Using the Pi-SPROG One and SD card Image

The Pi-SPROG with a Raspberry Pi 3B+ is available with a pre-built software image to run the Pi and Pi-SPROG automatically.

Please also read the PiSprogOneUserGuide available online at http://sprog.us fully before setting up your Pi-SPROG.

Hardware setup

Fit the Pi-SPROG onto the Raspberry Pi 3 model B+, aligning the connectors completely (supplied assembled in our Pi-SPROG One Full Package), and insert the microSD card into the Pi. Connect the power to the Pi and SPROG (order is not critical) and wait for the Pi to boot up.

Note that our currently supplied image is for the Raspberry Pi 3 Model B or B+ only, including the Stretch version of the operating system, and supports the internal wifi and other features.

If you need a prebuilt image for other versions please ask, as we may be able to build it for you.

The image includes the most recent (at time of writing) Raspbian Stretch OS configuration, supporting built in wifi, and all the software needed to run. It is set up so that it will run when powered up with no further user action required.

Software Image Configuration

The Pi hostname is set to **sprog-pi3**, and the IP address is **192.168.6.1**, its own local network broadcasting over wifi.

The **Pi wifi** will broadcast a new wifi network as **sprog-pi3**, and the wifi requires the password **pi-sprog** to connect.

Command Station

This image runs when power is applied, booting up automatically, and starting wifi, PanelPro and the WiThrottle Server.
JMRI PanelPro is run in 'Command Station' mode, suitable for running a layout.
JMRI will advertise the WiThrottle Server on the preset IP address, **192.168.6.1**, port **12090**
Apple devices running WiThrottle, and Android devices running Engine Driver can connect and set up throttles, etc.
Remote wifi throttles (up to a maximum of 9) can be used with no further action.

A VNC server is automatically started on the Pi, allowing remote access.

From a PC or Mac, connect your wifi to the **sprog-pi3** network, and then launch a VNC Viewer (we recommend RealVNC which is the same VNC version supplied on the Raspberry Pi, and can be downloaded free of charge from www.realvnc.com).

Connect to the Pi as **192.168.6.1,** user **pi,** and password **sprog-pi**
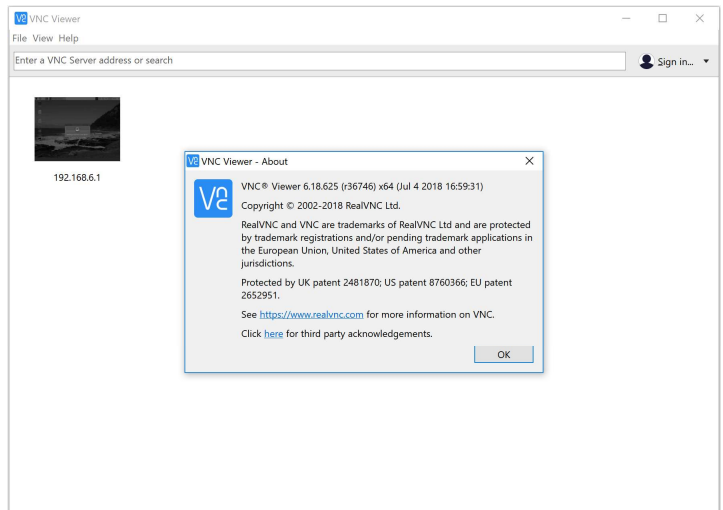
JMRI PanelPro is run on the remotely accessible desktop, and can be seen if needed by using the VNC connection, but no such connection is required to run trains via wifi throttles. This software image also supports an HDMI display supporting standard TV resolution and USB keyboard attached to the Pi, and so the display will also show on a locally connected HDMI screen.

It is recommended that you load your Roster before starting to run trains – see below for Roster details.

Programmer with local display and keyboard

This image can also be run as a Programmer using DecoderPro and you need to see the screen to interact for programming.

To do so, connect via local display or VNC as described above.

In the PanelPro window shown in this screenshot, click the Quit button to close PanelPro.

On the desktop, double-click the DecoderPro icon. JMRI DecoderPro will auto start in 'Programmer' mode, and display on the local screen for normal Programmer operation.

A remote wifi throttle can be used if desired, but note that SPROG and DecoderPro only allow one throttle in Programmer mode. To do this, you will need to start the WiThrottle Server from the Actions menu of DecoderPro, as it is not automatically started for you when using the DecoderPro mode we supply.
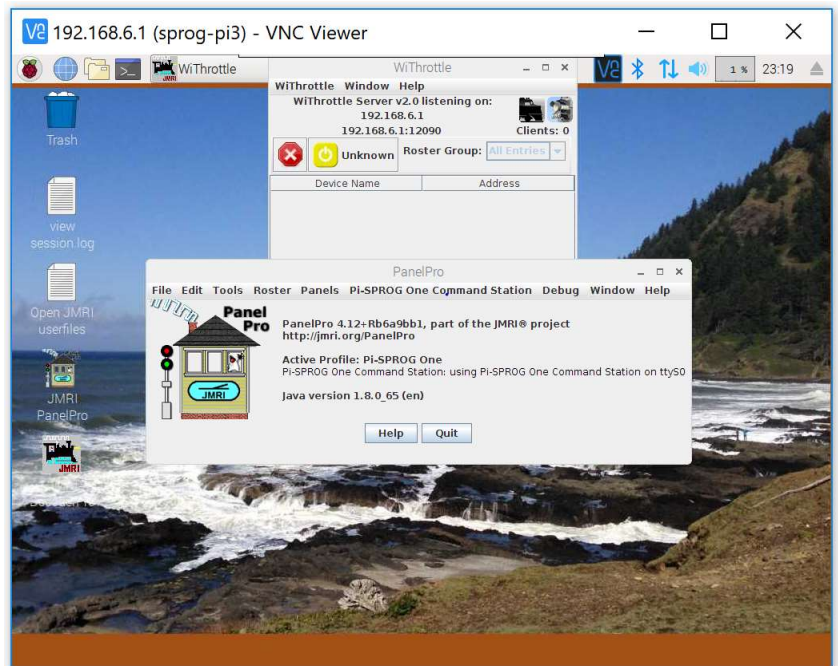
Load a Roster

As supplied, there are no entries in the DecoderPro Roster, and so you can add new locos as usual, or import an existing roster from another computer. The easiest way to put a roster onto the Pi is to use a USB memory stick. Copy the Roster folder from your source onto the USB memory, and then in the Pi copy that folder to the profile location of the JMRI preferences, ~pi/.jmri/Pi-SPROG Programmer. Start DecoderPro, and from the Actions menu, select 'Recreate Roster Index'. This should show all locos from the imported Roster directory in your Window, (you may need to Restart DecoderPro to see the list, and sometimes to reset the line spacing to be readable), and it recreates the 'roster.xml'.

For other methods to transfer or link rosters see information in the JMRI help pages.

Changing Profiles

The supplied images are all set up with two appropriate Profiles in DecoderPro.

Pi-SPROG One Programmer has the Programmer (also called Service) mode selected, and the Roster is stored with this profile, in ~pi/.jmri/Pi-SPROG One Programmer

Pi-SPROG One Command Station has the Operations mode set, and uses the same roster, pointing to the files above.

To use different profiles, open the Decoder Pro Preferences from the Edit menu, and select 'Config Profiles' from the list on the left. Click on the profile that you want, then click Activate, then Save.

Display Settings

If a local display is connected, it will mirror the VNC display, assuming that your monitor is compatible with the currently set resolution. The default resolution is set to be compatible with most external displays or computer screens, but you can change it if your available system requires different settings.

Support

If you have any questions, problems or suggestions, please contact us at support@bbmgroup.com, and we will be happy to help.

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Backups and Updates

We will be making updated editions of the JMRI and Raspberry Pi images as new versions are released, and will be happy to supply you with a new version at any time, should you need it.

If you would like to make a backup of your Pi image in case of any unexpected errors or erasure, here is the procedure. You could do this upon first running, or after you have set up your preferences, loaded your Roster etc.

You will need an 8GB microSD card, Class 10 performance, and a USB adapter for SD cards.

With the Raspberry Pi running, connect via VNC (or local display if that is what you are using).

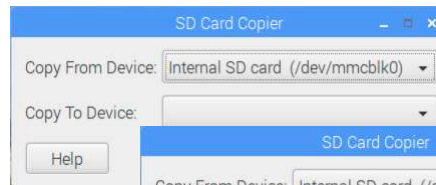Stop PanelPro or DecoderPro and any other programs that you are running.

Plug in the USB adapter and the microSD card. The system will recognize it, and offer to open it in the File Manager. Select **Cancel**.

From the Raspberry menu, select Accessories, then SD Card Copier

The Internal SD card can now be copied onto the new external card, which typically takes about 15 minutes.

Click in the Copy to Device dropdown to get your device to show up.

Then click Start, then Yes, and the copy will proceed.

Once copied, we recommend that you shut down, turn off the power, and try out running from the new card to be sure that it did copy correctly. Take out the original card from the internal slot, insert the new one and see that you can operate as expected.

Upgrade

To upgrade JMRI including DecoderPro and PanelPro to a newer version, the easiest method is to download the new Linux version from JMRI or from our website at sprog.us/install and put it onto a USB stick.

Then with your Pi running, open a File Manager window. It will – by default – open onto home/Pi, and there amongst several other items you will see a folder named JMRI (Note: uppercase JMRI is the program, and lowercase .jmri is where all your settings are, which you need to keep). Right click JMRI and send it to the Trash.

Then plug the USB stick into your Raspberry Pi, and this time do Open with File Manager.

The distributed software is a compressed 'archive' image, and the Raspberry Pi can process that.

Double-click the JMRI-xxxxxxxx.tgz object, and the Archive tool will open, and slowly open the archive file.

Click The Extract icon, and then select the /home/pi destination, and "All files" option, and Extract.
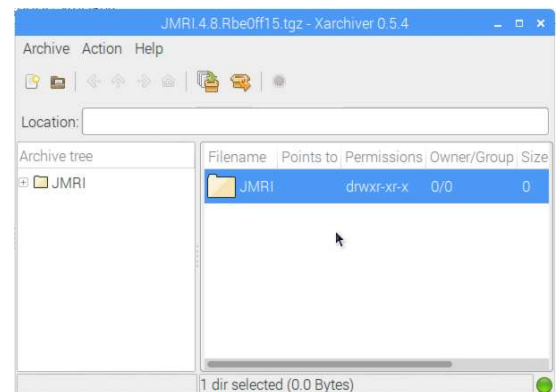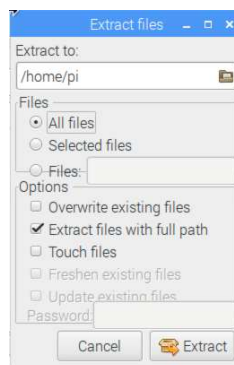
Now by double-clicking the Desktop DecoderPro icon, your new version of JMRI software will be in use. Check that your connection is still correct, as from time to time there are changes that can affect that. From the Menus, open the SPROG Console and you will see the Version shown (Programmer mode) or a rapid stream of traffic (Command Station mode).