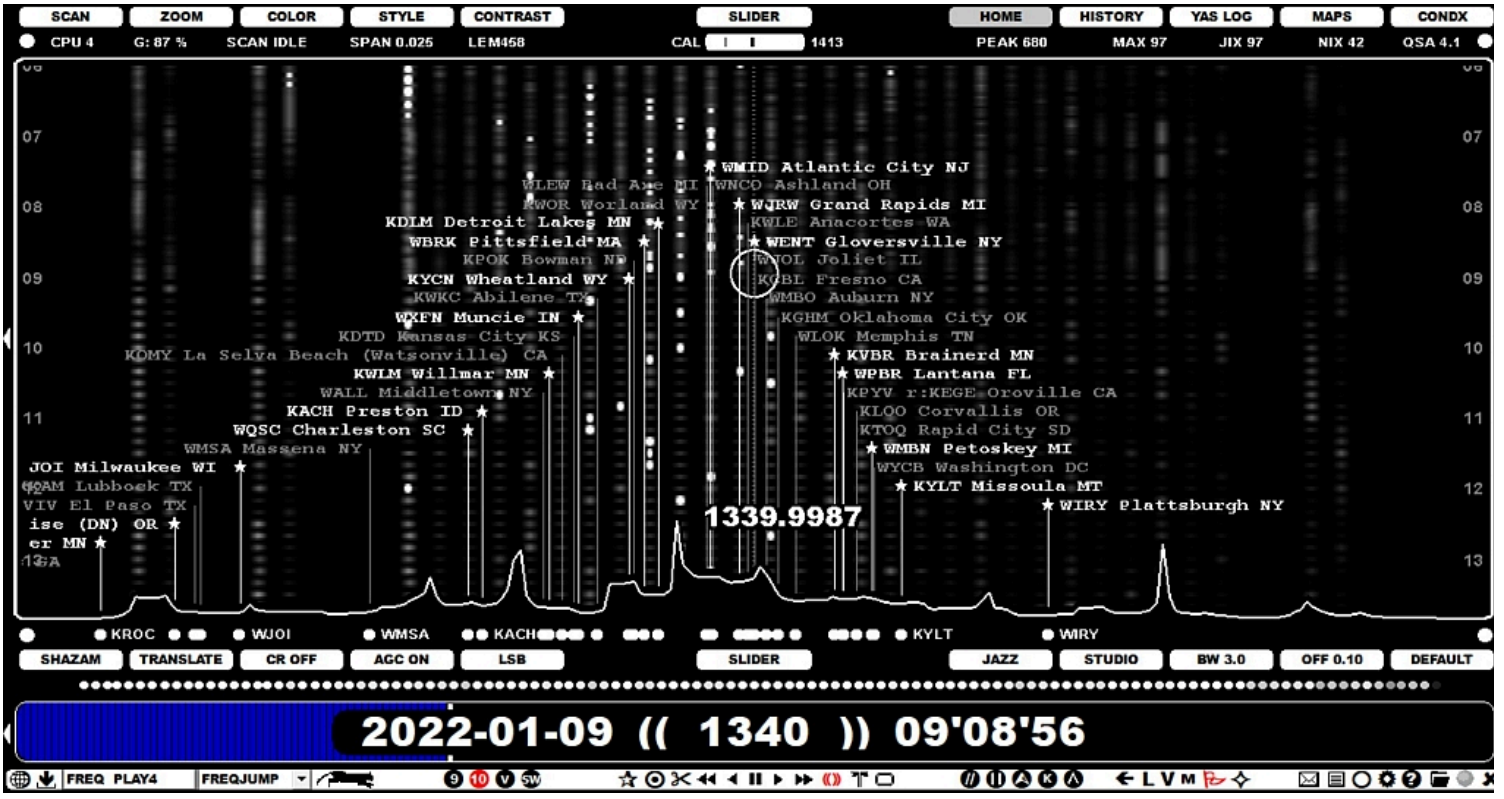
HOW TO

When JAGUAR is your currently active Windows application, you can just enter the frequency or time with the keyboard number keys and press ENTER. JAGUAR recognizes if the given number is a frequency and a time. Here are some examples (after typing the numbers, ENTER must be pressed):

```
873 - Jump to the frequency of 873 kHz

1530 - Jump to the frequency of 1530 kHz

8 - Jump to 08:00 UTC

13 - Jump to 13:00 UTC

04:37 - Jump to 04:37 UTC
```

OFFSETS

JAGUAR PRO ONLY



There are two types of offsets in JAGUAR: public and private. Public offsets are presented as FLAGS (see FLAGS for more details), private offsets are available only as text format (see MY OFFSETS for more details).

The public offsets consists of the offsets listed in the MWLI offset database and the offsets collected by JAGUAR users (and saved to the Kapsi server, which is the central server of all the JAGUAR services). The MWLI offsets are included the TURTLE database (see TURTLE for more details), the JAGUAR offsets are loaded and displayed dynamically from the server whenever needed.

In addition to the FLAGS, public offsets are also displayed as "offset balls" below the SPECTOR curve. These dots are always visible but due to large numbers of offsets many of them are overlapping and all the names can't be shown. By default the positions are based on the MWLI offsets, but if you have FLAGS open, also the Kapsi offsets are included. Clicking any of the balls tunes the playback to that exact offset and right clicking the ball triggers the STATION MENU.

When a new offset is observed, it is recommended that you share your offset observation with fellow DXers and log the new value to the system - the logging process has been made as easy as possible.

At the moment we collect the offset data to our Kapsi server because we need services that the MWLI offsets list can not provide. If you want to log the offset also to the MWLI offsets list, you can use the standard MWLI services for that. Generally it would be optimal to keep all the global offset information in one place, hopefully this will be possible in the future.

HOW TO

The offsets can be displayed on the SPECTRA displays enabling the FLAGS from TOOLBAR > FLAGS and the offsets shown are based on the selected continent.

Offset monitoring/analysis/updates require that calibration is on spot (see KALIBRATE).

If you notice that the current offset value on the flag is not on a correct position, just drag it to the correct place! Move the mouse cursor on the top of the flagpole (you'll see the station name as red) and drag the flagpole to the x-position which matches the new SPECTOR peak of the selected station. The new value is added to the system automatically (and visible to other JAGUAR users immediately). Your P-TAG is also updated as "LOGGED" (if the station is not yet tagged).

You can cancel the update by pressing ESC as long as you are tuned on the currently played frequency.

There are also cases where there is no earlier offset listed and you can't "drag the flag". You can add a new offset in the following way:

- Tune to the exact offset
- Select the target station from TURTLE or MAPS and right click => STATION MENU appears
- Select OFFSETS > ADD NEW and reply YES for confirmation

The color scheme of the FLAGS can be customized and the offset history and range can be shown on the SPECTRA display (see FLAGS for the details).

PANTS

JAGUAR PRO ONLY

PANTS, or Playback antennas. Hardcore DXers often use many Perseus setups for recording simultaneously on a DXpedition, each setup saving recordings to an external hard disk. When a specific recording is analyzed later, it can be very useful to check how signals were heard by the other setup(s) at the same time; sometimes the identity of a station can quickly be solved with the help of a recording from the other setup.

PANTS serves as a "virtual antenna switcher in the ARCHIVE mode". You can set the "a" key as the "playback antenna switcher". Then you can rotate two hard disks in the ARCHIVE mode just as pressing the "a" key rotates the antennas in the LIVE mode. This makes it easy to compare the signals between different antennas on the currently-playing frequency/time point.

If no recording exists on the selected disk, "NO HITS" will be shown, and PANTS stays silent, showing the playback time until you switch back (or to the next hard disk).

PANTS is also available if you have moved your recordings from various hard disks to one hard disk (in separate folders) after the DXpedition.

HOW TO

KEY = A

Normally, pressing the "a" key is used for rotating the antennas (and opening up the ANTENNAS screen). You can override the default function and re-define the "a" key for the PLAYBACK ANTENNA switcher by defining a PANTS plugin in SETTINGS > PLUGINS.

For example, if you have the external hard disks L:\ and O:\ in place for JAGUAR recordings, you can set PANTS as follows:

```
PANTS=L,O
```

and you can use the "a" key for toggling the recordings on the L:\ and O:\ disks.

The currently active disk setup is displayed on the AUDIOBAR as "PERSEUS1" or "PERSEUS2" (in this example the L-disk is "PERSEUS1" and the O-disk is "PERSEUS2":

These "PERSEUS1" and "PERSEUS2" labels can be changed with an additional PLUGIN line PANTS_LABELS, for example

```
PANTS_LABELS=EASTCOAST,WESTCOAST
```

will show "EASTCOAST" and "WESTCOAST" as the button names:

You can also set file paths instead of hard disk letters in PANTS (thus making it possible to use the same disk); for example, if you set

```
PANTS=F:\PRec\PAX128-Disk1,F:\PRec\PAX128-Disk2
```

you can toggle the two folders by pressing the "a" key.

PLAYBAR

PLAYBAR is the heart of JAGUAR, showing the progress of the playback. The length of each playback file is adjusted to cover the full screen width, and you can jump to the desired time point by clicking on PLAYBAR. The playback of a recorded file ("ARCHIVE MODE") and the playback when connected to the Perseus hardware ("LIVE MODE") are displayed in an almost identical way (Perseus playback uses a buffer file). More details can be found in the ARCHIVE MODE and LIVE MODE helps.

The progress bar color can be:

- Blue (ARCHIVE MODE)
- Green (LIVE MODE, no recording)
- Red (LIVE MODE, recording)

JAGUAR supports two main "scrolling modes" when the mouse is over PLAYBAR: TIME SCROLL and FREQ SCROLL.

When the active scrolling mode is FREQ SCROLL, the frequency portion of PLAYBAR is surrounded by "((XXX))", and the scrolling function changes the nominal frequencies based on the selected frequency-stepping.

When the active scrolling mode is TIME SCROLL, the frequency portion of PLAYBAR shows the exact offset played as "XXX.XXXX", and the scrolling function changes the time instead of the frequency.

A small triangle below PLAYBAR shows the exact position of a TOH (top-of-the-hour) / BOT (bottom-of-the-hour) if such is included in the playback/buffer file. JAGUAR tries to keep the TOH position centered at the display, in these cases you'll also have a colored area ("the ID area").

Further, PLAYBAR supports some special functions as described below.

HOW TO

KEY = Z

The scrolling modes FREQ SCROLL and TIME SCROLL can be toggled by pressing the "z" key. Alternatively, you can toggle them by clicking TOOLBAR > "(( ))" icon (the FREQ SCROLL icon).

You can also temporarily always override the TIME SCROLL mode by moving the mouse over the frequency: "XXX.XXXX" will change to "((XXX))", and you can scroll the frequencies (with the mouse wheel or left/right arrow keys) as long as the mouse is positioned over the frequency display.

If you work with other applications at the same time while listening to JAGUAR, the focus of the keyboard / mouse wheel is then often reserved by some other application. You can put the focus back to JAGUAR in the standard Windows way (for example, by pressing ALT-TAB). If PLAYBAR is visible, you can also just move the mouse over PLAYBAR's frequency display, and JAGUAR will steal the focus for the keyboard / mouse wheel automatically.

The little triangles at the both ends of PLAYBAR can be clicked to jump to the previous/next file (in the LIVE mode only to the previous file). When the mouse cursor is over that triangle, you can scroll the files very quickly using the mouse wheel and/or the left/right arrow keys.

PLUGINS

JAGUAR PRO ONLY

A number of miscellaneous dynamic settings and customizations can be set via SETTINGS > PLUGINS. PLUGINS are usually added by request, making it possible to tailor the GUI/functionality for individual usage needs

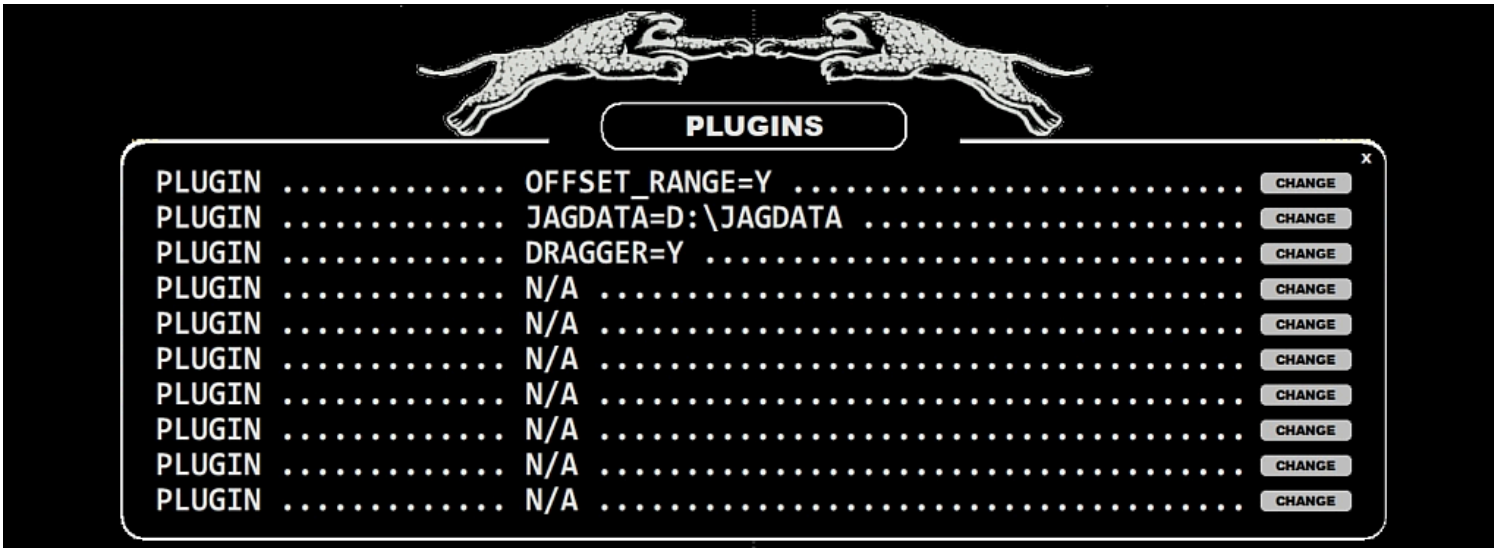
JAGUAR supports the following PLUGIN parameters:

- BEACONS
- CATBOOK_QSL
- CLIP_FOLDER
- CLIP_MAX_SIZE
- DEFAULT_ATT
- DRAGGER
- DUALMON
- FLAGS_ON_MAPS
- HOLD_MESTOR
- JAGDATA
- LOG_PROFILES
- MEGAPOOL
- OFFSET_RANGE
- PANTS
- PANTS_LABELS
- PERSEUS_DITHER
- PERSEUS_PREAMP
- POWERSAVE
- QSL_ARCHIVE
- REDO_RESTART
- WWI
- XADJUST

Below you will find the detailed descriptions of the PLUGIN parameters.

HOW TO

When the PLUGINS window is open, a new plugin can be added by clicking the "CHANGE" button on the right, typing the PLUGIN definition into the corresponding text box, and then clicking "SAVE". For example, the PLUGIN window can look like this:



BEACONS=fq1,fq2,fq3,...

In the LIVE mode the CONDX > CURRENT display shows the strongest overseas peak frequency (="DX PEAK"). Sometimes there can be NDB frequencies in your neighborhood that "steal" the peak value from the real overseas signals (for example in the Southern Finland the nearby Russian beacons are often the strongest frequencies on the MW10 channels). In these cases you can block those NDB frequencies from the DX PEAK enumerating them with this BEACONS option.

CATBOOK_QSL=N

If you set CATBOOK_QSL=N, you will get the full 80 characters for the audio clip name in CATBOOK, and the full path can be also included but you cannot use the QSL LINK anymore in CATBOX.

CLIP_FOLDER=path_to_some_folder

User defined folder to be used in saving audio clips via CLIPPER (if the default folder or the JAGDATA folder can't be used).

CLIP_MAX_SIZE=mins

The default max clip size is 5 minutes. CLIP_MAX_SIZE can be used to increase this limit.

DEFAULT_ATT=x

The default attenuation value for Perseus (the allowed values are: 0, 1, 2 and 3). This plugin overrides all the scheduled attenuation settings in MESTOR.

DRAGGER=Y

By default the visible spectrum on the SPECTRA display can be dragged only vertically. If DRAGGER is activated, dragging is possible also horizontally.

DUALMON=xresolution,yresolution

Show JAGUAR's main display on an alternative monitor. The desired X-resolution and Y-resolution must be given. These values may need to be trimmed from the default resolution values in order to get a full screen display. Also, DUALMON=xresolution,yresolution,INVERSE can be used to re-position JAGUAR on the "other side" of the main display. Note that INVERSE may not work in every situation.

FLAGS_ON_MAPS=Y

By default the offset flags are visible only on the SPECTRA display. If FLAGS_ON_MAPS is activated, the flags are visible also on the MAPS.

HOLD_MESTOR=Y

Normally when JAGUAR is minimized to KIT, MESTOR becomes activated automatically to enable the scheduled recordings. If you want to prevent that, you can define HOLD_MESTOR=Y.

JAGDATA=path_to_some_folder

If no "JAGDATA" is given in PLUGINS, all the "user data" is saved to the Jaguar installation folder. If "JAGDATA=folder" is given, all the user data is saved to that folder instead of the Jaguar installation folder => you can define this folder to Dropbox if you want to sync all user data. If you deploy this feature, you must create that folder manually and move all the existing "user data" to this new folder. All user data consists the following files and folders:

```
- TURTLE folder
- CLIPS folder
- LOGS folder
- MAIL folder
- SHOTS folder
- STREAMS folder
- FILEBOX folder

- OFFSET.txt file
- COMPARE.txt file
- STREAMS.txt file
- LOG_PROFILES.txt file
- BEEHIVE.txt file
- CUSTOMFREQS file
```

LOG_PROFILES=Y

You can define a maximum of three log profiles. These profiles are useful if you want to make loggings to several publications with one single logging action.This is a deprecated feature but still available for those who have deployed it in the past.

MEGAPOOL=Y

By default the file pool (= file names that JAGUAR keeps in memory) covers only one disk. If MEGAPOOL is activated, the system creates a larger file pool offering a quick access to all files on all disks that are plugged to the PC (or to disks that contain the same path name as used in the currently played name). The idea is to hide the disks and the "DX DAY" structure from the users: using the POOL FRAME (ALT-O) the user can navigate in files without knowing the physical location/folders/etc.

OFFSET_RANGE=Y

If OFFSET_RANGE is enabled and the mouse cursor is hovered over an offset flag, the offset range is shown (covering an area between the lowest and highest offset values observed for the selected station).

PANTS=two-different-recording-paths-separated-with-comma

Compare two recordings recorded at the same time. See details in GUIDE > PANTS.

PANTS_LABELS=label1,label2

When using the PANTS feature, you can rename the banner text shown on the current display (max 6 characters), for example the labels can be ANT290,ANT335 showing the antenna directions.

PERSEUS_DITHER=Y

The internal dither function of the Perseus hardware is OFF by default. This improves sensitivity in low-signal-strength areas.

PERSEUS_PREAMP=N

The internal amplifier of the Perseus hardware is ON by default.

POWERSAVE=HHMM

The user-defined time in UTC for PC hibernation, HHMM must be replaced by desired time, e.g. POWERSAVE=1410. Don't use this option if you have enabled the MESTOR controlled hibernation.

QSL_ARCHIVE=path_to_some_folder

Your digital QSL archive folder, used by CATBOOK.

REDO_RESTART=Y

If there's a break/crash in the overnight recording and the automated restart/connection fails due to (potential) USB issue, this REDO_RESTART will retry the whole restart process until the Perseus connection finally succeeds (note: if USB (/disk/Perseus) is totally unavailable, this will cause an eternal restart loop. Use this with care, because normal power breaks etc. are handled correctly without this parameter.

WWI=xx

The default "What Was It"-loop duration is 10 seconds. WWI=xx can be used to increase this limit, xx is the number of desired loop length in seconds.

XADJUST=x

Can be used with DUALMON for adjusting the exact position of the left edge of the JAGUAR display (JAGUAR's X-position is moved by x pixels to the left/right)

P-TAGS

JAGUAR PRO ONLY

JAGUAR incorporates so-called P-TAGS (the user's private tags) which are used to categorize stations based on loggings and your wishes. P-TAGS are saved to the CATBOOK database (see more details in the CATBOOK help).

By default, P-TAGS are disabled: all the stations on MAPS are always marked with a yellow star and all the rows in TURTLE have ** in the beginning of the line. As soon as you start using JAGUAR tools for logging/offset logging, or "tagging" (a special function used for setting tags), JAGUAR creates a CATBOOK database for you automatically and sets the P-TAGS for logged/tagged stations. All stations which have been logged (or offsets are logged) become automatically "tagged stations"; all other non-tagged stations will be set to P0 in the beginning (P0 = YELLOW).

P-TAGS are used in queries and in the documentation of your DX-history and more.

Even though all P-TAGS are saved only in the CATBOOK database, they are also shown on TURTLE data rows on the screen.

After CATBOOK has been created, stations will have the P0 tag by default. P-TAGS can be changed in several ways:

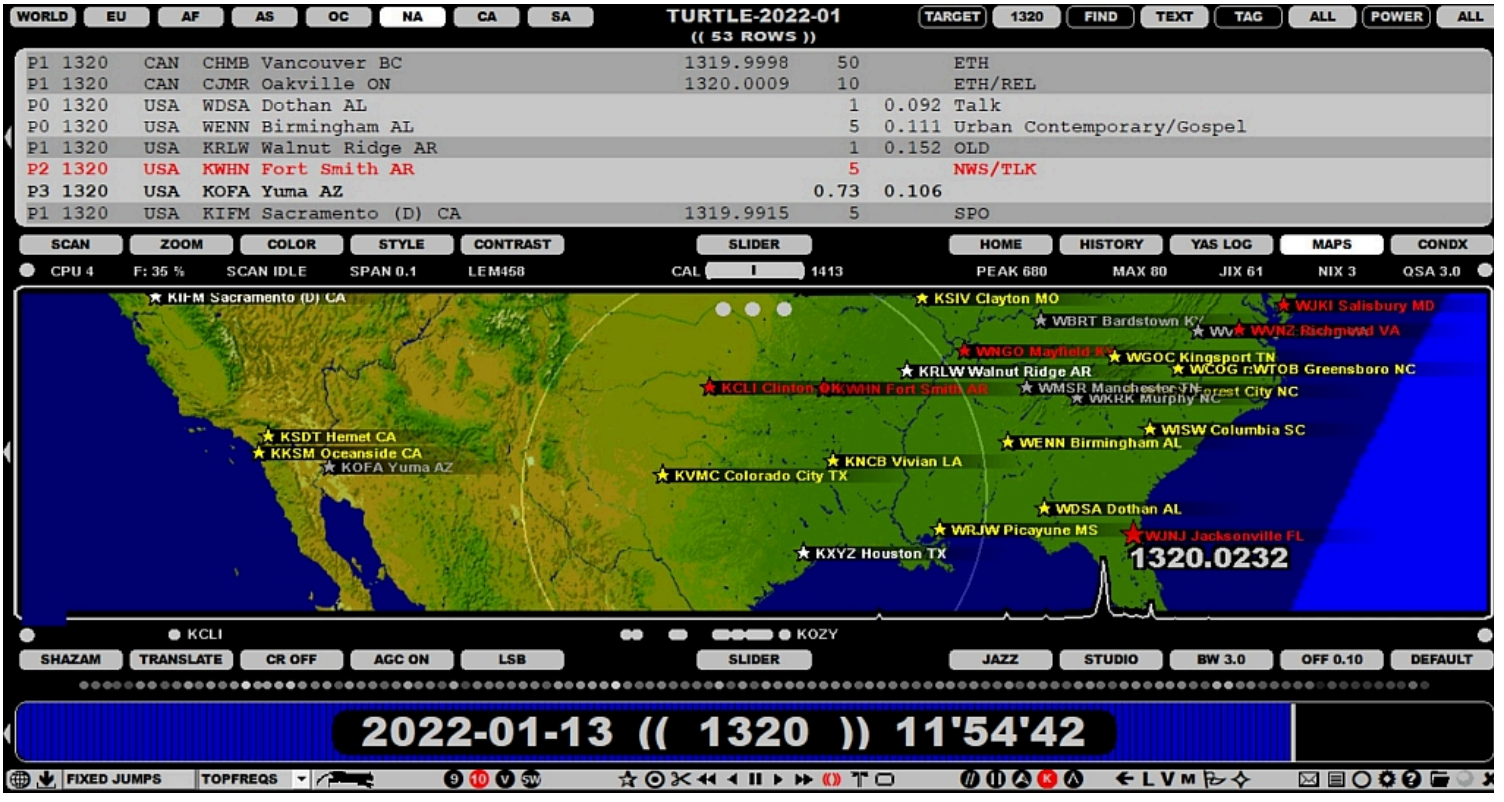
- Logging a station (automatic tagging)
- Logging/adding local offset for the station (automatic tagging)
- Using TAGGER = adding/changing a P-TAG, see STATION MENU for details
- Using LOGBOX (see LOGBOX for details)
- Using text editor (for example, Notepad) for editing CATBOOK.txt (not recommended, see CATBOOK for more details)

When a P-TAG is changed, the color on MAPS and the visual representation of the lines in the TURTLE window will change according to the tag.

The tags can be labelled from P0 to P5, and you can decide on the meaning of each tag. The default meanings are:

- P1 = "QSLed" (colored as white on MAPS)
- P2 = "Hot station" (recently logged by others or otherwise being "most wanted", red)
- P3 = "Heard/logged/reported but not QSLed" (black)
- P4 = "Logged" (blue)
- P5 = "User-defined meaning" (green)

In the following example, the default setup is slightly changed (P3 refers to "potential, keep in mind").



HOW TO

P-TAGS are added with the logging/flagging/tagging tools as described above. Instructions on how to use these tools can be found in the LOGBOX and STATION MENU helps.

The default P-TAG for QSLed stations is P1 (white). If you are not happy with it and want to use some other P-TAG for logged stations, you can change it in SETTINGS > LOGGING > QSLTAG.

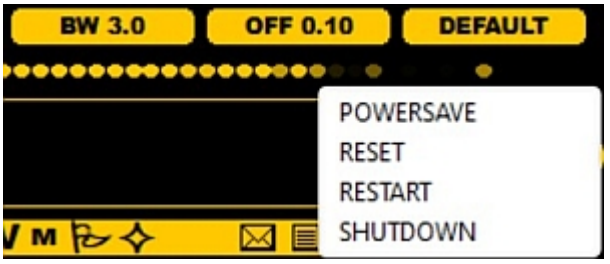
The default P-TAG for automatic tagging for logged stations is P4 (blue). If you are not happy with it and want to use some other P-TAG for logged stations, you can change it in SETTINGS > LOGGING > LOGTAG. For example, if you want to show all logged stations as red on MAPS, you can define LOGTAG > P2 RED.

RESET

RESET is the first thing to do if you encounter an issue which cannot be solved easily otherwise. Especially, audio-related issues after JAGUAR starts are normally cured with RESET.

HOW TO

RESET is done by clicking the TOOLBAR > SHUTDOWN icon which always opens a small popup menu. Select RESET from this menu.



JAGUAR will ask:

```
(( DELETE SYSTEM.INI (PLAYBACK SETTINGS) ? ))
```

By replying "YES", JAGUAR deletes several system settings related to the audio playback.

Next, JAGUAR will ask:

```
(( DELETE SETUP.INI (USER SETTINGS) ? ))
```

By replying "YES", JAGUAR deletes all user configuration parameters in those files, so after the restart the "factory defaults" will be used. Note: SETTINGS given in the KIT and KAT menus are kept, RESET does not initialize them.

Next JAGUAR makes an automatic restart and then playback (and many other) issues are normally solved. If not, see the TROUBLE help.

You can also delete SYSTEM.INI and/or SETUP.INI manually if needed to solve some specific issues. These files are located in the SETTINGS folder.

RIGHT CLICK

The RIGHT CLICK functionality of the mouse in JAGUAR depends on where the mouse is located; there are three main actions triggered by RIGHT CLICK.

- If the mouse is over some additional / floating window (APPLET, INFOBOX, LOGBOX, CATBOX, KEYBOARD HELP, etc), RIGHT CLICKing the window is the fastest way to close it.
- If the mouse is over a station (on MAPS/TURTLE/FLAG/OFFSET), RIGHT CLICK triggers STATION MENU (see STATION MENU for details).
- If the mouse is over the main graphics area, by default, RIGHT CLICK triggers JUMPERS (see JUMPERS).

HOW TO

JAGUAR PRO ONLY

You can override the default right-click function (for the graphics area right clicks) in SETTINGS > SYSTEM > RIGHT_CLICK.

SAMPLING

The SAMPLING rate defines the available bandwidth (frequency coverage) in wideband files.

JAGUAR is designed for MW DXing and thus it supports only two SAMPLING rates for recording: 1.6 MHz and 2 MHz; both of them cover the full MW dial. Native Perseus package supports only one such sampling rate (2 MHz) with a full MW coverage; the same sampling rate of 2 MHz (SAMPLING 2000) is also available in JAGUAR. Use this sampling rate is you want to keep compatibility with Perseus.exe as far as the playback is concerned.

In addition to 2 MHz, JAGUAR PRO can also use the sampling rate of 1.6 MHz (SAMPLING 1600) which saves 20% of the disk space and lots of CPU/GPU cycles. The 1.6-MHz files cannot be played with Perseus.exe but they can be played with many third-party SDR software.

When the desired bandwidth has been defined, 80% of it is "alias-free", i.e. free from artifacts. The area outside of it can be tuned in to, but there may be also some "trash signals". For example, if you have selected SAMPLING 1600, your alias-free bandwidth is 1.28 MHz. If you use the center frequency of 1105 kHz, the alias-free band covers 465 kHz - 1745 kHz.

So, if you want to record both LW and MW, you must use SAMPLING 2000, yielding an alias-free bandwidth of 1600 kHz, and the center frequency of e.g. 1005 kHz will yield an alias-free frequency range of 205 kHz - 1805 kHz.

Note that it is recommended to use a center frequency which does not contain any broadcasting transmissions. This is because SDRs often generate an artificial peak on that frequency. This means that you will see a spectrum trace on that frequency even if you do not have any antenna connected.

HOW TO

Selecting the bandwidth of 2 MHz or 1.6 MHz.

The sampling rate is defined in SETTINGS > KIT > RECORDING > BANDWIDTH.

When you tune in to shortwaves in the LIVE mode, the center frequency is automatically set to be 10 kHz below the tuned frequency. The SAMPLING rate however remains the same.

SEARCH

JAGUAR offers a quick "lookup search" for fast checks from the stations on the current frequency/continent. The query results are shown on the graphics area for a short period. TURTLE data is not changed in the TURTLE window, but the stations in the result set is shown (for a while) if MAPS is active. This feature is mostly useful for NA stations.

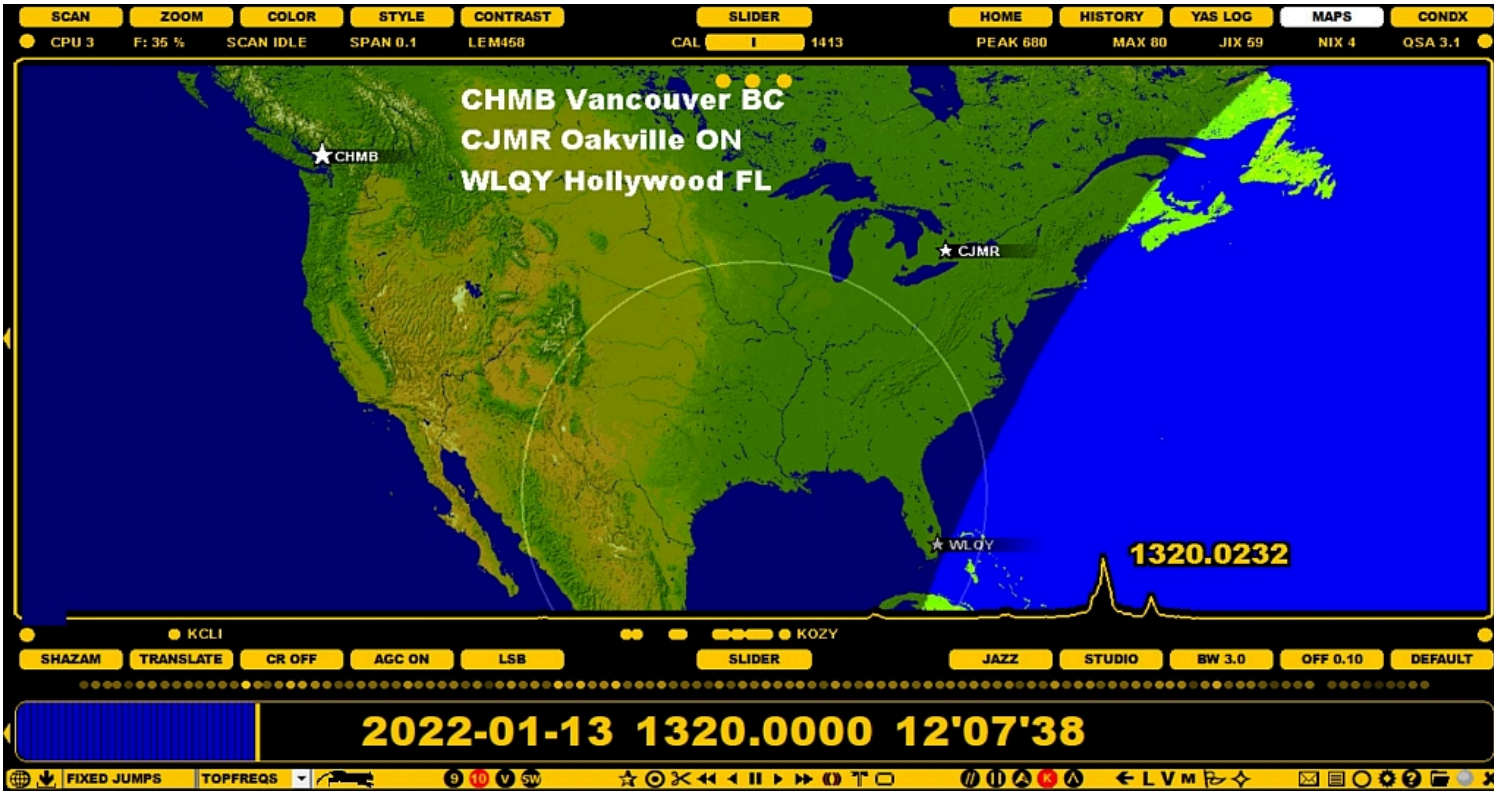
HOW TO

KEY = S

Pressing the keyboard key "S" shows an empty ((****)) slot on PLAYBAR.

and if the user wants to show all ethnic stations on the currently-played frequency, typing ETH and pressing ENTER on the keyboard does the job.

The list is shown at the center of the display:



The search can be based on the ITU code, phonetic call sign search (see DATABASE BAR for more details), a "shortcat" or just giving K*** or W*** (stations starting with K or W).

SHORTCATS

SHORTCATS are pre-defined search keywords for the US/CAN/MEX networks/formats. If ESPN programming is heard on some specific frequency, the user can quickly create a list of stations of the ESPN affiliates on that frequency. Each shortcat consists of 1-4 characters.

The currently available SHORTCATS are as follows:

```
HITS - stations playing "hits"
OLD - stations playing "oldies" (well, they are "HITS" too)
CW - stations with C&W orientation
NOS - stations with nostalgia / adult standards orientation
SS - spanish speaking stations in USA and Mexico
MEX - Mexican stations
CBC - Canadian CBC stations
REL - religiously oriented stations
RELR - Relevant Radio affiliates
NPR - National Public Radio affiliates
EWTN - EWTN affiliates
ETN - Multicultural ("ethnic") stations: programming language being something else than Spanish or English
```

```
FOX - Stations carrying Fox News or Fox Sports programming
ESPN - ESPN affiliates
BIZ - stations with "business talk" orientation
RER - Red Eye Radio affililiates
C2C - Coast-to-Coast affiliates
CC - Coast-to-Coast affiliates (just a faster shortcat for Coast-to-Coast)
```

In addition to these, the US/CAN state abbreviations (AK, AL, AZ, AR, ...) can be used to show the stations in the given state.

The SHORTCATS have been created with "fuzzy logic": SHORTCATS are based on the language, formats and networks. For example, if you hear Spanish on AM 1400 when DXing North America, you can give the shortcat SS and press ENTER. You will see all the stations from USA and MEX which are tagged with the shortcat SS (in spite of the format listed).

SHORTCATS will support "clues what you hear on the frequency": if you hear "Relevant Radio", you can use the shortcat RELR; if you hear something related to Fox ("Fox Sports" or "Fox News"), you can use the shortcat FOX; if you hear a familiar song or a slogan containing the word "Hits", you can use the shortcat HITS; if you find programming with Christian content, you can use the shortcat REL, etc.

Talk-oriented stations are difficult to categorize, and there is no sense to copy the TURTLE "FORMAT" data here so there are no shortcats as NWS or TLK. Instead, you may try to type in what you hear: at the moment, there are shortcats such as RER ("Red Eye Radio" affiliates) and C2C ("Coast-to-Coast" affiliates), later probably more.

This service can never be perfect, and anyone can say that "no, this is not correct", and he/she is absolutely right: it is very easy to find an exception. For example, the MWLI database lists 71 hits for Red Eye Radio, but the Red Eye Radio web site lists 141 affiliates. We have included those 141 stations even though there seems to be stations which are no more RER affiliates. The same with C2C: there are 415 C2C affiliates on their website but even that is not correct.

However, this feature may be helpful if you just want to make a quick check for "potential hits" on a U.S. frequency based on what you hear. It does not take much time to try.

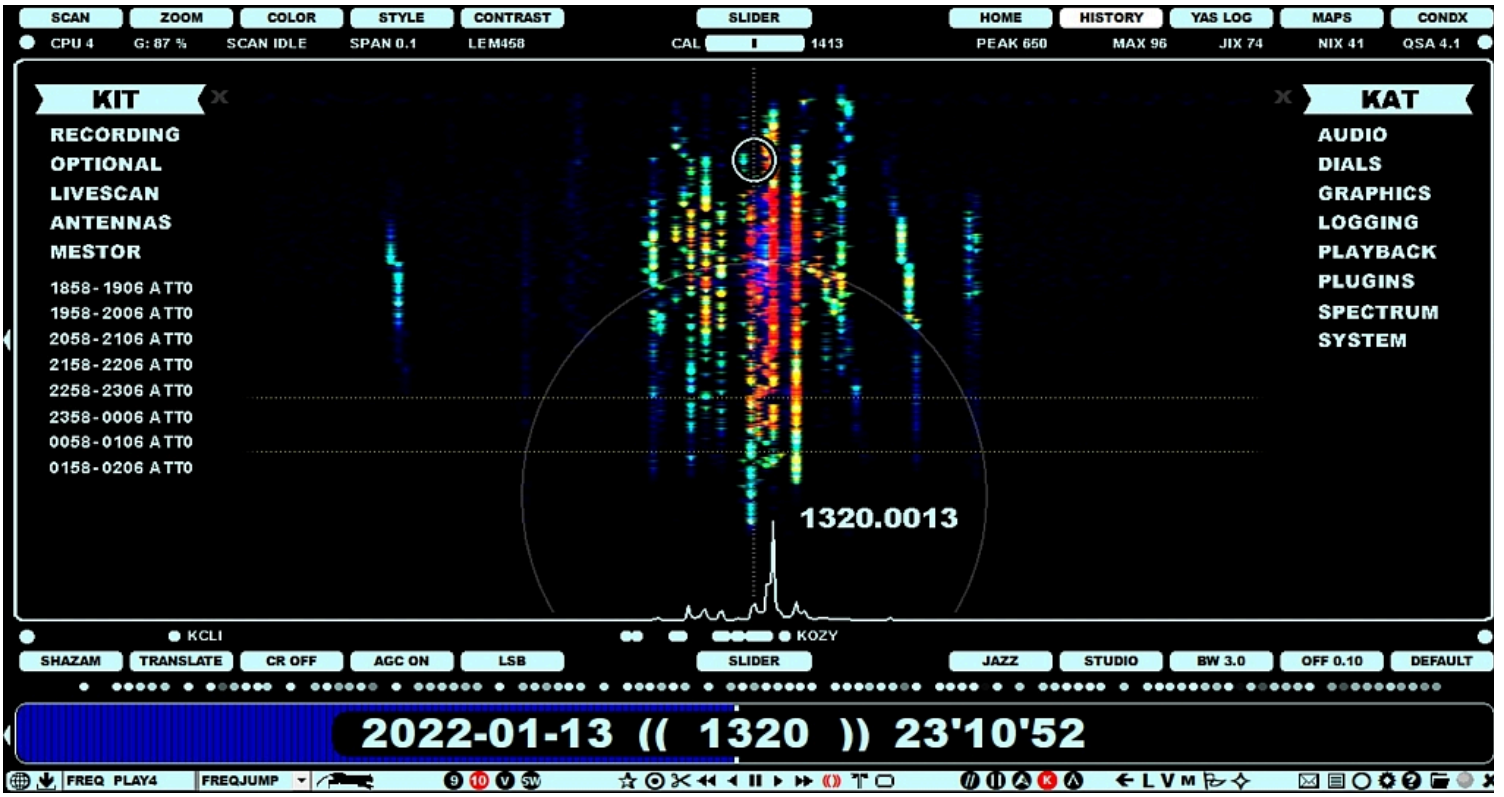
SETTINGS

JAGUAR's basic SETTINGS are controlled in the SETTINGS dashboard which consists of two panels, the left and right panel ("KIT" and "KAT").

On the left, you'll find the "server" settings (RECORDING, OPTIONAL, LIVESCAN, ANTENNAS, MESTOR) and the currently-active recording scheduler list. On the right, there is a menu for all the "client" (= mostly playback-related) settings.

The settings defined in the left/right SETTINGS panels are always used as your defaults when JAGUAR is started. Some of the settings can also be changed via the buttons on SLIDER and AUDIOBAR, but those changes are valid only for the duration of the current session. When JAGUAR restarts, they are overridden by the settings defined via the SETTINGS panels.

In JAGUAR LITE, only the RECORDING and MESTOR settings can be modified.

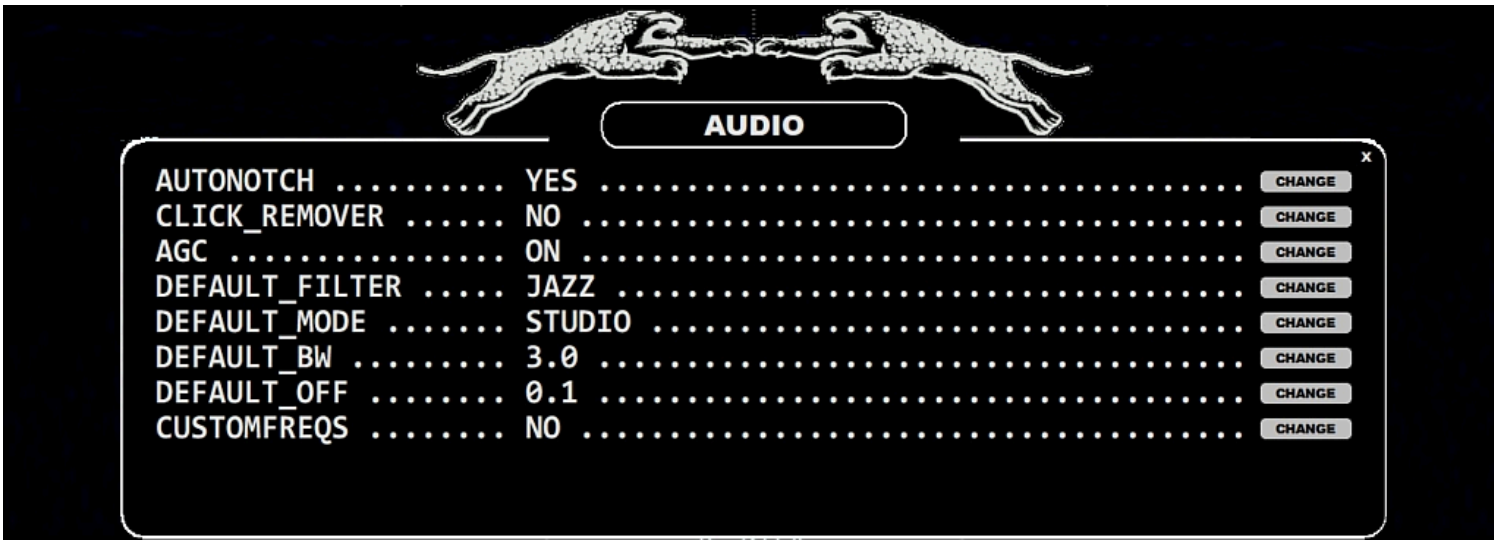


HOW TO

The basic settings can be changed by clicking the SETTINGS icon on TOOLBAR: the SETTINGS panels will be opened. Clicking any of the menu entries will open a "setting window" where the specific settings related to that group can be set and changed.

All the setting panels use the same display format. Each parameter can be set/changed by left/right-clicking the CHANGE button. Some parameters have only the YES / NO values; some parameters can have many pre-defined allowed values. These values can be rotated by a mouse left-click (next value), by a mouse right-click (previous value), or the values can be scrolled using the mouse wheel and/or the left/right arrow keys. Furthermore, some parameters will prompt a text box into which you must enter the desired parameter value (e.g. the disk/folder name used for saving the recordings). In these cases, the changes have to be confirmed by clicking SAVE.

For example, the SETTINGS > AUDIO window can look like this:



THE LEFT PANEL (KIT)

The parameters of the left-hand side settings panel are described as follows (the lower area in the left panel shows your currently-active scheduler action list (the time slots to be recorded next)

RECORDING

BANDWIDTH ..... 2 MHZ | 1.6 MHZ

Only 2 MHz and 1.6 MHz are supported (1.6 MHz available only in JAGUAR PRO).

CENTER FQ ..... xxxx KHZ

The defaults suggested by the system can be accepted unless you have a specific reason for changing it.

REC_DISK1 ..... disk / path-to-disk

The given disk (and the recording folder, if also a folder is given) must exist in the PC setup.

REC_DISK2 ..... disk / path-to-disk

The given disk (and the recording folder, if also a folder is given) must exist in the PC setup.

LOCATION ..... qth, lat, lon

Three parameters must be given: QTH name, latitude, longitude. The longitudes in the Western Hemisphere must be given as negative values. This data is used in calculating the sunrise/sunset times for SR/SS-based recordings.

OPTIONAL

KIT_SUFFIX ..... label

If your setup has only one antenna in use, there is no need to define anything to ANTENNAS. You can define an "antenna label" to KIT_SUFFIX and it will become a part of the rec file name.

SOLAR_DATA ..... YES | NO

Collect solar cx data to JAGUAR displays (5 minute interval).

YAS_IMAGES ..... STANDARD | ZOOMED | NO

If STANDARD or ZOOMED is selected, JAGUAR creates/updates the daily thumbnail images from YASLOGs. The thumbnails ("x.gif") are saved in recording-day folders, and can be uploaded to the kapsi.fi server if "IMG_SERVER" is enabled. The STANDARD gif contains one snapshot line per two minutes, the ZOOMED option gives one snapshot line per one minute starting from 22 UTC. Using the ZOOMED option, your x.gif files show less hours per day but with a better resolution.

IMG_TARGET ..... MW10 | MW9

This parameter defines the "frequency selection" in the YAS thumbnail images.

IMG_SERVER ..... YES | NO

If enabled, JAGUAR automatically uploads the YAS LOG thumbnails to the server at kapsi.fi. The thumbnails on the server are refreshed once an hour, and they can be viewed with any browser using this URL: http://jaguars.kapsi.fi/jagnet/jagthumb_12345678.gif . Replace "12345678" with your JAGUAR key, as shown in INFOBOX.

HI_QUALITY ..... YES | NO

If disabled, you'll get a performance benefit but the spectra may suffer from spurious signals, so normally this should be YES.

LIVESCAN

See the LIVESCAN help for details.

ANTENNAS

See the ANTENNAS help for details.

MESTOR

See the MESTOR help for details.

THE RIGHT PANEL (KAT)

The parameters of the right-hand side settings panel are described as follows.

AUDIO

AUTONOTCH ..... YES | NO

This enables/disables JAGUAR's AUTONOTCH. JAGUAR also offers a maximum of 20 manual notches, and they must be invoked in AUDIO WINDOW. See NOTCH for more details.

AUTONOTCH ..... YES | NO

CLICK_REMOVER ..... NO | LEVEL 1-9

Click Remover OFF (NO), or the click removal level by scrolling the button (the allowed values: LEVEL 1 <> LEVEL 9). More about this in CR and APPLETS > WAVE.

AGC ..... ON | OFF | OFF+

Automatic Gain Control, rotate the AGC mode: AGC ON > AGC OFF > AGC OFF+. More information in AGC.

DEFAULT_FILTER ..... STOCK | JAZZ | CALLIOPE

Your favorite filter.

DEFAULT_MODE ..... BASE | STEEP | STUDIO

Your favorite filter mode (filter curve).

DEFAULT_BW ..... X.X kHz

Your favorite filter bandwidth.

DEFAULT_OFF ..... X.X kHz

Your favorite filter offset.

DIALS

See DIALS for details.

GRAPHICS

COLOR ..... ICE BLUE | WHITE | GREEN | BLUE | GRAY | YELLOW

JAGUAR's color theme.

FAT_TOP ..... YES | NO

If enabled, SLIDER will never cover DATABASE BAR, instead when SLIDER is closed, it is docked below DATABASE BAR.

IDENTIFIERS ..... YES | NO

If enabled, a flag marker is shown at the "runspot" (playback position) on the SPECTRA and YAS displays.

MAP_LAYOUT ..... STANDARD | TOPOGRAPHIC | TINTED MAP | DARK NEON

Define the desired map presentation style.

MAP_POINTER ..... STANDARD | STANDARD with US EXTENDED

Select the desired presentation format for the station pointer on the maps:

- STANDARD = Full station name, tx power, distance from your QTH and direction from your QTH are shown, in addition to the sunrise and sunset times (UTC) at the tx QTH.
- US EXTENDED = Normally, the STANDARD pointer is used but U.S. stations are shown as a "drone pointer": STANDARD pointer with two additional "wings": local time at tx QTH (internet connection required, this time is based on the time on PLAYBAR) and "FCC time" (= "monthly average sunrise/sunset time" used in FCC regulations for the transmitting times and/or day/night tx power/pattern switches).

AUDIO_ON_TOP ..... YES | NO

Select the data shown on the top of the graphics area.

BOTTOM_BAR ..... FREQS | TRACKER | OFF

Select the data shown on the bottom of the graphics area. SCOPE and STREAMS have own section in this GUIDE.

LOGGING

QSLTAG ..... Px (COLOR)

JAGUAR will use (P1) WHITE for the QSLed stations on MAPS / TURTLE by default. This can be overriden with LOGTAG. For example, P2 (RED) will change the default to red.

LOGTAG ..... Px (COLOR)

JAGUAR will use (P4) BLUE for the logged stations on MAPS / TURTLE by default. This can be overriden with LOGTAG. For example, P3 (BLACK) will change the default to black.

LOGMODE ..... Parameters

You can customize the default log format JAGUAR produces in many ways. The output row can be freely customized with fixed literal strings and LOGMODE parameters. Each parameter is four characters long, preceded by #. JAGUAR translates the parameter name to its value while logging. The valid parameters are as follows:

```
#NAME #FREQ #DATE #TIME #CALL #ITUC #USER #USRN #OFFS #QSAC #ZONE #YYYY #MMMM #DDDD
#HHHH #MINS #MNTH #SECS #FILE #LINE #DIST #COMM #TENT #SINP #CLAT #CLON #SSBC #CALX
#NAMX #ANTX #LPRF #TABS
```

For example, when the LOGMODE is

```
#FREQ #TIME #NAME #COMM #USER
```

the log line contains frequency, time, station name, comments and userid.

When the LOGMODE is

```
#FREQ;#CALX;#NAMX-#COMM;#SINP;#HHHH#MINS;#DDDD/#MMMM;USER
```

it will generate an optimal logging line for the MWC log format; #CALX and #NAMX will generate strings designed for MWC in mind. USER must be replaced by the user initials used in MWC, which may be different from #USER which generates the JAGUAR userid. All values are separated by a semicolon, so the output file can also be loaded to Excel.

LOG_TO_FILE ..... YES | NO

If enabled, clicking SUBMIT in the LOGBOX adds the logging to the LOG.CSV file.

LOG_TO_DAYLOG ..... YES | NO

If enabled, clicking SUBMIT in the LOGBOX adds the logging to DAYLOG.

LOG_TO_MWLI ..... YES | NO

If enabled, clicking SUBMIT in the LOGBOX sends the logging to MWLI. If defined, you will also need to set your MWLI email address and omid. See MWLI for details.

PLAYBACK

HOMESCAN ..... NO | XX SECONDS

If enabled, you can define the "density" of the HOMESCAN spectrum run. See HOME for details.

END_OF_FILE ..... NEXT | KEEP | FQUP |FQDN

Define what happens when the playback reaches the end of the file. By default, JAGUAR continues to play back the next file (NEXT) when the end-of-file is reached in the current file. This behaviour can be changed with this parameter.

The other options available are:

- KEEP: Return to the beginning of the file on the current frequency.
- FQUP: Increase the frequency according to the selected frequency-stepping.
- FQDN: Decrease the frequency according to the selected frequency-stepping.

PAINT_LOOP ..... YES | NO

If enabled, the loop can be simply painted on PLAYBAR using the mouse cursor.

CLIPNAME ..... xxxx xxxx xxxx

Override the default clipname with your own naming format. When making audio clips with CLIPPER, the default naming format is:

```
DATE TIME CLIP FREQ.mp3
```

or, if you have clicked the station name on the map, or in the station database before starting CLIPPER:

```
DATE TIME NAME FREQ.mp3
```

You can customize the default name, using 4-character symbols:

```
#FREQ #DATE #TIME #NAME #CALL #SSB #LPRF (=log profile) and literals
```

For example, if you want your audio clip names to start with the frequency and use underscores in the name so that the clip files can be used in URLs, you can create the following naming template:

```
#FREQ_#CALL_#DATE_#TIME_IPA
```

which will generates clip names such as "1030_WBZ_2015-11-08_06'00'00_IPA.mp3"

PLUGINS

See GUIDE > PLUGINS for details.

SPECTRUM

FAST_CALIBRATE ..... Frequency (or list of frequencies separated by comma) used in calibration

Frequencies are given without decimals, e.g. 828 (single frequency) or 828,1413 (frequency list). More details in KALIBRATE.

AUTO_CALIBRATE ..... YES | NO

If enabled, automatic calibration will be performed all the time in the background, based on the current calibration frequency. The default is NO. AUTO_CALIBRATE = YES is useful only if you have a stable calibration frequency or an external GPSDO; otherwise this continuous auto-calibration mode may cause annoying left-right spectrum jumps on the display. AUTO_CALIBRATE cannot be used if FAST_CALIBRATE is not enabled.

ZOOM ..... SPAN 0.025 | SPAN 0.05 | SPAN 0.1 | SPAN 0.2 | SPAN 0.5 | SPAN 1.0 | SPAN 50

The default SPECTOR (and spectrum) display range (in kHz).

STYLE ..... GLOW | XRAY | CATWALK

The style how the spectrum is presented. More information in HOME.

CONTRAST ..... X.X

The default value for the spectrum gradient color power ("contrast"). Define a low value in the high-signal-level areas and higher value in the low-signal-level areas. SPECTRUM_CONTRAST is the general default value used for spectra when JAGUAR is started. Normally, the optimal CONTRAST value depends on the spectrum style used and the frequency. CONTRAST can be be finetuned via SLIDER > CONTRAST during the DX session whenever needed.

TRANSPARENCY ..... YES | NO

If enabled, SPECTOR peaks are displayed transparent, i.e. FLAGS, etc. can be seen behind the SPECTOR peaks.

FLAG_COLORS ..... SOURCE | LOGGED | TAGS | HYBRID | SOLID

Select the color scheme for the offset FLAGS (see FLAGS for the details).

SYSTEM

START_AS ..... HOME | YAS LOG | MINIMIZED

Select the display screen what is shown right after the JAGUAR start. If START_AS MINIMIZED is selected, JAGUAR will stay idle (no connection to Perseus) until a playback or recording request is activated.

TOOLTIPS ..... YES | NO

If enabled, short help texts will be shown when the mouse hovers over the buttons on SLIDER / AUDIOBAR / TOOLBAR.

TURTLE_AUTOLOADER ..... YES | NO

If enabled, JAGUAR will automatically keep TURTLE up-to-date (and also fetch the correct TURTLE-YYYY-MM edition automatically when listening to old ARCHIVE files).

KEEP_MAXIMIZED ..... YES | NO

If enabled, JAGUAR will stay in the full-screen mode. JAGUAR will not automatically enter the minimized mode. Normally, the minimized mode is invoked if there is no user activity in one hour. It is not recommended to keep this enabled in unattended operations: the minimized mode minimizes the resource consumption.

REVERSEWHEEL ..... YES | NO

If enabled, the direction of mouse scrolling is reversed in the main operations.

RIGHT_CLICK ..... JUMPERS | LSB <> USB | SPECTRUM | FLAGS

The RIGHT_CLICK functionality of the mouse on the background screens ("WALLPAPERS") can be selected from the following options:

- JUMPERS: Open/close the big JUMPER buttons
- LSB <> USB: Toggle between LSB and USB
- SPECTRUM: Right-clicking toggles HOME <> HISTORY
- FLAGS: Show/hide the offset flags

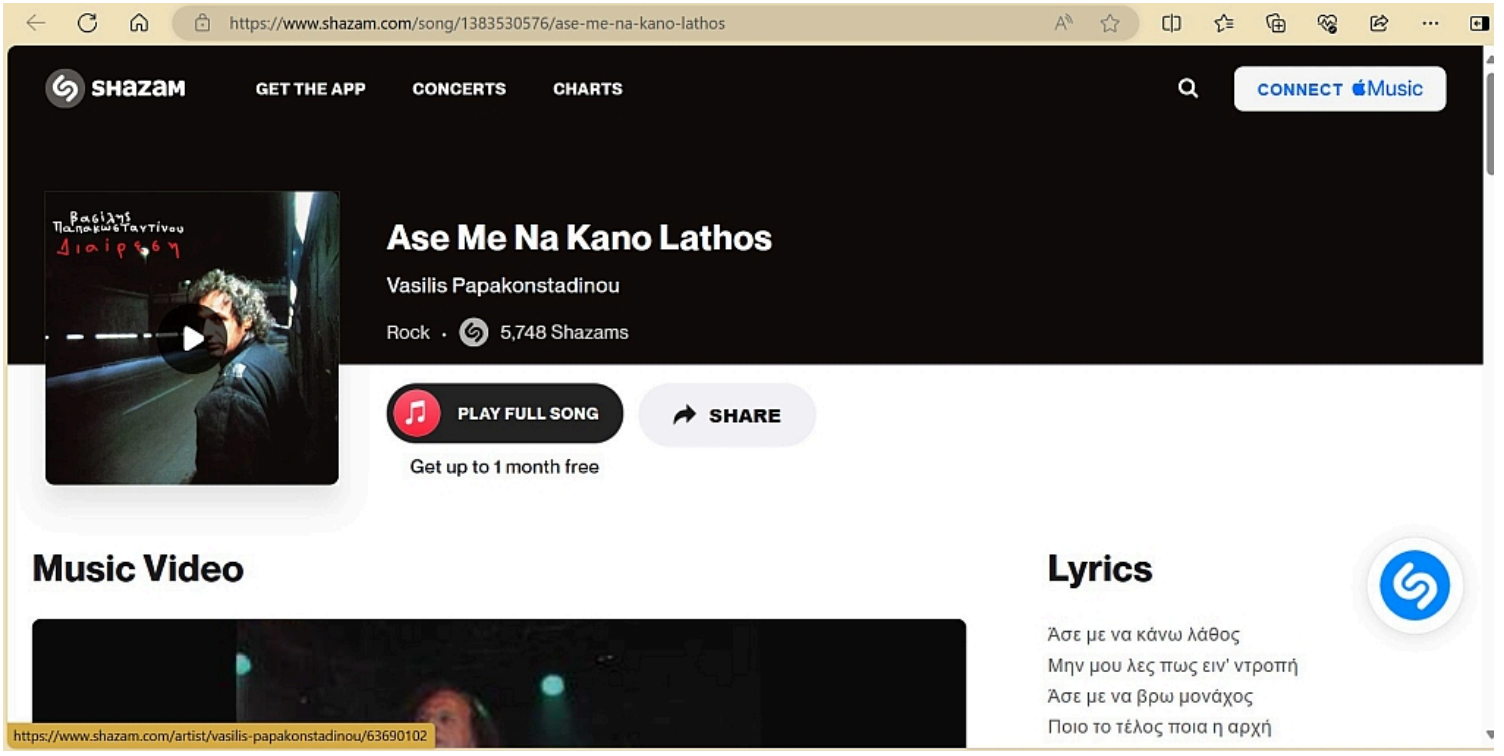
SHAZAM

JAGUAR PRO ONLY

SHAZAM is one of the biggest miracles in the modern software technology. This function can be used for identifying almost any recorded piece of music. Please listen to the following audio clip:

0:00 / 0:16

Can you hear the music in the background? Probably you can hear "something", but I bet that you can't recognize it. However from this weak and noisy audio SHAZAM can easily make the correct identification - and it works even with more noisy audio examples. In this case we have a Greek rock song in our headphones:



The result can be verified by listening the song on YouTube, Spotify, etc. If you are listening to a frequency where there is only one Greek station listed, you can make your own conclusions whether or not to spend more time on this frequency.

HOW TO

AUDIOBAR > SHAZAM

Using the SHAZAM function is easy: whenever you have unknown music in your headphones, click the SHAZAM button. Jaguar starts collecting audio for the SHAZAM server ("LISTENING") and sends the first query after 6 seconds. If the identification of the song is successful, Jaguar triggers your default browser and opens the Shazam page of that specific song. Very often the music can't be identified in 6 seconds so more audio is collected ("WAIT ...") and a few more further attempts are made with additional data, up to max 15 seconds.

If the music can't be identified in 15 seconds, "NO MATCH" is displayed on the SHAZAM button. If the audio is very weak/noisy, you can try restarting SHAZAM when the audio has improved a bit. Sometimes (very rarely) SHAZAM can also misidentify the song.

Jaguar uses an external program shazam.exe (included in the Jaguar installation package) for communicating with the SHAZAM server.

SHORTWAVE

Even though JAGUAR is purely designed for MW DXing, there can be situations when you want to tune in to the shortwaves, too. JAGUAR has an adequate support for SW, for example, for picking up new stations that appear on the shortwave dial.

When tuned to any SW frequency, most basic JAGUAR features and displays are available. TURTLE (= the MW database) will automatically be changed to RABBIT (= the SW database). Frequency stepping is changed to a stepping of 5 kHz. Also, the center frequency is changed automatically so "jump to SW" is all what is need to be done.

All audio-related functions and CLIPPER are fully available; however, SW stations are not displayed on MAPS, and YAS LOG is not supported on SW.

HOW TO

In the LIVE mode, you can type any shortwave frequency and press ENTER. The playback control jumps to that frequency, and a new center frequency will be set automatically in the background (center = the playback frequency minus 10 kHz).

You can also jump to the shortwaves by clicking the TOOLBAR > SW icon.

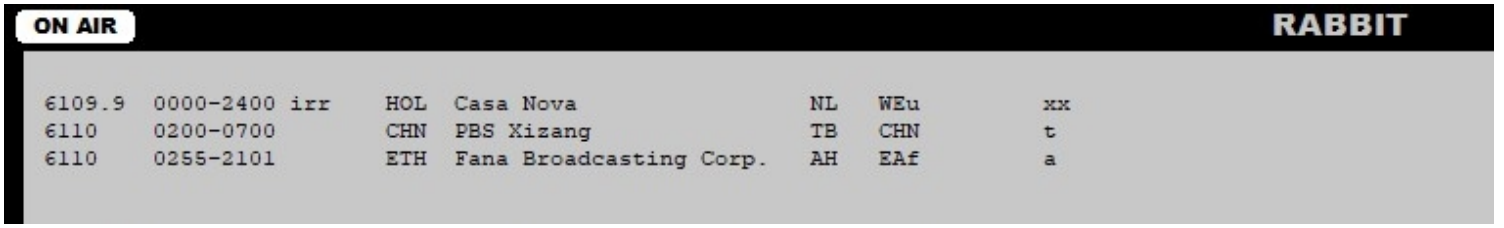
By default, the new SW frequency is 12095 kHz (used by BBC) but JAGUAR remembers the last tuned SW frequency, and when this SW button is clicked next time, the last tuned SW frequency will be used, instead of 12095 kHz.

When you want to return to MW, you can click any TOOLBAR > 9 | 10 icons, or enter any MW frequency, followed by ENTER.

On the shortwaves, frequency calibration is not available.

RABBIT

The SHORTWAVE mode uses the RABBIT database, instead of TURTLE. RABBIT requires an internet connection, and the stations listed can be selected on DATABASE BAR between ALL stations <> currently transmitting stations ("ON AIR").



By default, RABBIT shows all stations listed on currently-playing frequency, but you can toggle the ALL and ON AIR options. ON AIR shows only the stations that are active at the time of listening.

SLIDER must be partially or fully opened in order for you to see the shortwave station list. An Internet connection is required, but no other actions are needed. RABBIT is located in the Kapsi server, and the data itself is based on the Eibi shortwave database.

SLIDER

SLIDER contains a set of buttons used for quick tuning of the visual layout and/or for quick jump to desired display. SLIDER can also be used for opening/resizing/closing the database text window.

When clicked, the buttons normally toggle/rotate the allowed values. In addition to changing the values by clicking, you can also move the mouse over any button and scroll with the mouse wheel, or use the left/right arrow keys.

Also AUDIOBAR has a SLIDER button, this chapter describes the "upper SLIDER".

HOW TO

SLIDER is always visible when JAGUAR is active, and it contains the following buttons:

SCAN (JAGUAR PRO ONLY)

Open/close the LIVESCAN box (if the user is in the LIVE MODE) or the FILESCAN box (if the user is in the ARCHIVE mode).

ZOOM

```
(( SPAN 0.025 | SPAN 0.05 | SPAN 0.1 | SPAN 0.2 | SPAN 0.5 | SPAN 1.0 | SPAN 50 ))
```

Select the desired spectrum area width (in kHz).

COLOR

```
(( ICE BLUE | WHITE | GREEN | BLUE | GRAY | YELLOW ))
```

Rotate the color themes by left/right-clicking the button or scrolling the mouse wheel or with the left/right arrow keys. If your MAPS style is "TINTED MAP", the map color can be changed using this COLOR button.

STYLE

```
(( Graphics output style ))
```

Select the desired presentation style for HOME/HISTORY, YAS LOG, MAPS and CONDX. On the spectrum displays, you can select from four modes: GLOW, XRAY and CATWALK. On the YAS LOG screens, you can select between GAPS and FULL. When GAPS is selected, the shared EU (European) + TA (trans-Atlantic) frequencies (e.g. 540, 630, 720) are not shown on the screen, helping you visualize the "real trans-Atlantic openings". On the MAPS display, you can select STATIONS / FREQLIST / HOTLIST presentation (HOTLIST is available only if you have used red P-TAGS). On the CONDX display you can select between the STANDARD and RIBBONS (offering extra cx information) display modes.

CONTRAST

```
(( Contrast value ))
```

Select the desired spectrum color power/contrast (HOME/HISTORY | YAS LOG) or the desired day/night contrast/darkness (MAPS) by clicking or scrolling.

SLIDER

Open/close the TURTLE window. You can relocate the SLIDER position by dragging the SLIDER to the desired position. If you scroll with mouse (or left/right arrow keys), JAGUAR rotates the "DX AREAS" (WORLD | EMEA | EAST or WORLD | NAMEX | CASA).

HOME

JAGUAR's default spectrum display, see HOME.

HISTORY

```
(( DAYVIEW | ZOOMED ))
```

Spectrum history data as the result of the scan. If you click / scroll with the mouse wheel (or with the left/right arrow keys), you can select the desired zoom level: DAYVIEW or ZOOMED. More details in LIVESCAN / FILESCAN / HISTORY.

YAS LOG

```
(( DAYVIEW | ZOOMED ))
```

YAS LOG data. If you click / scroll with the mouse wheel (or with the left/right arrow keys), you can select the desired zoom level: DAYVIEW or ZOOMED. More details in YAS LOG.

MAPS

```
(( World | Europe | Africa-MidEast | Asia | Oceania | North America | Caribbean | South America ))
```

Rotate the continents by left/right-clicking the button or scrolling the mouse wheel or with the left/right arrow keys. More details in MAPS.

CONDX

```
(( CURRENT | HISTORY ))
```

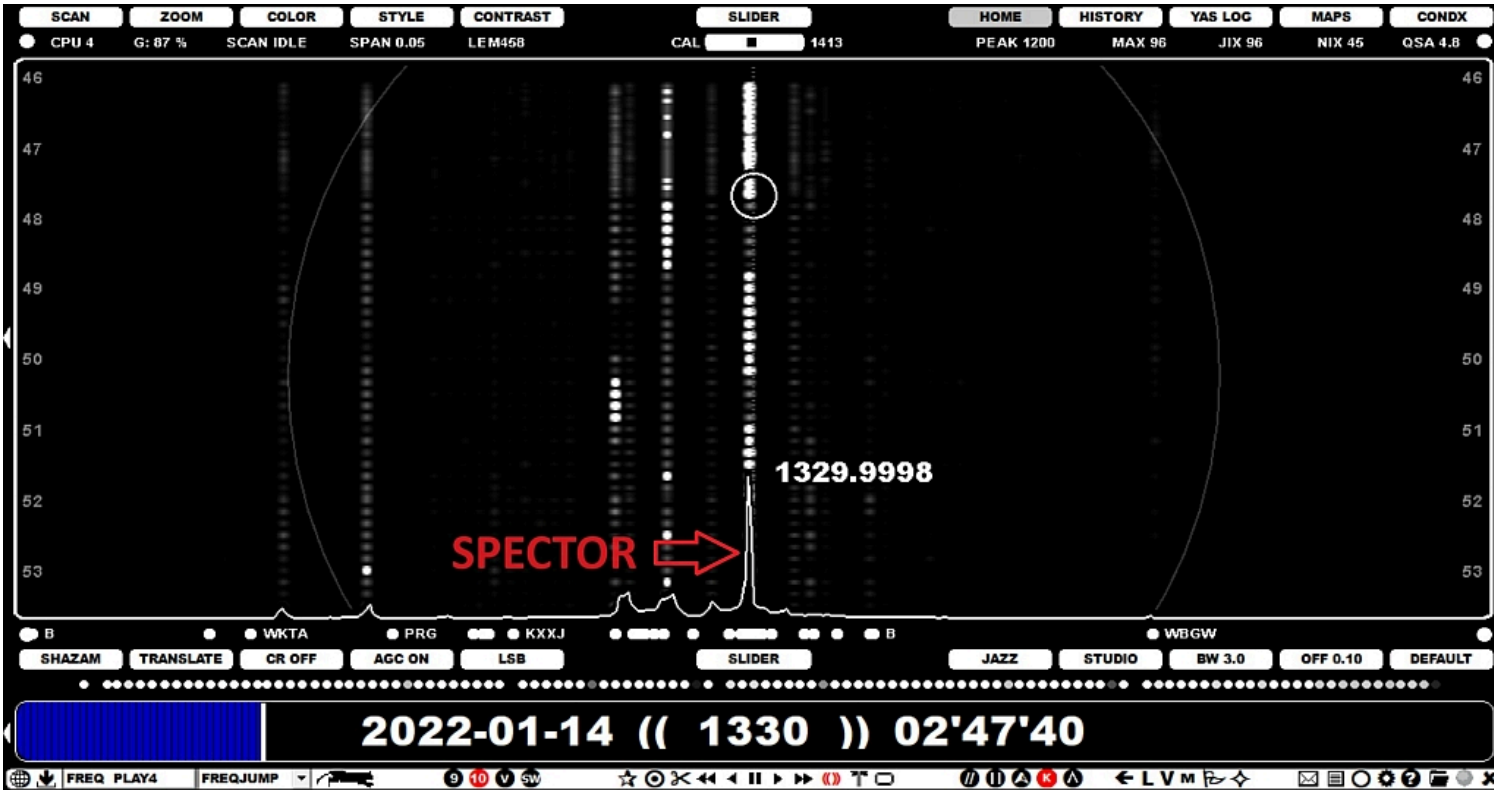
The CONDX screen: CURRENT <> HISTORY. More information in CONDX.

SPECTOR

SPECTOR is the soul of JAGUAR, showing the signal strength on each exact frequency (offset). The SPECTOR display can look like a bunch of sharp needles or a "mountainous terrain", depending on the selected SPECTOR zoom level.

The displayed offset area depends on the spectrum width ie. SPAN: the maximum is 25 kHz on both sides of the tuned frequency (SPAN 50 kHz), the minimum is 12.5 Hz (SPAN 0.025 kHz) on both sides of the tuned frequency. For each single MW9 or MW10 nominal frequency, you can see max 500 Hz on both sides, so if you want to see beyond +/- 500 Hz with high precision, you must tune in to the adjacent frequency (SPAN 50 kHz uses lower precision). Fortunately, there are only a handful of cases where offsets are beyond this 500 Hz limit.

In the example below, the SPAN 0.05 kHz is in use: this SPAN can show 25 Hz on the both sides of the nominal. When using large zoom levels, you can see only a very small area around the nominal.



HOW TO

The SPAN can be adjusted by scrolling / clicking SLIDER > ZOOM. Repeated clicks will rotate the size. Right clicking the icon decreases the SPAN. The current SPAN is always shown on STATUSBAR.

The SPAN can be also adjusted by moving the mouse over the bottom area of SPECTOR (making the red offset flag visible) and scrolling the mouse wheel and/or the left/right arrow keys. In addition, when the cursor shows a red flag, you can tune to this exact offset with a mouse click without changing the time.

The SPAN can be also adjusted by pressing the "+" and "-" keys (unless you have MAPS active or the mouse cursor is over TURTLE database rows).

SPECTOR can be made transparent by defining SETTINGS > SPECTRUM > TRANSPARENCY > YES.

The height of the SPECTOR peaks can be tuned together with the spectrum contrast: scrolling SLIDER > CONTRAST increases/decreases also the SPECTOR peak sizes.

The SPECTOR readout accuracy is 0.1Hz, unless you switch SPAN 0.5 kHz or SPAN 1.0 kHz, in these cases the readout accuracy is 0.5Hz. In SPAN 50 kHz (the large spectrum view) the precision is 50 Hz.

STATION MENU

JAGUAR PRO ONLY

STATION MENU is a small popup menu which offers several station-related services. However, if you just want to log some specific station, you do not have to use STATION MENU: logging itself can be done directly by clicking a station on TURTLE or on a map.

HOW TO

STATION MENU can be displayed by right-clicking any station on TURTLE or on a map. In addition, this menu can be opened by right-clicking any "offset flag" (FLAGS) or "offset ball" below SPECTOR.

STATION MENU has the following options:

- ((CLOSE)): Close STATION MENU
- LOGBOX: Trigger LOGBOX for logging this station. More information in LOGGING help.
- DAYLOGGER: Logging to DAYLOG. The selected station is saved as a new entry to DAYLOG, and it will be immediately visible on the screen if DAYLOG is activated. Also P-TAG is updated in CATBOOK if the station is not yet tagged there. More information in DAYLOG.
- OFFSETS: Show the OFFSET HISTORY. JAGUAR supports offset updates/update history in our own main server. More information in OFFSETS.
- LOCATOR: Open LOCATOR for this station. More information in LOCATOR help.
- FREQLIST: Select the frequencies of the desired country or US state to VFO. More information in FREQLIST help.
- STREAM: Open the Internet radio stream for this station. More information in the STREAMS help.
- TOWER: Show the transmitter tower of this station. Your default browser will be launched, showing the satellite view of Google Maps at the station coordinates. The zoom level is usually adequate to spot the transmitter tower itself; if not, you can use the standard Google Maps zooming services. Furthermore, you can go down to the Street View if you like.
- CLIPPER: Make an audio clip containing the name of the selected station. More information in CLIPPER.
- MAIL: Create a template-assisted reception report for this station. More information in MAIL.
- RECORD SR: Enable "sunrise time recording" of this station. More information in MESTOR > ADVANCED USAGE.

- RECORD SS: Enable "sunset time recording" of this station. More information in MESTOR > ADVANCED USAGE.
- TAGGER: Add/change P-TAG for this station. Select the desired color from the TAGGER submenu. The P-TAG is updated in CATBOOK accordingly and the color on the map/TURTLE is changed too. More information in P-TAGS.

STATUSBAR

STATUSBAR contains status information for the system and reception conditions.

In addition to the status data, STATUSBAR may display also some informative messages related to the settings/functions activated. These messages appear at the center area.

HOW TO

STATUSBAR is always visible when JAGUAR is active.

- CPU %: The current total (estimated) CPU load.
- DISK USED %: The usage of the currently-active hard disk.
- LIVESCAN/FILESCAN status (IDLE / .... / the currently processed frequency). See LIVESCAN/FILESCAN.
- SPAN: The current spectrum area width. See ZOOM.
- ANTENNA used in the currently-played file (as defined in REC SET when recording).
- CALIBRATION frequency and status. If there's a sharp line exactly at the center, calibration is OK. See KALIBRATE.
- PEAK: The strongest frequency in the currently-played file.
- MAX JIX value for the current "DX day" (2000-2000 UTC), based on the current frequency stepping (MW9 or MW10).
- JIX: The current J-INDEX value, based on the current frequency stepping (MW9 or MW10), more information in the JIX help.
- NIX value (the current NOISE INDEX value), more information below.
- QSA, The signal strength (S-value of SINPO) with two decimals.

NIX

Noise Index (NIX) presents the noise level of your setup scaled between 1-100. If you have the Perseus hardware connected without an antenna, the NIX value should be 1 (=the Perseus hardware noise floor).

NIX = the average spectrum energy on frequencies between the MW9 and MW10 channels scaled to 1-100. Frequencies selected to NIX consist of 80 "free" MW frequencies which exist +/- 3kHz away from any MW9/MW10 channel: 535, 536, 544, 545, 616, 625, 626, 634, etc. The result can be compared to JIX (and the "true JIX" value should actually be "JIX-NIX", especially if you want to compare setups).

Generally NIX is not the same as "noise floor" (it just measures the full MW noise level in your setup = a tool for checking how "healthy" your setup is).

STREAMS

One of the basic methods in MW DXing is to compare the LIVE audio signal to the Internet radio stream of the suspected station. In addition, many DXers listen to the Internet radio streams trying to find a match for the announcement/slogan/program which they have found when listening to their SDR recordings.

There are several good collections of the streams, but the fastest way is to start and control the stream within JAGUAR itself. In addition, if the stream is controlled in JAGUAR, you can.

- control the volume of the stream (making a better match with the LIVE radio signal)
- control the delay between LIVE vs. STREAM (the delay in the stream can be remarkable making the // comparison difficult)
- add the stream to your favorite stream list
- schedule overnight recordings for the streams

JAGUAR's stream support offer a simple control GUI called "STREAMER". The STREAMER GUI contains four buttons which are displayed over the PLAYBAR area.

In the future JAGUAR versions this "stream aided DXing" concept may be extended to support the ARCHIVE recordings as well.

HOW TO

The Internet radio stream can be opened in JAGUAR in two ways:

- Move the mouse cursor over a station (TURTLE/MAPS/FLAGS/OFFSETS), right click and select STREAM from the STATION MENU
- If you have added the stream to your favorites, select the stream from the menu by clicking TOOLBAR > STREAMS

When you try to open any Internet stream, JAGUAR opens the STREAMER GUI and searches the correct web stream using a server search from the FMSCAN database. The STREAMER shows "SEARCHING" > "CONNECTING" > "STREAM" steps (if the STREAM is found, alternatively you can get "NO STREAM" or "PARSE ERROR" messages at the end).

By default the STREAM is played within STREAMER. If that is not possible (but a stream exists), JAGUAR keeps the STREAMER GUI open anyway but also your default browser is opened with the web page where you should be able to find and select the stream playback manually. In this case you have to toggle between your browser and JAGUAR, if you want to change/compare/record the audio between the stream and JAGUAR.

STREAMER

If the stream can be played within JAGUAR, the STREAMER button operations are simple:

- COMPARE: Toggle AM <> STREAM audio
- RECORD: Toggle recording on/off (recording can be done also from the web page audio)
- SETTINGS: Open/close the STREAMER settings window
- EXIT: Release all the STREAMER resources and return to the normal playback

If the stream supports metadata, it is displayed above the ((STREAM)) text - in the CAROLINE example above Bob Seger's "Old Time Rock and Roll" is currently played.

SETTINGS

STREAMER > SETTINGS button has four basic functions:

- SAVE AS FAVORITE: Give the desired name to the stream => the stream will be added to STREAMS.txt. Saved streams will appear to the TOOLBAR > STREAMS menu. You can delete the stream from the file/menu by giving an empty name to an existing stream entry. The STREAMS.txt file can be edited also manually within JAGUAR (TOOLBAR > TEXTPADS > STREAMS)
- REC SCHEDULE: Add the time slot from-to (HHMM-HHMM) which you want to be recorded unattended
- VOLUME LEVEL: Adjust the stream volume level to match the signal level (this has effect only during COMPARE)
- TIME SHIFT: If there's a remarkable stream delay, you can help the comparison by adjusting the TIME SHIFT (this has effect only during COMPARE: TIME SHIFT just shifts the SDR playback position xx seconds backwards)

SILENT STREAMER (ALT-R)

The SILENT STREAMER is a stream recorder that creates attended or unattended mp3 recordings from the desired Internet streams. It can also be used simultaneously with the STREAMER GUI if you want a long continuous stream recorded - not just the // comparison audio. The SILENT STREAMER can also record a different stream than the one currently open in STREAMER.

SILENT STREAMER recordings (ALT-R and scheduled) are saved to the STREAMS folder, the file names contain a time stamp and the stream name.

SILENT STREAMER can use only streams that are defined in the STREAMS.txt. The stream menu for ALT-R is the same which is shown when TOOLBAR > STREAMS is clicked. The STREAMS.txt file simply contains "STREAM NAME, STREAM URL" pairs, one pair on each

line. For example Malawi BC can be defined to STREAMS.txt as

MBC MALAWI, http://154.66.125.88/broadwavehigh.mp3

The keyboard key ALT-R is reserved for "REC STREAM" on/off: the user can press ALT-R, select the stream to be recorded and go to sleep :-) Next morning another ALT-R press will save the long recording => station's overnight programming is available for further studies (however there may be max listening time in use on the server side - so the full overnight recording may not be possible in most situations).

SCHEDULED SILENT STREAMER

If you don't want to record the whole overnight or maybe want to record several different streams during the night, you can schedule the SILENT STREAMER simply by adding the desired time slot via STREAMER > SETTINGS > REC SCHEDULE or manually to the end of the STREAMS.txt line, for example

MBC MALAWI, http://154.66.125.88/broadwavehigh.mp3, 0155-0205

Each stream can only have one timer and there can be only one stream recording running at a time.

NOTE: SILENT STREAMER recordings may not work in every Windows installations.

TEXTPADS

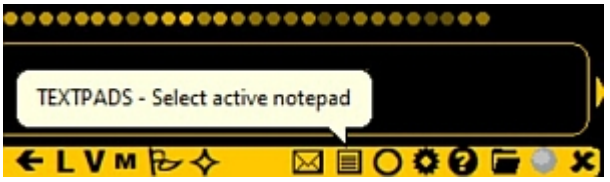
JAGUAR PRO ONLY

TEXTPADS are separate independent text windows for editing textual data.

JAGUAR offers the built-in editing support for the following files:

- LOG FILE = LOG.CSV (see LOGGING for more details)
- OFFSETS = OFFSET.txt (see OFFSETS for more details)
- LIFESAVER = LIFESAVER.LOG (see LIFESAVER for more details)
- STREAMS = STREAMS.txt (see STREAMS for more details)
- DAYLOG = DAYLOG.txt (see DAYLOG for more details)

HOW TO



Any TEXTPAD can be opened by clicking the TOOLBAR > TEXTPADS icon and selecting the desired TEXTPAD from the popup menu.

A TEXTPAD window contains some tools on the menu bar:

- NEXT: Rotate the standard TEXTPADs by clicking NEXT
- + and -: Increase/decrease the text size by clicking these buttons
- SAVE: Use the TEXTPAD for editing, and then SAVE the changes

By default TEXTPAD is opened on the left side of the screen as a narrow window, but it can be re-positioned and resized in standard ways during the session. One convenient method is also to toggle the TEXTPAD full screen <> narrow window by double-clicking the TEXTPAD title bar.

TIMEWHEEL

TIMEWHEEL allows easy navigation in time and frequency, based on the selected stepping (months, days, frequency, hours, minutes or seconds).

HOW TO

Hover the mouse over each individual component of the date/timestamp on PLAYBAR, turning the component to red. Then, using the mouse wheel or the left/right arrow keys, you can scroll that time element forward/backward. Scrolling the years is not supported.

Pressing the TAB key will rotate the active scrollable objects: MONTH > DAY > FREQUENCY > HOUR > MINUTE > SECOND.

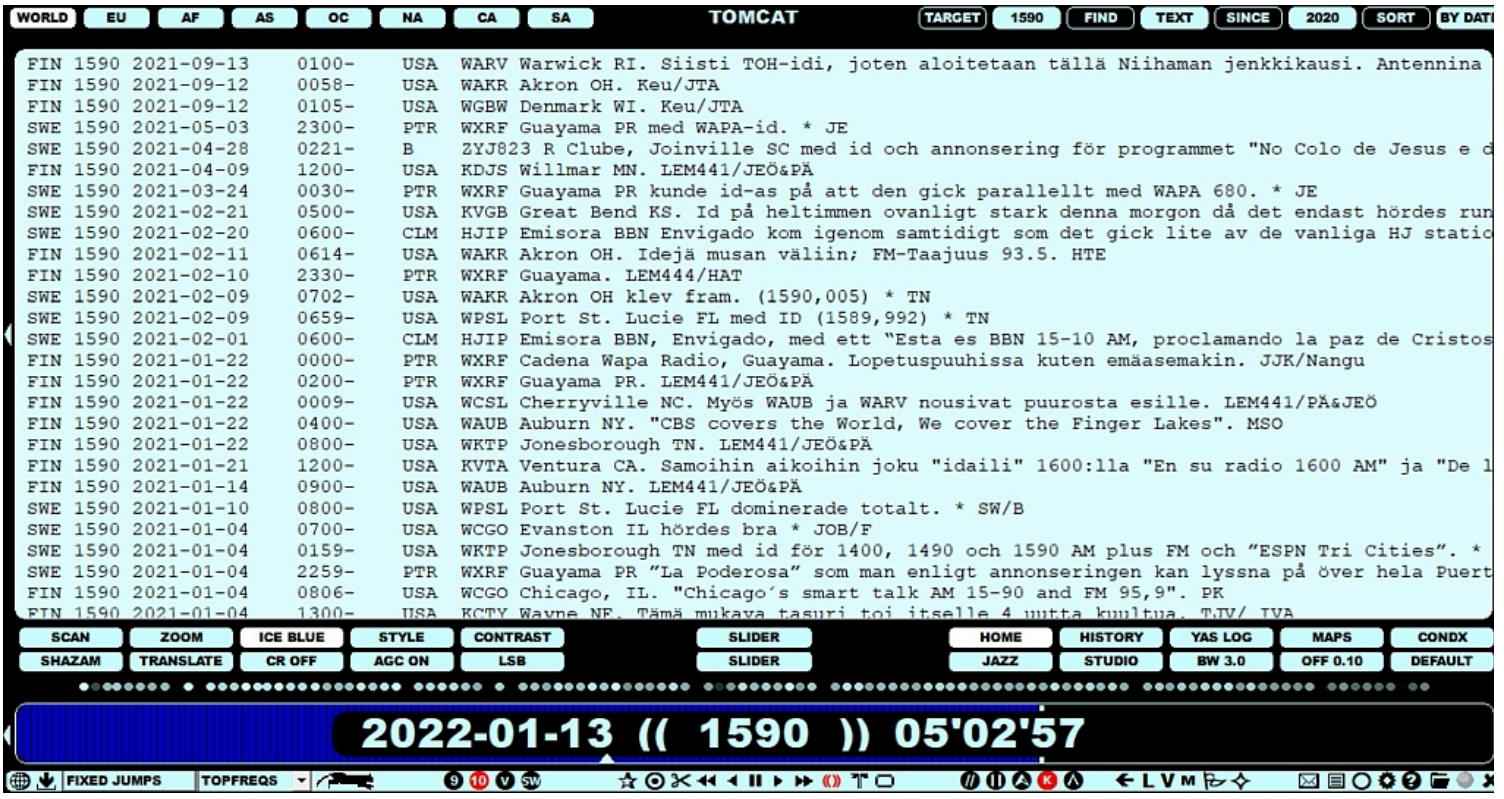
Note that the use of TIMEWHEEL requires that all the files have been recorded with JAGUAR.

In addition to TIMEWHEEL, JAGUAR supports "FILEWHEEL": it is possible to scroll recorded files forwards/backwards on a file-by-file basis using the mouse wheel when the cursor is moved to either end of the PLAYBAR (over the tiny triangles).

TOMCAT

TOMCAT is a huge database of Scandinavian (Finland / Sweden / Norway) loggings. The results can be filtered by continent, country where logged, and the year (loggings since 2***). The results can be sorted either by DATE (descending) or ITU (ascending). TOMCAT is located in an external server, and the logging data is updated periodically by our team.

In the example below, a TOMCAT query is made by the following criteria: "Show all loggings since 2020 on 1590 and sort the results by date".



HOW TO

TOMCAT is an online database so an Internet connection is required.

You can use TOMCAT from DATABASE BAR: click the SLIDER button so that you will see the standard TURTLE window and DATABASE BAR. Normally, you will see your current TURTLE version (TURTLE-YYYY-MM) in the middle of the bar. Move the mouse over that area and the TURTLE and MORE buttons can be seen. Click the MORE button and select TOMCAT from the popup menu.

TOMCAT shows Finnish and Norwegian MW DX loggings loaded from OLL ("Online Log"). TOMCAT uses a shadow copy of the real OLL, and the copy is updated at times. The Swedish loggings are provided from ARC MV-Eko. Most of the loggings are not in English but they are certainly still very useful: many loggings contain ID transcriptions which are often helpful when trying to identify weak stations. In addition, the loggings can be translated into English. If you click a logging, a popup window appears with text ((TRANSLATE ?)). If you hit "YES", the logging will be translated using your favorite browser and the Google translator.

On DATABASE BAR, you will see the following query buttons:

- CONTINENT buttons: Select the target continent for the loggings (WORLD = show all)
- TARGET: FIN / SWE / NOR / ALL (or FREQUENCY): Select Finnish / Swedish / Norwegian / All loggings
- FIND: Search a string from the result set
- SINCE: Limit the results to start from the selected year
- SORT: Sort by time (BY DATE) or by country (BY ITU)

When you modify any of the query filters or tune in to another frequency, the result set is refreshed immediately.

You can return to the standard TURTLE mode by clicking the TURTLE button on DATABASE BAR.

TOOLBAR

TOOLBAR contains a set of icons/buttons for the most-used JAGUAR features:

- WWW - Open JAGUAR's home page on the Internet.
- STREAMS - Open the menu for the user's favorite Internet radio streams (see STREAMS).
- JAGRUN SCRIPT - Default commands for the currently-active JAGRUN script.
    - You can edit the script field for temporary changes if needed (see JAGRUN).
- JAGRUN MENU - A list of the available JAGRUN scripts.
- JAGRUN - You can fully automate your standard file/frequency scanning with JAGRUN scripts (see JAGRUN).
- 9 kHz - Set a frequency stepping of 9 kHz for EU/AF/AS/OC stations.
    - Note that the selected stepping (from 9 kHz up to COMPARE) can be released only by setting a different stepping mode (9 KHZ / 10 KHZ / VFO / SHORTWAVE)
- 10 kHz - Set a frequency stepping of 10 kHz for NA/CA/SA stations.
- VFO - Select the VFO frequency list for stepping from the popup menu.
    - You can define a maximum of 10 VFO lists called dials (see DIALS).
    - In addition to these VFO dials, JAGUAR supports many "dynamic dials" (see FREQLISTS).
- SHORTWAVE - Jump to the active shortwave frequency, and switch to a frequency stepping of 5 kHz.
    - The active shortwave frequency is set by manually entering the frequency and pressing ENTER. The SW button will remember the last used shortwave frequency. See SHORTWAVE.
- DAYLOG - Add a bookmark (= a TIMESTAMP/FREQUENCY pair with "CHECK" text) to DAY.LOG. See DAYLOG.
- RECORD - Start/stop continuous recording.
- SCISSORS - Start/stop flushing the output audio to CLIPPER (JAGUAR's built-in audio editor). See CLIPPER.
    - If you have defined an audio LOOP before clicking SCISSORS, you can choose if you want to extract that part of the wideband file into a smaller wideband file (limited by the LOOP). See CHOP.
- PREV TOH - Jump to the previous top-of-the-hour
- PREV FILE - Jump to the previous file.
- PAUSE/MUTE - Toggle PAUSE ON and OFF (or MUTE ON and OFF in the LIVE mode).
- NEXT FILE - Jump to the next file.
- NEXT TOH - Jump to the next top-of-the-hour
- FREQ SCROLL - Toggle the frequency-scrolling mode ON and OFF.
- LOOP - Repeated audio looping.
    - First click: set the audio loop start.
    - Second click: set the audio loop end.
    - Third click: release the loop and their markers. See LOOP.
- SCREENSHOT - Create a screenshot using the Windows OS "Snipping tool".
    - You can can take full or partial screenshot, add stickers, etc.
    - In Windows 11 you can also create videos (including audio).
- COMPARE - Enter the mode where you can switch between/compare two frequencies. See COMPARE.
- LOG DESK - Open/close LOG DESK. See LOG DESK.
- COBRA - Demodulate the audio from the highest-peaking carrier frequency around the nominal. See COBRA.
- KALIBRATION - Open the calibration frequency menu. See KALIBRATE.
- SPECTOR - Toggle the SPECTOR style between the curve and the peaks mode.
- DAY START - Jump to the first file in each day folder.
- LIVE<>ARCH - Toggle the LIVE mode and the currently-active ARCHIVE file. See LIVE MODE and ARCHIVE MODE.

- VOYAGER - Start/close the VOYAGER mode. See VOYAGER.
- ALT MAPS - Select any of the supplementary maps:
    - ANTENNAS
    - DAYZONE
    - TIME ZONES
    - US BEEHIVE
    - MWLI LOGMAP
- FLAGS - Show the known offsets as vertical "flagpoles". See FLAGS.
- CLEAR - Toggle the "clean display" on <> off. See CLEAR.
- FILEMAIL - Transfer files between your JAGUAR PCs. See FILEMAIL.
- TEXTPADS - Small notepad-style editors for JAGUAR text files. See TEXTPADS.
- APPLETS - Individual applets can be launched from the popup menu. See APPLETS.
- SETTINGS - Toggle the SETTINGS dashboard on <> off. See SETTINGS.
- INFO - Show the INFO popup menu with the following menu items:
    - INFOBOX: Show INFOBOX (see the INFOBOX help)
    - KEYBOARD: Show the keyboard help (see KEYBOARD)
    - CONTACT: Show the contact information
- OPEN - Open a new archived wideband file for playback.
- KIT - Minimize JAGUAR into the KIT mode (see KIT).
- SHUTDOWN - Show the popup menu for shutdown/reset services, including the following options:
    - POWERSAVE: Hibernate the computer.
    - RESET: Close and restart JAGUAR and delete the internal restart information (= the SYSTEM.INI and/or SETUP.INI files).
        - Recommended as the first action if there are any kind of strange JAGUAR problems in playback/startup.
    - RESTART: Close and restart JAGUAR.
    - SHUTDOWN: Shutdown JAGUAR.

HOW TO

Most of the icons toggle the corresponding functionality ON and OFF. Many of the icons also rotate the available values when clicked on.

A brief summary of each toolbar function is presented above, more details can be found in the item-specific HELP sections.

TRANSLATE

JAGUAR PRO ONLY

The TRANSLATE function can be used for speech signal processing to identify the language and to transcript and translate it to English. TRANSLATE is powered by OpenAI Whisper, which is the latest technology for speech-to-text processing. This technology is developing rapidly, not yet fully mature, but already now it can sometimes offer enormous help in MW DXing.

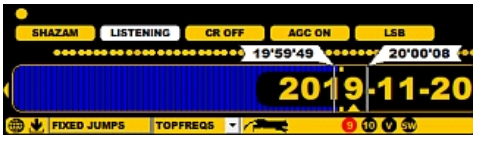
Clicking the TRANSLATE button captures the audio in your headphones and uses external 3rd party services for the analysis and translation.

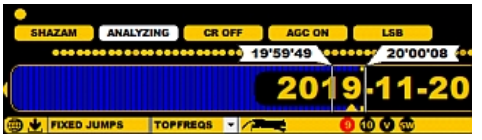
HOW TO

AUDIOBAR > TRANSLATE

The TRANSLATE function can be used in two ways: with or without a LOOP. If you don't have a loop active, you can click TRANSLATE whenever you have spoken audio in your headphones and wait until the analysis is done. The system creates a 10 second audio clip ("LISTENING") and sends it to the 3rd party operator ("ANALYZING"), waits for the response and shows it using the Google translator.

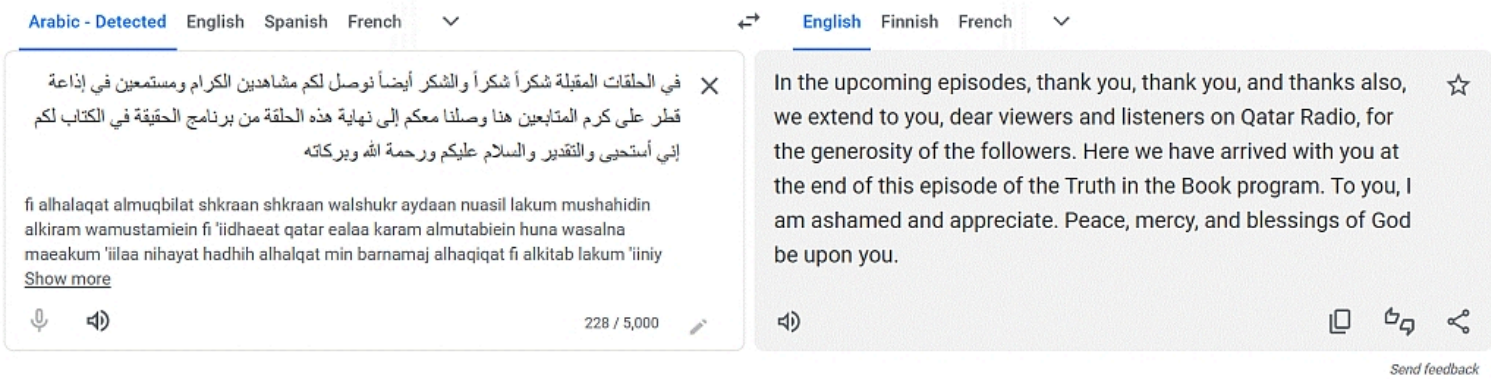
Whenever you have a spoken announcement etc which you want to transcript/translate, create a loop first (covering the audio part you want to solve) and click the TRANSLATE button. Jaguar creates an audio clip from that loop ("LISTENING") and sends it to the server ("ANALYZING"). This process can take a long period, depending on the length of the clip and how "challenging" the language is.





If the process is successful, your default browser will be triggered with the direct jump to the Google translator. If you are lucky, you may get some vital information for your potential reception report - or you may get a hilarious moment when seeing that you yourself are still much smarter than the machine - often these both can happen in the same transcription/translation. Below you'll find an example of the translation for an Arabic speaking radio station.

0:00 / 0:18



So you must be careful/critical with this - use your common sense when evaluating the results. Sometimes the result is gibberish and it is easy to laugh at the machine when/if you notice it, but currently the language models in OpenAI are improving with enormous speed and in a few years this feature may be as magical as Shazam is today. Also noise-robust language models are under development, however today the audio quality used in this process must be adequate (= above "hardcore DX level"). If not, the processing is waste of resources and the result will be useless.

The current external 3rd party service provider is DeepInfra (https://deepinfra.com/), but we may change the service provider in the future. These services are not free of charge, but Jaguar will sponsor the use of this feature so far (up to a specific limit). Please try to keep your audio clips short (15-30 seconds is the recommended clip duration) so that everyone has an option to use the TRANSLATE feature when needed.

Some AV software (AVG, Avast, ...) may block the TRANSLATE calls if the internal "web shield" feature of the AV software is active. In those cases you'll receive "((CALL BLOCKED))" message in Jaguar.

TROUBLESHOOTING

JAGUAR PRO ONLY

Software support is available only for JAGUAR PRO users. Most JAGUAR production versions are very stable while the TEST versions may have issues due to a fast development cycle. If JAGUAR crashes unattended, no problem: JAGUAR has been developed for an unattended 24x7 use, so LIFESAVER.EXE will normally wake JAGUAR up, and no recordings will be lost.

When you report an issue to the JAGUAR PRO forum at groups.io, it will be fixed asap - just help the development team by giving a "recipe", or detailed instructions on how to reproduce the problem. We cannot fix problems without adequate details so please do not send bug reports just mentioning "JAGUAR crashed last night" or "xxx failed". If we cannot reproduce the issue based on your description, we will ask for more information and/or start a detailed debugging process.

If you have any issues at a JAGUAR start-up, most likely the culprit is located in the SYSTEM.INI file. You can try TOOLBAR > SHUTDOWN > RESET which deletes SYSTEM.INI and/or SETUP.INI and restarts JAGUAR.

An alternative way is to delete the SYSTEM.INI and SETUP.INI files manually from the SETTINGS folder. JAGUAR will deploy all the default settings at the next start-up. If nothing else seems to help, you may also try to make a fresh install from the JAGUAR full-installation package.

Also, if you are running an old version, you should try to install the latest version (via VERSION) before reporting any bugs or issues. It is possible that the issue has already been fixed.

Sometimes the culprit may be in the Windows operating system itself. For example, users should enable the Windows cache flushing if external hard disks are used, and disable all sleep states in Power Settings as described in the installation instructions.

When a severe error/crash happens, JAGUAR writes a line into LIFESAVER.LOG. This log is saved in the JAGUAR folder. One common log entry is HANG. This means that the I/O flow from Perseus to the buffer disk is interrupted, and it cannot be recovered automatically without a JAGUAR restart. If your LIFESAVER.LOG contains a lot of these entries, changing a USB port or the USB cable may help. Note that in a 24x7 operation, there may be a few such HANGs weekly also in "100% healthy" setups.

HOW TO

You can test how your setup survives from unattended crashes by creating an artificial crash during recording:

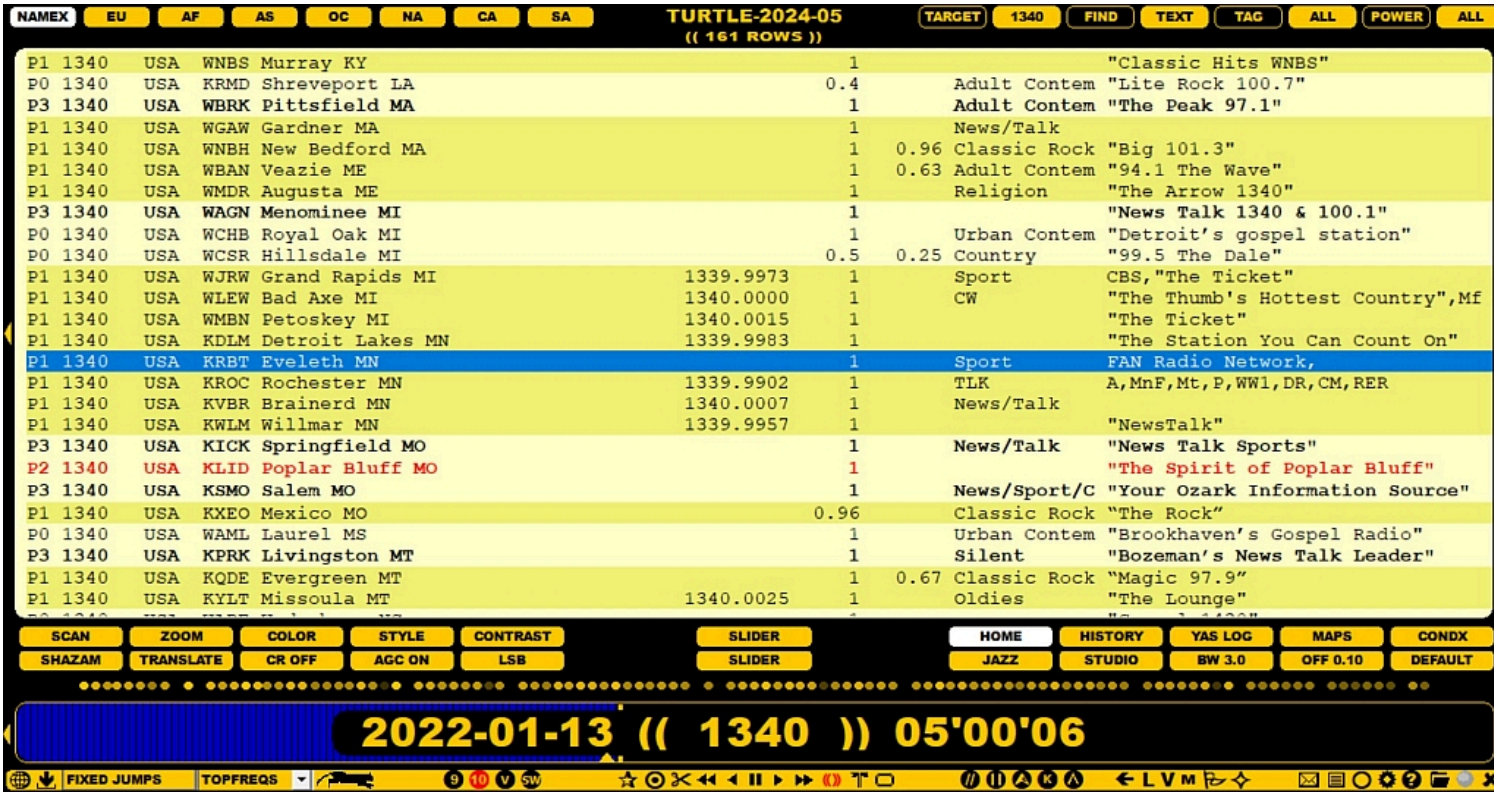
- Type .CRASH (dot before CRASH) and press ENTER, and wait to see if JAGUAR is automatically recovered and if recording continues normally after that (artificial) crash.

TURTLE

TURTLE is JAGUAR's medium-wave station database, which is updated on a monthly basis. The TURTLE database itself is a standard text file named as "TURTLE-YYYY-MM.txt". By default, the JAGUAR installation package includes the default TURTLE to start with, but you can download the latest monthly database when needed. The TURTLE databases are saved in the TURTLE folder under the JAGUAR installation folder.

The TURTLE database is based on the MWLI data, with important added information on formats/slogans/networks for U.S./CAN stations. This added up-to-date information is crucial for NA DXers.

TURTLE is one of the cornerstones of JAGUAR: all the station locations on MAPS and logging functions are based on TURTLE.



HOW TO

KEY = T

The TURTLE window can be opened by pressing the keyboard key "T" or by clicking the SLIDER button. The size of the TURTLE window can be adjusted by dragging the SLIDER button up/down.

The default TURTLE database can be found in the full installation package but it can be out of date at the time of the installation. You can always upgrade your TURTLE by opening the TURTLE window and moving the mouse over the TURTLE database name: TURTLE and MORE buttons will appear.

Click the TURTLE button to see a small popup menu. Click "DOWNLOAD LATEST", and the latest TURTLE version will be downloaded and installed automatically as your current new TURTLE database.

Sometimes you may need to activate an older version of TURTLE. In that case, select "LOAD FROM DISK" on the popup menu. For example, if you are studying recordings from 2019-01, it is logical to use TURTLE-2019-01 instead of the latest TURTLE (or it is even better use TURTLE-2019-02, which contains the 2019-01 situation on the MW dial). This switch to the correct old TURTLE version can be automated, if you enable SETTINGS > SYSTEM > TURTLE_AUTOLOADER > YES.

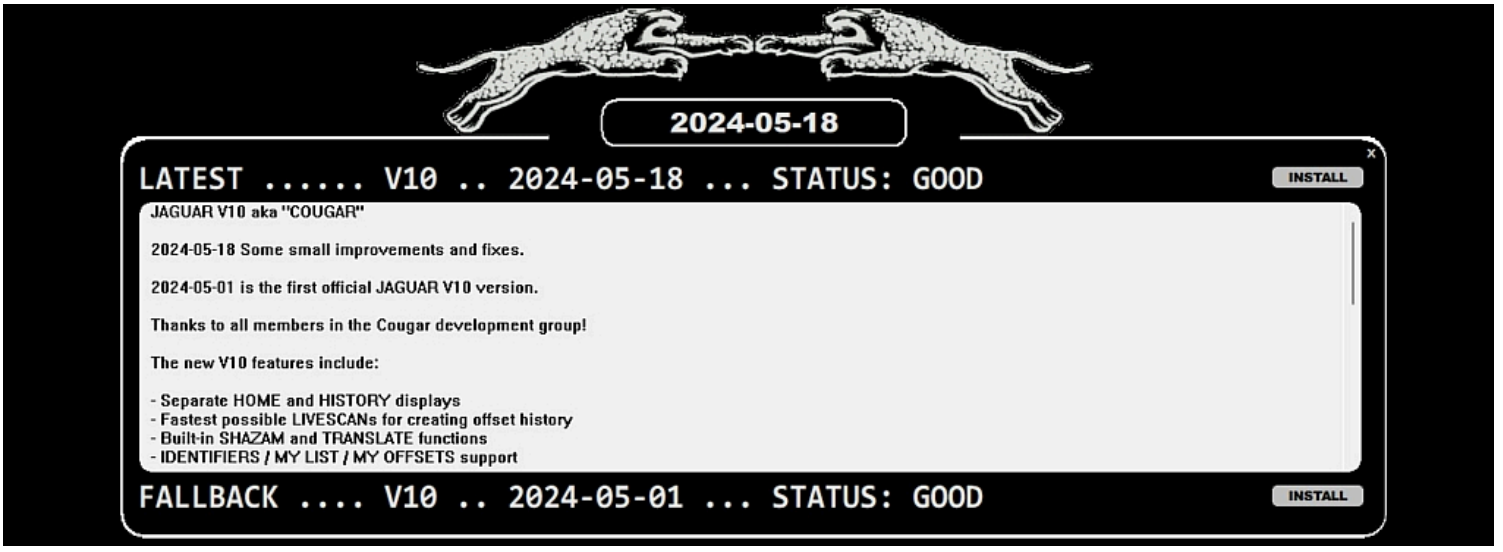
TIS DATABASE (North America)

Travelers' Information Stations (TIS), also called Highway Advisory Radio (HAR), are licensed low-powered non-commercial radio stations, used to broadcast information to the general public, including for motorists regarding travel, destinations of interest, and situations of imminent danger and emergencies. These are extremely interesting targets for DXers but very rare in the headphones, and because of the huge number of those stations in USA (over 2,300), they tend to fill TURTLE/US MAP/LOCATOR/etc. in vain most of the time. This is why JAGUAR has moved these stations to a separate TIS database, available only on demand (DATABASE BAR > MORE > USA TIS).

The TIS database is created automatically for each monthly TURTLE database and saved in the TURTLE folder with a name format of TURTLE-YYYY-MM-TIS.txt. The TIS databases cannot be opened with the standard "LOAD FROM DISK" function (DATABASE BAR > MORE > USA TIS must be used).

VERSION

The VERSION window shows the latest news about JAGUAR's development and versions, for example



HOW TO

VERSION can be opened only via INFOBOX > VERSION (click CHANGE).

The VERSION window allows you to easily install the latest JAGUAR version (click on the upper INSTALL button) and also to revert back to the last-known stable release (click on the lower INSTALL button). The currently-used version is shown on the window header.

If you find a bug in JAGUAR, please confirm whether the bug has already been fixed by installing the latest version before reporting (the bug may have already been fixed in the latest version).

VOYAGER

If you happen to have a 5-TB disk (or several of them) full of recordings, you do have a problem, namely, time. How on Earth you will ever have time to dig out all the gold from those files ?

Enter VOYAGER. VOYAGER is an interesting tool with a lot of potential, available if you have let JAGUAR to create the SCAN files during the recording (or created them afterwards using FILESCAN). Actually, VOYAGER is a "SCAN THE SCAN" tool.

VOYAGER is an explorer which you can send to an unchartered "signal space" (= a hard disk full of recordings) in order to find the time spots where the signal level on a given offset (or within an offset range) potentially reaches the audio level.

It is important to understand that VOYAGER will not search for the time spots where the signal on the desired offset/offset area is the strongest, but where the SIR (Signal-to-Interference Ratio) value is the highest. More info in the SIR help. "Interference" in this context means co-channel carrier peak(s).

SIR must be used instead of the signal power because the absolute signal power on some specific carriers does not necessarily correlate with the audio: even if the signal power is very high at some offset, there can be 20-30 stronger carriers around this nominal frequency. Also, if using only the signal power, we would not get the daytime signals to our result list because the nighttime signal levels are almost always stronger than those of daytime signals. Also, the use of an antenna preamplifier will complicate the analysis: non-amplified signals may not appear in the result list even if they would contain times where audio signals existed.

VOYAGER can give a huge speed benefit for solving UNIDs, either resulting in a fine new DX catch, or revealing that some familiar station has just drifted from its listed offset.

HOW TO

KEY = V

The use of VOYAGER is easy. Open HOME/SPECTRA display and

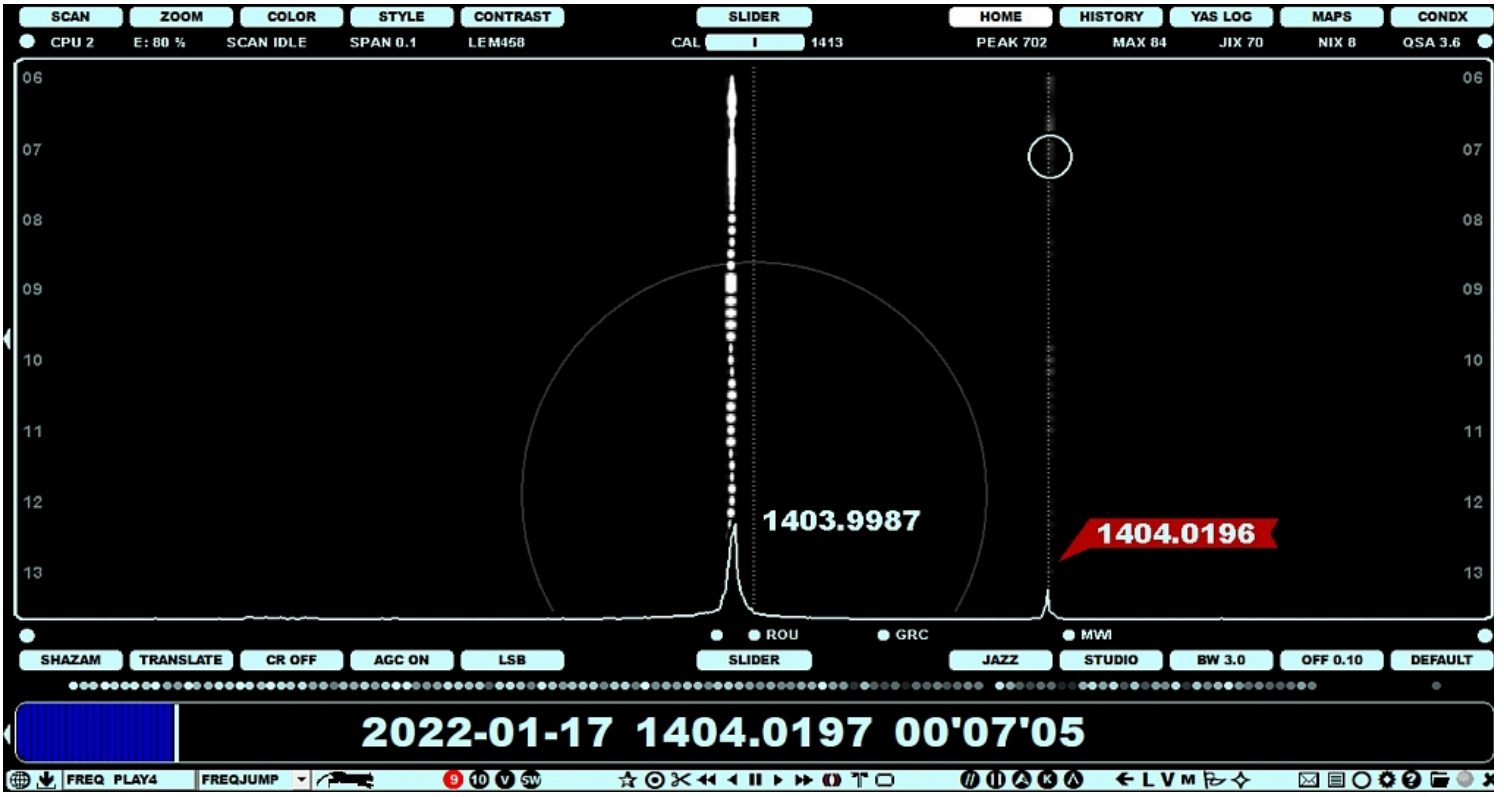
- Press the keyboard key "V"
- Move the mouse cursor over the spectrum track you are interested in (the transparent "pipe" is visible)
- Increase/decrease the "pipe" width if needed using the mouse wheel or left/right arrow keys (the "pipe" is the offset range to be studied)
- Mouse click opens up a popup menu: select either "RUN VOYAGER", if you want to study the whole current filepool or "RUN FOR DAY", if you want to study the files in the current day folder only

The result list will appear soon (and the control jumps to the time shown at the first entry of the list). If you are lucky, you can identify the station already from this first hit; if not, the VOYAGER result list contains a maximum of 30 potential audio spots.

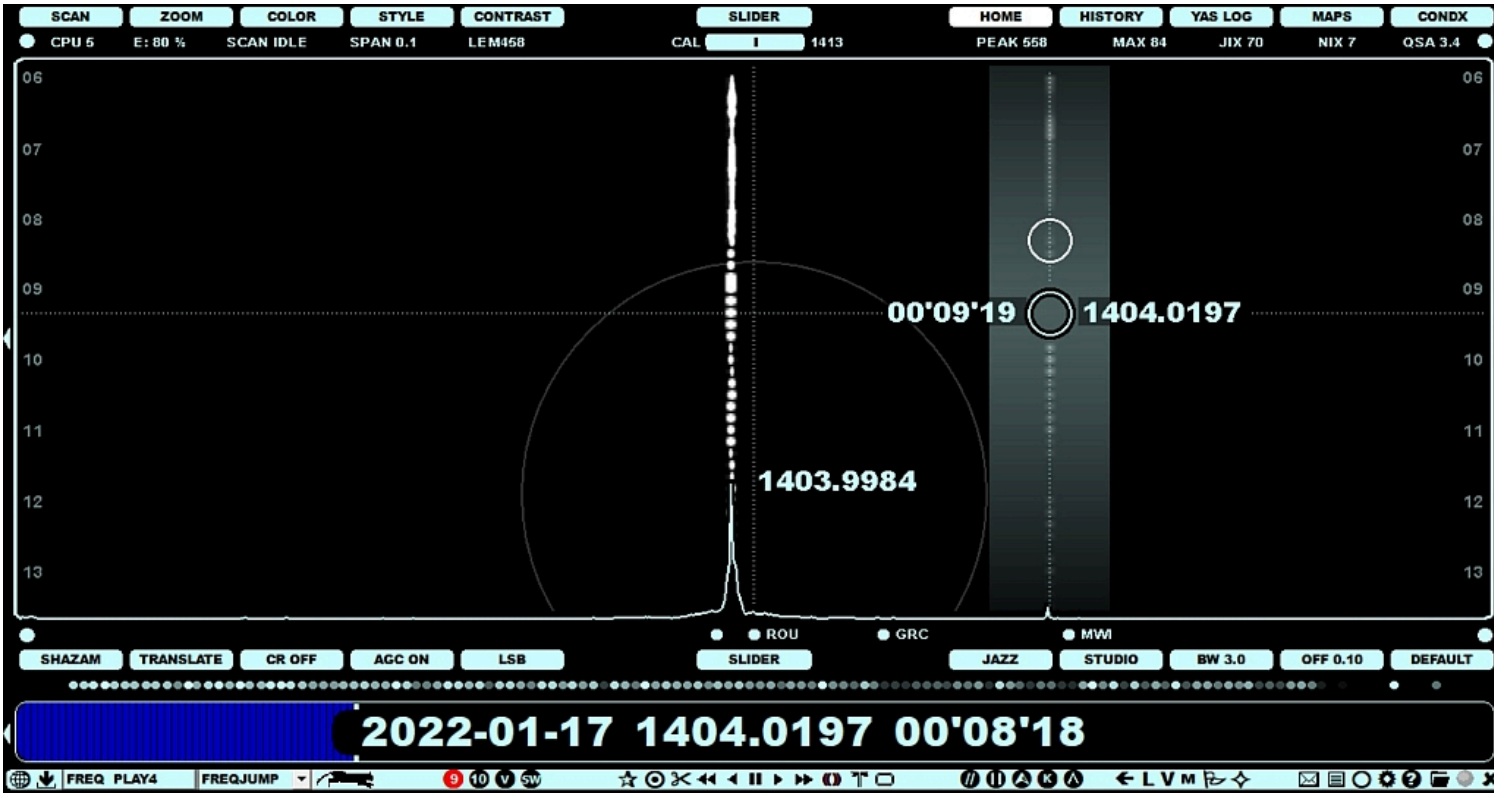
Pressing they keyboard key "V" again (or "ESC") brings you back to the original file/time where you started VOYAGER in the beginning.

The idea is probably easiest to describe with an example:

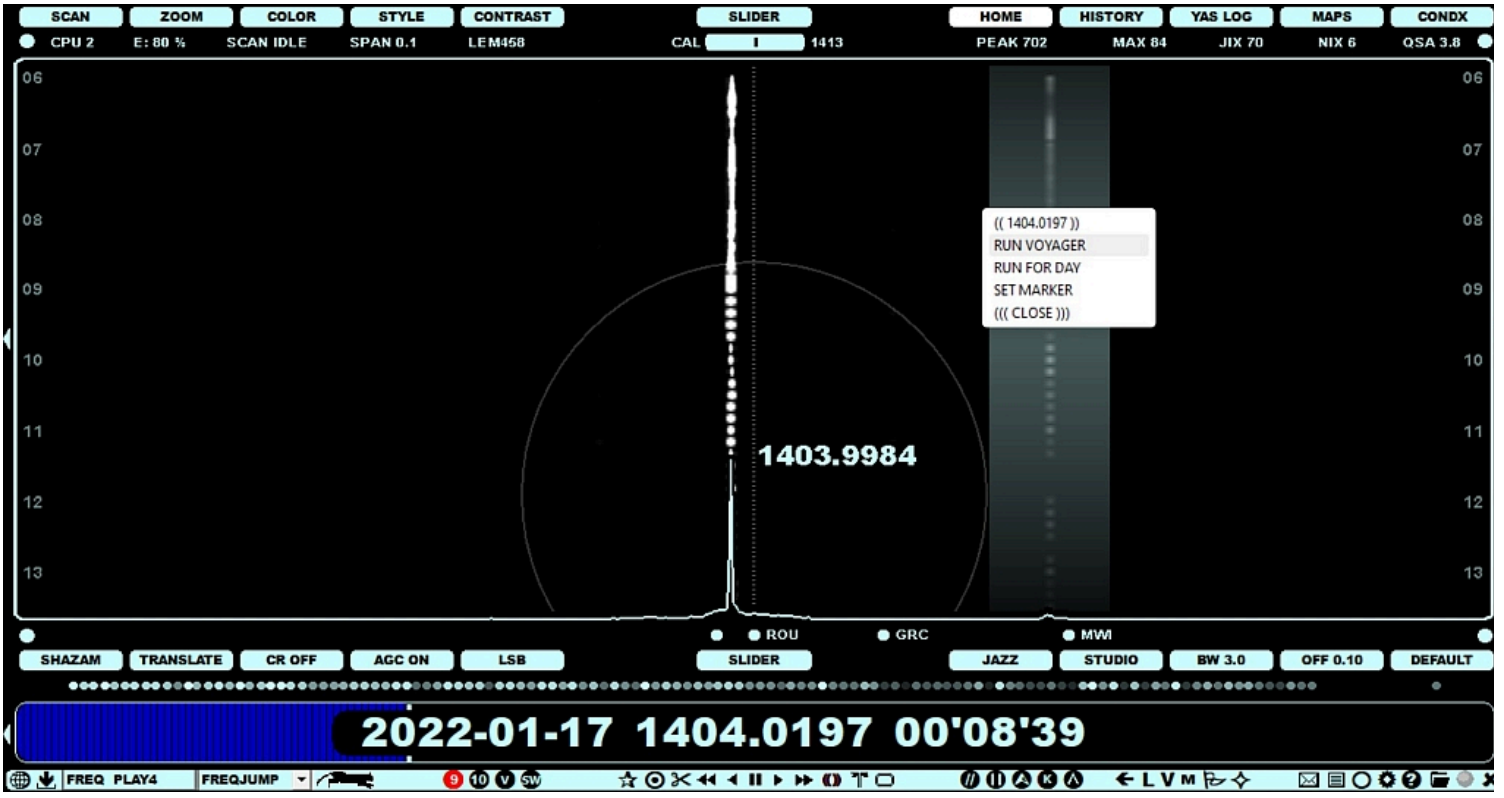
Normally Radio Romania dominates on 1404 here in Scandinavia, but sometimes you see other carrier peaks in SPECTOR just as below.



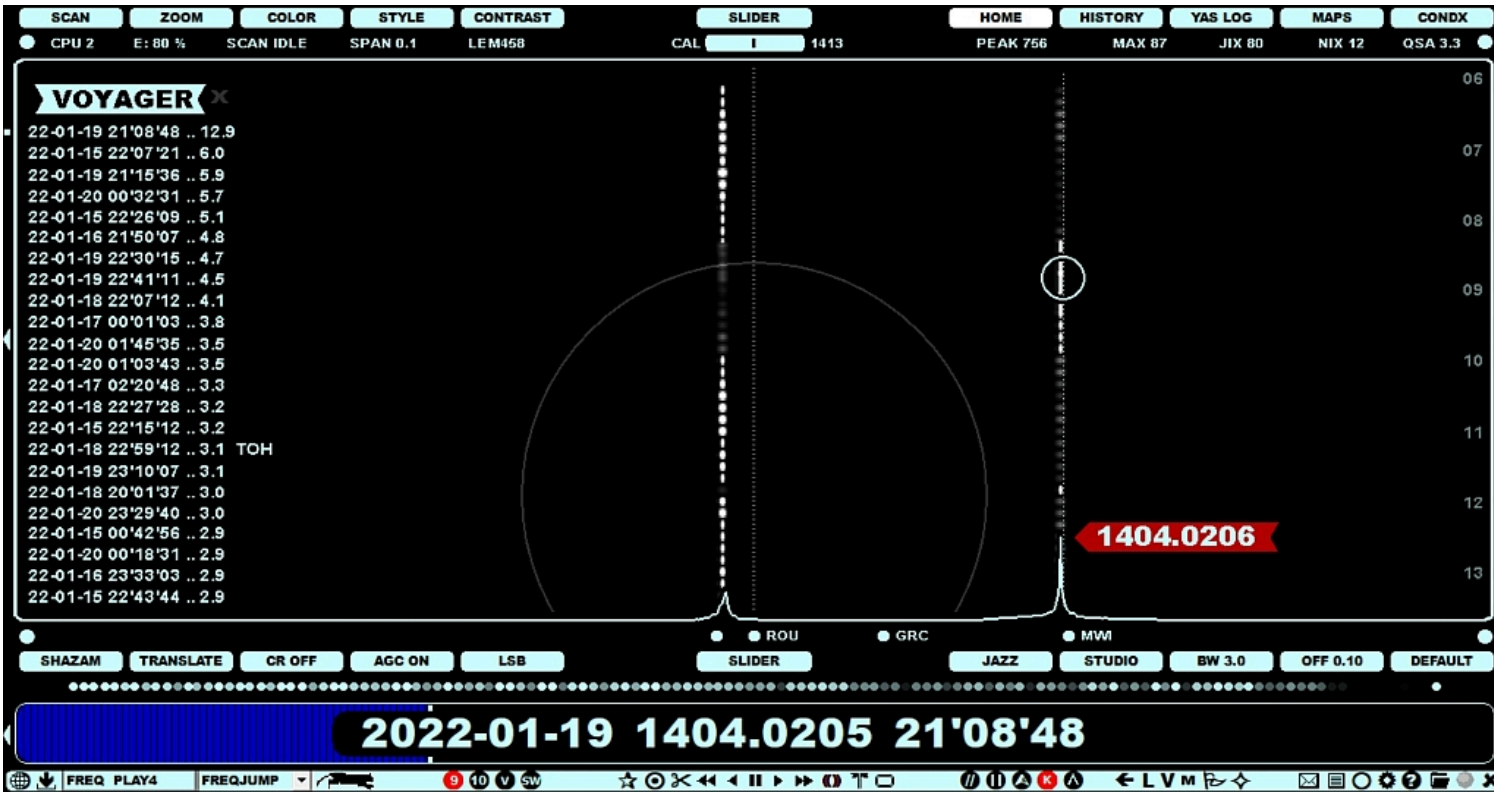
Let's check what VOYAGER can do for it: press "V" (you'll get the transparent pipe) and move the mouse cursor to 1404.0196 on HOME. Adjust the pipe range to max (this is a "faraway offset"):



Click to get the popup menu and select "RUN VOYAGER"



VOYAGER studies the existing SCAN files and jumps to the best peak found within that pipe. The VOYAGER list appears to the left frame and in this example the best peak happens to be interesting: the SIR value is 12.9 which means that on 2022-01-19 at 21'08'48 the signal of "the primary suspect" (MBC Radio One) on this frequency is 12.9 times stronger than Radio Romania.



And indeed: for a short period MBC Chitipa playing Congolese rumba ("Point Faible" by Commandant Josky as identified by Shazam) is the only station audible on 1404 kHz. If HOMESCAN is active, it draws the spectrum visible on the display immediately after jumping to that file (no need to listen the file) and also it confirms that Malawi is the strongest station on this frequency for almost two minutes (CATWALK's white track is always attached to the strongest carrier of the frequency).

You can get rid of the VOYAGER list by pressing the "V" key again, returning the control to the time spot where you were when you launched VOYAGER.

A wide VOYAGER pipe is good for offsets that are far away from the nominal. For example, Latin American stations can drift a lot, and they can be trapped with a wide pipe. However, close to the nominal, a wide pipe is not a good idea as it may capture stations that you are not interested in.

The current VOYAGER algorithm ignores the carrier peaks that do not belong to the "TOP 2" (two highest carrier peaks), so when a time spot is picked up to the result set, the pipe contains either the highest carrier peak or the 2nd highest peak at that listed time. If the carrier is the highest at that time, the corresponding SIR value is higher than 1.0. Assuming that the audible station has a carrier which belongs to the "TOP 2" is naturally not always true, but definitely in most of the cases it is. In fact, during an audio peak of a rare weak station it normally rises "to the top", i.e. temporarily it has the highest carrier peak.

The VOYAGER result list can contain real gold (good audio spots) but also "the fool's gold". Even if the SIR value is high, there may be no audio (or even no visible peak at that exact time spot). A good peak does not always necessarily correlate with audio so these spots can be ignored from the studies. If no visible peak exists at the result time, it is either because of calibration issues or corrupted SCAN data. Then, manual FILESCAN for those times may correct the data. However, in many cases, VOYAGER can also really find the spots where a rare station can be identified. In such cases, also the neighboring times should be studied carefully: VOAYGER divides the time space into 10-minute slots, and each picked result contains the best spot within that current 10-minute slot (even if there are many good audio spots within that 10-minute period, it is listed only once). The idea is that we do not fill the result list with times pointing to one "good file" only; instead, the results must be picked evenly from various files on the hard disk.

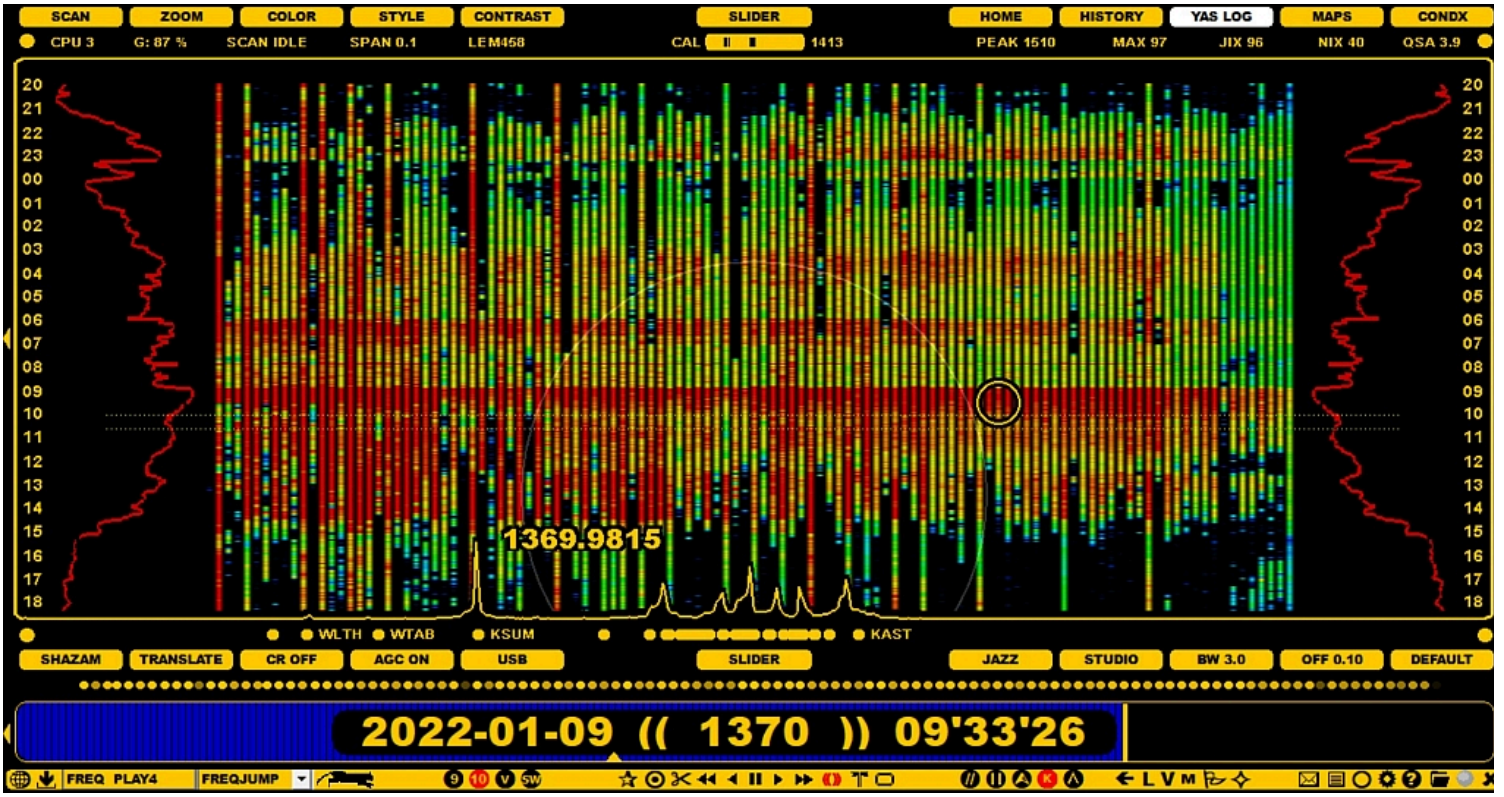
The VOYAGER algorithm will be developed further in the future.

The VOYAGER popup menu also contains the "SET MARKER" option. If VOYAGER didn't solve the station identity or if by any reason you want to set a marker to some specific offset, you can open the "pipe" with "V", open the menu (by clicking the pipe) and select "SET MARKER". This saves a "trap offset" to your OFFSETS.txt file. After this, whenever you tune to this frequency, you'll see a narrow "pipe" as a reminder to monitor that offset area. You can delete this marker clicking the trap pipe and selecting "DEL MARKER".

YAS LOG

JAGUAR PRO ONLY

YAS is the abbreviation of "Yet Another Spectrum", and it is the cornerstone in JAGUAR's ability to monitor the MW band around the clock. YAS uses a quick "overview FFT" method which creates and saves MW area snapshots.

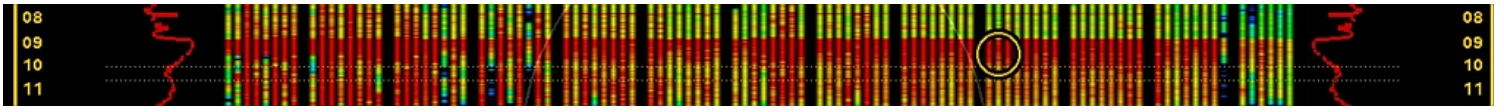


YAS saves a MW snapshot once a minute to a file called DAY.YAS. This file can be found in the folder where the recordings are being saved.

The DAY.YAS data is displayed on YAS screens. The YAS screens are part of JAGUAR's main screens, i.e. they are included in the WALLPAPER (W) rotation. The FFT used for YAS logging can pick up carrier peaks on the 9/10-kHz frequencies.

The YAS screen displays a colored bar for each MW frequency, and the number of bars is determined by the selected frequency stepping (9 or 10). YAS makes it very easy to spot overseas openings, fading up and down. Any overlapping 9/10-kHz frequencies can be hidden to make it easier to visualize true overseas openings. The contrast of the YAS display is also customizable.

Overlapping frequencies in MW9 and MW10 can be removed (SLIDER > STYLE > GAPS):



YAS will reveal station sign-on/sign-off periods for strong stations as the color bars will appear/disappear on the screen. It can also show daytimers signing on/off, e.g. resulting in a sudden change in the bar color at sign-on/sign-off times.

JAGUAR is designed for a 24/7 operation, and the YAS data collector is part and parcel of a MW DXer's toolkit.

HOW TO

YAS LOG is automatically generated and it can't be turned off.

Additional YAS LOG services can be configured via SETTINGS > KIT > OPTIONAL. This SETTINGS window contains three customization parameters for YAS LOG:

- YAS_IMAGES: STANDARD | ZOOMED | NO. If STANDARD or ZOOMED is selected, JAGUAR creates/updates the daily thumbnail images from YASLOGs. The thumbnails ("x.gif") are saved in recording-day folders, and can be uploaded to the kapsi.fi server if "IMG_SERVER" is enabled. The STANDARD gif contains one snapshot line per two minutes, the ZOOMED option gives one snapshot line per one minute starting from 22 UTC. Using the ZOOMED option, your x.gif files show less hours per day but with a better resolution.
- IMG_TARGET: MW10 | MW9. This parameter defines the "frequency selection" in the YAS thumbnail images.

- IMG_SERVER: YES | NO. If enabled, JAGUAR automatically uploads the YAS LOG thumbnails to the server at kapsi.fi. The thumbnails on the server are refreshed once an hour, and they can be viewed with any browser using this URL: http://jaguars.kapsi.fi/jagnet/jagthumb_12345678.gif . Replace "12345678" with your JAGUAR key, as shown in INFOBOX.

The YAS screen itself can be invoked in the following ways:

- click SLIDER > YAS LOG
- press W (WALLPAPER) until you see YAS
- press Y to toggle HOME and the current YAS zoom level

You can also leave the YAS screen using the methods above.

The YAS screen is zoomable, scrollable, draggable and clickable. This is all that you need for having the full control of the entire MW dial. The more you have recordings on your disk, the better!

ZOOMING. Toggle DAYVIEW <> ZOOMED by clicking SLIDER > YAS LOG. DAYVIEW tries to compress 24 hours into the full display, ZOOMED shows the YAS LOG with the maximum time resolution (can be moved up/down).

SCROLLING. Move the mouse to the YAS area and scroll YAS up/down with the mouse wheel.

DRAGGING. You can relocate the visible area of the screen up/down by dragging/dropping the canvas to the desired position. This function does not change the loaded data content but only moves the data to the desired position on the screen.

CLICKING. A true point-and-shoot service is available. When you move the mouse over the YAS screen, YAS will show a frequency-timestamp pair, based on the location of the mouse. If the mouse cursor's color is bright, a recording exists at that time point, and you can jump to that frequency/time with a mouse click.

YAS LOG also displays the JIX CURVES (see JIX for details), i.e. red curves on both sides of the screen and their corresponding values.

Don't forget those two important controls for customizing the YAS display on SLIDER: STYLE (GAPS > FULL > PEAKS) and CONTRAST (spectrum color strength).

ZOOM

The following objects can be zoomed in JAGUAR:

- The text size in TURTLE
- The spectrum width ("SPAN") on HOME/HISTORY displays
- MAPS

HOW TO

KEY = + and -

Pressing the "+" or "-" key increases or decreases the current SPAN (spectrum width) with two exceptions:

- If the mouse cursor is over the TURTLE text area, +/- increases/decreases the font size
- If the MAPS display is active, +/- zooms the map in/out

On all other displays +/- change the horizontal spectrum size, up to max 50 kHz. The smallest range (0.025 kHz) is useful when doing exact offset measurements.

In addition to +/- you can also use SLIDER > ZOOM for increasing/decreasing the display range or just move the mouse cursor to the bottom area of SPECTOR (the red offset flag appears to cursor) and scroll using the mouse wheel and/or left/right arrow keys.