MODEL VISTA

INNOWORKS

ENGLISH DOCUMENTATION

Model Vista Web

User documentation for Model Vista Web.

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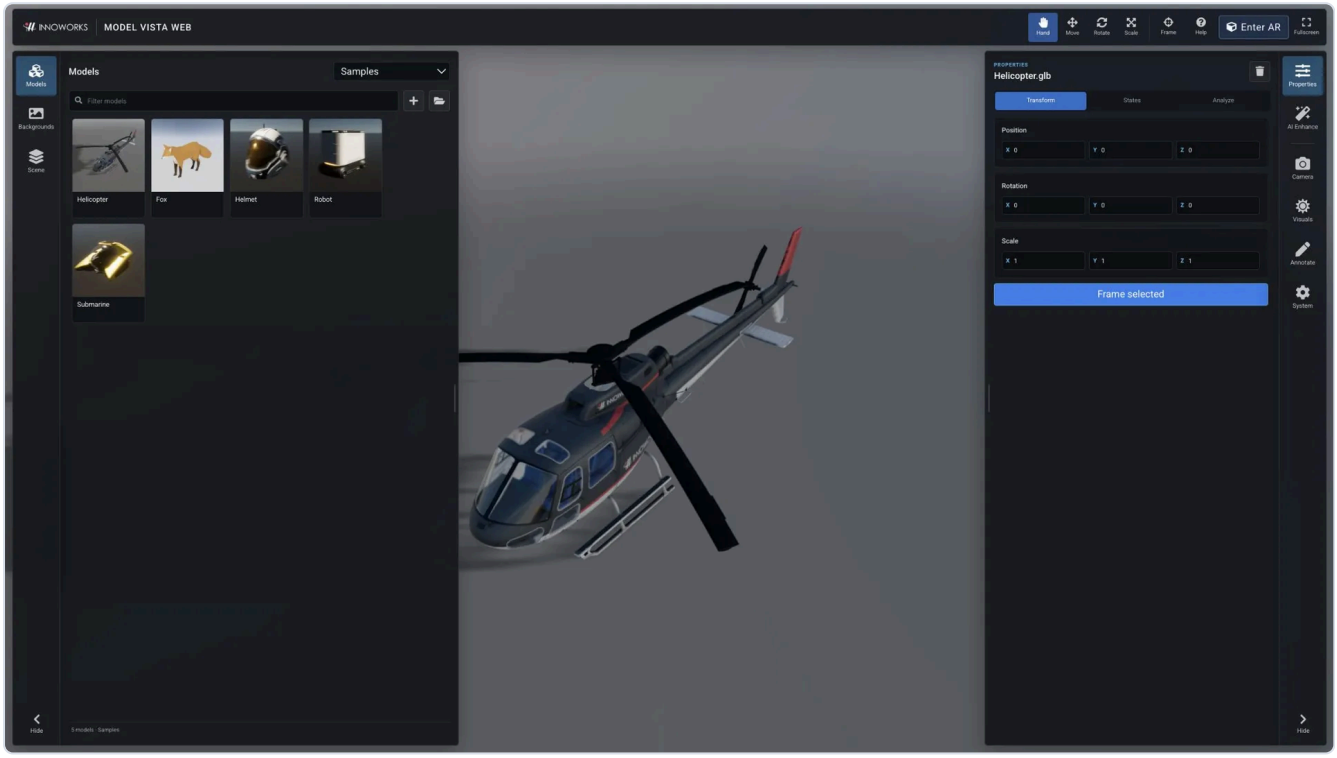
Model Vista Web

Model Vista Web is a browser-based viewer for Model Vista GLB+ assets and standard glTF content. Use the live application to load models, apply Model Vista States, inspect validation results, adjust presentation settings, view a scene in marker-based augmented reality, add on-screen annotations, and create AI-enhanced images.



What you can do

- Open bundled samples or local `.glb`, `.gltf`, and `.fbx` files.
- Link local model and HDR background folders as reusable browser libraries.
- Arrange multiple models in a scene with move, rotate, and scale tools.
- Apply compatible Model Vista States and glTF material variants.
- Review mesh and triangle statistics and run the integrated glTF Validator.
- Choose perspective or orthographic projection and tune lighting, exposure, tone mapping, and the ground plane.
- Place the loaded scene in marker-based augmented reality using a device camera.
- Draw temporary annotations over the 3D view.
- Send the current view to AI Enhance and reuse or download the generated image.

Start here

1. Open the viewer and load a model.
2. Learn the interface and controls.
3. Arrange models, apply States, and inspect a file.
4. Adjust the camera and visuals.
5. View the scene in marker-based augmented reality.
6. Use annotations and AI Enhance.
7. Manage local libraries and saved settings.

For format support, browser limitations, and common recovery steps, see compatibility and troubleshooting.

Embed a model on your website

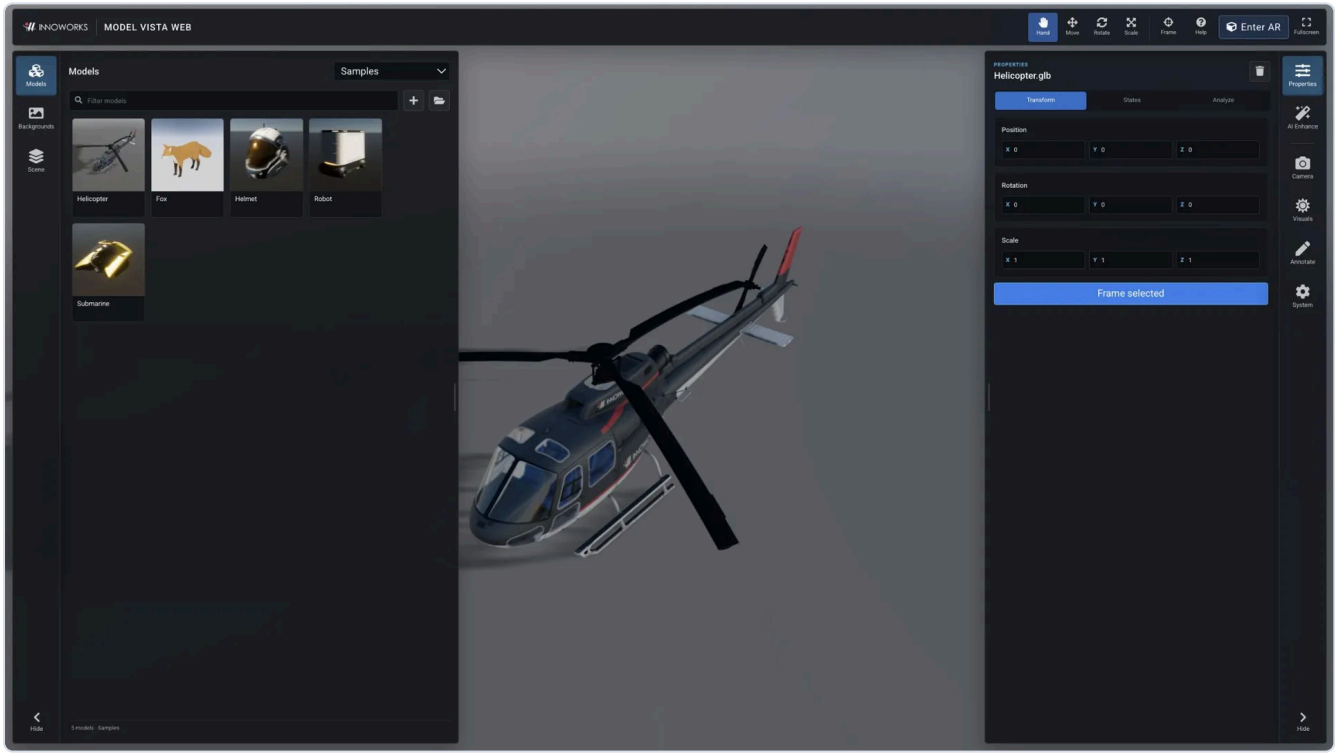
Use the hosted viewer for product demos and GLB+ configurators. Follow Embed a model on your website to load your URL, style the controls, and copy the iframe code.

Quick start

Model Vista Web runs in a WebGL 2.0-capable browser and does not require a desktop installation.

Start with Helicopter

1. Open Model Vista Web. The bundled **Helicopter** loads automatically; wait for the loading indicator to finish.
2. Select **Models** on the left rail to open the sample library. Side panels start closed in a fresh session.
3. Select **Properties > Transform** on the right rail to inspect the selected `Helicopter.glb`.
4. Select **Frame selected** or press `F` to fit the model in the view.
5. Open **Properties > States**. Try **Rotors > Spin**, **All Doors > Open**, or a **Views** option. Use **Stop** and **Closed** to return the rotor and doors to their initial options.



To add another sample, leave **Model library** set to **Samples** and select a model card. This adds a model; it does not replace the current scene. Selecting Helicopter again adds another copy. Use **Scene** to select, frame, remove, or clear loaded models.

If a model intersects the ground plane, adjust **Properties > Transform > Position Y** until it sits above the ground. Choose the rotation for your presentation and select **Frame selected** again.

Choose a background

1. Select **Backgrounds** on the left rail.
2. Leave **Background library** set to **Environments**.
3. Select an environment card, such as **Helipad Goldenhour**.
4. Open **Visuals** to adjust **Show HDR background**, **HDR background blur**, and **Environment rotation**.

Navigate the view

- Drag to orbit the camera.
- Hold `Shift` while dragging, or drag with the middle mouse button, to pan.
- Scroll, or drag with the right mouse button, to zoom.
- Press `F` to frame the selected model.

The transform toolbar changes how pointer drags affect the selected model. Press `Q` for **Hand**, `W` for **Move**, `E` for **Rotate**, or `R` for **Scale**.

Interface and controls

Model Vista Web surrounds the central 3D view with a top transform toolbar, a library rail on the left, and an inspector rail on the right.

Top toolbar

Tool	Shortcut	Purpose
Hand	`Q`	Drag the selected model freely without an axis gizmo.
Move	`W`	Move the selected model along an axis.
Rotate	`E`	Rotate the selected model around an axis.
Scale	`R`	Scale the selected model along an axis.
Frame selected model	`F`	Center the view on the selected model.
Help	—	Open the Model Vista Web documentation.
Enter AR	—	Open the marker-based augmented reality setup. While AR is active, this control becomes **Exit AR**.
Toggle fullscreen	—	Enter or leave browser fullscreen mode.

When an input, text area, or menu has keyboard focus, transform shortcuts do not run.

Left rail

- **Models** shows bundled samples and linked model libraries. Use the search field to filter the current library. The plus button opens local files; the folder button adds a reusable model library.
- **Backgrounds** shows bundled HDR environments and linked background libraries. Use the plus button to load one `.hdr` file or the folder button to add a reusable background library.
- **Scene** lists every loaded model. Select a row to make it active, then use **Frame** or **Remove**. **Clear** removes all loaded models from the current scene.

Right rail

- **Properties** contains **Transform**, **States**, and **Analyze** for the selected model.
- **AI Enhance** generates a new image from the current view and a prompt.

- **Camera** changes projection and framing.
- **Visuals** controls lighting, background, exposure, tone mapping, and the ground plane.
- **Annotate** draws temporary marks over the 3D view.
- **System** shows summary metrics and manages saved viewer settings and user libraries.

Resize or hide panels

Drag the inner edge of either panel to resize it. Select **Hide** at the bottom of a rail to collapse that side and enlarge the 3D view. The viewer saves panel selection, size, collapsed state, and presentation settings in the browser.

Undo transform edits

With the viewer active and annotation mode off:

- Press `Ctrl+Z` on Windows or Linux, or `Command+Z` on macOS, to undo the selected model's last transform.
- Press `Ctrl+Shift+Z`, `Command+Shift+Z`, or `Ctrl+Y` to redo it.

These shortcuts do not run while a form control has focus.

Models, States, and analysis

Load local content

Drag a `.glb`, `.gltf`, `.fbx`, or `.hdr` file onto the viewer, or use the controls in **Models** and **Backgrounds**.

For a self-contained `.glb` or `.fbx`, select the main file. For `.gltf` content with separate buffers or textures, select the main `.gltf` and its dependent files together. Model Vista Web keeps locally opened files in the browser; opening a model does not upload it.

To reuse a folder across sessions, add it as a local library.

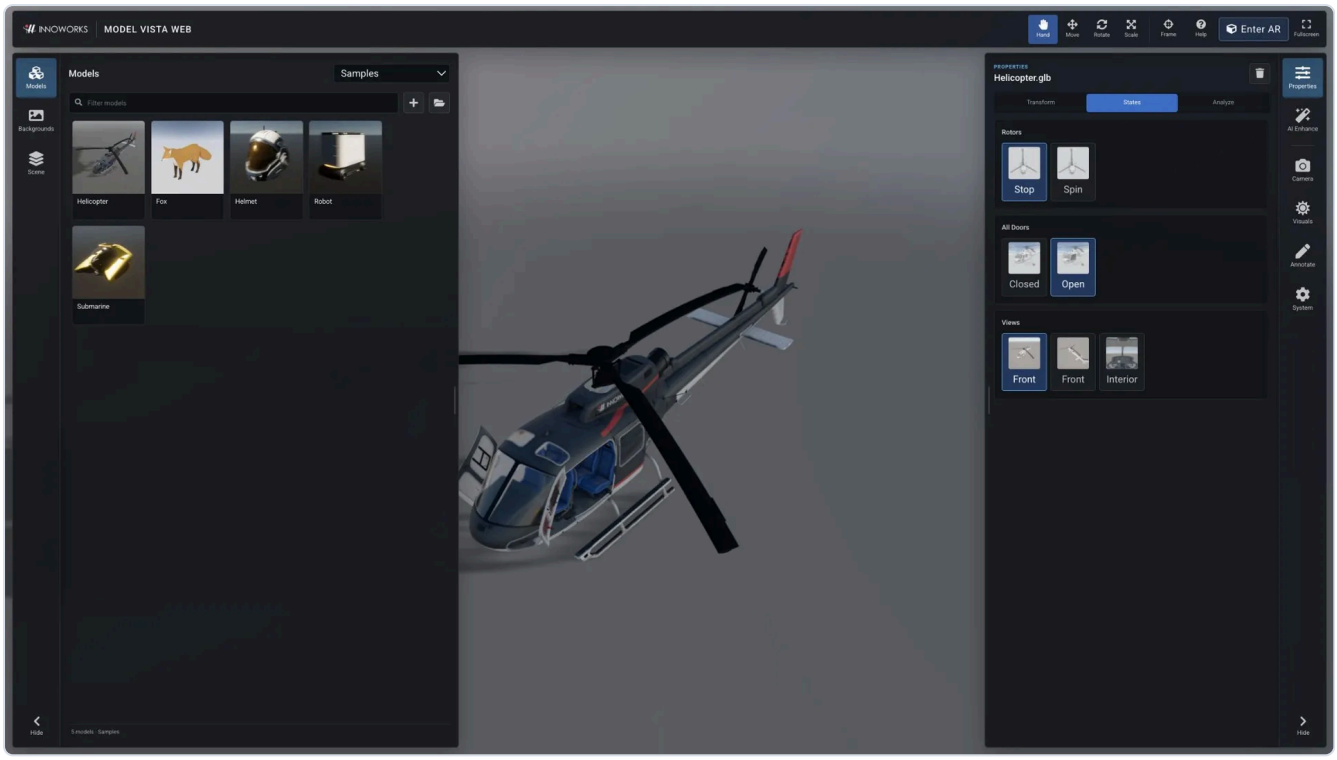
Arrange a scene

1. Add one or more models from **Models**.
2. Open **Scene** and select the model to edit.
3. Choose **Hand**, **Move**, **Rotate**, or **Scale** in the top toolbar.
4. Drag the model or its colored axis gizmo. For precise values, use **Properties > Transform**.
5. Select **Frame selected** or press `F` after a large move.

The Transform fields use X, Y, and Z values for position, rotation in degrees, and scale. Scale values must be greater than zero.

Apply Model Vista States

Open **Properties > States**. Each compatible States entry appears as a named card with its available options. Select an option to apply it immediately.



The Web viewer supports Model Vista Create schema versions 1 and 2, including material, activation, shader, transform, camera, light, group, and animation States. It also supports time-, distance-, and angle-based transform transitions, linked and grouped States, material and light blending, and animation crossfades.

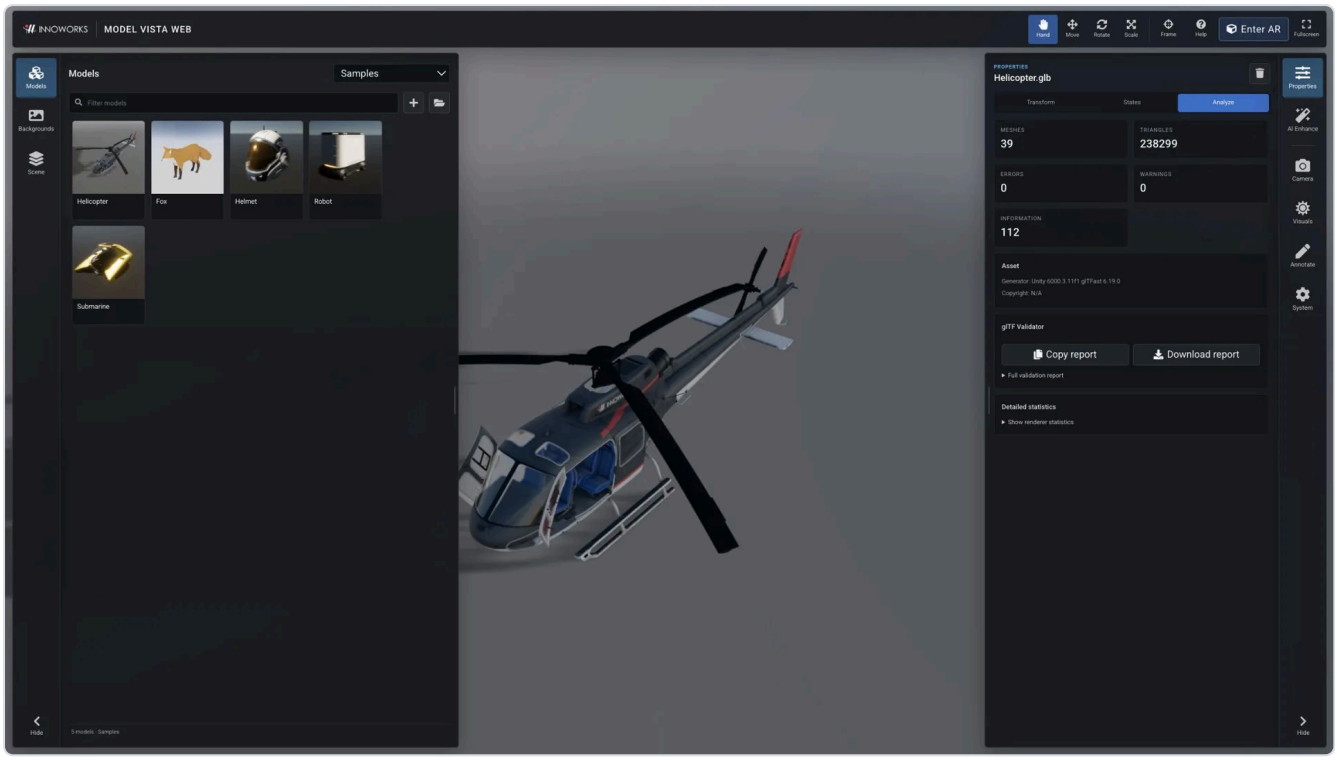
Standard glTF material variants appear under **Material variants** when the model provides more than one variant.

When a local or URL model has a matching version-2 `*.modelvista-turntable-offsets.json` sidecar, the viewer applies its presentation position and rotation offsets.

Analyze a model

Open **Properties > Analyze** to review:

- mesh and triangle counts;
- glTF Validator error, warning, and information counts;
- asset generator and copyright metadata;
- the full validation report;
- detailed renderer statistics.



Use **Copy report** to copy the validator JSON or **Download report** to save it as `<model-name>.report.json`. Validation information can describe supported extensions and normal asset details; prioritize errors first, then warnings.

Camera and visuals

Set the camera

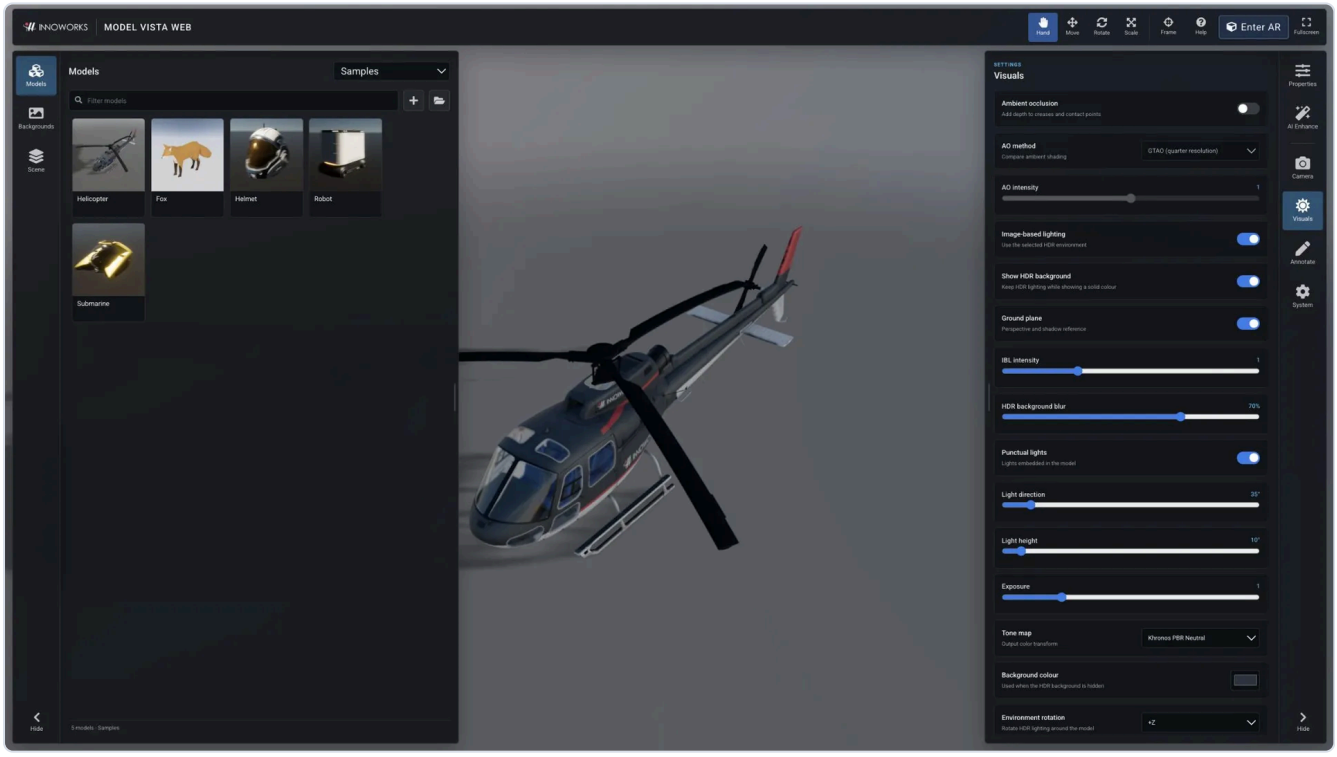
Open **Camera** on the right rail.

- Choose **Perspective** for a natural depth effect, then adjust **Field of view**.
- Choose **Orthographic** for an undistorted technical view, then adjust **Orthographic size**.
- Select **Frame selected model** to recenter the camera on the active model.

Camera States embedded in a compatible Model Vista asset can also drive the viewer camera when you apply them under **Properties > States**.

Adjust the environment

Open **Visuals** to control the presentation independently of the model data.



Control	Effect
Image-based lighting	Lights the scene from the selected HDR environment.
Show HDR background	Displays the HDR image behind the model. Turn it off to keep HDR lighting over a solid color.
Ground plane	Shows a perspective and shadow reference beneath the model.
IBL intensity	Changes the strength of environment lighting.
HDR background blur	Blurs only the displayed environment background.
Punctual lights	Enables lights embedded in the model.
Light direction / **Light height**	Aims the viewer's directional light.
Exposure	Brightens or darkens the rendered result.
Tone map	Selects the output color transform, including Khronos PBR Neutral and ACES variants.
Background colour	Sets the solid background used when **Show HDR background** is off.
Environment rotation	Rotates the HDR lighting around the model.
Ground-plane height	Moves the ground reference up or down.

Viewer presentation settings are saved automatically in the current browser. Use **System > Reset viewer settings** to restore the defaults.

Adjust ambient occlusion

Ambient occlusion adds shading around creases and contact points. It is **off by default**. In **Visuals**:

1. Enable **Ambient occlusion**.
2. Choose **AO method**: **GTAO (half resolution)**, **GTAO (quarter resolution)**, **SSAO (basic)**, or **N8AO (performance)**. The default selection is **GTAO (quarter resolution)**.
3. Adjust **AO intensity** from `0` to `2`; the default is `1`.
4. Compare the appearance and responsiveness on the device your audience will use. Turn AO off if it is not needed.

The method and intensity controls are disabled while AO is off. These are full-viewer settings; the embed playground does not expose AO controls.

Keep a model above the ground

If geometry intersects the ground plane, raise the model with **Properties > Transform > Position Y**. Adjust the value for the loaded model and frame it again; do not reuse placement values from a different sample.

Use marker-based augmented reality

Model Vista Web uses an image marker to define the augmented reality origin. The marker center becomes scene position `(0, 0, 0)`, its printed face becomes the ground plane, and every loaded model keeps its current scene transform.

AR requires the HTTPS Model Vista Web application, or `localhost` during local development, and a browser with access to a device camera.

Prepare the scene and marker

1. Load one or more models and arrange them around the scene origin.
2. Select **Enter AR** in the top bar.
3. Use the bundled **Model Vista AR Origin** marker, or select **Create from image** to make a marker for the current session.
4. Select **Print marker** or **Download image**. Print at 100% or **Actual Size** with page scaling disabled, or show the marker on another screen.
5. Measure the displayed or printed marker and enter its physical width under **Printed marker width**. The supported range is 50–180 mm.

A custom marker can be a PNG, JPEG, WebP, or SVG image and must be at least 640 × 480 pixels. The viewer center-crops it to a 4:3 tracking area. For steadier tracking, use an image with strong contrast and distinct, asymmetric details; check the displayed **Tracking image** rating before continuing.

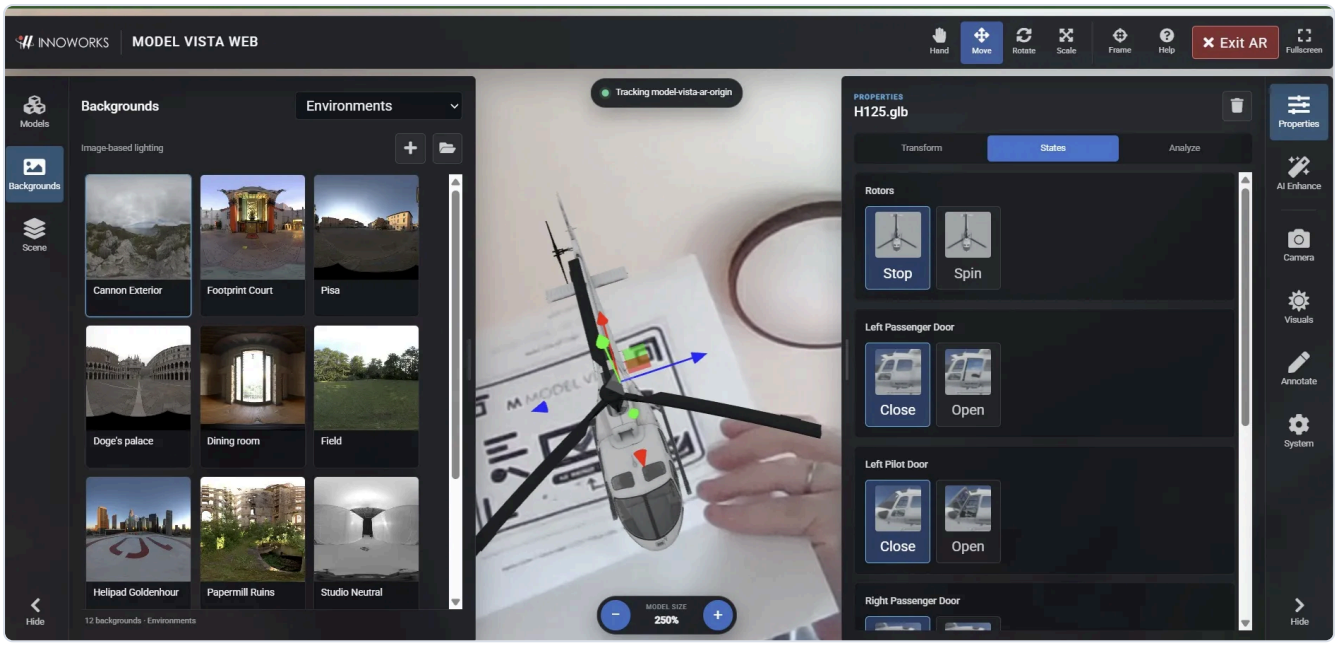
Choose the scene scale

Leave **Auto fit** enabled to fit all loaded models to the marker. At 100%, the viewer fits the scene bounds with padding. Use **Initial model size** to choose a value from 25% to 400%.

Turn off **Auto fit** when the asset uses physical glTF units and you need a 1:1 presentation. In this mode, one glTF unit equals one metre and **Printed marker width** calibrates the scene scale.

Start and use AR

1. Place the marker on a flat surface or show it steadily on another screen.
2. Select **Start AR**.
3. Allow camera access when the browser asks.
4. Point the camera at the complete marker and hold it steady until the status reports that the marker is being tracked.
5. Move the camera around the marker to inspect the loaded scene.



When **Auto fit** is enabled, use the minus and plus controls during AR to change the model size in 25% steps. The viewer hides its desktop ground-plane and drawing overlays while AR is active.

If the marker leaves the camera view, the status reports that tracking is lost. Point the camera at the marker again to restore the tracked pose.

Exit AR

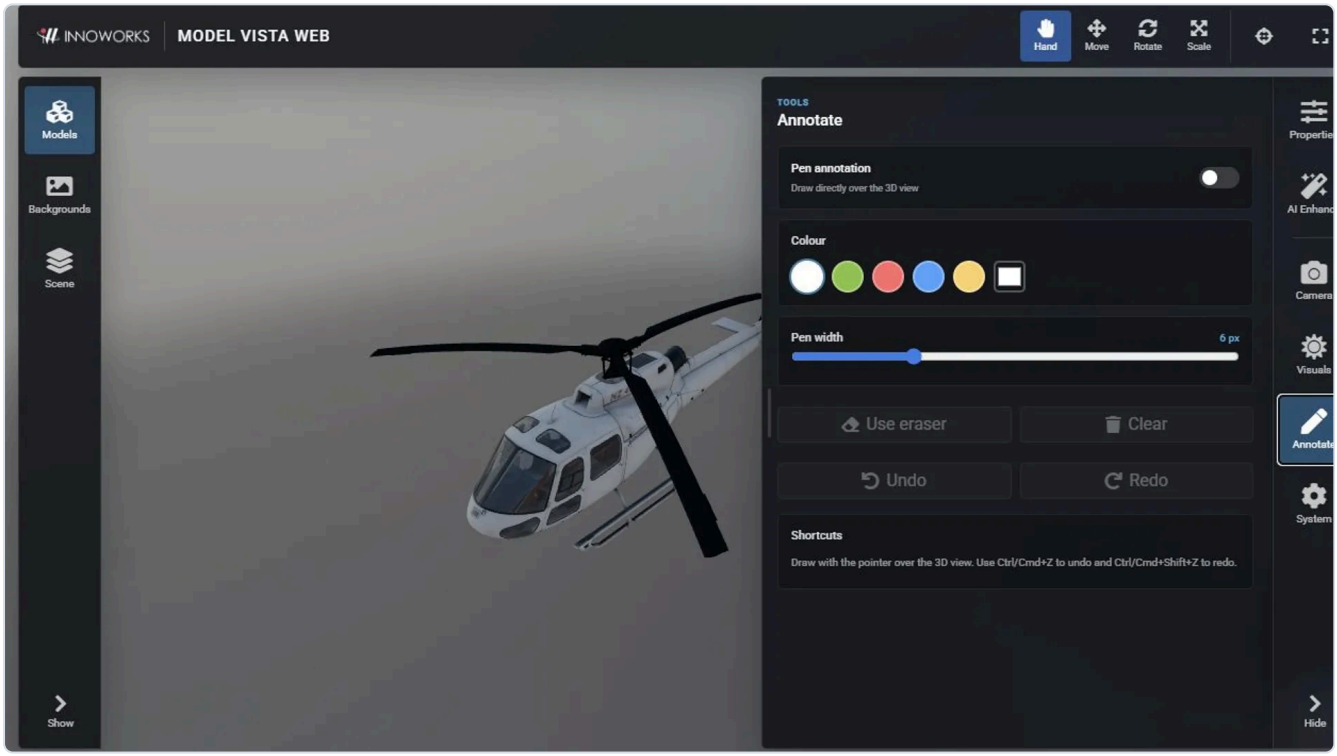
Select **Exit AR** in the top bar. The viewer returns to its normal camera and restores the desktop overlays. The loaded models and their scene transforms remain unchanged.

For camera, runtime, tracking, and scale problems, see compatibility and troubleshooting.

Annotations and AI Enhance

Draw an annotation

1. Open **Annotate** on the right rail.
2. Enable **Pen annotation**.
3. Choose a preset color or use **Custom pen colour**.
4. Set **Pen width**.
5. Draw with the pointer over the 3D view.
6. Use **Use eraser**, **Clear**, **Undo**, or **Redo** as needed.



Press `Ctrl+Z` or `Command+Z` to undo an annotation. Press `Ctrl+Shift+Z`, `Command+Shift+Z`, or `Ctrl+Y` to redo it. While annotation mode is enabled, these shortcuts affect annotations instead of model transforms.

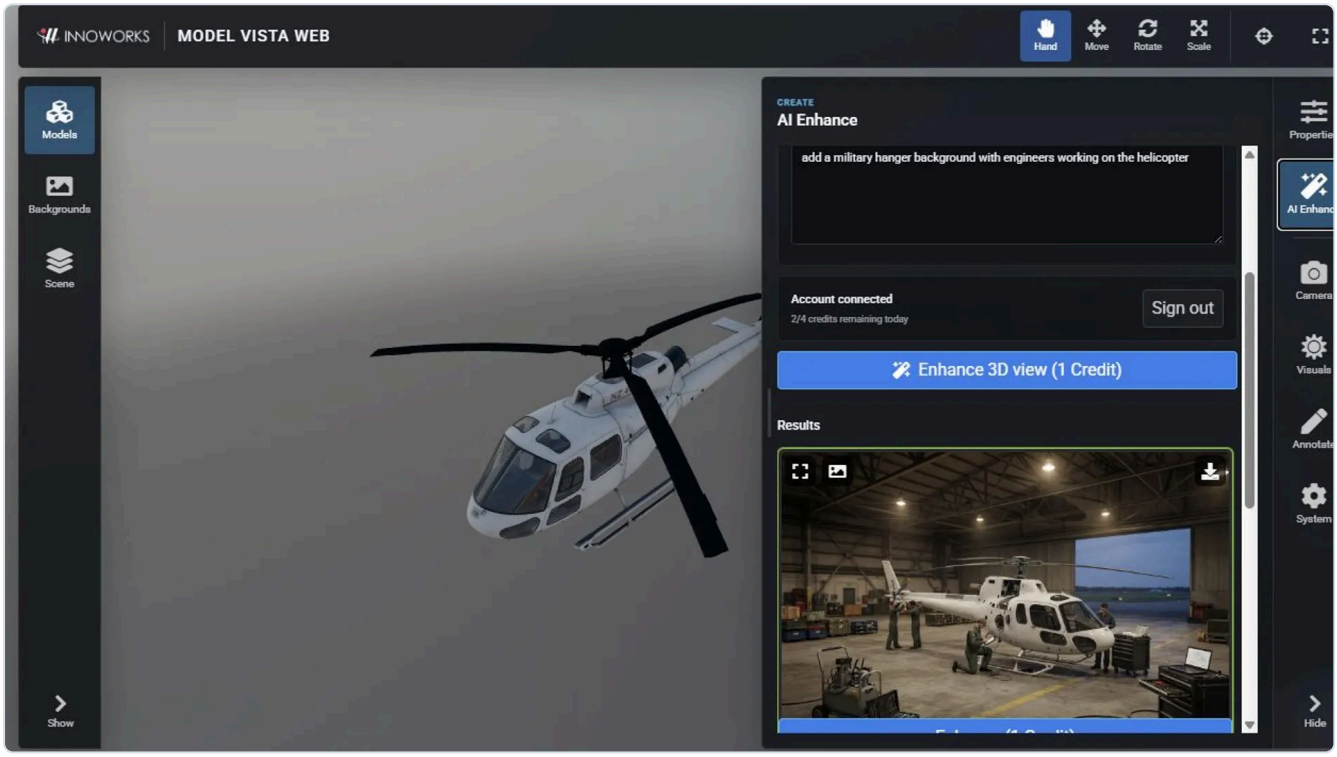
Annotations are an overlay and do not modify the model. When you run AI Enhance, the current annotation overlay is included in the submitted view.

Generate an enhanced image

AI Enhance requires a verified account, an available daily credit balance, and a completed reCAPTCHA.

1. Compose the model, camera, environment, and annotations in the 3D view.

2. Open **AI Enhance**.
3. Select an image generation **Model**, **Resolution**, and **Aspect ratio**.
4. Enter a prompt that describes the visual change you want.
5. Select **Sign in** and complete the account dialog if the viewer is signed out.
6. Review the displayed credit cost, then select **Enhance 3D view**.
7. In **Results**, open a larger preview, set an image as the 3D background, download it, or select it and run **Enhance** again.



Models and credit cost

Model	Available resolutions	Credit cost
Nano Banana 2 Lite	1K	1
Nano Banana 2	1K, 2K, 4K	1, 2, or 4
Nano Banana Pro	1K, 2K, 4K	2, 4, or 8

The button shows the cost before submission. After sign-in, the account row shows the remaining daily credits when usage information is available.

Image handling

The viewer states that images are sent directly between the browser and Google for generation and are not sent to an INNOWORKS server. A generated result remains available in the current viewer session until you reload or close it. Download any result you need to keep.

Generated backgrounds affect the presentation only. Select **Clear generated background** to return to the normal environment background.

Local libraries and settings

Local libraries make a folder of models or HDR backgrounds available from the library selector without uploading the files.

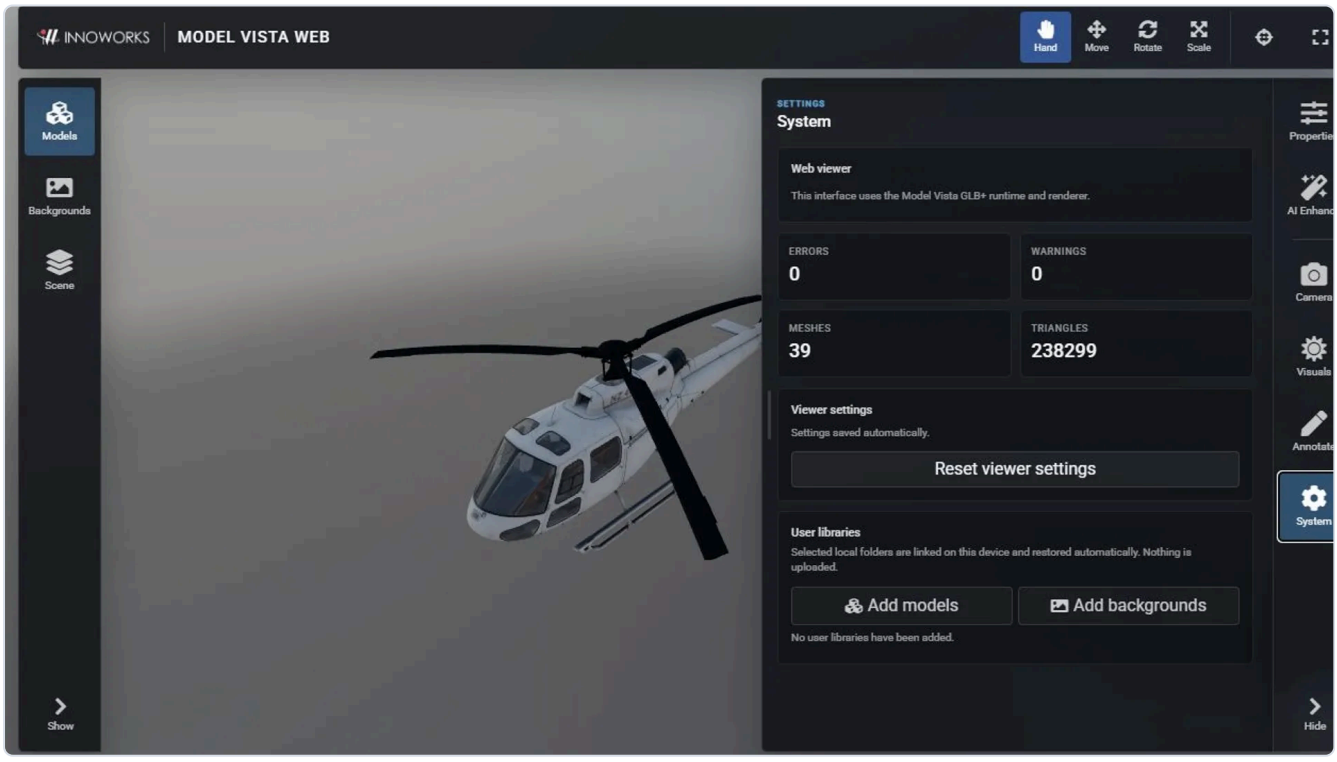
Add a model library

1. Open **System**.
2. Under **User libraries**, select **Add models**.
3. Read the local access explanation, then select **Continue to folder selection**.
4. Choose the folder that contains the models and grant read access if the browser asks.
5. Return to **Models** and choose the new library from **Model library**.

The library can contain `.glb`, `.gltf`, and `.fbx` assets and their dependent files. When available, Model Vista Web uses packaged or adjacent thumbnails to populate the library cards.

Add a background library

Follow the same procedure with **Add backgrounds**, then choose the new entry from **Background library**. Background libraries use `.hdr` assets and available preview images.



How local storage works

- In browsers that support persistent directory access, Model Vista Web stores a read-only folder link on the current device and may ask you to reconnect it later.
- In other browsers, it stores a browser-local copy so the library can be restored.
- The viewer does not upload a linked library, modify the source files, or delete the originals.
- Renaming or removing a library changes only the entry in Model Vista Web. Removing it does not delete the source folder.

Use the reconnect action in **System > User libraries** if a linked folder loses permission.

Saved viewer preferences

Model Vista Web automatically saves presentation and interface preferences in the browser, including panel layout, transform mode, selected libraries and environment, camera projection, lighting, exposure, tone mapping, ground plane, and background settings.

Select **System > Reset viewer settings** to restore default preferences. This does not delete your original model or background files.

Compatibility and troubleshooting

Supported content

Model Vista Web supports glTF 2.0 content, Draco-compressed GLB geometry, Model Vista Create `INNOWORKS_configurables` schema versions 1 and 2, embedded PNG and JPEG images, asset and States thumbnails, and version-2 turntable-offset sidecars.

It reconstructs common glTF, URP, and HDRP material properties as Three.js standard or physical materials. It preserves unknown shader-state values for project-specific mappings.

Browser rendering differences

Unity and HDRP shaders cannot run directly in WebGL. The viewer maps known physically based properties to its Web renderer, so a Web presentation can differ from Unity or the desktop Model Vista runtime. Local HDRP reflection-probe blending has no exact Web equivalent and is not rendered as a local probe.

Camera States drive the Web viewer camera. Metadata and reflection-probe records are preserved with the loaded model even when the browser has no visual equivalent.

AR requirements

Marker-based augmented reality requires Model Vista Web to run over HTTPS, or on `localhost` during local development. The browser and device must provide a usable camera through the browser camera API.

The bundled marker works without preparing another image. A custom marker must be a PNG, JPEG, WebP, or SVG image of at least 640 × 480 pixels. Model Vista Web center-crops custom images to a 4:3 tracking area and reports whether the image quality is **Good**, **Fair**, or **Poor**.

A local model does not load

- Confirm that the main file is `.glb`, `.gltf`, or `.fbx`.
- For `.gltf`, select its `.bin` buffers and texture files together with the main file.
- Open **Properties > Analyze** and address validator errors.
- If the asset declares a newer Model Vista schema, treat the compatibility warning as an indication that not every feature can be reproduced.

A local library is missing

- Open **System > User libraries** and use the reconnect action.
- Grant read access again if the browser cleared the folder permission.
- If browser storage was cleared, add the folder again.
- A browser without persistent directory access uses a browser-local copy; clearing site data removes that copy from the viewer but does not delete the original folder.

AR does not start

- Open the deployed HTTPS application. A plain LAN `http://` address cannot start camera AR; use HTTPS or `localhost`.
- Allow camera access when the browser asks. If access was denied previously, restore the site's camera permission and try again.
- Confirm that the device has an available camera and that another application is not preventing access to it.
- Reload Model Vista Web if the AR runtime fails to load or takes too long to start.

The marker is not detected or tracking is lost

- Keep the complete marker visible, flat, well lit, and free of glare.
- Point the camera at the marker and hold the device steady until the status changes to **Tracking**.
- For a custom marker, prefer distinct, asymmetric details and use the displayed quality rating as guidance.
- If you printed the marker, use **Actual Size** or 100% scale and enter its measured width in **Printed marker width**.
- If tracking is lost, point the camera at the marker again. The viewer briefly preserves the last pose while it attempts to recover.

The AR model size is unexpected

- With **Auto fit** enabled, 100% fits the loaded scene to the marker. Use **Initial model size** before starting or the minus and plus controls during AR to adjust it from 25% to 400%.
- For physical scale, turn off **Auto fit**. One glTF unit then equals one metre, and the value in **Printed marker width** calibrates the scene.
- Confirm that **Printed marker width** matches the marker's physical width. The supported range is 50–180 mm.

For the complete procedure, see Use marker-based augmented reality.

AI Enhance is unavailable

- Enter a prompt; the submission button remains disabled when the prompt is empty.
- Select **Sign in**, use a verified account, and complete the reCAPTCHA.
- If the viewer reports that setup is required, open the account dialog and finish setup.
- Check the daily credit balance and the cost shown on the button.
- Reload the page and sign in again if the session expired.
- Confirm that a model is loaded before enhancing the current 3D view.

Reset the interface

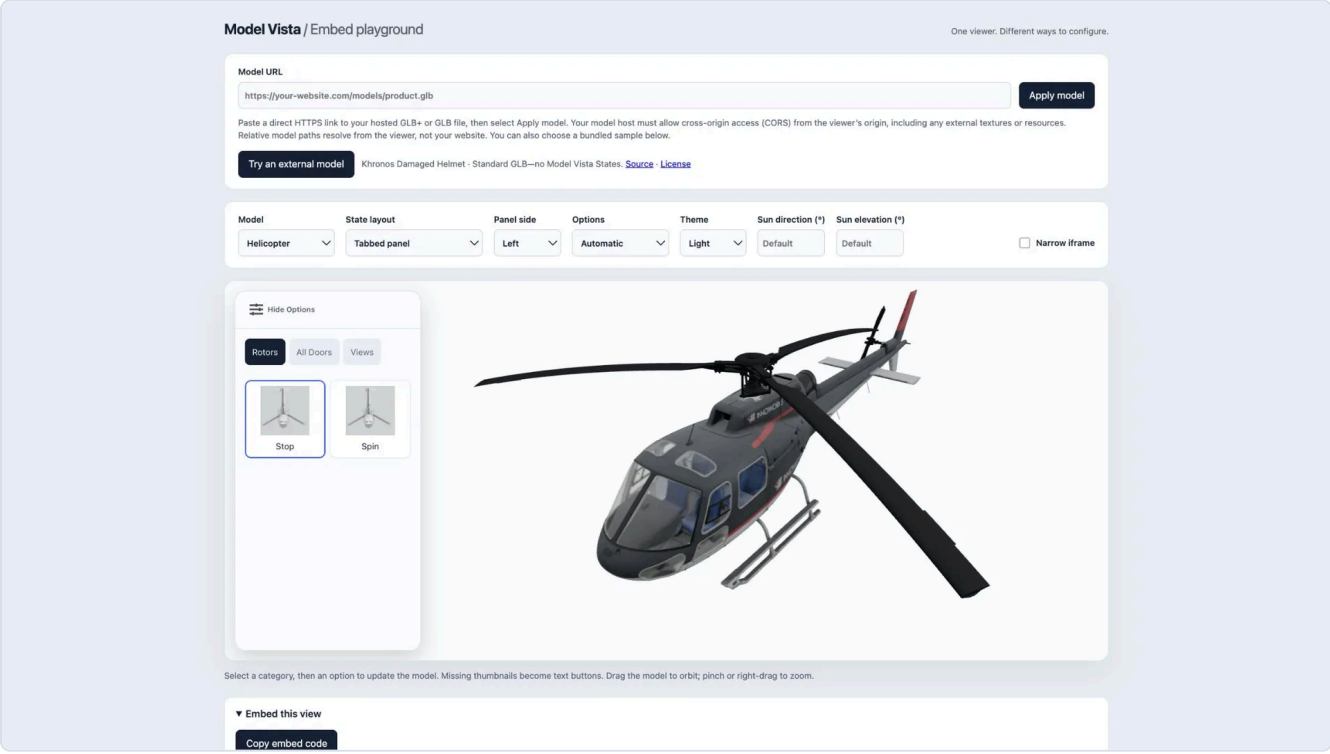
Open **System** and select **Reset viewer settings** if panels, camera projection, lighting, or background settings produce an unexpected view. Reloading the page clears the current scene and temporary AI results but keeps browser-saved preferences and user libraries unless site data was removed.

Embed a model on your website

Use Model Vista Lite to place an interactive model in your own web page. Customers can rotate the model and choose its authored Model Vista States. Your page needs one iframe; no JavaScript SDK or viewer dependencies are required on your website.

Try the playground

1. Open the Embed playground.
2. Keep **Model** set to **Helicopter** to try a GLB+ configurator. Select **Rotors**, **All Doors**, or **Views**, then choose an option.
3. To test a model from another host, select **Try an external model**, then **Apply model**. This fills and loads the Khronos Damaged Helmet URL. It is a standard GLB with no Model Vista States, so it demonstrates the canvas without a configuration menu. The playground links to its source and license.



The playground controls change the embed presentation. State choices inside the preview demonstrate the model; they are not saved into the generated iframe. A new embed loads the model's authored initial selections.

Host and load your model

1. Export a GLB+ containing the States you want customers to use. A standard GLB also works, but it does not acquire Model Vista States simply by being embedded.

2. Host the file at a direct HTTPS URL that visitors can access. Use the actual model file URL, not a file-sharing preview page. If the model references external textures or buffers, host those too.
3. Configure the model host to allow cross-origin resource sharing (CORS) from `https://modelvista.inno-works.com`. The same requirement applies to external model resources. If you host the viewer yourself, allow that viewer's origin instead of the customer page's origin.
4. Paste the complete URL into **Model URL** and select **Apply model**. Query parameters are encoded automatically. The field accepts complete HTTPS URLs without embedded usernames or passwords.
5. Wait for the preview to load. Rotate the model and test its options before copying the code.

Editing the field does not change the preview or code until you select **Apply model**. Choose a bundled sample from **Model** to switch back. This workflow references your hosted file; it does not upload it to Model Vista.

Style the menu and view

Control	What it changes
State layout	**Tabbed panel** overlays a category panel; **Below viewer · original** places the options below the canvas.
Panel side	Places a tabbed panel on the left or right. It is disabled for the below-viewer layout.
Options	**Automatic** and **Thumbnails** use available thumbnails with text fallback; **Text buttons** uses labels.
Theme	**Light** or **Dark** styles the controls and default background.
Sun direction (°)	Sets the built-in light's azimuth from `0` to `360`.
Sun elevation (°)	Sets its elevation from `-90` to `90`. Leave either sun field empty to use its default.
Narrow iframe	Tests a narrow preview. This changes only the preview width, not the generated code.

Use Helicopter to see menu styling. Models without exposed States show only the canvas. Missing or failed thumbnails become text buttons. At iframe widths of `640px` or less, the tabbed panel moves to the bottom. Visitors can use **Hide Options** to collapse it. Category tabs support arrow keys, Home, and End.

Copy the iframe into your page

1. Under **Embed this view**, select **Copy embed code**. If automatic copying is unavailable, select and copy the displayed code manually.
2. Paste it into your page's HTML or your website builder's custom HTML/embed block.

3. Adjust the iframe height for your layout; keep `width:100%` for a responsive width. Set a descriptive `title` for the model.
4. Test the actual customer page on desktop and a touchscreen, including narrow widths and model loading.

This example uses the bundled Helicopter with a dark panel:

```
<iframe
  src="https://modelvista.inno-works.com/embed.html?
model=./assets/InnoWorks/Models/Helicopter/glTF-
Binary/Helicopter.glb&amp;statesLayout=panel&amp;statesSide=left&amp;stat
esStyle=auto&amp;theme=dark"
  title="Interactive helicopter configurator"
  loading="lazy"
  style="width:100%;height:620px;border:0"
></iframe>
```

Use the playground to generate code for your own model. Relative model paths in an iframe URL resolve against the viewer page, not your customer page. A self-hosted viewer must permit iframe embedding; its response headers must not block the customer site with `X-Frame-Options` or CSP `frame-ancestors`. The customer site's CSP must also permit the viewer in `frame-src` if that directive is used.

Navigate an embedded model

- Drag to orbit; Shift-drag or middle-drag to pan.
- Right-drag to zoom. The mouse wheel scrolls the surrounding web page.
- On touchscreens, use one finger to orbit and two fingers to pan and pinch to zoom.

The embedded interface has no upload controls, model picker, editing tools, login, or AI Enhance. The surrounding playground controls are not included in the iframe. The interface is simplified, but it currently shares the full viewer's rendering bundle; model size and device performance still affect loading and responsiveness.

Optional URL settings

The playground writes the menu, theme, and sunlight settings into the URL. You can also add these background parameters manually:

Parameter	Value
`hdr`	URL of a Radiance `.hdr` environment. External hosts need CORS.
`blur`	HDR background blur, `0` – `100`; default `70`.
`background`	Six-digit hex color, such as `f3f5f9`. With `hdr`, keeps HDR lighting over a solid background.

Without explicit menu parameters, `embed.html` defaults to `statesLayout=below`, `statesSide=left`, and `statesStyle=text`. The playground starts with a tabbed panel and automatic thumbnails. The default theme is light; an explicit background color overrides the theme's background.

Troubleshoot loading

Symptom	Check
URL validation message	Enter a complete HTTPS URL without a username or password.
"Unable to load this model"	Check the direct URL, access permissions, CORS on the model and resources, and whether the file is a valid supported model. Expired or sign-in-only links will not work for visitors.
Viewer is blocked or blank on your site	Check your HTML/embed block and the customer and viewer hosting headers described above.
No configuration menu	Verify that the GLB+ exports exposed Model Vista States. Standard models such as Damaged Helmet have none.
Code still uses the old model	Select **Apply model** after editing the URL, then copy the code again.
Wheel does not zoom	This is intentional for scrolling the host page. Use right-drag or pinch to zoom.

For broader format limitations, see Compatibility and troubleshooting.