

# Instructions for MARS COMEX 19-4 Software Installation

These instructions were created using the following configuration:

Windows 10 Pro 64-bit

Yaesu FT-991a (Enhanced COM Port (COM4), Standard COM Port (COM5))

## Functional Overview

MS-DMT is the software version of the MIL-STD modem. M110 Terminal is used to send data to and display data from MS-DMT. To connect MS-DMT and the M110 Terminal, a Virtual Serial Port is necessary to create a data path over which the two programs communicate. VSP Manager is used to create the virtual serial port pair.

## Before You Begin

Participation in this COMEX and installation of this software is voluntary. The MARS members, leadership and the MARS served agencies appreciate your participation. While these instructions have been reviewed, please remember that installation and configuration of the software involved is your responsibility. Please consider the risks involved with installing any software on your computer and the configuration of your radio to meet the minimum needs of the MIL-STD 110 waveform. Please read through the instructions completely before beginning with Step 1. **If you are at all uncomfortable with these steps**, please consider participating in COMEX 19-4 using **voice/phone only** and avoid the frustration. MARS members are not equipped to troubleshoot every software + radio configuration. It is likely that the opportunity to communicate with MARS using digital methods will exist in the future.

## Turn Off System Sounds

- A. Type "system sounds" in the search box on the Windows Toolbar
- B. Select "Change system sounds" control panel from the menu
- C. Select "No Sounds" from the Sound Scheme menu and Click OK to save and close the window (this is very important as windows sounds may cause your sound card interface to TX when system sounds are played disrupting network operations or interfering with other transmissions)

## Configuring Your System

### *Step 1: Download the software*

Bookmark the following links:

## Amateur Radio MIL-STD Software Kit

<https://drive.google.com/drive/folders/1pYDj7kQbm-QAyY4RPtx0dOXKohjaEjq9>

- A. Double click on the x86 MS-DMT Google Drive folder
- B. Right click on the only file in the folder and select Download
- C. Save the file to your Windows > Downloads directory
- D. Verify that NMMSDMT32v200B1000TB1003\_FL.zip is saved
- E. Click the breadcrumbs to return to the Amateur Radio MIL-STD Software Kit – Public Google Drive folder
- F. Double click on the M110Terminal Google Drive folder
- G. Right click on the M110Terminal20180314.zip file and select Download
- H. Save the file to your Windows > Downloads directory
- I. Verify that M110Terminal20180314.zip is saved
- J. [Optional] Download any other documentation you wish
- K. Close your browser window or continue below

## VSP Manager – DDUtilV3 (K5FR)

[http://k5fr.com/DDUtilV3wiki/index.php?title=VSP\\_Manager](http://k5fr.com/DDUtilV3wiki/index.php?title=VSP_Manager)

Note: To obtain the VSP Manager software, you will need to contact the author per the instructions on the webpage (contact me) and you will receive an email with the download instructions attached.

- A. Locate the email sent to you from Steve Nance (the author of VSP Manager)
- B. Per the email, read the help file instructions very carefully before you continue
- C. Click the link provided to download the VSP Setup file
- D. Save the file to your Windows > Downloads directory
- E. Verify that VSPMsetup103.zip is saved (the version might vary slightly)

### *Step 2: Install and Configure the Software*

Note: This assumes that you saved the downloaded files to your Windows > Downloads directory.

Warning: If you have any other virtual serial port or virtual COM port software installed on your computer system, please STOP and DO NOT proceed with the installation until you have discussed your configuration needs with your designated MARS representative. You may already have the software needed.

## Install VSP Manager

- A. Navigate to your Windows > Downloads directory

- B. Double click on the VSPMsetup103.zip file to open
- C. Double click on setup.exe to launch the installation program
- D. Accept all of the default installation options (including the desktop shortcut)
- E. Right click on the vspMgr Desktop Shortcut Icon and Select Properties from the menu
- F. Click on the Compatibility tab
- G. Check "Run this program as an administrator"
- H. Click OK to save the changes and close the window

#### Configure VSP Manager

- A. Right click on your Windows Start Menu icon (lower left corner of your screen)
- B. Select Device Manager from the menu
- C. Expand Ports (COM & LPT)
- D. Make a note of the COM ports that you have normally configured on your system
- E. Close the Device Manager window
- F. Double click on the vspMgr
- G. Click yes to accept the User Account Control warning
- H. The VSP Manager by K5FR – Version 1.0.3.01 window should display
- I. Select an available COM Port number for End 1 (COM 13 will be used in these instructions going forward)
- J. Select an available COM Port number for End 2 (COM 14 will be used in these instructions going forward)
- K. Click the Create Pair button
- L. Verify that the Virtual Ports pair exists
- M. Close VSP Manager

Note: VSP Manager runs as a Windows Device Driver. It is not necessary to keep the configuration program open to make use of the virtual serial port pairs during radio operations.

#### Install MS-DMT

- A. Navigate to your Windows > Downloads directory
- B. Double click on the NMMSDMT32v200B1000TB1003\_FL.zip file to open
- C. Double click on install.exe to launch the installation program
- D. If Windows Defender displays a window that stating that it is protecting your PC, click More Info and Run Anyway
- E. Click Yes to accept the User Account Control warning
- F. Accept all of the default installation options (including the library)
- G. If presented with the option to install the Microsoft Visual C++ 2017 Redistributable (x86) library, Click to agree to the terms and conditions and Click Install to load (note, you may already have this installed, simply close the warning message)
- H. Minimize the MIL-STD Data Modem Terminal (MS-DMT) PDF file that displays (refer to it later)
- I. Right click on the MS-DMT Desktop Shortcut Icon and Select Properties from the menu

- J. Click on the Compatibility tab
- K. Check "Run this program as an administrator"
- L. Click OK to save the changes and close the window

Unzip M110 Terminal (this is copied and not installed)

- A. Navigate to your Windows > Downloads directory
- B. Right click on the M110Terminal20180314.zip file to and select Extract All from the menu to unzip (keep the 'show files' option enabled)
- C. Right click the M110Terminal folder and select Copy from the menu
- D. Using Windows Explorer, navigate to the C:\MSC directory
- E. Right click and select Paste to copy the M110 Terminal folder into your C:\MSC directory
- F. Double click on the M110Terminal folder
- G. Navigate to display the M110Terminal.exe application
- H. Right click on the M110Terminal.exe file and select Send To > Desktop (create shortcut)
- I. Close all open windows

Configure MS-DMT and M110 Terminal

Note: Please ensure that your radio and sound card device (Signalink) are connected to your computer and verify that they are operating correctly using FLDIGI or another application. MARS stations are not equipped to troubleshoot every combination of radio and software.

Note: These steps have been performed using a Yaesu FT-991a transceiver with an internal sound card and connected to a Windows 10 Professional 64-bit computer via USB. Your actual configuration may be different.

- A. Confirm that your radio and sound card interface are connected to your computer and that all COM Ports are functioning normally (test with another program, if needed)
- B. From the Windows Desktop
- C. Double click on MS-DMT shortcut from the desktop to launch the program
- D. Click Yes to accept the User Account Control warning
- E. Click OK to accept the License Validation warning
- F. Click BER Auto Request to activate (checked)
- G. Click AGC OFF to activate (checked)
- H. Enter 13 in the DATA PORT field (one half of your virtual serial port pair)
- I. Click the PCSDM button
- J. Select your configured sound card device for both Input and Output and Click OK to save
- K. [optional] Uncheck the Configure checkbox to protect your configuration settings

Note: To confirm or modify MS-DMT configuration settings, Click the Configure checkbox to display the configuration fields. Uncheck to hide.

- L. Double click on the M110Terminal shortcut from the desktop to launch the program

- M. If Windows Defender displays a window that stating that it is protecting your PC, click More Info and Run Anyway
- N. Click the Config tab
- O. Select COM14 from the Serial Port Name/Modem Type drop down menu (retain MS-DMT as your Modem Type)
- P. Enter your amateur radio call sign in the Station Call Sign field
- Q. Click the Save button to confirm
- R. Click Ok to confirm the program restart warning
- S. Click the X in the upper right corner of the M110 Terminal window to close M110 Terminal
- T. Restart M110 Terminal using the desktop shortcut
- U. Click the Config tab and confirm that your settings are retained

### *Step 3: Test your Configuration*

#### Confirm M110 Terminal and MS-DMT Connectivity

Note: M110 Terminal and MS-DMT communicate to each other over the virtual serial port link. (COM 13 and COM 14 are used in these instructions)

- A. Launch MS-DMT (use the desktop shortcut)
- B. Launch M110 Terminal (use the desktop shortcut)
- C. Note the <<CMD:DATA RATE>>600L entry in the MS-DMT log field
- D. Make the M110 Terminal window active
- E. Click the modem speed menu near the top left of the M110 Terminal window (should be set to 600L by default)
- F. Select '150L' from the menu
- G. Note the <<CMD:DATA RATE>>150L entry in the MS-DMT log field
- H. M110 Terminal and MS-DMT are communicating over the virtual serial port pair

Note: If you are unable to successfully complete this test, please review the instructions and identify the error. If unsuccessful, contact your MARS representative for assistance.

#### Test Radio TX from M110 Terminal

- A. Confirm that M110 Terminal and MS-DMT are running
- B. Confirm that your sound card interface is set for both Input and Output in MS-DMT
- C. Confirm that you are configured to TX low power and into a dummy load
- D. Enter your amateur call sign into the Designation Call Sign field (this would be the call sign of the RX station under normal operation)
- E. Type TEST into the "order wire" chat field at the bottom of the M110 Terminal window (Enter short text and press <Enter> to send.)
- F. Repeat the test and examine your ALC to ensure that overmodulation is not present (tune to your radio's typical settings for digital TX)

## Test ICS 213 Message Creation

- A. Confirm that M110 Terminal and MS-DMT are running
- B. Confirm that your sound card interface is set for both Input and Output in MS-DMT
- C. Confirm that you are configured to TX low power and into a dummy load
- D. Click the ICS213 tab in M110 Terminal
- E. Complete the ICS213 form with test data (keep it short)
- F. Click the Send to Outgoing button (returns to the Terminal tab)
- G. Note that your test message.txt file is now listed in the Outgoing Message List
- H. Double click the test message.txt file to TX

Note: Consult the MS-DMT and M110 Terminal documentation for more information about the programs and the features they support.

Thank you!

MARS COMEX 19-4 Team