

ODA Viewer incorporates the power and flexibility of ODA into a single application with a graphical user interface based on QT libraries. ODA Viewer can visualize all ODA supported file formats and illustrate other visualize-related features like visual styles, markups, cutting planes and collision detection.

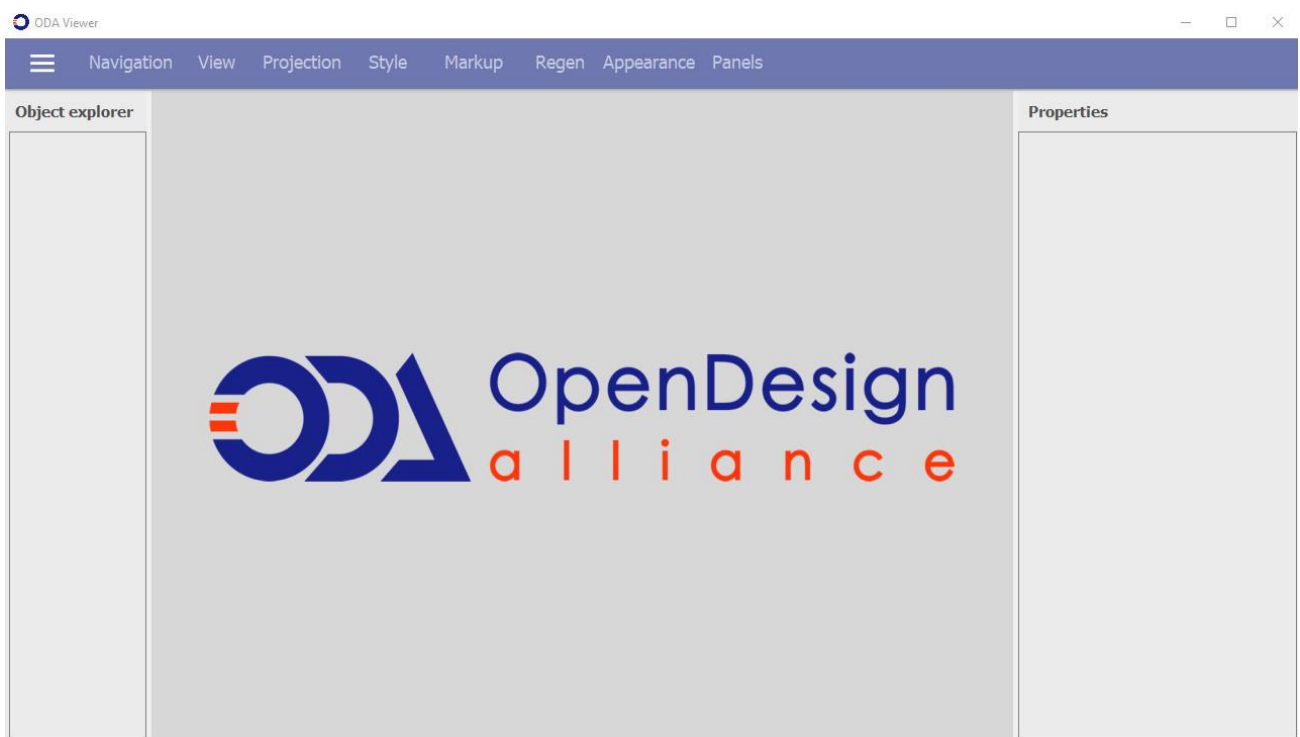
The installation process is simple and straightforward, therefore it is not included in this guide.

Launching ODA Viewer

After installation, launch the application from the icon on your desktop or navigate to the <installation_folder> and launch ODAViewer.exe, for example:

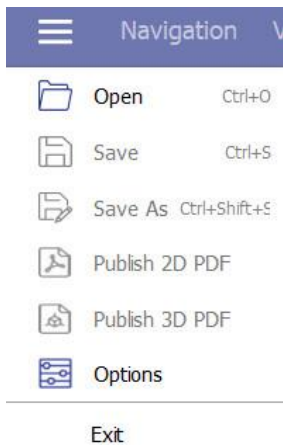
C:\Program Files\ODA\ODA Viewer 19.12.0\ODAViewer.exe.

The application window displays.



Note that only the menu icon is active when you start ODA Viewer. The menu icon contains options to:

- Open an existing file. Shortcut is `Ctrl+O`.
- Open recent files.
- Save the currently opened file to disk. Shortcut is `Ctrl+S`.
- Save the currently opened file to disk and specify the name of the file. Shortcut is `Ctrl+Shift+S`.
- Export the currently opened file to 2D or 3D PDF.
- Set general, appearance, performance, and grid settings.
- Exit the application.

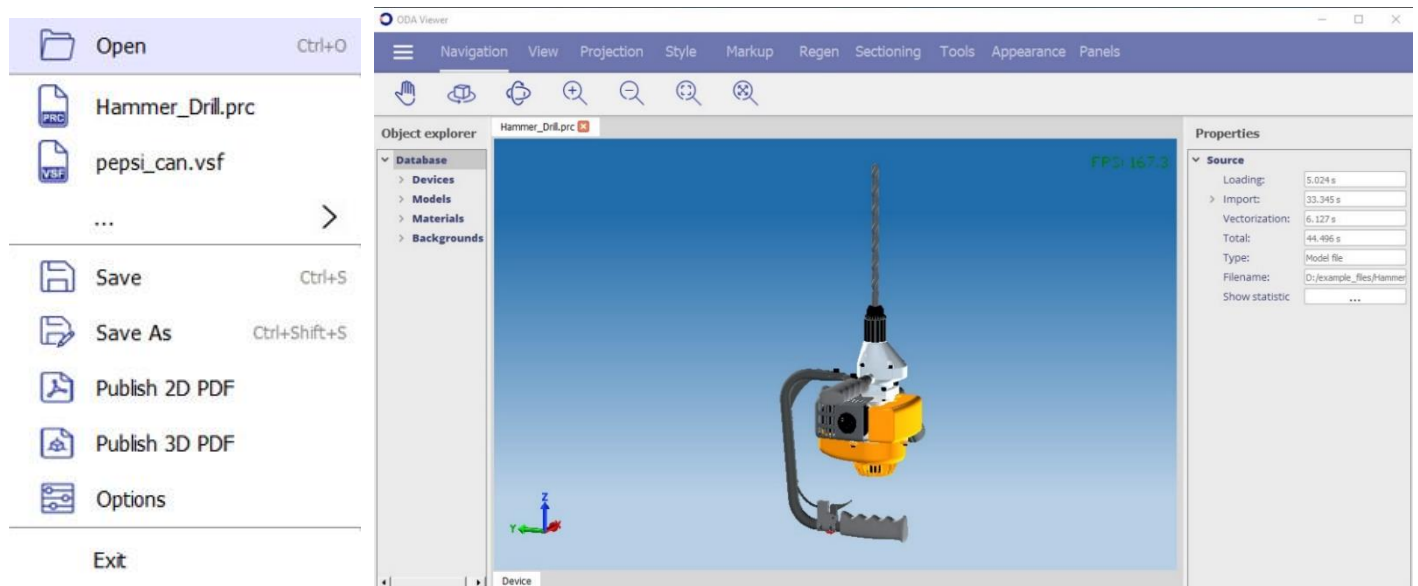


Toolbars become active after opening a file.

Opening a File that Contains a Model

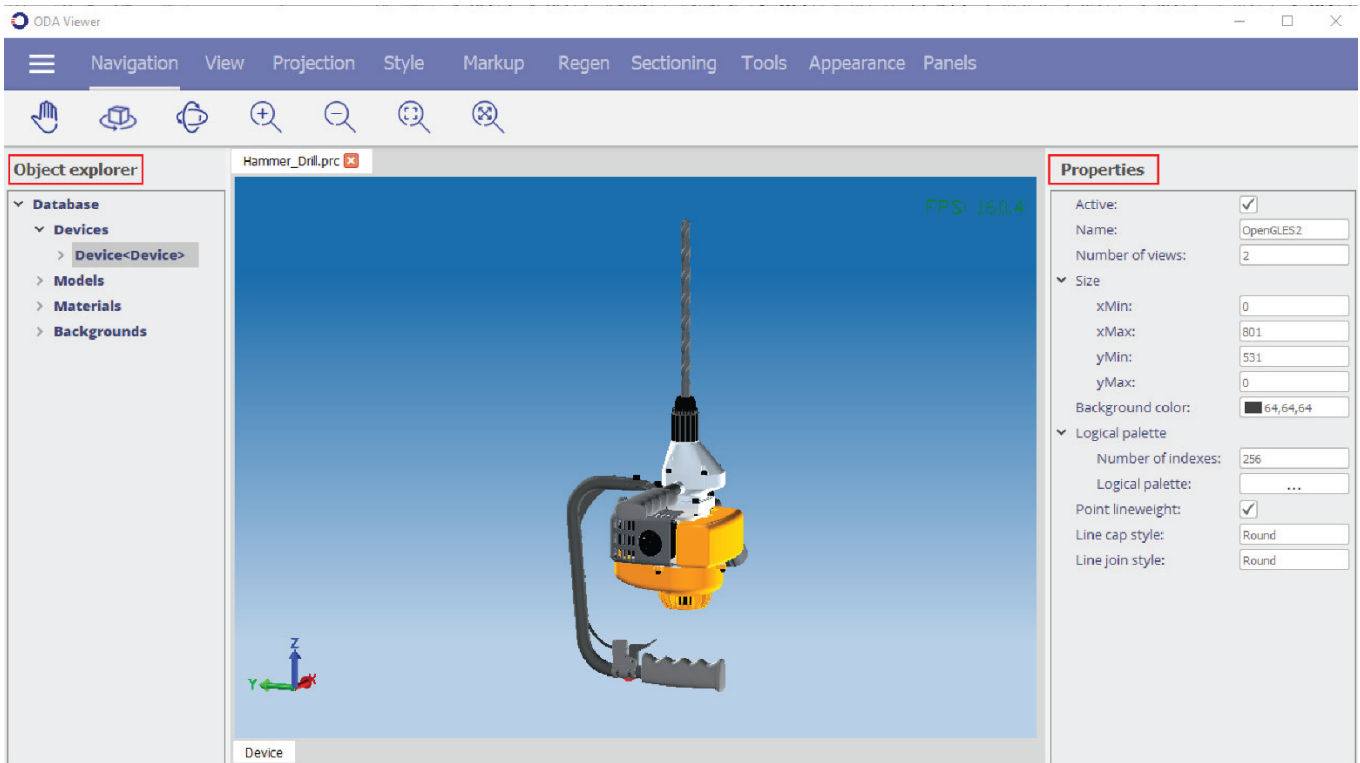
The native file format for working with ODA Viewer is VSF (Visualize Stream Format). To open an existing .vsf file, click the menu icon and choose Open. In addition to .vsf files, ODA Viewer can open other file formats such as .dwg, .obj and others:

- .vsf (Visualize Stream File)
- .dwg, .dxf
- .dgn
- .stl
- .obj
- .prc
- .rfa, .rvt (Autodesk® Revit®)
- .ifc
- .rcs (Point Cloud)
- .dsf (Drawings Stream Format)



Exploring Scene Contents

You can view and explore objects in a scene using the Object Explorer panel, which displays the hierarchy of objects that represent the scene structure. If you click an object name, for example Device<Device>, you can see corresponding read-only information in the Properties panel on the right.



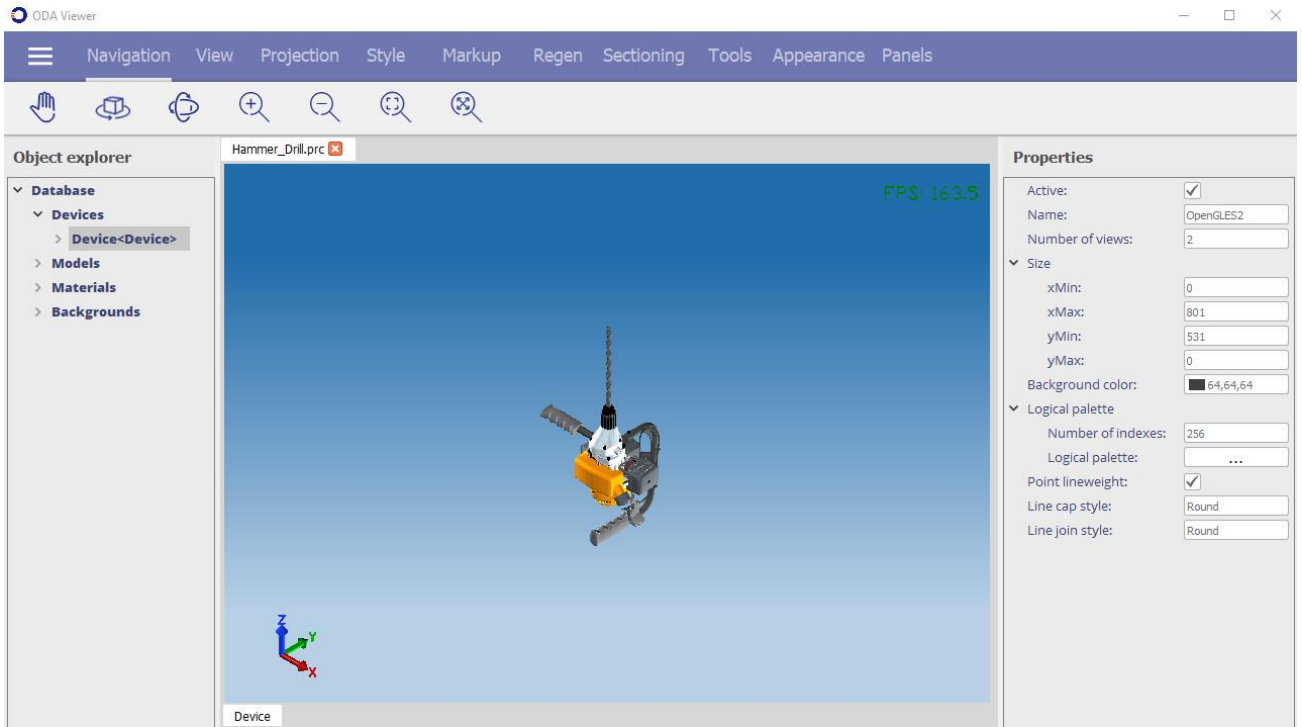
Navigating with the Scene Camera

To navigate with the scene camera, use the Navigation toolbar.

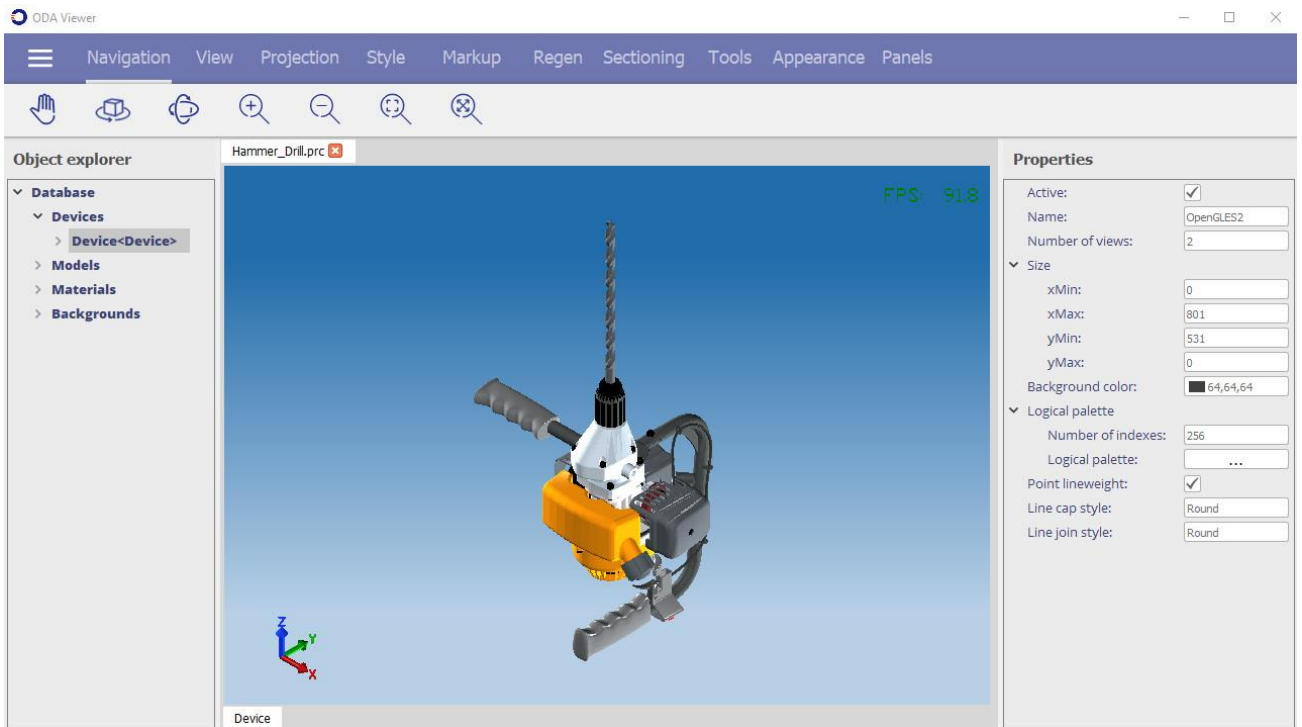
You can use different zoom options: Zoom to window, Zoom in, Zoom out, and Zoom to extents. You can also use the pan, orbit and free orbit tools.



The next example shows how to zoom in on a model.



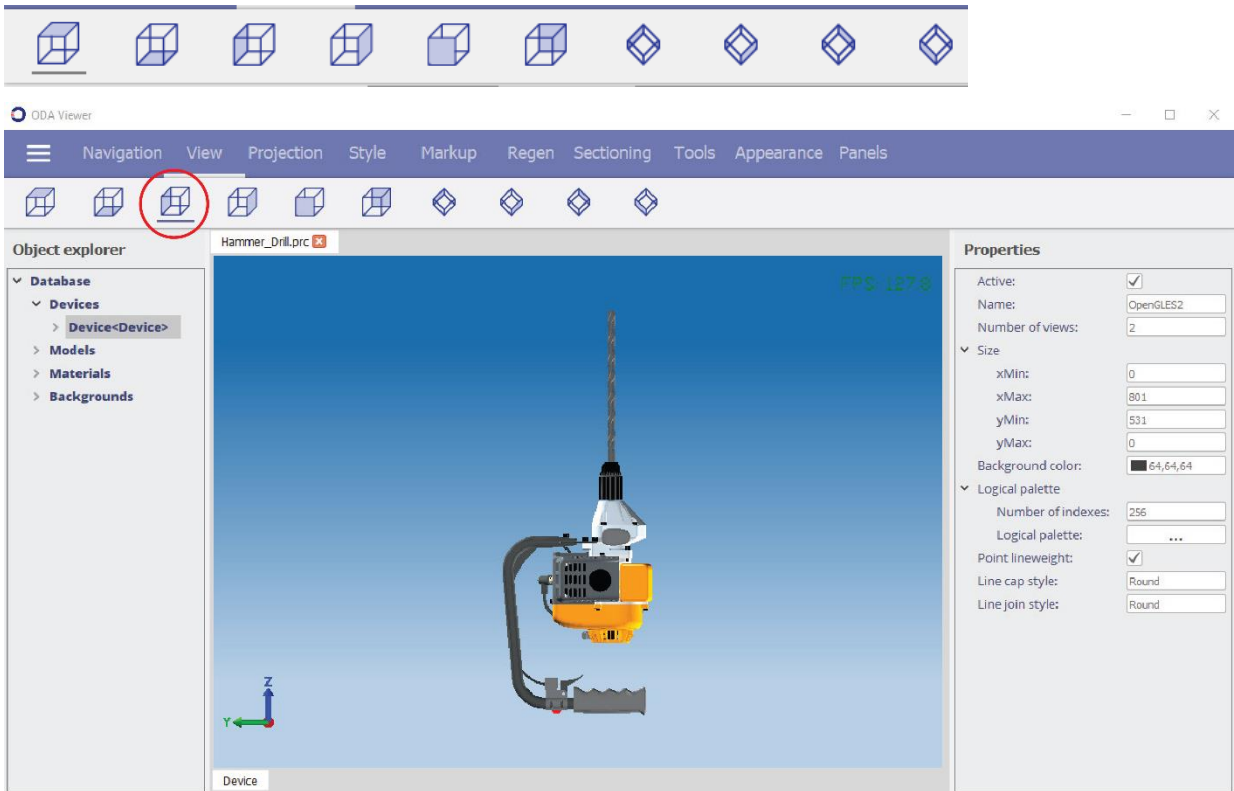
Scene appearance before zoom in



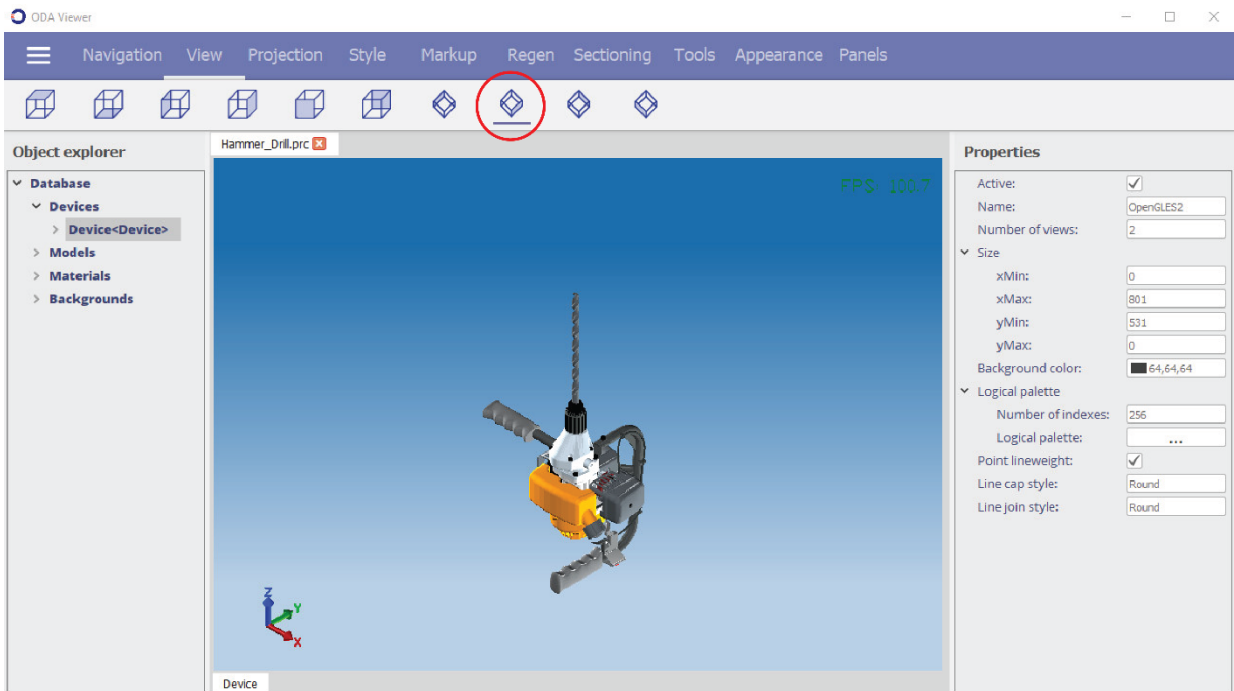
Scene appearance after zoom in

Using Predefined Views

To display one of the standard views, for example the top view, use the View toolbar.



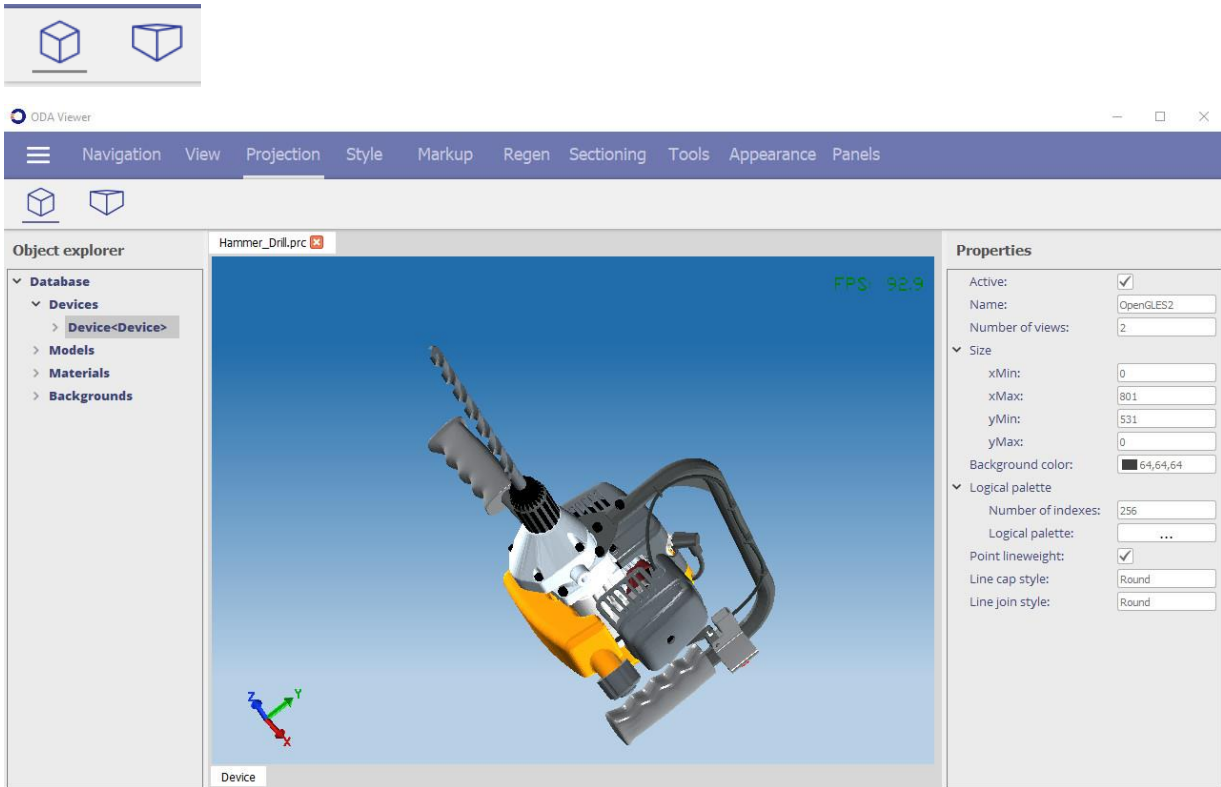
Left view



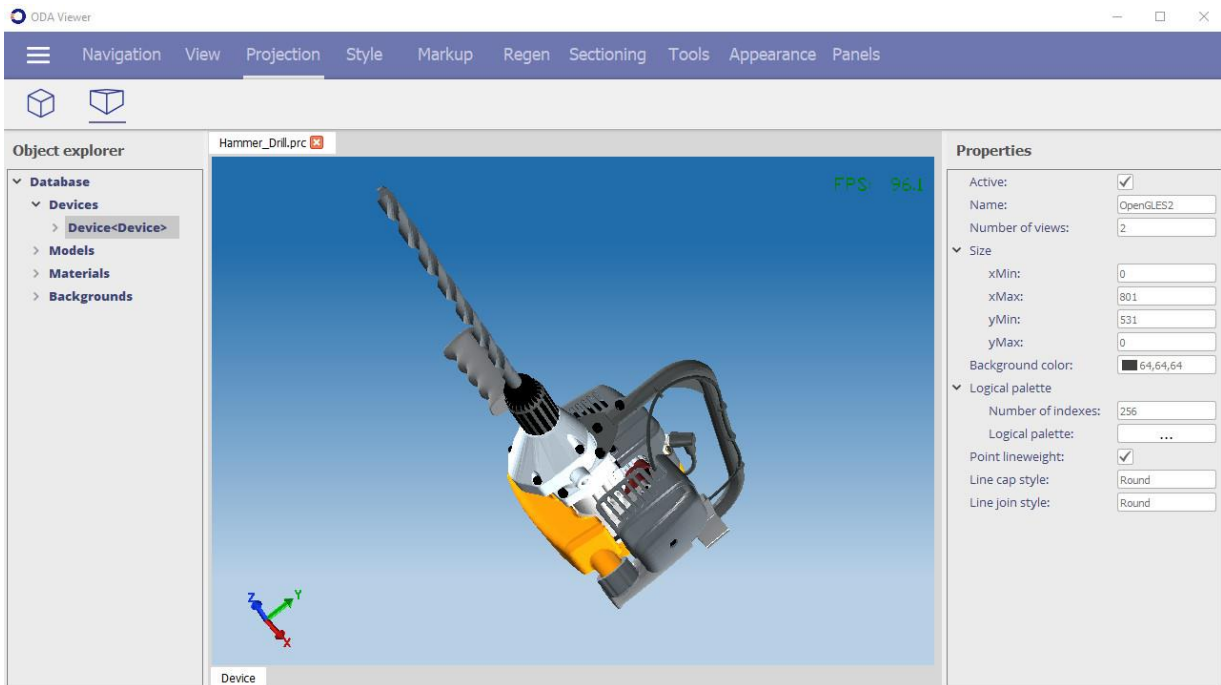
SE view

Switching Between Projections

You can choose a perspective or isometric projection type of view in the Projection toolbar.



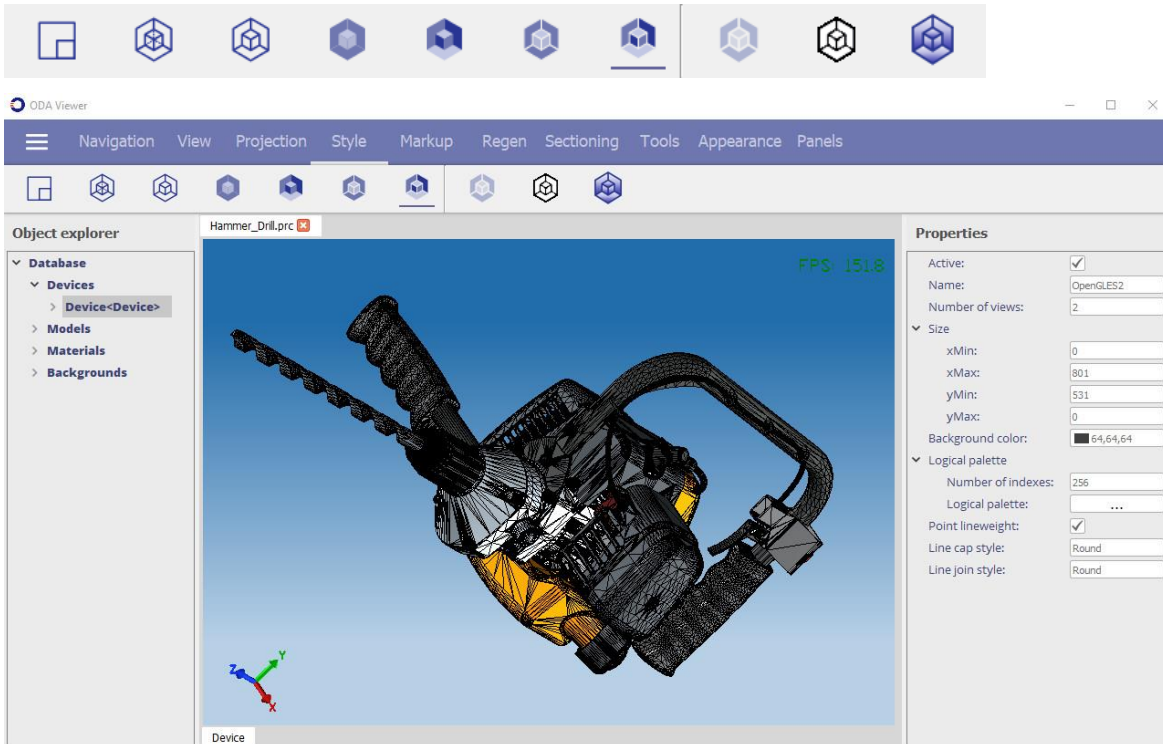
Isometric projection



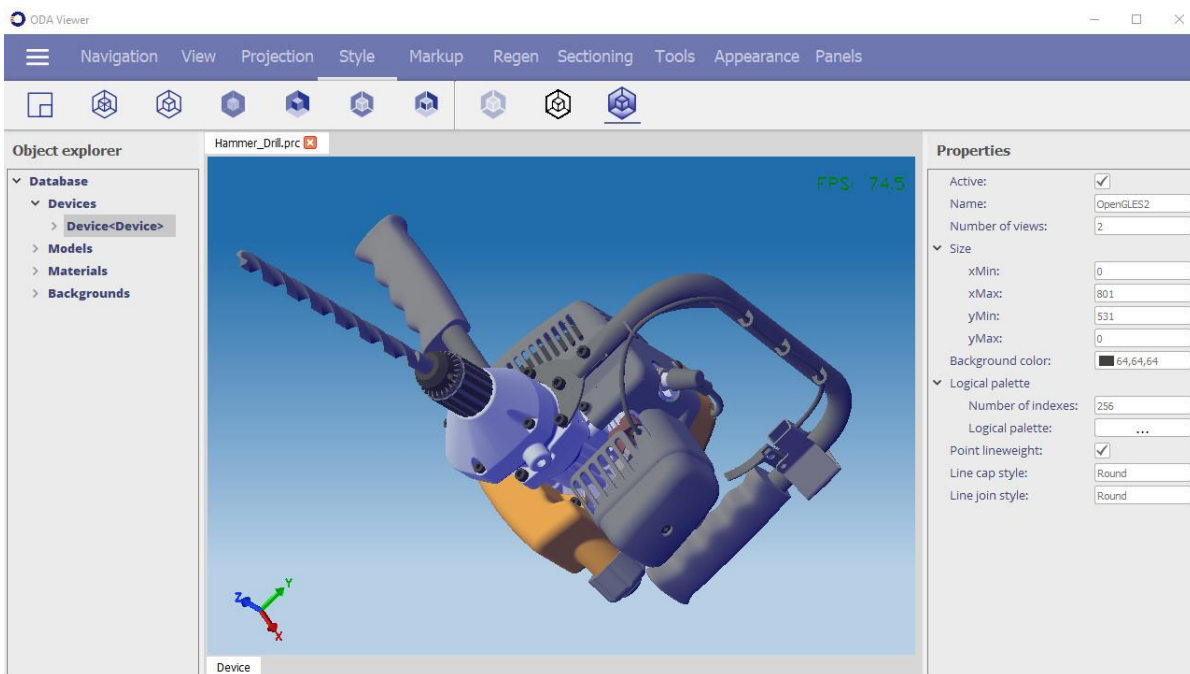
Perspective projection

Using Visual Styles

The Style toolbar allows you to apply different render modes to the scene. Render modes impact the way your scene looks, for example in wireframe mode, faces are not drawn.



Gouraud shaded with edges style



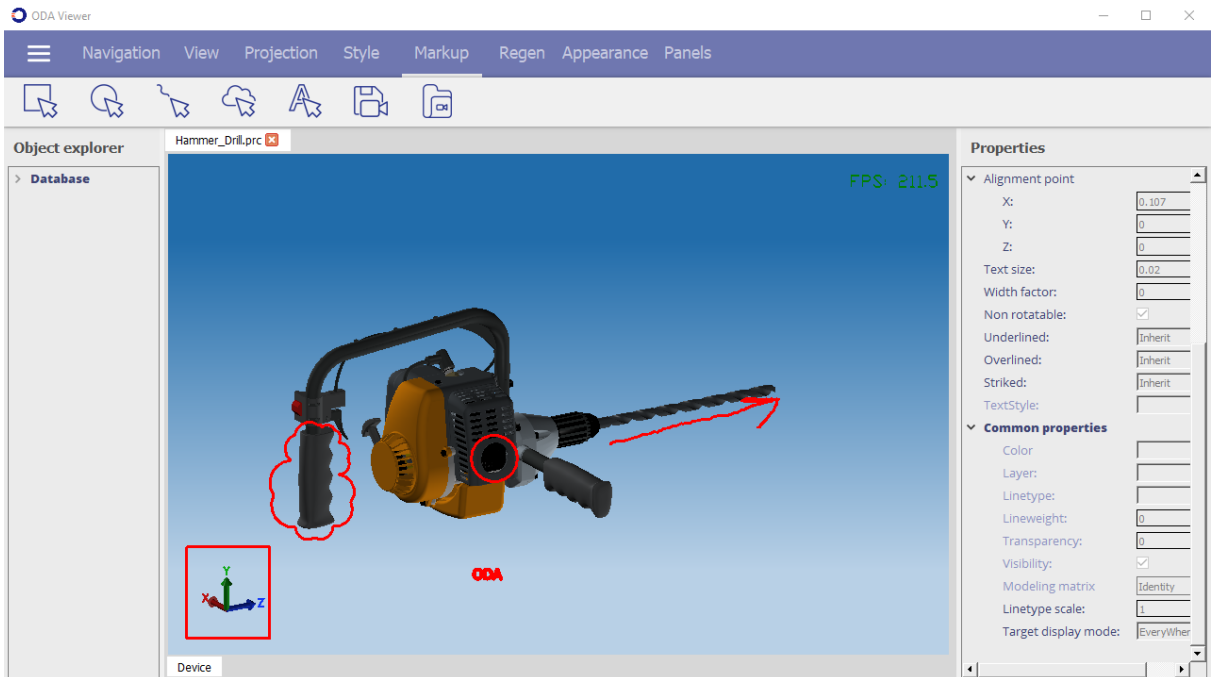
Conceptual style

Using Markups

The Markup toolbar provides tools for marking parts of a drawing, for example, render defects, key parts, etc.

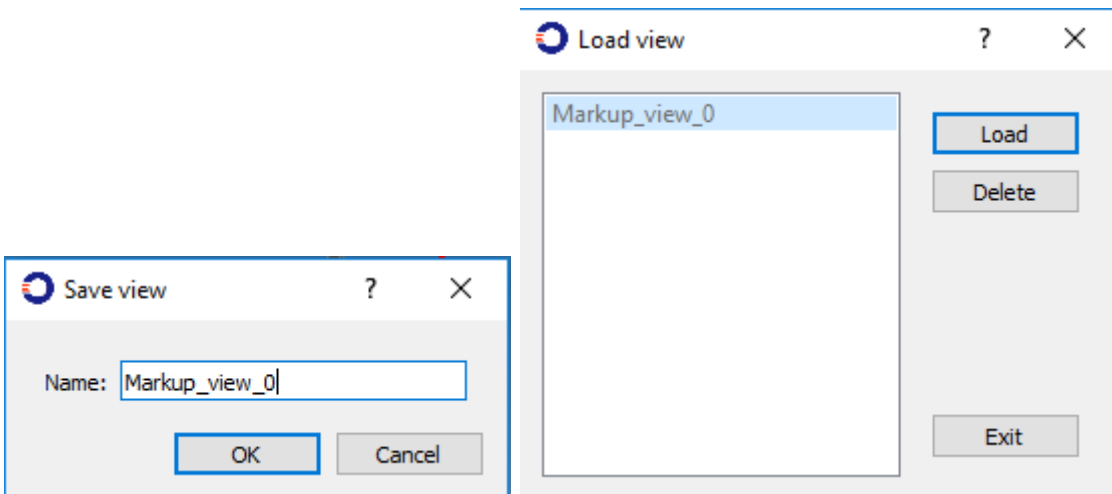


You can create markups from different shapes, free-hand sketches, and text notes with the ability to save and load markups.



View with markups

Note that markups are deleted when orbiting or rotating with the camera. To save a current view with markups, use the Save view tool. Then you can load the view with all the markups when needed.

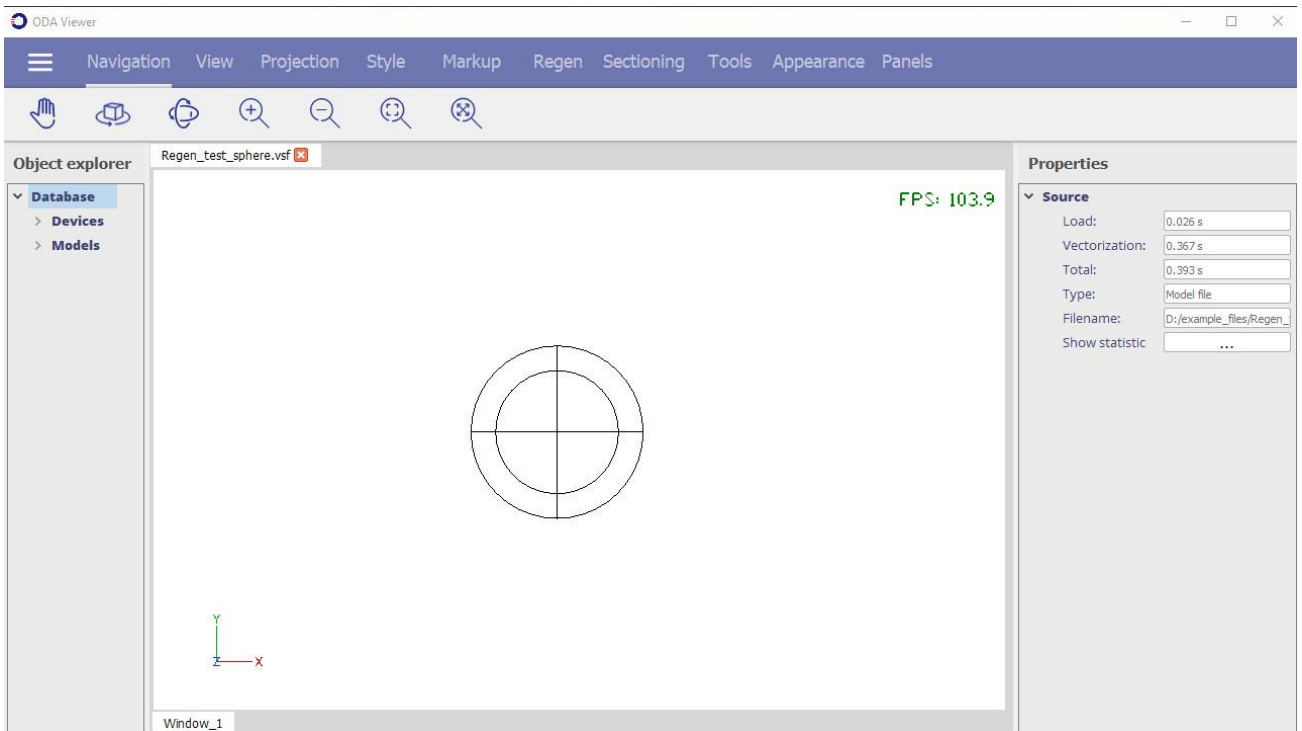


Regenerating Geometry

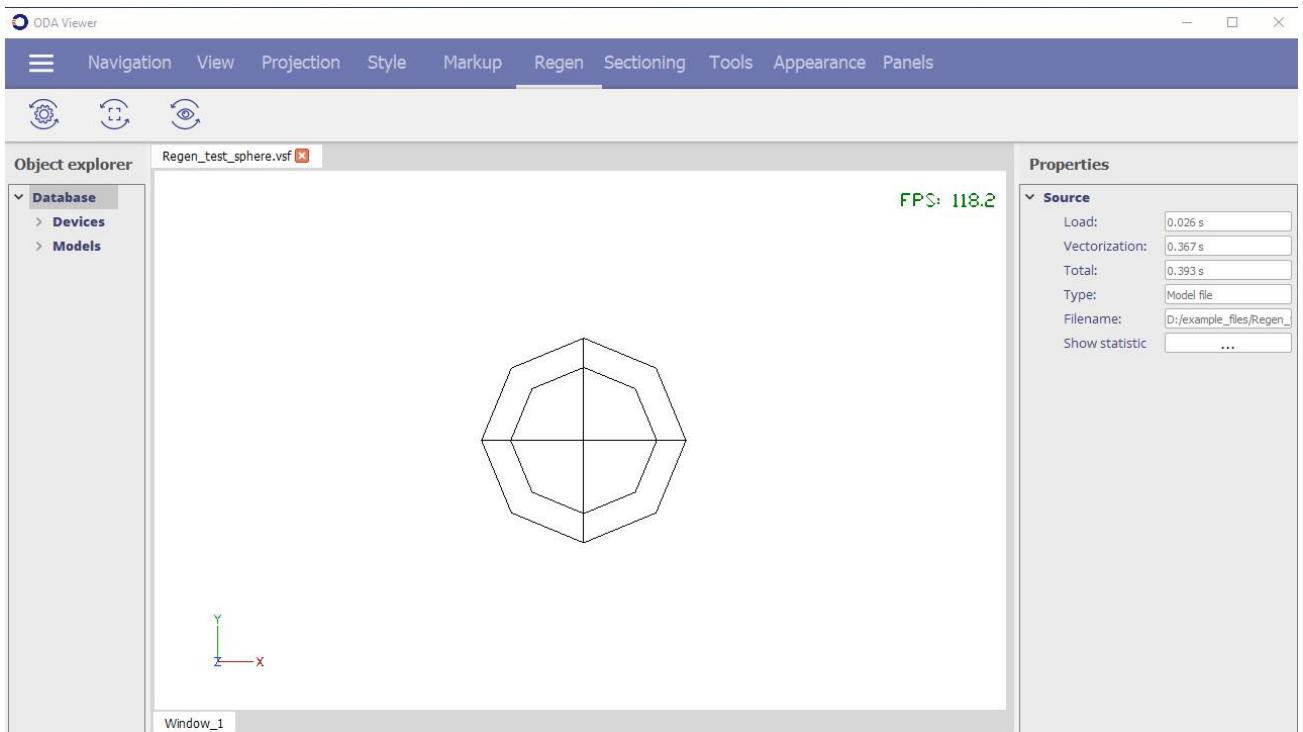
The Regen toolbar provides tools that regenerate geometry data in the scene.



Regeneration is a process that recalculates geometry for proper display on the screen. Regeneration can help save resources by reducing object details when zoomed out in the current view. Or on the contrary, when you zoom in to an object and see jagged or faceted edges.

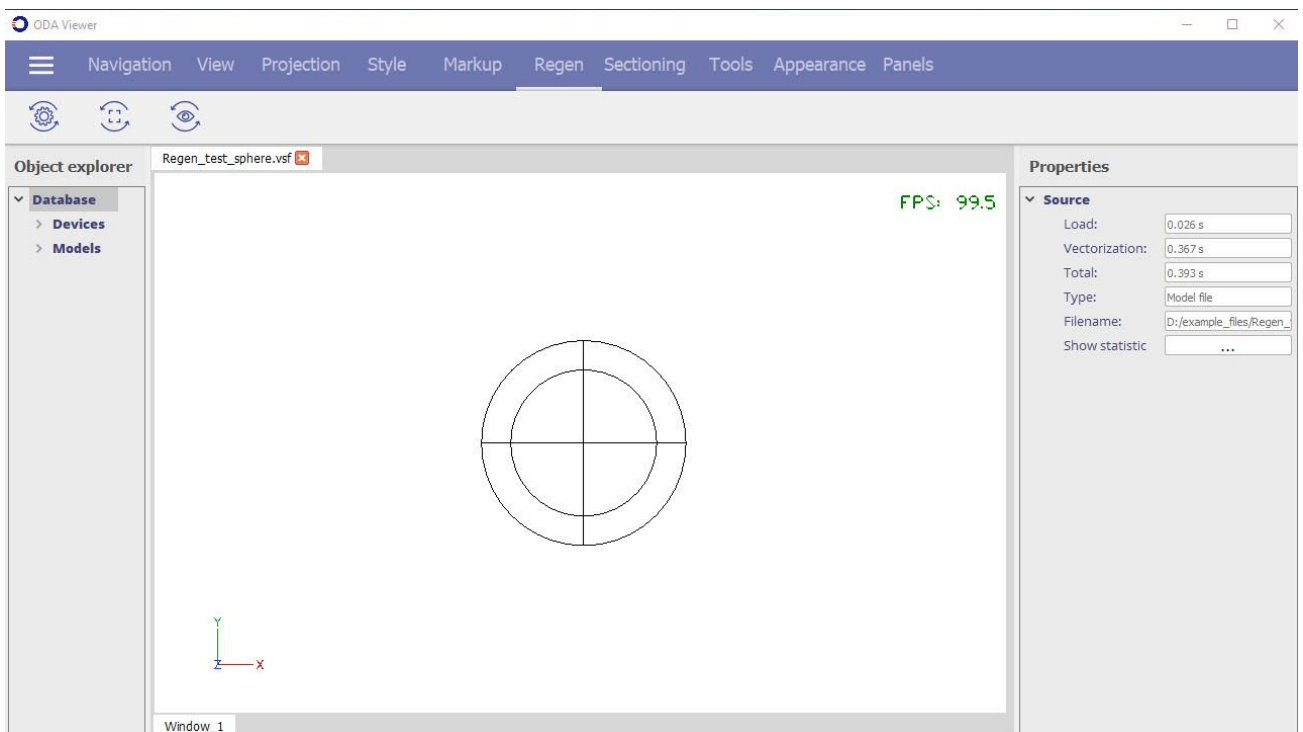


This initial picture shows a view in which a sphere displays with enough detail. Now zoom out and use one of the regeneration tools. Then zoom in again, and the result is similar to the picture below.



This is because when the first regeneration occurred, the sphere was far from the camera and didn't need too much detail, so the details were reduced to save computer resources.

From this view, click a regeneration tool again to fix the problem with the display of the sphere. The result is below.

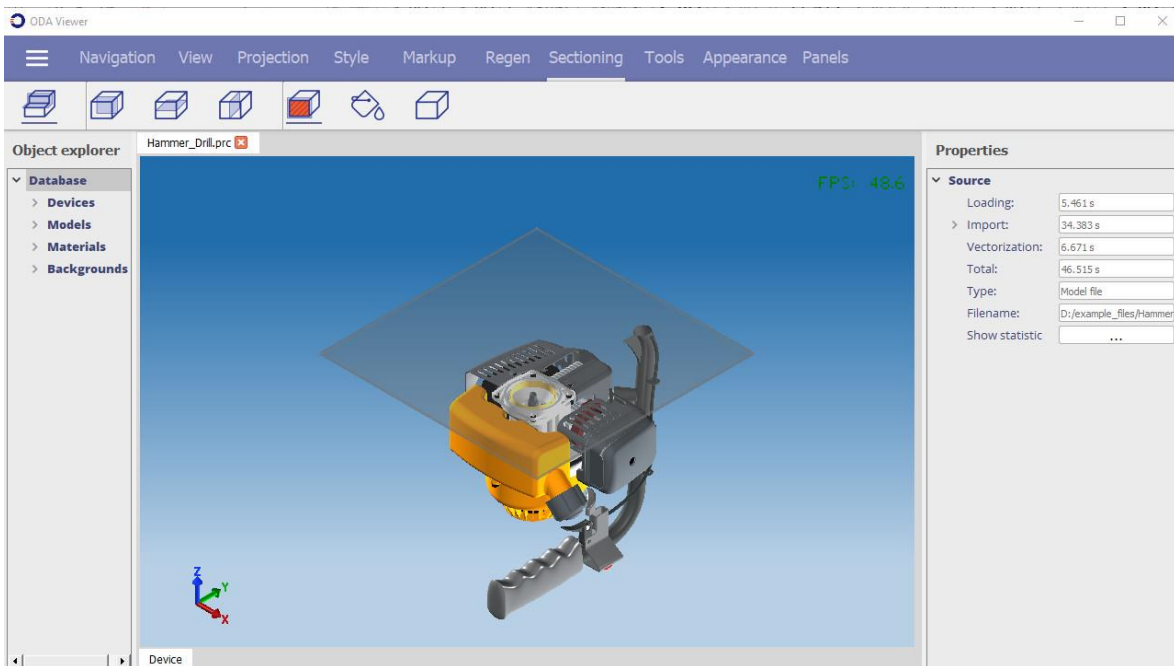


Using Cutting Planes

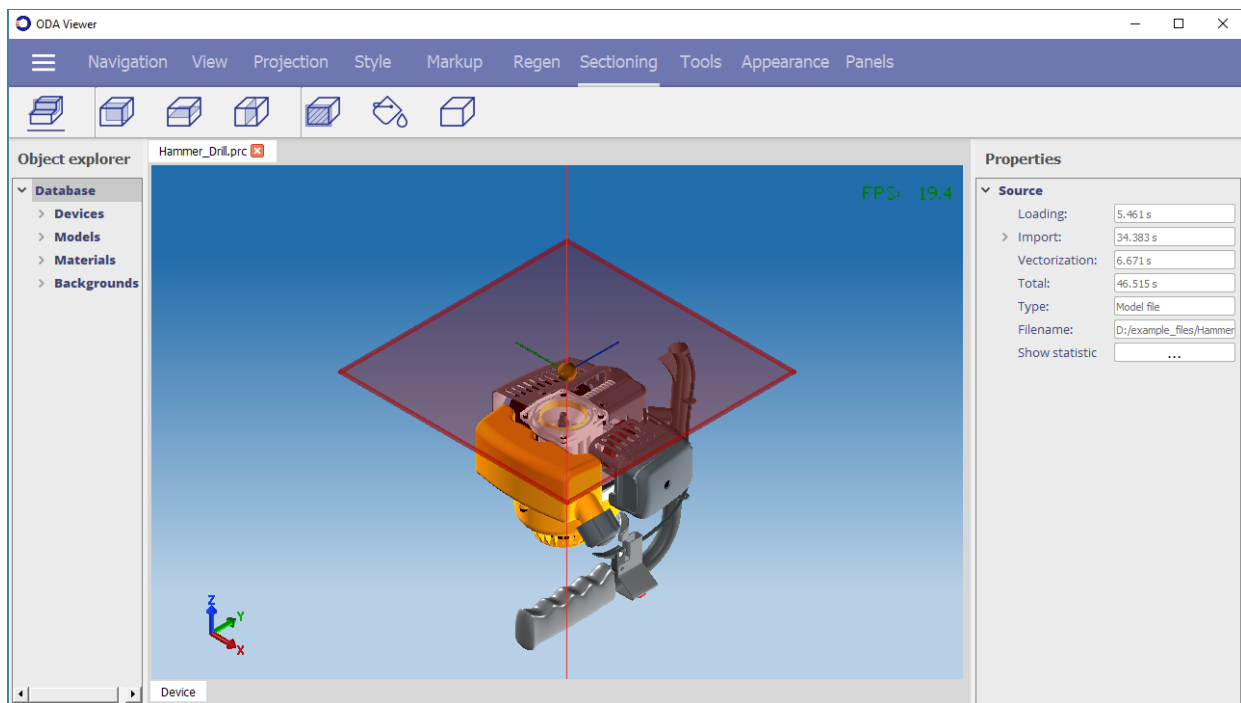
The Sectioning toolbar contains tools for working with cutting planes.



Cutting planes are planes that visually cut the geometry of a model. The first button displays or hides cutting planes in the scene (buttons are listed from left to right). The next group of buttons add cutting planes on corresponding axes. The last group of buttons contains tools for filling an intersection plane with color, specifying the color, and removing cutting planes. The next picture shows a scene with a cutting plane.



Cutting planes can be repositioned around the scene. To move or rotate a cutting plane, click it, hover the cursor over the highlighted tools, and drag the tools.



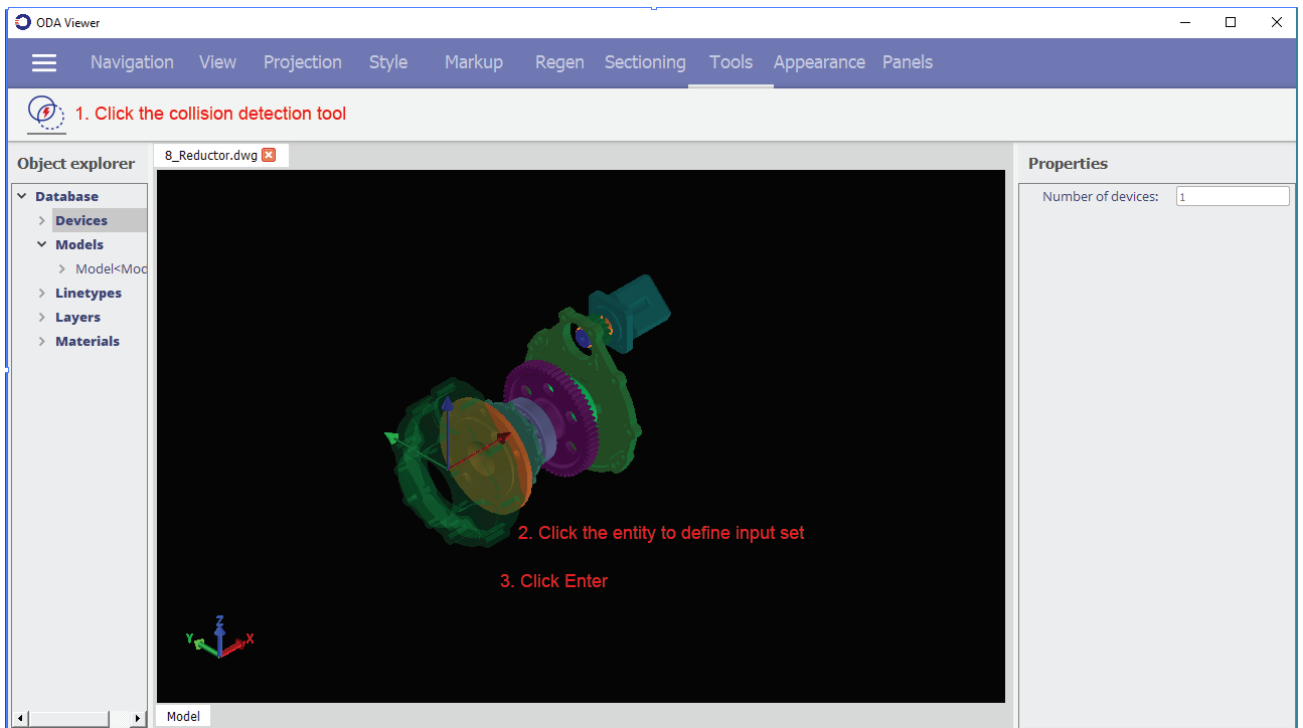
Using Tools

The Tools toolbar contains a tool for detecting collisions. Collision detection allows you to detect collisions or intersections between geometrical objects and/or entities. For example, you can use collision detection to check if geometrical objects are aligned properly and do not intersect each other.

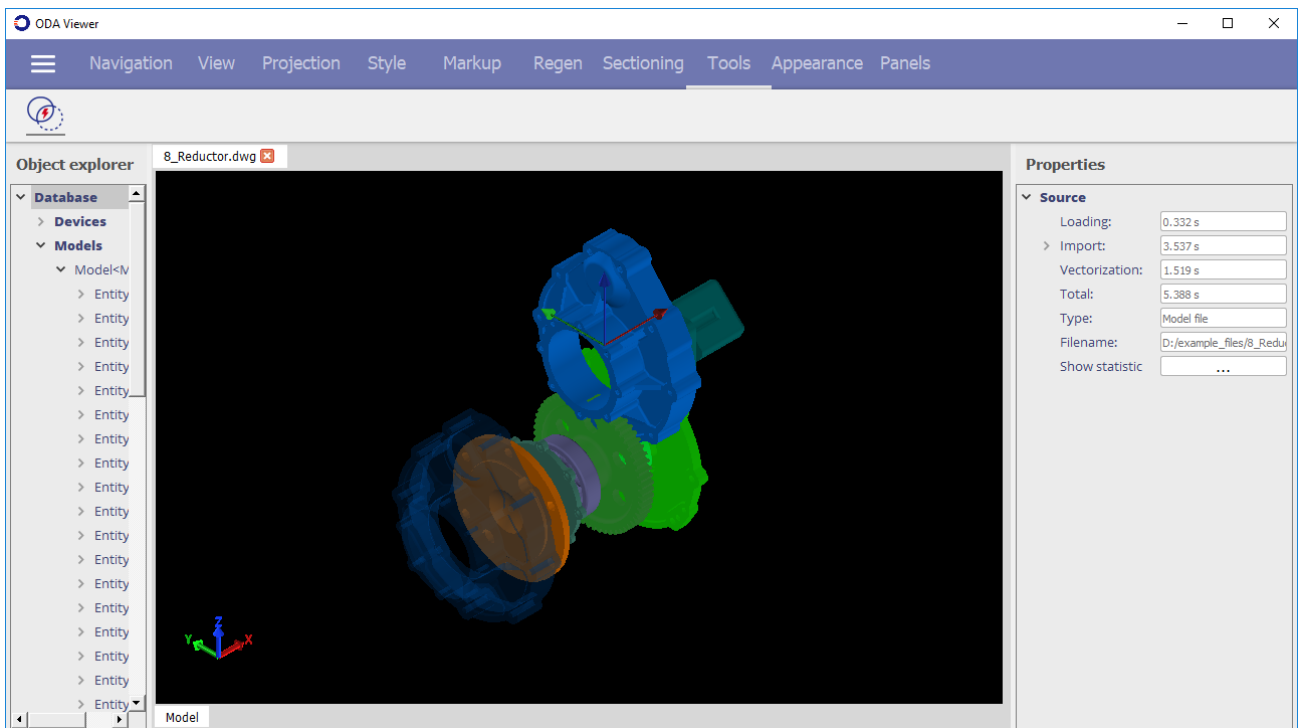


To detect collisions:

1. Click the Collision detection tool.
2. Click an entity to define the input set. You can press Ctrl while selecting objects to include several objects in the input set.
3. Press Enter. The input set is collided with the rest of the model's objects.



4. Check the objects for collisions with other objects. Drag the handles by the X, Y and Z axes to detect collisions. Collided objects are highlighted.



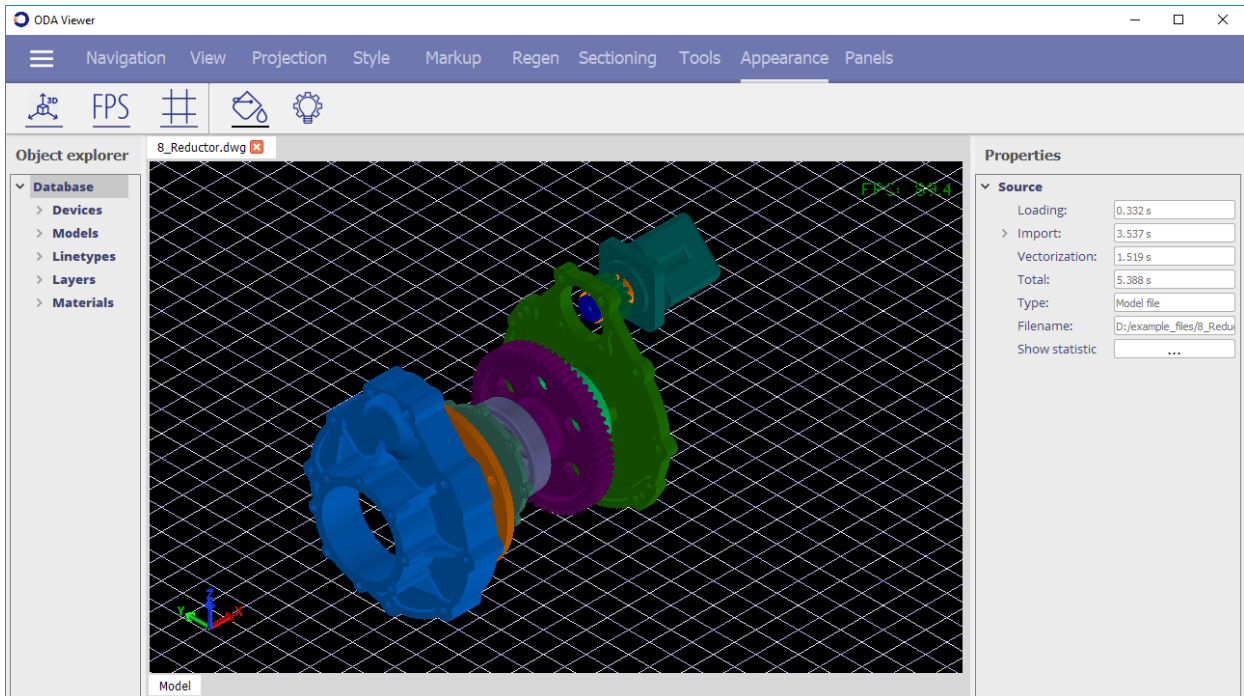
5. When finished, press Esc.

Changing the User Interface Appearance

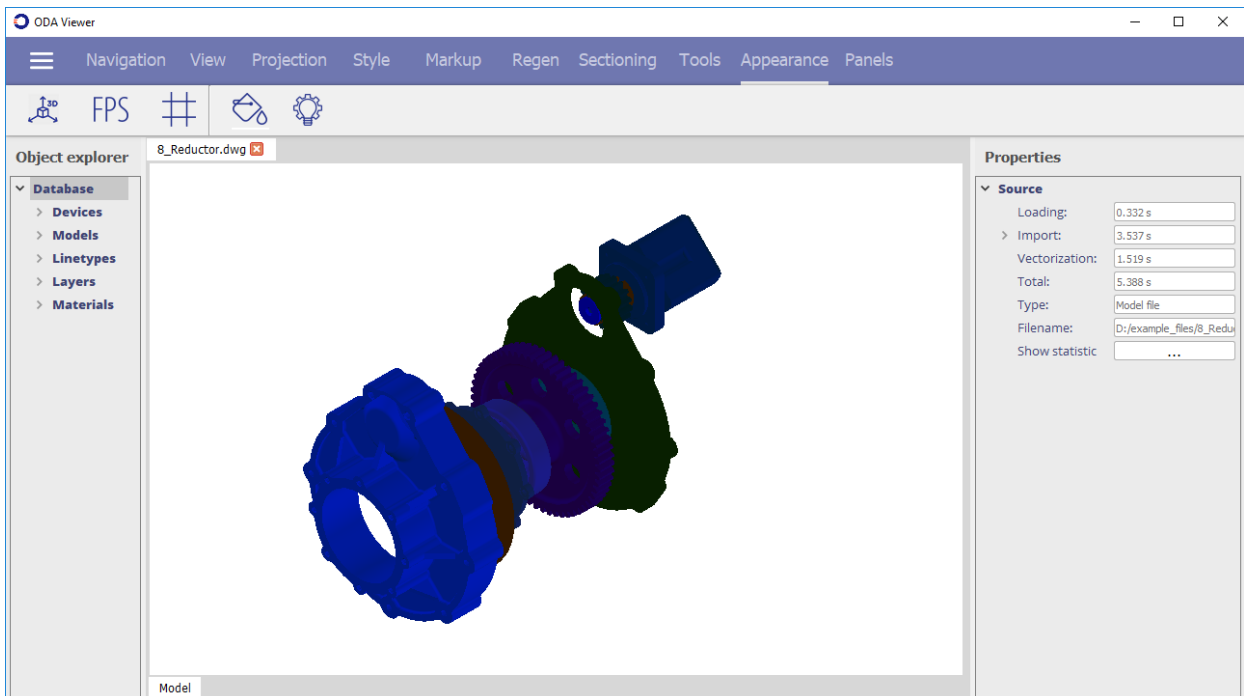
The Appearance toolbar allows you to change the appearance of the user interface.



With these tools you can switch on or off the WCS icon, FPS counter and grid. You can also specify the background color and lighting settings.



The next picture shows the same scene with all elements hidden, the background color changed, and light settings adjusted.

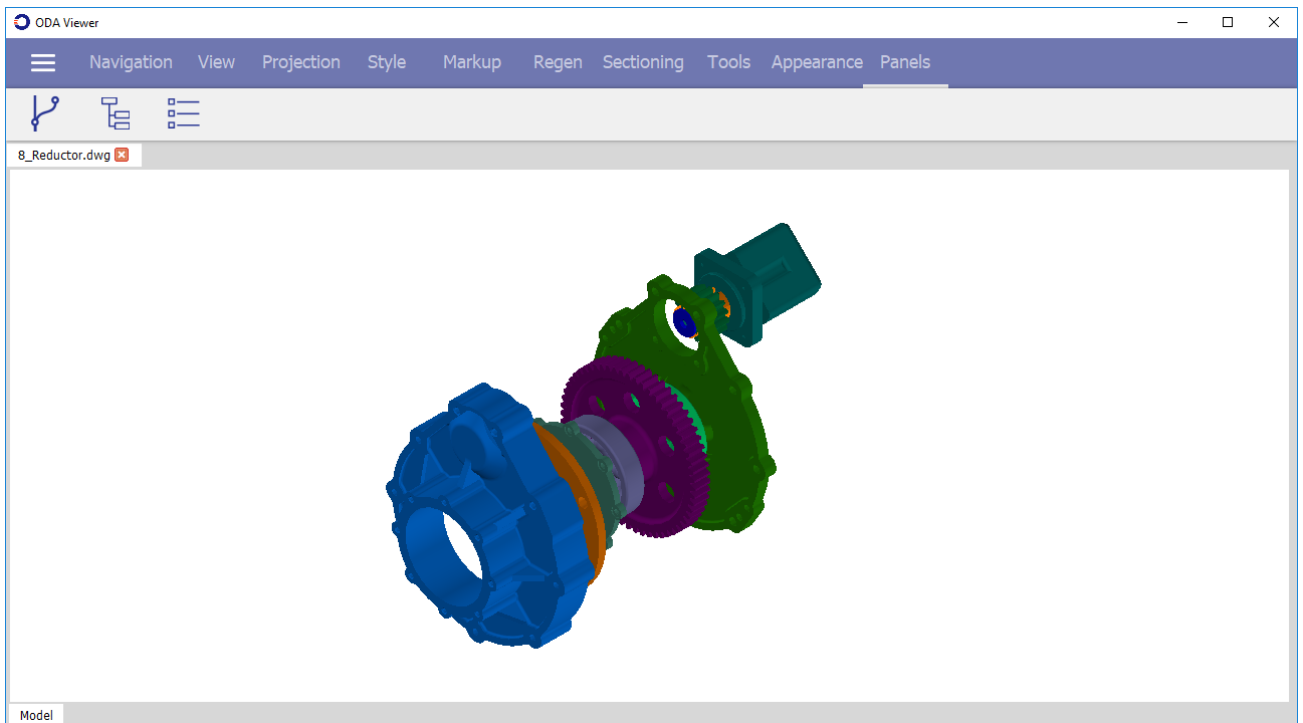
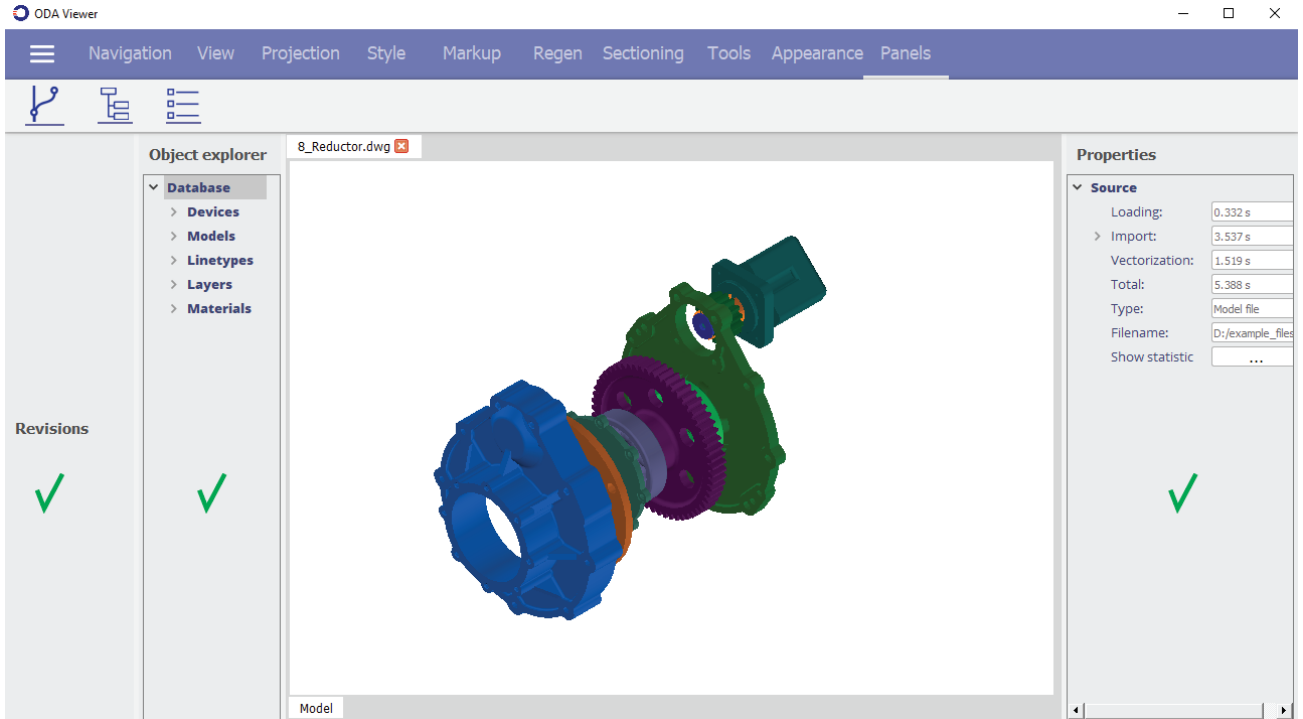


Controlling the Display of Panels

The Panels toolbar allows you to display or hide the Revision Control panel, Object Explorer panel, and Properties panel.



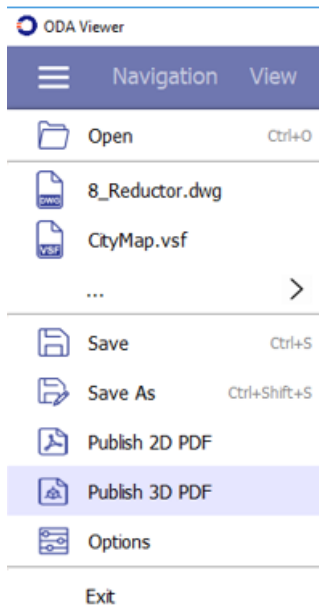
The next pictures compare the user interface with all panels displayed and hidden.



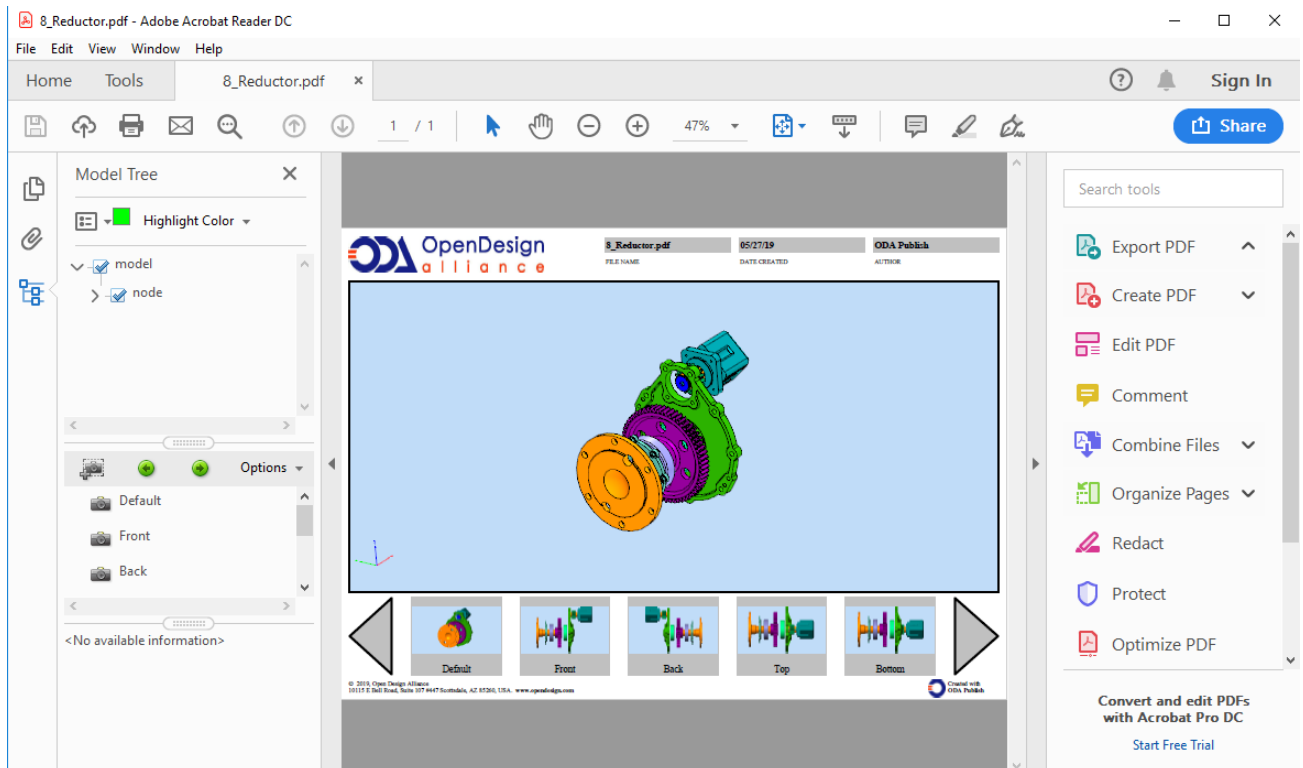
Publishing to PDF

You can publish (or export) a scene to a 2D or 3D .pdf file. To publish a scene to one of these formats, click the Menu icon and choose one of the following:

- Publish 2D PDF
- Publish 3D PDF

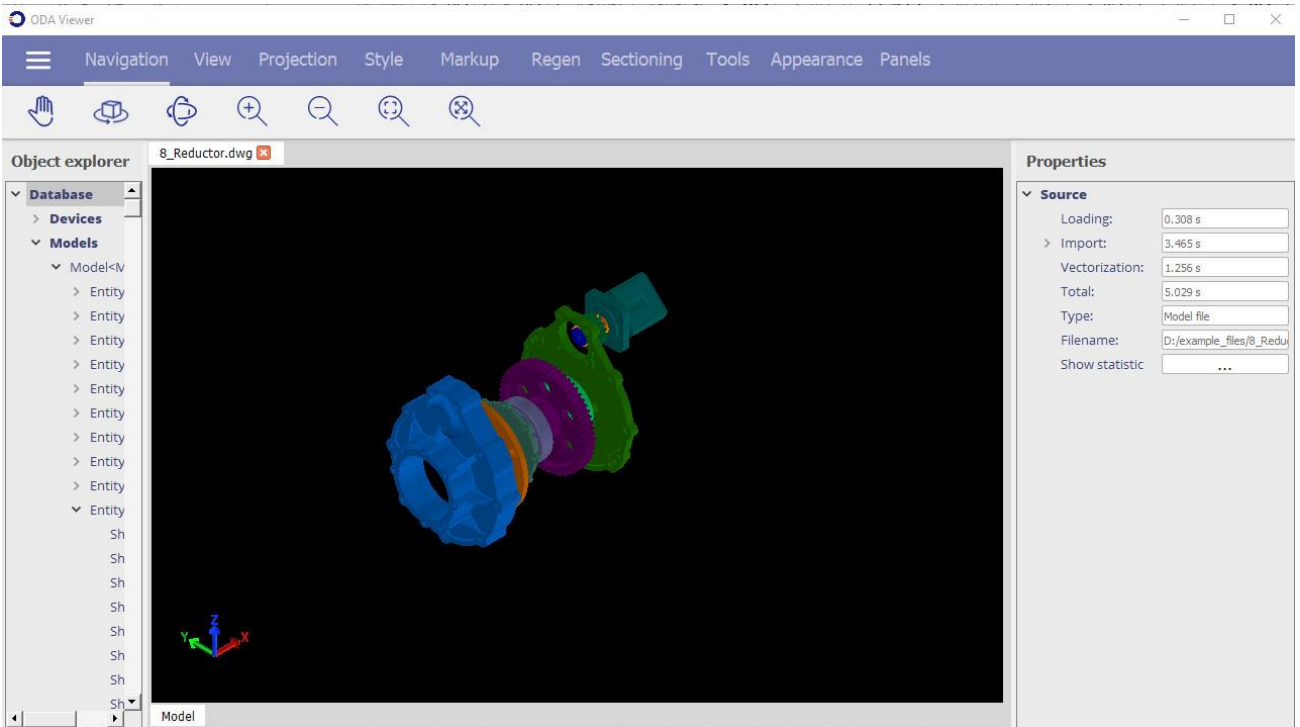


After the scene is exported, it can be viewed with a web browser or Adobe® Acrobat® Reader®, for example.



Highlighting Graphical Objects

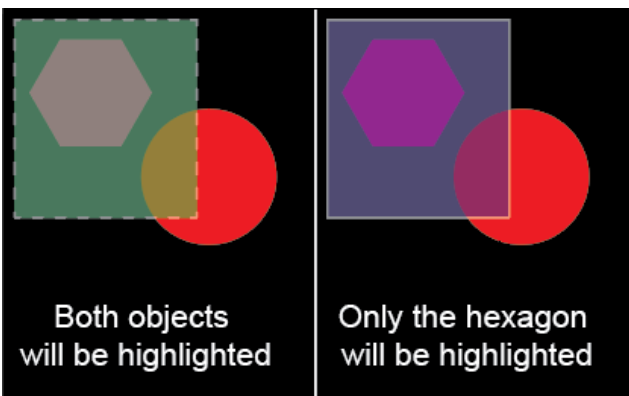
You can highlight items that belong to an entity (or the entity itself). This picture shows an initial scene with nothing highlighted.



You can highlight several types of graphical data: entities, geometry, and sub-geometry (currently only faces).

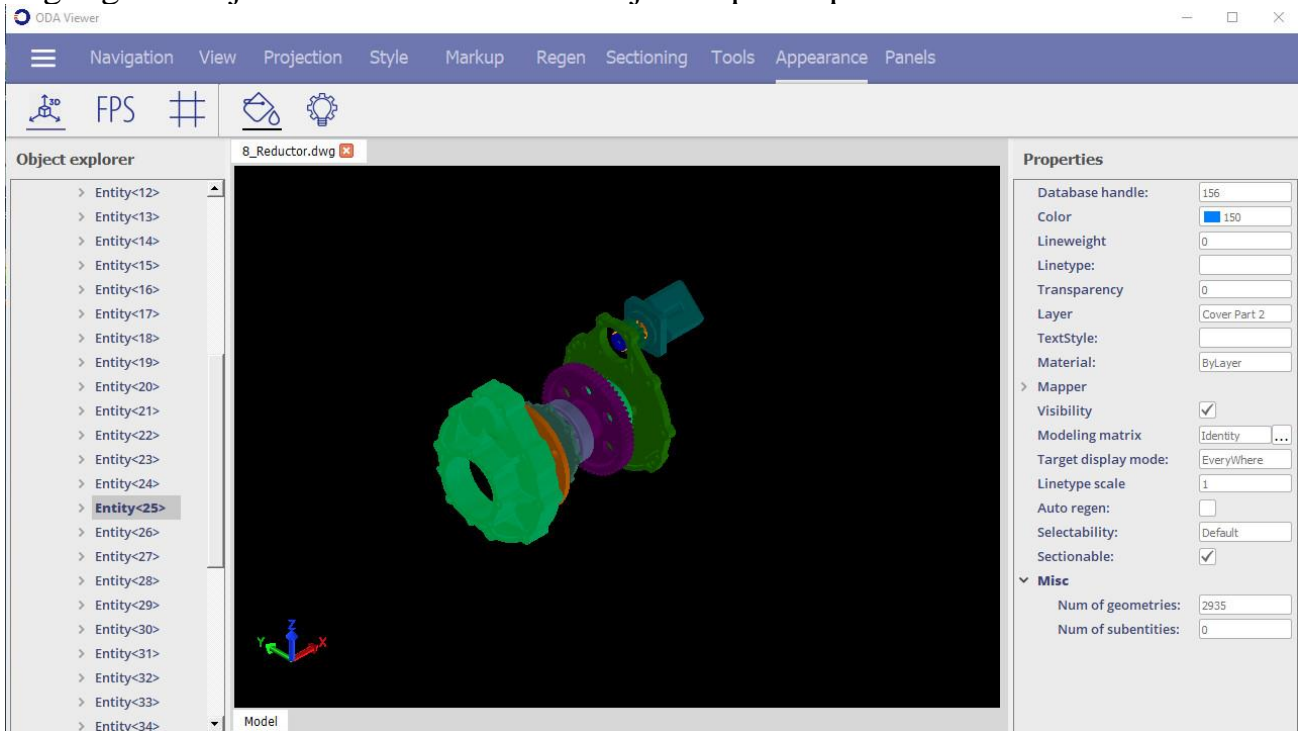
Highlighting can be done in three ways:

- One click — Click directly on an object to highlight it.
- First click + second click to the left — Define a crossing window that crosses all objects to be highlighted. Objects that fit in or cross the area are highlighted.
- First click + second click to the right — Define a regular window that fits all objects to be highlighted. The objects that fit entirely in the area are highlighted.

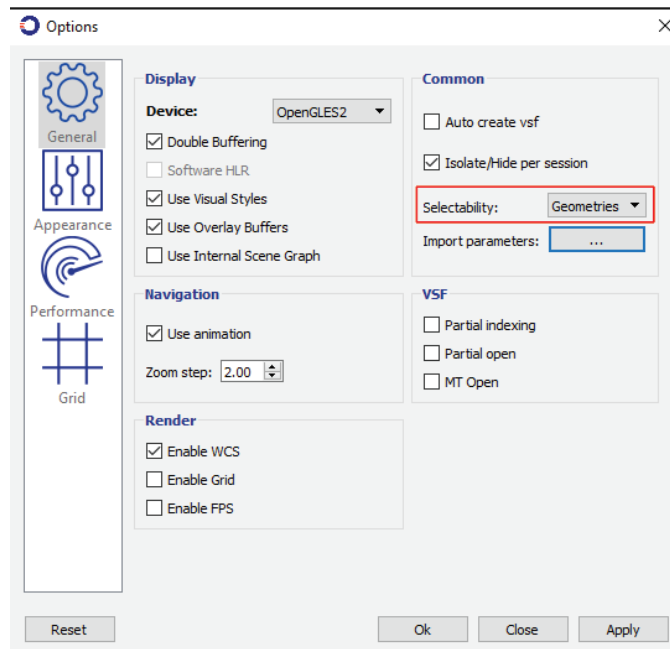


In the second and third case, the first click should not be on an object, otherwise the first case is activated and the object is selected and highlighted. The simplest way to highlight is to highlight an entity by directly clicking it.

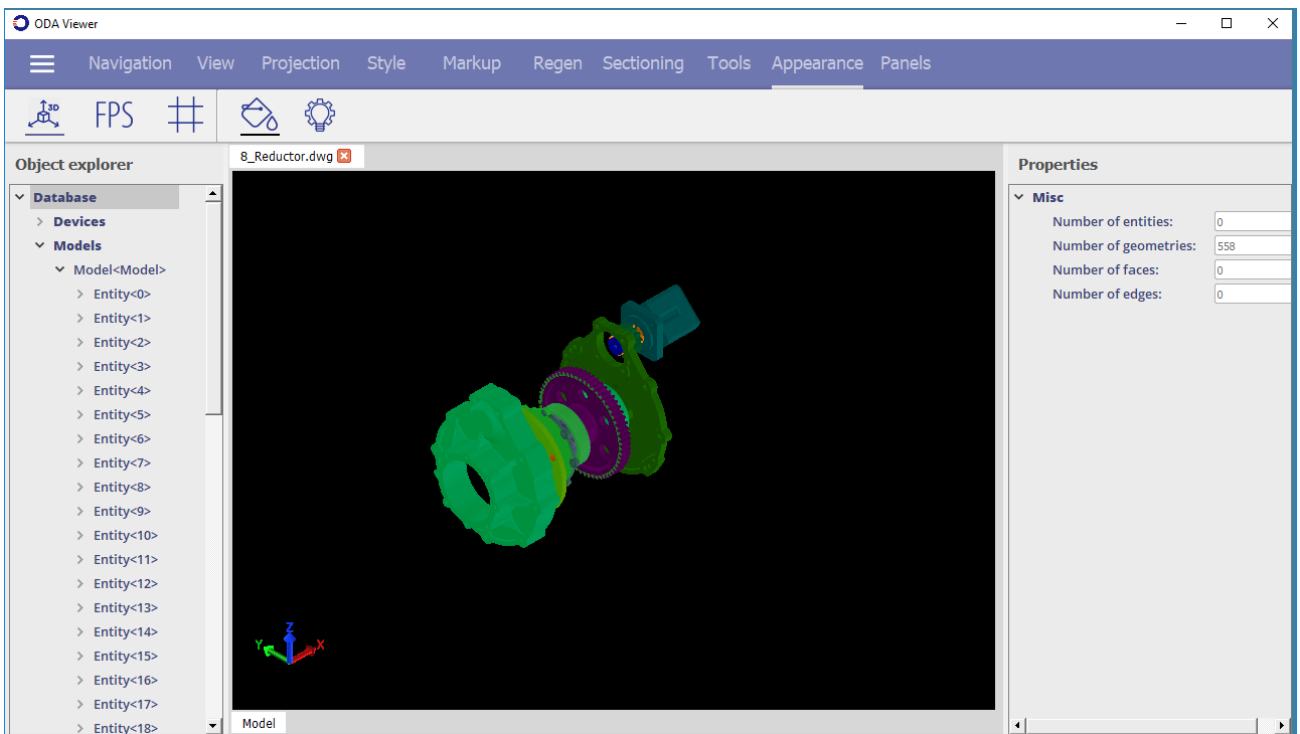
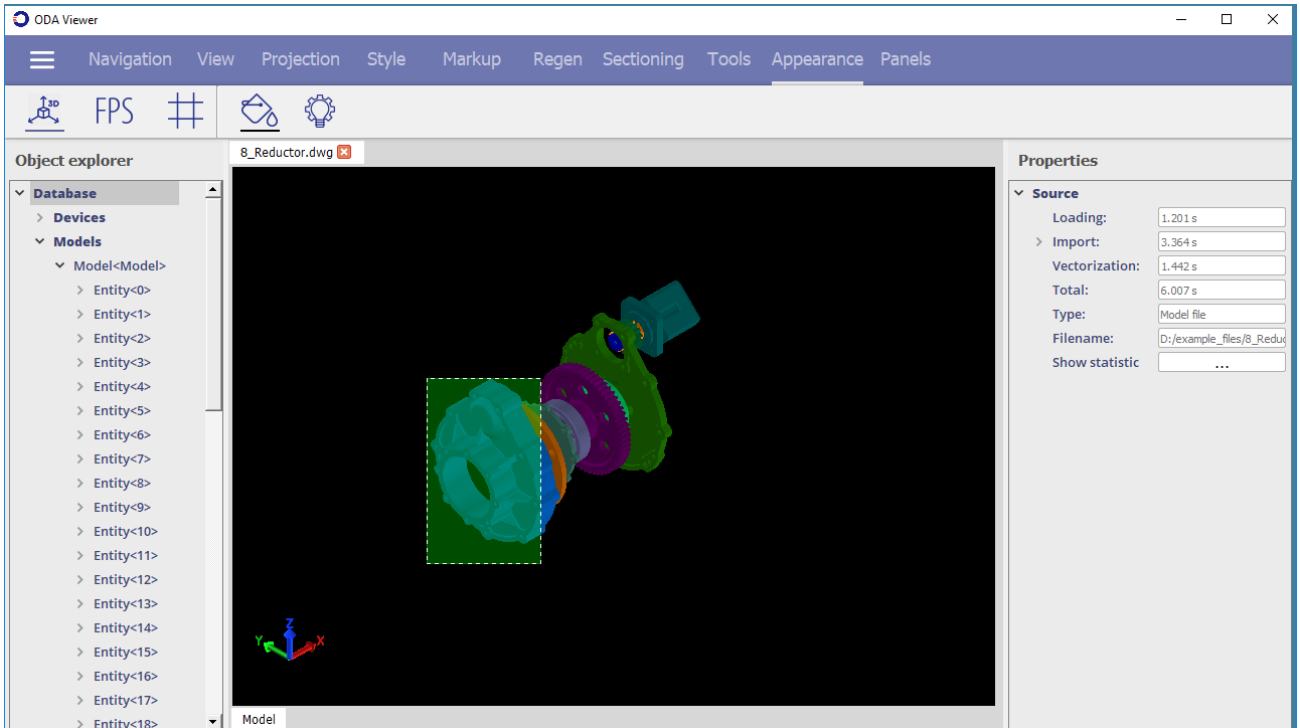
Highlighted objects are selected in the Object explorer panel.



By default, only entities are selected and, therefore, highlighted. To select and highlight other graphical objects, set the corresponding selectability of the model in the Options->General window.

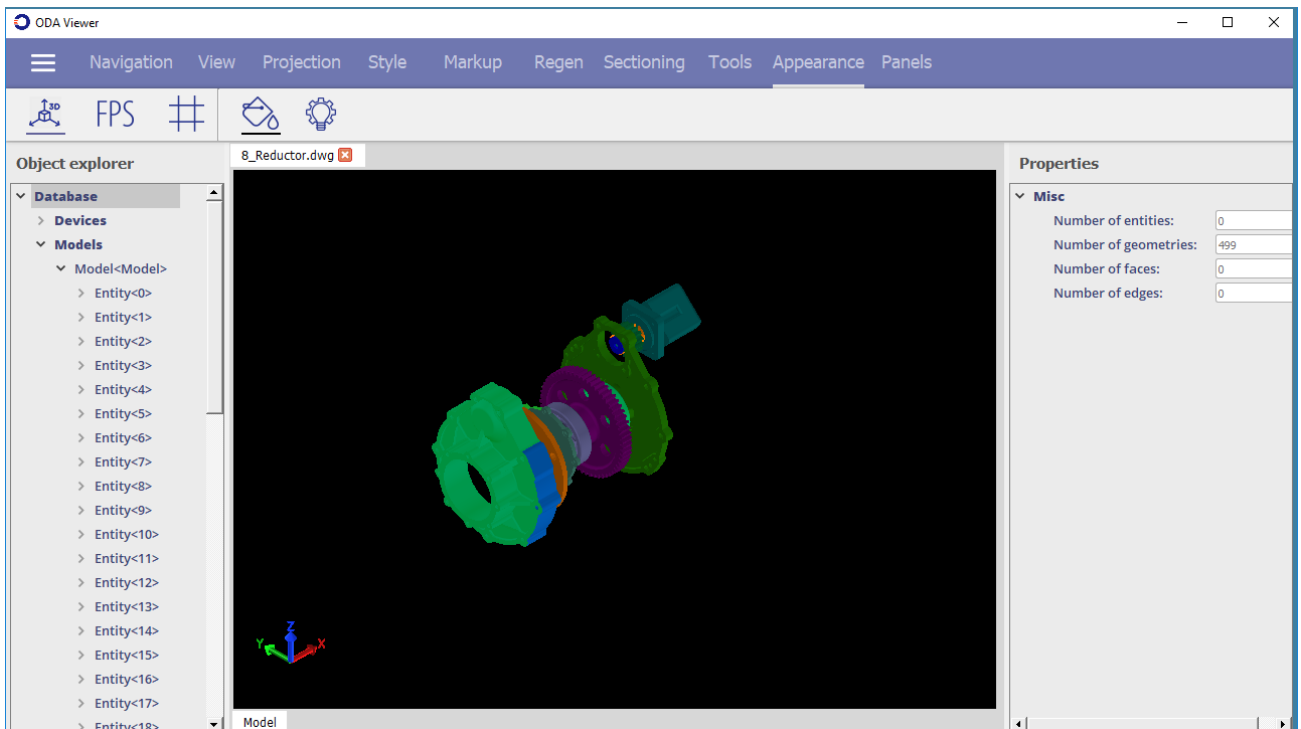
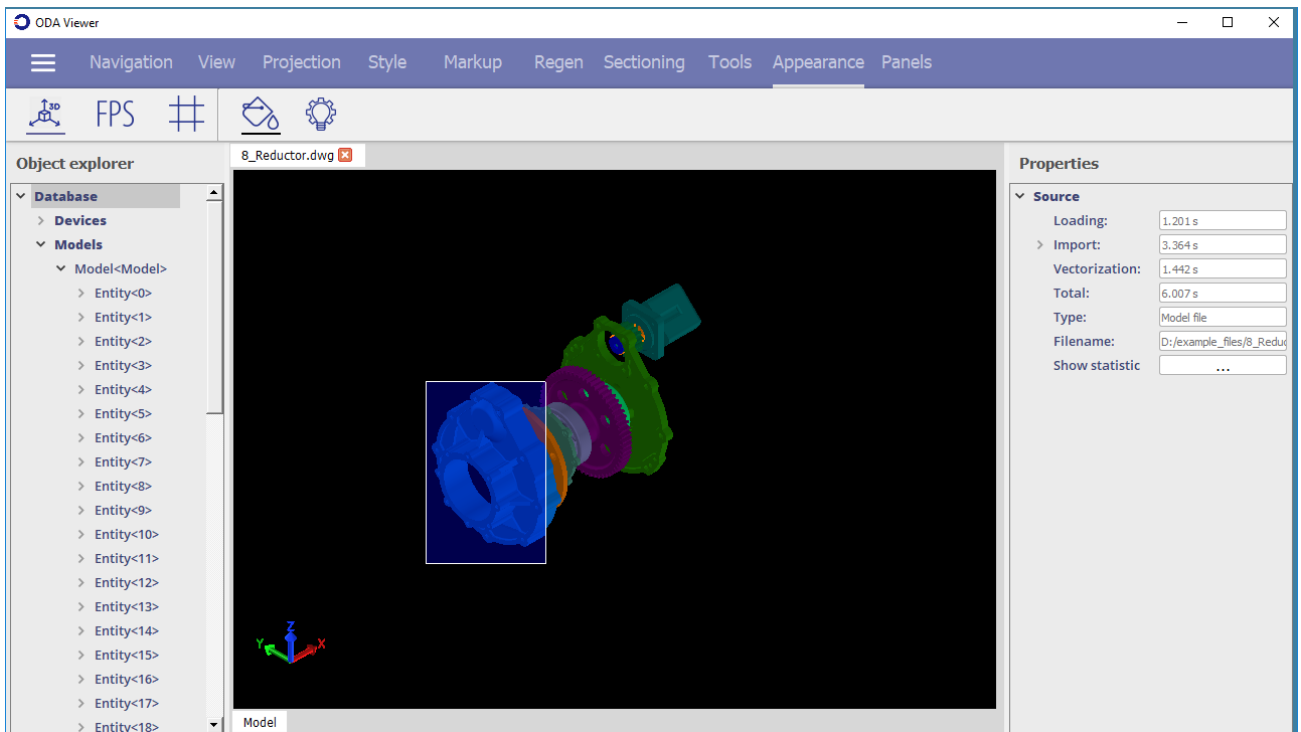


The next picture shows a highlighted geometry object with a crossing window. To make a crossing window, click anywhere in the scene and make the second click anywhere to the left of the first click.

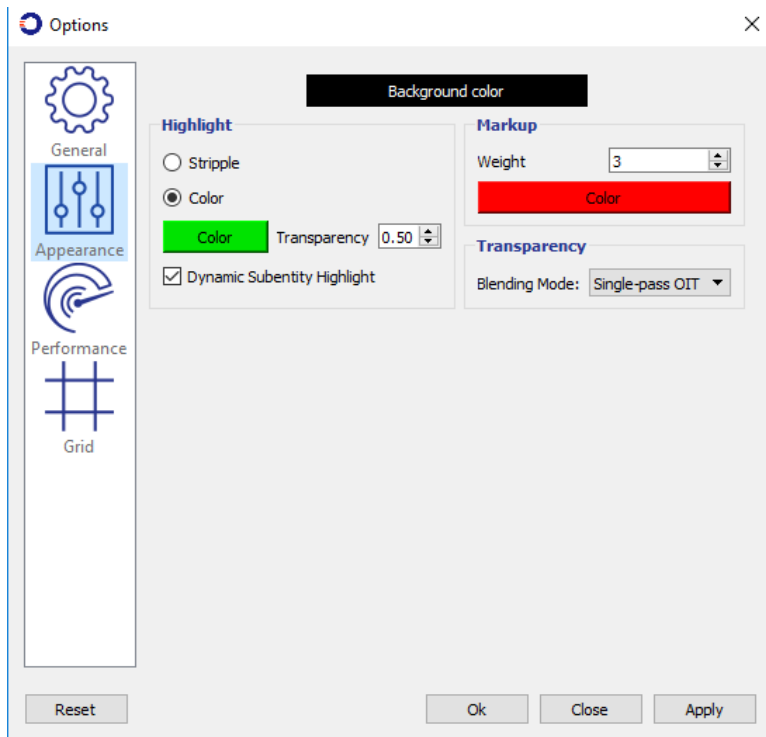


The other option is to use a regular window for selection and highlighting. This way, only those objects are highlighted that fit entirely in the window. To use this mode,

click anywhere in the scene and make the second click anywhere to the right of the first click.



You can also highlight objects by hovering over them with a pointer. To turn on this feature, right-click the scene and check Highlight while hover. The highlight color and modes can be customized in Options ->Appearance.

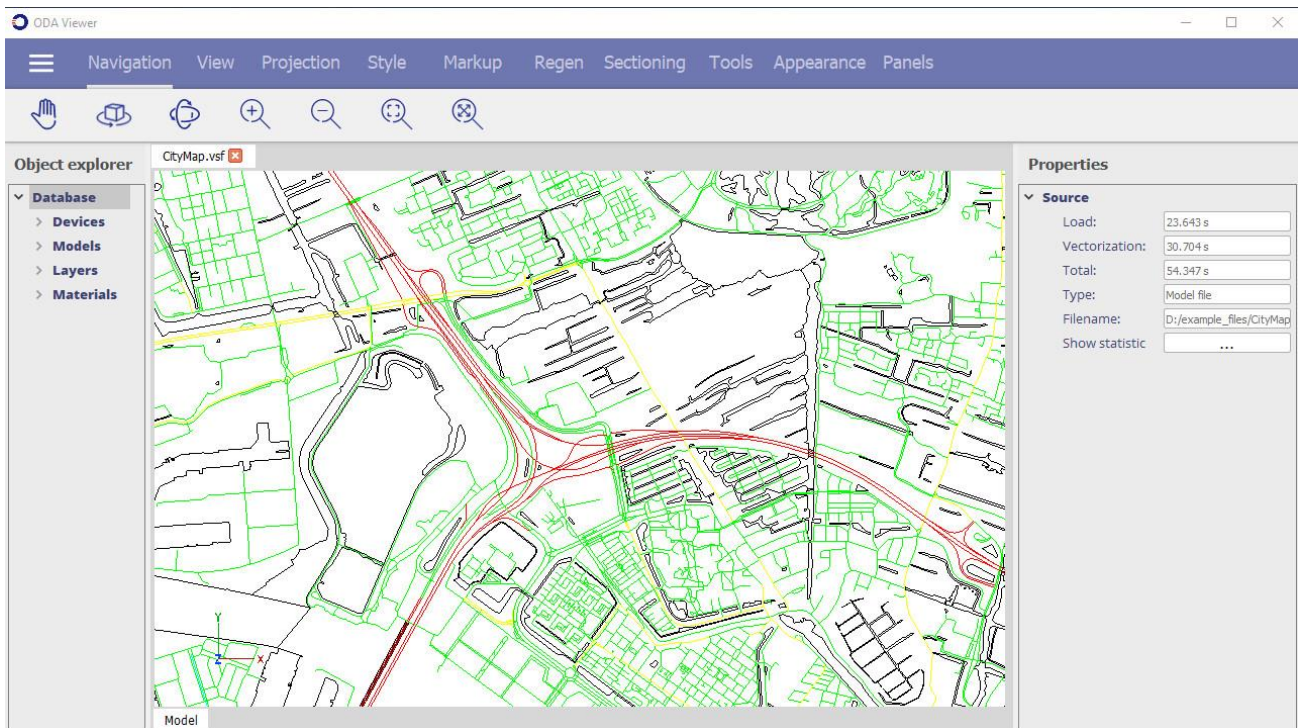


Partial Viewing

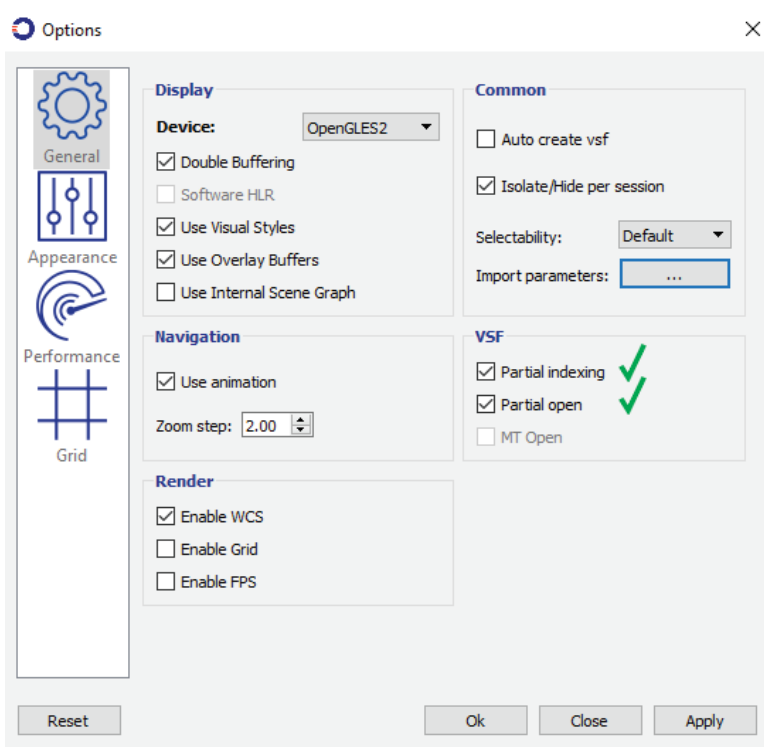
Partial viewing allows you to partially load and view database objects with which you are currently working. Only objects that are currently viewed (or seen by a camera in other words) are loaded and rendered. The rest of the objects remain unloaded until they are viewed by an active view. This can help you work with large files, specifically when you need to work only with a portion of a file. This feature works with Visualize Stream Files (.vsf).

To use partial viewing:

1. Open any file, preferably with a large number of geometry objects.
2. Position the scene camera so it shows only the portion of the scene that you want to work with. For example:



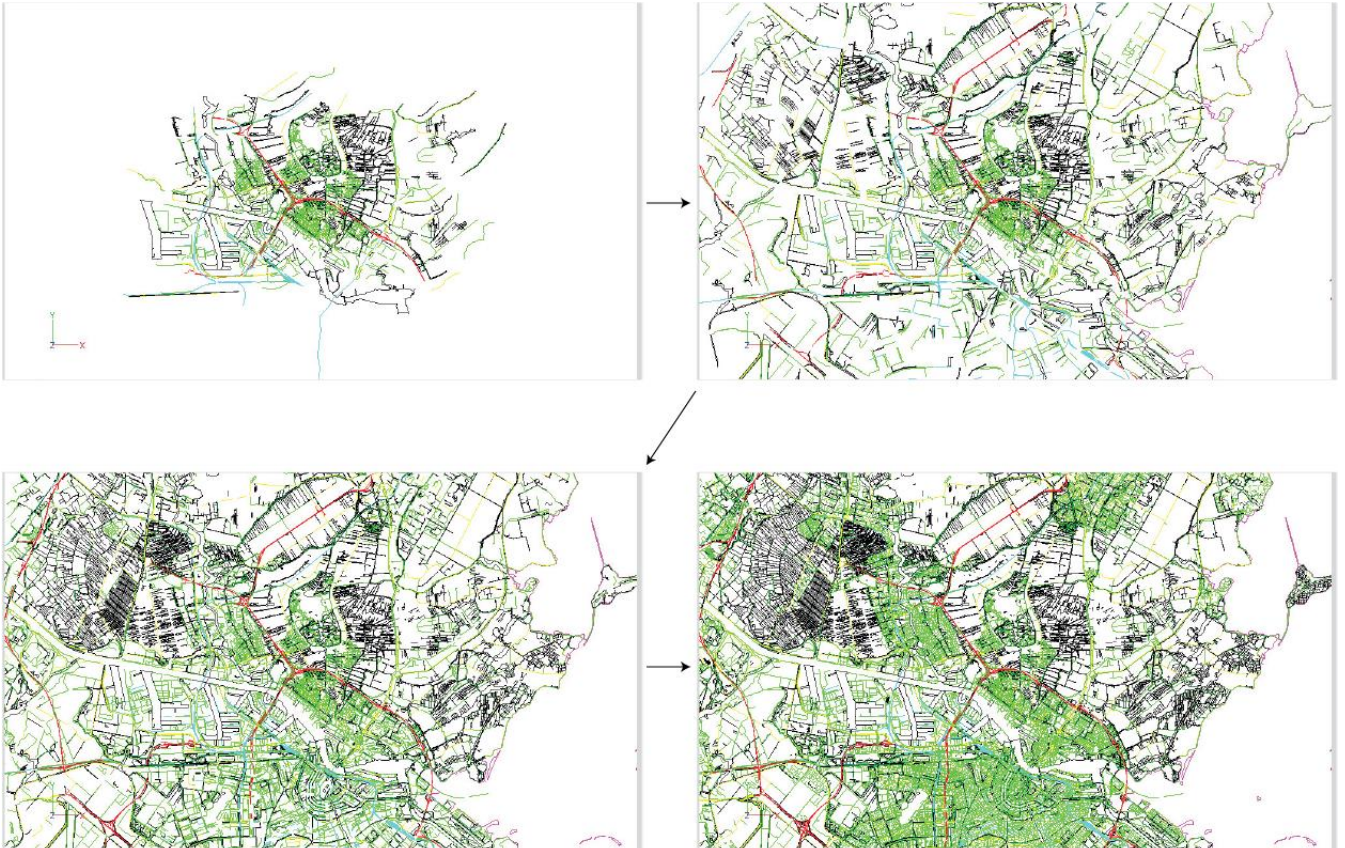
3. Go to Options->General and mark the options Partial indexing and Partial open.



The partial indexing option enables ODA Viewer to set partial view indexes to all graphical objects in a database. This slightly increases the file size. The second option loads a database in partial mode when partial indexes are present in a .vsf file.

4. Save this file as a Visual Stream File with a .vsf extension.

5. Open the saved file. The database is now loaded in partial mode. The load time and render time in most cases are reduced.
6. Change the view position, orientation, or zoom to capture more objects. In the picture below the camera is zoomed out from the initial point and new objects are loaded and rendered over time (because by default partial viewing is executed in a background thread, otherwise you need to wait until the current list of objects are loaded and vectorized, then you are able to change camera position).



Hiding, Isolating, and Unisolating Graphical Objects

You can hide, isolate and unisolate various graphical objects by selecting items in a viewport or in the Object Explorer panel. After the required objects are selected (and highlighted), right-click and choose Isolate, Hide or Unisolate.

