

GENERAL BIKESHARE FEED SPECIFICATION (GBFS) SWITZERLAND PROFILE

Customer Information System Task (SKI) – SKI+ Team

<https://transportdatamanagement.ch>

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Document information

Description	This document contains information, assessments and explanations about the GBFS standard which is intended for use by the SKI+ team on behalf of the Federal Office of Transport (FOT).
Target group	People who conceive, design, develop and test business applications in the area of mobility in Switzerland and use or wish to use data and APIs under the GBFS standard.
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1 What is this about?

This document describes the General Bikeshare Feed Specification (GBFS) standard which is the world leader for shared mobility data and is used in Switzerland by the Swiss Federal Office of Energy (SFOE). The document regulates, in the form of a profile, how GBFS is to be used.

2 Description and context

GBFS is an open data standard for real-time data in the area of bike sharing and shared micromobility. GBFS was created in 2014 and introduced by NABSA in 2015. GBFS is currently at version 2.2; a new version 3.0 is being drafted.

GBFS facilitates real-time data feeds from providers of sharing services for trip planning. Similar to GTFS for public transport providers, the aim of GBFS is to create the MaaS basis for sharing schemes.

With GBFS, providers can display the current locations and availabilities of their vehicles, and also provide booking links. The data of the vehicles currently in use and their users are not displayed.

The GBFS specification defines "feeds" (JSON files) that a provider must or can offer through REST services (HTTP endpoints). The "gbfs" feed (or the `gbfs.json` file) is the start page with links (URLs) to the other feeds. The remaining 12 feeds are as follows: `gbfs_versions`, `system_information`, `vehicle_types`, `station_information`, `station_status`, `free_bike_status`, `system_hours`, `system_alerts`, `system_calendar`, `system_regions`, `system_pricing_plans`, `geofencing_zones`.

Depending on the use case, some feeds are mandatory, e.g. `station_information` for docked systems and `free_bike_status` for free-floating systems.

3 Who is responsible for this?

NABSA (North American Bikeshare & Scootershare Association) and the mobilitydata.org organisation, which is dominated by Google and Apple.

4 Key websites

- <https://nabsa.net/resources/gbfs>
- <https://mobilitydata.org>
- <https://gbfs.mobilitydata.org/specification>

5 Underlying technologies and standards

REST services (HTTP endpoints), JSON, JSON schema.

6 Uses

According to its website, GBFS is used by over 600 sharing providers worldwide (as at the beginning of 2022).

In Switzerland, the Swiss Federal Office of Energy (SFOE) provides data feeds of the (known) bike and scooter providers, and car sharing providers in version 2.0, with the following feeds:

- `gbfs`: start page with all the URLs.
- `providers`: master data and app URLs of all the providers.

- `system_information`: master data of these SFOE-GBFS feeds.
- `station_information`: static data of the fixed parking spaces (stations).
- `free_bike_status`: position and status of free-floating vehicles.
- `station_status`: real-time data (availabilities) per station.
- `system_hours`: operating times; currently not used.
- `system_regions`: served regions with providers; used only rudimentarily.
- `system_pricing_plans`: pricing models; used only rudimentarily.
- `geofencing_zones`: the permitted zones of some providers.

7 Switzerland datasets

The SFOE provides GBFS data feeds in the form of open data with sharing services in Switzerland: [Shared Mobility Offers \(admin.ch\)](#).

For end customers, there is the www.sharedmobility.ch website, which visualises the data in swisstopo maps.

The API documentation can be found here:

- [Vehicle sharing for energy-efficient mobility \(admin.ch\)](#)
- [SFOE/sharedmobility \(github.com\)](#)
- <https://sharedmobility.ch/gbfs.json>

The dataset is also available at <https://opentransportdata.swiss/de/dataset/sharedmobility>.

8 Evaluation

Rough, qualitative evaluation or assessment by the SKI+ team¹

P1 international	+++	Used in approx. 50 countries worldwide.
P2 open	+++	Specification and instructions freely available, public on the web.
P3 simple	+++	Very simply structured, easily applied standard. Data structures are self-explanatory.
P4 established	+++	Widespread since the late 2010s.
P5 evolving	+++	GBFS is still very much in development. A solid, well thought-out strategy and implementation are evident.
P6 quality	++	Solid documentation and specifications on github.
P7 compliant	++	GBFS was created as an independent standard but actively seeks coordination with GTFS, TOMP, NeTEx, and other standards.
P8 unambiguous	++	Good rating due to years of use and alignment/mapping tables with CEN.

9 Assessment

In recent years, GBFS has become the only undisputed standard in the field of micromobility (bicycles, e-bikes, scooters, etc.), although it supports only the availabilities and reservation links, not the reservation process itself.

¹ The eight principles are elaborated further in the NADIM standardisation concept. Key: 0 = principle is not fulfilled; + / ++ / +++: low, medium, high fulfilment of the principle.

10 Specifications and recommendations

- This standard is used with the Switzerland profile for data exchange in the area of shared mobility.
- The SFOE should incorporate its extensions into the GBFS standard by means of change requests.

11 Switzerland profile

GBFS is to be used in accordance with the documented standard (<https://github.com/NABSA/gbfs/blob/v2.0/gbfs.md>) with the deviations and additions listed below: (documented in greater detail at [sharedmobility/Additions to GBFS.md at main - SFOE/sharedmobility - GitHub](#)):

- One feed providers.json with all the providers. The reason for this is that GBFS supports only one system (provider).
- `station_id` is composed of `provider_id` and `bike_id` (non-breaking but problematic for referencing).
- `provider_id` is used as an additional field in `station_information.json`, `station_status.json`, `free_bike_status.json`, `geofencing_zones.json` (non-breaking but problematic for referencing).

In the medium term, these deviations are to be eliminated in order to comply fully with the standard. This could be done by sending change requests to the GBFS owners because the extension by SFOE is generally also useful to GBFS.

According to the latest information, the SFOE will probably release a more up-to-date GBFS version (2.1, 2.2 or higher) in the future in order to comply 100% with the standard.