

## **Reduce Survey Instrument File with Uniform Naming Systems macro**

2016-2019.8



## Title: Reduce Survey Data

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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 strings, models and functions for survey field data.

Reducing Survey Data 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 reduce field data you must select a data collector to convert the instrument file to 12d field file. Depending on the equipment this may generate version 6 text file or version 10 XML file. Selecting an incorrect collector will result in errors. Currently there is no built-in option to convert version 6 to 10 so users with older equipment are stuck using older file format. Next step is getting the reduction settings right, user must navigate multiple tabs and populate multiple boxes with names relevant to their survey. Some of this can be achieved with SLX and DDX setup but requires user input and numerous decisions.

This macro combines the process of importing and reducing field data while ensuring uniform naming convention and standardises workflow for multiple users.

Import Survey Field Data - Uniform Naming System

Instrument file

survey.4d Data Converter

Function Mode  Create New Function

Designator A

Designator B

Designator C

YYYYMMDD :  30/08/2019

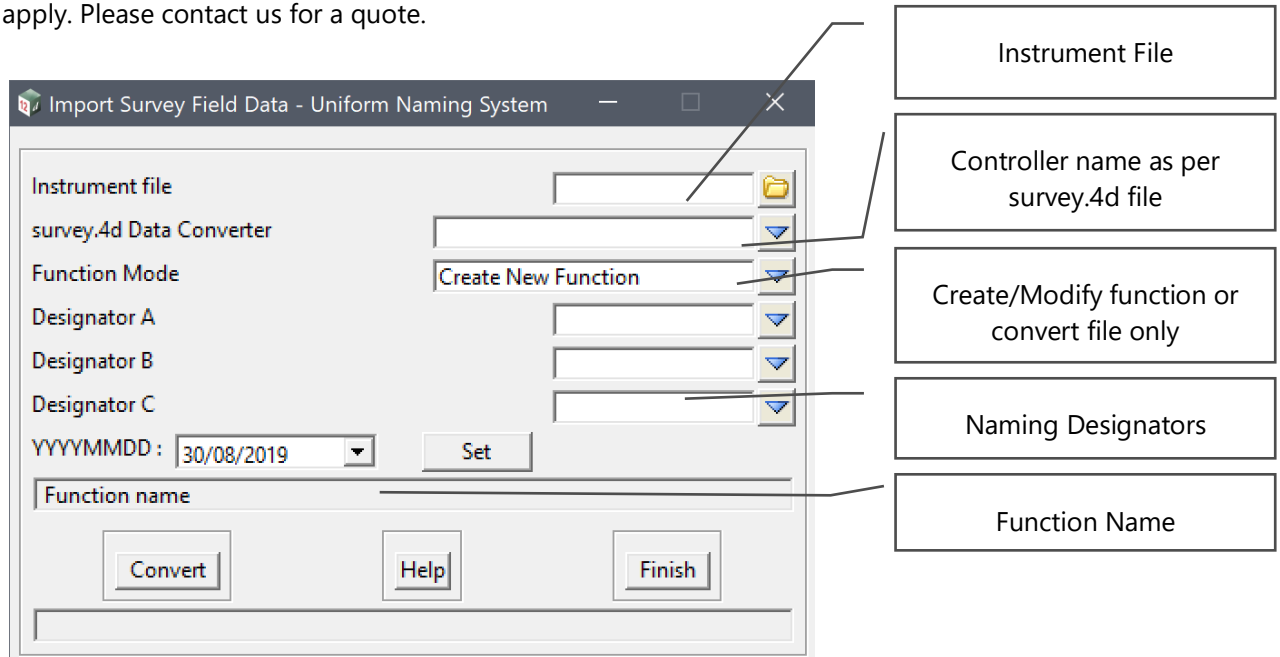
Function name

## Macro GUI

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

See 12d manual for more details.

This macro has been locked to Version 12 of 12d Model. It has been distributed for free, however, should you require modification or compiled version for later versions of 12d Model charges may apply. Please contact us for a quote.



In one process the macro will convert the instrument file using specified Survey Data Collector and convert it to V10 xml field format, create the SDRF, and name the following properties:

Function, Default Model, Report File, Map File Model prefix, Control Model, Heights Model, Check Model, and other parameters such as Geodetics, Traverse and Least Squares.

Each name is formed using 5 designators: (customisable via XML settings)



Where:

**Prefix** – abbreviated type of function (eg SDR\_ or FDS\_)

**Box\_A** – optional text input or choice list

**Box\_B** – optional text input or choice list

**Box\_C** – optional text input or choice list

**Box\_D** – optional date

For example: SDR33 file – topo data - settings

Choice box name: TOPO with Sokkia SDR33  
 Designator A: zone  
 Designator C: date  
 Function Prefix: SDR  
 Function: SDR zone A 2016  
 Default model: SDR zone A 2016  
 Mapfile models: SDR zone A 2016\*  
 Mapfile: TOPO2016.mapfile

## Settings XML

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.

Custom name for the file can be specified as macro line argument.

## Substitution

All settings within the XML file may be substituted by Project Attributes.

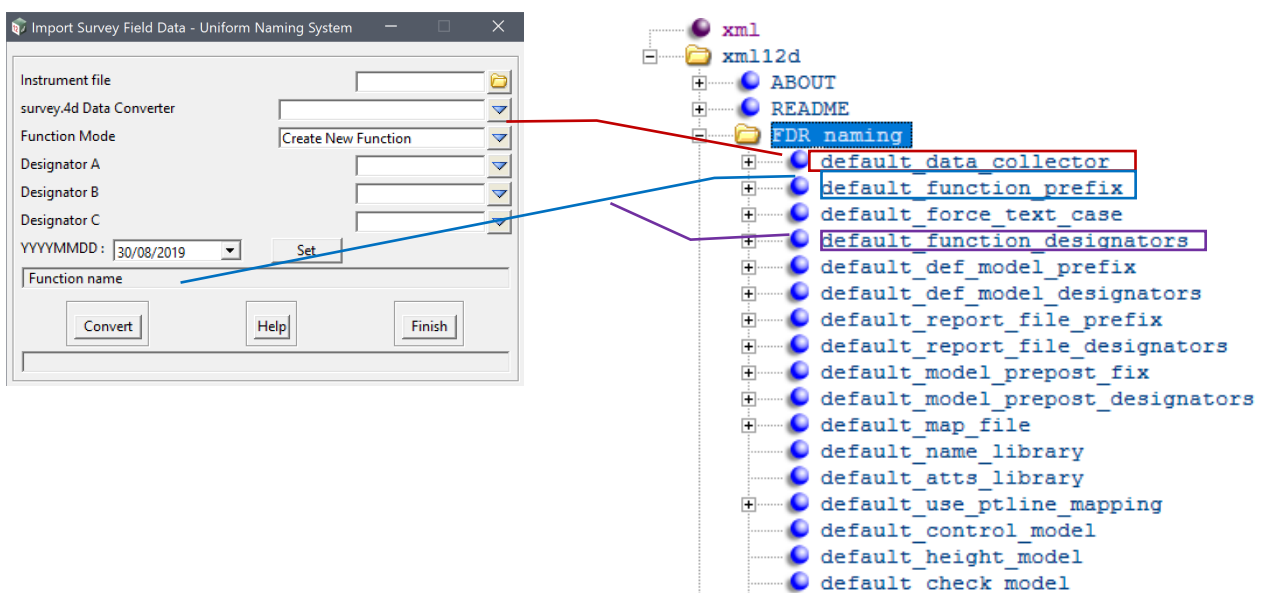
`$project_attribute[AttributePathAndName]`

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.



Macro GUI is modified depending on the file extension of the instrument file. On selection, peek into the file allows us to identify the type of file, if this type exists in the settings, panel is loaded. Otherwise, user can choose their own Data Converter which will change the GUI.

For each converter, settings include the use of designators for names, as well as individual settings on the Survey Data Reduction panel.

## Defaults

+	default_function_prefix	"SDF "
+	default_force_text_case	upper
+	default_function_designators	A B C
+	default_def_model_prefix	"SDF "
+	default_def_model_designators	A B C
+	default_report_file_prefix	"SDF "
+	default_report_file_designators	A B C
+	default_model_prepost_fix	"SDF "
+	default_model_prepost_designators	A B C

4 designators



Where:

**1 = Prefix** – default\_function\_prefix

**2 to 5 =**

**Box\_A** – A

**Box\_B** – B

**Box\_C** – C

**Box\_D** – Date

The order of the A B C D (within ?\_designator XML nodes) determines position of the values or if the value is omitted.

?\_prefix XML nodes, require quotes when the trailing character is space. This is the case for all XML settings.

<ul style="list-style-type: none"> <li>file_types           <ul style="list-style-type: none"> <li>file type               <ul style="list-style-type: none"> <li>file type                   <ul style="list-style-type: none"> <li>name</li> <li>ext</li> <li>data_collector</li> <li>function_prefix</li> <li>function_designators</li> <li>def_model_prefix</li> <li>def_model_designators</li> <li>report_file_prefix</li> <li>report_file_designators</li> <li>model_prepost_fix</li> <li>model_prepost_designators</li> <li>map_file</li> </ul> </li> </ul> </li> </ul> </li> </ul>	<pre> Sokkia 33 sdr SDR33 "SDF " A B C "SDF " A B C "SDF " A B C "SDF " A B C " \$USER_LIB\Survey Data Reduction.mapfile" </pre> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>B C D A</p> <p>A B C D</p> </div>
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Default values can be overwritten by individual values for each file type. Hence allowing different naming conventions for different survey tasks or instruments.

### Survey Data Reduction Settings

Following XML nodes correspond to settings on the Survey Data Reduction panel, allowing full control how the function is created.

<input checked="" type="checkbox"/> use_ptline_mapping	true		
<input checked="" type="checkbox"/> control_model			
<input checked="" type="checkbox"/> height_model			
<input checked="" type="checkbox"/> check_model			
<input checked="" type="checkbox"/> use_GIS_PP	false		
<input checked="" type="checkbox"/> use_join_across_files	true		
<input checked="" type="checkbox"/> use_coord_opcode2	true		
<input checked="" type="checkbox"/> use_allow_BS_azimuth_coord	true		
<input checked="" type="checkbox"/> attach_wildcards			
<input checked="" type="checkbox"/> attach_tolerance	600	<input checked="" type="checkbox"/> lsa_dist_s	5
<input checked="" type="checkbox"/> attach_use_photo2plan_images	false	<input checked="" type="checkbox"/> lsa_dist_ppm	1
<input checked="" type="checkbox"/> trav_use_do_calcs	false	<input checked="" type="checkbox"/> lsa_angle_s	1
<input checked="" type="checkbox"/> trav_code		<input checked="" type="checkbox"/> lsa_azimuth_s	1
<input checked="" type="checkbox"/> trav_adjust_method	none	<input checked="" type="checkbox"/> lsa_decimals	5
<input checked="" type="checkbox"/> trav_net_model		<input checked="" type="checkbox"/> lsa_use_report_error_ell	true
<input checked="" type="checkbox"/> geodetics_projection		<input checked="" type="checkbox"/> lsa_max_no_iterations	10
<input checked="" type="checkbox"/> geodetics_n_values		<input checked="" type="checkbox"/> lsa_stop_coord_tol	0.001
<input checked="" type="checkbox"/> use_explode_4d_strings	false	<input checked="" type="checkbox"/> lsa_use_stop_when_v_inc	false
<input checked="" type="checkbox"/> use_explode_point_strings	true	<input checked="" type="checkbox"/> lsa_output_file	
<input checked="" type="checkbox"/> use_named_pts_as_meas	false	<input checked="" type="checkbox"/> lsa_level_net_output_file	
<input checked="" type="checkbox"/> use_reprompt_all	false	<input checked="" type="checkbox"/> lsa_draw_name	
<input checked="" type="checkbox"/> use_show_check_meas	false	<input checked="" type="checkbox"/> lsa_draw_model	
<input checked="" type="checkbox"/> backsight_prompt_mode	Assume yes	<input checked="" type="checkbox"/> lsa_draw_colour_name	
<input checked="" type="checkbox"/> skip_top_level	Keep	<input checked="" type="checkbox"/> lsa_draw_fstation_style	
<input checked="" type="checkbox"/> att_prefix		<input checked="" type="checkbox"/> lsa_draw_fstation_size	
<input checked="" type="checkbox"/> use_allow_duplicate_atts	false	<input checked="" type="checkbox"/> lsa_draw_fstation_colour_name	
<input checked="" type="checkbox"/> use_preserve_att_type	true	<input checked="" type="checkbox"/> lsa_draw_error_ell_scale	1000
<input checked="" type="checkbox"/> explode_string_att_prefix		<input checked="" type="checkbox"/> lsa_draw_symbol_given_pts	1
<input checked="" type="checkbox"/> use_explode_vertex2string	false	<input checked="" type="checkbox"/> lsa_draw_symbol_calc_pts	1
<input checked="" type="checkbox"/> use_explode_line2string	false	<input checked="" type="checkbox"/> show_box_a	yes
<input checked="" type="checkbox"/> job_swing		<input checked="" type="checkbox"/> show_box_b	no
<input checked="" type="checkbox"/> use_curvature_refraction	false	<input checked="" type="checkbox"/> show_box_date	yes
		<input checked="" type="checkbox"/> value_box_a	ha
		<input checked="" type="checkbox"/> value_box_b	
		<input checked="" type="checkbox"/> value_box_date	now()

Once the file is converted and the reduction function is generated, users can modify specific settings using the built-in tools.

For more information, email us at  
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