

# Marv's Re-Volt plugin for modern Blender

## Source Code

<https://github.com/breathingstatue/blender-plugin/releases>



This is the documentation for Marv's Re-Volt plugin for modern Blender. It is intended to be used with **Blender 5 version** specifically.

*Note: The plugin was updated from Marv's version by Theman with the help of AI.*

Please report Bugs and suggest features on GitLab or Re-Volt Discord Server or the Re-Volt Hideout Forum.

## Features

### Import, Export

- World (.w)
- Mesh (.prm)
- Collision (.ncp)

- Instances (.fin)
- Mirror Planes (.rim)
- Hulls (.hul)
- Car / Car Parameters (via parameters.txt)
- Track Zones (.taz)
- Triggers (.tri)
- Models (.m)
- Objects (.fob)
- Visiboxes (.vis)
- Lights (.lit)

### **Missing Formats**

- AI Nodes (.fan)
- Position Nodes (.pos)
- Force Fields (.fld)

### **Tools**

- Bake light to vertex color
- Simple vertex painting tool
- Car Auto Shader
- Car shadow generator
- Texture animation tool
- Worldcut (export World in split meshes)
- Trigger Creator / Trigger copying tool
- (.taz) Track Zone Creator / reverse Track Zones
- (.fob) Object Creator / FOB Object copying tool
- (.vis) Visibox Creator
- (.lit) Light Creator / Light copying tool
- Hull Sphere Creator
- Convex Hull Creator

# Installation

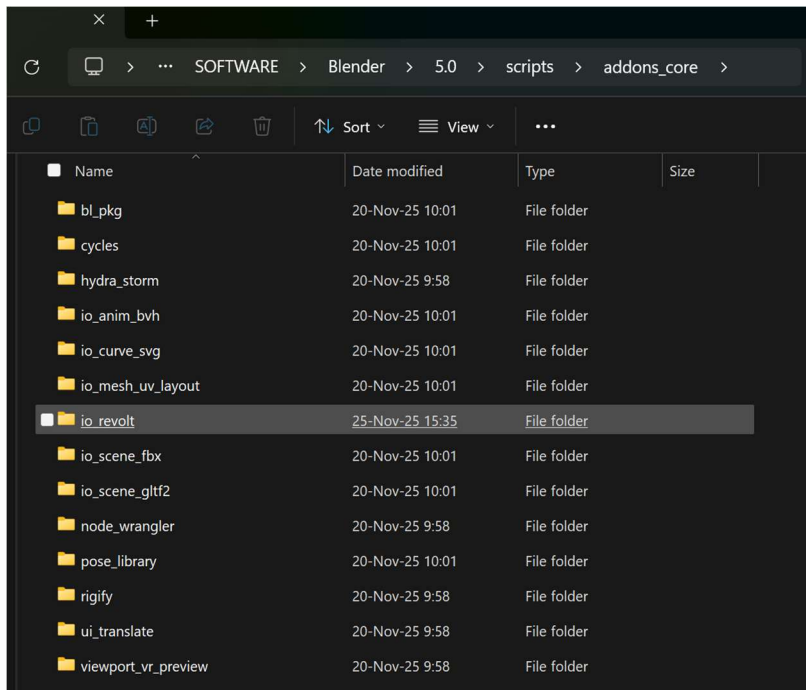
To install the add-on, locate the addons folder within your Blender configuration folder.

For example for me it is located at C:\...\Blender\5.0\scripts\addons\_core

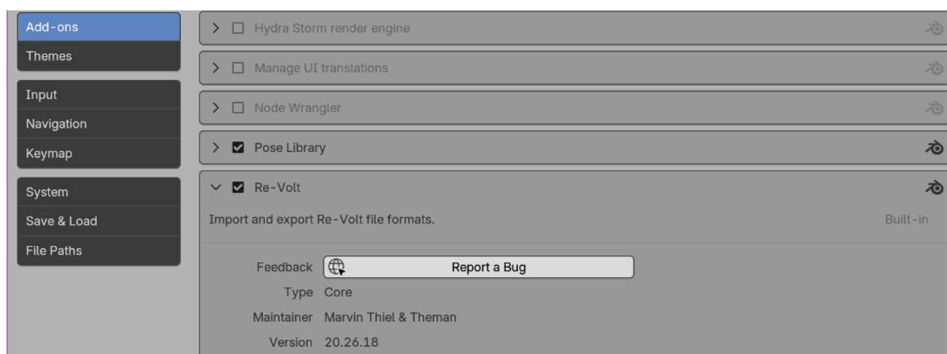
If you're on GNU/Linux, your add-on folder should be located at ~/.config/blender/5.0/scripts/addons\_core/, where 5.0 is the **Blender version you are using**.

For more information, see [Blender Manual](#).

Extract the io\_revolt folder into the addons folder.



Now start up Blender and open the user preferences (Edit -> User Preferences...). Click on the **Add-ons** tab and check Re-Volt.





# File Specifications

The following files are supported by the add-on:

- World (.w)
- Mesh (.prm)
- Collision (.ncp)
- Instances (.fin)
- Mirror Planes (.rim)
- Hulls (.hul)
- Car Parameters (parameters.txt)
- Track Zones (.taz)
- Triggers (.tri)
- Models (.m)
- Objects (.fob)
- Visiboxes (.vis)
- Lights (.lit)

## Textures:

The texture file name is used by the game engine to determine the texture number for exported faces. Make sure it's named correctly (e.g. tracka.bmp, car.bmp). Currently one car texture and up to 64 track textures are supported, all present files must be named in order using scheme presented bellow.

- 0 tracka
- 1 trackb
- 2 trackc
- 3 trackd
- ...
- 25 trackz
- 26 trackaa
- 27 trackba
- ...
- 51 trackza
- 52 trackab
- 53 trackbb
- ...
- 63 tracklb

**Note:** If the imported mesh is a **car part**, the texture path will be taken from either car.bmp / carname.bmp (for example a car named bigvolt uses texture bigvolt.bmp). If it's a **level file**, the texture name will be generated from the polygon's texture number and taken from the level folder.

The texture number is also written onto a bmesh integer layer. It is very important to set the texture numbers for each texture image. There is a function called **Fix Texture Numbers and Materials** for that purpose (assuming the textures are named correctly by following the forementioned texture naming logic).

## World (.w)

World file is used for the game's race tracks. In order to create a track, you have to create meshes, assign textures, do Vertex Colouring, Environment Map colouring, and add possible face properties and Texture Animations. The .w file's name and the track's foldername as well as the track's .ini file should follow the same naming logic. The textures' names were explained slightly above.

## Probe Mesh (.prm)

.prm file is used for various parts of the car including body.prm, wheel.prm, spring.prm, axle.prm, pin.prm, spinner.prm, as well as for the Instaced meshes. The assigned material for the texture should be named as "car.bmp".

Also instanced objects are .prm files. They use the texture tracka / trackb / trackc etc. So you would use Texture Number for those as well.

### Level of Detail (LoD):

If a PRM file includes multiple meshes all of them will be imported.

A suffix will be appended to the mesh name (|q0 is the highest quality, |q3 is a lower quality).

A fake user will be assigned to them so they're not lost when saving the file.

**Note:** Only car wheels support LoD.

## **Collision (.ncp)**

All objects of the scene will be merged into one mesh and then exported to the file. Objects will be ignored if they're a debug object or have the *ignore* object property set. Faces that have the material NONE assigned to them will not be exported.

A lookup grid will be automatically exported. This can be turned off in the export settings.

## **Instances (.fin)**

Instance objects are .prm files placed around the track. An instance file contains data about multiple objects. For example you can have multiple “tree” objects in the track, but they may use only one tree.prm file and their location and orientation is saved in the .fin file. Instance’s filename follows the name of the track.

**ModelRGB:** Instance file saves Model Colour to make the Vertex Colours lighter or darker. This adds a variation to the otherwise similar .prm duplicates.

You should mark any object as Instance only in the Object Mode.

## **Mirror Planes (rim)**

Mirror planes are .rim files placed around the track. If you want to make a mirror to the track, use this file type. Mirrors are always placed horizontally straight.

## **Hull (.hul)**

**Note:** For importing hull files qhull needs to be installed on GNU/Linux (macOS too) in order to import Hulls (on Arch, install it with `sudo pacman -S qhull`, package name may be similar on your distro). The add-on is shipped with qhull.exe for Windows systems, nothing needs to be installed additionally.

Hull files are mainly used for car collision and moving model objects.

Importing a hull file results in several Blender objects:  
One (sometimes more) **convex hull** which resembles the car body.  
The **interior** (one per convex hull) consisting of spheres.

**Note:** Vertex and edge data is ignored when importing but written to exported files.  
Many custom .huls don't include vertex and edge data, apparently the game works without them.

## Car Parameters

The add-on imports the car's body, wheels, springs, axles and pins and their positions and angles (even wheel camber) using the parameters.txt.

In here, naming matters. You should always name the car parts as follows: body, wheel / wheell / wheelfl etc..., spring, pin, axle, spinner, aerial. Even though the parameters.txt accepts different file names, the Blender plugin can't connect the car textures and handle the loading of the car and Copy Params otherwise.

Use **Copy Params** function for the wheels, springs, axles, pins, aerial and **locations/ orientation**. It copies the car part OFFSETS to clipboard to be pasted into parameters.txt. In order to use the Copy function, you must parent the to-be-copied car part to the body mesh.

## Track Zones (.taz)

You can import / export track zones, which are shown in Blender as transparent meshes. There is a function in the addon called **Reverse Zone IDs** with which you can make the reverse (R) track zones. The functions are in **Scene** tab.

## Triggers (.tri)

There are functions in **Scene** and **Object** Tabs to create and choose the correct trigger, set its ID and even copy a trigger. You can also search for any Trigger that is in Blender with "Find Special Objects" UI button at Output Tab.

## Models (.m)

Models are used as Objects (.fob) in-game. You can modify the model file's graphics in Blender, but you must define the .fob file as well, meaning the model placement and parameters. It is possible to use Texture Animations for models.

## Objects (.fob)

You can create a Object in **Scene** Tab. While being able to adjust the angle of the object, you can only see the actual presentation of the Object in-game. In **Object** Tab you can edit the properties and duplicate any Object. You can also search for any Object that is in Blender Scene with "Find Special Objects" UI button at Output Tab.

## Visiboxes (.vis)

You can create a Visibox in **Scene** Tab. You can modify the visibox file's ID and sub-property in Blender, and you're able to adjust the size of the visibox by modifying their size in Blender. You can also search for any Visibox that is in Blender with "Find Special Objects" UI button at Output Tab.

## Lights (.lit)

You can create a Light in **Scene** Tab. You can modify the light file's ID and properties. You can adjust the size of the Square Shadow by modifying its size in Blender. You can also set the Light's angle in Blender. The Light properties and duplicate tool are in **Scene** Tab. You can also search for any Visibox that is in Blender with "Find Special Objects" UI button at Output Tab.

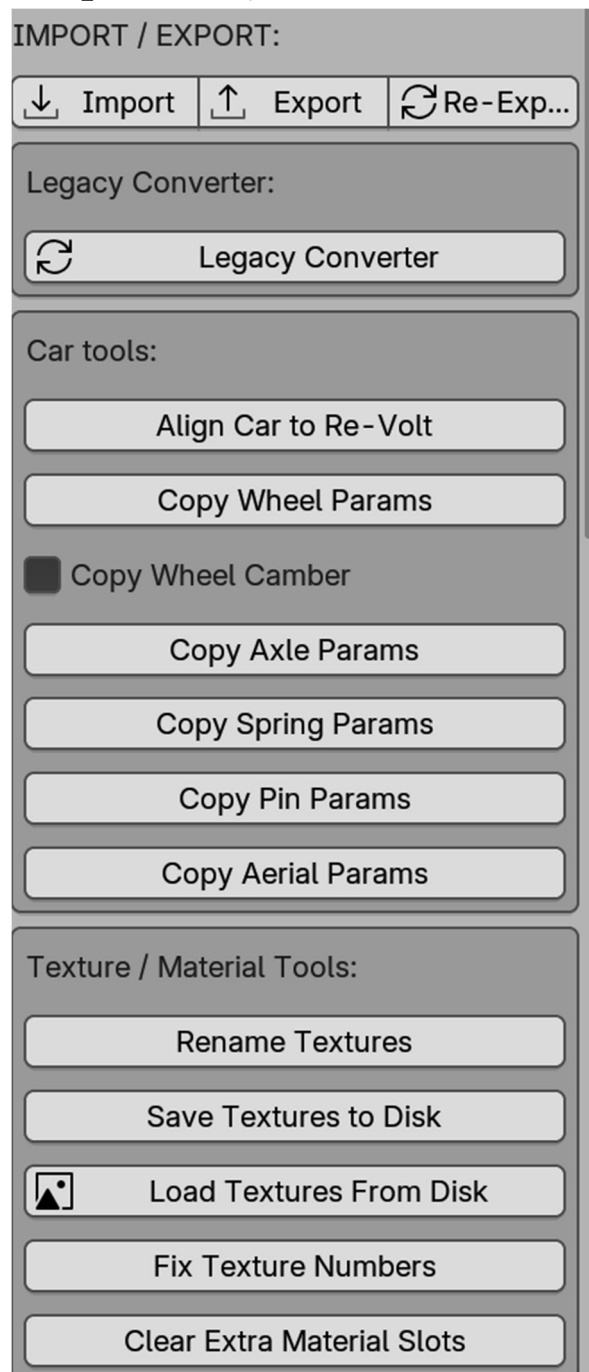
# Re-Volt plugin User Interface

The user interface is located at the **Properties View**.

The user interface is scattered along the **Output, View Layer, Scene, World, Object, Data and Material** Tabs.

**Mesh Face Properties, NCP Properties** and **Vertex Colour Tool** appear and work only in the **Edit Mode**. Object Tab is only visible when you have an object selected.

## Output Tab 1/3



## Output Tab 2/3

HELPERS:

Find Special Object:

Rename Selected:

Select by Data:

Select by Name:

Read Car Parameters

Select RVGL Directory:

No directory selected

RVGL:

Export:

- Export WorldCut (.w)
- Triangulate Ngons
- Use Texture Number
- Apply Scale
- Apply Rotation
- Apply Translation

## Output Tab 3/3

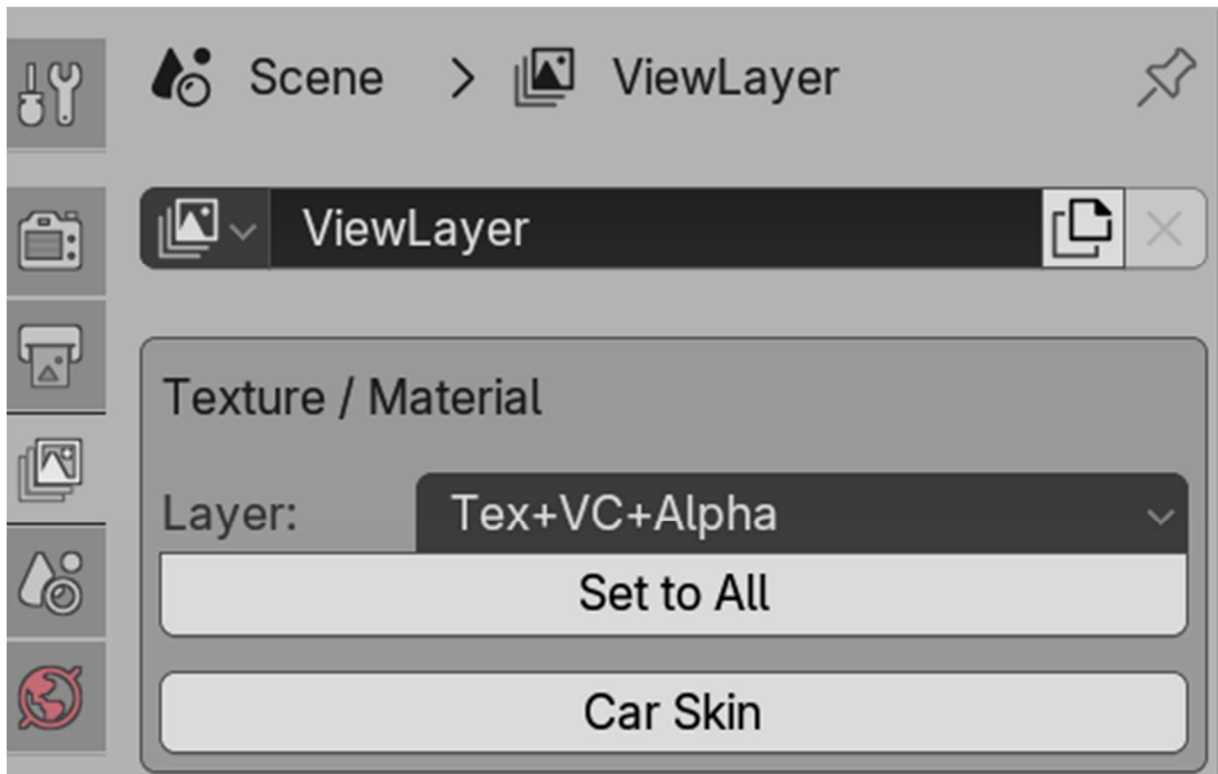
Import World (.w):

- w\_parent\_meshes
- w\_import\_bound\_boxes
- w\_import\_cubes
- w\_import\_big\_cubes

Export Collision (.ncp):

- ncp\_export\_selected
- ncp\_export\_collgrid

## View Layer Tab:



## Scene Tab:

The image shows a vertical toolbar on the left with icons for different scene elements. The main area contains several panels:

- Car Hull:**
  - Add Hull Sphere
- Track Zones:**
  - Create Track Zone
  - Show / Hide Track Zones
  - Reverse Zone IDs
- Objects:**
  - Object: Spinning Barrel (0)
  - Create FOB Object
  - Hide / Show FOB Objects
- Lights:**
  - Type: Omni
  - Create Light
  - Hide / Show Lights
- Triggers:**
  - Trigger: Piano
  - Create Trigger
  - Show / Hide Triggers
- Visiboxes:**
  - Visibox: Camera
  - ID: 0
  - Create Visibox
  - Hide / Show Visiboxes

### World Tab:

**i** Tip: Change Shading Mode.

Bake Light to Vertex Colors

Batch Bake Light to .fin Env

Bake Light to RGB Model

Quality: 128 Samples ▾

Resoluti... 128x128 ▾

Shadow Strength 4

Bake Shadow

Shadow...

Light Sources

Light 1: Light

Orientation X 37.261°

Orientation Y 3.1637°

Orientation Z 106.94°

Intensity 1000.000

### Object Tab (Edit Mode) 1/3:

Face Properties:

- Double sided
- Translucent
- Animated
- Mirror
- Additive blending
- No EnvMap
- EnvMap
- Cloth effect
- Do not export

NCP Properties:

- Double sided NCP
- No Skid Marks
- Oil
- Non-Planar
- Object Only
- Camera Only
- No Collision

Material Settings:

Set: NONE ▾

Find: DEFAULT ▾

Set Texture

(Texture layer missing/unset)

Create Layer / Set Texture Page

### Object Tab (Instance On) 2/3:

Instance Properties:

Instances: 1/1024

Mark as Instance

Remove Instance Property

EnvMap

SWITCH TO EDIT ... ENVMAP COLOR

Use Modeling Color

SWITCH TO EDIT ...ODELING COLOR

Hide

Fin Priority	1
LoD Bias	1024

No Mirror Mode

Not affected by Lights

No Camera Collision

No Object Collision

Track Zone Properties

Trigger Properties

Mirror Properties:

Is Mirror Plane

Hull Properties:

Generate Convex Hull

is Hull Sphere

is Hull Convex

### Object Tab 3/3:

Model Properties:

Mark/Unmark as .m Model

Is Model (.m)

Debug Properties:

Object is a BigCube

Object is a Cube

Object is a Boundary Box

Ignore for .ncp

Set BCube Mesh Indices

### Object Tab (Track Zone On):

Track Zone Properties

Track Zone ID	0
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Duplicate Track Zone

### Object Tab (FOB Object On):

FOB Object Properties

Objec... Spinning... ID: 0

Type Name: Spinning Barrel

Speed	0	-255-255
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Duplicate FOB Object

### Object Tab (Lights On):

Track Zone Properties

Light Properties

Type: **Omni**

World/... **World and Objects**

RGB:

0
0
0

Reach 512.00

Flicker

Flicker Speed 1

Duplicate Light

### Object Tab (Trigger On):

Trigger Properties

Type: **Piano**

PianoFlagLow	0
PianoFlagHigh	0

Duplicate Trigger

Copy Trigger Values

Paste Trigger Values

### Data Tab: (Texture Animation)

TEXTURE ANIMATION

Slots Limit	0
Current Slot	0
Frames Limit	2

Current Frame	0
Current Texture	0

◀ 🔍 ⬇ ▶

UV0	0.00	0.00
UV1	1.00	0.00
UV2	1.00	1.00
UV3	0.00	1.00

Assign Animation
Remove Assign
Clear Slot

(X) Transform Animation

Start Fra... 0	End Frame 2
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Texture: a (0) 0

Frame Time 0.02

Transform Animation

Grid Animation

Start Frame	0
X Resolut... 2	Y Resoluti... 2

Texture: a (0) 0

Frame Time 0.02

Grid Animation


## Material Tab:

Create Vertex Colour (+Alpha)

Remove Col/Alpha

Vertex Color Picker:


Set Color

Alpha L... 100% 

Set Alpha

CAR AUTO SHADER

Shader Base Color:

 Auto Shader Bake