

## Create Tin with Uniform Naming Systems macro

2018.6



## Title: Create Tin

By running this macro, you agree that Tatras Consulting Limited and/or the developer of this macro are NOT responsible for the output, results or any action that takes place as a result of running this macro or any associated files.

Tatras Consulting Limited, NZBN 9429041711163

[info@tatras.co.nz](mailto:info@tatras.co.nz)

## Purpose

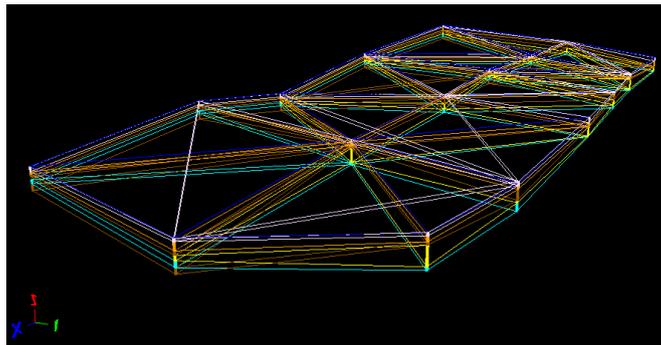
Uniform Naming Standards have been available for a long time and with the increased use of BIM processes became vital. One of the naming standards relates to the creation of 3d terrain surfaces and associated models and results.

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 recalculations 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)



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.

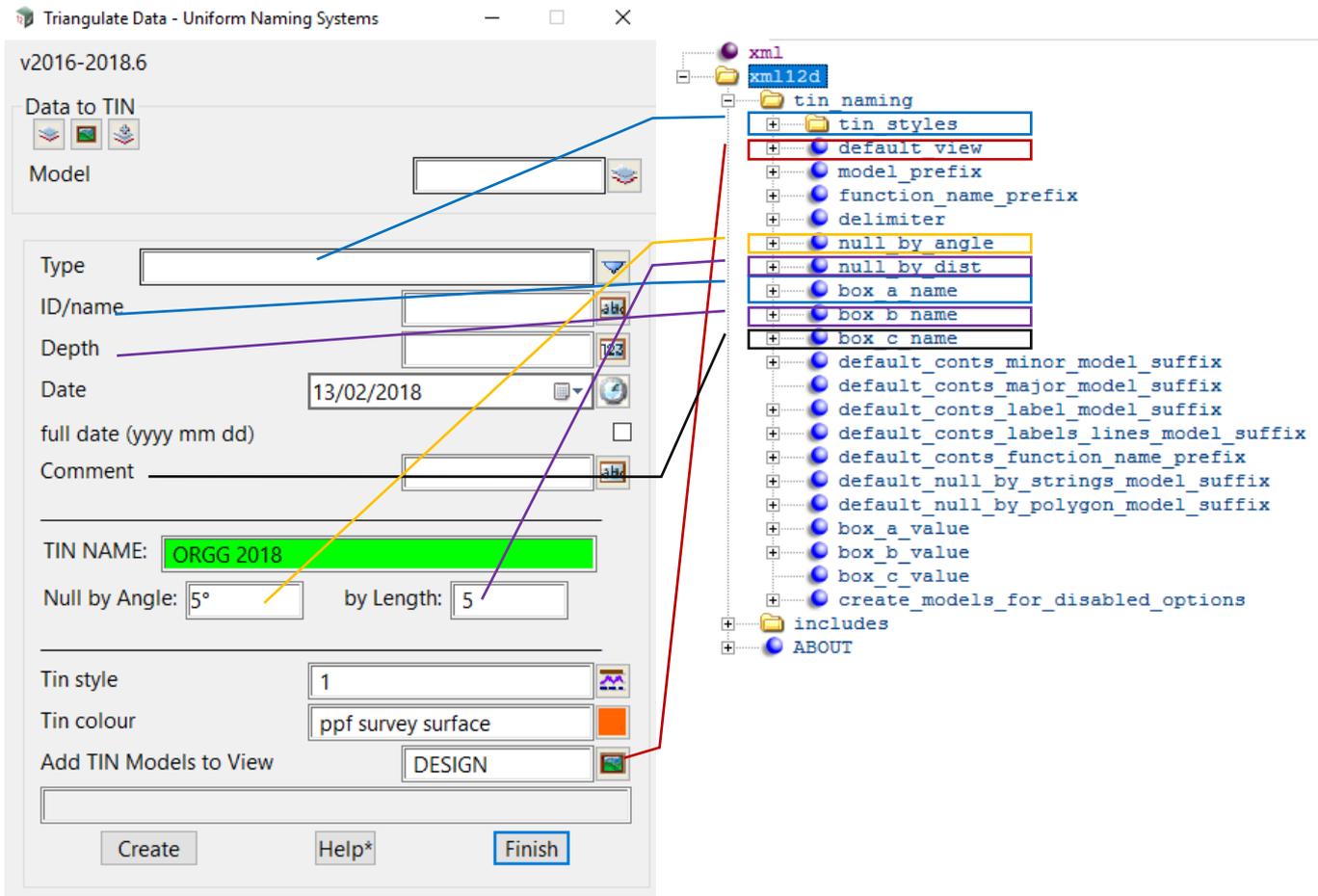
`$project_attribute[AttributePathAndName]`

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

name	Existing Ground
group	Survey
description	latest ground
abbrv	EG
style	1
colour_number	9
colour_name	dark_green

Style name shown on panel

Group and description – not used

Designator 1

### Box overrides

show_box_a	no
show_box_b	no
show_box_c	yes
value_box_a	
value_box_b	
value_box_c	
show_date_box	yes
use_full_date	no

Triangulate a Data Source

General | Data | Nulling

Retriangulate function

New tin name

Tin colour: green

Tin style: 1

Model for tin

Additional settings

Preserve strings  Remove bubbles

Weed tin  Triangle data

Cell method  Colour by triangle data

Create many

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

create_function	yes
null_angle	5.0
null_dist	25
null_by_polys_model_suffix	
null_by_strings_model_suffix	
conts_create_function	

Triangulate a Data Source

General | Data | Nulling

Apply nulling

Angle: 5°

Length: 100

Combined angle: 60°

Combined length: 20

Null polygon

Contour function is optional.

Null Triangles By Polygons

Tin

Null options

Null mode: Null

Polygon options

Poly mode: Inside

Use a polygon

Null on accept of polygon

Polygon

Use a model of polygons

Model

Regenerate tin boundary

Null Triangles by Strings

Tin

String options

Use a string

Null on accept of string

String

Use a model of strings

Model

Regenerate tin boundary

The screenshot shows the 'Tin: Contour, Smooth and Label' software interface. On the left is a tree view of functions, and on the right are three panels for configuring contours, major contours, and labels. Red arrows map specific functions to their corresponding settings in the panels.

**Function List (Left):**

- conts\_create\_function
- conts\_minor\_style
- conts\_minor\_colour\_name
- conts\_minor\_name
- conts\_minor\_weight
- conts\_smooth
- conts\_minor\_increment
- conts\_minor\_model\_suffix
- conts\_preserve\_points
- conts\_major\_create
- conts\_major\_model\_suffix
- conts\_major\_increment
- conts\_major\_name
- conts\_major\_colour\_name
- conts\_major\_style
- conts\_major\_weight
- conts\_labels\_create
- conts\_labels\_major\_only
- conts\_labels\_model\_suffix
- conts\_labels\_mode
- conts\_labels\_no\_decimals
- conts\_labels\_textstyle
- conts\_labels\_start\_dist
- conts\_labels\_separation
- conts\_labels\_lines\_model\_suffix
- conts\_labels\_start\_and\_end

**Contour Panel (Top Right):**

- Function name: CONT EXGG 2016 WW
- Tin to contour: EXGG 2016 WW
- Model for contours: tin EXGG 2016 WW CONTS
- Contour increment: 1
- Name: CONT MIN
- Colour: red
- Linestyle: 1
- Weight: 0.13
- Smooth contours:
- Preserve string points:

**Major Contours Panel (Middle Right):**

- Create major contours:
- Model for major contours: tin EXGG 2016 WW
- Major contour increment: 1
- Name:
- Colour: red
- Linestyle: 1
- Weight: 0.25

**Labels Panel (Bottom Right):**

- Label contours:
- Label major contours only:
- Model for labels: tin EXGG 2016 WW CON
- Label method: Centred line facing up h
- Decimal places: 1
- Textstyle data: "Arial" centre middle pe
- Start dist (w): 9999
- Separation (w): 9999
- Model of label lines:
- Label start and end:

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

For more information, email us at  
[info@tatras.co.nz](mailto:info@tatras.co.nz)