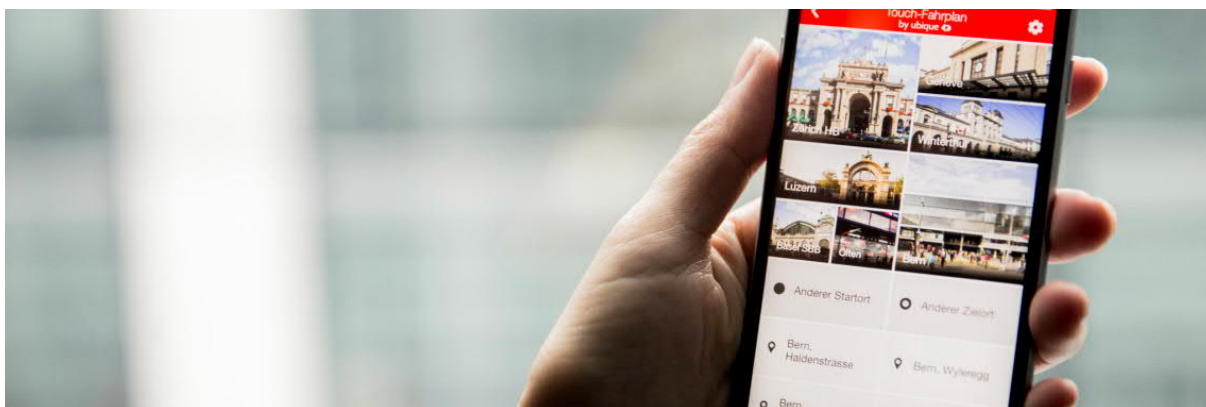


SBB Timetable Deep Linking.

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Version	Date	Implementing entity	Notes / Type of change
0.1	13.04.2017	D. Brügger	Derivation of the URL schema from the WebShop sbb.ch, defining the parameters
0.2	12.05.2017	A. Regli	Revision of the document and addition of examples of the use of URLs with Parameter
0.3	23.05.2017	A. Regli	Minor changes (restructuring)
0.4	27.06.2017	A. Regli	Wording for timetable integration added
0.5	12.07.2017	A. Tschan	Minor changes
0.6	03.08.2017	A. Tschan	Minor changes
0.7	03.07.2018	A. Tschan	Example URLs "Via" adapted (encoded)
0.8	10.08.2018	D. Caspar	Added description of URL parameters for extended deeplinks.

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1. General information

- Deep Linking means calling up the webshop on sbb.ch using a URL. The path and the parameters of the URL can be used to transfer data to the application. Deeplinking is provided for the Timetable and the Webshop.
- All parameters of type String must be encoded in UTF-8 with "Percent Encoding" (RFC-3986), unless specified differently (e.g. Base64).
- All parameters are case sensitive. For combined words the lower camel case is used (for example lowerCamelCase).
- Empty or not specified parameters are ignored
- The following deep links are supported
 - https schema German <https://www.sbb.ch/de/kaufen/>
 - https schema French <https://www.sbb.ch/fr/acheter/>
 - https schema Italian <https://www.sbb.ch/it/acquistare/>
 - https schema English <https://www.sbb.ch/en/buying/>
- The schema must be adjusted in order to work with our test instance
 - https test schema German <https://test-www.sbb.ch/de/kaufen/>
 - https test schema French <https://test-www.sbb.ch/fr/acheter/>
 - https test schema Italian <https://test-www.sbb.ch/it/acquistare/>
 - https test schema English <https://test-www.sbb.ch/en/buying/>
- The interface to be called is called exclusively via https and no http redirects are followed.
- Depending on the Browser used by the customer different levels of URL encoding are needed. We found that most browsers need braces and quotation marks URL encoded.
- Parameters and strings in arrays need to be put in quotation marks. For example: name=Basel SBB needs to be in quotation marks – "name"=„Basel SBB“. See therefore JSON-notation.

2. Timetable enquiries

All partners linking to the timetable must use the following wording on their website in the language of their site. Sites in a language not shown underneath should use the English wording:

German: SBB Fahrplan, bitte hier klicken
 French: Horaire CFF, cliquez ici svp
 Italian: Orario FFS, per favore cliccare qui
 English: SBB Timetable, please click here

2.1. URL structure and parameters

<https://www.sbb.ch/de/kaufen/pages/fahrplan/fahrplan.xhtml>
<https://www.sbb.ch/fr/acheter/pages/fahrplan/fahrplan.xhtml>
<https://www.sbb.ch/it/acquistare/pages/fahrplan/fahrplan.xhtml>
<https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml>

2.2. Parameters

Name	Type	Values / Format	Example	Description	Default value for optional parameters	Example URL
von	String		von=Zürich+HB	Departure stop, address or POI	empty	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?von=Z%C3%BCrich+HB
nach	String		nach=3014+Bern%2C+Wylerstrasse+123	Arrival stop, address or POI	empty	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?nach=3014+Bern%2C+Wylerstrasse+123

Name	Type	Values / Format	Example	Description	Default value for optional parameters	Example URL
vias	Array		vias=["Bern"]	Via stop for use of complex parameter or multiple vias see 2.2.1	empty	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?vias=%5B%22Bern%22%5D
name	String	String	Name="Biel/Bienne"	sub parameter in vias Via stop, address or POI. Needs to be in quotation marks.	empty	See chapter 2.2.1
dauer	Time	HH:mm	dauer="12:00"	sub parameter in vias Duration of the via stop. Needs to be in quotation marks.	empty	See chapter 2.2.1
datum	Date	dd.MM.yyyy	datum=01.12.2017	Date of desired departure or arrival.	current date	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?datum=01.12.2017
zeit	Time	HH:mm	zeit=12:00	Time of desired departure or arrival.	current time	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?zeit=12:00
an	Boolean	true=departure false=arrival	an=true	Information on whether the time given refers to departure or arrival.	departure	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?an=true
verbindung Suche	Boolean	true=search false=don't execute search	suche=true	Execution of the search for connection	false	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?verbindungSuche=true

Name	Type	Values / Format	Example	Description	Default value for optional parameters	Example URL
erweiterteSuche	Boolean	true =extended search is shown false=extended search is not shown	erweiterteSuche=true	Decides whether extended search is shown or not	false	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?erweiterteSuche=true
verkehrsmittel	Array		verkehrsmittel=["ic_ec"]	Preselects the specified means of transportation. See chapter 2.2.2.	Array containing all possible means of transportation	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?verkehrsmittel=["ic_ec"]
optionen	Enumeration	all direct sleepingcart couchette	optionen=direct	Limits resulting connections as follows. direct: Only direct connections from origin to destination, without any intermediary stops sleepingcart: Only connections where one can use sleeping carts couchete: Only connections where one can use couchettes all: All connections are acceptable.	all	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?optionen=direct
barrierefrei	Enumeration	norestriction withrestriction self	barrierefrei=self	Only returns connections allowing for barrier-free travel: withrestriction:	norestriction	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?barrierfree=self

		helped announcement		Connections supporting barrier-free travel. self: Independent boarding/alighting possible. helped: Driving staff will assist with boarding/alighting. announcement: Boarding/alighting possible upon prior announcement. norestriction:		
belegung	Enumeration	firstlow firstmedium firsthigh secondlow secondmedium secondhigh	belegung=second medium	Only returns connections with an expected maximum occupancy. firstlow: Returns connections with low occupancy in the first class. firstmedium: Returns connections with low or medium occupancy in the first class. firsthigh: Returns connections with low, medium or high occupancy in the first class. secondlow: Returns connections with low occupancy in the second class. secondmedium: Returns	secondhigh	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?belegung=secondlow

				connections with low or medium occupancy in the second class. secondhigh : Returns connections with low, medium or high occupancy in the second class.		
velo	Boolean	true = show only connections allowing bike carriage	velo=true	Only show connections that allow for bike carriage.	false	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?velo=true
gruppenreisen	Boolean	true = show only connections allowing group travel	gruppenreisen=true	Only show connections that support group travel.	false	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?gruppenreisen=true
ohneneigezuege	Boolean	true = exclude connections with tilting trains	ohneneigezuege=true	Only show connections which do not use tilting trains.	false	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?ohneneigezuege=true
alternativverbindungen	Boolean	true = search for additional connections	alternativverbindungen=true	Also include alternative connections in the result set.	false	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?alternativverbindungen=true
alternativstops	Boolean	true = search for additional connections from/to stops nearby origin or	alternativstops=true	Search for additional connections from/to stops nearby origin or destination.	false	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?alternativstops=true

		destination				
umsteigezeit	Enumeration	normal zehn zwanzig dreissig	umsteigezeit=zehn	Specifies the amount of time available for transfers at each stop. zehn: At least 10 minutes. zwanzig: At least 20 minutes. dreissig: At least 30 minutes. normal: No increased amount of time for transfers.	normal	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?umsteigezeit=zehn

2.2.1. vias

name	Vias
type	Array
sub parameters	dauer; name (for details see table above)
example	?vias=[{"name": "Basel", "dauer": "00:15"}, {"name": "Bern", "dauer": "01:00"}]
description	Via stop, address or POI (max. 5 vias). If more than one via is added, please include erweiterteSuche parameter as well (see example underneath). Each via stops subparameter need to be put in a brace {} and the parameters and their values needs to be put in quotation marks as seen in the example. Blanks in arrays are not necessary and can be left out.
example URL	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?vias=%5B%7B%22name%22:%22Basel%22,%22dauer%22:%2200:15%22%7D,%7B%22name%22:%22Bern%22,%22dauer%22:%2201:00%22%7D%5D&erweiterteSuche=true

2.2.2. verkehrsmittel

name	verkehrsmittel
type	Array
sub parameters	ice_tgv ic_ec ir re_d s_sn_r arz_ex bus boot seilbahn tram lokaler_transit
example	?verkehrsmittel=["ic_ec","ir"]
description	Limits connections by their means of transportation.
example URL	https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?vias=%5B%7B%22name%22:%22Basel%22,%22dauer%22:%2200:15%22%7D,%7B%22name%22:%22Bern%22,%22dauer%22:%2201:00%22%7D%5D&erweiterteSuche=true&verkehrsmittel=%5B%22ic_ec%22,%22bus%22,%22boot%22,%22tram%22%5D

2.3. Examples

The following chapter should give some examples of possible URLs and the expected results.

2.3.1. Single parameter URL

<https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?nach=Bern>

Timetable and ticket purchase

The screenshot shows the SBB search interface. The 'From' field is empty with a placeholder 'station/stop, address or point of inter'. The 'To' field contains 'Bern'. The 'Date' field shows 'Thu, 27.04.2017' and the 'Time' field shows '16:12'. There are 'Dep' and 'Arr' radio buttons, a 'search for connection' button, and an 'Advanced search' link.

Picture 1: completed form of single parameter URL

2.3.2. Complete parameter URL

<https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?von=Z%C3%BCrich+HB&nach=Bern&datum=03.07.2018&zeit=16:00&suche=true>

Zürich HB → Bern

Tue, 03.07.2018. Departure 16:00. [Change](#)

The screenshot shows search results for the route Zürich HB to Bern. It includes a 'Barrier-free travel' filter, a 'Search earlier connections' button, and a table of train options with columns for train type, duration, change trains, occupancy rate, and platform. Each result includes a price button and a plus icon.

Train	Duration	Change trains	Occupancy rate	Platform	Price
IC 8 Direction Brig 16:02 - 16:58	56 min	0	1. 1. 2. 2.	31	from CHF 25.50
IC 5 Direction Genève-Aéroport 16:03 - 17:24	1 h 21 min	1	1. 1. 2. 2.	15	from CHF 24.40
IR 16 Direction Bern 16:06 - 17:28	1 h 20 min	0	1. 1. 2. 2.	16	from CHF 25.50
IR 37 Direction Basel SBB 16:08 - 17:28	1 h 18 min	1	1. 1. 2. 2.	14	from CHF 25.50
IC 1 Direction Genève-Aéroport 16:32 - 17:28	56 min	0	1. 1. 2. 2.	32	from CHF 25.50

Picture 2: search results of complete parameter URL

2.3.3. Complex parameter URL

<https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?von=Z%C3%BCrich+HB&nach=Bern&datum=03.07.2018&zeit=16:00&vias=%5B%7B%22name%22:%22Biel/Bienne%22,%22dauer%22:%2200:30%22%7D,%7B%22name%22:%22Grenchen%22,%22dauer%22:%2201:00%22%7D%5D&erweiterteSuche=true&suche=true>

Zürich HB → Bern

Via Biel/Bienne. Tue, 03.07.2018. Departure 16:00. [Change extended search](#)

Barrier-free travel ▾

Search earlier connections

	Duration	Change trains	Occupancy rate	Platform	
Direction Genève-Aéroport 16:03 ●──────────● 19:47	3 h 44 min	3	1. ███ 2. ███	15	from CHF 31.50 (+)
Direction Lausanne 16:30 ●──────────● 20:17	3 h 47 min	3	1. ███ 2. ███	31	from CHF 31.50 (+)
Direction Genève-Aéroport 17:03 ●──────────● 20:47	3 h 44 min	3	1. ███ 2. ███	17	from CHF 31.50 (+)
Direction Lausanne 17:30 ●──────────● 21:17	3 h 47 min	3	1. ███ 2. ███	31	from CHF 31.50 (+)
Direction Genève-Aéroport 18:03 ●──────────● 21:47	3 h 44 min	3	1. ███ 2. ███	15	from CHF 31.50 (+)

Picture 3: search results of complex parameter URL

2.3.4. Parameter URL incl. advanced search

https://www.sbb.ch/en/buying/pages/fahrplan/fahrplan.xhtml?von=Solothurn&nach=Olten&erweiterteSuche=true&ohneneigezuege=true&velo=true&verkehrsmittel=%5B%22s_sn_r%22%5D&suche=true

Solothurn → Olten

Wed, 15.08.2018. Departure 08:17. [Change extended search](#)

Standard view ▾

Search earlier connections

	Duration	Change trains	Occupancy rate		
Direction Olten 08:49 ●──────────● 09:24	35 min	0		Pl. 1	from CHF 8.20 (+)
Direction Olten 09:16 ●──────────● 09:50	34 min	0		Pl. 5	from CHF 8.20 (+)
Direction Olten 09:49 ●──────────● 10:24	35 min	0		Pl. 1	from CHF 8.20 (+)
Direction Olten 10:16 ●──────────● 10:50	34 min	0		Pl. 5	from CHF 8.20 (+)
Direction Olten 10:49 ●──────────● 11:24	35 min	0		Pl. 1	from CHF 8.20 (+)

Picture 4: search results of parameter URL incl. advanced search

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