VisIVOWeb: a web solution for large-scale astrophysical visualization

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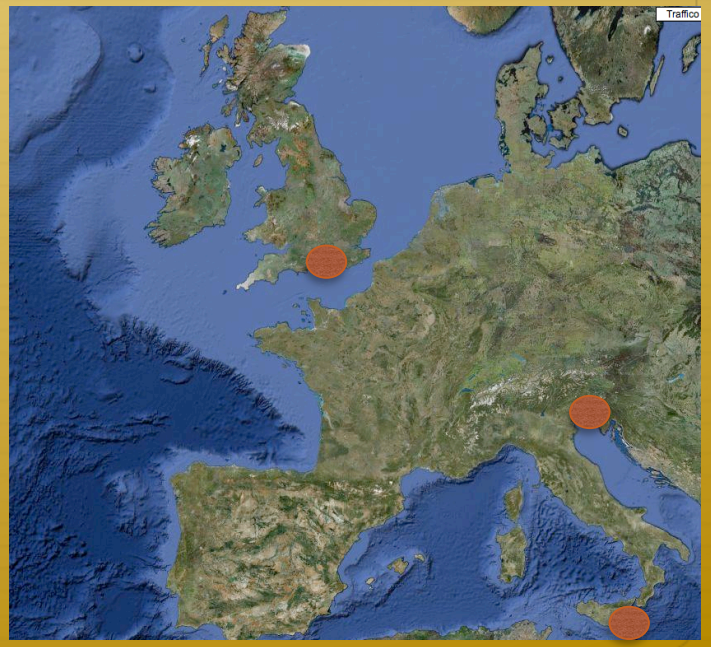
VisIVO Projects

- VisIVODesktop
- VisIVOServer
- VisIVOWeb

VisIVOWeb

http://visivoweb.oact.inaf.it

- VisIVOWeb is part of a joint collaboration between Italian Insitute 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:

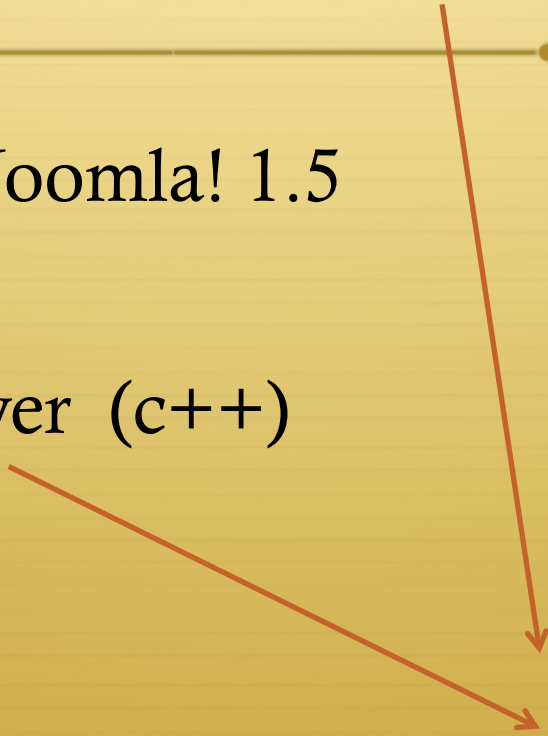
  to aid the scientist understanding complex data.

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

- **Images**
- **Animations**

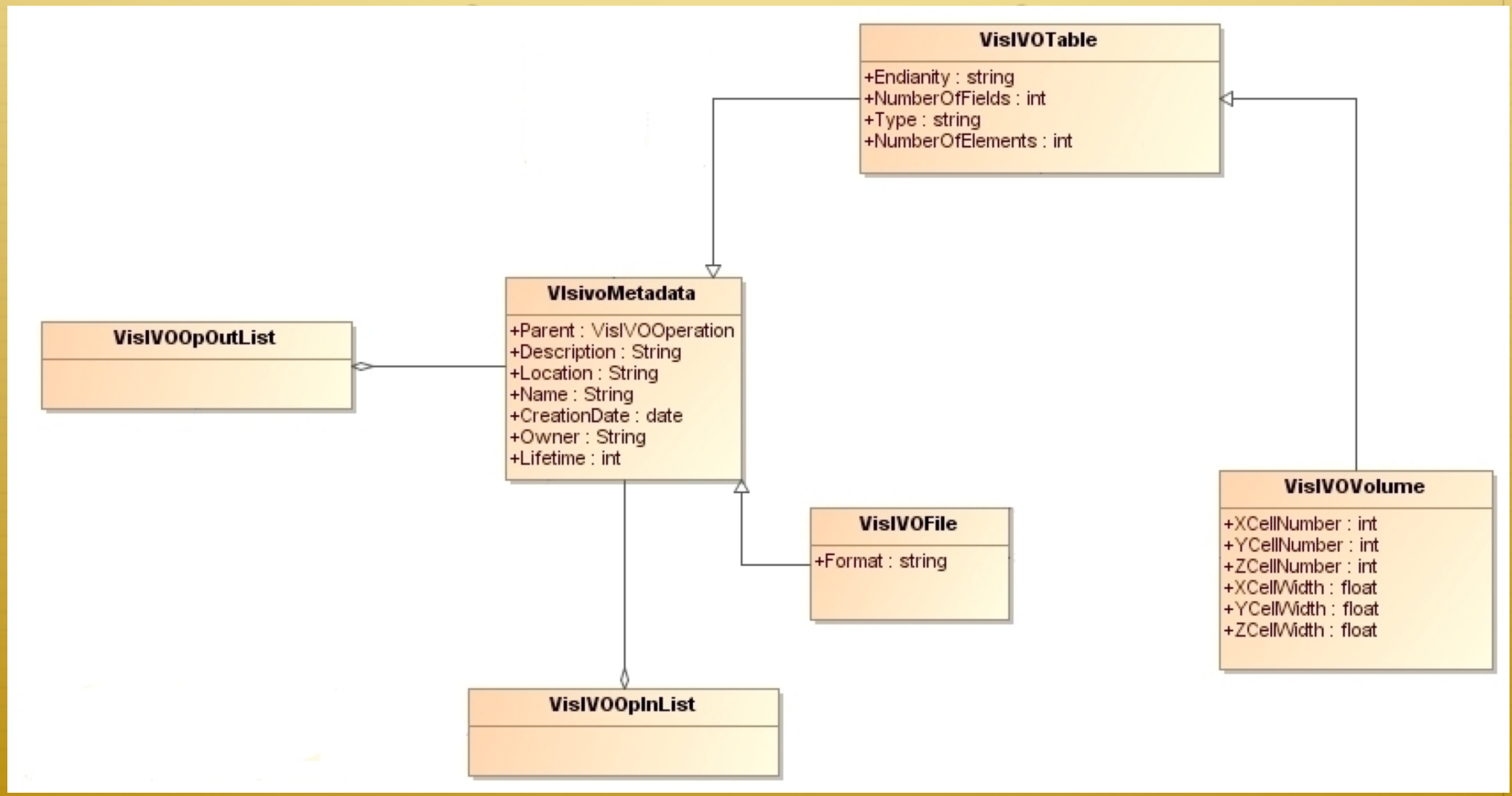
VisIVOWeb

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



Open Source Projects
GPL V2
SourceForge

VisIVOWeb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+NumberOfFields : int
+Type : string
+NumberOfElements : int
VIsivoMetadata
+Parent : VisIVOOperation
+Description : String
+Location : String
+Name : String
+CreationDate : date
+Owner : String
+Lifetime : int
VisIVOOpOutList
VisIVOFile
+Format : string
VisIVOVolume
+XCellNumber : int
+YCellNumber : int
+ZCellNumber : int
+XCellWidth : float
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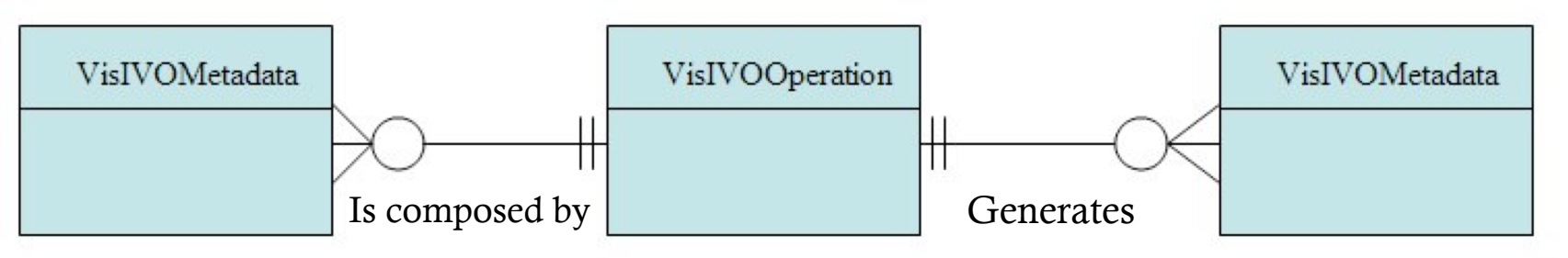
VisIVOWeb


VisIVOMetadata
Is composed by
VisIVOOperation
Generates
VisIVOMetadata

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 and 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:

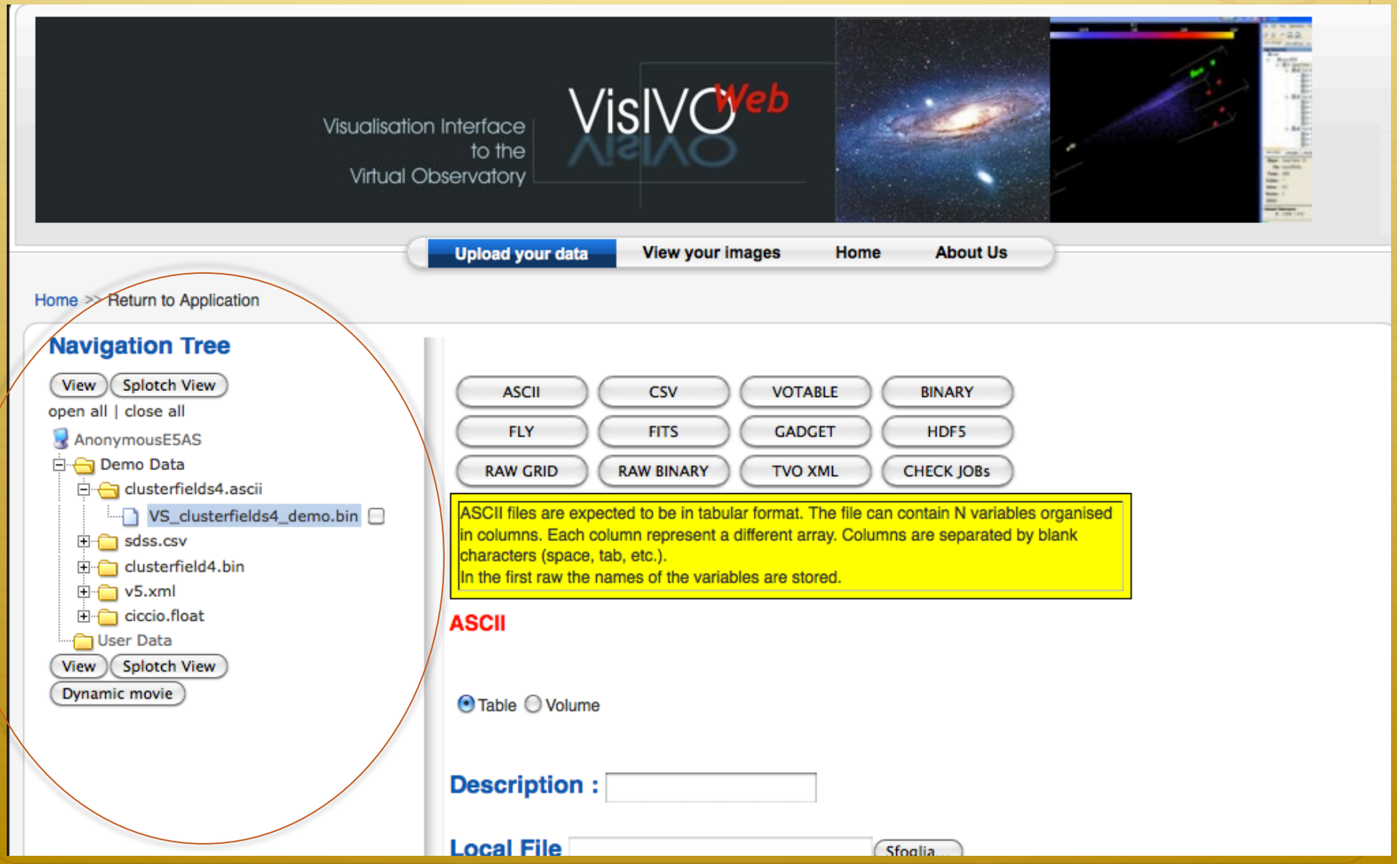
- http://VisIVOWeb Portal?url=URL&data_file=votable
- Accepted data files: votable, fly, fits, ascii, csv, GADGET2

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

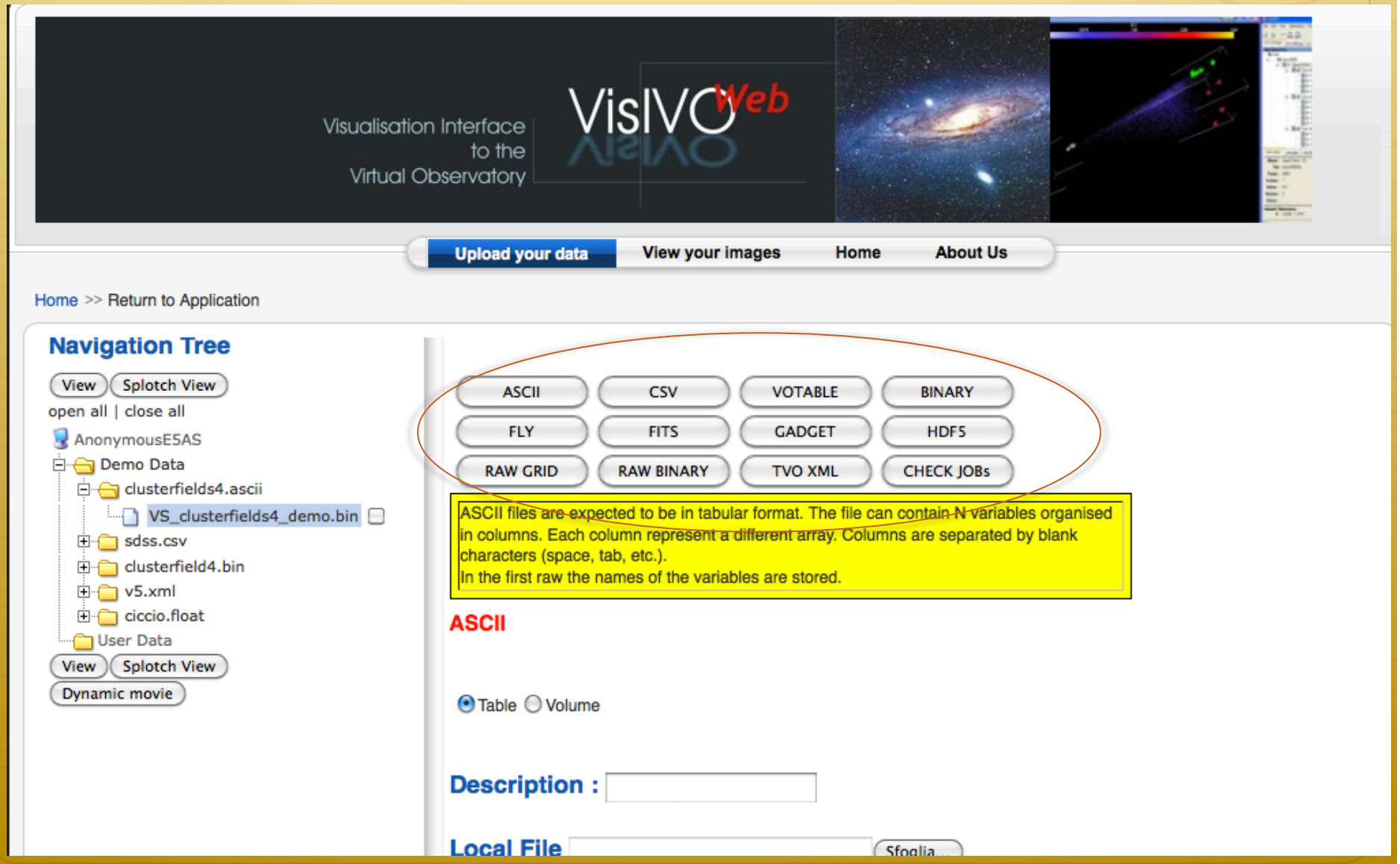
VisIVOWeb: a 10 minutes demo

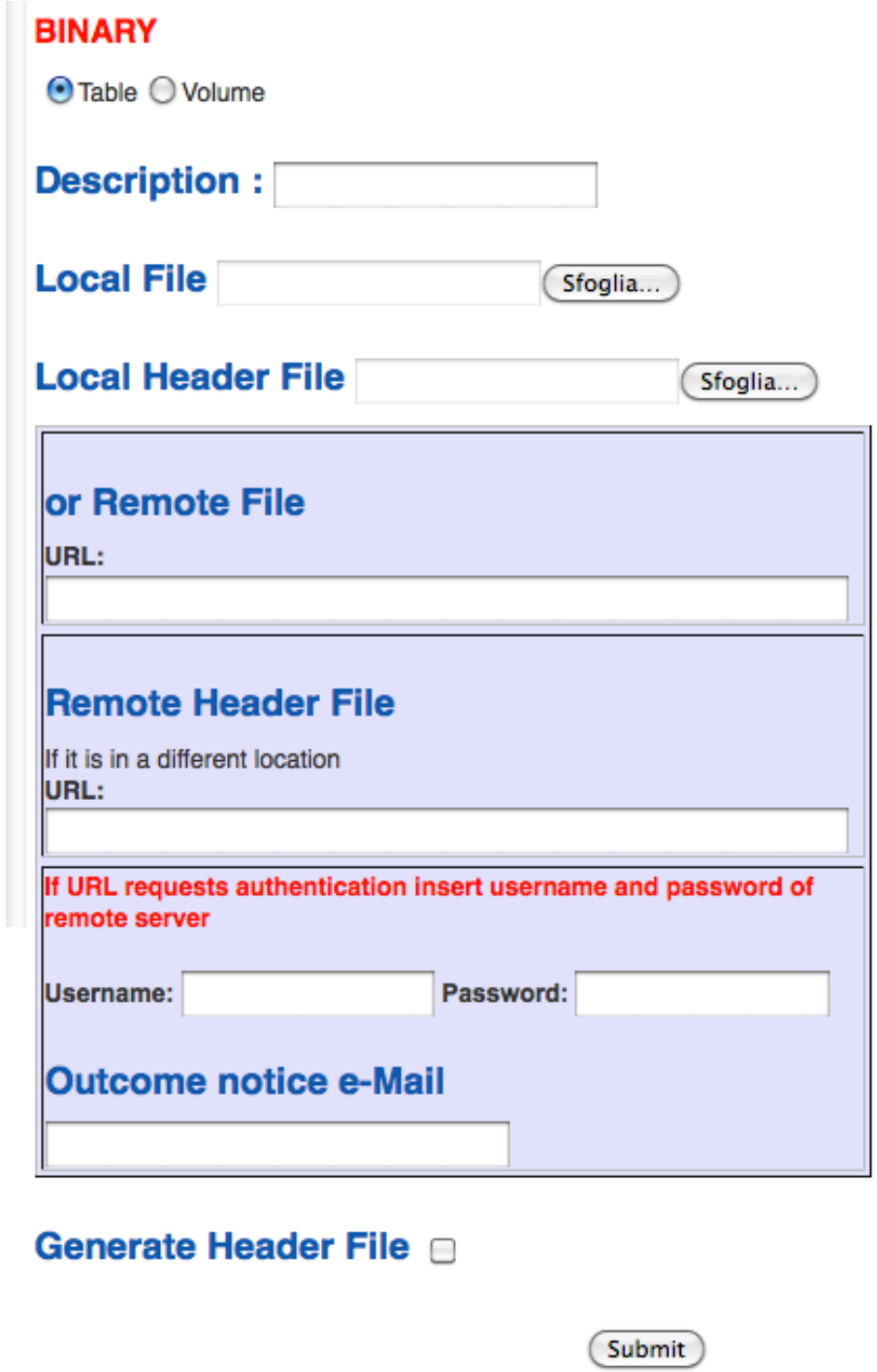
VisIVOWeb Interface

VisIVOWeb Interface

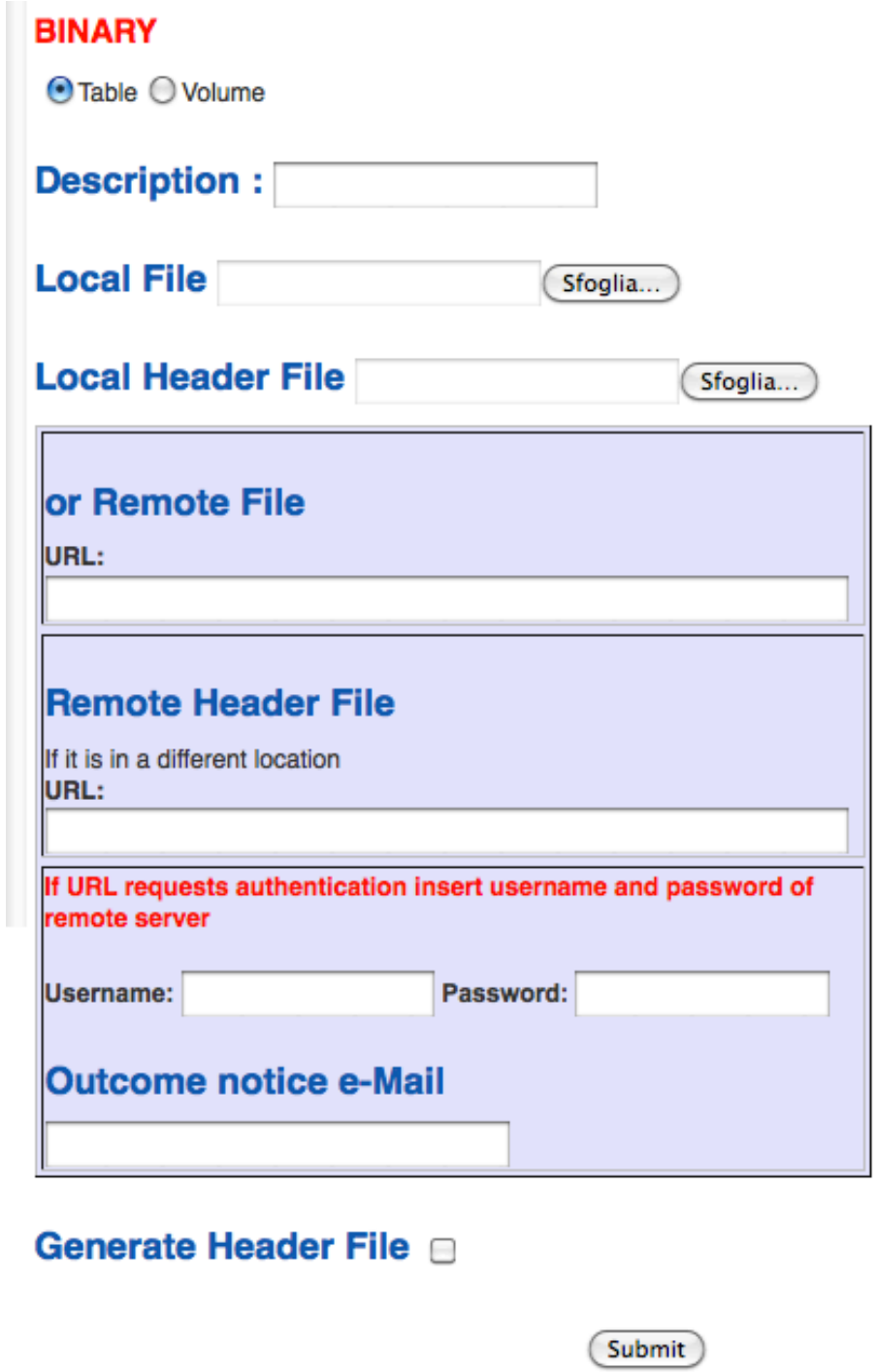


VisIVOWeb Interface





Upload Interface



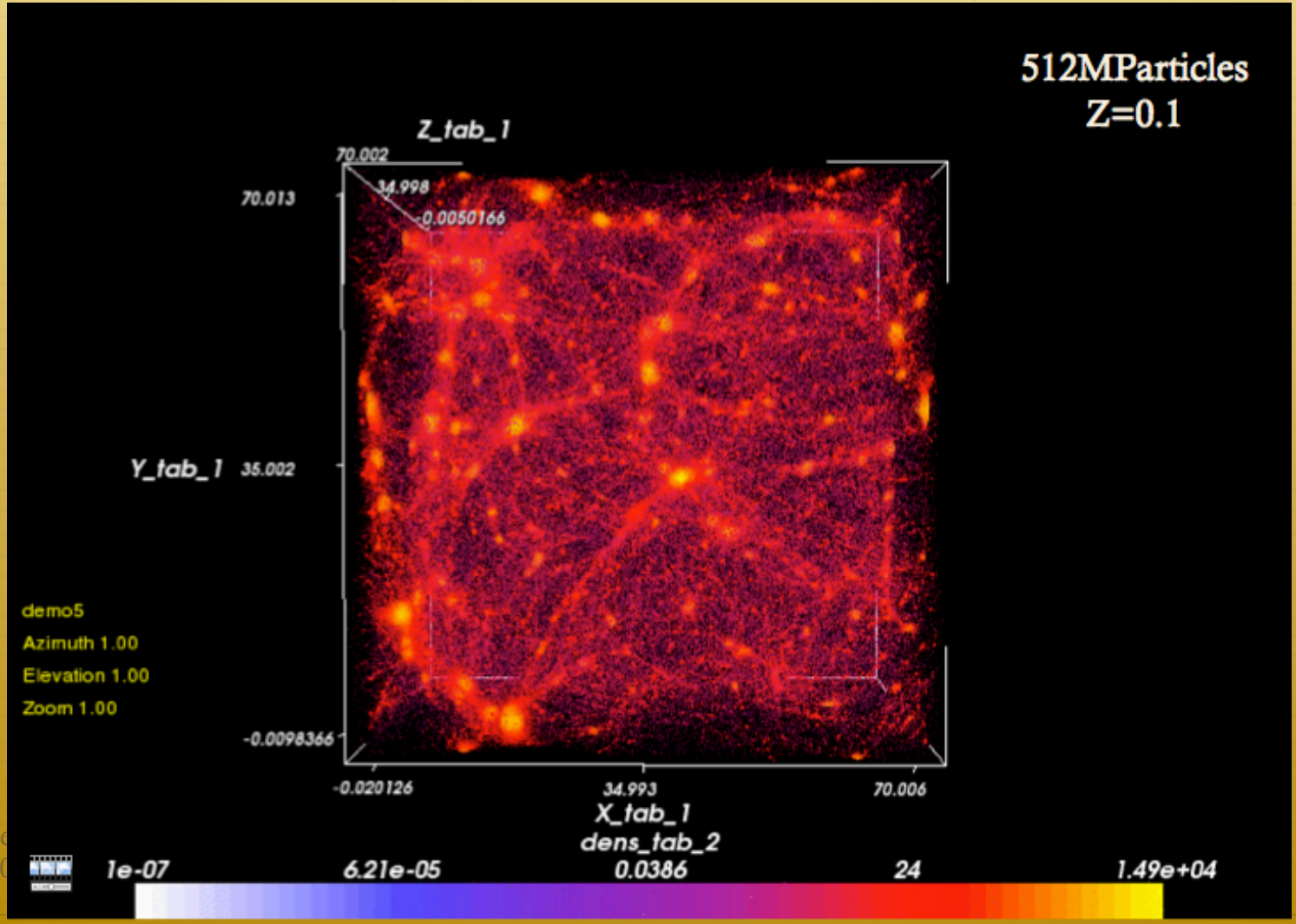
Upload Interface

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

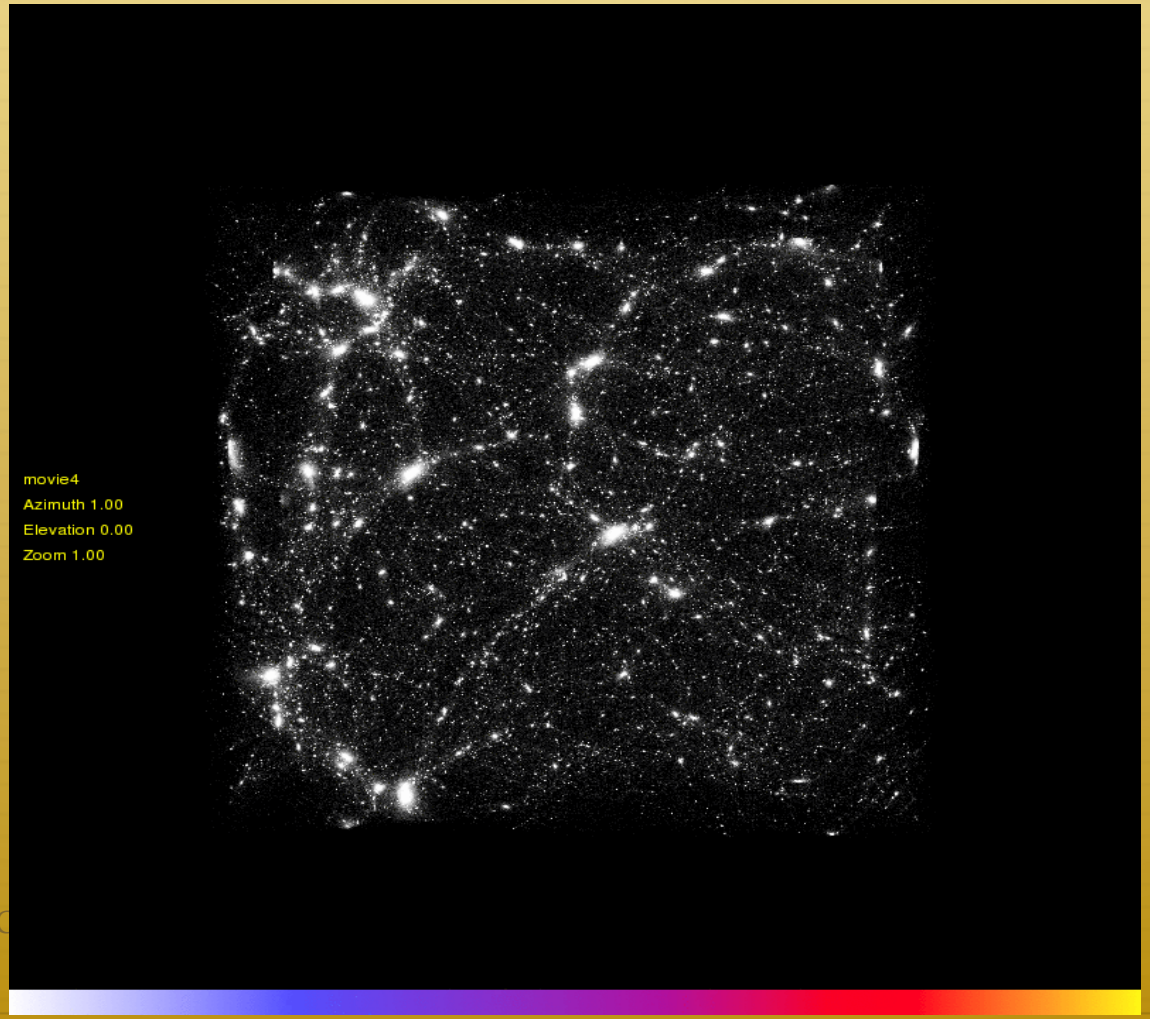
A short VisIVOWeb movie: VTK

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

Online tutorial on YouTube

ViSIVOWeb online Tutorial

- http://www.youtube.com/view_play_list?p=6285D8CA3CA73062&search_query=visivoweb

VisIVOServer online tutorial

- http://www.youtube.com/view_play_list?p=A7ECAF614EAE7970&search_query=visivoserver