

Move and Glue

Move / Copy and Align object(s) on a face or edge based on their axes with optional gluing and cut-opening

► Overview and common principles

The transformation is done in **3 steps**:

- 1) Object(s) Selection
- 2) Translation with automatic flipping on a face or a standalone edge
- 3) followed by an optional planar pivoting

Applicable Objects

- Applicable objects are **Groups, Component Instances, Faces, Edges** and **Images**
- You can select **any combination of these objects**
- Note: Faces and Edges are *extracted* from the model when transformed. So, there is **NO autofolding** of their neighboring faces

Navigating through Steps (Skip, Exit, Undo, Abort)

- You can **skip a step** with a **Double-Click** on the origin point (instead of a simple click).
- You can **exit the tool after a step**
 - by hitting **Spacebar**
 - or by a **Double-Click** on the target point
 - or by a **Double-Click in empty space**
 - or via the **Contextual menu**.
- You can **undo a step** by hitting **Esc** or **Ctrl-Z**. Note that MAM will never undo beyond the initial state when you entered the tool
- You can **abort and exit** via the **Contextual menu**

Copy Mode

Toggle the Copy mode is possible only **during selection and translation**

Toggle **Ctrl** to activate or deactivate **Copy mode**

The cursor will display a small  sign when in Copy mode

NO-inference mode

- When you move the mouse, inferences are calculated based on remarkable points and remarkable directions in the model
- You can disable inference
 - **Alt Down** (temporarily)
 - **Toggle Alt** (permanently)

XRay Mode

- MoveAlignMe includes the toggling of XRay mode to facilitate the picking of origin and target points
- By default, the XRay mode will be automatically activated when you click to select the origin of translation
 - You can disable the Automatic XRay in the Default Parameters
- Press **TAB** to toggle the XRay mode at any time
- When exiting, MoveAlignMe will restore the XRay mode which was in effect when entering the tool

► Step 1: Object Selection

MoveAlignMe supports **Preselection** and **Interactive selection**

Summary of Modifiers during Selection

- **Ctrl**: Toggle Copy mode
- **Shift**: Add to or Remove from the permanent selection
- **Alt**: Select single face within a surface or single edge within a curve

Preselection

Select objects and then launch MoveAlignMe

- The selection cannot be modified. Hit **Esc** to clear the selection and start an interactive selection
- With Preselection, you start directly with the Translation from any point in the model

Interactive Selection

Launch MoveAlignMe without any object selected.

Interactive selection is used to select objects and specify the origin of the translation

- **Mouse over the model**; Selectable objects are highlighted.
 - A mouse-click will confirm the selection and go to the next step: Translation
 - The clicked point will be the **origin of the translation**
- **Selecting several objects**
 - Press down **Shift** when hovering over the object (do not click)
 - This will add (or remove) the object in the **permanent** selection
 - While **Shift** is down, hovered objects are added in the permanent selection (or removed if already permanently selected)
 - When finished, **Click** on a point in the model to set the origin of the translation
- **Selecting a face at a vertex**
 - Mouse over the face first
 - Then gently move the mouse over the vertex to make it the origin of the translation
- **Selecting a surface versus a single face within a surface**
 - By default, MoveAlignMe will select the whole surface if the picked face belongs to it
 - When you are in the *Show Hidden Geometry* mode, you can however select a single face by pressing **Alt Down**
- **Selecting a curve versus a single edge within a curve**
 - By default, MoveAlignMe will select the whole curve if the picked edge belongs to it
 - You can however select a single edge by pressing **Alt Down**

► Step 2: Translation with automatic orientation on Face or Edge

MoveAlignMe mimics the insertion of a component instance from the component browser when they have their behavior set to *Gluing Any*.

- If so, the object is automatically orientated on the target face it will glue on
- Note that this behavior is however not supported by the Move tool when the component instance is already in the model

This is where MoveAlignMe can be useful. It will automatically align the object on faces or standalone edges with an optional gluing and cut-opening

Summary of Modifiers during Translation

- **Ctrl**: Toggle Copy mode
- **Toggle Shift**: Toggle reference axes
- **Alt**: Set or toggle NO inference mode
- **Arrows**: Select an axis for orientation

Performing the Translation / Orientation

- The Translation starts as soon as you **Click** (or **Click-Drag**) the **origin point** in the Selection step
- Move the mouse to translate the object(s) to the **target point**
 - **Click** to validate the target point and switch to the next step: **Pivoting**
 - **Double-Click** to validate the target point and **Exit the tool**

Automatic orientation of objects

- **A single object** will automatically align its **blue axis**
 - to the normal of the target face
 - or along the target standalone edge (e.g. object(s) aligned perpendicular to the edge)
 - or keep its orientation otherwise
- **When several objects are selected**, the reference axis is taken as the **model blue axis** if objects have different axes
- **Borrowing orientation**
 - Hover a face or a standalone edge to orientate the object(s)
 - Keep **ShiftDown** and move the mouse to translate the objects elsewhere while keeping the orientation

Automatic gluing and cut-opening

- This is applicable only if when the target is on a **Face at top level of the current context**
- **If object(s) have Gluing and Cut-opening already set in their behavior**, it will be applied
 - This concerns Component Instances, Groups and Images
 - Note that the placement on the face will be based on the origin of the object axes
- **When objects do NOT have gluing set already**
 - Gluing and Cut-opening will be applied automatically
 - This behavior can be disabled in the Default Parameters

Deep gluing and cut-opening (across boundaries)

- When the target face is within a group or component instance, you can force a **Deep Gluing**
- **Toggle Shift** while moving to enable / disable Deep Gluing
 - Target faces which are within groups or instances will be highlighted in **lightgreen** when moused over
- With Deep Gluing enabled
 - Object(s) will be transferred **INSIDE** the parent of the target face
 - Gluing and cut-opening will be applied to the target face

Change of axes

- By default, the orientation is based on the alignment of the **blue axis** of object(s)
- You can change this reference axis while moving or right after clicking on the target point
 - **Toggle Shift** to cycle through the 6 possibilities (3 axis, direct or reverse)
- You can also directly specify an axis with **Arrows**
 - **ArrowTop** for **blue** axis
 - **Arrow-Right** for **red** axis
 - **Arrow-Left** for **green** axis
 - **Arrow-Down** will remove the axis orientation

Translation by a specified distance

- When moving in a direction you can **type the distance in the VCB** (in model units)
 - The object(s) will be moved and you **Exit the tool**

► Step 3: Planar Pivoting to orientate along a direction

For Pivoting you **pick an origin and bring it to a target**. This determines a direction to align the selection

The **Pivot Point** is the target point of the translation (highlighted in **orange**)

The **Pivoting Plane** is the gluing plane

- If you skipped the Translation step, there is no gluing plane and the rotation is based on a **Free Pivoting**

Summary of Modifiers during Pivoting

- **Ctrl**: Specify a Lead Face or a Lead Edge
- **Shift**: Toggle direction (direct or reverse) while pivoting
- **Alt**: Set or toggle NO inference mode
- **VCB**: Enter rotation angle in degree (only when pivot plane is active)

Performing the Planar Pivoting

There are **2 substeps** since you need to pick an origin and then a target

- **Pick the origin**
 - **Click** to pick the origin (highlighted in **green**)
- **Move the mouse to pivot the object(s)**
 - Inferences can be used to force a direction
- **Click to validate the pivoting**
 - This will validate the transformation and **Exit the tool**

Lead Face and Lead Edge for pivoting

Instead of pivoting interactively, you can take the direction from Faces or Edges in the model

The principle is that you pick a face or edge in the object(s) and then pick another one in the model

Both faces or edges will then be aligned

- **Pick a Lead Face or Lead Edge**
 - Instead of clicking an origin point, **hover the object(s)**
 - The face or edge under the cursor is highlighted in **light orange**
 - Keep **CtrlDown** and **Click** on the face or edge or just **Toggle Ctrl** when mouse is over the face or edge (without clicking)
 - The face or edge will be permanently highlighted in **dark orange**
- **Mouse over the Target Face or Target Edge in the model**
 - **Click** on it to perform the alignment
 - You can also **Toggle Ctrl** to validate the alignment (without clicking)

Forcing a Pivoting Plane

- Use **Arrows** to specify a plane of rotation
 - **ArrowTop** for **blue** axis
 - **Arrow-Right** for **red** axis
 - **Arrow-Left** for **green** axis
 - **Arrow-Down** for setting a **custom plane** (from the face, edge, Guide line or axis under the mouse) or **removing the current pivoting plane**
- **Remark**: for the Move and Glue tools, Arrows are forcing a plane only if there is NO face or edge alignment.

Rotation by a specified angle (when a pivot plane is active)

- When rotating you can **type the angle in the VCB (in degree [-180, +180])**
 - The object(s) will be rotated by the specified angle and you **Exit the tool**
 - **Note**: pay attention to the sign of the angle (check the VCB for positive and negative value)