

Visit hands-on tutorial for PRACE SoHPC 2013 at EPCC

This tutorial is a compilation of the tutorial made by Brandt Westing from the Texas Advanced Computing Center, University of Texas at Austin, and modified for newer version of **VisIt** 2.6.2.

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Example data **noise.silo** is part of **VisIt** data samples.

To be able to run **VisIt** at EPCC prepare the PATH environment by typing:

```
export PATH=/opt/visit-2.6.2/bin:${PATH}
```

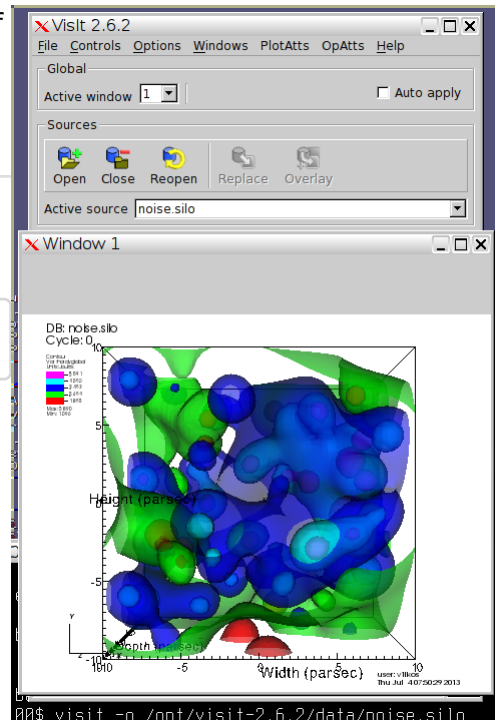
Images are shown reduced to preserve spacing. If interested click on them to compare your screen with natural size.

Contours of a scalar variable

1. Open **VisIt** and **noise.silo** with a single command or use File -> Open

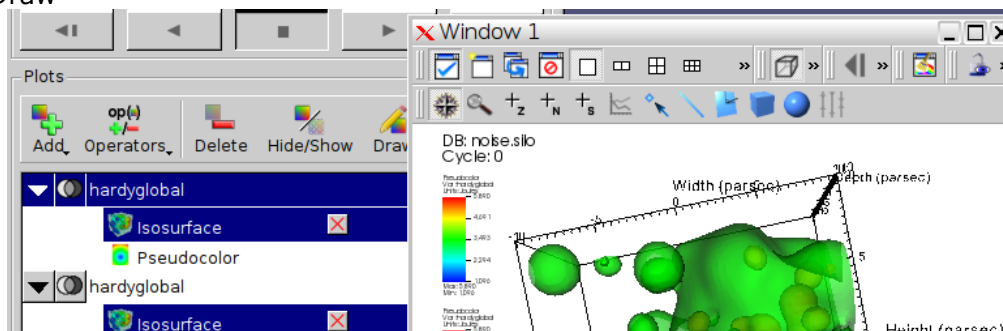
```
visit -o /opt/visit-2.6.2/data/noise.silo /noise.silo
```

2. Type **Ctrl+I** to display info about the data opened and then close the window
3. Click Add -> Contour -> hardyglobal
4. Click Draw
5. Double click on Contour (or Right-click -> Edit plot description)
6. Under select by choose -> N Levels enter 5
7. Change the opacity levels
8. Click Apply
9. Click Dismiss
10. Click Delete



Pseudocolor and Isosurfaces for a scalar variable

1. Click Add -> Pseudocolor -> hardyglobal
2. Click Draw
3. Click Operator -> Slicing -> Isosurface
4. Click Draw
5. Click Arrow to



expand

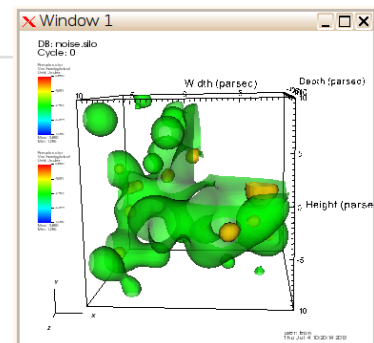
6. Double-Click Isosurface
7. Under **Select by** choose ->Percent(s) enter 40
8. Click Apply
9. Rotate with a mouse

We will add additional isosurface at 80%

1. Double-Click -> Pseudocolor
2. Change Opacity
3. Click Apply & Dismiss
4. Click Add -> Pseudocolor -> hardyglobal
5. Click Operator -> Slicing -> Isosurface
6. Click Arrow to expand
7. Double-Click Isosurface
8. Disable **Apply operators to all plots** on GUI window
9. Under **Select by** choose ->Percent(s) enter 80
10. Click Apply -> Dismiss -> Draw

Clip Isosurfaces

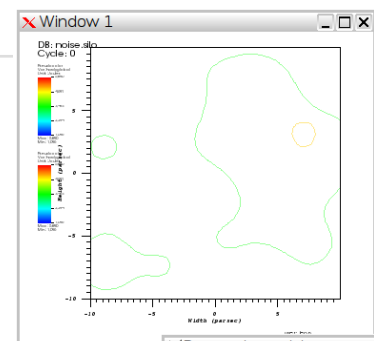
1. Click and enable -> apply operators and selection to all plots
2. Click Operators -> Selection -> Clip
3. Click Draw
4. Double-Click -> Clip
5. Click Plane 2
6. Click Apply & Dismiss
7. Click x (to delete)
8. Click Draw



Slice Isosurfaces

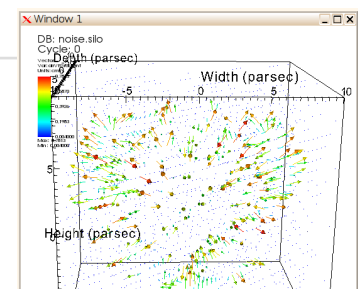
Continue from previous example.

1. Click Operators -> Slicing -> Slice
2. Click Draw
3. Double-Click -> Slice
4. Click Z-Axis & Project to 2D
5. Click Apply
6. Click Dismiss



Create Glyph of Vector

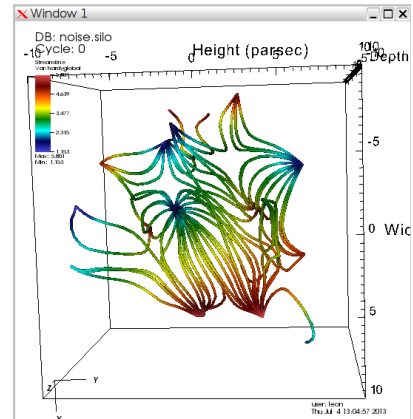
1. Unselect Apply operators/ selection to all plots
2. Click Add -> Vector -> airVfGradient
3. Click Draw
4. Double click on Vector
5. Under N vectors enter 4000
6. Click Apply



7. Click Dismiss
8. Click **Hide/Show** to hide.

Create Streamlines

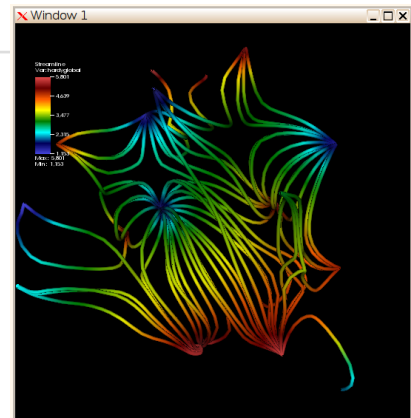
1. Click Add -> Streamline -> grad
2. Double click on Streamline
3. Under Source Type Select Plane
4. Enter:
 - o Samples in X: 8
 - o Samples in Y: 8
 - o Streamline Direction Both
5. Click Apply
6. Click Dismiss
7. Click Draw
8. Double click on Streamline
9. Click on Appearance
10. Under draw as select Tubes
11. Click Apply
12. Under Data Value select Variable
13. Under Variable select Scalars -> hardyglobal
14. Click Apply
15. Under Color -> Color table, click Default Choose hot_desaturated
16. Click Apply & Dismiss



Background Color and Legend

Continue from previous example.

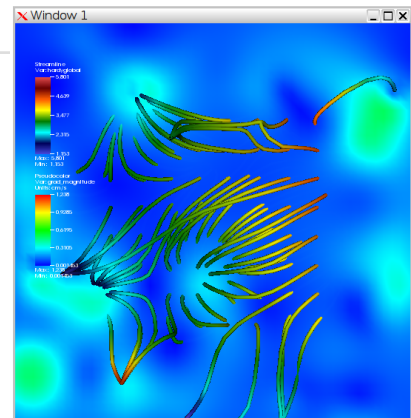
1. Click on Controls -> Annotation (Ctrl+N)
2. Click on Colors
3. Select Black for Background and White for Foreground
4. Click Apply
5. Click on General
6. Click **No annotations**
7. Click legend
8. Click Apply & Dismiss
9. Hide Pseudocolor Plots



Create Slice

Continue from previous example.

1. Click Add -> Pseudocolor -> grad_magnitude
2. Click Draw
3. Click Operator -> Slicing -> Slice
4. Double click on Slice
5. Select Z Axis
6. Unselect project to 2D
7. Click Apply & Dismiss
8. Click Draw
9. Click **Hide/Show** on Streamline to show plots together
10. Hide everything



Create Volume Rendering

Continue from previous example.

1. Click Add -> Volume -> grad_magnitude
2. Click Draw (This might take some time but we continue anyway)
3. Double click on Volume
4. Change 1D Transfer Function graph by freely drawing in Opacity and removing lower range intensities.
5. Click Apply
6. Click Dismiss
7. Show previous plots and explore results by rotating, zooming, switching ...

