Tectonic Reconstruct *version 1.2 Beta 1*

GEEDOP, LLC

Reference

Version: 1.2 Beta 1

Date: August 6, 2012

Install Files: TectonicReconstruct.esriAddIn

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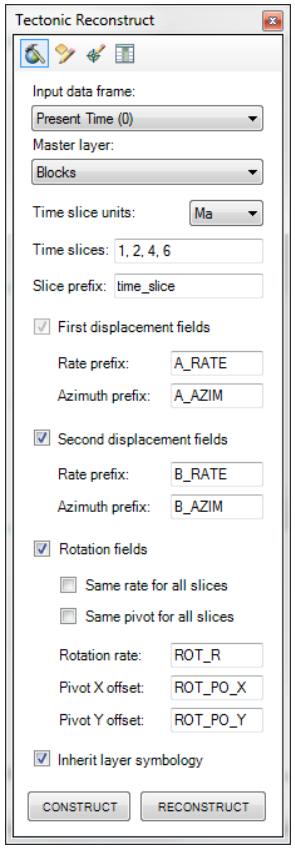
Change log:

- A new “Rotation fields” section is included on the “Slice Construction” panel to allow for the rotation of polygon and polyline features during ‘Constructions’ and ‘Reconstructions’.
- Added “Edit Rotation” panel to edit the rotation rate and rotation pivot offset (X and Y) of features in any layer.
    - New “Set Rotation Rate” tool.
    - New “Set Rotation Pivot Offset” tool.
- Added “Add Required Fields” panel that checks for required fields based on selected “Slice Construction” panel parameters and generates them on the Master layer when missing.
- Fixed problem where field prefixes entered by user were ignored and the default values: RATE_A, RATE_B, AZIM_A and AZIM_B were hardcoded for certain operations.
- Fixed a problem where a 'Reconstruction' did not displace features in subsequent slices if a feature had null rate or azimuth values.

Requirements: ArcGIS Desktop 10.0

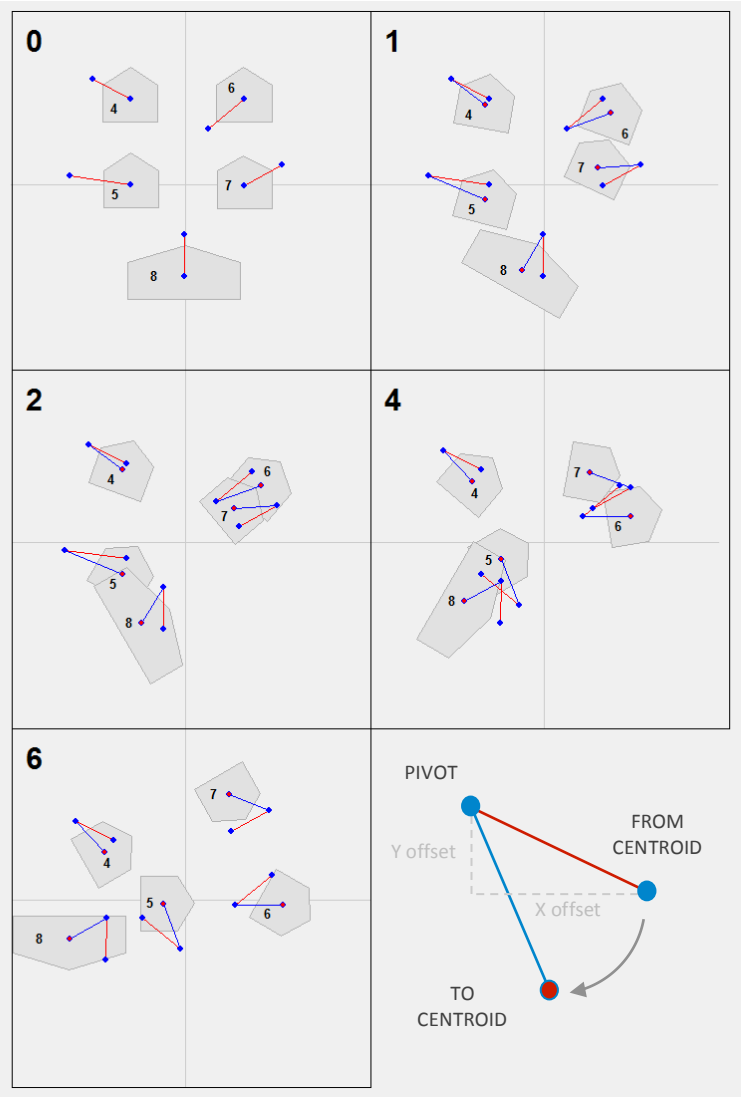
Document update: August 6, 2012

1. CONSTRUCT – Rotation Method: **Normal**



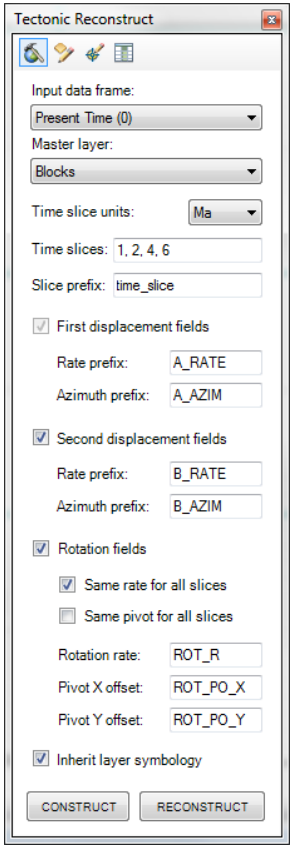
Required fields (12)

ROT_R_1
ROT_PO_X_1
ROT_PO_Y_1
ROT_R_2
ROT_PO_X_2
ROT_PO_Y_2
ROT_R_4
ROT_PO_X_4
ROT_PO_Y_4
ROT_R_6
ROT_PO_X_6
ROT_PO_Y_6



OID	ROT_R_1	ROT_PO_X_1	ROT_PO_Y_1	ROT_R_2	ROT_PO_X_2	ROT_PO_Y_2	ROT_R_4	ROT_PO_X_4	ROT_PO_Y_4	ROT_R_6	ROT_PO_X_6	ROT_PO_Y_6
4	0.000010	-412622.958104	212242.216763	0.000010	-412622.958104	212242.216763	0.000010	-412622.958104	212242.216763	0.000010	-412622.958104	212242.216763
5	0.000015	-673570.764889	91799.523082	0.000015	-673570.764889	91799.523082	0.000015	411939.697746	-336641.941100	0.000015	411939.697746	-336641.941100
6	0.000020	-393697.247914	-330658.517761	0.000020	-393697.247914	-330658.517761	0.000020	-393697.247914	-330658.517761	0.000020	-393697.247914	-330658.517761
7	0.000025	412887.652341	227081.641209	0.000025	412887.652341	227081.641209	0.000025	412887.652341	227081.641209	0.000025	412887.652341	227081.641209
8	0.000030	5844.529199	461156.620082	0.000030	5844.529199	461156.620082	0.000030	5844.529199	461156.620082	0.000030	5844.529199	461156.620082

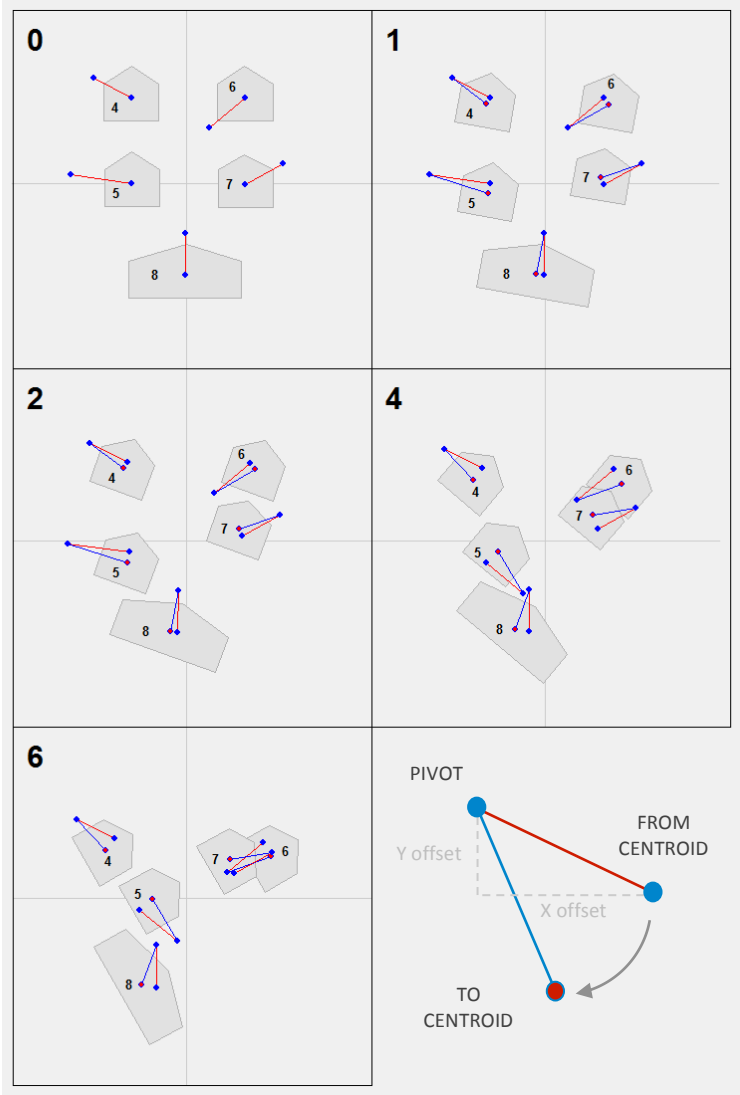
2. CONSTRUCT – Rotation Method: **Same Rate for All Slices**



Required fields (9)

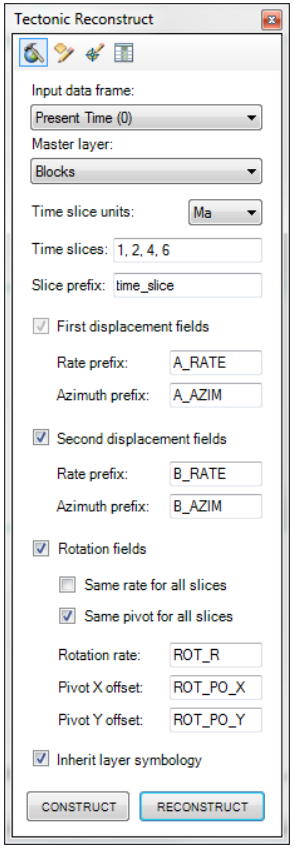
The field **ROT_R_S** is required in the Master layer, plus the following slice-specific fields:
ROT_PO_X_1
ROT_PO_Y_1
ROT_PO_X_2
ROT_PO_Y_2
ROT_PO_X_4
ROT_PO_Y_4
ROT_PO_X_6
ROT_PO_Y_6

"Same rate for all slices" selected



OID	ROT_PO_X_1	ROT_PO_Y_1	ROT_PO_X_2	ROT_PO_Y_2	ROT_PO_X_4	ROT_PO_Y_4	ROT_PO_X_6	ROT_PO_Y_6	ROT_R_S
4	-412622.958104	212242.216763	-412622.958104	212242.216763	-412622.958104	212242.216763	-412622.958104	212242.216763	0.000010
5	-673570.764889	91799.523082	-673570.764889	91799.523082	411939.697746	-336641.941100	411939.697746	-336641.941100	0.000010
6	-393697.247914	-330658.517761	-393697.247914	-330658.517761	-393697.247914	-330658.517761	-393697.247914	-330658.517761	0.000010
7	412887.652341	227081.641209	412887.652341	227081.641209	412887.652341	227081.641209	412887.652341	227081.641209	0.000010
8	5844.529199	461156.620082	5844.529199	461156.620082	5844.529199	461156.620082	5844.529199	461156.620082	0.000010

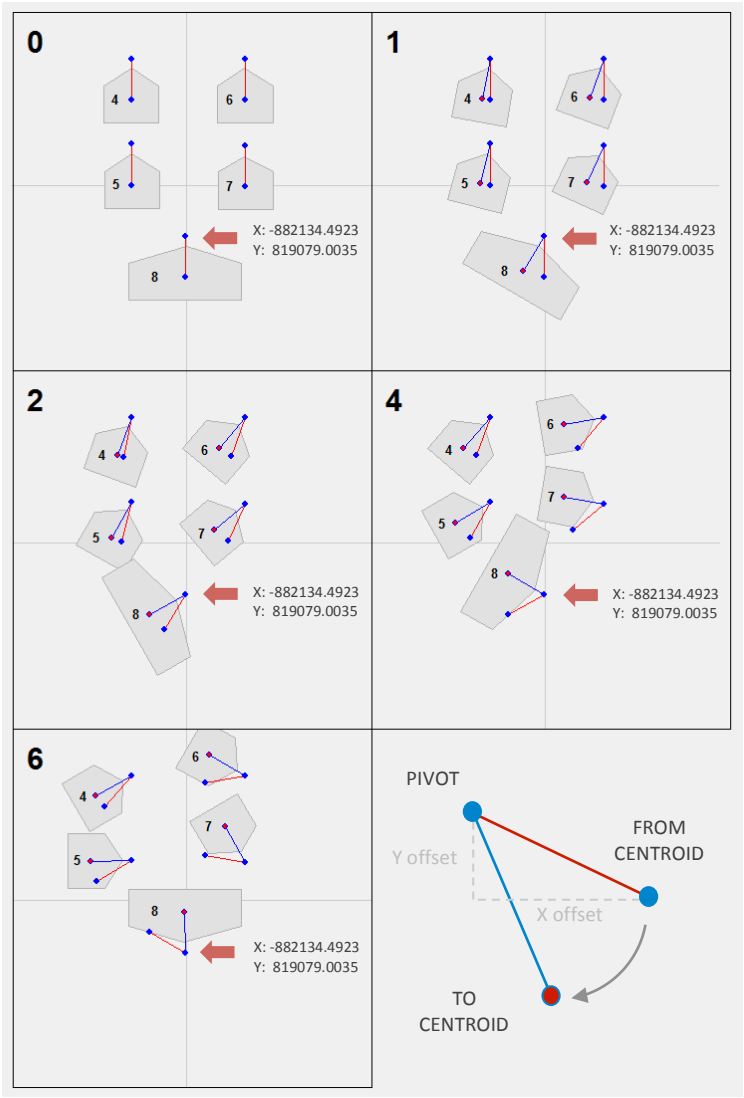
3. CONSTRUCT – Rotation Method: **Same Pivot for All Slices** **(DEFAULT)**



Required fields (6)

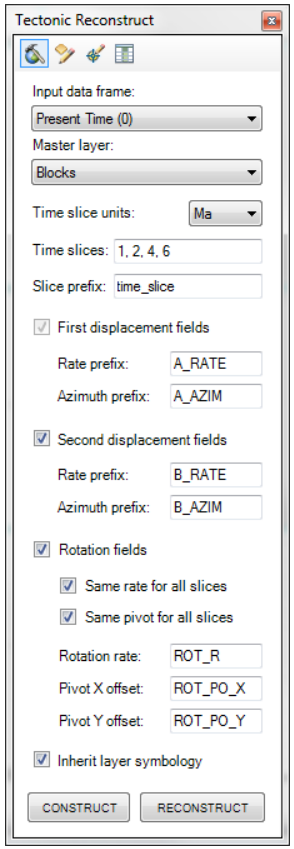
The fields **ROT_PO_X_S** and **ROT_PO_Y_S** are required in the Master layer, plus the following slice-specific fields:
ROT_R_1
ROT_R_2
ROT_R_4
ROT_R_6

"Same pivot for all slices" selected



OID	ROT_R_1	ROT_R_2	ROT_R_4	ROT_R_6	ROT_PO_X_S	ROT_PO_Y_S
4	0.000010	0.000010	0.000010	0.000010	-1000.373233	449153.152082
5	0.000015	0.000015	0.000015	0.000015	-1000.373233	449153.152082
6	0.000020	0.000020	0.000020	0.000020	-1000.373233	449153.152082
7	0.000025	0.000025	0.000025	0.000025	-1000.373233	449153.152082
8	0.000030	0.000030	0.000030	0.000030	-1000.373233	449153.152082

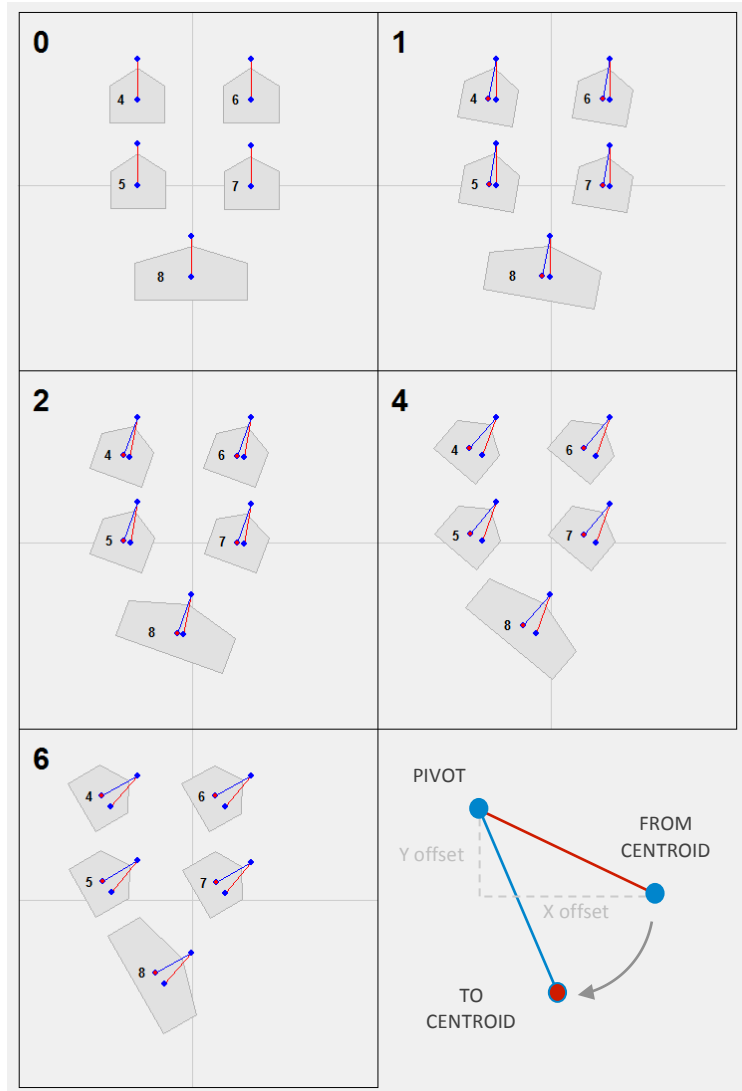
4. CONSTRUCT – Rotation Method: **Same Rate & Pivot for All Slices**



Required fields (3)

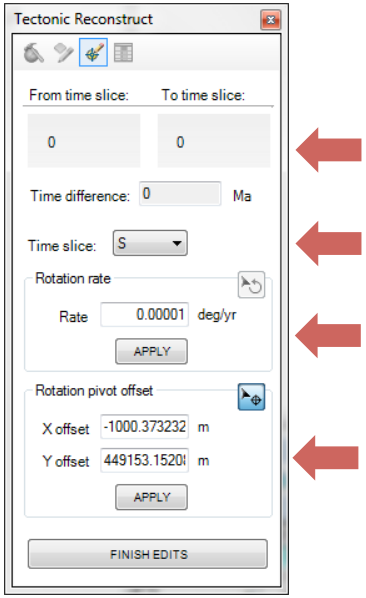
ROT_R_S
ROT_PO_X_S
ROT_PO_Y_S

Both options selected



OID	ROT_PO_X_S	ROT_PO_Y_S	ROT_R_S
4	-1000.373233	449153.152082	0.000010
5	-1000.373233	449153.152082	0.000010
6	-1000.373233	449153.152082	0.000010
7	-1000.373233	449153.152082	0.000010
8	-1000.373233	449153.152082	0.000010

5. EDIT ROTATION – Option 1: **Editing the Master layer**

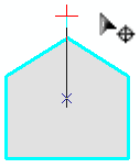


The Master layer (0) is dropped on both panels

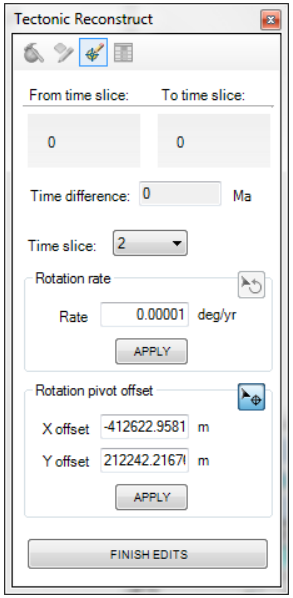
The "time slice S" is available when either the "Same rate for all slices" or "Same pivot for all slices" options are selected on the "Slice Construction" panel

"Slice Construction" panel "Same rate for all slices" checked

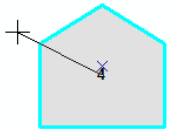
"Slice Construction" panel "Same pivot for all slices" checked

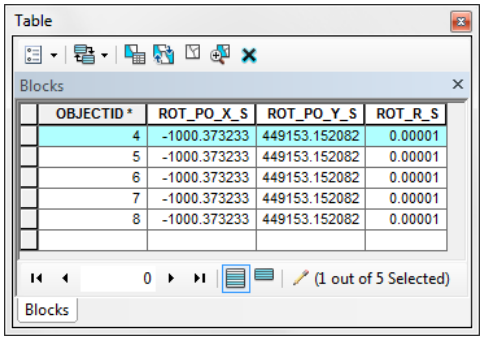


Use the "Set Rotation Pivot Offset" tool to move the pivot's location



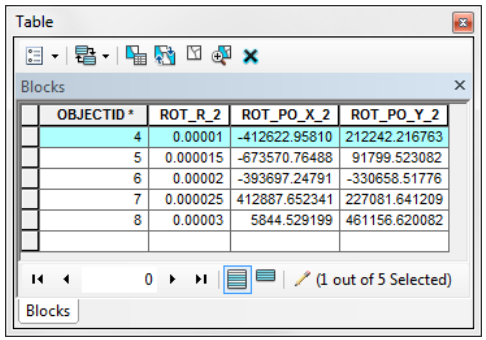
Mode: edit field values for time slice "2" on the Master layer





OBJECTID *	ROT_PO_X_S	ROT_PO_Y_S	ROT_R_S
4	-1000.373233	449153.152082	0.00001
5	-1000.373233	449153.152082	0.00001
6	-1000.373233	449153.152082	0.00001
7	-1000.373233	449153.152082	0.00001
8	-1000.373233	449153.152082	0.00001

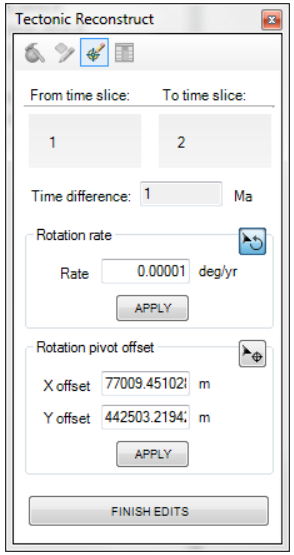
Fields ending in "S" from the Master layer "Blocks" are edited with the above parameters set



OBJECTID *	ROT_R_2	ROT_PO_X_2	ROT_PO_Y_2
4	0.00001	-412622.95810	212242.216763
5	0.000015	-673570.76488	91799.523082
6	0.00002	-393697.24791	-330658.51776
7	0.000025	412887.652341	227081.641209
8	0.00003	5844.529199	461156.620082

Fields ending in "2" from the Master layer "Blocks" are edited with the above parameters set

6. EDIT ROTATION – Option 2: **Editing a Slice layer**

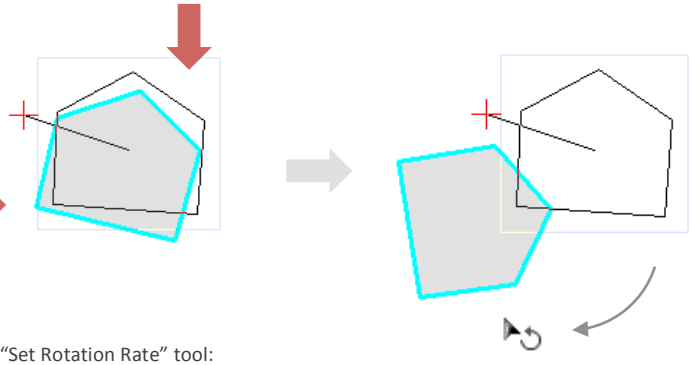


Works like the "Edit Displacements" panel

Use the "Set Rotation Rate" tool to rotate the feature on the map

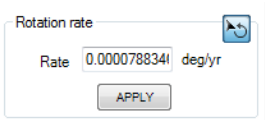
The "ghost" of the same feature in the previous time slice

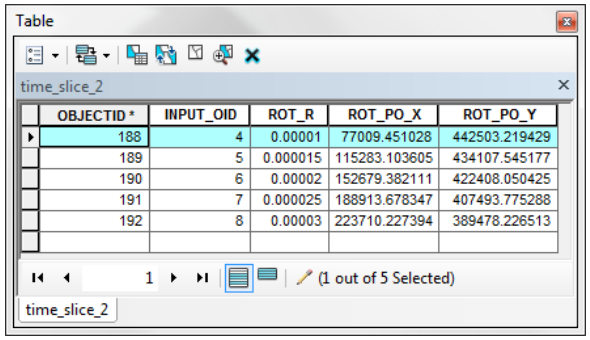
The current feature



Using the "Set Rotation Rate" tool:

- Select a feature with a single click
- Click again around the feature and drag to modify its rotation
- The "Rotation Rate" is calculated automatically when you "unclick"

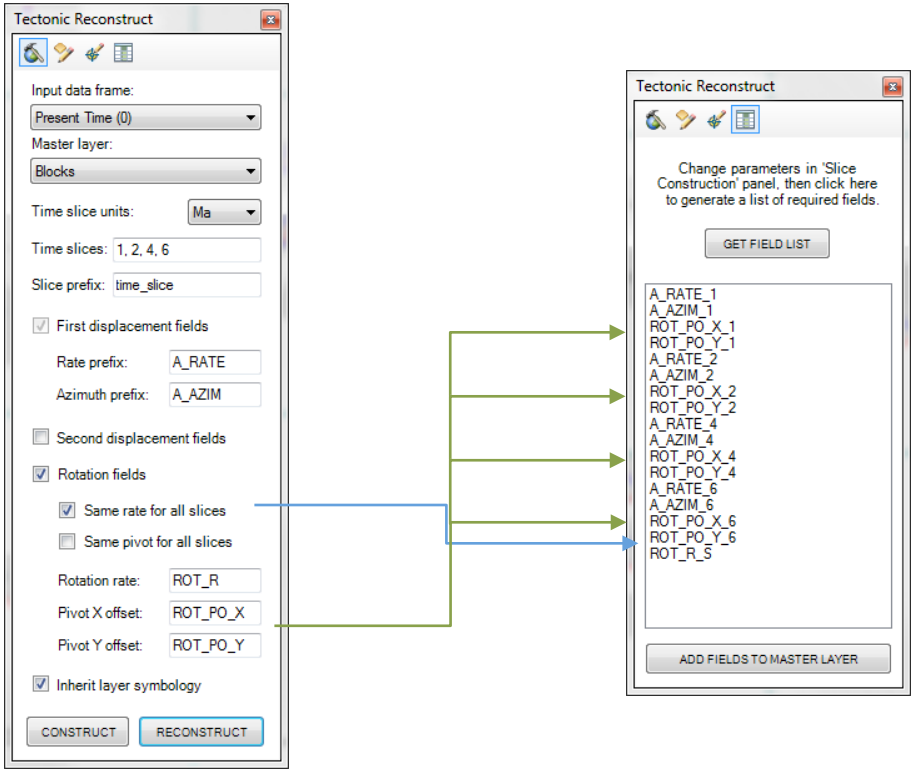




OBJECTID *	INPUT_OID	ROT_R	ROT_PO_X	ROT_PO_Y
188	4	0.00001	77009.451028	442503.219429
189	5	0.000015	115283.103605	434107.545177
190	6	0.00002	152679.382111	422408.050425
191	7	0.000025	188913.678347	407493.775288
192	8	0.00003	223710.227394	389478.226513

The 3 fields edited (from the right) when modifying the above parameters

7. RECONSTRUCT

The RECONSTRUCTION works the same way for rotation as it does for displacements. Edits on one time slice “cascade” to subsequent time slices.

8. ADD REQUIRED FIELDS