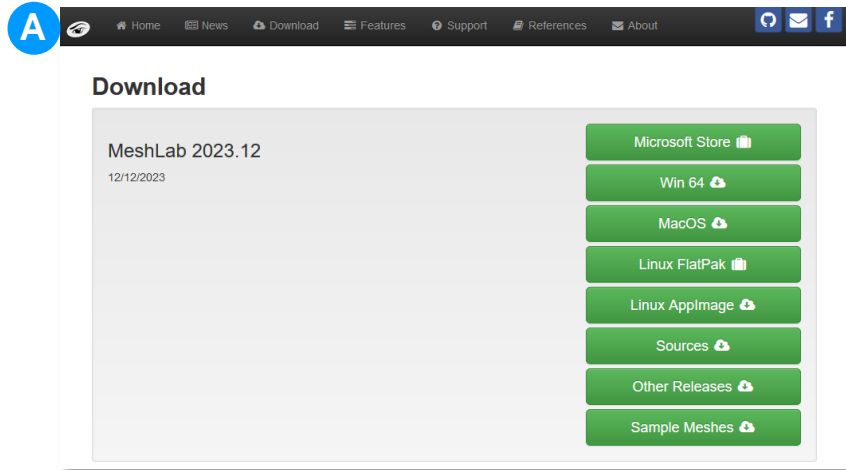# MeshLab

Introduction to 3D analysis of 3D Models

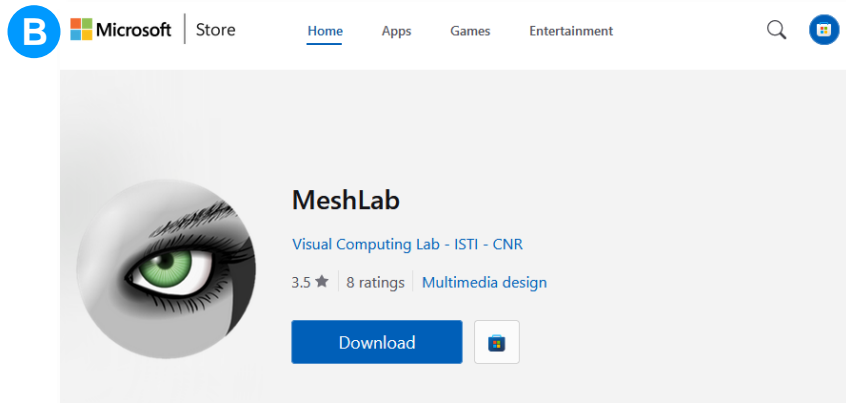Vera Moitinho de Almeida, CODA

Content

- Download & Install MeshLab

- Import a 3D Mesh

- 3D Navigation

- Show/Hide Axis & Grid

- Show/Hide Layer Dialog pane

- 3D Views

- Virtual Light

- Topological Measures

- Geometrical Measures

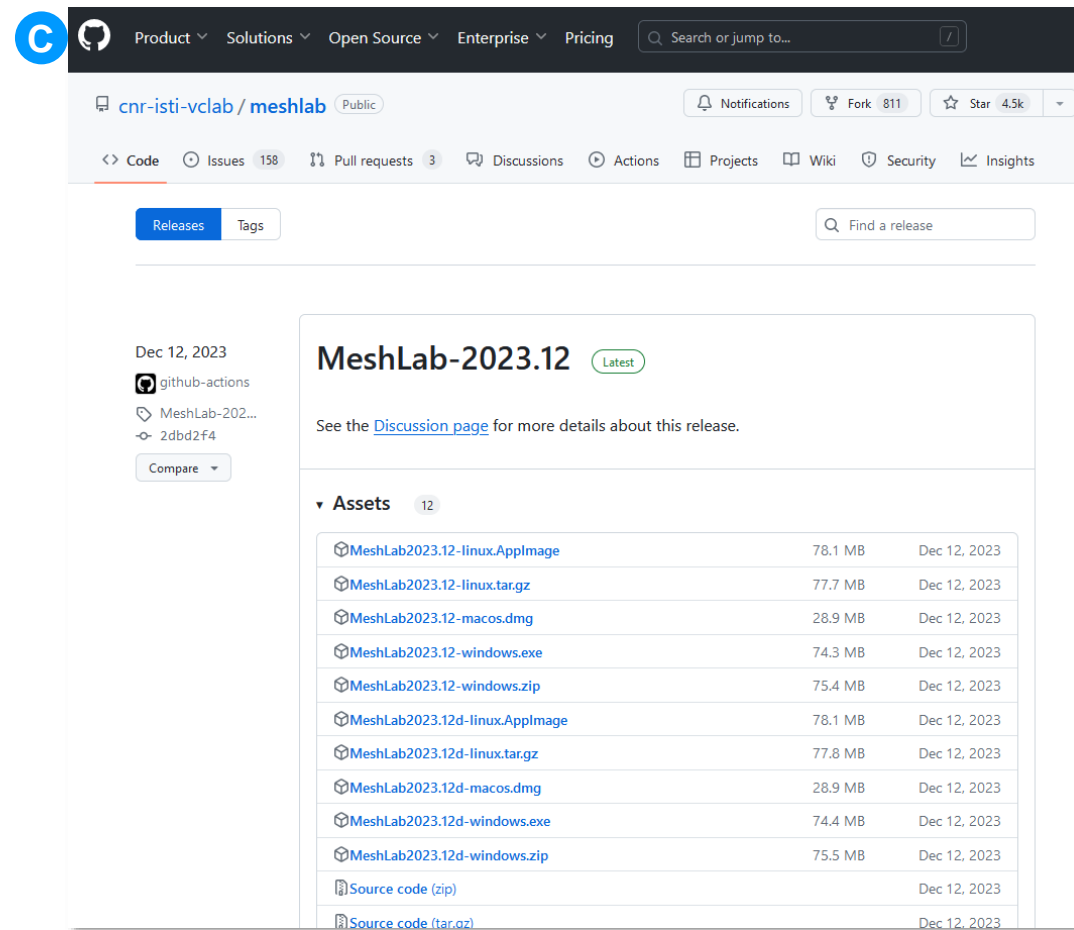- Save Snapshots

- Save a 3D Mesh
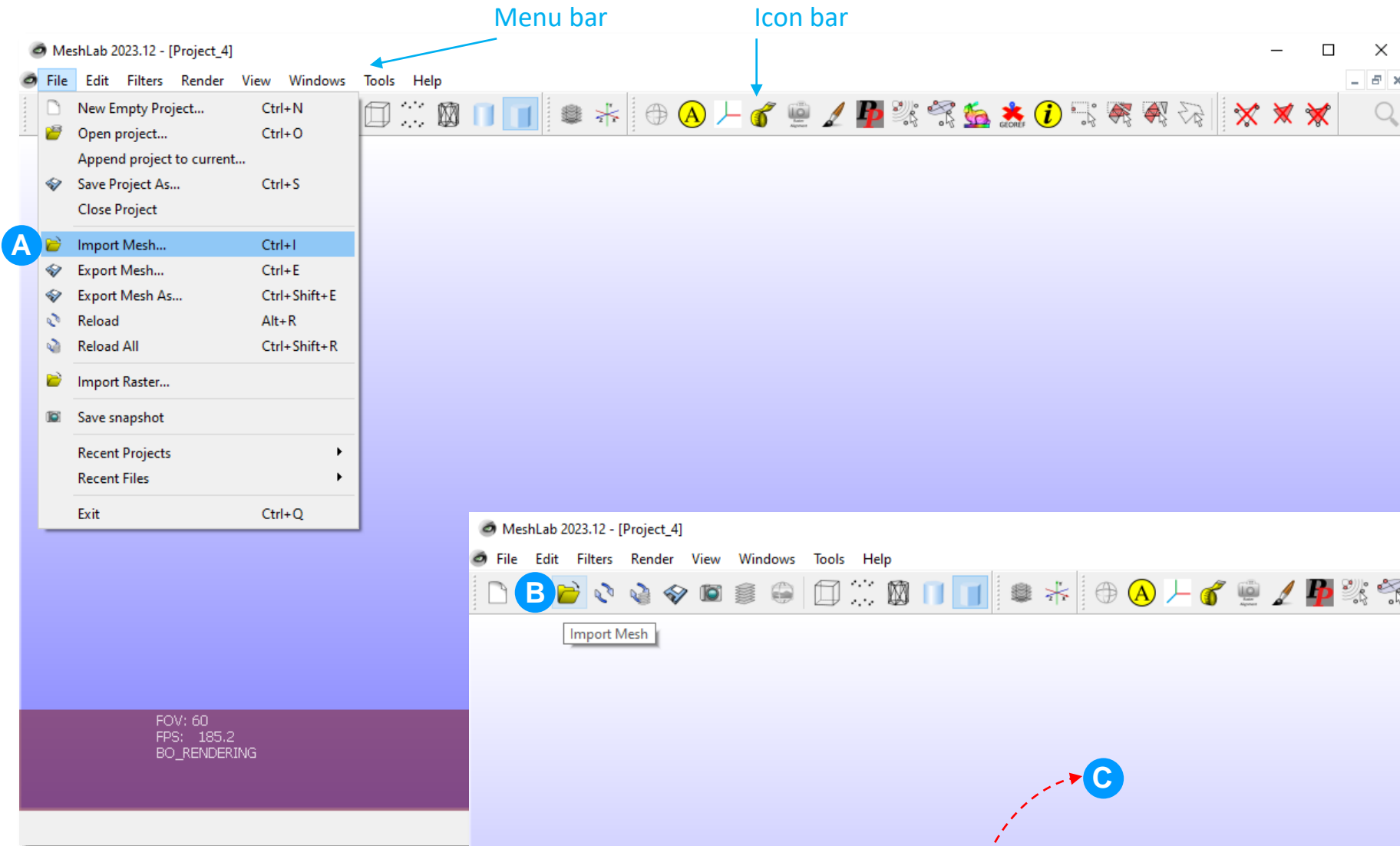
Download & Install MeshLab

https://www.meshlab.net/#download

https://apps.microsoft.com/

https://github.com/cnr-isti-vclab/meshlab/releases

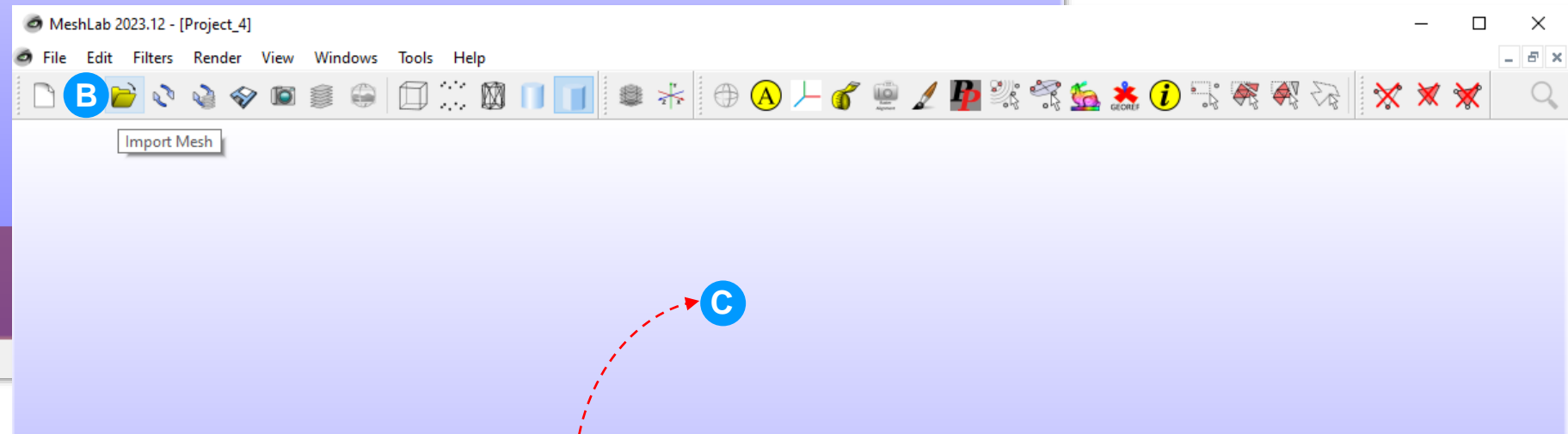Select the file and download it from one of the websites (A, B or C).

After downloading the file, double-click it to install MeshLab.

MeshLab Installer.exe

Import a 3D Mesh

Menu bar

Icon bar

A. Menu bar: *File > Import Mesh*.

B. Or click on the *Import Mesh* icon on the icon bar.

C. Or drag & drop a 3D mesh file from your computer into MeshLab's main window.

3D Navigation – pan, rotate, zoom, and more

|	
`left drag`	**Rotate** the object. Click far from the centre to rotate around the line of view.
`ctrl+left drag`	**Pan** (move right/left).
`wheel`	**Zoom** in or out.
`shift+left drag`	**Zoom** (if you do not have a mouse wheel or if you want smooth zoom).
`left double click`	**Centre and zoom** on clicked point; subsequent rotations and zooms will be centred on the chosen point. (e.g., to rotate a mesh around its centre, double click in the centre).
`shift+wheel`	**Change field of view** (FOV) and move the camera to keep the mesh of approximately the same dimension (i.e., increase/decrease the perspective deformation).
`ctrl+wheel`	**Move near plane** back and forth to section the mesh and display its interior.
`shift+H`	**Show/hide trackball**.
`ctrl+shift+left drag`	**Light** rotate to interactively change the default light setting.
`alt+wheel`	**Change point size** when rendering mode is Points. Use Points rendering to display interactively large meshes.

Show/Hide Axis & Grid
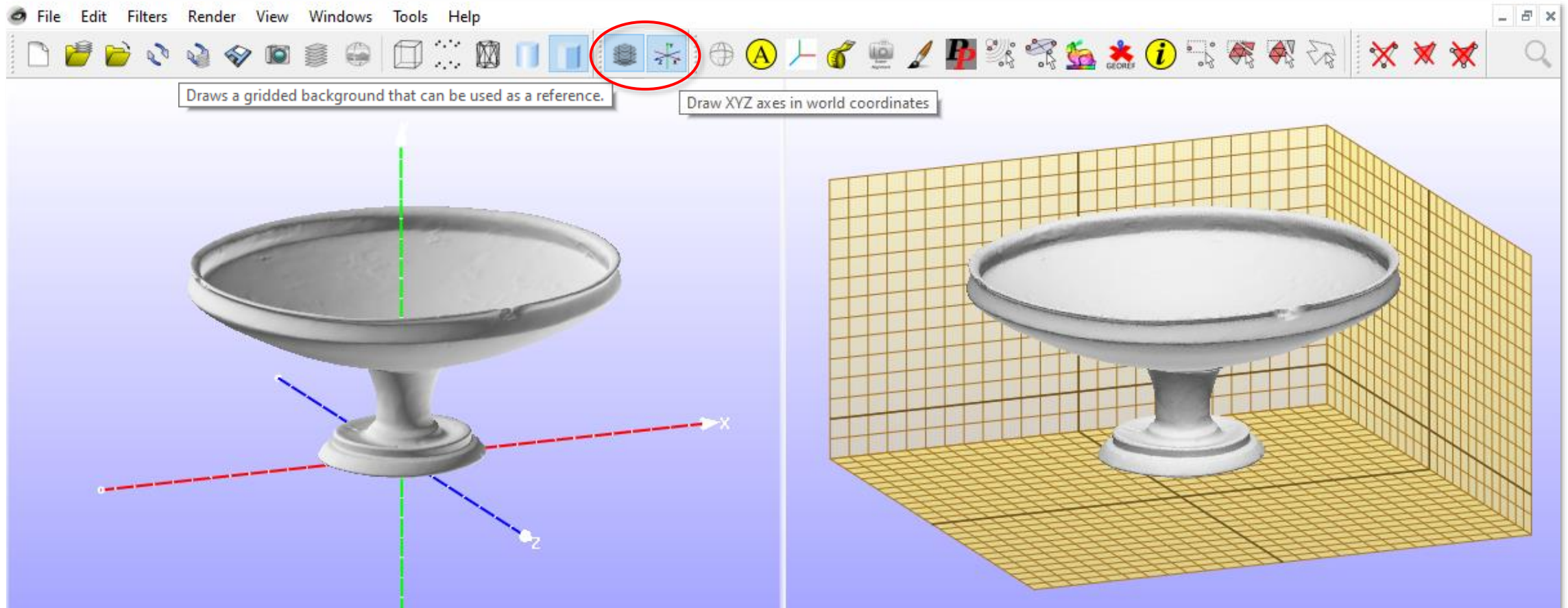
Click on the *Draw XYZ axes in world coordinates* icon on the icon bar.
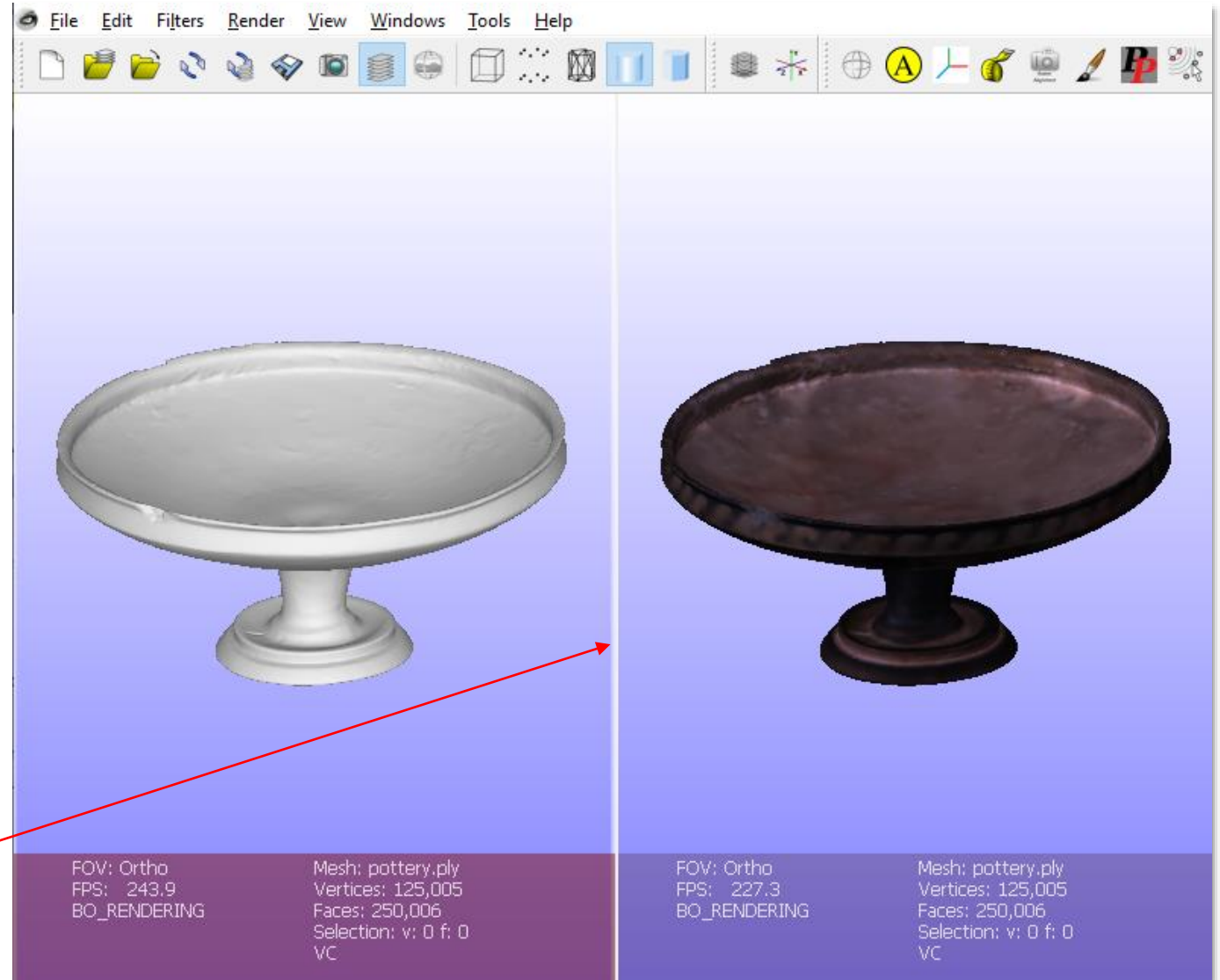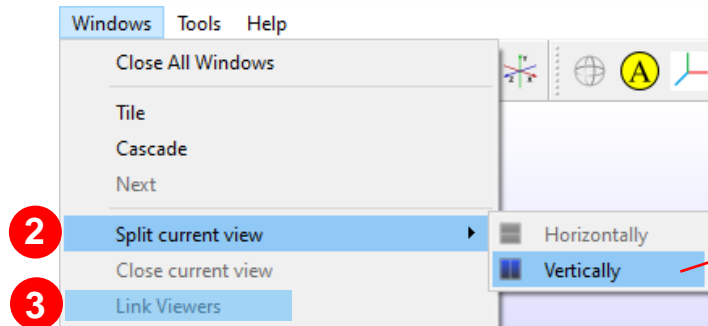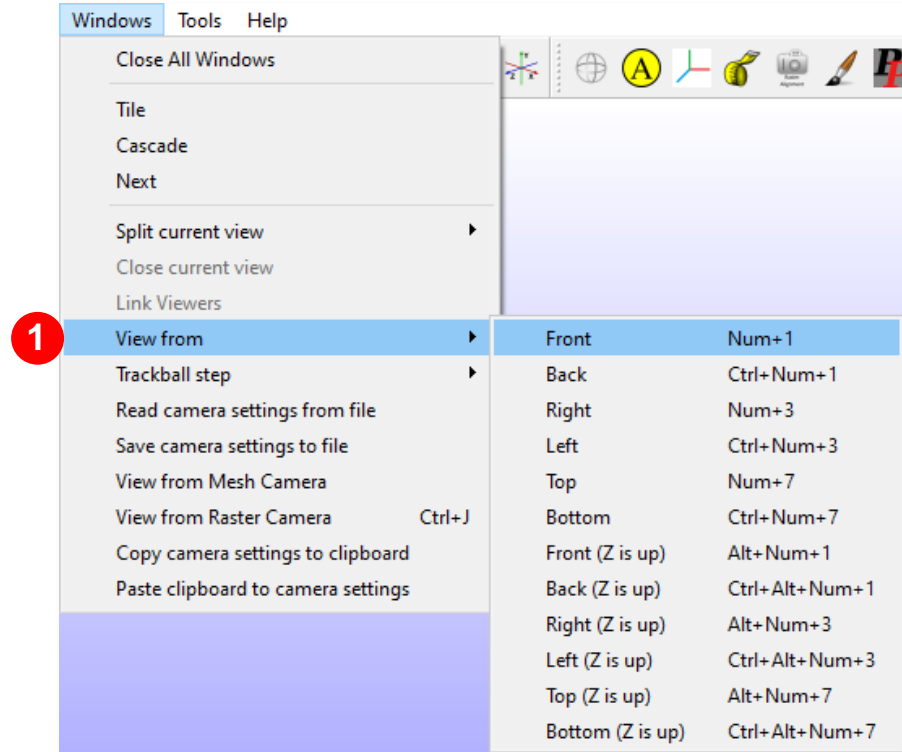
Or select *Render > Show Axis* (menu bar).

Click on the *Draws a gridded background...* icon on the icon bar.

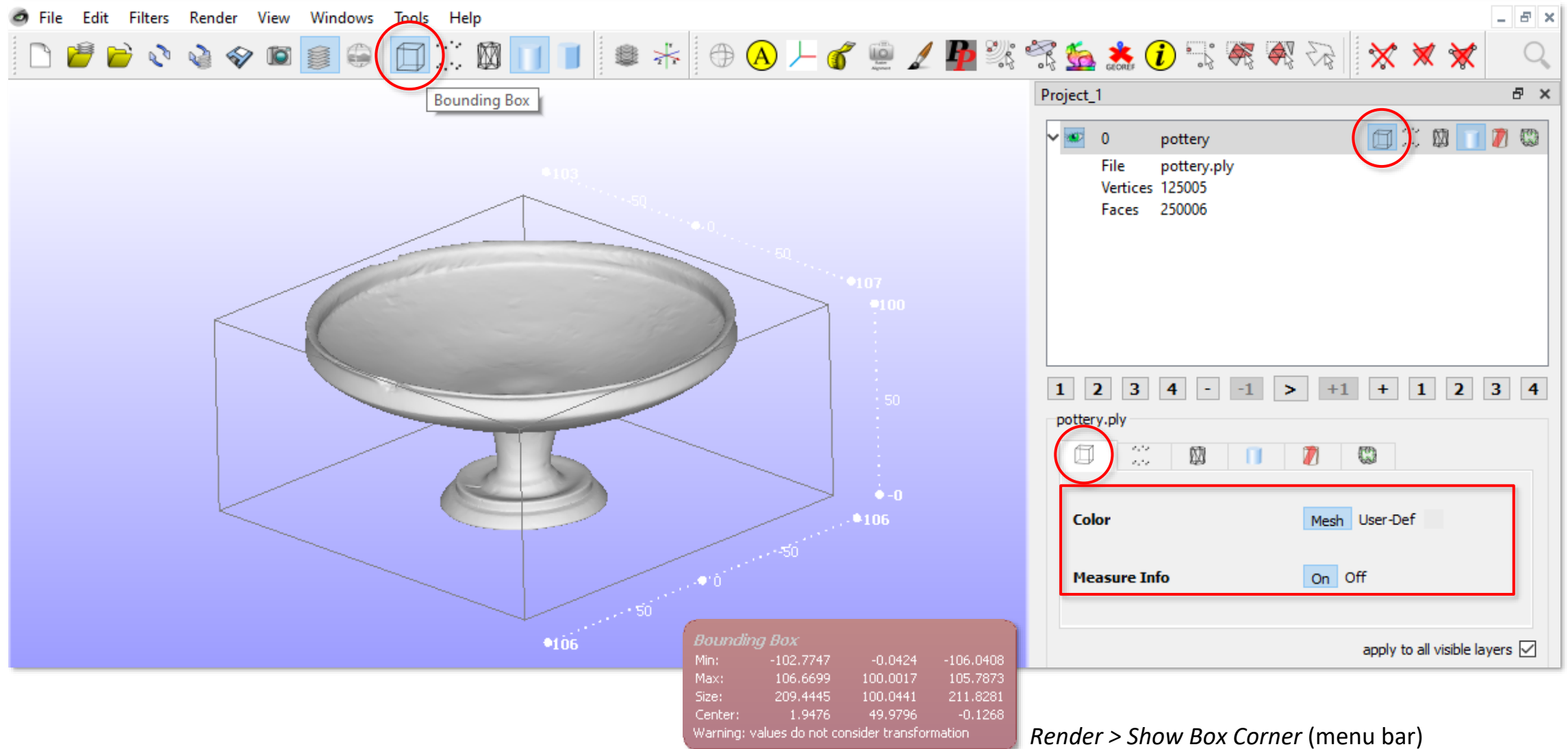Or select *Render > Background Grid* (menu bar).

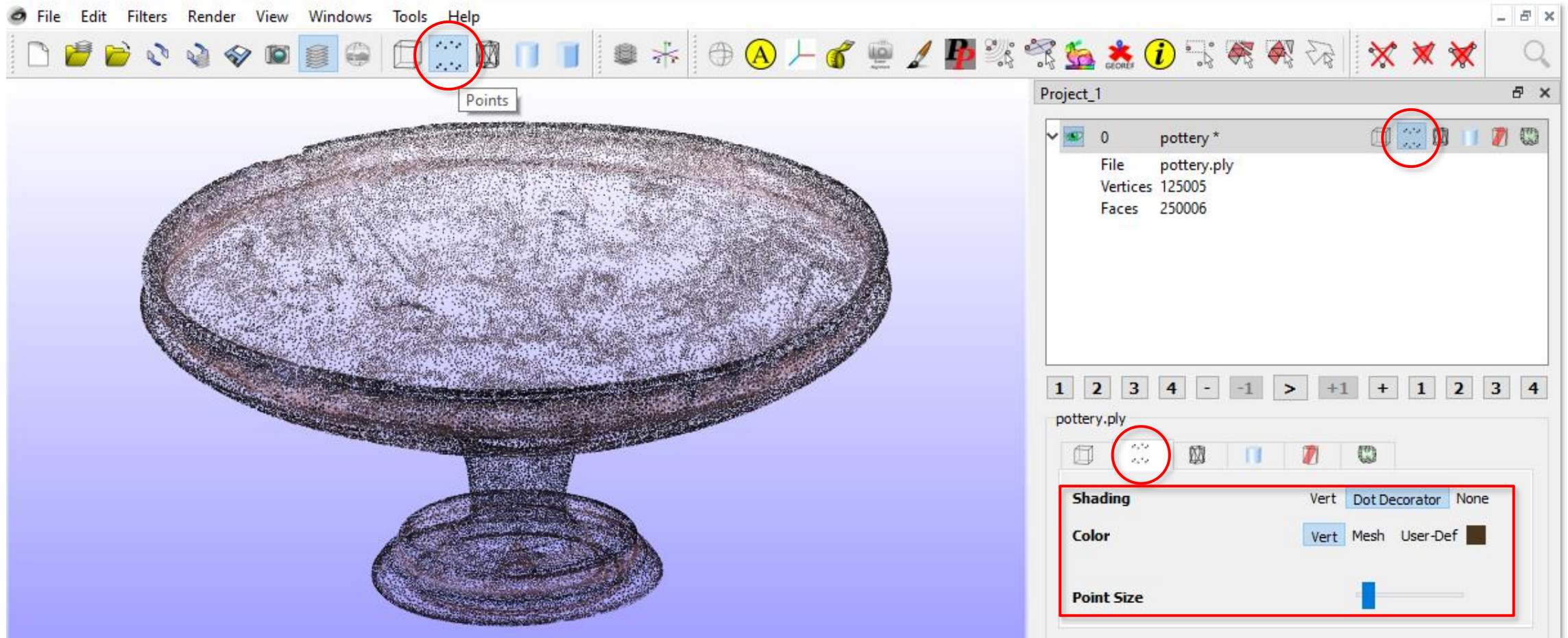# Show/Hide Layer Dialog pane
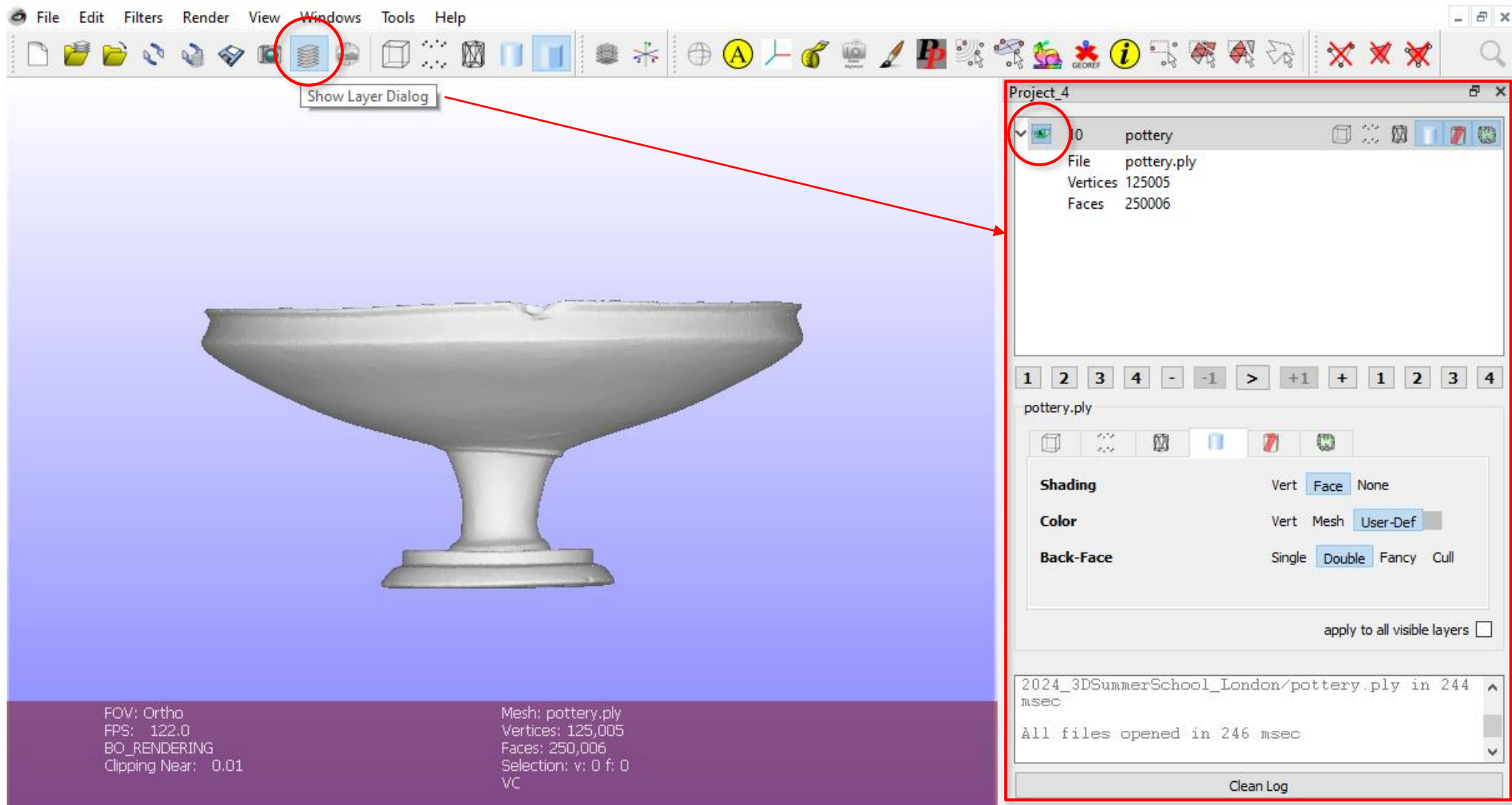
3D Views

3D Views - bounding box (bbox)
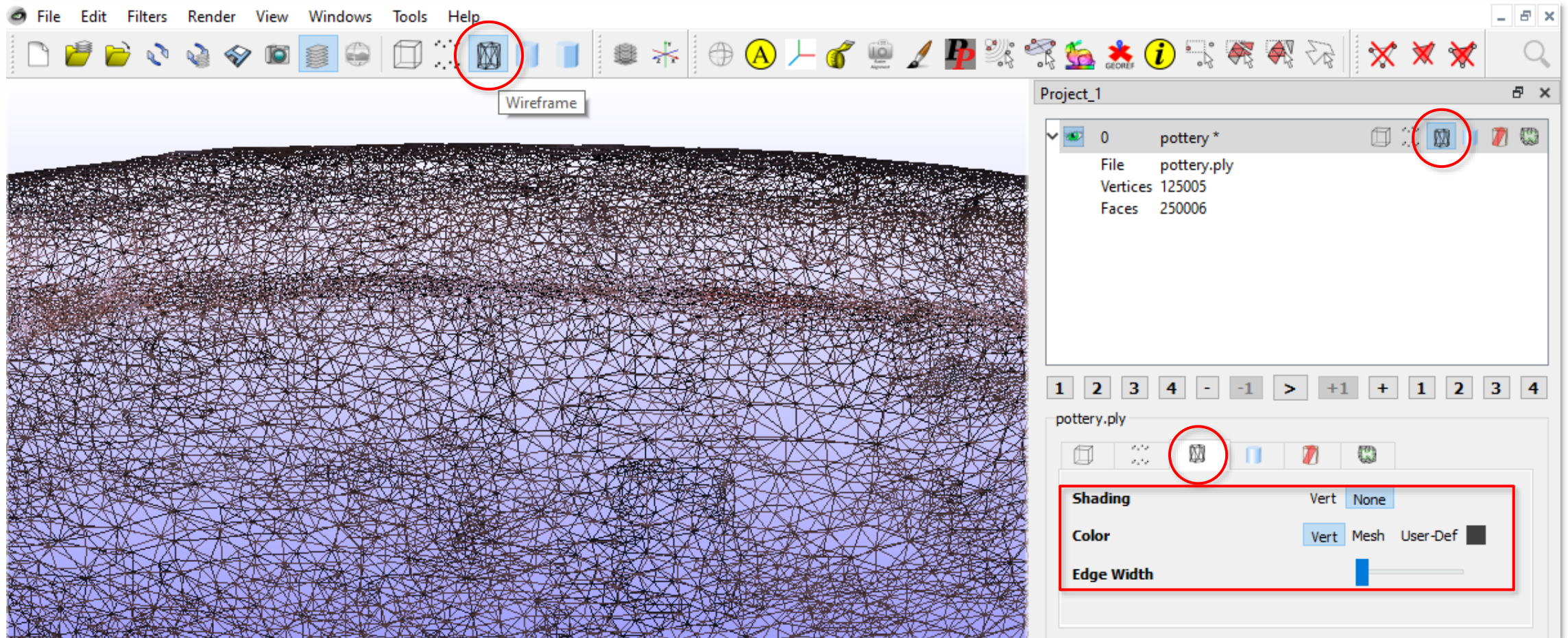

Render > Show Box Corner (menu bar)
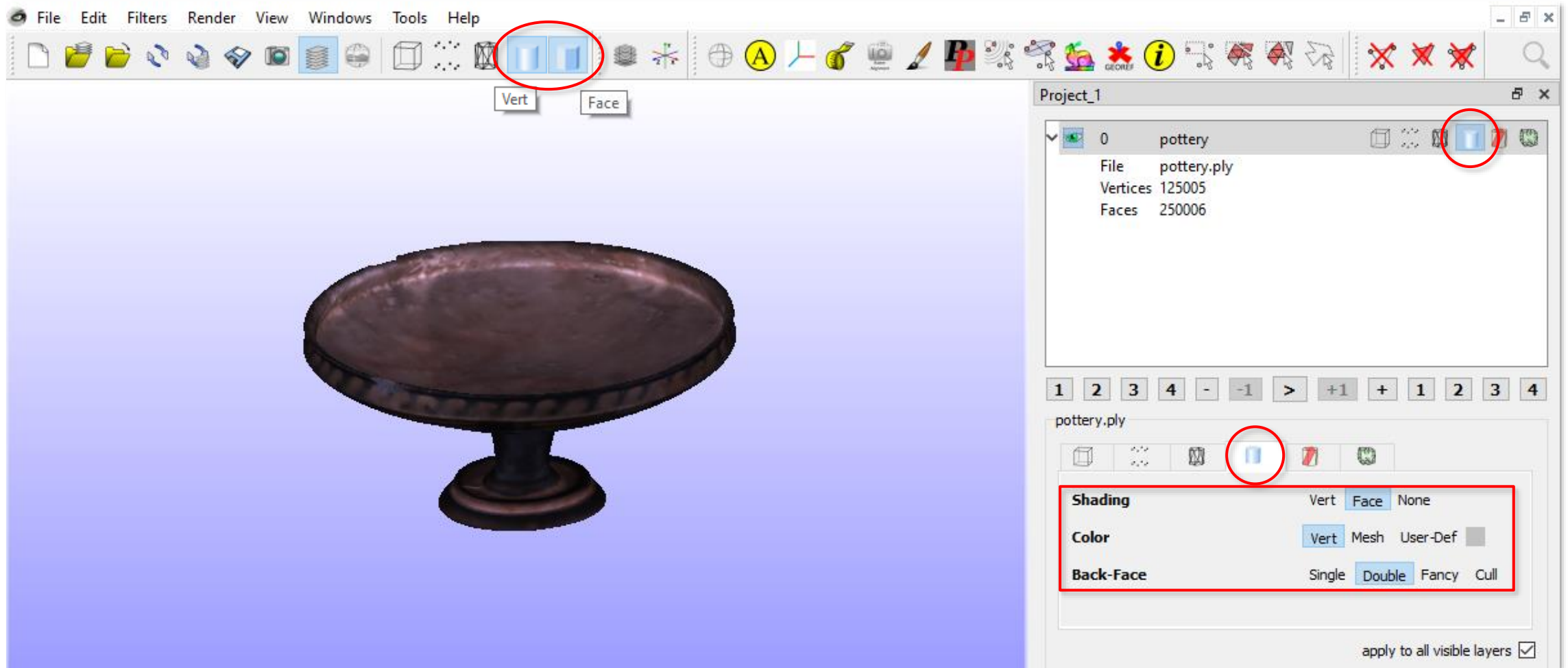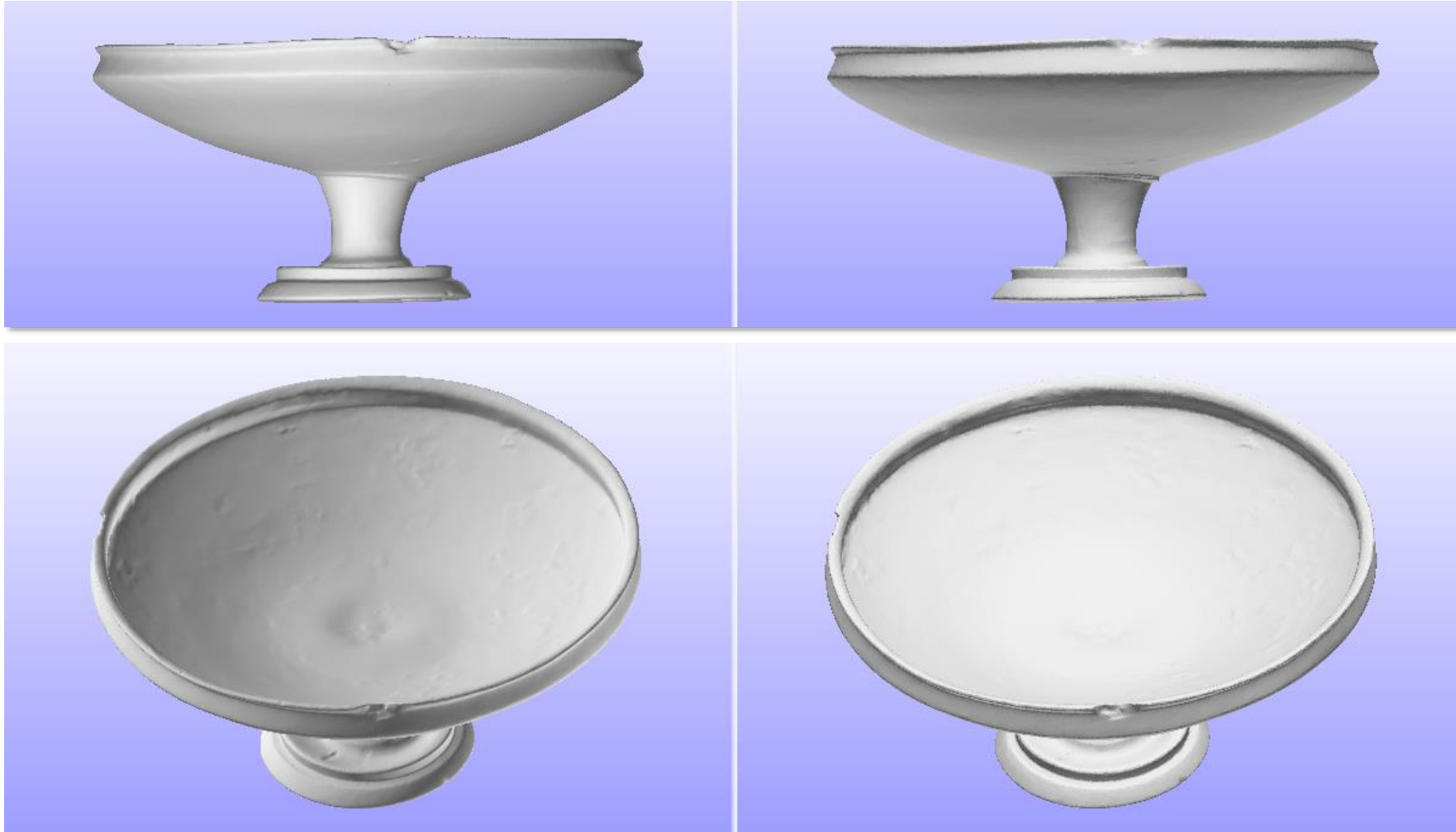
3D Views – points

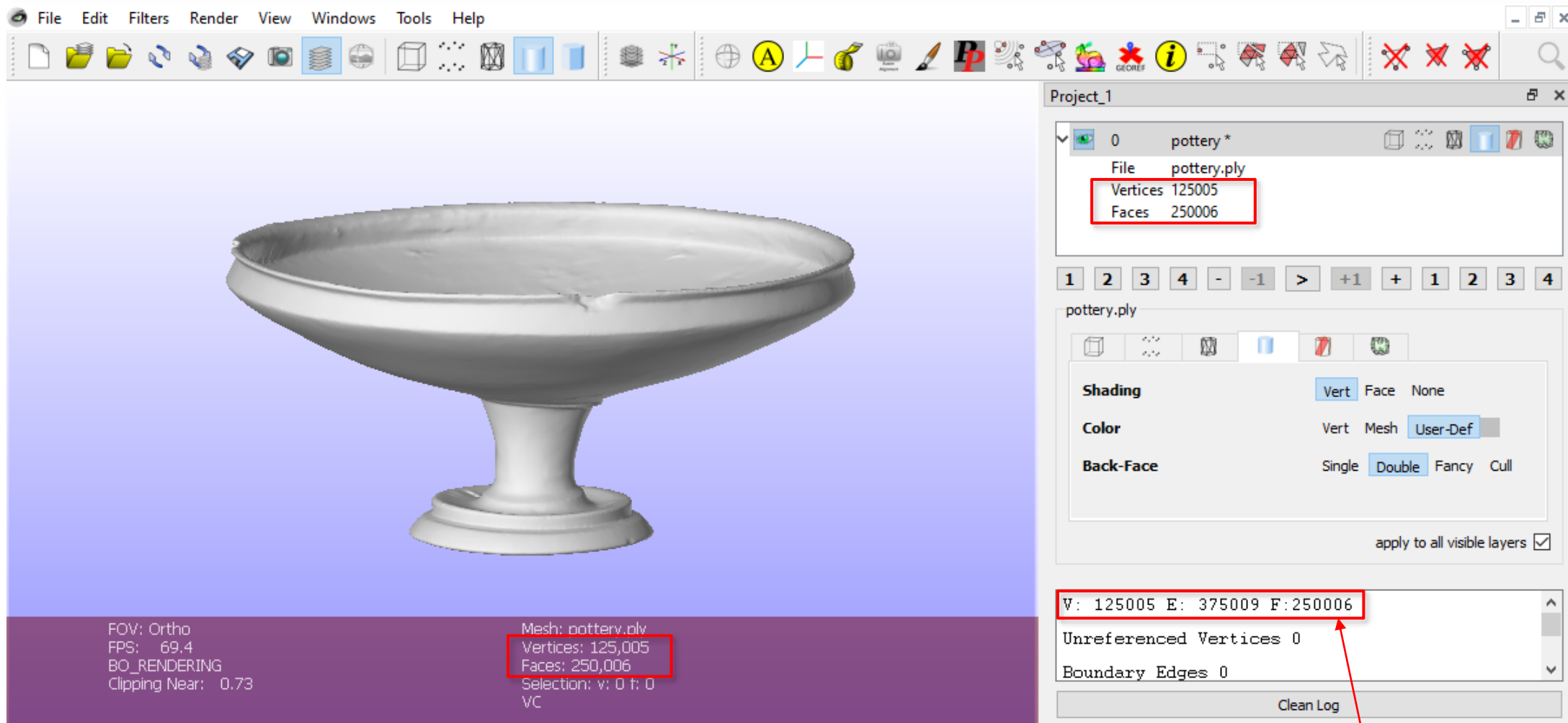# 3D Views – wireframe (polygonal mesh)

3D Views – vertices and faces

Virtual Light – enhance details

ctrl+shift+left drag

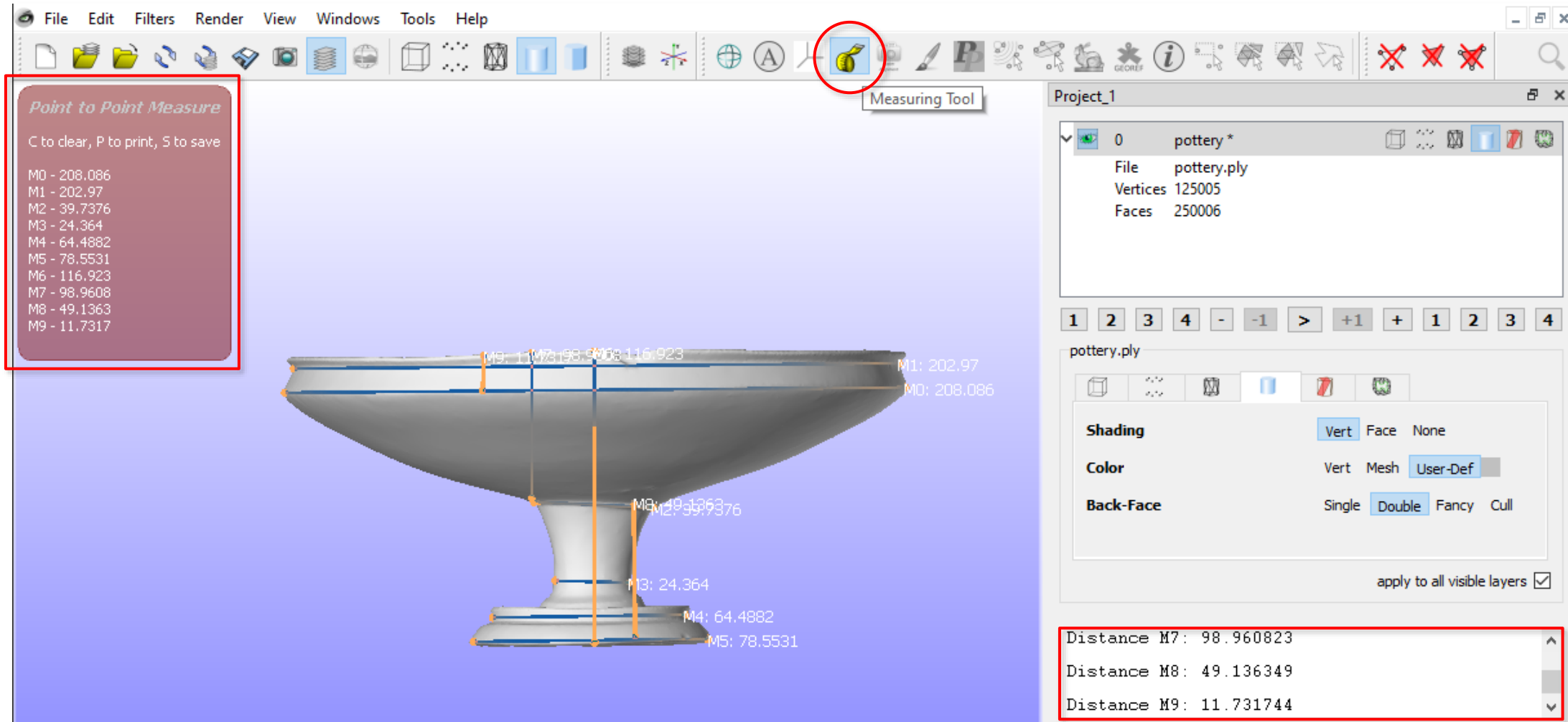to interactively change the light setting.

Topological Measures – vertices, edges, and faces

Select *Filters > Quality Measure and Computations > Compute Topologic Measures* (menu bar).
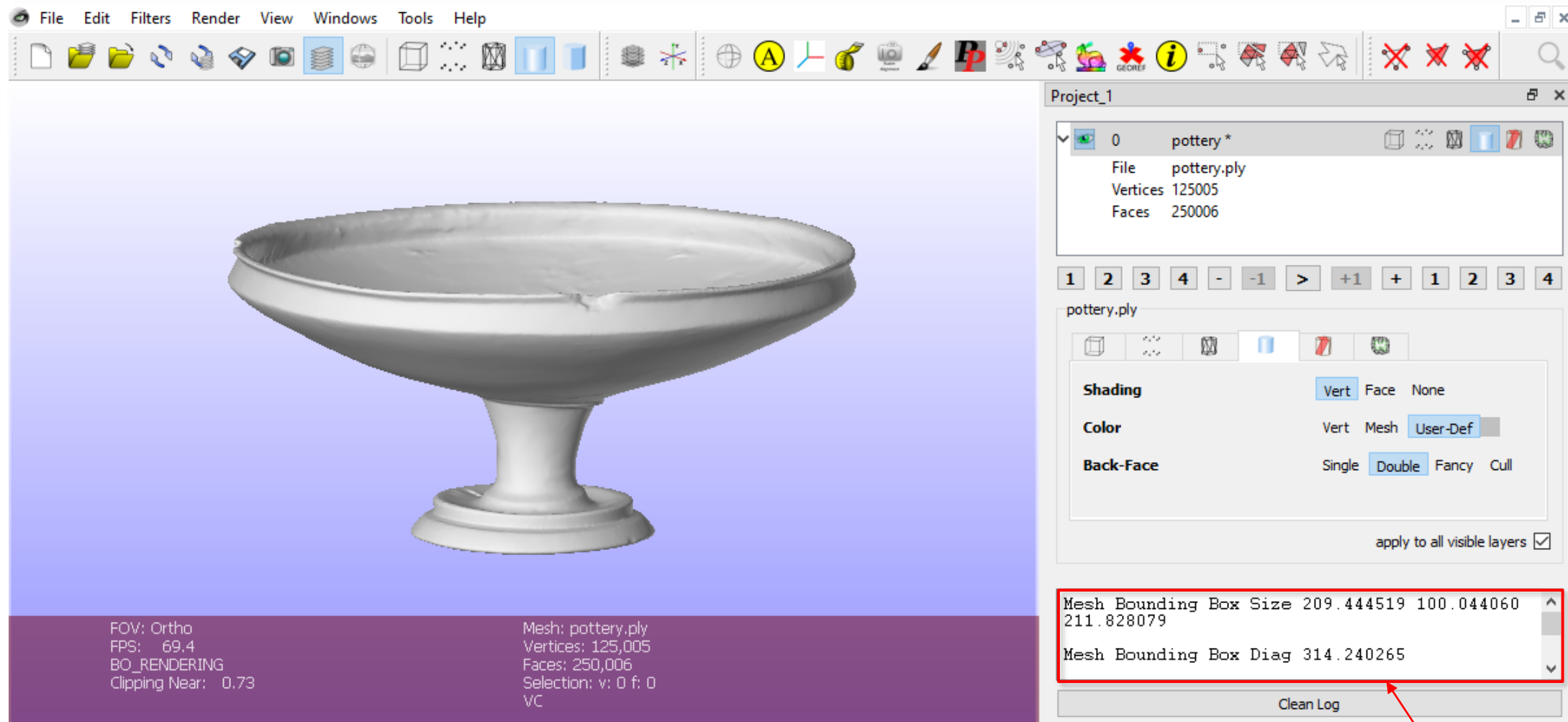
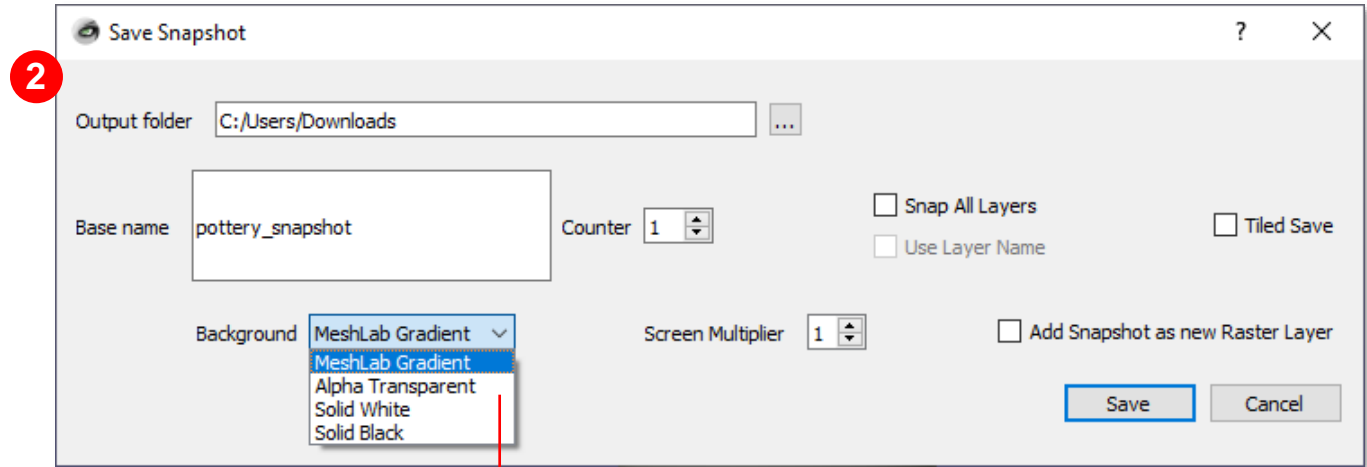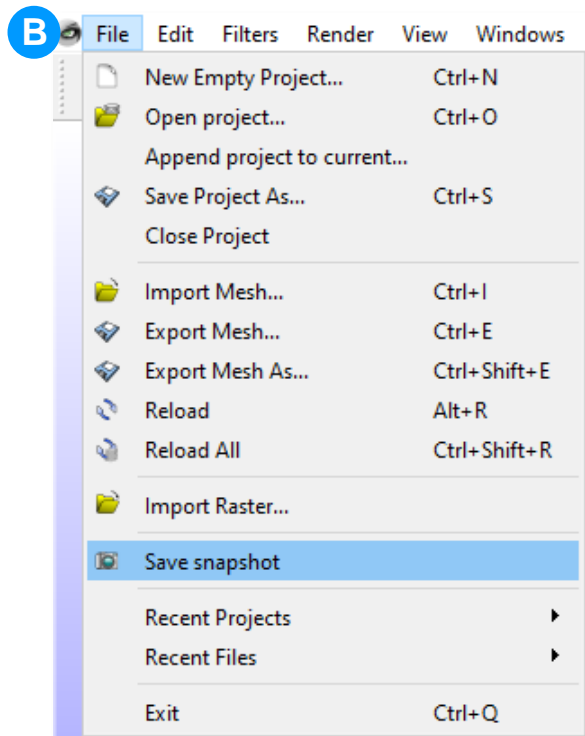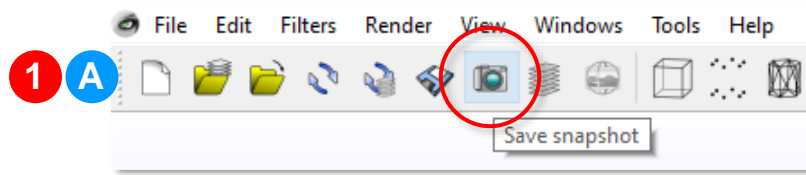# Geometrical Measures – linear (manual point to point)

Geometrical Measures – bbox, area, volume, and more

Select *Filters > Quality Measure and Computations > Compute Geometrical Measures*.

Save Snapshots

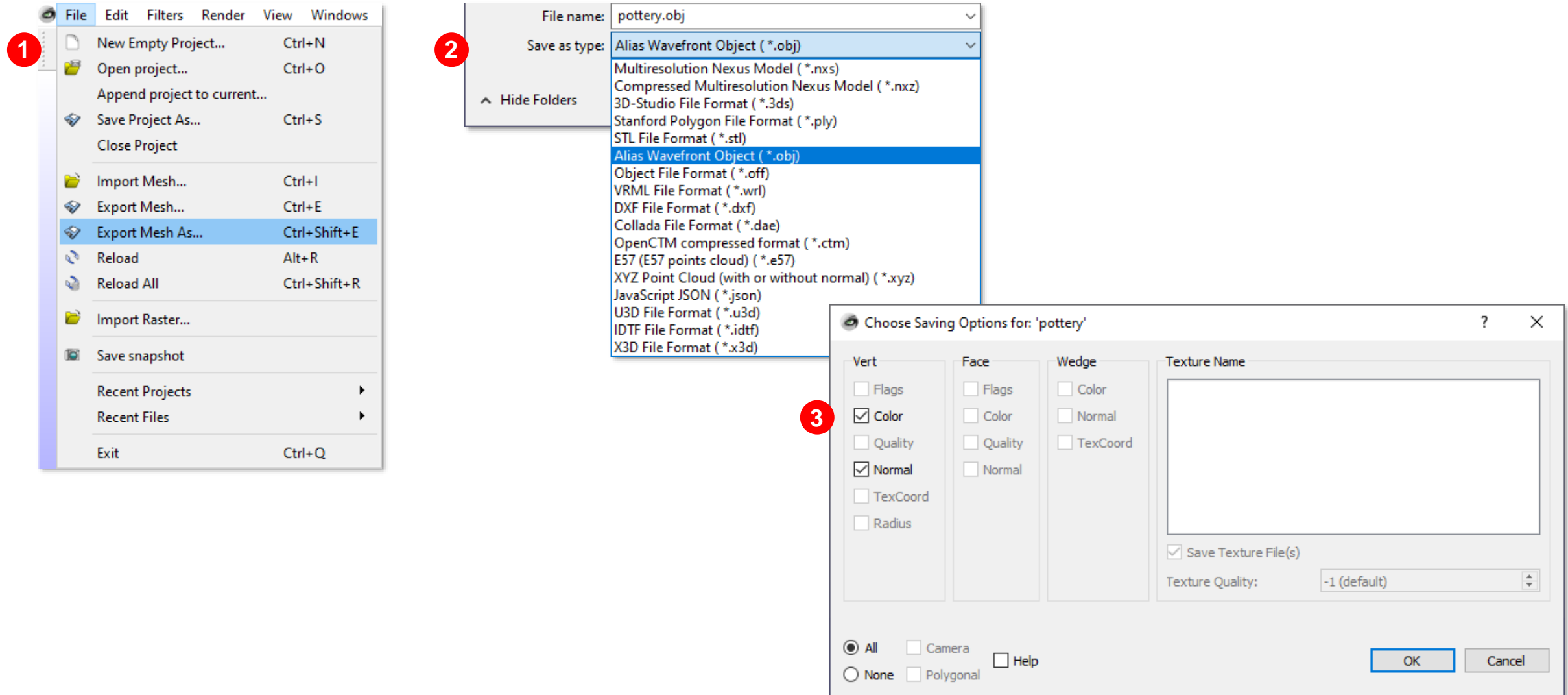MeshLab Gradient   Alpha Transparent   Solid White   Solid Black

Save a 3D Mesh – obj, ply, stl, and more file formats

Thanks!

Vera Moitinho de Almeida

CODA - Centre for Digital Culture and Innovation