



## Updating StarSeek Wi-Fi Module's Firmware

Use this page to download firmware updates for the Orion StarSeek Wi-Fi Wireless Serial/USB module.

Orion StarSeek Wi-Fi's firmware is updated through its serial port. To update Orion StarSeek Wi-Fi's firmware, you must have a PC or Mac with a serial port, or a USB-to-serial adapter. If your computer doesn't have a real serial port, we recommend the Orion USB-to-Serial Adapter (#52419).

### Orion StarSeek Wi-Fi Firmware Files

To update Orion StarSeek Wi-Fi's firmware, you first need to download the Wi-Fi Firmware Updater application to your computer. After you've downloaded the updater application, download the Wi-Fi firmware file. You can download the appropriate version of the updater application, and the latest firmware file, using the links below:

Operating System	Download	Release Date	Size	Description
Mac OS X 10.4, 10.5, 10.6	<a href="#">StarSeek Wi-Fi Firmware Updater, Mac</a>	1 December 2009	506 KB (517,804 bytes)	ZIP archive (.zip)
Windows XP, Vista, 7, 8	<a href="#">StarSeek Wi-Fi Firmware Updater, Win</a>	1 December 2009	103 KB (105,549 bytes)	ZIP archive (.zip)
All Operating Systems	<a href="#">StarSeek Wi-Fi Firmware ver 2.3.3</a>	24 July 2012	299 KB (299,054 bytes)	Hex binary file (.hex)

**The Mac OS X version** of the updater application is inside a ZIP file. After downloading the .zip file, double-click its icon to decompress it. Then copy the StarSeek Firmware Updater application icon to a location on your hard drive, such as your desktop folder.

**The Windows version** of the updater application is inside a ZIP file. After downloading the .zip file, double-click its icon to decompress it. Then save the StarSeek Firmware Updater executable icon to a location on your hard drive, such as your desktop folder.

**The StarSeek Wi-Fi firmware** is a hex binary file. Download the .hex file and save it to a location on your hard drive, such as your desktop folder.

### About StarSeek Wi-Fi USB firmware version 2.3.3

Version 2.3.3 is a minor bug fix release. It addresses a problem in version 2.3.2, which failed to save network configuration changes with Windows web browsers. For a complete list of the changes in Wi-Fi Serial/USB firmware version 2.3, see the bottom of this document.

Primarily, version 2.3 adds USB support for iOptron, Meade LS, Gen 3 ServoCAT, and SiTech USB telescope controllers. It has been tested and will work with any Orion StarSeek Wi-Fi units, with or without USB. On units without USB connectors, the firmware will simply act as if nothing is plugged into the USB port.

However, if your Orion StarSeek unit does not have a USB connector, we do not suggest updating your firmware to this version. Since your unit does not have USB hardware, the firmware can't use it.

Firmware version 2.3 also adds the ability to join home Wi-Fi networks with WPA and WPA2 encryption. It also adds an "auto-detect" protocol which will let StarSeek auto-detect your Wi-Fi unit by name when joined to home Wi-Fi networks. This auto-detect

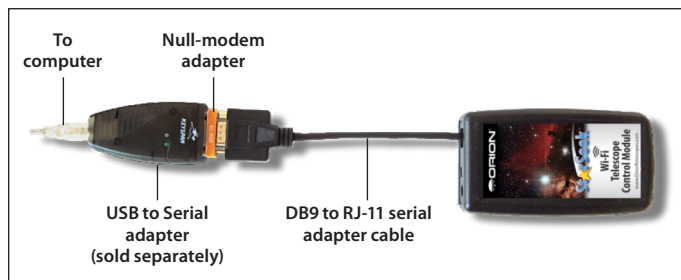
feature will be released shortly, in a forthcoming update to our StarSeek Standard, Pro and Max apps for iOS.

### How to Update Orion StarSeek Wi-Fi's Firmware

After downloading and decompressing the firmware file, connect the StarSeek Wi-Fi module to your computer's serial port using the included null-modem adapter, and use the firmware updater application to upload the firmware to the Wi-Fi module. The following instructions describe how.

1. If your computer does not have any real serial ports, connect your USB-to-serial adapter to a USB port on your computer. Also make sure you've installed any driver software required for your USB-to-serial adapter to work properly.
2. Connect StarSeek Wi-Fi to your computer's serial port (or to your USB-to-serial adapter) using the null-modem adapter. Specifically: place the DB9 female null-modem adapter between the DB9 male connector on your PC (or USB-to-serial adapter) and the DB9 male connector on the Wi-Fi module's serial adapter cable. Then insert the RJ-11 connector on the Wi-Fi module's serial adapter cable into the StarSeek Wi-Fi's serial port.

The following image illustrates how to connect everything. Make sure all cables are connected securely!



Connecting Orion StarSeek Wi-Fi with a null modem adapter to an Orion USB-to-Serial converter.

3. Put StarSeek Wi-Fi into programming mode as follows: Turn off the power switch, then depress the Reset button by poking an unbent paper clip through the designated hole on the back side of the case.

While the Reset button is depressed, turn on the Wi-Fi module's power switch. The status LED will not light up, but the unit is working as long as you keep the power on. Wait one second, then release the Reset button.

4. Launch the StarSeek Firmware Updater application by double-clicking its icon. Select the serial or COM port to which StarSeek Wi-Fi is connected, and choose the firmware image file you downloaded. Then click the "Upload" button to send the firmware to the StarSeek Wi-Fi module.

It may take a few minutes to completely upload the firmware file. After the upload completes successfully, turn StarSeek Wi-Fi's power off and on again to use the new firmware.

**Note:** After updating StarSeek Wi-Fi's firmware, StarSeek Wi-Fi will be restored to "factory default" settings. You will need to reconfigure any wireless network name, password, etc. that you may have set up previously.

## Troubleshooting

If you're experiencing difficulties updating StarSeek Wi-Fi's firmware, check the following items:

- If the updater application complained that the firmware file is not valid, try downloading the file again – perhaps from a different computer, or using a different web browser. Make sure the firmware image file size matches the size listed in the table above.
- If the updater application failed to detect StarSeek Wi-Fi, make sure all cables and adapters are connected securely. Make sure you placed the Wi-Fi module into programming mode (by depressing its reset button while you turned its power on). Make sure StarSeek Wi-Fi's status LED is off – when StarSeek Wi-Fi is in programming mode, the status LED will be dark, even though the power is turned on.
- If the updater application failed to upload the firmware file completely, try uploading it again. Try reducing the baud rate as well. Before uploading again, you will have to put StarSeek Wi-Fi back into programming mode by turning its power off, depressing the reset button, and switching its power on again.
- If your Wi-Fi unit fails to start up normally after you successfully updated its firmware, turn its power off, wait a few seconds, then turn it on again. If Wi-Fi still fails to start up normally, contact Orion support.
- The firmware updater application should generate a log file called "StarSeek Wi-Fi Firmware Update Log.txt" in the same folder as the application itself. This is a plain-text file which you can email to Orion support for help with troubleshooting.

## Release Notes

We welcome your input! If you find a bug, or have a suggestion for an improvement, please let us know. However, before reporting a bug, please check the list of "Known Bugs and Limitations" below – we may already be aware of the issue you've found. The following section lists the specific bug fixes and/or enhancements that have been made in the current (and previous) releases of the firmware.

### Wi-Fi Firmware release 2.3.3

- Resolves problem with failing to save configuration changes made with Microsoft Windows-based web browsers.
- Resolves problem with error messages appearing in Safari web browser on iOS 5 devices.

### Wi-Fi Firmware release 2.3.2

- Allows the WEP key to be cleared when using an Ad Hoc network, thereby removing security and making the network open.

### Wi-Fi Firmware release 2.3.1

- Does not restart the network if IP address changes when DHCP Client is configured in Infrastructure mode.
- Restarts network if StarSeek Wi-Fi's name is changed.
- Fixes problem with network settings occasionally not being saved after clicking the "Save Network Changes" or "Save Name" button.
- Fixes problem with StarSeek Wi-Fi name not being saved.

## Wi-Fi Firmware release 2.3

- Adds USB support for the FutureTech FT232 USB-to-UART chipset used in Gen 3 ServoCAT USB and Sidereal Technology SiTech telescope controllers.
- Adds USB support for the Prolific Technology PL-2303 chipset used in iOptron's 8402G controller.
- Adds support for WPA and WPA2-encrypted infrastructure Wi-Fi networks.
- Adds UDP-based discovery protocol which lets StarSeek apps auto-detect Wi-Fi units by name when joined to infrastructure Wi-Fi networks.  
The auto-detect feature will be released shortly in a free app update to StarSeek for iOS.
- Web configuration page simplified and rearranged.

## Wi-Fi Firmware release 2.2

- Adds USB support for the CP2102 USB-to-UART chipset used in iOptron's GOTO Nova 8402 hand controllers, and for the Meade ETX-LS.
- Adds ability to scan for nearby Infrastructure Wi-Fi networks.
- Can join Infrastructure Wi-Fi networks with WEP security or no security (i.e. open networks). If Wi-Fi fails to join an Infrastructure network, the red status LED will blink five times, then Wi-Fi will revert to its default Ad Hoc network.
- New header/footer graphics in web configuration UI.

## Wi-Fi Firmware release 2.0b2

- The DHCP server now assigns a consistent IP address to the client with the same MAC address, and can assign up to 100 IP addresses.
- Multiple connections from different IP addresses are now disallowed.
- Baud rate can now be set to 230,400 bps.
- The IP address and remote port number of the client connected to the serial data TCP port is now displayed in the Serial Port Settings section of the configuration web page.
- WEP security is now implemented.
- Greatly improved serial communication responsiveness and stability.
- The DHCP server can be restarted after it has been turned off, without having to cycle the power.
- After pressing the reset button while the power is turned on to restore factory default settings, it is no longer necessary to cycle the power.

## Known Bugs and Limitations

- The Safari web browser on the iPhone, iPad, and iPod Touch sometimes freezes up when accessing StarSeek Wi-Fi's configuration web page. Use a web browser like Safari or Internet Explorer on a desktop PC or Mac instead.
- The "Wi-Fi Settings Web Page" option inside the StarSeek app sometimes fails to access the Wi-Fi configuration web page. Seems worse on iOS5 and is probably an iOS problem. Use a desktop browser instead.