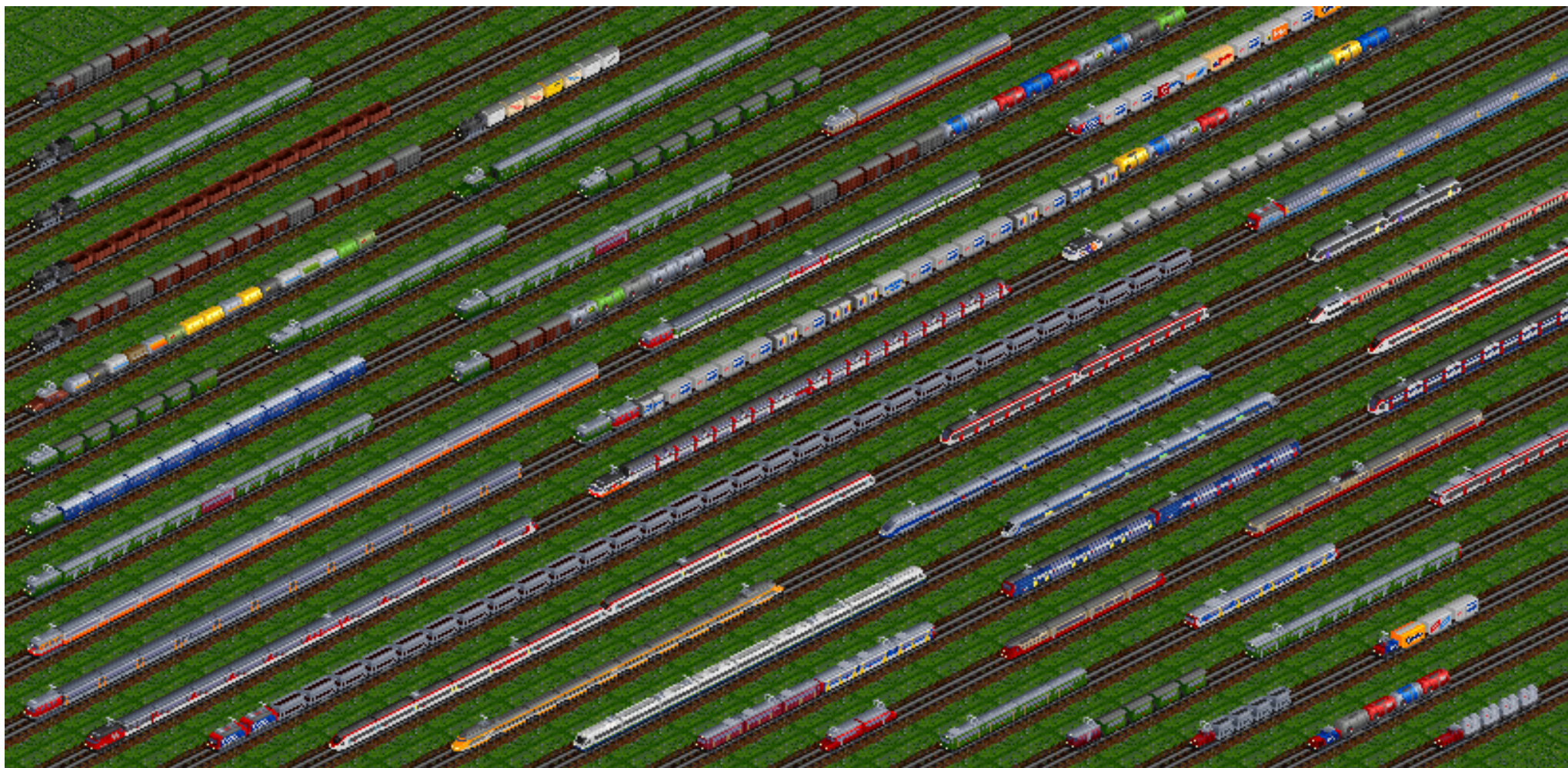


SBB SET

for OpenTTD
Guide for Version 1.0e



Contents

1	Installation and settings	3
1.1	Other graphics files	3
2	Gameplay	5
2.1	Running costs	5
2.2	Liveries	5
2.3	Expert mode	6
2.4	Driving trailers and push-pull operation	8
2.5	Train comfort and cargo payment	9
2.6	Automatic refitting	9
2.7	Speed limits	9
2.8	What to do with mail?	9
3	Rolling Stock	10
3.1	Steam locomotives	11
3.2	Diesel locomotives	13
3.3	Diesel trains	13
3.4	Electric locomotives	14
3.5	Electric railcars	18
3.6	Electric trains	19
3.7	Passenger coaches and baggage cars	23
3.8	Freight wagons	27
4	Suggested replacement sequences	29
5	Development	31
6	Credits and acknowledgements	31
7	Version history	31
8	Licensing	32

Introduction

The SBB Set is a graphics resource file (GRF) for OpenTTD, an open-source remake of the classic game *Transport Tycoon Deluxe*. It represents the rolling stock of the SBB-CFF-FFS, the Swiss Federal Railways.

The SBB were formed in 1902 as a merger and socialisation of several private railways. The first decades of railway operations in Switzerland were of course dominated by steam traction. But shortly after the creation of the SBB, electrification began at a rapid pace. By the mid-20th century, almost the entire network had been converted. Thus the SBB only saw the final years of the steam age and are much better known for their electric trains.

The SBB Set reflects this and has only a moderate selection of steamers for the early years of the game, but a wide choice of electrics, covering all the most common SBB locomotives. In total, it contains 6 types of steam locomotives, 13 electric locomotives, 2 diesel locomotives, 4 electric railcars, 13 electric train sets, 1 diesel train set, 19 passenger coaches, 8 baggage cars and 26 freight wagons.

Many of the vehicles in this set come in different liveries, which are either selected at random or change automatically over time when trains are serviced in depots. This system is designed to require as little attention from the player as possible. At the same time, there is an expert mode with full control over all liveries. Although this gives the player more possibilities, it may come with a lot of unwanted micromanagement and is therefore optional.

This guide contains a brief description of all vehicles available in the set. It also makes some recommendations for gameplay and covers technical questions.

1 Installation and settings

For general information on how to use GRF files in OpenTTD, [consult the OpenTTD manual](#). You will need **OpenTTD 1.2.0** (or later). The simplest installation method for the SBB Set is using OpenTTD's online content service, [as described here](#). Alternatively, if you have downloaded the file `SBBSet.grf` from another source, just move it to the data folder inside your OpenTTD folder.

The following game settings are recommended.

Suggested start year: **1902**

Under *Game Options*:

- **Currency: Swiss Francs (CHF)**
- **Road vehicles: Drive on right**
- **Town names: Swiss**

Under *Advanced Settings* (in OpenTTD 1.4):

- **Construction → Signals → Show signals on the driving side: Off** — Switzerland has right-hand road traffic, but trains usually run on the left of two tracks and signals are accordingly more often placed on the left side.
- **Construction → Signals → Automatically build semaphores before: ~1940** — Switzerland made the transition from semaphores to light signals quite early.
- **Economy → Inflation/Interest rate** — If playing with inflation, the interest rate should not be set higher than 2% or costs may seem far too high in later years.
- **Economy → Infrastructure maintenance** — If you enable this switch, consider lowering the purchase and running cost parameters for the SBB Set (see below). You might otherwise find it impossible to stay in business.
- **Vehicles → Trains → Train acceleration model: Realistic**
- **Vehicles → Weight multiplier for freight trains: 5** — This makes freight trains heavier, since they are usually unrealisti-

cally short in the game. The value of 5 is a moderate suggestion (for 3–4% grades).

- **Vehicles → Enable wagon speed limits: On**

To play with the SBB Set in a new game, you have to add it under *NewGRF Settings* on the title screen. When the SBB Set is selected in that window, click on *Set Parameters* to access additional options.

- **Costs.** You have a choice between five different settings for both purchase and running costs of trains in the SBB Set. Each step up doubles the costs, each step down cuts them in half.
- **Vehicle selection.** Locomotives, passenger coaches and freight wagons can be activated independently. In addition, there is a setting for international trains, which will activate the Swiss TEE trains, the Cisalpino trains, the TGV, as well as CIWL and UIC coaches. It is possible to activate international trains only.
- **Expert mode.** Gives you the possibility to manually select the livery for each train.
- **Speed limit.** Institutes a general speed limit of 200 km/h for all trains, reflecting reality in Switzerland. This will apply in particular to a few foreign high-speed trains like the TGV.

1.1 Other graphics files

The SBB Set only contains trains. There are many other graphic resource files (GRFs) out there, some of which are very well suited for a game set in Switzerland. The following is a (personal) list of suggestions. GRFs available via OpenTTD's online content service are marked by (OC).

- **Alpine Climate.** The [Alpine Climate GRF](#) replaces the ground tiles in the arctic climate with the green grass tiles of the temperate climate, allowing in effect for snow in the temperate climate. It also modifies town buildings and industries. The [OpenGFX+ Landscape Set](#) (OC) also has an option to enable temperate grass

in the arctic climate. Note that both sets are not fully compatible with road sets.

- **Cargos and Industries.** The two most popular choices for Industry GRFs are the [ECS vectors \(OC\)](#) and the [Full Industry Replacement Set \(FIRS\) \(OC\)](#). All cargos in these sets can be transported by the freight wagons in the SBB Set.
- **Houses.** The [Swedish Houses \(OC\)](#) fit very well into a Swiss setting. The [Total Town Replacement Set \(OC\)](#) is also very suitable and comes with a very nice integrated road set.
- **Railway tracks.** A track set is not very important for gameplay with the SBB Set, but may add some graphical variety. The [Japanese Tracks \(OC\)](#), in spite of the name, offer a German mode that fits the Swiss setting quite well. Other popular choices are the [Swedish Rails \(OC\)](#) and [NuTracks \(OC\)](#).
- **Road vehicles.** The [Generic Road Vehicles and Trams Set \(OC\)](#) offers a complete palette of passenger and freight vehicles in dual company colours. The [German Road Vehicle Set](#) fits even better into a Swiss setting. The stable release currently only contains busses and trams, but testing versions, also available for download, feature some trucks. The [Heavy Equipment Set \(OC\)](#) has all the vehicles to transport bulk cargos and more.

- **Stations.** The [New Stations Set](#) contains a great variety of station tiles, including a modern Swiss station 'Olten', as well as industry tiles and locomotive sheds with turntable. The [Canadian Stations](#) (currently not publicly available) and [Dutch Stations \(OC\)](#) also fit well into a Swiss setting. The [Industrial Station Renewal \(OC\)](#) offers the biggest choice of industry tiles. The [CHIPS Station Set \(OC\)](#) is a collection of simpler, mostly industrial station tiles especially well adapted for use with FIRS.
- **Ships and airplanes.** If you plan to grant Switzerland access to the sea in your game (why not?), you will probably want one of the two most comprehensive ship sets, [New Ships](#) or [Squid ate FISH \(OC\)](#). Both also contain some river boats. Planes are found in the [Aviators Aircraft Set \(OC\)](#) (very comprehensive) or the [World Airliners Set \(OC\)](#) which contains only modern jet planes but in a wide variety of realistic airline liveries, including many Swiss Air planes.
- **Town Names.** OpenTTD comes with built-in Swiss town names, but the [Swiss Town Names GRF \(OC\)](#) contains many more.
- **Objects.** The Total Alpine Replacement Set project has two sets of objects, one containing [Pistes](#) (ski runs) and one with [Mountain Lifts](#).

[↑ back to table of contents](#)

2 Gameplay

This section assumes that you have played OpenTTD before and are familiar with basic gameplay. It is focussed on features of the SBB Set that distinguish it from other train sets. If you are a beginner and just want to play a Swiss-themed game in OpenTTD, you probably will not need to read any of this. But if you found the behaviour of the SBB Set puzzling or want to make the most of it in terms of 'realistic' gameplay, this should be a useful reference.

2.1 Running costs

The annual running cost for each vehicle is shown in the purchase menu. However, a number of factors influence the actual running cost for your trains.

1. **Wagon running costs.** Wagons incur running costs just as locomotives, so the numbers add up when you form a train.
2. **Time dependence for steamers.** The running cost for steam engines increases over time in several steps after 1930. This reflects the rising cost of coal as well as labour costs. By 1965, steamers are more than twice as expensive to run than initially.
3. **Lower costs for stationary vehicles.** Stationary vehicles incur only half the running cost. (This is independent of the general fact that vehicles that are permanently stopped, on track or in a depot, do not cost maintenance at all.)

Because of these variable factors, you should regularly check and compare the actual running costs of your trains in the vehicle list.

2.2 Liveries

Many vehicles in the SBB Set come in different liveries, i.e. different paint schemes. This happens in several ways.

- **Time-dependent liveries.** In reality, standard paint schemes have often changed over time and vehicles were repainted accord-

ingly. For example, in 1928, the livery for all electric locomotives was changed from brown to green. This meant that from 1928 all new electric locomotives were painted green. But the older ones were still brown and only got repainted when their first major revision came up, usually after 20 years of service. So brown locomotives were still around until at least the late 1940s.

In the game, such locomotives will automatically change from brown to green when visiting a depot after 1928 and with a lifetime of at least 20 years. Other vehicles will change their livery upon service in a depot after a certain date, regardless of age. Details are given in the [Rolling Stock section](#) below.

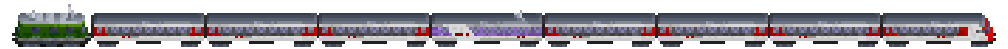
A train that never visits a depot will never change its appearance. So the important thing to remember is: **If you want time-dependent liveries, let your trains visit depots at regular intervals.**

Example. It is 1983 and you buy yourself a brand new **Re 4/4 II** with seven **modern standard coaches (EW IV)** and driving trailer, like this.



In 1988, the standard livery for SBB locomotives is changed from green to red, but your Re 4/4 II has not yet reached 20 years of service, so it remains green even after visiting a depot.

In 2000, the passenger coaches are repainted to the new IC 2000 livery. So after service in a depot, your train looks like this.



Finally, in 2003, the engine has been in service for 20 years and, when serviced, the train is given its final appearance.



- **Random liveries.** Some vehicles have a randomised appearance. For example, container carriers come with random containers that change with every loading.

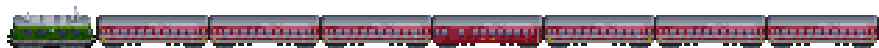
The **CIWL**, **UIC-X** and **Eurofima** coaches have random liveries that work differently: The *second* vehicle in the train decides which random livery is used for the entire train. The second vehicle will usually be the first such wagon, unless in a train with multiple locomotives or with several types of coaches. Matching baggage cars follow suit.

Example.

It is 1973 and you think it is time for a transalpine train to the beautiful country of Italy. So you buy a powerful **Re 6/6** locomotive and add a couple of **UIC-X coaches**. Here is what you might get:



Now, those green coaches are in fact in SBB livery. But you would rather have Italian FS coaches. So you drag the first coach to the back of the train, which brings a different coach into the second position behind the locomotive. This new coach might have different random values and determine a different livery for the train. So you repeat this step a few times until you find the FS *Rosso fegato* livery.



(If it did not come up after cycling through all the coaches, you have to sell and re-buy a few coaches and keep trying.) Note that the restaurant car remained in SBB livery, but that is okay, since the FS did not operate restaurants on those trains.

Finally, you decide that a baggage car would make a good addition.



Note that the baggage car added to the end of the train automatically chooses the same livery, so no need for more random tries.

• **Special cases.** A few locomotives will automatically change their appearance depending on the attached wagons. This happens in the following cases:

- An **Re 4/4 II** with attached **Swiss Express coaches (EW III)** will automatically appear in Swiss Express livery.

- An **Re 4/4 I** or **Re 4/4 II** with attached **UIC-X coaches** in (random) TEE livery will automatically appear in TEE livery itself.
- An **Re 482/484** with attached **Eurofima coaches** will appear in Cisalpino livery.

2.3 Expert mode

If you enable expert mode in the parameters of the SBB Set, you have the possibility to manually change the liveries of all vehicles via the cargo refit mechanism. However, by default, vehicles behave exactly as in normal mode.

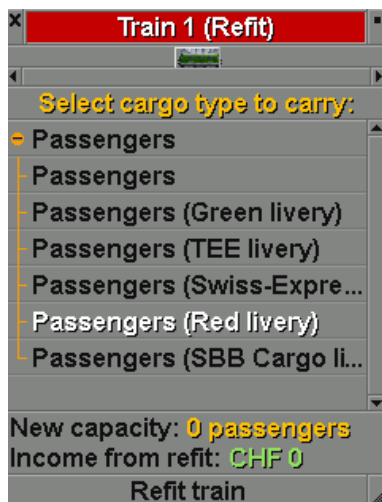
Returning to the example above, suppose it is 1983 and you buy an Re 4/4 II. It will appear in green livery. If you click the refit button, you will see something like the following.



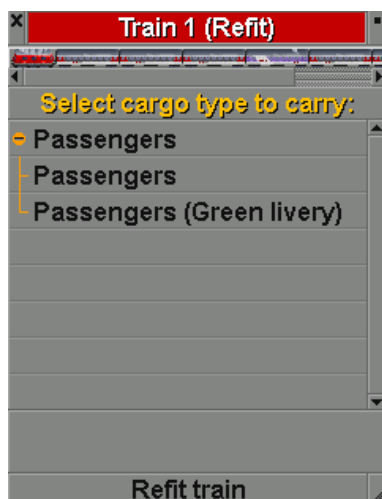
(Click the plus-sign in front of 'Passengers' in order to see the refit options.) Even though the Re 4/4 II is a locomotive and does not itself carry any cargo, the refit dialogue says 'Passengers', because the Re 4/4 II is primarily an engine for passenger service. The first refit option is just plain 'Passengers' and corresponds to the normal behaviour. Liveries are chosen automatically, as explained above. If you select any one the other options ('Green', 'TEE' or 'Swiss-Express'), the livery will be changed correspondingly and no further

automatic changes will occur. In particular, if you choose 'green', the current appearance of the locomotive will remain the same, but the livery will not be automatically updated after 20 years.

Note that 'red' is not currently a refit option, because it only becomes available in 1988 with the introduction of the red painting scheme. Likewise, the SBB Cargo livery will only become available in 2000. Thus after 2000, the refit dialogue will look like this.



Now add some **Modern Standard coaches**. This will make the refit dialogue look like this.



That seems odd at first, since some options have simply disappeared. The problem is that you are currently seeing the refit options for the entire train. Both the engine and the coaches have a livery called 'Green livery', but the other options for locomotive or coaches are not shared by the other. If you select the engine, its options reappear and any selection will only affect the engine. Likewise, you can select individual coaches or an entire group by holding CTRL while clicking.



The white frame indicates which vehicles have been selected.

Through livery refits in expert mode, you also have the possibility to manually add and remove **restaurant cars**. Note that when a coach is manually refitted to a restaurant, any automatically placed restaurant cars will disappear.

2.4 Driving trailers and push-pull operation

A driving trailer (or control car) is a coach added to the end of a train equipped with a driving cab to control the locomotive at the other end. This allows for push-pull operation, which means that the locomotive is pulling the train when going one way and pushing when going the other, without the need to bring in an additional locomotive or move the locomotive to the opposite end in terminus stations.

While the advantages of push-pull operation for real-world railways are rather obvious, there is no need for it in OpenTTD. Trains can always reverse (i.e. literally turn around) at the end of track or even in any station. But the SBB Set — like several other train sets — simulates push-pull behaviour simply to create an illusion that a train has properly reversed in a terminus station, rather than having been turned around through divine intervention.

It must be stressed that push-pull trains in the SBB Set are pure 'eye candy' with **no significance for gameplay** whatsoever.

Here is how they work. If any of the five driving trailers available in the SBB Set ([Light steel](#), [EW I](#), [EW III](#), [EW IV](#) or [IC 2000](#)) is added to the end of a train, it will convert that train into a push-pull train, provided that certain conditions are met.

- The train must be headed by a push-pull-capable locomotive or railcar. In effect, the train's leading vehicle must be one of the following: [Fe 4/4](#), [Re 4/4 I](#), [BDe 4/4](#), [Re 4/4 II](#), [RBe 4/4](#) or [Re 460](#).
- Other than a single engine and a driving trailer, the train must only contain a single type of passenger coach, which must be one of the following: [Light Steel Coach](#), [Standard Coach \(EW I\)](#), [Swiss Express Coach \(EW III\)](#), [Modern Standard Coach \(EW IV\)](#) or [IC 2000 Coach](#). In particular, baggage cars may not be added.

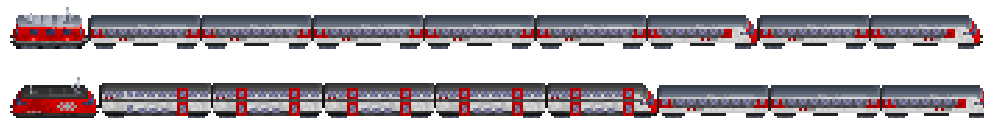
The second condition is mostly due to technical limitations in OpenTTD and in the implementation in the SBB Set.

If the conditions above are not met, the driving trailer will not have any effect on the behaviour of the train and a yellow exclamation mark is shown in the depot view.



This train has two locomotives and contains a baggage car and two different kinds of passenger coaches, so the driving trailer will not enable push-pull operation for this train.

Note that a driving trailer with no push-pull effect is still a perfectly good coach with baggage compartment and will behave like any other car in a train. In fact, the SBB often use driving trailers in the middle of trains when adding additional coaches to a train, for example during rush hour. Thus trains similar to the following can sometimes be spotted on Swiss tracks.



You might notice that if the driving trailer is longer than the locomotive, a little bit of blank space has to be added in front of the locomotive to bring it up to the same length, causing a visible shift of the train in the depot when the driving trailer is added. This is not a bug, but due to technical limitations in the game.

To compensate for the fact that push-pull trains are not allowed to run baggage cars, the driving trailers themselves carry some mail in the game. Indeed, many driving trailers have large baggage compartments in reality, but even those that do not will still carry mail in the game to keep things simple.

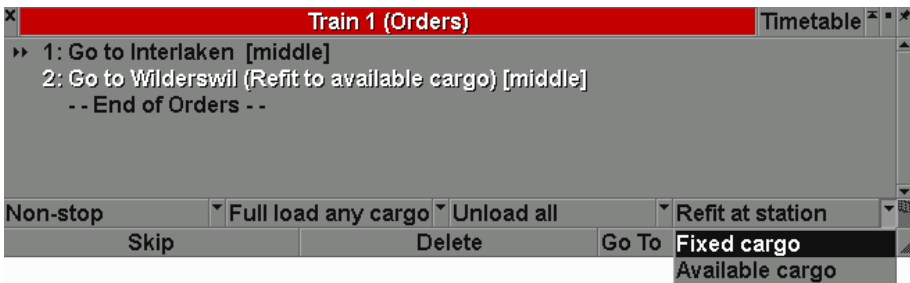
2.5 Train comfort and cargo payment

The payment you receive in OpenTTD for transporting any cargo depends on the distance travelled and the time you take to deliver it (see the [OpenTTD Wiki](#) for details).

In the SBB Set, some passenger coaches have a slower 'cargo aging' than others. The idea is that passengers are willing to pay more for comfort when travelling long distances. The most comfortable coaches are wagon-lit (sleeping cars) followed by various coaches for intercity traffic. Trains for local service are less comfortable but take a shorter time to load and unload in stations. Which trains and coaches are most suitable for what service is explained in the purchase menu. A special role is played by **restaurant cars**. For many types of coach, a restaurant car is automatically added to the train when it reaches a certain length, usually at least seven consecutive coaches of the same type. A restaurant car has a lower capacity and higher running cost, but will significantly improve the comfort level of the train.

2.6 Automatic refitting

Many wagons in the SBB Set can be automatically refitted in stations. The train will then pick up any waiting cargo in the station that its wagons can transport. To enable automatic refitting, you have to explicitly allow it in the train's orders, as shown in the following picture.



Which freight wagons can be automatically refitted and which cannot is indicated in the purchase menu. In addition, all passenger coaches can be refitted within the 'passengers' cargo class (for example to 'tourists' in ECS) and baggage cars within the 'mail' cargo class.

2.7 Speed limits

Swiss railways are renowned for their punctuality, reliability and the density of the network. But they are generally not very fast. Most lines are old, with small curve radii and often limited to about 100 km/h. Some mainlines allow speeds up to 200 km/h, but even that is not very fast compared to the growing high-speed networks in neighbouring European countries. Some argue that a small country like Switzerland does not need higher speeds, others disagree.

By default, the SBB Set imposes a general speed limit of 200 km/h. This is done mainly so that foreign high-speed trains (TGV, Pendolino) do not gain an unfair advantage over Swiss trains in the set.

Some **track sets** (Dutch Tracks, Japanese Track Set and NuTracks) provide a number of rail types with different speed limits. If such a set is used, the speed limit setting of the SBB Set should have no effect.

2.8 What to do with mail?

Mail is one of the default cargos in Transport Tycoon that is generated by every town along with passengers. Mail is more lucrative than passengers, but also scarcer, so it usually has to be transported along with passengers.

For train sets that try to add more realism to trains in OpenTTD, mail presents something of a problem. Postal mail is largely transported on the road nowadays and baggage cars (carrying passengers' baggage, which is mail in a broader sense) have almost disappeared, as checked baggage has become rare in rail travel.

The SBB Set treats mail mostly as 'baggage' and provides several generations of baggage cars. In addition, most driving trailers and some multiple unit trains can carry mail along with passengers. However, if you do not want these passenger vehicles to carry mail, there is a refit option to put the baggage compartments out of use.

[↑ back to table of contents](#)

3 Rolling Stock

The following pages give short descriptions of all vehicles in the SBB Set and contain some technical data. Until the 1980s, the Swiss locomotive and railcar classification followed a relatively simple scheme, of which we give a brief (and very much simplified) explanation; details can be found on [Wikipedia](#).

In the Swiss scheme, the format of a locomotive's designation is

Ct p/n s

with

- C: the locomotive class
- t: the traction type
- p: the number of driven axles
- n: the total number of axles
- s: the series

The **locomotive class** is one of

- A: Top speed above 80 km/h
- B: Top speed 70–80 km/h
- C: Top speed 60–70 km/h
- D: Top speed 45–60 km/h
- E: Shunting locomotive or steam tender locomotive
- R: Increased curve speed and top speed above 110 km/h.

The **traction type** is empty for steam locomotives, 'e' is for electric traction and 'm' for diesel traction.

The **series** is a roman number used to distinguish different series of locomotives with the same class, traction type and axle configuration.

Examples. The **A 3/5** is a steam locomotive (no letter for the traction type) with top speed above 80 km/h and five axles, three of which are driven. The **Re 4/4 II** is an electric locomotive with increased curve speed and top speed above 110 km/h, with four axles all of which are driven and is the second series of this kind. (The first being, of course,

the **Re 4/4 I**.) The **Eb 3/5** is a steam tender locomotive, but in this case the 'b' indicates the top speed, not the traction type.

The classification scheme for railcars is somewhat different, with the first capital letter indicating the facilities rather than the top speed.

- A: with first class compartment
- B: with second class compartment
- C: with third class compartment (before 1956)
- D: with baggage compartment (from 1962)
- F: with baggage compartment (until 1961)

An 'R' in front again indicates increased curve speed. Thus the **RABDe 12/12** is an electric train having first and second class coaches as well as a baggage compartment, has 12 axles all of which are powered and is admitted for increased curve speed.

While this scheme neatly encodes some basic information about the train, it was not deemed very suitable for electronic data processing. It also does not conform to **UIC** standards, which were increasingly applied in Europe to improve interoperability between different railways. Later designations (like **Re 460**) thus follow a different format, though the meaning of the initial letters remains the same. Some old locomotives were also given a new name (e.g. the **Re 4/4 II** is also designated as **Re 420**). In this case, both designations are given in the guide below, but only the old one in game.

Along with the rolling stock, the track on which it runs is categorised according to the maximal **axle load** it can support. In the SBB Set, vehicles are assigned a letter A-C, based on the **European classification**, indicating the minimal required track class. Historically, A and B correspond to lighter track, as used on branch lines and on early main lines, while C corresponds to main line track.

As of the time of release of this set, there is no readily available track set for OpenTTD that would take axle loads into account, but this may change in the future.

3.1 Steam locomotives

When the SBB were founded in 1902 and absorbed many private railways in the following years, they inherited a great number of steam engines. Like other European national railways, the SBB suffered from the resulting lack of standardisation and quickly began to replace its aging steamers by newer designs (only to replace many of the new engines with electric ones much earlier than anyone could have expected in the early years).

E 3/3

»Tigerli«

Along with several similar small steamers, this tank engine played an important role on many private railways before the SBB inherited them. They were not fast or powerful enough for mainline service, but economic and robust. The SBB mostly used them for shunting. In the game, the E 3/3 is by far the cheapest engine and will be useful in the early years when the company is small with little money to spare.



Constructed	1902 – 1915
In service	1902 – 1966
Number built	83
Max. speed	45 km/h
Power output	370 kW
Track class	A (light)
Max. tractive effort	65 kN
Manufacturers	SLM
Service	Light passenger and freight trains
Wikipedia	DE

B 3/4

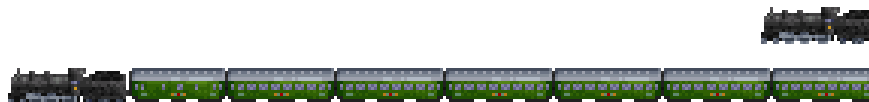
These tender locomotives, suitable for light to medium universal service, were ordered by the SBB between 1905 and 1916. However, a number of similar Moguls were inherited from the SCB and other private railways, so they are available in game from 1902.



Constructed	1887 – 1916
In service	1902 – 1964
Number built	69 (+47 older engines)
Max. speed	75 km/h
Power output	730 kW
Track class	B (light)
Max. tractive effort	118 kN
Manufacturers	SLM
Service	Passenger and freight trains
Wikipedia	EN DE

A 3/5

The A 3/5 were a series of express passenger locomotives which the SBB inherited from several of their predecessors, in particular the Jura-Simplon and the Gotthard Railway. An improved version equipped with a superheater was later ordered by the SBB. They headed express trains all over Switzerland, including over the Gotthard. They also pulled the Orient Express on the Simplon route between 1921 and 1927, prior to electrification.



Constructed	1902 – 1909
In service	1902 – 1964
Number built	111
Max. speed	100 km/h
Power output	1000 kW
Track class	A (light)
Max. tractive effort	111 kN
Manufacturers	SLM
Service	Express passenger trains
Wikipedia	EN DE

C 4/5



These sturdy locomotives were built for the Gotthard Railway, mainly as helper engines. They were often placed in front of heavy passenger trains headed by the A 3/5, as shown here. Before the introduction of the C 4/5, such trains frequently required three A 3/5, two pulling and one pushing! When the Gotthard railway was electrified in the 1920s, this small series was retired early. But in game, they are suitable as heavy freight engines in their own right.

Constructed	1906
In service	1906 – 1925 (from 1909 with SBB)
Number built	8
Max. speed	65 km/h
Power output	1100 kW
Track class	C (heavy)
Max. tractive effort	161 kN
Manufacturers	SLM
Service	Heavy trains in the mountains
Wikipedia	DE

Eb 3/5

»Habersack«



The Eb 3/5 were built to fill a gap in the SBB's locomotive roster. As tank engines, they were capable of running at full speed in either direction and thus did not require turntables. At the same time, they were powerful enough for mainline service, being otherwise modelled on the B 3/4. Their nickname means »Oat Bag«, since they carried their fuel around with them.

Constructed	1911 – 1916
In service	1911 – 1965
Number built	34
Max. speed	75 km/h
Power output	730 kW
Track class	A (light)
Max. tractive effort	109 kN
Manufacturers	SLM
Service	Light passenger and freight trains
Wikipedia	DE

C 5/6

»Elephant«



Along with the A 3/5, the Elephant is the best-known of the Swiss steam locomotives. It was a more powerful version of the C 4/5 built for heavy universal service over the Gotthard. The design proved very successful, though when the Gotthard railway was electrified soon after the introduction of the C 5/6, they were relegated to freight duties in flat country. Its high tractive effort makes the C 5/6 ideal for heavy freight trains, but it is not cheap to operate.

Constructed	1913 – 1917
In service	1913 – 1968
Number built	28
Max. speed	65 km/h
Power output	1190 kW
Track class	A (light)
Max. tractive effort	235 kN
Manufacturers	SLM
Service	Heavy passenger and freight trains
Wikipedia	EN DE FR

[↑ back to table of contents](#)

3.2 Diesel locomotives

By the late 1950s, electrification of the Swiss railway network was almost complete and steam engines were becoming obsolete. However, there were several reasons for maintaining a fleet of locomotives with a mobile power supply, namely (1) for shunting in large rail yards, which would be too costly to electrify; (2) for operation in some loading areas where catenary would present an obstruction or a hazard; (3) for maintenance, especially of the catenary; (4) to serve

private sidings and branch-lines that would not be electrified; (5) as a backup in case of power-failure. As battery-powered locomotives were insufficient for most of these tasks, diesel engines were the best choice.

Since shunting and maintenance trains cannot really be modelled in TTD, diesel engines are of limited use in game and only two out of nine locomotive series from the SBB roster are included in the set.

Bm 4/4



This medium-heavy engine was the most versatile of three different models of diesel shunters bought in the fifties and sixties. Apart from various shunting duties, they replaced steamers in light freight service on the few remaining non-electrified lines.

Constructed	1960 – 1970
In service	since 1960 (retirement began 2006)
Number built	46
Max. speed	75 km/h
Power output	620 kW
Track class	A (light)
Max. tractive effort	216 kN
Manufacturers	SLM, SAAS
Service	Shunting and light freight
Wikipedia	EN DE

Am 843



A heavier diesel shunter imported from Germany, also suitable for medium to light freight service. It is considered one of the cleanest diesel locomotives.

Liveries. Red before 2008, then SBB Cargo livery. Red engines repainted when serviced in a depot after at least 20 years of life.

Constructed	2003 – 2009
In service	since 2003
Number built	76
Max. speed	100 km/h
Power output	1500 kW
Track class	C (heavy)
Max. tractive effort	246 kN
Manufacturers	Vossloh
Service	Shunting and light freight
Wikipedia	EN DE FR

3.3 Diesel trains

RAm TEE



These diesel trains were built for the SBB and the Dutch NS for the first stage of the Trans Europ Express network. They ran between the Netherlands, Belgium, Luxembourg, France and Switzerland, later also to Germany. The head cars, one of which contains the engine, were built in the Netherlands and have a somewhat American look to them. Appropriately, the trains were later sold to the Ontario Northland Railway, where they ran as ‘Northlander’ in a striking blue and yellow livery.

Constructed	1957
In service	1957 – 1977 (sold to ONR, Canada)
Number built	5 (2 owned by SBB)
Max. speed	140 km/h
Power output	1350 kW
Track class	C (heavy)
Capacity	120 passengers
Manufacturers	Werkspoor, SIG
Service	Trans Europ Express
Formation	1 power car and 3 trailers
Couple with	—
Wikipedia	DE FR IT

3.4 Electric locomotives

Coal shortages during World War I and the possibilities of hydroelectric power in Switzerland soon convinced the SBB that the future lay in electric traction. By 1928, over half the network had been electrified, using almost entirely today's 15kV 16²/₃ Hz single phase alternating current. A second wave of rapid electrification, including branch lines, came with World War II, again due to severe coal shortages. By the

1960s, electrification was almost complete. Progress was very much driven by the heavy demands of the mountain lines, in particular over the Gotthard. A typical pattern emerged in which the most modern and powerful locomotives always served on the Gotthard first before being relegated to less demanding duties when the next generation of engines arrived.

Ce 6/8 II

»Crocodile«



The Crocodiles are without doubt the most famous Swiss locomotives in history. They were built for heavy freight service on the Gotthard line. When more powerful engines became available (most notably the Ae 6/6), the Ce 6/8 II were increasingly used in flat country, sometimes even for passenger trains. They remained in service until the 1980s. An improved but very similar model, the Ce 6/8 III, was developed a few years after the Ce 6/8 II.

Liveries. Brown before 1928, then green. Brown engines repainted green when serviced in a depot after at least 20 years of life.

Constructed	1919 – 1922
In service	1919 – 1986
Number built	46
Max. speed	65 km/h
Power output	1650 kW
Track class	B (light)
Max. tractive effort	260 kN
Manufacturers	SLM, MFO
Service	Heavy freight trains, later universal
Wikipedia	EN DE FR IT

Be 4/6

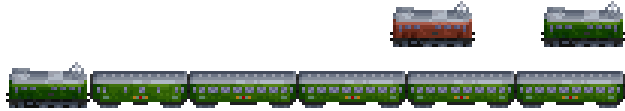


The Be 4/6 were built for express passenger service over the Gotthard. They were technically quite advanced for their time. Nevertheless, they were quickly replaced at the more prestigious tasks when the Ae 4/7 became available. Like all Gotthard locomotives of the first generation, they were later relegated to service in the flat country.

Liveries. Brown before 1928, then green. Brown engines repainted green when serviced in a depot after at least 20 years of life.

Constructed	1920–1923
In service	1920 – 1976
Number built	40
Max. speed	75 km/h
Power output	1500 kW
Track class	C (heavy)
Max. tractive effort	236 kN
Manufacturers	SLM, BBC
Service	Universal service in the mountains
Wikipedia	DE FR

Ae 3/6 II



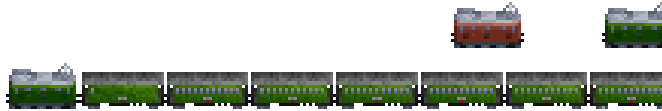
After the electrification of the Gotthard line, the SBB turned their attention to the other Swiss mainlines. The Ae 3/6 II were used all over the country for express passenger and light freight trains on the newly electrified lines. They performed those duties for several decades, although some of the heavier tasks were soon taken over by the Ae 4/7.

Liveries. Brown before 1928, then green. Brown engines repainted green when serviced in a depot after at least 20 years of life.

Constructed	1921–1926
In service	1923–1977
Number built	60
Max. speed	100 km/h
Power output	1225 kW
Track class	C (heavy)
Max. tractive effort	193 kN
Manufacturers	SLM, MFO
Service	Passenger and light freight trains
Wikipedia	DE

Ae 3/5

»Little Sécheron«

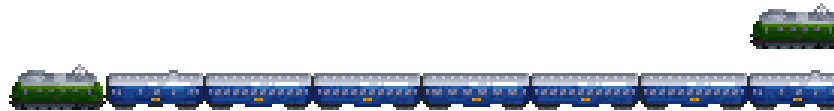


Electrification in the flat country called for a fast passenger engine that was lighter and cheaper to build and operate than the heavy Gotthard locomotives. The Ae 3/5 was built to fill that role. They were mostly used in the Valais region. In the 1960s, some were refitted for car shuttle service through the Gotthard and Simplon tunnels.

Liveries. Brown before 1928, then green. Brown engines repainted green when serviced in a depot after at least 20 years of life.

Constructed	1922 – 1925
In service	1923 – 1983
Number built	26
Max. speed	90 km/h
Power output	972 kW
Track class	B (light)
Max. tractive effort	161 kN
Manufacturers	SLM, SAAS
Service	Passenger trains in flat country
Wikipedia	DE IT

Ae 4/7



The Ae 4/7 was one of the most successful and long-lived Swiss locomotive designs. Used for both express passenger and heavy freight service, the Ae 4/7 was one of the first universal locomotives in the world (though this was arguably made possible by the relatively low speed of Swiss passenger trains). They also headed the Simplon and Arlberg Orient Express, as shown here. Later they were mostly used in heavy freight and regional passenger service.

Constructed	1927 – 1934
In service	1927 – 1996
Number built	127
Max. speed	100 km/h
Power output	2300 kW
Track class	C (heavy)
Max. tractive effort	239 kN
Manufacturers	SLM, BBC, MFO, SAAS
Service	Express passenger and heavy freight
Wikipedia	EN DE FR IT

Ee 3/3

»Glätteisen«



This electric shunting locomotive was produced over four decades and the newer engines are still in use in Swiss stations. Before the war, they were also used occassionaly in light freight service but were soon regarded as too slow. In the game, they can replace the E 3/3 where a cheap engine is required for very light service on electrified branch lines.

Constructed	1928–1955
In service	since 1928
Number built	136
Max. speed	50 km/h
Power output	500 kW
Track class	A (light)
Max. tractive effort	116 kN
Manufacturers	SLM, BBC
Service	Shunting and light freight
Wikipedia	EN DE FR IT

Re 4/4 I



The first of the post-war locomotives representing the second generation of Swiss electrics. To allow for a higher top speed in curves, its axle weight was kept as low as possible. The Re 4/4 I is thus light and fast but not very powerful and unsuitable for freight service. Before the appearance of the Re 4/4 II, the Re 4/4 I was also used for locomotive-hauled TEE trains.

Liveries. Green before 1988, then red. Green engines repainted red when serviced in a depot after at least 20 years of life. TEE red-cream livery when used with UIC-X coaches in (random) TEE livery.

Constructed	1946–1951
In service	1946–1998
Number built	50
Max. speed	125 km/h
Power output	1900 kW
Track class	A (light)
Max. tractive effort	135 kN
Manufacturers	SLM, BBC, MFO, SAAS
Service	Express passenger service
Wikipedia	DE FR

Ae 6/6 / Ae 610

»Kantonslok«



The post-war increase in traffic led to a shortage of suitable locomotives to pull longer and heavier trains, especially over the Gotthard. The Ae 6/6 was the answer, considerably faster and more powerful than any of the models it replaced. The first 25 engines were decorated with the sigils of the (at the time) 25 cantons of Switzerland. The design became very popular with the public and an icon of the SBB, along with the Crocodile.

Liveries. Green before 1988, then red. Green engines repainted red when serviced in a depot after at least 20 years of life. After 2000, red or SBB cargo livery (at random).

Constructed	1952–1966
In service	1955–2013
Number built	120
Max. speed	125 km/h
Power output	4300 kW
Track class	C (heavy)
Max. tractive effort	393 kN
Manufacturers	SLM, BBC, MFO
Service	Heavy freight and express passengers
Wikipedia	EN DE FR IT

Re 4/4 II / Re 420



After the Ae 6/6 had taken power and speed over the Gotthard to a new level, the SBB were looking for a fast universal locomotive to increase top speed throughout the network and start replacing the aging Ae 4/7. The Re 4/4 I was fast but not powerful enough, so a new model was needed. The exterior design of the Re 4/4 II is clearly inspired by the Ae 6/6, but they are much shorter, making them somewhat squat in appearance. Several Re 4/4 II were painted (and refit) to match Swiss Express and Trans Europ Express passenger coaches.

Liveries. Green before 1988, then red. Green engines repainted red when serviced in a depot after at least 20 years of life. After 2000, red or SBB cargo livery (at random). TEE livery if used with UIC-X coaches in (random) TEE livery. Swiss Express livery if used with Swiss Express wagons (EW III)

Constructed	1964-1985
In service	since 1967
Number built	276
Max. speed	140 km/h
Power output	4700 kW
Track class	C (heavy)
Max. tractive effort	256 kN
Manufacturers	SLM, BBC, MFO, SAAS
Service	Universal
Wikipedia	EN DE FR IT

Re 6/6 / Re 620



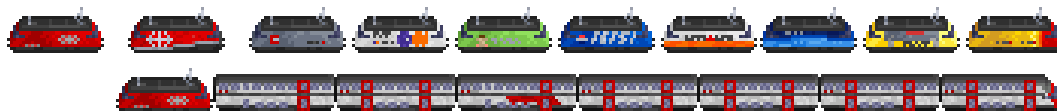
The Ae 6/6 were powerful, but still not powerful enough for the ever increasing demands on the Gotthard railway. From the outside, the Re 6/6 looks much like a heavier and longer version of the Re 4/4 II. It is mounted on three two-axle bogies, rather than two three-axle bogies like the Ae 6/6. The Re 6/6 can also be operated jointly with the Re 4/4 II, which is quite common for heavy freight trains, as shown here.

Liveries. Green before 1988, then red. Green engines repainted red when serviced in a depot after at least 20 years of life. After 2000, red or SBB cargo livery (at random).

Constructed	1972–1980
In service	since 1972
Number built	89
Max. speed	140 km/h
Power output	7800 kW
Track class	C (heavy)
Max. tractive effort	393 kN
Manufacturers	SLM, BBC, SAAS
Service	Heavy freight and passenger service
Wikipedia	EN DE FR IT

Re 460

»Lok 2000«



The Re 460 was a crucial component of »Bahn 2000«, an ambitious project for a major re-design of passenger services on the SBB network. To date, it has been the last main line locomotive to be designed and constructed almost entirely in Switzerland. After the Crocodile and the Ae 6/6, it can be regarded as the third world-famous Swiss locomotive. With its large flat sides it is also used more often for mobile advertising than any other SBB engine. Originally designed for universal service, the Re 460 was considered too costly in production for freight operation and is today used almost exclusively in express passenger service.

Liveries. Red or with one of eight different advertisements, randomized at every visit of a depot.

After 2012, some locomotives repainted in New Look (at random).

Constructed	1991 – 1996
In service	since 1991
Number built	119
Max. speed	200 km/h
Power output	6100 kW
Track class	C (heavy)
Max. tractive effort	301 kN
Manufacturers	SLM, ABB
Service	Universal
Wikipedia	EN DE FR IT

Re 482 / Re 484



The Swiss member of the Bombardier TRAXX family found all over Europe. They are a more economic option for freight traffic than the Re 460 (but, in the opinion of many enthusiasts, also a much less exciting one). The Re 484 represents the next version, not distinguished in game, that was built for international traffic to Italy. For a few years after 2005, five Re 484 were rented to Cisalpino for passenger service and repainted to match Cisalpino EC coaches.

Liveries. SBB Cargo livery or Cisalpino livery if used with Eurofima (EC) coaches.

Constructed	since 1999
In service	since 2001
Number built	70
Max. speed	140 km/h
Power output	4200 kW
Track class	C (heavy)
Max. tractive effort	303 kN
Manufacturers	Bombardier
Service	Heavy freight
Wikipedia	EN DE FR IT

Eem 923

Dual power



A dual power locomotive equipped with an electric and a small diesel engine. It is used in shunting but is also fast enough for light freight service with the possibility of switching to diesel operation on non-electrified industrial sidings.

Constructed	2011–2012
In service	since 2011
Number built	30
Max. speed	100 km/h
Power output	1500 kW (290 kW in diesel operation)
Track class	B (light)
Max. tractive effort	150 kN
Manufacturers	Stadler Rail
Service	Shunting and light freight
Wikipedia	EN DE

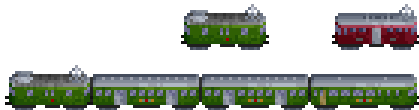
[↑ back to table of contents](#)

3.5 Electric railcars

A railcar is essentially a powered passenger (or baggage) wagon. Railcars are usually much lighter than locomotives which means they can run at higher speeds on low-grade railway track, particularly in curves. This became especially important in Switzerland when the SBB began to electrify many of their rather slow and curvy branch

lines. The trade-off is obviously a much lower tractive effort, which makes them unsuitable for freight or heavy passenger service. More than in other European countries, railcars were used by the SBB as light locomotives, operating not only as single units but also to pull short passenger and even light freight trains.

Fe 4/4 / De 4/4

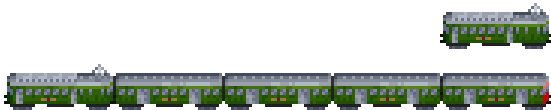


The Fe 4/4 (later renamed De 4/4, in accordance with European naming conventions) were built for regional passenger service on newly electrified lines in the 1920s. From the onset, they often ran with driving trailers. (Though in the game, a suitable driving trailer only becomes available around 1940.) Between 1966 and 1971, 11 units underwent a complete overhaul, with visible changes to the exterior, including the removal of one pantograph.

Liveries. Green before 1965, then ruby-red. Green units repainted when serviced in a depot after at least 20 years of life.

Constructed	1927–1928
In service	1927–1981
Number built	25
Max. speed	85 km/h
Power output	806 kW
Track class	A (light)
Capacity	24 bags of mail
Manufacturers	SWS, SIG, SAAS, MFO
Service	Passenger trains
Couple with	(Light)steel coaches and driving trailer
Wikipedia	DE

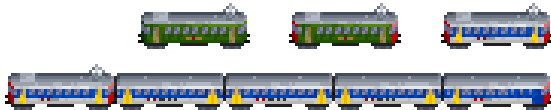
BDe 4/4



During the Second World War, several branch lines were electrified in response to the general coal shortage. But a suitable powered vehicle for passenger service with low axle weight and high top speed only became available with the introduction of the BDe 4/4. They were also briefly used in freight service south of the Gotthard, even though they were clearly not well suited for such a task.

Constructed	1952 – 1955
In service	1952 – 1997
Number built	31
Max. speed	110 km/h
Power output	1176 kW
Track class	A (light)
Capacity	40 passengers and 14 bags of mail
Manufacturers	SLM, SWP, BBC, MFO. SAAS
Service	Passenger trains
Couple with	Lightsteel coaches and driving trailers
Wikipedia	DE FR

RBe 4/4 / RBe 540

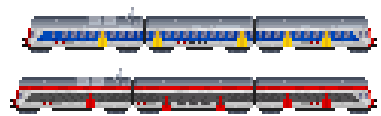


The RBe 4/4 were built for push-pull service on the Gotthard route and were accordingly more powerful than most other railcars. Their tractive effort was better than that of the Re 4/4 I, which they in fact replaced on some services. In the 1990s, they were completely overhauled and used in regional passenger service, together with standard coaches (EW I) and driving trailers in matching NPZ Kolibri livery.

Liveries. Green until 1983, then repainted with red front or in NPZ Kolibri livery when serviced after at least 10 years of life.

Constructed	1959 – 1966
In service	since 1959
Number built	82
Max. speed	125 km/h
Power output	1988 kW
Track class	B (light)
Capacity	54 passengers
Manufacturers	SIG, BBC, MFO
Service	Passenger trains
Couple with	Standard coaches and driving trailers
Wikipedia	EN DE FR IT

RBDe 4/4 / RBDe 560



These railcars were built for the NPZ regional trains and ran with EW I coaches and matching driving trailers. They also introduced a new livery, sometimes called 'Kolibri', which became the standard for regional passenger trains. After 20 years of service, they received a refurbishment and new low-floor intermediate coaches. The new trains were branded as 'NPZ Domino'.

Liveries. Original Kolibri livery with standard coaches, Domino livery with Domino coaches.
Gameplay. Unlike with other locomotives and railcars, the driving trailers for this train are not bought separately. Instead, the last standard or Domino coach in a consist is shown as a driving trailer. Several RBDe 4/4 can be coupled together.

Constructed	1984–1990
In service	since 1984
Number built	86
Max. speed	140 km/h
Power output	1650 kW
Track class	B (light)
Capacity	44 passengers and 16 bags of mail
Manufacturers	BBC, ABB, SIG
Service	Passenger trains
Couple with	Standard (EW I) or domino coaches, other RBDe 4/4
Wikipedia	EN DE FR IT

3.6 Electric trains

Modern passenger trains are often designed as fixed consists that are never or rarely separated in operation. In the SBB Set, such a train is treated as a single vehicle.
A multiple unit is a train in which the locomotive power is distributed

over several or all cars. Compared with ordinary trains, they are generally more power-efficient and offer better acceleration. In recent decades, multiple units have more and more become the rule for passenger trains all over the world, and Switzerland is no exception.

RAe 4/8

»Churchill-Arrow«



'Red Arrow' was the name of a number of experimental electric railcars and two-part units built in the 1930s. They were intended for connections with a low passenger volume, but were always overcrowded due to their high popularity. Soon, they were used for excursions, rather than scheduled express traffic. The Red Arrows came in different designs. The one represented here was used in a state visit by Winston Churchill in 1946, hence its nickname.

Constructed	1939
In service	1939–1979
Number built	1
Max. speed	125 km/h
Power output	835 kW
Track class	A (light)
Capacity	112 passengers
Manufacturers	SLM, SWS, BBC, MFO, SAAS
Service	Excursion trains
Formation	2 cars
Couple with	—
Wikipedia	DE

RAe TEE II

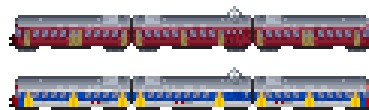


Built for the growing Trans Europ Express network in the 1960s, these trains could operate under four different electrification systems and mostly ran between Switzerland, France and Italy, later also Belgium and Germany. Towards the end of their lifetime, they were repainted in a grey livery (nicknamed 'Grey Mouse') and used in Eurocity and finally in TGV feeder services. Unusually, the power car (i.e. the locomotive) was sitting in the middle of the train.
Liveries. Original TEE livery until 1988, repainted grey when serviced in a depot after 1988.

Constructed	1961–1967
In service	1961–2000
Number built	5
Max. speed	160 km/h
Power output	2310 kW
Track class	C (heavy)
Capacity	168 passengers
Manufacturers	SIG, MFO
Service	Trans Europ Express
Formation	1 power-car and 5 coaches
Couple with	—
Wikipedia	EN DE FR IT

RABDe 12/12

»Mirage«

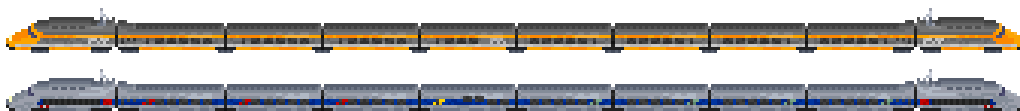


These three-part units were built for rapid transit around Zürich before the S-Bahn network was established. They were nicknamed 'Mirage' because of their excellent acceleration (referring to the French Mirage fighter planes), due to the fact that all axles were driven. They were also called 'Goldküstenexpress' as they ran along the 'Gold Coast' of Lake Zürich.

Liveries. Original ruby-red if built before 1988, red units repainted in NPZ livery if serviced after 1996.

Constructed	1965–1967
In service	1965–2010
Number built	20
Max. speed	125 km/h
Power output	2444 kW
Track class	A (light)
Capacity	200 passengers and 16 bags of mail
Manufacturers	Schindler, FFA, BBC, SAAS
Service	Suburban passenger trains
Formation	3 powered cars
Couple with	other RABDe 12/12 units (up to four)
Wikipedia	EN DE IT

TGV PSE

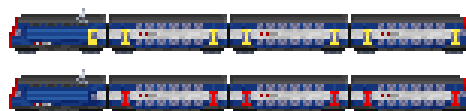


A tri-current version of the famous French high-speed train, operated jointly by SNCF and SBB through their subsidiary Lyria. There are no high-speed tracks in Switzerland and the speed of TGV is limited to 160 km/h under the 15kV electric system (200km/h in the game). They connect Zürich and Lausanne with several destinations in France. Other French TGV lines, operated by SNCF alone, reach the border towns of Basel and Geneva.

Liveries. Original orange livery until 1997, repainted silver/blue when serviced in a depot after 1997.

Constructed	1978 – 1988
In service	1983 – 2012 (1981–present in France)
Number built	9 (2 owned by SBB), 111 in France
Max. speed	270 km/h (200 km/h in Switzerland)
Power output	6450 kW (2800 kW in Switzerland)
Track class	B (light)
Capacity	378 passengers
Manufacturers	GEC-Alsthom
Service	High-Speed passenger trains
Formation	2 power cars and 8 coaches
Couple with	other TGV (PSE or POS)
Wikipedia	EN DE FR IT

Re 450 DPZ



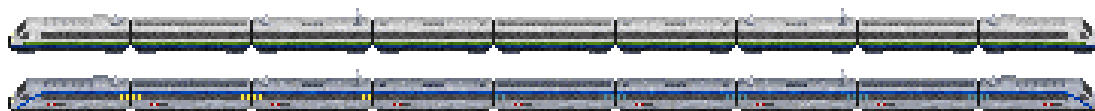
The Re 450 locomotives were built for the S-Bahn Zürich and always operate in a fixed consist with three bilevel trailers, though they are technically ordinary locomotives that could be used in other services. But even when up to three consists are coupled together during rush hour, the configuration is not changed, with two locomotives running in the middle of the train.

Liveries. Original (with yellow doors) until 2008, repainted (red doors) when serviced in a depot after 2008.

Constructed	1989–1997
In service	since 1989
Number built	115
Max. speed	130 km/h
Power output	3200 kW
Track class	B (light)
Capacity	385 passengers
Manufacturers	SLM, ABB, SIG, Schindler
Service	S-Bahn Zürich
Formation	1 locomotive and 3 bilevel trailers
Couple with	other Re 450 DPZ consists (up to three)
Wikipedia	EN DE FR IT

ETR 470

»Pendolino«



For express service across the alps, the Italian FS and the SBB founded their joint venture 'Cisalpino' and purchased this series of tilting trains. Unfortunately, they proved unreliable in service and SBB and FS quarrelled over allegations of improper maintenance. Cisalpino ceased operations in 2009 and the trains were divided between the two parent companies.

Liveries. Original Cisalpino livery until 2008, repainted to SBB livery when serviced in a depot after 2009.

Constructed	1993 – 1996
In service	1993 – 2014
Number built	8
Max. speed	200 km/h
Power output	5880 kW
Track class	B (light)
Capacity	468 passengers
Manufacturers	Fiat/Alstom
Service	Transalpine express service
Formation	9 cars (6 powered)
Couple with	—
Wikipedia	EN DE FR IT

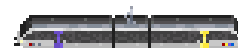
RABDe 500



To reduce travel times on connections where infrastructure improvements would have been too costly, the SBB introduced this series of tilting trains. The service they provide is labelled 'ICN' (short for Intercity tilting train), a name often applied to the trains themselves. The RABDe 500 have proved reliable in service and popular with most passengers, in spite of somewhat cramped seating and some of the usual problems associated with tilting trains.

Constructed	1999–2005
In service	since 1999
Number built	44
Max. speed	200 km/h
Power output	5200 kW
Track class	A (light)
Capacity	481 passengers and 24 bags of mail
Manufacturers	Adtranz/Bombardier, FIAT-SIG/Alstom
Service	Express passenger trains
Formation	7 cars (2 powered)
Couple with	other RABDe 500 trains
Wikipedia	EN DE FR IT

RABe 526 / GTW 2/6



The Stadler GTW (short for Gelenktriebwagen, meaning articulated railcar) consists of a short power unit, containing all traction components, and two or three trailers. The two-trailer version is operated by the SBB through their subsidiary Turbo as RABe 526 and used for regional passenger service on branch lines in Canton Thurgau.

Constructed	since 1997
In service	since 2003
Number built	51
Max. speed	115 km/h
Power output	550 kW
Track class	A (light)
Capacity	120 passengers
Manufacturers	Stadler Rail
Service	Local passenger trains
Formation	Power unit and 2 trailers
Couple with	other RABe 526 units
Wikipedia	EN DE FR IT

RABe 523

»FLIRT«



Swiss rolling stock manufacturer Stadler Rail produces a series of electric multiple units for regional passenger service branded as FLIRT (short for 'Fast Light Innovative Regional Train'). They are in service all over Europe in various different configurations. The SBB operate four variants, mostly adapted for traffic into different neighbouring countries, of which the RABe 523 is the basic version.

Constructed	since 2004
In service	since 2006
Number built	40 (more in other variants)
Max. speed	160 km/h
Power output	2600 kW
Track class	A (light)
Capacity	184 passengers
Manufacturers	Stadler Rail
Service	Passenger trains
Formation	4 cars (two powered)
Couple with	other RABe 523 units
Wikipedia	EN DE FR IT

TGV POS



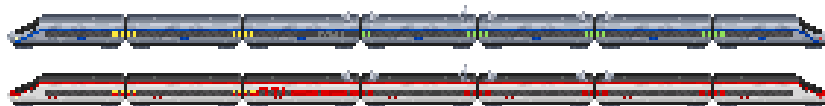
These trains were originally built for the new high-speed line connecting Paris with the east of France and Germany. In 2012, all 19 TGV POS went to Lyria, the joint venture between SBB and SNCF, to replace the aging TGV PSE units.

Liveries. Original silver/blue livery until 2011, repainted to 'Carmillon' livery when serviced in a depot after 2012.

Constructed	since 2007
In service	since 2012 (since 2007 in France)
Number built	19 (1 owned by SBB)
Max. speed	320 km/h (200 km/h in Switzerland)
Power output	9280 kW (6280 kW in Switzerland)
Track class	B (light)
Capacity	378 passengers
Manufacturers	Alstom
Service	High-Speed passenger trains
Formation	2 power cars and 8 coaches
Couple with	other TGV (PSE or POS)
Wikipedia	EN DE FR IT

ETR 610

»New Pendolino«

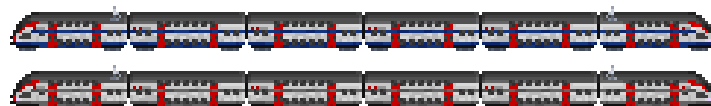


The second generation of tilting trains for express service between Switzerland and Italy was ordered by Cisalpino in 2004 to replace the troublesome ETR 470. Like its predecessor, it is based on a design also used in domestic service in Italy. Soon after their introduction in 2009, the trains were divided between SBB and FS. The SBB chose to repaint their trains in a livery very similar to the domestic RABDe 500 tilting trains.

Liveries. Original silver/blue until 2010, repainted to SBB livery when serviced in a depot after 2011.

Constructed	since 2007
In service	since 2009
Number built	22 (some on order)
Max. speed	250 km/h (200 km/h in Switzerland)
Power output	5500 kW
Track class	B (light)
Capacity	434 passengers
Manufacturers	Alstom
Service	Transalpine express service
Formation	7 cars (4 powered)
Couple with	other ETR 610 trains
Wikipedia	EN DE FR IT

RABe 511 KISS



The third generation of bilevel trains for the S-Bahn Zürich is the Stadler KISS ('comfortable, innovative, sprint-capable suburban train'). They also operate in RegioExpress service, for example between Chur and St. Gallen and around Bern.

Liveries. Blue and white (S-Bahn Zürich) or grey and white (RegioExpress — only available for refit in Expert mode).

Constructed	since 2010
In service	since 2012
Number built	50 (+24 four-part units)
Max. speed	160 km/h
Power output	4000 kW
Track class	B (light)
Capacity	576 passengers
Manufacturers	Stadler Rail
Service	S-Bahn Zürich and RegioExpress
Formation	6 cars (2 powered)
Couple with	other RABe 511 units
Wikipedia	EN DE FR IT

Twindexx Swiss Express (coming soon)



Constructed	from 2015
In service	
Number built	30 (on order)
Max. speed	200 km/h
Power output	7500 kW
Track class	C (heavy)
Capacity	696 passengers
Manufacturers	Bombardier
Service	Express passenger trains
Formation	8 cars
Couple with	other Twindexx Swiss Express
Wikipedia	DE FR

[↑ back to table of contents](#)

3.7 Passenger coaches and baggage cars

The most characteristic Swiss passenger coaches are the so-called 'Einheitswagen' (standard coaches) which were developed in four generations from the 1950s onwards. All Einheitswagen are open (rather than compartment) coaches with seating arranged in groups of four to either side of the aisle. This arrangement has become the clear favourite of the Swiss travelling public. Also, the doors are not placed at the very end of the car, but rather above the bogies. Apart from the Einheitswagen, the SBB Set contains a sample of earlier passenger coaches, which were not as standardised. For international traffic, the SBB acquired many coaches following European

standards that are also represented in the set, as well as some foreign coaches not belonging to but operated by the SBB. There are two special types of coaches: **Driving trailers**, allowing a train to reverse without changing the locomotive, which is however irrelevant for OpenTTD gameplay. To make driving trailers more useful, most of them can carry mail as well as passengers, as they often contain baggage compartments. Second, there are **restaurant cars**. They are placed automatically in most trains and have a lower capacity and higher running cost, but improve the train's comfort. Finally, there is a variety of baggage cars matching the passenger coaches.

Wooden carriages

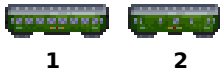


The SBB inherited many passenger carriages from their predecessors, some dating back to the mid-19th century. The two- and four-axle carriages in the game thus represent a variety of different models with open platforms and, usually, a wooden frame.

Models. 1. Two-axle carriage 2. Two-axle baggage car 3. Four-axle carriage 4. Four-axle baggage car

Two-axle	In service	until ~1950
	Max. speed	60 km/h
Four-axle	Capacity	Passenger car: 36 passengers Baggage car: 20 bags of mail
	Seating	Open coach
Four-axle	In service	until ~1960
	Max. speed	80 km/h
Four-axle	Capacity	Passenger car: 42 passengers Baggage car: 35 bags of mail
	Seating	Open coach

Heavy Steel Coach



The heavy steel coaches were the first coaches of fairly modern design, with a corridor running along the compartments, enclosed vestibules and gangways connecting the cars.

Models. 1. Coach 2. Baggage car

In service	until ~1970
Max. speed	110 km/h
Capacity	Coach: 54 passengers Baggage car: 40 bags of mail
Seating	Corridor coach

CIWL Coach



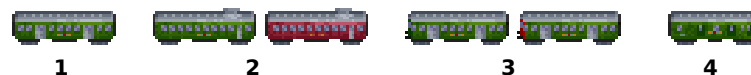
The *Compagnie internationale des wagons-lits* (CIWL) had a variety of coaches for its international luxury trains, two of which are represented in the SBB Set: The blue coaches of the Orient Express and cream/blue Pullman coaches, both with matching baggage cars.

Models. 1. Orient Express coach 2. Orient Express dining car 3. Orient Express baggage car 4. Pullman coach 5. Pullman dining car 6. Pullman baggage car

Gameplay. CIWL coaches have a low capacity and high running cost, but their cargo aging is the best in the set, making them suitable for long distance trains.

In service	~1920–1955
Max. speed	110 km/h
Capacity	Coach: 30 passengers Restaurant: 20 passengers Baggage car: 40 bags of mail
Seating	Corridor coach and wagon-lit
Wikipedia	EN DE FR IT

Light Steel Coach



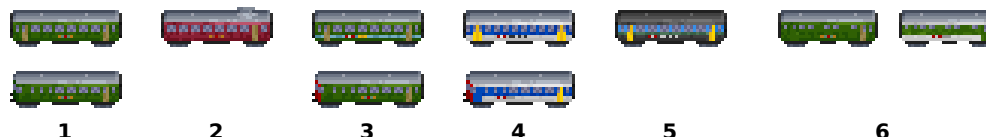
Lighter wagons mean better acceleration and higher speed in curves. The challenge is to maintain a high level of comfort and safety. The lightsteel coaches were introduced in the late 1930s for intercity trains and remained in use until the 1990s, later relegated to local service. They are distinguished by the pair of wide folding doors situated towards the middle of the car.

Models and liveries. 1. Light steel coach 2. Restaurant car (green until 1960, then ruby-red) 3. Driving trailers (green until 1988, then with red front) 4. Baggage car

In service	~1936–1990
Number built	~1000
Max. speed	125 km/h
Capacity	Coach and driving trailer: 54 pass. Restaurant: 20 passengers Baggage car: 40 bags of mail
Seating	Open coach
Wikipedia	DE IT

Standard Coach

Einheitswagen I/II



The first generation of the so-called standard coaches ('Einheitswagen') were in many ways similar to the light steel coaches. They also began their career in intercity trains and were pushed more and more into local service when the Einheitswagen IV appeared. The difference between the first and second generation of Einheitswagen is rather minimal and the two are not distinguished in game.

Models and liveries. Top row: 1. Original green (until 1984) 2. Ruby-red restaurant car 3. with 'Comfort stripe' (after 1984) 4. NPZ livery (with RBe 4/4 and RBDe 4/4) 5. 'Parrot' livery (from 1994) 6. Baggage cars — Bottom row: Driving trailers

In service	since 1957
Number built	2047 coaches
Max. speed	140 km/h
Capacity	Coach: 54 passengers Restaurant: 20 passengers Driving trailer: 30 pass., 24 bags mail Baggage car: 40 bags of mail
Seating	Open coach
Wikipedia	DE FR

UIC-X Coach



In the 1950s and 60s, many European railway companies introduced this common type of corridor coach. The SBB used them almost exclusively for international traffic. While each national railway had its own type of UIC-X coach, often with slight technical variations, the basic design was the same throughout continental Europe.

Liveries. Top row: 1. SBB Original Green (until 1985) and Green/white (since 1985) 2. TEE coach (SBB/DB/FS) 3. DB 1st (blue) and 2nd class (green) (until 1975) and ocean-blue/cream (after 1975) 4. ÖBB red/cream 5. FS liver-red — Middle row: Restaurant carriages — Bottom row: Baggage cars

In service	since 1964
Number built	470 coaches
Max. speed	160 km/h
Capacity	Coach: 60 passengers Restaurant: 20 passengers Baggage car: 50 bags of mail
Seating	Corridor coach
Wikipedia	EN DE FR IT

Wagon-lit



In 1971, the wagon-lit of the two biggest operators in Europe, CIWL and DSG, were grouped into a single pool under the name Trans Euro Night (TEN) and received a unified livery. The TEN pool was dissolved in 1995 and the wagons went to the national railway companies.

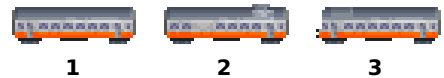
Liveries. 1. TEN blue 2. TEN red 3. SBB cobalt blue

Gameplay. The TEN wagon-lit have low capacity and high running cost, but their cargo aging is the best in the set.

In service	since 1971
Max. speed	160 km/h
Capacity	30 passengers
Wikipedia	EN DE FR IT

Swiss Express Coach

Einheitswagen III



Upon completion of a new tunnel reducing the travel time between Zürich and Bern by 20 minutes, the SBB introduced a new intercity service on the Swiss mainline Geneva–Lausanne–Bern–Zürich–St. Gallen, branded 'Swiss Express'. Each train consisted of an Re 4/4 II and 14 new coaches in matching orange/white livery. The coaches were air-conditioned and semi-permanently coupled with open gangways. They were considered innovative but, for a number of reasons, not completely satisfactory. The driving trailer was added in 1982 after the end of Swiss Express service, but is available in game along with the coaches in 1975.

Models. 1. Coach 2. Restaurant car 3. Driving trailer

Gameplay. The driving trailer carries mail, though in reality the baggage compartment is located in a different coach.

In service	1975–2004 (sold to BLS)
Number built	72
Max. speed	160 km/h
Capacity	Coach: 60 passengers Restaurant: 20 passengers Driving trailer: 36 pass., 24 bags mail
Seating	Open coach
Wikipedia	DE FR

Eurofima Coach



The Eurofima coaches were commissioned by six European railway federations for international traffic. These were modern coaches, air-conditioned and designed for operation at 200 km/h. All but DB and SNCF initially agreed on a uniform orange livery. The SBB only ordered 20 first class coaches, but the later Bpm RIC (1980) and EC coaches (from 1989) were similar in appearance and are thus represented in game by the Eurofima coaches.

Liveries. **Top row:** 1. SBB Eurofima (until 1988) 2. SBB grey/white (1988-1999) or IC 2000 (from 2000) 3. DB 1st class (red/cream) or 2nd class (ocean-blue/creme) (until 1988), red/white (until 1999) or white (from 2000) 4. SNCF grey/white (from 1976) 5. FS grey (1988-1999) or white/blue (from 2000) 6. ÖBB grey/red (1988-1999) or white/red (from 2000) 7. Cisalpino (with Re 484) — **Bottom row:** Restaurant carriages

In service	since 1977
Number built	20 (+30 Bpm RIC+225 EC coaches)
Max. speed	200 km/h
Capacity	Coach: 60 passengers Restaurant: 20 passengers
Seating	Open coach
Wikipedia	EN DE FR IT

Modern Standard Coach

Einheitswagen IV



Based on the experience with the Einheitswagen III and the Eurofima coaches, the SBB commissioned the next generation of coaches for domestic service. They ran in intercity, later also in express regional trains. Initially, the baggage cars of the EW II series were used along with the EW II and repainted accordingly. Since those were limited to 140 km/h, the SBB later purchased more modern baggage cars from the French SNCF.

Models and liveries. **Top row 1.** Original green/white livery (until 1999) **2.** IC 2000 livery (from 2000) **3.** Original red/white restaurant car (until 1999) **4.** Purple restaurant car (from 2000) **5.** Green white baggage car (until 1999) **6.** IC 2000 baggage car (from 2000) — **Bottom row:** Driving trailers

Gameplay. For reasons of consistency, the driving trailer carries mail, even though this is not the case in reality.

In service	since 1981
Number built	513
Max. speed	200 km/h
Capacity	Coach: 60 passengers Restaurant: 20 passengers Driving trailer: 36 pass., 24 bags mail Baggage car: 40 bags of mail
Seating	Open coach
Wikipedia	DE FR

Panorama Coach



The success of panorama coaches on the RhB's narrow gauge lines convinced the SBB to also commission such cars for international traffic. The 12 panorama coaches built in 1991 are modified EC coaches with large windows and raised floor, for first class passengers only. They are used in Eurocity service on the Amsterdam–Chur (through the Rhine valley) and Zürich–Venice routes.

Liveries. Original black and white EC livery (until 2009) or IC 2000 livery (from 2010).

In service	since 1991
Number built	12
Max. speed	200 km/h
Capacity	54 passengers
Seating	Open coach
Wikipedia	DE FR

IC 2000 Bilevel Coach



To increase passenger capacity, the SBB introduced bilevel coaches for its mainline intercity services, branded 'IC 2000'. The coaches have an extended loading gauge and can therefore not be used on all lines. Somewhat unusually, the gangways connecting the cars are situated on the upper level. The IC 2000 coaches are always operated in a fixed consist of ten cars (including the driving trailer).

Models. **1.** Driving trailer **2.** Coach **3.** Coach with baggage compartment **4.** Restaurant car

Gameplay. These trains should never be operated without a driving trailer, though it is possible in the game to do so. Also, for reasons of consistency with other trains, the driving trailer carries mail, even though in reality the baggage compartment is located in a different coach.

In service	since 1997
Number built	341
Max. speed	200 km/h
Capacity	Coach: 90 passengers Restaurant: 30 passengers Driving trailer: 66 pass., 24 bags mail
Seating	Open bilevel coach
Wikipedia	EN DE FR

[↑ back to table of contents](#)

3.8 Freight wagons

Freight wagons exist in far greater numbers and greater variety than passenger coaches, with many cargos requiring special facilities to be carried safely and efficiently by rail. In the game, with its lim-

ited cargo scheme and fairly generic cargos, this variety can only be hinted at. Freight wagons are shown here in seven groups, corresponding roughly to the different groups of cargos they carry.

Open wagons and hoppers



Open wagons can carry almost any bulk cargo (and many others), covered by canvas if necessary. Self-discharging hoppers have the advantage of faster, automatic unloading of pourable goods and are either open on top or can be closed with a slidable lid. Silo wagons are used to better contain cargos that create dispersible dust, like sand or cement.

Liveries. Canvas covers are shown in company colour.

Models	Open Wagon E	(– 1950, 30 t, 80 km/h)
	Open Wagon Eaos	(1940 –, 40 t, 100 km/h)
	Silo wagon Ucs	(1950 –, 25 t, 100 km/h)
	Self-discharging hopper Fal	(1955 –, 50 t, 80 km/h)
	Self-discharging hopper Fcs	(1960 –, 30 t, 100 km/h)
	Closed hopper Tdgs	(1960 –, 30 t, 100 km/h)
	Self-discharging hopper Fals	(1970 –, 50 t, 100 km/h)
	Self-discharging hopper Facs	(1975–, 55 t, 100 km/h)
	Closed hopper Tadgs	(1975 –, 55 t, 100 km/h)
	Silo wagon Uacs	(1975 –, 35 t, 100 km/h)
Cargos	Default (temperate): Coal, Grain, Iron Ore	
	FIRS: Bauxite, Building Materials, Clay, Coal, Grain, Iron Ore, Plant Fibres, Recyclables, Sand, Scrap Metal, Stone, Sugar Beet, Timber, Wool	
	ECS: Cereals, Coal, Fibre Crops, Iron Ore, Oil Seeds, Paper, Sand, Wood Products, Wool	
	<i>Not all cargos transported by all models.</i>	

Flat wagons



Flat wagons are used for oversized cargos like logs, metal bars or heavy equipment, usually kept in place with stakes and protected by canvas if necessary. For some of the cargos initially carried on flat wagons, more specialised equipment, like telescope wagons for metal coils or auto carriers for vehicles, become available later.

Liveries. Canvas covers are shown in company colour.

Models	Flat Wagon Kb	(– 1955, 24 t, 80 km/h)
	Flat Wagon Sps	(1940–1990, 45 t, 100 km/h)
	Telescope Wagon Shimmns	(1976 –, 55 t, 100 km/h)
	Flat Wagon Spns	(1980 –, 50 t, 100 km/h)
Cargos	Default (temperate): Steel, Wood	
	FIRS: Building Materials, Engineering Supplies, Farm Supplies, Manufacturing Supplies, Metal, Timber, Wood	
	ECS: Glass, Steel, Vehicles, Wood, Wood products	
	<i>Shimmns carries metal/steel only; Spns does not carry vehicles.</i>	

Closed vans



The basic closed van can carry anything that can be packed in crates. Its main drawback is the loading process, which is rather labour-intensive and became increasingly uneconomic. Sliding walls help alleviate this problem by making the interior of the wagon more easily accessible, but today containerisation is preferred whenever possible.

Liveries. Closed vans in brown or grey. Modern sliding-walls vans in SBB livery or one of four company liveries.

Models	Goods Van Gs	(– 1970, 16 t, 80-100 km/h*)
	Goods Van Gbs	(1950–, 24 t, 100 km/h)
	Sliding-walls Van Hbils	(1960–1980, 26 t, 100 km/h)
	Sliding-walls Van Hbbillns	(1970–, 26 t, 120 km/h)
Cargos	Default (temperate): Goods, Livestock	
	FIRS: Engineering Supplies, Farm Supplies, Goods, Livestock, Manufacturing Supplies, Wool	
	ECS: Glass, Goods, Livestock, Paper, Wool	
	<i>Only Gs, Gbs carry livestock.</i>	
	<i>* Speed upgrade after 1960.</i>	

Refrigerated Vans



A version of the closed van with built-in refrigeration or, in earlier years, at least with insulated walls. Many belong to the respective food companies rather than the SBB.

Liveries. SBB livery (plain white or with logo) or various company liveries. Special liveries for wagons belonging to beer breweries (available in game only if alcohol is a separate cargo).

Models	Refrigerated Van Is	(– 1960, 20 t, 80-100 km/h*)
	Refrigerated Van Ibbs	(1955–, 24 t, 100 km/h)
Cargos	Refrigerated Van Hbbillns-vy	(1970 –, 26 t, 120 km/h)
	Default (temperature):	unavailable
	FIRS:	Alcohol, Fish, Food, Fruit, Milk
	ECS:	Fish, Food, Fruit
	* Speed upgrade after 1960.	

Tank wagons



Used to transport any liquid cargo. The SBB do not own any of these wagons themselves.

Liveries. Company colour or one of nine liveries for various other companies.

Models	Tank Wagon Zs	(always, 30,000 l, 60-80 km/h*)
	Tank Wagon Zans	(1950–, 60,000 l, 100 km/h)
Cargos	Default (temperature):	Oil
	FIRS:	Alcohol, Chemicals, Milk, Oil, Petrol
	ECS:	Dyes, Fertiliser, Gasoline, Oil, Refined Products, Water
	* Speed upgrade after 1960.	

Container carriers



Containerisation and intermodal freight have revolutionised freight rail operations in the second half of the twentieth century and a huge number of containers passes through Switzerland on the transalpine routes. The post container carrier is a special two-axle variant produced for Swiss Post in the 1990s.

Liveries. SBB Containers with logo, company-coloured containers or one of seven other company designs.

Models	Container Carrier Sgns	(1965–, 30 t, 100-120 km/h*)
	Double Container C. Sdggmrs	(1990–, 60 t, 120 km/h)
Cargos	Post Container Carrier Lgns	(1995–, 25 t, 120 km/h)
	Default (temperature):	Goods
	FIRS:	Goods, Manufacturing Supplies
	ECS:	Goods
	Lgns carries mail and goods.	
	* Speed upgrade after 1990.	

Auto carriers



Two automobile carriers, but used in very different services. While one carries cars as cargo, double-stacked and packed closely, the other is used for drive-on car shuttle service through alpine tunnels and is, for purposes of gameplay, a passenger wagon. The SBB do not currently offer car shuttle service (the BLS does) but have done so in the past.

Liveries. Cars in random colours.

Models	Auto Carrier Laes	(1960–, 8 cars (or 20 t), 100 km/h)
	Auto Train Wagon Skls	(1960–, 30 pass., 100 km/h)
Cargos	Default (temperature):	Goods, Passengers
	FIRS:	Goods, Passengers
	ECS:	Vehicles, Passengers

4 Suggested replacement sequences

When playing a long game on a big map, it will happen at some point that a large number of trains reaches the end of their lifetime and has to be replaced. Sending every train to a depot and doing all the replacements by hand can quickly become a chore.

The **autoreplace feature** in OpenTTD can be a great help in such situations, making it possible to update dozens of trains with a few clicks. On the other hand, vehicles in the SBB Set are quite expensive and you do not want to replace vehicles unnecessarily or too early.

Here are some things you may want to take into consideration when working with autoreplace.

- When replacing passenger coaches or freight wagons, later models are sometimes longer than earlier ones and trains might become too long for your platforms. To avoid this problem, enable the 'wagon removal' option in the autoreplace dialogue.
- You might not want to apply autoreplace to the full vehicle list. Many vehicles were replaced in some services but kept in others. For example, **Standard coaches (EW I)** were replaced in Intercity service by **Modern coaches (EW IV)**, but are still in use for local trains. Moving coaches around between different trains may be too much work in OpenTTD, but you can still replace the EW I at different times in different groups of trains.
If you group trains in the vehicle list (e.g. according to service), you can directly use autoreplace on each group, which will reduce unnecessary replacements and preserve some diversity.
- Since multiple units in the SBB Set (like the RABDe 12/12 and RABDe 500) are single vehicles, you will usually not be able to autoreplace locomotive-hauled trains with multiple units. So if manual replacement is too cumbersome, you might want to use multiple units only for new connections.
- Unfortunately, autoreplace does not work for the driving trailers in the SBB Set. They carry both passengers and mail, something that the autoreplace feature cannot currently handle.

The following is a suggested purchase and replacement scheme for different types of service.

Light express passenger trains

Year	Buy		Replace with
1902	B 3/4	1946	Re 4/4 I
1921	Ae 3/6 II	1967	Re 4/4 II
1946	Re 4/4 I	1985	Re 4/4 II
1959	RBe 4/4	(2006	RABe 523)
1967	Re 4/4 II		
2006	RABe 523		
1902	Four-axle carriage	1936	Light steel coach
1936	Light steel coach	1970	Standard coach (EW I)
1958	Standard coach (EW I)		

Intercity trains

Year	Buy		Replace with
1902	A 3/5	1946	Re 4/4 I
1927	Ae 4/7	1967	Re 4/4 II
1946	Re 4/4 I	1991	Re 460
1967	Re 4/4 II	2000	Re 460
1991	Re 460		
1999	RABDe 500		
1902	Heavy steel coach	1958	Standard coach (EW I)
1936	Light steel coach	1981	Modern coach (EW IV)
1958	Standard coach (EW I)	1991	Modern coach (EW IV)
1975	Swiss Express coach	1997	IC 2000 bilevel coach
1981	Modern coach (EW IV)	(2005	IC 2000 bilevel coach)
1997	IC 2000 bilevel coach		

Heavy express trains (Gotthard railway)

Year	Buy	Replace with
1902	A 3/5	1927 Ae 4/7
1920	Be 4/6	1952 Ae 6/6
1927	Ae 4/7	1952 Ae 6/6
1952	Ae 6/6	1972 Re 6/6
1972	Re 6/6	1991 Re 460
1991	Re 460	
1902	Heavy steel coach	1958 Standard coach (EW I)
1936	Light steel coach	1981 Modern coach (EW IV)
1958	Standard coach (EW I)	1991 Modern coach (EW IV)
1981	Modern coach (EW IV)	

International express trains

Year	Buy	Replace with
1902	A 3/5	1927 Ae 4/7
1927	Ae 4/7	1970 Re 4/4 II
1946	Re 4/4 I	1980 Re 4/4 II
1957	RAm TEE	1972 RAe TEE II
1967	RAe TEE II	1972 TGV PSE
1967	Re 4/4 II	1991 Re 460
1981	TGV PSE	2012 TGV POS
1993	ETR 470	2012 ETR 610
2007	TGV POS	
2009	ETR 610	
1902	Heavy steel coach	1964 UIC-X coach
1920	CIWL coach	1971 Wagon-lit
1964	UIC-X coach	1990 Eurofima coach
1971	Wagon-lit	
1977	Eurofima coach	

[↑ back to table of contents](#)

Regional trains

Year	Buy	Replace with
1902	E 3/3	1915 Eb 3/5
1911	Eb 3/5	1952 BDe 4/4
1923	Ae 3/5	1984 RBDe 4/4
1952	BDe 4/4	(1999 RABe 526)
1984	RBDe 4/4	
1999	RABe 526	
1902	Two-axle carriage	1936 Light steel coach
1936	Light steel coach	1984 Standard coach (EW I)
1984	Standard coach (EW I)	(2008 'Domino' (for RBDe 4/4))

Metro / S-Bahn trains

Year	Buy	Replace with
1965	RABDe 12/12	2012 RABe 511 KISS
1989	Re 450 DPZ	
2012	RABe 511 KISS	

Light freight trains (non-electrified)

Year	Buy	Replace with
1902	B 3/4	1960 Bm 4/4
1911	Eb 3/5	1965 Bm 4/4
1960	Bm 4/4	2003 Am 843
2003	Am 843	

Freight trains

Year	Buy	Replace with
1906	C 4/5	1920 Ce 6/8 II
1913	C 5/6	1965 Ae 6/6
1919	Ce 6/8 II	1972 Re 6/6
1946	Ae 6/6	1991 Re 460
1972	Re 6/6	
1991	Re 460	
2001	Re 482	

5 Development

The source code of the SBB Set is hosted on the [#openttdcoop Development Zone](#). If you encounter a bug, please report it using the

provided bug-tracker. If you wish to contact the developer, please use the [Transport Tycoon Forums](#).

6 Credits and acknowledgements

SBB Set graphics and code by **Daniel Plaumann** (*Dandan*)

English guide by **Daniel Plaumann**

German guide by **Michael Blunck** (*mb*)

French translation by **Michael Blunck**

German translation by **Daniel Plaumann**

Italian translation by **Jacopo Coletto** (*Snail*)

Special thanks to **Michael Blunck** and **Jacopo Coletto** for inspiration, suggestions, technical discussions and play-testing.

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Of the many websites that I consulted for information on SBB trains, I want to mention the amazing site of **Bruno Lämmli** (in German).

7 Version history

Version 1.0 (released 21/09/14) — initial release

Version 1.0a (released 25/09/14)

- Fixed/adjusted several model life spans.
- Added the possibility to refit baggage compartments to capacity 0.
- Changed title string in French and Italian.

Version 1.0b (released 10/11/14)

- All baggage cars are now refittable to carry gold.
- Reduced air drag for high speed trains.
- Higher running costs for trains running faster than 200 km/h.
- Fixed/adjusted tractive effort for some early electrics.
- Various small bug fixes.

Version 1.0c (released 17/02/15)

- Fix: Baggage cars in IC2000 trains were never displayed.
- Replaced RABe 514 DTZ with RABe511 KISS.
- Various small adjustments.

Version 1.0d (released 24/05/15)

- Reduced cargo capacities for some freight wagons.
- Shorter loading times for freight wagons.
- Readjusted autorefit behaviour and refitting costs.
- Corrected graphical glitches with a few vehicles.
- Various small bug fixes.

Version 1.0e (released 07/06/15)

- Fix: Removed animated pixels in Swiss Express driving trailer.

8 Licensing

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