Query & Data format

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Green: Query format
Blue: Data format
Red: Notes

QUERIES

Name	Description
login	Logs the user in his account (POST request)
get_scores	Returns leaderboard data for a specific level
get_replay	Returns replay data for a specific run
query_levels	Returns a list of userlevels from a specific tab and page
search/levels	Returns a list of userlevel results for a specific search

CATEGORIES (qt)

ID	Category
7	Best
8	Featured
9	Top Weekly
10	Newest
11	Hardest
12	Made by me, sorted by ++'s
13	Made by me, sorted by date
14	Favourited, sorted by date
15	Favourited, sorted by ++'s
18	Made by friends, sorted by date
19	Made by friends, sorted by ++'s
21	Favourited by friends
22	Tracked by friends, sorted by date
24	Tracked by friends, sorted by rank, scored
23	Tracked by friends, sorted by rank
25	Tracked by friends, sorted by rank, not scored
26	Tracked by me
30	Following, sorted by date
31	Following, sorted by ++'s
36	Search

PARAMETERS

Name	Obligatory	Description	Values	Default
app_id	No	?	Integer	None
steam_id	Yes	Steam64ID of an active N++ player	17-digit integer	None
steam_auth	Yes	Steam token, can be left empty	Base 16 integer	None
user_id	No	ID of the player in N++'s server	Integer (0∼400K currently)	None
level_id	get_scores	Self-explanatory	Integer (0∼120K currently)	None
replay_id	get_replay	Self-explanatory	Integer (0∼5M currently)	None
player_id	No	?	Integer	None
qt	No	On *get_scores*, leaderboard tab	0 (global), 1 (around), 2 (friends)	0
		On *query_levels*, map tab	Integer, 7 to 36 (see right)	0
mode	search	Playing mode	0 (solo), 1 (coop), 2 (race)	0
page	No	Page of results from query_levels	Integer (0∼100)	0
search	search	Text query to search	String of text	None

Query format

https://dojo.nplusplus.ninja/prod/steam/ + **query** + ? + **parameters**

Sample: Retrieve the first page of results from "Newest" in Solo mode:

https://dojo.nplusplus.ninja/prod/steam/query_levels?steam_id=76561198041272062&steam_auth=&qt=10&mode=0&page=0

QUERY LEVELS

HEADER (48 bytes)

# Bytes	Description
16	Date of db update
04	Nº of maps
04	Page
04	Type (0)
04	Category (7-36)
04	Game mode (0-2)
04	Cache duration (1200, 5)
04	Max page size (500, 25)
04	? (0, 5)

MAP HEADERS (44 bytes)

# Bytes	Description
04	Map ID
04	User ID
16	Author name (padded)
04	Number of ++'s
16	Date of publishing

MAP DATA BLOCKS

# Bytes	Description
04	Size of block in bytes
02	Object count
##	z-lib compressed map data

- All integers are little endian.
- Possible values in parenthesis.
- A query is capped at 500 results.

MAP FILE

HEADER

# Bytes	Description
04	?
04	File length
04	?
04	Game mode
22	?

MAP DATA

# Bytes	Description
128	Level name (padded)
18	0
966	Tile data
80	Object counts
##	Object data

EACH TILE

# Bytes	Description
01	Tile ID

EACH OBJECT

# Bytes	Description
01	Object ID
01	X coordinate
01	Y coordinate
01	Orientation
01	Mode

- Tiles are stored left to right, up to down (23*42=966 B).
- Each object count is 2 bytes, thus there are 11 unused ones.
- Objects are sorted by ID.

REPLAY FILE

REPLAY DATA

# Bytes	Description
04	? (0)
04	Replay ID
04	Level ID
04	User ID
##	z-lib compressed demo

DEMO DATA

# Bytes	Description
01	? (0)
04	Length of data
04	? (1)
04	Frame count
04	Level ID
04	Game mode
04	? (0)
01	? (1, 3)
04	? ($2^{32} - 1$)
##	Demo (1 Byte/Frame)

FRAME VALUES

Bit	Description
0	Jump
1	Right
2	Left
3	Suicide

Example frame:
right + jump = $2^1 + 2^0 = 3$.

ATTRACT FILE

HEADER

# Bytes	Description
04	Length of map data
04	Length of demo data

MAP DATA

# Bytes	Description
04	Level ID
04	Game mode
04	? (1)
18	? (0)
128	Level name (padded)
01	0
##	Author name
01	0
##	Map data

DEMO DATA

# Bytes	Description
01	? (0)
04	Length of data
04	? (1)
04	Frame count
04	Level ID
04	Game mode
04	? (0)
01	? (1, 3)
04	? ($2^{32} - 1$)
##	Demo (1 Byte/Frame)

OBJECT IDS

ID	Object
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	

TILE IDS

ID	Tile
0	
1	
2-5	
6-9	
10-13	
14-17	
18-21	
22-25	
26-29	
30-33	

Final notes:

- For object orientation, the value 0 indicates looking East, and then it rotates clockwise until Northeast (7).
- For each group of 4 tiles, the first one is the pictured one, and each successive one is obtained by rotating it clockwise (for the first 4 groups), or by reflecting it horizontally and vertically (for the last 4 groups).

Thanks:

- Thanks to sidke and psenough for finding the required URLs for querying N++'s server.
- Thanks to ief015 and CoughSyrup for analyzing map data format, and Raif for analyzing attract and replay file formats.

Community:

- https://discord.gg/nplusplus
- https://forum.droni.es/