Create Tin with Uniform Naming Systems macro

2018.6

Title: Create Tin

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Purpose

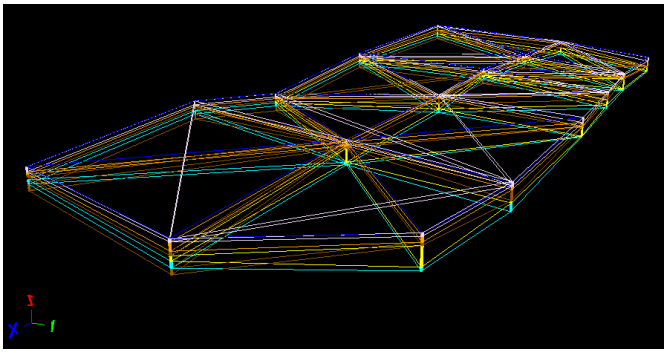
Uniform Naming Standards have been available for a long time and with the increased use of BIM processes became vital. One of the naming standards relates to the creation of 3d terrain surfaces and associated models and results.

Creating surfaces is a straight forward process. However, ensuring naming standards are followed can be time consuming, prone to errors, user interpretation and inefficient.

We have looked at the most common work flow and cross section of published naming standards to improve this process.

When you create a TIN (triangulate a data source) you may be required to create a boundary extent of the tin, contours and labels with relevant functions for quick and easy recalc later via a custom Chain.

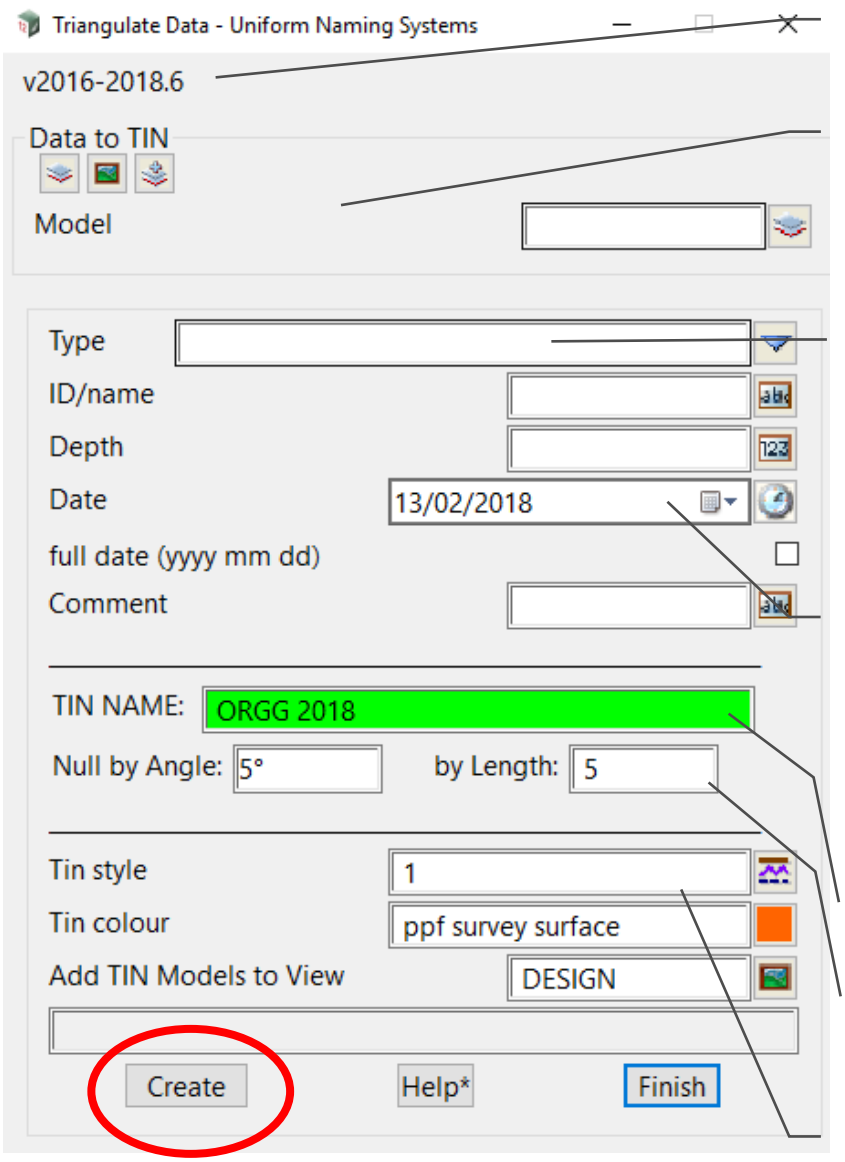
Even if the user may not be interested in contours or the tin boundary at the time of creating a TIN these models and functions are generated to ensure they are correctly named. At some point in the future, user simply selects already existing function and can modify it to suit their specific needs.



Macro GUI

12d Macros can run from toolbars, menus or via Utilities menu ->Macros->run option.

See 12d manual for more details.



Macro version

Source data

Type of tin to create

See XML settings file, for more details.
Box_A = Input/Text
Box_B = Integer/Number
Box_C = Input/Text

Date box defaults to Year only, with optional Full Date tick box resulting in

YYYY MM DD

format

Final TIN name

Tin NULL triangles settings

Tin line style and colour as well as View can be modified by user.

Default values are available in the settings file.

Uniform Naming convention is used to name tins, models and functions.

Each name is formed using 7 designators: (customisable via XML settings)

1	2	3	4	5	6	7

Where:

1) Prefix – abbreviated type of function (eg tin_ or conts_)
2) Type – abbreviated type/ tin purpose (eg ORGG for original ground)
3) Box_A – optional text input (eg ID or Name of say stockpile)
4) Box_B – optional numeral (eg Depth in mm (integer))
5) Date_box – optional date, year only or yyyy mm dd format
6) Box_C – optional text input (eg user comment)
7) Suffix – additional descriptor for Models (eg contour labels, label lines, null polygons etc)

For example: Tin for Existing Ground from 2016 for Waste Water purposes could be named

TIN:	tin EXGG 2016 WW
Tin function:	tin EXGG 2016 WW
Contour function:	conts EXGG 2016 WW
Boundary model:	tin EXGG 2016 WW BDYM
Major Contour model:	tin EXGG 2016 WW CONT MAJR
Minor Contour model:	tin EXGG 2016 WW CONT MINR
Contour Labels model:	tin EXGG 2016 WW CONT ANNO
Cont labellines model:	tin EXGG 2016 WW conts crossing label lines
Null Polygons model:	tin EXGG 2016 WW NULL POLYS
Null Strings model:	tin EXGG 2016 WW NULL STRGS
Chain name:	tin EXGG 2016 WW recalc.chain

Naming objects

Following objects are named automatically:

Tin Name
Tin Function (optional)
Tin Model
Tin Boundary Model
Null by Polygons Model
Null by Strings Model
Tin Contours Function (optional)
    Tin Minor contours model
    Tin Major contours model
    Tin contour labels model
    Tin contour crossing lines model (used to individually label contours)

Settings XML

Uniform Naming standards should include information about the Tin purpose/abbreviation, as well as appearance, colour and linestyle. Therefore, an extensive list of settings is available to allow for flexibility to suit different users and organisations.

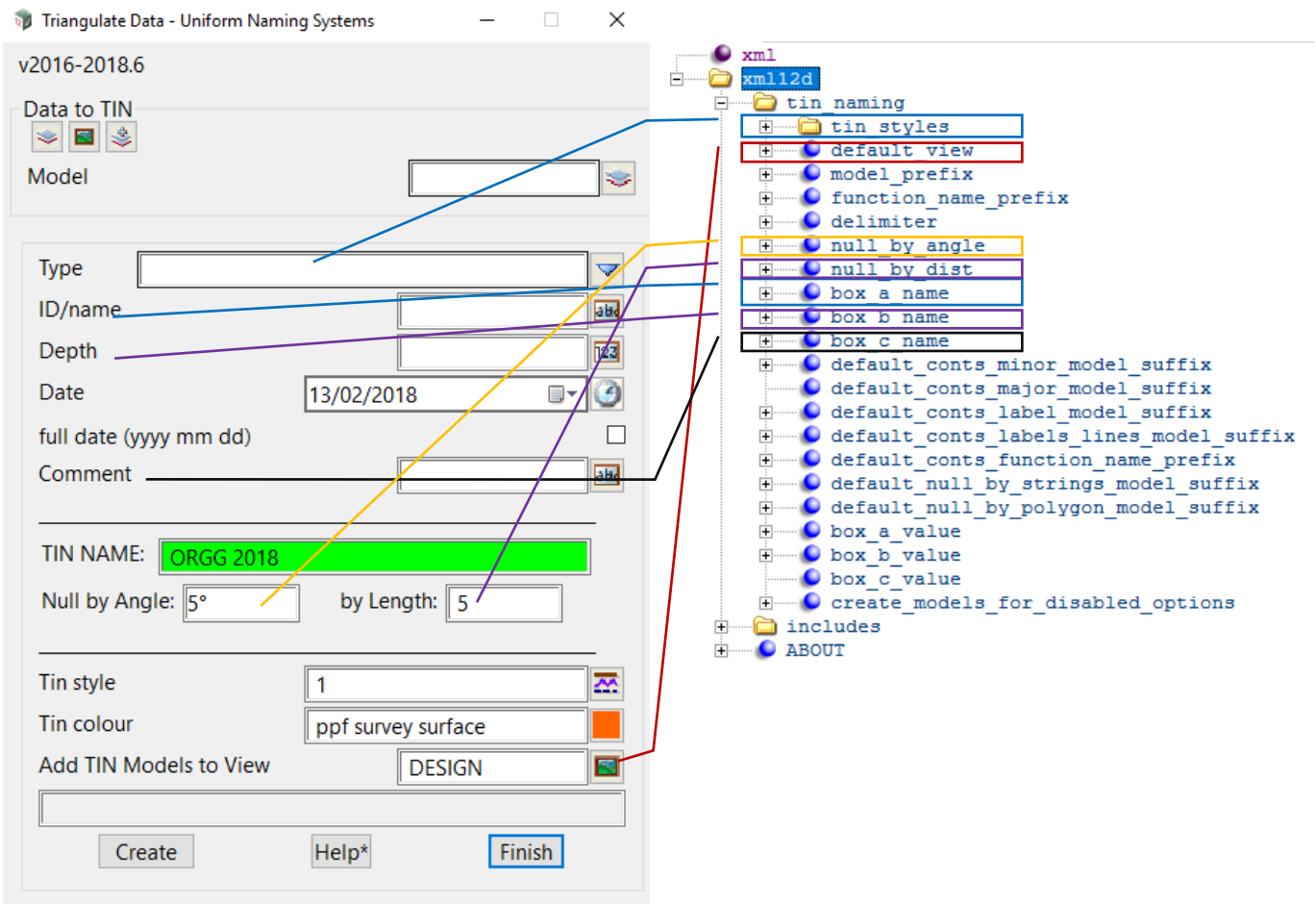
Example XML file is provided with the macro, it can be viewed and modified with XML-Notepad.

Substitution

All settings within the XML file may be substituted by Project Attributes.
$project_attribute[AttributePathAndName]

eg $project_attribute[ProjectDetails/ProjectNumber/Value]
values may be concatenated like this:
    $project_attribute[ProjectNumber/Value] - $project_attribute[ZoneName/Value]

Warning: user must ensure the attribute value makes sense. In some cases, the setting is a Boolean true/false value that defaults false and the test is searching for true/yes/on/1 value only.



Values of boxes A, B and C can be prepopulated by attributes or user entered text:

```
box_a_value | $project_attribute[ProjectDetails/ProjectNumber/Value]
box_b_value | $project_attribute[ProjectDetails/ProjectNumber/Value]
box_c_value |
```

Drop down list of tin TYPES is populated from the <tin_styles> xml branch. Each style has it's individual settings.

```
create_models_for_disabled_options | true
```

If true, all models are created even if contour function is disabled. This results in empty models ready for users to utilise later.

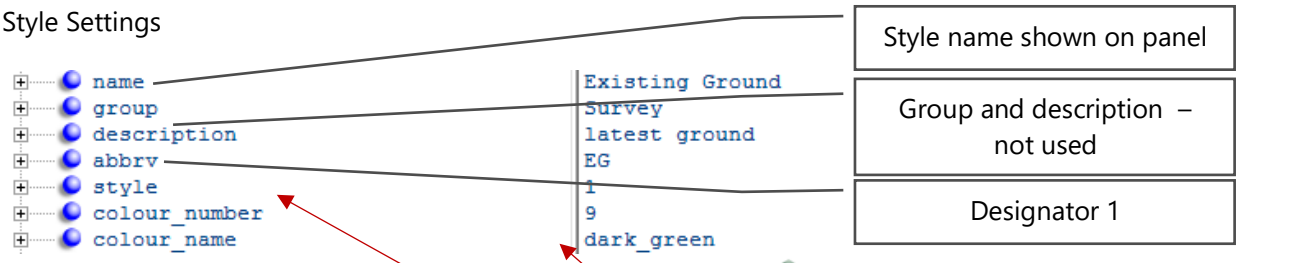
```
default_conts_minor_model_suffix
default_conts_major_model_suffix
default_conts_label_model_suffix
default_conts_labels_lines_model_suffix
default_conts_function_name_prefix
default_null_by_strings_model_suffix
default_null_by_polygon_model_suffix
model_prefix
function_name_prefix
delimiter
```

Default model name suffix and prefix values should be specified for all <tin_styles> and may be superseded by individual settings.

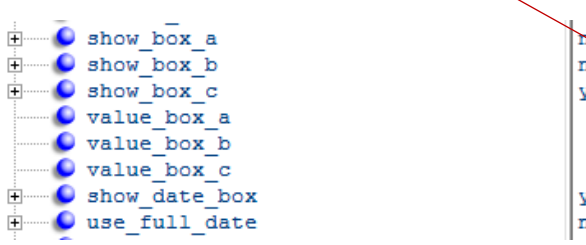
Delimiter is used between designators 2 to 6 only and may contain one of the following values (space,tab,dash)

Values that populate tick_boxes may be set using: on,t,y,1,true,yes for (ON), and off,f,n,0,no,false for (OFF).

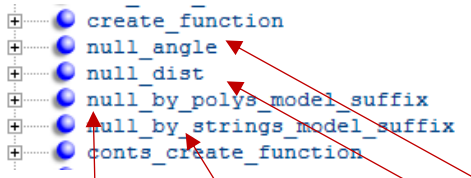
Style Settings



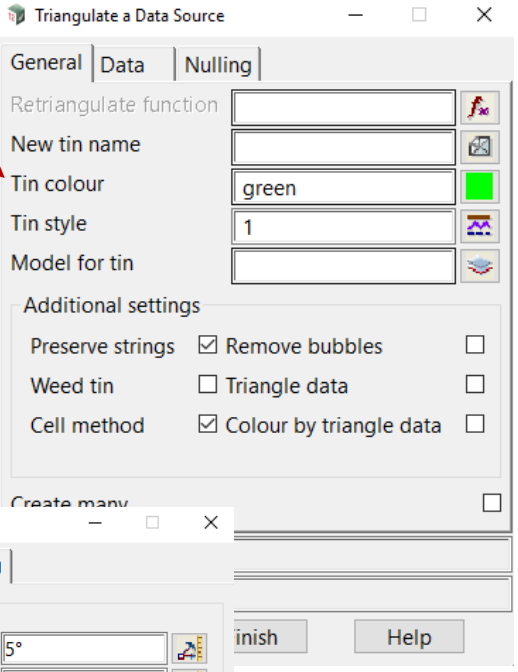
Box overrides

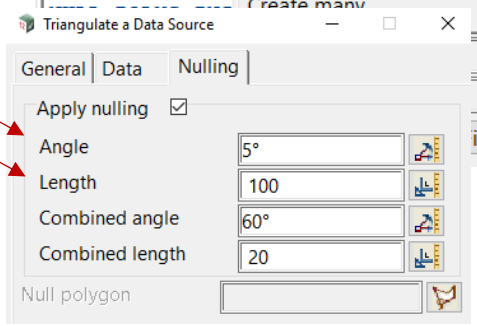


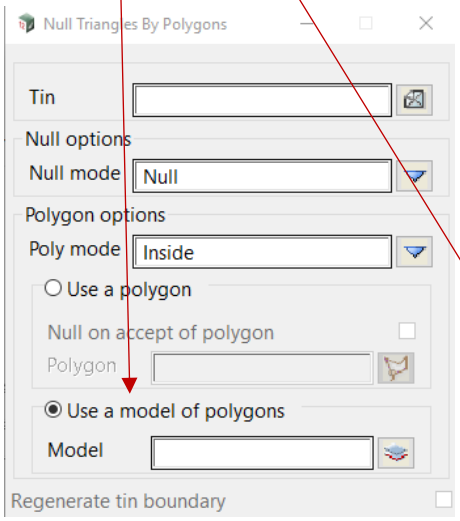
Tin function is optional, used to recalc tins in chains.

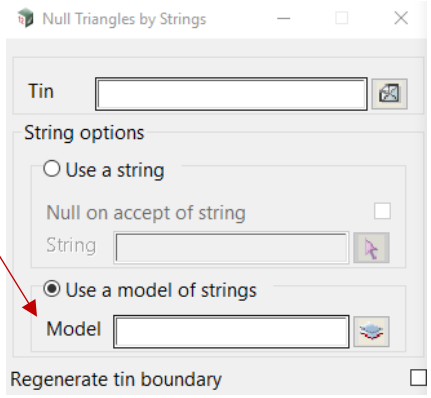


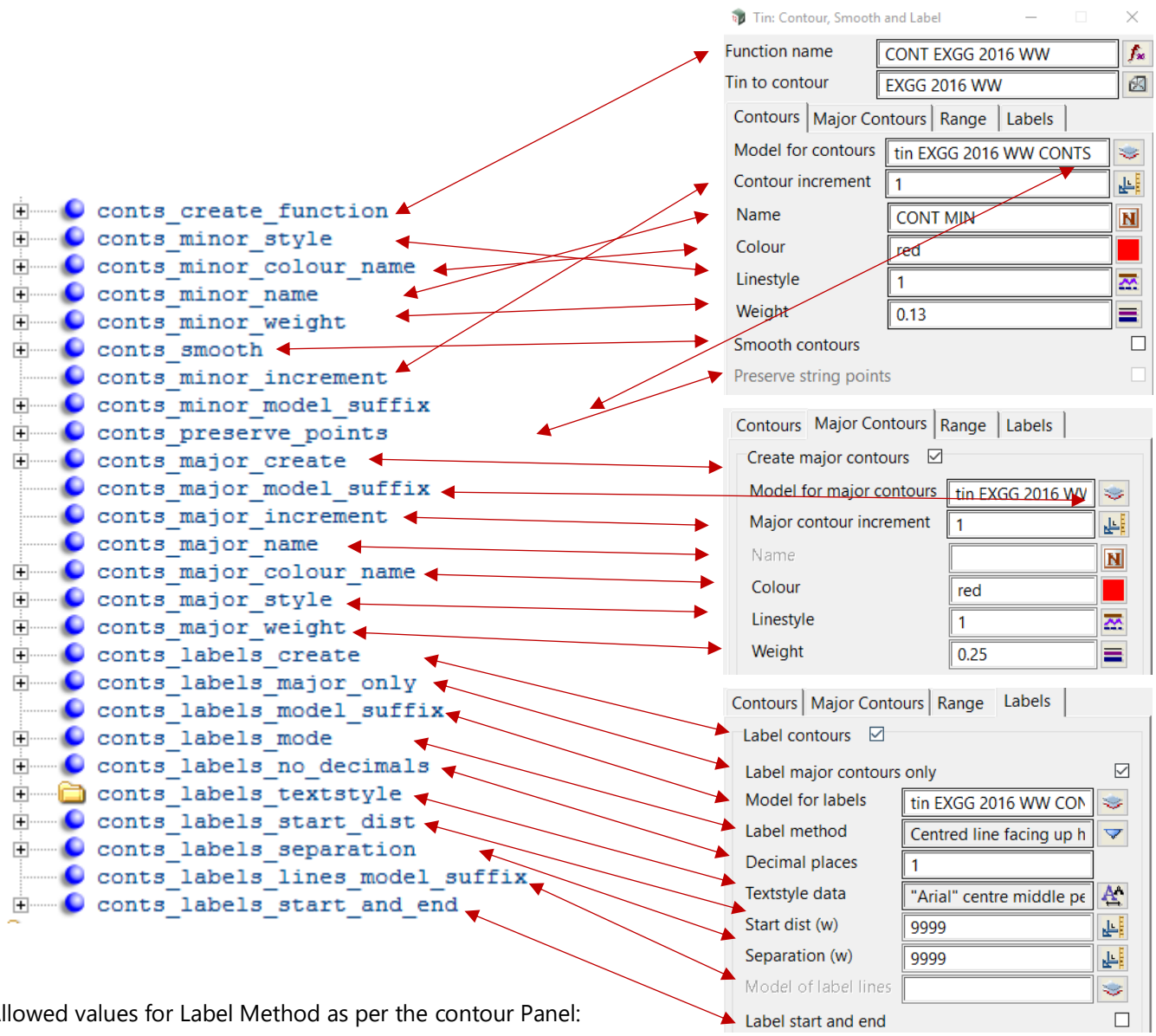
Contour function is optional.











Allowed values for Label Method as per the contour Panel:

Above line contour direction
Above line read from below
Centred line read from below
Line removal & centred line read from below
Above line facing up hill
Centred line facing up hill
Line removal & centred line facing up hill

Example Settings XML files has following Styles:

PREFIX	DESCRIPTION	EXAMPLE	STYLE
ORGG	Original Ground (prior any works)	tin ORGG note	solid green
EXGG	Existing Ground - latest	tin EXGG date note	Solid dark_green
FNDS	Finished Surface - latest	tin FNDS note	Solid ppf FS
SMAX	Subgrade – max earthworks	tin SMAX depth note	Solid ppf subgrage
GIS	sourced from GIS	tin GIS name note	Solid red
other	other	tin other date note	Solid red

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