LAStools

Installation Guide

Content

Version 1.0.0 // 2026

1. Introduction

The LAStools software suite is a collection of 55 highly efficient, batch-scriptable, multicore command-line tools for processing point clouds. This document describes the installation and initial use of LAStools.

2. Download

Download the software at https://rapidlasso.de/downloads. There are three options:

2.1. LAStools: Windows with GUI

This is the recommended download. A setup program "setup_LAStools.exe" will be downloaded. Running this program installs LAStools with the "laslook" GUI. To install this, proceed with "3.1. Installation using the setup program".

2.2. LAStools: Windows

Use this download if you wish to use LAStools exclusivly via the command-line. The file to be downloaded is named "lastools.zip". This file contains all the data required to run the native LAStools in 64-bit mode. To install this, proceed with "3.2. Installation by unzipping files". It is also possible to install the GUI later as a separate download.

2.3. LAStools: Linux

This version is for the Linux OS. The installation process on Linux is essentially the same as on Windows: the files simply need to be unzipped into a directory. We recommend installing them in the "/lastools" directory. For all details regarding installation on Linux, please refer to blog post[1].

1https://rapidlasso.de/lastools-linux/

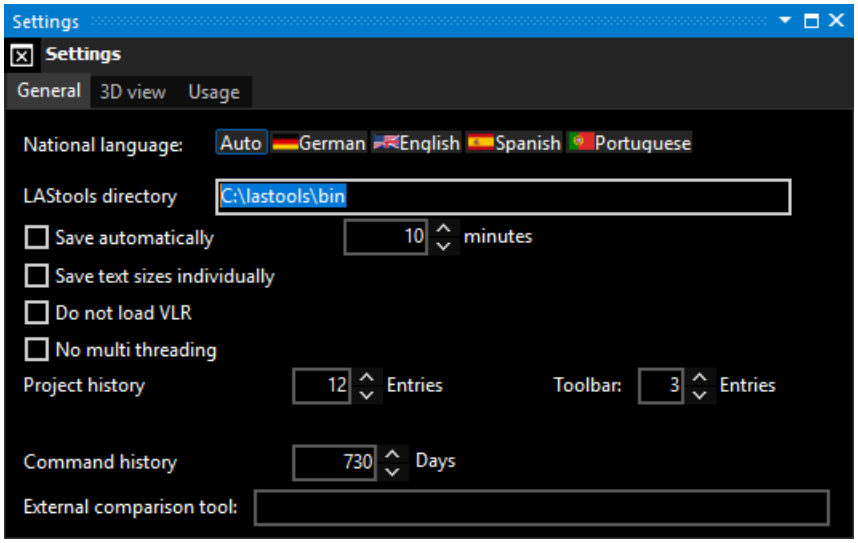
3. Installation

3.1. Installation using the setup program

The simplest method for installing LAStools is to use the setup program. To do this, run the downloaded file "LAStools_Setup". The installer will guide you through the installation process. First you will be asked if you wish to perform the installation only for yourself or for all users of the computer. It is recommended that you perform the installation for all users. If you do not have the rights to install for all users, you can still perform a local installation for yourself only. Leave all other installation settings at their default presets unless you know exactly why you wish to change them.

Once the installation of LAStools and laslook is complete, the GUI will launch. Upon the first launch, you will be prompted to select whether you are a beginner or an expert. Please select your preferred mode. All settings can be modified later.

Typically, the program automatically detects where the LAStools binary files are installed, so no further steps are required. If the installer fails to locate an existing LAStools installation—and is unable to install a new one—you must manually specify the path to the LAStools installation. Open the "File > Settings…" menu to enter the path to the LAStools\bin directory.

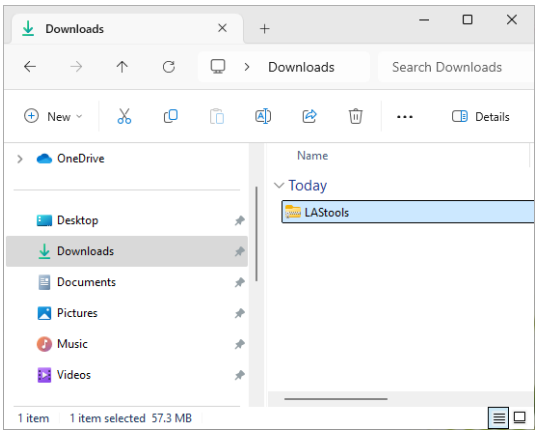


Please watch the introductory videos at [https://www.youtube.com/@rapidlasso] for an introduction to using LAStools with the laslook GUI.

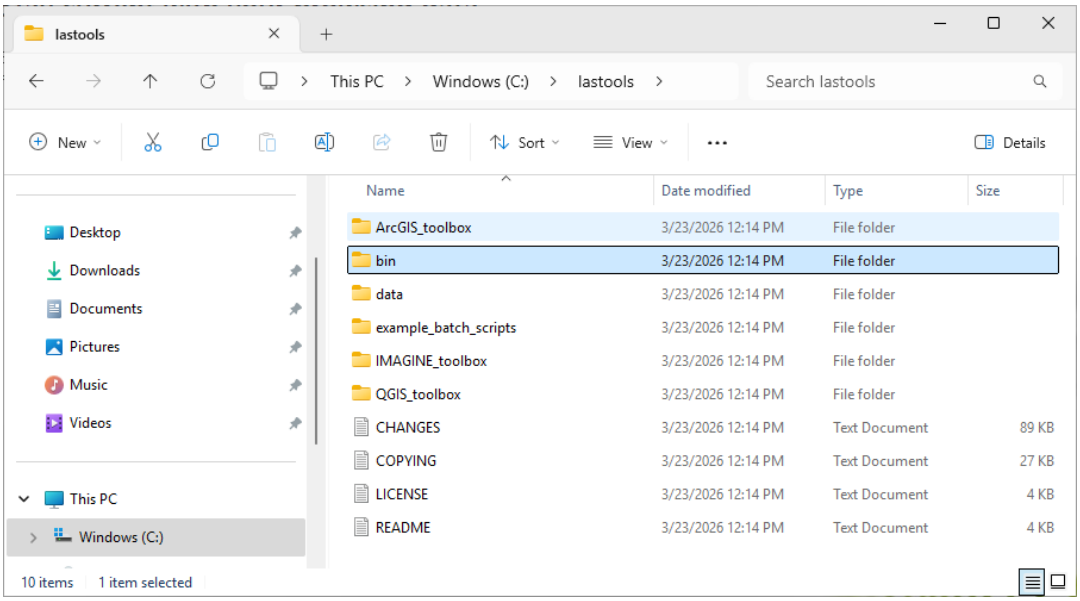
3.2. Installation by unzipping files

All LAStools consist solely of exe files that can be executed directly from the command line. For installation, it is recommended to create a directory named "c:\lastools". Place the downloaded file "LAStools.zip" into this directory. Unzip the file within this directory.

In Detail:
After clicking the download button on the website, your web browser will either place the file directly into your Downloads folder or ask you where you would like to save it. If prompted, you may save the file in your Downloads folder. After downloading, create a directory named "c:\lastools". Copy the downloaded file from your Downloads folder to "c:\lastools". Right-click on the file and select "decompress".

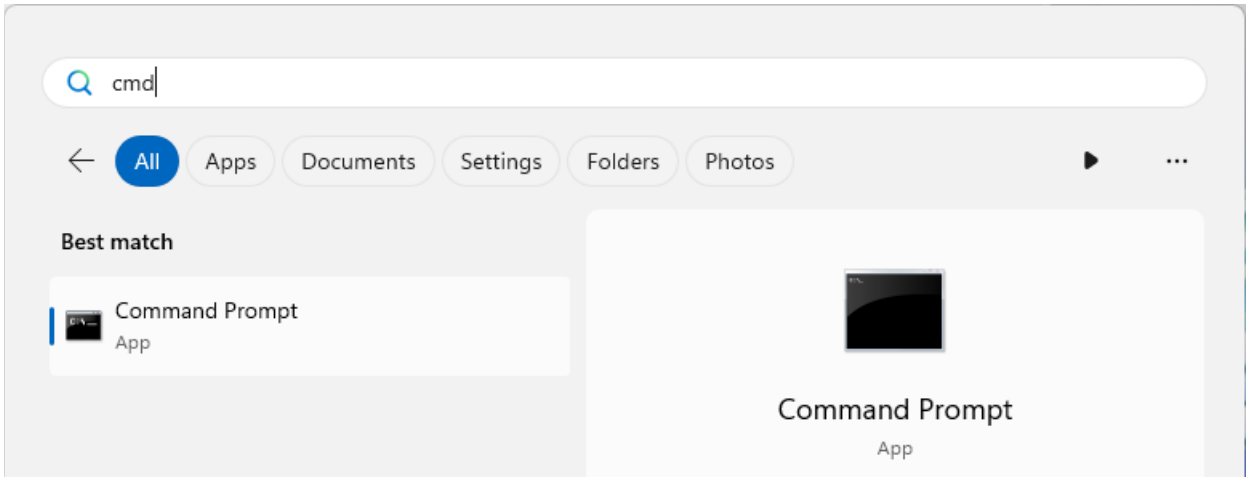


After decompressing, you should find a directory named "c:\lastools" containing the entire contents of LAStools.



The executable files are located in the "bin" subfolder.

For an initial check, you can open a console window (press the Windows key  and enter "cmd" in the search box. Click "Command Prompt" to open a new console window).



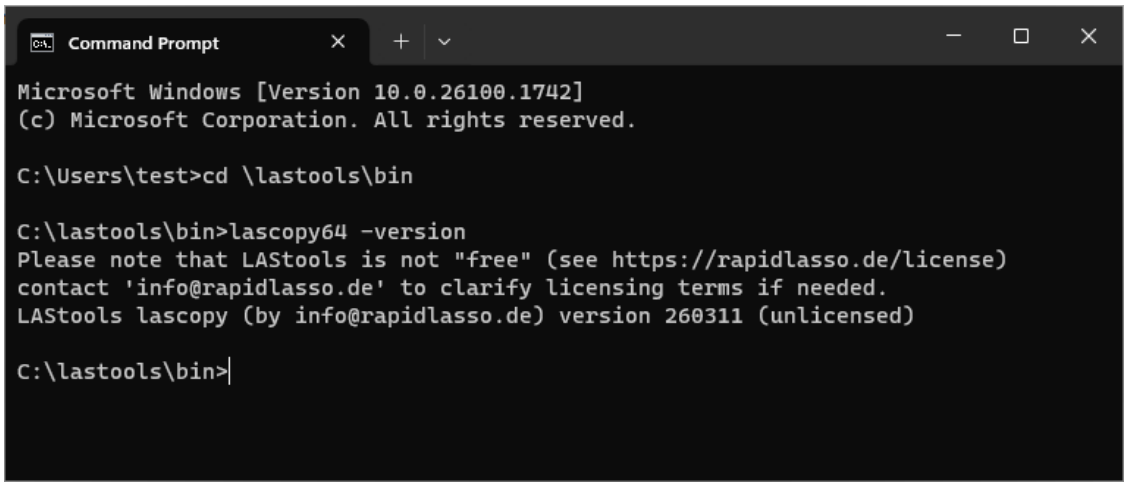
In the Command Prompt console window, navigate to c:\lastools\bin

```
> cd \lastools\bin
```

and enter a LAStools command, e.g.:

```
> lascopy64 -license
```

(Execute each command with the Return key).



LAStools executes the command and provides information about it via the console output.

NOTE: It is not recommended to install LAStools over an existing installation. In this scenario, all old 32-bit versions of LAStools would reside in the same directory. We recommend first renaming the existing installation (e.g., renaming "c:\lastools" to "c:\lastools_32") and then installing the new version into a new "c:\lastools" directory.

4. Running LAStools

All available LAStools commands can be easily explored within laslook or via our LAStools cheat sheet. Reference information for each tool can be found in the README files located in the "c:\lastools\bin" directory, and on our website[1].

1 https://rapidlasso.de/product-overview/

All LAStools are available as 64-bit versions. If a 32-bit installation was previously located in the same folder and the installation was merely overwritten, some 32-bit versions likely still remain in that directory. All 64-bit versions bear the suffix "64". Please always prioritize the new 64-bit versions of LAStools.

To run a LAStools command via the console, open a console window and enter the command:

```
> las2las64 -i lake.laz -o test.las
```

If the command is not recognized, please ensure that you are in the "c:\lastools\bin" directory or that the Windows PATH variable is set (see "6. Configuring LAStools").

5. Licensing

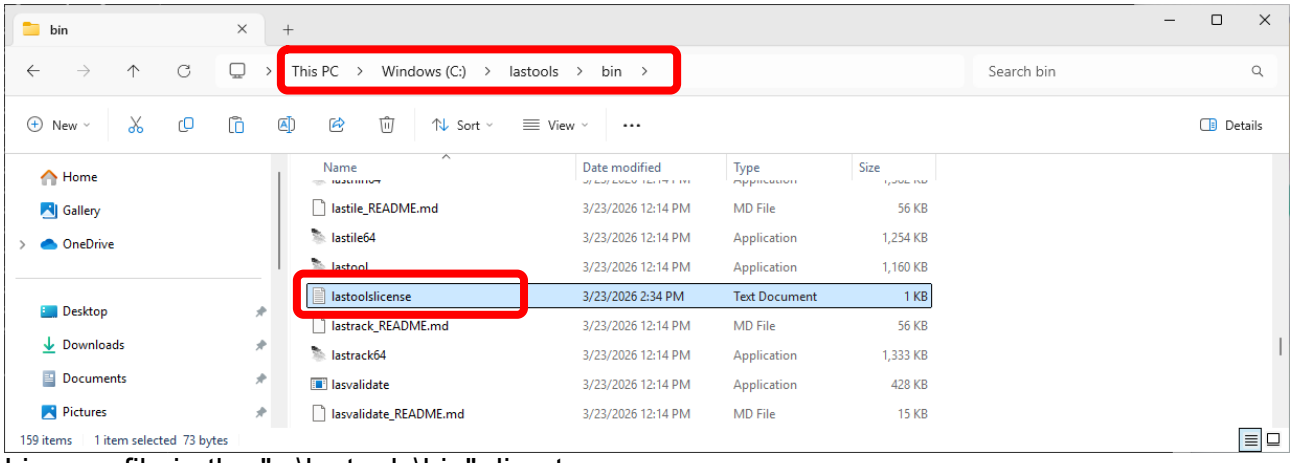
Some LAStools can be used free of charge, while others require a license. Please refer to the cheat sheet[1] or our website[2] for initial information regarding the tools.

5.1. Demo mode

If you do not have a license, you can run LAStools in demo mode. To do this, simply add the argument "-demo" to the command. You can then process small lidar files for testing purposes. If you use large files for performance testing, you will receive a notification stating that the output may be slightly modified.

5.2. Licensed mode

If you have purchased a license, simply place your license file in the "bin" folder of LAStools. The license will then be automatically detected.



License file in the "c:\lastools\bin" directory.

To verify whether a license file is valid, open a console window, navigate to the "c:\lastools\bin" folder, and execute a command with the "-license" argument:

```
> las2dem_new64 -license
```

1 https://downloads.rapidlasso.de/doc/LAStools_cheatsheet.pdf
2 https://rapidlasso.de/product-overview/

```
LAStools las2dem (by info@rapidlasso.de) version 260311
holder:      RAPIDLASSO_LAStools_Germany
start date:  251125
duration:    388 days
maintenance: yes
remaining:   270 days
# of seats:  2
type:        demo only
licensed tools:
  lasgrid
  lasground + lasground_new
  lasheight
  lasclassify
  ...
```

The output provides details about your license.

6. Configuring LAStools

If you wish to run LAStools from any directory on your computer, it is recommended to extend your Windows PATH variable so that the LAStools executable files can be found from any directory. If your data is located in the "c:\lastools\data" directory and you attempt to run a LAStools command from there, you may receive an error message such as the following:

```
> cd \lastools\data
> las2las64 -i lake.laz -o test.las
'las2las64' is not recognized as an internal or external command,
operable program or batch file.
>
```

This is because your executable file is located in "c:\lastools\bin", but your command prompt is set to "c:\lastools\data". To resolve this issue, you can either specify the full path to your LAStools command:

```
> cd \lastools\data
> c:\lastools\bin\las2las64 -i lake.laz -o test.las
>
```

Alternatively, you can set up a system path to inform Windows where to look for LAStools commands. To set the path to your LAStools "bin" folder, press the Windows key, type "cmd" into the search box, then right-click on the "Command Prompt" entry and select "Run as administrator." Within your console, simply add your path to the PATH variable—as shown—and press "Enter":

```
> setx /M path "%path%;c:\lastools\bin"

SUCCESS: Specified value was saved.

>
```

The command confirms with SUCCESS. Close the console window. If you open a new console window and enter a LAStools command, it will be found at its installation location.

7. Dependencies

LAStools requires very few dependencies to run. Optionally, you can utilize a PROJ installation to perform operations beyond the internal reprojection functions. To export vector formats other than SHP—such as KML, GeoJSON, GML, GPKG, or GPX—LAStools can leverage a GDAL installation via QGIS or OSGeo4W. For detailed information regarding these external libraries, please refer to the proj_README.md and gdal_README.md files.

8. File structure

This technical information serves to verify the validity of your installation and to enable experienced users to customize settings. LAStools places files at various locations within your installation directory. All files reside locally within this directory. laslook performs a Windows installation, during which files are placed at various storage locations in accordance with the structure of the Windows file system.

8.1. LAStools file structure

LAStools is typically installed in “c:\lastools“, but it can also be installed in other directories. The following table shows the contents of a LAStools installation:

Directory/Files	**Description**
CHANGES.txt	LAStools Changelog. Keep an eye on it for updates & fixes.
COPYING.txt	LGPL license for the open-source components of LAStools.
README.txt	Project README file containing general information about LAStools.
LICENSE.txt	General licensing information for LAStools.
bin	This directory contains the LAStools executable files and the reference documentation.
bin*64.exe	64-bit version of a LAStools executable file; e.g., las2las64.exe.
bin*.exe	Files without the "64" suffix are older 32-bit versions of certain LAStools. If a 64-bit version is available, it should be used.
bin*.md	Reference documentation for each individual LAStools program, provided in markup text format.
bin*.dll	DLL files are libraries used by LAStools.
bin\serf\geo	Files used to provide arguments for the georeferencing or transformation of LAS/LAZ files.
bin\serf\blast	Files required by the BLAST extension.
bin\serf\potree18	Optional Potree installation. Required for laspublish, (version 18). For details on installing Potree, please refer to the file . \bin\laspublish_README.md.
bin\lasliberate	Contains a simple command-line tool for converting ESRI's proprietary "zLAZ" files into the open LAZ format.

data	Directory containing several test files for lidar data. The files in this directory are frequently used in public examples.
example_batch_scripts	Directory containing several scripts for typical LAStools workflows. These examples can serve as a foundation for creating your own workflow scripts.
ArcGIS_toolbox	Plugin for ESRI's ArcGIS Pro. Follow the instructions in the README.txt file located in this directory to install the plugin.
IMAGINE_toolbox	The former directory for the ERDAS IMAGINE LAStools plugin. Follow the instructions in this directory to download and install this plugin.
QGIS_toolbox	Former directory for the QGIS LAStools plugin. Follow the instructions in this directory or on our blog[1] to download and install this plugin.

8.2. laslook file structure

laslook utilizes two target locations for installation files: program files (PF) and user files (UF). By default, the program files are located in the program directory, and the user files are located in the public user directory. During installation, the directory for the program files can be customized, and the user files directory can be switched from "public" to "private." If an installation is performed without admin rights, it can be carried out as a private installation.

Public installation (default):

File category	**Target for public installation** (default)
Program Files (PF)	c:\program files\rapidlasso\laslook
User Files (UF)	C:\Users\Public\Documents\rapidlasso\laslook

Private installation:

File category	**Target for private installation**
Program Files (PF)	C:\Users\[user]\AppData\Local\Programs\rapidlasso\lasgui
User Files (UF)	C:\Users\[user]\Documents\rapidlasso\laslook

In case of special installations—such as installation on a USB stick—files may also be referenced from alternative storage locations. All user files are first sought at storage location (PF). If they are not found there, they are expected at storage location (UF). This enables an "all-in-one-directory" installation, for example on a USB stick. If a user file is stored in (PF), that directory must be writable. Program settings can be adjusted via the User Setup dialog. User settings are stored in the file "laslook.ini" at location (UF). The storage location for the program databases (both the user database and the program database) is also stored in the file "laslook.ini". Listed below are the files comprising a complete laslook installation, along with their default storage locations:

Filename	Target	Notes
laslook.exe	PF	laslook application
laslook.lng	PF	language file

1 https://rapidlasso.de/lastools-as-qgis-plugin/

markdown.jhl	PF	format settings for markdown files (e.g. READMES)
lastoolsinfo.jhl	PF	format settings for file information (lasinfo output)
laslook.vsf	PF	gui design file
sqlite3.dll	PF	database driver
LASzip64.dll	PF	LAS reader/writer
libeay32.dll	PF	open SSL connection
openssl.exe	PF	open SSL connection
ssleay32.dll	PF	open SSL connection
lastools.db3	PF (+ini)	LAStools documentation database
lasclassification.txt	UF	In the past, classification texts could be easily modified by the user
laslook.db3	UF (+ini)	laslook user data database
layout_current.lay	UF	json of the current/last screen layout
layout_default.lay	UF	json of the default screen layout
layout_default.lay_backup	UF	backup of default screen layout
rapidlasso.laz	UF	a small LAZ sample
LICENSE.txt	UF	license text

During installation, the setup program attempts to determine the target path for LAStools. If a previous installation already exists and the LAStools directory has already been established, that directory is used. This is verified by the file "laslook.ini" located in the user files (UF) directory. Within the [frSettings] section of this file, the "edLasToolDir" key contains this information. Second, the default directory "c:\lastools\bin" is checked: if this directory exists, it is selected. Third, the optional startup argument "/lastools=…" is checked. If a path is specified via this argument, that directory is used. Should no path information have been determined by this point, a dialog box appears, allowing the user to manually enter the desired installation directory for LAStools.

laslook.ini
The local configuration file "laslook.ini" is created within the (UF) upon the initial system startup to store user and application settings. Most configurations can be performed via the setup dialog within the application. However, some settings—such as the location of the database file (DB)—can only be configured manually using a text editor.

8.2.1. USB stick installation

Typically, program files are stored in the program folder, while user data is stored in the user folder. To enable portable installations, you can simply move all files from the program folder—as well as from the public data folder—into a local directory. If the program requires a user file, it first searches for it in the program folder. If the file is found there, it will be used. Simply run “laslook.exe” to start the program.

8.2.2. Unattended setup & other options

An unattended/silent setup can be performed in two ways: by simply copying the files using a custom script, or by using command-line switches from the setup program. We use InnoSetup to create the installer. These are the most important InnoSetup switches:

Argument	Description
/SILENT	Forces a silent installation without user interaction.
/LOG="c:\temp\setup.log"	Writes a log file to the specified filename.
/lastools="c:\program files\lastools"	Uses this directory as the LAStools target (if no installation has been performed - see description above for details).
/SAVEINF="c:\admin\inf.txt"	Writes all configured settings to a file named „inf.txt".
/LOADINF="c:\public\inf.txt"	Retrieves all settings from the previous created „inf.txt" file.

For additional general installation options, please see the InnoSetup documentation[1].

8.3. Disclaimer

This software and documentation are provided "as is", without warranty of any kind, express or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

8.4. Contact

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1 https://jrsoftware.org/ishelp/index.php