

Using the Pi-SPROG One and SD card Image

The Pi-SPROG with a Raspberry Pi 3 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, 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 supplied image is for the Raspberry Pi 3 Model B only, and expects 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 Jessie 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.

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

Software Image Options

Command Station

This image runs as described above, booting up automatically, and starting wifi, DecoderPro and the WiThrottle Server.

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

JMRI DecoderPro 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 15) can be used with no further action.

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

From a PC or Mac, launch a VNC Viewer, and connect to the Pi as **192.168.6.1**, user **pi**, password **sprog-pi**

JMRI DecoderPro 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. No display will 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 expects an HDMI display supporting standard TV resolution and USB keyboard attached to the Pi, and can also be accessed to use programming actions by using the VNC connection.

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

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, but note that SPROG and DecoderPro only allow one throttle in Programmer mode.

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.

Programmer with VNC

This image requires a computer running VNC to be used as display and keyboard.

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

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

From a PC or Mac, connect the wifi to the sprog-pi3 network, launch a VNC Viewer, and connect to the Pi as **192.168.6.1**, user **pi**, password **sprog-pi**

JMRI DecoderPro will auto start in 'Programmer' mode, and display on the VNC screen for normal Programmer operation.

A remote wifi throttle can be used, but note that SPROG and DecoderPro only allow one throttle in Programmer mode.

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.

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 set up with two Profiles in DecoderPro.

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

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

To switch between 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

The VNC versions of software images are set up for typical desktop computer access via VNC, with a resolution of 1280x800, but those settings are not appropriate to use with a local display, such as a TV. If you have a TV or similar display connected, you will most likely see nothing when the software boots up. Access the desktop via VNC to 192.168.6.1 if you need to see Decoder Pro.

If a local display is connected, it will mirror the VNC display, assuming that your monitor is compatible with the currently set resolution.

To change the display screen resolution for the virtual desktop, follow the steps below; see

https://support.realvnc.com/knowledgebase/article/View/523?_ga=1.23202815.450528412.1480880479 for all the possibilities.

Open the Terminal, and type **sudo nano /boot/config.txt**

Scroll to the end of the file (use the arrow keys on your keyboard) and you will see the following lines for 1280x800 resolution. See <https://www.raspberrypi.org/documentation/configuration/config-txt.md> for other options.

```
hdmi_force_hotplug=1
hdmi_ignore_edid=0xa5000080
hdmi_group=2
hdmi_mode=28
```

To switch to working with a local TV as display, comment out all the above lines by placing a # in front of each line.

Write out the file with Control-O, and then close nano with Control-X.

Reboot your R-Pi.

The commented out configuration will enable default settings, showing the display on both the local TV/screen and the VNC, as long as the Pi was booted with the local display attached. If the local display is not connected, the VNC resolution may be scaled as if there were a very low-resolution screen in use. See the [pi-sprog-pi3-wifi.pdf](#) document available online for more details.

Support

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