Pokémon data structure (Generation III)

Pokémon in the Pokémon Ruby and Sapphire, FireRed and LeafGreen, and Emerald Versions are all stored the same way in a 100-byte structure. All numbers are stored in little-endian order.

Notes

Pokémon

	type	**offset**
Personality value	dword	0
OT ID	dword	4
Nickname	10 bytes	8
Language	word	18
OT name	7 bytes	20
Markings	byte	27
Checksum	word	28
????	word	30
Data	48 bytes	32
Status condition	dword	80
Level	byte	84
Pokérus remaining	byte	85
Current HP	word	86
Total HP	word	88
Attack	word	90
Defense	word	92
Speed	word	94
Sp. Attack	word	96
Sp. Defense	word	98

Personality value

The personality value controls many things, including gender, Unown's letter, Spinda's dots, any

Pokémon's Nature, and more.

OT ID

The Original Trainer's ID number. This number is part of the XOR encryption key for the data section, and is also used in Shiny determination and the lottery. The least significant bytes of this number are the Trainer ID visible on the status screen.

Nickname

The Pokémon's nickname, limited to 10 characters. The characters represented by each byte are determined by the proprietary character set.

Language

The language of the game the Pokémon comes from. Eggs have this value set to `0x0601`. In international versions, the language value determines which character set is used when displaying the Pokémon's name and OT name. Any Pokémon with a language value of `0x0601` will, in international versions, be named the game's regional variant of "EGG", ignoring the nickname field.

In Japanese versions, the language value is entirely disregarded. Names always use the nickname bytes decoded with the Japanese character set. This causes issues such as the nickname and OT name being truncated to five characters, and mojibake (for example, if the in-game trade Seel from Spanish FireRed and LeafGreen, whose nickname is normally SEELÍN, is traded to a Japanese game, then its nickname is displayed as ＳＥＥＬコ).

For Pokémon not in Eggs, the valid values are:

Hex	Language
0x0201	Japanese
0x0202	English
0x0203	French
0x0204	Italian
0x0205	German
0x0206	Korean*
0x0207	Spanish

OT name

The name of the Pokémon's Original Trainer. The characters represented by each byte are determined by the proprietary character set.

Markings

The markings seen in the storage Box. These markings serve only to aid in organizing large collections of Pokémon.

Bit	Mark
0	●
1	■
2	▲
3	♥

Checksum

The checksum for the 48-byte data section of this structure. It is computed by adding all of the unencrypted values of that section one word at a time. If the computed sum and the stored checksum do not match, the Pokémon is interpreted as a Bad Egg.

????

Unknown, possibly simply padding (not used and usually set to either 0 or -1, depending on the data type).

Data

Certain data pertaining to the Pokémon that is stored in a special and encrypted format.

Status condition

The Pokémon's status condition is stored as follows:

Bit	Status	
0-2	SLP	Sleep
3	PSN	Poison
4	BRN	Burn
5	FRZ	Freeze
6	PAR	Paralysis
7	PSN	Bad Poison

The three sleep bits are used to indicate turns of sleep. So 111_2 = 7 turns of sleep, 101_2 = 5 turns, et cetera.

Pokérus

This section is incomplete.
Please feel free to edit this section to add missing information and complete it.
Reason: What happens when this value ticks down to 0? What determines when it ticks down?

Main article: Pokérus

Not the same as the value found in the miscellaneous data substructure, which is a standard Pokérus byte. Instead, this value starts at 0xFF (and is in fact set to 0xFF initially even for Pokémon who haven't contracted Pokérus) and slowly ticks down. Cured Pokémon have this value set to 0.

Data location

This section is incomplete.
Please feel free to edit this section to add missing information and complete it.
Reason: Are the addresses below only for US games? Also, is the mentioned "general region" of box data correct?

A Trainer's party starts at the following addresses in the GBA's RAM.

Game	Address
Ruby Sapphire	0x03004360
Emerald	0x02024190 0x020244EC[US,FR]
FireRed	0x02024284
LeafGreen	0x020241E4 0x02024284[US]

An opponent's party, or a wild Pokémon, starts at the following addresses.

Game	Address
Ruby Sapphire	0x030045C0
Emerald	0x02024744
FireRed	0x0202402C

The 600 bytes following these addresses describe a whole team of 6 Pokémon.

The full 100-byte structure for a Pokémon is only used to describe Pokémon being held in the player's party. When Pokémon are stored in the PC, their data is recorded using only the first 80 bytes of this structure, stopping after the data field. The last 20 bytes (excepting status condition) can all be recalculated from data in the data substructure when a Pokémon is withdrawn (level being derived from experience). This also explains why Pokémon suffering a status condition are "cured" when put in the PC.

This means there are also 33,600 bytes (80 bytes * 30 per Box * 14 Boxes) elsewhere in the GBA's RAM describing Pokémon in the PC. When the GBA's saved state (including memory contents) is unzipped into a 740,000+ byte file and viewed, the 14 Boxes of 420 Pokémon are stored in the general region of $038000 and $040000. In the US version of Pokémon Emerald, box data is between 0x02FE9888 and 0x02FF1BC8, non-inclusive. The first 6 80-byte structures make up, from left to right, the first row of Pokémon in box 1. The next Pokémon gets placed on the next row. After 5 rows (30 80-byte structures), the next Pokémon is placed in box 2, and so on.

See also

- Pokémon data substructures (Generation III)

Links

- PokemonMakerV4x Help and 80 bytes Make a Pokémon

Data structure in the Pokémon games

Generation I	Pokémon species • Pokémon • Poké Mart • Character encoding • Save
Generation II	Pokémon species • Pokémon • Trainer • Character encoding • Save
Generation III	Pokémon species (Pokémon evolution • Pokédex • Type chart) Pokémon (substructures) • Move • Contest • Contest move • Item Trainer Tower • Battle Frontier • Character encoding • Save
Generation IV	Pokémon • Save
TCG GB and GB2	Character encoding

This data structure article is part of **Project Games**, a Bulbapedia project that aims to write comprehensive articles on the Pokémon games.