

SteamTRAIN Help

New:

Supports larger displays of many shapes including True HD (1920 x 1080).

Controls:

For a quick start, SteamTRAIN keyboard controls are quite simple:

- o **Left or Right Arrow** controls the loco Throttle and forward/reverse lever
- o **Left & Right Arrows Together** zeros the Throttle and forward/reverse lever
- o **Up or Down Arrow** controls the direction of all track Switches (map view)
- o **Space Bar** controls the Brakes on/off toggling (loco steam or train air)
- o **“S” or Slash Key (/)** controls on/off toggling of Sand, for extra Traction
- o **“W” or “V” Key** controls one blast of loco Whistle steam and sound
- o **“B” Key** controls on/off toggling of loco Bell motion and sound
- o **“D” Key** adds to track Downgrade manually (overrides the map)
- o **“U” Key** adds to track Upgrade manually (overrides the map)
- o **“I” Key** Identifies individual cars for train make-up and switching practice
- o **“M” Key** controls on/off toggling of Station Map, Dispatcher & Mail Train Win
- o **“L” Key** controls Railroad Clock manually -- daylight or night running
- o **“O” Key** toggles Oil Lantern on/off (night only, when stopped)
- o **“P” Key** controls on/off toggling of SteamTRAIN **PAUSE**
- o **“F” Key** toggles between Frame Rate and Railroad Clock
- o **“N” Key** toggles between Numeric and Symbolic Data Bar
- o **“T” Key** rotates the **Turntable** counterclockwise (loco-tender only)
- o **“Y” Key** rotates the **Turntable** clockwise (loco-tender only)
- o **PageUp or PageDown** controls upper/lower Screen Proportions

Data:

Along the center of the screen you will find the data bar, which provides the engineer/fireman/crew with critical numeric feedback data (from left-to-right):

G = track Grade or slope (%) in percent

W = relative amount tender Water (%) available

C = relative amount tender Coal (%) available

S = relative amount of loco Sand (%) available

S Box Indicates whether traction Sand is ON

B Box Indicates whether Brake(s) are ON

T = locomotive Throttle (%) (also forward/reverse lever in cab window)

SW = SWitch direction arrow -- north/south on track map

P = boiler Pressure (psi) in pounds-per-square-inch [(kPa) kilo-Pascals]
D = Driver wheel speed (mph) in miles-per-hour [(kph) kilometers-per-hour]
L = Locomotive/train speed (mph) in miles-per-hour [(kph)]
CK = Clock, Railroad Time (hours : minutes) accelerated, **or**
FR = drawing Frame Rate (fps) in frames-per-second

The **Symbolic Data Bar** option is toggled on or off with the “N” key (numeric). The left to right order of the symbols is the same with 2 exceptions. The up-down arrows for switch directions have been moved between the left-right arrows for the throttle -- mimicking the arrow key layout on many keyboards. Also, there is no separate driver wheel speed indicator -- only the locomotive speed.

Menus:

- o **SteamTRAIN** menu contains About SteamTRAIN..., **Preferences**..., and Quit
- o **Edit** includes typical text functions for Registration
- o **Station** offers **Dispatcher or Mail Train ON/OFF** or jump to different Station
- o **Grade** selects whether the track slope is:
 - synchronized with the track map (normal or steep options), or
 - manually set -- flat, decrease, increase, Down MAX, or UP MAX
- o **Weather** selects **Clear Skies, Light Snow, or Heavy Snow**
- o **Boiler** selects boiler steam pressure setting -- 100 to 180 psi (700 to 1200 kPa)
- o **Help** offers **SteamTRAIN, Mail Train, or Dispatcher** information

Note: Some Preferences cannot be changed while your train is moving. Others become available after you Register: SAVE, 2-8-0 Loco, Narrow Gauge, etc.

SNOW is the **newest challenge** to running **SteamTRAIN**. Choose light snow first, to get used to snow. Snow adds visuals of falling flakes plus how they drop relative to your moving train. Snow makes for poor visibility, slippery rails and makes the traction sand even more precious (don't waste it). Snow plowing forces are related to the snow depth. Snow also slows the Express speed. according to depth -- 10% for light snow and 20% for heavy. Mail Train schedules are somewhat adjusted to allow for snow, but can still be very challenging! Light or heavy snow must be selected **before** you select either Mail Train or Dispatcher assignments from the Station Menu. Good luck.

Under **Preferences**, the **Railroad Clock** offers schedule timing for the Mail Train mode and controls Light and Dark. Although SteamTRAIN dynamics are close to real time, the Railroad Clock has been greatly accelerated to give a variety of lighting conditions

as you tour your railroad. **Clock options** include Automatic, Manual, 24 hour, or AM/PM.

The **Look-Ahead (Auto) Scroll** option gives you more track-map forward visibility as your train goes faster. Another option you can choose is the ability to **Manual Scroll** the Track-Map in the upper window. When your train is stopped, just move your mouse to the left or right edges of the track-map. You can look ahead to the next station or make adjustments for switching. Once your train starts, the map should scroll back to show your engine. Note: if you crash off-screen, the map should scroll to the crash site.

One preference option is called **OpenGL Smooth - Points & Lines**. Point smoothing helps round the **snow flakes**. Line smoothing improves the appearance of loco driver connecting rods, etc. -- when it works! However, there seems to be a bug on some Macs. If the connecting rods, coupler links, etc. look strange on your Mac, please **uncheck** this **Smoothing** option.

Views:

SteamTRAIN uses modern **OpenGL Graphics** to display the main map/train screen. You have the freedom to toggle your **Screen Proportions** using the **PageUp & PageDown** keys.

Your SteamTRAIN (ST) screen consists of a birds-eye **Track-Map View** in the upper-half and a side **Locomotive View** in the lower-half. The **Map View** shows a small engine with smoke, tender (coal car), and train cars on the scrolling track layout with town and country scenery -- plus several Tunnels. The revised Track-Map is a **Two-Terminal** model. There is an Ocean on the West at **WestPort** and a wide River on the East at **EsterBurg**, Switching tracks at each terminal is more complex.

A **RoundHouse** is provided at each **Terminal** to service your engine and tender. RoundHouse and **Turntable Lights** are provided to maintain your locomotive at night. When your loco is stopped (SPEED=0) you can remove the **RH Roof** to view the 3 engine stalls by double-clicking on it. Each **TurnTable** can be used to select one of 3 stalls or turn your loco-tender (not cars) completely around.

After dark, ST offers **Station Lights** and lighted **Station Signs**. In addition, the "O" Key can be used to toggle a mouse controlled **Oil Lantern** to help your crew see better.

The **Locomotive View** always shows the steam engine and tender which you control, along with smoke, cylinder steam, and scrolling track and roadbed. Here you can view the action of the large driver wheels (relative to the rails) and the associated piston rod linkage. Also, there are several other visual indicators: (1) the forward-reverse lever seen through the cab window, (2) steam escaping from the Whistle and Pop-Valve above the steam dome, (3) the Bell movement as it rings, and (4) traction Sand on the rails. If the loco boiler pressure goes dangerously high, the Pop-Valve lets-off-steam. In order to increase realism, Variable Steam Pressure is selected when you choose any of the Dispatcher or Mail Train modes. You can still change the set-pressure, your loco just won't respond instantly as before. The Loco Side View also displays any Train Cars adjacent to the Tender and/or Loco. The displayed Slope gives you a feel of how hard your loco needs to work -- the gravity of the situation! Passing through any Tunnel Darkens your Loco's environment.

Goals:

Steam engines and steam railroads were important aspects of world transportation during the 1800s and 1900s. This Macintosh computer train simulator allows you to be part of the early days of this exciting experience. You will represent the train crew of a late 1800s era steam train -- engineer, fireman, brakeman, and conductor. You control your vintage train consisting of a steam locomotive and tender (coal car) plus a load of up to 15 Cars -- 2 baggage cars and 8 passenger coaches, plus up to 6 Freight Cars. You must travel East or West between stops, up and down grades, negotiate curves, switch tracks -- while controlling the engine's throttle, boiler steam pressure, traction sand, brakes, etc.

You will find that pulling a load of more than two cars requires some patience while starting and some foresight while stopping. Trains of this era seldom ran at more than about 50 mph (80 kph) for safety and averaged less than 40 mph (64 kph) for efficiency -- fuel, water, and mechanical wear. However, if you're feeling reckless and have a need-for-speed, there are ways to fool nature. Just set the Grade Menu to Manual and the slope to UP Max or DN Max (+/- 9 %). You may also use the "U" or "D" keys. Just don't try to stop before resetting your slope! Note: UP/DN is relative to the direction your train faces -- Eastward or Westward.

Power:

Three locomotive types in this simulator can be chosen from the Preferences Window. The '**American**' 4-4-0 type engine was by far the most common locomotive in the US

during the 1800s. The 4-4-0 was used to pull most higher speed passenger trains and even many freight trains. It has 4 small pilot wheels in the front followed by 4 large driver wheels, with no trailing wheels. For the whole train, only the four large driver wheels (2 of which are visible from the loco side view) provide any thrust to accelerate or decelerate the train load. The driver wheels are powered by piston-cylinder combinations seen below the smoke stack. Steam pressure drives the piston back and forth causing the drive wheels to rotate. The pressure of the steam created in the locomotive's boiler relates to the force from each piston and, thus, the thrust of each drive wheel.

The '**Mogul**' 2-6-0 type locomotive has 2 small pilot wheels leading, 6 large Driver Wheels, but no small trailing wheels. By comparison, the Mogul engine has slightly smaller drivers (lower top speed) but more locomotive weight on the drivers for better traction -- helps with longer trains and steeper grades.

The '**Consolidation**' 2-8-0 type locomotive has 2 small pilot wheels leading, 8 medium Driver Wheels. The Consolidation engine has even smaller drivers (lower top speed) but more locomotive weight on the drivers for the best traction.

The locomotive's steam pressure can be adjusted between 100 and 180 psi (700 to 1200 kPa) via the Boiler Menu. For the late 1800s, pressures above 160 psi were on the high-side regarding boiler (explosion) safety. The ST default pressure is 140 psi (965 kPa). If the pressure is set too high and the throttle is opened too wide, too much torque is applied to the driver wheels causing the wheels to spin (wheel-rail slippage). Losing traction can cause a loss of either train acceleration (starting) or train deceleration (stopping). A preference option makes the boiler steam pressure variable -- above or below the set pressure. This accounts for loco power and steam volume variations.

Sand is carried on the locomotive as a 'traction enhancer'. The Sand Dome (closest to the smoke stack) dribbles sand onto the rails through a pipe just in front of some driver wheels. Sand on/off is selected by the "S" key or slash key (/) and -- when applied -- a brown letter '**S**' {inverted} displays in the data bar. Sand aids traction differently when moving forward or backward. Don't waste your sand.

A preference option and all **Dispatcher or Mail Train** runs make the water, coal, and sand **Consumable** items. Thus, if you use up your sand, there is simply no more available to enhance traction. If you use all your coal or water, you loose locomotive

power, but may continue to coast. Eventually you will stop with a penalty. You then regain at least 25% of your coal and water capacity -- enough to go to the nearest refueling station. There are currently **7 Refueling** locations on this railroad. Simply stop your tender (coal car) opposite the coal bin chute to replenish all 3 consumables -- water, coal, and sand. The refueling stations now appear in the **Loco/Tender side view**. Simply line up your **Tender** (coal car) to the **Red Coal Bin**. Your crew will take care of the water and sand. When the **Yellow Door** drops, your refuelling is complete.

Brakes:

During the mid 1800s, bravado engineers felt they didn't need fancy brake systems. The locomotive's forward/reverse lever and throttle were used to control the train's starting and stopping, as well as for going uphill and down. To stop the train at a station or in an emergency, the engineer simply threw the lever into reverse and applied enough throttle pressure to the pistons to brake the large driving wheels. The **Tender Hand Brake** option has been **Eliminated** from ST due to the frustration factor.

Later, some locomotives were being fitted with steam-powered brakes for the large locomotive driving wheels. The **Loco Steam Brake** option can apply much more stopping or slowing force to a speeding train. Loco Steam Brakes are selected from the Preferences Menu. When the loco steam brake is applied, the tender hand brake is applied at the same time. Also, both the forward/reverse lever and throttle are automatically set to neutral. The Loco Steam Brake option is selected as default . This requires (1) looking ahead, (2) planning ahead, (3) reasonable speeds, plus (4) Bravado.

After several disastrous passenger train accidents, **Train Air Brakes** were installed on US passenger trains beginning in the late 1870s. Train Air Brakes -- available from the Preferences Menu -- are applied to your loco, tender and each car attached to your train simultaneously. All **Mail Trains** use **Air Brakes**. When any type of Brake(s) are applied using the space bar, a red letter '**B**' {inverted} shows up in the data bar.

Coupling:

Couplers in the US during the mid 1800s were typically of the link-and-pin type. Coupling was a completely manual operation, which was somewhat dangerous for personnel operating between two cars. For safety, your locomotive must be completely stopped (L = 0 mph) during a coupling or uncoupling operation.

Your train can consist of from zero to ten cars -- 8 passenger coaches and 2 baggage

cars. Individual cars can be identified by toggling the “I” key. Cars, or groups of cars, can be coupled or uncoupled anywhere -- both on siding (dead-end) or mainline (through) tracks. Any cars (or groups) that are uncoupled from your train have their hand brakes set. Thus, they shouldn't roll away on steep grades. However, a parked car that is 'bashed' (bumped) by a heavy train will sometimes move. The loco engineer should never bash a parked car at high speed or damage may occur and severe penalties levied. Preference options allow the setting of **Soft, Medium, or Hard Bashing**. Soft bashing is the most realistic. (Note: the **ReStart** and **Defaults** Buttons are always available on the Preferences Menu).

Other than for selecting menus, the main use of a **mouse** (pointing device) in ST is for coupling or uncoupling cars. First, remember that your Loco must be completely stopped. Once stopped (L = 0), the mouse cursor changes from the normal Mac Arrow to a black 'target' over the Track/Map upper window. Place the 'target' cursor between any two cars. If coupled, the cursor becomes a yellow circle 'O'. If uncoupled the cursor shows a red 'X'. Clicking the mouse button (or equivalent) toggles between 'O' coupled and 'X' uncoupled conditions. Also, the tender (coal car) may never be uncoupled from it's paired steam locomotive.

Oh, just one-more-thing. The mouse can also be used to locate our very first **Customer Photos**. When your train is stopped near LittleTon Station, look along the north-side of the tracks. Real railroad men do use Macs, and SteamTRAIN!

Express:

A revised option (registered users) releases the Phantom **Express Train** periodically from **ahead** (right) or **behind** (left) to make your engineer/crew job more challenging. The preference choices are **None, Triggered, or Random**.

The Express always has priority and assumes a track route has been cleared. Thus, it's good practice to do your switching at each station without blocking both through tracks for long periods of time. The Express always runs at a constant speed of 40 mph (64 kph). The fireman is busy shoveling coal to keep up the required head-of-steam (boiler pressure). The engineer is quite bored and often naps during his run. Don't expect anyone to apply the brakes. Don't worry about the **Switches** though -- the Express crew will take care of all switches for the Express train.

When you hear the **Express's Shriill Whistle**, you should have at least one minute to clear a path for the Express. Some explanation is required. **One minute** applies **IF**

your train is completely **Stopped**. If your train is moving about 40 mph in the opposite direction as the express, you only have half-a-minute. If your train is moving 40 mph in the same direction, the Express will never catch you. Relative motion. When the Express Whistle sounds from the right speaker, the message “ < **EXPRESS**” appears on the right side of the Data Bar. Conversely, when the Express Whistle sounds from the left speaker, the message “**EXPRESS** >” appears on the left side of the Data Bar. Once the Express safely passes your locomotive, the message disappears -- now safe to proceed.

What if you're traveling between stations when you hear the Express's Whistle?

Several possibilities come to mind:

- (1) Stop at the nearest dual passing track and wait for the Express to pass,
- (2) Accelerate (pour-on-the-coals) to make the next station or passing track,
- (3) Back into any siding track where the Express won't follow,
- (4) Outrun the Express in the same direction.

The **Express** option compliments the **Dispatcher and Mail Train** options nicely -- if you like more challenges.



Requirements:

One goal during the development of SteamTRAIN was to make run on most Mac computers built within the last 5 years.

The following requirements apply for Apple Macintosh Hardware and Software:

SteamTRAIN

- o Computer: Apple Macintosh -- up to 5 years old
- o Mac OS: OSX 10.4 or later
- o Processor: 1 GHz CPU -- PPC G4 or Intel using Rosetta
- o Display: 1000 to 2000 pixel widths
- o Colors: Thousands of colors (16 bit) minimum

Performance:

How about the new **Intel Macs**? Is SteamTRAIN “**Universal**”? Not yet. Please give the Demo a try running under Apple's wonderful Rosetta technology. If it runs

smoothly on your Intel Mac at around 60 fps, it doesn't get any better than that!

Customers have indicated that ST runs just fine on their Intel Macs -- including the Mac Mini, MacBook, and Mac PRO.

Future:

If there is enough interest in SteamTRAIN, there are plans to develop and enhance it in the future. A list of possible modifications, enhancements, and additions is always growing. However, 3-D graphics is not likely. Alternate computer platforms may be considered. Of course, your **Suggestions** are **welcome** and many have already been incorporated!

Disclaimer:

Attempts have been made to make SteamTRAIN simulator as benign as possible within the limited resources of NostWare. There are no claims/guarantees regarding the future health of your hardware, software, or data after loading/running ST onto your computer. The **DEMO Version** is intended to let you check whether ST works well with your computer system.

Commercial redistribution (charging money) for SteamTRAIN is not permitted.

Sharing registrations outside of one family household is not allowed.

KAGI.com is presently the only authorized agent for selling SteamTRAIN.

Happy Railroading,
IronHorseJohn