

TBC Power Hour: Virtual Surveying with Scanning Data - A Case Study of an Intersection

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Questions about Curb & Gutter:

Q: Can you measure the linework for the length of curb and gutter?

A: You can always check the length of the linework from its Properties pane.

Q: Those extracted lines seem to be straight sections around the curve. Can you set it up to make those arcs instead to more accurately represent the curb shape?

A: Yes, in the Post QA/QC tab in the Extract Line Feature command pane, you can apply a best fit line or smooth curve option. Alternatively, after the curb and gutter linework is added to the TBC project, you can right click on the linestring in the graphic view and select Edit to open the Edit Linestring command. You can then adjust the segment type from the Type drop-down list and select one of the following options to apply to individual line segments: straight, smooth curve, best fit arc, arc, tangent arc, deflection, pi arc, or offset.

Q: Is there a curb face limit? Vertical curb, curb face at 45°, flat almost horizontal curb face.

A: We tested extensively on all kinds of vertical curb designs mostly built in North America and Europe as well as other parts of the world like Australia. Generally speaking, the flatter the curb is to the ground, the harder it will be for the algorithm to detect the difference between points. In areas like handicap ramps, or driveways where the curb is low to the ground we had good success in extracting after manually accounting for the slope change.

Q: Does the algorithm work if you want to extract a walkway that is beside the curb and gutter? What about a short retaining wall or an ADA ramp where the curb height varies?

A: Yes, the algorithm works if you want to extract a walkway or ADA ramp besides the curb and gutter. When the extraction encounters a walkway, the automatic extraction will stop since the curb pattern

profile will change and the confidence level will likely fall below the minimum value specified. When the automatic extraction stops, however, the “Additional Options” can be used to adjust the curb template and account for changes in elevation or height. The “Edit template nodes” and “Apply auto template” options are great tools to use when dealing with an area where the curb height will vary. That being said, the algorithm was not designed to extract lines on a retaining wall, but we have seen some instances where the algorithm successfully works on such features.

Q: What happens to the curb extractor at Inlets / handicap ramps? Will the algorithm pause?

A: If the algorithm can not match the pattern you defined to the point cloud, extraction will stop providing you with additional options to account for the change in slope or as-built design. Inlets usually do not pose as many problems as handicap ramps because there’s such a big difference in elevation and design.

Q: Once the curb and gutter lines are extracted, is there a way to look at the nodes of past sections? Can you edit the extracted nodes?

A: Yes, after the curb and gutter linework is added to your TBC project, you can right click on the linestring in the graphic view and select Edit to open the Edit Linestring command. In the Edit Linestring command pane, you can select individual line segments and nodes to view and edit.

Q: The flow lines are usually filled with debris or leaves, will the algorithm still work? What about damaged curbs?

A: These factors can be subject to errors in the algorithm and therefore stop extraction. This is why we provide you with the four additional tools to work through areas like these. Remember that the algorithm is only as good as the data captured in the field.

Q: Anyway to snap the beginning and end points of the curb extraction (since it’s an oval) so it is continuous?

A: You can go to the CAD tab and use the command “Trim Extend” to connect lineworks. “Join” is another handy tool.

Q: Can those lines be exported? To what formats?

A: They can be exported into typical CAD formats such as DWG and DXF.

Other general questions:

Q: How do you create an attribute mapping file (*.exl) and feature code library file (*.fxl) for the feature coding processing? Is there a default TBC template and something that can be modified for company use?

A: TBC ships with a set of default FXL and EXL files. They are usually located at C:\Users\[username]\Documents\Feature Definition Manager.

You can customize both as needed. Here is a helpful tip about how to prepare the EXL:

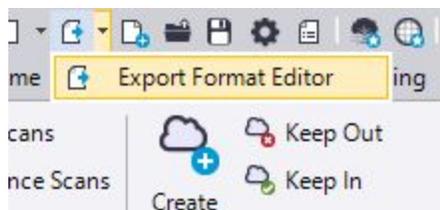
<https://community.trimble.com/groups/trimble-business-center-group/blog/2020/11/13/tip-130-exporting-a-feature-extraction-attribute-map>

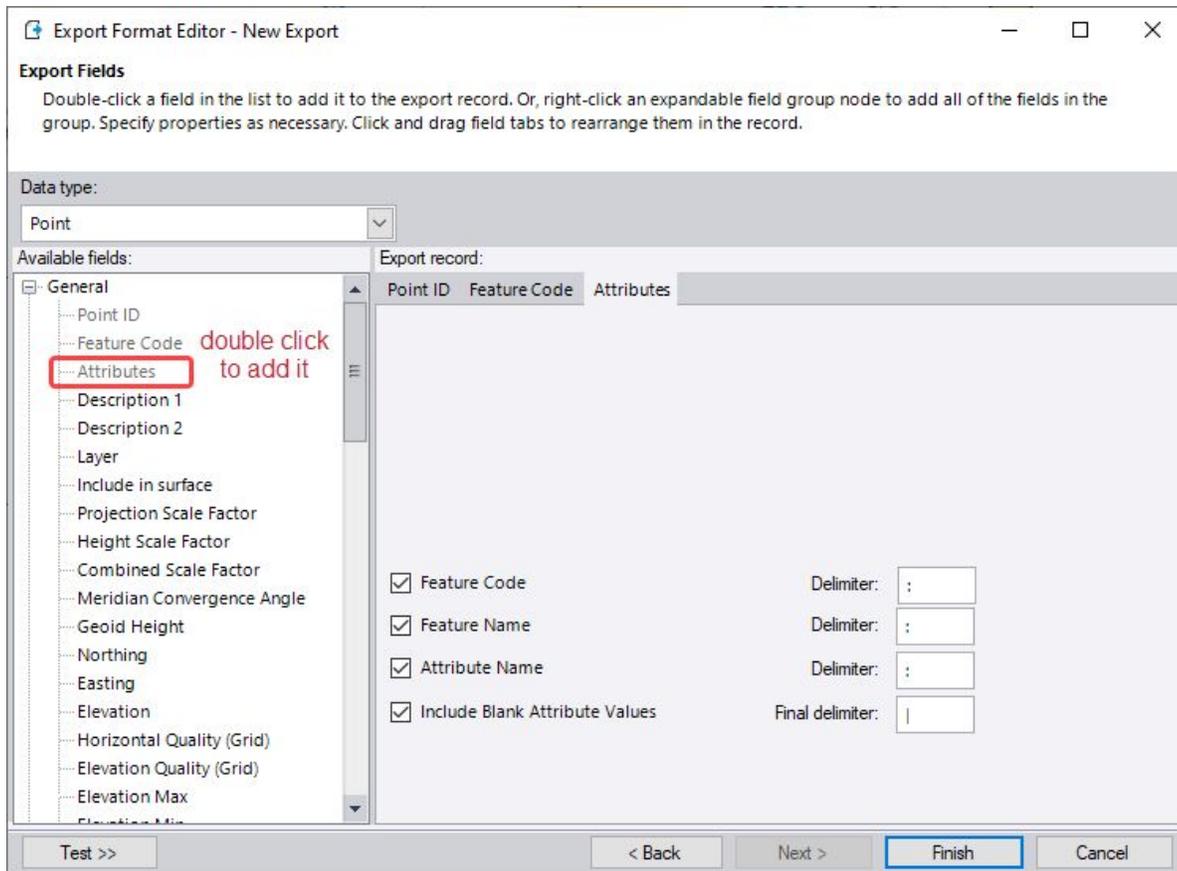
And here is the tutorial about creating a feature code library from scratch:

<https://drive.google.com/a/trimble.com/uc?authuser=0&id=1GtGQTq5S-KZ-2lhFvSqIjFj70kpxl3FZ&export=download>

Q: What attributes are on the actual point for the poles. What will be exported if you do a csv of them? Can you add more attributes to the extracted Road features?

A: As mentioned in the question above, you can design attribute fields as needed and assign them to point features or line features. You can then export with a custom CSV format where attributes are included.





Q: When it comes to the automatic feature extraction, do you see differences between datasets based on e.g. point density or noise in the objects?

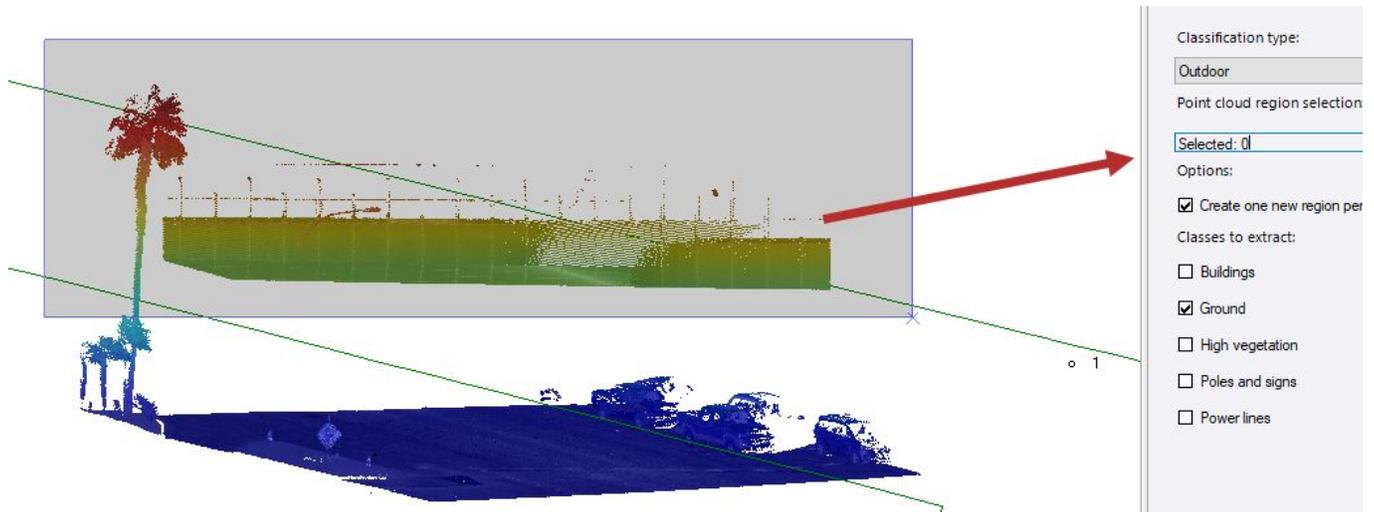
A: The extraction tools are only as good as the data. If you have a dense point cloud, extraction will work better.

Q: Is the Classified Extraction tool in TBC equivalent to or better than the Extract Classified Cloud in Trimble Real Works?

A: We use the same scan data engine as TRW. So the classification algorithms are the same.

Q: How to classify the ground on an elevated overpass? TBC keeps putting the overpass in the default region.

A: TBC will try to classify the lowest surface in the dataset as ground. In order to classify the ground of an overpass, you may create a region, do a polygon select or Keep In just around the overpass, then run the classification again.



Q: To speed TBC up, what are the most important computer HW specs, i.e. video card recommendations, RAM, etc?

A: You may refer to the TBC Release Notes for the recommended specs. From the Support tab -> Release Notes, last two pages.

Q: Within this dataset, Can you register this point cloud to a Control Network, or is this just a free set of data for the demo?

A: The demo dataset is already georeferenced, but yes, you can georeference the point cloud to ground control points.