

# 3DViewStation VR Edition Tutorial

Best Practice



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Internet: [viewer.kisters.de](http://viewer.kisters.de)  
E-mail: [support-viewer@kisters.de](mailto:support-viewer@kisters.de)  
Phone: +49 (0) 2408 9385-360

Author: KISTERS  
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Chapter I:

# Introduction



## 1 Introduction

In the following chapter you will find specific information on using KISTERS 3DViewStation VR-Edition. For a general description of the various measurement and analysis tools and further background information, see the chapter 3D data analysis and editing functions of the desktop version.

For performance reasons, we recommend that you first convert your model to KISTERS 3DVS format and optimize it if necessary. To do this, open your model with 3DViewStation Desktop and use **SAVE AS** to convert it to KISTERS 3DVS format. Enclosed you will find some tips for optimizing the model.



Chapter II:

# Optimization of CAD models for viewing in VR

## 2 Optimization of CAD models for viewing in VR

With the purchase of the KISTERS 3DViewStation VR-Edition you have also acquired a right of use for the 3DViewStation Desktop. This was already installed with the VR-Edition. For performance reasons it is recommended to edit native CAD models and convert them into our optimized KISTERS 3DVS format.

The list of supported formats can be found via the page navigation. Detailed usage hints for the tools can be found in the [3DViewStation Desktop Tutorial](#).

By reducing the amount of information contained or displayed, the import time can be reduced and the rendering performance increased.

- Delete all structures and geometries from the model that you do not need for VR viewing. This can be done by isolating the required geometries or hiding the unneeded geometries and then saving only visible geometries.
- If possible, subassemblies can also be saved in individual files.
- The **SEARCH** tool can be used to identify and remove auxiliary geometries such as points, lines, surfaces, coordinate systems etc.
- A low level of detail in the tessellation leads to more angular curves, but increases the rendering performance (frame rate).



Chapter III:

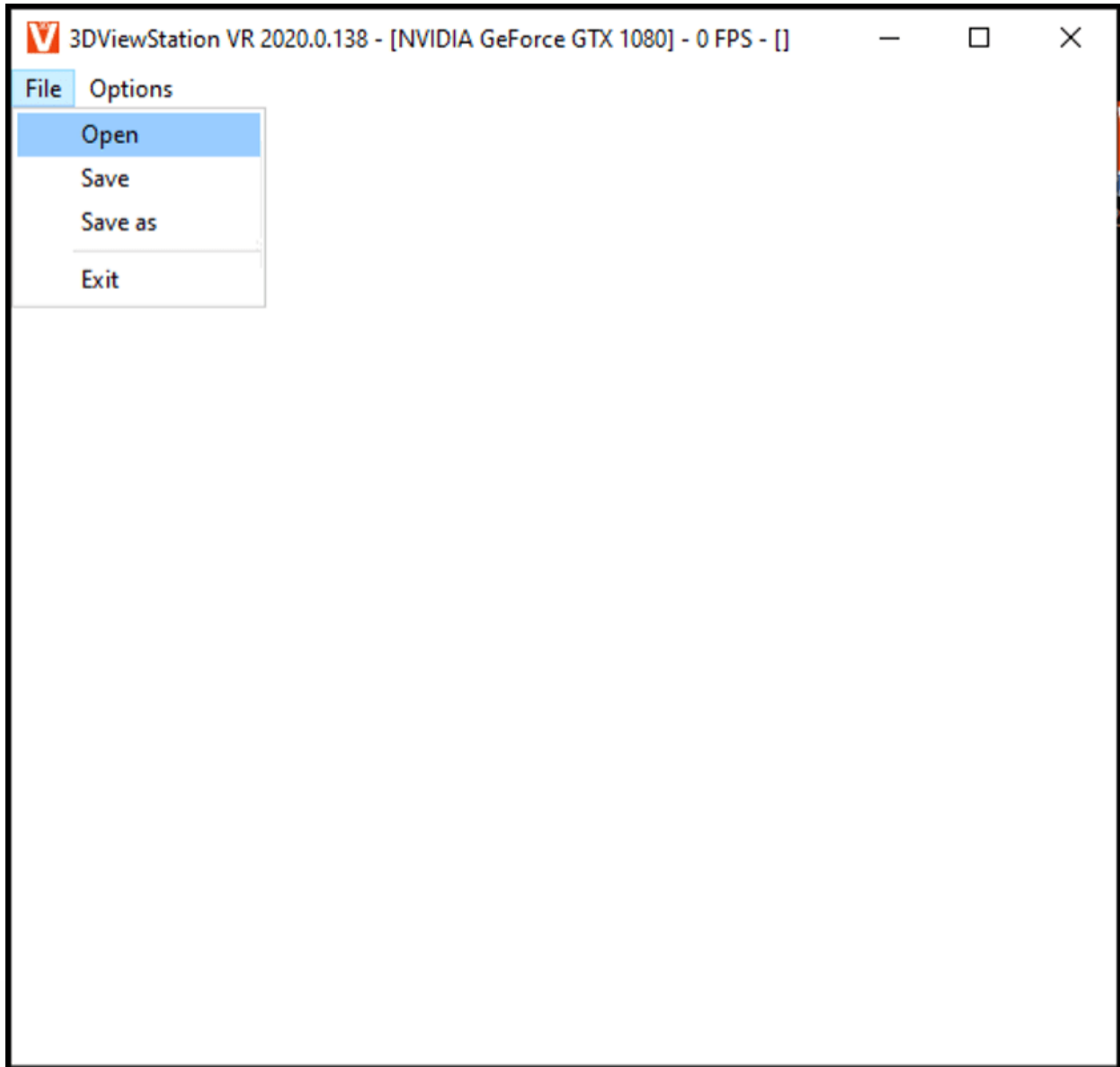
# Opening a CAD model in VR



### 3 Opening a CAD model in VR

Models are opened via the desktop client of the VR-Edition (see figure).

- Start the 3DVSVR.exe.
- Open the menu **FILE** and the menu item **OPEN**.
- Navigate to your CAD model.
- Select it and then press the **OPEN** button.





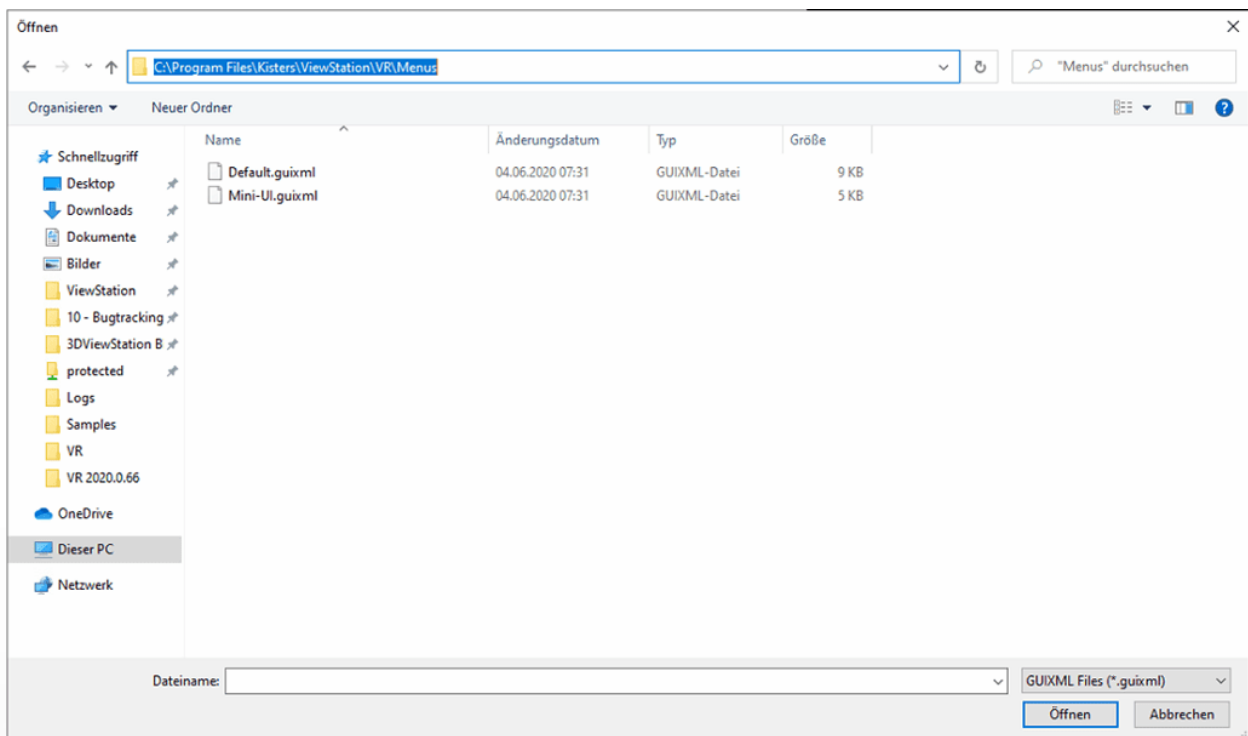
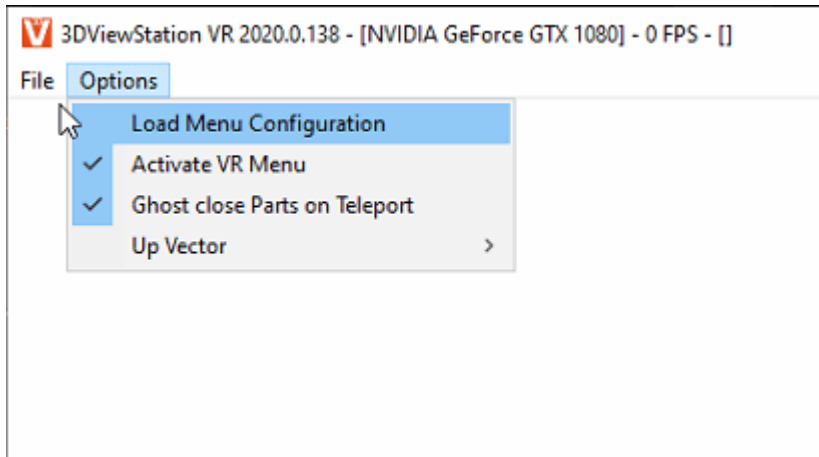
Chapter IV:

# Changing the VR menu

## 4 Changing the VR menu

After installation, the complete menu with access to the full range of functions is shown in the VR. You can switch to the reduced mini-UI menu using the desktop application. You can also create your own menu configurations.

- Start the 3DVSVR.exe.
- Open the **OPTIONS** menu and the menu item **LOAD MENU CONFIGURATION**.
- Navigate to `Installation Directory\VR\Menus`.
- Select the Mini-UI and finally press the **[OPEN]** button.
- In the VR a clearly arranged reduced menu is now displayed. Repeat the process to switch back to the full default menu.





Chapter V:

# Creating and adapting a menu

## 5 Creating and adapting a menu

With a text editor like Notepad++ you can create your own additional menus or adapt existing menus.

- Copy the file `Default.guixml` (complete menu) from the folder `Installation Directory\VR\Menus` for example to your desktop and rename it.
- Open the renamed file with an editor.
- Edit the xml structure. The elements are explained in the following table.
- Copy your customized menu into the `VR/Menu` folder.

```








1 <?xml version="1.0" encoding="utf-8" standalone="yes"?>
2 <Menu Distance="500.0" ButtonSize="100.0" Spacing="5.0" Tilttable="false">
3   <Tab Name="Start" Icon="Start.png">
4     <Row>
5       <Button Category="2" Name="Select" ID="1" Icon="1_selektieren.svg.png" />
6     ...
7     </Row>
8   ...
9   </Tab>
10 ...
11 </Menu>














```












| Tag         | Attribute  | Description  |
|-------------|------------|--|
| <b>Menu</b> |            | Creates the VR menu (max. 1 allowed).  |
|             | Distance   | Distance from controller to menu.  |
|             | ButtonSize | Size of the menu buttons.  |
|             | Spacing    | Distance between the menu buttons.   |
|             | Tilttable  | The menu is tilted according to the controller position.   |
| <b>Tab</b>  |            | Creates a new tab.   |
|             | Name       | Name of the tab.   |
|             | Icon       | Icon of the tab. This must be located in the <code>Installation Directory\Resources\Icons</code> or a subdirectory.                              |
| <b>Row</b>  |            | Creates a line within the tab. The lines are displayed in the order in which they were defined. The width of the menu is automatically adjusted. |

| Tag           | Attribute     | Description  |
|---------------|---------------|--|
| <b>Button</b> |               | Creates another menu button.   |
|               | Name          | Button name, appears when the selection beam points to a button.   |
|               | Icon          | Icon of the button. This must be located in the Installation Directory\Resources\Icons or a subdirectory.  |
|               | Category & ID | From the combination <b>CATEGORY</b> and <b>ID</b> the button is connected to a tool. Search for the desired tool in the following table and take the values for <b>CATEGORY</b> and <b>ID</b> .<br><br>Example: The <b>MEASUREMENT - POINT COORDINATE</b> tool has the values Category (4), ID (1). |












## VR Menu















| Symbol  | Description  | Category | ID |
|---|--|----------|----|
| <b>Start</b><br> | Tab Start  |          |    |
|                  | Parts can be selected with the red beam (controller key 3) | 2        | 1  |
|                  | Hide parts   | 2        | 2  |
|                  | Delete parts   | 2        | 3  |
|                  | Activates Ghost function                                   | 2        | 4  |
|                  | Selects parts with the same node color                     | 2        | 6  |
|                  | Selects all instances of a part                            | 2        | 7  |












| Symbol  | Description   | Category | ID |
|---|---|----------|----|
|    | Select all  | 1        | 1  |
|   |   |          |    |
|    | Isolate selected parts (all other parts are hidden) | 1        | 3  |
|    | Hide selected parts                                 | 1        | 5  |
|    | Delete selected parts                               | 1        | 6  |
|    | Ghost selected parts                                | 1        | 7  |
|   |   |          |    |
|   | Hide all markups                                    | 1        | 12 |
|  | Hide all PMIs                                       | 1        | 13 |
|   |   |          |    |
|  | Invert the selection of the selected parts          | 1        | 2  |
|  | Reverse the visibility of parts                     | 1        | 14 |
|  | Show all parts                                      | 1        | 10 |
|  | Sets all ghosted parts to visible                   | 1        | 11 |
|   |   |          |    |
|  | Create a screenshot in PDF format                   | 6        | 64 |
|  | Create a screenshot in BMP format                   | 6        | 8  |

| Symbol  | Description                          | Category | ID |
|---|--------------------------------------|----------|----|
|    | Create a screenshot in JPG format    | 6        | 32 |
|    | Create a screenshot in PNG format    | 6        | 16 |
| <b>View</b>   |                                      |          |    |
|    | Activating home view                 | 1        | 15 |
|    | Activating previous view             | 1        | 16 |
|   | Activating next view                 | 1        | 17 |
|  | Show/Hide solids                     | 1        | 18 |
|  | Show/Hide wires                      | 1        | 19 |
|  | Show/Hide shadows                    | 1        | 20 |
|  | Show/Hide animations                 | 1        | 21 |
| <b>Measure</b>  |                                      |          |    |
|  | Create markup with point coordinates | 4        | 1  |
|  | Create markup with edge length       | 4        | 2  |






| Symbol  | Description  | Category | ID |
|---|--|----------|----|
|    | Create markup with circle radius                       | 4        | 4  |
|    | Create markup with circle diameter                     | 4        | 5  |
|    | Create markup with circumference                       | 4        | 6  |
|    | Create markup with circle center                       | 4        | 7  |
|    | Create markup with point-point distance                | 4        | 8  |
|    | Create markup with point-edge distance                 | 4        | 9  |
|   | Create markup with point-circle axis distance          | 4        | 10 |
|  | Create markup with point-solid distance                | 4        | 11 |
|  | Create markup with edge-edge distance                  | 4        | 12 |
|  | Create markup with edge-surface distance               | 4        | 13 |
|  | Create markup with edge-solid distance                 | 4        | 14 |
|  | Create markup with circle axis-circle axis distance    | 4        | 16 |
|  | Create markup with circle axis-edge distance           | 4        | 17 |
|  | Create markup with surface-surface distance            | 4        | 18 |
|  | Create markup with surface axis-circle center distance | 4        | 19 |

| Symbol  | Description  | Category | ID |
|---|--|----------|----|
|    | Create markup with surface-solid distance                                      | 4        | 20 |
|    | Create markup with solid-solid distance  | 4        | 21 |
|    | Create markup with cylinder center-surface distance                            | 4        | 22 |
|    | Create markup with circle axis-circle axis angle                               | 4        | 23 |
|    | Create markup with circle axis-edge angle                                      | 4        | 24 |
|    | Create markup with edge-edge angle   | 4        | 25 |
|   | Create markup with plane-plane angle   | 4        | 26 |
|   |  |          |    |
|  | Create markup with an angle between edges from three points                    | 4        | 28 |
|  | Create markup with ray-based thickness in one measurement point                | 4        | 29 |
|  | Create markup with rolling ball thickness in one measurement point             | 4        | 30 |
|  | Create markup with the (world) axis parallel bounding box of one or more parts | 4        | 31 |
|  | Create markup with a minimum bounding box aligned with the part                | 4        | 32 |
|  | Create markup with the surface area of a selected area                         | 4        | 34 |
|  | Create markup with the area of a selected circle                               | 4        | 35 |

| Symbol  | Description   | Category | ID |
|---|---|----------|----|
|                        | Create markup with drill hole information of a selected circle  | 4        | 36 |
| <hr/>   |   |          |    |
| <b>Analyze</b><br>     | Tab Analysis  |          |    |
|                        | Cut the model along a plane to show the interior and take measurements                                    | 1        | 23 |
|                        | Quick graphical comparison between two models   | 1        | 24 |
|                        | Calculation of the neutral axis running through the center of a tube                                      | 1        | 29 |
|                      | Calculation of drill holes that are present in the part.<br><br>(Only for models with construction edges) | 1        | 30 |
|                      | Shows angles at which a casting mould can be placed around the model                                      | 1        | 31 |
|                      | Generates a new geometry that displays the wall thicknesses of selected models using a color scale        | 1        | 32 |
| <hr/>   |   |          |    |
| <b>Transform</b><br> | Tab Transform   |          |    |
|                      | Free moving in space  | 5        | 1  |
|                      | Moving along the coordinate axes  | 5        | 2  |

| Symbol  | Description                                   | Category | ID |
|---|---|----------|----|
|    | Rotation along the axes of the model          | 5        | 3  |
|    | Mirroring on a specific plane                 | 1        | 34 |
|    | Resets transformations made after loading     | 1        | 28 |
|   |   |          |    |
|    | Transformation using any two points           | 5        | 10 |
|    | Transformation using two circle center points | 5        | 12 |
|    | Rotation based on two normals                 | 5        | 20 |
|   |   |          |    |
|  | Alignment over two coordinate systems         | 5        | 30 |
|  | Alignment over two circle axis                | 5        | 31 |
|  | Alignment over two planes                     | 5        | 32 |
|   |   |          |    |
|  | Scale up                                      | 1        | 35 |
|  | Scale down                                    | 1        | 36 |
|   |   |          |    |
|  | Tab Tools                                     |          |    |
|  | Draw circle markup                            | 3        | 2  |

| Symbol  | Description   | Category | ID |
|---|---|----------|----|
|  | Freehand drawing  | 3        | 4  |
|  | Deactivate all active functions and reset the cursor mode to "Select" | 1        | 33 |
|  | Undo last action  | 1        | 22 |



Chapter VI:

# Settings

## 6 Settings

The setting management is based on three steps:

1. If no settings have been stored, the 3DViewStation VR-Edition starts with factory settings.
2. If the 3DViewStation Desktop has already been used, it creates the `Current.xml` in the user directory (also with the same factory settings). As soon as a `Current.xml` is available, it will be interpreted by the VR-Edition. Thus, default settings can be made in 3DViewStation Desktop, which also apply to the VR-Edition.
3. If you want independent settings for Desktop and VR-Edition, you can store and edit a `CurrentVR.xml` (VR-Edition) next to the `Current.xml` (Desktop). This can be a copy of the `Current.xml` (desktop) or a profile (desktop). See [the corresponding chapter](#) in the tutorial of the desktop application.