



Undet Indexer (project creator)

User Manual

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Overview

Undet Indexer is a standalone software to create **Undet project file** from a wide range of scanners or scan data files. Undet project database is created to handle massive point clouds and allow efficient management.

Supported formats ***.E57**, ***.RCP**, ***.FLS**, ***.ZFS**, ***.LAS**, ***.LAZ**, ***.PTS**, ***.PTX**, ***.DP**, ***.FPR**, ***.LSPROJ**, ***.FWS**, ***.CL3**, ***.CLR**, ***.RSP**, ASCII / NEZ (X,Y,Z/i/RGB).

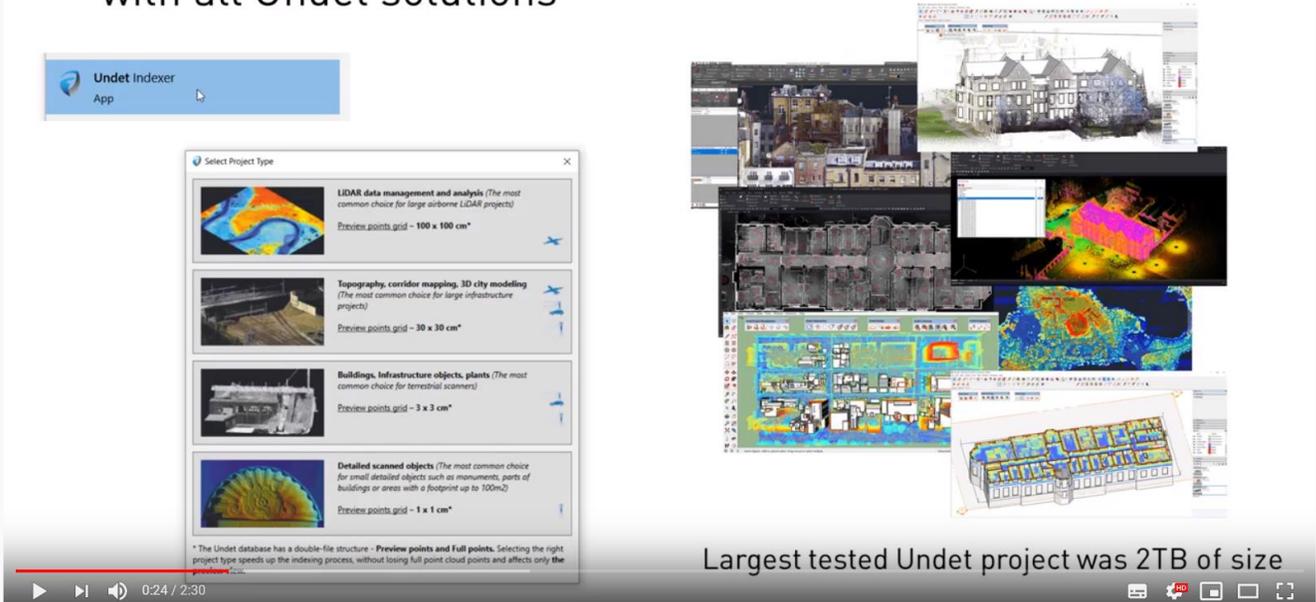
Created Undet projects can be used with all Undet solutions:

- **Undet for AutoCAD**
- **Undet for Revit**
- **Undet with Ares Commander**
- **Undet for SketchUp**

Link to download Undet Indexer [>>>> Download <<<<](#)

Video tutorial how to create Undet project

Undet indexer is standalone software and it is **free** with all Undet solutions

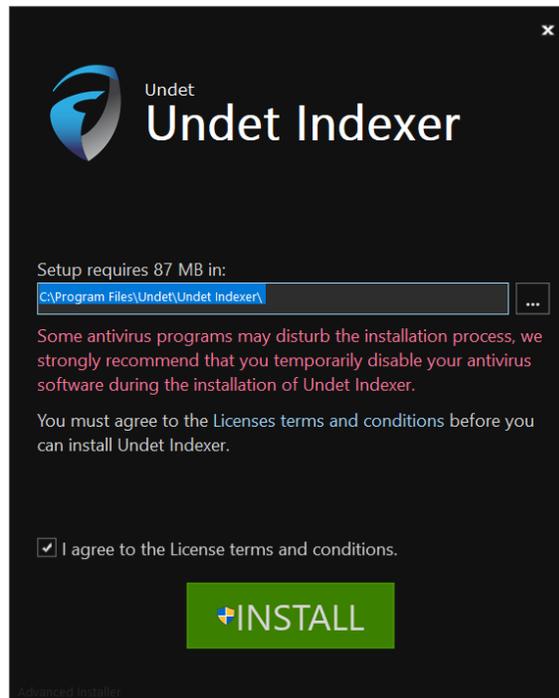


Largest tested Undet project was 2TB of size

<https://youtu.be/rHsuzN9jgfQ> - link to video (How to create Undet project (workflow video))

Installation and Activation

Undet indexer is standalone software and it is free with all Undet solutions. Undet Indexer can be installed only on Windows PC. To install the Undet Indexer simply run the downloaded [Undet_indexer.exe](#) file and follow the instructions.



Note:

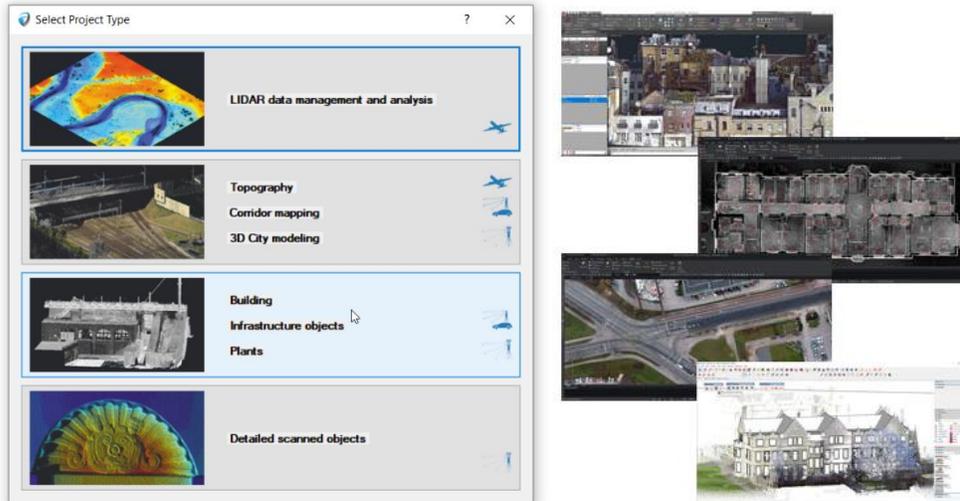
Some antivirus software may disturb the installation process. If the installation was blocked by your antivirus software, we recommend that you temporarily disable your antivirus software during the Undet Indexer installation process.

Note regarding installation:

Undet requires the latest Microsoft Framework; FARO SDK; Z+F SDK, which is a heavy update, that might take some time to install. But if your PC is up to date it should take just a couple minutes.

Graphical user interface and control

Select project type:



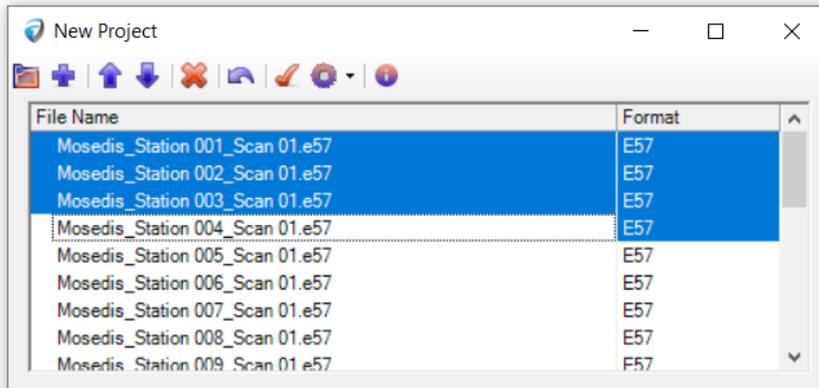
Before importing scan data, first you must select the project type based on your scan data set:

- **LiDAR data management and analysis** *(The most common choice for large airborne LiDAR projects)*
- **Topography, corridor mapping, 3D city modeling** *(The most common choice for infrastructure projects)*
- **Buildings, Infrastructure objects, plants** *(The most common choice for terrestrial scanners)*
- **Detailed scanned objects** *(The most common choice for small detailed objects such as monuments, parts of buildings or areas with a footprint up to 100m²)*

Note regarding Undet project creation:

Undet database has double-file structure **Preview points and Full points**. Selecting the right project type speeds up the indexing process, without losing full point cloud points and affects only the **preview view**. *More information below in Undet project creation tutorial step by step...*

New Project dialog / window:



 - Add scan data files (*.e57, *.LAS, *.FLS.....)

 - Create group of selected files

 - Move selected group or file position up

 - Move selected group or file position down

 - Remove added file from the data list

 - Undo last grouping action (command)

 - Create Undet project

 - Enable all project clipping box (more in information in advanced setting section)

 - Info (release date and software update info)

Undet project creation tutorial

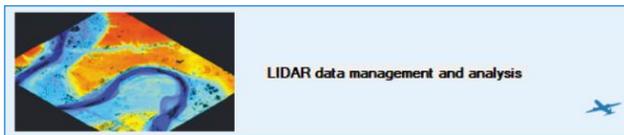
1. First step: select project type based on your scan data set:

Undet database has double-file structure **Preview points and Full points**. Selecting the right project type speeds up the indexing process, without losing full point cloud points and affects only **the preview view**. **Preview points** are creating from all imported scan data by using GRID, which size depends on the selected project type. The default GRID size for each project is chosen for optimal indexing speed and faster preview navigation to **find a place to load all points using the "clipping box or view section"**.

Undet loads all points in the "clipping box or view section" when point count is less maximum point count. The maximum point count can be set manually in each Undet solution according to your system hardware parameters. If your clipping box is too big to load all points you will see only preview points.

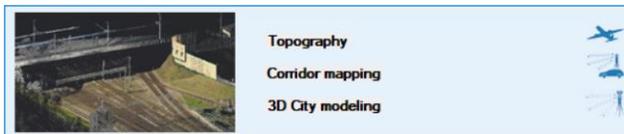
Default "max point count" settings of Undet product:

<i>Undet for SketchUp</i>	Interval from 8 – 24 million points [can be tuned with performance slider]
<i>Undet for AutoCAD</i>	Fixed size 8 million points
<i>Undet for Ares Commander</i>	Interval from 8 – 24 million points [can be tuned with performance slider]
<i>Undet for Revit</i>	No limitations, Raster image are creating from all points



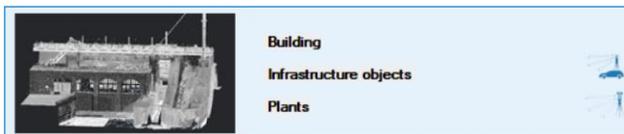
LiDAR data management and analysis (*The most common choice for large airborne LiDAR projects*)

Preview points grid – 100 x 100 cm



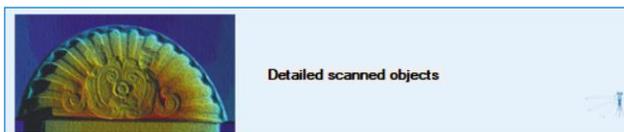
Topography, corridor mapping, 3D city modeling (*The most common choice for infrastructure projects*)

Preview points grid – 30 x 30 cm



Buildings, Infrastructure objects, plants (*The most common choice for terrestrial scanners*)

Preview points grid – 3 x 3 cm



Detailed scanned objects (*The most common choice for small detailed objects such as monuments, parts of buildings or areas with a footprint up to 100m2*)

Preview points grid – 1 x 1 cm

Note regarding Undet project creation:

Selecting the right project type speeds up the indexing process, without losing full point cloud points and affects only the preview view.

Examples with different project GRID

LiDAR data management and analysis

Preview points



All points loaded with clipping box (view section)



Topography, corridor mapping, 3D city modeling

Preview points

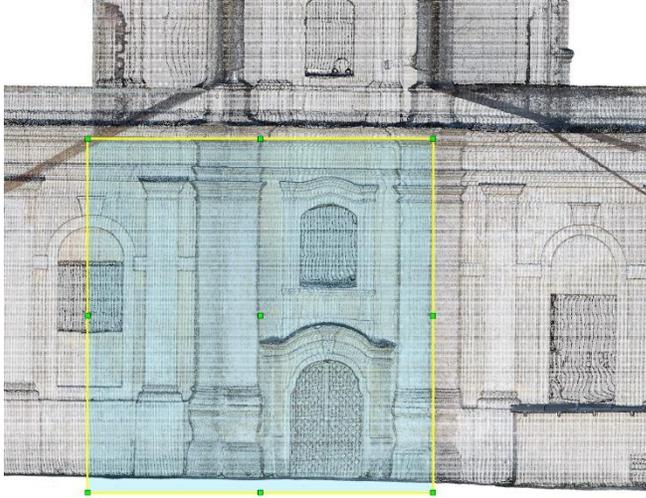


All points loaded with clipping box (view section)



Buildings, Infrastructure objects, plants

Preview points



All points loaded with clipping box (view section)



Detailed scanned objects

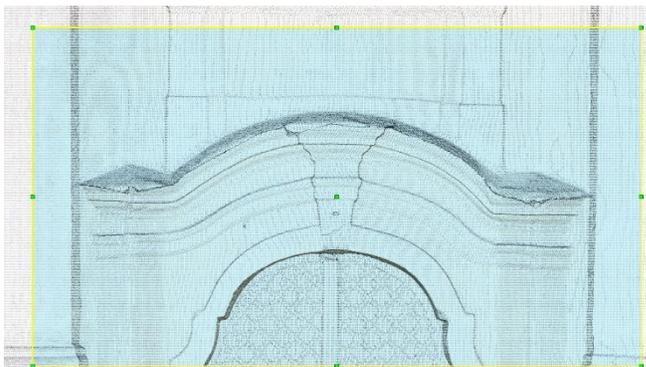
Preview points



All points loaded with clipping box (view section)



Zoomed view (Preview points)



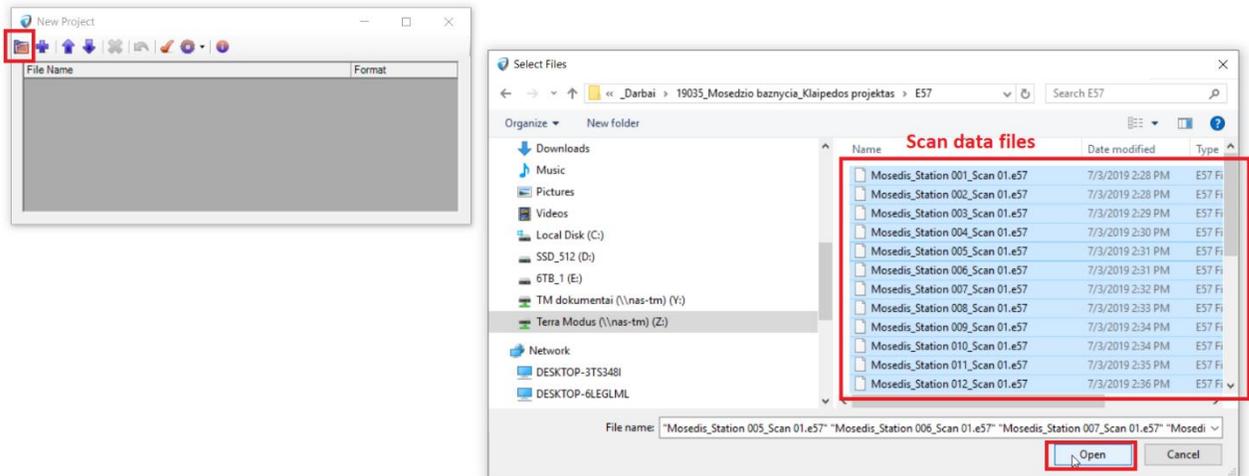
Zoomed view (All points loaded with clipping box)



2. Scan data file import

To create Undet project you need to import scan data files. Supported formats ***.E57, *.FLS, *.ZFS, *.LAS, *.LAZ, *.PTS, *.DP, *.FPR, *.LSPROJ, *.FWS, *.CL3, *.CLR, *.RSP, ASCII / NEZ (X,Y,Z/i/RGB)**. **We recommend to use *.e57 / LAS file formats.**

Import scan data press  action button and select your point cloud data files.

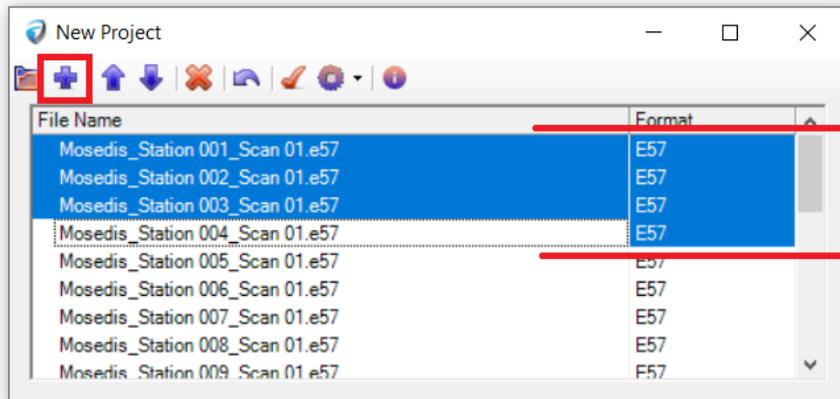


Notes:

- You can mix different file formats to create a single project (as for an example: Terrestrial scan data *.e57 files and UAV roof data *.LAS file format.). Just all scan data files should be registered and on the same scale and coordinate system.
- Undet keeps initial point cloud structure and dimensions (scale).
- If you are indexing scan data files in large / state coordinate system (as an example UAV, Airborne LiDAR) in all Undet plugins, there are "coordinate system transformation" tools.

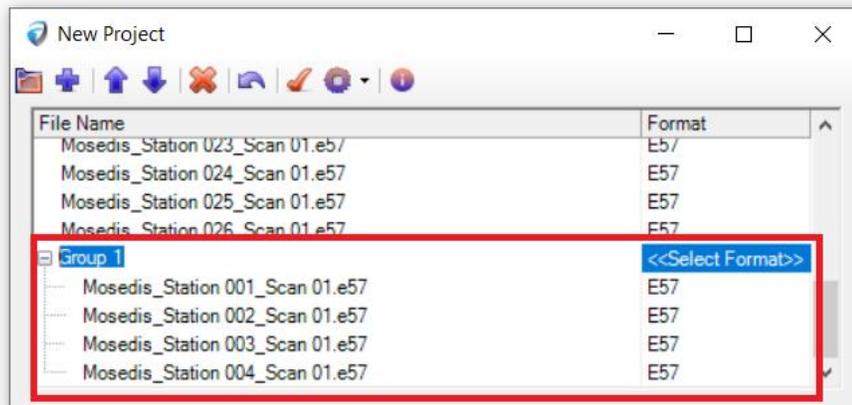
3. Grouping

Imported scan data files can be grouped into logical groups (inside, outside, 1st floor...), using  action button.



Selected files

The created group can be renamed at any time. Later on, you will be able to manage visibility for each group with a single click (*As an example: if you want to get clear building elevation view you need to disable inside scans*)



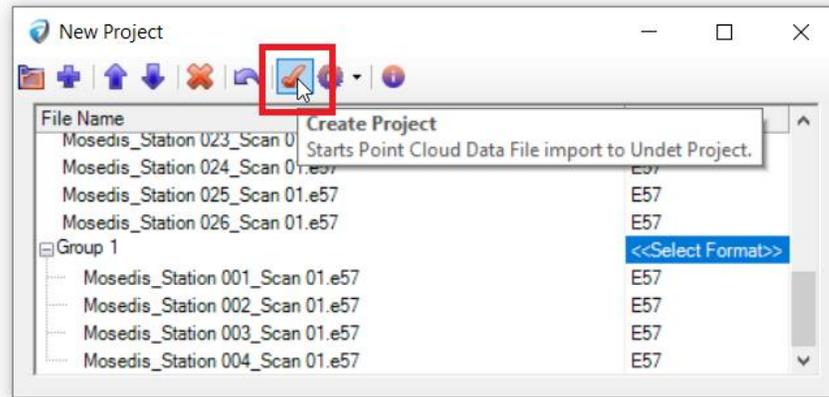
Created group

Note:

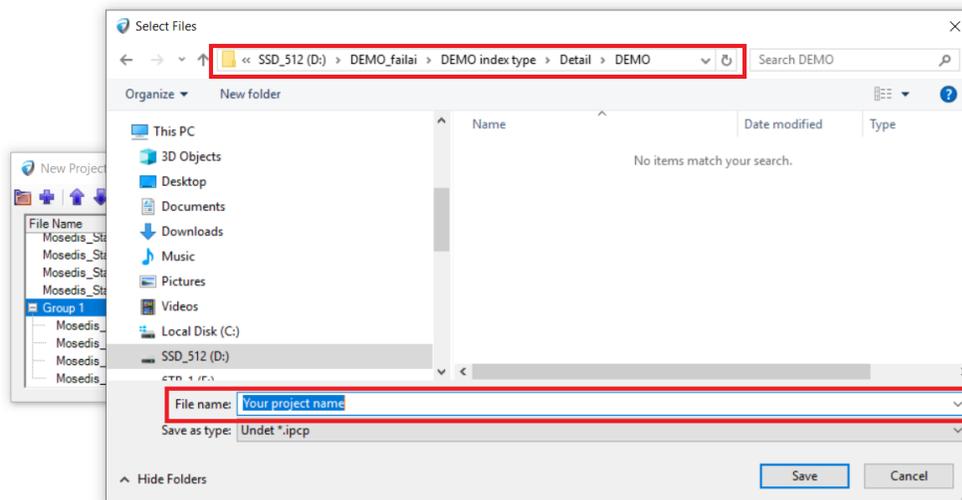
- You can skip the grouping step because you will be able to group or regroup data files in already created Undet project when it is loaded into one of our Undet solutions.

4. Create Undet project

When all scan data files are imported. Click  action button to start the indexing project.



Once  action button clicked you will need to locate where to save the Undet project. **Undet does not support Unicode characters (@#\$%^!^&*абвдж...) in path and in project name, please avoid these symbols.**



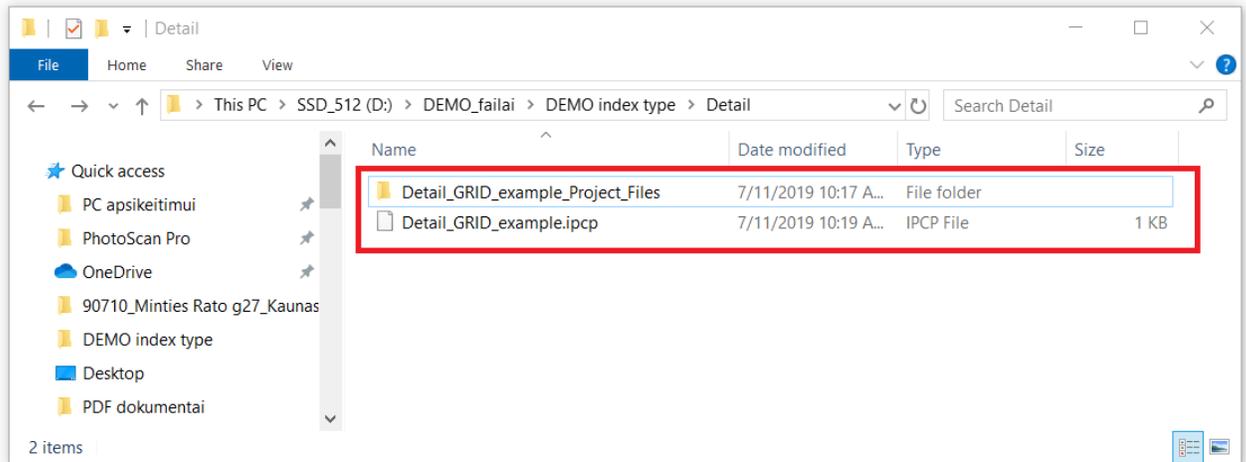
The indexing process may take a couple of hours to proceed, it depends on project type and amount of scan data files size.

Note:

- To create Undet project you need triple size on your HARD DRIVE according to your scan data file size. *As an example: scan data files size (20 pcs. *. e57 files 10GB), so you will need 30GB free disk space.*

5. Created Undet project

When the project is successfully created in your selected location you will find IPCP file with the same name folder. These files are Undet project and should be kept together.



Created Undet projects can be used with all Undet solutions:

- Undet for AutoCAD
- Undet for Revit
- Undet with Ares Commander
- Undet for SketchUp

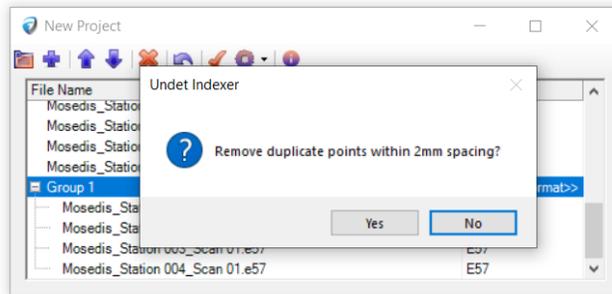
Note:

- The project name can't be changed using "rename" function.
- Undet does not support Unicode characters (@#\$\$%^!&*абвдгж...) in path and in project name, please avoid these symbols.

Advanced settings

1. Additional 2mm filtering by selecting “Building / Infrastructure / plants” project type

With selected buildings, infrastructure objects, plant project types there is an additional option to filter out very dense points (duplicates in 2mm 3D distance), which is necessary to create 3D models, or 2D drawings in scale 1:200-1:50. **We strongly recommend using this function.**



As an example, a terrestrial laser scanner is collecting very dense points near the scan station. Basically, you don't need these points. Lighter point cloud - smoother performance.

Data with 2mm filtering
(Total point count: 18 863 247)

Top view



Data without 2mm filtering
(Total point count: 42 947 892)

Top view

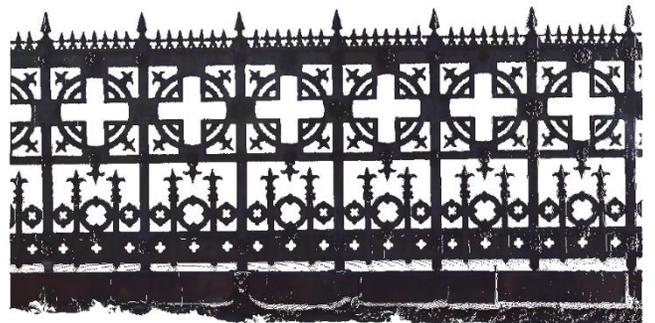


Side view (5 meters away)



Project size: 0.55 GB

Side view (5 meters away)

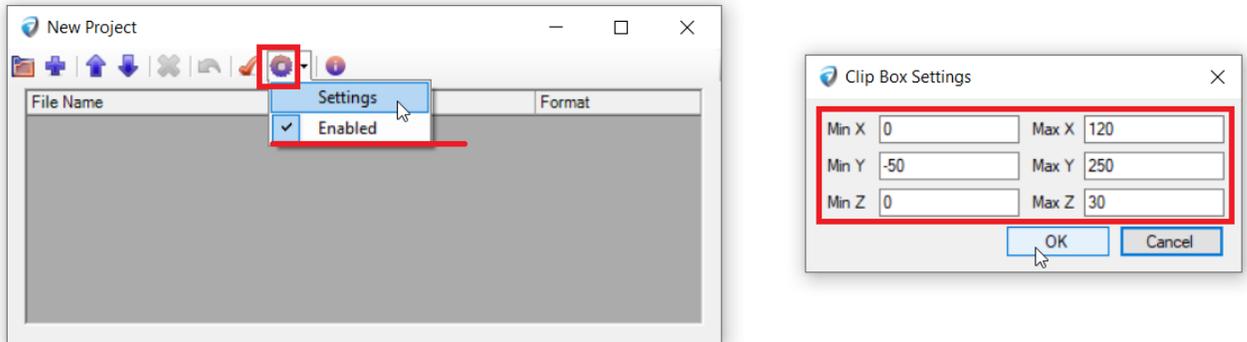


Project size: 1.07 GB

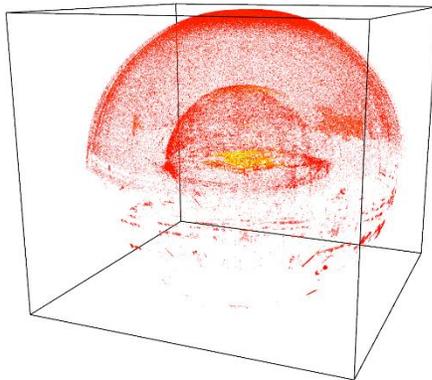
2. Clipping box settings

Some time is necessary to use a project clipping box (project area boundaries) to eliminate noise points or create an Undet project only in the required location.

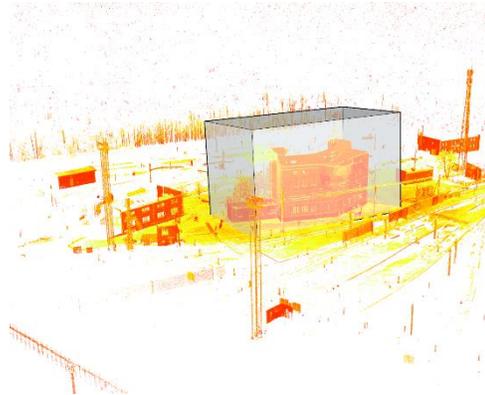
In “Clip Box Settings” you need to insert your project MIN – MAX meanings for each coordinate.



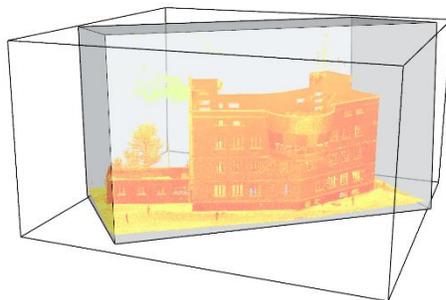
Example:



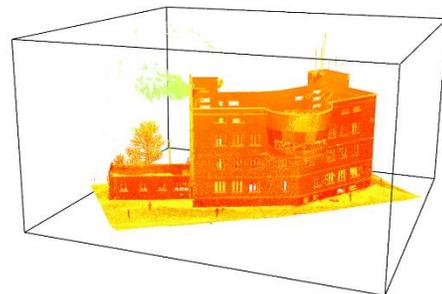
Undet project created **without project clipping box** (all data)



Undet project created without project clipping box (all data).



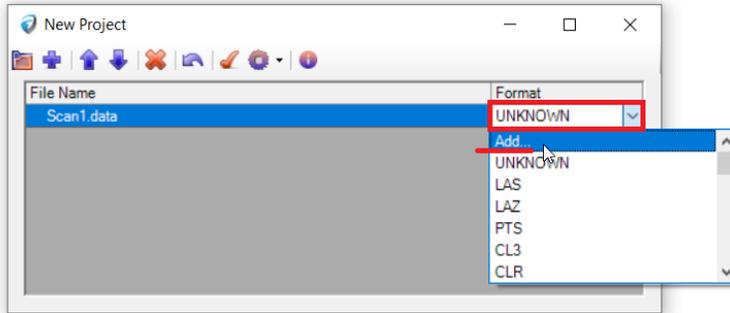
Silver box is clipping area to create Undet project.



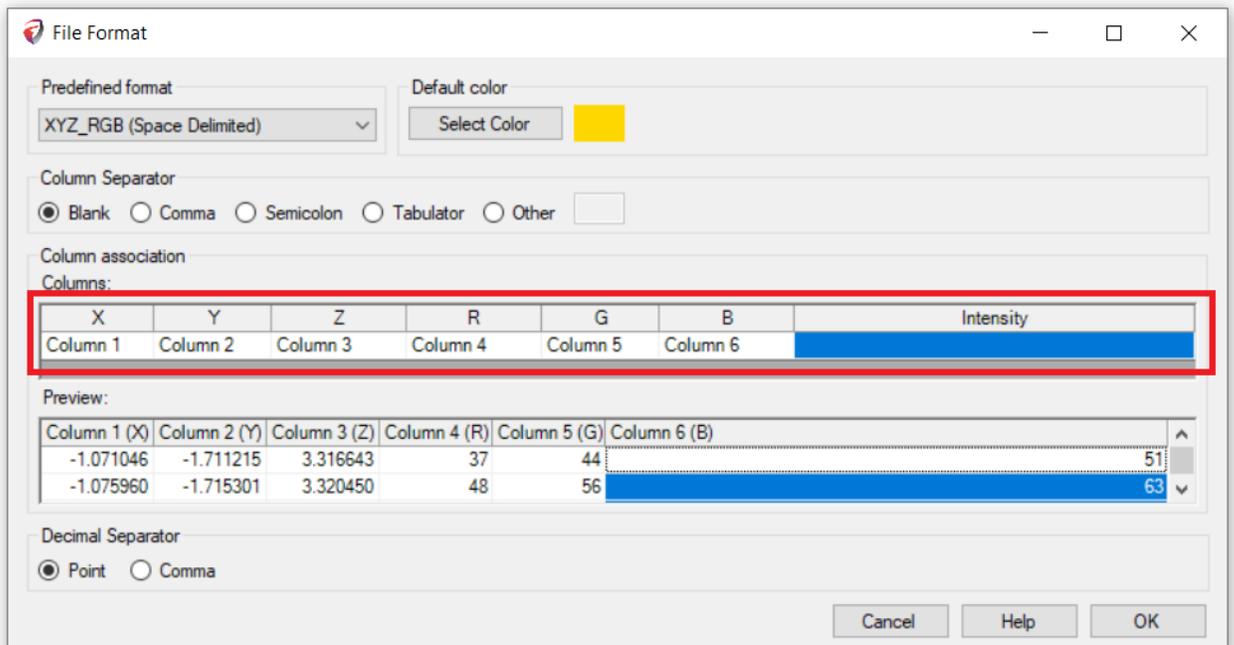
Undet project created **using project clipping box**

3. Importing random TXT formats

To import not structured TXT point cloud data files, you can manually set file data format. Clicking in format column on the selected file “Add...”



In the next dialog, you will need to select data file: separators and column fields for column values: X, Y, Z, R, G, B, and intensity.

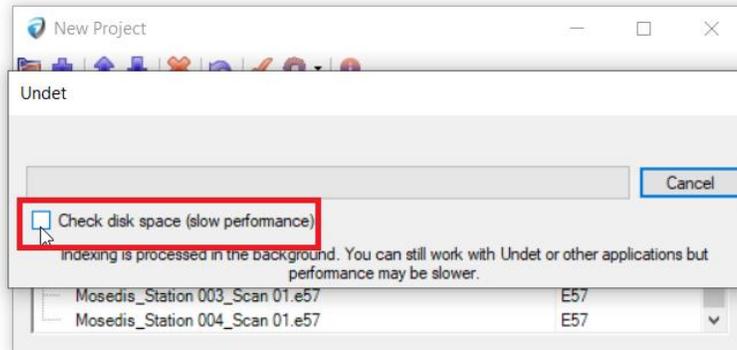


4. Check disk space (while indexing)

To create Undet project you need **triple (3x) size** on your HARD DRIVE according to your scan data file size.

*As an example: scan data files size (20 pcs. * e57 files 10GB), so you will need 30GB free disk space.*

If you have **enough disk space** for project creation, **please disable** the “check disk space” option and the indexing process will be much faster.

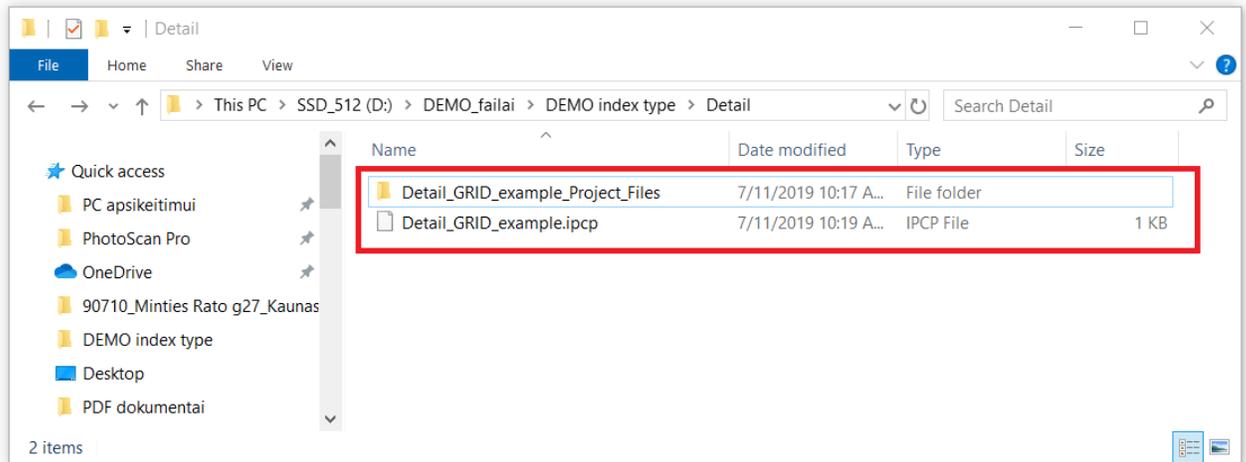


Otherwise, with enabled “check disk space” function, software during the indexing process will inform you that you don’t have enough disk space and you will be able to free up disk space and continue the indexing process. Please note that this strongly slows down the indexing process.

Tips & Tricks, FAQ

1. How to move / copy Undet project?

When the project is successfully created in your selected location you will find IPCP file with the same name folder. **These files are Undet project and should be kept together.** The project name can be changed using the “rename” function.



2. How to select the proper project type?

If you are a new Undet user, please select the project type by our recommendation according to your project type.

- **LiDAR data management and analysis** (The most common choice for large airborne LiDAR projects)
- **Topography, corridor mapping, 3D city modeling** (The most common choice for infrastructure projects)
- **Buildings, Infrastructure objects, plants** (The most common choice for terrestrial scanners)
- **Detailed scanned objects** (The most common choice for small detailed objects such as monuments, parts of buildings or areas with a footprint up to 100m2)

Undet database has double file structure **Preview points and Full points**. Selecting the right project type speeds up the indexing process, without losing full point cloud points and affects only the **preview view**. **Preview points** are creating from all imported scan data by using GRID, which size depends on the selected project type. The default GRID size for each project is chosen for optimal indexing speed and faster preview navigation to **find a place to load all points using the "clipping box or view section"**.

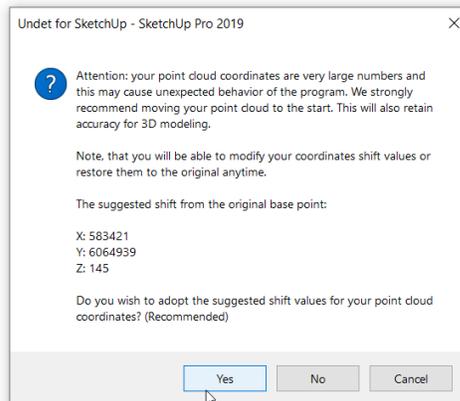
Undet loads all points in the "clipping box or view section" when point count is less maximum point count. The maximum point count can be set manually in each Undet solution according to your system hardware parameters. If your clipping box is too big to load all points you will see only preview points.

3. Does Undet project supports large coordinate system (State, airborne LiDAR)?

Yes, if you have scan data files in large / state coordinate system (as an example UAV, Airborne LiDAR) you can create Undet project.

In all Undet plugins, there are "coordinate system transformation" tools.

An example: if you will try to open the Undet project in a large coordinate system, Undet will suggest shifting point cloud data to coordinates (0,0,0) center. Any time you will be able to change the coordinate system from the project (0,0,0) to original with large numbers.



We are not recommending to create deliverables using point cloud in the large coordinate system. It may cause loss of errors to use modeling tools and start screen view glitching while zooming.

4. Can I index terrestrial scanning data (as. example. Building) selecting "Detail scanned object" type?

Undet database has double file structure **Preview points and Full points**. Selecting the right project type speeds up the indexing process, without losing full point cloud points and affects only the **preview view**. **Preview points** are creating from all imported scan data by using GRID, which size depends on the selected project type. The default GRID size for each project is chosen for optimal indexing speed and faster preview navigation to **find a place to load all points using the "clipping box or view section"**.

Sometimes you don't need to see all point to understanding object structure. If you are **an advanced Undet user**, you can experiment with project type and find the best workflow for your type of projects.

5. Can I scale / resize point clouds with Undet indexer?

Undet keeps initial file structure and scale. Using "coordinate system transformation" tools you can shift, rotate the Undet project, but **scaling is disabled**.

All scan data files should be registered and on the same scale and coordinate system.



6. Can I import mixed (different file format) scan data files in one Undet project?

Yes, you can mix different file formats to create a single project (as for an example: Terrestrial scan data *.e57 files and UAV building roof data *.LAS file format.).

Just all scan data files should be registered and on the same scale and coordinate system.

7. How much cost Undet indexer?

Undet indexer is standalone software and it is free with all Undet solutions. Undet Indexer can be installed only on Windows PC. To install the Undet Indexer simply run the downloaded [Undet indexer.exe](#) file and follow the instructions.

8. Can I use the same created Undet project with all Undet solutions?

Yes, created Undet projects can be used with all Undet solutions:

- ✓ Undet for AutoCAD
- ✓ Undet for Revit
- ✓ Undet with Ares Commander
- ✓ Undet for SketchUp