



# FOUNDRY

imagination engineered





**Foundry**

**OTIO TSC Proposal**

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**Transform**



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# Transforms

## Overview

Transform effects are a common feature in applications supporting OTIO.

The specific implementations vary between applications, however, there are many features that they share.

The addition of a standardised transform object in the OTIO schema will facilitate the transposition of transform effects between applications.

Intended for Preview (Conform and Review purposes)

# Suggested Schema for Transform Effects

A proposed schema for the transform effect is shown below.

It contains a minimal set of parameters common to transform effects used in applications that support OTIO.

```
{  
  "OTIO_SCHEMA": "Transform.1",  
  "metadata": {},  
  "center_x": 0.5,  
  "center_y": 0.5,  
  "rotate": 0.0,  
  "scale_x": 1.0,  
  "scale_y": 1.0,  
  "skew_x": 0.0,  
  "skew_y": 0.0,  
  "translate_x": 0.0,  
  "translate_y": 0.0,  
  "filter": "cubic"  
}
```



# Transform Effect Fields

The values of each field are normalised between 0.0 and 1.0, so 'center\_x' and 'center\_y' would default to 0.5 for example.

Rotation is in degrees, with 0° being the default.

Scale implies the horizontal or vertical inversion, with a negative value meaning the image is inverted along whichever axis is negative.

The filter field contains a string that can be set to one of a predefined set of filters used for remapping pixels .



# Transform Order

Transformation matrices, which include translations, rotations, scalings, and skews, are generally not commutative. This means that changing the order of multiplication changes the resulting transformation.

Therefore, in order to correctly re-create a transform, the order in which a transformation matrix is composed matters, and should be defined by the schema. Our order:

- Translate by center translation
- Translate by translation
- Rotate
- Skew
- Scale
- Subtract center translation