

Support Note

10 SEPTEMBER 2020

TRIMBLE RANGER 7 DATA COLLECTOR AND TRIMBLE TSC7 CONTROLLER: INSTRUCTIONS FOR UPDATING THE TRIMBLE OPERATING SYSTEM

This support note provides guidance and instructions on updating or reinstalling the latest released Trimble® operating system on a Trimble Ranger® 7 data collector or Trimble TSC7 controller, using a formatted USB drive.

The latest version is:

- Trimble **OS B28-T**
- Based on Microsoft® Windows® 10 Professional Edition, **Version 2004** (May 2020 Update, codenamed 20H1)
 - Windows **OS Build** version: **19041.388**
- The Trimble **OS** version, Microsoft **Version** and **OS Build** can be found under **Start > Settings > System > About**.

The Trimble operating system includes the standard Microsoft® Windows® 10 Professional operating system (including the latest Microsoft Windows updates available at the time of the Trimble operating system release), plus additional components which makes the Trimble operating system build unique to any other Windows 10 operating system image. The additional components include:

- Drivers and software required for proper operation of hardware components integrated with the Ranger 7 data collector / TSC7 controller, including the Intel Chipset, Camera, Audio, WLAN, Bluetooth®, WWAN, GNSS, RS232, Power Management, etc.
Note - Occasionally a Microsoft update may overwrite a driver that was installed in the Trimble operating system image. This should not cause any issues and Trimble makes every attempt to proactively test driver updates pushed out by the Microsoft Windows updates.
- Apps provided by Trimble for using the built-in keyboard, touch panel and SDK.
- Trimble EMPOWER module components, including the Module Support Packages (MSPs) and Demo software.

Note that a standard off-the-shelf Microsoft operating system image does not include the specific drivers or apps required for Trimble hardware. For more information on updating various components on a Ranger 7 / TSC7 device, and to determine if you need to update the Trimble operating system, see: [SprtNote_Ranger7_TSC7_DetermineComponentsToUpdate_Eng](#)

For detailed information on the current and previous Trimble operating system releases, including release dates, Microsoft updates included with each release, versions of driver and software utilities that were included with each operating system release, and instructions on how to determine which version is installed on your Ranger 7 / TSC7 device, see [SprtNote_Ranger7-TSC7_OS_BIOS_EC_Driver_AppsHistory_Eng](#)

After performing the operating system update:

- It is strongly recommended that you install new Microsoft Windows updates using the standard Microsoft update procedure, as the Trimble operating system may not include the latest Windows updates. For more information on installing Windows 10 updates, go to: <https://support.microsoft.com/en-us/help/4027667/windows-10-update>.
- If you have created your own custom Trimble EMPOWER module, you must install your custom Module Support Package (MSP) and other supporting software your module may require.

NOTE: An alternative to installing the full Trimble operating system image is to use an installer containing the updated Trimble EMPOWER module applications and drivers. This can be a quicker method to update Trimble components, especially if you are already up-to-date with Microsoft updates. This method will not erase any data or applications. For more information, see: [SprtNote_Ranger7-TSC7_InstallationInstructions_OS-B28-T_Driver_AppPackage_Eng](#)

Affected Units

This support note applies to all Trimble Ranger 7 and TSC7 devices.

Instructions for Creating a USB Drive for Installing the Trimble Operating System

CAUTION – Reinstalling the Trimble operating system will erase all software installed on the device, and all data stored on the internal storage on the device. Backup all personal data before starting this process.

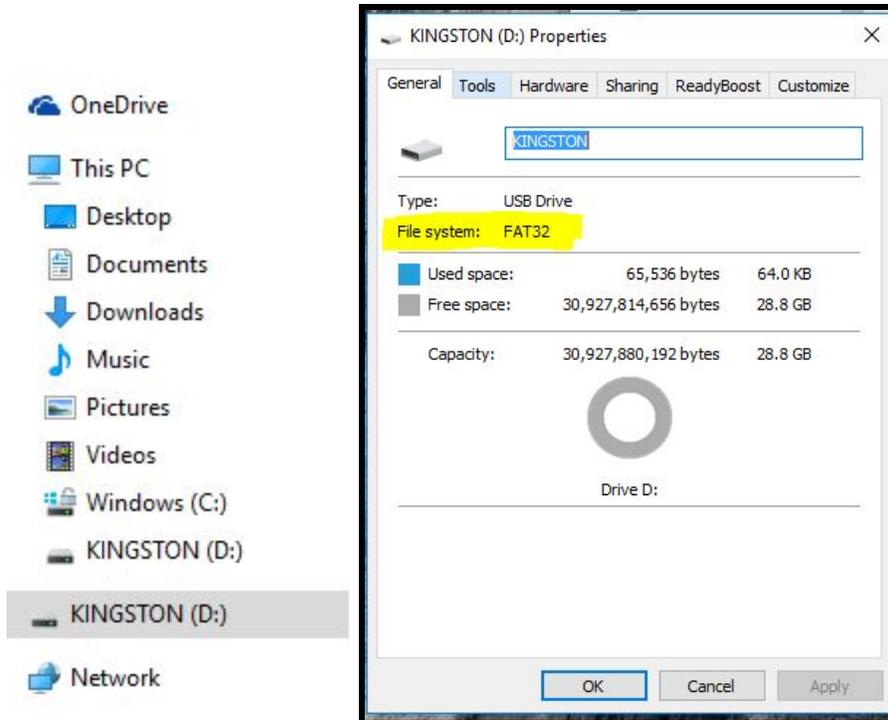
- Use a USB drive which has a memory capacity of 32GB or less. It is best to choose a well-known brand.
- Use a USB 2.0 flash drive if you are inserting directly into the Ranger 7 / TSC7 device; if you use a USB 3.0 flash drive, you may get an error message. To resolve this, connect the Ranger 7 / TSC7

device to a desktop hub and insert the USB 3.0 flash drive into the hub; this converts it to USB 2.0.

- Check the USB Format type and ensure it is formatted as FAT32; see below.

To create a bootable USB drive for the Trimble operating system image installation:

1. Check the USB Format type and ensure it is formatted as FAT32. In Windows Explorer, locate your USB drive and right click on it, then choose **Properties**. Make sure that it says **FAT32** next to the **File System** as shown below:

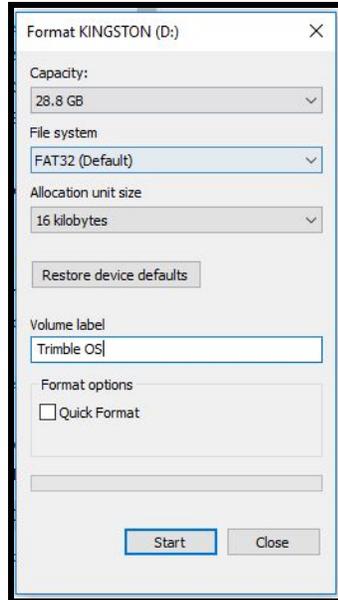


2. If it does not show **FAT32**, you will need to format the USB drive.

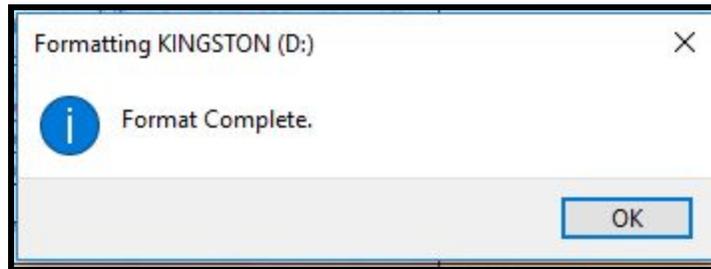
CAUTION – Formatting the USB drive will erase everything stored on it, so make sure you back up all data on the drive.

For detailed formatting instructions, go to <https://www.wikihow.com/Format-FAT32>

- a. In Windows Explorer, right-click the USB drive and select **Format**; the following window opens:



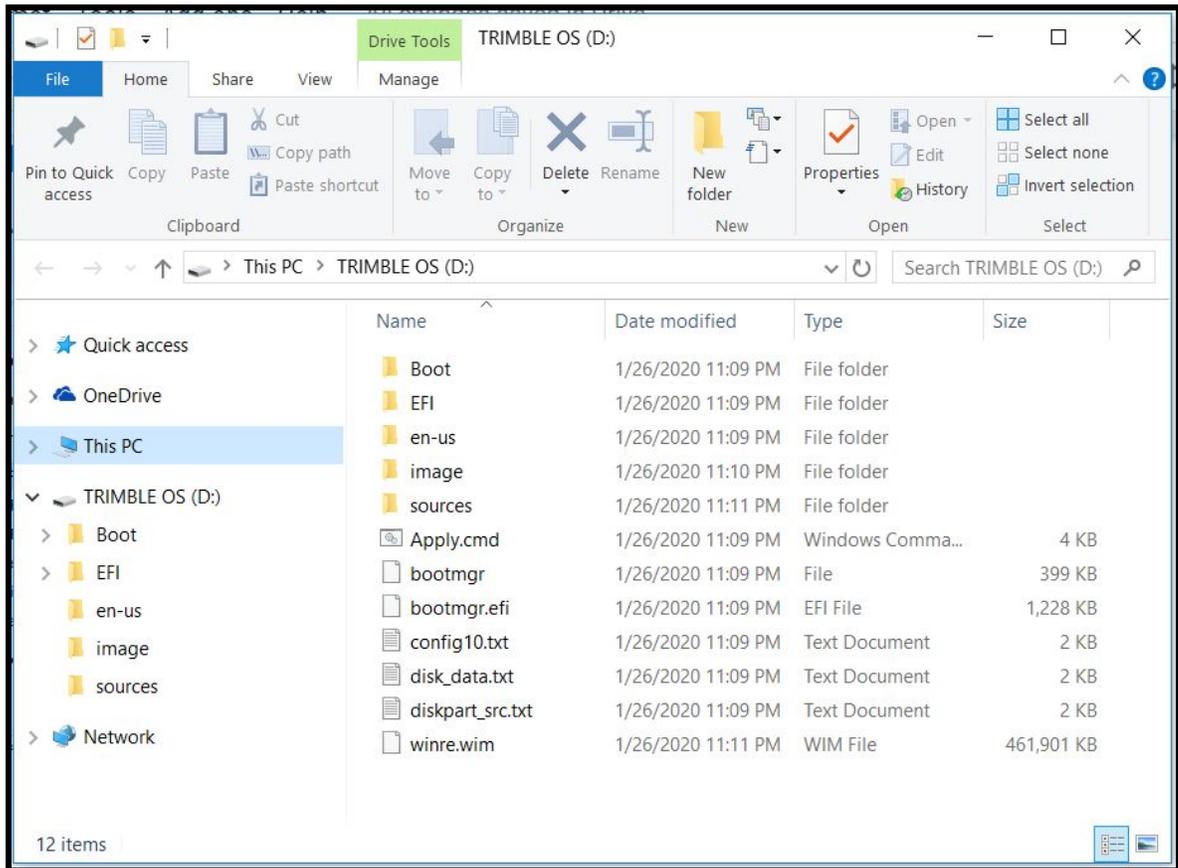
- b. Select **FAT32** from the **File System** menu.
- c. Clear the **Quick Format** checkbox if the USB drive has been performing poorly, for example running slowly or displaying error messages. This will perform a full format and repair any problems with the USB drive. A full format can take approximately 20 minutes.
- d. Change the **Volume label** if desired; this is the name that appears when the drive is connected to a device.
- e. Click **Start** to begin the format process. You will be prompted to confirm you want to delete everything on the drive.
- f. When formatting is completed, the following message displays:



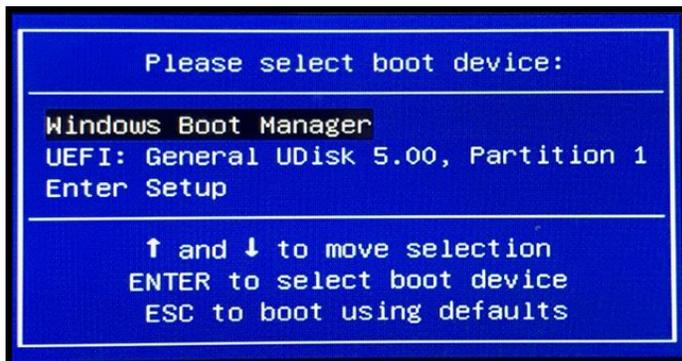
Instructions for Downloading and Updating the Ranger 7 / TSC7 Trimble Operating System

1. Download the latest Trimble operating system installer from <https://d2kmytid4j1mcb.cloudfront.net/B28-T.zip>
Note that this file is > 9GB, so it is recommended that you are connected to a fast network and download over Ethernet, not Wi-Fi, or the download may take many more hours.
Note that some browsers may issue a warning for the http (non-secure) links traditionally used for the dl.trimble.com site. Chrome does not seem to have this issue.
2. Extract the files to your office computer.

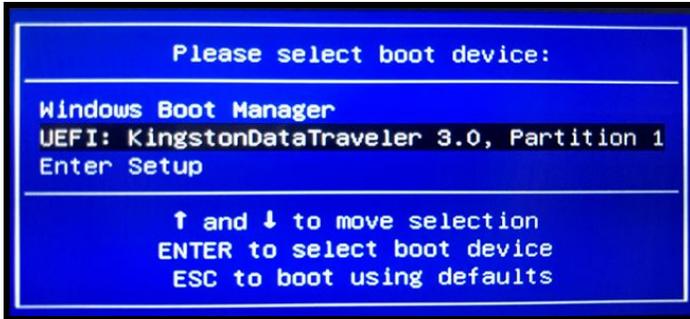
- Copy the extracted files into the root directory of the USB drive as shown below:



- Make sure the Ranger 7 / TSC7 device is connected to mains power and has power supplied.
- Make sure the Ranger 7 / TSC7 device is shut down.
- Insert the USB drive into the Ranger 7 / TSC7 device.
- Turn on the Ranger 7 / TSC7 device. When the Trimble logo appears, press and hold the **Fn** key and repeatedly press **F1** (i.e. F7) until you see this screen:



- Using the directional arrows on the keypad, navigate to highlight your USB drive from the boot options (which will show something similar to UEFI: USB drive name, Partition x).



9. Press the **Enter** key. The installation automatically starts.
10. The installation will take approximately 10 minutes to complete, then the Ranger 7 / TSC7 device will shut down and you can remove your USB drive.
11. On the first boot, it will take a few minutes to prepare the device since it is now in the factory default state. When the Ranger 7 / TSC7 device has finished booting up, you are prompted to select your language, region, and keyboard layout, and accept the Windows 10 License Agreement. You can then set your Login and Password and finish choosing your settings.
12. Once logged in, you can install any Trimble, third party, or custom software.

More Information

Contact your Trimble Regional Sales Manager or local Trimble Distribution Partner for more information.