



# Undet4SketchUp V18: How to Start Guide

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## Requirements

**Operating System:** Windows OS 64 bit. MAC is not supported.

**Supported SketchUp versions:** SketchUp 2015 – 2018.

**Technical requirements:** [Minimal technical requirements](#) are the same as for SketchUp but since Undet is dealing with point clouds which is often heavy and rich data (millions of points having XYZ coordinates, Intensity and RGB values) some specs are worth upgrading.

**RAM:** The bigger the point cloud project the more RAM will be needed. Most users working with small scale point clouds will be fine with up to 8 GB of RAM. When dealing with tens of gigabytes of scan data 16 GB of RAM will be welcomed. Heavy duty point cloud professionals utilizing hundreds of gigabytes in a single project will appreciate 32 GB of RAM or more.

**Hard Drive:** SSD is far faster than HDD. If your project is located on a drive in a server machine, LAN will reduce performance considerably. Thus, copy your project to the local drive for better performance.

**CPU:** Multiple threads are not supported, therefore, you need to pay attention to a single thread performance.

**GPU:** While your CPU can render graphics, it'll do so at a much slower rate than a GPU. Thus, we recommend to use graphical processors like NVIDIA or AMD. No need to go for the fanciest series. A moderate gaming card should suffice.

## Software installation

**Full Undet install** (Undet4SketchUp\_plus\_Indexer) consist of two parts:

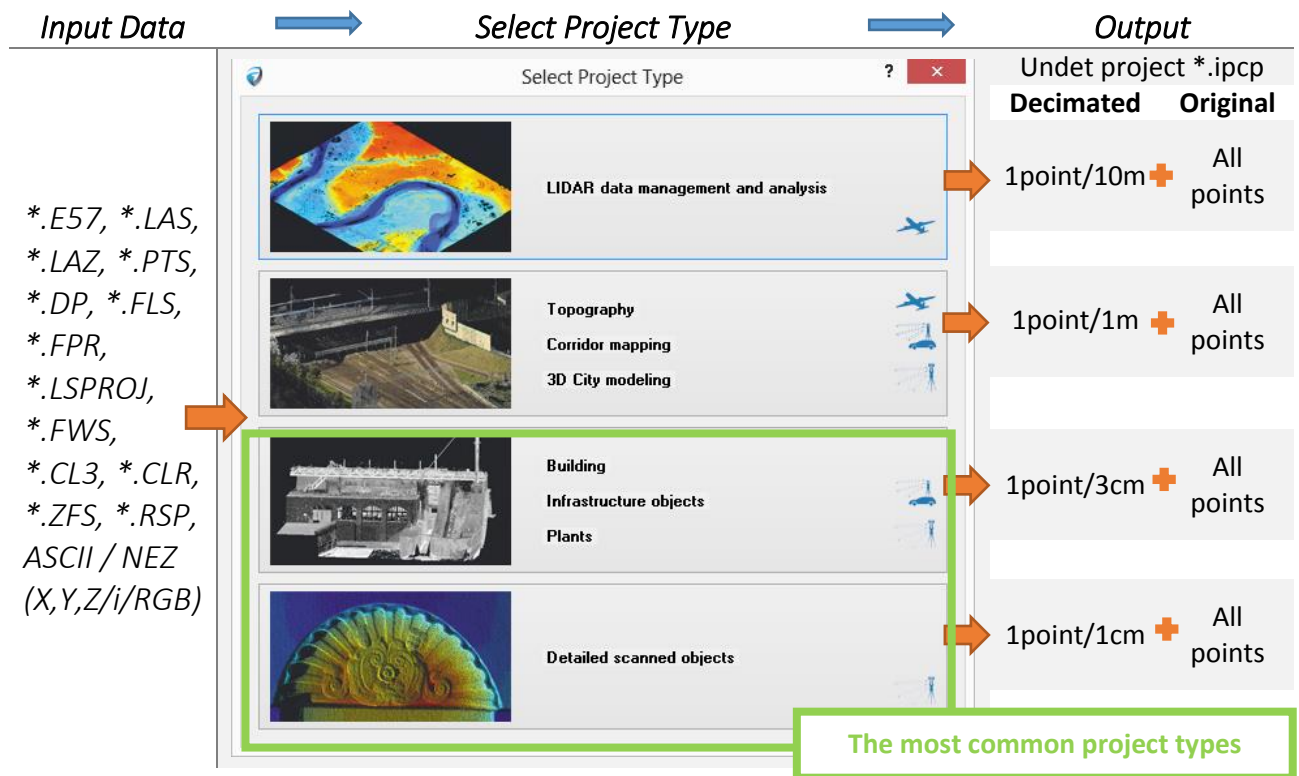
**Undet Indexer** – point cloud project creator. Converts your input data (\*.E57, \*.LAS, \*.LAZ, \*.PTS, \*.DP, \*.FLS, \*.FPR, \*.LSPROJ, \*.FWS, \*.CL3, \*.CLR, \*.ZFS, \*.RSP, ASCII / NEZ (X,Y,Z/i/RGB) into Undet project with \*.ipcp extension. Indexer does not require any license. You can install it on any machine and use that machine for Indexing.

**Undet4SketchUp** – SketchUp extension that allows to open and manage Undet point cloud in SketchUp environment. Works only in SketchUp 3D space. Does not work in SketchUp Layout. Undet4SketchUp requires SketchUp and Undet license.

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## First step – Indexing

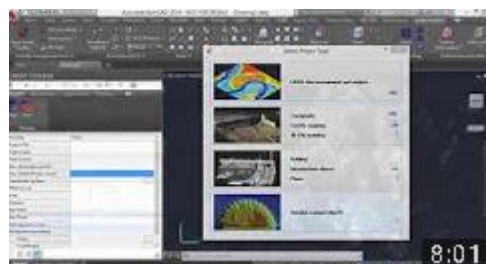
Undet is hardware independent and allows to bring in numerous file types derived from various sources: airborne LiDAR, UAVs, drones, mobile mapping systems, terrestrial scanners, handheld scanners and photogrammetry. Undet does not have a registration module so your input data must be stitched together in your processing software prior bringing to Undet.



**Selecting a proper project type is an important first step.** Project type governs decimation level of your point cloud. Decimated point cloud is a lighter version of your original point cloud. Decimation is chosen once prior the Indexing and cannot be changed on the fly afterwards. In order to change it you must run the indexing again. Regardless, one can further control density of the decimated point cloud which at 100% for “Detail scanned objects” is 1 point every 1 cm.

On the other hand, the Original point cloud (All points) does not have density control. Decimated points switches to “All points” automatically in a smaller clipping area. The threshold that control this sits in the Density Settings.

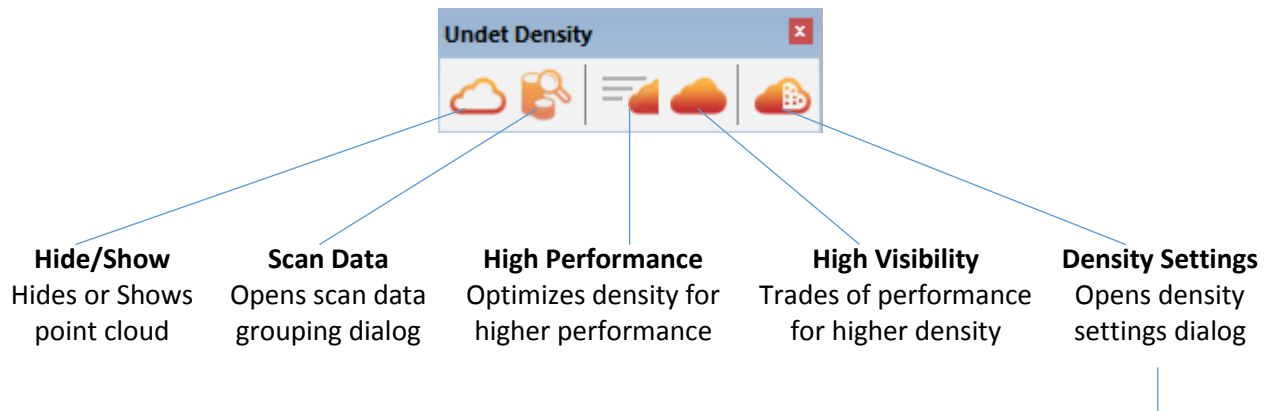
[Watch a video on Undet Indexing for more details. Same Undet project works for any Undet extension: Undet4SketchUp, Undet for AutoCAD, Undet4Revit \(upcoming\).](#)



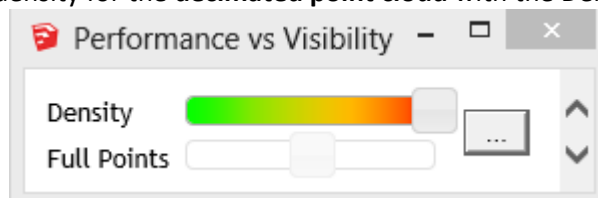
Download and install a free two day trial version from the [product page](#).  
 Have questions or need more time for the evaluation? Give us a shout at [info@undet.com](mailto:info@undet.com).  
 Licensing starts from 50 EUR / month. [More details on licensing and pricing.](#)  
[www.undet.com](http://www.undet.com)

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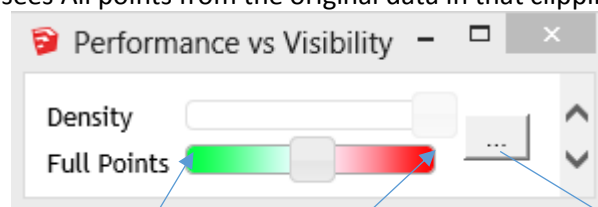
## Density Settings



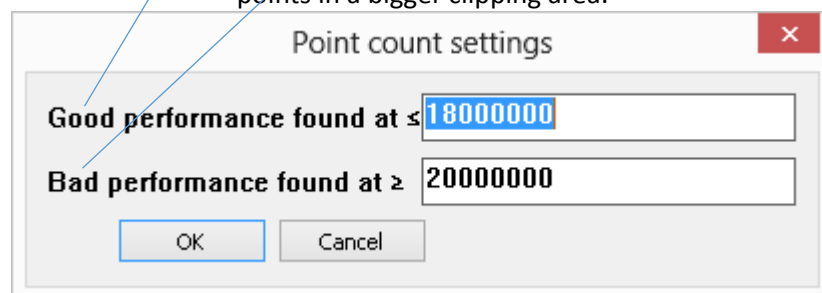
Control density for the **decimated point cloud** with the Density slider



Once the Clipping box is smaller Undet switches to **All points** automatically. The density bar becomes inactive. This means one sees All points from the original data in that clipping area. No missing points!



**Threshold** that controls when Undet switches to All points is hidden further in **Point Count Settings**. One can set an interval for the Point count. Refer to “Good/Bad performance found at” below. Optimal values for these variables depend on machine’s specs. Try increasing these values to allow visualize All points in a bigger clipping area.



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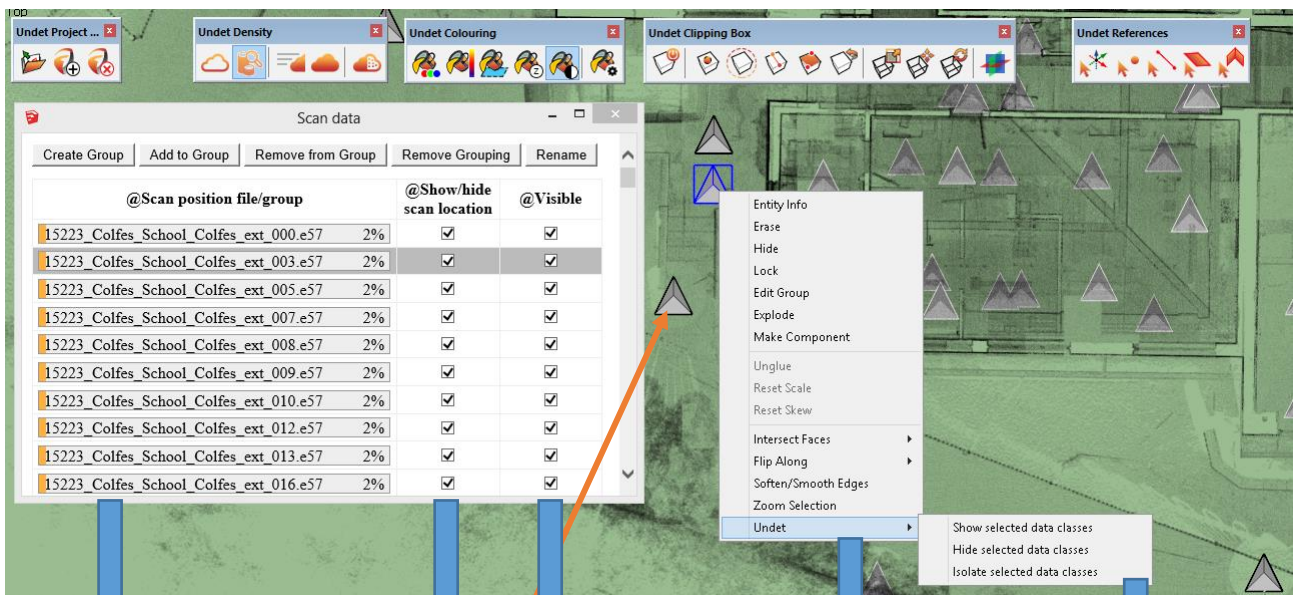
## Scan data and grouping

In the Scan data dialog one can manage visibility and grouping for the chunks of the original input data. If the input data is LAS, PTS, or other TXT-like file, the data will be merged together and there will be only one big chunk – nothing much to control, just hiding or showing the whole point cloud.

If the input data holds individual scan locations (like \*.FPR, \*.RSP or E57) one can make a great use of these scans by organizing them into logical groups like, “External scans”, “Internal scans”, “1<sup>st</sup> floor”, “2<sup>nd</sup> floor”, “basement”, “attic” and similar. This allows more options to control visibility like scan-by-scan or group-by-group and maintains efficient workflow. For instance, if dealing with building elevation, why to leave all the “noise” that comes from inside scans? Turning internal scans visibility off will instantly make a better picture of the elevation.

### How to group individual scans?

The below example is a building scanned with a terrestrial scanner from inside and outside. Input data – 170 individual scans in E57 format.



The screenshot shows the 'Scan data' dialog box in the foreground, which is a table with three columns: '@Scan position file/group', '@Show/hide scan location', and '@Visible'. The table lists 10 scan locations, each with a file name, a percentage (2%), and checkboxes for visibility. In the background, a 3D view of a building model is shown with many small tetrahedron symbols representing scan locations. A right-click context menu is open over one of these symbols, showing options like 'Entity Info', 'Erase', 'Hide', 'Lock', 'Edit Group', 'Explode', 'Make Component', 'Unglue', 'Reset Scale', 'Reset Skew', 'Intersect Faces', 'Flip Along', 'Soften/Smooth Edges', 'Zoom Selection', and 'Undet'. The 'Undet' option is highlighted, and a sub-menu is visible with options: 'Show selected data classes', 'Hide selected data classes', and 'Isolate selected data classes'.

@Scan position file/group	@Show/hide scan location	@Visible
15223_Colfes_School_Colfes_ext_000.e57	2%	<input checked="" type="checkbox"/>
15223_Colfes_School_Colfes_ext_003.e57	2%	<input checked="" type="checkbox"/>
15223_Colfes_School_Colfes_ext_005.e57	2%	<input checked="" type="checkbox"/>
15223_Colfes_School_Colfes_ext_007.e57	2%	<input checked="" type="checkbox"/>
15223_Colfes_School_Colfes_ext_008.e57	2%	<input checked="" type="checkbox"/>
15223_Colfes_School_Colfes_ext_009.e57	2%	<input checked="" type="checkbox"/>
15223_Colfes_School_Colfes_ext_010.e57	2%	<input checked="" type="checkbox"/>
15223_Colfes_School_Colfes_ext_012.e57	2%	<input checked="" type="checkbox"/>
15223_Colfes_School_Colfes_ext_013.e57	2%	<input checked="" type="checkbox"/>
15223_Colfes_School_Colfes_ext_016.e57	2%	<input checked="" type="checkbox"/>

Scan locations with names

Check the box to show or uncheck to hide scan location symbol - tetrahedron

Check the box to show or uncheck to hide points from the scan location

Select one or several scan locations and via the right mouse click menu choose Undet

Choose to Show, Hide or Isolate the selected scan locations

Selecting individual scans in SketchUp 3D space and isolating them via right-mouse-click and Undet menu isolates scans in the list (marks or demarks checkboxes). This is a quick method for scans filtering and grouping into logical sets. Use “Ctrl” and “Shift” for multiple selections from the scan list.

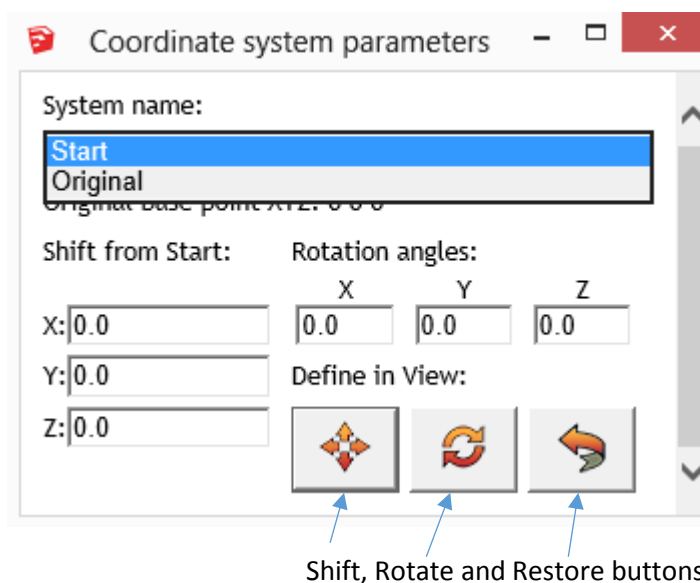
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[Watch a video that shows how to group scan data in Undet4SketchUp](#)



## Coordinate Systems

Open Undet Coordinate System dialog at: Extensions>>Undet>>Coordinate Systems.

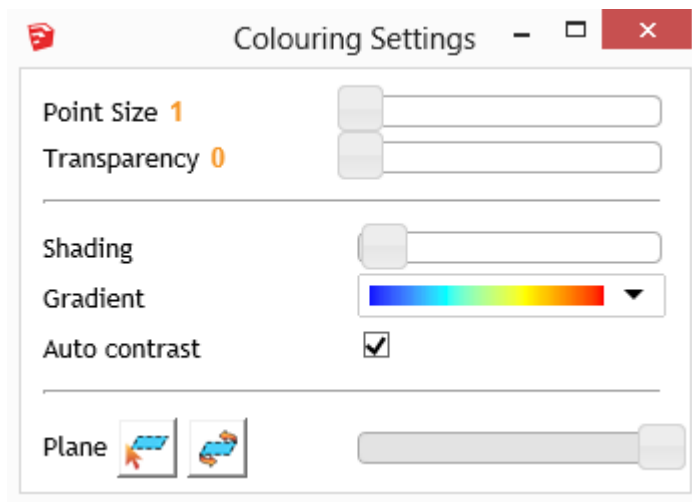
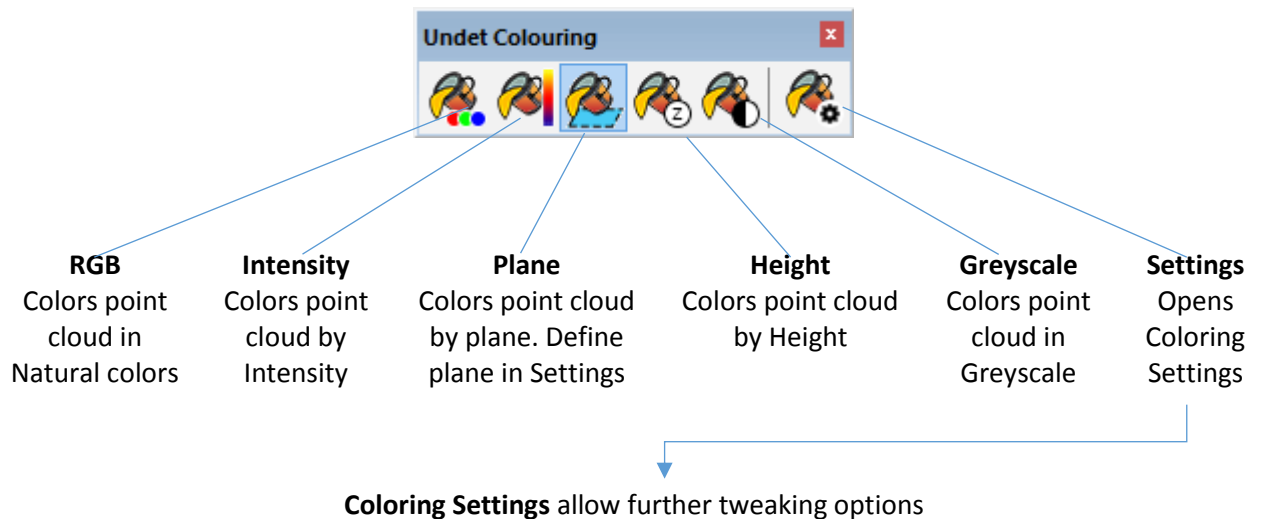


There are two default coordinate systems: “Original” – same as your Input data’s and “Start” – shifted to the SketchUp Start Axis. One can switch between them anytime. Additionally, Shift values and Rotation angles can be defined manually (X,Y,Z) as well as interactively in the SketchUp space by using Shift, Rotate and Restore buttons.



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### Coloring Options



Point Cloud **Point Size**: 1 – 25 pxl.

Point Cloud **Transparency**: 0 – 100 %

**Shading**: intervals depend on gradient

**Gradient**: various color bands

**Plane**: Setting to define Plane coloring

[Watch a video on Undet basics](#)

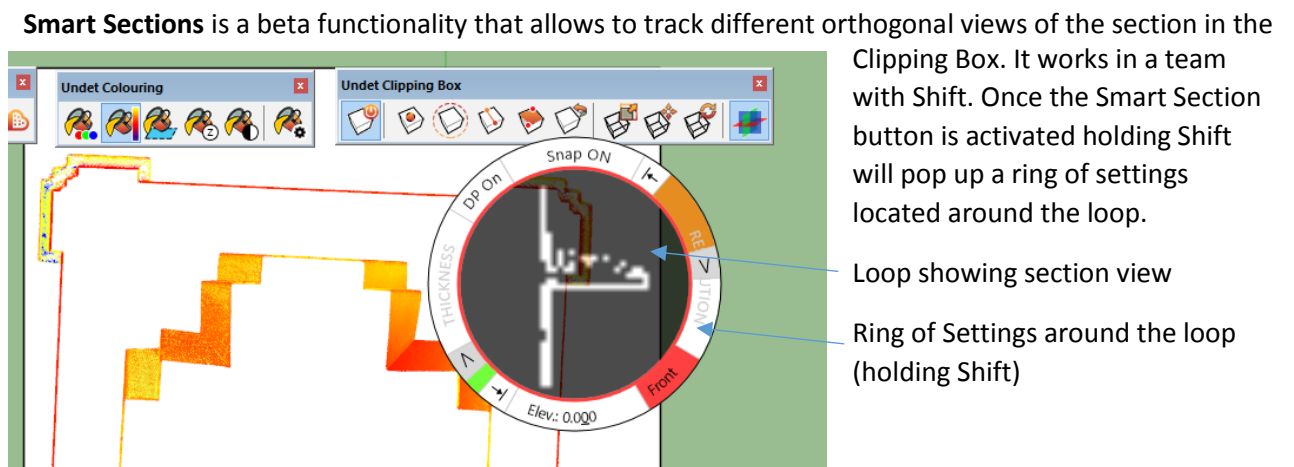
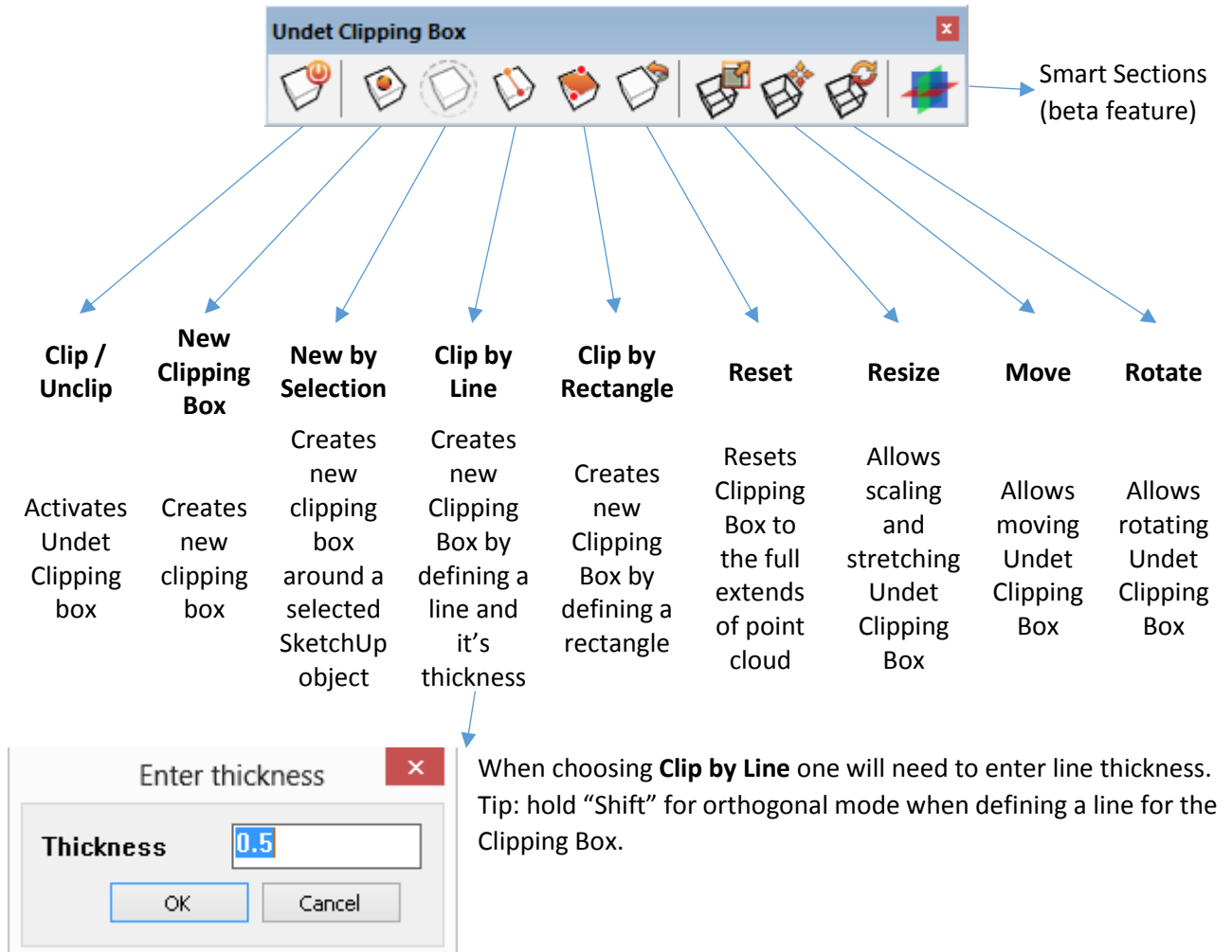


Download and install a free two day trial version from the [product page](#).  
 Have questions or need more time for the evaluation? Give us a shout at [info@undet.com](mailto:info@undet.com).  
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## Clipping Box

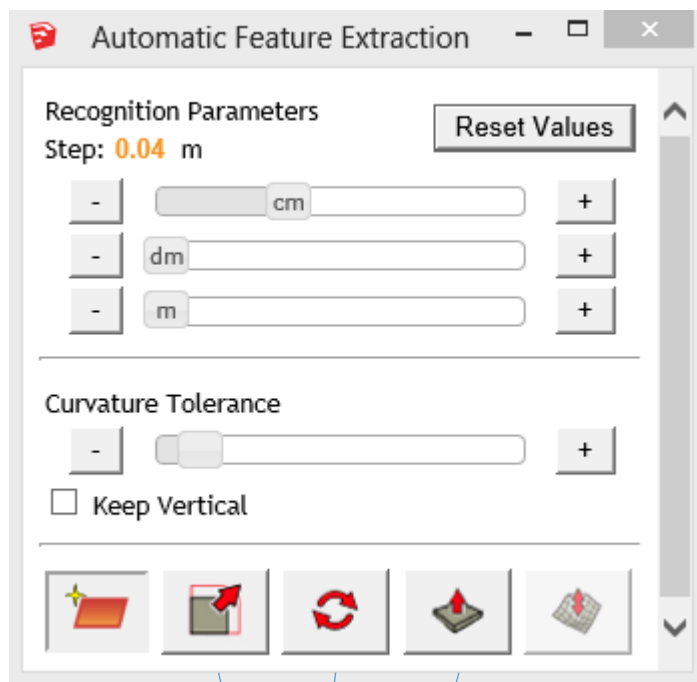
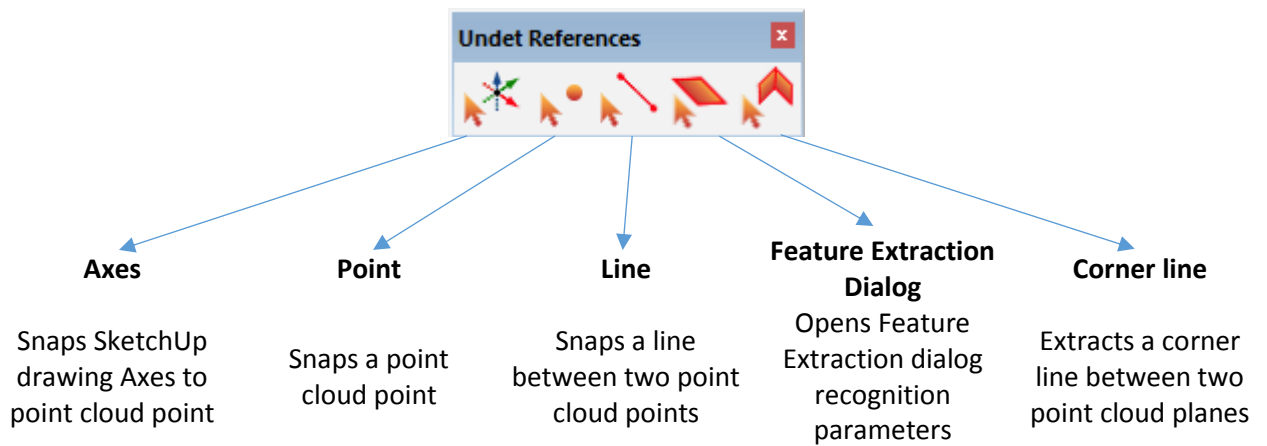
Undet Clipping Box allows rapid point cloud slicing, from bigger chunks to the dollar-bill slices.





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## Automation



The bigger the step the bigger the plane. Choose step in centimeter, decimeters or meters depending if you want to find best fitting wall plane or a dominant plane for a terrain.

If the surface is bumpy or curvy this will increase tolerance and help finding a bigger plane.

[Watch a video that shows more on automated extraction and meshing](#)



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