I2D GPU Quick Start User Manual

For Rhino 8 on Windows Version 1.0.4 English edition 14 October 2026

Create a first relief from an image, check its shape, then save a reusable Rhino mesh. This guide uses the current six BR presets. The full User Manual explains every workflow and control in more detail.

Prepare once

Install full 64-bit **Python 3.12 or 3.11 with pip** first, following the Installation Guide and your package's version requirement. Then install the supplied I2D GPU package and restart Rhino. Run **I2DGPUOpenPanel**. In **Licensing**, activate available trial or purchased access and use **Refresh license** to confirm the status.

In **GPU depth engine**, choose **Install / repair GPU engine** if needed. Allow downloads to finish, then use **Refresh GPU status**. CUDA uses an NVIDIA GPU; Auto can select CPU when CUDA is unavailable. Check Rhino document units before setting relief depth.

Create your first mesh

1. In **File & actions**, leave **File is pre-made depth / height map** off for a photo or artwork. Choose **Browse…** and load the image.
2. In **Preset**, choose **Open settings…** and select **BR_Universal**, or a closer match from page 2. Check the Loaded preset label.
3. For a first check, set **Output quality** to **Draft — 256** or **Standard — 512**. All current presets save Ultra 2048, which is more costly. Leave Live mesh off initially.
4. Choose **Update depth map**. The shared bar names the action and shows its stage below. Wait for **Depth map updated** and the depth image. Inspect the broad shape and unwanted background height.
5. Set **Target depth** in document units. Check **Invert depth**, **Scale XY with target depth**, and the solid mode. Use page 3 to choose a cutout or rectangle.
6. Choose **Add mesh**. Wait for **Mesh added** and the model in the viewport, then inspect it from above and at a low angle. Check its dimensions in Rhino.
7. Refine a specific problem, regenerate depth when required, and rebuild. Raise output quality only when the shape is satisfactory.
8. Save a tuned setup with **Save settings…** under a new name. Save the Rhino 3dm and retain the original source and any manual masks.

Before using a preset model. Presets can change the selected checkpoint. For the Apache-licensed DA-V2 checkpoint, select **Small — vits** or **Auto** and regenerate. Review the model notices in the full manual for other choices.

Success check. A depth preview is an image. Add mesh creates geometry in Rhino; each use creates a separate object. To replace one later, use Load from mesh and Update loaded mesh.

Choose a current preset

Use **Open settings…** to choose one of the six current names. Their coverage lets you start with a small set and tune the result for your image. The descriptions below are starting suggestions based on their names.

Preset name	Suitable starting image	Watch for
BR_Universal	General artwork and photographs	Broad form and background height
BR_Black and White images	Monochrome and strongly separated tones	Stronger curve and 2048 AI input
BR_Blue and White images	Blue and white decorative artwork	Raised source marks
BR_line Art	Drawings, logos, and linework	Thin ridges, text, and stronger source detail
BR_Medalions	Coin or medallion artwork	Subject only mesh is on, but background removal is off
BR_Medalions_Smoother	Medallion artwork needing softer detail	Background removal is on; 8 by 8 tiles add work

Review what a preset changes

All six save Balanced relief, Relief strength 2, Tile detail amount 1, CUDA device mode, Ultra mesh grid 2048, quad faces, and Solid bottom: subject / heightfield. Invert depth and Trim uniform border are off; Preserve detail in depth curve and Scale XY with target depth are on.

Their saved Target depth is approximately 3.2 model units. With XY scaling on, an untrimmed flat long edge at that depth is about 64 units. With XY scaling off, it is 100 units. Projection dimensions use the selected target and projection controls instead.

Use the current picker. The automatic image suggestion can still refer to an older name such as Photo or Coin. If it reports an unavailable preset, choose a BR preset manually through Open settings.

Optional mesh reduction

Enable **Adaptive mesh reduction** to use CPU **Fast QEM** after building. Set **Maximum reduction error** in Rhino document units. Boundaries and geometry are checked; if the requested tolerance cannot be verified, the original mesh is kept. A reduced mesh can use triangles even when the input uses quads.

Keep quality settings separate

GPU depth quality / DA input size controls the AI prediction. **Output quality** controls the mesh grid. Raising the mesh grid does not recover detail missing from the prediction. The GPU quality dropdown shows the nearest named level; open Advanced GPU settings to read the exact DA input size saved by a preset.

For a slow first test, lower the mesh grid. If depth generation itself is slow or runs out of GPU memory, reduce DA input size, choose a smaller model, or lower Tile detail amount or Tile grid. Change one setting at a time and compare.

Refine shape and background

Choose the footprint

Result you want	Settings to use
Subject shaped solid cutout	A usable mask; Subject only mesh on; Solid bottom: subject / heightfield
Thin surrounding rectangle	Remove background on; Subject only mesh off; Solid bottom: subject / heightfield
Full rectangular backing	Solid bottom: full rectangular slab; choose background processing for the desired relief
Open relief surface	Open relief surface; use Subject only mesh if you want a masked footprint

An opaque source without a mask stays rectangular even with Subject only mesh enabled. **Trim uniform border** only crops a bounding rectangle. Solid mode cannot flatten unwanted raised background depth.

Correct a subject mask

1. Enable **Remove background before depth (BiRefNet)** when you need an automatic mask, then Update depth map.
2. Choose **Edit mesh mask…**. Green keeps; red removes. Turn on Silhouette to inspect the cutout.
3. Paint with Keep brush or Remove brush. Use region tools for connected areas, adjust Brush radius, and zoom for small details. Undo corrects a recent edit; Reset mask restores the starting automatic mask.
4. Choose Apply, enable Subject only mesh for a cutout, then Update depth map and rebuild. With BiRefNet removal, Keep restores inferred relief before background flattening.

Import mask accepts a PNG matching source dimensions: white keeps and black removes, or PNG alpha supplies coverage. Cancel closes without saving this session's edits.

Tune only the visible problem

For dark source detail, try a modest **Lighten shadows (%)**, then regenerate depth. For unwanted source marks or lighting ridges, lower **Source detail** in Advanced GPU settings; higher **Relief smoothing** softens detail. Compare **Selective detail refinement** on strongly lit images.

Use **Target depth** for height scale. **Depth curve: Standard** uses gamma (1 is neutral), curve start and detail preservation. For finer height control, select **Custom**, choose **Edit curve…**, adjust a preset or the seven points, then Apply and Update depth map. **Base offset** moves the relief; it does not set slab thickness.

Choose **Update depth map** after source, background, model, or Balanced relief changes. Inspect the low-angle mesh view before raising output quality or saving final settings.

Place export and revisit

Project onto a model

Choose placement preview Low or Medium, then click **Project to surface**. Select a surface, polysurface, or mesh, wait for preparation, move the shaded relief preview, and click to accept. Escape cancels.

During placement	Action
Ctrl plus wheel	Change footprint size
Alt plus wheel	Change projected height scale
Add Shift	Make either adjustment ten times finer
Wheel without modifiers	Normal Rhino zoom

Use flips and 90 degree rotation for orientation, Preserve aspect to retain proportions, and Reverse surface normal if it grows on the wrong side. Reduce size or move inward if target edges or holes prevent placement. Preview quality affects placement only; Output quality controls the final mesh.

Export height data or use an existing map

Export final resolution… saves a 16-bit grayscale PNG using the output grid cap; smaller sources are not enlarged and trimming can reduce it. **Export preview…** uses preview resolution. Both use current settings. The PNG stores relative heights without physical scale, backing, projection target, or a subject mask.

For an existing height image, first set Contrast 1, Brightness 0, and Gamma 1 in photo mode for a neutral starting point. Then enable **File is pre-made depth / height map** before Browse. Check inversion, select Standard and start with Depth curve 1, and set depth and solid mode. This bypasses AI inference. For an I2D export, start with inversion off.

Update an existing I2D object

Choose **Load from mesh…**, select a mesh with an I2D recipe, adjust settings, and choose **Update loaded mesh**. This replaces the object in place; Rhino Undo restores it. Direct vertex edits are replaced. A projected recipe uses its saved target and placement. Use Project to surface again for a new placement.

Keep the original image and back up **%LOCALAPPDATA%\I2D_GPU\MaskEdits** along with the 3dm. An identical image copy can be relinked if moved; changed contents are rejected. Presets live under **%APPDATA%\McNeel\I2D_GPU\presets**.

If something stops you

Use Refresh GPU status, Install / repair GPU engine, or Download model for missing runtime or checkpoint files. Lower AI input or tiled work for GPU memory errors; lower output grid for mesh memory errors. Inspect the silhouette for missing parts or failed solids. Read Licensing if working controls are disabled. Use **Export GPU diagnostics…** for engine support and **I2DGPUHelp** for built-in help.