

The Wonderful World of SSTV

There is a wonderful fraternity of hams operating SSTV. You will find many stations on 14.230 MHz, a frequency I often visit. This guide endeavors to provide ideas, hints and tips for the new SSTV operator: to help get you started quickly to enjoy this fascinating area of amateur radio. The guide is long, but definitely not exhaustive. It is written to give you some resources and guidance. If you are stumped, better if you simply jot me an email on the specific topic and perhaps I can further assist with some details. My email: larry@wb9kmw.com

Can You Hear Me Now?

I quickly realized the importance of good signal reception. You certainly want to copy the ham's call sign when answering the CQ! I discovered that QRN plays a big role in quality image reception. So I did several things to enhance my ability to receive signals. Here are three major steps I initially took:

1. I first inserted Signalink between my Kenwood transceiver and my Asus netbook computer. This replaced the inferior sound card in my computer.
2. The next improvement was to hone in on the signal with an MFJ-784B audio filter. That connects to my headphone jack. It offers a special SSTV dual band-pass filter. The first filter is tightly set for the VIS tone. The other filter passes the picture content at 1,450 to 2,350 Hz. This now allows me to set my receive RF control at full gain and turn up my AF gain moderately high. I can still comfortably adjust the listening volume for my speaker or headphones via the MFJ unit control.
3. Then I added an MFJ-1040C preamplifier. That jumps the S-signal level on a clear channel from S-4 to S-8.

I routinely monitor sister SSTV cam stations and compare my copy. I nicely improved my reception ability with the measures above even though I had a simple attic dipole.

That was 2012. Now I have an AN Wireless tower and a Force 12 C-3 Yagi at 51'. The Kenwood transceiver I received from my father-in-law KAØUKG no longer operates. I now use a Kenwood TS-590S, and that is run through a RIGblaster plus II into an Acer laptop. Each step of the way, I have improved & improved & improved my ability to copy SSTV signals.

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Check Those Pics

There are some hams that go a step further and routinely port their received SSTV images to the Internet. I do so at www.WB9KMW.com I have found many sister SSTV cams which TEND to receive the same images as I do. They spread out nicely from the east to west in the US, plus one in Nova Scotia and one in Calgary. When you transmit your picture, you can quickly go to my 20M SSTV tab to see my copy, or that of other stations and observe the propagation at that moment.

You can look at even more SSTV cams. Just go to the bottom of my SSTV web page and click on links for GØHWC, CX2ABP and World SSTV. WB9KMW is featured in each of these international SSTV cam listings.

The Silent QSO

Most SSTV QSOs are done in silence. No talking like the typical SSB contact. Sure, it's OK to talk on 14.230 MHz, but most of the time hams 'talk' by trading pictures overlaid with a template of printed information. How is that done?

The typical SSTV QSO involves four (sometimes three) exchanges. It goes like this.

<u>Station A</u>	<u>Station B</u>
Calls 'CQ SSTV'	Replies with call signs and RSV signal report
Replies with RSV, etc.	Transmits another picture and other info*
Transmits other info*	Sends a 73 transmission
Sends a 73 transmission	

*Hams exchange lots of things: name, QTH, very brief personal message (MMSSTV allows a free-form message to be inserted on the template), etc.

Each transmission takes about 1 minute and 50 seconds in Scottie 1 (1 minute 11 seconds in Scottie 2). So you can see it is easy to hold a one-quarter hour QSO!! I will have more on how to efficiently prepare your next transmission while receiving a subsequent picture from the other station.

Often for DX QSOs I have, such as in Europe, we eliminate one round in the process, since we are in a weaker signal environment with QRM & QRN. Hence, I reply to someone's CQ with a signal report and my next & final transmission is a 73 template with picture.

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Pretty in Pink

A major aspect of SSTV is the pictures we share with one another. They represent the personality and interests of each ham. I attempt to find striking images. I get them from friends who pass those emails around! I do Google searches sometimes. Other times I just stumble across an image while reading something on the web.

The picture editor in MMSSTV is very limited. Hence, I do all my image manipulation on my desktop computer using GIMP 2 software to edit those JPG images.

The most common SSTV image format is 320 pixels WIDTH by 256 pixels HEIGHT. So I will size and crop a desired picture to those dimensions, if possible. If not, I may set the height to 256 and crop the edges while still attempting to retain a decent photo, or I will set the WIDTH to 320 and settle for an SSTV presentation which runs out of picture before the end of my transmission.

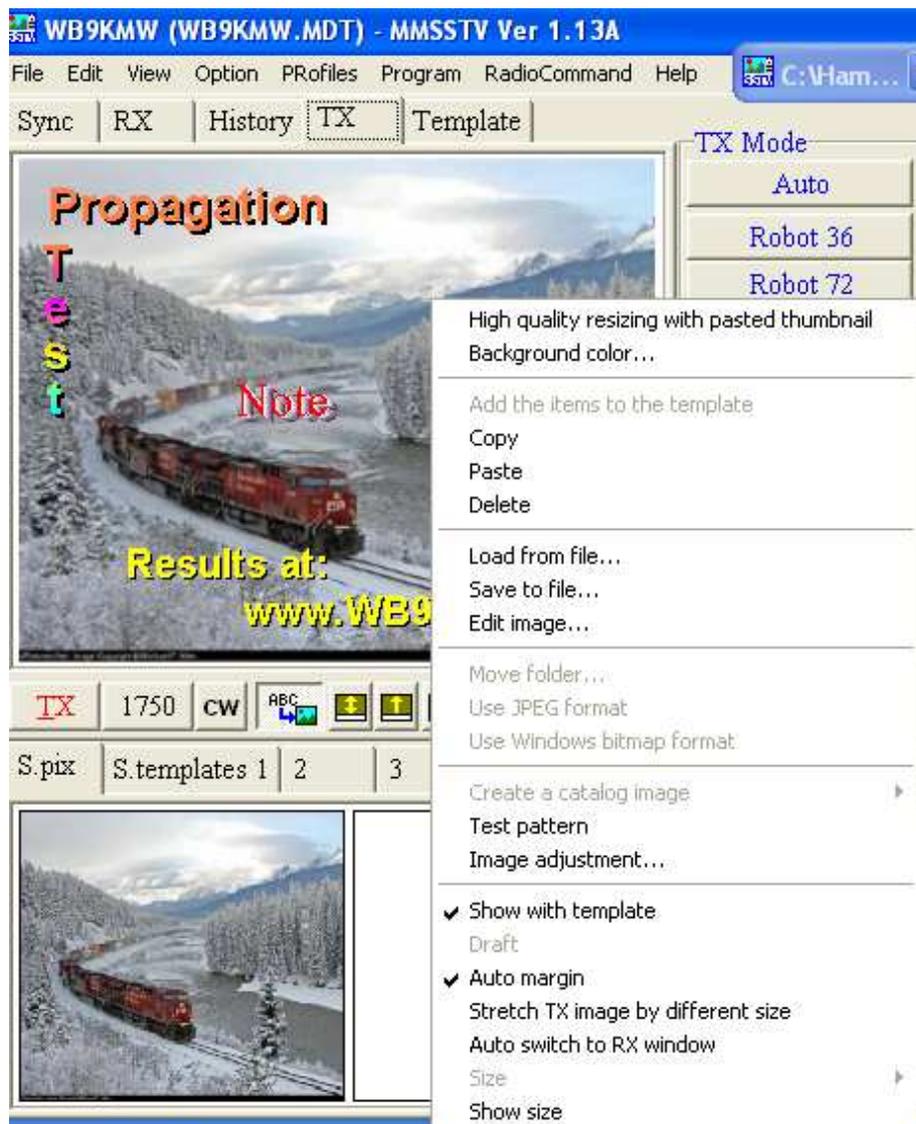
I suggest to begin with you have a dozen nice pictures stored in your MMSSTV software.

How?

Simply set up a file folder. I call mine 'My Pictures' and place that folder inside the HAM>MMSSTV sub-directory. That's my storage site. You will then grab a picture from this file, process it and store the final version for ongoing SSTV transmissions.

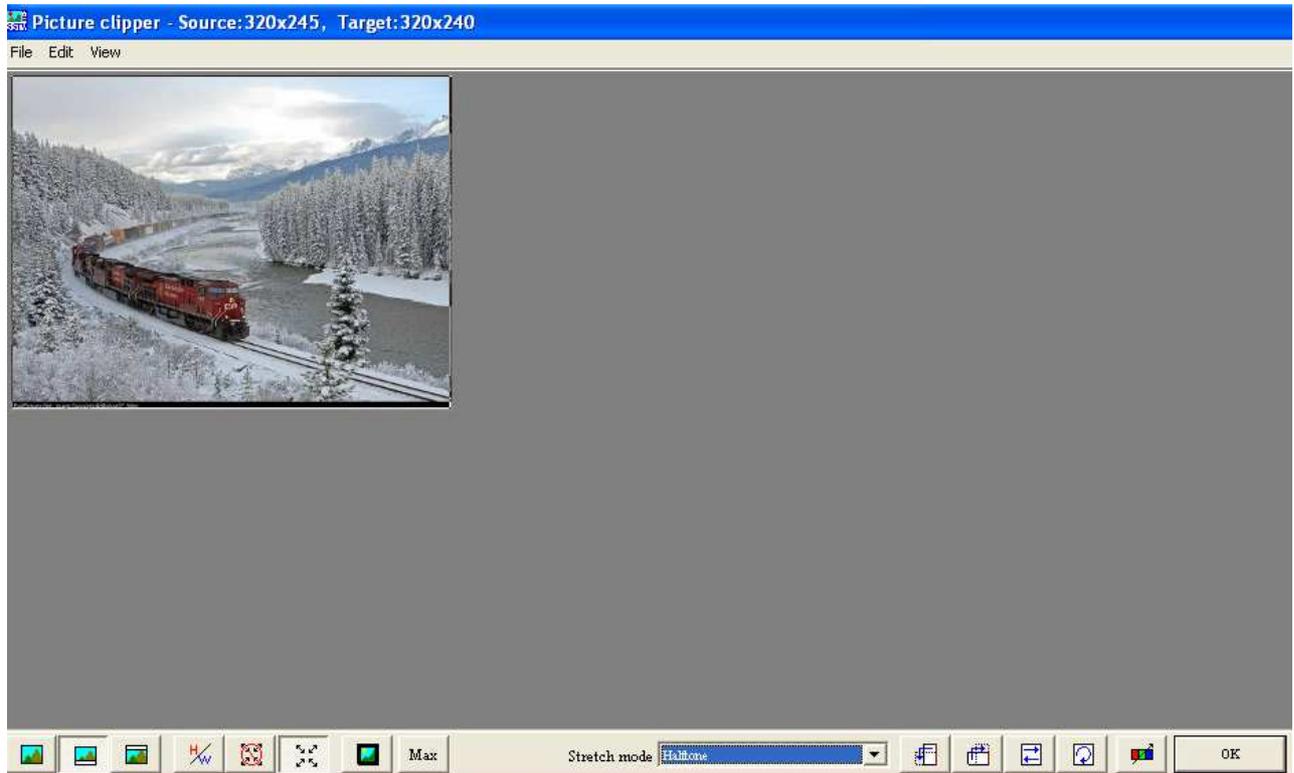
I now go a step further and categorize pictures thematically, and therefore, I organize sub-directories within 'My Pictures' for further ease of access. Eg, sub-directories for themes like: cowboys, islands of the Caribbean, Halloween, sunsets, etc, etc.

First, go to the TX tab, then right mouse click in the window to bring up the following dialog box and click on the 'Load from file...' option. Look for that file folder of your source pictures and select the image you wish to load into MMSSTV.



Next you will see the following Picture Clipper box. If you have done a nice job of pre-sizing your image with GIMP 2, you will see a full-screen view like this, and all you will need to do is click OK.

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Now that image appears in the TX screen (already done as seen on the previous page), all that remains is to click on the 'S. pix' tab in the lower left hand corner, and drag & drop your image into one of the free blank spaces along that row of six places at the bottom of MMSSTV. There are 49 more 6-position sections like this, so you can store up to 300 (50 x 6) pre-formatted images for SSTV transmission.

Image Management Made Simple

That is a lot of images to consider when conducting an SSTV QSO. There is an easy way to help you quickly select the next image you wish to transmit. And you can make your choice while the other ham is part way through his latest SSTV transmission. You will soon find that 1 minute and 50 seconds is a lot of time to select your next image, select your next template (more on that in a moment), personalize if necessary and still have plenty of time to return to the RX tab to see the latest transmitted image unfold.

In order to bring up a picture grid like what you see below), go to the View menu option at the top, and from the drop down list, click on 'Always show thumbnails of files folder.' When this is minimized, it tucks in the lower left hand corner of the MMSSTV screen—or as I do, show a 2 row x 5 column set of thumbnails, as you'll notice in a subsequent screen shot. You can size rows & columns to suit your wishes.

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Whenever you add new pictures, click on the right file folder icon in the upper left hand corner and it will refresh your picture content. When ready, you will simply double click on the desired image and it will automatically load into your TX screen, and after you then select a suitable template, you will be cued up to transmit!



Template Talk

Well, that took long enough, didn't it to get to templates!? Templates are the word overlays to your pictures which round out your next transmission message. You need a variety of templates in order to carry on an intelligent QSO via pictures. You are now going to learn how to do this.

Recall I said there are generally four parts to a QSO? Please review 'The Silent QSO.' I create and organize my templates so that I very easily move from one phase of the QSO to the next, and still have lots of time to go back to view the latest picture I am receiving.

MMSSTV offers a wonderful way to organize things. See 'S. templates 1' in the screen shot on the previous page? Next to that is 2, 3 and 4. Well, I take full advantage of that organizational potential. Here is how I choose to do it.

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If you click on 'S. templates 1,' you will again see six place in a row and towards the lower right hand corner you will see x/50 next to the right & left arrows. That means just in this #1 section you could store a whopping 300 templates. You may notice in the previous screen shot, that I have set my MMSSTV window to display two rows of six templates.

I store all my CQ, QRZ?, Testing and 'to a specific call sign' templates in this section. I liberally space them out over the next couple of pages, so, for example, all my 'Test SSTV' templates are in one cluster. I create a new template whenever I get a new idea for one.

As a beginner, you need just one CQ SSTV template. That's it. You could use one of the pre-built templates that comes with MMSSTV. By now, I have discarded every one of them in favor of all my own designs.

Now that you get the idea, I then have my 'first reply with RSV' templates all stored and sorted into a few six-section pages in '2.' I have many to choose from.

Section '3' is naturally reserved then for any subsequent QSO reply. I again have many stored templates. This would help me express things like: my equipment, QTH (including a picture of Wisconsin), info about my ham web site and so on.

Section '4' is for good-byes. I have many different 73s templates. Of course, to begin with, you only need one.

For a few of my templates in sections 2-4, I also have them set up for variable data, ie, Name or Note, as drawn from the logging area of MMSSTV (below the signal spectrum display). More about logging later.

Template Time

Enough talk, now let's build a template. It will be easiest if you take an existing stock MMSSTV template and modify it. Once you get the hang of it, you'll be creating them at will.

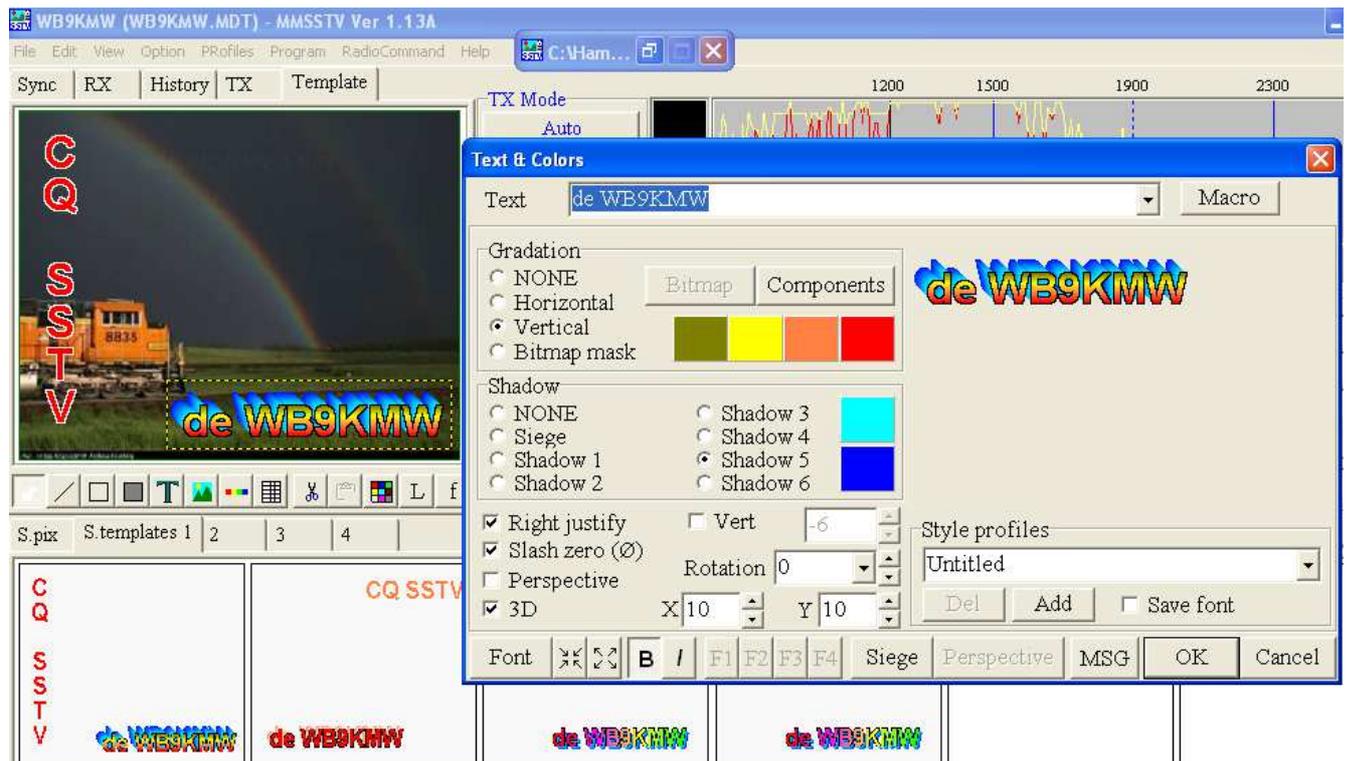
So very basically, please go to 'S. template 1' and double click on a template you wish to modify. It will then appear in the Template tab screen. You can then begin to work on it. When you double click on any existing text entry, eg, de WB9KMW, the Text & Colors dialog box will appear. (See example on next page).

You can then change the text, play around with all the different color controls, and even use controls such as Vert to display your text from top to bottom, or even rotation with the Rotation control.

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When satisfied, click OK. You can drag the newly created image around the template screen until you are satisfied with its placement.

Continue until you are satisfied with all text entries. And if you need a new one, simply click on the big T in the menu choices under the picture and the Text & Colors dialog box will again appear.



Now there is a nice feature in the upper right hand corner of the dialog box, called Macro. Click on that and you will see some handy items which pick up data from the MMSSTV log and post it into your template.

For example, %c is the other station's call sign. Other useful macros are:

- %r for the RSV signal report you are sending him
- %n for the other ham's name
- %o for your very brief note

Once you are done, simply click somewhere in the middle of your screen (not on any text area), and drag & drop into any open template square below (or into one of the other 49 sections). You could also simply drag and drop over an existing template to permanently replace it.

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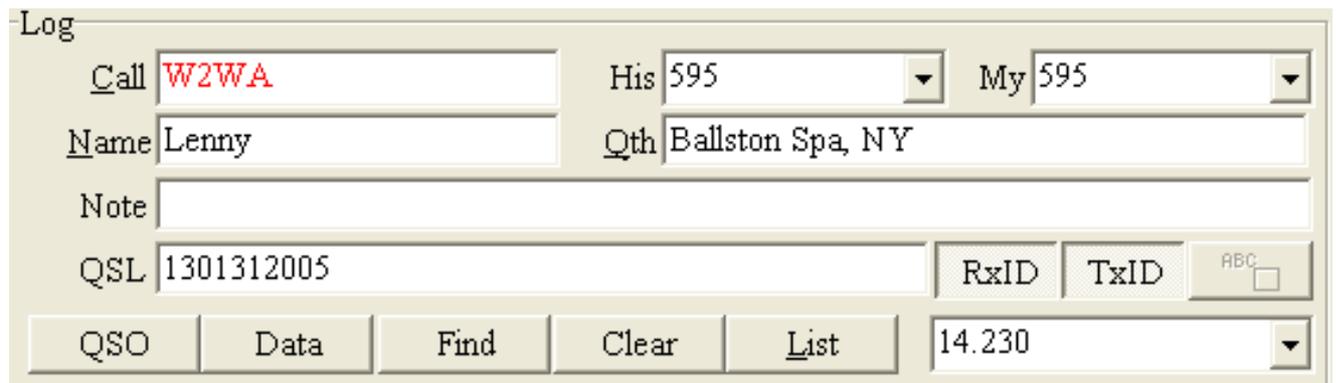
Isn't It About Time I Get On The Air??

Guess what? You ARE ready. If you have your picture and template loaded as you wish, simply click on the TX tab and you will see the same thing you just readied appear in this transmit screen. IF the template does not appear, simply right click in the transmit window and be sure that 'Show with template' is checked. Click on the **TX** in the left corner below your picture and you are on the air for the next 1 minute and 50 seconds.

Oh yes, did we ever mention this is a 100% duty cycle—like full key down? You can get a real hot & bothered transmitter if you don't scale things back a little bit, say cut your power in half. I typically run my Kenwood at 25 to 50 watts, per my power meter.

Log that QSO

MMSSTV has a nice, little logging feature which I like to use for all my SSTV QSOs. (I also use it to log SSB QSOs.) If you are into exporting this into a master log, that function is there for you. But for now, let's just concentrate on the logging.



The screenshot shows a 'Log' window with the following fields and controls:

- Call:** W2WA (text in red)
- His:** 595 (dropdown menu)
- My:** 595 (dropdown menu)
- Name:** Lenny
- Qth:** Ballston Spa, NY
- Note:** (empty text box)
- QSL:** 1301312005
- RxID:** (empty text box)
- TxID:** (empty text box)
- ABC:** (checkbox, unchecked)
- Buttons:** QSO, Data, Find, Clear, List
- Time:** 14.230 (dropdown menu)

Above is the basic logging entries for my QSO with Lenny, W2WA. Since I have worked him before, his call sign appears in red, and his name and QTH are automatically set in place. All I need to do is select today's RSV signal report from the drop down box, or type one in, and also insert the RSV report he gives me.

To log this QSO, simply click on the QSO button in the lower left portion. It will post the current time (UTC). If not accurate, you can always adjust on the detail screen after your QSO.

Once you are finished with the QSO, click that QSO button once again to restore it to its normal, 'off' position.

Now let's take a look at our log book. Simply click on List and up pops the following log book entries. You will see W2WA listed at the bottom representing my latest entry in this log book.

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Date	UTC	Call	M	His	My	Band	Mode	Pow	Name	QTH	S	R	Note	QSL
01.23.2013	1927	WA3RYQ		594	595	14.230	SSTV		Ken	Lansdale, PA				
01.23.2013	1838	KG5CR		494	595	14.230	SSTV		Bob	Alexander, AK				
01.28.2013	1721	KG5CR		595	595	14.230	SSTV		Bob	Alexander, AK	S			
01.28.2013	1907	KD4WPC		454	595	14.230	SSTV		Doc	Stringtown, OK	S		RSV was 454, Doc	
01.18.2013	2015	KR4RO		595	595	14.230	SSTV		John	Mooreville, NC	S	S		
01.30.2013	1708	W2PTH		595	595	14.230	SSTV		Stuart	Cherry Hill, NJ	S		Devoted time to fix my SSTV sl	
01.30.2013	1802	W2WA		595	595	14.230	SSTV		Leo	Ballston Spa, NY	S		Brand new to SSTV	
01.30.2013	1843	W8FDV		595	595	14.230	SSTV		Jim	Apache Junction, AZ	S		Tnx 4 pix, Jim. Larry	
01.31.2013	1938	W2WA		595	595	14.230	SSTV		Lenny	Ballston Spa, NY			Read my letter, too, Leo.)	

Now if we double click on one of the entries in this row, it will pop up the detailed log for this QSO. You can now make any adjustments to the details (perhaps correctly the beginning or ending time of the QSO or adding QTH if you looked it up in QRZ.com).

You will also notice this shows a history of repeat QSOs with Lenny. After any adjustments to this latest log entry are made, just click on the Write button in the bottom right corner and your updates will be saved.

Once you are finished viewing your log book, just x-out this browser screen and you will return to the main MMSSTV screen.

Date	UTC	Call	M	His	My	Band	Mode	Pow	Name	QTH	S	R	Note	QSL
01.23.2013	1927	WA3RYQ		594	595	14.230	SSTV		Ken	Lansdale, PA				
01.23.2013	1838	KG5CR												
01.28.2013	1721	KG5CR												
01.28.2013	1907	KD4WPC												
01.18.2013	2015	KR4RO												
01.30.2013	1708	W2PTH												
01.30.2013	1802	W2WA												
01.30.2013	1843	W8FDV												
01.31.2013	1938	W2WA												

[W2WA] W/NA 1940R U.S.A.

QSO Data

Date: 01.31.2013 UTC: 1938 End: 1955 M: Pow: JCC/JCG

Call: W2WA Name: Lenny QTH: Ballston Spa, NY

My: 595 His: 595 Band: 14.230 Mode: SSTV

Note: Read my letter, too, Leo

QSL: S: R:

Env: 1 Opt1: W Opt2: NA Usr1: Usr2:

Date	UTC	Call	M	His	My	Band	Mode	Pow	Name	Q
01.31.2013	1938	W2WA		595	595	14.230	SSTV		Lenny	B
01.30.2013	1802	W2WA		595	595	14.230	SSTV		Lenny	B

Perfect: 2 Pic Write Close

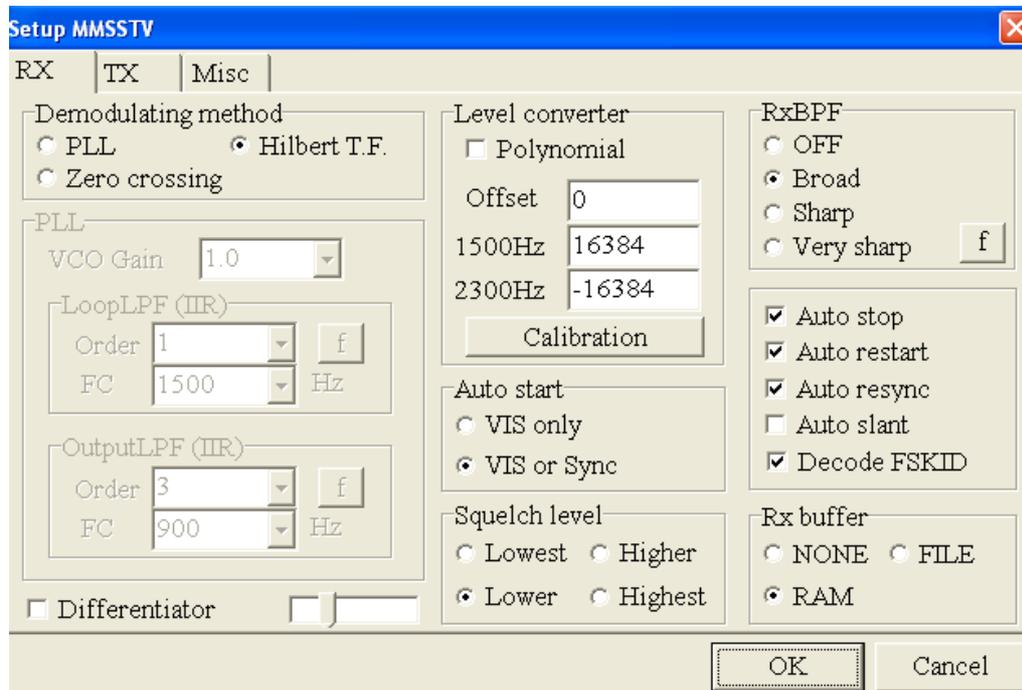
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Congratulations

There. You have done it. You are ready now to be a proficient member of the SSTV fraternity!

And in parting, you may be curious about those MMSSTV configuration screens in the menu area: Option > Setup MMSSTV(O)... I am no expert on this, but here are setting which I have found useful. They may help you, too.

Notice that I do NOT check 'Auto slant' and many other hams do not, either. We are interested in seeing the pure picture as transmitted. So if you have a slanted transmission image, you are in big trouble with us. We won't be able to read your template text, and you may not get a reply from your CQ. For help on slant, please read my How To: *That Pesky Slant* at www.WB9KMW.com

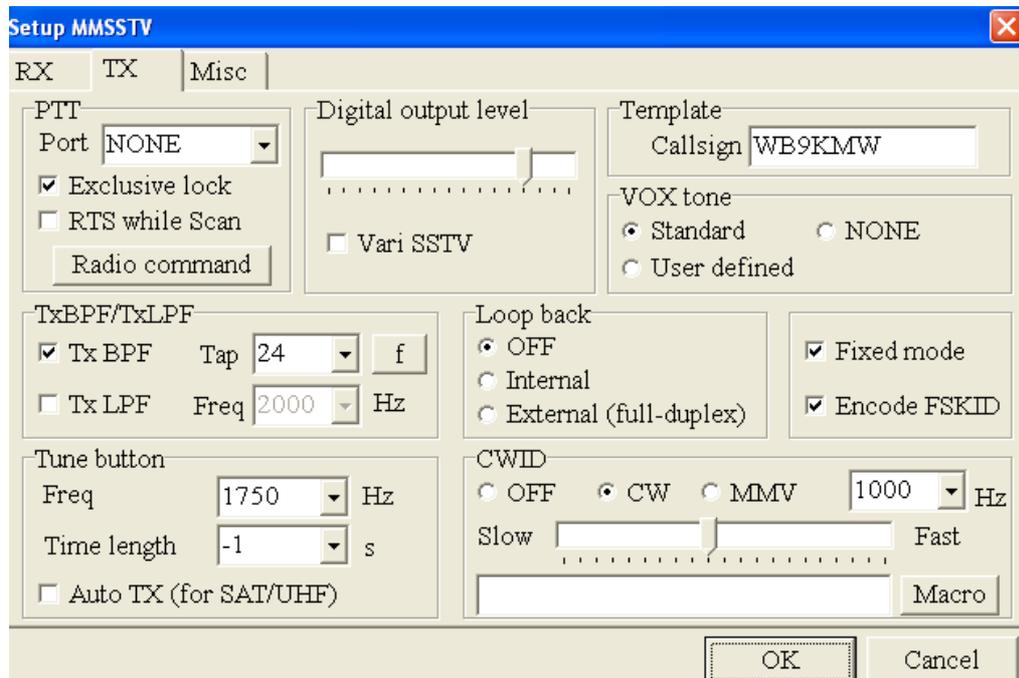


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The PTT info in the TX tab will be very specific to your set up. You may need to designate a COM port. Hams use a variety of interfaces between their rig. I have used direct cabling, Signalink and (currently) RIGblaster plus II.

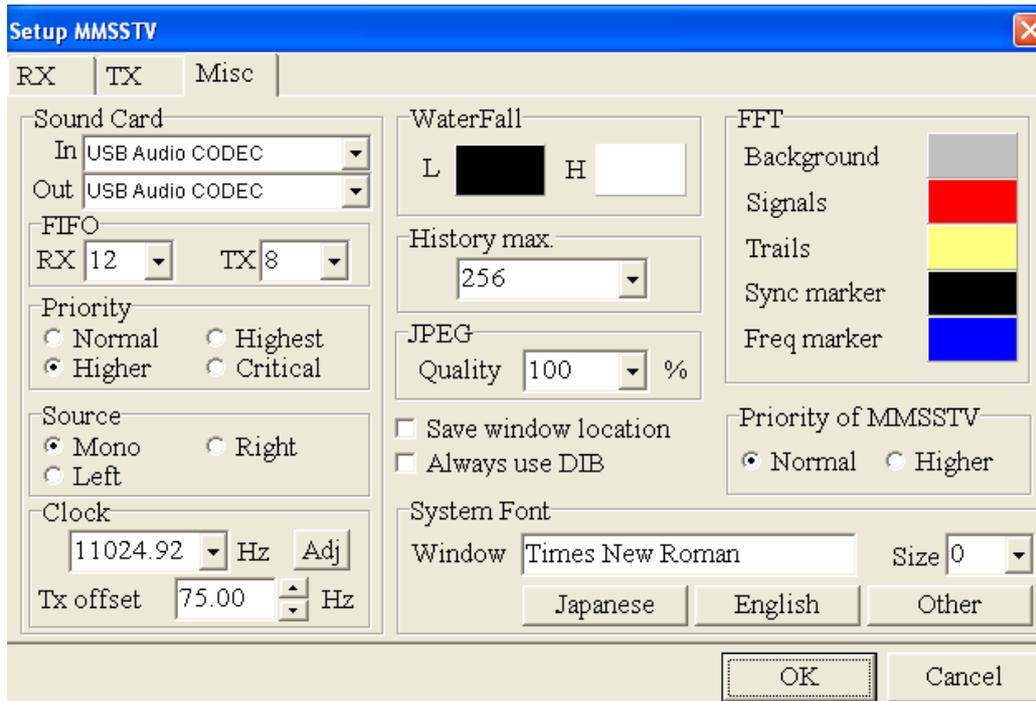
If you want a CW identification after your transmissions, click CW for the CWID. Most hams do not use this, and generally I do not either.

'Encode FSKID' is handy. This means that your call sign will be encoded into your transmission and it will automatically pop into my MMSSTV log at the end of your transmission, assuming in the previous RX screen that I have checked the 'Decode FSKID' box.



The Misc tab is also very important. You must have your Sound Card correctly set to the soundcard you are using. Otherwise, no reception and/or no transmission! In this example, it is pointing to CODEC for SingnaLink.

The Clock settings are vital for straight reception of images AND straight transmission of images. This is covered in detail in an outstanding tutorial on my web page, *That Pesky Slant*.



Happy hamming. I look forward to many SSTV QSOs on 14.230 MHz with you.

Larry, WB9KMW @ www.WB9KMW.com

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