



VisIVOWeb: a web solution for large-scale astrophysical visualization

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VisIVO Projects



✦ VisIVODesktop

✦ VisIVOServer

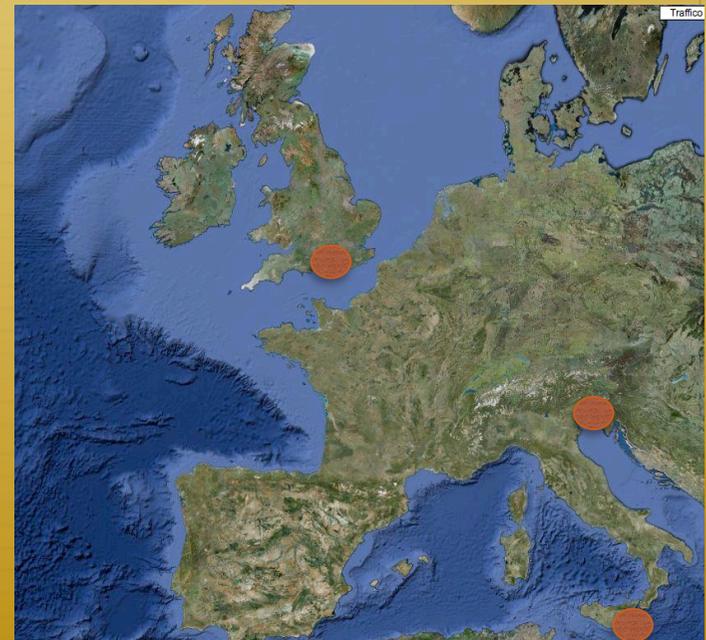
✦ VisIVOWeb

VisIVOWeb

<http://visivoweb.oact.inaf.it>

- ✦ VisIVOWeb is part of a joint collaboration between Italian Institute for Astrophysics (INAF), CINECA supercomputing center and University of Portsmouth
- ✦ VisIVOWeb aims at providing our community with multidimensional online Visualization tool.
- ✦ VisIVOWeb is a network of portals

- ✦ [INAF CT Italy](#)
- ✦ [INAF TS Italy](#)
- ✦ [University of Portsmouth UK](#)



VisIVOWeb



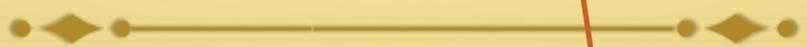
- ✦ The primary goal of VisIVOWeb is:
to aid the scientist understanding complex data.

Outcomes of simulations become larger keeping up with the constant increase of computational power. (i.e. 12GB each timestep -> 512M Body Simulation).

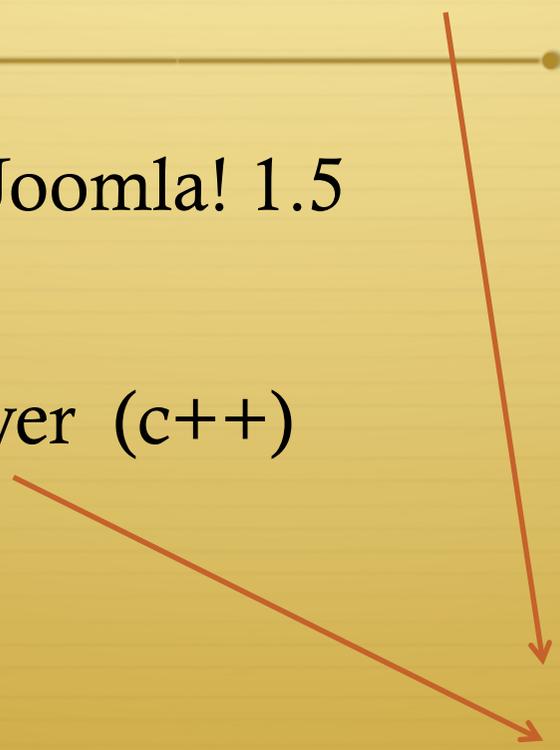
- ✦ **Images**

- ✦ **Animations**

VisIVOWeb

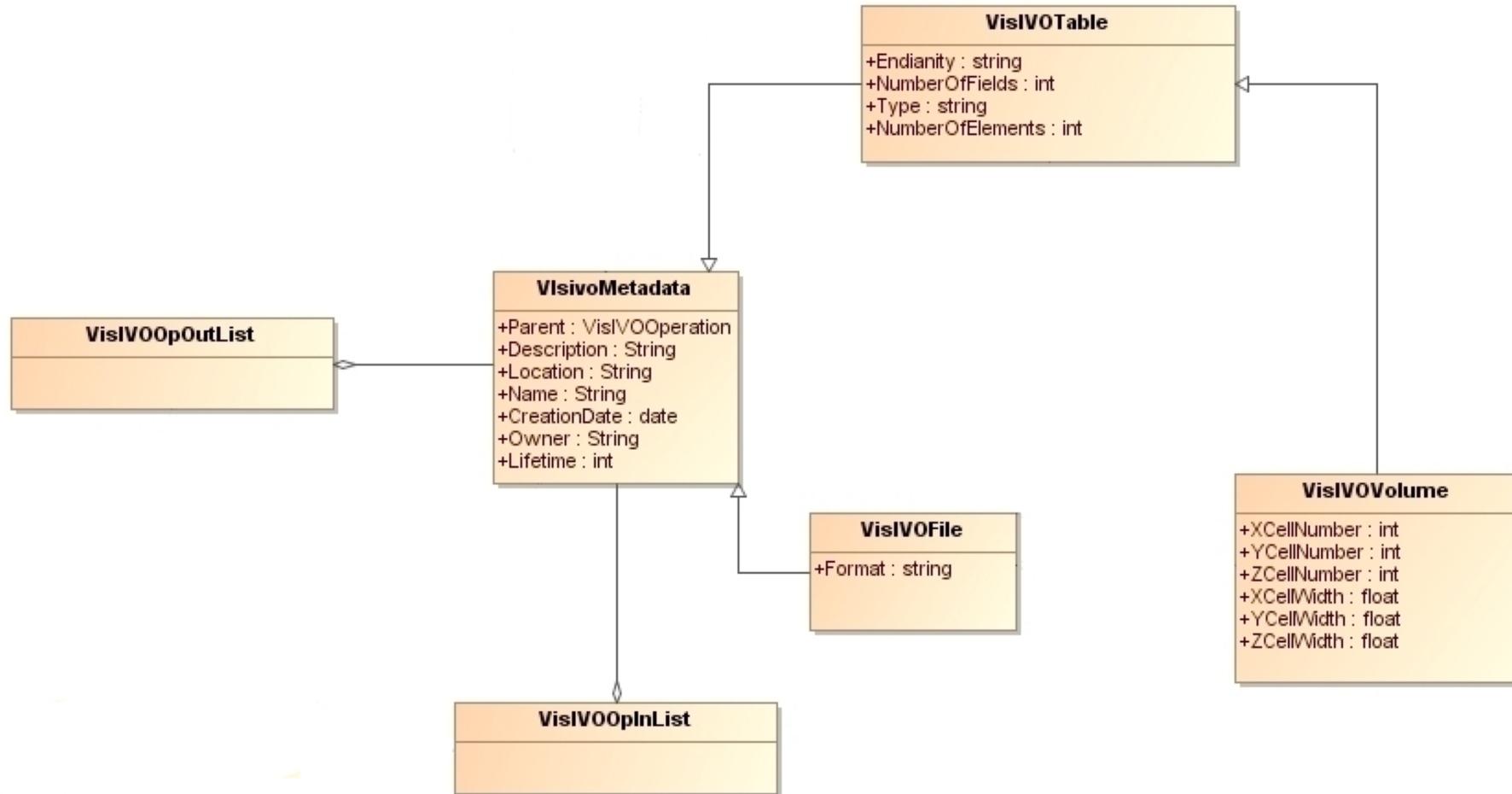


- ✦ PHP 5 -> Joomla! 1.5
- ✦ Mysql
- ✦ VisIVOServer (c++)
 - ✦ VTK
 - ✦ Splotch
- ✦ JAVA

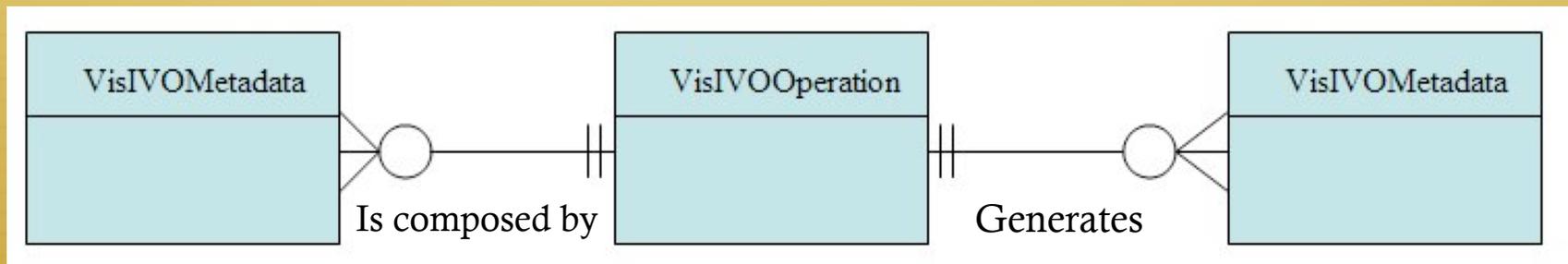


Open Source Projects
GPL V2
SourceForge

VisIVOWeb



VisIVOWeb



VisIVOWeb: Authentication

✦ You can connect to VisIVOWeb in two ways:

✦ **Registered user**

✦ **Anonymous**

✦ Each user, both the authorized one and the anonymous, has its own staging area and he can upload and manage its own data: images, tables and movies without any interference with other user data.

✦ Anonymous : 4 day since the last access.

At the end of this period all data will be removed from the system.

Registered user: 2 months since the last access

(some warning e-mails will be sent to the user before the end of the account lifetime)

VisIVOWeb: importing a dataset

You can import a dataset in VisIVOWeb in 4 ways:

- ✦ From your computer (synchronous)
- ✦ Using a remote Protocol FTP HTTP (asynchronous)
- ✦ Using your Astrogrid VOSpace account.
- ✦ Using VisIVOWebConnect

VisIVOWeb Connect



This technology allows a web archive to import a data file in a VisIVOWeb Portal.

- ✦ The dataset must to be accessible via its URL

VisIVOWeb Connect

The service can be invoked using this syntax:

- ✦ `http://VisIVOWeb Portal?url=URL&data_file=votable`
- ✦ Accepted data files: votable, fly, fits, ascii, csv, GADGET2

`visivoweb.oact.inaf.it/visivoweb/VisIVOWebConnect.php`
`palantir7.oats.inaf.it/visivoweb/VisIVOWebConnect.php`
`visivo.port.ac.uk/visivoweb/VisIVOWebConnect.php`



VisIVOWeb: a 10 minutes demo

VisIVOWeb Interface

Visualisation Interface to the Virtual Observatory

VisIVO Web

Upload your data View your images Home About Us

Home >> Return to Application

Navigation Tree

View Splotch View

open all | close all

- AnonymousE5AS
 - Demo Data
 - clusterfields4.ascii
 - VS_clusterfields4_demo.bin**
 - sdss.csv
 - clusterfield4.bin
 - v5.xml
 - ciccio.float
 - User Data

View Splotch View

Dynamic movie

ASCII CSV VOTABLE BINARY

FLY FITS GADGET HDF5

RAW GRID RAW BINARY TVO XML CHECK JOBS

ASCII files are expected to be in tabular format. The file can contain N variables organised in columns. Each column represent a different array. Columns are separated by blank characters (space, tab, etc.). In the first raw the names of the variables are stored.

ASCII

Table Volume

Description :

Local File Sfoglia

VisIVOWeb Interface

Visualisation Interface to the Virtual Observatory

VisIVO Web

Upload your data View your images Home About Us

Home >> Return to Application

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ASCII

Table Volume

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Local File

VisIVOWeb Interface

The screenshot displays the VisIVOWeb interface. At the top, the logo "VisIVO Web" is shown with the tagline "Visualisation Interface to the Virtual Observatory". Below the logo are navigation buttons: "Upload your data", "View your images", "Home", and "About Us".

The main content area is titled "Home >> Return to Application". On the left is a "Navigation Tree" with a "View" button and "Splotch View" option. The tree shows a folder "AnonymousE5AS" containing "Demo Data", which includes "clusterfields4.ascii" (expanded to show "VS_clusterfields4_demo.bin"), "sdss.csv", "clusterfield4.bin", "v5.xml", and "ciccio.float". There is also a "User Data" folder. Below the tree are "View", "Splotch View", and "Dynamic movie" buttons.

In the center, a grid of file format buttons is circled in red. The buttons are: ASCII, CSV, VOTABLE, BINARY, FLY, FITS, GADGET, HDF5, RAW GRID, RAW BINARY, TVO XML, and CHECK JOBS.

A yellow box highlights the following text: "ASCII files are expected to be in tabular format. The file can contain N variables organised in columns. Each column represent a different array. Columns are separated by blank characters (space, tab, etc.). In the first raw the names of the variables are stored."

Below this text, the "ASCII" section is active, with "Table" selected over "Volume". There is a "Description:" label followed by an empty text input field. At the bottom, there is a "Local File" label followed by an empty text input field and a "Sfoglia" button.

BINARY

Table Volume

Description :

Local File

Local Header File

or Remote File

URL:

Remote Header File

If it is in a different location

URL:

If URL requests authentication insert username and password of remote server

Username: Password:

Outcome notice e-Mail

Generate Header File

Upload Interface

BINARY

Table Volume

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URL:

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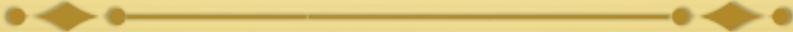
Username: Password:

Outcome notice e-Mail

Generate Header File

Upload Interface

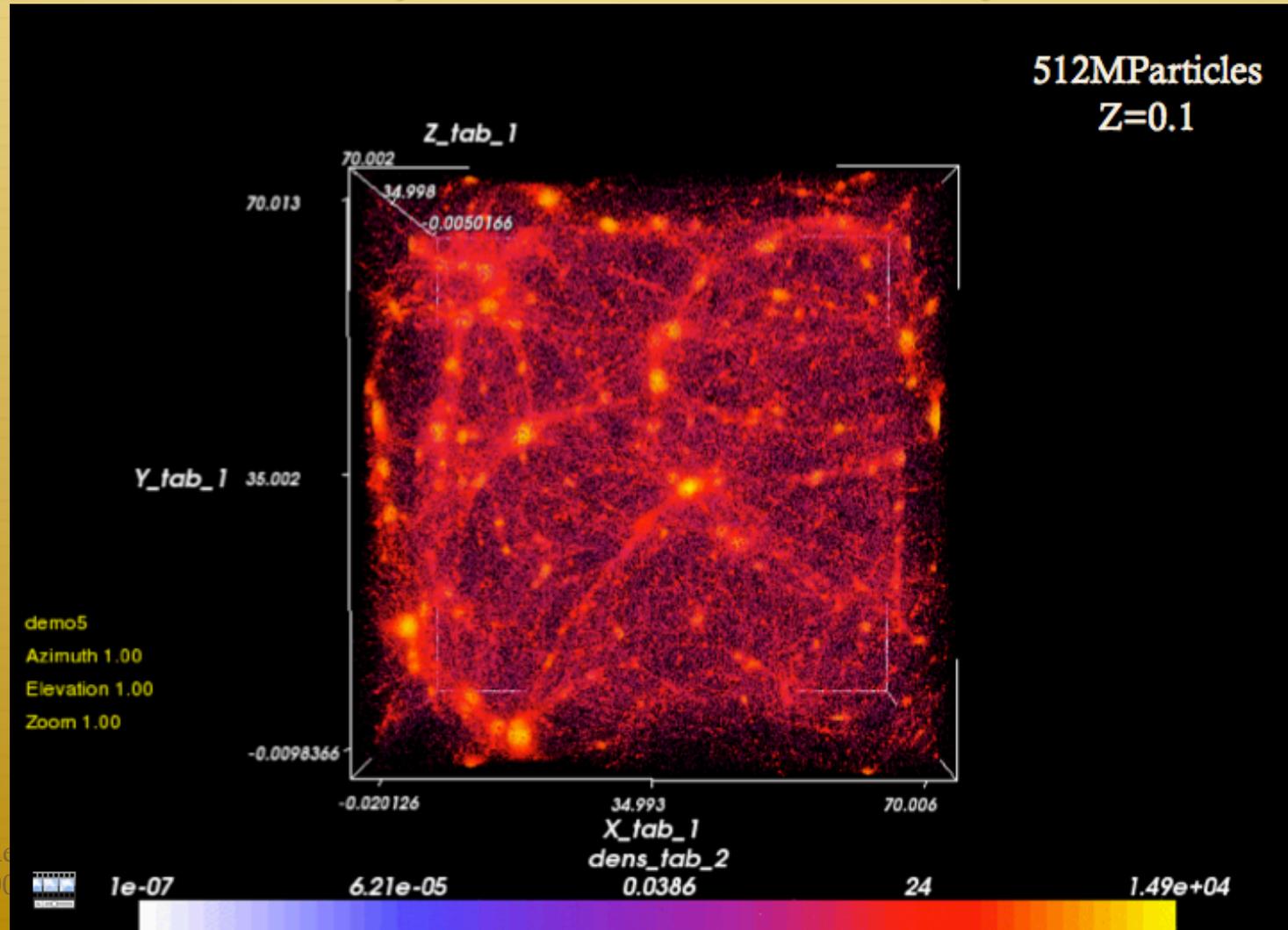
Overview



- ✦ We uploaded through VOSpace a dataset representing 2 million particles randomly selected from a 512million particle simulation. $Z=0.1$
- ✦ We used a VisIVOWeb operation (Point Property) to calculate and associate a mass density to each particle using a Cloud-In-Cell (CIC) algorithm
- ✦ We visualized the dataset using both VTK and Splotch
- ✦ We built a movie of the dataset around some chose frames

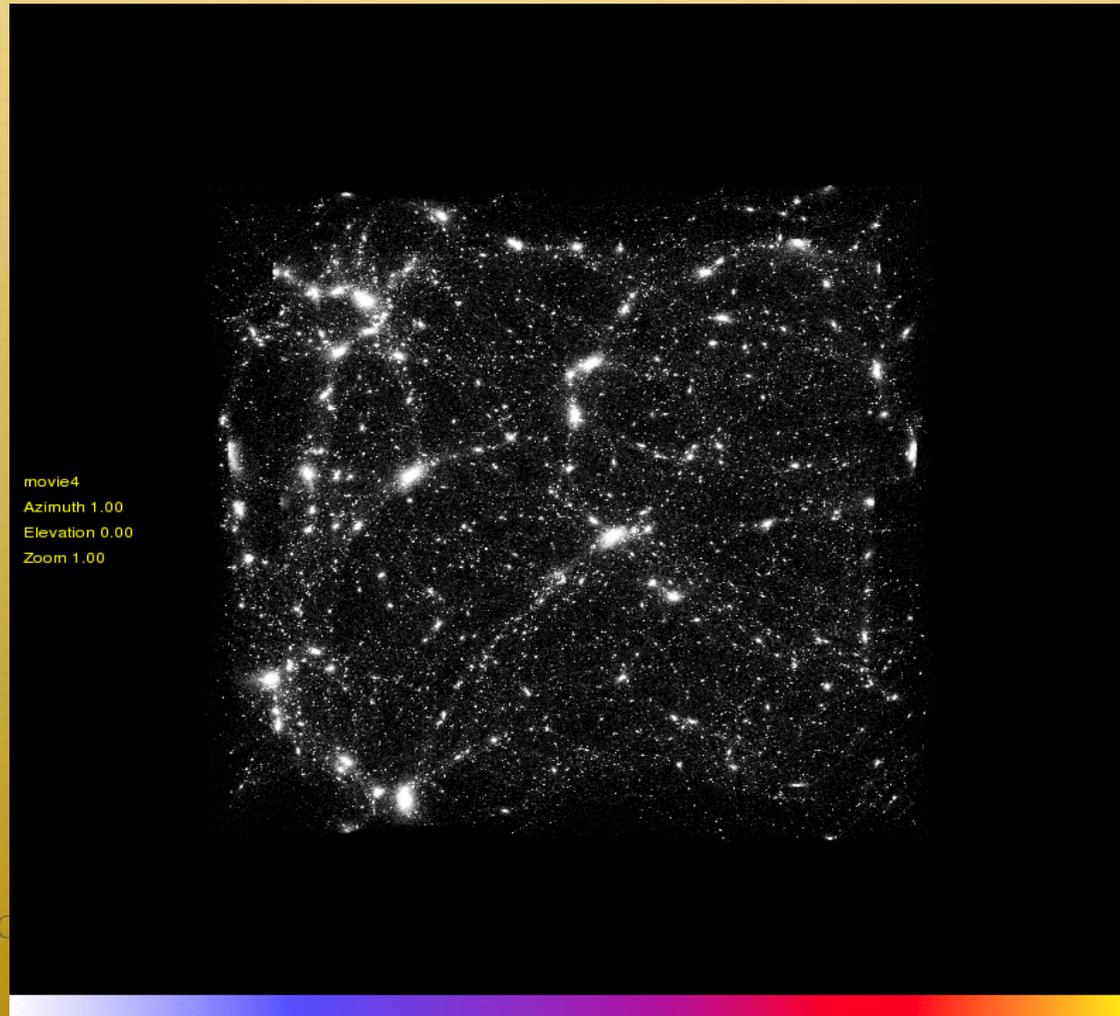
A short VisIVOWeb movie: VTK

<ftp://astrct.oact.inaf.it/pub/acosta/VisIVOWeb/Movies/movie5.gif>



A short VisIVOWeb movie: Splotch

<ftp://astrct.oact.inaf.it/pub/acosta/VisIVOWeb/Movies/movie4.gif>



512MParticles
Z=0.1

movie4
Azimuth 1.00
Elevation 0.00
Zoom 1.00

Online tutorial on YouTube

ViSIVOWeb online Tutorial

- ✦ [http://www.youtube.com/view_play_list?
p=6285D8CA3CA73062&search_query=visivoweb](http://www.youtube.com/view_play_list?p=6285D8CA3CA73062&search_query=visivoweb)

VisIVOServer online tutorial

- ✦ [http://www.youtube.com/view_play_list?
p=A7ECAAF614EAE7970&search_query=visivoserver](http://www.youtube.com/view_play_list?p=A7ECAAF614EAE7970&search_query=visivoserver)