JS8 using IC-7300

To get started, have a look at these pages:

- IC 7300 Settings for Digital Modes
- JS8Call main page
- JS8Call Download
- JS8Call on groups.io

JS8CALL Setup

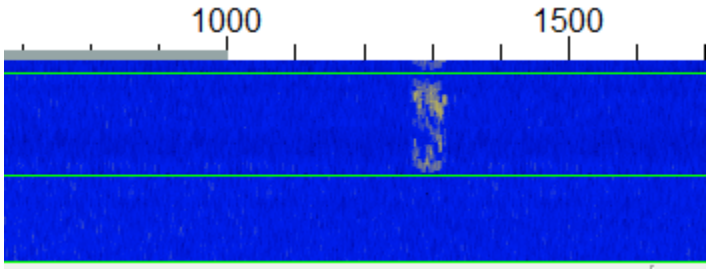
Under `File` → `Settings...`

- `Radio` → `CAT Control`:
  - Rig: Icom IC-7300
  - Serial Port: Depends on each computer
  - Baud Rate: 9600
  - Data Bits: Default
  - Stop Bits: Default
  - Handshake: Default
- `Radio` → `Rig Options`
  - PTT Method: RTS
  - Port: Same as on the `Cat Control` page
  - Mode: None
  - Split Operation: Fake It
  - Tx Delay: 0.2 s
- `Audio`
  - Soundcard Input and Output: (USB Audio CODEC)

Computer Timing

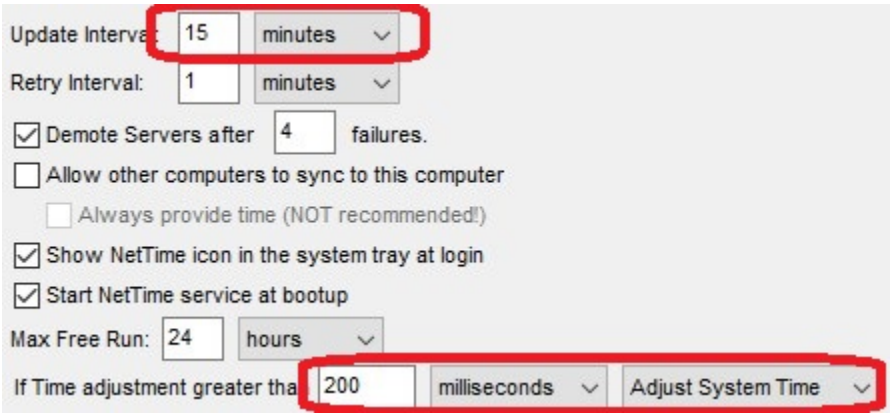
At normal speed, JS8Call transmits in blocks of 15 seconds.[1)] For two stations to be able to communicate, the start of these blocks has to be synchronized to within about 2 seconds of the horizontal lines on each station's scope. That's why it's really important for everyone to keep their computer clock as accurate as possible (to within 2 seconds of each other). You can easily test the accuracy of your clock by going to https://time.is

Here's an example of a block that is within the horizontal lines, so it's well synchronized (with my station anyways):

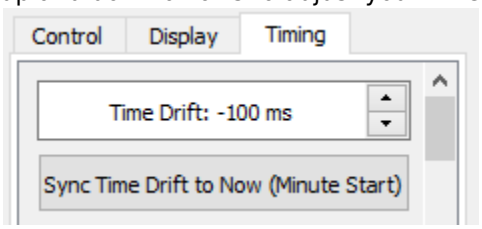


There are three ways to adjust your clock:

1. You can use an **internet** service to adjust your computer's clock.
    - On Windows, you can use Network Time. Here are the *Network Time* settings I changed so that it keeps my clock within 200 ms:

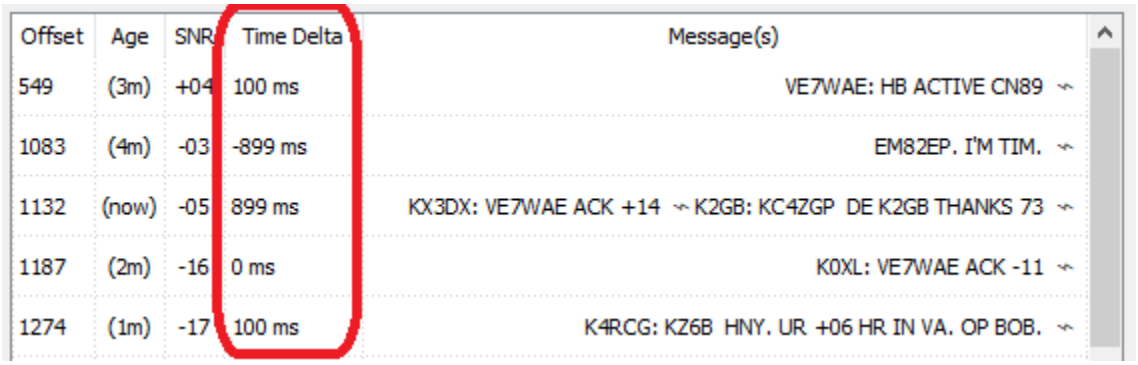


    - On Linux, you can run `sudo ntpdate pool.ntp.org` ones in a while.
2. If you're “offline”, you can use the **WWV time signals**[2] on 2.5 MHz, 5 MHz, 10 MHz, 15 MHz, or 20 MHz.
3. You can use the **Time Drift tool in JS8CALL**, which adjusts the program's clock offset without changing the operating system's clock. To see the tool, make sure that this has a check mark: `View` → `Show Waterfall Controls` → `Timing` tab. Use the up and down arrows to adjust your time drift (more on this below):



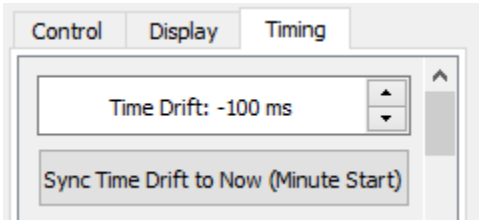
Here's how to use the Time Drift Tool:

- Make sure that you can see the `Time Delta` column in your `Band Activity` Window. If not, make sure that this is checked: `View` → `Show Band Activity Columns...` → `Time Delta`



Offset	Age	SNR	Time Delta	Message(s)
549	(3m)	+04	100 ms	VE7WAE: HB ACTIVE CN89
1083	(4m)	-03	-899 ms	EM82EP. I'M TIM.
1132	(now)	-05	899 ms	KX3DX: VE7WAE ACK +14 K2GB: KC4ZGP DE K2GB THANKS 73
1187	(2m)	-16	0 ms	K0XL: VE7WAE ACK -11
1274	(1m)	-17	100 ms	K4RCG: KZ6B HNY. UR +06 HR IN VA. OP BOB.

- If everyone's computers were perfectly synchronized, all these `Time Delta` entries would be 0 ms. Realistically, there's always be a bit of variance, but you should try to ensure that your clock is synchronized with most other operators.
- For example, suppose that most operators are around +500 ms, then you'd want to adjust your `Time Drift` to -500 ms to cancel out the `Time Delta` (and vice versa). Note the sign (+/-) of the `Time Drift` is opposite that of the `Time Delta` For example, here I had to put a `Time Drift` of -100 on mine to match the other operators:

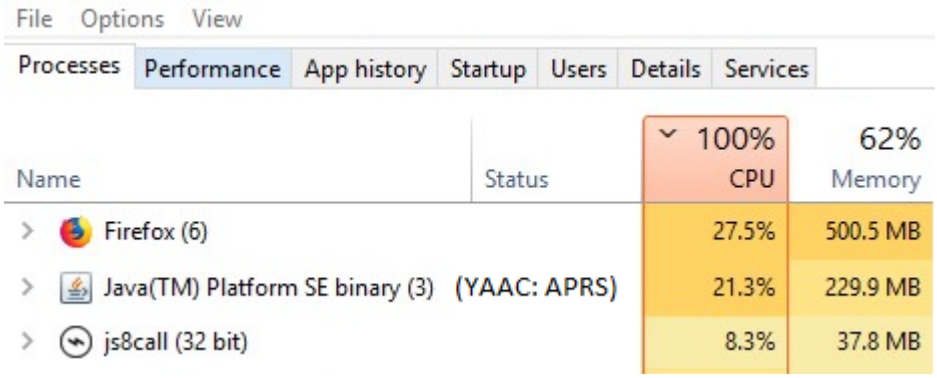


- The last thing to keep in mind is that this time drift might need to be adjusted periodically depending on how well your computer keeps time.

Troubleshooting

CPU Overload

The Issue: Sometimes the QSOs in JS8Call don't get decoded properly: The waterfall shows the data blocks being received, but the text doesn't show, or parts of it do, but with gaps showing as "…" instead.



The Reason: At first, I thought that the YAAC (the APRS program I was running at the same time) was causing the issue because when I close it, JS8Call would start behaving again. But it turns out that it was simply a lack of CPU power. I'm running JS8Call on a cheap mini computer and was reaching 100% CPU when running JS8Call, YAAC, and Firefox at the same time.

Turns out that running any two of these programs is fine, but not all three.

To check on your CPU usage, press CTRL+ALT+DEL on your keyboard, then select `Task Manager`.

Radio Filter

If the waterfall on the JS8Call screen shows a narrow light blue region with darker areas on either side, it could be that your radio filter is too narrow. Roughly, the filter should be set to 3kHz. I usually have mine set between 500Hz and 2700Hz.

Some tricks:

- Sometimes, the band is really busy with stations sending Heart Beats. The region between 500Hz and 1000Hz seems to be used mostly for that sort of automated stuff. If you want to stop all those HB from filling up your screen, you can quickly tighten your filter between 1000Hz and 2700Hz.
- The notch filter is also useful sometimes to quiet down a really loud station or a random RTTY signal.

1)

Here's a summary of the different speed:

Mode	Bandwidth	Speed	Frame Length	Mininum SNR
Slow	25 Hz	8 WPM	30 seconds	-28 dB
Normal	50 Hz	16 WPM	15 seconds	-24 dB
Fast	80 Hz	24 WPM	10 seconds	-20 dB
Turbo	160 Hz	40 WPM	6 seconds	-18 dB

The new MULTI decoder can decode all four speeds at once.

2)

Wikipedia: WWV (Radio Station)