



Rockpile Solutions TML – MX GENIO Export

Overview

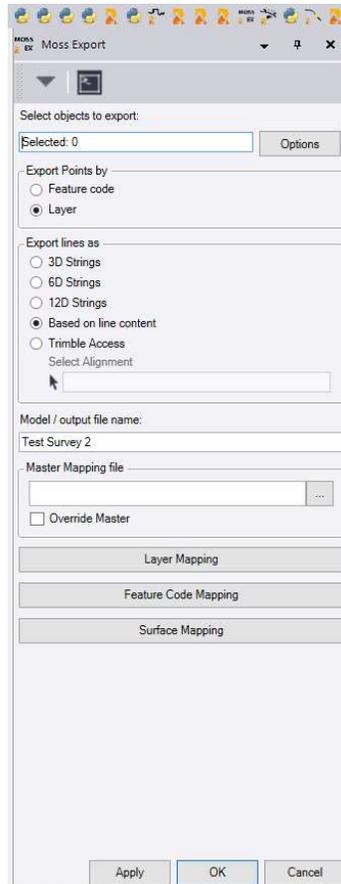
The MOSS Export TML provided the Trimble Business Center user with the ability to export MOSS / MX GENIO files from survey or design data projects.

1. In countries like the UK, UAE, Saudi Arabia, Qatar, Bahrain, Australia and New Zealand where the MOSS / MX system is still used by highways departments, one of the required deliverables is the MX GENIO file that contains
 - a. Point Strings
 - b. Line Strings
 - c. Surfaces
 - d. Alignments
2. For users of Trimble Access, one of the key file types when working on Road Projects is the Trimble Access Road Strings format which is in fact an MX GENIO file. This new exporter provides an easy way to import string data from any source including MX, LandXML, 12D, DWG, DXF, REB or any other format supported in TBC and transfer the data out as named strings or alignments for use in Trimble Access.
3. You can also explode TBC Corridor models to create the string data required for Trimble Access and then use the MX GENIO Export command to create a String file suited for use in Trimble Access.

The benefit of this Moss Export command is that you can Survey in the way that you want to survey using SCS900 / Siteworks or Trimble Access, import the data into TBC and process the feature codes to create the survey drawings, edit the drawings to complete them and then export the data to MX GENIO in the format and with the naming conventions defined by the agency through use of a sophisticated code mapping process that allows use of the Layer Naming or Feature Naming in the source data. Where appropriate you can simply pass the feature codes through TBC unchanged (e.g. Import a GENIO file, select a subset of the data and Export a GENIO file).

Step By Step Guide

1. Run the Moss Export command from the Macros menu ribbon, you will be presented with the following dialog



2. Select the objects that you want to export in the GENIO File. The objects that can be selected for export include
 - a. Points
 - b. Lines (Linestrings, Polylines, CAD Lines)
 - c. Alignments
 - d. Surface Models

Currently the following objects are not supported in the export

- a. Blocks
 - b. Text Annotation
 - c. Corridors
 - d. Boreholes
 - e. Point Clouds
3. Select whether you want to use Feature Codes or Layer Names as the basis for the Code Mapping process for Points. Linework is always mapped using Layer Names as the basis. Surface Models always use the Surface Name as the basis.



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4. Choose how you want to export linework. Unless you are transferring to Trimble Access, the best solution is to select the “Based on line content” method. TBC will select the correct string type mapping based on the linework selected i.e. an Alignment will become a 12D string, Linestrings with curves and vertical curves will become 6D strings or 3D strings and chorded lines will become 3D strings. If you wish to override this approach, you can select to output everything as 3D, 6D or 12D strings. For Trimble Access always choose that option.
5. Enter a Moss Model Name and File Name for the GENIO Output data
6. The GENIO export process utilizes a conversion mapping file called TBC_MossMap.RPS that is created in the project folder for the project. This mapping file is created through the selection of the Layer Mapping, Feature Code Mapping or Surface Mapping buttons. If you wish to use a Master Mapping File that you have created previously for a specific client, you can choose it here. That Mapping File will be located by default in the macros folder, but you can store it anywhere on your computer or network drive. The macro folder is located here

c:\programdata\trimble\macrocommands\rockpilesolutions\

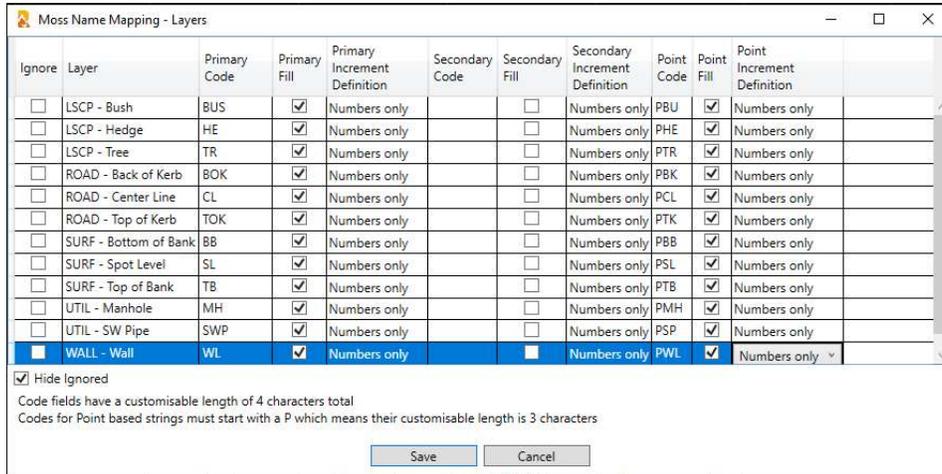
You can create as many separate Master Mapping files as you need to satisfy your client base. If you want to create a new one, then leave this field blank and the software will create a new one for you using the Layer Names or Feature Codes that are used in the current project that you can edit to what you require. This will be a project specific mapping file and will be stored in the TBC project folder.

7. Overwrite Existing File –Each time that you open the Mapping file, the existing file is recreated and overwritten if this check box is enabled. If it is not enabled then the previously created file will be opened. Note: If you have made significant changes / edits to the file, you likely do not want to overwrite it each time you run the export process from the same project, so uncheck the check box. We recommend keeping backup copies of your master mapping files in case you need to restore them.
8. The next three buttons allow you to set up the mapping file for Layers, Feature codes and Surface Models.

Layer Mapping (Applies to Lines and Alignments and if selected Points)

When you are selecting line data for export, if lines of the same type are grouped by Layer, then the easiest way to map the line data for export is by using the Source Layer Name as the foundation for the MOSS GENIO String name that is created.

Layer Mapping - this will generate a list of layers for the point and linework data and allows you to map a layer of TBC information to a MX GENIO 4-character Code (Code plus String Number)



MOSS / MX String Names contain 4 characters but can also be represented as two blocks of 4 characters. For strings, each string that is created must have a unique string number that is a part of the 4-character code.

Typically, MX Users will use either one, two or three characters for the feature code and the remaining character(s) for the string numbers.

String Numbers can be Alphanumeric so that you are not limited to e.g. just 10 string numbers (0-9) or 99 string numbers etc.

Strings starting with the letter “P” are always treated as a Point String – in MX this is a series of disconnected points that have the same code e.g. PTR1 would be a point string of Trees. Because you will likely only have one Point String for each type of Point data you can use all 4 characters as a code e.g. PTRE would be acceptable unless you think that you may have multiple PTR strings in a project.

Note – Do not use the letter P as the start of a normal string name, as it is always treated as a point String by MX.

The Layer Mapping Dialog is described below

- Ignore – if this field is checked, this layer will not be output to the GENIO file. If you have Ignore set on any layers, you can also elect to “Hide Ignored” and that will hide them in the layer list. For example the survey points that are used to create the string linework should not be output twice (as a point string and a 3D string), so you may want to place points that are used to create lines in TBC on a separate layer that can be ignored.

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- Layer – This is the TBC Layer Name
- Primary Code – This is the code (the first 4-character code) that you want for the data on this layer in the GENIO output file. For example, for a Layer called ROAD – VERGE you may want to create a VG string output.
- Primary Fill – If you check this check box, you will fill the 4-character code with a string number. You can then select what type of string numbering you wish to have. The options are
 - Numbers only i.e. 0, 1, 2, 3 ...9 or 00, 01, 02 ...99
 - Letters only i.e. A, B, C ...Z or AA, AB, AC ...ZZ
 - Both i.e. 0, 1, 2, 3 ...9, A, B, C ...Z or 00, 01 ...99, 0A, 0B ...0Z etc.
- Secondary Code – In here you can add a secondary code to convey more information to the MX system. The approach is the same as for the Primary Code for the Secondary Fill and Secondary Increment Definition.
- Point Code – if there are also / alternatively point data objects on these layers, the Point Code and Point Fill and Point Increment Definition can also be input here.
 - The Point Code would be the P string that you want to create for the Points on this layer – i.e. if the layer was called LSCAPE – Trees then the point code could be PTRE or PTR for example.
 - If you enter less than 4 character for the Point Code, then Point Fill can be used to add a Point String Number to the features generated (e.g. for a code of PTR you can create PTR1 or PTRA etc.)
 - Point Increment Definition – enter this if you wish to apply string numbering to point strings created that have less than 4 characters in the point code.
- Note – all Layers that are not ignored must have at least a Primary Code and optionally a secondary and / or Point Code.

Feature Code Mapping (Applies to Point Data Only)

When you are selecting Point Data for export, the Point Data can be mapped using the Layer Mapping (described earlier) or using Feature Code Mapping. When using Feature Code Mapping, all of your Point Data can be on one or more layers of any name – the layer information is ignored in this process. The Feature Codes that are on the Source Points are mapped to the MX GENIO Feature Codes using the table shown below

Ignore	Feature Code	Primary Code	Primary Fill	Primary Increment Definition	Secondary Code	Secondary Fill	Secondary Increment Definition
<input type="checkbox"/>	Back of Kerb	PBK	<input checked="" type="checkbox"/>	Numbers only		<input type="checkbox"/>	Numbers only
<input type="checkbox"/>	Hedge	PHE	<input checked="" type="checkbox"/>	Numbers only		<input type="checkbox"/>	Numbers only
<input type="checkbox"/>	Manhole	PMH	<input checked="" type="checkbox"/>	Numbers only		<input type="checkbox"/>	Numbers only
<input type="checkbox"/>	Spot Level	PSL	<input checked="" type="checkbox"/>	Numbers only		<input type="checkbox"/>	Numbers only
<input type="checkbox"/>	Storm Pipe	PSP	<input checked="" type="checkbox"/>	Numbers only		<input type="checkbox"/>	Numbers only
<input type="checkbox"/>	Top of Kerb	PTK	<input checked="" type="checkbox"/>	Numbers only		<input type="checkbox"/>	Numbers only
<input type="checkbox"/>	Tree	PTR	<input checked="" type="checkbox"/>	Numbers only		<input type="checkbox"/>	Numbers only
<input type="checkbox"/>	Wall	PWL	<input checked="" type="checkbox"/>	Numbers only		<input type="checkbox"/>	Numbers only

Hide Ignored
Code fields have a customisable length of 4 characters total
Codes for Point based strings must start with a P which means their customisable length is 3 characters.

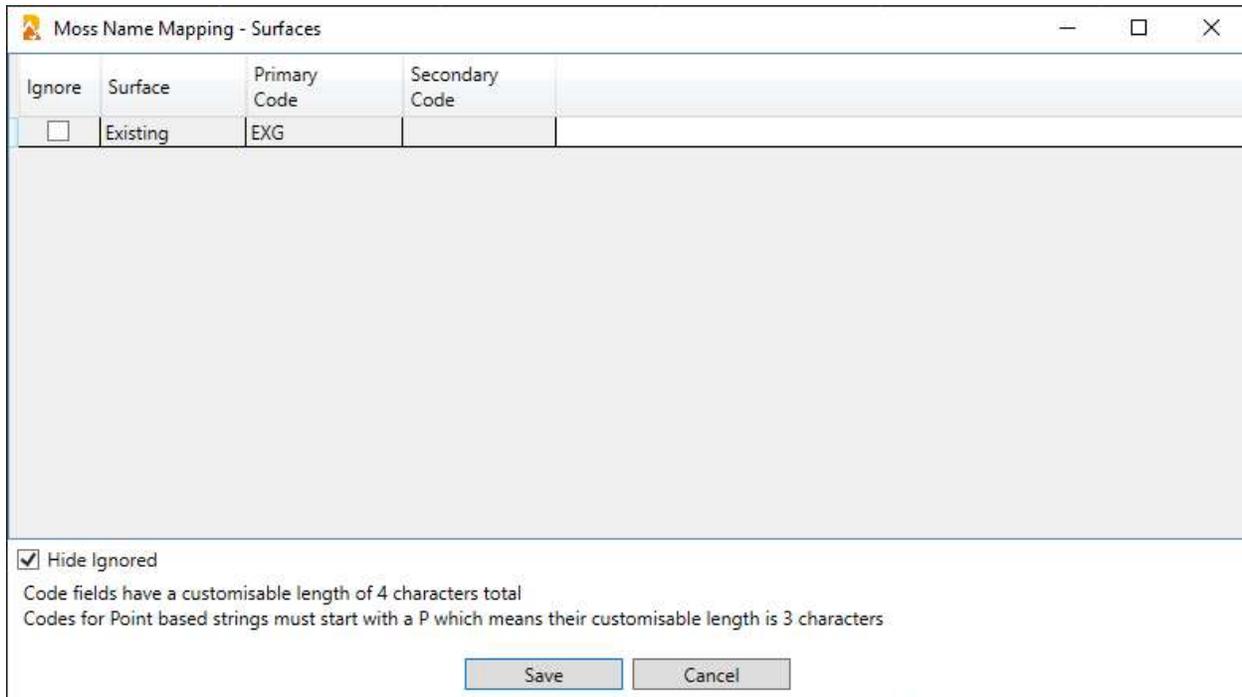
Save Cancel

- Ignore – if this field is checked, this feature code will not be output to the GENIO file. If you have Ignore set on any feature codes, you can also elect to “Hide Ignored” and that will hide them in the feature code list.
- Feature Code – this is the source feature code on the points within the TBC Project.
- Primary Code – Enter the code required in the output GENIO file e.g. for a Feature Code POINT – TREE you may enter PTRE or PTR here
- Primary Fill – If the Primary Code contains less than 4 characters, the code can be filled with a String Number if this check box is enabled.
- Primary Increment Definition – If you are applying Primary Fill then here you can select how the string numbering will be applied. The options are
 - Numbers only i.e. 0, 1, 2, 3 ...9 or 00, 01, 02 ...99
 - Letters only i.e. A, B, C ...Z or AA, AB, AC ...ZZ
 - Both i.e. 0, 1, 2, 3 ...9, A, B, C ...Z or 00, 01 ...99, 0A, 0B ...0Z etc.
- Secondary Code – you can optionally add a second block of 4 character code using this option. Again the same process applies for the Secondary Code, the Secondary Fill and the Secondary String Numbering.

Note – All Point Data becomes a Point String in MX. Point Strings must begin with the letter P e.g. PTR or PTRE. A single Point String typically contains all of the same type of Point Data for a Project e.g. all Trees, so Point Strings can use all 4 characters of the code block for the Code as no String Numbering is required as each “Model / File” that you import into an MX Project will typically only have a single point string for each type of point feature.

Surface Mapping (Applies to Surface Models and Corridor Surface Models only)

Surface models from a TBC project can also be exported to a GENIO file. The surface model is transferred as a series of 3D strings, one string for each triangle in the surface model. You can export TIN Model and Corridor Surface Model surfaces to the GENIO file. The Surfaces need to be selected and mapped using the Surface Mapping function. The dialog is shown below



Ignore	Surface	Primary Code	Secondary Code
<input type="checkbox"/>	Existing	EXG	

Hide Ignored
Code fields have a customisable length of 4 characters total
Codes for Point based strings must start with a P which means their customisable length is 3 characters

Save Cancel

- Ignore - if this field is checked, this surface will not be output to the GENIO file. If you have Ignore set on any surface models, you can also elect to “Hide Ignored” and that will hide them in the surface model list.
- Surface – this is the Surface Model name in TBC
- Primary Code – this is the name of the strings that will be created for each triangle face in the GENIO file e.g. map Original Ground to ORIG in the GENIO File. Since each surface will likely have a unique name and therefore a unique Primary Code, String Numbers are not typically necessary.

When you have everything set up as you need it, simply tap Apply if you think you may need to update the mapping files and re run the export several times or OK if you are happy that a one time running of the export will suffice. Tap Cancel if you wish to abort the process.

Recommendation – QA the MX GENIO Output

We suggest that once you have exported the MX GENIO file, that you open a second instance of TBC and create a new project and then drag and drop or import the .MOS file created into the project to verify that the output is what you require for the client in question.