Gran Turismo 2 – In-depth file info by SUBMANIAC

Hi all, SUBMANIAC here, this may be updated when new discoveries are made.
Hopefully, this document can help kickstart somebody's modding wishes and help improve already experienced users with whatever help I can provide, all in one big convenient document.

You can use the Table of Contents to quickly navigate to specific parts of the document. I tried making it somewhat convenient to navigate, since there are over 60 pages to go through.

Credits to:
pez2k (various conversion tools)
TheAdmiester (GT ENGN Editor)
adeyblue (GMCreator)
Xenn765 (car sound mapping and tutorial)

Inside GT2.VOL – by folder – in alphabetical order
Note: All GT2 files when viewed with a hex editor must be read in little endian.

TABLE OF CONTENTS:

CARPARAM FILES DATABASE (GT2DataSplitter)

CAR RELATED PARTS

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FOLDER: .text
FILE: data-race.txd
Description: when viewed through a hex editor, is filled with string text used in the race environment, likely used for the various localizations.

FOLDER: arcade
FILE: arc_carlogo

- Description:

A container file with all the car logos used in Arcade mode's pre-set car classes, all 4BPP .tim files.

- File layout:

A list of offsets to every .tim file within the container starting at 0x04 (4byte value: 00 00 01 00) until 0xFC (00 05 2A 4C).
0x100 (decimal: 256) is the beginning of the first .tim file.

- How to view the contents of this file:

Using TimViewer 1.04b, do a "Scan RAW File" on it.
Using Tim2View, Scan File.

- How to edit:

Provided you're replacing an existing logo of the same dimensions, copy the entire HEX data of your custom .tim image and replace the data of the logo you're changing.
If your logo dimensions don't match, the table of offsets must be updated to correctly point to every logo again. (UNTESTED)

FILE: arc_font.tim

- Description:

A 512x256 standard 4bpp .tim image with 3 CLUTs containing font characters used for (likely) all dynamic text throughout the game.

- How the view the content of this file:

XnView natively supports standard .tim files, although will only show the first palette
Using TimViewer v1.04b, use Open TIM on it.
Using Tim2View, Scan File.

- (Probable) Unknowns about this file:

Every character must have an ID or sorts and XY coordinates that tells the game what the character is and where it's at on the image, as well as which CLUT this character is assigned. There is also VRAM coordinates (if Tim2View can be trusted, this file's coordinates are X: 320; Y: 480 ?). For all I know, that data could be engine-side, I've no idea.

FILE: arc_fontinfo
Currently no info on this file.

FILES: arc_goodies_fr.tim, arc_goodies_gr.tim, arc_goodies_it.tim, arc_goodies_jp.tim, arc_goodies_sp.tim, arc_goodies_uk.tim, arc_goodies_us.tim

- Description:

A non-standard 512x248px, 4bpp .tim image with 15 CLUTs. The image contains various icons and buttons used in Arcade mode. The suffixes denote the localization that uses that file (French, German, Italian, Japanese, Spanish, UK English, US English)
The non-standard bit comes from PD moving the CLUT data after the graphics instead of before them.
Graphics data starts at 0x14, CLUTs start at 0xF614 (15 CLUTs)
Note: In a standard .tim image, the CLUT data would start at 0x14, and the graphics data would start after every CLUT is defined.

- How to view the content of this file:

XnView can open the file, but will not pick up the CLUT's position, and so colors will be wrong. The same applies to TimViewer and Tim2View.

- How to edit:

Open the .tim with XnView and do File -> Save As -> Save the image as .BMP (if done right, the saved PNG will be indexed, 4BPP, I personally check it in Paint Shop Pro 7)

Using TiledGGD:

- Open the file graphics and palette (the .tim file for both)
- Set the image's dimensions to 512x248
- Image -> Go to Offset: 0x14, Palette -> Go to Offset 0xF614

(additional Palette settings: Format: 2bytes/colour, Colour Order: BGR, Skip Size: 16 colors)

- Image -> Save Palette (this will save the colors displayed in the palette data window as an image)

In Paint Shop Pro 7:

- Open the converted .BMP, and the Palette image.
- Edit the Palette of the graphics file (Shift + P) and change every color into the first line of colors (CLUT) on the palette image. If done correctly, the graphics that use this CLUT will be properly colored, in this case, the Ending Credits button.
- Save the Palette (Colors -> Save Palette as a .JASC Palette, name however you see fit)
- Repeat for every following CLUT on the palette image. In this case, by the end of it, you should have 15 palette files.
- At this point, we'll assume you have created a replacement graphics for a part of the image, like an icon, at the exact dimensions of the original one, and will have made that creation 4bpp (indexed 16 colors), and will have saved the palette from this new icon.
- On the graphics file, open the custom palette (Colors -> Load Palette, or Shift + O)
- Copy the graphics data of your new icon and paste it into the graphics image (CTRL + E), and place it where it should go
- Save the image
- Repeat for every edited graphics/CLUT on the image (as many singular .tim images as there are customized CLUTs)
- Assuming you've done all your intended edits, convert those finalized images to .tim images
- Using TimViewer: File -> Open BMP, open your first image
- File -> Save TIM File (repeat for all)

- Open the first newly created .tim in a Hex editor, and also open the original file you're replacing
- Copy the graphics data from the custom .tim (0x40 – end, length should be F600 (hex) in our case) and replace them on the original one (0x14 – 0xF613, or a length of F600 (hex) in our case)
- Copy the CLUT data (0x14-0x34) and replace the corresponding CLUT in the original (0xF614-0xF634 in this case for the first CLUT, the Ending Credits)
- For every other edited icons, only copy the CLUT part and replace their corresponding data on the original file, as you've already copied over the graphics data
- Save the file, rebuild the game, check your work. If everything was done correctly, all icons on this image should look fine

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FILE: arc_key_config.tim

- Description:

A non-standard 256x129px, 4bpp .tim image, with 34 CLUTs. The image contains every controller button icons (Standard PS controller, Dualshock/Analog, neGcon and steering wheel) used in the controller settings menu.
The non-standard bit comes from PD moving the CLUT data after the graphics instead of before them.
Graphics data starts at 0x14, CLUTs start at 0x3C14 (34 CLUTs)
Note: In a standard .tim image, the CLUT data would start at 0x14, and the graphics data would start after every CLUT is defined.

- How to view the content of this file:

XnView can open the file, but will not pick up the CLUT's position, and so colors will be wrong. The same applies to TimViewer and Tim2View.

- How to edit:

See "arc_goodies_" , the same processes apply to this file.

FILE: arc_maker.tim

- Description:

A non-standard 1024x250 px, 4bpp .tim image, with 52 CLUTs. The image contains all the car maker logos and the drivetrain types (including their localizations – leftover from demos? I think those go unused) used in the Arcade mode car selection screen.
The non-standard bit comes from PD moving the CLUT data after the graphics instead of before them.
Graphics data starts at 0x14, CLUTs start at 0x1EC14 (52 CLUTs)
Note: In a standard .tim image, the CLUT data would start at 0x14, and the graphics data would start after every CLUT is defined.

- How to view the content of this file:

XnView can open the file, but will not pick up the CLUT's position, and so colors will be wrong. The same applies to TimViewer and Tim2View.

- How to edit:

See "arc_goodies_" , the same processes apply to this file.

FILE: arc_other.tim

- Description:

A non-standard 256x222 px, 4bpp .tim image, with 22 CLUTs. The image contains the reflection map and drivetrain type logos (and their localizations) used in the Arcade mode car selection screen.
The non-standard bit comes from PD moving the CLUT data after the graphics instead of before them.
Graphics data starts at 0x14, CLUTs start at 0x6C14 (22 CLUTs)
Note: In a standard .tim image, the CLUT data would start at 0x14, and the graphics data would start after every CLUT is defined.

- How to view the content of this file:

XnView can open the file, but will not pick up the CLUT's position, and so colors will be wrong. The same applies to TimViewer and Tim2View.

- How to edit:

See "arc_goodies_" , the same processes apply to this file.

FILE: arc_panels.tim, arc_panels_fr.tim, arc_panels_gr.tim, arc_panels_it.tim, arc_panels_jp.tim, arc_panels_sp.tim, arc_panels_uk.tim, arc_panels_us.tim

- Description:

A non-standard 1280x256 px, 4bpp .tim image, with 18 CLUTs (19 for arc_panels.tim). The image contains all big button icons for game mode, race difficulty, and car classes used in Arcade mode.
The suffixes denote the localization that uses that file (French, German, Italian, Japanese, Spanish, UK English, US English).
Note: arc_panels.tim is a leftover, probably from demo builds, as it has the "Drag Race" mode icon, absent from all the others.
Graphics data starts at 0x14, CLUTs start at 0x27D94 (18/19 CLUTs)
Note: In a standard .tim image, the CLUT data would start at 0x14, and the graphics data would start after every CLUT is defined.

- How to view the content of this file:

XnView can open the file, but will not pick up the CLUT's position, and so colors will be wrong. The same applies to TimViewer and Tim2View.

- How to edit:

See "arc_goodies_" , the same processes apply to this file.

FILE: arc_topmenu, arc_topmenu_usa

- Description:

Currently very little info on this file. It's compressed and seems to have the background image used in early demos of GT2, in both regular and USA version of the logo.

FILE: champtim.tim

- Description:

A non-standard 256x129px, 4bpp .tim image, with a single CLUT. The image contains the reflection map used on the trophy 3D model in the prize screen (and maybe license as well?)
Graphics data starts at 0x14, CLUT starts at 0x4014
Note: In a standard .tim image, the CLUT data would start at 0x14, and the graphics data would start after every CLUT is defined.

- How to view the content of this file:

XnView can open the file, but will not pick up the CLUT's position, and so colors will be wrong. The same applies to TimViewer and Tim2View.

- How to edit:

See "arc_goodies_" , the same processes apply to this file.

FILE: course_map

- Description:

Currently very little info on this file. Presumed to have the track preview images shown in the Arcade mode track selection screen. Compressed.

FILE: course_mapinfo

- Description:

Currently very little info on this file. Has track filenames, and other data.

FILE: demofile.gmr

- Description:

Likely contains demo replays, maybe for the main menu idling? Unused?

FILE: demofile_eu.gmr.gz, demofile_jp.gmr.gz, demofile_us.gmr.gz

- Description:

Likely contain demo replays for each region, maybe for the main menu idling? Is GZipped (7-zip can decompress/recompress .gz files)

FILE: game_status_file.gz

- Description:

A compressed .gz container file with multiple in-race HUD-related elements:

- A 256x234px non-standard, 4bpp .tim image, with 22 CLUTs.
  Graphics data starts at 0x44, CLUTs start at 0x7244
- 10 standard, 4bpp .tim images, each with a single CLUT, that represent all types of tachometer graduations from 6000rpm to 18000rpm.

0x7544	6k rpm
0x8204	7k rpm
0x8EC4	8k rpm
0x9B84	9k rpm
0xA844	10k rpm
0xB504	11k rpm
0xC1C4	12k rpm
0xCE84	14k rpm
0xDB44	16k rpm
0xE804	18k rpm

- How to view the content of this file:

Using TimViewer 1.04b, do a “Scan RAW File” on it. (Note: TimViewer will only see the standard .tim files)
Using Tim2View, Scan File.

- How to edit:

See “arc_goodies_” , the same processes apply to this file’s non-standard .tim.
For the standard .tim files, create your custom .tim image in the same dimensions as the target replacement, and simply navigate to your target’s hex offset and replace all the data pertaining to it with your custom file’s.

FILE: gt_cur_fr.tim, gt_cur_fr.tim, gt_cur_fr.tim, gt_cur_fr.tim, gt_cur_fr.tim, gt_cursor.tim

- Description:

A non-standard 256x156px, 4bpp .tim image with 13 CLUTs. The image contains the GT mode menus car reflection map, cursor icons, drivetrain icons and event completion icons. The suffixes denote the localization that uses that file (French, German, Italian, Japanese, Spanish, UK English, and gt_cursor.tim for US English and Japanese)
The non-standard bit comes from PD moving the CLUT data after the graphics instead of before them.
Graphics data starts at 0x14, CLUTs start at 0x4C14 (13 CLUTs)
Note: In a standard .tim image, the CLUT data would start at 0x14, and the graphics data would start after every CLUT is defined.

- How to view the content of this file:

XnView can open the file, but will not pick up the CLUT’s position, and so colors will be wrong. The same applies to TimViewer and Tim2View.

- How to edit:

See “arc_goodies_” , the same processes apply to this file.

FILE: gt_items.tim

- Description:

A non-standard 256x247px, 4bpp .tim image with 15 CLUTs. The image contains license icons in big and small sizes as well as the “next page”, event completion trophy icon, and the “FREE” license requirement icon.
The non-standard bit comes from PD moving the CLUT data after the graphics instead of before them.
Graphics data starts at 0x14, CLUTs start at 0x4C94 (15 CLUTs)
Note: In a standard .tim image, the CLUT data would start at 0x14, and the graphics data would start after every CLUT is defined.

- How to view the content of this file:

XnView can open the file, but will not pick up the CLUT’s position, and so colors will be wrong. The same applies to TimViewer and Tim2View.

- How to edit:

See “arc_goodies_” , the same processes apply to this file.

FILE: gtmode_font.tim

- Description:

A non-standard 256x247px, 4bpp .tim image with 5 CLUTs. The image contains all dynamic characters used in the GT mode menus, for all languages.
The non-standard bit comes from PD moving the CLUT data after the graphics instead of before them.
Graphics data starts at 0x14, CLUTs start at 0x7A94 (5 CLUTs)
Note: In a standard .tim image, the CLUT data would start at 0x14, and the graphics data would start after every CLUT is defined.

- How to view the content of this file:

XnView can open the file, but will not pick up the CLUT’s position, and so colors will be wrong. The same applies to TimViewer and Tim2View.

- How to edit:

See “arc_goodies_” , the same processes apply to this file.

- (Probable) Unknowns about this file:

Every character must have an ID or sorts and XY coordinates that tells the game what the character is and where it’s at on the image, as well as which CLUT this character is assigned.

FILE: langsel.tim

- Description:

A compressed .gz, non-standard 256x50px, 4bpp .tim image with 5 CLUTs. The image contains the 5 flag icons displayed on the PAL version's language selection screen.
The non-standard bit comes from PD moving the CLUT data after the graphics instead of before them.
Graphics data starts at 0x14, CLUTs start at 0x1914 (5 CLUTs)
Note: In a standard .tim image, the CLUT data would start at 0x14, and the graphics data would start after every CLUT is defined.

- How to view the content of this file:

XnView can open the file, but will not pick up the CLUT's position, and so colors will be wrong. The same applies to TimViewer and Tim2View.

- How to edit:

See "arc_goodies_" , the same processes apply to this file.

FILE: license_info_fr, license_info_gr, license_info_it, license_info_jp, license_info_sp, license_info_uk, license_info_us

- Description:

A file that contains all the license test's description text shown on the license test pre-race menu. The various suffixes refer to all the languages.

- How to view the content of this file:

Any hex editor will let you see the content.

FILE: license_tim.tim

- Description:

A non-standard 512x170px, 4bpp .tim image with 9 CLUTs. The file contains the completion icons, and big Bronze, Silver, Gold and Kiddie prize icons.
The non-standard bit comes from PD moving the CLUT data after the graphics instead of before them.
Graphics data starts at 0x14, CLUTs start at 0xA814 (9 CLUTs)
Note: In a standard .tim image, the CLUT data would start at 0x14, and the graphics data would start after every CLUT is defined.

- How to view the content of this file:

XnView can open the file, but will not pick up the CLUT's position, and so colors will be wrong. The same applies to TimViewer and Tim2View.

- How to edit:

See "arc_goodies_" , the same processes apply to this file.

FILE: l-sel.tim.gz

- Description:

A compressed .gz standard 352x480px, 4bpp .tim image with 1 CLUT. It's the language selection screen's background image.

- How the view the content of this file:

XnView natively supports standard .tim files.
Using TimViewer v1.04b, use Open TIM on it.
Using Tim2View, Scan File.

FILE: setting.tim

- Description:

A non-standard 256x228px, 4bpp .tim image with 25 CLUTs. The image contains all icons and graphic patterns used in the car settings menu.
The non-standard bit comes from PD moving the CLUT data after the graphics instead of before them.
Graphics data starts at 0x14, CLUTs start at 0x7214 (25 CLUTs)
Note: In a standard .tim image, the CLUT data would start at 0x14, and the graphics data would start after every CLUT is defined.

- How to view the content of this file:

XnView can open the file, but will not pick up the CLUT's position, and so colors will be wrong. The same applies to TimViewer and Tim2View.

- How to edit:

See "arc_goodies_" , the same processes apply to this file.

FILE: title_arcade.tim.gz, title_arcade_jp.tim.gz, title_arcade_us.tim.gz, title_gtmode.tim.gz, title_gtmode_jp.tim.gz, title_gtmode_us.tim.gz

- Description:

A compressed .gz standard 352x480px, 4bpp .tim image with 1 CLUT. They're the main menu screen's background images for Arcade and GT Mode discs for all 3 regions (yet only _us differs because of the logo change).

- How the view the content of this file:

XnView natively supports standard .tim files.
Using TimViewer v1.04b, use Open TIM on it.
Using Tim2View, Scan File.

FILE: title_item.tim.gz

- Description:

A compressed .gz, non-standard 512x254px, 4bpp .tim image with 43 CLUTs. The image contains all main menu button icons (with their localizations) as well as the Arcade mode's player garage' car list backgrounds (I think).
The non-standard bit comes from PD moving the CLUT data after the graphics instead of before them.
Graphics data starts at 0x14, CLUTs start at 0xF814 (43 CLUTs)
Note: In a standard .tim image, the CLUT data would start at 0x14, and the graphics data would start after every CLUT is defined.

- How to view the content of this file:

XnView can open the file, but will not pick up the CLUT's position, and so colors will be wrong. The same applies to TimViewer and Tim2View.

- How to edit:

See "arc_goodies_" , the same processes apply to this file.

FILE: topmenu_panels.tim, topmenu_panels_fr.tim, topmenu_panels_gr.tim, topmenu_panels_it.tim, topmenu_panels_jp.tim, topmenu_panels_sp.tim, topmenu_panels_uk.tim, topmenu_panels_us.tim

- Description:

A non-standard 512x256px, 4bpp .tim image with 7 CLUTs. The image contains the icons used in the Replay Theater and Trade menus.
The non-standard bit comes from PD moving the CLUT data after the graphics instead of before them.
Graphics data starts at 0x14, CLUTs start at 0xFC14 (7 CLUTs)
Note: In a standard .tim image, the CLUT data would start at 0x14, and the graphics data would start after every CLUT is defined.

- How to view the content of this file:

XnView can open the file, but will not pick up the CLUT's position, and so colors will be wrong. The same applies to TimViewer and Tim2View.

- How to edit:

See "arc_goodies_" , the same processes apply to this file.

FOLDER: bgsobj
FILE TYPE: .bso

- Description:

A 3D object file type used for skyboxes.
Vertex coordinates start at 0x20 or 0x28, and are 8 bytes long with a 2byte separator (null) value, same as car models (.cdo).

- What's likely to be found in there:

Polygon data such as texture ID, polygon type (triangle, quad, untextured tri?, untextured quad?, static?, billboard?), texture mapping coordinates, vertex coloring values.

FILE TYPE: .bsp

- Description:

A container file that houses all skybox textures, as standard .tim files.

- How to view the content of this file:

Using TimViewer 1.04b, do a “Scan RAW File” on it.
Using Tim2View, Scan File.

- How to edit:

See “arc_goodies_” , for standard .tim files, create your custom .tim image in the same dimensions as the target replacement, and simply navigate to your target’s hex offset and replace all the data pertaining to it with your custom file’s.

- Notes:

.bsp files are the same format as .trp files, the track texture files

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FOLDER: carlogo

- Description:

A folder that contains every vehicle’s logo image, as standard .tim files.
Every file is named as such:

xxxxxl--.tim	Japanese GT Mode logo
xxxxxm--.tim	Japanese Arcade Mode logo
xxxxxn--.tim	USA GT Mode logo
xxxxxo--.tim	USA Arcade Mode logo
xxxxxp--.tim	PAL GT Mode logo
xxxxxq--.tim	PAL Arcade Mode logo

Where « xxxxx » is the car’s filename.
Note: The game will default to any existing logo if any of its variant is missing. However, at least one variant for GT Mode and one for Arcade must exist.

FOLDER: carobj
FILE TYPE: .cdo & .cno

- Description:

A 3D object format used for car bodies and specific menu 3D models.

- How to Edit:

Convert from CDO to OBJ and back using pez2k’s GT2ModelTool.
Blender recommended for modeling.
- Import settings: Geometry MUST be set to Split by Group

- Export settings: “Objects as” MUST be set to OBJ Groups, Keep Vertex Order MUST be checked.

- File layout:

Header	
0x07	Shadow display (flag?)
0x08-09-0A	Wheel Dish R-G-B color (can be forced in cdo for default menu wheels - BREAKS CAR VIEWER)
0x18	Front Wheel menu radius (in PD units, wheel diameter = this *2)
0x1A	Front Wheel menu width (in PD units)
0x1C	Rear Wheel menu radius
0x1E	Rear Wheel menu width
0x20	Front Left Wheel W axis (Physical front offset from the center of the car, affects both front wheels, negative value)
0x22	Front Left Wheel Y axis (Vertical offset)
0x24	Front Left Wheel X axis (longitudinal offset, negative is front)
0x26	Front Left Wheel Z axis (Menu lateral offset, individual, negative is left; equals to W * 0.875)
0x28	Front Right Wheel W axis (unused? negative of the opposite side's W)
0x2A	Front Right Wheel Y axis (Vertical offset)
0x2C	Front Right Wheel X axis (longitudinal offset, negative is front)
0x2E	Front Right Wheel Z axis (Menu lateral offset, individual, negative is left; equals to W * 0.875)
0x30	Rear Left Wheel W axis (Physical rear offset from the center of the car, affects both rear wheels, negative value)
0x32	Rear Left Wheel Y axis (Vertical offset)
0x34	Rear Left Wheel X axis (longitudinal offset, negative is front)
0x36	Rear Left Wheel Z axis (Menu lateral offset, individual, negative is left; equals to W * 0.875)
0x38	Rear Right Wheel W axis (unused? negative of the opposite side's W)
0x3A	Rear Right Wheel Y axis (Vertical offset)
0x3C	Rear Right Wheel X axis (longitudinal offset, negative is front)
0x3E	Rear Right Wheel Z axis (Menu lateral offset, individual, negative is left; equals to W * 0.875)
BELOW (0x40 to 0x867) IS BLANK IN A CDO/CNO FILE, it is filled by the game during runtime (in a race environment).	
0x40	Vram Palette Coordinate X?
0x42	Vram Palette Coordinate Y?
0x44	Front Wheel rim polygon offset
0x46	Rear Wheel rim polygon offset
0x48	Front Wheel rim polygon top left vertex X
0x4A	Front Wheel rim polygon top left vertex Y
0x4C	Front Wheel rim polygon top right vertex X
0x4E	Front Wheel rim polygon top right vertex Y
0x50	Front Wheel rim polygon bottom right vertex X
0x52	Front Wheel rim polygon bottom right vertex Y
0x54	Front Wheel rim polygon bottom left vertex X
0x56	Front Wheel rim polygon bottom left vertex Y

0x5C	Rear Wheel rim polygon top left vertex X
0x5E	Rear Wheel rim polygon top left vertex Y
0x60	Rear Wheel rim polygon top right vertex X
0x62	Rear Wheel rim polygon top right vertex Y
0x64	Rear Wheel rim polygon bottom right vertex X
0x66	Rear Wheel rim polygon bottom right vertex Y
0x68	Rear Wheel rim polygon bottom left vertex X
0x6A	Rear Wheel rim polygon bottom left vertex Y
0x70	Loaded File 1 Front Wheel Sidewall model Vertex coordinates (0xD0 long / 208 bytes; ID 11; 34 verts)
0x74	Vertex1 X
0x76	Vertex1 Y
0x78	Vertex1 Z
0x7A	Vertex2 Z
0x7C	Vertex2 X
0x7E	Vertex2 Y
...	
0x140	Loaded File 2 Front Wheel Tread model Vertex coordinates (0xD0 long / 208 bytes; ID 11; 34 verts)
0x210	Loaded File 3 Front Wheel Back model Vertex coordinates (0x68 long / 104 bytes; ID 08; 16 verts)
0x278	Rear Wheel LOD0 Sidewall
0x348	Rear Wheel LOD0 Tread
0x418	Rear Wheel LOD0 Back
0x480	Front Wheel LOD1 Sidewall (0x70 long / 112 bytes; ID 09; 18 Verts)
0x4F0	Front Wheel LOD1 Tread (0x70 long / 112 bytes; ID 09; 18 Verts)
0x560	Front Wheel LOD1 Back (0x38 long / 56 bytes; ID 04: 8 verts)
0x598	Rear Wheel LOD1 Sidewall
0x608	Rear Wheel LOD1 Tread
0x678	Rear Wheel LOD1 Back
0x6B0	Front Wheel LOD2 Sidewall (0x58 long / 88 bytes; ID 07; 14 Verts)
0x708	Front Wheel LOD2 Tread (0x58 long / 88 bytes; ID 07; 14 Verts)
0x760	Front Wheel LOD2 Back (0x2C long / 44 bytes; ID 03 : 6 verts, 4 padding at the end)
0x78C	Rear Wheel LOD2 Sidewall
0x7E4	Rear Wheel LOD2 Tread
0x83C	Rear Wheel LOD2 Back
0x868	LOD Count
(LOD0 start)	
0x884	Vertices counter
0x886	Normals counter
0x888	Unshaded Triangle counter
0x88A	Unshaded Quad counter
0x88C	?
0x88E	?
0x890	UV Tri counter
0x892	UV Quad counter
0x894	?

0x896	?
0x898	?

LOD1: Same structure as LOD0
LOD2: Same structure as LOD0
Shadow (initial experimental research):

- 196bytes / C4 long
- Header starts with 18 00 02 00 10
- Header 28 bytes long
- byte 25 : Scale (11 hex base)
- Vertex Coordinates: 60bytes, 20x4 bytes - 2byte X, 2 byte Z (no Y/vertical/height)
- Face Data : 48bytes, 4bytes per face, bytes 1-2-3 vertex ID(? acts weird, might skip values like color palettes), byte 4 is flag: 00 is gradient, 80 is opaque

- Notes:

- With current car conversion tooling, it's unnecessary to know how the 3D models are made, only the parts between 0x08 and 0x3E still might need manual adjustments, as they aren't currently fully supported by the conversion tools (they are stored in the .bin file that's created when converting .cdo to .obj)
- LODs are limited to 256 vertices
- Total .cdo/.cno file size is limited to 0x4FFF

- LOD Header is 50 bytes long
- Vertices are 8 bytes long, 3 pairs of bytes for XYZ and a separator. (XX YY ZZ 00)
- Normals are 4 bytes long.
- Unshaded tris and quads are 16 bytes long. The first three single bytes are the vertex numbers of the 3 corners, and for non-UV quads it's the first four
- UV tris and quads are 28 bytes long. They are identical to the unshaded tris and quads for the first 16 bytes, then followed by the UV data: Vertex 1 X/Y, palette number, 00, vert 2 X/Y, 00 00, vert 3 X/Y, then the final two bytes are always zero for tris, or the vert 4 UV X/Y for quads.
- CLUT number is shifted by 6 bits, therefore CLUT ID on shaded polygons looks like this: 00, 01, 02, 03, 40, 41, 42, 43, 80, 81, 82, 83, C0, C1, C2, C3 (So 0x40 would be palette 5 in TimViewer)

- Tips on making car models:

- Watch my tutorial
- Prioritize quads to save file space
- Use unshaded polygons instead of black painted ones.
- "Order=" refers to the priority level of the faces painted with this material, lower value = higher priority. PD's solution to the PS1's lack of Z-depth.
- "Flags=" refers to individual flags that can be enabled to any polygons painted with this material:
  - 0 = no reflection + not considered brake light face
  - 4 = no reflection + considered brake light face
  - 8 = reflections + not considered brake light face
  - 12 = reflections + considered brakelight face
- SCALE FACTOR: n METERS*2.5 = n CM (example: IRL 4m*2.5 = 10cm GT2 SCALE) (useful to me for modeling in 3DS Max, might not apply to other programs)

FILE TYPE: .cdp & .cnp

- Description:

Texture format for the .cdo/cno car models. A 256x224 indexed image with 16 CLUTs.

- How to Edit:

Convert CDP to an editable format (4-bit .bmp image with JASC-format palettes) using pez2k's GT2TextureEditor.
My tutorial above explains the basics of my methodology.

- File layout:

0x00	Paint counter
0x02 – 0x11	Paint IDs
0x20	CLUT0 / ColourPalette00 (Beginning of paint 1)
0x40	CLUT1 / ColourPalette01
0x60	CLUT2 / ColourPalette02
0x80	CLUT3 / ColourPalette03
0xA0	CLUT4 / ColourPalette04
0xC0	CLUT5 / ColourPalette05
0xE0	CLUT6 / ColourPalette06
0x100	CLUT7 / ColourPalette07
0x120	CLUT8 / ColourPalette08
0x140	CLUT9 / ColourPalette09
0x160	CLUT10 / ColourPalette10
0x180	CLUT11 / ColourPalette11
0x1A0	CLUT12 / ColourPalette12
0x1C0	CLUT13 / ColourPalette13
0x1E0	CLUT14 / ColourPalette14
0x200	CLUT15 / ColourPalette15
0x220	Illumination Masks
0x240	Paint Masks (Unused, PD tooling leftover, presumed to be used as masking for quickly repainting car models using the in-house tooling)
0x260	beginning of paint 2 CLUTs
0x4A0	beginning of paint 3 CLUTs
0x6E0	beginning of paint 4 CLUTs
0x920	beginning of paint 5 CLUTs
0xB60	beginning of paint 6 CLUTs
0xDA0	beginning of paint 7 CLUTs
0xFE0	beginning of paint 8 CLUTs
0x1220	beginning of paint 9 CLUTs
0x1460	beginning of paint 10 CLUTs
0x16A0	beginning of paint 11 CLUTs
0x18E0	beginning of paint 12 CLUTs
0x1B20	beginning of paint 13 CLUTs
0x1D60	beginning of paint 14 CLUTs
0x1FA0	beginning of paint 15 CLUTs
0x21E0	beginning of paint 16 CLUTs
0x2420 – 0x439F	? (likely filled during runtime)
0x43A0 – B39F	graphics data

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- Notes:

- Each CLUT / ColourPalette is made of 16 unique, 15bit BGR555 colors
- Black (#000000) is treated as transparency by default, unless it has its SetAlphaBits flag enabled
- IlluminationMask files are flags turned into editable JASC palettes that specify the CLUT number and Color ID of any particular color to be flagged as unaffected by ambient lighting, such as shadow areas, or time of day. Mostly used on headlamps, taillamps, and foglights.
- SetAlphaBits.txt is an editable text file in which you can specify a CLUT number and a color ID to be ignored by transparency. Useful to allow the use of black (#000000) without it turning transparent
- A few CLUTs are reserved for specific uses:
    - CLUT0 / ColourPalette00 is used for the rim texture (note: the first color of the CLUT is used as the rim dish color in-game)
    - CLUT14 / ColourPalette14 is used for the unlit brakes
    - CLUT15 / ColourPalette15 is used for the lit brakes
- Other specific CLUT numbers used by PD (but not necessarily have to be used identically) are:
    - CLUT1 / ColourPalette01 for LOD2 textures
    - CLUT12 / ColourPalette12 for headlight textures
- PD's typical color ID "convention" (in HEX. For numbering your paints, you don't have to follow it):

0000	white (or lowest/only available color)
0030-0033	different whites
0034	silver
0035	gray
0036	black
0037-0040	other blacks, occasionally brown
0061	lighter reds
0062	red
0063-0067	other reds, oranges, browns
0068	yellow
0069-006A	darker yellows, lighter greens
006B	light green
006C	green
006D	dark green (sometimes lighter)
006E	darker greens, turquoises
006F	light blue
0070	blue
0071-0073	dark blues or other blue shades
0074	lighter purples
0075-0078	purple
0079	gold or yellow
NOTE: Maximum value: 7F	

FOLDER: carparam
FILE: arcade_data.dat.gz, eng_arcade_data.dat.gz, usa_arcade_data.dat.gz

- Description:

A compressed file that contains all data pertaining to cars and race in Arcade Mode.

Use GT2DataSplitter to extract the content.

Contents (individual car parts not unique to arcade_data.dat will be developed more in the gtmode_data part):

ActiveStabilityControl	ASC Parts
Brake	Brake Parts
BrakeController	Brake Controller parts
CarArcadeDrift	Car setup using the Drift driving type: only change is using the “Sports tires” upgrade, which uses the Drift tire compound
CarArcadeRacing	Car setup using the Racing driving type: only change is using the “Stock tires” upgrade, which uses the Sports tire compound
Chassis	Chassis parts
Clutch	Clutch parts
Computer	ECU parts
Displacement	Displacement upgrade parts
Drivetrain	Drivetrain parts
EnemyCarsArcade	Opponent entries and their parts and settings
Engine	Engine parts
EngineBalance	Engine Balance parts
Event	All Arcade Mode events
Flywheel	Flywheel parts
Gear	Gearbox / Transmission parts
Intercooler	Intercooler parts
Lightweight	Weight Reduction parts
LSD	LSD parts
Muffler	Muffler parts
NATune	NA Tuning parts
PortPolish	Port Polishing parts
PropellerShaft	Propeller Shaft / Driveshaft parts
RacingModify	Car body parts
Steer	Steering type part
Strings	String text file (none in Arcade)
Suspension	Suspension parts
TireCompoundsArcade	All tire compounds used in Arcade Mode
TireForceVol	Surface grip levels file
TiresFront	Front tire parts
TireSize	Wheel dimension tables
TiresRear	Rear tire parts
TractionControlSystem	TCS parts
TurbineKit	Turbo Kit parts
Wheel	Rim dish depth files

Differences with gtmode_data :
- There are only parts and upgrades for the cars present in the C,B,A,S, Rally Classes.
- Event types are:

A0A	Arcade Easy A-class
A0B	Arcade Easy B-class
A0C	Arcade Easy C-class

A0S	Arcade Easy S-class
A1A	Arcade Medium A-class
A1B	Arcade Medium B-class
A1C	Arcade Medium C-class
A1S	Arcade Medium S-class
A2A	Arcade Hard A-class
A2B	Arcade Hard B-class
A2C	Arcade Hard C-class
A2S	Arcade Hard S-class
A2P	Arcade 2-Player
ADT	Rally
ATT	Time Trial

Differences between the difficulty modes:

	Acceleration Cap %	Leading Rubberband % power	Leading Rubberband Distance	Trailing Rubberband % power	Trailing Rubberband Distance
Easy	80	25	1034	10	2078
Medium	90	10	1556	10	1566
Hard	100	5	2610	5	1566

- Tire Compounds are:
Sports Front (identical to GT mode)
Sports Rear (identical to GT mode)
LowGripFront
LowGripRear
DirtFront (identical to GT mode)
DirtRear (identical to GT mode)
DriftFront
DriftRear
RWDDirtFront (identical to GT mode)
RWDDirtRear (identical to GT mode)

FILES: gtmode_data.dat.gz + jpn_unistrdb.dat.gz + gtmode_race.dat.gz (+ “eng_”, “fra_”, “ger_”, “ita_”, “spa_”, “usa_” variants for the different languages)

- Description:
Three files that house all the data pertaining to cars (parts, specs, upgrades etc), events (races), and some dynamic string names (like “Parts Installed” screen part names)

- How the view the content of these files:
In order to view their contents, the 3 files must be in the same folder, and need to be extracted using pez2k’s GT2DataSplitter.

THERE IS A LOT OF DATA, therefore individual file descriptions are located after “crstim.arc” below.

- How to Edit:

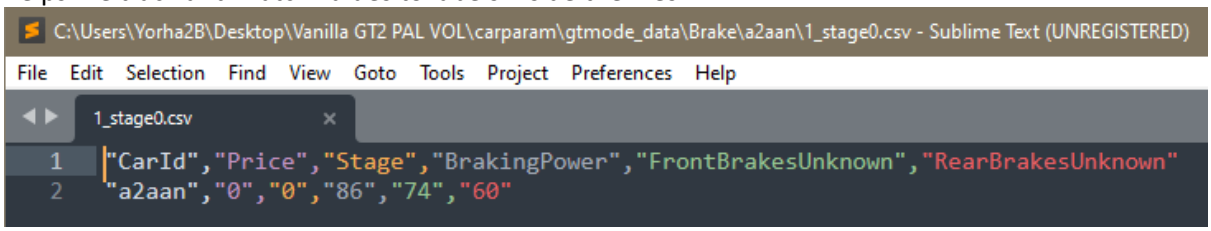
All mapped parts come as .CSV files that are editable with any text editor (DO NOT USE MS EXCEL, it breaks the formatting).
Inside, you'll find 2 lines of data, the first of which has labels (formatted as "label") separated by commas (,).
The second line has values matching the labels (formatted identically: "value") separated by commas (,) as well.

Once a file is edited and saved, use GT2DataSplitter to rebuild the carparam files. The edited files will appear in a newly created "OUTPUT" folder, so that the original files aren't lost in case something goes wrong.

- Notes:

- When rebuilding, i strongly suggest doing so through CMD rather than just double-clicking on GT2DataSplitter, because if (inevitably) an error comes up, DataSplitter will automatically close, while CMD will stay open so that you can see what and where it went wrong.

- Personally, I use Sublime Text to open and edit the files, with an extension called RainbowCSV that helps me track and match values to labels inside the files.



FILE: license_data.dat.gz

- Description:

A file that contains all the car data and event data for the license tests.
Contains: All car parts and structures needed to create the license cars used in the tests (separate from GT Mode car specs), event data for each license test.

- How to Edit: Same as for gtmode_data.dat.gz above.

- Notes: This gamemode's data is largely unknown to me, so there are still some unknowns that are specific to licenses.

FOLDER: carwheel

- Description:

A folder that houses all aftermarket wheel textures.

All textures are standard .tim format, 48x48px, with the first color of the CLUT used as rim dish color.

Note: The actual rim texture is 47x47px, aligned top left, as that allows the center of the wheel to be exactly one pixel.

FOLDER: crsmap

- Description:

A folder that houses all track minimaps. Each layout has a minimap, whether it's displayed or not by the game mode (see licenses).
The maps are compressed .gz standard 96x96px, 4bpp .tim images.
If a track has no minimap, the game will default to the first map in the folder (2p_autumn.tim.gz)

- How the view the content of these files:

XnView natively supports standard .tim files.
Using TimViewer v1.04b, use Open TIM on it.
Using Tim2View, Scan File.

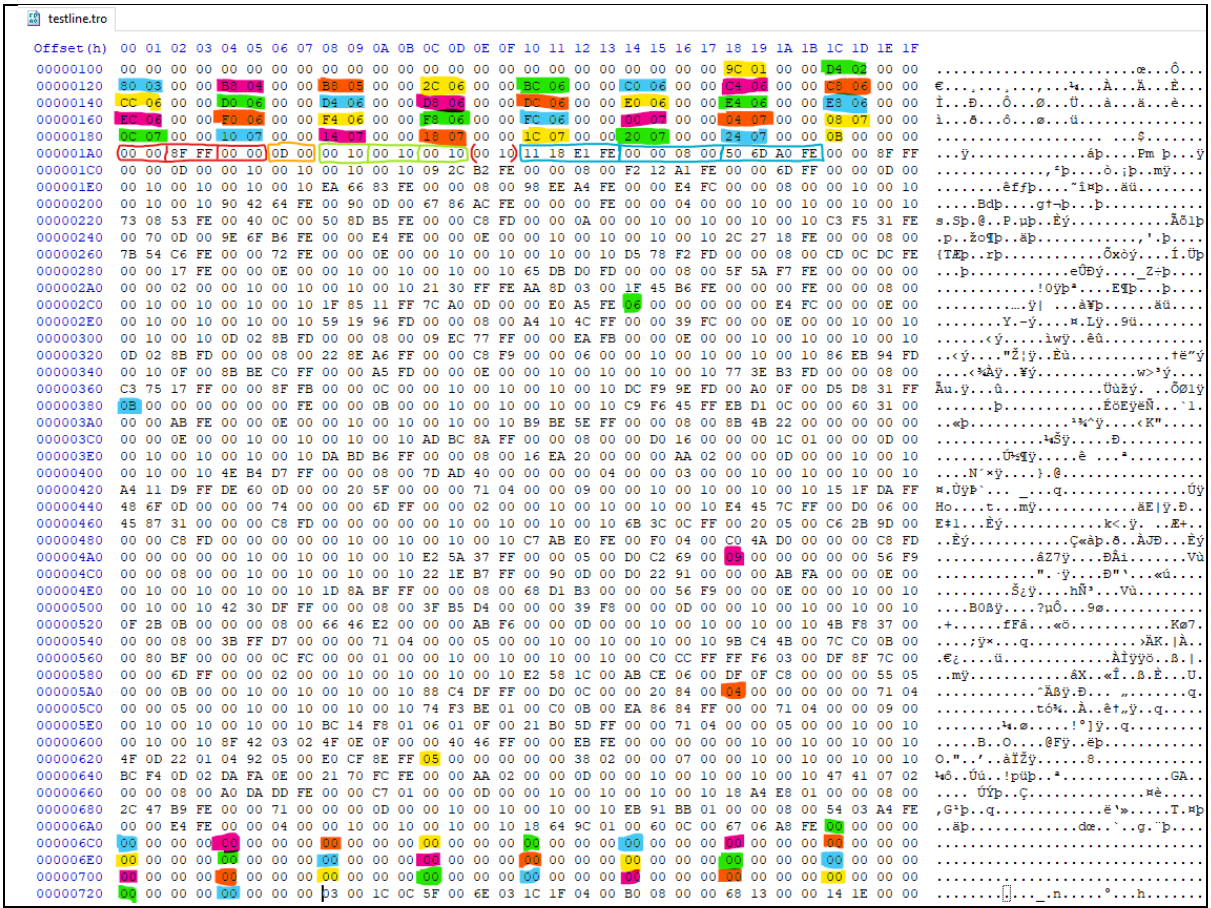
FOLDER: crsobj
FILE TYPE: .tro

- Description:

A container(?) format for all track object data: static meshes, dynamic/replicated meshes (like grand stands, signs, checkpoint banners…), driving lines (likely Bezier curves?), replay camera setups, spawn points, track LOD…

- My research:

(Copied from my discord post)



Track Research:

Testline (High Speed Ring):

0x019C	Number of DynObj until mid-turn1
0x02D4	Number of DynObj until end of turn 1
0x0380	Number of DynObj until turn 3 (middle of S)
0x04B8	Number of DynObj until tunnel start (turn 4)
0x05B8	Number of DynObj until middle of turn 5
0x062C	Number of DynObj until end of turn 5

Object 1 data (first grand stands T1):

0x01A0	2bytes Y rotation (pitch)
0x01A2	2bytes Z rotation (yaw)
0x01A4	2bytes X rotation (roll)
0x01A6	2bytes Object ID / type
0x01A8	2bytes Y scale (default 1000, horizontal)
0x01AA	2bytes Z scale (default 1000, vertical)
0x01AC	2bytes X scale (default 1000, horizontal)
0x01AE	2bytes unknown 0001-7FFF visible, 8000-0000 invis
0x01B0	4bytes Y position (horizontal)
0x01B4	4bytes Z position (vertical)
0x01B8	4bytes X position (horiontal)
Length : 28 bytes / 1C hex	

0x0728 - 0x072F data

0x072B number of path nodes / beziers

0x0730 unk 0x0734 4bytes pointer to mesh 1 start 0x08B0 mesh 1 start? 0x08C0 ?bytes affects ai pathing
i'm fairly sure the stuff before 0x100 in the .tro is offsets of the (potentially) different files within the tro container-maybe then at 0x114 start offsets to all the instanced objects (objects that are replicated multiple times in the environments) and then comes the position-scale-rotation etc data for all these objects 0x730 looks to me like offsets to potentially all the track chunks then some data, and you have (probably) the first vertex coordinates at 0x940, though i see some weird values where i'd expect the separators. 2bytes per coordinate, xyz after that is likely face data faces have vertex ID, 3 single-byte values for R, G, B multipliers to recolor the face, and some more data like palette (texture) index could also be something for the UV mapping, but i couldn't find evidence of that in memory
//
Here's what i have on the cheat engine side of things, which can help more: For this yellowed section (this is the entire chunk I've researched, just recolored yellow for visibility)


ePSXe - Enhanced PSX emulator
FPS 0050.0
Lap
1
Lap Time
1:46.962
Record
--:--:---
Best Lap
--:--:---
R
0
km/h

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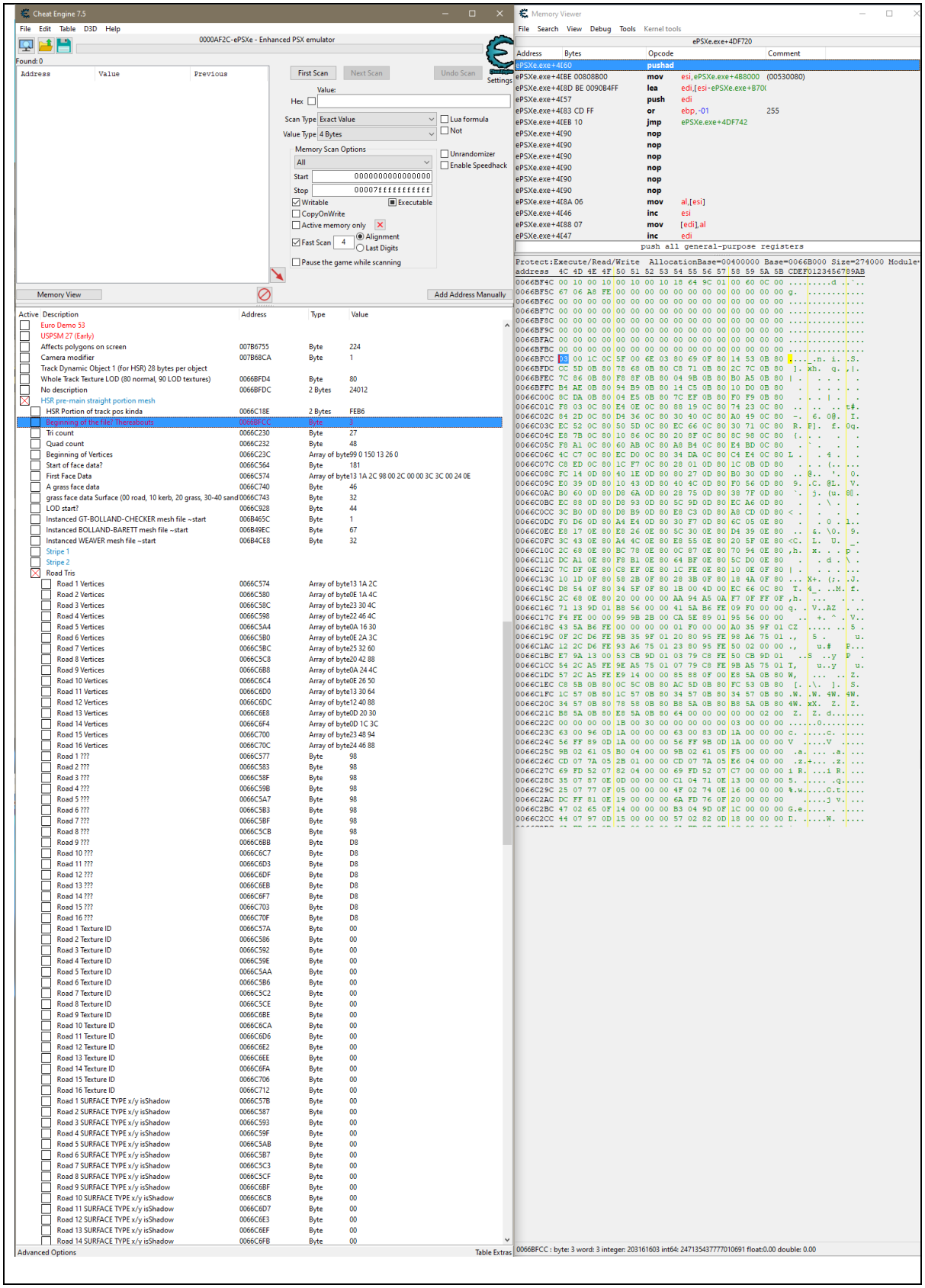
Cheat Engine 7.5
Memory Viewer
0000AF2C-ePSXe - Enhanced PSX emulator
ePSXe.exe+4DF720
push all general-purpose registers

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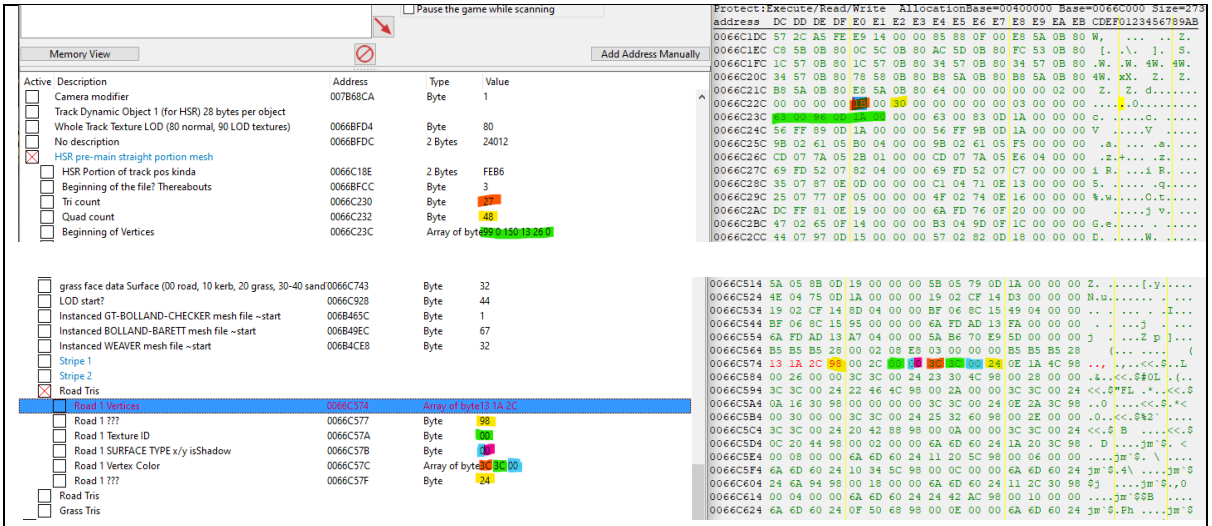
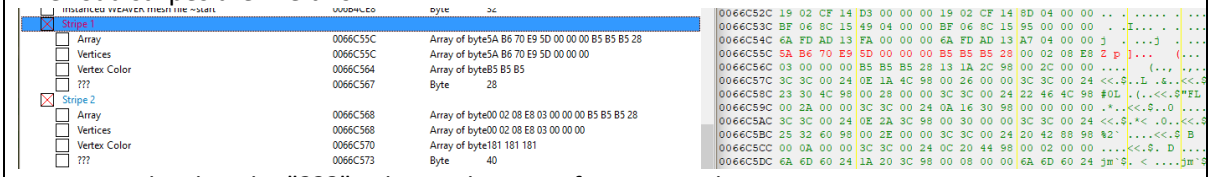
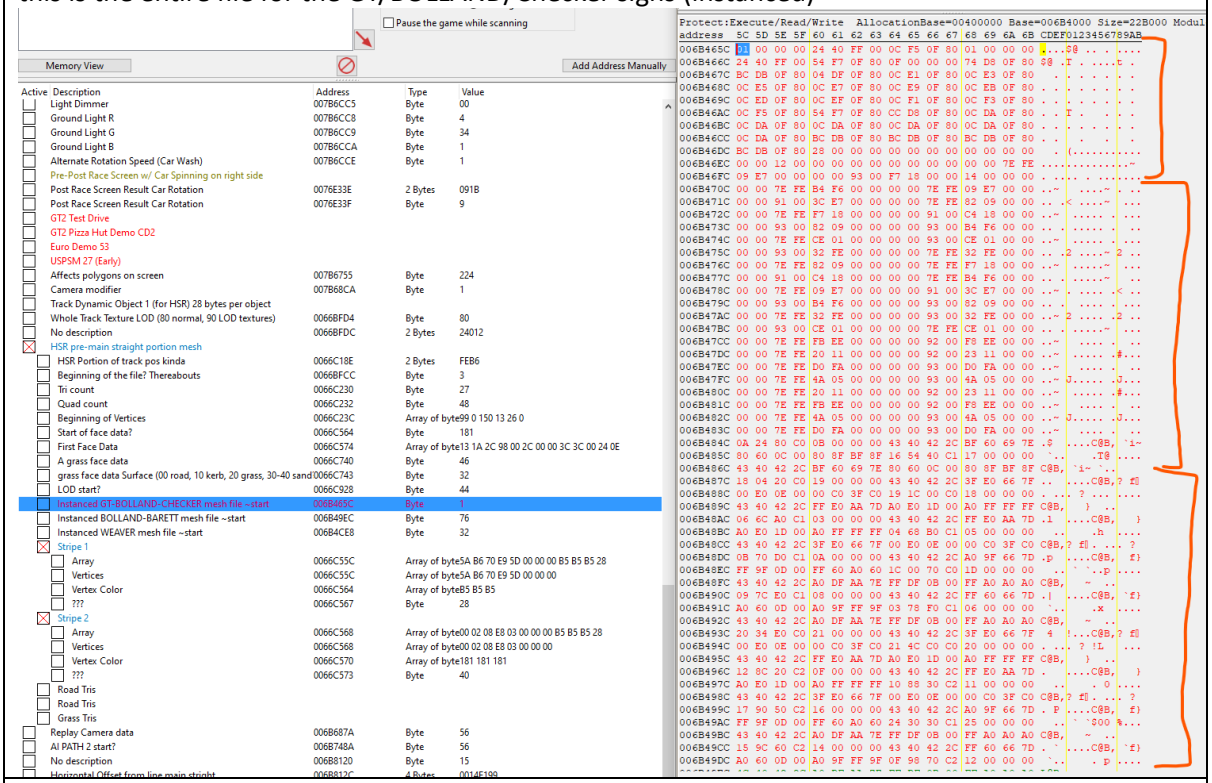


The road stripes are like this



it may just be that the "???" value in them is a face type value

this is the entire file for the GT/BOLLAND/Checker signs (instanced)



Seems to be cut into 3 "regions": some data, maybe offsets or something, memory offsets? then vertices, and then face data.

Things I've not been able to properly research because I don't know what to look for to recognize them is replay cameras data, driving paths (I'm fairly sure they're Bezier curves), triggers,

checkpoints, spawn points, pit stop points and whatever else there may be, and i assume that data comes after all the track chunks.

FILE TYPE: .trp

- Description:

A container file that houses all track textures, as standard .tim files.

- How to view the content of this file:

Using TimViewer 1.04b, do a “Scan RAW File” on it.
Using Tim2View, Scan File.

- How to edit:

See “arc_goodies_” , for standard .tim files, create your custom .tim image in the same dimensions as the target replacement, and simply navigate to your target’s hex offset and replace all the data pertaining to it with your custom file’s.

- Notes:

.trp files are the same format as .bsp files, the skybox texture files

---

FOLDER: dirt
FILE TYPE: .dgf (compressed to .gz but with the extension removed)

- Description:

Replay files to be used as opponents in the rally events in GT Mode.
Note: Playback must be played at the same FPS as the recording, or the opponent will desync.

- How to edit:

GT2 Custom Rally Opponent method 1: (example)
- ePSXe + Cheat Engine
- drive the SAME CAR as the opponent (custom settings need testing, can't use manual?)
- Load the race

- In the pre-race menu:
Freeze value, change existence of opponent from Ghost (02) to Player 1 (03)
Freeze value, change camera from Player (00) to opponent (01)
(Optional?) Freeze value, change existence of player 1 (03) to player 2 (04)

- Start Race
(You should now be driving the opponent car, which may(?) use both turbo and NA sounds overlapped for some reason)
- Complete the lap, the car should auto-brake when you cross the finish line, as usual. After which you can press X or O to exit the race into the replay
- Pause the replay

IN CHEAT ENGINE:
- Browse memory to the beginning of the replay data

REPLAY DATA STARTS AT [EPSXE.exe+38C6CC for PAL], 0x10 before the first letter of the event name (e.g: a full 16 bytes/10hex before DON0001)
Example:
00 00 01 01 00 02 00 01 02 01 0B 05 00 01 00 01
44 4F 4E 30 30 30 31 00 00 00 00 00 00 00 00 00
(^ this is DON0001)

- Copy from the beginning of the replay data until nothing is being written. The replay memory is quite large, so it'll be just a wall of 00 00 00 00 etc.

In your hex editor of choice (HxD; Notepad++ etc.):
- Paste the data as-is.
- Pad the file with Zeroes until 0x905B (memory allocation for replays? needs checking)

Alternatively, replace the data in an existing .dgf file (files in the "dirt" folder are extensionless .gz) with your replay data

Change the player car's: (the first car entry in the list of cars in the file)
- Existence [0xEA] from Player 2 (04) to Player 1 (03)
- Grid Spawn location [0xE9] from 00 to 01

Save file, GZip it, rename it to remove the extensions (".dgf.gz")
Place the GZipped file into the "dirt" folder, rebuild the game, test it.

FOLDER: engine
FILE TYPE: .es

- Description:

The car sound format. A container format that houses multiple SONY .vag format sound samples and various playback parameters.
Each car sound is divided into multiple .es files:

xxxxx.es	The “engine” or intake sound. Doesn’t change with upgrades.
xxxxx_n0.es	Stage 0 (Stock) muffler/exhaust sound for Naturally Aspirated (non-turbo) cars.
xxxxx_n1.es	Stage 1 (Sport) muffler/exhaust sound for NA cars.
xxxxx_n2.es	Stage 2 (Semi-Race) muffler/exhaust sound for NA cars.
xxxxx_n3.es	Stage 3 (Race) muffler/exhaust sound for NA cars.
xxxxx_t0.es	Stage 0 (Stock) muffler/exhaust sound for Turbo cars.
xxxxx_t1.es	Stage 1 (Sport) muffler/exhaust sound for Turbo cars.
xxxxx_t2.es	Stage 2 (Semi-Race) muffler/exhaust sound for Turbo cars.
xxxxx_t3.es	Stage 3 (Race) muffler/exhaust sound for Turbo cars.

Equipping a Turbo onto a NA car will make the game pick the corresponding sounds for it.

Note: GT2 supports up to 3399 .ES files.
For a list of file associations, click here and navigate to the “GT2 Soundbank List” tab at the bottom of the screen.

- File layout:

0x00	ENGN header

0x08	Size of the header area
0x10	Total file size – header area
0x14	Size of the header area 2 (?)
0x18	Number of samples in the file
0x1C	Offset to Sample Parameters
0x20-2F	???
Sample Parameters (16 bytes per sample):	
0x30	Fade-In RPM
0x32	RPM Pitch
0x34	RPM Fade-Out
0x36	Sample Volume
0x38	Sample Rate (Frequency in Hz/10: 22050hz -> 2205)
0x3C	Sample offset in file – header
0x40	*Fade-in RPM (start of sample 2 params)*

Each sample starts with 16 zero bytes that serve as separators.

- How to edit:

Use TheAdmiester's Gran Turismo ENGN Editor
For a tutorial (by Xenn) on how to create .VAG sound samples, click here. The process is still valid up until the creation of the .es file, that the GT ENGN Editor took over.

- Notes:

FOLDER: font
FILE TYPE: racefont.dat

- Description:

A headerless (standard .tim?) 512x256px 4bpp image with 3 CLUTs. The image contains a font in 3 sizes.
The CLUTs start at 0x00.

FOLDER: gtmenu\
FILE: commonpic.dat

- Description:

A container file that contains every background layer GT Mode menu screen images. Those screens are shared across all languages.

Each screen is a 512x504px 8bit (256 colors) .bmp image.
The format is highly optimized, in that each screen is cut into 16x8 px tiles.
Each tile containing only a single color is turned into an RGB, graphics-less tile, while each tile that has more than 1 color gets turned into a 4bpp, 16-color sprite.
Each screen can have up to 16 (to be confirmed) 16-color CLUTs to choose from to color every tile that makes up the image.

- How to edit:

Use GMCreator by adeyblue to unpack, edit and repack menu screens.

FILE: commonpic.idx

- Description:

A list of offsets to every file within commonpic.dat

FOLDER: gtmenu\eng\, gtmenu\fra\, gtmenu\ger\, gtmenu\ita\, gtmenu\spa\
FILE: gtmenudat.dat

- Description:

A container file that contains every foreground layer GT Mode menu screen images. Each localization has its own set of files.

Each screen is a 512x504px 8bit (256 colors) .bmp image.
The format is highly optimized, in that each screen is cut into 16x8 px tiles.
Each tile containing only a single color is turned into an RGB, graphics-less tile, while each tile that has more than 1 color gets turned into a 4bpp, 16-color sprite.
Each screen can have up to 16 (to be confirmed) 16-color CLUTs to choose from to color every tile that makes up the image.

- How to edit:

Use GMCreator by adeyblue to unpack, edit and repack menu screens.

FILE: gtmenudat.idx

- Description:

A list of offsets to every file within gtmenudat.dat

FILE: iconimg.dat.gz

- Description:

A compressed .gz, headerless, non-standard 256x256px .tim image with 20 CLUTs. This image contains various GT Menu hud icons, such as the shortcuts to Home, Status, Map, Go Race, “Line Up” pages, the BUY button and the D. (day) icons.
The non-standard bit comes from PD moving the CLUT data after the graphics instead of before them.
Graphics data starts at 0x00, CLUTs start at 0x7D80 (20 CLUTs)
Note: In a standard .tim image, the CLUT data would start at 0x14, and the graphics data would start after every CLUT is defined.

- How to edit:

See “arc_goodies_” , the same processes apply to this file.

FILE: solodata.dat.gz

- Description:

A compressed file that has data pertaining to menu screens.

FOLDER: license
FILE TYPE: .lgf.gz

- Description:

A compressed .gz file pertaining to license tests. Likely the demo runs for each license test, for each region.

- How to edit:

Probably similar to editing Rally opponents. Testing needed.

FOLDER: replay
FILE: scea.000, scea.999, scee.000, scee.999, scei.000, scei.999

- Description:

Empty files, unknown uses, but most likely related to replay.

FOLDER: sound
FILE: arcade.ins

- Description:

A container file that has sound effects used throughout the game.
The sounds are likely .vag format, just like car engine sound samples.
This could be a GT1 leftover.

PSound is able to read 19 files (there could be more):

00	Some sort of hit sound
01	A different hit sound
02	An other hit sound?
03	A big crash sound
04	A blow off valve
05	An other blowoff sound with a car revving up in the background
06	A car reversing
07	A turbo “whooshing”?
08	The tire screeching loop
09	Tires rolling in the rain?

10	Tires rolling
11	Turbo whooshing
12	Other Turbo whooshing
13	Pneumatic wheel gun
14	An other pneumatic gun
15	Blowoff valve? Or maybe tire blowout
16	Blowoff valve
17	A very short sound, hard to tell what it is
18	GT1 cash machine sound

- How to edit:

TBD

FILE: arcade.seq

- Description:

A sequenced music file, essentially a music sheet, likely derived from the MIDI type of music.
This would be the arcade mode menu song.

FILE: arcseq.ins

- Description:

A container file that has instrument sound samples used for arcade.seq. Essentially acts the same as a Midi soundfont.
The sounds are likely .vag format, just like car engine sound samples.

PSound is able to read 40 files (there could be more)

- How to edit:

TBD

FILE: gtmseq.ins

- Description:

A container file that has instrument sound samples used for all spu_XX.seq files. Essentially acts the same as a Midi soundfont.
The sounds are likely .vag format, just like car engine sound samples.

PSound is able to read 107 files (there could be more)

- How to edit:

TBD

FILE: se01.ins

- Description:

A container file that has sound effects used in races.
The sounds are likely .vag format, just like car engine sound samples.

PSound is able to read 15 files (there could be more):

00	3,2,1 horn sfx
01	START sfx
02	Some sort of sliding sound (unused?)
03	Hit sound
04	An other hit sound (unused?)
05	A strong hit sound (unused?)
06	A backfire sound (unused)
07	Blowoff valve
08	Tire screech
09	Dirt rolling tires?
10	Turbo whooshing (unused?)
11	An other dirt rolling tires?
12	Rumble rolling tires
13	An other dirt rolling tires?
14	Turbo whooshing

- How to edit:

TBD

FILE: spu_XX.seq

- Description:

A sequenced music file, essentially a music sheet, likely derived from the MIDI type of music.

spu_02.seq	Car Wash
spu_03.seq	East City
spu_04.seq	North City
spu_05.seq	South City
spu_06.seq	West City
spu_07.seq	GT Foundation
spu_08.seq	My Home
spu_09.seq	Map / Main menu
spu_10.seq	License

- Notes:

GT1 uses the same format for its menu music, and the western releases (PAL and NTSC-U) songs can be imported and used in GT2, provided you copy and replace the .ins as well, and rename the desired GT1 menu .seq song to the desired GT2 spu_XX.seq replacement.
You cannot add songs to the game, and the NTSC-J OST will crash GT2 because the .ins file is bigger than the GT2 one. I assume it's because the memory allocation for gtmseq.ins is quite strict.

FILE: sys.ins

- Description:

A container file that has sound effects used in menus.
The sounds are likely .vag format, just like car engine sound samples.

PSound is able to read 8 files (there could be more):

00	Arcade track selection left/right
01	Up/down selection (garage, arcade menus)
02	Denied/Forbidden/negative
03	Main menu/mode enter
04	GT Mode select
05	Settings/selection left/right ?
06	Main menu/mode exit
07	Car settings/scrolling setting click

FOLDER: root of GT2.VOL
FILE: .carcolor

- Description:

A file that has data pertaining to car colors, editable in conjunction with the .carinfo and ccjapanese/latain files using GT2CarInfoEditorCSV by pez2k

- How to edit:

See .ccjapanese, .cclatain section

FOLDER: root of GT2.VOL
FILE: .carinfoa, .carinfoe, .carinfoj

- Description:

A file that has data pertaining to car names, editable in conjunction with the .carcolor and ccjapanese/latain files using GT2CarInfoEditorCSV by pez2k

- How to edit:

See .ccjapanese, .cclatain section

FOLDER: root of GT2.VOL
FILE: .ccjapanese, .cclatain

- Description:

A file that has data pertaining to car colors names, editable in conjunction with the .carcolor and carinfo files using GT2CarInfoEditorCSV by pez2k

- How to edit:

Place .carcolor, .carinfoa, .carinfoe, .carinfoj, .ccjapanese and .cclatain in the same folder and GT2CarInfoEditorCSV.exe and drag one of them onto the tool to extract the data.
2 .csv files will be created, Cars.CSV and Colours.CSV.

- Cars.CSV has every car body replay names, and some flags to prevent the car from showing up in some regions (used on Honda/Acura variants, Opel/Vauxhall, and unused cars):

CarName : the car body's file name (Example: a2bgn)
JPName : the car body's name in the Japanese language (Example: MAZDA BG FAMILIA GT-R '92)
USName : the car body's name in the US English language (Example: Mazda Protegé GT-R '92)
EUName : the car body's name in the PAL-EFIGS languages (Example: Mazda 323 GT-R(J) '92)
BlockedInJapan : prevents the game from showing that car in the UCD and in races on NTSC-J versions (Used on Vauxhall and Acura cars).
BlockedInUSA : prevents the game from showing that car in the UCD and in races on NTSC-U versions (Used on specific Honda models and Vauxhall cars)
BlockedInPALFIGS : prevents the game from showing that car in the UCD and in races on PAL French, Italian, German and Spanish languages specifically (Used on Vauxhall and Acura cars).
BlockedInPALEnglish : prevents the game from showing that car in the UCD and in races on PAL English specifically (Used on Opel and Acura cars).

- Colours.CSV has every car body's paint chip color, ID, and names in both Latin and Japanese languages

CarName : the car body's file name (Example: a2bgn)
HexColour : the paint's chip color in Hexadecimal format (Example: #B8B8B8)
PaletteID : the paint's ID in hexadecimal format. Needs to match what's inside the .CDP file for that car for it to properly be picked up by the game (Example: 31)
JapaneseName : the paint's name as displayed in the Japanese language (Example: クリアホワイト)
LatinName : the paint's name as displayed in all other languages (Example: Clear White)

- Notes:

- Standard and Racing Modified car bodies have their own replay names.
- Every car body's color must be listed in order to be properly bought in-game, otherwise, the game will default to the first color/first valid ID when bought. Not all paints need to have names, and can be left blank
- PD's typical color ID "convention" (in HEX. For numbering your paints, you don't have to follow it):

0000	white (or lowest/only available color)
0030-0033	different whites
0034	silver
0035	gray
0036	black
0037-0040	other blacks, occasionally brown
0061	lighter reds
0062	red
0063-0067	other reds, oranges, browns
0068	yellow
0069-006A	darker yellows, lighter greens
006B	light green

006C	green
006D	dark green (sometimes lighter)
006E	darker greens, turquoises
006F	light blue
0070	blue
0071-0073	dark blues or other blue shades
0074	lighter purples
0075-0078	purple
0079	gold or yellow
NOTE: Maximum value: 7F	

FOLDER: root of GT2.VOL
FILE: .crsinfo

- Description:

A file that has a bunch of data for every track in the game.

- Contents:

DisplayName	The track's display name (Example : Grand Valley Speedway)
Filename	The track's file name (Example : circuit)
IsNight	A flag that tells the game this is a night track, and to load the night car models and reflection map
IsEvening	A flag that tells the game this is an evening track, and to load the dusk reflection map
IsDirt	A flag that tells the game this is a dirt track
Is2Player	A flag that tells the game this is a 2-player version of a track
IsReverse	A flag that tells the game this is a reverse layout of a track
IsPointToPoint	A flag that tells the game this is a point to point track (Only used on Pike's Peak layouts)
Flag7	A flag that disables the dynamic track billboard pooling (used on GT1-based tracks as they were not created with that feature in mind)
Skybox	File name for which skybox to be loaded for that track
LightingArea1Colour	The tint in hexadecimal format to be used for the 1st alternate lighting level used on the track (e.g. light shadow areas)
LightingArea1ColourMultiplier	The strength of that tint's mixing, higher = stronger. Combined with a black tint, this darkens the car.
LightingArea2Colour	The tint in hexadecimal format to be used for the 1st alternate lighting level used on the track (e.g. light shadow areas)
LightingArea2ColourMultiplier	The strength of that tint's mixing, higher = stronger. Combined with a black tint, this darkens the car.
LightingArea3Colour	The tint in hexadecimal format to be used for the 1st alternate lighting level used on the track (e.g. light shadow areas)
LightingArea3ColourMultiplier	The strength of that tint's mixing, higher = stronger. Combined with a black tint, this darkens the car.

- How to edit:

Use GT2CourseInfoEditor by pez2k to extract its content into an editable .CSV file.

- Notes:

- Night and Evening flags can be combined to have night car models with evening reflection map
- Skyboxes have varying amounts of textures inside them and can cause graphical issues throughout the track by overwriting graphics in VRAM when loaded
- LightingArea Colour and Multipliers can easily break car transparency

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FOLDER: root of GT2.VOL
FILE: .crstims.tsd.gz

- Description:

A compressed .gz container file that contains all of the billboards the game can pick for dynamic track billboards, in standard .tim format.
The file contains a few tables with data relating to which logo can be loaded for it, and probably some more data. Those tables get called by each race event, to display specific logos on the tracks.
Tables are: General01, General02, One-Make, JP, US, UK, DE, FR, IT, TUNE.
First texture starts at 0xEC0

- How to view the contents of this file:

Using TimViewer 1.04b, do a “Scan RAW File” on it.
Using Tim2View, Scan File.

- How to edit:

Provided you’re replacing an existing logo of the same dimensions, copy the entire HEX data of your custom .tim image and replace the data of the logo you’re changing.

FOLDER: root of GT2.VOL
FILE: .usedcar, .usedcar_jpn, .usedcar_usa

- Description:

A file that has all the Used Car Dealership (UCD) rotations for all 60 weeks of used car selections in the game, the suffix corresponds to the game’s region.

- How to edit:

Use pez2k’s GT2UsedCarEditor to convert a .usedcar file into editable .CSV files.
The output is as such:
Folder: usedcar\Week#\Brand.CSV

Each CSV contains the list of cars to be loaded in that dealership’s UCD for that week:
Car: the car’s file name
Price: the car’s asking price
Colour: the car’s color

- Notes:

- BlockedIn_ flags will prevent cars from being displayed in the UCD listings for the intended region.
- Dealerships that don’t have UCD lists in vanilla cannot have UCD lists created for them.
- As with most things in GT2, there is a limit on how many total cars can be loaded per week across all dealerships. I counted 364 cars before the game showed signs of breaking.

- The maximum value for the price is 16,777,215 credits.

FOLDER: root of GT2.VOL
FILE: .crstim.arc

- Description:

A container file that has 6 standard .tim images.
Light Flare sprite
Dust sprite
Smoke sprite
Day reflection map
Dusk reflection map
Night reflection map

- How to view the contents of this file:

Using TimViewer 1.04b, do a “Scan RAW File” on it.
Using Tim2View, Scan File. (Doesn’t see the Light Flare sprite for some reason)

- How to edit:

Provided you’re replacing an existing image of the same dimensions, copy the entire HEX data of your custom .tim image and replace the data of the image you’re changing.

CARPARAM FILES DATABASE

CAR RELATED PARTS

ActiveStabilityControl	
Params for the ASC part upgrade. Note: - It’s a “global” upgrade, as hinted by the “car ID” being “00000”, therefore not being attached to any specific car. - This file hasn’t been mapped yet	
00000.dat	Road car default upgrade (non-upgraded part)
00010.dat	Race car default upgrade (non-upgraded part)
00020.dat	Stage 1 upgrade (upgraded part)
LABEL	“GT6Equivalent” Description
0x04	4-bytes, part price
0x08	Stage number (0 for stock, 1 for stage 1)
0x09	Some multiplier
0x0A	Some multiplier
0x0B	Some multiplier
0x0C	?
0x0D	Some multiplier
0x0E	?
0x0F	?

Brake	
Params for the Sports Brake upgrade Brake\<carID>\<stage>.csv	
LABEL	“GT6Equivalent” Description
CarID	Car ID this part is assigned to (ex: “a-emn”)
Price	Price of the part in CR. (ex: “10000” is 10000cr.)
Stage	Upgrade stage value (0 for stock, 1 for stage 1, 2 for stage 2…)
BrakingPower	“BraketorqueF”
FrontBrakesUnknown	“BraketorqueR”
RearBrakesUnknown	“Sidebraketorque”

BrakeController	
Params for the Brake Controller upgrade BrakeController\<carID>\0_stage1.csv Note: Cars that come without a Brake Controller will use \00000\0_stage0, while cars that have one pre-installed will use \00000\1_stage1 (mostly race cars)	
LABEL	“GT6Equivalent” Description
CarID	Car ID this part is assigned to (ex: “a-emn”)
Price	Price of the part in CR. (ex: “10000” is 10000cr.)
Stage	Upgrade stage value (0 for stock, 1 for stage 1, 2 for stage 2…)
MaxFrontBias	“ABSLevelF”
Unknown	"ABSMinF" (Minimum range*10 player selected level, in-game 1 = 10)
Unknown2	"ABSMaxF" (Max range*10 player selected level, in-game 24 = 240)
DefaultBias	Default Level (applies to both front and rear)
MaxRearBias	“ABSLevelR”
Unknown3	"ABSMinR" (Minimum range*10 player selected level, in-game 1 = 10)
Unknown4	"ABSMaxR" (Max range*10 player selected level, in-game 24 = 240)

Car	
The fundamental file to create a car. Brings it all together. Lists all default parts that should be installed on the car. Car\<carID>.csv	
LABEL	“GT6Equivalent” Description
CarID	Car ID this part is assigned to (ex: “a-emn”)
Brake	Brake\<carID>\<stage0>.csv
BrakeController	BrakeController\<carID>\<stage0>.csv
Steer	Steer\00000.csv
Chassis	Chassis\<carID>.csv
Lightweight	Lightweight\00000\0_stage0.csv
RacingModify	RacingModify\<carID>\<stage0>.csv
Engine	Engine\<carID>.csv
PortPolish	PortPolish\00000\0_stage0.csv
EngineBalance	EngineBalance\00000\0_stage0.csv
Displacement	Displacement\00000\0_stage0.csv
Computer	Computer\00000\0_stage0.csv
NATune	NATune\00000\0_stage0.csv
TurbineKit	TurbineKit\<carID>\<stage0>.csv OR TurbineKit\00000\0_stage0.csv
Drivetrain	Drivetrain\<carID>.csv
Flywheel	Flywheel\00000\0_stage0.csv
Clutch	Clutch\<carID\<stage0>.csv

PropellerShaft	PropellerShaft\00000\0_stage0.csv
LSD	LSD\<carID>\<stage0>.csv
Gear	Gear\<carID>\<stage0>.csv
Suspension	Suspension\<carID>\<stage0>.csv
Intercooler	Intercooler\00000\0_stage0.csv
Muffler	Muffler\00000\0_stage0.csv
TiresFront	TiresFront\<carID>\<stage0>.csv
TiresRear	TiresRear\<carID>\<stage0>.csv
ActiveStabilityControl	ActiveStabilityControl\00000\00000.dat
TractionControlSystem	TractionControlSystem\00000\00000.dat
RimsCode3	"Wheel" Part ID (for default wheel dish offset / default aftermarket rim)
ManufacturerID	The manufacturer's ID to be used to block tuning from the wrong brands
HasAlltiresBought	Flag used mostly on race cars that automatically unlocks all tire types, bypassing the need to buy them
Unknown	Padding
Price	The car's value (ex: 10000 = 10000cr)

Chassis	
Params for the car's chassis part Chassis\<carID>.csv	
LABEL	"GT6Equivalent" Description
CarID	Car ID this part is assigned to (ex: "a-emn")
FrontWeightDistribution	"percentageF" % of the car's weight going to the front axle (ex: 44 = 44% front, therefore a 44front 56rear ratio)
Unknown2	? (set to 1 on race cars, some flag? unrelated toi even synth)
FrontGrip	"performanceF" base grip multiplier of the front wheels
RearGrip	"performanceR" base grip multiplier of the rear wheels
Length	"dlength" Displayed car length stat in the car info screen
Height	"dheight" Displayed car height stat in the car info screen
Wheelbase	"wheelbase" (not displayed in the car stats, unused?)
Weight	"mass" The car's base weight in KG
TurningResistance	"yaw" (rotation on the Vertical axis, left-right)
PitchResistance	Rotation on the lateral axis, forward-back
RollResistance	Rotation on the longitudinal axis, clockwise-anticlockwise
Unknown8	? (a few values, some are unique to specific types of cars) - 46 All RUF models - 48 Lotus Elise GT1 only (iolln) - 50 DTM only (bvcdr, gmd2r, gocdr, ia5dr) - 52 Honda NSX JGTC + DelSol LM only (h-err, h2cnr, h2n1r, h2ncr, h2nrr,h2ntr) - 56 Default / General - 60 Some muscle cars only (dcc1n, dcchn, ulcun, ulgxn, ulrrn, ulsbn, us35n, us36n, us50n, us51n)

Clutch	
Params for the clutch part Clutch\<carID>\<stage>.csv	
LABEL	"GT6Equivalent" Description
CarID	Car ID this part is assigned to (ex: "a-emn")
Price	Price of the part in CR. (ex: "10000" is 10000cr.)

Stage	Upgrade stage value (0 for stock, 1 for stage 1, 2 for stage 2…)
RPMDropRate	"enginebrake" (higher = stronger) How strong the engine braking is on the car
InertiaDisengaged	"iflywheel" (lower = faster) How light the flywheel is
InertiaEngaged	"iwheelF"
InertialWeight	"iwheelR"
InertiaBraking	"stclutchtq"
Unknown1	Padding? (always 0)
Unknown2	Padding? (always 0)

Computer	
Params for the ROM/ECU part Default part is \00000\0_stage0.csv Computer\<carID>\0_stage1.csv	
LABEL	"GT6Equivalent" Description
CarID	Car ID this part is assigned to (ex: "a-emn")
Price	Price of the part in CR. (ex: "10000" is 10000cr.)
Stage	Upgrade stage value (0 for stock, 1 for stage 1, 2 for stage 2…)
PowerBandScaling	RPM/100 (1=100rpm), moves the power band by the amount set here (1 = 100rpm). Can be negative
RPMIncrease	RPM/100 (1=100rpm), moves the redline by the set amount. Can be negative
PowerMultiplier	% multiplier applied to the entire powerband. Base 0. (1 = 1.01x power)

Displacement	
Params for the Displacement Increase part Default part is \00000\0_stage0.csv Identical structure and effects to the Computer part	
LABEL	"GT6Equivalent" Description
CarID	Car ID this part is assigned to (ex: "a-emn")
Price	Price of the part in CR. (ex: "10000" is 10000cr.)
Stage	Upgrade stage value (0 for stock, 1 for stage 1, 2 for stage 2…)
PowerBandScaling	RPM/100 (1=100rpm), moves the power band by the amount set here (1 = 100rpm). Can be negative
RPMIncrease	RPM/100 (1=100rpm), moves the redline by the set amount. Can be negative
PowerMultiplier	% multiplier applied to the entire powerband. Base 0. (1 = 1.01x power)

Drivetrain	
Params for the Drivetrain part Drivetrain\<carID>.csv	
LABEL	"GT6Equivalent" Description
CarID	Car ID this part is assigned to (ex: "a-emn")
Unknown	padding?
Unknown2	"param4WDMIN" (Min range for VCD setting)
Unknown3	"param4WDMAX" (Max range for VCD setting)
Unknown4	"param4WDDF" (Default value for VCD setting, front% torque split)
DrivetrainType	FR, 4WD, FF, MR, RR
AWDBehaviour	"type4WD" - 0: Kei cars "FWD" 4WD (4WD with FWD behaviour and extra grippy handbrake: Minica pj, Daihatsu cars, Vivio...)

	- 1: Standard 4WD behaviour (Familia BG, Calibra DTM, S4, Evo 5 WRC...) - 2: SUBARU Impreza models (AWD?) - 3: ATTESA (Skyline GTR, Stagea...) - 254: Anything else FF, MR, RR, FR
DefaultClutchRPMDropRate	"enginebrake" (no unit match)
DefaultClutchInertiaEngaged	"iwheelF" (no unit match)
DefaultClutchInertialWeight	"iwheelR" (no unit match)
DefaultClutchInertiaDisengaged	"iflywheel" (no unit match)
FrontDriveInertia	
RearDriveInertia	

Engine	
Params for the car engines.	
LABEL	"GT6Equivalent" Description
CarID	Car ID this part is assigned to (ex: "a-emn")
LayoutName	I6, Rotary2, Boxer4…
ValvetrainName	DOHC, OHV, SOHC…
Aspiration	NA, TURBO…
SoundFile	ID of the "engine" .es sound file to use (example: 21204)
TorqueCurve1	Kgm*100 value for the first torque point (2170= 21.70kgm)
TorqueCurve2	Kgm*100 value for the 2nd torque point (2586= 25.86kgm)
TorqueCurve3	Kgm*100 value for the 3rd torque point (3258= 32.58kgm)
TorqueCurve4	Kgm*100 value for the 4th torque point (3600= 36.00kgm)
TorqueCurve5	Kgm*100 value for the 5th torque point (3700= 37.00kgm)
TorqueCurve6	Kgm*100 value for the 6th torque point (3666= 36.66kgm)
TorqueCurve7	Kgm*100 value for the 7th torque point (3626= 36.26kgm)
TorqueCurve8	Kgm*100 value for the 8th torque point (3563= 35.63kgm)
TorqueCurve9	Kgm*100 value for the 9th torque point (3508= 35.08kgm)
TorqueCurve10	Kgm*100 value for the 10th torque point (3425= 34.25kgm)
TorqueCurve11	Kgm*100 value for the 11th torque point (3348= 33.48kgm)
TorqueCurve12	Kgm*100 value for the 12th torque point (3085= 30.85kgm)
TorqueCurve13	Kgm*100 value for the 13th torque point (2745= 27.45kgm)
TorqueCurve14	Kgm*100 value for the 14th torque point (2281= 22.81kgm)
TorqueCurve15	Kgm*100 value for the 15th torque point (1500= 15.00kgm)
TorqueCurve16	Kgm*100 value for the 16th torque point (1000 = 10.00kgm)
Displacement	The engine's displacement in CC / cm3
DisplayedPower	Dealership displayed power in PS (ex: "280" ps)
MaxPowerRPM	Dealership displayed RPM/10 value for the peak power (ex: "600" = @6000pm)
DisplayedTorque	Dealership displayed torque in KGM*10 (ex: "370" = 37.0 KGM)
MaxTorqueRPMName	Dealership displayed peak torque rpm value (ex: "3200rpm")
PowerMultiplier	% multiplier applied to the entire powerband. Base 100. (107 = 1.07x power, or a 7% increase)
ClutchReleaseRPM	RPM/10 at which the game engages the gear (ex: "250" = 2500rpm)
IdleRPM	RPM/10 value for idling (ex: "60" = 600rpm)
MaxRPM	RPM/100 value for the maximum engine RPM (ex: "75" = 7500rpm)
RedlineRPM	RPM/100 value for the redline engine RPM (ex: "70" = 7000rpm)
TorqueCurveRPM1	RPM/100 value for the first torque curve point (ex: "10" = 1000rpm)

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TorqueCurveRPM2	RPM/100 value for the first torque curve point (ex: “15” = 1500rpm)
TorqueCurveRPM3	RPM/100 value for the first torque curve point (ex: “20” = 2000rpm)
TorqueCurveRPM4	RPM/100 value for the first torque curve point (ex: “25” = 2500rpm)
TorqueCurveRPM5	RPM/100 value for the first torque curve point (ex: “30” = 3000rpm)
TorqueCurveRPM6	RPM/100 value for the first torque curve point (ex: “35” = 3500rpm)
TorqueCurveRPM7	RPM/100 value for the first torque curve point (ex: “40” = 4000rpm)
TorqueCurveRPM8	RPM/100 value for the first torque curve point (ex: “45” = 4500rpm)
TorqueCurveRPM9	RPM/100 value for the first torque curve point (ex: “50” = 5000rpm)
TorqueCurveRPM10	RPM/100 value for the first torque curve point (ex: “55” = 5500rpm)
TorqueCurveRPM11	RPM/100 value for the first torque curve point (ex: “60” = 6000rpm)
TorqueCurveRPM12	RPM/100 value for the first torque curve point (ex: “65” = 6500rpm)
TorqueCurveRPM13	RPM/100 value for the first torque curve point (ex: “70” = 7000rpm)
TorqueCurveRPM14	RPM/100 value for the first torque curve point (ex: “75” = 7500rpm)
TorqueCurveRPM15	RPM/100 value for the first torque curve point (ex: “80” = 8000rpm)
TorqueCurveRPM16	RPM/100 value for the first torque curve point (ex: “85” = 8500rpm)
TorqueCurvePoints	How many points the torque curve uses

EngineBalance	
Params for the Engine Balance part Default part is \00000\0_stage0.csv Identical structure and effects to the Computer part	
LABEL	“GT6Equivalent” Description
CarID	Car ID this part is assigned to (ex: “a-emn”)
Price	Price of the part in CR. (ex: “10000” is 10000cr.)
Stage	Upgrade stage value (0 for stock, 1 for stage 1, 2 for stage 2…)
PowerBandScaling	RPM/100 (1=100rpm), moves the power band by the amount set here (1 = 100rpm). Can be negative
RPMIncrease	RPM/100 (1=100rpm), moves the redline by the set amount. Can be negative
PowerMultiplier	% multiplier applied to the entire powerband. Base 0. (1 = 1.01x power)

Flywheel	
Params for the Flywheel upgrade parts Default part is \00000\0_stage0.csv Flywheel\<carID>\<stage>.csv	
LABEL	“GT6Equivalent” Description
CarID	Car ID this part is assigned to (ex: “a-emn”)
Price	Price of the part in CR. (ex: “10000” is 10000cr.)
Stage	Upgrade stage value (0 for stock, 1 for stage 1, 2 for stage 2…)
RPMDropRate	"enginebrake" (higher = stronger)
ShiftDelay	"iflywheel"? (lower = faster)
InertialWeight	"iwheelF"/"iwheelR"

Gear	
Params for the Gear (transmission) parts	
LABEL	“GT6Equivalent” Description
CarID	Car ID this part is assigned to (ex: “a-emn”)
Price	Price of the part in CR. (ex: “10000” is 10000cr.)
Stage	Upgrade stage value (0 for stock, 1 for stage 1, 2 for stage 2…)
NumberOfGears	How many forward gears this transmission uses (“5” = 5 gears)
ReverseGearRatio	

FirstGearRatio	
SecondGearRatio	
ThirdGearRatio	
FourthGearRatio	
FifthGearRatio	
SixthGearRatio	
SeventhGearRatio	
DefaultFinalDriveRatio	Default ratio for the final drive
MaxFinalDriveRatio	Maximum ratio for the final drive
MinFinalDriveRatio	Minimum ratio for the final drive
AllowIndividualRatioAdjustments	Flag that toggles whether the ratios are fixed or customizable
DefaultAutoSetting	Default value for the auto setting (kmh/10; ex: “24” = 240kmh top speed) The Auto Settings create a set of ratios that max out at the set KMH target.
MinAutoSetting	Minimum top speed target for the auto level setting (kmh/10)
MaxAutoSetting	Maximum top speed target for the auto level setting (kmh/10)

Intercooler	
Params for the Intercooler parts Default part is \00000\0_stage0.csv Intercooler\<carID>\<stage>.csv Identical structure and effects to the Computer part	
LABEL	“GT6Equivalent” Description
CarID	Car ID this part is assigned to (ex: “a-emn”)
Price	Price of the part in CR. (ex: “10000” is 10000cr.)
Stage	Upgrade stage value (0 for stock, 1 for stage 1, 2 for stage 2…)
PowerBandScaling	RPM/100 (1=100rpm), moves the power band by the amount set here (1 = 100rpm). Can be negative
RPMIncrease	RPM/100 (1=100rpm), moves the redline by the set amount. Can be negative
PowerMultiplier	% multiplier applied to the entire powerband. Base 0. (1 = 1.01x power)

Lightweight	
Params for the Lightweight (Weight Reduction) parts Default part is \00000\0_stage0.csv Lightweight\<carID>\<stage>.csv	
LABEL	“GT6Equivalent” Description
CarID	Car ID this part is assigned to (ex: “a-emn”)
Price	Price of the part in CR. (ex: “10000” is 10000cr.)
Weight	‰ (per thousand) value from stock weight to target (ex: “980” = 98% of base weight; “758” = 75.8% of base weight) Note: Values above 1000 will make the car **heavier**
Unknown	"yaweffect" (yaw reduction)(rotation on the Vertical axis, left-right)
Stage	Upgrade stage value (0 for stock, 1 for stage 1, 2 for stage 2…)

LSD	
Params for the Limited Slip Differential parts LSD\<carID>\<stage>.csv	
LABEL	“GT6Equivalent” Description
CarID	Car ID this part is assigned to (ex: “a-emn”)
Price	Price of the part in CR. (ex: “10000” is 10000cr.)

Stage	Upgrade stage value (0 for stock, 1 for stage 1, 2 for stage 2…)
Unknown	padding? (always 0)
Unknown2	padding? (always 0)
Unknown3	padding? (always 0)
FrontUnknown	"difftypeF" (102, 104, 109, 110, 116, 118) - 102 OPEN/NO DIFF?: is pretty general, half the cars use that in all stages. Standard Front LSD upgrade. - 104 TORSEN/HELICAL DIFF?: is on sporty models: Puma, 106 S16/Rallye, Accord/Integra Type R, Lancer Evo 5 and 6 GSR/RS, FTO, Mine's Skylines... as stage 0 or stage 5 (AYC) - 109 LIMITED-SLIP DIFF?: seems pretty standard as stage 1-4 on a bunch of cars. Standard Rear LSD upgrade. Standard Rally Car LSD - 110 ACTIVE DIFF?: is stage 0 or 5 of many other cars, from Ruf to VW polo, to Galant, to Nismo 400R, standard Impreza front LSD. - 116 ATTS: is specific to the Honda Prelude Type-SH (aka Type-S(J) '96) hpnvn in both stage 0 and 5. that's the one with 4WS or something, right? - 118 VISCOUS/MECHANICAL CLUTCH DIFF?: is stage 0 of 70 cars, alfa 155, 156, Mitsu Mirage, 3000GT Rear, Nissan Pulsar VZR, R34 GT-T, Focus, 406 Coupe/Sedan.. - 121 TORQUE VECTORING DIFF: is stage 0 or 5 only on the rear on Mitsubishi models with AYC, so some Galant and Legnums, Evo 4-6
DefaultInitialFront	Default Front Initial value
MinInitialFront	Minimum Front Initial value
MaxInitialFront	Maximum Front Initial value
DefaultAccelFront	Default Front Accel value
MinAccelFront	Minimum Front Accel value
MaxAccelFront	Maximum Front Accel value
DefaultDecelFront	Default Front Decel value
MinDecelFront	Minimum Front Decel value
MaxDecelFront	Maximum Front Decel value
RearUnknown	"difftypeR" (102, 104, 109, 110, 118, 121) - 102 OPEN/NO DIFF?: is pretty general, half the cars use that in all stages. Standard Front LSD upgrade. - 104 TORSEN/HELICAL DIFF?: is on sporty models: Puma, 106 S16/Rallye, Accord/Integra Type R, Lancer Evo 5 and 6 GSR/RS, FTO, Mine's Skylines... as stage 0 or stage 5 (AYC) - 109 LIMITED-SLIP DIFF?: seems pretty standard as stage 1-4 on a bunch of cars. Standard Rear LSD upgrade. Standard Rally Car LSD - 110 ACTIVE DIFF?: is stage 0 or 5 of many other cars, from Ruf to VW polo, to Galant, to Nismo 400R, standard Impreza front LSD. - 116 ATTS: is specific to the Honda Prelude Type-SH (aka Type-S(J) '96) hpnvn in both stage 0 and 5. that's the one with 4WS or something, right? - 118 VISCOUS/MECHANICAL CLUTCH DIFF?: is stage 0 of 70 cars, alfa 155, 156, Mitsu Mirage, 3000GT Rear, Nissan Pulsar VZR, R34 GT-T, Focus, 406 Coupe/Sedan.. - 121 TORQUE VECTORING DIFF: is stage 0 or 5 only on the rear on Mitsubishi models with AYC, so some Galant and Legnums, Evo 4-6
DefaultInitialRear	Default Rear Initial value
MinInitialRear	Minimum Rear Initial value

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MaxInitialRear	Maximum Rear Initial value
DefaultAccelRear	Default Rear Accel value
MinAccelRear	Minimum Rear Accel value
MaxAccelRear	Maximum Rear Accel value
DefaultDecelRear	Default Rear Decel value
MinDecelRear	Minimum Rear Decel value
MaxDecelRear	Maximum Rear Decel value

Muffler	
Params for the Muffler parts Default part is \00000\0_stage0.csv Muffler\<carID>\<stage>.csv Identical structure and effects to the Computer part	
LABEL	"GT6Equivalent" Description
CarID	Car ID this part is assigned to (ex: "a-emn")
Price	Price of the part in CR. (ex: "10000" is 10000cr.)
Stage	Upgrade stage value (0 for stock, 1 for stage 1, 2 for stage 2…)
PowerBandScaling	RPM/100 (1=100rpm), moves the power band by the amount set here (1 = 100rpm). Can be negative
RPMIncrease	RPM/100 (1=100rpm), moves the redline by the set amount. Can be negative
PowerMultiplier	% multiplier applied to the entire powerband. Base 0. (1 = 1.01x power)

NATune	
Params for the NA (Naturally Aspirated) Tune parts Default part is \00000\0_stage0.csv NATune\<carID>\<stage>.csv Identical structure and effects to the Computer part	
LABEL	"GT6Equivalent" Description
CarID	Car ID this part is assigned to (ex: "a-emn")
Price	Price of the part in CR. (ex: "10000" is 10000cr.)
Stage	Upgrade stage value (0 for stock, 1 for stage 1, 2 for stage 2…)
PowerBandScaling	RPM/100 (1=100rpm), moves the power band by the amount set here (1 = 100rpm). Can be negative
RPMIncrease	RPM/100 (1=100rpm), moves the redline by the set amount. Can be negative
PowerMultiplier	% multiplier applied to the entire powerband. Base 0. (1 = 1.01x power)

PortPolish	
Params for the Port Polishing parts Default part is \00000\0_stage0.csv PortPolish\<carID>\<stage>.csv Identical structure and effects to the Computer part	
LABEL	"GT6Equivalent" Description
CarID	Car ID this part is assigned to (ex: "a-emn")
Price	Price of the part in CR. (ex: "10000" is 10000cr.)
Stage	Upgrade stage value (0 for stock, 1 for stage 1, 2 for stage 2…)
PowerBandScaling	RPM/100 (1=100rpm), moves the power band by the amount set here (1 = 100rpm). Can be negative
RPMIncrease	RPM/100 (1=100rpm), moves the redline by the set amount. Can be negative
PowerMultiplier	% multiplier applied to the entire powerband. Base 0. (1 = 1.01x power)

PropellerShaft	
Params for the Carbon Propeller/Driveshaft upgrade Default part is \00000\0_stage0.csv PropellerShaft\<carID>\<stage>.csv	
LABEL	"GT6Equivalent" Description
CarID	Car ID this part is assigned to (ex: "a-emn")
Price	Price of the part in CR. (ex: "10000" is 10000cr.)
Stage	Upgrade stage value (0 for stock, 1 for stage 1, 2 for stage 2…)
RPMDropRate	"enginebrake" (higher = stronger)
Inertia	"ipropF"
Inertia2	"ipropR"

RacingModify	
Params for the RacingModify (car bodies, stock and racing modifications) parts. RacingModify\<carID>\<stage>.csv	
LABEL	"GT6Equivalent" Description
CarID	Car ID this part is assigned to (ex: "a-emn")
Price	Price of the part in CR. (ex: "10000" is 10000cr.)
BodyID	Body ID to apply with this part (*ex: "a-emn", "a-emr", "a28ss", "gv4gt"*)
Weight	% value from stage 3 Lightweight (weight reduction) to target (ex: "98" = 98% of the stage 3 weight) Base 100 ("100" = 1.00 multiplier) *Ex: Car X is 1000kg, stage 3 Lightweight is "820" (82%) -> 820kg; Applying a RM with a Weight value of "98"(%) makes 820*0.98 = 803.6kg, which the game then rounds down to 803kg* Note: Values above 100 will make the car **heavier**
BodyRollAmount	RollResistance%multiplier (rotation on the longitudinal axis, clockwise-anticlockwise)
Stage	Upgrade stage value (0 for stock, 1 for stage 1, 2 for stage 2…)
Drag	"cd" (cd/10, from chassis part in GT6 DB)
FrontDownforceMinimum	Minimum value for front downforce
FrontDownforceMaximum	Maximum value for front downforce
FrontDownforceDefault	Default value for front downforce
RearDownforceMinimum	Minimum value for rear downforce
RearDownforceMaximum	Maximum value for rear downforce
RearDownforceDefault	Default value for rear downforce
Unknown3	"treadF" part 2 (Unknown3 and Unknown4 are one value, e.g. nv34n 200 & 5 = C8 05 => 05C8 = 1480, treadF = 1480 in GT6) Note: front and rear tread aren't displayed in car stats, unused?
Unknown4	"treadF" part 1
Unknown5	"treadR" part 2 (Unknown5 and Unknown6 are one value, e.g. nv34n 210 & 5 = D2 05 => 05D2 = 1490, treadF = 1490 in GT6) Note: front and rear tread aren't displayed in car stats, unused?
Unknown6	"treadR" part 1
Width	"dwidth" (from chassis part)

Steer
Steering-related params. New steering curve files can be created and used, but the AI will ignore them. Despite having a stage and price value field, this is not an upgradeable part.

Steer\00000.csv	
LABEL	“GT6Equivalent” Description
CarID	Car ID this part is assigned to (ex: “a-emn”)
Price	Price of the part in CR. (ex: “10000” is 10000cr.)
Stage	Upgrade stage value (0 for stock, 1 for stage 1, 2 for stage 2…)
Unknown1	?
Angle1Speed	Peak speed in KMH where the Angle1 value is applied
Angle2Speed	Peak speed in KMH where the Angle2 value is applied
Angle3Speed	Peak speed in KMH where the Angle3 value is applied
Angle4Speed	Peak speed in KMH where the Angle4 value is applied
Angle5Speed	Peak speed in KMH where the Angle5 value is applied
Angle6Speed	Peak speed in KMH where the Angle6 value is applied
Angle1	Steering angle (0-255 where 255 is 100% of the MaxSteeringAngle value) for the 1st point of the curve
Angle2	Steering angle (0-255 where 255 is 100% of the MaxSteeringAngle value) for the 2nd point of the curve
Angle3	Steering angle (0-255 where 255 is 100% of the MaxSteeringAngle value) for the 3rd point of the curve
Angle4	Steering angle (0-255 where 255 is 100% of the MaxSteeringAngle value) for the 4th point of the curve
Angle5	Steering angle (0-255 where 255 is 100% of the MaxSteeringAngle value) for the 5th point of the curve
Angle6	Steering angle (0-255 where 255 is 100% of the MaxSteeringAngle value) for the 6th point of the curve
MaxSteeringAngle	Maximum steering angle in degrees(?)
Unknown2	?

Suspension	
Params for the Suspension parts Suspension\<carID>\<stage>.csv	
LABEL	“GT6Equivalent” Description
CarID	Car ID this part is assigned to (ex: “a-emn”)
Price	Price of the part in CR. (ex: “10000” is 10000cr.)
Stage	Upgrade stage value (0 for stock, 1 for stage 1, 2 for stage 2…)
MinCamberFront	"camberMINF" Minimum front camber angle
MaxCamberFront	"camberMAXF" Maximum front camber angle
DefaultCamberFront	"camberDFF" Default front camber angle

MinCamberRear	"camberMINR" Minimum rear camber angle
MaxCamberRear	"camberMAXR" Maximum rear camber angle
DefaultCamberRear	"camberDFR" Default rear camber angle
MinToeFront	"toeMINF" Minimum front Toe angle
MaxToeFront	"toeMAXF" Maximum front Toe angle
MinToeRear	"toeMINR" Minimum rear Toe angle
MaxToeRear	"toeMAXR" Maximum rear Toe angle
MinHeightFront	"rideheightMINF" Minimum front height (millimeters)
MaxHeightFront	"rideheightMAXF" Maximum front height (millimeters)
DefaultHeightFront	"rideheightDFF" Default front height (millimeters)
MinHeightRear	"rideheightMINR" Minimum rear height (millimeters)
MaxHeightRear	"rideheightMAXR" Maximum rear height (millimeters)
DefaultHeightRear	"rideheightDFR" Default rear height (millimeters)
DampingFront	"brmarginF"? (unsure about these, could be "brtouchF")
DampingRear	"brmarginR"? (unsure about these, could be "brtouchR")
TravelFront	"brtouchF"? (unsure about these, could be "limrF")
TravelRear	"brtouchR"? (unsure about these, could be "limrR")
MinSpringRateFront	"springrateMINF" Minimum front spring rate value
MaxSpringRateFront	"springrateMAXF" Maximum front spring rate value
DefaultSpringRateFront	"springrateDFF" Default front spring rate value
MinSpringRateRear	"springrateMINR" Minimum rear spring rate value
MaxSpringRateRear	"springrateMAXR" Maximum rear spring rate value
DefaultSpringRateRear	"springrateDFR" Default rear spring rate value
SpringFrequencyFront	"leverratioDFF" (spring frequency)
SpringFrequencyRear	"leverratioDFR" (spring frequency)
Unknown7	"bumprubberF"
Unknown8	"bumprubberR"
MaxDamperBoundFront	"damplevelBF"
Unknown9	"dampF1BMINF" (Bound1 MIN Front)
Unknown10	"dampF1BMAXF" (Bound1 MAX Front)
DefaultDamperBoundFront	"dampF1BDFF"
Unknown11	"dampF2BMINF" (Bound2 MIN Front)
Unknown12	"dampF2BMAXF" (Bound2 MAX Front)
Unknown13	"dampF2BDFF" (Bound Default Front)
MaxDamperReboundFront	"damplevelRF"
Unknown14	"dampF1RMINF" (Rebound1 MIN Front)
Unknown15	"dampF1RMAXF" (Rebound1 MAX Front)
DefaultDamperReboundFront	"dampF1RDFF"
Unknown16	"dampF2RMINF" (Rebound2 MIN Front)
Unknown17	"dampF2RMAXF" (Rebound2 MAX Front)
Unknown18	"dampF2RDFF" (Rebound Default Front)
MaxDamperBoundRear	"damplevelBR"
Unknown19	"dampF1BMINR" (Bound1 MIN Rear)
Unknown20	"dampF1BMAXR" (Bound1 MAX Rear)
DefaultDamperBoundRear	"dampF1BDFR"
Unknown21	"dampF2BMINR" (Bound2 MIN Rear)
Unknown22	"dampF2BMAXR" (Bound2 MAX Rear)
Unknown23	"dampF2BDFR" (Bound Default Rear)
MaxDamperReboundRear	"damplevelRR"
Unknown24	"dampF1RMINR" (Rebound1 MIN Rear)

Unknown25	"dampF1RMAXR" (Rebound1 MAX Rear)
DefaultDamperReboundRear	"dampF1RDFR"
Unknown26	"dampF2RMINR" (Rebound2 MIN Rear)
Unknown27	"dampF2RMAXR" (Rebound2 MAX Rear)
Unknown28	"dampF2RDFR" (Rebound Default Rear)
MaxStabiliserFront	"stabilizerFlevel"
Unknown29	"stabilizerMINF" Minimum front stabilizer value
Unknown30	"stabilizerMAXF" Maximum front stabilizer value
DefaultStabiliserFront	"stabilizerDFF" Default front stabilizer value
MaxStabiliserRear	"stabilizerRlevel"
Unknown31	"stabilizerMINR" Minimum rear stabilizer level
Unknown32	"stabilizerMAXR" Maximum rear stabilizer level
DefaultStabiliserRear	"stabilizerDFR" Default rear stabilizer level
Unknown33	"ActiveSuspensionType" maybe? (Xantia and Mini Cooper/Mini 1.3 only - hydraulic/hydropneumatic suspension type?)

TireCompound	
Each tire compound the player can buy and equip, front and rear are separated files. They are assigned to tire upgrade parts for cars to use. The files are largely unmapped, though I have done some research on them. My findings below, cross compared with GT6 DB when possible. TireCompound\<compound>.dat	
LABEL	"GT6Equivalent" Description
0x00	"Mu" ?
0x04	"weightgripx1" ? speed
0x05	"weightgripx2" ?
0x06	"weightgripx3" ?
0x07	"weightgripx4" ?
0x08	"weightgripy1" ? Longitudinal grip level
0x09	"weightgripy2" ?
0x0A	"weightgripy3" ?
0x0B	"weightgripy4" ?
0x0C	"sideforcex1" ? X / Speed
0x0D	"sideforcex2" ?
0x0E	"sideforcex3" ?
0x0F	"sideforcex4" ?
0x10	"sideforcex5" ?
0x11	"sideforcex6" ?
0x12	"sideforcex7" ?
0x13	"sideforcex8" ?
0x14	"sideforcey1" ? Y / lateral grip level, G?
0x15	"sideforcey2" ?
0x16	"sideforcey3" ?
0x17	"sideforcey4" ?
0x18	"sideforcey5" ?
0x19	"sideforcey6" ?
0x1A	"sideforcey7" ?
0x1B	"sideforcey8" ?
0x1C	"slipmuAx1" ? -
0x1D	"slipmuAx2" ?

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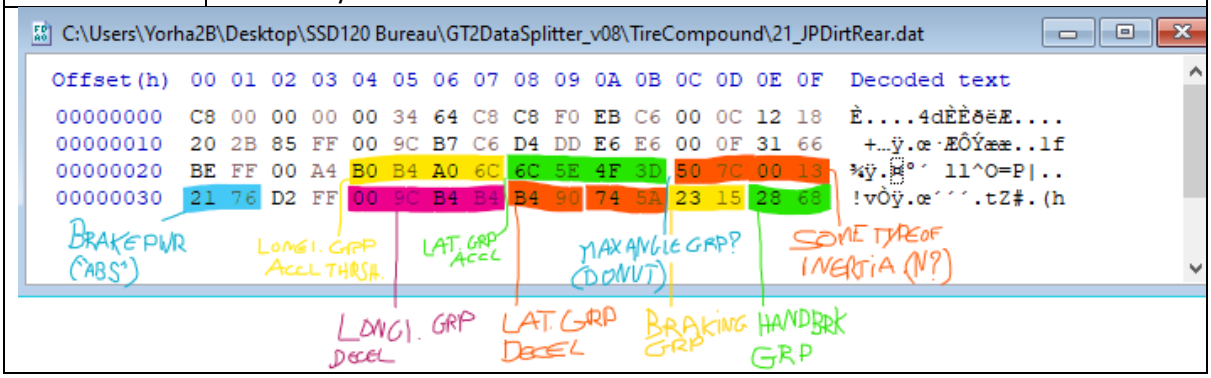
0x1E	"slipmuAx3" ?
0x1F	"slipmuAx4" ?
0x20	"slipmuAx5" ?
0x21	"slipmuAx6" ?
0x22	"slipmuAy1" ? -
0x23	"slipmuAy2" ?
0x24	"slipmuAy3" ?
0x25	"slipmuAy4" ?
0x26	"slipmuAy5" ?
0x27	"slipmuAy6" ?
0x28	"sidemuAy1" ? -
0x29	"sidemuAy2" ?
0x2A	"sidemuAy3" ?
0x2B	"sidemuAy4" ?
0x2C	"sidemuAy5" ?
0x2D	"sidemuAy6" ?
0x2E	"slipmuBx1" ? -
0x2F	"slipmuBx2" ?
0x30	"slipmuBx3" ?
0x31	"slipmuBx4" ?
0x32	"slipmuBx5" ?
0x33	"slipmuBx6" ?
0x34	"slipmuBy1" ? -
0x35	"slipmuBy2" ?
0x36	"slipmuBy3" ?
0x37	"slipmuBy4" ?
0x38	"slipmuBy5" ?
0x39	"slipmuBy6" ?
0x3A	"sidemuBy1" ? -
0x3B	"sidemuBy2" ?
0x3C	"sidemuBy3" ?
0x3D	"sidemuBy4" ?
0x3E	"sidemuBy5" ?
0x3F	"sidemuBy6" ?



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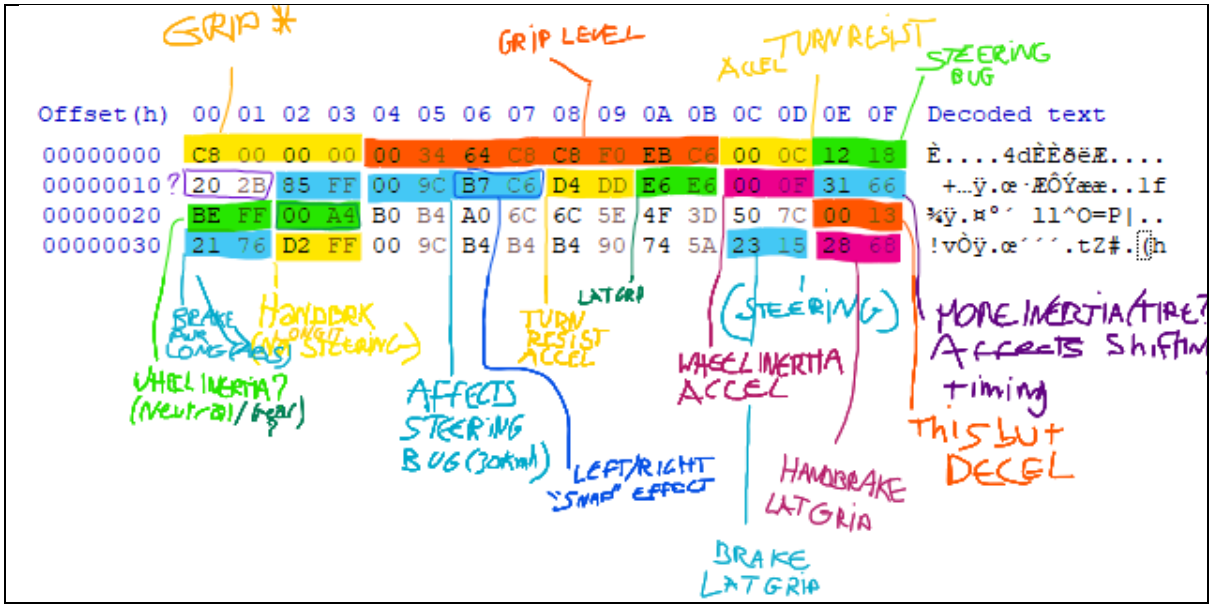


TireForceVol	
A file that has grip levels of the various surface types used by tracks. TireForceVol\00000.csv	
LABEL	“GT6Equivalent” Description
TarmacGrip	Vanilla value: 100 (%) Asphalt grip
GuideGrip	Vanilla value: 90 (%) Rumble Strips grip
GreenGrip	Vanilla value: 60 (%) Grass grip
SandGrip	Vanilla value: 60 (%) Sandpit grip
GravelGrip	Vanilla value: 60 (%) Gravel grip
DirtGrip	Vanilla value: 80 (%) Dirt grip
WaterGripMaybe	Vanilla value: 80 (%) (Unused?)

TiresFront	
Params for front tire parts TireFront\<carID>\<stage>.csv	
LABEL	“GT6Equivalent” Description
CarID	Car ID this part is assigned to (ex: “a-emn”)
Price	Price of the part in CR. (ex: “10000” is 10000cr.)
Stage	Upgrade stage value (Stock, Sports, Hard, Medium, Soft, SuperSoft, Dirt, Simulation)
SteeringReaction1	(always 0)
WheelSize	Wheel dimensions to use for this part (TireSize\<dimensionfile>.csv)
SteeringReaction2	(always 0)
TireCompound	The tire compound to use for this part (TireCompound\<compound>.dat)
TireForceVolMaybe	(always 0)
SlipMultiplier	(always 0)
GripMultiplier	(always 0)

TireSize	
Every possible combination of values for a wheel’s dimensions used in the game has a file here. Called by TiresFront and TiresRear TireSize\<file>.csv	
LABEL	“GT6Equivalent” Description

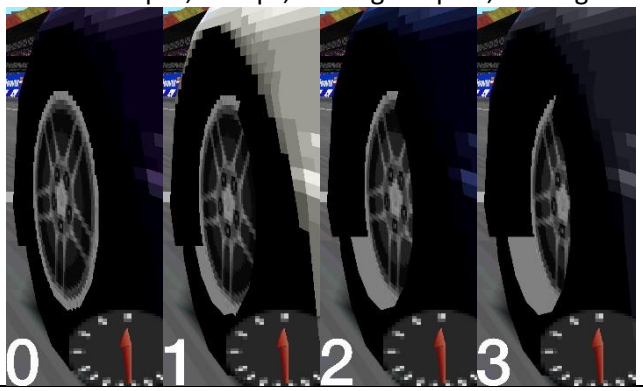
DiameterInches	Diameter of the rim in inches (ex: ”16”)
WidthMM	Width of the tire in millimeter (ex: “195”)
Profile	Tire profile (% of the width) (ex: “60”)

TiresRear	
Params for rear tire parts TireRear\<carID>\<stage>.csv	
LABEL	“GT6Equivalent” Description
CarID	Car ID this part is assigned to (ex: “a-emn”)
Stage	Upgrade stage value (Stock, Sports, Hard, Medium, Soft, SuperSoft, Dirt, Simulation)
SteeringReaction1	(always 0)
WheelSize	Wheel dimensions to use for this part (TireSize\<dimensionfile>.csv)
SteeringReaction2	(always 0)
TireCompound	The tire compound to use for this part (TireCompound\<compound>.dat)
TireForceVolMaybe	(always 0)
SlipMultiplier	(always 0)
GripMultiplier	(always 0)

TractionControlSystem	
Params for the TCS upgrade parts Note: - It’s a “global” upgrade, as hinted by the “car ID” being “00000”, therefore not being attached to any specific car. - This file hasn’t been mapped yet TractionControlSystem\<file>.dat	
00000.dat	Road car default upgrade (non-upgraded part)
00010.dat	Race car default upgrade (non-upgraded part)
00020.dat	Stage 1 upgrade (upgraded part)
LABEL	“GT6Equivalent” Description
0x00	
0x01	
0x02	
0x03	
0x04	(part price)
0x08	(stage level)
0x0A	"TCSgrad" ?
0x0B	"TCStarget"
0x0C	"TCSUserValueDF"
0x0D	"TCSUserValueMin"
0x0E	

TurbineKit	
Params for the turbo kit upgrades NA cars will use TurbineKit\00000\0_stage0.csv TurbineKit\<carID>\<stage>.csv	
LABEL	“GT6Equivalent” Description
CarID	Car ID this part is assigned to (ex: “a-emn”)
Price	Price of the part in CR. (ex: “10000” is 10000cr.)

Stage	Upgrade stage value (Stock, Sports, Hard, Medium, Soft, SuperSoft, Dirt, Simulation)
BoostGaugeLimit	"wastegate" (must be equal to boost1 + boost2 to make full power, otherwise acts as an air restrictor) Total boost level (affects how high the Turbo gauge needle goes, and how loud the blowoff valve is)
LowRPMBoost	"boost1" (0 = no boost, NA feel, no gauge) Turbo 1 boost level
HighRPMBoost	"peakrpm1" (rpm/100) Peak RPM at which Turbo 1 provides max boost
SpoolRate	"response1" How fast Turbo 1 spools on throttle
Unknown1	"boost2" Turbo 2 boost level (for twin turbo cars)
Unknown2	"peakrpm2" (rpm/100) Peak RPM at which Turbo 2 provides max boost
Unknown3	"response2" How fast Turbo 1 spools on throttle
RPMIncrease	RPM/100 (1=100rpm), moves the max RPMs by the set amount. Can be negative
RedlineIncrease	RPM/100 (1=100rpm), moves the redline by the set amount. Can be negative
HighRPMPowerMultiplier	(max rpm torque %increase; base 0%)
LowRPMPowerMultiplier	(idle rpm torque %; base 100%)

Wheel	
Params for stock and aftermarket wheels, mainly used for the depth of the rim in regards to the tire. Called upon by the TiresFront and TiresRear parts. The first 16 files (named “None”) include all possible combinations of the 2 parameters these files house for stock car rims. The rest are for aftermarket wheels. Wheel\<file>.csv	
LABEL	“GT6Equivalent” Description
WheelID	Leave blank for stock wheel, filename for the aftermarket wheel
StageMaybe	0 for stock, 1 for aftermarket
Unknown	(always zero)
Unknown2	(unknown effect)
Unknown3	Rim dish depth, 4 steps, 3 being deepest, 0 being none 

EVENT RELATED PARTS

EnemyCars
Opponent file entries that can be used to populate the various events. The Event Generator / Synthetizer picks from this list as well, though it ignores all race cars and racing modified cars. It is currently unknown how exactly that behaviour works.

Lists all parts that should be installed on the car, and individual settings. EnemyCars\<opponentID_carID>.csv	
LABEL	"GT6Equivalent" Description
CarID	Car ID this part is assigned to (ex: "a-emn")
Brake	Brake\<carID>\<stage>.csv
BrakeController	BrakeController\<carID>\<stage>.csv
Steer	Steer\00000.csv
Chassis	Chassis\<carID>.csv
Lightweight	Lightweight\<carID>\<stage>.csv
RacingModify	RacingModify\<carID>\<stage>.csv
Engine	Engine\<carID>.csv
PortPolish	PortPolish\<carID>\<stage>.csv
EngineBalance	EngineBalance\<carID>\<stage>.csv
Displacement	Displacement\<carID>\<stage>.csv
Computer	Computer\<carID>\<stage>.csv
NATune	NATune\<carID>\<stage>.csv
TurbineKit	TurbineKit\<carID>\<stage>.csv
Drivetrain	Drivetrain\<carID>.csv
Flywheel	Flywheel\<carID>\<stage>.csv
Clutch	Clutch\<carID>\<stage>.csv
Propshaft	Propshaft\<carID>\<stage>.csv
LSD	LSD\<carID>\<stage>.csv
Gear	Gear\<carID>\<stage>.csv
Suspension	Suspension\<carID>\<stage>.csv
Intercooler	Intercoler\<carID>\<stage>.csv
Muffler	Muffler\<carID>\<stage>.csv
TiresFront	TiresFront\<carID>\<stage>.csv
TiresRear	TiresRear\<carID>\<stage>.csv
ActiveStabilityControl	ActiveStabilityControl\<carID>\<stage>.csv
TractionControlSystem	TractionControlSystem\<carID>\<stage>.csv
RimsCode3	"Wheel" Part ID (for default wheel dish offset / default aftermarket rim)
FinalDriveRatio	Final drive ratio to be used on the car (overrides the value set in the Gear part)
GearAutoSetting	Auto level used for non-stock transmissions that have the fixed gear ratio flag disabled. Kmh /10 (24 = 240kmh) (overrides the value set in the Gear part)
LSDInitialFront	Initial front LSD setting (overrides the value set in the LSD part)
LSDAccelFront	Accel front LSD setting (overrides the value set in the LSD part)
LSDDecelFront	Decel front LSD setting (overrides the value set in the LSD part)
LSDInitialRearAYCLevel	Initial rear LSD setting (overrides the value set in the LSD part)
LSDAccelRear	Accel rear LSD setting (overrides the value set in the LSD part)
LSDDecelRear	Decel rear LSD setting (overrides the value set in the LSD part)
DownforceFront	Front downforce value (overrides the value set in the RacingModify part)
DownforceRear	Rear downforce value (overrides the value set in the RacingModify part)
CamberFront	Front camber value (overrides the value set in the Suspension part)
CamberRear	Rear camber value (overrides the value set in the Suspension part)
ToeFront	Front toe value (overrides the value set in the Suspension part)
ToeRear	Rear toe value (overrides the value set in the Suspension part)
RideHeightFront	Front ride height value (overrides the value set in the Suspension part)
RideHeightRear	Rear ride height value (overrides the value set in the Suspension part)

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SpringRateFront	Front spring rate value (overrides the value set in the Suspension part)
SpringRateRear	Rear spring rate value (overrides the value set in the Suspension part)
DamperBoundFront1	Front damper bound value (overrides the value set in the Suspension part)
DamperBoundFront2	Front damper bound value (overrides the value set in the Suspension part)
DamperReboundFront 1	Front damper rebound value (overrides the value set in the Suspension part)
DamperReboundFront 2	Front damper rebound value (overrides the value set in the Suspension part)
DamperBoundRear1	Rear damper bound value (overrides the value set in the Suspension part)
DamperBoundRear2	Rear damper bound value (overrides the value set in the Suspension part)
DamperReboundRear1	Rear damper rebound value (overrides the value set in the Suspension part)
DamperReboundRear2	Rear damper rebound value (overrides the value set in the Suspension part)
StabiliserFront	Front stabilizer value (overrides the value set in the Suspension part)
StabiliserRear	Rear stabilizer value (overrides the value set in the Suspension part)
ASMLevel	ASM value (ignored)
TCSLevel	TCS value (ignored)
Unknown3	Always 0 (padding?)
Unknown4	Always 0 (padding?)
PowerMultiplier	% multiplier applied to the entire powerband. Base 100. (101 = 1.01x power)
OpponentId	The numeric ID given to this opponent. Cannot be the same as an other opponent

Event	
Every GT Mode event's individual races represented in this folder. The list of events is hardcoded, therefore no events can currently be added to the game. Event\<event_filename>.csv	
LABEL	Description
EventName	Event internal name (ex: "4WD0001")
TrackName	Chosen track (filename; ex:"seatt_s")
Opponent1	1st randomly picked opponent ID (relative path, "EnemyCars\<opponentID>.csv")
Opponent2	2nd randomly picked opponent ID (relative path, "EnemyCars\<opponentID>.csv")
Opponent3	3rd randomly picked opponent ID (relative path, "EnemyCars\<opponentID>.csv")
Opponent4	4th randomly picked opponent ID (relative path, "EnemyCars\<opponentID>.csv")
Opponent5	5th randomly picked opponent ID (relative path, "EnemyCars\<opponentID>.csv")
Opponent6	6th randomly picked opponent ID (relative path, "EnemyCars\<opponentID>.csv")
Opponent7	7th randomly picked opponent ID (relative path, "EnemyCars\<opponentID>.csv")

Opponent8	8th randomly picked opponent ID (relative path, “EnemyCars\<opponentID>.csv”)
Opponent9	9th randomly picked opponent ID (relative path, “EnemyCars\<opponentID>.csv”)
Opponent10	10th randomly picked opponent ID (relative path, “EnemyCars\<opponentID>.csv”)
Opponent11	11th randomly picked opponent ID (relative path, “EnemyCars\<opponentID>.csv”)
Opponent12	12th randomly picked opponent ID (relative path, “EnemyCars\<opponentID>.csv”)
Opponent13	13th randomly picked opponent ID (relative path, “EnemyCars\<opponentID>.csv”)
Opponent14	14th randomly picked opponent ID (relative path, “EnemyCars\<opponentID>.csv”)
Opponent15	15th randomly picked opponent ID (relative path, “EnemyCars\<opponentID>.csv”)
Opponent16	16th randomly picked opponent ID (relative path, “EnemyCars\<opponentID>.csv”)
RollingStartSpeed	Rolling start speed in KMH (used in enduros)
Laps	Number of laps for this event
AutoDrive	
Licence	License level required to enter the event
AIFrontGripRWD	Front grip multiplier for RWD cars (including player)
AIFrontGripFWD	Front grip multiplier for FWD cars (including player)
AIFrontGrip4WD	Front grip multiplier for 4WD cars (including player)
AIFrontGripSpecial4WD	Front grip multiplier for special 4WD cars (including player) (mainly Nissan Skylines with ATTESA drivetrain)
AIRearGripRWD	Rear grip multiplier for RWD cars (including player)
AIRearGripFWD	Rear grip multiplier for FWD cars (including player)
AIRearGrip4WD	Rear grip multiplier for 4WD cars (including player)
AIRearGripSpecial4WD	Rear grip multiplier for special 4WD cars (including player) (mainly Nissan Skylines with ATTESA drivetrain)
AIAccelerationRWD	Throttle cap multiplier for RWD AI cars
AIAccelerationFWD	Throttle cap multiplier for FWD AI cars
AIAcceleration4WD	Throttle cap multiplier for 4WD AI cars
AIAccelerationSpecial4WD	Throttle cap multiplier for special 4WD AI cars (mainly Nissan Skylines with ATTESA drivetrain)
AIThrottleLiftReductionRWD	Lift off throttle distance multiplier for RWD AI cars (how far before braking they lift off)
AIThrottleLiftReductionFWD	Lift off throttle distance multiplier for FWD AI cars (how far before braking they lift off)
AIThrottleLiftReduction4WD	Lift off throttle distance multiplier for 4WD AI cars (how far before braking they lift off)
AIThrottleLiftReductionSpecial4WD	Lift off throttle distance multiplier for special 4WD AI cars (how far before braking they lift off) (mainly Nissan Skylines with ATTESA drivetrain)
AIRubberBandMultiplier	Global rubberband multiplier (base 100)
AIRubberBandUnknown1	

AIRubberBandScaledPerCar	
AIRubberBandLeadingSlowdownPercentage	
AIRubberBandLeadingScalingDistance	
AIRubberBandTrailingSpeedupPercentage	
AIRubberBandTrailingScalingDistance	
TireWearOrangeDurationMultiplier	
TireWearOrangeGripLoss	
TireWearUnknown	
TireWearBlueDurationMultiplier	
TireWearBlueGripLoss	
TireWearGreenDurationMultiplier	
TireWearGreenGripLoss	
Unknown1	
Unknown2	
Unknown3	
Unknown4	
IsRally	Is the race a rally event? (will load the corresponding ghost opponent, forces Dirt tire compound checks)
EligibleCarsRestriction	Does the event use a specific list of usable cars? (mainly used on manufacturer races) “None”, or “Regulations\<ID>.csv”
DrivetrainRestriction	Is the race restricted to a specific drivetrain type? (ex: “4WD”)
PrizeMoney1st	1st place prize money gains in cr./100 (ex:”50” = 5000cr.)
PrizeMoney2nd	2nd place prize money gains in cr./100 (ex:”20” = 2000cr.)
PrizeMoney3rd	3rd place prize money gains in cr./100 (ex:”15” = 1500cr.)
PrizeMoney4th	4th place prize money gains in cr./100 (ex:”10” = 1000cr.)
PrizeMoney5th	5th place prize money gains in cr./100 (ex:”5” = 500cr.)
PrizeMoney6th	6th place prize money gains in cr./100 (ex:”3” = 300cr.)
PrizeCars	“-----” for none, otherwise, up to 4 cars can be randomly awarded, filenames must be used (ex: "slgan,-----,-----,-----")
TrackBannerPool	Which dynamic track sponsor banners must be loaded for this specific event? (not available on tracks ported from GT1)
PSRestriction	PS restriction to enter this event
SeriesChampBonus	If this event starts a championship, how much money to award for the completion of the championship in cr./100 (ex:”500” = 50000cr.)
CarRestrictionFlags	Other car entry requirement flags (NA only, Turbo only, Road cars only, RM/Racing cars only)

Regulations	
Lists of up to 32 car IDs that will be allowed to enter the event Regulations\<ID>.csv	
LABEL	Description
EligibleCarIds	Ex: "tceln,tcegn,t2c3n,t2xxn,t285n,t2con,t2c4n,t2crn,t2cyn,t2cmn,t2cen,t2cdn,-----"

OTHER PARTS

CarNames	
Car names displayed at the bottom of the screen in menus and in the garage/UCD lists, as well as the year value. Strings\<language>\CarNames.csv	
CarID	Car ID this part is assigned to (ex: “a-emn”)
NameFirstPart	First part of the car’s name (Short name) (Ex: “Mazda Demio”)
NameSecondPart	Second part of the car’s name (extended name, shown in garage and UCD lists) (Ex:”A-spec(J) '97”)
Year	Value displayed when viewing a car, under “Year”. A value of 0 displays “----” instead.

PartStrings	
Dynamic part names displayed in the car’s installed parts screen. Strings\<language>\PartStrings.csv	
LABEL	Description
0	"Active Stability Controller"
1	"Sports Brake Kit"
2	"Brake Balance Controller"
3	"Single Plate Clutch"
4	"Twin Plate Clutch"
5	"Triple Plate Clutch"
6	"Computer"
7	"Increasing the displacement"
8	"-"
9	"Engine balancing"
10	"Sports Flywheel"
11	"Semi-Racing Flywheel"
12	"Racing Flywheel"
13	"Close Gearing"
14	"Super Close Gearing"
15	"Gearbox - Fully Customised Service"
16	"Sports Intercooler"
17	"Racing Intercooler"
18	"Weight Reduction Stage 1"
19	"Weight Reduction Stage 2"
20	"Weight Reduction Stage 3"
21	"1 way LSD"
22	"2 way LSD"

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23	"1.5 way LSD"
24	"LSD - Fully Customised Service"
25	"Yaw Control System"
26	"Sports Muffler"
27	"Semi-Racing Muffler"
28	"Racing Muffler"
29	"NA Tune - Stage 1"
30	"NA Tune - Stage 2"
31	"NA Tune - Stage 3"
32	"Port grinding"
33	"Carbon Propeller Shaft"
34	"Racing Car Modifications"
35	"Sports Suspension Kit"
36	"Semi-Racing Suspension Kit"
37	"Suspension - Fully Customised Service"
38	"Traction Control System"
39	"Sports Tyres"
40	"Racing Slick Tyres - Hard"
41	"Racing Slick Tyres - Medium"
42	"Racing Slick Tyres - Soft"
43	"Racing Slick Tyres - Super Soft"
44	"Control Tyres"
45	"Dirt Tyres"
46	"Turbine Kit Stage 1"
47	"Turbine Kit Stage 2"
48	"Turbine Kit Stage 3"
49	"Turbine Kit Stage 4"