



# REF TEK WRANGLER

## FIRMWARE VERSION 1.4.2

These release notes describe the latest improvements made to the REF TEK® Wrangler™ Seismic Recorder.

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### Introduction

A new version of firmware for the REF TEK Wrangler is now available. The new version is identified as version 1.4.2. Before you perform a firmware upgrade, use the Web UI or REF TEK App to make a note of all configuration settings.

### New Features and Changes since version 1.4.0

- [Addition of the REF TEK 147A accelerometer to the Sensor Model selection list](#)  
The REF TEK 147A accelerometer was added to the Sensor Type page in the Web UI, in the sensor model selection list.
- [Correction to add missing collapse icon to the Sensor Type page of the Web UI](#)  
The Sensor Type page in the Web UI (Parameters section) was missing the collapse icon (triangle) on both of the Sensor Info section headers.
- [Correction to first miniSEED packet timestamp](#)  
The header packet for the first miniSEED packet had an incorrectly populated tenth-millisecond field. This issue only affected data created from triggered events.
- [Modification to the initialization timing of the miniSEED Station and Network IDs](#)  
The initialization of the miniSEED Station and Network ID values was moved earlier in the boot process to ensure that all SOH packets created during boot-up are correctly populated with the programmed values.
- [Modification to the sensor calibration start delay](#)  
When a sensor calibration begins, the delay between activation of the cal enable line and the beginning of the cal signal output has been lengthened from 10 seconds to 60 seconds. This provides broadband sensors additional time to settle in the event that they are affected by the cal enable line switching on. This change only affects user initiated calibrations.

Version 1.4.2  
Revision A  
November 2019

[www.reftek.com](http://www.reftek.com)

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- [Modification to force the user to set the initial unit password at first connection](#)

In order to improve security, Wrangler units will no longer be shipped with default passwords. Instead at first power up, the user will be required to specify a password for the admin account. It is strongly recommended that users also set the password for the user account at the same time. This change does not affect existing units, even if they are still configured to use the previous default password. This change only affects factory default units.

## Upgrade Procedure

To upgrade the Wrangler firmware, please follow the steps below:

1. Download the firmware zip file from the [www.reftek.com](http://www.reftek.com) Wrangler Support webpage.
2. Unzip the firmware zip file, and copy the entire unzipped “firmware” directory to the root of the USB stick. (Alternately, the entire unzipped firmware directory can be sent via FTP to the Wrangler unit.)
3. The USB stick should now have a firmware directory which contains eight firmware files (filenames listed below in the current versions section).
4. Power-down the Wrangler unit.
5. Insert the USB and reboot the Wrangler unit to perform the update.
6. The Wrangler unit will reboot once per every file in the firmware directory, after each of the individual updates is completed.
7. After all of the individual updates are completed the unit resets a final time and begins normal operation. Normal operation is indicated by the unit starting acquisition (see the ACQ LED if you are in front of the unit). It can take up to 10 minutes for the updates to complete.

## Current Wrangler Firmware Versions

Here is a list of the current firmware versions, including gate array versions, for the Wrangler unit:

Main CPU firmware (main.srec)	– Version 1.4.2
Electronic (ELC) Board Gate Array (elc111935.jbc)	– Version D0039
CPU (CPU) Board Gate Array (cpu106641.jbc)	– Version B0017
A/D (ATD) Board Gate Array (atd106642.jbc)	– Version C0039
Calibration Signals File (calstd.bin)	– Version 1.00g
CPU Board BBC firmware (bbc.srec)	– Version 2
LID Board LED firmware (lid.srec)	– Version 2018-05-23 build 2
Sensor Nominal Responses (sidnom.bin)	– Version 1.0