Complete FireRed Upgrade



Set Up

Necessary Modifications

pokemon.h

Configuration Options

There are many configurable options in the file **src/config.h**. These options are meant to provide the user with as much versatility as possible. Below is a more detailed description of each option than show in the configuration file:

**Var Options**

|  |  |
| --- | --- |
| *Flag Definition* | *Description* |
| TOTEM\_VAR | This represents are series of vars using for initiating battles with [Totem Pokemon](https://bulbapedia.bulbagarden.net/wiki/Totem_Pok%C3%A9mon). There are four vars in total, each representing a specific Pokemon slot on the field. Adding the following values to the var will indicate which slot that var is for:  0: *Player Pokemon in Singles, Left Player Pokemon in Doubles*  1: *Enemy Pokemon in Singles, Right Enemy Pokemon in Doubles*  2: *Right Player Pokemon in Doubles*  3: *Right Enemy Pokemon in Doubles*  The vars must be set to the addition of two values. Choose one from each of the following sets:  **Stats**:  1: *Attack*  2: *Defense*  3: *Speed*  4: *Special Attack*  5: *Special Defense*  6: *Accuracy*  7: *Evasion*  **Amount**:  0x10: *Increase Stat by 1*  0x20: *Increase Stat by 2*  0x30: *Increase Stat by 3*  0x40: *Increase Stat by 4*  0x50: *Increase Stat by 5*  0x60: *Increase Stat by 6*  0x90: *Decrease Stat by 1*  0xA0: *Decrease Stat by 2*  0xB0: *Decrease Stat by 3*  0xC0: *Decrease Stat by 4*  0xD0: *Decrease Stat by 5*  0xE0: *Decrease Stat by 6*  So, for instance, having the enemy Pokemon start the battle with its *Attack* raised by *2*, you would set the var TOTEM\_VAR + 1 to the value of 0x21 (0x1 + 0x20). |
| NPC\_FOLLOWING\_VAR | If the *Follow Me* feature is used, this var must be set to the *NPC Id* (*Person Id* in *Advance Map*) of the following NPC. If no NPC is following the player, this var should be set to 0. |
| OW\_SPRITE\_SWITCH\_VAR | Setting this var to a value other than 0 will change the picture used for the player’s Overworld sprite. The value should correspond to the *Picture Id* of the NPC. |
| BACKSPRITE\_SWITCH\_VAR | Setting this var to a value other than 0 will change the default back sprite loaded for the player in battle.  See **src/table/Trainer\_Backsprite\_Table.s** for a list of available backsprites. |
| BATTLE\_BG\_VAR | If CUSTOM\_BATTLE\_BACKGROUNDS is defined, Setting this var to a value other than 0 will cause the regular battle background loaded to be replaced by a custom one.  See **/include/battle.h** for a list of options.  Search for BATTLE\_TERRAIN\_GRASS in the file to see them. |
| SWARM\_SPECIES\_VAR | A var that is automatically set by the engine. It contains the map name Id of the map where there currently is a [*swarm*](https://bulbapedia.bulbagarden.net/wiki/Pok%C3%A9mon_outbreak) in progress. |
| SWARM\_MAP\_NAME\_VAR | A var that is automatically set by the engine. It contains the species that is currently *swarming*. |

**Flag Options**

|  |  |
| --- | --- |
| *Flag Definition* | *Description* |
| INVERSE\_FLAG | Setting this flag will enable [Inverse Battles](https://bulbapedia.bulbagarden.net/wiki/Inverse_Battle).  This flag is automatically cleared at the end of each battle. |
| SKY\_BATTLE\_FLAG | Setting this flag will indicate to the engine that a [Sky Battle](https://bulbapedia.bulbagarden.net/wiki/Sky_Battle) is in progress.  This flag is automatically cleared at the end of each battle. |
| NO\_CATCHING\_FLAG | Setting this flag will cause enemy Pokemon to always dodge balls thrown at them.  This flag is automatically cleared at the end of each battle. |
| NO\_RUNNING\_FLAG | Setting this flag prevents the player from running away during wild battles.  This flag is automatically cleared at the end of each battle. |
| NO\_CATCHING\_AND\_RUNNING\_FLAG | This flag acts as a combination of the above two flags.  This flag is automatically cleared at the end of each battle. |
| CATCH\_TRAINERS\_POKEMON\_FLAG | If CATCH\_TRAINERS\_POKEMON is defined, then setting this flag allows the player to capture Pokemon belonging to the opposing trainer. Capturing a Pokemon in this way will automatically end the battle.  This flag is automatically cleared at the end of each battle. |
| EXP\_SHARE\_FLAG | If OLD\_EXP\_SHARE is not defined, then setting this flag activates the Gen 6+ Exp. Share. |
| DOUBLE\_BATTLE\_FLAG | If ACTIVATE\_DOUBLE\_BATTLE\_FROM\_FLAG is defined, then setting this flag will cause battles against trainers to be [Double Battles](https://bulbapedia.bulbagarden.net/wiki/Double_Battle), if possible. |
| TAG\_BATTLE\_FLAG | This flag is set by the engine when the scripting command *trainerbattle 0x10* is used in a script to activate a tag battle. If setting this flag manually, take care to also set PARTNER\_VAR and PARTNER\_BACKSPRITE\_VAR. This flag is automatically cleared at the end of each battle. |
| TWO\_OPPONENT\_FLAG | This flag is set by the engine when the scripting command *trainerbattle 0x11* is used in a script to activate a battle against two opponents. If setting this flag manually, take care to also set SECOND\_OPPONENT\_VAR. This flag is automatically cleared at the end of each battle. |
| ACTIVATE\_TUTORIAL\_FLAG | Setting this flag activates Professor Oak’s tutorial during the next trainer battle. This flag is automatically cleared at the end of each battle. |
| WILD\_CUSTOM\_MOVES\_FLAG | //TODO |
| SMART\_WILD\_FLAG | Setting this flag allows Wild Pokemon to use the basic AI checks used in trainer battles. This flag is automatically cleared at the end of each battle. |
| SCALE\_TRAINER\_LEVELS\_FLAG | Setting this flag causes all Trainer Pokemon to have levels that match the highest level in your party. |
| HIDDEN\_ABILITY\_FLAG | Setting this flag before a Wild battle causes Wild Pokemon to be generated with their hidden abilities. It is cleared at the end of each battle. |
| DOUBLE\_WILD\_BATTLE\_FLAG | Setting this flag causes all wild battles to be against two wild Pokemon in a Double battle format. It is cleared at the end of each battle. |
| NO\_RANDOM\_WILD\_ENCOUNTERS\_FLAG | Setting this flag will stop Pokemon from appearing while walking through grass or caves, of while surfing on water. Pokemon can still appear if the player chooses to fish or smash rocks |

**Battle Tower Options**

|  |  |
| --- | --- |
| *Definition* | *Description* |
| BATTLE\_TOWER\_FLAG | Setting this flag indicates to the engine that the Player is in the [Battle Tower](https://bulbapedia.bulbagarden.net/wiki/Battle_Tower). This means that:   * Trainer Pokemon will be generated within the restrictions of the tier set in the var defined in BATTLE\_TOWER\_TIER. The amount of Pokemon generated will match the number set in the var defined in BATTLE\_TOWER\_POKE\_LEVEL. * Trainer Pokemon will have Pokemon with the level contained in the var defined in BATTLE\_TOWER\_POKE\_LEVEL. * The battle format will be loaded from the var defined in BATTLE\_TOWER\_BATTLE\_TYPE. * The music in-battle will be played based on what is contained in the var defined in BATTLE\_TOWER\_SONG\_OVERRIDE. |
| BATTLE\_TOWER\_POKE\_NUM | Setting this var to a value between 1 & 6 dictates the quantity of Pokemon the player and trainers can use in the Battle Tower.  Setting it to 0 will default in 1.  Setting it to a number greater than 6 will default in 6. |
| BATTLE\_TOWER\_POKE\_LEVEL | Setting this var to a value between 1 and what is defined in MAX\_LEVEL will set all Pokemon in the Battle Tower to that level.  Setting it to 0 will default in 1.  Setting to a number greater than MAX\_LEVEL will default in MAX\_LEVEL. |
| BATTLE\_TOWER\_BATTLE\_TYPE | Setting this var to one of the below values set the battle format in the Battle Tower:  0: Single Battle  1: Double Battle  2: Multi Battle  3: Link Multi Battle  Any other value defaults in Single Battle. |
| BATTLE\_TOWER\_TIER | Setting this var to one of the below values indicates to the engine which ruleset should be following for battles in the Battle Tower:  0: Regular Battle Tower Rules  1: No Restrictions  2: [Smogon OU](https://www.smogon.com/dex/sm/formats/ou/)  3: [Smogon Uber](https://www.smogon.com/dex/sm/formats/uber/)  4: [Smogon Little Cup](https://www.smogon.com/dex/sm/formats/lc/)  5: Skeli’s Middle Cup |
| BATTLE\_TOWER\_TID | If battles in the Battle Tower are against a trainer with this trainer Id, a random team will automatically be generated for the trainer. |
| BATTLE\_TOWER\_TRAINER\_NAME | This var is automatically set by the engine to hold the index of the random name for the Battle Tower trainer. It is set to 0xFFFF after every battle. Do not set it manually. |
| BATTLE\_TOWER\_SONG\_OVERRIDE | Setting this var to a song Id will cause that song to be played in Battle Tower battles and Link Battles. |
| TOWER\_TRAINER\_ID\_VAR | This var is set by special 0xXX to indicate which trainer class and details is being spawned as the first opponent. |
| TOWER\_TRAINER\_ID\_2\_VAR | This var is set by special 0xXX to indicate which trainer class and details is being spawned as the second opponent in multi battles. |
| TOWER\_TRAINER\_ID\_PARTNER\_VAR | This var is set by special 0xXX to indicate which trainer class and details is being spawned as the player’s partner in multi battles if the partner is chosen to be randomized. |

**Times of Day**

|  |  |
| --- | --- |
| *Definition* | *Description* |
| TIME\_MORNING\_START | If TIME\_ENABLED is defined, set this to the hour (in 24 hr system) that morning starts. |
| TIME\_DAY\_START | If TIME\_ENABLED is defined, set this to the hour (in 24 hr system) that day starts. |
| TIME\_EVENING\_START | If TIME\_ENABLED is defined, set this to the hour (in 24 hr system) that evening starts. |
| TIME\_NIGHT\_START | If TIME\_ENABLED is defined, set this to the hour (in 24 hr system) that night starts. |

**Other Number Definitions**

|  |  |
| --- | --- |
| *Definition* | *Description* |
| KANTO\_DEX\_COUNT | Number of Pokemon in the regional Pokedex. |
| NATIONAL\_DEX\_COUNT | Number of Pokemon in the national Pokedex. |
| MAX\_NUM\_POKEMON | Set to the highest Pokemon index + 1. |
| MAX\_LEVEL | The highest possible level for a Pokemon. If you change this value, make sure the also modify the equivalent value found in “[special\_inserts.asm](https://github.com/Skeli789/Complete-Fire-Red-Upgrade/blob/master/special_inserts.asm)”. |
| NUM\_TRAINER\_CLASSES | The number of trainer classes. Vanilla FR has 107. |
| EVOS\_PER\_MON | If you’ve changed the number of evolutions per Pokemon, update this number. |
| DUSK\_BALL\_MULTIPLIER | The catch rate for [Dusk Balls](https://bulbapedia.bulbagarden.net/wiki/Pok%C3%A9_Ball#Dusk_Ball). |
| STANDARD\_IV | The number of IVs for each stat that standard Trainer’s Pokemon are generated with. |
| SWARM\_CHANCE | The chance in percent that a [swarm](https://bulbapedia.bulbagarden.net/wiki/Pok%C3%A9mon_outbreak) Pokemon will be generated on a route if there is currently a swarm in progress on that route. |
| WILD\_DOUBLE\_RANDOM\_CHANCE | The chance that a wild double will be initiated if the player is walking in grass with a background byte with its 4th bit set. For instance, grass with a background byte of 0x5 will have a chance of starting a wild double battle, and grass with a background byte of 0x25 will have a chance of starting a wild double battle and be covered by the player (water is similarly 0x6 and 0x26). |

**Badge Obedience**

|  |  |
| --- | --- |
| *Definition* | *Description* |
| BASE\_OBEDIENCE\_LEVEL | The highest level that a traded Pokemon will obey the player at if they have no badges. |
| BADGE\_1\_OBEDIENCE\_LEVEL | The highest level that a traded Pokemon will obey the player at if they have 1 badge. |
| BADGE\_2\_OBEDIENCE\_LEVEL | The highest level that a traded Pokemon will obey the player at if they have 2 badges. |
| BADGE\_3\_OBEDIENCE\_LEVEL | The highest level that a traded Pokemon will obey the player at if they have 3 badges. |
| BADGE\_4\_OBEDIENCE\_LEVEL | The highest level that a traded Pokemon will obey the player at if they have 4 badges. |
| BADGE\_5\_OBEDIENCE\_LEVEL | The highest level that a traded Pokemon will obey the player at if they have 5 badges. |
| BADGE\_6\_OBEDIENCE\_LEVEL | The highest level that a traded Pokemon will obey the player at if they have 6 badges. |
| BADGE\_7\_OBEDIENCE\_LEVEL | The highest level that a traded Pokemon will obey the player at if they have 7 badges. |

**Memory Locations**

|  |  |
| --- | --- |
| *Definition* | *Description* |
| SEEN\_DEX\_FLAGS | The memory location of the *Seen* Pokedex flags. If you have not expanded the Pokedex, this should be set to:  gSaveBlock2Ptr->pokedex.seen |
| CAUGHT\_DEX\_FLAGS | The memory location of the *Caught* Pokedex flags. If you have not expanded the Pokedex, this should be set to:  gSaveBlock2Ptr->pokedex.owned |

Putting a // before any of the below features will remove them from the engine.

**Misc Features**

|  |  |
| --- | --- |
| *Definition* | *Description* |
| INVERSE\_BATTLES | Enables the possibility of having an [Inverse Battle](https://bulbapedia.bulbagarden.net/wiki/Inverse_Battle) if the INVERSE\_FLAG is set. |
| TIME\_ENABLED | Various features are updated to account for the time of day. Certain palettes are also dynamically faded depending on the time of day. Removing this feature will always result in *Daytime*. |
| DNS\_IN\_BATTLE | If TIME\_ENABLED is defined, then certain background palettes will be faded dynamically in battle depending on the time of day. These values can be set in **src/DNS.c**. |
| OVERWRITE\_RIVAL | Loads the buffered rival’s name for trainer classes 0x51, 0x59, and 0x5A. |
| TRAINER\_CLASS\_POKE\_BALLS | Creates trainer Pokemon with custom Poke Balls based on trainer class determined by what is set in **src/Tables/** **Class\_Based\_Poke\_Ball\_Table.c**. |
| TRAINERS\_WITH\_EVS | Trainer Pokemon with a custom moveset, custom item, an AI value greater than 1, and an IV value (labeled EVs in most trainer editors) greater than 0 will have custom stats loaded from the spread number indicated by the IV value in **src/Tables/Trainers\_With\_EVs\_Table.c**. For example, setting the IV value to 1 will loaded the spread labeled “1” in the *TrainersWithEvsTable*.  Modifying the required conditions to activate this feature can be done by searching for the line *#ifdef TRAINERS\_WITH\_EVS* in **src/build\_pokemon.c**. |
| CONTINUE\_LOST\_BATTLES | If TUTORIAL\_BATTLES is defined, then if Var 0x8000 is set to 0xFEFE before a battle begins, *trainerbattle 0x9* can be used to continue a lost battle. The result of the battle will then be stored in Var 0x800D (LastResult).  If TUTORIAL\_BATTLES is not defined, then *trainerbattle 0x9* will always allow a lost battle to be continued. |
| REALLY\_SMART\_AI | The AI knows everything about the Pokemon on the player’s side (such as which moves it has, its ability, item, etc.) without having seen it first. This does not allow the AI to know what move the player will use before they use it. |
| DISPLAY\_REAL\_MOVE\_TYPE\_ON\_MENU | When choosing a move, the move type the move will become will be displayed (such as Hidden Power, Weather Ball in Weather, etc.). |
| DISPLAY\_REAL\_ACCURACY\_ON\_MENU | When pressing the *L*-button while choosing a move, the "true" move accuracy will be displayed. For example, the move *Psychic* used by a Pokemon with *Compound Eyes* will have its accuracy appear as 130. |
| DISPLAY\_REAL\_POWER\_ON\_MENU | When pressing the *L*-button while choosing a move, the "true" move power will be displayed. For example, moves *like Fury Cutter* will show their correct power. |
| CUSTOM\_BATTLE\_BACKGROUNDS | Setting BATTLE\_BG\_VAR will allow custom backgrounds to be loaded in battles. |
| OVERWRITE\_BG\_FOR\_LEADER\_CHAMPION | Special Battle Background palettes will be loaded in for battles against Gym Leaders and the Champion, using the regular indoor background graphics as a base. |
| BRIDGE\_FIX | The water battle background will only be loaded in battle if the player's surfing sprite is shown. This means that if the player is walking on water, the battle background loaded will be incorrect. |
| MEGA\_EVOLUTION\_FEATURE | Mega Evolutions can be used. |
| TUTORIAL\_BATTLES | Professor Oak’s tutorial will be activated for *trainerbattle 0x9*. |
| TANOBY\_RUINS\_ENABLED | Causes [Unown](https://bulbapedia.bulbagarden.net/wiki/Unown_(Pok%C3%A9mon)) to be spawned in maps using the [Tanoby Ruins](https://bulbapedia.bulbagarden.net/wiki/Tanoby_Chambers) map names according to the current chamber. |
| ALTERING\_CAVE\_ENABLED | If the current map is the [Altering Cave](https://bulbapedia.bulbagarden.net/wiki/Altering_Cave) and Var 0x4024 is set, Wild Pokemon will spawn. |
| SWEET\_SCENT\_ONLY\_IN\_CLEAR\_WEATHER | In certain generations, [Sweet Scent](https://bulbapedia.bulbagarden.net/wiki/Sweet_Scent_(move)) only spawns wild Pokemon in the Overworld if the weather is clear. |
| OBEDIENCE\_BY\_BADGE\_AMOUNT | Pokemon obedience is determined by the number of badges the Player has rather than by which badges the player has. The other badge defines in this case act as “number of badges acquired” instead of “acquired badge X”. |

**Misc Battle Effect Options**

|  |  |
| --- | --- |
| *Definition* | *Description* |
| OLD\_BURN\_DAMAGE | [Burn](https://bulbapedia.bulbagarden.net/wiki/Burn_(status_condition)) damage takes 1/8 of max health instead of 1/16. |
| OLD\_PARALYSIS\_SPD\_DROP | [Paralysis](https://bulbapedia.bulbagarden.net/wiki/Paralysis_(status_condition)) lower Speeds down to 1/4 instead of ½. |
| OLD\_CONFUSION\_CHANCE | [Confusion](https://bulbapedia.bulbagarden.net/wiki/Status_condition#Confusion) stops attacks 50% of the time instead of 33%. |
| INFINITE\_WEATHER | [Weather abilities](https://bulbapedia.bulbagarden.net/wiki/Category:Abilities_with_effects_on_weather_conditions) make weather last for infinite turns. |
| INFINITE\_TERRAIN | [Terrain abilities](https://bulbapedia.bulbagarden.net/wiki/Category:Abilities_with_effects_on_terrain) make terrain last for infinite turns. |
| NO\_SHEER\_COLD\_NERF | Remove all Gen 7 [Sheer Cold](https://bulbapedia.bulbagarden.net/wiki/Sheer_Cold_(move)) nerfs. |
| OLD\_MOVE\_SPLIT | The [Physical/Special](https://bulbapedia.bulbagarden.net/wiki/Damage_category#Physical.2FSpecial_split) split is based on move types.  Status moves are still set with the split byte, however. |

**Ability Options**

|  |  |
| --- | --- |
| *Definition* | *Description* |
| OLD\_GALE\_WINGS | [Gale Wings](https://bulbapedia.bulbagarden.net/wiki/Gale_Wings_(Ability)) activates regardless of the user's HP. |
| OLD\_PRANKSTER | [Prankster](https://bulbapedia.bulbagarden.net/wiki/Prankster_(Ability)) won’t fail against Dark-Types. |

**Damage Calculation Options**

|  |  |
| --- | --- |
| *Definition* | *Description* |
| OLD\_CRIT\_DAMAGE | [Critical hits](https://bulbapedia.bulbagarden.net/wiki/Critical_hit) to do 2x damage; 3x with [Sniper](https://bulbapedia.bulbagarden.net/wiki/Sniper_(Ability)). |
| CRIT\_CHANCE\_GEN\_6 | Uses the Gen 6 crit chance. |
| CRIT\_CHANCE\_GEN\_2\_TO\_5 | Uses the Gen 2-5 crit chance. |
| BADGE\_BOOSTS | Having badges gives the Player’s Pokemon [stat boosts](https://bulbapedia.bulbagarden.net/wiki/Badge#Stat_boost). |
| OLD\_ATE\_BOOST | “[Ate](https://bulbapedia.bulbagarden.net/wiki/Category:Abilities_that_can_modify_move_types)” abilities give a 1.3x boost instead of 1.2x. |
| OLD\_GEM\_BOOST | [Gems](https://bulbapedia.bulbagarden.net/wiki/Gem) give a 1.5x boost instead of 1.2x. |
| OLD\_EXPLOSION\_BOOST | [Exploding](https://bulbapedia.bulbagarden.net/wiki/Explosion_(move)) moves halve the target’s Defense. |
| OLD\_HIDDEN\_POWER\_BP | [Hidden Power](https://bulbapedia.bulbagarden.net/wiki/Hidden_Power_(move)) has its Base Power calculated from the attacker’s IVs. |
| PORTAL\_POWER | Enables Hoopa-Unbound’s signature ability in Pokemon Unbound, Portal Power. This reduces the power of non-contact moves by 25%. |
| OLD\_SOUL\_DEW\_EFFECT | [Soul Dew](https://bulbapedia.bulbagarden.net/wiki/Soul_Dew) doubles Latios & Latias' Sp. Atk & Sp. Def. |
| OLD\_PARENTAL\_BOND\_DAMAGE | The second hit of [Parental Bond](https://bulbapedia.bulbagarden.net/wiki/Parental_Bond_(Ability)#Generation_VI) does 50% of the original damage instead of 25%. |

**Capturing Pokemon Options**

|  |  |
| --- | --- |
| *Definition* | *Description* |
| CATCH\_TRAINERS\_POKEMON | Allows the possibility to capture trainer Pokemon by setting the CATCH\_TRAINERS\_POKEMON\_FLAG. |
| NO\_HARDER\_WILD\_DOUBLES | In Gen 5, Pokemon encountered in wild double battles were [harder to catch](https://bulbapedia.bulbagarden.net/wiki/Catch_rate#Capture_method_.28Generation_V.29) (based on how many species are owned). This feature implements that catch rate decrement. |
| CRITICAL\_CAPTURE | Allows for [Critical Capture](https://bulbapedia.bulbagarden.net/wiki/Catch_rate#Critical_capture) to occur. The odds at which this occurs can be found in the function  *bool8 CriticalCapture(u32 odds)* found in **src/catching.c**. |

**Exp. Gain Options**

|  |  |
| --- | --- |
| *Definition* | *Description* |
| OLD\_EXP\_SHARE | The [Exp. Share](https://bulbapedia.bulbagarden.net/wiki/Exp._Share) acts like it did before Gen 6. |
| TRAINER\_EXP\_BOOST | Gives an Exp boost for defeating a trainer’s Pokemon. (Pre Gen 7) |
| OLD\_EXP\_SPLIT | Exp. is split amongst all participating Pokemon. (Pre Gen 6) |
| FLAT\_EXP\_FORMULA | Use a Flat Exp. calculation formula. (Gens 2- 4, 6) |
| GEN\_7\_BASE\_EXP\_YIELD | Base Exp is retrieved from the table *gBaseExpBySpecies* found in the file **src/Tables/Experience\_Tables.c**, instead of being loaded from the Pokemon’s base stats. This is done to account for larger Exp. values that started in Gen 5. The table is pre-set to match [Gen 7 Exp. values](https://bulbapedia.bulbagarden.net/wiki/List_of_Pok%C3%A9mon_by_effort_value_yield). |

**Other Options**

|  |  |
| --- | --- |
| *Definition* | *Description* |
| ACTIVATE\_DOUBLE\_BATTLE\_FROM\_FLAG | Allow DOUBLE\_BATTLE\_FLAG to be set to active double battles for trainers if possible. |
| NO\_GHOST\_BATTLES | Disables the [Ghost battle](https://bulbapedia.bulbagarden.net/wiki/Ghost_(literal)) feature from Pokemon Tower in Lavender town. |
| GEN\_4\_PLAYER\_RUNNING\_FIX | Increase the lag between frames as the player OW runs, to simulate a more accurate Gen 4 running effect. |
| GEN4\_PLUS\_SELECTION\_SCREEN | This does not give the [Gen 4+ selection screen](https://www.pokecommunity.com/showthread.php?t=414022), it only adds features that supports it. |
| OBEDIENCE\_CHECK\_FOR\_PLAYER\_ORIGINAL\_POKEMON | Opens up the possibility that the Player's Pokemon can [disobey](https://bulbapedia.bulbagarden.net/wiki/Obedience) them, as opposed to just traded Pokemon. |
| WILD\_ALWAYS\_SMART | All wild Pokemon use AI features meant for trainers. |
| HAIL\_IN\_BATTLE | Enables the [Hail](https://bulbapedia.bulbagarden.net/wiki/Hail_(weather_condition)) weather effect in battle when the OW weather is set to WEATHER\_STEADY\_SNOW (0x7). |
| FOG\_IN\_BATTLE | Enables the [Fog](https://bulbapedia.bulbagarden.net/wiki/Fog) weather effect in battle. Do not enable this feature without first enabling one of the fog features below! |
| FOG\_IN\_BATTLE\_1 | Enables the Fog weather effect when the OW weather is set to WEATHER\_FOG\_1 (0x6). |
| FOG\_IN\_BATTLE\_2 | Enables the Fog weather effect when the OW weather is set to WEATHER\_FOG\_2 (0x9). |
| FOG\_IN\_BATTLE\_3 | Enables the Fog weather effect when the OW weather is set to WEATHER\_FOG\_3 (0xA). |
| HIDE\_HEALTHBOXES\_DURING\_ANIMS | Hides the healthboxes (battle bars, etc.) during move animations, and some special animations (like Mega Evolution). This is done in Gen 4+ |
| DONT\_HIDE\_HEALTHBOXES\_ATTACKER\_STATUS\_MOVES | If HIDE\_HEALTHBOXES\_DURING\_ANIMS is defined, when the attacker is using a move that only targets itself, the healthboxes will not be hidden. |
| ENCOUNTER\_MUSIC\_BY\_CLASS | The music played when a trainer spots the player in the overworld is determined by the trainer class, rather than the music Id set in the trainer data. The song options are lists in **src/Tables/Music\_Tables.c** and can be modified by changing the values in *gClassBasedTrainerEncounterBGM*. Any class not defined in the array will be automatically set to BGM\_EYE\_BOY. |

Other Necessary Features Set Up

Mega Evolution / Ultra Burst

//TODO

Z-Moves

//TODO

Trainer Sliding Messages

//TODO

Trainer Backsprites

//TODO

Battle Frontier

//TODO

Battle Music

//TODO

Battle Terrain

//TODO

Poke Balls

//TODO

Pickup

//TODO

Time of Day Based Wild Encounters

In order to use this feature, TIME\_ENABLED must be defined. Once it is open the file **src/Tables/Wild\_Encounter\_Tables.c**. Find where it says //Modify this section. This is the data that will be modified.

**Example: Modifying The Night Data**

For this example, HOOTHOOT will be added onto ROUTE 1 in place of PIDGEY.

First, the wild data needs to be created. If you open up Advance Map to the wild data for ROUTE 1, you should see this:



Now that you know what the data looks like, convert it into a C structure (see image below) and paste it at the top file, directly under the line “#ifndef UNBOUND //Modify this section”, or under previously created wild data structures. No matter what, it must be placed above the line

“const struct WildPokemonHeader gWildMonMorningHeaders[] =”:



^ This line is very important and must be added in as well. Make sure the label correctly matches the name for your newly created wild data structure. The *21* is the encounter rate.

Now that the wild data has been copied from Advance Map, it’s time to make modifications.

Change all the “PKMN\_PIDGEY” to “PKMN\_HOOTHOOT”:



The data for Route 1 at night is now complete. As this is data for night time, we need to add it to our night table, “*gWildMonNightHeaders*”. Make sure you leave the pre-existing entry at the bottom of the table:



The only thing left to do now is define “*MAP\_ROUTE\_1*”. Go back to Advance Map and find the map bank and map number for ROUTE 1 (the map bank is 3, and the map number is 19). At the top of the file, add a line formatted like #define MAP\_NAME ((MAP\_BANK << 8) | MAP\_NUM)



**Make sure the map name matches what’s in the brackets for “.mapGroup” and “.mapNum” (ie. ROUTE\_1 became MAP\_ROUTE\_1).**

Now wild night data has successfully been added for Route 1. Morning and Evening data follow the same pattern. Any route that doesn’t have morning or night data defined will load the standard day data set in Advance Map.

For water, fishing, or Rock Smash data, follow the same steps, but look [here](https://github.com/pret/pokeemerald/blob/c74bfbe11017e4f937dc6466a93a6d3dc72cdac7/src/data/wild_encounters.h) to see how to structure those kinds of wild datasets.

If you followed everything correctly, here is what the file should look like now:  




Other Features Included

Save Expansion

//TODO

Updated Flutes

The [Black Flute](https://bulbapedia.bulbagarden.net/wiki/Black_Flute) and [White Flute](https://bulbapedia.bulbagarden.net/wiki/White_Flute) have been updated to the standards from ORAS.

Creating New Battle Mechanics

Moves

Abilities

Poke Balls

Credits

**Graphics**:

*Golche* - Attack Particles, Battle Backgrounds, Other Graphics

*Bela* - Poke Balls

*Solo993* - Backsprites

*canstockphoto.ca* - Battle Backgrounds

**Code**:

*Skeli* - A Bunch of Stuff

*Ghoulslash* - Attack Animations, Various Code

*Lixdel* - Attack Animations

*Pret* - PokeRuby, PokeFireRed, PokeEmerald

*Sagari* - Trainer Class Poke Balls, Pickup Update

*DizzyEgg* - Emerald Battle Engine Upgrade V1 & V2, Dizzy's Emerald Hacked Engine

*FBI* - Expanded Saveblock