

# Amateur Radio Notes

by Toshen, KE0FHS

[CQ](#) · [Base](#) · [D-STAR](#) · [DMR](#) · [Hotspots](#) · [Pi-Star](#)

## Updating and upgrading Pi-Star

*Revised:* Jun 2021, CC BY-SA [↗](#); PDFs [↗](#)

As of Jan 1, 2024, this site is no longer being updated. It will remain available for some time for legacy reference.

*Most up-to-date version:* [amateurradionotes.com/pi-star-updates.htm](http://amateurradionotes.com/pi-star-updates.htm)

[Playing with Pi-Star](#)

8. [Updating Pi-Star](#)

9. [Upgrading Pi-Star](#)

21. [Upgrading to Pi-Star V4](#)

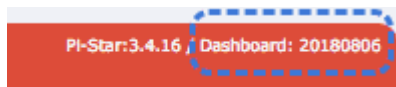
[Pi-Star cross modes](#)

[Pi-Star notes](#)

[Pi-Star troubleshooting](#)

*Note:* These are extracts from the Playing with Pi-Star and Pi-Star notes articles.

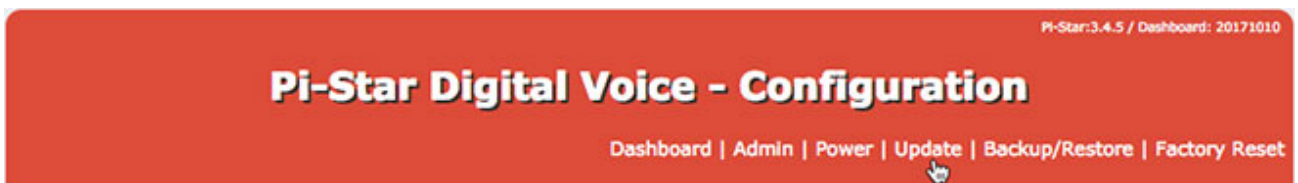
## 8) Updating Pi-Star



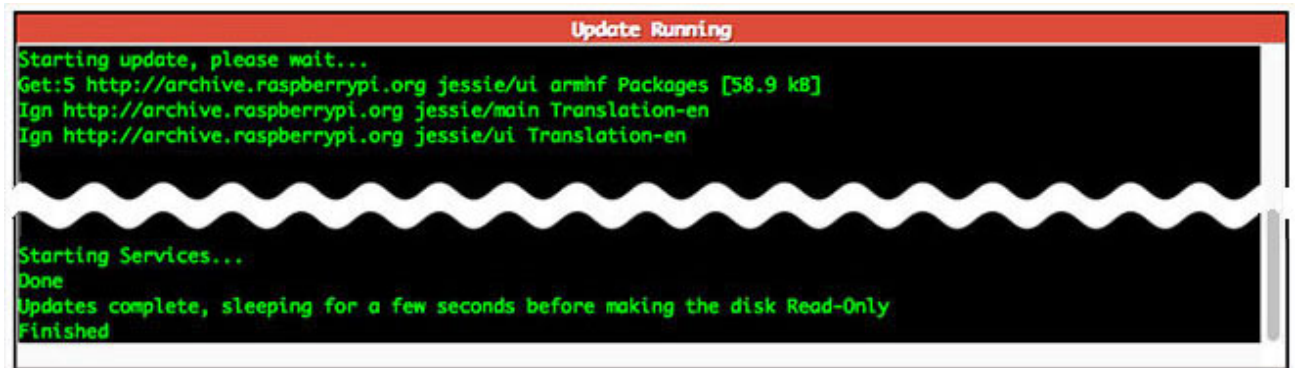
*Related article:* [Updating hotspot firmware via Pi-Star](#) [↗](#)

One of the nice things about Pi-Star is that it's updated on a regular basis to add new features, options, and fixes, as well as to add hostfile updates that have been pulled from upstream sources (to view the changes, see [GitHub](#) [↗](#)). There are three ways to update Pi-Star: one automated and two manual:

- **Automated overnight updates** – This type of update runs every night (between 3:00 and 4:59 AM locally) as long as your hotspot is on and connected to the internet. It uses standard Raspberry Pi OS tools to update the radio binaries (MMDVMHost and DStarRepeater), gateways (DMRGateway, ircDDBGateway, etc.), hostfiles, and dashboard.
- **Manually launched updates** – You may want to manually launch an update if you've heard there was a fix released or updated hostfiles are available and you don't want to wait for the automated overnight update, or if you want to update the Raspberry Pi OS operating system. You also should perform an update before running an upgrade.
- **Via the Pi-Star dashboard** – You can run an update at any time by clicking Update in the Admin view (or in the Expert Editor). This type updates the radio binaries, gateways, hostfiles, and dashboard, but not the Raspberry Pi OS.



In Update view, you'll see the process running. Let it run until finished.



- **Via SSH Command Line Interface (CLI)** – You also can run an update at any time via a Secure Shell (SSH) app like [Termius](#) or [PuTTY](#). This is the most robust way to run an update as it updates the radio binaries, gateways, hostfiles, and dashboard, as well as the Raspberry Pi OS operating system updates, including giving you the chance to take care of those steps of Raspberry Pi OS updates that require manual input.
  1. Use an app to SSH into Pi-Star and log in.
  2. Run the update (the update process automatically switches Pi-Star to Read-Write mode, so there's no need to switch manually):
 

```
sudo pistar-update
```
  3. **Important!** If the process pauses and asks whether a modified file should be replaced, your answer should always be the default, which is to leave the modified file alone.

4. Allow the update process to run until you see:

```
Updates complete, sleeping for a few seconds before making the disk Read-Only
Finished
```

5. After a manual update, it's a good idea to open the Configuration page and click Apply Changes.

## Update notes

**Dashboard version number changes** – When an update makes changes to the Pi-Star dashboard app, the date-based dashboard version number (for example, 20180806) will be updated. However, the dashboard version number isn't updated when the only changes are fixes or updates to hostfiles.

**mount: / is busy** – The Update process automatically switches Pi-Star into Read-Write mode, writes the updates, and then switches Pi-Star back into Read-Only mode. Occasionally, the process will fail to complete the switch back to Read-Only mode, and a message is displayed:


```
mount: / is busy
```

Other times, Pi-Star will start up in Read-Write mode.

When this happens, it typically doesn't work to manually switch Pi-Star back into Read-Only mode using the "rpi-ro" command. To fix this, there's a couple things that might work:

- The most reliable solution I've found is to shut down Pi-Star, power off the hotspot, and then quickly power it back on. After that, it often starts up properly in Read-Only mode.
- Sometimes it works to re-run Pi-Star Update and then Pi-Star Upgrade (even if you're on the latest version).

**Trouble re-opening the dashboard after updating** – Sometimes after performing a Pi-Star or firmware update, for some reason the dashboard won't re-open in the browser on my Windows 10 laptop when using the standard `http://pi-star/` or `http://pi-star.local/` URLs. When that happens, find the hotspot's IP address and use that. After the dashboard opens the first time using the IP address, the URLs should work again.

To find the IP address, I use an Android LAN scanner app. Alternatives: the Mac app called Airport Utility, in which the app is listed under the name Pi-Star, or the Windows app called [Advanced IP Scanner](#)  (full scans can take a long time, but if you limit the IP range to what your local network uses, it is quick enough).

*Note:* Another possibility is to delete the old entry from the hosts file.

Mac: Using Terminal, find the line in the hosts file with the URL that isn't working, for example, pi-star.local, and delete it:

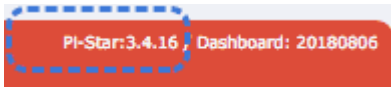
```
nano ~/.ssh/known_hosts
```

Windows: Search the Registry Editor for SshHostKeys.

**SSH Access** – The Expert Editor's SSH Access window is an implementation of Shellinabox, a web-based terminal emulator that runs a web-based SSH client. This can be convenient and useful for many things, but it's best not to use it for running a Pi-Star Update as it sometimes will break the update process. Use an SSH app instead.

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## 9) Upgrading Pi-Star



*Related article:* [Updating hotspot firmware via Pi-Star](#) [↗](#)

*Upgrading from V3 to V4? See* [Upgrading to Pi-Star V4 \(below\)](#)

The less frequent Pi-Star version upgrades makes operating system-level changes to the system services and packages required to support new features. Both the **update** and **upgrade** processes automatically switch Pi-Star into Read-Write mode, so there's no need to switch manually.

1. Use an app to SSH into Pi-Star and log in. Or you can use the **Update** and **Upgrade** links in the Expert Editor.
2. Begin with an **update** of the dashboard and binaries.  
In the SSH window:  

```
sudo pistar-update
```

  
Or, click the Expert Editor's **Update** link.  
Allow the update process to run until you see:  

```
Updates complete, sleeping for a few seconds before making the disk Read-Only  
Finished
```
3. Next, **upgrade** the operating system, services, and packages.  
In the SSH window:

```
sudo pistar-upgrade
```

Or, click the Expert Editor's **Upgrade** link.

4. *Beginning with Pi-Star version 4.1.5 / Dashboard version 20210619:* It's only necessary to run the Upgrade process once; the process now automatically upgrades all the way to the most recent version.

*Prior versions:* Run the upgrade process **as many times as needed** until the system reports you are on the most recent version:

```
You are already running the latest version...
```

```
Sleeping a few seconds before making the disk Read-Only...
```

```
Finished
```

5. It's a good idea to reboot the hotspot after upgrading.

In the SSH windows:

```
sudo reboot
```

Or, open the Power view, and then click Reboot.

6. The dashboard displays the current version number, for example, 3.4.16.

*For more info about what's included in an upgrade:* On the [Pi-Star Downloads page](#), scroll down to the Change Log section.


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## 21) Upgrading to Pi-Star V4

*If you're upgrading an existing hotspot from Pi-Star V3.#.## to Pi-Star V4:* Due to the complexity of the OS upgrade, you can't just click the Upgrade link or run `sudo pistar-upgrade`. (Yep, Andy has spoiled us!) However, there's a shortcut that can make the upgrade easier. Just watch this short (3 min) tutorial video by Craig, W1MSG: [Upgrade to 4.0](#).

I've tested this on Mac and Windows 10, and it worked well. Here are the steps:

1. Backup the Pi-Star configuration on your existing hotspot. For more info, see [Backing up and restoring Pi-Star](#)
2. Download the Pi-Star V4 image:
  - Full releases, if available, are available from [Pi-Star Downloads](#).
  - Release candidates (RC) are available from [Pi-Star Beta Downloads](#).

3. Insert a microSD card into your computer and flash a download of the Pi-Star V4 image to a microSD card. For more info, see [Flashing Pi-Star](#)   
*Note:* If using Windows, dismiss the system Format Disk message.
4. After flashing the Pi-Star image to the microSD card, eject it, and then reinsert it.  
*Note:* If using Windows, once again dismiss the Format Disk message.
5. Copy the backup zip file to the boot partition of the freshly imaged microSD card, and then eject it again.
6. Insert the microSD card into the RPi and power it up. The first boot up will take a bit longer than usual because V4 now automatically expands the filesystem (sweet!) and then unpacks and restores your backed up configuration. The good news is that subsequent boot ups are even quicker than they were previously.

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*Hint (thanks to Larry, KF7L):* If the image doesn't connect to your WiFi network and instead goes into Auto AP mode, the issue could be because your router doesn't broadcast SSIDs. In that case, you might want to try adding:

```
scan_ssid=1
```

to the `/etc/wpa_supplicant/wpa_supplicant.conf` file, between `ssid` and `psk`:

```
network={
    #ssid="WirelessNetworkName"
    ssid=576972656c ...
    scan_ssid=1
    #psk="WirelessNetworkPassword"
    psk=364b8070f60 ...
    id_str=""
    priority=100
```

7. Log into Pi-Star in order to open the Configuration page.
  - *User Name* – This your hotspot's hostname, either the default, pi-star, or whatever you changed it to in your backed up configuration.
  - *Password* – Even if you used your own Remote Access Password in the configuration you backed up, for security reasons, the Pi-Star backup does not back up this password, so you must use the default password to log in: raspberry.
8. It's a good idea to double-check your configuration settings. Some settings are not backed up, so if you changed them to something other than the default, you'll find that they are back on the default settings of a new install, for example:

- *General Configuration* – Dashboard language (default English\_uk)
  - *D-Star Configuration* – Time Announcements (default: On) and Use DPlus for XRF (default: Off). If you change the Use DPlus for XRF setting, you must run a Pi-Star Update to put the new setting into effect.
  - *Firewall Configuration* – Auto AP (default: On)
  - *Remote Access Password* – Since Pi-Star backup does not back up this password, if you want to use your own password, **which is a good idea**, you'll need to enter your own password.
9. It's also a good idea to make a new backup of your Pi-Star V4 configuration. For more info, see [Backing up and restoring Pi-Star](#).
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