Release Notes

Trimble® Earthworks Training Simulator Release Notes

Version 2.19.x
Revision A
December 2024

Trimble

Contents

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Introduction

In this chapter:

1.1 User documentation

This release of the Trimble® Earthworks training simulator includes the following documentation:

- Release Notes (this document)
- User Guide

For detailed information on using the new features of the Trimble Earthworks app provided by the training simulator, refer to the help in the Trimble Earthworks app or the operator's documentation on the Partners web site.

2

Supported guidance options

In this chapter:

2.1 Introduction

This section describes which guidance options are supported in the Trimble Earthworks simulator v2.19.x for each machine type.

2.2 Supported guidance options

Excavator:

- Dual GNSS
- Left GNSS + heading sensor
- Right GNSS + heading sensor
- Dual GNSS tiltrotator
- Dual GNSS tiltrotator + two-piece boom
- Single GNSS
- Single UTS
- Laser
- Dual GNSS with swing boom
- Dual GNSS with tilt bucket

Dozer:

- Dual cab-mounted GNSS
- Dual blade-mounted GNSS
- Center blade-mounted UTS
- Dual blade-mounted lasers (center and right)
- Center blade-mounted laser + right cross slope
- Right blade-mounted laser + left cross slope
- Single GNSS
- Cross slope

Grader:

- Mastless dual GNSS (front and rear)
- Dual blade-mounted GNSS (left and right)
- Left blade-mounted UTS
- Right blade-mounted UTS
- Left blade-mounted GNSS + right sonic tracer
- Right blade-mounted GNSS + left sonic tracer
- Left blade-mounted laser + right sonic tracer
- Right blade-mounted laser + left sonic tracer
- Left blade-mounted laser + right cross slope
- Right blade-mounted laser + left cross slope
- Left sonic tracer + right cross slope
- Left cross slope + right sonic tracer
- Left sonic tracer + right sonic tracer
- Single GNSS
- Cross slope

Soil compactor:

- Single GNSS
- Dual GNSS
- UTS

Landfill compactor:

- Single GNSS

Compact loader (box blade):

- Dual GNSS
- Left GNSS (elevation) + right sonic tracer
- Left GNSS (slope) + right sonic tracer
- Left sonic tracer + right GNSS (elevation)
- Left sonic tracer + right GNSS (slope)
- Blade slope

Compact loader (grader blade):

- Dual GNSS
- Left GNSS (elevation) + right sonic tracer
- Left GNSS (slope) + right sonic tracer
- Left sonic tracer + right GNSS (elevation)
- Left sonic tracer + right GNSS (slope)
- Cross slope

Compact loader (Cat SMART Dozer Blade attachment):

- Dual GNSS

Large wheel loader:

- Dual GNSS

3

New features and improvements

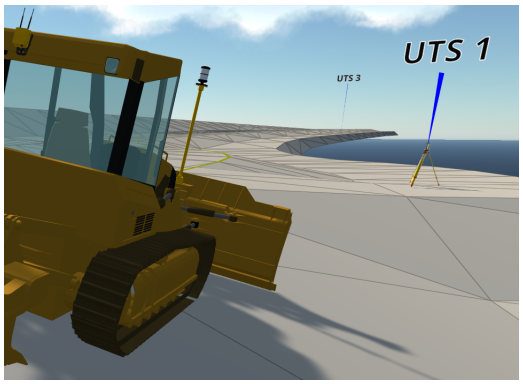
In this chapter:

3.1 Trimble Earthworks ECM software

The version 2.19.x release of the Trimble Earthworks simulator incorporates the Trimble Earthworks V2.19.x system ECM software.

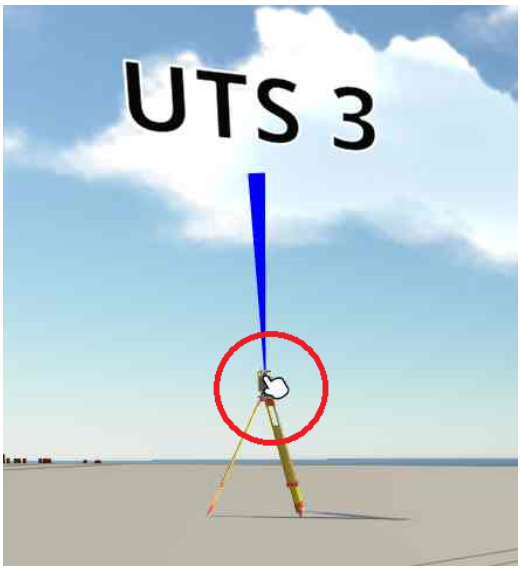
3.2 Improved UTS performance

- The labels on UTS tripods:
  - have borders that make them easier to read.
  - display more clearly when using multiple monitors.
  - are at appropriate heights. They do not jump up or down as the camera tilts.



- You can adjust the position of the UTS tripods. This can be especially useful if the tripods are poorly located in custom designs:

a. Hover the mouse over the total station until a finger pointer displays:



b. Press and hold on the right mouse button.
c. Drag the tripod to a new location and then release the mouse button.

- Press F2 to reset the tripod positions.

3.3 Improved laser performance

You can reposition the laser transmitter:

1. Hover the mouse over the transmitter until a finger pointer displays:

2. Press and hold on the right mouse button.
3. Drag the transmitter to a new location and then release the mouse button.

Press F2 to reset the position of the transmitter.

3.4 Minor improvements

Minor changes in this release include:

- If you loaded a design with an excavator and ran demo mode, then loaded a custom design, the demo loop continued to run. This has been corrected.
- If you loaded custom excavators and custom designs, it was possible to receive an extra UTS tripod on the design. This has been corrected.
- If you loaded a custom dozer or grader with laser receivers, the system would occasionally fail to detect the laser strike when benching. This has been corrected.
- UTS tripods are rendered more accurately.

4

Known issues

In this chapter:

4.1 Introduction

Known issues include:

- Unresolved errors in the software
- Unexpected behavior of the system as a whole, or of a device

Future product releases may resolve these issues.

4.2 Simulator retains mapping data for compactor custom machine file

If you load and drive a landfill compactor, and then load a custom machine file for a soil compactor, the simulator retains the mapping data from the landfill compactor for the new machine.

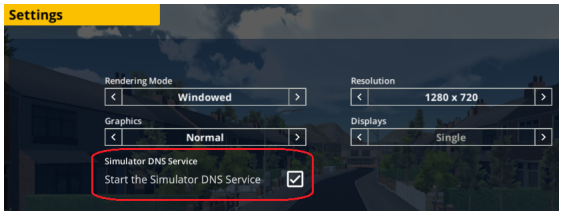
Workaround: After you use the landfill compactor, load one of the standard soil compactor configurations before loading your custom soil compactor machine file. This resets the mapping data.

4.3 Simulator installation issues

4.3.1 Simulator DNS Service error

If you see a system error indicating that SimulatorDNS Service has exited, and you have Hyper-V enabled, disable the DNS Service:

1. Open the simulator's Settings screen (F12).
2. Unselect the checkbox for *Start the Simulator DNS Service*:



3. Restart the simulation.

If you need to use the Earthworks Launcher or MC Installer, this approach does not work. Instead, you must disable Hyper-V. Restart the PC after you disable it.

4.3.2 AR camera requires TD5x0 Ethernet set to DHCP

If you use your TD5x0 display both to show the simulator and in an actual system with an AR camera, be aware that the simulator and the camera require different Ethernet settings:

- Simulator: requires TD5x0 Ethernet set to StaticIP.
- AR camera: requires TD5x0 Ethernet set to DHCP.

When you move the display between the simulator and the actual system, you will need to change the Ethernet setting on the display. Go to Settings > Ethernet > Configure Ethernet and adjust the Connection Type.

4.3.3 Duplicate versions of MachineControlPlugin_*.apk in BlueStacks

When you install the file MachineControlPlugin_*.apk in BlueStacks, the previous version remains. If you experience conflicts (for example, the Launch Assistant defining a running session as Unreachable), go into Google apps and delete the previous versions:

1. On the BlueStacks desktop, expand the System apps folder.
2. Click Android Settings > Apps.
3. If there are multiple versions of Machine Control Plugin, delete them.
4. On the desktop, re-install MachineControlPlugin_*.apk.

4.3.4 Install the simulator on an appropriate drive

It is recommended that you install the simulator on your system drive.

4.3.5 Avoid clashes with earlier versions

If the simulator is not working correctly and you installed it over a previous version, delete all the files and perform a clean install.

4.3.6 Correct PC to display data cable required

Ensure that you use a standard Ethernet cable (Cat 5 or above) to connect the PC to the TD520 display, and that the cable is connected correctly. A non-standard data cable, such as a crossover cable, may cause the simulator to display unexpected issues like lost guidance or a missing Start button.

4.3.7 Simulator on Citrix environments

Avoid installing the simulator on a Citrix environment. The Unity engine will not work.

4.3.8 Required network port is occupied by another process

The simulator software components require several network ports to communicate. The simulator can fail to work if these ports are occupied by other services. Common services that block ports include:

- World Wide Web Publishing Service (W3SVC)
- SQL Server Reporting Services (MSQLSERVER)
- Other web servers such as Apache/Tomcat or IIS
- Internet Connection Sharing (ICS)
- Other DNS servers

For example, the YAMS Proxy component within Duplo requires port 80. If Duplo is blocked from running by the firewall or because a process occupies the port, the following error message appears: **Duplo: Exited**.

To determine which ports are occupied by processes, use one of the following methods:

- Enter *netstat -ab* at the command line as an administrator. If you do not have administrator permission, contact your IT department.

  Find the service running on TCP 0.0.0.0:80.
- Check if a web server is running:
  a. Open a browser window.
  b. Enter *localhost* in the search bar and press Enter. If a webpage displays, a web server is running.

     Note – If a webpage does not display, it is still possible that a web server is running.

To resolve the port clash, use one of the following methods to disable or uninstall the blocking process:

- If the netstat software reports that the system is occupying port 80, IIS may be running. This is most likely if you are running Windows 7, or have a PC updated from Windows 7. Enter *net stop http* in a command window as administrator. You must repeat this method after each reboot.
- Disable W3SVC:
  a. From the Start menu, enter *services* and open the application (you may need the required permissions to run this program).
  b. Find World Wide Web Publishing Service in the list.
  c. Right-click Properties and then click the Stop button.

     To make this a more permanent solution, change the service's startup type to Manual or Disabled.

- Remove IIS or SQL Server reporting services (if they are unneeded):
    a. From the Start menu, enter *Turn Windows features on or off*.
    b. Disable Internet Information Services.
    c. Restart the PC.

4.3.9 Firewall blocks the applications from communicating

The **Duplo: Exited** message can also appear if it is blocked from running by the firewall.

Check that the applications can communicate through the firewall. For help, contact your IT department.

4.3.10 Virus scanner flags the software as unsafe

If your virus scanner flags the software as unsafe, set the virus scanner to allow the applications to run. For help, contact your IT department.

4.3.11 Cannot create a network with a static IP address

If you do not have permission to create a network with a static IP address during the installation process, contact your IT department.

4.4 Simulator operating issues

4.4.1 Changing screen settings causes mouse issues

If you experience issues with the mouse when switching between full-screen mode and windowed mode with multiple displays, restart the simulator.

4.4.2 Multiple quick camera pans can reset the view

If you try to drag the camera view multiple times in quick succession, the system may interpret it as a double-click and reset the view to the default position.

4.4.3 System snapshot returns error message

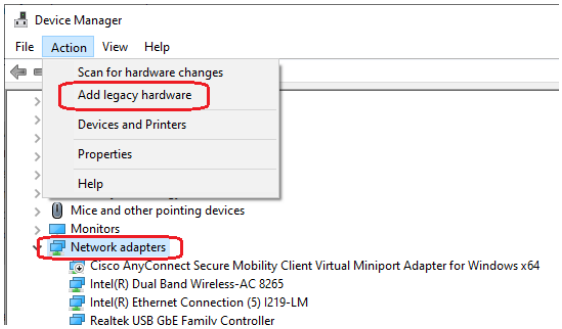
If you take a system snapshot on a simulator setup where the snapshot service is not installed, an error message displays. You can ignore the message.

4.4.4 Using the simulator without an internet connection

If you run the simulator without an internet connection, when you change machine type in BlueStacks, the Operator App crashes.

To resolve this issue, install the software for the Microsoft KM-TEST loopback adaptor card (the card is not required).

1. Right-click on Windows Start menu icon and select Device Manager. The Device Manager displays.
2. Select Network adapters.
3. In the Action menu, select Add legacy hardware.



The Add Hardware wizard displays.

4. Click Next on the welcome screen.
5. Select Install the hardware that I manually select from a list and click Next.
6. Select Network adapters and click Next.
7. Select Microsoft as the manufacturer, and then select Microsoft KM-TEST Loopback adapter card as the model.
8. click Next, twice, and then click Finish.

4.4.5 Joysticks not working

If you connect 2 joysticks to the PC's USB ports at the same time while the simulator is running, the system may not recognize them. To avoid this issue, do one of the following:

- Connect the joysticks before starting the simulator
- Insert one joystick and then the other

If the issue occurs, unplug one joystick and then reconnect it.

4.4.6 Launch Assistant

If your system cannot create a connection between the PC and the display, use the Launch Assistant. The Launch Assistant helps the system to resolve IP addresses. To use the Launch Assistant:

1. Start the simulator as usual.
2. Load the file /<simulator>*/Android/launch-assistant.apk*.

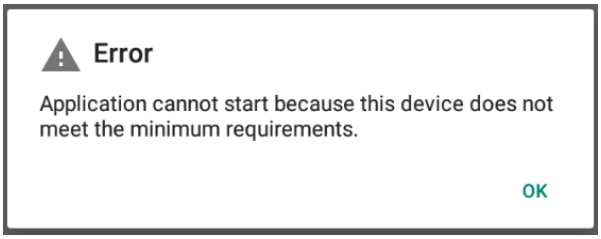
Note – *The Launch Assistant does not correct BlueStacks issues.*

4.4.7 BlueStacks creates icons on PC desktop

If you use the BlueStacks emulator, it installs icons on your PC's desktop. Avoid using these icons to start the simulator. Use the icons on the BlueStacks desktop.

4.4.8 Screen resolution

If you use the BlueStacks emulator, ensure you have the screen resolution set to an aspect ratio of 16:10, for example 1920 x 1200. Failure to do this can cause a message that minimum requirements are not met:



4.4.9 Entry Point Not Found error message

If the simulator reports an Entry Point Not Found error, ensure that your PC's operating system is up to date.

This issue affects Windows 10 build 1607 and lower.

4.4.10 Accessing Web Interface screens from within the Operator App

There are several buttons in the Operator App that enable you to access sections of the Web Interface (for example, editing an attachment or advanced configuration of GNSS). The simulator enables you to access these Web Interface screens, but when you click Exit, the app closes.

4.4.11 Reduced performance on PCs with lower processing capability

On a PC that does not meet the recommended processing capability, the simulator may struggle to run correctly. Symptoms include:

- Guidance Lost message on the Android device
- Required Devices Are Not Configured message on the Android device
- A difference in machine position between the machine model in the simulator guidance window and the machine model on the Android device
- The machine attachment is driven beyond the design surface
- Reduced frame rate

Issues are more likely when:

- The design has movable terrain (you can dig it or leave track marks)
- You are using multiple monitors

You may be able to improve performance by pressing F12 to change to non-3D graphics mode.

4.4.12 Possible DNS connection issues between PC and display

Earlier releases of the simulator used the IP address 192.168.168.1 to connect the PC to the TD520.

The simulator now uses the virtual URL myec520.com to locate the EC520 on the network. The simulator now includes a DNS server to resolve that URL to the PC at 192.168.168.1. This requires port 53 to be available.

If there is a connection error, for example because another service is occupying the port, the simulator will appear to start correctly but show a DNS Inactive error. Services that may occupy the port include:

- ICS (Internet Connection Sharing): usually installed if the PC has been used as a hotspot
- A previously installed DNS server

Free port 53 to enable the simulator to communicate.

4.4.13 Simulator may exhibit instability if run for an extended period

The simulator may display unexpected behavior after running for an extended period of time. To avoid instability, close and restart the simulator application at least once every 24 hours.

4.4.14 Audible alarm is silent

Simulated AA510 audible alarm sound is not supported.

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