MCZ · MCP SERVERS

Blender bridge manual

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Contents

1. How it works
2. Requirements
3. Install and uninstall
4. First use
5. Tools
6. Several sessions at once
7. Settings
8. Licence
9. Troubleshooting
10. Logs

The Blender bridge 1.8.0 lets Claude work in a running Blender through 94 typed tools: modelling, modifiers, materials, UVs, Geometry Nodes, rigging and animation, and a game-asset pipeline with checks and exports for Unreal. Several Claude sessions can use it at once, each with its own Blender. New to the MCP servers? Read Getting started first.

How it works

- A Blender **add-on** ("Blender MCP Bridge (C#)") runs inside each Blender and listens on this computer only (port 9877 for the first Blender, then 9850 to 9869).
- Claude starts the server (`BlenderMcp.Server.exe`) for each session. The sessions share a small bridge service on `127.0.0.1:9870`, which knows every running Blender and routes each session to its own.
- Every change Claude makes is one Blender undo step, so Ctrl+Z works as usual.

Requirements

- Windows, 64-bit.
- Blender 4.2 or later (tested with 5.2).
- No administrator rights; nothing else to install (the server is self-contained).

Install and uninstall

Close Blender, then run `BlenderMcpSetup-1.8.0.exe`. It installs for your Windows account only:

- the server into `%APPDATA%\BlenderMcp\server`,
- the add-on into each Blender you tick on the **Blender add-on** page (Blender versions found on the PC are listed; older than 4.2 are greyed out). Setup installs and enables it with Blender itself; if that fails it copies the files and you enable **Blender MCP Bridge (C#)** in Blender's **Edit > Preferences > Add-ons**,
- the MCZ MCP Manager, if needed.

With **Add to Claude Desktop** ticked it registers the server as `blender-csharp`:

```
"blender-csharp": {
  "command": "C:\\Users\\YourName\\AppData\\Roaming\\BlenderMcp\\server\\BlenderMcp.Server.exe"
}
```

Restart Claude Desktop afterwards. Silent install: `BlenderMcpSetup-1.8.0.exe /VERYSILENT /TASKS=claude` (installs the add-on into every Blender 4.2 or later it finds).

Uninstall from **Settings > Apps**: it removes the `blender-csharp` entry, the add-on from the Blenders it was installed into, and the bridge's working files in `%LOCALAPPDATA%\BlenderMcp`. Licence keys stay in `%LOCALAPPDATA%\MCZ\products`.

By hand: `BlenderMcp.Server.exe --register [--name blender-csharp]` (and `--unregister`). For Claude Code:

```
claude mcp add --scope user blender-csharp -- "%APPDATA%\BlenderMcp\server\BlenderMcp.Server.exe"
```

The add-on panel

In Blender, open the 3D Viewport's sidebar (press **N**) and the **MCP** tab. The **MCP Bridge** panel shows whether the bridge is running and on which port, with **Start / Stop MCP Bridge** buttons, the port, **Start automatically** (on by default) and **Send to Claude**, which passes a note and the current selection to Claude (Claude reads it with `get_user_context`).

First use

Open Blender (or let Claude start it), then ask:

- "*Make a low-poly wooden crate, 1 m on each side, with bevelled edges, and show me renders from four sides.*"
- "*Check this mesh for game use and fix what you can: scale, normals, UVs, triangle count.*"
- "*Create three LODs and simple collision for SM_Crate and export it for Unreal to C:\Exports.*"
- "*Add a humanoid armature to this character, weight it automatically and pose it waving.*"

The 30-day trial starts when you install the server on a computer.

Tools

94 tools: 92 for Blender and 2 for the licence.

Group	Tools
Scene	`get_scene_info`, `list_objects`, `get_object`, `select_objects`, `list_materials`
Objects	`create_primitive`, `create_empty`, `create_light`, `create_camera`, `transform_object`, `set_object_properties`, `set_property`, `delete_objects`, `duplicate_object`, `create_collection`
Modifiers	`add_modifier`, `set_modifier`, `remove_modifier`, `apply_modifiers`
Materials and textures	`create_material`, `set_material`, `assign_material`, `add_image_texture`

Group	Tools
Mesh and UVs	`mesh_cleanup`, `set_shading`, `apply_transform`, `set_origin`, `uv_unwrap`
Modelling	`join_objects`, `separate`, `boolean`, `face_info`, `extrude_faces`, `inset_faces`, `bevel_edges`, `loop_cut`, `delete_faces`
Low-poly colour	`create_palette`, `paint_faces`, `get_palette`
Layout	`scatter_instances`, `align_objects`, `distribute_objects`, `drop_to_floor`, `scene_changes`
Review	`turntable`, `texel_density`
Geometry Nodes	`list_node_groups`, `add_geometry_nodes`, `set_geometry_nodes_inputs`
From the user	`get_user_context`
Animation	`insert_keyframes`, `delete_keyframes`, `set_interpolation`, `animate_preset`, `set_timeline`, `set_action`, `manage_action`, `list_actions`, `get_animation`, `render_animation_frames`
Rigging	`create_armature`, `parent_with_weights`, `pose_bones`, `set_shape_key`
Animation for Unreal	`validate_rig`, `export_animation_for_unreal`, `import_animation`
Baking	`bake_maps`
Unreal export	`export_for_unreal`, `add_socket`, `check_naming`
Game assets	`mesh_stats`, `validate_asset`, `decimate`, `generate_lods`, `generate_collision`, `export_asset`, `batch_export`, `import_file`
Looking at the result	`viewport_screenshot`, `render_views`, `render_image`, `focus_view`
Utility	`batch`, `list_commands`, `execute_python`, `undo`, `redo`, `save_file`, `bridge_status`
Session	`blender_session`
Licence	`license_status`, `license_install`

Notes:

- `batch` runs several commands in one call and one undo step (useful for multi-part objects).
- `render_views` and `turntable` make quick images from several sides so Claude (and you) can check the shape; `render_image` does a full engine render.
- `create_armature` makes a humanoid with Unreal mannequin bone names; `generate_collision` names collision for Unreal (`UCX_`, `UBX_`, `USP_`).
- `execute_python` runs any Python inside Blender, for anything without a typed tool.

Several sessions at once

Each session gets its own Blender:

1. A session keeps the Blender it started with.
2. Otherwise it gets the Blender whose open `.blend` file is in the session's folder (or up to three folders above or below it).

3. One session per Blender: another session asking for the same Blender gets *"Already in use: ..."*.
4. If no Blender has a matching file, the bridge **starts Blender** on the one `.blend` nearby (several give an error that lists them). With no `.blend` nearby it uses the only free Blender, or starts an empty one.

`blender_session` shows and changes the choice: `status` (default), `select target=<port or part of the file name>`, `open path=<.blend file or folder>`, `auto` (back to choosing by folder) and `release`.

Settings

Environment variables (in the `env` section of the Claude configuration entry, or system-wide):

Variable	Default	Meaning
`BLENDER_MCP_WORKDIR`	(none)	Extra folders to route by, separated by `;`.
`BLENDER_MCP_OWNER`	"Claude session in (pid N)"	The name other sessions see.
`BLENDER_MCP_BLENDER`	the Blender already running, else the `.blend` file association, else the newest installed	The `blender.exe` the bridge starts.
`BLENDER_MCP_TIMEOUT`	60	Seconds a single command may take.
`BLENDER_MCP_BRIDGE_PORT`	9870	Port of the bridge service.
`BLENDER_MCP_PORT` / `BLENDER_MCP_HOST`	(none)	Setting either connects straight to one Blender (direct mode), without the bridge or routing.

The add-on's port and auto-start are in its panel. The bridge service stops by itself after 10 minutes without sessions.

Licence

30 days free, then a key. `license_status` and `license_install` always work. From a prompt: `BlenderMcp.Server.exe --license` shows the state (exit code 0 when the tools work, 2 when not); `BlenderMcp.Server.exe --license MCZ1-...` installs a key. See Getting started and the licence terms.

Troubleshooting

- **"Cannot reach Blender"**: open Blender and check the **MCP** tab in the sidebar shows the bridge running; press **Start MCP Bridge** if not. Check the add-on is enabled in Preferences > Add-ons.
- **What does the bridge see?** `BlenderMcp.Server.exe --list` (run in the project folder) shows the Blenders and the one this folder would use; `BlenderMcp.Server.exe --selftest` tests the connection.
- **"Already in use"**: another session has that Blender. Use another Blender, or `blender_session release` there.
- **Several `.blend` files nearby**: open the one you want with `blender_session open path=...`.
- **Add-on settings lost after installing**: Blender was open during setup and saved its old preferences when it closed. Run setup again with Blender closed.
- **The server is not listed in Claude**: see Troubleshooting in Getting started.

`execute_python` can run any code in Blender: the add-on listens on this computer only; do not open its port to the network.

Logs

- Bridge service: `%LOCALAPPDATA%\BlenderMcp\bridge.log` (kept under 2 MB). With the Microsoft Store version of Claude Desktop: `%LOCALAPPDATA%\Packages\Claude_<id>\LocalCache\Local\BlenderMcp\`.
- Per-session server messages go to standard error, in Claude's MCP log (`%APPDATA%\Claude\logs\mcp-server-blender-csharp.log`).
- Blender's own messages: Blender's system console (**Window > Toggle System Console**).