

The Compute Module

Does arithmetic on the point-by-point Data component of a field, and outputs the modified field

Transformation

The 3 (in this case) inputs

The output expression, in this case, a 3-vector with a newly-created Z value

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The Compute Module

Does arithmetic on the point-by-point Data component of a field, and outputs the modified field. But, what if you want to do arithmetic on a different component?

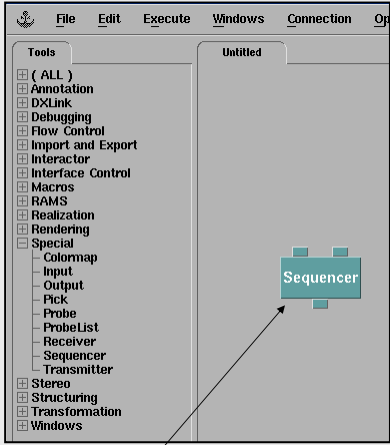
Structuring

The *Mark* module renames the Data component to something temporary, and renames a component you select to "Data". *Compute* then acts on this component.

The *Unmark* module changes the component names back to what they were originally.

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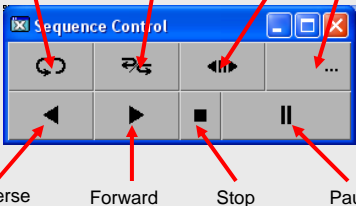
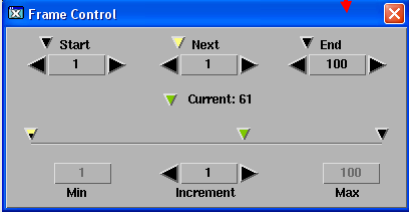


Special

*Sequencer outputs a series of integers. You set the minimum and maximum using **Edit→Configuration**.*

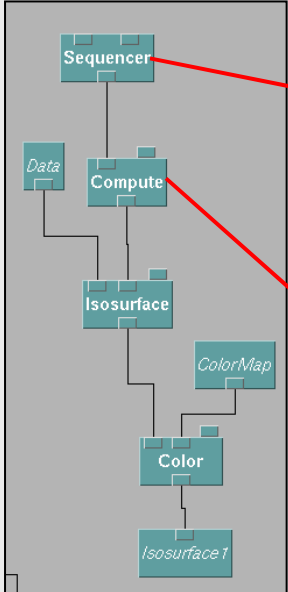
Animation: The Sequencer Module

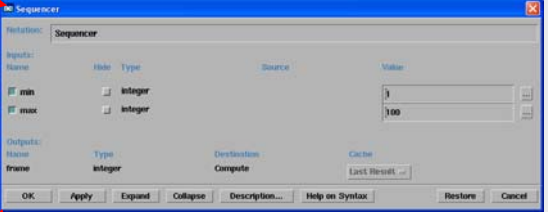
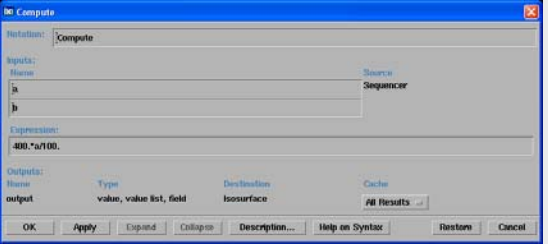
Forward-Forward Loop
Forward-Reverse Loop
Single-step mode

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The Sequencer Module: Usually Used with the Compute Module to turn the Integer into an Animation Parameter

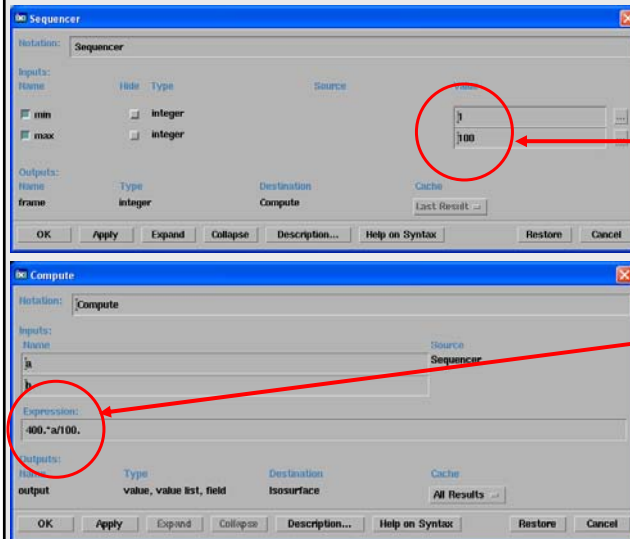


*In this case, **Compute** turns an integer into a scalar to be used to animate an isovalue*

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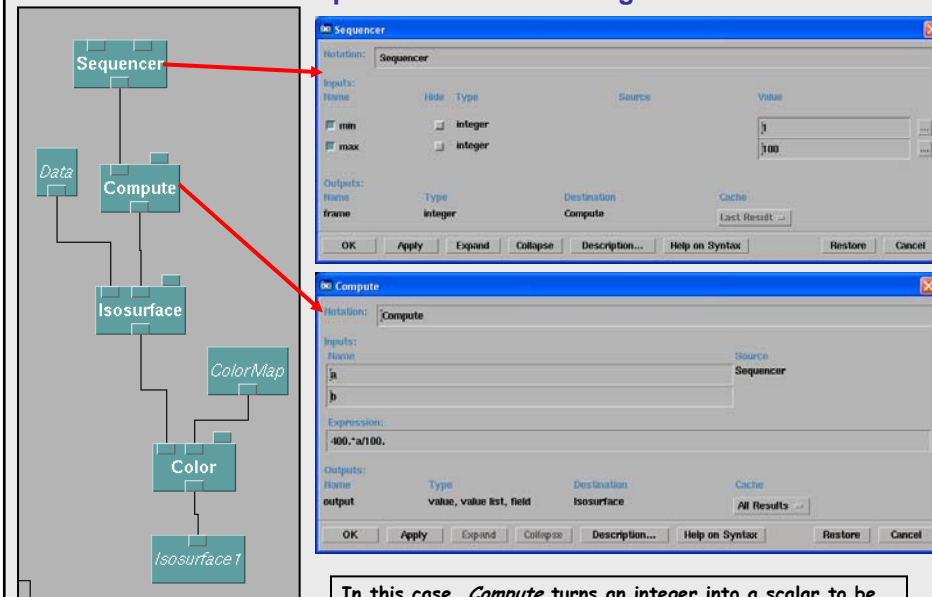
The Sequencer Module: "Percent Units Strategy"



A good Sequencer Strategy:
Run the sequence from 1-100
(or 0-100).

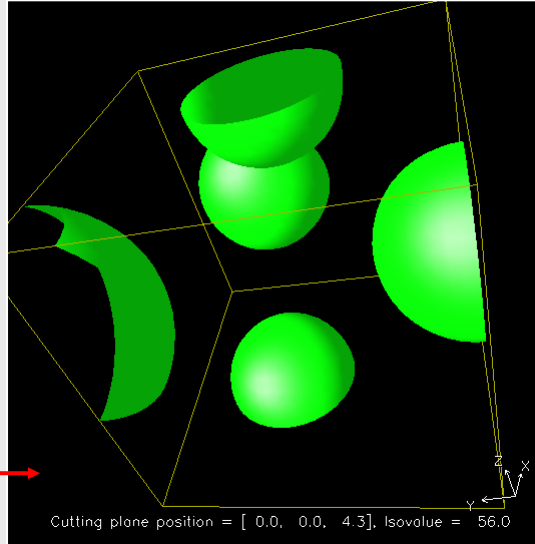
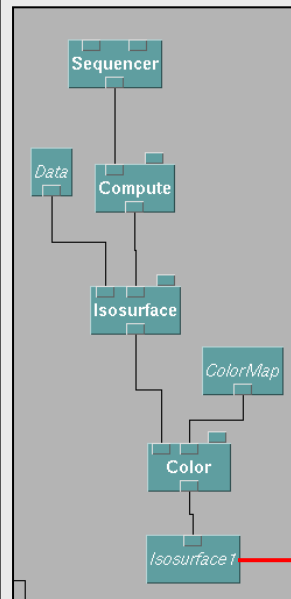
Then, base the *Compute*
quantity on these "Percent
Units".

The Sequencer Module: Setting a Scalar Isovalue



In this case, *Compute* turns an integer into a scalar to be
used to animate the isovalue

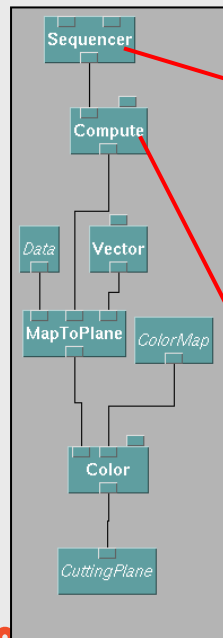
The Sequencer Module: Setting a Scalar Isovalue



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The Sequencer Module: Setting a Vector to act as a Plane Location

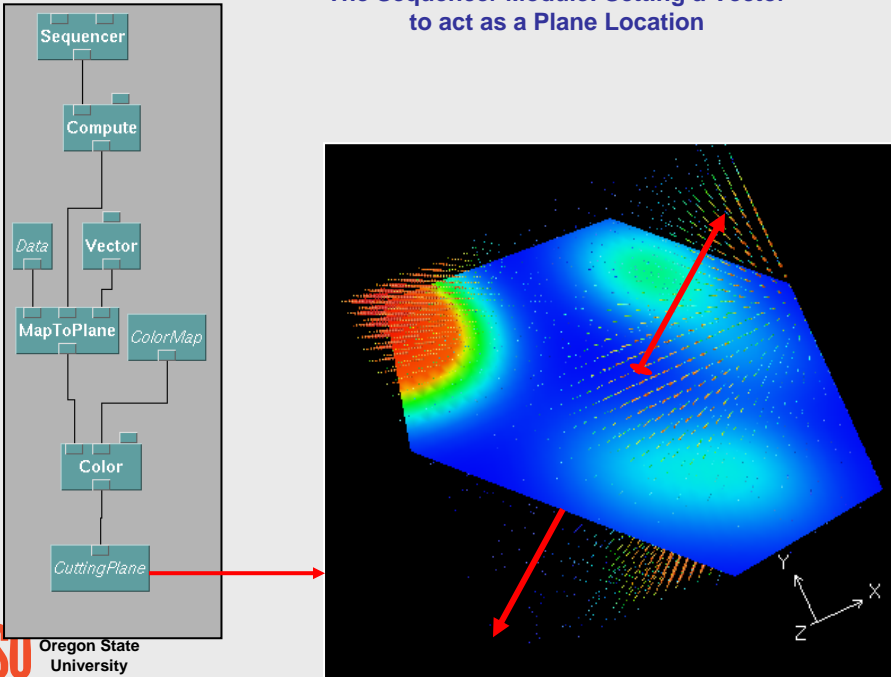


In this case, *Compute* turns an integer into a 3-element vector to be used to animate the position of the cutting plane

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The Sequencer Module: Setting a Vector to act as a Plane Location

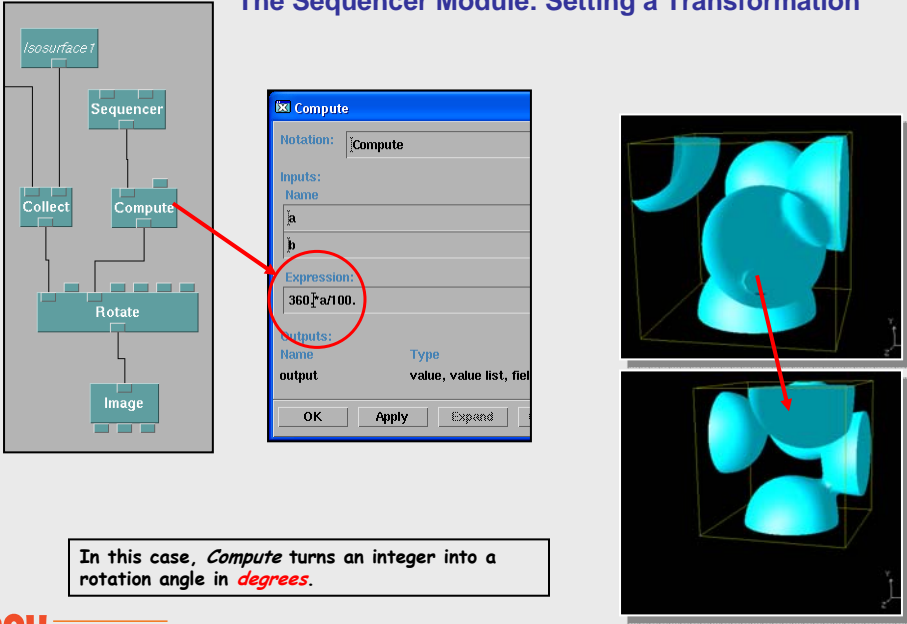


The diagram on the left shows a Sequencer module workflow. The Sequencer module is connected to a Compute module. The Compute module has two inputs: Data and Vector. The Data input is connected to a MapToPlane module, which is also connected to a ColorMap module. The ColorMap module is connected to a Color module, which is then connected to a CuttingPlane module. A red arrow points from the CuttingPlane module to the 3D visualization on the right.

The 3D visualization on the right shows a blue, semi-transparent plane in a 3D coordinate system (X, Y, Z). The plane is colored with a gradient from blue to red, indicating a scalar field. A red arrow points from the CuttingPlane module to the plane, indicating its location.

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The Sequencer Module: Setting a Transformation



The diagram on the left shows a Sequencer module workflow. The Sequencer module is connected to a Collect module, which is connected to a Compute module. The Compute module is connected to a Rotate module, which is then connected to an Image module. A red arrow points from the Compute module to the dialog box on the right.

The dialog box on the right is titled "Compute". It has a Notation field set to "Compute". The Inputs section has two inputs: "a" and "b". The Expression field is set to $360 \cdot a / 100$. The Outputs section has one output: "output", which is of type "value, value list, field". The dialog box has OK, Apply, and Expand buttons.

The two 3D visualizations on the right show a blue, semi-transparent sphere in a 3D coordinate system (X, Y, Z). The top visualization shows the sphere in its original position. The bottom visualization shows the sphere after a rotation, indicated by a red arrow.

In this case, *Compute* turns an integer into a rotation angle in *degrees*.

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Why Does the Rotation Occur around the Edge of the Cube, not about its Center?

Rotation and Scaling *always occur about the origin*. To change this to the center of the volume, translate the volume to the origin, perform the rotation or scale, and then translate it back.

Translate by $[-15, -15, -15]$

Translate by $[15, 15, 15]$

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Writing Out a MIFF Animation File

convert -quality 100 sample2.miff sample2.gif

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