# CADMATIC eShare for HoloLens

User Guide | 2025H1

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# Contents

# 1. introduction

CADMATIC eShare for HoloLens offers an entirely new interactive design and engineering experience in Augmented Reality where digital 3D models reside in the real-world environment. It allows you to interface Microsoft HoloLens* with CADMATIC eShare, providing a new way to utilize eShare data.

With eShare for HoloLens, you can review 3D models and the associated data. You can view miniature models on a meeting room table, or walk through the full-size models in an office or any open space. For on-site work, you can download models from the server and use them offline. You can align the models with the actual installations and see proposed changes or future designs on top of the existing environment. Furthermore, eShare for HoloLens includes tools for scaling and making measurements between objects to visualize distances. Object attributes or data from systems integrated with eShare can be displayed on top of the 3D models.

eShare for HoloLens facilitates project and design reviews, and assists building status supervision and comparison with design projects. It also helps users to envision future project designs for discussion with owners and operators and provides the possibility to ensure ergonomics as well as the training of maintenance and operations staff during the design project.

The eShare for HoloLens and eShare for HoloLens 2 app is free of charge for users of CADMATIC eShare version 2018T3 and higher.



# 2. Application performance

CADMATIC eShare for HoloLens 2 is still limited in hardware capabilities. It is recommended that users load models with fewer than 8000 objects. The application may sometimes be able to load larger models, but it is not guaranteed to succeed. For the maximum recommended size, loading time is roughly 2-4 minutes.

# 3. General gestures

In eShare for HoloLens, you can use various hand gestures to select items and perform actions. Only the most common gestures are covered here. For more information on the gestures, see Microsoft's website.

The most common gesture is a simple tap – similar to clicking a mouse button. You can also make selections and perform actions with an air tap by first raising your index finger to the ready position, and then pressing your finger down to tap or select and raising it back up to release.

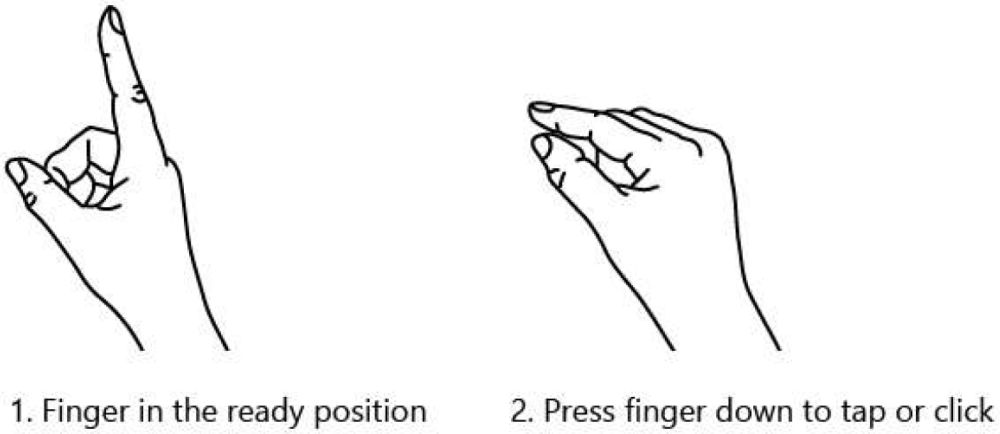



Image source: https://docs.microsoft.com/en-us/windows/mixed-reality/gestures

When your hand is in the ready position, the cursor changes from a dot to a ring. If the cursor appears as a dot, you need to move your hand closer to the center.

Furthermore, you can use tap and hold (also called drag) by moving your hand while your finger is pressed down.

The bloom gesture opens the **Start** menu and takes you back to Windows, for example. To do the bloom gesture, first hold out your hand with your palm up and your fingertips together, then open your hand.

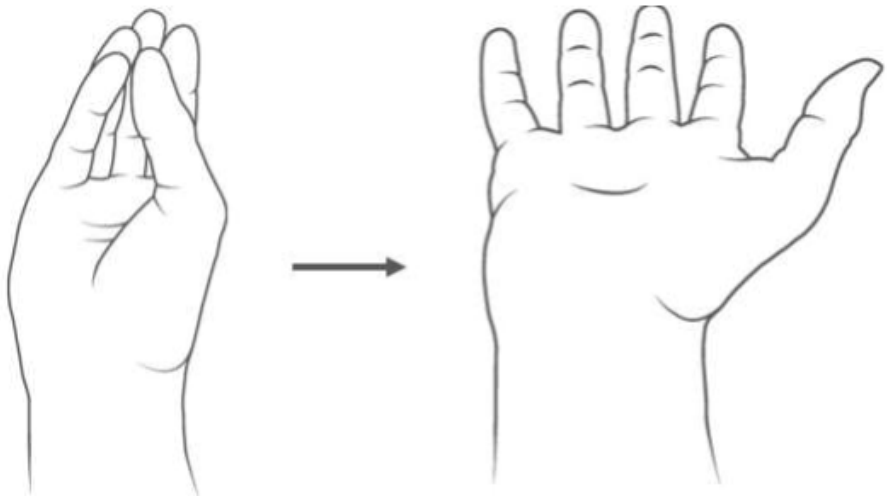


Image source: https://support.microsoft.com/en-us/help/12644/hololens-use-gestures

To move the cursor, you can use gaze, i.e. change the position and orientation of your head. For more information on gaze, see Microsoft's website.

# 4. Logging in

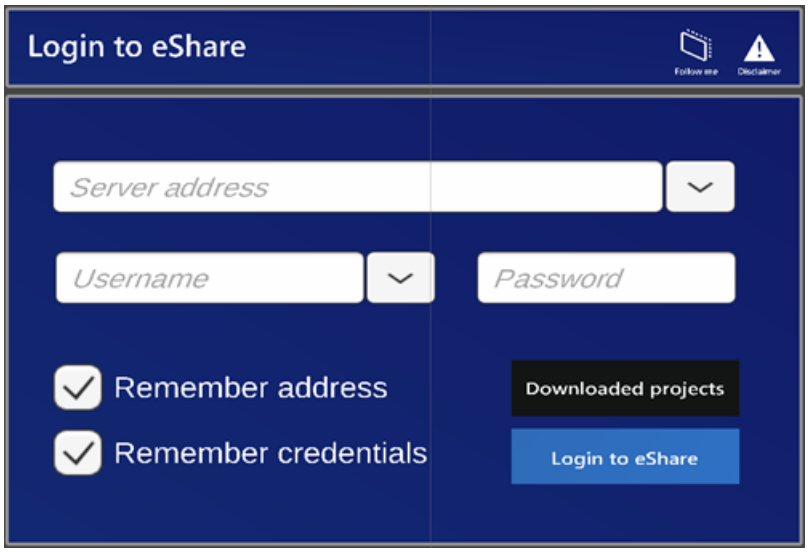
If you have already downloaded models for offline use, you do not need to log in. Instead, you can proceed to browse the models by tapping **Browse offline**, see Opening models offline.

### Do the following:

1. Open eShare for HoloLens. A disclaimer with health and safety information opens.

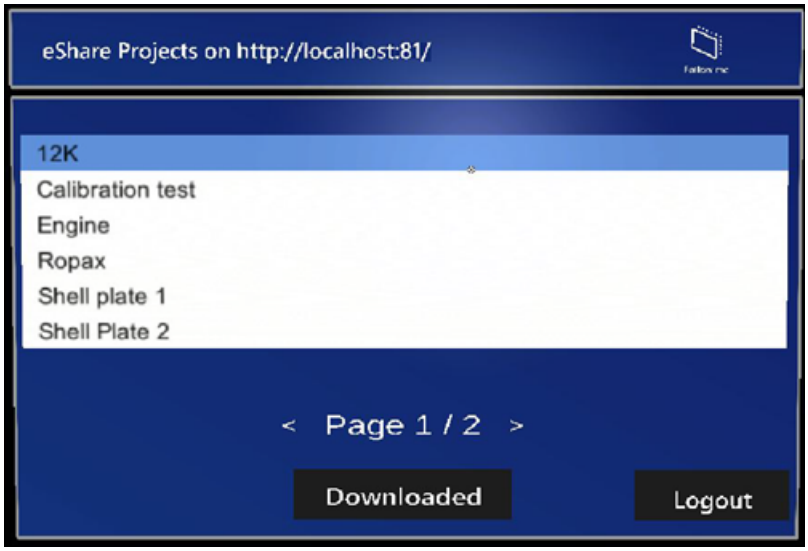

   For up-to-date health and safety information, see Microsoft's website.

2. To prevent the disclaimer from showing in the future, select **Do not show again**.
3. Tap **Continue**. The login dialog opens.



4. Add the following information:
    - **Server address**: The eShare server you want to connect to, with the protocol (e.g. http://).
    - **Username**: Your username for the eShare server (DOMAIN\user).
    - **Password**: Your password for the eShare server.
5. To save the server address to the **Server address** drop-down menu, select **Remember address**.
6. To save your username along with your password to the **Username** drop-down menu, select **Remember credentials**.

   You can also access the downloaded models offline by selecting **Downloaded projects**. However, not all features will be available.
7. Tap **Login**. A dialog listing available project models opens.




8. First select the model and then the submodel. You can move between project and submodel pages using the arrow buttons.

   **Logout** logs out the current user. In case of offline browsing, a **Login** button is visible to enable logging in.

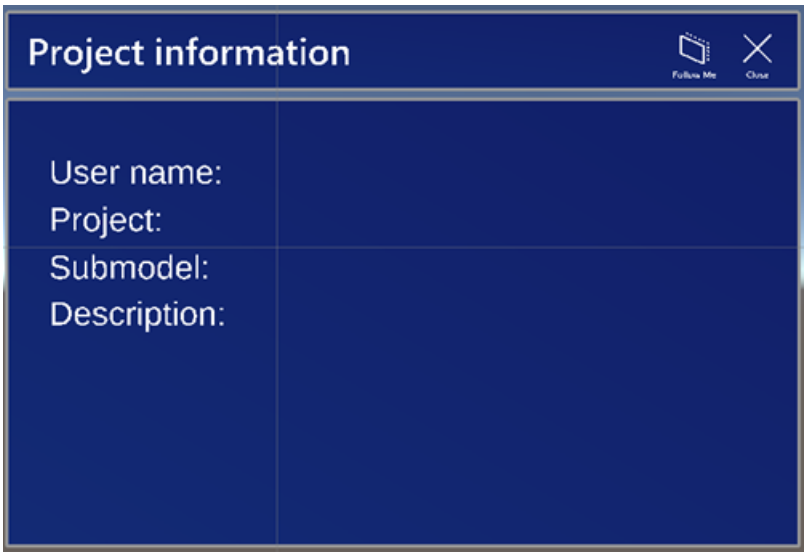
   The bottom part of the window is shared for model list, submodel list and downloaded model list pages. Each page contains a list. After a model is selected, the corresponding submodel list replaces the model list. Every submodel list element contains buttons for selection, download from server and deletion.

# 5. User interface

All of the main windows have **Follow me** option in the top bar. If enabled, the windows will follow the user. If the option is enabled in one of the main windows, it is enabled for all subsequent main windows.

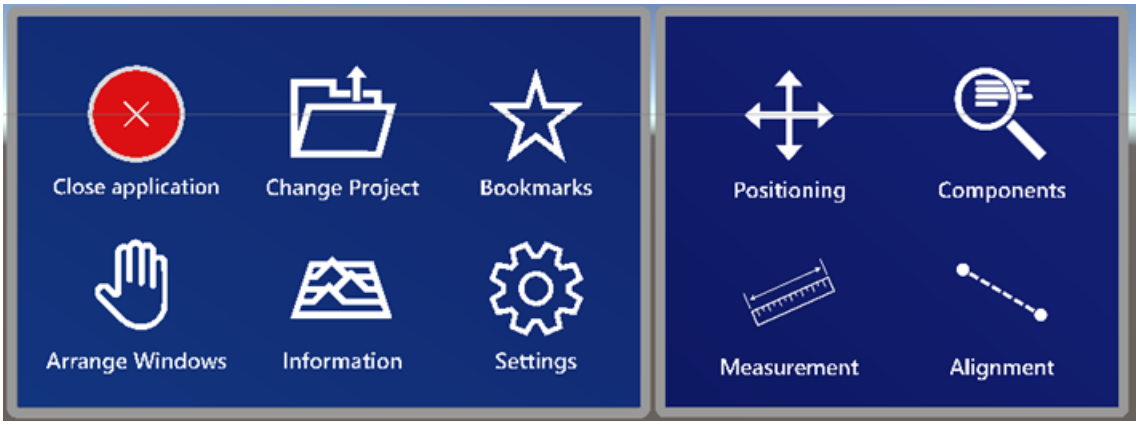


## 5.1. Project information




Project information shows basic details.

- **User name** – Name of the current user logged in.
- **Project** – The name of the current project.
- **Submodel** – The name of the current submodel.
- **Description** – The description of the current project/submodel.




Hand menu expands in project information view to allow selection of the tools. See Hand menu.

Select **Change project** to close the current project, or cancel project loading if selected during project loading. The project selection opens.

### Related topics

Bookmarks

Manipulation

Attributes

Measure

Alignment

Settings

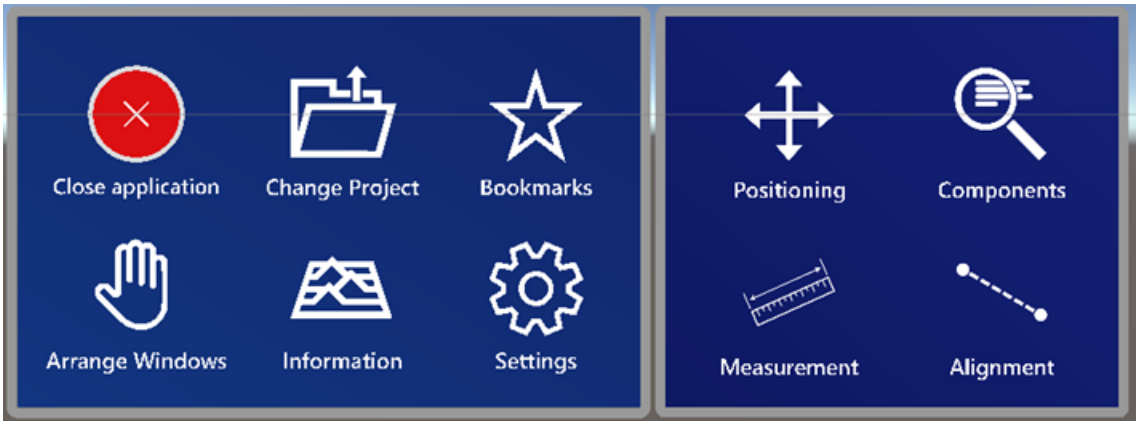
# 5.2. Hand menu

Hand menu is shown in all views when the user raises their hand.

- **Close application** – Closes the current application window and returns to home window.
- **Arrange Windows** – Brings all windows in front of the user and arranges them.

### 5.2.1. Extended menu

The hand menu is expanded in Project information window to enable selecting tools.



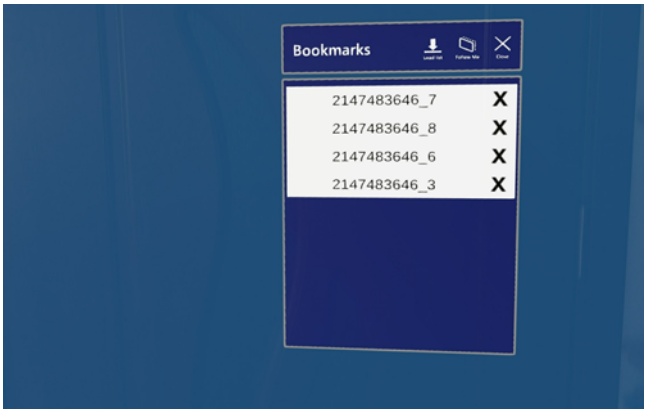

- **Change project** – Closes the current project, or cancels project loading if selected during project loading, and opens project selection.
- **Information** – Opens a panel with project information.
- **Bookmarks** – Opens the Bookmarks list.
- **Settings** – Opens the Settings window.
- **Positioning** – Opens the Manipulation tool.
- **Measurement** – Opens the Measure tool.
- **Components** – Opens the Attributes tool.
- **Alignment** – Opens the Alignment tool.

## 5.3. Bookmarks

### 5.3.1. Bookmarks list

The bookmarks list shows components bookmarked in Attributes tool. The bookmark list window can be toggled on and off in the Hand menu.

Bookmarks are saved automatically when you close the application or change the project, and they are automatically loaded when the project is opened again. You can also load lists from other projects using **Load list** in the top bar. When a list is loaded the application checks which components are present in the current model and filters the other components out.




A use case for saving a list in a model and loading it in another one is for alignment purposes: it is easier to select alignment marks in a submodel and then use the same components in the complete model.

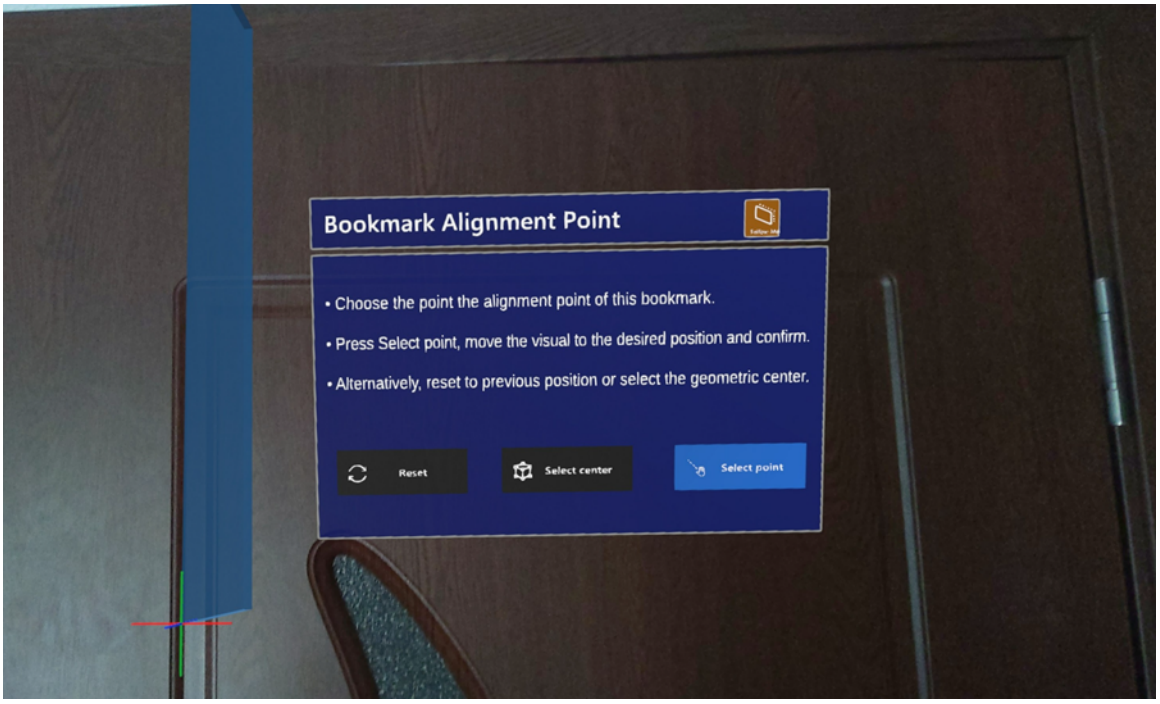
New bookmarks can be added after loading an existing bookmark list.

## 5.3.2. Bookmark manager

If you select a bookmark outside of alignment, the bookmark manager opens.

If a bookmark is selected, the rest of the model will become invisible, only showing the selected bookmark. If a tool is open when this action is performed, you will be prompted to close it before continuing because of possible interference with the bookmark functionality. The only exception comes with Alignment tool, which can use the bookmarks list for alignment purposes.

Aside from visualizing the bookmark, you can select the alignment point that will be used when it is selected for alignment purposes. This can be done by clicking **Select point** button and choosing a point on the surface of the model component. Snapping can be used for this. Alternatively, it can be placed in the center with **Select center**, or reset to its last saved position with **Reset**.




# 5.4. Manipulation

Manipulation tool determines the general manipulation of model. Manipulation tool is the only tool, where direct movement, rotation, and scaling is allowed. The model can be directly interacted with by hand, or by using the controls on the panel. By default, the spatial mesh is disabled for this tool in order to be able to freely manipulate it, regardless of walls or other obstacles.

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**Note:** Model position is automatically saved as a preset for the project when the application is closed or project is changed.

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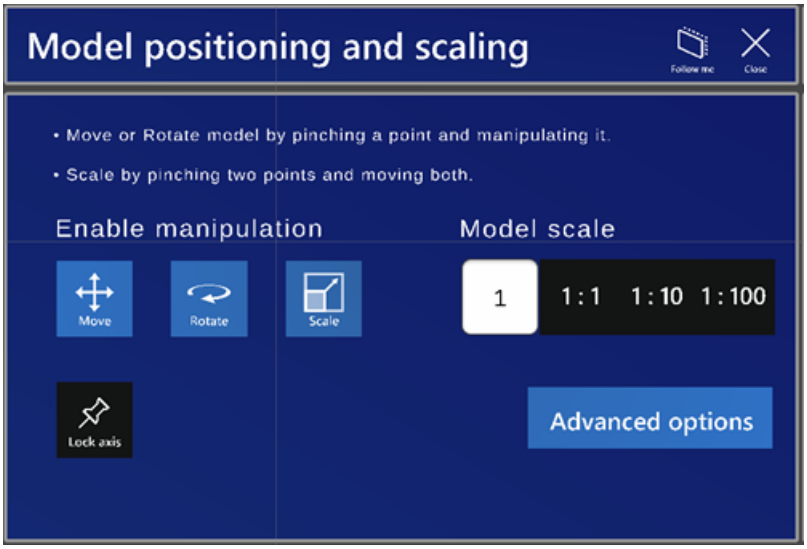
## 5.4.1. Model positioning and scaling

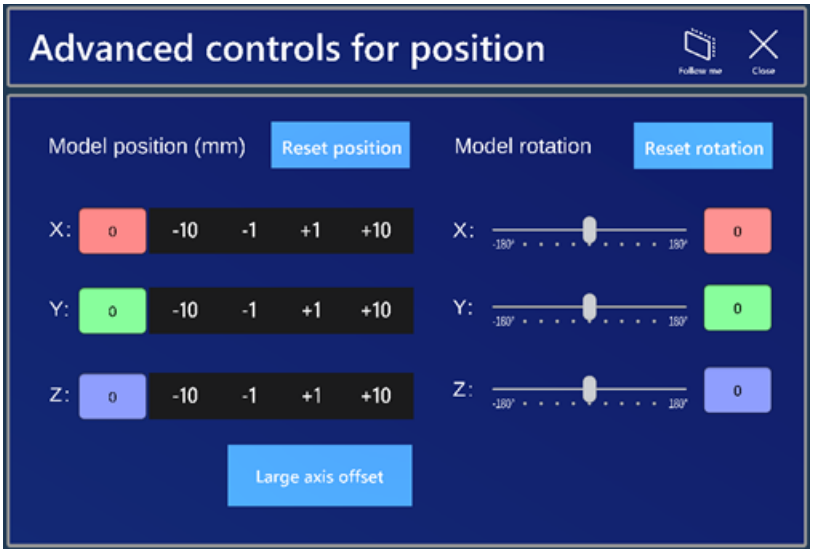



**Model positioning and scaling** window has the following options:

- **Enable manipulation** – Select one or multiple of the buttons:
  - **Move** – Enable movement.
  - **Rotate** – Enable rotation.
  - **Scale** – Enable scaling.
  - **Lock Axis** – Select to lock one or multiple axes to restrict movement and rotation on or around the selected axes.
- **Model scale** – Select one of the scale buttons, or type the desired scale value.

Select **Advanced options** for advanced controls for position and rotation.

## 5.4.2. Advanced controls for position




**Advanced controls for position** window has the following options:

- **Model position** – Type the coordinates (in mm) for each axis or use the pre-defined buttons.
- **Model rotation** – Type the angles (in degrees) for each axis or use the sliders to set the desired angle.

Select **Reset position** to reset model position.

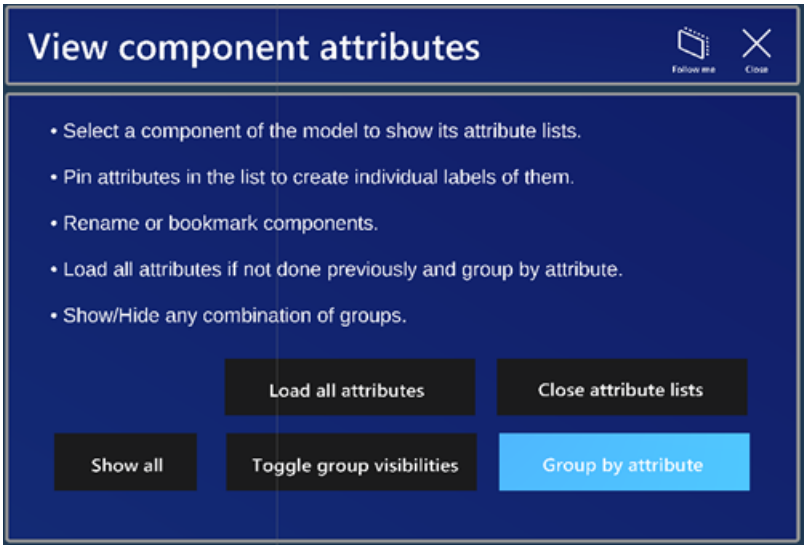
Select **Reset rotation** to reset rotation to the initial value.

Select **Large axis offset** to change position buttons to +/- 1000/10000 mm.

# 5.5. Attributes

Attributes tool lets the user select parts of the model and show its attributes from eShare. Attributes tool requires login and internet connection. By default, the spatial mesh is disabled for this tool in order to be able to freely select items, regardless of walls or other obstacles.

Attributes can be used offline after being downloaded during an online session using **Load all attributes**.

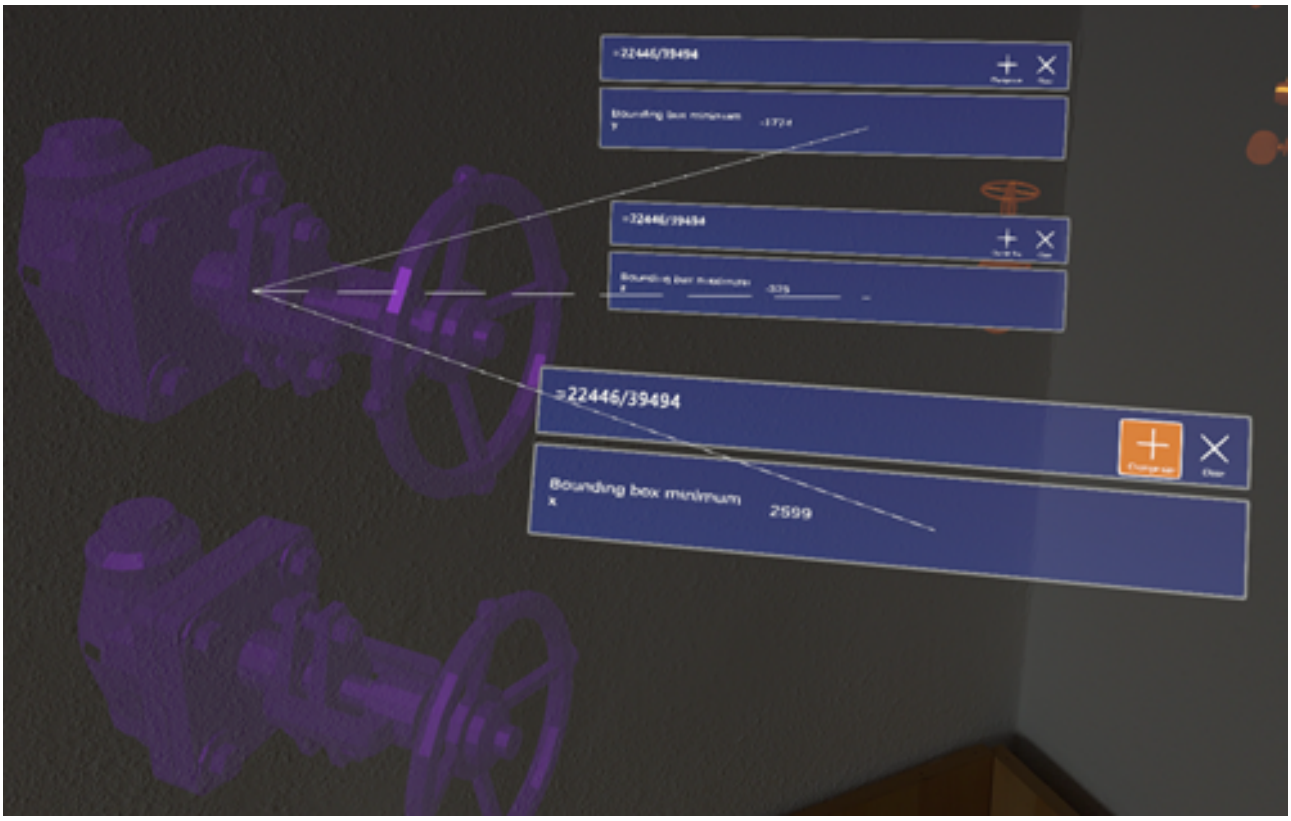



## 5.5.1. Viewing attributes

**Do the following:**

1. Point at a model part and it will enter into focus and change color.
2. Click on the part. An attributes window will pop up in front of the selection point, with a line attached between it and the selection point.

3. Click on the **Label** button for the desired attribute to create an attribute label. A label is created with that attribute and placed next to the window. It will also have a line pointing at the source object. Labels are persistent after the attributes window is closed.
    - Select **Group by** to select the attribute for grouping.
    - Select **Hide** to hide the component or deselect it if the component is set as hidden.
    - Select **Clear labels** to clear the list.
    - Select **Rename** to rename the component.
4. Click on **Bookmark** to bookmark the component to use it for bookmark alignment in the Alignment tool.



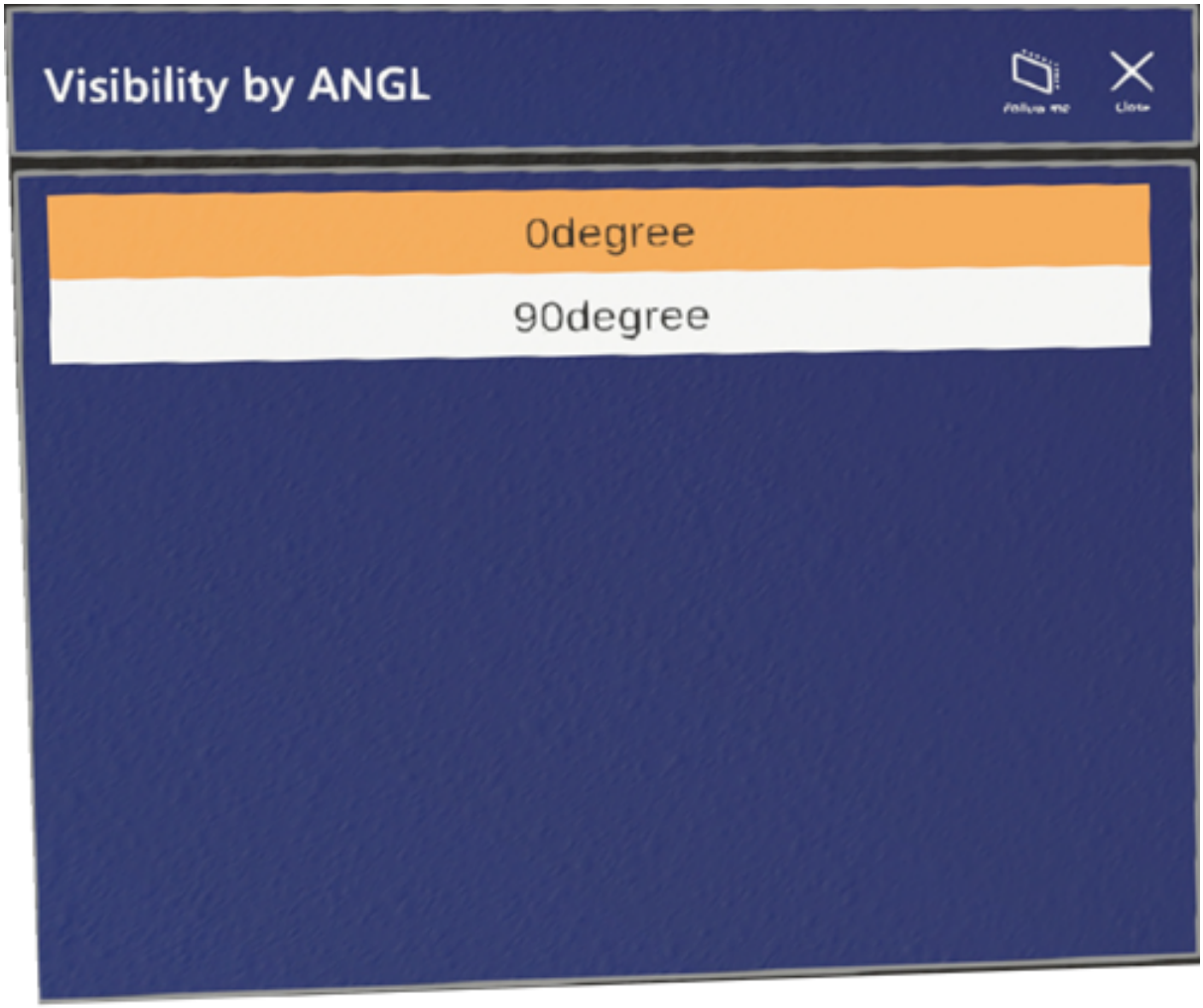

## 5.5.2. Grouping attributes

### Do the following:

1. Load all attributes if not completed yet by selecting **Load all attributes**. After attributes have been loaded during an online session they can be used also offline.
2. Select the attributes to group by in the attributes window.

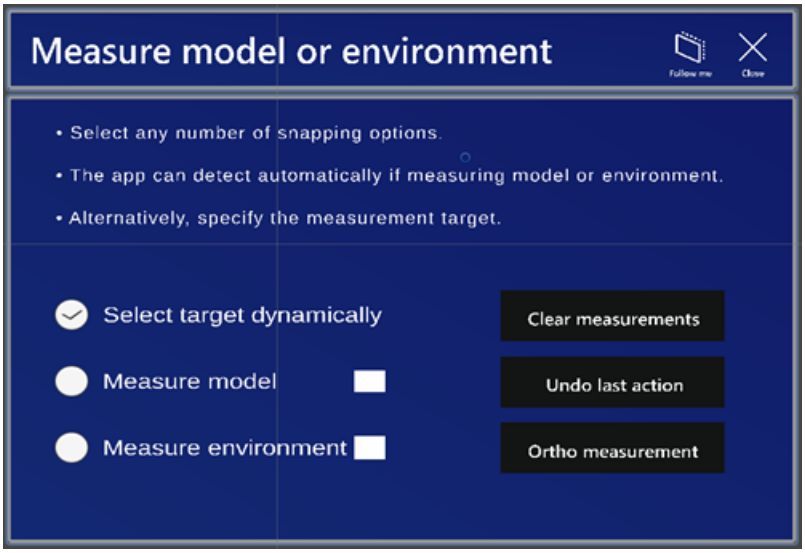
3. Click **Group by attribute** button and select an attribute to create groups based on the attribute values.


4. Select or deselect any number of groups to show or hide the corresponding components.
5. Click **Toggle group visibilities** to show or hide the group list.




## 5.6. Measure

Measure tool is used to measure parts of the model, the real space, or both. By default, the spatial mesh is enabled and visible for this tool in order to be able to measure the real world.




**Measure model or environment** window has the following options:

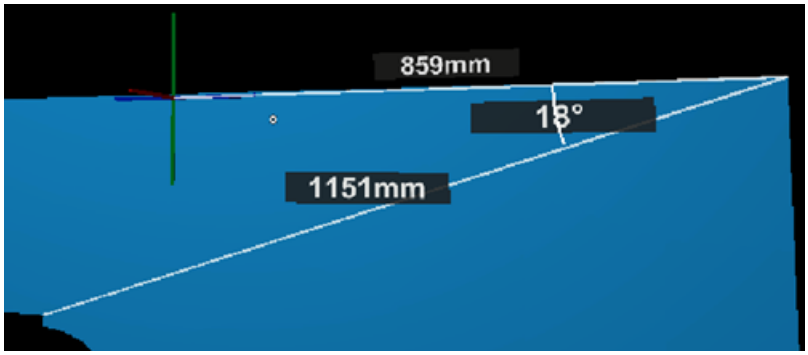
- **Select target dynamically** – Scales the point 2 selection on the same scale as point 1 (model or environment). Enabled by default.
- **Measure model** – The measurement target is the model.
- **Measure environment** – The measurement target is the environment.

Select **Clear measurements** to clear all measurements or **Undo last action** to undo the latest change. Select **Ortho measurement** to measure along the axes. If the model is rotated, then it will measure according to the new axes.

## 5.6.1. Measuring

### Do the following:

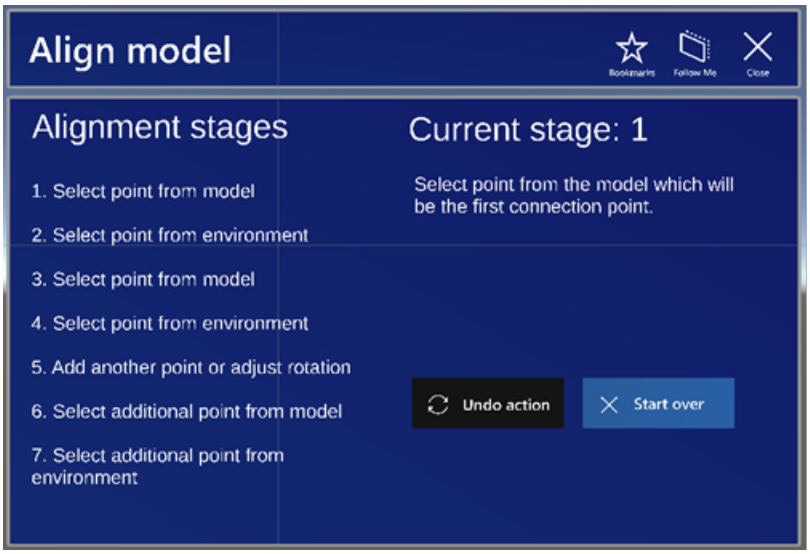
1. Select a point from the environment or the model by pointing the hand ray and air tapping. Real time measurement from that point to the hand ray result begins.
2. Air tap again to select the second point, and the measurement is saved.
   Model and environment measurements are treated separately. The selections in **Measure model or environment** window determine the type of measurement.
3. You can also select any number of snapping options.
4. To use angle measurement, create two line measurements starting or ending in the same point to measure the angle between them.




5. To revert the changes to the previous stage, select **Undo last action**.
6. To clear one measurement, select its label, or to clear all measurements, select Clear all measurements.

## 5.7. Alignment

The Alignment tool is used for placing the model in a precise location, in relation to the real world. By default, the spatial mesh starts inactive but is activated for certain stages. The tool works with two mandatory points, with the addition of other rotation points if necessary.




Select **Undo action** to undo latest changes. Select **Start over** to undo all changes.

Select **Add point** to add another point from the model or environment. Select **Done** to save changes and close the window.

### 5.7.1. Aligning

**Do the following:**

1. Select a point on the model by pointing the hand ray and air tapping.

   Instead of selecting a point manually from the model, you can select a bookmarked component. The geometric center of the component is selected as the alignment point instead of waiting for a directly selected point. The bookmarks list can be activated by selecting the **Bookmarks** button in the top bar.
2. Select a point on the spatial mesh (which becomes enabled) or scan QR code. The model material changes to wireframe to not obstruct vision and the hand ray.
   - If spatial mesh snapping is enabled, then it will be active at this stage.
   - If direct adjustment is enabled in Settings, you can adjust the newly selected point position by selecting it and repositioning it by hand.
   - The model will be moved for the two selected points to overlap.

   Instead of selecting a point from the spatial mesh, you can scan a QR code. The center of the QR code will serve as the alignment point. See QR code aligning.
3. Select a second point on the model manually or use a bookmark.
   - Spatial mesh and snapping is similar to the first step.
   - Model material is reverted to default.

   Instead of selecting a point manually from the model, you can select a bookmarked component. The geometric center of the component is selected as the alignment point instead of waiting for a directly selected point. The bookmarks list can be activated by selecting the **Bookmarks** button in the top bar.
4. Select a second point from the spatial mesh or scan QR code.
   - Spatial mesh, model material, and snapping is similar to the second step.
   - The model will be rotated to match the two points.
   - Additionally, the model can also be scaled.

   Instead of selecting a point from the spatial mesh, you can scan a QR code. The center of the QR code will serve as the alignment point. See QR code aligning.
5. Adjust the axis and slope of the model.
   - If the axis of the two points is almost parallel to the XoZ plane, then you will be asked if that was the intention and correct the alignment.
   - The rotation can be adjusted using the **Rotation around point axis** slider.
   - The slope can be adjusted using the **Slope** slider.
6. Press **Add point** to select more points.

Instead of selecting a point manually from the model, you can select a bookmarked component. The geometric center of the component is selected as the alignment point instead of waiting for a directly selected point. The bookmarks list can be activated by selecting the **Bookmarks** button in the top bar.

7. Select an additional point from the model manually or use a bookmark.
    - Model point selection steps are the same as in the others.
8. Select an additional point from the spatial mesh or scan QR code.
    - Spatial mesh point selection steps are the same as in the others.
    - If direct adjustment is enabled in Settings, you can adjust the newly selected point position by selecting it and repositioning it by hand.
    - The model will be rotated around the axis defined by the first 2 points.

    Instead of selecting a point from the spatial mesh, you can scan a QR code. The center of the QR code will serve as the alignment point. See QR code aligning.
9. Select **Done** to confirm changes. Select **Undo action** to undo the latest change or **Start over** to undo all changes.

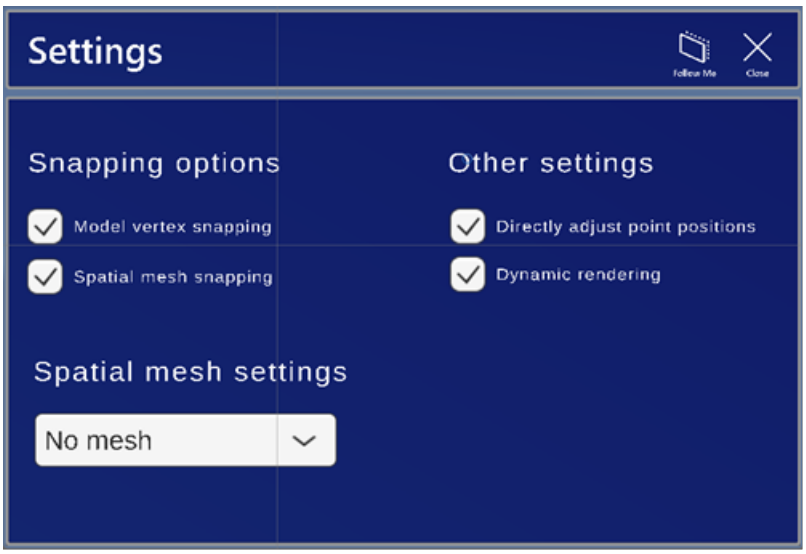
### 5.7.1.1. QR code aligning

The alignment tool will automatically detect if there is a QR code available to be used for alignment.


Check the following, if you have problems with detecting the QR code:

- Provide a larger white zone around the QR code.
- Use a larger QR code.
- Use a lower version QR code if possible.
- Increase lighting.

# 5.8. Settings




Settings window has the following settings:

- Snapping options
  - Model vertex snapping – Finds the closest vertex and places the selection point at its location.
  - Spatial mesh snapping – Finds spatial mesh intersections and places the selection point at their location.
  - Occlusion – Spatial awareness without any visualization, covering the model. HoloLens reads the environment and hides the model if the environment covers it.
- Spatial mesh settings
  - No mesh – No spatial awareness. HoloLens ignores the environment
  - Visible mesh – Spatial awareness with a white mesh overlay, covering the model. HoloLens reads the environment, draws a white mesh, and hides the model if the environment covers it.
  - Occlusion – Spatial awareness without any visualization, covering the model. HoloLens reads the environment and hides the model if the environment covers it.

  The selected option will be applied automatically, if there is no recommended setting for the tool in use. If No mesh is selected, the stages requiring world point selection will use spatial awareness without occlusion. HoloLens reads the environment and shows the model completely. The environment may interfere.
- Point selection settings

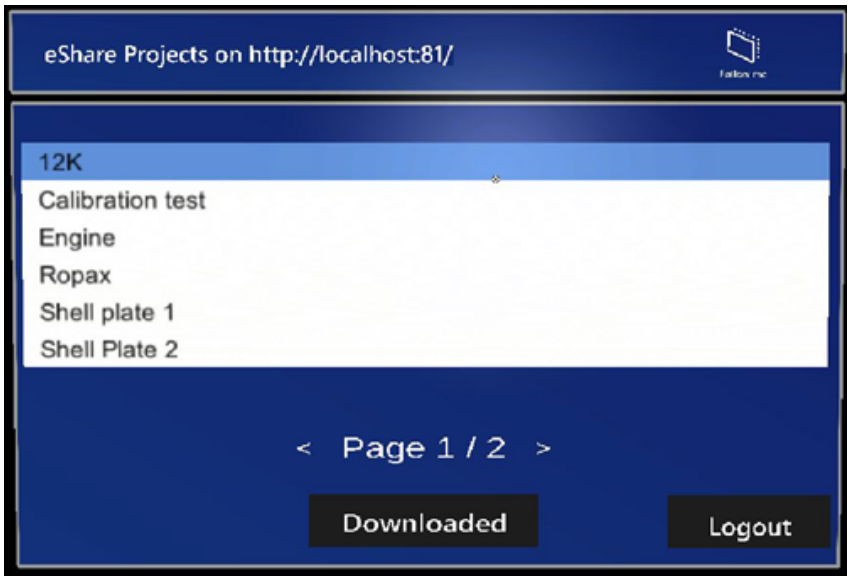
- **Directly adjust point positions** – If direct adjustment is enabled, you can change the position of a previously selected point by simply grabbing and placing it in the right position. The process can be canceled using the **X** button and the position of the point can be reset to the original selection by selecting the **Reset** button.
- **Dynamic rendering** – If dynamic rendering is enabled, only elements in a 15 m radius will be visible. This may be used to improve performance.

# 6. Downloading models for offline use

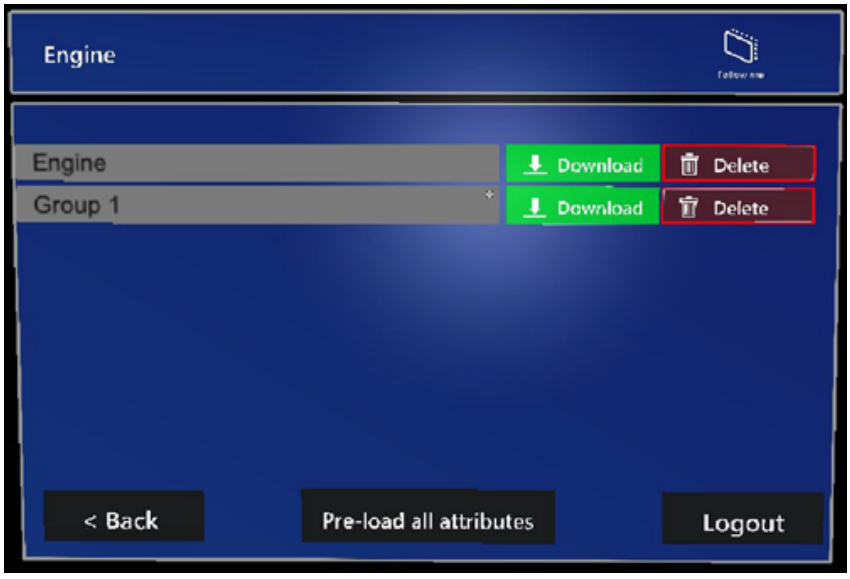
For on-site work, you can download project models or submodels for offline use. Submodels are available, if the project administrator has defined the settings for them in eShare.

### Do the following:

1. Log in to the application. A dialog listing available projects opens.




2. Tap the desired project. The project dialog opens. If the project administrator has defined submodels, they are shown below the selected project.



3. Download the desired models for offline use by tapping the respective **Download** buttons. For more information on reviewing models, see Reviewing models.

   If necessary, you can delete offline copies by tapping the respective **Delete** buttons. If there are no offline copies, the buttons are disabled.

# 7. Opening models

You can open models both online and offline. For offline use, you need to download the models first (see Downloading models for offline use).

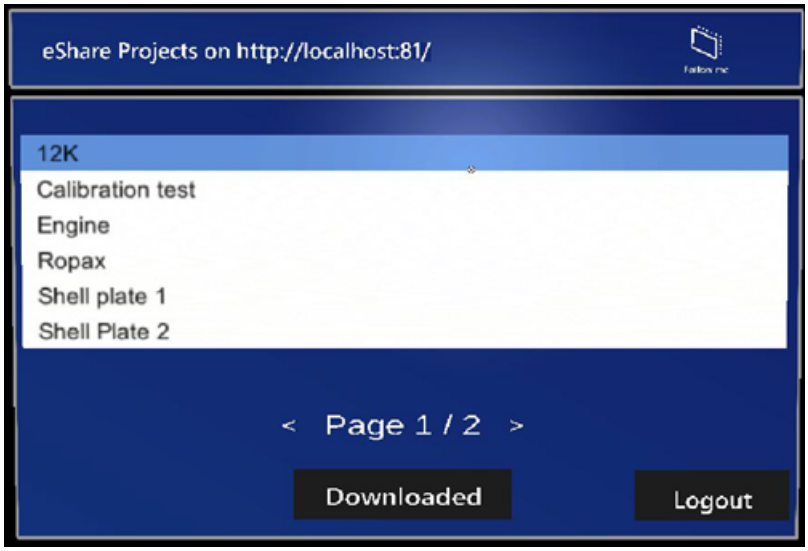
The models for eShare for HoloLens are published in the eShare projects' default coordinate system.

If a 3D model is too large to be downloaded into eShare for HoloLens or only specific parts of the model are of interest, project administrator can define settings for publishing of submodels in eShare. You can then select which submodel to download into your glasses.

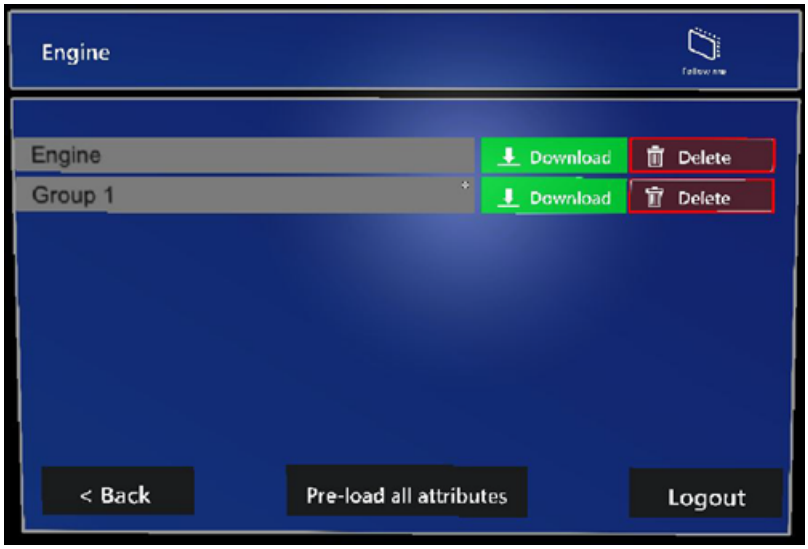
## 7.1. Opening models online

**Do the following:**

1. Log into the application. A dialog listing available projects opens.

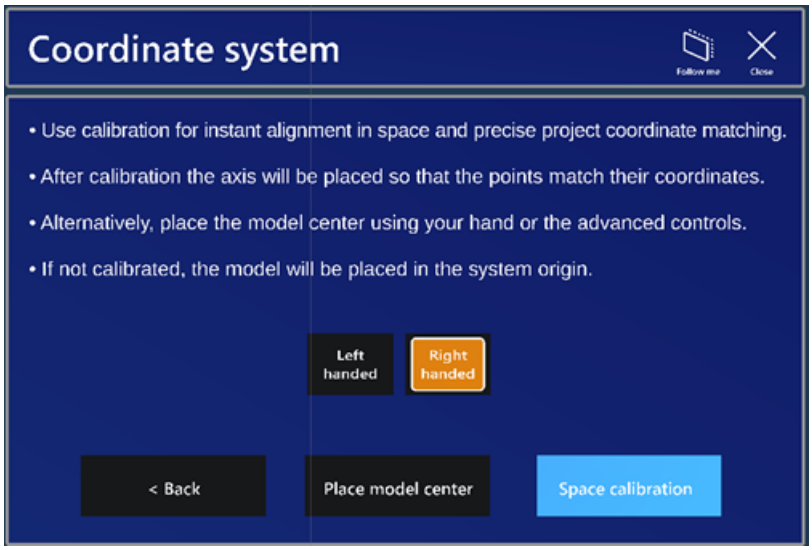



2. Tap the desired project. The project dialog opens. If the project administrator has defined submodels, they are shown below the selected project.




3. Enable **Pre-load all attributes** if you want to load the attributes of the model at start-up.
4. Tap the model you want to open.

   The **Coordinate system** dialog opens.

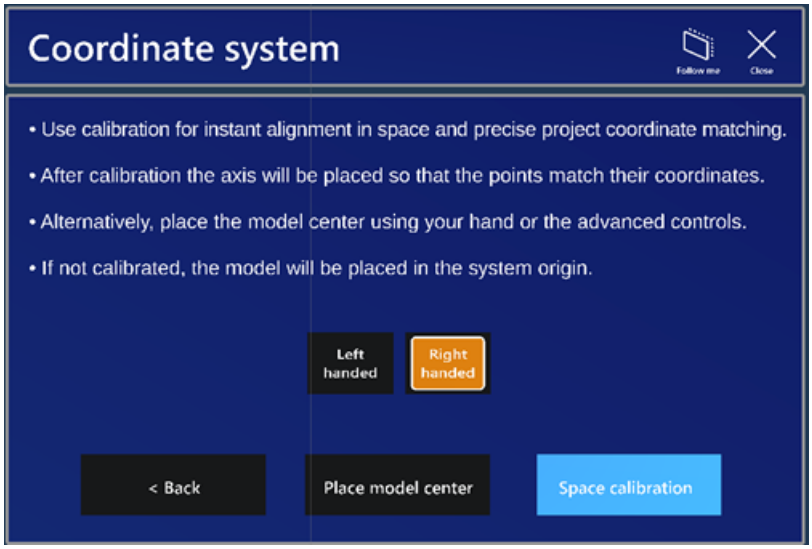



5. Select the handedness of the system.
6. Select **Space calibration**. Space calibration dialog opens.

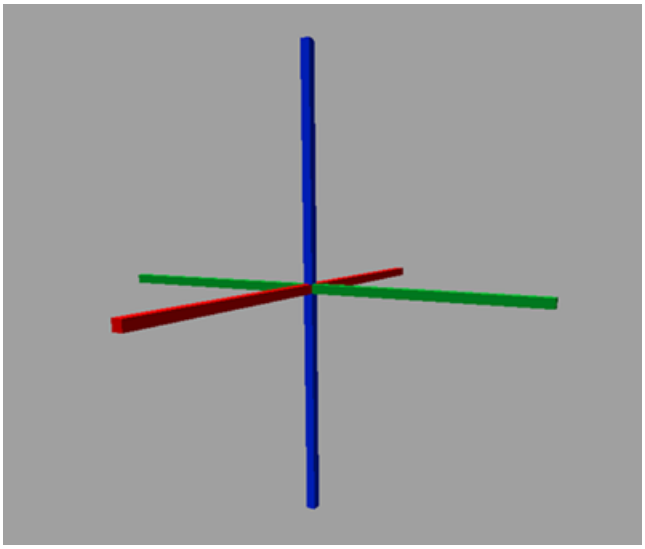

This feature allows to calibrate space so that the coordinates of the model match the environment. If calibration is performed correctly, then the model will also be aligned without extra steps.

The custom origin will correspond to the origin of the entire project and the model will be placed accordingly.

7. Create a link between the environment and the model space by matching three points in the following way:
    - Select a point by clicking on the appropriate button. The point marker, as well as coordinate text boxes will change color and activate.
    - Type the coordinates of the point in the model.
    - Place the active point in space to mark the correct corresponding point in the environment.
    - Repeat for the other two points.
    - If a point is valid, then its checkmark will become active.
    - After defining all points and they are all valid, select **Accept**.
    - To start over, select **Reset**.
8. Alternatively, you can define space in the following way:




- Select **Place model center**.
- Grab the point visual object representing the model geometric center and move it to the desired position.



- Alternatively, Advanced controls for position in Manipulation tool can be used to move by increments (by button) or by coordinate input (textbox).
- Advanced controls are also used to rotate by slider or by angle input (textbox).

9. The model opens.

   You can modify the coordinate system later while the model is open in Advanced controls for position in the Manipulation tool.

   If the model position was saved in a previous session and a preset is available, you can choose instead to use that position relative to the axes.

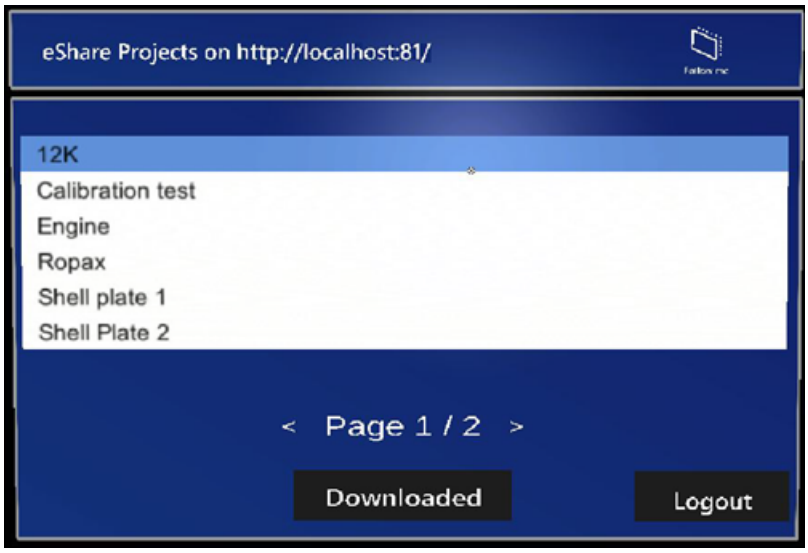
For more information on controlling your sessions, see Reviewing models.

# 7.2. Opening models offline

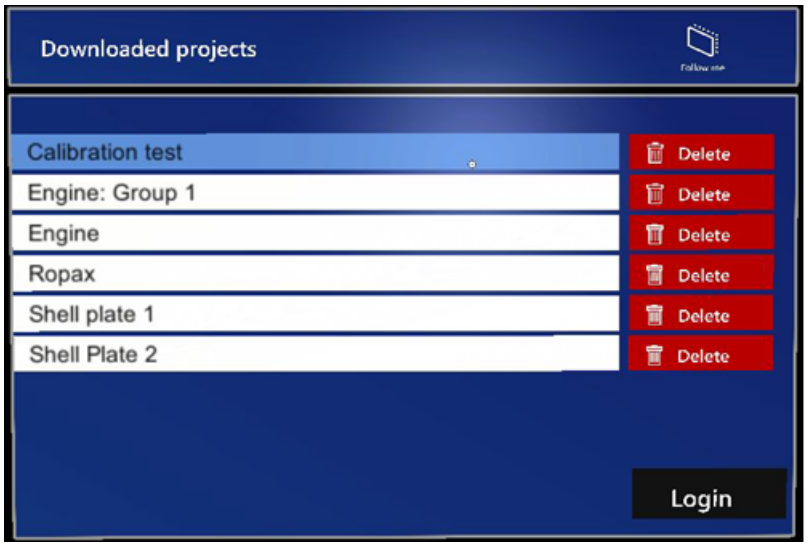
Before you can review models offline, you need to download them (see Downloading models for offline use).

### Do the following:

1. In the login dialog, select **Downloaded models**. Alternatively, log in and select **Downloaded**.

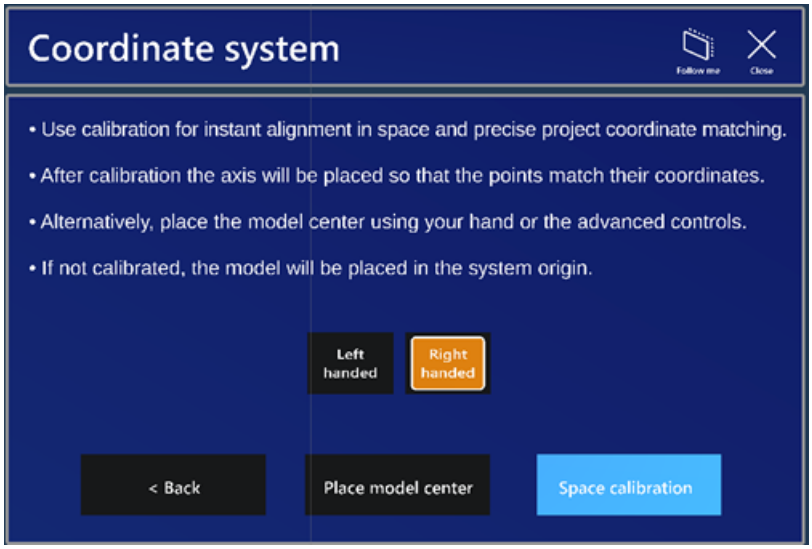



   The **Downloaded projects** dialog opens.




2. Tap the model you want to open.

   The **Coordinate system** dialog opens.

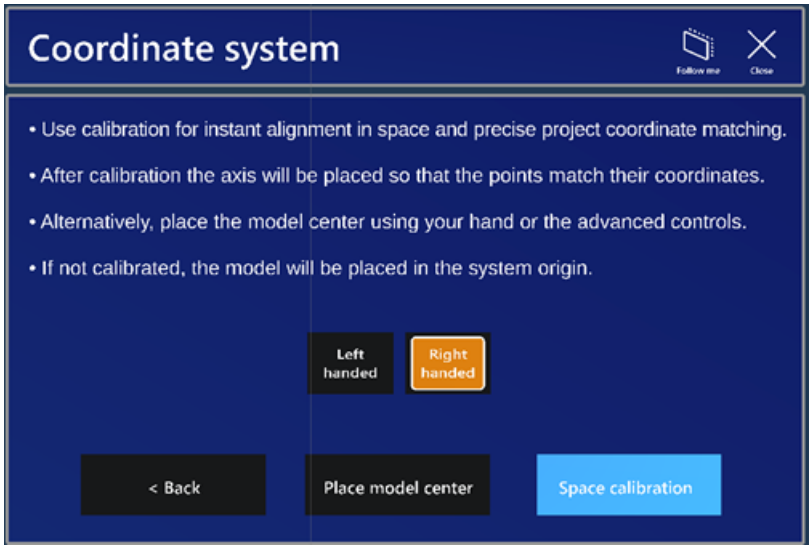



3. Select the handedness of the system.
4. Select **Space calibration**. Space calibration dialog opens.

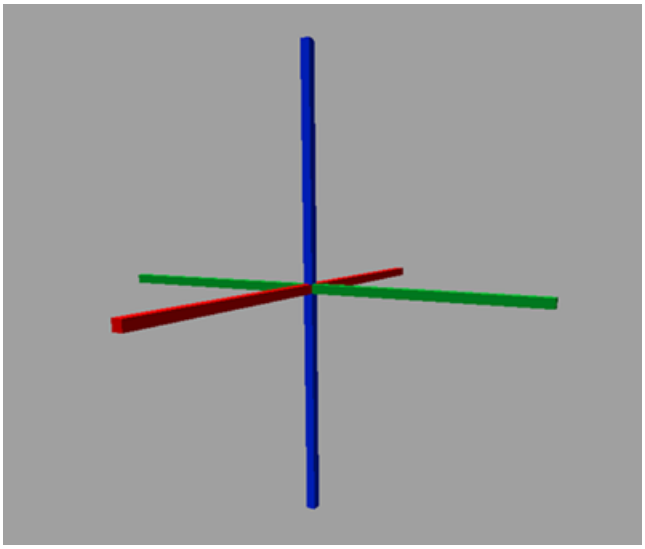

This feature allows to calibrate space so that the coordinates of the model match the environment. If calibration is performed correctly, then the model will also be aligned without extra steps.

The custom origin will correspond to the origin of the entire project and the model will be placed accordingly.

5. Create a link between the environment and the model space by matching three points in the following way:
    - Select a point by clicking on the appropriate button. The point marker, as well as coordinate text boxes will change color and activate.
    - Type the coordinates of the point in the model.
    - Place the active point in space to mark the correct corresponding point in the environment.
    - Repeat for the other two points.
    - If a point is valid, then its checkmark will become active.
    - After defining all points and they are all valid, select **Accept**.
    - To start over, select **Reset**.
6. Alternatively, you can define space in the following way:




    - Select **Place model center**.
    - Grab the point visual object representing the model geometric center and move it to the desired position.



- Alternatively, Advanced controls for position in Manipulation tool can be used to move by increments (by button) or by coordinate input (textbox).
- Advanced controls are also used to rotate by slider or by angle input (textbox).

7. The model opens.

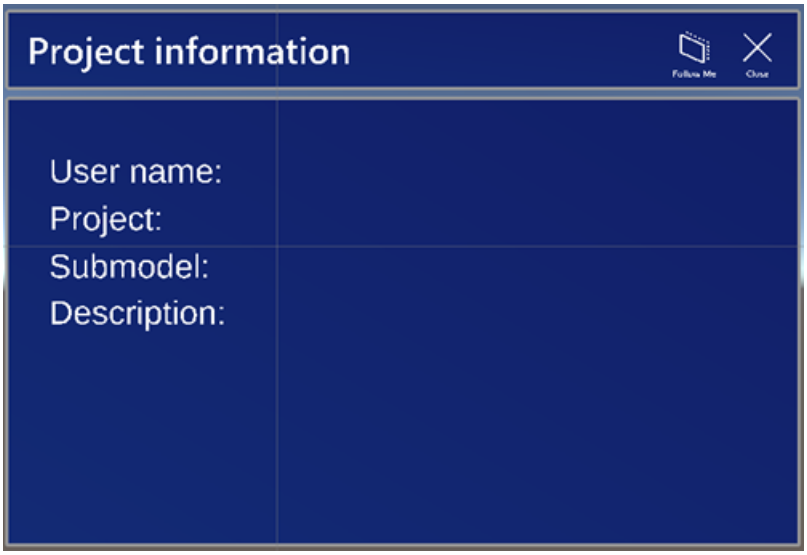
   You can modify the coordinate system later while the model is open in Advanced controls for position in the Manipulation tool.

   If the model position was saved in a previous session and a preset is available, you can choose instead to use that position relative to the axes.

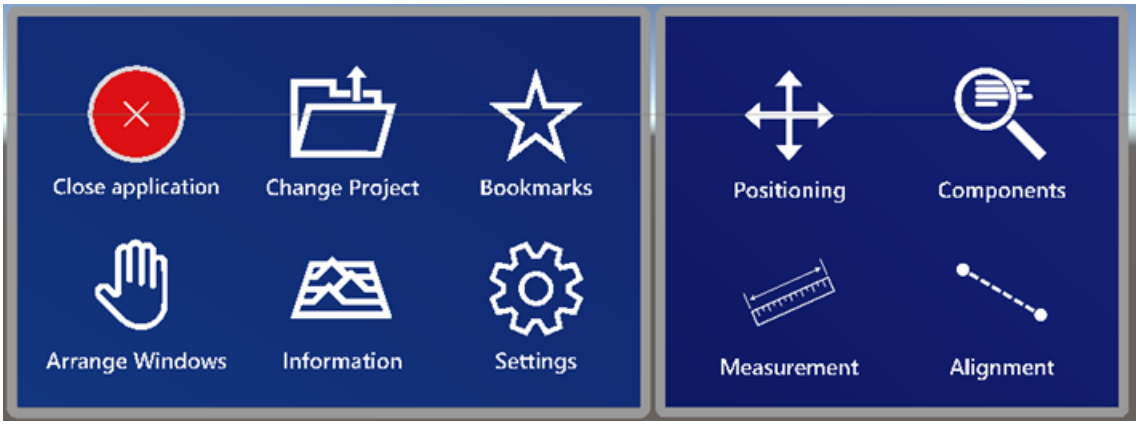
For more information on controlling your sessions, see Reviewing models.

# 8. Reviewing models

When you open a model in eShare for HoloLens, the project information window also opens. The **Project information** window shows details about the selected project and model.




By default the Hand menu has only **Close application** and **Bring close** visible, but in Project information window the options for reviewing the model can be expanded.



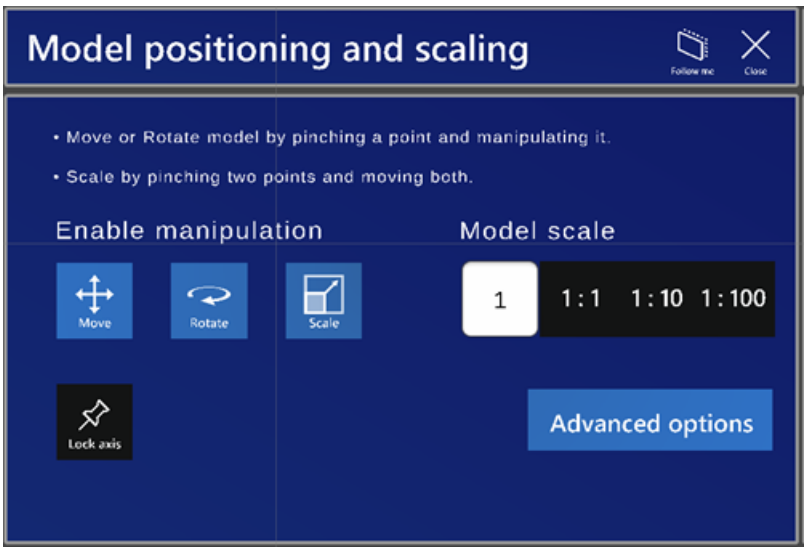



# 8.1. Manipulation

Manipulation tool determines the general manipulation of model. Manipulation tool is the only tool, where direct movement, rotation, and scaling is allowed. The model can be directly interacted with by hand, or by using the controls on the panel. By default, the spatial mesh is disabled for this tool in order to be able to freely manipulate it, regardless of walls or other obstacles.

**Note:** Model position is automatically saved as a preset for the project when the application is closed or project is changed.

## 8.1.1. Model positioning and scaling

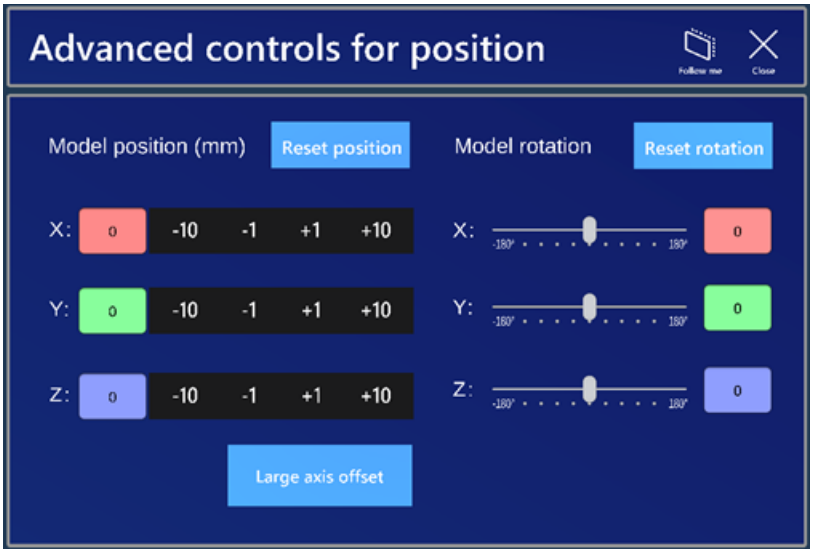



**Model positioning and scaling** window has the following options:

- **Enable manipulation** – Select one or multiple of the buttons:
  - **Move** – Enable movement.
  - **Rotate** – Enable rotation.
  - **Scale** – Enable scaling.
  - **Lock Axis** – Select to lock one or multiple axes to restrict movement and rotation on or around the selected axes.
- **Model scale** – Select one of the scale buttons, or type the desired scale value.

Select **Advanced options** for advanced controls for position and rotation.

## 8.1.2. Advanced controls for position




**Advanced controls for position** window has the following options:

- **Model position** – Type the coordinates (in mm) for each axis or use the pre-defined buttons.
- **Model rotation** – Type the angles (in degrees) for each axis or use the sliders to set the desired angle.

Select **Reset position** to reset model position.

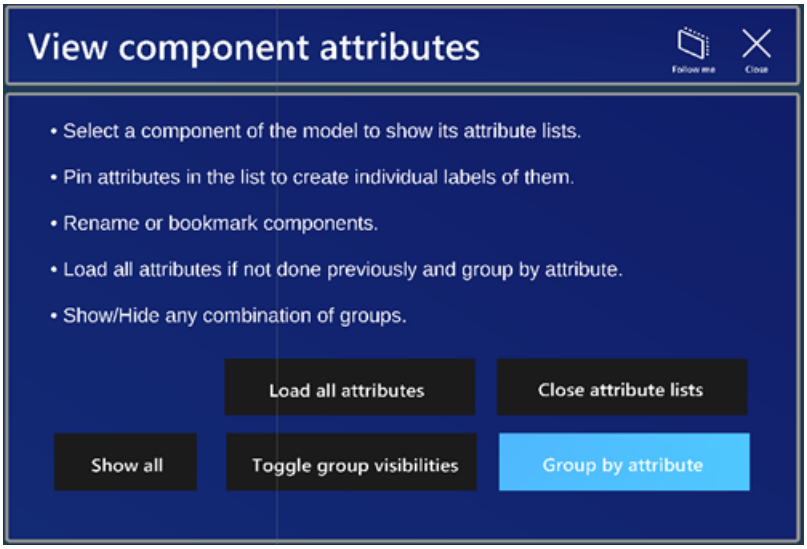
Select **Reset rotation** to reset rotation to the initial value.

Select **Large axis offset** to change position buttons to +/- 1000/10000 mm.

# 8.2. Attributes

Attributes tool lets the user select parts of the model and show its attributes from eShare. Attributes tool requires login and internet connection. By default, the spatial mesh is disabled for this tool in order to be able to freely select items, regardless of walls or other obstacles.

Attributes can be used offline after being downloaded during an online session using **Load all attributes**.

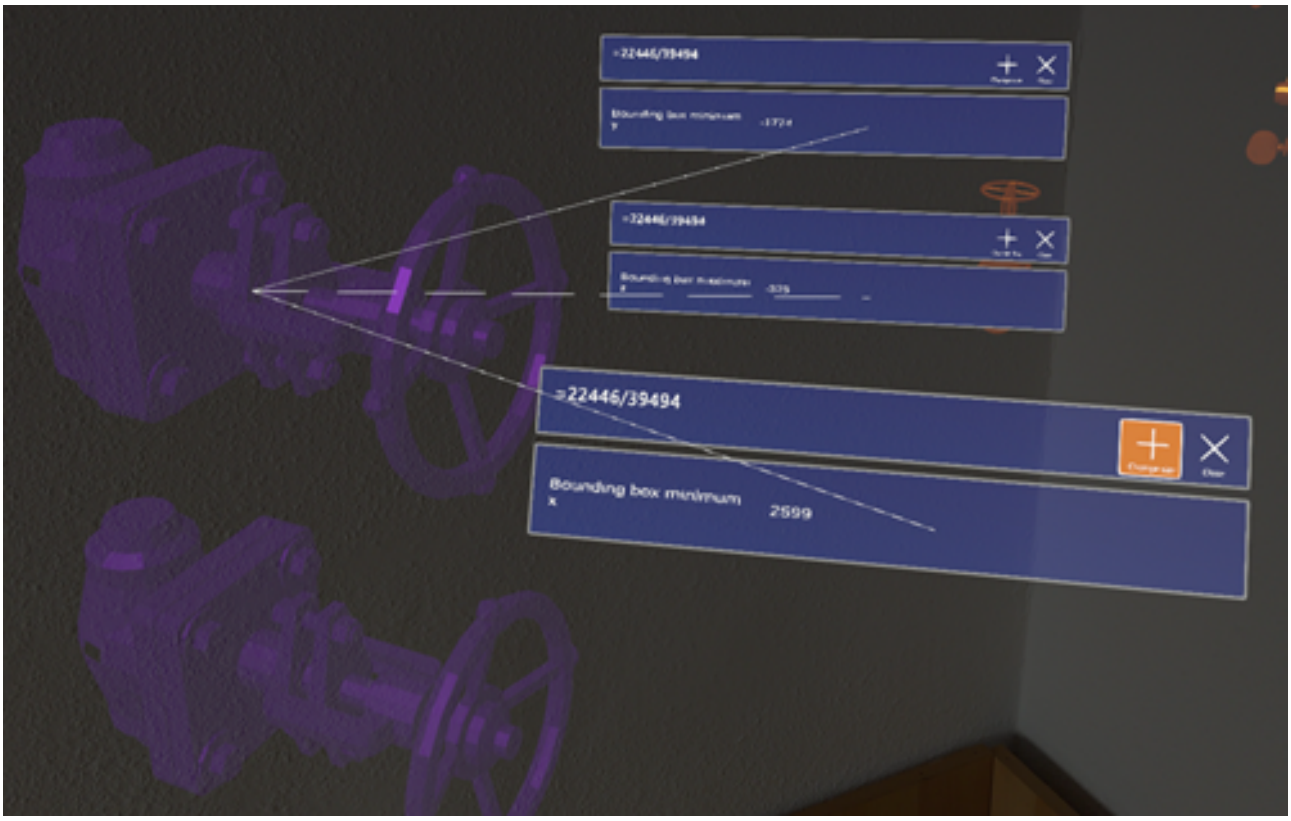



## 8.2.1. Viewing attributes

**Do the following:**

1. Point at a model part and it will enter into focus and change color.
2. Click on the part. An attributes window will pop up in front of the selection point, with a line attached between it and the selection point.

3. Click on the **Label** button for the desired attribute to create an attribute label. A label is created with that attribute and placed next to the window. It will also have a line pointing at the source object. Labels are persistent after the attributes window is closed.
    - Select **Group by** to select the attribute for grouping.
    - Select **Hide** to hide the component or deselect it if the component is set as hidden.
    - Select **Clear labels** to clear the list.
    - Select **Rename** to rename the component.
4. Click on **Bookmark** to bookmark the component to use it for bookmark alignment in the Alignment tool.



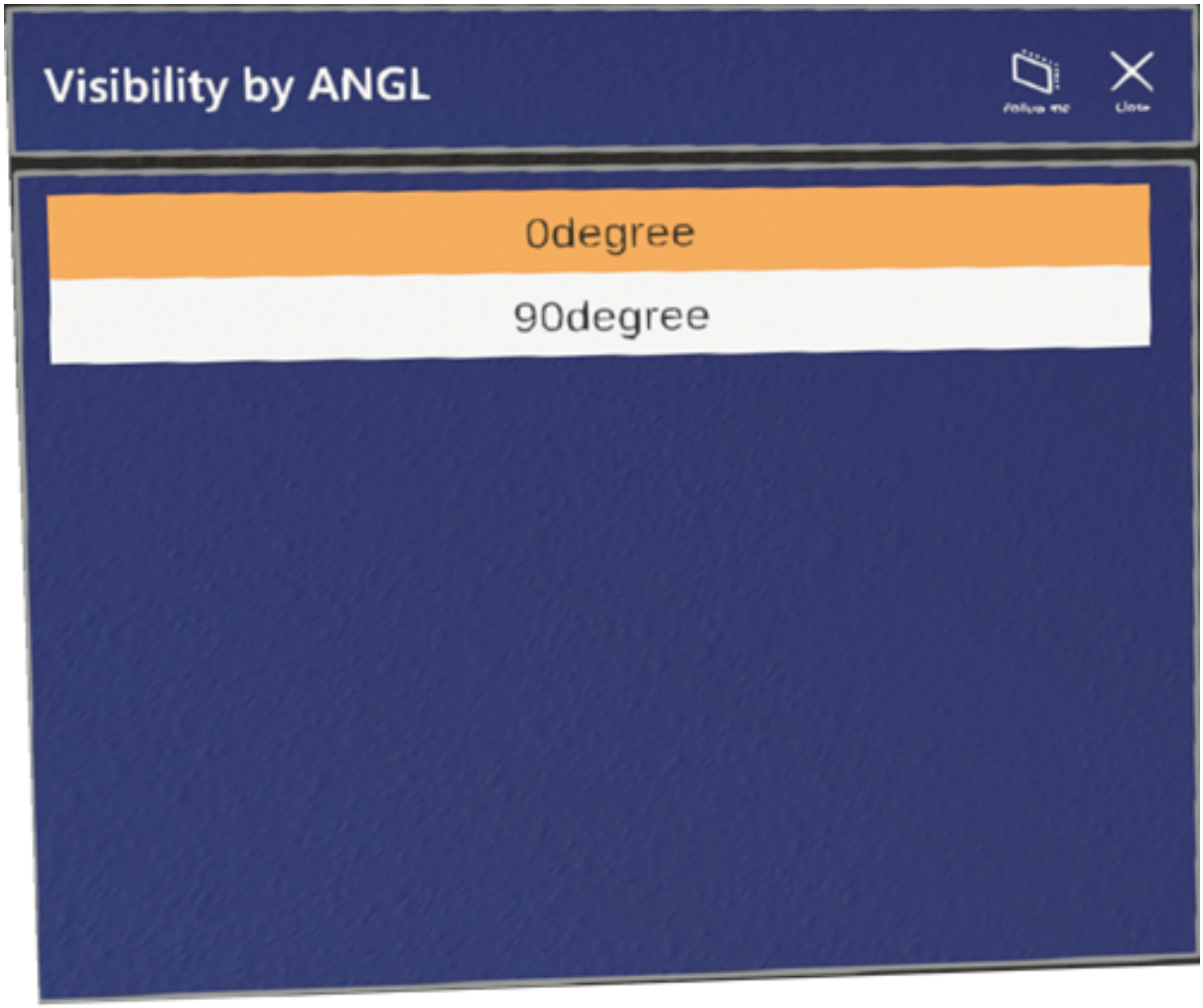

## 8.2.2. Grouping attributes

### Do the following:

1. Load all attributes if not completed yet by selecting **Load all attributes**. After attributes have been loaded during an online session they can be used also offline.
2. Select the attributes to group by in the attributes window.

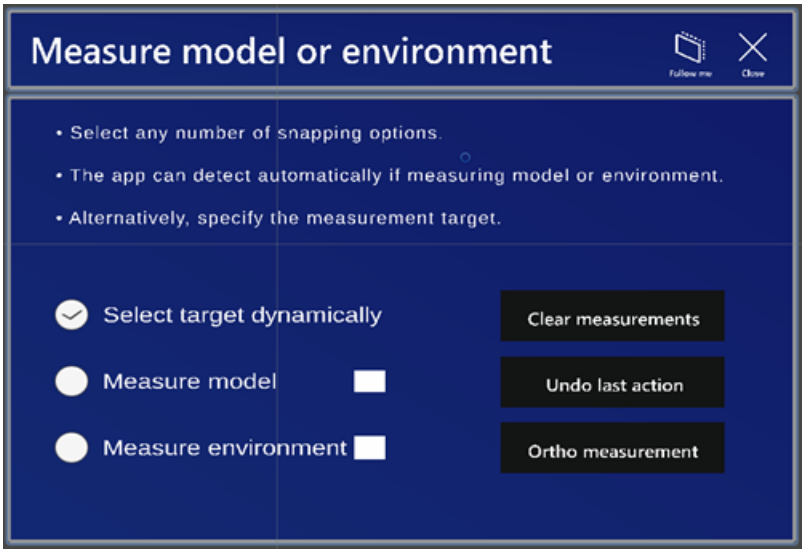
3. Click **Group by attribute** button and select an attribute to create groups based on the attribute values.


4. Select or deselect any number of groups to show or hide the corresponding components.
5. Click **Toggle group visibilities** to show or hide the group list.




## 8.3. Measure

Measure tool is used to measure parts of the model, the real space, or both. By default, the spatial mesh is enabled and visible for this tool in order to be able to measure the real world.




**Measure model or environment** window has the following options:

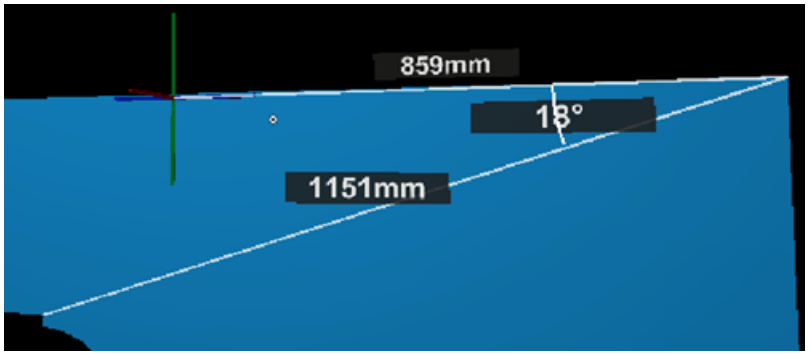
- **Select target dynamically** – Scales the point 2 selection on the same scale as point 1 (model or environment). Enabled by default.
- **Measure model** – The measurement target is the model.
- **Measure environment** – The measurement target is the environment.

Select **Clear measurements** to clear all measurements or **Undo last action** to undo the latest change. Select **Ortho measurement** to measure along the axes. If the model is rotated, then it will measure according to the new axes.

## 8.3.1. Measuring

### Do the following:

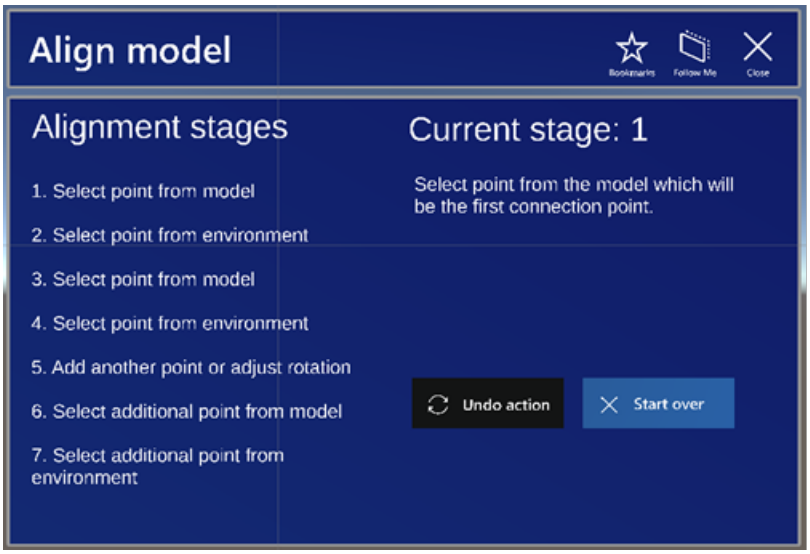
1. Select a point from the environment or the model by pointing the hand ray and air tapping. Real time measurement from that point to the hand ray result begins.
2. Air tap again to select the second point, and the measurement is saved.
   Model and environment measurements are treated separately. The selections in **Measure model or environment** window determine the type of measurement.
3. You can also select any number of snapping options.
4. To use angle measurement, create two line measurements starting or ending in the same point to measure the angle between them.




5. To revert the changes to the previous stage, select **Undo last action**.
6. To clear one measurement, select its label, or to clear all measurements, select Clear all measurements.

## 8.4. Alignment

The Alignment tool is used for placing the model in a precise location, in relation to the real world. By default, the spatial mesh starts inactive but is activated for certain stages. The tool works with two mandatory points, with the addition of other rotation points if necessary.




Select **Undo action** to undo latest changes. Select **Start over** to undo all changes.

Select **Add point** to add another point from the model or environment. Select **Done** to save changes and close the window.

### 8.4.1. Aligning

**Do the following:**

1. Select a point on the model by pointing the hand ray and air tapping.

   Instead of selecting a point manually from the model, you can select a bookmarked component. The geometric center of the component is selected as the alignment point instead of waiting for a directly selected point. The bookmarks list can be activated by selecting the **Bookmarks** button in the top bar.
2. Select a point on the spatial mesh (which becomes enabled) or scan QR code. The model material changes to wireframe to not obstruct vision and the hand ray.
   - If spatial mesh snapping is enabled, then it will be active at this stage.
   - If direct adjustment is enabled in Settings, you can adjust the newly selected point position by selecting it and repositioning it by hand.
   - The model will be moved for the two selected points to overlap.

   Instead of selecting a point from the spatial mesh, you can scan a QR code. The center of the QR code will serve as the alignment point. See QR code aligning.
3. Select a second point on the model manually or use a bookmark.
   - Spatial mesh and snapping is similar to the first step.
   - Model material is reverted to default.

   Instead of selecting a point manually from the model, you can select a bookmarked component. The geometric center of the component is selected as the alignment point instead of waiting for a directly selected point. The bookmarks list can be activated by selecting the **Bookmarks** button in the top bar.
4. Select a second point from the spatial mesh or scan QR code.
   - Spatial mesh, model material, and snapping is similar to the second step.
   - The model will be rotated to match the two points.
   - Additionally, the model can also be scaled.

   Instead of selecting a point from the spatial mesh, you can scan a QR code. The center of the QR code will serve as the alignment point. See QR code aligning.
5. Adjust the axis and slope of the model.
   - If the axis of the two points is almost parallel to the XoZ plane, then you will be asked if that was the intention and correct the alignment.
   - The rotation can be adjusted using the **Rotation around point axis** slider.
   - The slope can be adjusted using the **Slope** slider.
6. Press **Add point** to select more points.

Instead of selecting a point manually from the model, you can select a bookmarked component. The geometric center of the component is selected as the alignment point instead of waiting for a directly selected point. The bookmarks list can be activated by selecting the **Bookmarks** button in the top bar.

7. Select an additional point from the model manually or use a bookmark.
    - Model point selection steps are the same as in the others.
8. Select an additional point from the spatial mesh or scan QR code.
    - Spatial mesh point selection steps are the same as in the others.
    - If direct adjustment is enabled in Settings, you can adjust the newly selected point position by selecting it and repositioning it by hand.
    - The model will be rotated around the axis defined by the first 2 points.

    Instead of selecting a point from the spatial mesh, you can scan a QR code. The center of the QR code will serve as the alignment point. See QR code aligning.
9. Select **Done** to confirm changes. Select **Undo action** to undo the latest change or **Start over** to undo all changes.

### 8.4.1.1. QR code aligning

The alignment tool will automatically detect if there is a QR code available to be used for alignment.


Check the following, if you have problems with detecting the QR code:

- Provide a larger white zone around the QR code.
- Use a larger QR code.
- Use a lower version QR code if possible.
- Increase lighting.