
FMTK Documentation

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DEVELOPER TOOLS

1.1 Command Palette

See the *Commands documentation entry*.

1.2 Noclip

The `SwitchCameraUser 0` command can be used to enter and exit a freecam mode also known as the debug camera. When entering this mode the player's vehicle will be separated from the camera and remain active. When exiting this mode the player's vehicle will be teleported to the center of frame and normal gameplay will resume. There are several keys that can be used to control the debug camera. `w`, `a`, `s`, and `d` can be used to move the camera relative to the direction it is facing. The `y` and `i` keys move the camera up and down very slowly relative to the direction the camera is facing. Note that `y` also opens the Command Palette so if you want to move up, I recommend opening the Palette and then closing it, holding the `y` key down as you close it to continue moving up. The arrow keys control the direction the camera is facing. Finally, holding down the `e` key will increase the effect of each of the other keys from `0.25` to `5.00`, a 20x increase, this makes flying around a lot faster. Be careful when using `e` with the arrow keys as the camera will spin around wildly.

1.3 Teleport

`ActiveDebugHUD` is the command to enable this feature. The `c` key will maximize the minimap and the arrow keys will navigate the crosshair. The `w` and `s` keys will zoom in and out respectively. The `t` key will toggle the GPS Target at the crosshair. The `enter` key will set the teleport target at the crosshair (there is no visual feedback that this has happened). Press `c` again to minimize the minimap and teleport to the teleportation target if it was set.

1.4 Debug Tools

`ActiveDebugHUD` is the command to enable this feature. The `t` key will toggle the visibility of this menu. The arrow keys and `enter` are used to navigate.

1.5 Native Popup Menu

When the game is launched in windowed mode with the `-W` command line option, right-clicking on the game window will bring up a native style popup menu with developer options.

1.6 Immediate Mode Popup Menu

When the game is launched in windowed mode, `EnablePopupMenu` has been run, and `EnableDebugViewport` has been run, holding down the `F1` key will bring up an in-game GUI element that can be navigated with the numpad arrows, num lock is disregarded. The options in this menu are similar to the ones available in the Native Popup Menu.

COMMANDS

2.1 Notes

`ActiveDebugHUD` is the command to enable this feature. To access the console in game make sure you have the debug hud enabled. This is most easily done by loading the default `debug_tools` mod or uncommenting the `adhud` line in the `usergame.tsc` file in the FUEL root directory.

The in-game console can be accessed by pressing the y key in the game world. The game is paused while the console is open so you have to close it for your commands to take effect. Use the wasd keys to navigate the console keyboard. Use r to insert a space character and x to delete the last character. Pressing y while the console is open will close the console. Be careful not to confuse the letter O in the first row with the digit 0 in the second and third rows.



See the *Totem Script documentation entry* for more information about how commands work.

Due to the excessive number of commands, I will add details to the commands as I see fit. If there is a command that you would like me to add details to, open an issue with the command name and I will get to it when I have a chance.

2.2 Command List

1ST

2ND

3RD

4TH

ActivateAverageSpeed

ActivateGame

ACtivateGamePlayer

ActiveDebugHUD

Enables the Y console menu

ActiveTeleport

AddChampionShip

AddCharacter

AddComboChampionship

AddCommandAfterTeleport

AddConditionTROPHY

AddConnectionBot

AddConnectionNbBot

AddExtraCHAMPIONSHIP

AddExtraCHEAT

AddExtraConceptArt

AddExtraMovieClip

AddExtraMovieStill

AddExtraMulti

AddExtraSolo

AddGamePlayer

AddHighVibrationKey

AddHubCareerRaces

AddHubCHallengeRaces

AddHubTrafficVehicle

AddHubTutorialRaces

AddIGACell

AddIngameDiaLoG

AddInGameTextInfos

AddJoyStick

AddLangDefine

AddLevel

AddLevelDemoMenu

AddLevelMenu

AddLevelMPEG

AddLevelRTC

AddLowVibrationKey

ADdMarKer

AddMaterialLib

AddMenuItemButtonDyn

AddMenuItemButtonTT

AddMenuItemFillRect

AddMenuItemImage

AddMenuItemLabelDyn

AddMenuItemLabelTT

AddMenuItemListBoxTT

AddMenuItemRegionImage

AddMenuPlayer

AddMISSION

AddMissionCarOnline

AddMissionFuel

AddMissionIASpeed

AddMissionNeededVehicle

AddMissionPARAM

AddMissionSurfaceType

AddMissionTime

AddMpegMenu

AddMultiGame

AddMUSIC

AddNbMaxOnlineVehicle

ADdNewItem

AddNewTROPHY

AddPilotLivery

AddPilotLivery category index nameID <"ALWAYS"|"NONE"|"race identifier"> bonusCode

AddPilotLiveryColor

AddPointOfInterestFlush

AddRTC

AddStreamLevel

AddTextInfos

AddTTInfos

AddTypePointOfInterest

AddVehicleColor

AddVehicleGPS

AddVehicleInfo

AddVehicleInterfaceParams

AddVehicleLivery

AddVehicleParams

AddVehicleUnlock

ADDVibration

AICM

AskFailureMenu

AskMenuSave

AsynchCheckHandles

BackToMenu

Be10000PtsRicher

Be50000PtsRicher

Be50000PtsRicher

BeginRaceRecord

BeRich

BlindageFadeAfterRTC

BlocFader

BoxPatchClip

BSouRCe

BuildMissionList

BuyAll

CAMDebug

CameraMouseControl

CameraStaticMove

ChangeCurrentPerso

ChangeDebugInGamePlayer

ChangeRPMVehicle

ChangeStartBase

CheatNoRtc

CheckAutoStart

CheckHandles

CheckMemoryEveryFrame

CheckUnlock

ChoosePlayMovie

ChooseRandomStartBase

ChronoMarKer

CleanTempPic

CloneClass

CLONEClassDone

CloseAVI

CloseAVI | CAVI

Stop recording. See MakeAVI.

CloseBF

CloseFogOfWar

CloseSBF

CompleteObjectif

ContinueAfterMission

ConvertToQuat

CrashIA

CreatePage

CreatGlobalInGameDatas

DeactivateGame

DeactivateGamePlayer

DeBugActionSphere

DeBugAINOSpeed

DebugAllWeapons

DeBugChangeGameMusic

DebugContextualMusic

DeBugCreatureGotoPos

DeBugCreatureState

DeBugCreatureUD

DeBugCreatureUDLod

DebugDraw3DElements



DebugDynamicInfo

DeBugFIRE

DebugFollowPath

DebugGenerateMission

DebugGenWorldTerrain



DeBuGGPS

DebugIA

DeBugInfos



DeBugInterfaceOnline

DebugItemMgr

DebugLevelMusic

DebugMC

DebugMenuBox

DebugMissionName

DebugNmyMgr

DeBugPlayerHead

DeBugPlayerLight

DebugPlayerPos

DeBugSightGUARD

DebugTheEnemies

DeBugVirages

DebugWaitAnim

DebugWeaponCamera

DebugWhiteFade

DeltaTime

DisableAssert

DisableConsole

DisableDebugTools

DisableFileMirroring

DisableIngameConsole

DisableMouseForCamera

Makes it so the mouse cannot be used to move the camera.

`DisableMovie`

Skips all movies.

`DisableMusic``DisableOSD``DisableShaderCompile`

Skips the “Processing Shaders” step when loading the game.

`DisplayDebugOnline``DisplayFollowSplines``DisplayFPS`



DisplayFrameBar

DisplayImage

DisplayLegalText

DisplayMemStatus

DisplaySoundInfo



DisplayStream

DisplayStreamPOPing

DisplaySurfaceBox

DisplayVisibleObject

DoSkelDynamic

DPlayRtc

DrawMemGraph

DrawMEMInfos

DrawTEXInfos

EditCutRoad

EditDeleteRoad

EditLinkRoad

EditMakeRoad

EditStartRoad

EditTypeRoad

EMD_Begin

EMD_End

EMD_ExportVehicleName

EMD_ForceStartPosition

EMD_HideStartEnd

EMD_Save

EMD_SetAIElasticParam

EMD_SetCheckpoint

EMD_SetCheckpointTimerBonus

EMD_SetEndPos

EMD_SetEndRot

EMD_SetFilterIA

EMD_SetName

EMD_SetNbIA

EMD_SetNbLoop

EMD_SetPlayerAllowedClassFilter

EMD_SetPlayerAllowedGroupFilter

EMD_SetPlayerAllowedVehiculeFilter

EMD_SetPlayerForbiddenClassFilter

EMD_SetPlayerForbiddenGroupFilter

EMD_SetPlayerForbiddenVehiculeFilter

EMD_SetRaceMode

EMD_SetRaceScenario

EMD_SetStartPos

EMD_SetStartRot

EMD_SetTimer

EMD_SetTimerCheckBonus

EMD_SetWeatherScenario

EnableBF

EnableBloomEffect

EnableDebugMOuse

EnableDebugTools

EnableDebugViewport

EnableDmaProfiler

EnableL2R2

EnableNightmareDifficulty

EnablePopupMenu

EnableTSProfiler

EnableVSYnc

EndDrawLoadingBitmap

EndLoadingLEVEL

EndMENURessourceParsing

EndOfMission

EndOfParsePilotLivery

EndOfParsingTSC

EndOfScriptStreamedBigfile

EndOfVehiclePP

EndRaceRecord

EndSTRIP

EnterRaceGameSession

eXit

FitOnObject

ForceBF

ForceDayTime

ForceDayTime beginning ForceDayTime xx.yy [00.00, 24.00)

ForceDestroyVehicle

ForceMeshIA

ForceUnLock

FreeLanguage

FreezeTheCons

FX

GAMEStarted

GenerateMissioN

GeneratePointOfInterest

GetMatrixUsage

GetMemoryStats

GotoDummyName

`GotoDummyTeleport``Help``IADebug``InfiniteVision``InfoMissions``InitEmptySave``InitGameMgr``InitLanguageMC``InitRandomSeed``InputDefAdd``InstallGameFiles``JoinFreeRideGameSession``JoinFreeRideGameSessionWithFriends``JoinRaceGameSession``KillFade``KillHelicopter``KillMission``KillPlayer``LAUNCHMission``LiSTMarKer``Load``LoadATVFile``LoadFont path`

While a BigFile is open this command will load a Fonts_Z. The path FONTES\BIG_FONT will be transformed to DB:>FONTES>BIG_FONT.TFONT then hashed and looked up in the open BigFile.

LoadGameData

LoadINPUT

LoadMarKer

LoadMaterialLib

LoadMissionData

LoadObjectLib

LoadRefWorld

LoadRoadFile

LoadRTC

LoadSysRtc

LoadWorldRef

LoadWorldRefS

LockAll

LoseCurrentMission

MakeAllBF

MakeAVI

MakeAVI|MAVI [num_frames] [fps]

both arguments default to 30 if not present. They may be overwritten individually by providing 1 or 2 arguments optionally. The directory C:\temp must exist for this command to work. A menu will pop up to configure the recording options. See CloseAVI.

MakeFlyVideo

MakeRTCBF

MarkMEMory

MemoryGraphColor

MENUDEBug

MENUDialog

MENUEndDialog

MENUEndWindow

MENUParseTSC

MENUPlatform

MENUPropertyBackgroundImage

MENUPropertyBitmapColorAndStyle

MENUPropertyBitmapStyle

MENUPropertyBOXStyle

MENUPropertyChecked

MENUPropertyCOLOR

MENUPropertyDisplayedItemCount

MENUPropertyEnabled

MENUPropertyForceDisplayScrollBar

MENUPropertyForegroundImage

MENUPropertyFrameAlignment

MENUPropertyGoToCriticalColor

MENUPropertyImage

MENUPropertyListItem

MENUPropertyLowerCaseForced

MENUPropertyMAXValue

MENUPropertyMINValue

MENUPropertyMoviePath

MENUPropertyOutlined

MENUPropertySmallFont

MENUPropertyScrollable

MENUPropertyStateVisibility

MENUPropertySTEPValue

MENUPropertyText

MENUPropertyTextAlign

MENUPropertyTextSCALE

MENUPropertyTextSTYLE

MENUPropertyUFlipped

MENUPropertyUpperCaseForced

MENUPropertyVFlipped

MENUPropertyVisible

MENUPropertyWaitingStyle

MENUStyleBITMAP

MENUStyleBITmapColor

MENUStyleBitmapDim

MENUStyleBox

MENUStyleTextScroll

MENUStyleTextStruct

MENUUpdate

MENUWindow

MissionFilter

MissionFilterCheckpoints

MissionFilterIA

MissionStatisticS

MovePlayerTo

NbHandle

NoBackOmniInRtc

NoFadeAndStrip

NOTimeLimit

OpenAllFogOfWar

OpenBF

OpenBFS

OpenFogOfWar

OpenSBF

PackUnPackSaveBuffer

Pause

PauseAllAnimation

PauseConsole

PauseTheDynamics

PersoSPEED



PlayDialog

PlayerGotoCoord

PlayerInvincible

PlayerPP

PlayerUnlimWeapons

PlayerVehicleEndSaveAnimation

PlayerVehicleStartSaveAnimation

PlayLevel

PlayLevelMulti

PlayLevelMUSIC

PlayMOVieRegisterNetManager

PlayMusic

PlayRTC

PosPersoDebug

PrintFreeMem

PrintSeadsUsage

ProtectOfflineMission

PutParameter

PutParameterVehicle

ReadParameters

ReloadAllInGamePages

ReloadVehicleParameters

RemapTextAdd

RemoveAllDialogs

RemoveAllMaterialLib

RemoveFont

RemoveGame

ReMoveGamePlayer

RemoveGeneratedMission

ReMoveMarKer

RemoveMaterialLib

RemoveObjectLib

RemoveSysRtc

RemoveWorld

RemoveWorldRefs

ResetAverageSpeed

ResetBaseMeshLiveryID

ResetFogOfWar

REsetGame

RESETTextAdd

RestartFromBufferSave

RestartFromEmptySave

RestartMission

Save

SaveBasegeneratedMission

SaveFogOfWar

SaveGameData

SavegeneratedMission

SaveGenWorldHeightMap

SaveGenWorldMap

SaveGenWorldMapTiles

SaveMarKer

SavePointOfInterest

SaveRoadFile

SaveTheRoadsMap

SayStartingDiaLoG

ScreenShot

SEarchRaceGameSession

SeeEnemies

SEERunningMission

SEESTartedMission

SEELocked

SetAutoCompletion

SetBFPath

SetBlackScreen

SetBlockFrame

SetBOrderMargin

SetBrightness

SetContrast

SetDBPath

SetDebugCamFOV

SetDebugSDMode

SetDebugSDMode [PS3|X360|PC|MAC]

If the argument is missing or not one of the given strings, then the “Platform Dependent” SD is used.



SetDefaultMissionValues

SetDefaultRatio

SetDFPath

SetFrame

SetGame

SetGameLogicAgent

SetGameTSCFolder

SetGamma

SetGammaRamp

SetGenWorldDetailMPEG

SetGPS3DVisibleState

SetHubTargetInfos

SetHudsVisibleState

SetLanguage

SetLanguageAuto

SetLightingType

SetLightLevel

SetLoadingDraw

SetLoadingStep

SetLodRender

SetLodTexture

SetLoginPassword

SetMaxAnisotropy

SetMESSAGEUserName

SetMonoGame

SetMUSIC

SetPersoCamera

SetPlayerCountLimit

SetRtcFatherDummy

SetRtcMusic

SetRtcSBF

SetSplitType

SetStartPageMenuItem

SetStartTTInfosIndex

SetTextureFiltering

SetTimeFactor

SetTimeFactor <time factor>

0 < time factor <= 1 float

SetWorldToSplit

Show3DArrow

ShowMostNbMalloc

ShowOFFlineMissionName

ShowONlineMissionName

ShowUnlockedTROPHY

ShowUnmarkedMEMory

SHutRTC

SkipM0vie

SortHubListByUID

SouRCe

SpecialUnlockAll

StackPlayRtc

StartDataBase

StartFadeFromBlack

StartFadeToBlack

StartFreeRideGameSession

StartHubHUD

StartIGA

StartLoadingLEVEL

StartLoadMenu

StartMENUDefinition

STARTMission

StartNetwork

StartRaceGameSession

StartRenderBench

StartSTRIP

StartTUTORIAL

StartVehicle

StopLevelMUSIC

StopMUSIC

StopPlayerAnimation

SwapStartButton

SwitchCameraUser

SwitchCameraUser 0

Free cam toggle

SwitchChatHudState

SwitchDebugDialogState

SwitchDebugHudState

SWitchEnemies

SwitchFullScreen

SwitchGameToMono

SwitchGameToMulti

SwitchLockAllState

SwitchScreenMode

SwitchShortcutsDisplay

SwitchToNextVehicle

SwitchToPreviousVehicle

SwitchToVehicle

TelePort

TelePort|tlp x y z

x is east/west, y is north/south, and z is up/down

TeleportToHub

TeleportToMission

TeleportToMissionName

TestDurLow

TestDynamicMusic

TestRagDOLL

TESTVibration

TestWeatherScenario

TrafficOFF

TrafficON

TransText id string

The ID is used to reference this text in later commands. IDs can be between 0 and 16383, inclusive. While the range may seem weird at first, it begins to make sense when you realize that the size of the buffer is 16384 which is 0x4000 in hexadecimal. The string can use control codes and sometimes printf format specifiers. See the [Control Codes documentation entry](#) for more information.

TuneGenWorldTerrain

UnlockAll

UnlockFogOfWar

UnlockNeed

UnlockPlayMission

UnlockRTC

UnlockTrophy

UnlockTT

UnMuteSounds

UnPause

UnPauseFade

UpdateINPUTS

UpdateRes

UpdateSoundParameters

VehiclePP

VerboseNetwork

VOID

WinCurrentMission

TOTEM SCRIPT

Totem Script is a shell-like scripting language used in FUEL. Most of the textual game files are Totem Script scripts. Two of the extensions used for Totem Script are `.tsc` (Totem Script) and `.pc` in the `trtext` directory. In addition to being used in game files, the language is used in the in-game console and programmatically throughout the game executable. Each line of a Totem Script file is executed sequentially. If a line fails to execute then it is ignored and execution continues with the next line. Whitespace is ignored.

Command arguments have two types. The first type is a numeric argument. Numeric arguments are backed by a float value but in practice they are used as integers, booleans, and floats. The second type is a string argument. String arguments are unsurprisingly backed by a C-string value.

3.1 Text Editor Extensions

- Visual Studio Code
- Notepad++

3.2 Command Names

All command names are case insensitive. Only the first 15 capital letters and numbers in each command name are required, this is called the “short form command name” and it is also case insensitive. However, I recommend using the full command name in scripts for readability.

See the *Commands documentation entry* for a list of commands available in FUEL.

3.3 Directives

Directives are like commands built into the script evaluator instead of registered by the game. All directives are case insensitive. Directives are only available when executing a script file, so they cannot be used from the in-game console.

```
#set name
```

Sets a variable.

```
#define name
```

Alias for `#set`.

```
#unset name
```

Unsets a variable.

```
#if expression
```

If the expression evaluates as true then this block is executed. Otherwise, it is skipped.

An expression is a sequence of one or more variable names separated by the conditional operators `||` (Binary OR) and `&&` (Binary AND). If a variable name is set then it evaluates as true. Otherwise, it evaluates as false. Note that the expression is not escaped or quoted in any way. For example, `#if CD_MAKE_BF || CD_VERSION` will be satisfied when either `CD_MAKE_BF`, `CD_VERSION`, or both are set. But it will not be satisfied if neither are set.

Rather than having operator precedence, the expression is evaluated left to right with no operator precedence. For example, while you might expect the expression `name1 || name2 && name3 || name4` to be evaluated as `((name1 || name2) && (name3 || name4))` it is actually evaluated as `((name1 || name2) && name3) || name4`. Note that parentheses are not supported in expressions, they are only used here to illustrate the order of operations. Also, the conditional expressions do not have short circuit evaluation, not that this matters since there are no side effects.

```
#ifdef expression
```

Alias for `#if`.

```
#ifndef expression
```

Equivalent to `#if` except that it is satisfied when the expression evaluates as false.

```
#ifndef expression
```

Alias for `#ifndef`.

```
#else
```

If the matching `#if`, `#ifdef`, `#ifndef`, or `#ifndef` was unsatisfied, then this block is executed. Otherwise, it is skipped.

```
#endif
```

Close the matching `#if`, `#ifdef`, `#ifndef`, `#ifndef`, or `#else` block and resume unconditional execution.

3.4 Constants

All constants are case insensitive. While these constants change the numeric value, the string value will remain unchanged. Some commands will check for string values of “OFF” or “ON” independently of the command evaluator. In this case the argument must match exactly since the string value is being checked and not the numeric value.

```
true
```

Evaluates to a numeric argument of value 1.

```
false
```

Evaluates to a numeric argument of value 0.

```
on
```

Evaluates to a numeric argument of value 1.

```
off
```

Evaluates to a numeric argument of value 0.

3.5 Numeric Values

Integer, boolean, and float values can be used as arguments to commands. Integer and float values must be expressed in base 10 since there is no special handling for other bases. Boolean values can be expressed using the constants or numerically. A value of 0 represents false while any non-zero value represents true.

3.6 String Values

For basic strings with no whitespace, quotes, or backslashes, the string can be given as an argument verbatim, unquoted. For complex strings, a C-style string literal can be supplied as an argument to commands. A string literal is a sequence of characters enclosed by two ". To escape a " in a string literal use \". Likewise, a \ can be escaped by using \\. Rather than splitting on the spaces, the entire string will be given as one argument. This is useful when you want to pass a command an argument with spaces in it.

3.7 Comments

Totem Script supports C-style comments

```
//
```

Single line comment. Ignore all characters until the end of the line.

```
/*
```

Begin multi-line comment. Ignore all characters until the end multi-line comment sequence.

```
*/
```

End multi-line comment.

3.8 Arguments

```
%index
```

When a script file is invoked with the BSource command, tokens of the form %index will be replaced with the argument to BSource at index index. For example if the command-line BSource UserGame.tsc Story Story was run, %0 would be replaced with the name of the script (UserGame.tsc) and %1 would be replace with the first argument to BSource following the script name (Story), and so on. Nested calls to BSource are handled appropriately using a stack.

3.9 Limitations

The number of usable characters in a buffer is 1 less than the length of the buffer to leave room for the null terminator. The buffer length for each line is 2048 characters. The buffer length for the command name is 1024 characters. The buffer length for the short form command name is 16 characters. Registered commands are stored in a linked list and thus there is no limitation on the number of registered commands. The buffer length for each argument is 1024 characters. The buffer length for variable names is 32 characters. There can be at most 32 variables set at any one time. A command can have at most 32 arguments including the name. Since integer and float arguments are backed by 32-bit floating point values they are subject to the limitations imposed the underlying data type.

Additionally, an eagle eyed reader will have noticed that Totem Script only supports sequential and conditional execution, and not iterative execution. This means that there are no loops, so if you want to run a command multiple times then you need to copy and paste it that many times or fall back to a higher level environment and execute the commands from there. You will almost never need to do this so it is an excusable omission from the language.

COMMAND LINE OPTIONS

- E**
Explicitly checked and has a global variable corresponding to it but the global variable is never used.
- HS**
High-resolution shadow map. When present, the game will use a 2048x2048 shadow map instead of a 1024x1024 one.
- I**
When present, several initialization steps are skipped and the game crashes during startup. Among others, the `InstallGameFiles` command is not registered when this option is present. The check for this option is followed by an empty function indicating that the functionality associated with it was stripped from the release build.
- L**
When present, `logfile.txt` is used as a log file. There are 2 places in `WinConsole_Z` that could potentially write to this file but I have yet to observe this being used. It is likely that all logging calls were stripped in release builds.
- mce**
Related to [Windows XP Media Center Edition](#). When the game is launched with this command line option, the `%SystemRoot%\ehome\ehshell.exe` executable will be run upon exiting the game, or if Windows Virtual-Memory is not enabled, if the executable is present.
- W**
Launch in windowed mode with right-click menu.

ERRORS

5.1 The Game Disc could not be read

The Game Disc could not be read.



Causes:

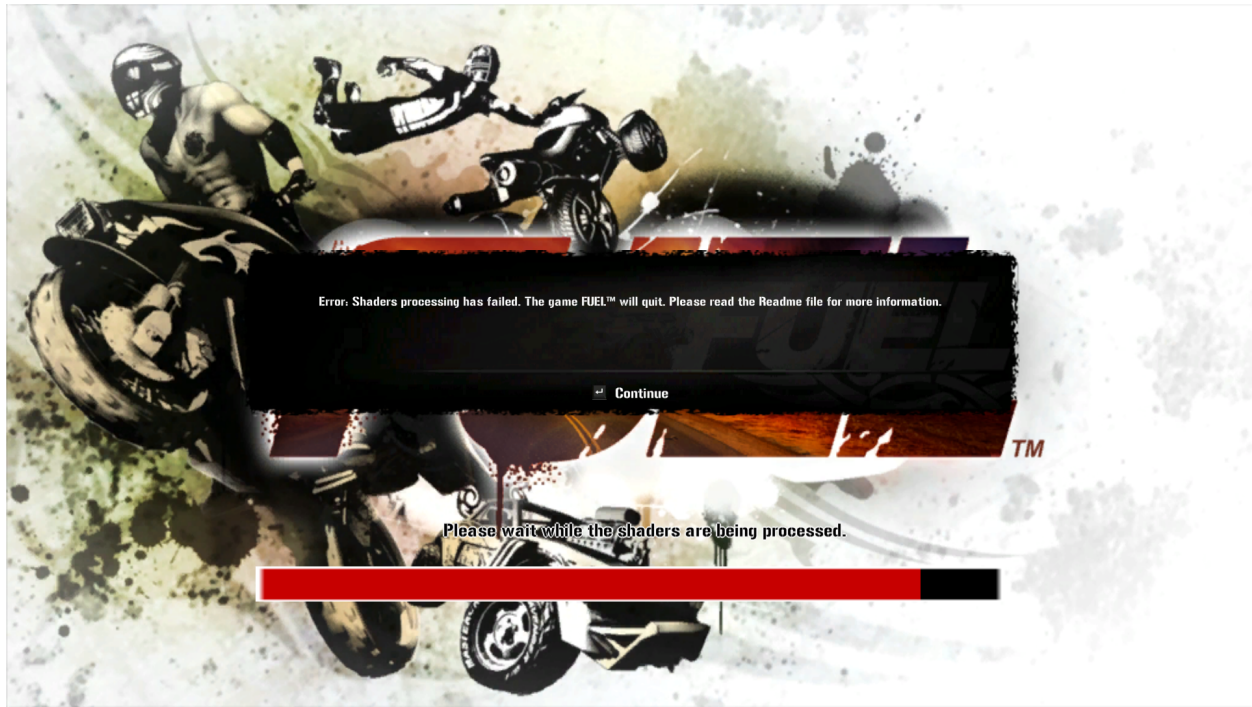
- A game file is missing or corrupted. Likely a .DPC file.

Solutions:

- Check the output log for the error message and report it to the mod author.

5.2 Error: Shaders processing has failed

Error: Shaders processing has failed. The game FUEL™ will quit. Please read the Readme file for more information.



Causes:

- A shader compiler error has occurred.

Solutions:

- Check the output log for the error message and report it to the mod author.

5.3 Save failed!

Save failed! Would you like to try again?



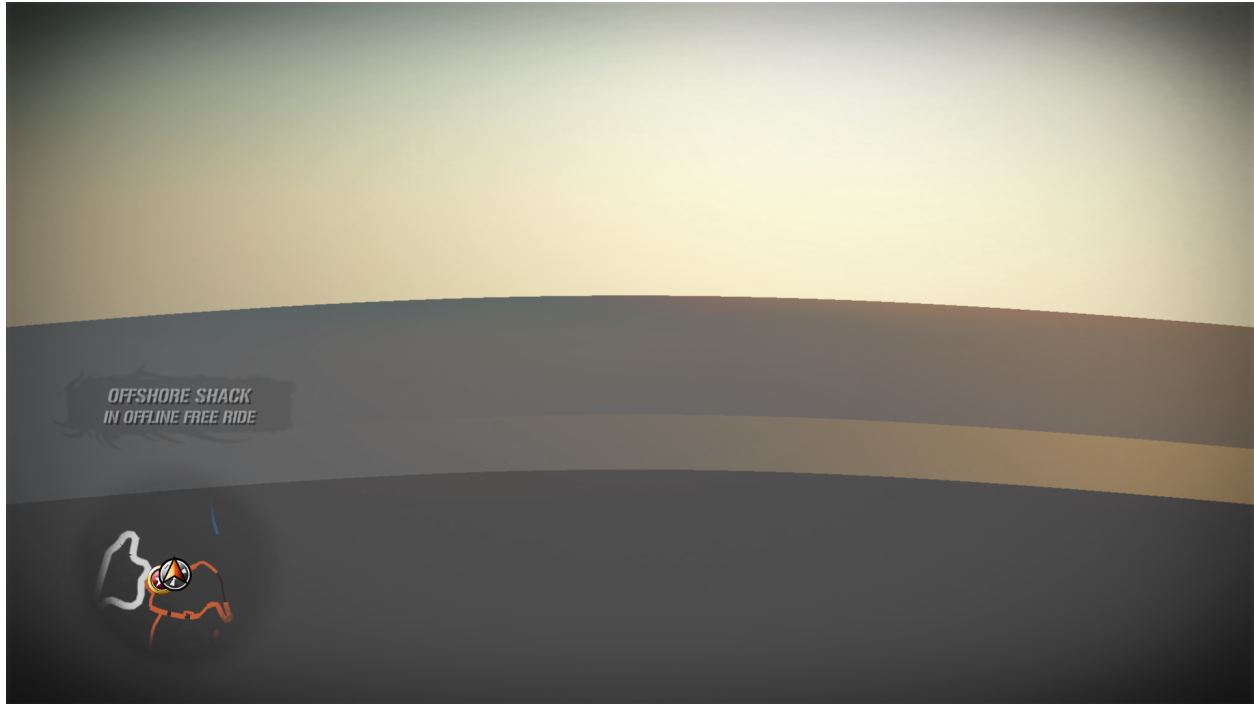
Causes:

- The game failed to write the save state to disk.

Solutions:

- Select No and hope it works the next time.

5.4 3D Objects Don't Render



Causes:

- Graphics Card 3D Settings

Solutions:

- For NVIDIA GPUs, open the NVIDIA Control Panel. Navigate to 3D Settings -> Manage 3D settings. Select the Program Settings tab and select FUEL.exe as the program to customize. Under Specify the settings for this program, set Antialiasing - Mode to Off.
- For Intel GPUs, open the Intel® Graphics Command Center. On the Home page in the Games tab, click the +/Add Games button to the right of My Games, or Manually Select if you haven't added any games before, and add FUEL.exe. Once added, click the new FUEL entry. Under DRIVER OVERRIDES, set Anti-Aliasing to Always Off.

5.5 Please make sure your hardware is supported by this application

Please make sure your hardware is supported by this application. Please refer to the Readme file. (WinLiveNetPlayManager_Z)

Fatal error



Please make sure your hardware is supported by this application. Please refer to the ReadMe file.
(WinLiveNetPlayManager_Z)

OK

Causes:

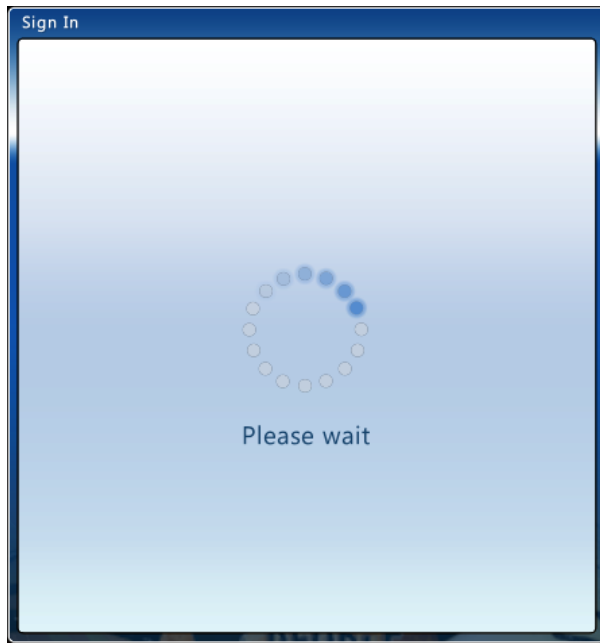
- GFWL is not properly installed.

Solutions:

- Use a liveless mod.
- If you want the real GFWL then reinstalling Windows seems to fix this :(

5.6 Please wait

Games For Windows LIVE Sign In Please wait



Causes:

- GFWL is a terrible piece of software.

Solutions:

- Wait. I had to wait ~30mins the last time I had this.

CONTROL CODES

Control codes for TransText and other strings.

Some strings accept C standard library `printf` format specifiers.

6.1 General Control Codes

~

Newline. Multiple of this escape sequence in a row must be separated by spaces to be aligned. For example ~ ~ should be used instead of ~~ if you want two newlines with the same alignment. Without the space the second line will be shifted to the left.

2

em space. Invisible non-whitespace character with a width of approximately 1 space character scaled to the current font size. Useful for when you want to print a space but cannot have `char c` such that `std::isspace(c) == true`.

|

Zero-width space. Invisible non-whitespace character with a width of zero. The game tries to print the literal | character as a separator in a few places but it does not show up as expected.

£

1px indent. Invisible non-whitespace character with a width of approximately 1 pixel. Regardless of where in the line £ occurs, the space will be applied to the beginning of the line.

^

^ followed by 3 digits, `^\d{3}`, will set the color. `^RGB` will result in `Color(R / 9 * 255, G / 9 * 255, B / 9 * 255)`. The one exception to this rule is `^000` which resets the color to the default, white. Since `^000` is a special case, you must use `^001` to achieve the closest thing to the color black. Advanced note: Characters outside of the 0–9 range are allowed; however, the ASCII value of the characters are used so `^XYZ, ^.{3}`, will result in unexpected interpretations of the color value. This is because for `char c` the digit value is determined by `c - '0'` leading to negative or large numbers for individual place values when `std::isdigit(c) == false`.

§

§ followed by 3 digits, `§\d{3}`, will set the text size. `§HXY` can be interpreted as a one digit header, H, value followed by a two digit size value, XY. When the header is zero, the size value may range from 0, text is so small it is not visible, to 99, the largest size. When the header value is non-zero, the text is first scaled inversely to the header value, 1 is the

largest and 9 is the smallest, then it is scaled again inversely by the size value, 0 is the largest size for that header value and 99 is the smallest size for that header value. Advanced note: the same behavior for non-digit characters applies as with ^.

μ

Right justify. Following the first occurrence of μ in the string, align the text to the right side of the panel and use weird “indent on new-line” behavior. If a line following the first occurrence of μ in the string has characters before the first occurrence of μ in the line, those characters will be indented. If a line following the first occurrence of μ in the string has characters after the first occurrence of μ in the line, those characters will not be indented regardless of if indented characters exist previously on the line. This can lead to weird overlapping text on the same line with the right combination of ~ and μ characters. The last line will always be indented if there exists a line containing μ before it regardless of μ being present in the last line.

6.2 TransText Specific Control Codes

The following control codes only have an effect when used in TransText strings.

STR_

The full sequence of STR_\S+, where the part following STR_ is a registered LanguageHandleSTR, is replaced with the registered substitute. This is mainly used to insert the characters corresponding to button icon glyphs into TransText strings without having to use the actual characters which most text editors will not be able to display and are not easy to remember.

6.3 Credits Specific Control Codes

The following control codes only have an effect during the credits sequence.

\$

When \$ is the only character in a string, the string is empty. This is used during the credits to add padding between sections.

BITMAP_

The two observed variants of this control code are BITMAP_GAMESPY and BITMAP_BINK. This control code is used to display the logo of the respective entities during the credits.

END OF CREDITS

When the full string is END OF CREDITS, the credits end.

6.4 Configuration Specific Control Codes

The following control codes only have an effect during the controls layout menu.

END OF ACTION

When the full string is END OF ACTION, the sequential parsing of TransText key names ends. This is used to separate different input categories; however, the game does not handle separate input categories.

END OF CONTEXT

When the full string is END OF CONTEXT and the TransText string with the ID one less than the current one is END OF ACTION, the context ends. This signals the end of the last input category.

6.5 Multibyte Characters

Some strings are interpreted as 8-bit Extended ASCII (EASCII) while others are interpreted as UTF-8. If the control codes listed above are not working, it is possible that the string is expecting the character as UTF-8 and not EASCII. For example, § is \xA7 in EASCII and \xC2\xA7 in UTF-8. You may find [this table](#) to be a useful reference for ASCII and UTF-8 comparisons.

6.6 Non-Printing Characters

Characters that are not present in the current font, e.g. \x00-\x1F, will not be printed. Just because a character does not print does not mean it is a control code; it might just not have an associated glyph in the current font.

6.7 Escape Sequence

There is no way to escape control codes. This is incredibly inconvenient since ~, |, and ^ are standard printable ASCII characters with no way to be displayed.

GAME PARAMETERS

7.1 Param/pp001.tsc

The Param/pp001.tsc file contains a non-continuous sequence of 1429 PutParameter commands ranging from index 1 to 5655 of the form PP index value [platform]. If platform is NOT excluded or NOT PC, the parameter is not set. Platforms include PC, PS3, and X360. The size of the array containing the parameters is 0x2000. Therefore, valid indices are in the range [0x0000, 0x1FFF].

7.2 Hot Reload

The Param/pp001.tsc file can be hot reloaded by editing and saving Param/pp001.tsc then running the ReadParameters 1 command via the in-game developer command palette for the changes to take place without restarting the game. Only code reading parameters after the reload will use the new values. Code that reads a parameter once at startup will not receive the new value.

7.3 Values

The value of a game parameter can be expressed in several ways. By default every parameter has an uninitialized garbage value.

The first, and most common, way to express the value is with a numeric argument. If the argument is numeric, then the numeric representation of the argument is used as the value of the parameter.

Next, if the string representation of the argument matches the pattern R\d*G\d*B\d*A\d*, then the value will be the packed RGBA representation of the argument. That is, a 4 byte array where each byte is the value of the corresponding RGBA component in that order. Component values are clamped in the range [0, 255]. This feature does not appear to be used in FUEL.

Finally, if none of the previous conditions were matched, then the value is assumed to be an arbitrary string and the CRC-32 hash of the string representation of the argument is used as the value.

7.4 Parameter Table

Index	Type	Description	Notes
1	Numeric	pp001.tsc version	Must equal 88
2			Related to Navigator3dHUD
3			Related to Navigator3dHUD
4			Related to Navigator3dHUD
5			Related to Navigator3dHUD
6			Related to Navigator3dHUD
7			Related to Navigator3dHUD
8			
9			
10			
11			Related to Navigator3dHUD
12			Related to Navigator3dHUD
13			Related to Navigator3dHUD
14			
15			
16			
17			Related to Navigator3dHUD
18			Related to Navigator3dHUD
19			Related to Navigator3dHUD
20			Related to TT and RtcScript
21	Unused	Unused	Unused
22			Related to ViewportHUD
23			Related to ViewportHUD
24	Unused	Unused	Unused
25			
26			
27			
28			
29			
30			
31			
32-38	Unused	Unused	Unused
39	Numeric	Menu tint red	Red component of the menu
40	Numeric	Menu tint green	Green component of the menu
41	Numeric	Menu tint blue	Blue component of the menu
42	Numeric	Menu distortion	Amount of distortion around
43	Numeric	Menu tint amount	Amount of tint over the camera
44	Unused	Unused	Unused
45			Related to menus
46			
47			Related to menus
48			Related to menus
49	Unused	Unused	Unused
50			Related to MissionStatus_G
51			Related to LoadingDraw_C
52			Related to MissionStatus_G
53-59	Unused	Unused	Unused
60			Dead end Xref related to IN7

Table 1 – continued from previous page

Index	Type	Description	Notes
61			Dead end Xref related to INT
62			Related to menu
63			Related to menu
64			Related to menu
65			Related to menu
66			Related to menu
67			Related to menu
68			Related to menu
69			Related to menu
70			Related to menu
71			Related to menu
72			Related to InGame3DVehicle
73			Related to InGame3DVehicle
74-79	Unused	Unused	Unused
80	Numeric	F14 Delay	Time between planes flying o
81	Numeric	F14 Speed	Speed of planes flying overh
82	Numeric	F14 Height	Height of planes flying overh
83-89	Unused	Unused	Unused
90			Related to MeterHUD
91-119	Unused	Unused	Unused
120			Related to IT_COLLECTMo
121-129	Unused	Unused	Unused
130			
131-149	Unused	Unused	Unused
150			Related to IT_DYNOBJMov
151			Related to IT_DYNOBJMov
152-249	Unused	Unused	Unused
250			Related to ScriptManager_G
251			Related to ScriptManager_G
252			Related to ScriptManager_G
253-299	Unused	Unused	Unused
300			0 X related to menu
301			0 Y related to menu
302			0 Z related to menu
303			1 X related to menu
304			1 Y related to menu
305			1 Z related to menu
306			2 X related to menu
307			2 Y related to menu
308			2 Z related to menu
309			3 X related to menu
310			3 Y related to menu
311			3 Z related to menu
312			4 X related to menu
313			4 Y related to menu
314			4 Z related to menu
315			Value is excluded
316			Value is excluded
317			Value is excluded
318			Value is excluded

Table 1 – continued from previous page

Index	Type	Description	Notes
319			Value is excluded
320			InGameMapHUD crashes if
321			InGameMapHUD
322			InGameMapHUD
323			InGameMapHUD
324			InGameMapHUD
325			InGameMapHUD
326			InGameMapHUD
327			InGameMapHUD
328			InGameMapHUD
329			InGameMapHUD
330			InGameMapHUD
331			InGameMapHUD
332			InGameMapHUD
333			InGameMapHUD
334			InGameMapHUD
335			InGameMapHUD
336			InGameMapHUD
337			InGameMapHUD
338			InGameMapHUD
339			InGameMapHUD
340			InGameMapHUD
341			Value is excluded
342			Value is excluded
343			Value is excluded
344			Value is excluded
345			Value is excluded
346			Value is excluded
347			Value is excluded
348			Value is excluded
349			Value is excluded
350			Value is excluded
351			Value is excluded
352			Value is excluded
353			Value is excluded
354-359	Unused	Unused	Unused
360			Related to GeneratedOfflineV
361-369	Unused	Unused	Unused
370			Related to WeatherManager_
371			Related to WeatherManager_
372			
373-379	Unused	Unused	Unused
380			
381-499	Unused	Unused	Unused
500			320's 0
501			320's 1
502			320's 2
503			320's 3
504			320's 4
505			320's 5

Table 1 – continued from previous page

Index	Type	Description	Notes
506			320's 6
507			320's 7
508			320's 8
509-519	Unused	Unused	Unused
520			321's 0
521			321's 1
522			321's 2
523			321's 3
524			321's 4
525			321's 5
526			321's 6
527			321's 7
528			321's 8
529-539	Unused	Unused	Unused
540			322's 0
541			322's 1
542			322's 2
543			322's 3
544			322's 4
545			322's 5
546			322's 6
547			322's 7
548			322's 8
549-559	Unused	Unused	Unused
560			323's 0
561			323's 1
562			323's 2
563			323's 3
564			323's 4
565			323's 5
566			323's 6
567			323's 7
568			323's 8
569-579	Unused	Unused	Unused
580			324's 0
581			324's 1
582			324's 2
583			324's 3
584			324's 4
585			324's 5
586			324's 6
587			324's 7
588			324's 8
589-599	Unused	Unused	Unused
600			325's 0
601			325's 1
602			325's 2
603			325's 3
604			325's 4
605			325's 5

Table 1 – continued from previous page

Index	Type	Description	Notes
606			325's 6
607			325's 7
608			325's 8
609-619	Unused	Unused	Unused
620			326's 0
621			326's 1
622			326's 2
623			326's 3
624			326's 4
625			326's 5
626			326's 6
627			326's 7
628			326's 8
629-639	Unused	Unused	Unused
640			327's 0
641			327's 1
642			327's 2
643			327's 3
644			327's 4
645			327's 5
646			327's 6
647			327's 7
648			327's 8
649-659	Unused	Unused	Unused
660			328's 0
661			328's 1
662			328's 2
663			328's 3
664			328's 4
665			328's 5
666			328's 6
667			328's 7
668			328's 8
669-679	Unused	Unused	Unused
680			329's 0
681			329's 1
682			329's 2
683			329's 3
684			329's 4
685			329's 5
686			329's 6
687			329's 7
688			329's 8
689-699	Unused	Unused	Unused
700			330's 0
701			330's 1
702			330's 2
703			330's 3
704			330's 4
705			330's 5

Table 1 – continued from previous page

Index	Type	Description	Notes
706			330's 6
707			330's 7
708			330's 8
709-719	Unused	Unused	Unused
720			331's 0
721			331's 1
722			331's 2
723			331's 3
724			331's 4
725			331's 5
726			331's 6
727			331's 7
728			331's 8
729-739	Unused	Unused	Unused
740			332's 0
741			332's 1
742			332's 2
743			332's 3
744			332's 4
745			332's 5
746			332's 6
747			332's 7
748			332's 8
749-759	Unused	Unused	Unused
760			333's 0
761			333's 1
762			333's 2
763			333's 3
764			333's 4
765			333's 5
766			333's 6
767			333's 7
768			333's 8
769-779	Unused	Unused	Unused
780			334's 0
781			334's 1
782			334's 2
783			334's 3
784			334's 4
785			334's 5
786			334's 6
787			334's 7
788			334's 8
789-799	Unused	Unused	Unused
800			335's 0
801			335's 1
802			335's 2
803			335's 3
804			335's 4
805			335's 5

Table 1 – continued from previous page

Index	Type	Description	Notes
806			335's 6
807			335's 7
808			335's 8
809-819	Unused	Unused	Unused
820			336's 0
821			336's 1
822			336's 2
823			336's 3
824			336's 4
825			336's 5
826			336's 6
827			336's 7
828			336's 8
829-839	Unused	Unused	Unused
840			337's 0
841			337's 1
842			337's 2
843			337's 3
844			337's 4
845			337's 5
846			337's 6
847			337's 7
848			337's 8
849-859	Unused	Unused	Unused
860			338's 0
861			338's 1
862			338's 2
863			338's 3
864			338's 4
865			338's 5
866			338's 6
867			338's 7
868			338's 8
869-879	Unused	Unused	Unused
880			339's 0
881			339's 1
882			339's 2
883			339's 3
884			339's 4
885			339's 5
886			339's 6
887			339's 7
888			339's 8
889-899	Unused	Unused	Unused
900			340's 0
901			340's 1
902			340's 2
903			340's 3
904			340's 4
905			340's 5

Table 1 – continued from previous page

Index	Type	Description	Notes
906			340's 6
907			340's 7
908			340's 8
909-919	Unused	Unused	Unused
920			341's 0
921			341's 1
922			341's 2
923			341's 3
924			341's 4
925			341's 5
926			341's 6
927			341's 7
928			341's 8
929-2000	Unused	Unused	Unused
2001			Platform specific and related
2002			Platform specific and related
2003			Platform specific
2004			Platform specific
2005			Platform specific
2006			Platform specific
2007			Platform specific
2008			Platform specific and related
2009			Platform specific and related
2010			Platform specific
2011			Platform specific
2012-2019	Unused	Unused	Unused
2020			Platform specific 0's 0
2021			Platform specific 0's 1
2022			Platform specific 0's 2
2023			Platform specific 0's 3
2024			Platform specific 0's 4
2025			Platform specific 0's 5
2026			Platform specific 0's 6
2027			Platform specific 0's 7
2028			Platform specific 0's 8
2029			Platform specific 0's 9
2030			Platform specific 0's 10
2031			Platform specific 0's 11
2032			Platform specific 0's 12
2033			Platform specific 0's 13
2034			Platform specific 0's 14
2035-2049	Unused	Unused	Unused
2050			Platform specific 1's 0
2051			Platform specific 1's 1
2052			Platform specific 1's 2
2053			Platform specific 1's 3
2054			Platform specific 1's 4
2055			Platform specific 1's 5
2056			Platform specific 1's 6
2057			Platform specific 1's 7

Table 1 – continued from previous page

Index	Type	Description	Notes
2058			Platform specific 1's 8
2059			Platform specific 1's 9
2060			Platform specific 1's 10
2061			Platform specific 1's 11
2062			Platform specific 1's 12
2063			Platform specific 1's 13
2064			Platform specific 1's 14
2065-2079	Unused	Unused	Unused
2080			Platform specific 2's 0
2081			Platform specific 2's 1
2082			Platform specific 2's 2
2083			Platform specific 2's 3
2084			Platform specific 2's 4
2085			Platform specific 2's 5
2086			Platform specific 2's 6
2087			Platform specific 2's 7
2088			Platform specific 2's 8
2089			Platform specific 2's 9
2090			Platform specific 2's 10
2091			Platform specific 2's 11
2092			Platform specific 2's 12
2093			Platform specific 2's 13
2094			Platform specific 2's 14
2095-2149	Unused	Unused	Unused
2150			Platform specific and related
2151			Platform specific and related
2152			Platform specific and related
2153			Platform specific and related
2154			Platform specific and related
2155			Platform specific and related
2156			Platform specific and related
2157-2199	Unused	Unused	Unused
2200			Platform specific
2201			Platform specific and related
2202			Platform specific and related
2203			Platform specific and related
2204-2209	Unused	Unused	Unused
2210			Platform specific
2211			Platform specific
2212			Platform specific
2213			Platform specific
2214			Platform specific
2215			Platform specific
2216-2219	Unused	Unused	Unused
2220			Platform specific and related
2221			Platform specific and related
2222			Platform specific and related
2223			Platform specific and related
2224			Platform specific and related
2225			Platform specific and related

Table 1 – continued from previous page

Index	Type	Description	Notes
2226-2999	Unused	Unused	Unused
3000	String		PlayerPP 0 Equals “DEFAULT”
3001			PlayerPP 1
3002			PlayerPP 2
3003			PlayerPP 3
3004			PlayerPP 4
3005			PlayerPP 5
3006			PlayerPP 6
3007			PlayerPP 7
3008			PlayerPP 8
3009			PlayerPP 9
3010			PlayerPP 10
3011			PlayerPP 11
3012			PlayerPP 12
3013			PlayerPP 13
3014			PlayerPP 14
3015			PlayerPP 15
3016			PlayerPP 16
3017			PlayerPP 17
3018			PlayerPP 18
3019			PlayerPP 19
3020			PlayerPP 20
3021			PlayerPP 21
3022			PlayerPP 22
3023			PlayerPP 23
3024			PlayerPP 24
3025			PlayerPP 25
3026			PlayerPP 26
3027			PlayerPP 27
3028			PlayerPP 28
3029			PlayerPP 29
3030			PlayerPP 30
3031			PlayerPP 31
3032			PlayerPP 32
3033			PlayerPP 33
3034			PlayerPP 34
3035			PlayerPP 35
3036			PlayerPP 36
3037			PlayerPP 37
3038			PlayerPP 38
3039			PlayerPP 39
3040			PlayerPP 40
3041			PlayerPP 41
3042			PlayerPP 42
3043			PlayerPP 43
3044			PlayerPP 44
3045-3049	Unused	Unused	Unused
3050			PlayerPP 50
3051			PlayerPP 51
3052			PlayerPP 52

Table 1 – continued from previous page

Index	Type	Description	Notes
3053			PlayerPP 53
3054			PlayerPP 54
3055			PlayerPP 55
3056			PlayerPP 56
3057			PlayerPP 57
3058			PlayerPP 58
3059			PlayerPP 59
3060-3069	Unused	Unused	Unused
3070			PlayerPP 70
3071			PlayerPP 71
3072			PlayerPP 72
3073			PlayerPP 73
3074			PlayerPP 74
3075			PlayerPP 75
3076-3079	Unused	Unused	Unused
3080			PlayerPP 80
3081			PlayerPP 81
3082-3099	Unused	Unused	Unused
3100			PlayerPP 100
3101			PlayerPP 101
3102			PlayerPP 102
3103			PlayerPP 103
3104			PlayerPP 104
3105			PlayerPP 105
3106			PlayerPP 106
3107			PlayerPP 107
3108			PlayerPP 108
3109			PlayerPP 109
3110			PlayerPP 110
3111			PlayerPP 111
3112			PlayerPP 112
3113			PlayerPP 113
3114-3119	Unused	Unused	Unused
3120			PlayerPP 120
3121			PlayerPP 121
3122			PlayerPP 122
3123			PlayerPP 123
3124			PlayerPP 124
3125-3129	Unused	Unused	Unused
3130			PlayerPP 130
3131			PlayerPP 131
3132			PlayerPP 132
3133-3149	Unused	Unused	Unused
3150			PlayerPP 150
3151			PlayerPP 151
3152			PlayerPP 152
3153			PlayerPP 153
3154			PlayerPP 154
3155			PlayerPP 155
3156			PlayerPP 156

Table 1 – continued from previous page

Index	Type	Description	Notes
3157			PlayerPP 157
3158			PlayerPP 158
3159			PlayerPP 159
3160			PlayerPP 160
3161			PlayerPP 161
3162			PlayerPP 162
3163-3169	Unused	Unused	Unused
3170			PlayerPP 170
3171			PlayerPP 171
3172			PlayerPP 172
3173			PlayerPP 173
3174			PlayerPP 174
3175			PlayerPP 175
3176-3179	Unused	Unused	Unused
3180			PlayerPP 180
3181			PlayerPP 181
3182			PlayerPP 182
3183			PlayerPP 183
3184			PlayerPP 184
3185			PlayerPP 185
3186-3190	Unused	Unused	Unused
3191			PlayerPP 191
3192			PlayerPP 192
3193			PlayerPP 193
3194			PlayerPP 194
3195			PlayerPP 195
3196			PlayerPP 196
3197			PlayerPP 197
3198			PlayerPP 198
3199			PlayerPP 199
3200			PlayerPP 200
3201			PlayerPP 201
3202			PlayerPP 202
3203			PlayerPP 203
3204			PlayerPP 204
3205			PlayerPP 205
3206-3209	Unused	Unused	Unused
3210			PlayerPP 210
3211			PlayerPP 211
3212			PlayerPP 212
3213			PlayerPP 213
3214			PlayerPP 214
3215-3219	Unused	Unused	Unused
3220			PlayerPP 220
3221			PlayerPP 221
3222			PlayerPP 222
3223			PlayerPP 223
3224			PlayerPP 224
3225			PlayerPP 225
3226			PlayerPP 226

Table 1 – continued from previous page

Index	Type	Description	Notes
3227			PlayerPP 227
3228			PlayerPP 228
3229-3239	Unused	Unused	Unused
3240			PlayerPP 240
3241			PlayerPP 241
3242			PlayerPP 242
3243			PlayerPP 243
3244			PlayerPP 244
3245			PlayerPP 245
3246			PlayerPP 246
3247			PlayerPP 247
3248			PlayerPP 248
3249			PlayerPP 249
3250			PlayerPP 250
3251			PlayerPP 251
3252-3999	Unused	Unused	Unused
4000	String	STATIC Road Type Property Name	Equals “STATIC”
4001	Float	SP_TARMAC STATIC Road Type Property Value	
4002	Float	SP_FLATDIRTROAD STATIC Road Type Property Value	
4003	Float	SP_ROUGHDIRTROAD STATIC Road Type Property Value	
4004	Float	SP_FLATEARTH STATIC Road Type Property Value	
4005	Float	SP_ROUGHHEARTH STATIC Road Type Property Value	
4006	Float	SP_FLATROCK STATIC Road Type Property Value	
4007	Float	SP_ROUGHROCK STATIC Road Type Property Value	
4008	Float	SP_SMALLSTONES STATIC Road Type Property Value	
4009	Float	SP_BIGSTONES STATIC Road Type Property Value	
4010	Float	SP_FLATSAND STATIC Road Type Property Value	
4011	Float	SP_ROUGHSAND STATIC Road Type Property Value	
4012	Float	SP_FLATGRASS STATIC Road Type Property Value	
4013	Float	SP_ROUGHGRASS STATIC Road Type Property Value	
4014	Float	SP_FLATICE STATIC Road Type Property Value	
4015	Float	SP_ROUGHICE STATIC Road Type Property Value	
4016	Float	SP_FLATHARDSNOW STATIC Road Type Property Value	
4017	Float	SP_ROUGHHARDSNOW STATIC Road Type Property Value	
4018	Float	SP_SOFTSNOW STATIC Road Type Property Value	
4019	String	KINETIC Road Type Property Name	Equals “KINETIC”
4020	Float	SP_TARMAC KINETIC Road Type Property Value	
4021	Float	SP_FLATDIRTROAD KINETIC Road Type Property Value	
4022	Float	SP_ROUGHDIRTROAD KINETIC Road Type Property Value	
4023	Float	SP_FLATEARTH KINETIC Road Type Property Value	
4024	Float	SP_ROUGHHEARTH KINETIC Road Type Property Value	
4025	Float	SP_FLATROCK KINETIC Road Type Property Value	
4026	Float	SP_ROUGHROCK KINETIC Road Type Property Value	
4027	Float	SP_SMALLSTONES KINETIC Road Type Property Value	
4028	Float	SP_BIGSTONES KINETIC Road Type Property Value	
4029	Float	SP_FLATSAND KINETIC Road Type Property Value	
4030	Float	SP_ROUGHSAND KINETIC Road Type Property Value	
4031	Float	SP_FLATGRASS KINETIC Road Type Property Value	
4032	Float	SP_ROUGHGRASS KINETIC Road Type Property Value	
4033	Float	SP_FLATICE KINETIC Road Type Property Value	

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Index	Type	Description	Notes
4034	Float	SP_ROUGHICE KINETIC Road Type Property Value	
4035	Float	SP_FLATHARDSNOW KINETIC Road Type Property Value	
4036	Float	SP_ROUGHHARDSNOW KINETIC Road Type Property Value	
4037	Float	SP_SOFTSNOW KINETIC Road Type Property Value	
4038	String	DYNAMIC Road Type Property Name	Equals “DYNAMIC”
4039	Float	SP_TARMAC DYNAMIC Road Type Property Value	
4040	Float	SP_FLATDIRTROAD DYNAMIC Road Type Property Value	
4041	Float	SP_ROUGHDIRTROAD DYNAMIC Road Type Property Value	
4042	Float	SP_FLATEARTH DYNAMIC Road Type Property Value	
4043	Float	SP_ROUGHHEARTH DYNAMIC Road Type Property Value	
4044	Float	SP_FLATROCK DYNAMIC Road Type Property Value	
4045	Float	SP_ROUGHROCK DYNAMIC Road Type Property Value	
4046	Float	SP_SMALLSTONES DYNAMIC Road Type Property Value	
4047	Float	SP_BIGSTONES DYNAMIC Road Type Property Value	
4048	Float	SP_FLATSAND DYNAMIC Road Type Property Value	
4049	Float	SP_ROUGHSAND DYNAMIC Road Type Property Value	
4050	Float	SP_FLATGRASS DYNAMIC Road Type Property Value	
4051	Float	SP_ROUGHGRASS DYNAMIC Road Type Property Value	
4052	Float	SP_FLATICE DYNAMIC Road Type Property Value	
4053	Float	SP_ROUGHICE DYNAMIC Road Type Property Value	
4054	Float	SP_FLATHARDSNOW DYNAMIC Road Type Property Value	
4055	Float	SP_ROUGHHARDSNOW DYNAMIC Road Type Property Value	
4056	Float	SP_SOFTSNOW DYNAMIC Road Type Property Value	
4057	String	ROLLING Road Type Property Name	Equals “ROLLING”
4058	Float	SP_TARMAC ROLLING Road Type Property Value	
4059	Float	SP_FLATDIRTROAD ROLLING Road Type Property Value	
4060	Float	SP_ROUGHDIRTROAD ROLLING Road Type Property Value	
4061	Float	SP_FLATEARTH ROLLING Road Type Property Value	
4062	Float	SP_ROUGHHEARTH ROLLING Road Type Property Value	
4063	Float	SP_FLATROCK ROLLING Road Type Property Value	
4064	Float	SP_ROUGHROCK ROLLING Road Type Property Value	
4065	Float	SP_SMALLSTONES ROLLING Road Type Property Value	
4066	Float	SP_BIGSTONES ROLLING Road Type Property Value	
4067	Float	SP_FLATSAND ROLLING Road Type Property Value	
4068	Float	SP_ROUGHSAND ROLLING Road Type Property Value	
4069	Float	SP_FLATGRASS ROLLING Road Type Property Value	
4070	Float	SP_ROUGHGRASS ROLLING Road Type Property Value	
4071	Float	SP_FLATICE ROLLING Road Type Property Value	
4072	Float	SP_ROUGHICE ROLLING Road Type Property Value	
4073	Float	SP_FLATHARDSNOW ROLLING Road Type Property Value	
4074	Float	SP_ROUGHHARDSNOW ROLLING Road Type Property Value	
4075	Float	SP_SOFTSNOW ROLLING Road Type Property Value	
4076	String	SOFTNESS Road Type Property Name	Equals “SOFTNESS”
4077	Float	SP_TARMAC SOFTNESS Road Type Property Value	
4078	Float	SP_FLATDIRTROAD SOFTNESS Road Type Property Value	
4079	Float	SP_ROUGHDIRTROAD SOFTNESS Road Type Property Value	
4080	Float	SP_FLATEARTH SOFTNESS Road Type Property Value	
4081	Float	SP_ROUGHHEARTH SOFTNESS Road Type Property Value	
4082	Float	SP_FLATROCK SOFTNESS Road Type Property Value	
4083	Float	SP_ROUGHROCK SOFTNESS Road Type Property Value	

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Index	Type	Description	Notes
4084	Float	SP_SMALLSTONES SOFTNESS Road Type Property Value	
4085	Float	SP_BIGSTONES SOFTNESS Road Type Property Value	
4086	Float	SP_FLATSAND SOFTNESS Road Type Property Value	
4087	Float	SP_ROUGHSAND SOFTNESS Road Type Property Value	
4088	Float	SP_FLATGRASS SOFTNESS Road Type Property Value	
4089	Float	SP_ROUGHGRASS SOFTNESS Road Type Property Value	
4090	Float	SP_FLATICE SOFTNESS Road Type Property Value	
4091	Float	SP_ROUGHICE SOFTNESS Road Type Property Value	
4092	Float	SP_FLATHARDSNOW SOFTNESS Road Type Property Value	
4093	Float	SP_ROUGHHARDSNOW SOFTNESS Road Type Property Value	
4094	Float	SP_SOFTSNOW SOFTNESS Road Type Property Value	
4095	String	SIDE SLOW Road Type Property Name	Equals “SIDE SLOW”
4096	Float	SP_TARMAC SIDE SLOW Road Type Property Value	
4097	Float	SP_FLATDIRTROAD SIDE SLOW Road Type Property Value	
4098	Float	SP_ROUGHDIRTROAD SIDE SLOW Road Type Property Value	
4099	Float	SP_FLATEARTH SIDE SLOW Road Type Property Value	
4100	Float	SP_ROUGHEARTH SIDE SLOW Road Type Property Value	
4101	Float	SP_FLATROCK SIDE SLOW Road Type Property Value	
4102	Float	SP_ROUGHROCK SIDE SLOW Road Type Property Value	
4103	Float	SP_SMALLSTONES SIDE SLOW Road Type Property Value	
4104	Float	SP_BIGSTONES SIDE SLOW Road Type Property Value	
4105	Float	SP_FLATSAND SIDE SLOW Road Type Property Value	
4106	Float	SP_ROUGHSAND SIDE SLOW Road Type Property Value	
4107	Float	SP_FLATGRASS SIDE SLOW Road Type Property Value	
4108	Float	SP_ROUGHGRASS SIDE SLOW Road Type Property Value	
4109	Float	SP_FLATICE SIDE SLOW Road Type Property Value	
4110	Float	SP_ROUGHICE SIDE SLOW Road Type Property Value	
4111	Float	SP_FLATHARDSNOW SIDE SLOW Road Type Property Value	
4112	Float	SP_ROUGHHARDSNOW SIDE SLOW Road Type Property Value	
4113	Float	SP_SOFTSNOW SIDE SLOW Road Type Property Value	
4114	String	STATIC WET Road Type Property Name	Equals “STATIC WET”
4115	Float	SP_TARMAC STATIC WET Road Type Property Value	
4116	Float	SP_FLATDIRTROAD STATIC WET Road Type Property Value	
4117	Float	SP_ROUGHDIRTROAD STATIC WET Road Type Property Value	
4118	Float	SP_FLATEARTH STATIC WET Road Type Property Value	
4119	Float	SP_ROUGHEARTH STATIC WET Road Type Property Value	
4120	Float	SP_FLATROCK STATIC WET Road Type Property Value	
4121	Float	SP_ROUGHROCK STATIC WET Road Type Property Value	
4122	Float	SP_SMALLSTONES STATIC WET Road Type Property Value	
4123	Float	SP_BIGSTONES STATIC WET Road Type Property Value	
4124	Float	SP_FLATSAND STATIC WET Road Type Property Value	
4125	Float	SP_ROUGHSAND STATIC WET Road Type Property Value	
4126	Float	SP_FLATGRASS STATIC WET Road Type Property Value	
4127	Float	SP_ROUGHGRASS STATIC WET Road Type Property Value	
4128	Float	SP_FLATICE STATIC WET Road Type Property Value	
4129	Float	SP_ROUGHICE STATIC WET Road Type Property Value	
4130	Float	SP_FLATHARDSNOW STATIC WET Road Type Property Value	
4131	Float	SP_ROUGHHARDSNOW STATIC WET Road Type Property Value	
4132	Float	SP_SOFTSNOW STATIC WET Road Type Property Value	
4133	String	KINETIC WET Road Type Property Name	Equals “KINETIC WET”

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Index	Type	Description	Notes
4134	Float	SP_TARMAC KINETIC WET Road Type Property Value	
4135	Float	SP_FLATDIRTROAD KINETIC WET Road Type Property Value	
4136	Float	SP_ROUGHDIRTROAD KINETIC WET Road Type Property Value	
4137	Float	SP_FLATEARTH KINETIC WET Road Type Property Value	
4138	Float	SP_ROUGHHEARTH KINETIC WET Road Type Property Value	
4139	Float	SP_FLATROCK KINETIC WET Road Type Property Value	
4140	Float	SP_ROUGHROCK KINETIC WET Road Type Property Value	
4141	Float	SP_SMALLSTONES KINETIC WET Road Type Property Value	
4142	Float	SP_BIGSTONES KINETIC WET Road Type Property Value	
4143	Float	SP_FLATSAND KINETIC WET Road Type Property Value	
4144	Float	SP_ROUGHSAND KINETIC WET Road Type Property Value	
4145	Float	SP_FLATGRASS KINETIC WET Road Type Property Value	
4146	Float	SP_ROUGHGRASS KINETIC WET Road Type Property Value	
4147	Float	SP_FLATICE KINETIC WET Road Type Property Value	
4148	Float	SP_ROUGHICE KINETIC WET Road Type Property Value	
4149	Float	SP_FLATHARDSNOW KINETIC WET Road Type Property Value	
4150	Float	SP_ROUGHHARDSNOW KINETIC WET Road Type Property Value	
4151	Float	SP_SOFTSNOW KINETIC WET Road Type Property Value	
4152	String	DYNAMIC WET Road Type Property Name	Equals “DYNAMIC WET”
4153	Float	SP_TARMAC DYNAMIC WET Road Type Property Value	
4154	Float	SP_FLATDIRTROAD DYNAMIC WET Road Type Property Value	
4155	Float	SP_ROUGHDIRTROAD DYNAMIC WET Road Type Property Value	
4156	Float	SP_FLATEARTH DYNAMIC WET Road Type Property Value	
4157	Float	SP_ROUGHHEARTH DYNAMIC WET Road Type Property Value	
4158	Float	SP_FLATROCK DYNAMIC WET Road Type Property Value	
4159	Float	SP_ROUGHROCK DYNAMIC WET Road Type Property Value	
4160	Float	SP_SMALLSTONES DYNAMIC WET Road Type Property Value	
4161	Float	SP_BIGSTONES DYNAMIC WET Road Type Property Value	
4162	Float	SP_FLATSAND DYNAMIC WET Road Type Property Value	
4163	Float	SP_ROUGHSAND DYNAMIC WET Road Type Property Value	
4164	Float	SP_FLATGRASS DYNAMIC WET Road Type Property Value	
4165	Float	SP_ROUGHGRASS DYNAMIC WET Road Type Property Value	
4166	Float	SP_FLATICE DYNAMIC WET Road Type Property Value	
4167	Float	SP_ROUGHICE DYNAMIC WET Road Type Property Value	
4168	Float	SP_FLATHARDSNOW DYNAMIC WET Road Type Property Value	
4169	Float	SP_ROUGHHARDSNOW DYNAMIC WET Road Type Property Value	
4170	Float	SP_SOFTSNOW DYNAMIC WET Road Type Property Value	
4171	String	ROLLING WET Road Type Property Name	Equals “ROLLING WET”
4172	Float	SP_TARMAC ROLLING WET Road Type Property Value	
4173	Float	SP_FLATDIRTROAD ROLLING WET Road Type Property Value	
4174	Float	SP_ROUGHDIRTROAD ROLLING WET Road Type Property Value	
4175	Float	SP_FLATEARTH ROLLING WET Road Type Property Value	
4176	Float	SP_ROUGHHEARTH ROLLING WET Road Type Property Value	
4177	Float	SP_FLATROCK ROLLING WET Road Type Property Value	
4178	Float	SP_ROUGHROCK ROLLING WET Road Type Property Value	
4179	Float	SP_SMALLSTONES ROLLING WET Road Type Property Value	
4180	Float	SP_BIGSTONES ROLLING WET Road Type Property Value	
4181	Float	SP_FLATSAND ROLLING WET Road Type Property Value	
4182	Float	SP_ROUGHSAND ROLLING WET Road Type Property Value	
4183	Float	SP_FLATGRASS ROLLING WET Road Type Property Value	

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Index	Type	Description	Notes
4184	Float	SP_ROUGHGRASS ROLLING WET Road Type Property Value	
4185	Float	SP_FLATICE ROLLING WET Road Type Property Value	
4186	Float	SP_ROUGHICE ROLLING WET Road Type Property Value	
4187	Float	SP_FLATHARDSNOW ROLLING WET Road Type Property Value	
4188	Float	SP_ROUGHHARDSNOW ROLLING WET Road Type Property Value	
4189	Float	SP_SOFTSNOW ROLLING WET Road Type Property Value	
4190	String	SOFTNESS WET Road Type Property Name	Equals “SOFTNESS WET”
4191	Float	SP_TARMAC SOFTNESS WET Road Type Property Value	
4192	Float	SP_FLATDIRTROAD SOFTNESS WET Road Type Property Value	
4193	Float	SP_ROUGHDIRTROAD SOFTNESS WET Road Type Property Value	
4194	Float	SP_FLATEARTH SOFTNESS WET Road Type Property Value	
4195	Float	SP_ROUGHHEARTH SOFTNESS WET Road Type Property Value	
4196	Float	SP_FLATROCK SOFTNESS WET Road Type Property Value	
4197	Float	SP_ROUGHROCK SOFTNESS WET Road Type Property Value	
4198	Float	SP_SMALLSTONES SOFTNESS WET Road Type Property Value	
4199	Float	SP_BIGSTONES SOFTNESS WET Road Type Property Value	
4200	Float	SP_FLATSAND SOFTNESS WET Road Type Property Value	
4201	Float	SP_ROUGHSAND SOFTNESS WET Road Type Property Value	
4202	Float	SP_FLATGRASS SOFTNESS WET Road Type Property Value	
4203	Float	SP_ROUGHGRASS SOFTNESS WET Road Type Property Value	
4204	Float	SP_FLATICE SOFTNESS WET Road Type Property Value	
4205	Float	SP_ROUGHICE SOFTNESS WET Road Type Property Value	
4206	Float	SP_FLATHARDSNOW SOFTNESS WET Road Type Property Value	
4207	Float	SP_ROUGHHARDSNOW SOFTNESS WET Road Type Property Value	
4208	Float	SP_SOFTSNOW SOFTNESS WET Road Type Property Value	
4209	String	SIDE SLOW WET Road Type Property Name	Equals “SIDE SLOW WET”
4210	Float	SP_TARMAC SIDE SLOW WET Road Type Property Value	
4211	Float	SP_FLATDIRTROAD SIDE SLOW WET Road Type Property Value	
4212	Float	SP_ROUGHDIRTROAD SIDE SLOW WET Road Type Property Value	
4213	Float	SP_FLATEARTH SIDE SLOW WET Road Type Property Value	
4214	Float	SP_ROUGHHEARTH SIDE SLOW WET Road Type Property Value	
4215	Float	SP_FLATROCK SIDE SLOW WET Road Type Property Value	
4216	Float	SP_ROUGHROCK SIDE SLOW WET Road Type Property Value	
4217	Float	SP_SMALLSTONES SIDE SLOW WET Road Type Property Value	
4218	Float	SP_BIGSTONES SIDE SLOW WET Road Type Property Value	
4219	Float	SP_FLATSAND SIDE SLOW WET Road Type Property Value	
4220	Float	SP_ROUGHSAND SIDE SLOW WET Road Type Property Value	
4221	Float	SP_FLATGRASS SIDE SLOW WET Road Type Property Value	
4222	Float	SP_ROUGHGRASS SIDE SLOW WET Road Type Property Value	
4223	Float	SP_FLATICE SIDE SLOW WET Road Type Property Value	
4224	Float	SP_ROUGHICE SIDE SLOW WET Road Type Property Value	
4225	Float	SP_FLATHARDSNOW SIDE SLOW WET Road Type Property Value	
4226	Float	SP_ROUGHHARDSNOW SIDE SLOW WET Road Type Property Value	
4227	Float	SP_SOFTSNOW SIDE SLOW WET Road Type Property Value	
4228	String	BUMPS ROT Road Type Property Name	Equals “BUMPS ROT”
4229	Float	SP_TARMAC BUMPS ROT Road Type Property Value	
4230	Float	SP_FLATDIRTROAD BUMPS ROT Road Type Property Value	
4231	Float	SP_ROUGHDIRTROAD BUMPS ROT Road Type Property Value	
4232	Float	SP_FLATEARTH BUMPS ROT Road Type Property Value	
4233	Float	SP_ROUGHHEARTH BUMPS ROT Road Type Property Value	

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Index	Type	Description	Notes
4234	Float	SP_FLATROCK BUMPS ROT Road Type Property Value	
4235	Float	SP_ROUGHROCK BUMPS ROT Road Type Property Value	
4236	Float	SP_SMALLSTONES BUMPS ROT Road Type Property Value	
4237	Float	SP_BIGSTONES BUMPS ROT Road Type Property Value	
4238	Float	SP_FLATSAND BUMPS ROT Road Type Property Value	
4239	Float	SP_ROUGHSAND BUMPS ROT Road Type Property Value	
4240	Float	SP_FLATGRASS BUMPS ROT Road Type Property Value	
4241	Float	SP_ROUGHGRASS BUMPS ROT Road Type Property Value	
4242	Float	SP_FLATICE BUMPS ROT Road Type Property Value	
4243	Float	SP_ROUGHICE BUMPS ROT Road Type Property Value	
4244	Float	SP_FLATHARDSNOW BUMPS ROT Road Type Property Value	
4245	Float	SP_ROUGHHARDSNOW BUMPS ROT Road Type Property Value	
4246	Float	SP_SOFTSNOW BUMPS ROT Road Type Property Value	
4247	String	BUMPS WHEEL Road Type Property Name	Equals “BUMPS WHEEL”
4248	Float	SP_TARMAC BUMPS WHEEL Road Type Property Value	
4249	Float	SP_FLATDIRTROAD BUMPS WHEEL Road Type Property Value	
4250	Float	SP_ROUGHDIRTROAD BUMPS WHEEL Road Type Property Value	
4251	Float	SP_FLATEARTH BUMPS WHEEL Road Type Property Value	
4252	Float	SP_ROUGHHEARTH BUMPS WHEEL Road Type Property Value	
4253	Float	SP_FLATROCK BUMPS WHEEL Road Type Property Value	
4254	Float	SP_ROUGHROCK BUMPS WHEEL Road Type Property Value	
4255	Float	SP_SMALLSTONES BUMPS WHEEL Road Type Property Value	
4256	Float	SP_BIGSTONES BUMPS WHEEL Road Type Property Value	
4257	Float	SP_FLATSAND BUMPS WHEEL Road Type Property Value	
4258	Float	SP_ROUGHSAND BUMPS WHEEL Road Type Property Value	
4259	Float	SP_FLATGRASS BUMPS WHEEL Road Type Property Value	
4260	Float	SP_ROUGHGRASS BUMPS WHEEL Road Type Property Value	
4261	Float	SP_FLATICE BUMPS WHEEL Road Type Property Value	
4262	Float	SP_ROUGHICE BUMPS WHEEL Road Type Property Value	
4263	Float	SP_FLATHARDSNOW BUMPS WHEEL Road Type Property Value	
4264	Float	SP_ROUGHHARDSNOW BUMPS WHEEL Road Type Property Value	
4265	Float	SP_SOFTSNOW BUMPS WHEEL Road Type Property Value	
4266	String	DEPTH Road Type Property Name	Equals “DEPTH”
4267	Float	SP_TARMAC DEPTH Road Type Property Value	
4268	Float	SP_FLATDIRTROAD DEPTH Road Type Property Value	
4269	Float	SP_ROUGHDIRTROAD DEPTH Road Type Property Value	
4270	Float	SP_FLATEARTH DEPTH Road Type Property Value	
4271	Float	SP_ROUGHHEARTH DEPTH Road Type Property Value	
4272	Float	SP_FLATROCK DEPTH Road Type Property Value	
4273	Float	SP_ROUGHROCK DEPTH Road Type Property Value	
4274	Float	SP_SMALLSTONES DEPTH Road Type Property Value	
4275	Float	SP_BIGSTONES DEPTH Road Type Property Value	
4276	Float	SP_FLATSAND DEPTH Road Type Property Value	
4277	Float	SP_ROUGHSAND DEPTH Road Type Property Value	
4278	Float	SP_FLATGRASS DEPTH Road Type Property Value	
4279	Float	SP_ROUGHGRASS DEPTH Road Type Property Value	
4280	Float	SP_FLATICE DEPTH Road Type Property Value	
4281	Float	SP_ROUGHICE DEPTH Road Type Property Value	
4282	Float	SP_FLATHARDSNOW DEPTH Road Type Property Value	
4283	Float	SP_ROUGHHARDSNOW DEPTH Road Type Property Value	

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Index	Type	Description	Notes
4284	Float	SP_SOFTSNOW DEPTH Road Type Property Value	
4285	String	BOOST BONUS Road Type Property Name	Equals “BOOST BONUS”
4286	Float	SP_TARMAC BOOST BONUS Road Type Property Value	
4287	Float	SP_FLATDIRTROAD BOOST BONUS Road Type Property Value	
4288	Float	SP_ROUGHDIRTROAD BOOST BONUS Road Type Property Value	
4289	Float	SP_FLATEARTH BOOST BONUS Road Type Property Value	
4290	Float	SP_ROUGHHEARTH BOOST BONUS Road Type Property Value	
4291	Float	SP_FLATROCK BOOST BONUS Road Type Property Value	
4292	Float	SP_ROUGHROCK BOOST BONUS Road Type Property Value	
4293	Float	SP_SMALLSTONES BOOST BONUS Road Type Property Value	
4294	Float	SP_BIGSTONES BOOST BONUS Road Type Property Value	
4295	Float	SP_FLATSAND BOOST BONUS Road Type Property Value	
4296	Float	SP_ROUGHSAND BOOST BONUS Road Type Property Value	
4297	Float	SP_FLATGRASS BOOST BONUS Road Type Property Value	
4298	Float	SP_ROUGHGRASS BOOST BONUS Road Type Property Value	
4299	Float	SP_FLATICE BOOST BONUS Road Type Property Value	
4300	Float	SP_ROUGHICE BOOST BONUS Road Type Property Value	
4301	Float	SP_FLATHARDSNOW BOOST BONUS Road Type Property Value	
4302	Float	SP_ROUGHHARDSNOW BOOST BONUS Road Type Property Value	
4303	Float	SP_SOFTSNOW BOOST BONUS Road Type Property Value	
4304	String	TREMBLE ROLL Road Type Property Name	Equals “TREMBLE ROLL”
4305	Float	SP_TARMAC TREMBLE ROLL Road Type Property Value	
4306	Float	SP_FLATDIRTROAD TREMBLE ROLL Road Type Property Value	
4307	Float	SP_ROUGHDIRTROAD TREMBLE ROLL Road Type Property Value	
4308	Float	SP_FLATEARTH TREMBLE ROLL Road Type Property Value	
4309	Float	SP_ROUGHHEARTH TREMBLE ROLL Road Type Property Value	
4310	Float	SP_FLATROCK TREMBLE ROLL Road Type Property Value	
4311	Float	SP_ROUGHROCK TREMBLE ROLL Road Type Property Value	
4312	Float	SP_SMALLSTONES TREMBLE ROLL Road Type Property Value	
4313	Float	SP_BIGSTONES TREMBLE ROLL Road Type Property Value	
4314	Float	SP_FLATSAND TREMBLE ROLL Road Type Property Value	
4315	Float	SP_ROUGHSAND TREMBLE ROLL Road Type Property Value	
4316	Float	SP_FLATGRASS TREMBLE ROLL Road Type Property Value	
4317	Float	SP_ROUGHGRASS TREMBLE ROLL Road Type Property Value	
4318	Float	SP_FLATICE TREMBLE ROLL Road Type Property Value	
4319	Float	SP_ROUGHICE TREMBLE ROLL Road Type Property Value	
4320	Float	SP_FLATHARDSNOW TREMBLE ROLL Road Type Property Value	
4321	Float	SP_ROUGHHARDSNOW TREMBLE ROLL Road Type Property Value	
4322	Float	SP_SOFTSNOW TREMBLE ROLL Road Type Property Value	
4323	String	TREMBLE PITCH Road Type Property Name	Equals “TREMBLE PITCH”
4324	Float	SP_TARMAC TREMBLE PITCH Road Type Property Value	
4325	Float	SP_FLATDIRTROAD TREMBLE PITCH Road Type Property Value	
4326	Float	SP_ROUGHDIRTROAD TREMBLE PITCH Road Type Property Value	
4327	Float	SP_FLATEARTH TREMBLE PITCH Road Type Property Value	
4328	Float	SP_ROUGHHEARTH TREMBLE PITCH Road Type Property Value	
4329	Float	SP_FLATROCK TREMBLE PITCH Road Type Property Value	
4330	Float	SP_ROUGHROCK TREMBLE PITCH Road Type Property Value	
4331	Float	SP_SMALLSTONES TREMBLE PITCH Road Type Property Value	
4332	Float	SP_BIGSTONES TREMBLE PITCH Road Type Property Value	
4333	Float	SP_FLATSAND TREMBLE PITCH Road Type Property Value	

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Index	Type	Description	Notes
4334	Float	SP_ROUGHSAND TREMBLE PITCH Road Type Property Value	
4335	Float	SP_FLATGRASS TREMBLE PITCH Road Type Property Value	
4336	Float	SP_ROUGHGRASS TREMBLE PITCH Road Type Property Value	
4337	Float	SP_FLATICE TREMBLE PITCH Road Type Property Value	
4338	Float	SP_ROUGHICE TREMBLE PITCH Road Type Property Value	
4339	Float	SP_FLATHARDSNOW TREMBLE PITCH Road Type Property Value	
4340	Float	SP_ROUGHHARDSNOW TREMBLE PITCH Road Type Property Value	
4341	Float	SP_SOFTSNOW TREMBLE PITCH Road Type Property Value	
4342	String	DIRTY DRY Road Type Property Name	Equals “DIRTY DRY”
4343	Float	SP_TARMAC DIRTY DRY Road Type Property Value	
4344	Float	SP_FLATDIRTROAD DIRTY DRY Road Type Property Value	
4345	Float	SP_ROUGHDIRTROAD DIRTY DRY Road Type Property Value	
4346	Float	SP_FLATEARTH DIRTY DRY Road Type Property Value	
4347	Float	SP_ROUGHEARTH DIRTY DRY Road Type Property Value	
4348	Float	SP_FLATROCK DIRTY DRY Road Type Property Value	
4349	Float	SP_ROUGHROCK DIRTY DRY Road Type Property Value	
4350	Float	SP_SMALLSTONES DIRTY DRY Road Type Property Value	
4351	Float	SP_BIGSTONES DIRTY DRY Road Type Property Value	
4352	Float	SP_FLATSAND DIRTY DRY Road Type Property Value	
4353	Float	SP_ROUGHSAND DIRTY DRY Road Type Property Value	
4354	Float	SP_FLATGRASS DIRTY DRY Road Type Property Value	
4355	Float	SP_ROUGHGRASS DIRTY DRY Road Type Property Value	
4356	Float	SP_FLATICE DIRTY DRY Road Type Property Value	
4357	Float	SP_ROUGHICE DIRTY DRY Road Type Property Value	
4358	Float	SP_FLATHARDSNOW DIRTY DRY Road Type Property Value	
4359	Float	SP_ROUGHHARDSNOW DIRTY DRY Road Type Property Value	
4360	Float	SP_SOFTSNOW DIRTY DRY Road Type Property Value	
4361	String	DIRTY WET Road Type Property Name	Equals “DIRTY WET”
4362	Float	SP_TARMAC DIRTY WET Road Type Property Value	
4363	Float	SP_FLATDIRTROAD DIRTY WET Road Type Property Value	
4364	Float	SP_ROUGHDIRTROAD DIRTY WET Road Type Property Value	
4365	Float	SP_FLATEARTH DIRTY WET Road Type Property Value	
4366	Float	SP_ROUGHEARTH DIRTY WET Road Type Property Value	
4367	Float	SP_FLATROCK DIRTY WET Road Type Property Value	
4368	Float	SP_ROUGHROCK DIRTY WET Road Type Property Value	
4369	Float	SP_SMALLSTONES DIRTY WET Road Type Property Value	
4370	Float	SP_BIGSTONES DIRTY WET Road Type Property Value	
4371	Float	SP_FLATSAND DIRTY WET Road Type Property Value	
4372	Float	SP_ROUGHSAND DIRTY WET Road Type Property Value	
4373	Float	SP_FLATGRASS DIRTY WET Road Type Property Value	
4374	Float	SP_ROUGHGRASS DIRTY WET Road Type Property Value	
4375	Float	SP_FLATICE DIRTY WET Road Type Property Value	
4376	Float	SP_ROUGHICE DIRTY WET Road Type Property Value	
4377	Float	SP_FLATHARDSNOW DIRTY WET Road Type Property Value	
4378	Float	SP_ROUGHHARDSNOW DIRTY WET Road Type Property Value	
4379	Float	SP_SOFTSNOW DIRTY WET Road Type Property Value	
4380	String	ROLLING DAMAGE Road Type Property Name	Equals “ROLLING DAMAGE”
4381	Float	SP_TARMAC ROLLING DAMAGE Road Type Property Value	
4382	Float	SP_FLATDIRTROAD ROLLING DAMAGE Road Type Property Value	
4383	Float	SP_ROUGHDIRTROAD ROLLING DAMAGE Road Type Property Value	

Table 1 – continued from previous page

Index	Type	Description	Notes
4384	Float	SP_FLATEARTH ROLLING DAMAGE Road Type Property Value	
4385	Float	SP_ROUGHEARTH ROLLING DAMAGE Road Type Property Value	
4386	Float	SP_FLATROCK ROLLING DAMAGE Road Type Property Value	
4387	Float	SP_ROUGHROCK ROLLING DAMAGE Road Type Property Value	
4388	Float	SP_SMALLSTONES ROLLING DAMAGE Road Type Property Value	
4389	Float	SP_BIGSTONES ROLLING DAMAGE Road Type Property Value	
4390	Float	SP_FLATSAND ROLLING DAMAGE Road Type Property Value	
4391	Float	SP_ROUGHSAND ROLLING DAMAGE Road Type Property Value	
4392	Float	SP_FLATGRASS ROLLING DAMAGE Road Type Property Value	
4393	Float	SP_ROUGHGRASS ROLLING DAMAGE Road Type Property Value	
4394	Float	SP_FLATICE ROLLING DAMAGE Road Type Property Value	
4395	Float	SP_ROUGHICE ROLLING DAMAGE Road Type Property Value	
4396	Float	SP_FLATHARDSNOW ROLLING DAMAGE Road Type Property Value	
4397	Float	SP_ROUGHHARDSNOW ROLLING DAMAGE Road Type Property Value	
4398	Float	SP_SOFTSNOW ROLLING DAMAGE Road Type Property Value	
4399-4999	Unused	Unused	Unused
5000			
5001			Related to SpecialEffectsSno
5002			Related to SpecialEffectsSno
5003			
5004			Related to SpecialEffectsSno
5005			Related to SpecialEffectsSno
5006			Related to SpecialEffectsSno
5007			Related to SpecialEffectsSno
5008			Related to SpecialEffectsSno
5009			
5010			
5011			
5012			
5013			
5014			
5015			
5016			
5017			
5018			
5019			
5020			
5021			
5022			
5023			
5024			
5025			
5026			Related to SpecialEffectsSno
5027			Related to SpecialEffectsSno
5028-5029	Unused	Unused	Unused
5030			Related to SpecialEffectsSpl
5031			Related to SpecialEffectsSpl
5032			Related to SpecialEffectsSpl
5033			Related to SpecialEffectsSpl
5034			Related to SpecialEffectsSpl

Table 1 – continued from previous page

Index	Type	Description	Notes
5035			Related to SpecialEffectsSpl
5036			Related to SpecialEffectsSpl
5037			Related to SpecialEffectsSpl
5038			
5039			Related to SpecialEffectsSpl
5040			Related to SpecialEffectsRai
5041			
5042			Related to SpecialEffectsRai
5043			Related to SpecialEffectsRai
5044			Related to SpecialEffectsRai
5045			Related to SpecialEffectsRai
5046			Related to SpecialEffectsRai
5047			Related to SpecialEffectsRai
5048			Related to SpecialEffectsRai
5049			Related to SpecialEffectsRai
5050			Related to SpecialEffectsRai
5051			Related to SpecialEffectsRai
5052			Related to SpecialEffectsRai
5053			Related to SpecialEffectsRai
5054			Related to SpecialEffectsRai
5055			Related to SpecialEffectsRai
5056			Related to SpecialEffectsRai
5057			Related to SpecialEffectsRai
5058			Related to SpecialEffectsRai
5059			Related to SpecialEffectsRai
5060			Related to SpecialEffectsRai
5061			Related to SpecialEffectsRai
5062			Related to SpecialEffectsRai
5063			Related to SpecialEffectsRai
5064-5069	Unused	Unused	Unused
5070			Related to SpecialEffectsWh
5071			Related to SpecialEffectsWh
5072			Related to SpecialEffectsWh
5073			Related to SpecialEffectsWh
5074			
5075			Related to SpecialEffectsWh
5076			Related to SpecialEffectsWh
5077			Related to SpecialEffectsWh
5078			Related to SpecialEffectsWh
5079			Related to SpecialEffectsWh
5080			Related to SpecialEffectsWh
5081			Related to SpecialEffectsWh
5082			Related to SpecialEffectsWh
5083			Related to SpecialEffectsWh
5084			
5085			
5086			Related to SpecialEffectsWh
5087			Related to SpecialEffectsWh
5088			Related to SpecialEffectsWh
5089			Related to SpecialEffectsWh

Table 1 – continued from previous page

Index	Type	Description	Notes
5090			Related to SpecialEffectsWh
5091			Related to SpecialEffectsWh
5092			Related to SpecialEffectsWh
5093			Related to SpecialEffectsWh
5094			Related to SpecialEffectsWh
5095			Related to SpecialEffectsWh
5096			Related to SpecialEffectsWh
5097			Related to SpecialEffectsWh
5098			Related to SpecialEffectsWh
5099			Related to SpecialEffectsWh
5100			Related to SpecialEffectsWh
5101			
5102			
5103			Related to SpecialEffectsWh
5104			Related to SpecialEffectsWh
5105			Related to SpecialEffectsWh
5106			Related to SpecialEffectsWh
5107			Related to SpecialEffectsWh
5108			Related to SpecialEffectsWh
5109	Unused	Unused	Unused
5110			Related to SpecialEffectsWh
5111			Related to SpecialEffectsWh
5112			Related to SpecialEffectsWh
5113			Related to SpecialEffectsWh
5114			Related to SpecialEffectsWh
5115			Related to SpecialEffectsWh
5116			Related to SpecialEffectsWh
5117			
5118			Related to SpecialEffectsWh
5119			
5120			Related to SpecialEffectsWh
5121			Related to SpecialEffectsWh
5122			Related to SpecialEffectsWh
5123			Related to SpecialEffectsWh
5124			Related to SpecialEffectsWh
5125			Related to SpecialEffectsWh
5126			Related to SpecialEffectsWh
5127			Related to SpecialEffectsWh
5128			Related to SpecialEffectsWh
5129			Related to SpecialEffectsWh
5130			
5131			Related to SpecialEffectsWh
5132			Related to SpecialEffectsWh
5133-5199	Unused	Unused	Unused
5200			
5201			Related to SpecialEffectsClo
5202			Related to WeatherManager_
5203			Related to WeatherManager_
5204			
5205			

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Index	Type	Description	Notes
5206			Related to WeatherManager_
5207			Related to WeatherManager_
5208			Related to WeatherManager_
5209			Related to WeatherManager_
5210			Related to TornadoManipula
5211			Related to TornadoManipula
5212			Related to TornadoManipula
5213			Related to TornadoManipula
5214			Related to TornadoManipula
5215			Related to TornadoManipula
5216			Related to TornadoManipula
5217			Related to TornadoManipula
5218			Related to TornadoManipula
5219			Related to TornadoManipula
5220			Related to TornadoManipula
5221			Related to TornadoManipula
5222			Related to TornadoManipula
5223			Related to TornadoManipula
5224			Related to TornadoManipula
5225			Related to TornadoManipula
5226			Related to TornadoManipula
5227			Related to TornadoManipula
5228-5229	Unused	Unused	Unused
5230			Related to SpecialEffectsThu
5231			Related to SpecialEffectsThu
5232			Related to SpecialEffectsThu
5233			Related to SpecialEffectsThu
5234			Related to SpecialEffectsThu
5235			Related to SpecialEffectsThu
5236			
5237			
5238			Related to SpecialEffectsThu
5239			Related to SpecialEffectsThu
5240			Related to SpecialEffectsThu
5241			Related to SpecialEffectsThu
5242			Related to SpecialEffectsThu
5243			Related to SpecialEffectsThu
5244			
5245			Related to SpecialEffectsThu
5246			Related to SpecialEffectsThu
5247-5249	Unused	Unused	Unused
5250			
5251			
5252			
5253			Related to TornadoManipula
5254			Related to TornadoManipula
5255			Related to TornadoManipula
5256			Related to TornadoManipula
5257-5259	Unused	Unused	Unused
5260			

Table 1 – continued from previous page

Index	Type	Description	Notes
5261			
5262			
5263			Related to TornadoManipula
5264			Related to TornadoManipula
5265			Related to TornadoManipula
5266			Related to TornadoManipula
5267-5269	Unused	Unused	Unused
5270			Related to SpecialEffectsWin
5271			Related to SpecialEffectsWin
5272			Related to SpecialEffectsWin
5273			Related to SpecialEffectsWin
5274			Related to SpecialEffectsWin
5275			Related to SpecialEffectsWin
5276			Related to SpecialEffectsWin
5277			
5278-5279	Unused	Unused	Unused
5280			Related to SpecialEffectsWh
5281			Related to SpecialEffectsWh
5282			Related to SpecialEffectsWh
5283			Related to SpecialEffectsWh
5284			Related to SpecialEffectsWh
5285			Related to SpecialEffectsWh
5286			Related to SpecialEffectsWh
5287			Related to SpecialEffectsWh
5288			Related to SpecialEffectsWh
5289			Related to SpecialEffectsWh
5290			Related to SpecialEffectsWh
5291			
5292			Related to SpecialEffectsWh
5293			Related to SpecialEffectsWh
5294			Related to SpecialEffectsWh
5295-5299	Unused	Unused	Unused
5300			
5301			
5302			
5303			
5304			
5305			
5306			
5307			
5308			
5309			
5310			
5311			
5312			
5313			
5314			
5315-5319	Unused	Unused	Unused
5320			Related to vehicle
5321			Related to vehicle

Table 1 – continued from previous page

Index	Type	Description	Notes
5322			
5323			Related to vehicle
5324			Related to vehicle
5325			Related to vehicle
5326			Related to vehicle
5327			Related to vehicle
5328			Related to vehicle
5329			Related to vehicle
5330			
5331			Related to vehicle
5332			Related to vehicle
5333			Related to vehicle
5334-5339	Unused	Unused	Unused
5340			Related to SpecialEffectsWh
5341			Related to SpecialEffectsWh
5342			Related to SpecialEffectsWh
5343			Related to SpecialEffectsWh
5344			Related to SpecialEffectsWh
5345			
5346			Related to SpecialEffectsWh
5347			Related to SpecialEffectsWh
5348			Related to SpecialEffectsWh
5349			
5350			
5351			Related to SpecialEffectsWh
5352			Related to SpecialEffectsWh
5353			Related to SpecialEffectsWh
5354			Related to SpecialEffectsWh
5355			Related to SpecialEffectsWh
5356			Related to SpecialEffectsWh
5357-5359	Unused	Unused	Unused
5360			Related to SpecialEffectsWh
5361			Related to SpecialEffectsWh
5362			Related to SpecialEffectsWh
5363			Related to SpecialEffectsWh
5364			Related to SpecialEffectsWh
5365			Related to SpecialEffectsWh
5366			Related to SpecialEffectsWh
5367			Related to SpecialEffectsWh
5368			Related to SpecialEffectsWh
5369			
5370			Related to SpecialEffectsWh
5371			Related to SpecialEffectsWh
5372			Related to SpecialEffectsWh
5373			Related to SpecialEffectsWh
5374			Related to SpecialEffectsWh
5375			Related to SpecialEffectsWh
5376-5379	Unused	Unused	Unused
5380			Related to SpecialEffectsSan
5381			Related to SpecialEffectsSan

Table 1 – continued from previous page

Index	Type	Description	Notes
5382			Related to SpecialEffectsSan
5383			Related to SpecialEffectsSan
5384			Related to SpecialEffectsSan
5385			Related to SpecialEffectsSan
5386			Related to SpecialEffectsSan
5387			Related to SpecialEffectsSan
5388			Related to SpecialEffectsSan
5389			Related to SpecialEffectsSan
5390			Related to SpecialEffectsSan
5391			
5392			Related to SpecialEffectsSan
5393			Related to SpecialEffectsSan
5394			Related to SpecialEffectsSan
5395			Related to SpecialEffectsSan
5396			Related to SpecialEffectsSan
5397			Related to SpecialEffectsSan
5398			Related to SpecialEffectsSan
5399			Related to SpecialEffectsSan
5400			Related to SpecialEffectsWin
5401			Related to SpecialEffectsWin
5402			Related to SpecialEffectsWin
5403			Related to SpecialEffectsWin
5404			Related to SpecialEffectsWin
5405			Related to SpecialEffectsWin
5406			Related to SpecialEffectsWin
5407			Related to SpecialEffectsWin
5408			
5409			Related to SpecialEffectsWin
5410			Related to SpecialEffectsWin
5411			Related to SpecialEffectsWin
5412			Related to SpecialEffectsWin
5413			Related to SpecialEffectsWin
5414			Related to SpecialEffectsWin
5415			Related to SpecialEffectsWin
5416			Related to SpecialEffectsWin
5417			Related to SpecialEffectsWin
5418			Related to SpecialEffectsWin
5419			Related to SpecialEffectsWin
5420-5429	Unused	Unused	Unused
5430			
5431			
5432			
5433-5439	Unused	Unused	Unused
5440			Related to WeatherManager_
5441			Related to WeatherManager_
5442			Related to WeatherManager_
5443			Related to WeatherManager_
5444			Related to WeatherManager_
5445			Related to WeatherManager_
5446-5459	Unused	Unused	Unused

Table 1 – continued from previous page

Index	Type	Description	Notes
5460			Related to WeatherManager_
5461			Related to WeatherManager_
5462			Related to WeatherManager_
5463			Related to WeatherManager_
5464			Related to WeatherManager_
5465			Related to WeatherManager_
5466			Related to WeatherManager_
5467-5479	Unused	Unused	Unused
5480			Related to SpecialEffectsSan
5481			
5482			Related to SpecialEffectsSan
5483			Related to SpecialEffectsSan
5484			Related to SpecialEffectsSan
5485			Related to SpecialEffectsSan
5486			Related to SpecialEffectsSan
5487			
5488			
5489			
5490			
5491-5499	Unused	Unused	Unused
5500			Related to SpecialEffectsTor
5501			Related to SpecialEffectsTor
5502			Related to SpecialEffectsTor
5503			Related to SpecialEffectsTor
5504			Related to SpecialEffectsTor
5505			Related to SpecialEffectsTor
5506			Related to SpecialEffectsTor
5507			
5508-5509	Unused	Unused	Unused
5510			Related to SpecialEffectsMa
5511			Related to SpecialEffectsMa
5512			Related to SpecialEffectsMa
5513			Related to SpecialEffectsMa
5514			Related to SpecialEffectsMa
5515			Related to SpecialEffectsMa
5516			Related to SpecialEffectsWat
5517			Related to SpecialEffectsWat
5518			Related to SpecialEffectsWat
5519			Related to SpecialEffectsWat
5520			Related to SpecialEffectsMa
5521			Related to SpecialEffectsMa
5522			Related to SpecialEffectsMu
5523			Related to SpecialEffectsMu
5524-5529	Unused	Unused	Unused
5530			Related to SpecialEffectsMa
5531			Related to SpecialEffectsMa
5532-5549	Unused	Unused	Unused
5550			Related to SpecialEffectsPlay
5551			Related to SpecialEffectsPlay
5552			

Table 1 – continued from previous page

Index	Type	Description	Notes
5553			
5554			Related to SpecialEffectsPlay
5555			Related to SpecialEffectsPlay
5556			Related to SpecialEffectsPlay
5557			Related to SpecialEffectsPlay
5558			Related to SpecialEffectsPlay
5559			Related to SpecialEffectsPlay
5560			Related to SpecialEffectsPlay
5561			Related to SpecialEffectsPlay
5562			Related to SpecialEffectsPlay
5563			Related to SpecialEffectsPlay
5564			Related to SpecialEffectsPlay
5565			Related to SpecialEffectsPlay
5566-5579	Unused	Unused	Unused
5580			Related to SpecialEffectsPlay
5581			Related to SpecialEffectsPlay
5582			Related to SpecialEffectsPlay
5583			Related to SpecialEffectsPlay
5584			Related to SpecialEffectsPlay
5585			Related to SpecialEffectsPlay
5586			Related to SpecialEffectsPlay
5587			Related to SpecialEffectsPlay
5588			Related to SpecialEffectsPlay
5589			Related to SpecialEffectsPlay
5590			
5591			
5592			Related to SpecialEffectsPlay
5593			Related to SpecialEffectsPlay
5594			Related to SpecialEffectsPlay
5595			Related to SpecialEffectsPlay
5596-5609	Unused	Unused	Unused
5610			Related to SpecialEffectsPlay
5611			Related to SpecialEffectsPlay
5612			Related to SpecialEffectsPlay
5613			Related to SpecialEffectsPlay
5614			Related to SpecialEffectsPlay
5615			Related to SpecialEffectsPlay
5616			Related to SpecialEffectsPlay
5617			Related to SpecialEffectsPlay
5618			Related to SpecialEffectsPlay
5619			Related to SpecialEffectsPlay
5620			Related to SpecialEffectsPlay
5621			Related to SpecialEffectsPlay
5622			Related to SpecialEffectsPlay
5623			Related to SpecialEffectsPlay
5624			Related to SpecialEffectsPlay
5625			Related to SpecialEffectsPlay
5626-5639	Unused	Unused	Unused
5640			Related to SpecialEffectsPlay
5641			Related to SpecialEffectsPlay

Table 1 – continued from previous page

Index	Type	Description	Notes
5642			Related to SpecialEffectsPlay
5643			Related to SpecialEffectsPlay
5644			Related to SpecialEffectsPlay
5645			Related to SpecialEffectsPlay
5646			Related to SpecialEffectsPlay
5647			Related to SpecialEffectsPlay
5648			Related to SpecialEffectsPlay
5649			Related to SpecialEffectsPlay
5650			Related to SpecialEffectsPlay
5651			Related to SpecialEffectsPlay
5652			Related to SpecialEffectsPlay
5653			Related to SpecialEffectsPlay
5654			Related to SpecialEffectsPlay
5655			Related to SpecialEffectsPlay

VEHICLE PARAMETERS

8.1 Param/VehicleParam.tsc

The `Param/VehicleParam.tsc` file starts with `DisableConsole` on then contains series of 679 `VehiclePP` commands each separated by a `EndOfVehiclePP` command. and ends with `DisableConsole`. The `DisableConsole` bookend commands are to ensure that the command processor is accepting commands while the file is run. Each sequence of 679 `VehiclePP` commands sets up the parameter buffer for an individual vehicle. Once all 679 `VehiclePP` commands for a vehicle have run, `EndOfVehiclePP` is run to commit the parameter buffer to the vehicle corresponding to the name given by parameter index 0.

8.2 FUEL Fandom Wiki VehiclesParam.tsc Entry

A few of the parameters have been investigated on the [FUEL Fandom Wiki VehiclesParam.tsc entry](#). The information on this page has not been independently verified or reverse engineered but is linked to for completeness.

8.3 Hot Reload

The `Param/VehicleParam.tsc` file can be hot reloaded by editing and saving `Param/VehicleParam.tsc` then running the `ReloadVehicleParameters` command via the *in-game developer command palette* and switching to another vehicle and back for the changes to take place without restarting the game. Only code reading parameters after the reload will use the new values. Code that reads a parameter once at startup will not receive the new value.

8.4 Debugging

The `DeBugInfos` command will enable a debug view of the current vehicle's configuration.

8.5 More Information

A table of English vehicle names mapped to their internal name can be found on the [Vehicle Details](#) entry of the [FMTK Developers](#) wiki. Some files that could help reverse engineer the vehicle parameters are the can be found in the [VehiclesParam.tsc](#) entry of the [FMTK Developers](#) wiki.

8.6 Parameter Table

Index	Description	Notes
0	Vehicle Internal Name	The first argument to AddVehicleInfo in VehicleDef.tsc
1	Unused?	Breakpoint wont hit
2		F Group related
3		$1.0 - vp3 / (2 * vp3)$
4		F Group related
5		F Group related
6		F Group related
7		F Group related
8		F Group related
9		F Group related
10		R Group related
11		F Group related
12		F Group related
13		K Group related
14		K Group related
15		H Group related
16		H Group related
17		H Group related
18		H Group related
19		H Group related
20		H Group related
21		H Group related. Accessed if vp15 is > 0
22		H Group related. Accessed if vp15 is > 0
23		H Group related. Accessed if vp15 is > 0
24		H Group related. Accessed if vp15 is > 0
25	Unused?	Breakpoint wont hit
26	Unused?	Breakpoint wont hit
27	Unused?	Breakpoint wont hit
28	Unused?	Breakpoint wont hit
29		D Group related
30		D Group related
31		D Group related
32		Converted to radian and some code runs if less than 180
33		L Group related
34	Unused?	Breakpoint wont hit
35	Unused?	Breakpoint wont hit
36		L Group related
37		J Group related
38		J Group related
39		J Group related

Table 1 – continued from previous page

Index	Description	Notes
40		J Group related
41		M Group
42		M Group
43		M Group
44		Multiplied by something and squared. Suspension count?
45		num wheels
46		gear related
47		gear related
48		gear related
49		gear related. Even Wheels A
50		gear related. Odd Wheels A
51		gear related. Even Wheels B
52		gear related. Even Odd B
53		P Group related. Wheels NOT 1, 3, 4, and 5
54		P Group related. Wheels 1, 3, 4, and 5
55		O Group related. Wheels NOT 1, 3, 4, or 5
56		O Group related. Wheels 1, 3, 4, and 5
57		Q Group related. Wheels 0 and 2
58		Q Group related. Wheels 0 and 2
59		Q Group related. Wheels 0 and 2
60		Q Group related. Wheels 1, 3, 5, and 4
61		Q Group related. Wheels 1, 3, 5, and 4
62		Q Group related. Wheels 1, 3, 5, and 4
63		gear related. Wheels 1, 3, 4, and 5
64		gear related. Wheels NOT 1, 3, 4, and 5
65		gear related
66		gear related
67		gear related
68		Wheel stuff is multiplies by this. seems to make gears longer (not sure)
69		gear related
70	Unused?	Breakpoint wont hit
71		O Group related. Wheels NOT 1, 3, 4, or 5
72		O Group related. Wheels 1, 3, 4, and 5
73		O Group related. Wheels NOT 1, 3, 4, or 5
74		O Group related. Wheels 1, 3, 4, and 5
75		O Group related. Wheels NOT 1, 3, 4, or 5
76		O Group related. Wheels 1, 3, 4, and 5
77		O Group related. Wheels NOT 1, 3, 4, or 5
78		O Group related. Wheels 1, 3, 4, and 5
79		O Group related. Wheels NOT 1, 3, 4, or 5
80		O Group related. Wheels 1, 3, 4, and 5
81		O Group related. Wheels NOT 1, 3, 4, or 5
82		O Group related. Wheels 1, 3, 4, and 5
83		O Group related. Wheels NOT 1, 3, 4, or 5
84		O Group related. Wheels 1, 3, 4, and 5
85		O Group related. Wheels NOT 1, 3, 4, or 5
86		O Group related. Wheels 1, 3, 4, and 5
87		S Group related
88		S Group related
89		O Group related. Wheels NOT 1, 3, 4, or 5

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Index	Description	Notes
90		O Group related. Wheels 1, 3, 4, and 5
91		P Group related. seems to modify how close engine gets to max rpm
92		P Group related
93		I Group related. Option 1. Chosen if all suspension is compressed?
94		I Group related. Option 2. Else
95		I Group related
96		I Group related
97		I Group related
98		I Group related
99		I Group related
100		I Group related
101		I Group related
102		I Group related
103		I Group related
104		I Group related
105		T Group related
106		T Group related
107		Multiplied by 0.017453292
108		O Group related. Wheels NOT 1, 3, 4, or 5
109		O Group related. Wheels 1, 3, 4, and 5
110		O Group related. Wheels NOT 1, 3, 4, or 5
111		O Group related. Wheels 1, 3, 4, and 5
112		O Group related. Wheels NOT 1, 3, 4, or 5
113		O Group related. Wheels 1, 3, 4, and 5
114		O Group related. Wheels NOT 1, 3, 4, or 5
115		O Group related. Wheels 1, 3, 4, and 5
116		O Group related. Wheels NOT 1, 3, 4, or 5
117		O Group related. Wheels 1, 3, 4, and 5
118		O Group related. Wheels NOT 1, 3, 4, or 5
119		O Group related. Wheels 1, 3, 4, and 5
120		O Group related. Wheels NOT 1, 3, 4, or 5
121		O Group related. Wheels 1, 3, 4, and 5
122		O Group related. Wheels NOT 1, 3, 4, or 5
123		O Group related. Wheels 1, 3, 4, and 5
124		O Group related. Wheels NOT 1, 3, 4, or 5
125		O Group related. Wheels 1, 3, 4, and 5
126		O Group related. Wheels NOT 1, 3, 4, or 5
127		O Group related. Wheels 1, 3, 4, and 5
128		Related to vp152. used in $1.0 - (\text{velocity} - 0.75 * \text{vp128}) / (\text{vp128} - 0.75 * \text{vp152})$
129		P Group related
130		Wheel related
131		Wheel related
132		O Group related. Wheels NOT 1, 3, 4, or 5
133		O Group related. Wheels 1, 3, 4, and 5
134		O Group related. Wheels NOT 1, 3, 4, or 5
135		O Group related. Wheels 1, 3, 4, and 5
136		Group W related. 1X
137		Group W related. 1Y
138		Group W related. 1Z
139		Group W related. 1W

Table 1 – continued from previous page

Index	Description	Notes
140		O Group related. Wheels NOT 1, 3, 4, or 5
141		O Group related. Wheels 1, 3, 4, and 5
142		O Group related. Wheels NOT 1, 3, 4, or 5
143		O Group related. Wheels 1, 3, 4, and 5
144		O Group related. Wheels NOT 1, 3, 4, or 5
145		O Group related. Wheels 1, 3, 4, and 5
146		O Group related. Wheels NOT 1, 3, 4, or 5
147		O Group related. Wheels 1, 3, 4, and 5
148		Group W related. 2X
149		Group W related. 2Y
150		Group W related. 2Z. O Group related. Wheels NOT 1, 3, 4, or 5
151		O Group related. Wheels 1, 3, 4, and 5
152		Group W related. 3X. Related to vp128. used in 1.0 - (velocity - 0.75 * v)
153		P Group related. Group W related. 3Y
154		Wheel related. Group W related. 3Z
155		Wheel related
156		O Group related. Wheels NOT 1, 3, 4, or 5
157		O Group related. Wheels 1, 3, 4, and 5
158		O Group related. Wheels NOT 1, 3, 4, or 5
159		O Group related. Wheels 1, 3, 4, and 5
160		O Group related. Wheels NOT 1, 3, 4, or 5
161		O Group related. Wheels 1, 3, 4, and 5
162		O Group related. All Wheels
163		O Group related. All Wheels
164		Group AA related
165		Group AA related
166		Group AA related
167		Group AA related
168		Group AA related
169		Group AA related
170		Group AA related
171		Group AA related
172		Group AA related
173		Group AA related
174		Group AA related
175		Group AA related
176		Group AA related
177		Group AA related
178		Group AA related
179		Group AA related
180		Group AA related
181		Group AA related
182		Group AA related
183		Group AA related
184		Group AA related
185		Group AA related
186		Group AA related
187		Group AA related
188		Group AA related
189		Group AA related

Table 1 – continued from previous page

Index	Description	Notes
190		Group AA related
191		Group AA related
192		Group AA related
193		Group AA related
194		Group AA related
195		Group AA related
196		Group AA related
197		Group AA related
198		Group AA related
199		Group AA related
200		Group AA related
201		Group AA related
202		Group AA related
203		Group AA related
204		Z Group related
205		Z Group related
206		Z Group related
207		Z Group related
208		Z Group related
209		Z Group related
210		Z Group related
211		Z Group related
212		Z Group related
213		Z Group related
214		Z Group related
215		Z Group related
216		Z Group related
217		Z Group related
218		Z Group related
219		Z Group related
220		Z Group related
221		Z Group related
222		Z Group related
223		Z Group related
224		Z Group related
225		Z Group related
226		Z Group related
227		Z Group related
228		Z Group related
229		Z Group related
230		Z Group related
231		Z Group related
232		Z Group related
233		Z Group related
234		Z Group related
235		Z Group related
236		Z Group related
237		Z Group related
238		Z Group related
239		Z Group related

Table 1 – continued from previous page

Index	Description	Notes
240		Z Group related
241		Z Group related
242		Z Group related
243		Z Group related
244		Z Group related
245		Z Group related
246		Group Y related. Array 0
247		Group Y related. Array 1
248		Group Y related. Array 2
249		Group Y related. Array 3
250		Group Y related. Array 4
251		Group Y related. Array 5
252		Group Y related. Array 6
253		Group Y related. Array 7
254		Group Y related. Array 8
255		Group Y related. Array 9
256		Group Y related. Array 10
257		Group Y related. Array 11
258		Group Y related. Array 12
259		Group Y related. Array 13
260		Group Y related. Array 14
261		Group Y related. Array 15
262		Group Y related. Array 16
263		Group Y related. Array 17
264		Group Y related
265		Z Group related
266		Wheel related
267		Wheel related
268		Wheel related
269		Wheel related
270		Group Y related. Checked against ≤ 0.001
271		Group Y related
272		Group Y related
273		Group Y related
274		Group Y related
275		O Group related. Wheels NOT 1, 3, 4, or 5
276		O Group related. Wheels 1, 3, 4, and 5
277		O Group related. Wheels NOT 1, 3, 4, or 5
278		O Group related. Wheels 1, 3, 4, and 5
279		Checked if ≤ 0.000001
280		O Group related. Wheels NOT 1, 3, 4, or 5
281		O Group related. Wheels 1, 3, 4, and 5.
282		DD Group related
283		DD Group related
284		EE Group related
285		EE Group related. Clamped to ≥ 0
286		EE Group related
287		H Group related. Option selector. Option 1 if some value is $\leq$ to this Op
288		H Group related. Option 2A
289		H Group related. Option 1A

Table 1 – continued from previous page

Index	Description	Notes
290	Unused?	Breakpoint wont hit
291		H Group related. Option 2B
292		H Group related. Option 1B
293	Unused?	Breakpoint wont hit
294	Unused?	Breakpoint wont hit
295		FF Group related
296		FF Group related
297		FF Group related
298		FF Group related
299		FF Group related
300		FF Group related
301		FF Group related
302		FF Group related
303		FF Group related
304		FF Group related
305		FF Group related
306		T Group related
307		T Group related
308		T Group related
309		T Group related
310		T Group related
311		T Group related
312		Group Y related
313		Group Y related
314		FF Group related
315		T Group related
316		T Group related
317		T Group related
318		T Group related
319		T Group related
320		T Group related
321		T Group related
322		E Group related. Checked if ≤ 0.5 . Z Group related
323		gear related
324		E Group related. to set max engine RPM
325		E Group related. U Group related Equation A Added after pow
326		gear related. U Group related
327		E Group related. for engine power
328		gear related
329		gear related
330		GG Group related
331		GG Group related
332		GG Group related
333		GG Group related
334		GG Group related
335		B Group related. Option 0
336		B Group related. Option 1
337		B Group related. Option 2
338	Curve height 0	curve 0
339	Curve height 1	curve 1

Table 1 – continued from previous page

Index	Description	Notes
340	Curve height 2	curve 2
341	Curve height 3	curve 3
342	Curve height 4	curve 4
343	Curve height 5	curve 5
344	Curve height 6	curve 6
345	Curve height 7	curve 7
346	Curve height 8	curve 8
347	Curve height 9	curve 9
348	Curve height 10	curve 10
349	Number of gears	Num Gears. Group Y related
350	Gear factor	factor
351	Gear 0 width	gear 0 width div
352	Gear 1 width	gear 1
353	Gear 2 width	gear 2
354	Gear 3 width	gear 3
355	Gear 4 width	gear 4
356	Gear 5 width	gear 5
357	Gear 6 width	gear 6
358	Gear 0 height	gear 0 height mul
359	Gear 1 height	gear 1
360	Gear 2 height	gear 2
361	Gear 3 height	gear 3
362	Gear 4 height	gear 4
363	Gear 5 height	gear 5
364	Gear 6 height	gear 6
365	Unused?	Breakpoint wont hit
366	Unused?	Breakpoint wont hit
367		U Group related Equation A exponent in pow
368		E Group related
369		E Group related
370		E Group related
371		E Group related
372	Unused?	Breakpoint wont hit
373	Unused?	Breakpoint wont hit
374		V Group. < something. Group Y related
375		V Group. < something. Group Y related
376		V Group. < something. Group W related. 4X. Group Y related
377		ESpd WSpd chained (1-chained). Group W related. 4Y
378		Group W related. 4Z
379		Group W related. 4W
380		Group W related. 4X
381		Group W related. 4Y
382		Group W related. 4Z. Group X related. 1X
383		Group X related. 1Y
384		Group X related. 1Z
385		Group X related. 2X
386		Group X related. 2Y
387		Group X related. 2Z
388		U Group related. Used as an upper bound clamp
389		E Group related.

Table 1 – continued from previous page

Index	Description	Notes
390		E Group related.
391		E Group related.
392		E Group related.
393		Group Y related
394		Group X related
395		P Group related. Wheels NOT 1, 3, 4, and 5
396		P Group related. Wheels 1, 3, 4, and 5
397		P Group related. Wheels 1, 3, 4, and 5. Checked if less than 0.1 for all wheels
398		P Group related. Checked if greater than 0.5 for all wheels
399		Wheel related. Option 1
400		Wheel related. Option 2
401		U Group related. Checked if > 0.5.
402		U Group related
403		U Group related
404		CameraMove_G related
405		CameraMove_G related
406		Camera 1 Param 406
407		Camera 1 Param 407
408		Camera 1 Param 408
409		Camera 1 Param 409
410		Camera 1 Param 410
411		Camera 1 Param 411
412		Camera 1 Param 412
413		Camera 1 Param 413. Stationary FOV
414		Camera 1 Param 414. Slow FOV
415		Camera 1 Param 415. Fast FOV
416		Camera 1 Param 416
417		Camera 1 Param 417
418		Camera 1 Param 418
419		Camera 1 Param 419
420		Camera 1 Param 420
421		Camera 1 Param 421
422		Camera 1 Param 422
423		Camera 1 Param 423
424		Camera 1 Param 424
425		Camera 1 Param 425
426		Camera 1 Param 426
427		Camera 1 Param 427
428		Camera 1 Param 428
429		Camera 1 Param 429
430		Camera 1 Param 430
431		Camera 1 Param 431
432		Camera 1 Param 432
433		Camera 1 Param 433
434		Camera 1 Param 434
435		Camera 1 Param 435
436		Camera 1 Param 436
437		Camera 1 Param 437
438		Camera 1 Param 438
439		Camera 2 Param 406

Table 1 – continued from previous page

Index	Description	Notes
440		Camera 2 Param 407
441		Camera 2 Param 408
442		Camera 2 Param 409
443		Camera 2 Param 410
444		Camera 2 Param 411
445		Camera 2 Param 412
446		Camera 2 Param 413. Stationary FOV
447		Camera 2 Param 414. Slow FOV
448		Camera 2 Param 415. Fast FOV
449		Camera 2 Param 416
450		Camera 2 Param 417
451		Camera 2 Param 418
452		Camera 2 Param 419
453		Camera 2 Param 420
454		Camera 2 Param 421
455		Camera 2 Param 422
456		Camera 2 Param 423
457		Camera 2 Param 424
458		Camera 2 Param 425
459		Camera 2 Param 426
460		Camera 2 Param 427
461		Camera 2 Param 428
462		Camera 2 Param 429
463		Camera 2 Param 430
464		Camera 2 Param 431
465		Camera 2 Param 432
466		Camera 2 Param 433
467		Camera 2 Param 434
468		Camera 2 Param 435
469		Camera 2 Param 436
470		Camera 2 Param 437
471		Camera 2 Param 438
472		Camera 3 Param 406
473		Camera 3 Param 407
474		Camera 3 Param 408
475		Camera 3 Param 409
476		Camera 3 Param 410
477		Camera 3 Param 411
478		Camera 3 Param 412
479		Camera 3 Param 413. Stationary FOV
480		Camera 3 Param 414. Slow FOV
481		Camera 3 Param 415. Fast FOV
482		Camera 3 Param 416
483		Camera 3 Param 417
484		Camera 3 Param 418
485		Camera 3 Param 419
486		Camera 3 Param 420
487		Camera 3 Param 421
488		Camera 3 Param 422
489		Camera 3 Param 423

Table 1 – continued from previous page

Index	Description	Notes
490		Camera 3 Param 424
491		Camera 3 Param 425
492		Camera 3 Param 426
493		Camera 3 Param 427
494		Camera 3 Param 428
495		Camera 3 Param 429
496		Camera 3 Param 430
497		Camera 3 Param 431
498		Camera 3 Param 432
499		Camera 3 Param 433
500		Camera 3 Param 434
501		Camera 3 Param 435
502		Camera 3 Param 436
503		Camera 3 Param 437
504		Camera 3 Param 438
505		Camera 4 Param 406
506		Camera 4 Param 407
507		Camera 4 Param 408
508		Camera 4 Param 409
509		Camera 4 Param 410
510		Camera 4 Param 411
511		Camera 4 Param 412
512		Camera 4 Param 413. Stationary FOV
513		Camera 4 Param 414. Slow FOV
514		Camera 4 Param 415. Fast FOV
515		Camera 4 Param 416
516		Camera 4 Param 417
517		Camera 4 Param 418
518		Camera 4 Param 419
519		Camera 4 Param 420
520		Camera 4 Param 421
521		Camera 4 Param 422
522		Camera 4 Param 423
523		Camera 4 Param 424
524		Camera 4 Param 425
525		Camera 4 Param 426
526		Camera 4 Param 427
527		Camera 4 Param 428
528		Camera 4 Param 429
529		Camera 4 Param 430
530		Camera 4 Param 431
531		Camera 4 Param 432
532		Camera 4 Param 433
533		Camera 4 Param 434
534		Camera 4 Param 435
535		Camera 4 Param 436
536		Camera 4 Param 437
537		Camera 4 Param 438
538		Camera 5 Param 406
539		Camera 5 Param 407

Table 1 – continued from previous page

Index	Description	Notes
540		Camera 5 Param 408
541		Camera 5 Param 409
542		Camera 5 Param 410
543		Camera 5 Param 411
544		Camera 5 Param 412
545		Camera 5 Param 413. Stationary FOV
546		Camera 5 Param 414. Slow FOV
547		Camera 5 Param 415. Fast FOV
548		Camera 5 Param 416
549		Camera 5 Param 417
550		Camera 5 Param 418
551		Camera 5 Param 419
552		Camera 5 Param 420
553		Camera 5 Param 421
554		Camera 5 Param 422
555		Camera 5 Param 423
556		Camera 5 Param 424
557		Camera 5 Param 425
558		Camera 5 Param 426
559		Camera 5 Param 427
560		Camera 5 Param 428
561		Camera 5 Param 429
562		Camera 5 Param 430
563		Camera 5 Param 431
564		Camera 5 Param 432
565		Camera 5 Param 433
566		Camera 5 Param 434
567		Camera 5 Param 435
568		Camera 5 Param 436
569		Camera 5 Param 437
570		Camera 5 Param 438
571	Unused?	Always equal to Camera 5 Param 438. Probably unused. Breakpoint won't hit
572		CameraMove_G related
573	Screen border blur	CameraMove_G related. Screen border blur
574		CameraMove_G related
575		Checked if <= some field
576	Unused?	Breakpoint won't hit
577		Wheel related. Water
578	Unused?	Breakpoint won't hit
579		Wheel related. Water
580		Wheel related. Water
581		Wheel related. Water
582		Death related
583		Death related
584		Death related
585		Damage related
586		Damage related. Vec 1 X
587		Damage related. Vec 2 X
588		Damage related. Vec 1 Y
589		Damage related. Vec 2 Y

Table 1 – continued from previous page

Index	Description	Notes
590		Damage related. Vec 1 Z
591		Damage related. Vec 2 Z
592		Damage related
593		Damage related
594		A Group related
595		A Group related
596		A Group related
597		A Group related
598		A Group related
599		Death related
600	Point value for a SMALL DRIFT stunt	StunHUD
601	Point value for a DRIFT stunt	StunHUD
602	Point value for a BIG DRIFT stunt	StunHUD
603	Point value for a SMALL JUMP stunt	StunHUD
604	Point value for a JUMP stunt	StunHUD
605	Point value for a BIG JUMP stunt	StunHUD
606	Point value for a SMALL DESTRUCTION stunt	StunHUD
607	Point value for a DESTRUCTION stunt	StunHUD
608	Point value for a BIG DESTRUCTION stunt	StunHUD
609	Point value for a SMALL WHEELING stunt	StunHUD
610	Point value for a WHEELING stunt	StunHUD
611	Point value for a BIG WHEELING stunt	StunHUD
612	Point value for a ELUSIVE stunt	StunHUD
613	Unused?	Breakpoint wont hit
614	Unused?	Breakpoint wont hit
615	Unused?	Breakpoint wont hit
616	Unused?	Breakpoint wont hit
617	Unused?	Breakpoint wont hit
618	Unused?	Breakpoint wont hit
619		N Group related. Multiplied by 0.86956525 * 0.27777779 sometimes
620		N Group related.
621	Unused?	Breakpoint wont hit
622	Unused?	Breakpoint wont hit
623		N Group related.
624		N Group related.
625	Unused?	Breakpoint wont hit
626	Unused?	Breakpoint wont hit
627		Death related
628		Death related
629		Death related
630		Death related
631	Drive on water	O Group related. drive on water
632		Multiplied by a vector
633		If this is less than 0.5 or the player is dead or some other stuff then a func
634		If something is greater than this then this is subtracted from that
635		Subtracted from something
636		CC Group related
637		CC Group related
638		CC Group related
639		CC Group related

Table 1 – continued from previous page

Index	Description	Notes
640		CC Group related
641		CC Group related
642		CC Group related
643		Negated and checked if $\geq$ some field
644		CC Group related
645		HH Group related. Multiplied by a random number. E Group related
646		HH Group related. Multiplied by a random number. E Group related
647	Unused?	Breakpoint wont hit
648	Unused?	Breakpoint wont hit
649		CC Group related
650		Multiplied by a field and a function argument
651		Subtracted from something and multiplied by vp652 and game param 201
652		multiplied by vp652 subtracted from something and game param 2011
653		E Group related
654		E Group related
655		Death related
656		C Group related
657		C Group related
658		C Group related
659		C Group related
660		C Group related
661		D Group related
662		R Group related
663		Checked if $>$ velocity
664		G Group related. Clamped to [0.0099999998, 5.0]
665		G Group related. Clamped to [0.75, 5.0]
666		G Group related. Clamped to [0.25, 2.0]
667		Wheel related. Clamped to [0.25, 2.0]
668		BB Group related
669		BB Group related
670		Wheel related
671		Wheel related
672		Wheel related
673		Wheel related
674		Wheel related
675		Wheel related
676		Wheel related
677		E Group related
678	Unused	Sentinel Value. Resets some counter of sum of all values to 0 and does no

AUTOMESH

FUEL Fandom Wiki Edit Landscape Object Frequency entry

ADDMESH: <mesh name> [<property> ...]

9.1 Properties

Properties can be either boolean or numeric. A boolean property is true if it is included and false if it is excluded. A numeric property has a value of the integer concatenated with it after the property name.

9.2 Boolean

OnATVPark

OnStormed

OnIncinerated

OnSnowed

OnFlooded

OnSanded

NoStormed

NoIncinerated

NoSnowed

NoFlooded

NoSanded

OnFrozen

OnDesert

OnMountain

NoFrozen

NoDesert

NoMountain

NoOcclusion

ShortCut
LinePosition
BigTarmacRoad
SmallTarmacRoad
BigDirtRoad
SmallDirtRoad
NormalDirtRoad
NormalTarmacRoad
RunWay
HighWay
FieldRoad
GoatPath
OnHub
NoHub
LargeElectrical
InTheForest
OnForest
NoForest
AtTheWind
VeryFlatGround // GroundMaxPente = 0.050000001;
EdgyGround // GroundMaxPente = 1.5;
FlatGround // GroundMaxPente = 0.30000001;
VeryRare // Probability = 0.0099999998;
VeryFrequent // Probability = 1.0;
FairlyRare // Probability = 0.050000001;
FairlyFrequent // Probability = 0.2;
InDeepWater
InShallowWater
OnLakeBeach
PerturbCoord
FarFromRoad
OnTerra
TakeStoneColor
CloseToRoad
OnRockyArea
OnTarmacRoad

GulchSide
RoadMiddle
GroundNormal
ParalelRoad
DownHill
WildField
CultivatedField
CityPopulation
TownPopulation
CountryPopulation
RandomRot
// For all properties // if v25 == a4, do stuff

9.3 Integer

MaxDistToRoad
MinDistToRoad
SideDist
ExteriorCurveMinCurve
ExteriorCurveMaxCurve
InteriorCurveMinCurve
InteriorCurveMaxCurve
MiddleDist
Probability
// * 0.00999999998
CrossingDist
Frequency // max(int, 5)
Phase
GroundMaxPente
// * 0.00999999998
GroundMaxTrou
// * 0.00999999998
HumidityMin
// * 0.00999999998
HumidityMax
// * 0.00999999998

```
RoughnessMin
// * 0.0099999998

RoughnessMax
// * 0.0099999998

OnTerraMiddle
// same as OnTerraMiddleMax

OnTerraMiddleMax
// if int <= 0.0099999998, then int = v20 // OnTerra = 1; // v25 = 2;

OnTerraMiddleMin
// if int <= 0.0099999998, then int = v20 // OnTerra = 1; // v25 = 2;
```

9.4 Limitations

Max 512 chars + 1 null terminator for token. Max 17 tokens, 1 ADDMESH:, 1 mesh name, 15 properties.

CUSTOM MISSIONS

EMD_Begin

EMD_End

EMD_ExportVehicleName [filename]

VehicleNames.txt %i -> "%s" where %i is the vehicle ID and %s is the vehicle name from
↪ the trans text

EMD_ForceStartPosition x y

EMD_HideStartEnd

The start area will not show up in free ride

EMD_Save [filename]

miss.tsc writes all the mission commands for the existing missions to a file save never writes
EMD_SetCheckpointTimerBonus

EMD_SetAIElasticParam x y z

EMD_SetCheckpoint x y z [rx ry rz rw] [type] [w]

$ww = w * \pi * 180 * 1/2$, (0, sin(ww), 0, cos(ww)), overrides rx ry rz rw

EMD_SetCheckpointTimerBonus bonus

Used for blits sets the time added to the timer for each checkpoint. One of these command for each checkpoint command.
Otherwise uses EMD_SetTimerCheckBonus.

EMD_SetEndPos x y z

EMD_SetEndRot <w | rx ry rz rw>

$ww = w * \pi * 180 * 1/2$, (0, sin(ww), 0, cos(ww)), sets rx ry rz rw

EMD_SetFilterIA id...

`EMD_SetName name`

at most 31 characters

`EMD_SetNbIA num`

at most 32

`EMD_SetNbLoop num``EMD_SetPlayerAllowedClassFilter id...`

at most 10 ids

`EMD_SetPlayerAllowedGroupFilter id...`

at most 10 ids

`EMD_SetPlayerAllowedVehiculeFilter id...`

at most 32 ids

`EMD_SetPlayerForbiddenClassFilter id...``EMD_SetPlayerForbiddenGroupFilter id...``EMD_SetPlayerForbiddenVehiculeFilter [id...]``EMD_SetRaceMode mode` $0 < \text{mode} < 7$ `EMD_SetRaceScenario scenario` $\text{scenario} < 15$

```
// switch RaceScenario
// 1,7,(9,0) -> 12
// 2,(9,1) -> 9
// 3,(9,2) -> 7
// 4,5,(9,3)
// If NbCheckpointPositions != 0
// If (*(float *)&this[1].pCheckpointPositions > 0.0) || (NbCheckpointTimerBonus !
↪ = 0)
// -> 5
// Else
// 6
// Else
// -> 1
// 6,8,(9,4) -> 8
// (9,5) -> 11
// (9,6) -> 4
// (9,-) -> -1
```

(continues on next page)

(continued from previous page)

```
// 11 -> 2
// 13 -> 3
// default -> -1

// If sub_577D70(*(_DWORD *)(v55 + 660)) == 1
// switch ^^^
// 0,1,4,10,12 -> Raid
// 2 -> Follow Copter
// 3 -> Catch Destruction
// 5 -> Checkpoint Attack
// 6 -> Time Trial CP
// 7 -> Knock-Out Challenge
// 8 -> Circuit Race
// 9,11 -> Checkpoint Race
// Else
// switch ^^^
// 0,1 -> Time Trial A2B
// 2 -> Follow Copter
// 3 -> Catch Destruction
// 4 -> Raid
// 5 -> Checkpoint Attack
// 6 -> Time Trial CP
// 7 -> Knock-Out Challenge
// 8 -> Circuit Race
// 9 -> Checkpoint Race
// 10 -> Long Raid
// 11 -> Baja
// 12 -> A to B
```

EMD_SetStartPos x y z

EMD_SetStartRot <w | rx ry rz rw>

ww = w * pi * 180 * 1/2, (0, sin(ww), 0, cos(ww)), sets rx ry rz rw

EMD_SetTimer time

Sets the time attack time out

EMD_SetTimerCheckBonus bonus

EMD_SetWeatherScenario

stub, does nothing

AddHubCareerRaces hub_name mission_name tt_name tt_description

careful with this one, it'll fuck up your save file

tt_description does not do anything, should be NONE

AddMissionSurfaceType mission_name tt_surface_type tt_vehicle_type

```
AddMissionParam mission_name ai_vehicle_id_string start_time_of_day end_time_of_day_
↪start_weather_string start_fog end_weather_string end_fog start_weather_auxiliary end_
↪weather_auxiliary
```

10.1 Weather String

SUN TOR W# wind S# snow C# cloud R# rain G# sand - unused TOR_W#100_S#50_C#75_R#10

```
AddMissionCarOnline mission_name vehicle_id_string
```

```
AddMissionNeededVehicle mission_name vehicle_name vehicle_surface_string vehicle_type_
↪string some_vehicle_string
```

```
AddMissionFuel mission_name legend expert rookie
```

```
AddMissionTime mission_name legend expert rookie time_limit
```

```
AddMissionIASpeed mission_name x y
```

```
AddNbMaxOnlineVehicle mission_name num
```

11.1 Native Mod Environment

When the game loads it will recursively check each subdirectory of the <mods>/native directory for files with the extension .dll. If found it will load the mod. Directories and files starting with the character _ will not be searched or loaded and neither will their subdirectories, this provides a way to disable mods without deleting them. You can rename individual mods to begin with the character _ or move them to a directory named something like _disabled.

11.2 FMTK SDK API

Defines

FMTKSDK_HPP

FMTK_VERSION

A c-style string literal containing the dot separated version number.

FMTK_VERSION_MAJOR

An integer literal containing the major component of the version number.

FMTK_VERSION_MINOR

An integer literal containing the minor component of the version number.

FMTK_VERSION_PATCH

An integer literal containing the patch component of the version number.

FMTK_VERSION_TWEAK

An integer literal containing the tweak component of the version number.

FMTKAPI

REGISTER_MOD(class_name)

Generates the necessary functions for the mod to be loaded by FMTK and initialize the fmtk global variable. This macro should only be used once per dll. This macro must appear after the mod class has been defined.

Parameters

- **class_name** – The fully qualified name of the class implementing *FMTKMod*. There should only be one class implementing *FMTKMod* per dll.

Enums

enum class **LogLevel**

Log levels available for use with Log.

Values:

enumerator **TRACE**

This is a message for an FMTK developer. Exclude it from release builds.

enumerator **DEBUG**

This is a message for a mod developer.

enumerator **INFO**

This is a message for a user that everything is fine and no action is necessary.

enumerator **WARN**

This is a message for a user that something may be wrong but no action is necessary.

enumerator **ERR**

This is a message for a user that something is wrong but no action is necessary. A recoverable error.

enumerator **CRITICAL**

This is a message for a user that something is wrong and action is necessary. An unrecoverable error.

Functions

FMTKAPI const *FMTKVersion* * **GetFMTKVersion** ()

Get a pointer to the version of the FMTKSDK used to build the mod.

Returns

A pointer to an *FMTKVersion* struct owned by the mod. This should not be freed.

Variables

const *FMTKVersion* **fmtkVersion**

const *FMTKApi* ***fmtk**

A pointer to an *FMTKApi* struct owned by FMTK and automatically initialized when the mod is registered. This should not be freed.

struct **FMTKVersion**

This structure contains the values of the version macros of FMTK SDK used to build the mod.

Public Members

unsigned int **major** = FMTK_VERSION_MAJOR

The major version.

unsigned int **minor** = FMTK_VERSION_MINOR

The minor version.

unsigned int **patch** = FMTK_VERSION_PATCH

The patch version.

unsigned int **tweak** = FMTK_VERSION_TWEAK

The tweak version.

class **FMTKApi**

This structure contains pointers to FMTK functions that should be filled in when the mod is loaded.

Public Members

const char *(***GetModsDirectoryPath**())()

Get the mods directory path.

Get the absolute path of the mods directory as a c-style string.

Return

A c-style string containing the absolute path of the mods directory.

float *(***GetPlayerPosition**())()

Get the players position.

Get the players position as a 3 element float array.

Return

A pointer to a 3 element float array containing the XYZ components of the player's position. Will be null if the players position cannot be obtained. This pointer is owned by FMTK and should not be freed.

bool (***RunCommand**)(const char *cmd)

Run a command string.

Run a command string.

Param cmd

A c-style string containing the command string. Owned by the caller.

Return

A bool that is true if the command ran successfully and false if it failed.

void (***RegisterCommand**)(const char *name, bool (*callback)(int argc, const char **argv))

Register a command.

Register a command.

Param name

A c-style string containing the command name. The abbreviated version of the command name will be generated from the capital letters taken in left to right order.

Param callback

A pointer to a callback function to be run when the command is invoked.

void (***UnregisterCommand**)(const char *name)

Unregister a command.

Remove a previously registered command callback.

Param name

A c-style string containing the command name. Both the long form and short form are accepted.

void (***Log**)(*LogLevel* level, const char *source, const char *msg)

Submit a log message.

Submit a log message to FMTK to be output to the console and written to the log file as applicable.

Param level

The severity of the incident being logged.

Param source

A c-style string containing the name of the event's source. This should be the name of the mod calling the function.

Param msg

A c-style string containing the message to be logged.

void (***Alias**)(const char *originalPath, const char *newPath)

Alias a path.

Instruct fuel to open the newPath whenever it tries to open originalPath.

Param originalPath

The original path relative to FUEL's working directory. Case insensitive.

Param newPath

The new path relative to FUEL's working directory. Case insensitive.

void (***Unalias**)(const char *originalPath)

Unalias a path.

Instruct fuel to open the originalPath whenever it tries to open originalPath undoing a previous Alias call.

Param originalPath

The original path relative to FUEL's working directory. Case insensitive.

class **FMTKMod**

The *FMTKMod* base class all mods inherit.

Public Functions

inline virtual void **Initialize()**

Initialize Hook.

This function is called before the game's WinMain entry point. At this point the ScriptManager is unavailable so calls to command functions will fail. This will always be the first hook to run.

inline virtual void **Tick()**

Tick Hook.

This function is called once per execution of the game's CoreMainLoop function.

inline virtual void **ScriptManagerInitialize()**

ScriptManagerInitialize Hook.

This function is called once the ScriptManager is initialized. This is the first legal place to call the register command function. None of the FUEL commands have been registered yet so RunCommand with them will fail.

inline virtual void **Shutdown()**

Shutdown Hook.

This function is called before the FMTK dll is unloaded. This will always be the last hook to run.

FMTK LUA

12.1 FMTK Lua Environment

When the game loads it will recursively check each subdirectory of the `<mods>/lua` directory for files named `autorun.lua`. If found it will run the file. Directories starting with the character `_` will not be searched and neither will their subdirectories, this provides a way to disable mods without deleting them. You can rename individual mods to begin with the character `_` or move them to a directory named something like `_disabled`.

The Lua runtime is LuaJIT 2.1 which is build on Lua 5.1 with some forward compatibility features. `<mods>/lua/shared` has been added to the front of both the `path` and `cpath` Lua package environment variables. `<mods>/lua` has been added to the `path` Lua package environment variable after `shared` and before everything else.

By default the following standard Lua packages are available:

- base
- bit32
- coroutine
- debug
- ffi
- io
- jit
- math
- os
- package
- string
- table
- utf8

By default the following 3rd-party Lua packages are available:

- sockets

For a quick introduction to Lua check out the [Learn X in Y minutes](#) page on Lua.

12.2 FMTK Lua API

FMTK module

`fmtk.hook(event, id, callback)`

register a hook

Parameters

- **event** (number) – and Event enum value
- **id** (str) – a unique id to refer to this hook as
- **callback** (function) – function signature depends on the event

`fmtk.unhook(event, id)`

unregister a hook

Parameters

- **event** (number) – and Event enum value
- **id** (str) – the unique id of the hook

`fmtk.get_fmtklua_version()`

get the version of FMTK SDK that was used to build FMTKLua

Returns

version

Return type

version

`fmtk.run_command(cmd)`

run a command string

Parameters

cmd (str) – The command string you would normally type into the command palette

Returns

success

Return type

boolean

`fmtk.register_command(name, callback)`

register command

Parameters

- **name** (str) – The name of the command. The abbreviated version of the command name will be generated from the capital letters taken in left to right order.
- **callback** (fun(list[str]):boolean) –

`fmtk.unregister_command(name)`

unregister a command

Parameters

name (str) – The name of the command

fmtk.get_player_position()

get the position of the player

Returns

position

Return type

position

class fmtk.version

Version structure

major: number

minor: number

patch: number

tweak: number

class fmtk.position

Position structure

x: number

z: number

y: number

class fmtk.event

Event enum

INITIALIZE: number

This hook is called before the game's WinMain entry point. At this point the ScriptManager is unavailable so calls to command functions will fail. This will always be the first hook to run.

TICK: number

This hook is called once per execution of the game's CoreMainLoop function.

SCRIPT_MANAGER_INITIALIZE: number

This hook is called once the ScriptManager is initialized. This is the first legal place to call the register command function. None of the FUEL commands have been registered yet so RunCommand with them will fail.

SHUTDOWN: number

This hook is called before the FMTK dll is unloaded. This will always be the last hook to run.

class fmtk.fs

FMTK file system module

static alias(oldPath, newPath)

alias a file path

Parameters

- **oldPath** (str) – The old path relative to the FUEL working directory or absolute.
- **newPath** (str) – The new path relative to the FUEL working directory or absolute.

static unalias(*oldPath*)

unalias a file path

Parameters

oldPath (*str*) – The old path relative to the FUEL working directory or absolute.

static get_mods_directory_path()

get the mods directory path

Returns

absolute mods directory path

Return type

str

static get_current_file_path()

get the current lua file path

Returns

absolute current lua file path

Return type

str

class fmtk.log

FMTK log module

static trace(*source, msg*)

log a trace message. This is a message for an FMTK developer. Exclude it from release builds.

Parameters

- **source** (*str*) – This should be the name of the mod calling the function.
- **msg** (*str*) –

static debug(*source, msg*)

log a debug message. This is a message for a mod developer.

Parameters

- **source** (*str*) – This should be the name of the mod calling the function.
- **msg** (*str*) –

static info(*source, msg*)

log an info message. This is a message for a user that everything is fine and no action is necessary.

Parameters

- **source** (*str*) – This should be the name of the mod calling the function.
- **msg** (*str*) –

static warn(*source, msg*)

log a warning. This is a message for a user that something may be wrong but no action is necessary.

Parameters

- **source** (*str*) – This should be the name of the mod calling the function.
- **msg** (*str*) –

static error(*source*, *msg*)

log an error. This is a message for a user that something is wrong but no action is necessary. A recoverable error.

Parameters

- **source** (str) – This should be the name of the mod calling the function.
- **msg** (str) –

static critical(*source*, *msg*)

log a critical error. This is a message for a user that something is wrong and action is necessary. An unrecoverable error.

Parameters

- **source** (str) – This should be the name of the mod calling the function.
- **msg** (str) –

MOD RELEASE GUIDELINES

So you've finished making your FMTK mod. Congratulations! I'm sure you're eager to share it with the world. In the interest of consistency and accessibility, I have authored several optional guidelines for you to consider before publishing your mod. It is important to remember that your mod is your property and you are free to disregard these guidelines.

13.1 Mod DB

To make searching for mods as easy as possible, I ask that you publish your mod to the [FUEL game on Mod DB](#). While I would much prefer a more popular website like [Nexus mods](#), the tradition of publishing FUEL mods to Mod DB was started by "FUEL: REFUELED" and upheld by "FUEL: RESHADED".

13.2 Open Source

In the interest of developing a large body of reference material, I ask that you make public portions or the entirety of your mod's source code on [GitHub](#). This will provide new modders with a wealth of information to reference while learning how to mod the game. Also this will let me see how the FMTK APIs are being used and where they can be improved. If you wrote scripts to help you while you developed your mod, I ask that you release those too so that they may be considered for inclusion in FMTK. Be sure to [choose a license that you think is fair for your property](#).

13.3 Report Bugs

FMTK is a complicated piece of software and it is bound to have bugs. When you or your mod's users encounter these bugs please [open an issue on the FMTK repository](#) so that they may be tracked and fixed. It is tempting to implement a quick workaround to avoid the bug in FMTK but it is much better for the health of the community to fix these problems and we can't fix them if we don't know about them.

13.4 Give Feedback

Now that you've spent some time with the FMTK APIs you probably have some feedback. Let us hear it! If an API doesn't feel right or a feature would be useful to have, [open an issue on the FMTK repository](#) so that we can track, discuss, and improve it.

13.5 Add Don't Replace

While it is often easier to alias everything, that doesn't play nice with other mods that might depend on that file being stock. Try to use the provided APIs for adding content and avoid replacing existing content whenever possible. If there is something you would like to do but there isn't an API to do it without overwriting something, make a feature request. We pride ourselves on our commitment to mod compatibility and it is hard to uphold that commitment when mod developers feel the need to overwrite existing content to do what they want.

13.6 Test Your Mod

Before putting your mod out there for the world to see you should give it to a small group of people to play with for awhile. This will provide bugs an opportunity to show themselves before release. Giving it to other people is a good way to test compatibility with other mods that they might have installed that you don't. And since you have a direct line of contact with the people helping you test, it is much easier to communicate and fix bugs.

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