

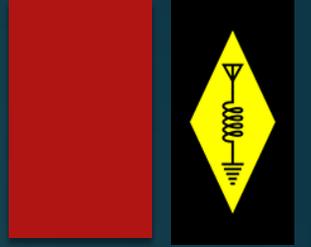
Slow Scan TV Introduction – For HAMs



A BASIC INTRODUCTION FOR EPARA MEMBERS AND START FOR HF OPERATIONS
ALEX VERDES - KD2FTA

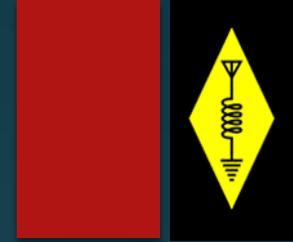
What is Slow Scan TV?

- ▶ Slow Scan television (SSTV) is a picture transmission method used mainly by amateur radio operators, to transmit and receive static pictures via radio in monochrome or color.
- ▶ A literal term for SSTV is narrowband television. Analog broadcast television requires at least 6 MHz wide channels, because it transmits 25 or 30 picture frames per second (in the NTSC, PAL or SECAM color systems), but SSTV usually only takes up to a maximum of 3 kHz of bandwidth.

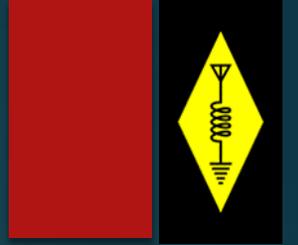


What is Slow Scan TV?

- ▶ It is a much slower method of still picture transmission, usually taking from about eight seconds to a couple of minutes, depending on the mode used, to transmit one image frame.
- ▶ Since SSTV systems operate on voice frequencies, amateurs use it on HF frequencies . The most commonly used frequency is 14.230 MHz but you can also operate on VHF and UHF frequencies.



What You'll Need to Get Started



- ▶ You'll need to have a General License if you want to operate on the HF Bands
 - ▶ Generally all the HAM bands support SSTV but 20 meters has the most activity. There are digital versions of SSTV, however we'll be focused on the analog version in this presentation.
- ▶ An HF radio capable of SSB operation with 100 watts
- ▶ A radio to computer interface
 - ▶ Rigblaster, Signal Link, Yaesu , etc.... Most of the newer HF radios are capable of having an interface.
- ▶ A windows operating system based computer. Laptop or home computer. Windows 7 or greater.
- ▶ The SSTV software created by JE3HHT - Makoto Mori , Version 1.13a

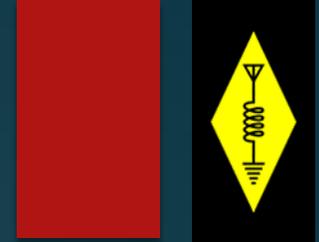
How to Get Started – MMSSTV Software



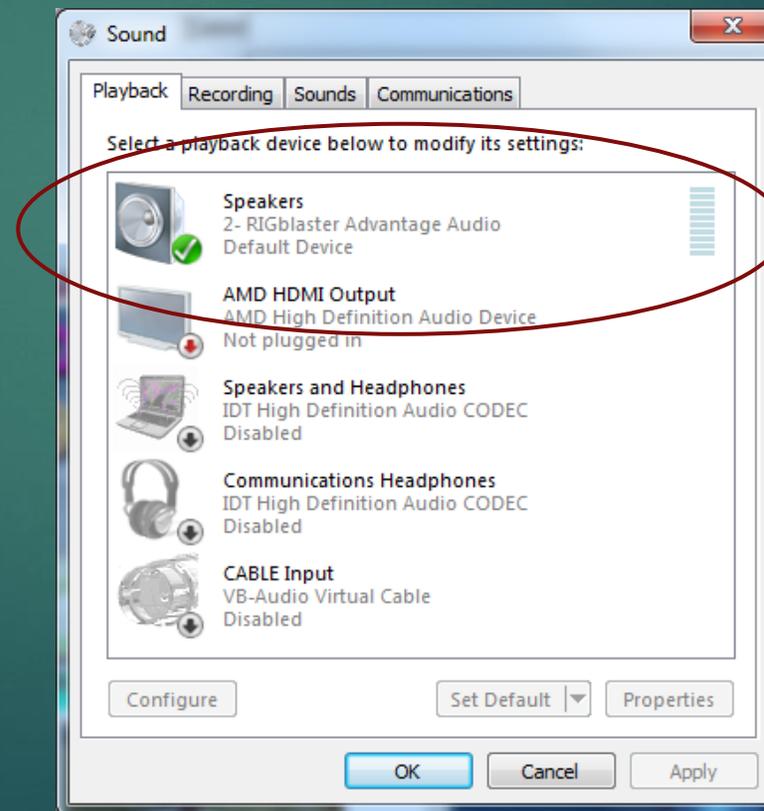
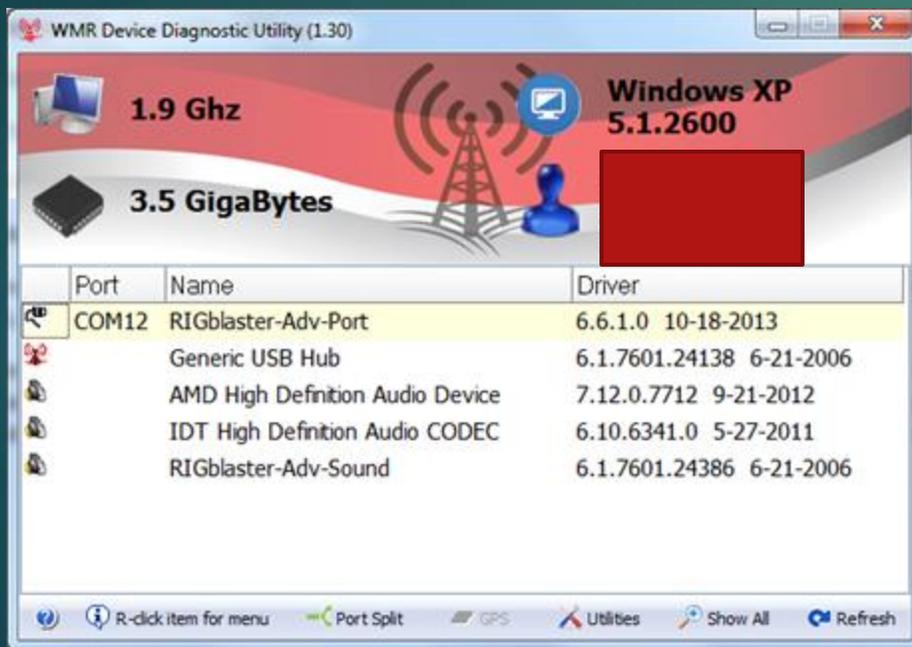
- ▶ Download the MMSSTV application from the internet.
 - ▶ The latest version is MMSSTV v1.13a
 - ▶ <https://hamsoft.ca/pages/mmsstv.php>
 - ▶ Other web sites offer the earlier version, don't use those and be cautious where you get your copy from. This software is free. Below is a screen shot of my configuration.



How to Get Started – Steps to Take

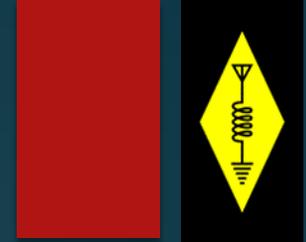


- ▶ After you download the software, configure your HF radio, computer interface, and sound card. For example I use the West Mountain Rigblaster interface. Software is provided to help configure your radio and interface with your sound card



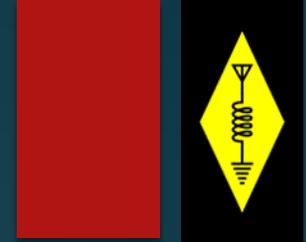
Select the playback and recording CODEC that you'll use. In this example my COM12 is using the Rigblaster CODEC

How to Get Started – Top Menus



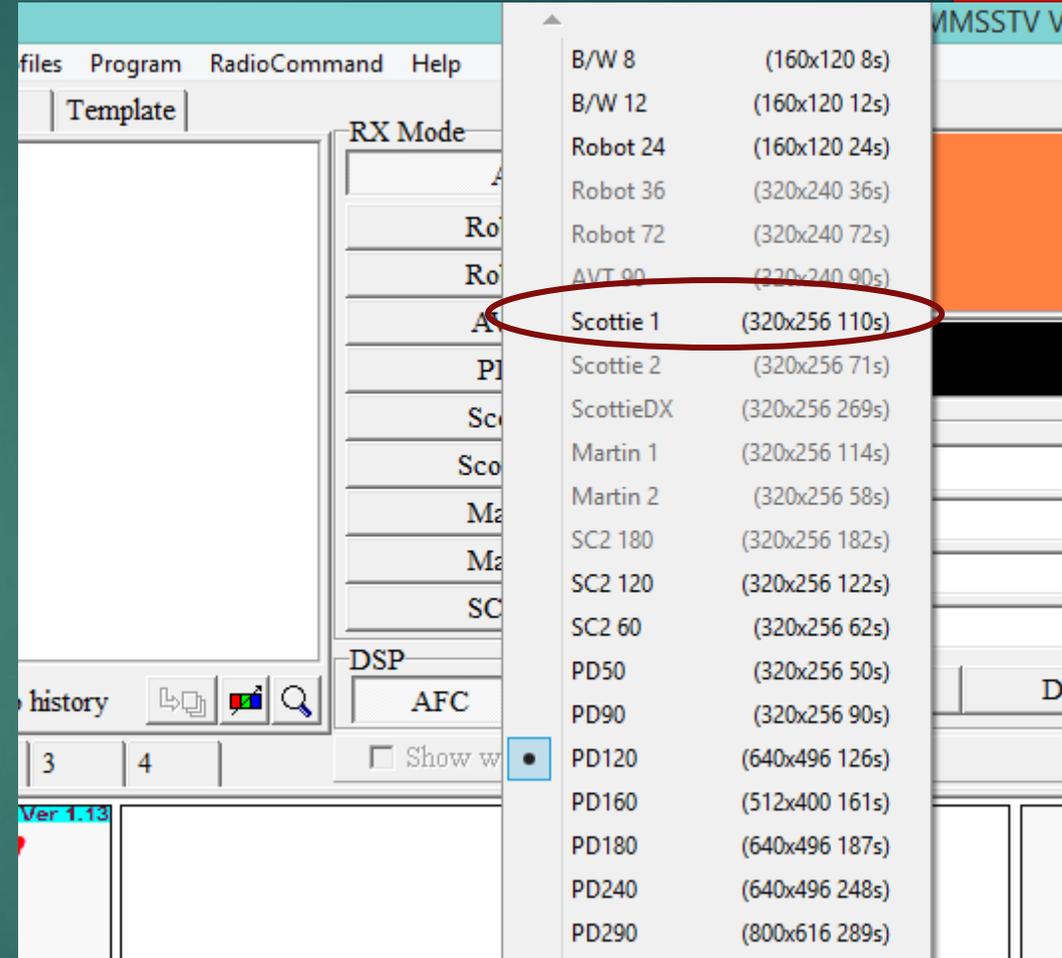
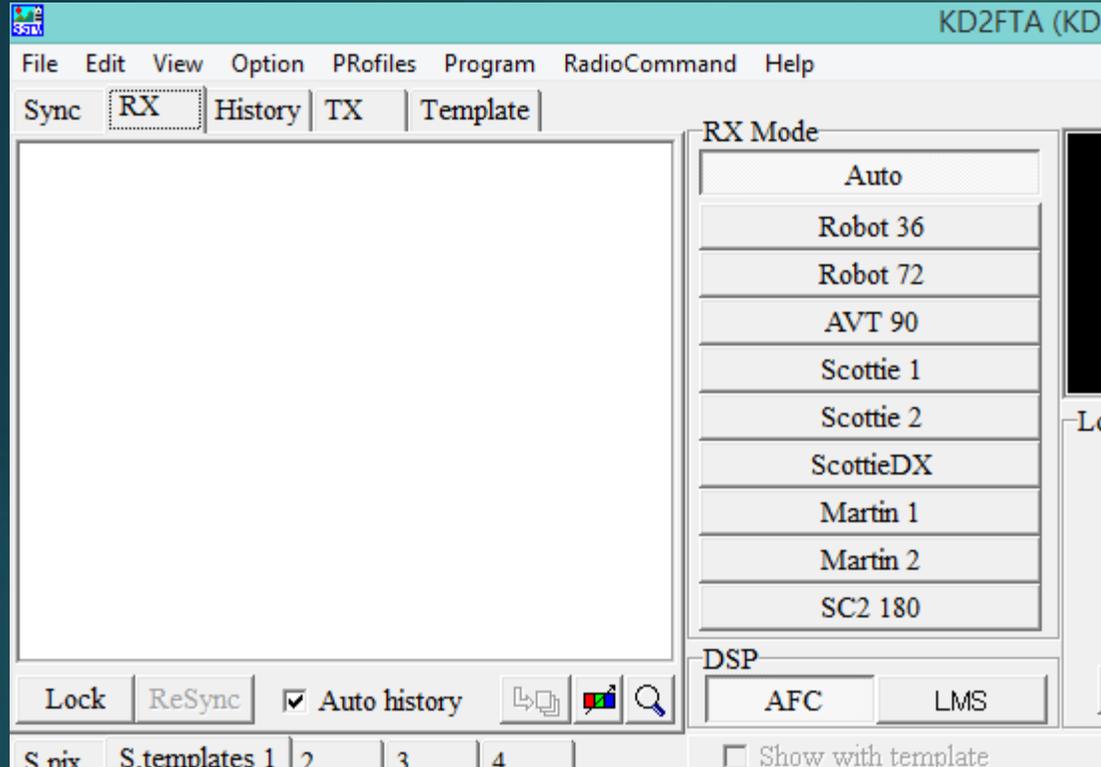
- Open the MMSSTV application
- The top menu has the majority of functions you'll utilize. From this menu you can configure your radio settings
- The menu below features the operating Buttons to receive, transmit, chose a Template, or save images you'll keep as QSL cards
- The image you want to transmit is selected From the templates below by double Clicking on the image while in the template Mode
- There are five premade templates to chose from. Two are for sending out your CQSSTV Message. Two templates are for acknowledging the station you made contact with . One is to say 73.
- So just like a regular contact you exchange Images and signal reports with a final

How to Get Started – Top Menus



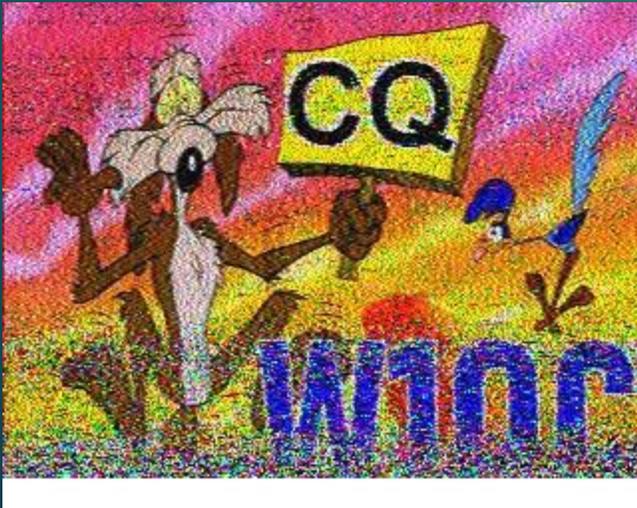
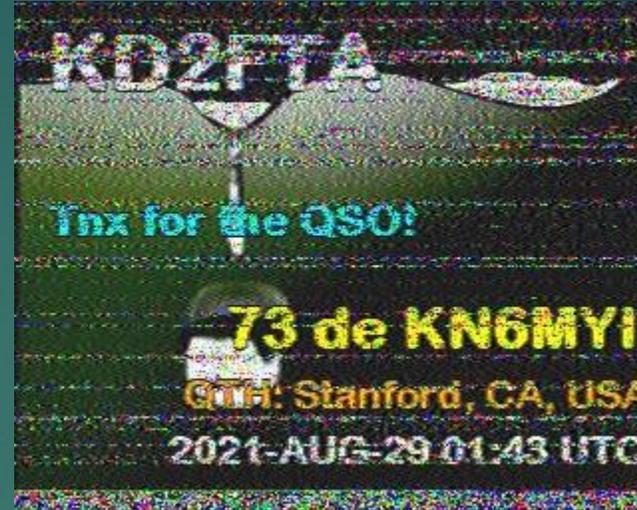
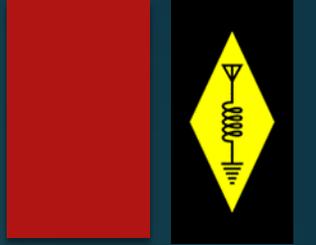
- Next to the image is a menu for selecting the transmission mode you'll operate in. Shown in this image are nine modes but Scottie 1 is Selected in this case. The majority of transmissions occur in Scottie 1 in the US, and Martin 1 in Europe
- To the right of this menu is the Logging and QSO card section where a contact call sign is displayed

How to Get Started – Top Menu

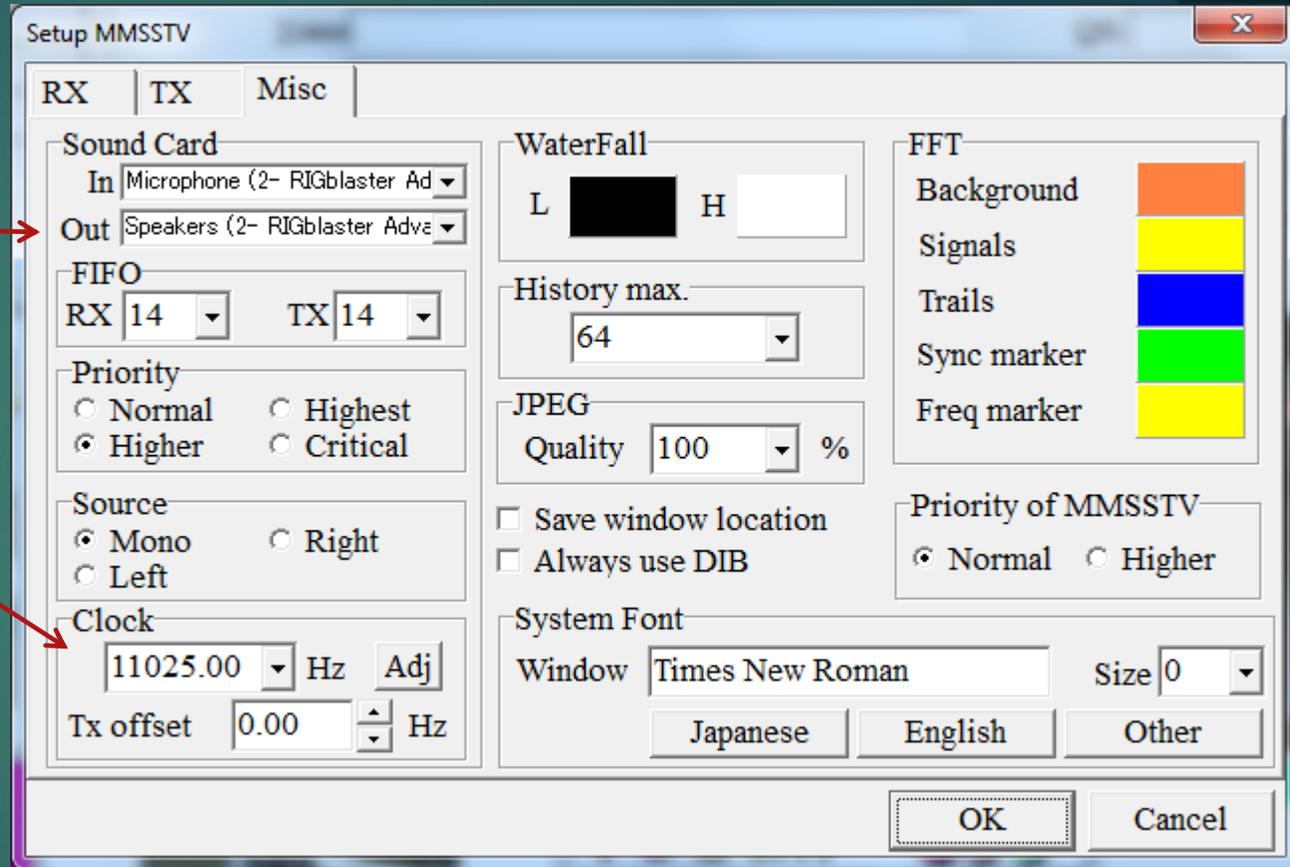
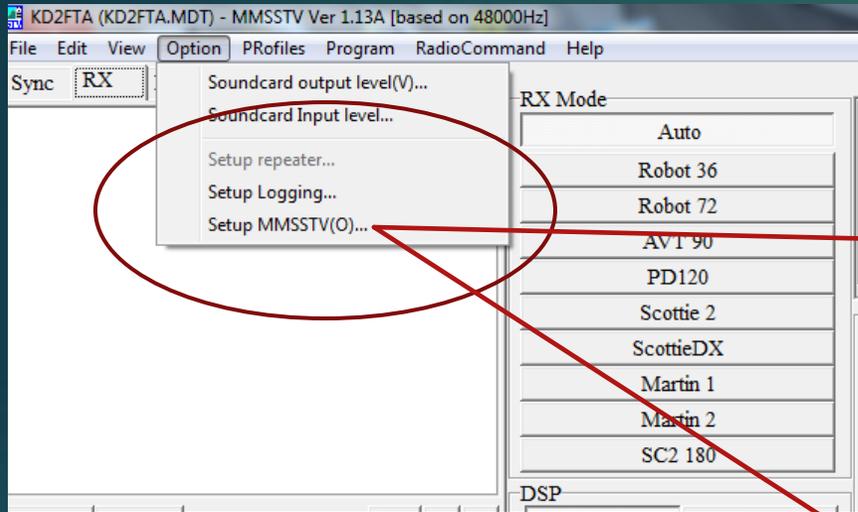


- In the RX mode section of the screen select Scottie 1 and right click on it
- This will produce the drop down seen on the right
- Selecting this mode will produce 110 seconds of reception or transmission

How to Get Started – Receiving



How to Get Started – Receiving



This screen shot shows where to begin by going to the top menu , selecting options and dropping down to Setup MMSSTV(0)
Select Setup MMSSTV and the pop up menu on the right will appear
The next few slides go into greater detail

How to Get Started – Receiving



Setup MMSSTV

RX | TX | Misc

Demodulating method
 PLL Hilbert T.F.
 Zero crossing

PLL
VCO Gain 1.0

LoopLPF (IIR)
Order 1 f
FC 1500 Hz

OutputLPF (IIR)
Order 3 f
FC 900 Hz

Differentiator

Level converter
 Polynomial
Offset 0
1500Hz 16381
2300Hz -16382
Calibration

Auto start
 VIS only
 VIS or Sync

Squelch level
 Lowest Higher
 Lower Highest

RxBPF
 OFF
 Broad
 Sharp
 Very sharp f

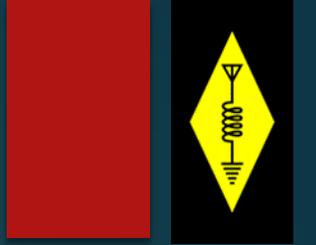
Auto stop
 Auto restart
 Auto resync
 Auto slant
 Decode FSKID

Rx buffer
 NONE FILE
 RAM

OK Cancel

- ▶ Go to the top menu
- ▶ Select Options and drop down the menu that displays to Set Up MMSSTV (0)
- ▶ You'll get the pop up box seen to the left here
- ▶ Configure your screen as displayed to the left after selecting the RX tab

How to Get Started – Transmitting



How to Get Started – Transmitting



Setup MMSSTV

RX TX Misc

PTT
Port COM12
 Exclusive lock
 RTS while Scan
Radio command

Digital output level
 Vari SSTV

Template
Callsign KD2FTA

VOX tone
 Standard NONE
 User defined

TxBPF/TxLPF
 Tx BPF Tap 24 f
 Tx LPF Freq 2000 Hz

Loop back
 OFF
 Internal
 External (full-duplex)
 Fixed mode
 Encode FSKID

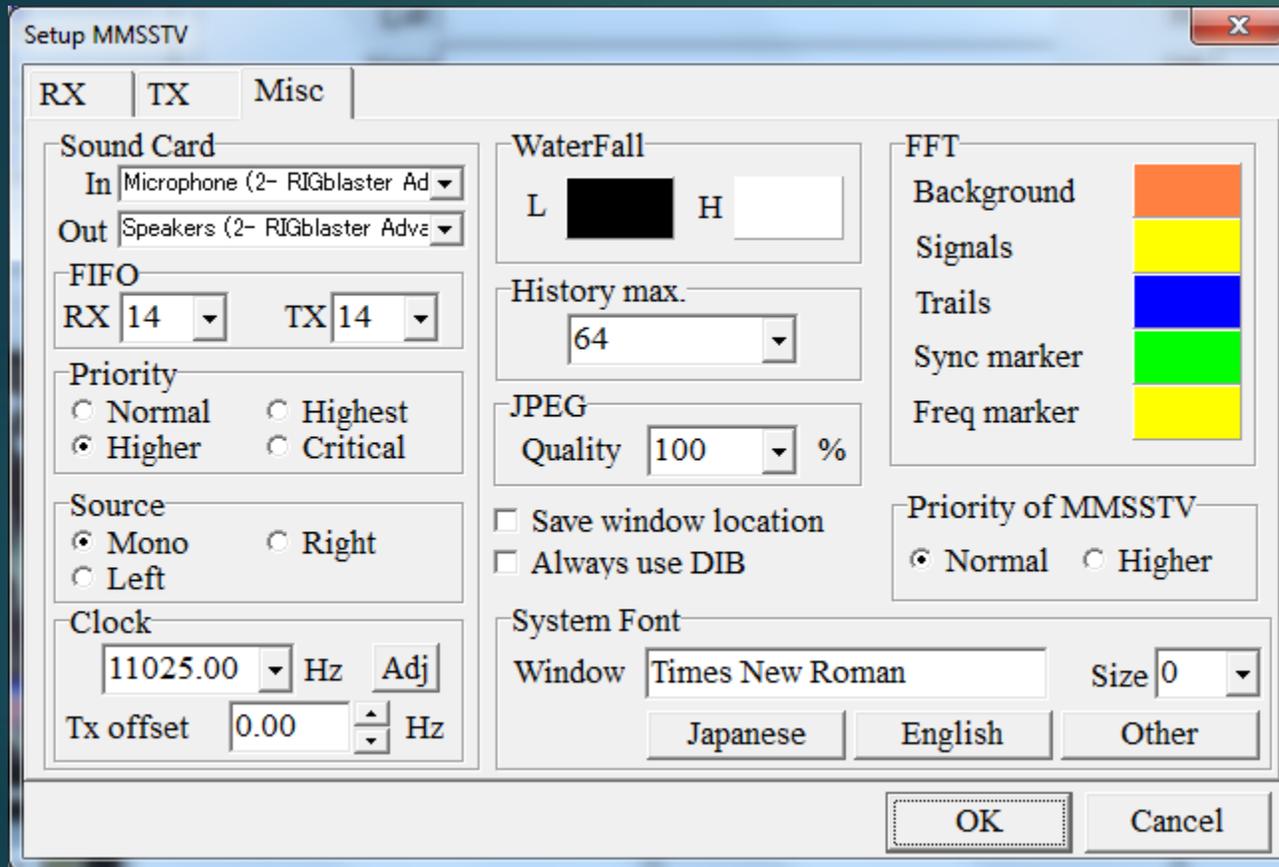
Tune button
Freq 1750 Hz
Time length -1 s
 Auto TX (for SAT/UHF)

CWID
 OFF CW MMV 1000 Hz
Slow Fast
Macro

OK Cancel

- ▶ Go to the top menu
- ▶ Select Options and drop down the menu that displays to Set Up MMSSTV (0)
- ▶ You'll get the pop up box seen to the left here, but select the center TX tab
- ▶ Configure your screen as displayed to the left after selecting the TX tab.
- ▶ Ensure your COM port is the same one your radio interface is accessing
- ▶ Your digital output level determines if your AGC on the radio kicks on or not. You want to have 0 AGC activation for the cleanest S/N ratio
- ▶ If you want your station to self identify in CW at the end of the transmission in the CWID section select CW

How to Get Started – Transmitting



- ▶ Configure your screen as displayed to the left after selecting the MISC tab.
- ▶ Ensure the correct sound card setting is selected for In and Out
- ▶ For FIFO select 14 or higher so the signal received is of higher quality
- ▶ Everything else can be configured as seen

How to Get Started – Selecting Templates



Go to the blank template section and double click on one of the boxes.

Select Template and then right click in the template window. The drop down menu appears

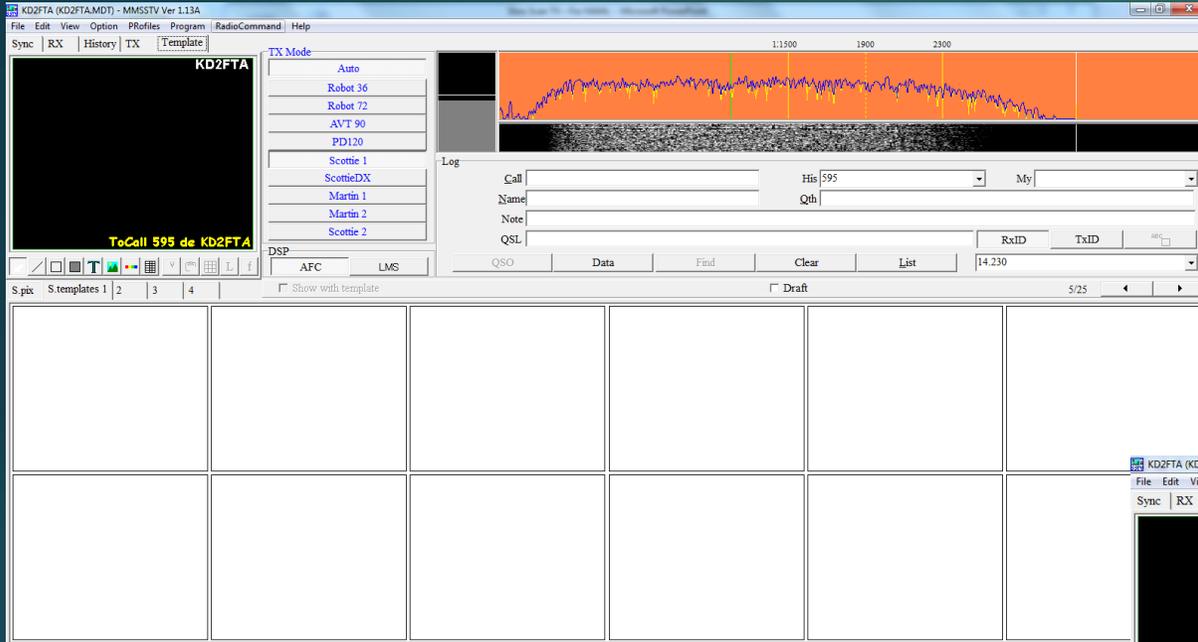
Scroll to Samples and the pop up menu appears

To the right with the 5 sample template

Select the one you wish to use

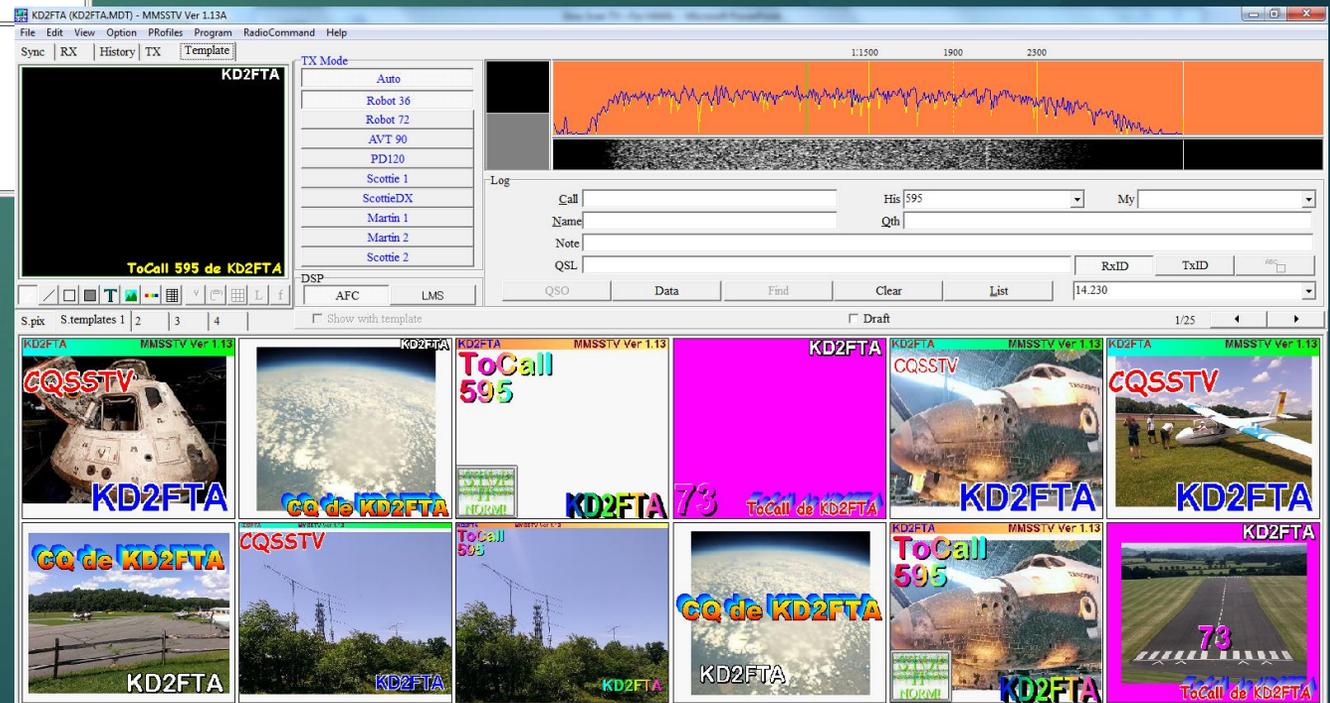
The screenshot shows the MMSSTV Ver 1.13A interface. The 'Template' tab is active, showing a grid of template boxes. A right-click context menu is open over the 'Samples' section, with a sub-menu showing options: CQ 1, CQ 2, Report 1, Report 2, and Final. A red circle highlights the 'Samples' section and the sub-menu. The interface also shows a frequency display at the top, a log window, and a taskbar at the bottom with various application icons.

How to Get Started – Selecting Templates



Once you select the template you want to use you can edit any of the content Or add pictures or images to it from your collection of photos, cartoons images etc. Remember to follow the FCC guidelines On what's permitted for armature radio use!

To see more on how to set up your graphics, visit **Joe Hutchens, WJ5MH** page at: <https://hamsoft.ca/pages/mmsstv/quick-start-graphics.php>

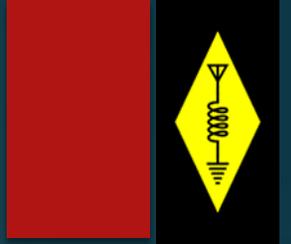


Final Thoughts and Expectations



- ▶ A few last things to be aware of
 - ▶ This presentation was focused on getting started in HF SSTV
 - ▶ There's much more involved for the transmission of SSTV signals in the HF and VHF spectrum
 - ▶ You can just tune in on 14.230 MHz upper side band and leave the software alone once downloaded on your PC to see other HAM's transmissions
 - ▶ During the winter holiday season the ISS transmits very high quality SSTV images on 148 MHz. Most near overhead passes above 35 degrees will provide great reception
 - ▶ You can leave MMSSTV operating with your radio on, and it will automatically sense the start tone and begin deciphering the signal in any of the modes. Just click AUTO in the RX menu and you're good to go!
- ▶ WEBSITES to visit
 - ▶ <https://hamsoft.ca/pages/mmsstv.php>
 - ▶ <https://hamsoft.ca/pages/mmsstv/sstv-primer.php>

Some SSTV Images from the ISS



Some of the images Transmitted from The ISS during Christmas 2019

Captured by EPARA Club members



2019-DEC-29 1034

STOP
IT
NORM!

10 DAYS
OFFER
Buy ANY 2
drinks for
them both

VE9CHK
464
73 CHA
W1QQ



595
WA3TMS
8/22/2021
17:44:09 UTC
DE W0RUR
GARY

KC8EMD
N20IT
595
K08EM

W1QQ
P5 73
VA3NH

RADIO CLUB URUGUAYO
74th Anniversary
S.T. CX1AA S.T.
PLEASE SEND IMAGE RECEIVED
with DATE, HOUR and BAND
email: cx1aa.rcu@gmail.com

Hope you enjoyed this Presentation
73 de KD2FTA

QUESTIONS????!