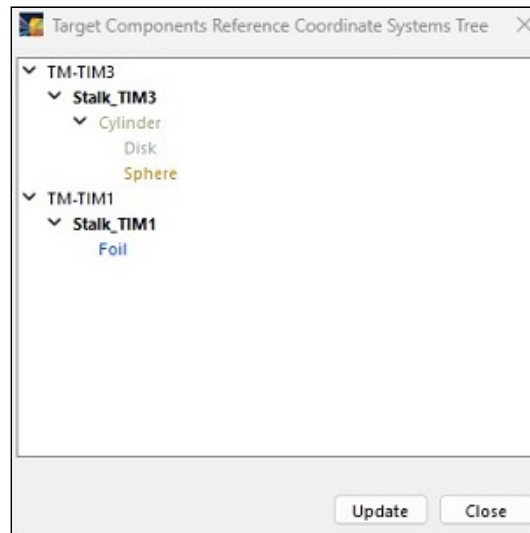
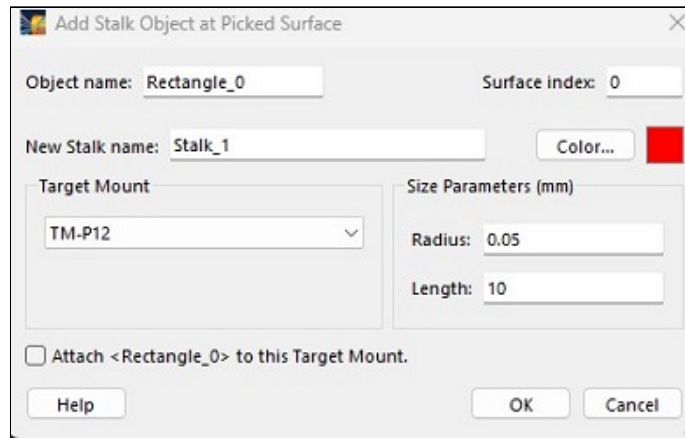


## Revisions for VISRAD 19.2.0

- The ability to rotate about a fixed point the the *Main Graphics Frame* has been updated. A new tool button (⦿), located on the right side of the main window, supports *Orbiting* about a picked surface element or object (i.e., *Target Component*).
  - After clicking the tool button, the cursor changes (↑) and the user picks either a surface element or an object in the grid. To select an object, press the *Shift* button while picking.
  - The orbiting cursor (⦿) then appears, and the view is rotated about the centroid of the picked surface or object using the mouse. Axes showing the location of the orbiting position are shown while in *Orbiting* mode.
  - The parameters associated with changing the view are stored so that *Memorized Views* are supported.
- Viewer rotation has been improved in *Main Graphics Frame* when using the *Adjust Viewer Angles* tool button (🖱️). The view is now rotated in a more intuitive manner.
- A diagram showing how *Target Components Reference Coordinate Systems* are organized has been added. The top level tree items are either the *Target Chamber* or one of the *Target Mounts* (target mount systems are currently supported for the OMEGA, EP, and NIF target chambers). *Target Components* that use another component as a reference coordinate system are children of that item.
  - To display it, click on the *Show Ref. Coord. System Tree* button at the bottom of the *Target Components Summary Table*.
  - It can also be displayed using the *Target | Show Ref. Coord. System Tree* menu item in the *Main Window* and the *Show | Target Ref. Coord. System Tree* menu item in the *Target Assembly Viewer*.



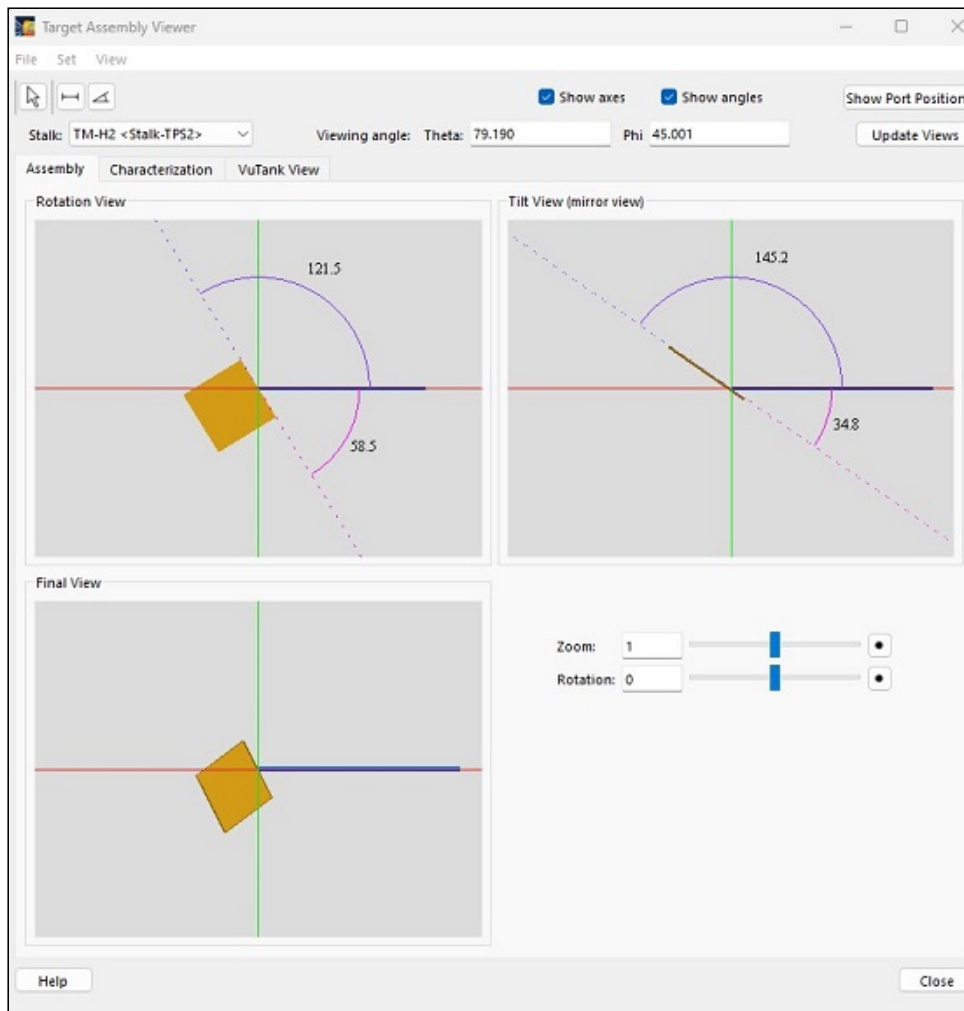
- The new simpler method to add a *Stalk* object to the target grid has been added. Users can simply pick on a surface element in the target grid using the *Picked Surface Node Positions* tool button (🖱️). In this dialog, where the node positions, centroid, and unit normal for the surface are shown, select one of the surface element nodes or the centroid position, and click on the *Add a Stalk at this Surface* button. A dialog showing a list of available *Target Mounts* is shown, along with a few selected parameters. The new *Stalk* object is then added to the *Target Components List*, and can be later edited using the *Object Parameters Dialog*.

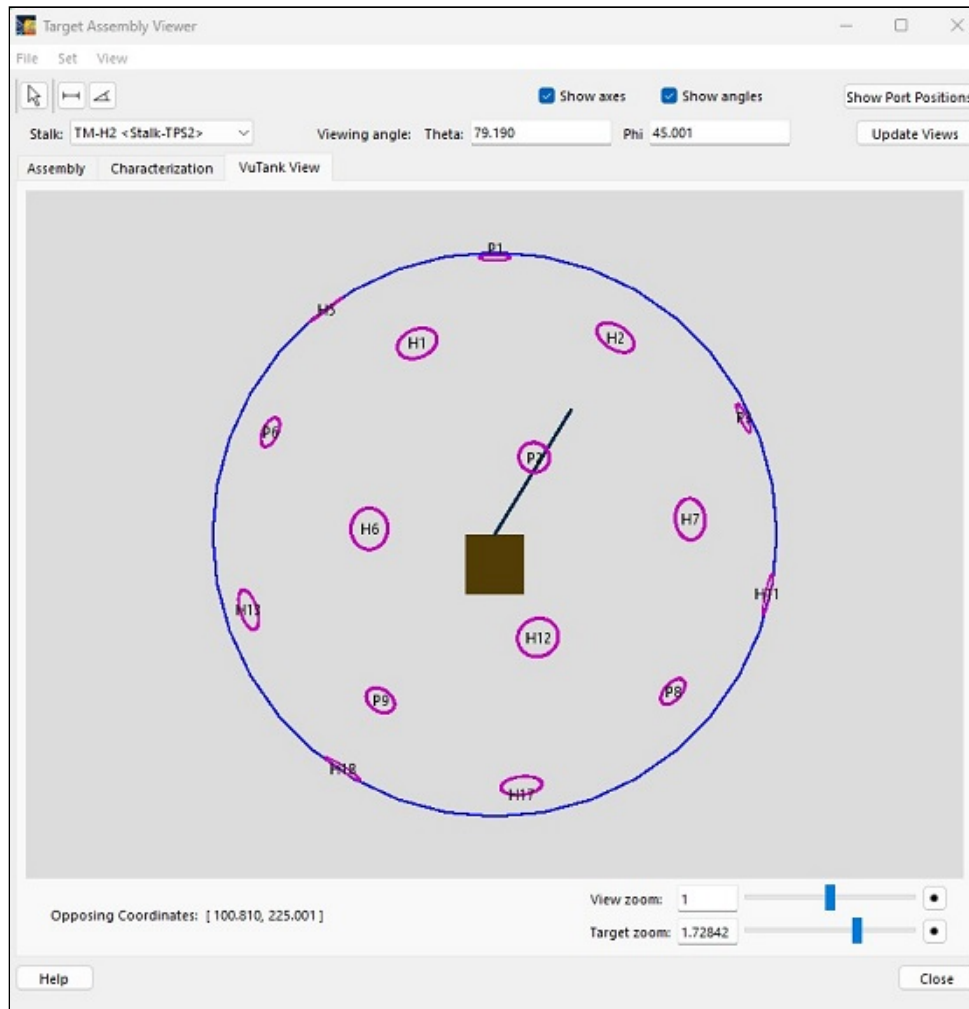



A check box provides the option to reset the reference coordinate system of the picked surface element's *Target Component* to the *Target Mount*.

Note: this option is available only for target chambers that contain *Target Mounts*.

- A *Target Assembly Viewer* has been added to support target fabrication efforts at the University of Rochester. The viewer shows 3 *Assembly* views and 4 *Characterization* views (used for metrology). In addition, a *VuTank* view is displayed showing angles to diagnostic ports.
  - To display the viewer, use the *View | Target Assembly Viewer* menu item in *VISRAD's Main Window*.
  - The viewer can also be displayed by picking on a surface element using the *Picked Surface Node Positions* tool button (🖱️). When this is done, the viewer is displayed and the *Viewing Angles* are automatically set using the surface normal vector.





- The *Target Assembly Viewer* requires the use of *Target Mounts*. Each *Target Mount* used requires one (and only one) target components to be designated as a *Stalk* object. A cylindrical object can be designated to be the *Stalk* of a *Target Mount* using the box in the upper right of the *Object Parameters Dialog*.
- All target components that utilize the selected *Target Mount* (either directly or indirectly) as a reference coordinate system are shown in the images. The visibility of each component is controlled using *Show* and *Hide* in the *Target Components List*.
- The *Assembly Rotation* and *Tilt* views, and the *Characterization Normal* and *Side* views show angles measured from the *Stalk* to the target grid. This is determined using the minimum angle measured from the stalk to any node in the grid in the clockwise and counterclockwise directions.
- The *x*- and *y*-axes for each view can also be displayed. The origin is determined by finding where the *Stalk* first intersects the target grid in each view. If no intersection is found, the bottom of the *Stalk* is used.
- Right-clicking on a *Target Assembly View* provides options to print and export images. Also an option is provided that sets the view position parameters in the *Main Graphics Frame* to those of that *Target Assembly View*.
- The *VuTank* view shows the target grid along with a scaled down rendering of the target chamber and diagnostic ports (as is displayed in the *Chamber Ports Viewer*). Zooming for the entire view and for the target can be independently controlled. Angles to any of the *Diagnostic Ports* using the coordinate system defined by the *Viewing Angles* can be displayed using the *Show Port Positions* button.
- *Point-to-Point Distance Tool*: A button (labeled "+R") has been added which adds a *Reticle* to the *Target Positioning Viewer* using the *Circle* parameters generated by the 3 selected points. Several additional parameters for the *Main Graphics Frame* are now stored in workspace files, including parameters for: axes visibility, polygon rendering mode, and clipping planes.
- In the *Clipping Planes for Display* widget (menu item *Set | Clipping Planes*), the clipping plane names in the list and the box holding the parameters for each plane are now color coded to help avoid confusion in setting parameters.
- Data is now written to the *Preferences* file using a format that does not require backward compatibility. This means that ver. 19.2.0 will be able to read the saved *Preferences* data from ver. 19.2.0 and all later versions.
- In 2D contour plots, it is now possible to rescale the color map based on just the portion of the grid that lies within the plot bounds. To do this, use the *Rescale Color Map* drop-down menu (  ).
- *Diagnostic Ports* tables: When sorting by the *Assignment* column, case-insensitive sorting is used.
- Bug fixes:

- A bug affecting beam intensity profiles has been fixed. This bug, which occurs in ver. 19.0.0 and 19.1.0, affected the intensity profiles approximately 20 mm or more away from the beam focal plane.
- The order in which rotations are performed in the *Main Graphics Frame* has been updated. In ver. 19.0.0 and 19.1.0, the order was modified, resulting in the possibility that data saved to *Memorized Views* in ver. 18.4.0 and earlier were being applied in a different order. In 19.2.0, the order has been readjusted. A warning is presented if the user attempts to view a *Memorized View* using parameters from earlier versions of *VISRAD*.
- *Port Positions Table*: A bug leading to inaccurate *Diagnostic Port* table data for OMEGA-EP has been fixed. The bug was introduced in version 18.4.0, where changes were made to prepare for the transition to Qt6.
- Clipping planes used for cutaway views: fixed problem occurring when the reference coordinate system was positioned away from target chamber center.
- *Target Positioning Viewer*: aliasing problem fixed when rendering with color/lighting is on.
- *Main Graphics Frame*: Bug occurring when using the mouse wheel to zoom while in Perspective view mode has been fixed.