Update your MD-380 / Retevis RT3 or

MD-390 with GPS / Retevis RT8 with GPS from

Windows running a Linux Virtual Machine

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Version 3.08

Obtain the latest version of this document and VM image file from github at this link:

https://github.com/KD4Z/md380tools-vm

This project is a fork of kd0kkv-vm Thanks go to KD0KKV for releasing the first VirtualBox image that stirred my interest in doing updates under Windows in the first place. It appears that Travis Goodspeed and Friends are creating actual Windows binaries now, so the usefulness of this Virtual Machine (VM) may be reduced in the near future.

For now, this VM allows you to use MD380tools to keep your radio up-to-date using a Windows based system instead of a linux or Raspberry Pi machine. Actually, you will be running linux in a Virtual Machine to do this.   This VM runs well on a Windows 7, Windows 10 or Mac OS X laptops, making it highly mobile. If installed on a laptop, you can run one command while online with the internet, then disconnect and go to club meetings or other functions and flash radios without the need for a reliable internet connection.

I've been asked time and time again, *How do I do this with Windows* and so here it goes.   I created this fork to enhance the image to support MD-390 radios with GPS and provide more detailed instructions in its use. It also adds some tricky stuff to make your life much easier.

Step 1: Download the image file containing the VM

You will need to download a file that contains the Virtual Machine image.
With your favorite web browser, navigate to: **https://github.com/KD4Z/md380tools-vm**

The current download links will be listed on that site. Currently there are two different images available. One is for use with VirtualBox VM software. The other is for use with VMWare Fusion. The features of the VM are the same, so if you are familiar with one more than the other, go with that one!   This document was written primarily with VirtualBox examples. However, if you go with VMWare, the concepts are identical.

Note: You might need to Right-Click on the link and Choose "Save link as.." You want to download it as a file, not view it on your screen.   This should avoid the download to view issue that some users have reported. T he OVA file is compressed using Zip.   The image is also available in four parts, archived using the 7-zip application.   You will need 7-Zip to extract the OVA file. You can download this excellent free utility at http://www.7-zip.org

You will end up with the file named tyt_kd4z_3.0.ova if it downloaded correctly.   It's 892MB, so it may take a while to download. Save it where you can find it again.   If you have trouble getting the large file to download, you may optionally download it in parts. You will need to use the 7-Zip utility to extract and combine the parts back into the original appliance image file.

If you are already have a prior version of the VM installed, you can just delete the existing tyt VM before installing the new version, as nothing will need to be migrated from it.

Step 2: Download VirtualBox

Download and Install Oracle VM VirtualBox on your system.   It's a free download from:
https://www.virtualbox.org/

Choose the appropriate version of VirtualBox for your OS.   If you are reading this, you likely are interested in the Windows version. Download the installer for Windows from the link "Windows hosts."   At the time I wrote this, version 5.1.12 was the current version. However, the VM works well on both Windows and Mac OS X hosts.

Install it as you normally would any other application. You will need to be a local Administrator on your computer.

Step 3: Install the Oracle VM VirtualBox Extension Pack. (Don't skip this step!)

You must download and install the VirtualBox Extension Pack as well. Click on the other highlighted link "All supported platforms," and save the Extension Pack file.   Double-click on the Extension Pack file after downloading to install it.

I had trouble installing version 5.x when I was upgrading it from 4.x a version already on my computer. See **Known Issues** at the end of this document for what I had to do to get past that rather nasty blockage.

Step 4: Reboot your workstation

It might be prudent to reboot your workstation at this point. It shouldn't be required, however doing so may be helpful in making the USB device enumeration go smoothly in the next few steps.   Might as well do it now, before starting up the VM for the first time.

If your radio isn't connected with the programming USB cable, do so now.   Turn the radio on normally for now. Let it sit while you are doing the other steps. It takes Windows a long time to install the USB driver the very first time.

Step 5: Import the Virtual Machine Appliance Image file

Launch Oracle VM VirtualBox Manager.

From the File menu, choose "Import Appliance." Click on the file folder button to browse for the image file.   Navigate to where you saved the tyt_kd4z_3.0.ova Appliance file.   Select it and choose OK.

Take the defaults for everything else.   It will take a few minutes to complete the import. When completed, you will see a VM listed in VirtualBox Manager having the name "tyt."

Don't start the VM yet. You need to check the configuration of the network adapter first. These settings worked for my situation, however you may need to tinker to get it to work on your hardware.

```
With the tyt VM selected,

Click on the Settings toolbar icon in the Oracle VM VirtualBox Manager

Click on "Network" on the left side menu.

Click on "Advanced so you can see everything.

Change the values for Adapter 1 to these if not

     already set that way: Attached to: NAT

And under advanced,
```
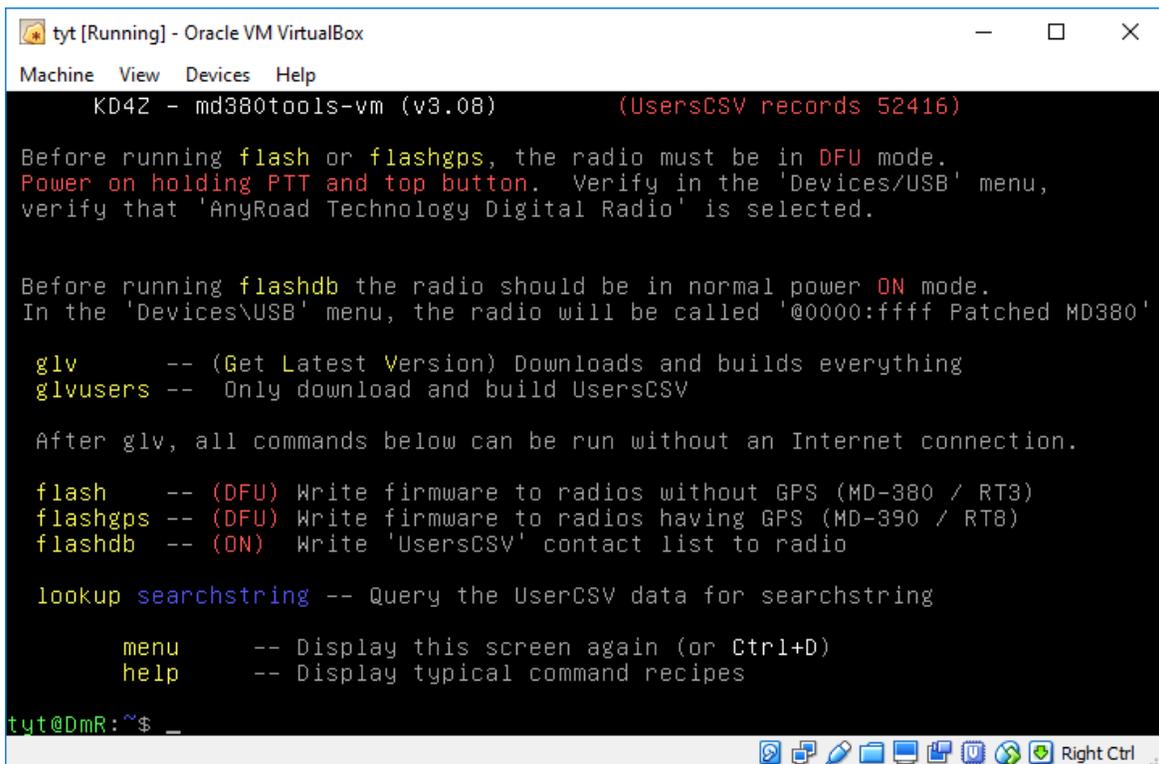
```
    Adapter Type: PCnet-FAST III (Am79C)

    Click OK.
```

As far as System memory goes, the Debian VM image is very small and actually will run at the default setting of 256MB, so no need to adjust it higher.

Step 6: Start the VM

Now start the VM by clicking on the green arrow toolbar icon. You want to leave it set at the default option of "normal start."   After the VM finishes loading, you will be presented with a menu screen of options. This is what you should see:

Notice that you have a linux prompt in the lower left corner of the VM window. You are automatically logged in with the user "tyt"   The "@DmR" indicates the host name of the VM is "DmR."   The prompt will look like this:

      tyt@DmR:~$

If you are new to linux, note that commands are Case Sensitive! In this VM, every command is in lowercase.

The VM has a screen saver that completely blanks the screen. When the VM screen seems to go all black, don't panic.   Press the ESC key to get back to your screen.

You can run the **menu** command or Ctrl+D anytime you need to see the options again.

Step 7: Verify networking is working

You will need to verify that you have the network adapter working and can get to the Internet.

Try pinging a well-known host.   Type this at the prompt.

> **ping www.google.com**

Press Ctrl+C to stop the ping command after a few lines go by.

If you get successful ping replies, you are good to go. If not, look to see if your network adapter received an IP address from your router.

> **/sbin/ifconfig**

The network adapter is "eth0". The *ifconfig* command should show that you have an IP address associated to eth0.   Likely it will be in the 10.0.x.x network range. This is normal for the NAT selection.

If you don't see an IP address, you will need to tinker with the Network adapter settings until you get connectivity.   As an alternative, you could change the "Attached to" setting to *Bridged Adapter*, then select your host machine's network adapter card for the "Name" setting. Using this method will make the VM obtain a real IP number in your network's DHCP range.

In order to run the commands in the VM, you will need to have the VM successfully connected to the Internet.   Don't bother continuing until you can get ping responses as described above.

Now what?

The VM can be used to manually run any of the available commands provided by the MD380tools project. However, a menu of commands have been provided to make operations much simpler for beginners.

At this point, type **menu** and press Enter.   Note, that you may also press **Ctrl+D** to return to the menu at any time. (Hold down **Ctrl** and tap **D**).

*** MENU OPTIONS ***

Menu items are one word commands for the most part. Press Enter after typing the command to execute it.   Use the **menu** command to return to the menu.

glv   - (**G**et **L**atest **V**ersion) Downloads all required files from the md380tools project on github.com. It also compiles the firmware files for both types of radios. (non-GPS and GPS enabled) Finally, it downloads the current worldwide dmr-marc user database, and prepares it to be sent to the radio.

Nothing happens to the radio with this command. You must always do this step first, and watch out for any errors before continuing to the next command. This step may take a minute or two to finish. Don't worry about all of the gobble-gook scrolling by --that is totally normal.

When the glv command is finished, you should see a brief message that the command completed successfully, and then return to the menu after 5 seconds. Now you have all you need to flash and update radios saved into the VM. The Internet connection isn't needed for any of the remaining commands.

glvusers – Similar to glv, however this command downloads only the required files needed to build the user.bin file. This is command runs considerably faster than glv and is suitable for keeping the contact data updated, without updating the firmware.   After running glvusers, contact is ready to be written to the radio using the flashdb command.

One drawback to using glvusers is that for speed, the scripts on github are not downloaded. To assure that you are running the latest scripts in the VM, be sure to run glv occasionally.

flash (DFU) - Writes the firmware for radios not having GPS. Use this for MD-380, MD-390 radios that do <u>NOT</u> have a GPS (very rare) and the Retevis RT3.   Your radio must be in DFU mode for this command. See the next section "DFU Mode" for the simple procedure to start your radio in DFU mode.   The menu screen reminds you how to enter DFU Mode.

If you get a Device not Found error when running the flash command, check the USB Device menu to make sure the device for the radio is selected.

When actually writing to the radio, a value indicating percentage of completion will indicate progress. It should take less than a minute to complete this process.

flashgps (DFU Mode)   - Writes the firmware to GPS enabled radios. This includes the MD-390 and Retevis RT8. Only use this command for radios that have GPS support.   If you flash this by accident, your non-gps radio will hang at startup. (Ask me how I know this!)

Your radio must be in DFU mode for this command.   Like the flash command, check the USB Device menu to make sure the device for the radio is selected, before executing.

flashdb (ON) - Writes the user database to radio. You can use this command on any supported model of the radio.

The radio is in the normal turned on state, not in DFU mode. But you still may need to check that the USB device as noted before entering the flashdb command.

The USB device may display differently than in DFU mode. It will be listed something like @00000010:ffffffff Patched MD380

When running, it will first erase the flash area for the user contact data, then flash in the new user contact data.   This will take a few minutes to complete.

Don't forget - You will need to enable the **UsersCSV** option in your radio before you will see the contact data display.   Go to the Utilities / MD380tools menu of the radio, scroll down to "UsersCSV" and enable it.

***Shutdown the VM ***

To safely shutdown the VM, choose "ACPI Shutdown" from the Machine menu. You may also use the "X" at the upper right corner of the VM window, however you must choose the second option "Send the shutdown signal" before clicking "Ok"
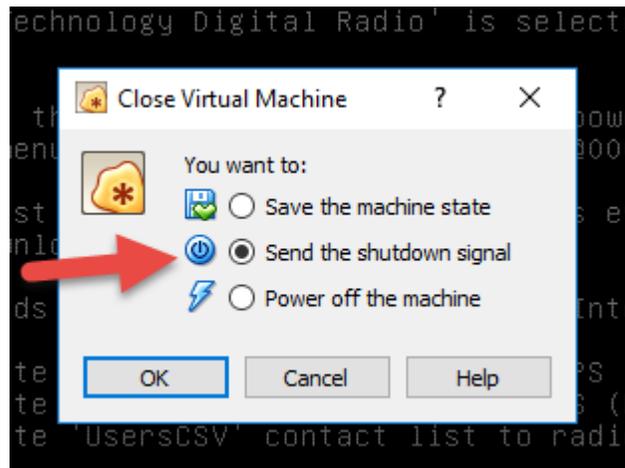
This will be the only correct way to shutdown the VM as you are not running as root.

*** Recipes ***

The typical recipe of steps to execute will consist of three commands, one at a time, in sequence.   Be sure to follow any directions displayed to restart the radio when prompted to do so. Some commands actually restart the radio for you, so you don't have to actually do it twice.

> MD-380 / Retevis RT3 Recipe: (If you have a non-gps MD-390, use this option –I hear they exist)
>
> > **glv**
> >
> > **flash**
> >
> > **flashdb**
>
> MD-390 / Retevis RT8 (with GPS) Recipe:
>
> > **glv**
> >
> > **flashgps**
> >
> > **flashdb**
>
> Update UsersCSV only Recipe: (use for all radios with 16 Meg flash size)
>
> > **glvusers**
> >
> > **flashdb**

After running each command, a completion message will be displayed briefly and then the **menu** will be redisplayed.

At this point, you are done!   If you are going to flash multiple radios, there is no need to run the **glv** command each time. Just run the appropriate flash command for each radio type, again and again.

As mentioned above, the **glv** command pulls down everything needed from the Internet, compiles the latest firmware and builds the contact user data file. You can run this command anytime you want to bring down the latest features / bug fixes / user data.   In this way, you will always have the latest version of the VM. You will never need to download the large OVA image file again.

Version 3 has been redesigned to allow for full updates to any of the menus and scripts. When updates are posted, running **glv** will bring down the updates before compiling the firmware.

You don't need to use the **flash** or **flashgps** commands every time either! Likely, all you may want to do is keep the user contact database up-to-date.   Use **flashusers**, then **flashdb** when you start seeing DMR IDs that are showing up as "Unknown ID" instead of the usual name / call sign data.   However, it could take a few days before newly added DMR users show up in the database the VM downloads.

If you have one of the very first MD-380 models, especially a VHF model, you might not be able to use the **flashdb** command. If you get an error about flash size, you can not use this feature at all.   It won't hurt to try it, as the **flashdb** command will not attempt to force the issue and cause damage.

*** Fun Times ***

If this is the first time you have flashed the MD380tools firmware into your radio, you will need to enable a few new settings to fully utilize the new abilities. Go into the radio *Utilities* menu and navigate to the new sub menu item *MD380tools.*

You will need to enable the menu item *UsersCSV*

This enables the new firmware to utilize the massive contact database now stored in your radio. Currently, that includes almost 53 thousand records from the DMR-MARC user registry.   When this option is disabled, the private contacts embedded in the code plug are used.   Not likely what you want now as they are likely out of date.

Other fun things to do in the MD380tools menu:

Change Date Format to: **Alt. Status**

> It's all the way down at the end of the scrolling list of date formats. This turns off the Date and Time display and shows you Last Heard information instead. Trust me, you will like this.

> You will notice the date and time display will be gone, to be replaced by: "lh" followed by the call sign, and an arrow pointing to the Talkgroup number they were using.

Promiscuous Mode: **Enabled**

> This is the feature that started it all. Enable it to hear any activity on the time slice of the channel you have selected. Any talkgroup will come in, so be sure to look at the Last Heard data to see <u>where</u> they were talking before going back to them. It's a lot like having Scan enabled all the time.

Mic Bargraph: **Enabled**

> This enables a cute flashing VU Meter when you are transmitting. Use it to see how hot your voice level is and adjust your mouth-to-radio distance or voice to make it consistent.   Digital radio voices that are too hot sound awful, so use this feature as a reference for good operating practice.

Edit DMR ID:

> You can now change the radio's DMR ID without using the CPS software. Handy if you need to switch identities in the field.

M. RogerBeep: **Your choice**

> This option seems to lower the audible repeater access tone in frequency. Might be more pleasing to the ear. Unfortunately, you can't turn the tone volume down without a hardware modification.

*** Hidden Easter Eggs ***

Some very interesting hidden features can be enabled under the Utilities | MD380Tools menu. Scroll down to DevOnly!! and enable it. I believe you need to have Promiscuous mode enabled as well. This enables hidden menu items that are accessed with the single digits of the numeric keypad. Here are the most interesting items:

8: Display screen one of diagnostic information . This screen displays some interesting data including current channel, zone, and talk group number. There appears to be an RSSI value, with normalized values from 1 to 5. There is an open ticket with the MD380Tools group to change this to display RSSI in dBm in the future.

9: Display screen two of diagnostic information. This screen displays calibration values for current power level, the TX and RX frequencies, color code, time slice and talk group name.

4: (Netmon4) Display the last 10 stations heard. Includes a time stamp, and the talk group heard on. An asterisk * at the end of the line indicates heard on your current talkgroup, an exclamation mark (!) indicates that station was heard on different talkgroup from the one you are currently monitoring.

5: Clears the list displayed in option 4 above. In an upcoming firmware release, this button will have called Netmon5, and will have new functionality.

3: Temporarily changes the current talk group that the radio will transmit on to the talk group the last station heard was using. This is of particular interest to those using the promiscuous mode. If you are monitoring stations with promiscuous mode enabled, you may hear stations come through that are not using the talk group your radio is currently using on the selected memory channel. You can press "3" on the keypad, and go directly back to the station you last heard. This works very well if you are using a hotspot device or hear something on a repeater but don't have that talk group in a memory channel.

\#: Displays heard list similarly to option 4, however displays DMR ID and talkgroup, instead of call sign.

Green: Brings up the normal Menu of items. Allows changes in any of the normal items, but the Back (Red) does not function to exit the Menu. Press any of the other hidden menu digit access buttons to exit from the menu, and back to the hidden screens.

7: Exits from the hidden diagnostic screens.

*** DFU Mode   (aka Download Firmware Update or Bootloader Mode) ***

If your radio is ON, turn it off and connect the USB cable to your radio and your computer's USB port.

Hold down PTT and the upper user programmable button <u>at the same time</u>, then power the radio back ON. The busy LED should be flashing Red/Green.   If the busy LED isn't flashing, turn the radio off and try again.

From Devices menu in the select USB, then "AnyRoad Techology Digital Radio" if you see it, or anything mentioning the MD-380.   The menu should show a check mark in front of the radio selection if you were successful.

I received an error every time I tried this setup the very first time.   See the Known Issues section below for possible tips to get past issues I encountered.   You must have the USB port selected before continuing with the rest of the firmware update steps.

Note that when the radio is simply powered on, the USB device may display differently than in DFU mode. It will be listed something like @00000010:ffffffff Patched MD380. This is normal, and you would want to have it selected so you can perform run the **flashdb** command.

*** Power users ***

If you aren't into using hardwired menus. You can forgo using the menu commands completely and follow the notes that Travis has clearly documented here:

https://github.com/travisgoodspeed/md380tools/blob/master/README.md

In a nutshell, this VM has all the of the MD380tools project files.   So you can tinker with building / flashing new firmware and contact data by following the directions starting with "Flash updated firmware for linux based installations" on Travis Goodspeed's github page. (This should be required reading by the way.)

Just change to the MD380tools directory manually before invoking any of the commands provided by MD380tools. You might want to poke around and see what is going behind the scenes. I'd start in the md380tools/dist directory. You can find date stamped versions of the firmware files there, plus a zip file containing the Windows binaries that could be useful to you.

Observant users may notice a shell script named **lookup** in the tyt home directory. This little wrapper script allows you to do quick case-insensitive searches in the user database.

usage:

  lookup searchtext

Searchtext can be any characters in the contacts data file. Callsigns, names, city, or DMR-ID will work. However, use single words without embedded spaces. For example:

  lookup kk4vcz

  lookup 313180

*** Static DMR Users ***

If you were used to manually adding local or private DMR IDs into your code plug, you may have noticed that they don't show up now with the *UsersCSV* mode enabled.   To support private IDs, a local file of contact information can be created and will be merged in automatically with the **glv** command.

This file must be created in the tyt home directory and be in the exact same format of the file created by the md380tools scripting. That file format is simple, but must contain the same number of fields as the user.bin file.   Name the file: **static.users**

The file that you need to create is a basic text file. You can use the *nano* text editor inside the VM to create and maintain it. The format is simple, yet critical in structure. However it is very easy to emulate as there are only 7 data fields to fill in, separated by commas. Each contact is placed on a separate line.

The first two fields are required, with the remaining fields are optional. You must place hold them with commas however. Be sure to count commas in each line, maintaining that 6 commas exist on each line. The first field is obviously the DMR ID number you want to define. The remaining fields can be filled in as desired.   Here is a sample of what you need in the **static.users** file:

```
101,callsign1,name1,city1,state1,nickname1,country1
102,callsign2,name2,,,nickname2,
103,callsign3,name3,,,,
```

The first line shows each field being utilized. The second and third lines show how fields can be left blank.   Again, be sure to count commas. Each line must have six commas! An example file s*tatic.users.example* is provided on github for reference. The sample file can also be found in the md380tools-vm directory.

Advanced users may use ftp to download a file from outside the VM, however be sure to save it in Unix format, not Windows. That means, each line is separated with a line feed (LF) only, not Carriage Return-Line Feed (CRLF)   The popular (and free) open-source editor Notepad++ is recommended for this. In Notepad++, use the Edit | EOL Conversion menu and select Unix (LF) format. If you created the file using Windows Notepad, Notepad++ can be used to convert it back to Unix format.

If you are new to linux, you might need to get used to using the *nano* text editor.   To create the static.users file, enter these commands:

nano ~/static.users

You can enter as many private contacts as you desire.   Press Ctrl + X to when finished. Answer with a "Y" to save your changes. Then press "Enter" to accept the filename unchanged and *nano* will exit.
Your private static users file is merged in to the user.bin file each time you execute the **glv** command**.**

Optionally, you can create a file named static.host, and place a single, fully qualified URL to a ftp server where the static user file can be downloaded from.   Here are examples of URLs with and without credentials:

ftp://username:password@yoursite.com/path_to_file/filename.txt
ftp://yoursite.com/path_to_file/filename.csv

The filename can be anything you want to use, as it will be automatically renamed to static.users when downloaded. You can use the **lookup** command to verify that your static users are present after **glv**.

*** Localization ***

Menu screens can now be displayed in alternate languages using a simple tweak option.
Currently there are four languages supported, with more coming soon.   To enable the optional language, use the touch command to create the special file for that language.   To remove the language option, delete the specified file using the rm command.

Language   Enable File
Dutch   lang.nl
Portuguese   lang.pt
Italian   lang.it
Spanish   lang.es

Example:

To enable Dutch
        touch lang.nl

To remove Dutch,
        rm lang.nl

Removing the Enable File, will revert the menus back to English.

If you would like to contribute to this list of languages, and support for the characters required is available in the VM, you can submit your translated strings to the email address listed on QRZ.com for KD4Z.

How do you do this?   Download the "strings" script from the github project page here:

https://github.com/KD4Z/md380tools-vm

Read through this script to see how it is formatted.   Copy the English section to a new section for your own language.   Then translate each line.   Be sure to keep the translation as short as possible, as the screen can not adjust for larger lengths. Also, you must leave the markup variables in place (${ }), as those are the color change macros.

If you are a developer and are familiar to using github operations, you may Fork the md380tools-vm project, make your changes, then commit. Then initiate a "Pull Request" and I will pull in the changes to the main source code line.

If you are really motivated, request a copy of this installation document, and translate it as well !
Currently, this document is available in Dutch, with Spanish currently underway.

*** Known issues ***

When installing VirtualBox 5.x, the installer got stuck with an error dialog that stated:

> *"The application "iphlpsvc.dll" needs to be closed for the installation to continue"*

If you run into this message, you may be able to solve it without canceling the installation.

 Go to your search box in Windows and search for "*View local Services*" Launch the Services Snap-in. Scroll down and find "*IP Helper*", Click on "*Stop Service*"

Then click on Retry.   You also may cancel the installation and run the VirtualBox installer again. It will likely think the last install was partially finished and offer up "*Repair*" or "*Remove*" options. Choose "**Repai**r" and it will run the installer for you again and finish things up. You can restart the IP Helper service after Virtual Box has finished installing.

You might just want to stop the IP Helper service ahead of time to avoid this issue.

Those stupid USB devices!

I ran into another issue where I couldn't get the USB port to attached to the radio.   USB devices seem to be the hardest issue to overcome with Virtual Machines in general. The USB driver for the MD-380 was no exception.

You may have to do these steps with the radio connected and turned on:

> From the Devices menu in the tyt VM window:
>
> Choose Settings | Ports | USB | USB Settings ...
>
> Click the icon on the right side with a USB plug and a + sign, to add a new USB Filter
>
> Choose the device which cannot be attached. (*Patched MD380*)
>
> Click on the next icon down from the + icon, it looks like it is a USB plug with a dot.
>
> This should bring up a window that allows editing of the USB device properties.
>
> Clear all fields **except the name**, and click Save.
>
> Unplug the USB device.   (***You must do this!***)
>
> Plug in the USB device again.
>
> Go back to the Devices | USB menu, and try to attach the USB device again.

This is how it should look after removing the extra field information:

If you are experiencing errors during any of the flash operations, be aware that USB

connections can be affected by RFI.   So keep hotspot a short distance away while

flashing. It goes without saying don't transmit on another radio while flashing!
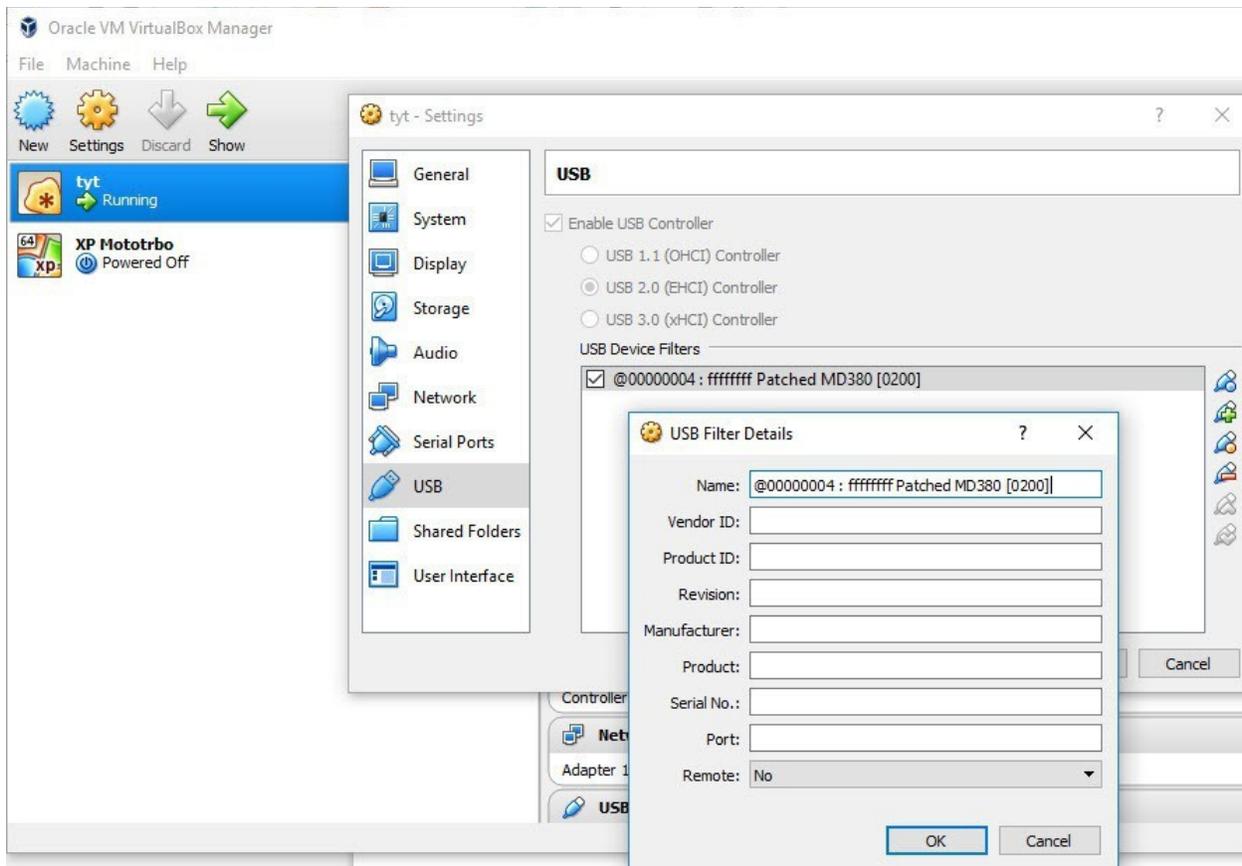
Again: In order for this filter to take effect, you will need to unplug, and then replug your radio in at this time. Make sure the radio is powered on!

I had to do the unplug / plug back in dance a few times in order to get the USB Device selected. Be sure to try that anytime you get a "Device not found" error. When you get a check mark in front of the radio device, you are good to go. For reference, the screen shot below shows how it should look in when the radio is connected and in DFU mode.
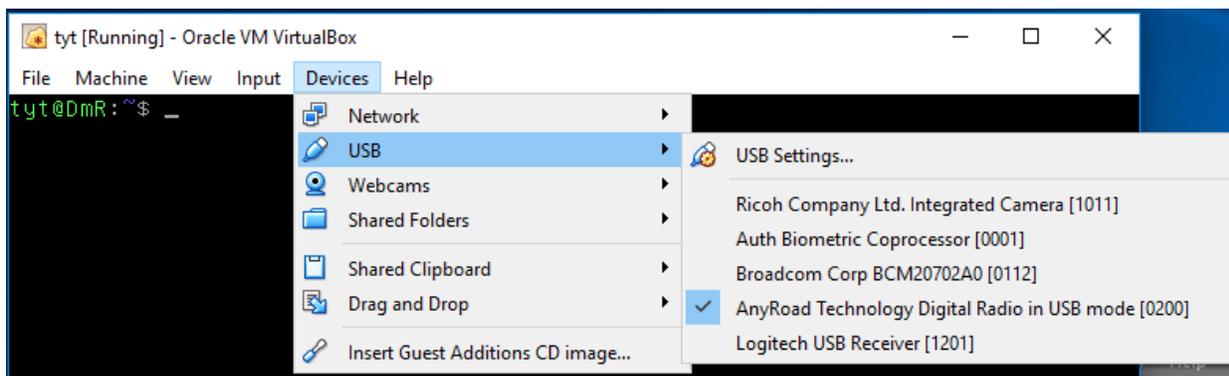
The next screen shot shows how the USB Device selection screen should look when the radio is connected and turned on normally.
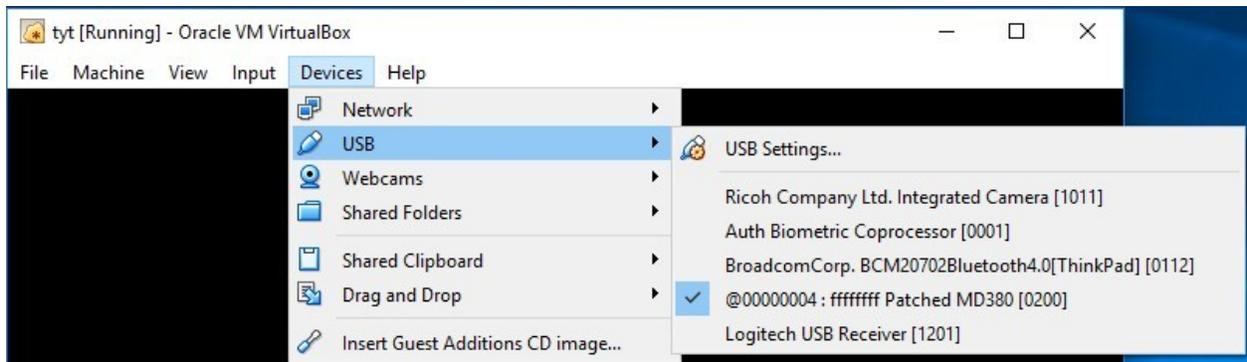

Another thing you might want to do with the USB Settings screen is disable all other USB devices on your Host machine from being accessible by the tyt VM.   Sometimes the VM will try to grab all USB devices it sees at start-up, away from the Windows / Mac Host machine. To keep this from occurring, you must add a filter item for each device listed in the Devices / USB screen.   The method is this: Add a filter for each USB device, and then remove the check box in front of each of those devices. You don't need to change any of the fields in the filter.

For example, click on the toolbar icon with a plus sign. Then select the first device. In this screenshot, the MD-380 radio isn't plugged into the USB port, so it doesn't show up.
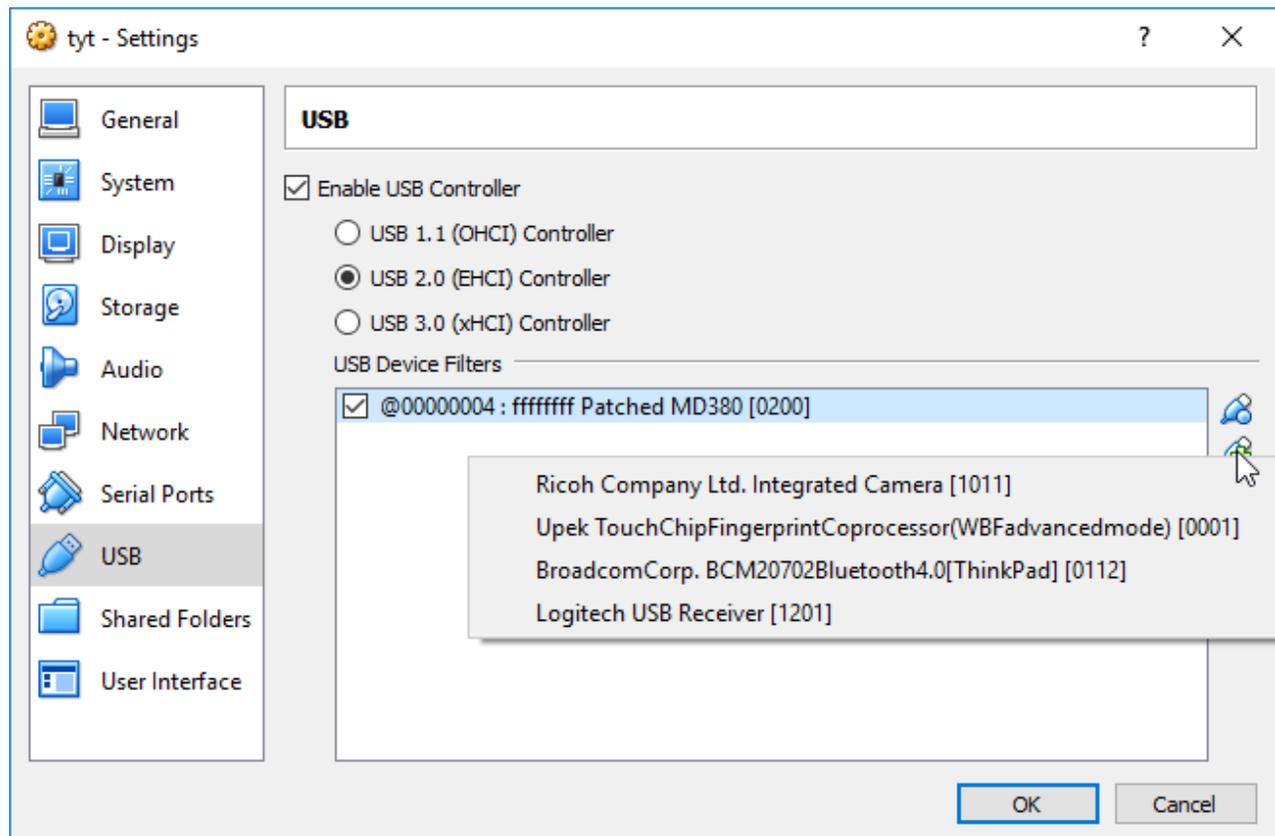
After selecting the first device in the list, unmark the checkbox for that device.   If you had the VM running when you are finished making these changes, you need to stop, and restart the VM for the new values to take effect.   Choose ACPI Shutdown from the Machine menu to do this properly.
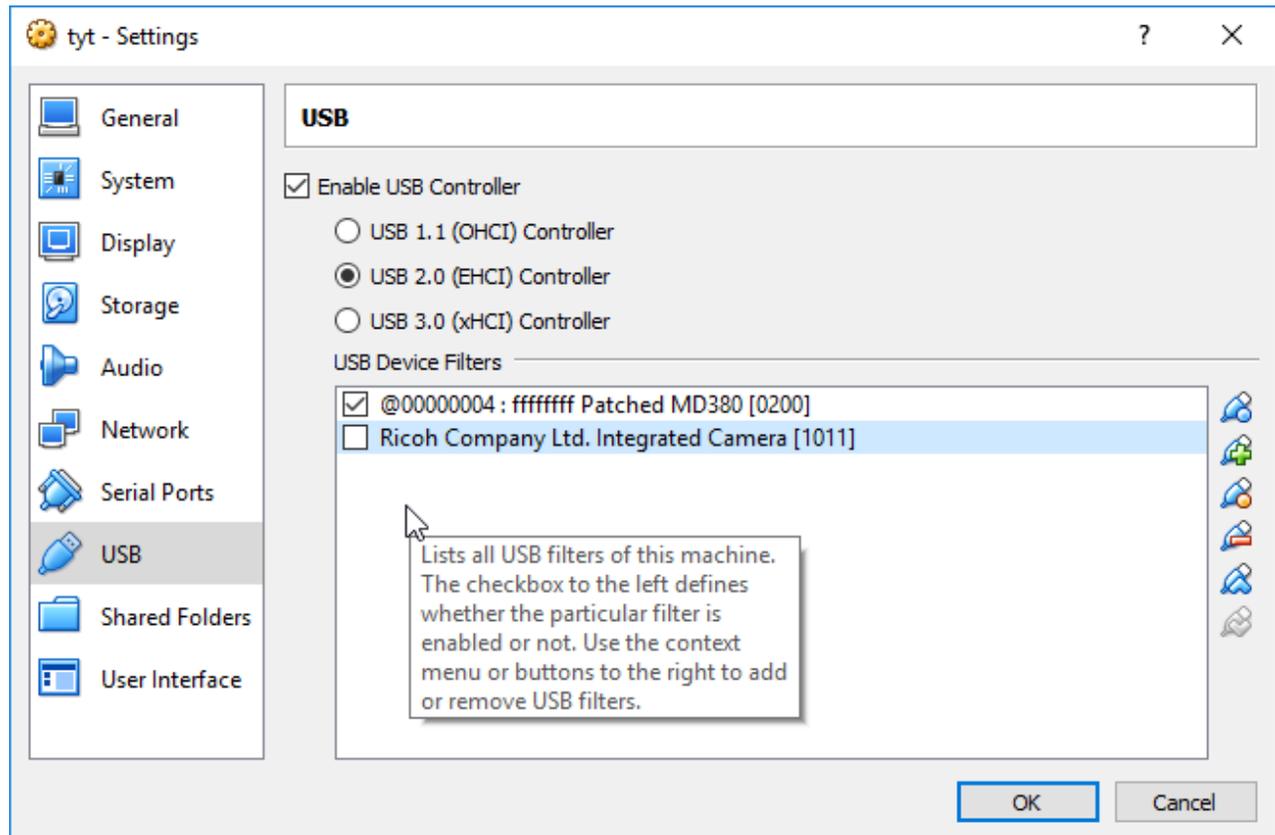
Do the same for all of the other devices. When you are done, you should have only one device with a checkmark-- your radio.

If you are installing the VM on a Mac, it has been reported that VirtualBox installs a global catch-all filter for the host USB devices. You must delete that filter before starting the VM for the first time, or you could loose the use of your mouse and keyboard on the Host machine.
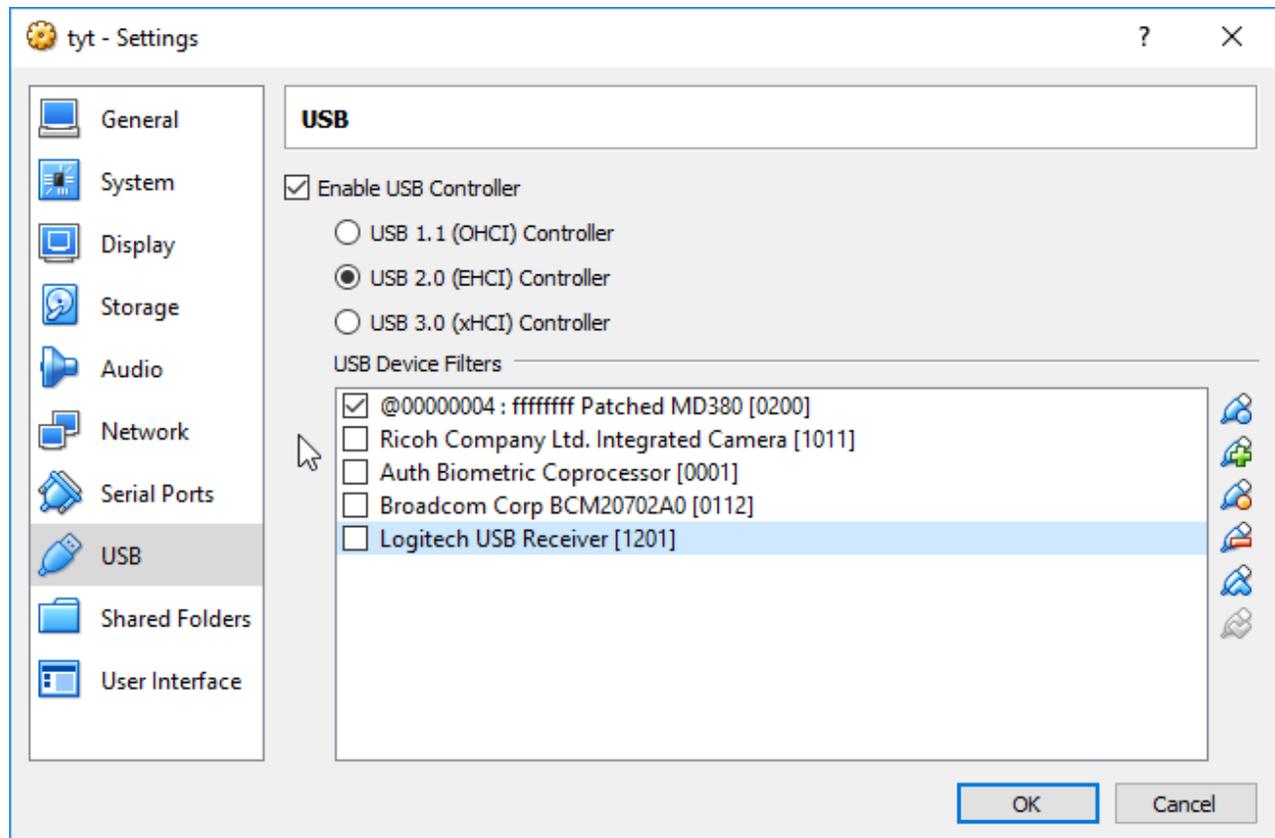
One other known issue has been noted, and it occurs if you leave the VM up and running over a midnight hour crossing. You may see an error mentioning "unable to stat file" at the end of the glv command. To resolve this, simply press **Ctrl+D**, which will reload your session. If you start and stop the VM each time you use it, you may never run into this issue. I leave the VM running all of the time, and see it every day! The solution to this issue will require a change that will be addressed in a future bug-fix.

Good luck. Your mileage may vary! Note that you are responsible for issues experienced with any of this software. It is experimental after all. Use the MD380tools Yahoo forum to post questions. Help can also be found in the BrandMeister DMR Talkgroup 4138 Facebook group. You may find me listening there as well.

If you run into Travis Goodspeed, KK4VCZ be sure to buy him a beer for his trouble. I'll accept the same. Also, if you know Rob van Rheenen, PD0DIB, be sure to thank him for his efforts in setting up a Facebook page to help support this project in the Netherlands. He has translated this document to Dutch, which is available in the Files area of this Facebook group:

https://www.facebook.com/groups/105977523245213

73 de KD4Z

Warren Merkel

Version History:

1.0 - December 9, 2016

Release of documentation only.

2.0 - December 13, 2016

Initial release of forked project containing VM image.

2.1 - December 16, 2016

Removed the "flashlast" commands as they are now redundant. Refactored the **glv** command to compile everything needed. The compiled firmware bin files are copied to the tyt home directory for use by the flash commands. You can use the ftp command to copy them elsewhere if desired.

Refactored the **glv** command to download and build everything normally needed.

Refactored the **flash**, **flashgps** and **flashdb** command to be executable when not connected to the Internet.

2.2 – 17 December 2016

Added a lookup script to facilitate easy searches for text in the user database. Updated this document as well.

2.21 – 24 December 2016

Added support for static DMR ids to be added to the UsersCSV contact data.   Added screen shots of USB configuration menus. Added mention of Easter Eggs.

2.22 – 29 December 2016

Changed the addstatic script to support a static seed file to globally override DMR contact records with "missing or redacted" data.   Does not interfere with your manually created static.users file.

3.0 – 4 January 2017

Refactored script configuration so updates from github are automatic. Bug fixes are downloaded each time the **glv** command is run. No need to ever download another large VM image for updates. The VM will aways update itself before starting the compiling steps.

The addstatic script is now automatically called by **glv**, so no need to manually run it. Please don't, you will create duplicate records.

Added colorization to help define what commands are available and what mode the radio should be in for each command.

Added a help menu that describes each operation type as a recipe.

3.03 - 8 January 2017

Added an experimental option to migrate the first name portion of the DMR record into the nickname field. This has the effect of making the first name easier to see, as it is displayed in the larger font used for the callsign.   This feature required the country field to be abbreviated to reduce the userCSV file size back down.

To enable this experimental feature, run this command one time at the prompt.

touch ~/fill.nickname.enable

You only need to execute this command one time. The next **glv / flashdb** will perform the nickname migration. This option is documented on the help menu as well.

3.05 - 13 January 2017

Added save and restore commands to allow snapshots of the firmware and contact list files. This is a hidden feature for the moment while being tested.

3.06 - 15 January 2017

Added the save and restore commands to the main menu for general use.

3.07 – 16 January 2017

Adding support for localization of screen text.   Commands will still be in English.

The tweaks for fill.nickname, filter.countries and the filter.sys tweaks are now enabled by default. If you want to disable them again, use these three new tweaks. I recommend that you leave them enabled however.

touch ~/fill.nickname.disable

touch ~/filter.countries.disable

touch ~/filter.sys.disable

Added support for automatic download of the static.users file from an ftp site. The static.users file must be in the correct format as described in this document.

3.08 – 28 January 2017

Added ability to download a static.users during dlv file using FTP.

Re-factored menu scripts to support language localization.

This latest version of this PDF document can be found on the github project page here:

https://github.com/KD4Z/md380tools-vm

End of Document.