

## Scripts and icons for the French (SNCF) signals – version 2.0 - 1/11/2015

This zipped archive contains all the icons and the scripts needed to simulate in Traindir 3<sup>1</sup> the French signals used in the SNCF network (they work only with version 3.8w or later). A big thanks goes to Denis Auger and Freddy Dulepa: Denis designed the first French package and Freddy expanded it, involving me in this work and explaining me how French signals work. While implementing version 1.1 of the package, I found the specifications of the signals shape (dimensions, lights position and colour) and considering the introduction of the carré violet signals I decided to redraw all the icons and to review all the scripts. This version of the package is therefore a complete replacement of the previous one, which must be deleted before installing this one.

Only the signals for the normal lines are simulated (carré, block and distant signals, dwarves), as high speed lines – TGV lines – have no signals: a panel on the loco gives the driver a continuous indication of the speed to keep or to reach, and the system checks and brakes automatically if he doesn't obey the indication.

Compared to the Italian system, there are 3 main differences:

- 1) Speed limits for diverging switches (just 30 or 60 km/h) are enforced from the first to the last encountered switch, not from the signal; this is obtained by setting the limits in the switches and not on the tracks.
- 2) Signals cannot show both “Slow” and “Expect slow” at the same time, so if a second “Slow” follows, the first signal will show “Slow” plus “Expect Stop”; the driver will obey the second “Slow” as soon as he sees it.
- 3) There are 3 “red” aspects: the double red (carré<sup>2</sup>) is the absolute stop, never passable unless told so by someone else; the single red (semaphore) is permissive and can be passed by sight after a full stop; it's used by block signals and towards unclear dwarves along the line (Traindir doesn't enforce the full stop). The third is the blinking red, which doesn't require a full stop and is passable by sight at max. 15 km/h; it's used by block signals and towards short or busy tracks.

### Installation

If the previous version is installed, delete all of its files (if other packages are installed in the same folder, delete just all of these files: *sa\*.xpm*, *sb\*.xpm*, *sc\*.xpm*, *sd\*.xpm*, *sh\*.xpm*, *si\*.xpm*, *sw\*.xpm*, *sncf\*.tds*). Scenarios using the previous version must be updated to reinsert and mask (see later) all of the dwarves.

- Open the .zip file, select all files and copy/extract them in their specific folder, considering the following.

At the moment Traindir permits only one folder to keep all the signals and icons in, the one specified in the “Environment” tab of the Edit | Preferences command. I made the French package compatible with the other packages of mine, so the same folder can be used (typically C:\Program Files\Traindir3\Signals) and mixed scenarios can be designed.

However, more and more packages will hopefully be available in the future (Japan, USA, etc.), so it could be a good option to use a separate folder for each package (for example C:\Program Files\Traindir3\Signals\_SNCF) and modify the folder the program points to whenever the signal system changes.

### Summary of the available signals

- Main home/exit signals with 5 lights (carré), eventually featuring also 2 or 4 auxiliary lights to show the “Expect Slow” and/or “Slow” aspects. Two versions are available, for lines and yards.
- Automatic block signals with 3 lights or 3 +2 lights (capable to show the “Expect Slow”).
- Pure distant signals with 4 lights (avertissement), for lines where block signals are not concatenated.
- Direction indicators with 2, 3 or 4 lights, to be coupled with the previous signals.
- Shunting signals (dwarfs), to be obeyed also when placed between normal signals that are clear. Two versions are available, for lines (ground level) and yards (high).
- Manual block signals with 2 lights, now only present in simple crossing stations on single track lines.

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<sup>1</sup> A software by Giampiero Caprino, who designed an excellent and very versatile simulator. I must thank him for all the adjustments he did to allow the implementation of this package.

<sup>2</sup> In secondary or yard tracks the double red is replaced by a single purple light, as in shunting signals.

- Deferred stop signals with 4 lights (disque), now only present in simple crossing stations on single track lines.
- Special signal representing a bumper (heurtour); it prevents trains from exiting the scenario and forces the previous signals to show the “Expect Stop” aspect.
- Fake signal to be hidden before other signals to “mask” them and modify the behaviour of previous signals (normal or shunting aspects propagation, 2 blocks spacing).

All the signals feature the blinking aspect (red or white) for joining trains (signal opened with ctrl+click). Masking modifies many signals’ behaviour as described in the specific paragraph later on.

### Scripts description

The naming scheme is very simple: "snCF" (the network manager company), underscore, name of the signal, .tds. extension. Except when indicated (automatic block signals) all the signals are to be placed in the scenario using the single head tool of the editor. For further details see each signal description.

snCF_bloc_man.tds snCF_disque.tds	Exit and home signals (respectively) for the manual block, now only present on single track lines in simple crossing stations, usually featuring just two elastic switches where only the straight position allows facing point movements. The home signal has no distant, so the Yellow-Red aspect means “Deferred Stop”, i.e. stop before the first switch beyond the signal <sup>3</sup> and wait there for someone to tell when it’s safe to enter the station.
snCF_bloc.tds snCF_bloc_R.tds	Automatic block signals with 3 lights to be placed along the plain line using the <u>two head</u> tool of the editor. The second script is for the last block before a home signal, as it features also the two horizontal yellow lights needed to show the “Expect Slow” (R) aspects. Those lights are fixed for 30 km/h and blinking for 60 km/h. These automatic signals must be “activated” at the beginning of the simulation with the “Set sig. to green” menu command.
snCF_carre.tds snCF_carre_R.tds snCF_carre_RR.tds snCF_carre_R_RR.tds	Home/exit signals with 5 lights (red is double), eventually featuring the two horizontal yellow lights needed to show the “Expect Slow” (R) aspects and/or the two vertical yellow lights needed to show the “Slow” (RR) aspects. Those lights are fixed for 30 km/h and blinking for 60 km/h. If the clear path ends with a dwarf, these signals show the white aspects, like dwarves.
snCF_carvi.tds snCF_carvi_R.tds snCF_carvi_RR.tds snCF_carvi_R_RR.tds snCF_avert.tds	Home/exit signals as above, to be used in yards (the double red is replaced by a single purple light, as in dwarves). If the clear path ends with a dwarf, these signals show the white aspects, like dwarves Pure distant signal with 4 lights, to be used as distant of block or home signals when the block is not concatenated. It cannot be followed by switches, unless when thrown they give access only to yards (in this case the signal will go off). It must also be used hidden at least 1200 m <sup>4</sup> before the home signal of the manual block (snCF_disque.tds), to prevent previous signals from showing distant aspects if they’re different from snCF_bloc_man.tds.
snCF_man.tds snCF_carvi_2.tds	Shunting signals to be always obeyed, mounted at ground level or on a mast in yards. The yard version is considered a shunting signal only when masked, while the dwarves must be masked when they are between normal signals whose aspects need to be concatenated.
snCF_heurtour.tds	This always red signal (mark the specific option in the properties) looks like a bumper. It must be linked to the last track element of an exit point to prevent trains from exiting a scenario through it. Previous signals will show “Expect Stop”.
snCF_masque.tds	Ininfluent special distant to be hidden before other signals to “mask” them (see the specific paragraph) and modify the behaviour of previous signals, usually to propagate normal or shunting aspects or to enable 2 blocks spacing.

<sup>3</sup> To obtain this effect place the signal just before the protected switches and then move it far back.

<sup>4</sup> If not possible, the designer must also suppress the blinking yellow aspect of the previous signal. See the description of the ‘Y<sub>x</sub>’ aspect on the next page.

snf_ind_dir_*.tds	Ininflent signal representing the direction indicator (* = 2, 3, 4 is the maximum number of possible directions), to be placed on top of a normal signal and to be linked just before it. Place a fake station I1, I2, I3, I4 <sup>5</sup> on each of the up to 4 branches that follow the normal signal, and the indicator coupled with it will light the corresponding number of lights whenever the normal signal is clear.
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### Normal aspects

Aspect	Meaning
R	“Carre” or absolute stop. The signal cannot be passed unless it changes aspect or someone tells the driver to do so.
R	“Semaphore” or permissive stop, the typical red aspect of block signals. After a full stop <sup>6</sup> the signal can be passed by sight at max 25 km/h expecting an obstacle. Sometimes this is the aspect of the second signal behind a train when it’s a carre and 2 blocks spacing is enabled.
R <sub>x</sub>	“Marche à vue” or drive by sight at max 15 km/h expecting an obstacle (the train to join with) or a short path; the driver is not required to stop the train. In 2 blocks spacing this is the aspect of the second signal behind a train when it’s a block signal or a carre.
Y R	“Disque” or deferred stop: the driver must stop the train before the first switch (the distance will be enough to safely do so, as this signal has no distant), and wait there for someone to tell him to enter the station.
Y	“Avertissement” or expect stop: the next signal is not clear. This aspect can be forced to replace the “Ralentissement” aspects in signals that cannot show them, by placing a fake ‘R0’ station after the signal; if a direction indicator is coupled with the signal, replace the ‘0’ with the number of the direction (1 to 4) and put the fake station on each branch.
Y <sub>x</sub>	“Pre-avertissement” or distant warning: the next signal shows “Expect Stop” or “Expect Slow” at 30 km/h and it’s at less than 1200 m from the following signal. If the next signal is followed by one or more dwarves, its distance from the next normal signal cannot be determined, so this aspect must be activated by placing a fake ‘X’ station after the first dwarf. This aspect may be suppressed (the signal will show G) on low speed lines by placing a fake ‘Y0’ station after the signal; if a direction indicator is coupled with the signal, replace the ‘0’ with the number of the direction (1 to 4) and put the fake station on each branch.
Y Y	“Ralentissement” or expect to slow: the next signal requires a maximum speed of 30 km/h over the switches that follow it. Signals not capable to show this aspect will use Y (if forced), Y <sub>x</sub> or G.
Y <sub>x</sub> Y <sub>x</sub>	“Ralentissement” or expect to slow: the next signal requires a maximum speed of 60 km/h over the switches that follow it. Signals not capable to show this aspect will use Y (if forced), Y <sub>x</sub> or G.
Y Y <sub>x</sub>	Like Y-Y, but the next signal shows “Expect Stop” or “Expect Slow” at 30 km/h and it’s at less than 1200 m from the following signal. The activation and suppression (the signal will show Y – Y) rules described above for Y <sub>x</sub> apply also here.
Y <sub>x</sub> Y <sub>x</sub>	Like Y <sub>x</sub> -Y <sub>x</sub> , but the next signal shows “Expect Stop” or “Expect Slow” at 30 km/h and it’s at less than 1200 m from the following signal. The activation and suppression (the signal will show Y <sub>x</sub> – Y <sub>x</sub> ) rules described above for Y <sub>x</sub> apply also here.
Y Y	“Rappel ralentissement” or slow: speed limit 30 km/h from the first switch on. This aspect is shown only if at least one of the diverging switches that follow has a speed limit set.
Y <sub>x</sub> Y <sub>x</sub>	“Rappel ralentissement” or slow: speed limit 60 km/h from the first switch on. This aspect is shown only if at least one of the diverging switches that follow has a speed limit set.
Y Y <sub>x</sub>	Like Y/Y, but the next signal shows “Expect Stop” or “Expect Slow” at 30 km/h and it’s at less than 1200 m from the following signal. The activation and suppression (the signal will show Y/Y) rules described above for Y <sub>x</sub> apply also here.
Y <sub>x</sub> Y <sub>x</sub>	Like Y <sub>x</sub> /Y <sub>x</sub> , but the next signal shows “Expect Stop” or “Expect Slow” at 30 km/h and it’s at less than 1200 m from the following signal. The activation and suppression (the signal will show Y <sub>x</sub> /Y <sub>x</sub> ) rules described above for Y <sub>x</sub> apply also here.

<sup>5</sup> If you also need to force the yellow, to activate the blinking green or to suppress the blinking yellow (see the description of these aspects in the next paragraph), replace the ‘I’ before the number with an ‘R’, ‘X’ or ‘Y’ respectively.

<sup>6</sup> Not enforcible in Traindir.

Aspect	Meaning
Y Y Y	Like Y/Y, but the next signal is not clear, or shows “Slow” too (implicit “Expect slow”).
Y <sub>x</sub> Y <sub>x</sub> Y	Like Y <sub>x</sub> /Y <sub>x</sub> , but the next signal is not clear, or shows “Slow” too (implicit “Expect slow”).
G	“Voie libre” or clear: drive at full speed at least until the next signal is seen.
G <sub>x</sub>	Clear like G, but slow down to 160 km/h before the next signal; the limit is actually enforced by the aspects Y, Y <sub>x</sub> , Y-Y or Y <sub>x</sub> -Y <sub>x</sub> of the signal that follows, which is not G nor G <sub>x</sub> This aspect is used only in lines where full speed is higher than 160 km/h, so it must be activated by placing a fake station ‘X0’ after the signal; if a direction indicator is coupled with the signal, replace the ‘0’ with the number of the direction (1 to 4) and put the fake station on each branch.

R, Y, G = Red, Yellow, Green; the subscript <sub>x</sub> means blinking.

### Shunting aspects<sup>7</sup>

P	“Carré violet” (purple) or absolute stop when shown by a dwarf or a yard carré. The signal cannot be passed unless it changes aspect or someone tells the driver to do so.
W	“Manœuvre” or shunt: proceed at shunting speed (max 30 km/h) along a shunting path.
W <sub>x</sub>	Like W, but the next unclear signal is at less than 500 m. The train cannot enter the plain line.

P, W = Purple, White; the subscript <sub>x</sub> means blinking.

Some of the aspect names derive from the old mechanical signals, still used on older secondary lines.

*Carré* (square): it was a square sign divided into 4 squares (two white and two red) that by night showed two red lights, like today’s signals; when clear it turned face up, so the driver would see just its edge. For shunting the sign was all purple (*carré violet*), like the light used today.

*Avertissement* (advise): it was a yellow diamond sign (by night it showed a yellow light, like today’s signals) that turned face up when clear, so the driver would see just its edge. In home signals it was mounted to the left of the carré or disque.

*Disque* (disco): it was a round red sign (by night it showed a red light, like today’s signals), mounted to the right of the previous one. Both turned face up when clear, so the driver would see both signs for the deferred stop (that’s the reason of the Y-R lights in today’s signal), only the yellow diamond when he should stop at the station (exit signal still unclear), or just the two edges for free transit without stopping (exit signal already clear).

*Ralentissement*: it was a yellow triangular sign pointing up, mounted to the right of the yellow diamond sign; it would likewise turn face up when not relevant, so the driver would see just its edge.

*Rappel ralentissement*: it was a yellow triangular sign pointing down, mounted beside the yellow diamond sign on top of the square red-and-white sign; it would likewise turn face up when not relevant, so the driver would see just its edge. It could be repeated as a fixed sign near the first encountered switch.

*Semaphore* (semaphore): it was a thin and wide rectangular red sign, that could rotate in the center from – (unclear) to / (clear). At night it showed a red or a green light, like today’s signals.

<sup>7</sup> To be obeyed also when appearing between two normal signals. Shunting speed is enforced only if a signal turns to a white aspect or a white aspect follows a red or flashing red signal.

## Signal masking

Put a hidden *sncf\_masque.tds* immediately before another signal of the following kind (no switches or other signals in between) to modify the aspects of the signal preceding the masked one, as described:

**Shunting dwarf:** the aspect of the signal that follows the dwarf will be propagated and considered by the normal signal that precedes the dwarf. Put a fake ‘S’ station after the masking signal to force the single red in the previous normal signal when the masked dwarf is unclear. All the dwarves up to the previous normal signal must also be masked to obtain the correct propagation.

**Bumper** (heurtoir) or **violet carré** (including the high shunting signal used in yards): force shunting aspects in place of the normal ones in the previous normal signal when the masked signal is unclear. Put a fake ‘S’ station after the masking signal to force the single red in the previous normal signal when the masked signal is unclear. All the dwarves up to the previous normal signal must also be masked to obtain the correct forcing.

**Normal carré** or **block signal:** force the flashing red aspect in place of the normal ones in the previous normal signal when the masked signal is unclear. Put a fake ‘S’ station after the masking signal to force the single red in the previous normal signal when the masked signal is unclear. In this case only one dwarf can precede the masked signal, and it should also be masked, otherwise the masked signal is considered a violet carré (see above).

## Icon naming

Icon names follow this scheme: 4 or 5 lowercase letters tell the type (the first is always ‘s’), a sequence of \_ separated lowercase letters to indicate the colours, an uppercase letter telling the orientation, .xpm extension.

sblo:	Automatic block signals (3 lights) or manual block signals (2 lights). High shunting signal with 2 vertical lights (purple and white).
sbas:	Ground level shunting signal with 2 horizontal lights (purple and white).
scar:	Home/exit signal with 5 lights, eventually featuring the two horizontal yellow lights needed to show “Expect Slow” and/or the two vertical yellow lights needed to show “Slow”.
sdis:	Pure distant signal (avertissement) or home signal for the manual block (disque).
sind:	Direction indicator with 2, 3 or 4 lights.
sheur:	Bumper, to block exit points.

## Colours and orientation

b,r,y,g,p,w:	Colours used in the light sequence: black (off), red, yellow, green, purple, white.
N,S,W,E:	For trains going up, down, to the left, to the right.