



F E R A L



L E G E N D S



EPILEPSY WARNING

A very small percentage of individuals may experience epileptic seizures when exposed to certain light patterns or flashing lights. Exposure to certain patterns or backgrounds on a television screen or while playing video games may induce an epileptic seizure in these individuals. Certain conditions may induce previously undetected epileptic symptoms even in persons who have no history of prior seizures or epilepsy. If you, or anyone in your family, has an epileptic condition, consult your physician prior to playing. If you experience any of the following while playing a video game – dizziness, altered vision, eye or muscle twitches, loss of awareness, disorientation, any involuntary movement, or convulsions – IMMEDIATELY discontinue use and consult a physician before resuming play.

PRECAUTIONS TO TAKE DURING USE

- Sit a good distance away from the monitor.
- Avoid playing if you are tired or have not had much sleep.
- Make sure that the room in which you are playing is well lit.
- Rest for at least 10 to 15 minutes per hour while playing a video game.



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CHAPTER 1

IN THE BEGINNING

INTRODUCTION

Welcome to *Sid Meier's Railroads!*, the game which lets you create and manage your very own railroad empire, matching wits against the greatest railroad tycoons of all time! It spans the entire history of the railroads, beginning with the very earliest lines in the 1830s and continuing right up to today's super-fast bullet trains. You can construct your lines in a variety of settings, including the Northeast or Western United States, England or Western Europe, play solo against the computer or compete against your friends.

Sid Meier's Railroads! is based upon Sid Meier's award-winning breakthrough game, *Railroad Tycoon*. Originally released in 1990, *Railroad Tycoon* was a huge success, gaining critical praise for its innovative, ground-breaking and highly addictive gameplay. Sid continues that proud tradition in this game, while updating graphics, audio and gameplay for the gamers of the 21st century.

Sid Meier's Railroads! is a multifaceted game. To be successful, you must lay your track wisely, connecting profitable cities and industries while doing your best to avoid costly sharp turns and steep grades. You must purchase the right engines for the right jobs and create routes for your trains that maximize profits and minimize delays, improve your stations to increase their income and purchase industries that compliment your line. Finally, you must also compete with wily opponents who will seek to beat you to the most profitable cities and industries and even take over your line through predatory manipulation of the stock market.

If you do well, you'll be listed among the greatest entrepreneurs in history, but if you fail, you may find yourself sweeping streets or carrying luggage aboard one of the very lines that you created.

We hope you enjoy playing *Sid Meier's Railroads!* as much as we enjoyed creating it. Good luck!

INSTALLATION & ACTIVATION

It is important to install the game correctly before playing; installation is a one-time process that only takes a few minutes. Please follow the instructions below:

1. Double-click on the **Sid Meier's Railroads!.dmg** file and wait for the **Sid Meier's Railroads! disc icon** to appear on your desktop.
2. If it doesn't open automatically, double-click on the **Sid Meier's Railroads! disc icon** to open it.
3. Drag the **Sid Meier's Railroads! application icon** onto the **Applications folder** that appears next to it. It will start to copy across.
4. Once the copy has finished, drag the **Sid Meier's Railroads! disc icon** on your Desktop to the **Trash**. You may now delete the **Sid Meier's Railroads!.dmg file**.
5. Once installation is complete, double-click on the **Sid Meier's Railroads! application icon**, which is found in the **Applications folder** on your hard drive. The *Sid Meier's Railroads!* pre-game **Options window** will appear showing the **Activation tab**.
6. Enter your **Product Key** into the six empty boxes in the **Activation tab**. Once the **Product Key** has been entered, the **Save button** in the right-hand corner of the tab will activate. If you cannot find your **Product Key** after downloading the game please contact the vendor for assistance.
7. Click the **Save button** to save your **Product Key**.
8. Click the **Activate Online... button** in the **Activation tab**. A dialog box will appear confirming that your **Product Key** will be sent to Feral.
9. Click the **Activate Online button** in the new dialog box that appears. The **Activation tab** will update to show the number of machines on which the game is currently activated and on how many more you are allowed to activate. In future, you can play the game without an internet connection.

GETTING STARTED

1. If *Sid Meier's Railroads!* is not already running, double-click on the **Sid Meier's Railroads! application icon**. By default this is to be found in the **Applications folder** on your computer's hard drive.
2. The *Sid Meier's Railroads!* pre-game **Options window** will appear. Click on the **Play button**. The game will launch.
3. After the splash screens, the **Main Menu** will appear.
4. If this is your first time playing, select **Tutorial**. Building an empire of the rails is no small undertaking, and it's worth taking the time to get on the right track.
5. After the loading screen you will find yourself in 1830s Baltimore, where passengers are queuing up to ride the iron horse to Washington...

ALTERNATIVE CONTROLS

Right Click

The instructions in this manual assume that you are using a two-button mouse with a mouse wheel to control the game. If you are using a Magic Mouse or Trackpad, you can enable right-click on your device by following these instructions:

1. Open **System Preferences** (🍏 Menu → **System Preferences**).
2. Click on **Mouse** or **Trackpad** (depending on which you are using).
3. Select the **Point & Click tab**.
4. Check the **Secondary click checkbox**.

Note: Holding the **Control (ctrl)** key while clicking on a Magic Mouse or Trackpad will not execute a secondary click in-game.

Scrolling

Scrolling on a Magic Mouse or Trackpad is simple, just place two fingers on the device and slide them up and down.

Using the Function Keys

To use an F key for a game command, you need hold down the **fn** key, then press the **F** key you wish to use. To use the F keys without having to hold down the **fn** key, follow these steps:

1. Open **System Preferences** (🍏 Menu → **System Preferences**).
2. Click on **Keyboard** or **Keyboard and Mouse** (depending on the version of Mac OS X you are running).
3. Select the **Keyboard tab**.
4. Check the **Use all F1, F2, etc. keys as standard function keys checkbox**.

The F keys will now work without using the **fn** key.

CHAPTER 2

THE BASICS

INTRODUCTION

This section of the manual will give you the information you need to start and play an entry-level game of *Sid Meier's Railroads!*. You can check out “The Advanced Game” section (p.32) of the manual when you are ready to take on bigger challenges.

THE MAIN MENU

The Main Menu appears when you begin a play-session of *Sid Meier's Railroads!*. It provides the following choices:

Tutorial: This starts the *Sid Meier's Railroads!* tutorial, a hands-on lesson in how to play the game. We recommend that new players play through it.

Single Player: This lets you begin a single player game or load a previously-saved single player game.

Load Game: This allows you to load a previously-saved game.

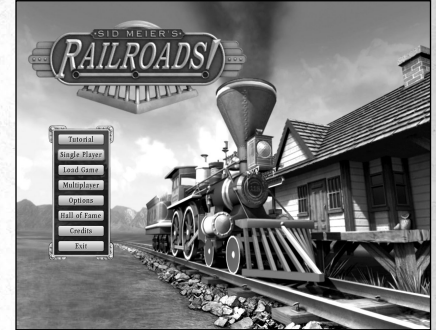
Multiplayer: This allows you to start or join a multiplayer game. (See the “Railroads Multiplayer” section of this manual – p.42).

Options: This allows you to adjust graphics and audio to maximise game performance on your Mac. It also contains various in-game options to allow you to customise your game experience.

Hall of Fame: This allows you to view your high scores.

Credits: This lists the various people who helped create *Sid Meier's Railroads!*.

Exit: This ends the play session and returns you to the Finder.



SETTING UP A GAME

To begin a new single player game, select **Single Player** from the **Main Menu**. You will then be taken to the **Scenario Setup screen**, where you will be given a set of options, explained in this section.

PICK A SCENARIO

In the scenario selection menu in the top-left of the screen, you choose where in the world you want to start your rail line. You can choose from many scenarios, including **Northeast U.S.**, **Southwest U.S.**, **Midwest U.S.**, **Northwest U.S.**, **Great Britain**, **France** and **Germany**. Each scenario provides its own challenges and rewards.

We recommend that you pick the **Northeast U.S.** for your first game.

DIFFICULTY LEVEL

Here you can select the **Train Table Mode option** to play in Train Table Mode (see below), or pick the difficulty for a competitive game of *Sid Meier's Railroads!*.

Train Table Mode

Train Table Mode is the “sandbox” mode. You can lay track, set up stations, and purchase and run trains without any interference. This is more of a model railroad simulation than a game. See the end of this chapter for details on Train Table Mode (p.29).

Difficulty Level

There are five game difficulties to choose from:

Investor
Financier
Mogul
Tycoon
Robber Baron

Investor is the easiest, and Robber Baron is the hardest. The game's difficulty level determines your starting cash, the costs of laying track and purchasing trains and stations, as well as the amount of money you earn for delivering goods and passengers. In general, all costs at the Robber Baron level are double those at Investor and all earnings are halved.

If you are just starting out you should select **Investor**.

START YEAR AND END YEAR

These drop-down menus allow you to choose in what year the game will begin and in what year it will end. Different scenarios may allow earlier or later starting and ending years.

As you play, new train engines become available, different industries and cargos emerge, and the economy goes through boom and bust cycles. If you want to survive and thrive, you have to adjust your strategies and tactics to suit the changing times.

For your first few games we recommend you play between a scenario's default starting and ending years.

NUMBER OF AI PLAYERS

When in Train Table Mode you never have any opponents. When playing at any other difficulty, you may choose to play against one, two, or three AI (artificial intelligence) opponents, or no opponents at all.

RANDOMIZE LANDSCAPE AND CITY LOCATIONS

If you leave these checkboxes unchecked, the city locations and landscape of the game will match those of the real world. Checking them will randomize the landscape and put cities in random locations. While we recommend leaving these boxes unchecked for your first game, you can check them when you are looking for new challenges.

Randomize Landscape

When you check this checkbox, hills, forests and other geographical features will be placed at random on the game map, rather than at locations that conform to the area's actual geography.

Randomize City Locations

When you check this checkbox, the game will randomly place cities on the map.

Industry Locations

Note that the locations of industries are always random from game to game, even when these checkboxes are unchecked.

Use All Trains

This checkbox is only available if the **Train Table Mode option** is selected from the **Difficulty Level drop-down menu**. If you check this checkbox, all the trains in the game will be available, regardless of the scenario or time period.

ROUTING DIFFICULTY LEVEL

You can use this drop-down menu to determine how trains behave when multiple trains need to use the same track. There are three options:

Easy: Trains route around each other when possible. When this is not possible, trains will pass through each other. The train with the lower priority is penalised by moving at a slower speed.

Medium: Trains route around each other when possible, and will resort to passing through only after waiting for some time. This cycle repeats after each signal is cleared.

Hard: Trains route around each other when possible, but will never pass through each other. You will receive a notification if a train has not moved in some time, and will have to resolve the situation by laying new track or doubletracking.

BEGINNING A GAME

Once you have chosen your game options, click **Ok** to begin a game. You start a game at the **Main screen** (p.13).

The first time you play, we recommend that you play through the Tutorial before you begin a full game. But if you want to jump right in, we suggest playing in Train Table Mode – this allows you to lay track and run your railroad without any competition.

SAVING AND LOADING A GAME

SAVING A GAME

The game will automatically save your progress as you play. You can also save a game in progress at any time during play. To do this, hold the **Command (⌘)** key and press the **S** key. This will open the **Save game as... window**. (You can also open the **Save game as... window** by pressing the **Escape (esc)** key to open the **Main Menu** and then selecting the **Save Game option**).

The Save Game As... window

To create a new save game file, type a name for your new save into the **File name: field**, then click the **Ok button**.

To overwrite an existing save game file, click on one of the existing file names in the **Save game as... window**, then click the **Ok button**. A dialog box will appear asking you to confirm that you wish to overwrite an existing save game file. Click the **Ok button** to overwrite the file and close the **Save Game as... window**.

LOADING A GAME

You can load a previously-saved game at the start of a play session or while playing a game.

To load a game, you can do either of the following:

- At the start of a play session, you can click on the **Load Game button** on the **Main Menu**. The **Choose save game to load window** will appear.
- During a game, you can either hold the **Command (⌘)** key and press the **L** key or press the **Escape (esc)** key to open the **Main Menu**, then select the **Load Game option**. The **Choose save game to load window** will appear.

The Choose Save Game to Load window

To load a game, double-click the name of the saved game from the list.

THE MAIN SCREEN

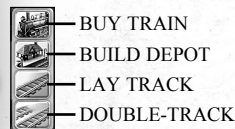


When you start a game, you will be taken to the **Main screen**; this consists of a large map display, plus several areas in which information is displayed. At game start the map is centered on a city with a train station and a stretch of track. This is your starting position.

THE GAME MAP

This shows your world. It displays the cities, terrain, and industries in a world as well as the railroads, engines and tracks. You will lay tracks and place stations on this screen.

THE BUTTON PANEL



The Button Panel is a rectangular area anchored to the bottom of the screen containing action buttons that you can use to perform actions in-game. These buttons are:

Buy Train: This button allows you to purchase a new train. You need to have a rail line connecting two locations (such as a town, farm or industry), each equipped with a station, before you can purchase a train.

Build Depot: Press this to build a new depot. You can only build a depot at a location your track runs to.

Lay Track: This button allows you to lay down new railroad track.

Double-Track: This button allows you to place a parallel track next to an existing track. You may have up to three parallel tracks in any space.

THE REPORT SCREEN BAR

In the upper-left of your screen, the **Report Screen Bar** gives you access to the Competition, Finance and Goods screens along with other important information screens. From left to right, they are: Finance, Competition, Victory, Trains, Goods, Industries, Patents. The **Competition screen** is explained further on p.37.

THE MINIMAP

This square region in the lower left-hand corner shows the world map; the white outline inside it represents the portion of the map you are currently looking at. You can click anywhere in the minimap to change your viewpoint. If you click and drag in the minimap, the view shown by the **Main screen** will scroll as you drag the cursor around the minimap.

Note that track and stations are drawn on the minimap in the color of the player to whom they belong. Those colours correspond to the player colours used in the score panel in the upper right corner.

THE SCORE AREA

This shows your current cash and the date and game turn. Below it displays your net worth – which is also your game score – as well as your opponents' net worth.

THE STATUS AREA

This area provides information about objects that you've clicked on. It disappears when not in use.

THE GAME MAP

The game map displays the world of *Sid Meier's Railroads!*. This map shows cities, production centers (coal mines, farms, etc.), and terrain. It is from here that you will build your rails and manage your trains. You will also be able to examine your competitors' railroads, once they are constructed.

Below is a short description of the items which appear in the game map:

TERRAIN

Grass

Grass is the least expensive terrain to lay tracks across. The flatter the ground, the faster trains can cross it. The proportion of the map that is grassland depends entirely on the scenario you are playing.

Hills

Hilly terrain presents more of an obstacle to your rail network. The steeper the hill, the slower your trains will move when traversing it – and some older models may barely move at all. You may need to build expensive tunnels to cross especially steep hills.

Mountains

It is incredibly expensive to construct track across high mountains. You may be unable to avoid steep grades, and you may need to construct long and expensive tunnels. You can almost always tunnel through the largest mountain, but in some cases it might make sense to simply go around the obstruction, even if it means adding miles to each trip.

Rivers

Rivers can prove significant obstacles to your line. It is possible to build bridges across even the widest rivers, but this is quite expensive.

Oceans and Lakes

These are like rivers, but even wider. You will need a lot of money before you attempt to construct a bridge over a significant body of water.

Unique Terrain Types

Each scenario will also have its own unique terrain features and challenges.

More information

To find out more about an object on a map, click on it; details will appear over it. For example, if you click on a city, text and icons will describe what kinds of cargo/passengers that city will accept, and what kinds it offers for transport.

CITIES

Cities are the most important elements in *Sid Meier's Railroads!*, because they are where the business is. Most of your rail lines will either travel between cities or between resources and cities. Larger cities have passengers and mail to be transported to other cities (just how many a city has depends upon that city's size among other factors).

Some cities also have industries that require resources. For example, a city might have a stockyard that requires cattle. You can earn a tidy sum transporting cattle to that city from a nearby cattle ranch.

When you bring a city a resource, that city will either consume the resource or an industry in that city will transform that resource into another form, which can then be transported and sold elsewhere. For example, you could transport cattle to a stockyard; the stockyard would turn the cattle into food, which you could then transport to another city demanding food. Such "delivery chains" can be immensely profitable.

You must build a station in a city before you can transport people or cargo to and from it.

City Details

To find out what kind of cargo a city is looking for and what kind it offers for transport, click on that city. Various information will be displayed on screen, either as text on the game map or in a box at the bottom of the screen.

In the example to the right, the player has clicked on the city of Dover. This reveals the following information:

ALTITUDE: The city is 708 feet above sea-level.

SUPPLY: The two icons under the “SUPPLY” heading show that the city currently has five carloads of passengers and three carloads of mail for transport.

DEMAND: The five icons under the “DEMAND” heading show that the city is looking for deliveries of mail, oil, passengers, food and manufactured goods.

PROCESSES: The two icons under the “PROCESSES” heading show that the city can process oil into goods which may then be transported to another city that is looking for such goods.

SUPPLIERS: When you click on a city, icons will appear around the city, telling you where goods the city is looking for may be picked up.

City Sizes

Cities come in four sizes: village, town, city and metropolis. Passengers and mail are available for pickup and delivery at towns, cities and metropolises only; villages are too small to require such services. The larger a city is, the more industry it can contain, and the more passengers and mail it will have for delivery.

Your Home City

You begin a game of *Sid Meier's Railroads!* with a station and a section of track already in place in a city. You will build your rail network from this city, eventually expanding your empire across the entire map.

RESOURCES

Resources are raw materials produced by industries, which can be transported to cities, or other industries, where they are either consumed or turned into other products that require transportation. You will be paid every time a carload of a resource is delivered.

Different resources are produced by different industries. For example, cattle and corn are produced by farms while ore is produced by mines. The quantity of a resource available from an industry will be indicated by a number under the resource icon.

To access a resource, you must build rail to the industry that produces it, then construct a special type of station (called an “annex”) there. Annexes constructed at industries are cheaper than depots built at cities.



Resource Types

The resources available in a game will vary depending on the scenario you are playing. Common resources include wood, cattle, coal and oil.

Resource Replenishment

The quantity of a resource available for transport from an industry and the rate at which it replenishes vary between resources. An industry that produces a heavily-used resource may upgrade over time, acquiring better facilities. This allows it to create and replenish resources at a faster rate.

INDUSTRIES

Industries, which either consume resources or convert them into other resources, are also found in cities. The larger a city, the more industries it can support.

Each industry requires one type of resource. For example, a power plant requires oil, which it consumes, while a paper-mill processes wood into paper, which can then be transported to another city with a demand for paper.

A well-supplied industry may upgrade as the game progresses, causing it to process resources at a faster rate.

Purchasing Industries

Once you have amassed enough wealth, you can purchase existing industries or even build new ones. This can be extremely profitable, because you earn a bonus percentage of every carload of goods delivered to that industry.

RAILS

As a game of *Sid Meier's Railroads!* progresses, the countryside will be crisscrossed by an ever more extensive and complex system of rails. Rails may be single, double, or triple-laid, and may cross over bridges and through tunnels.

Some of these rails will be of your construction, some will have been built by the competition (you cannot run a train on a line built by somebody else). Even if you have not built a section of rail you can still earn a profit on it by purchasing stocks in the owner's company.

See p.19-22 for instructions on how to lay your own track.

SIGNALS

As you build your rail network, the game will automatically place signals at strategic locations along the track, for example where track branches and connects, or on either side of stations. When more than one train is using the same stretch of track, signals ensure priority trains (p.26) go first.

MOVING AROUND THE WORLD

MOVING AROUND

As described in “The Minimap” section (p.14) you can move the camera around the world by clicking in the mini-map. You can also scroll around the world by using the arrow keys or by moving your mouse cursor to the edges of the screen. Holding the **Shift** (⇧) key while moving the cursor will scroll the screen twice as fast.

ZOOMING

Rolling the mouse wheel zooms the main camera in and out.

ROTATING THE CAMERA

You can rotate the camera either by holding the **Mouse wheel** down and moving the mouse left/right, or by holding down the **Command** (⌘) key and using the **Left and Right Arrow** keys.

SPECIAL KEYS

The following keys will move your camera in useful ways:

Period [.]

The **Period** (.) key will center the view on a train that you own. Press the **Period** (.) key repeatedly to cycle through all of your trains in turn.

Comma [,]

The comma takes you to one of your stations/annexes. Push comma repeatedly to cycle through all of your stations/annexes.

GETTING LOST

Clicking on the **Reset Camera Position** button on the **Main** screen or pressing **Caps Lock** (⇧) will center the screen on your starting position.

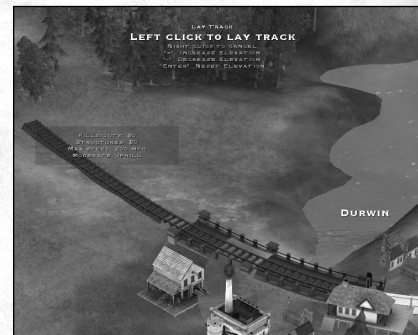
LAYING TRACK

STARTING THE TRACK

Laying track is as simple as selecting a start and end point. With a few exceptions, you can lay almost any track you wish.

Start by clicking the **Lay Track** button on the **Button panel** (p.13). Your cursor will change into a red circle with an “X” in it, indicating that you cannot lay track on the area of land where your cursor is. To lay a stretch of track, you must first choose an existing section of track to connect it to. The only existing track the first time you start a game will be outside the train station in your starting location.

Note that you can never start a new section of track in a tunnel or on a bridge.



Building a new section of track

After clicking on the **Lay Track** button, your cursor will indicate whether the current location is a valid place to begin laying track.

Red (with a “X” in the center): You cannot start laying track at this location.

Green: A green cursor will appear at the end point of an existing stretch of track; laying track here will continue the existing stretch of track.

Yellow: A yellow cursor will appear along the length of an existing stretch of track; laying track here will create a branching stretch of track.

When you’re happy with your starting location, click the **Left Mouse button** to start building your track. Now, move your cursor and you will see a new stretch of track between it and the starting location. This track is just the potential route; to actually build the track, click the **Left Mouse button** again.

To stop laying track, click the **Right Mouse button**. This will cancel any potential track you haven’t yet built and exit track laying mode. You will need to click the **Lay Track** button again to start laying track again.

Terrain Changes

As you move your cursor, you might notice that the terrain beneath the track changes. The game will seek to make the track as flat as possible, adding fills, cuts, retaining walls and tunnels as necessary. Any costs caused by the additional construction is automatically added to the total track cost. You can adjust the level of your track manually as well – see the “Details about Prospective New Track” section (p.20).

Invalid Track

While you are moving the cursor, the potential track line may turn red. This means that the track cannot be laid as indicated for example, because you don't have sufficient funds, the grade is too steep, or because the track would require too sharp a turn. To reach your desired destination, you will either need to change the route or raise more money. See below for details of invalid track configurations.

Details about Prospective New Track

In track laying mode, you will notice text appear at the top of the screen and beside the cursor. This provides information on the following:

Cost: How much it will cost to lay the track.

Max Speed: The maximum speed that a train will be able to travel on the track.

Grade: Gives details about the grade of the track.

Fills/Cuts: If the section of track you wish to lay requires any fills or cuts, a price will be displayed after this heading to inform you how much they will cost.

Structures: Whether the section of track you are laying requires any bridges or tunnels and if so, how much they will cost.

The text will change as you move the cursor, because the information is different for every potential section of track.

“=”: This informs you that you can press the **Equals (=) key** to manually raise the level of the track. This may also increase the track's cost.

“-”: This informs you that you can press the **Minus (-) key** to manually lower the level of track. This may also increase the track's cost.

“Enter”: This informs you that you can press the **Return (↵) key** to reset the track's elevation.

INVALID TRACKS

A track configuration may be invalid for any of the following reasons:

- The curve is too tight
- The grade is too steep
- The track improperly intersects existing track
- You do not have enough cash

Bridges and tunnels are expensive but often worth it

In many cases, construction costs may be lowered if you go around an obstacle rather than over it or through it. However, bridges and tunnels can often be cheaper in the long run, as even the fastest trains must proceed slowly on curved track. Flat, straight stretches of track will allow your trains to run at their top speeds, which means faster deliveries, so more profit in less time.

When you are happy with the span of track you have stretched from your start point, simply click the **Left Mouse button** to confirm the endpoint. You will hear a clanging sound and the track and any bridges or tunnels it requires will appear.

You may continue to lay track from the endpoint by moving your mouse and clicking elsewhere, or, if you are done for the moment, click the **Right Mouse button** to stop laying track.

Note that if you click the **Left Mouse button** and hold it while laying track, you can more finely adjust the end point of the track you are laying.

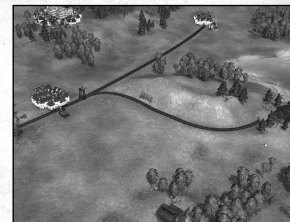
Branching and Joining Track

Before long, you need to create a branch line to reach a nearby city or industry. To do so, you simply click the **Lay Track button** as you would to extend an existing track, and position the cursor on the existing track, near where you would like to branch the track. When the cursor turns into a yellow circle you are at a valid branch point. Click the **Left Mouse button** to begin, and move the track where you would like it to go just as you would with any other stretch of track. Once you have completed the section of track (by clicking the **Right Mouse button** when the track reaches its destination), you will notice some train signals appear where the track splits.

Sometimes you may want to join a new piece of track to an existing piece – for instance, when creating a loop (you may want to do this as a time-saving alternative to stopping a train and turning it around. If a train is travelling along a loop, it never has to change direction). To join a new track span to an existing track segment, simply move the cursor onto an existing track length, until the cursor turns into a yellow or green circle. A green circle indicates that you are at the end of a segment of track; a yellow circle indicates that you are at a valid connection point along a stretch of track; a red circle indicates that you cannot connect the track at that location.

Double Tracks

On particularly busy sections of your railroad you may want to aid traffic-flow by adding sections of double track. These run parallel with existing track, allowing trains to pass each other without either of them having to stop. You can have up to three parallel track lines on any particular section of track. All train stations and depots can only handle up to three lines at a time.



How to Lay Double Tracks

To lay double track, click on the **Double Track button** on the **Main screen**. Then put your cursor next to an existing piece of track. If the circle turns green, you can create double track at that point. Click at the point you want your double track to begin, then move your cursor to where you want the length of double track to end. Click again and the track will be laid.

Once you have laid a length of double track, you will need to connect either or both ends to existing track, or else trains will not be able to reach it.

If there are any obstructions, if the grade is too steep or the angle is too sharp, the track will turn red, meaning you cannot lay that double track.

Crossovers

Once you have laid your double (or triple) track, you may want to install some Crossover Track, allowing your trains to switch track if the line they are on is blocked. To lay crossover track, click on the **Lay Track button** and then click on the sections of track where you want the crossover to be.

DEPOTS

Trains can only deliver cargo to depots, stations and terminals. A depot in a city allows you to deliver to, and pick up from all of that city's industries; and, if the city is large enough, to pick up and deliver mail and passengers as well.

Constructing Depots

Depots can only be constructed along track that you own. To construct a depot, click the **Build Depot button** on the **Button panel**. Put your cursor over a section of your track; you will notice the cursor turns into a ghosted image of a depot. Move the cursor over a town or city that is connected by track, and the ghosted image will turn into a solid image, indicating that the depot can be built there. If you move the cursor close to enough to an industry, the ghosted image of a station will turn into a ghosted image of an annex, a unique connection point where a train stops to load up on whatever resource is produced there. For example, the lumber mill annex is a giant crane that loads logs into a lumber car.

Remember!

You can only build depots, stations and terminals alongside track you own!

Click the **Left Mouse button** to build the depot or annex at a chosen location. This will enable you to route trains to that industry or city.

Stations and annexes cost money!

*Stations are quite expensive and should not be constructed carelessly.
The station in your starting city is free.*

Upgrades

Train stations at cities come in three sizes: depots, stations, and terminals (the largest). The larger a station is the more income it generates. The station at your starting city is a terminal (the largest); any new station you construct is a depot.

How to Upgrade a Depot

To upgrade a depot (or station), select the city or depot, then click the **Upgrade button**. You can select the next level of improvement for your depot.



Upgrade button

See the “Stations” section (p.38) in “The Advanced Game” chapter for more details on stations and upgrades and improvements.

Annexes

Annexes are the stations that are found outside of a city at a resource – coal mine, cattle ranch, etc. Annexes cannot be improved or upgraded.

BUYING TRAINS AND CREATING ROUTES

Once you have connected two points with track and stations/annexes, it is time to buy a train and tell it where to go. To create a train, click the **Buy Train button**. You will then be taken to the **Routing screen**.

Purchase the best engine you can afford!

When playing a game set in the early years of railroading, you should almost always purchase the newest, most powerful (and probably the most expensive) engine available.

However, as the game progresses and engine design advances, you will want to purchase different models for different situations – one engine might be better for rapidly carrying a few cars of passengers while another is better suited to pull a lot of heavy cargo as cheaply as possible.

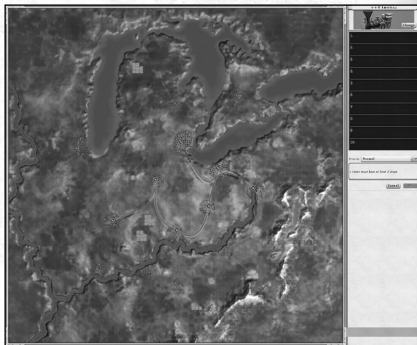
For details on specific engines, see the “Engine Descriptions” chapter (p.45).

Routing the Train

On the **Routing screen**, you decide where your train will go and what it will pick up from each place it visits.

The map in the main part of the screen shows the track you have laid. Any industries or cities you have connected to your track (with annexes or depots) are displayed as big blue dots. Move the mouse cursor over one of these dots and you will see the name of that destination, as well the resources it has supply and demand for. Clicking on a destination adds that place to the route queue on the right side of the screen. You may also notice that some of the destinations on the map have turned grey. This means that you cannot reach that destination from the place you just selected (this is typically because a turn cannot be made in the direction your train is headed).

As you click destinations, they get added to your route queue, meaning your train will visit them in sequence, from top to bottom. When the last destination has been visited, the train will return to the first destination on the list.



Cargo

As a rail baron, your job is to haul people and cargo from one place to another. That is how you make your money (most of it anyway). While you are creating the route for a train, you must tell your train what kind of cargo it is to carry.

When you first create a train, it has no cars on it and cannot carry any cargo. When you add a station to your route, a box appears on the routing map displaying what cargo is available for pickup at that station. To pick up that cargo, you must add the appropriate cars to your train. For example, if you are creating a commuter line and your starting station has one carload of mail and two carloads of passengers awaiting pickup, you might want to add one mail car and two passenger cars to the train at that station.

Note that once cars are added at any stop, they are automatically added to the cargo list at every stop in the route. This is usually okay if the train is carrying passengers and/or mail between cities; however, if you are carrying materials or raw goods you may need to make adjustments, adding or deleting cars at each stop.

See below for examples of creating routes.

Creating a passenger/mail train

Passengers and mail are good, steady sources of income. Let us say that you have depots in two cities connected in a line: Washington, and Baltimore. You note that both cities have passengers and mail available, so you decide to set up a train to carry them.

*You click on the **Buy Train button** on the **Main screen**, which takes you to the **Routing screen**. At the **Routing screen**, you click on Washington and give the train two passenger cars and one mail car. You click **OK** and then click on Baltimore. Since Baltimore also has passengers and mail, you leave the train's car manifest as it is. You then exit the **Routing screen**.*

Your newly-created train will do the following: it will appear at Washington, where it will add on a mail car and two passenger cars, which will then fill up with as many available passengers and sacks of mail as the cars can hold. The train will then proceed to Baltimore, where it will drop off its cargo and pick up a new set of passengers and mail. The train will then return to Washington, drop off its Baltimore load and start the route all over again.

Changing engines

*When you create a new train, it is by default equipped with the most modern engine available. While this is often the correct choice, you may want to choose a different engine model. To do this, click on the **Change button** in the upper-right corner of the **Routing screen**. The **Roundhouse screen** will appear, where you can buy the latest engine or select a different one depending on your need. You can switch between trains by clicking the **Left** and **Right Arrow buttons**. Once you have chosen an engine, you will be returned to the **Routing screen**.*



Creating a freight train and changing cargo

Let us say that you have created a track which runs from City A to City B and then to a cattle ranch. City B has a stockyard to process the cattle into food, and City A is looking for food. Here is how you would create a freight train to bring the various cargos to their destinations.

Click on **Buy Train** button, and proceed to the **Routing** screen. At the **Routing** screen, click on the cattle ranch to make it the first stop on your route. Add two (or more) cattle cars to the train at that depot. Next, click on City B (which has the stockyard, which will turn the cattle into food). Since you will be delivering the cattle at that stop, remove the cattle cars from the manifest.

In its place, add two (or more) food transport cars. Next click on City A. Since your train will be dropping off the food at that city, remove the food cars at that location. Leave the train empty. Exit the **Routing** screen.

The train and the cattle cars will appear at the cattle ranch. Cattle will be loaded onto the cars, and the train will proceed to City B. At City B the cattle will be offloaded and the cattle cars removed. Food cars will be added and filled with food (newly-created from the ex-cattle you just delivered). The train will proceed to City A, where it will offload the food as well as the food cars. The engine will then return to the cattle ranch, where it will acquire new cattle cars and start its run all over again.

Priority Trains

The **Priority** drop-down menu on the **Routing** screen allows you to set the importance of the cargo to **Low**, **Normal**, or **High**. When two trains are using the same track, this will determine which will go first. Usually, it is best to give higher priority to passenger or mail cars, as their delivery price is most time-dependent.

MAKING MONEY

At the most basic level, your objective in *Sid Meier's Railroads!* is to make more money than your competitors. The primary way that you earn money is by hauling passengers, mail and goods from one place to another. The faster you get the items to their destinations, the more you make. If items wait a long time to be picked up or are delayed during their journey, you will earn less from their delivery.

Following is a brief description of the game's economy; for more details check out the "Game Economy" section (p.39).

Carrying Passengers

Passengers are almost always a consistent source of income. Setting up a dedicated "consumer line" between two or more cities or towns (remember that villages do not provide or accept passengers) will generate steady revenue.

The amount you earn for transporting passengers varies from scenario to scenario, and may change dramatically over the course of a scenario.

Carrying Mail

Mail is similar to passengers in that it provides a steady source of revenue.

Carrying Cargo

There are many kinds of cargo that can be shipped for profit in *Sid Meier's Railroads!*, ranging from harvestable natural resources like wood and coal to refined goods such as paper and food. The price paid for each shipment depends on a number of factors, including scarcity, demand, distance carried, and time it took for the shipment to arrive at its destination. See the "Carrying Goods" section (p.39) for more details.

Station Improvements

As discussed earlier, improving your stations will increase the income you generate when delivering or picking up cargo from them. See the "Stations" section (p.38) for more details.

Purchasing or Constructing Industries

Another way to make money is to purchase or construct industries in cities where you have stations. See the "Buying Industries" section (p.33) for more details.

Playing the Market

You can earn income in the stock market, buying or selling stock in your company or in your competitors' companies. See the "Stock Market" section (p.35) for more details.

REPORT SCREENS

The game provides a variety of report screens for your examination. You should check them out periodically just to keep track of how you are doing. You can reach these screens by clicking on the appropriate button on the report screen bar or by pressing various shortcut keys.

Finance Report [F1]

This report displays your company's financial situation.

Competition Report [F2]

This report shows you how your competitors' companies are faring.

Victory Screen [F3]

This screen displays any goals that you are required to achieve to win the scenario. It also shows your progress towards meeting those goals.

Trains Report [F4]

This lists the trains that you have in operation, as well as their profitability over the current and preceding years.

Goods Report [F5]

This report shows prices of the goods in the game. It also displays a chart which allows you to track the prices over time and the leader in transporting each individual good.

Industries Report [F6]

This report shows you the status of any industries you have purchased, including their profits, losses, size and bonuses.

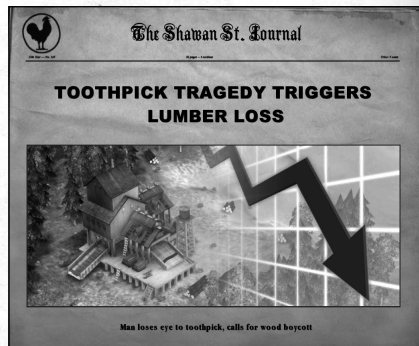
Patents Report [F7]

This report shows you any patents you have won, as well as how much time is left until they become public domain.

EVENTS

As a game progresses, various random events may occur providing a new challenge or opportunity. An event may announce the availability of a new engine type or announce the decrease or increase in the value of a specific good.

When a new event occurs, it is displayed as a newspaper headline on your screen. Once you have read the event, click on the newspaper to make it disappear. You can click on the **View Event Log** button on the **Main** screen to view older events.



TRAIN TABLE MODE

Train Table Mode allows you to create a rail line with no competition and no time or financial constraints. You may play any scenario in Train Table Mode. See the "Setting up a Game" section (p.9).

In essence, Train Table Mode is less a game and more a tabletop model railroad simulation. The economy and stock market are disabled, and it costs nothing to lay track and purchase stations and engines. You may create resources and industries, or remove existing ones. There is no maintenance cost, and you make no money for delivering goods. Random events do not occur. You can acquire any engine available in that scenario, put any combination of cars on the train, and route it as you wish. There are no victory (or defeat) conditions: you can play as long as you want. A Train Table Mode game may be saved and loaded like any other game.

Train Table Mode is a good way to learn the mechanics of laying track, constructing stations, creating and routing trains, and picking up and delivering cargo and passengers without worrying about finances or competition. When you have mastered Train Table Mode, you may want to proceed to a full game.

GET STARTED!

If you have read this far you now know enough to play a game of *Sid Meier's Railroads!* For your first games after Train Table Mode, we recommend that you play at Investor (the easiest) level, and that you set the number of competing companies at zero. This will allow you to experience the full game economy without having to worry about competitors. It is still possible to lose a game with no competition by running out of funds to maintain your rail line, but at least you will not have Cornelius Vanderbilt trying to drive you out of business at the same time!

When you are ready for an even bigger challenge, play a scenario with competition and see how you stand up to the most devious minds of the 19th and 20th centuries!

HOT KEYS

Hot keys allow for quick access to screens and actions in the game.

Reports

F1 – Finance Report	The Finance Report displays your company's financial situation.
F2 – Competition Report	This report shows you how your competitors' companies are faring.
F3 – Victory Screen	This screen displays any goals that you are required to achieve to "win" the scenario. It also shows your progress towards meeting those goals.
F4 – Trains Report	This lists the trains that you have in operation, as well as their profitability over the current and preceding years.
F5 – Goods Report	This report shows prices of the goods in the game. It also displays a chart which allows you to track the prices over time and the leader in transporting each individual good.
F6 – Industries Report	This report shows you the status of any industries you have purchased, including their profits, losses, size and bonuses.
F7 – Patents Report	The patents report shows you any patents you have won, as well as how much time is left until they become public domain.

Main Game Actions

T	Lay Track mode
D	Doubletrack mode
R	Buy train
B	Build depot

Selection Keys

. (period)	Cycle through available trains
, (comma)	Cycle through available stations / annexes
Command (⌘) + G	Go to city list

Other Hotkeys

Escape (esc)	Game Menu
P	Pause/Unpause the game
Caps Lock (⇧)	Reset camera position
Tab (→)	Draw track in player color (hold down)
Space bar	Hide terrain features (hold down)
Command (⌘) + S	Save game
Command (⌘) + L	Load game
F10	Quick save
F8	Quick load
Return (↵)	Send chat message

With a Train Selected

A	Lock camera to train
B	Activate train's bell
H	Activate train's whistle
C	Customise train
Backspace (←)	Scrap train

With Track Selected

Backspace (←)	Delete track (if possible)
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CHAPTER 3

THE ADVANCED GAME

INTRODUCTION

This chapter of the manual provides a more in-depth look at *Sid Meier's Railroads!*.

THE OPPOSITION

Fierce competition is the name of the game when it comes to making your railroad number one. The two main ways to compete are by duelling over cities and industries or through the stock market. One thing is certain – you are going to have to fight every step of the way to be the top dog.

Industries and Cityscapes

From the lowest railway investor to the grandest locomotive magnate, all must carry their goods to a city. But when three or four players are all vying for the same customers and goods, competition can be ferocious. Below are tips for coming out on top.

Buying Industries

One of the fastest ways to establish your dominance in a city is by purchasing that city's profitable industries. For example, if a food plant in Frederick, Maryland has been receiving dozens of carloads of grain, it would be worthwhile for you to purchase that industry. Once you own an industry, you will receive a percentage of the profits of every carload of grain that arrives in Frederick, regardless of whether it is hauled in by you or an opponent.

To buy an industry, click on a city. The **Selection panel** will appear. On the right-hand side of the panel you will see the industry name, the price of the industry and a **Buy button**. This will begin an auction, letting every player in the game know that this industry is for sale and allowing them to bid on it.

Prices can quickly rise in auctions, so be sure to watch your opponents' moves before trying to buy an industry, or else you can end up paying an arm and a leg for what should have cost only a finger.

Building Industries

Sometimes an industry that creates a resource and the industry that processes it (for example a lumber mill and a paper plant) will be close to each other. However, in some cases, the industry that would process or consume the processed goods (in this case, a newspaper that would process paper) is across the map. In this case, the paper from the paper mill will pile up, because it takes such a long time to deliver it to the newspaper that would process or consume it.

In cases like these it may be in your best interest to build an industry, in this case a newspaper, to receive all the paper that is piling up. New industries take up a lot of space and can only be built in towns, cities or metropolises. Additionally, the size of the city determines how many industries a city can have. In towns and cities there may not be enough room to build a new industry. In these cases, you will just have to wait for the city to grow in order to build.

To build a new industry, click on a town, city or metropolis. The right hand side of the **Selection panel** displays the industries in the city as well as any empty lots.

To build a new industry, click on an empty lot. A menu of industries that can be constructed will appear.

The downside to buying a new industry is that they are extremely expensive – \$500,000 each. So constructing a newspaper for a single paper plant would not be profitable. But if several paper plants surrounded a single nearby city, it could be worth your while to build a one there.

Note that you cannot build an industry in a town that accepts goods the town already produces. Using our example above, if a town already had a paper plant, you couldn't build a newspaper in that town.

Hijacking Goods

Let us take the case above, the paper mill receiving lumber but with no place to ship it, and change the roles. If one of your opponents is producing paper and not using it, and there just happens to be a newspaper close to you, you can build a line to hijack his paper and bring it to your newspaper just as you would if you had produced the paper yourself.

The danger here is that your opponent may not find supplying you with a profitable good in his best interest and stop shipping lumber to the city. Now you have a useless rail line unless you expand to the lumber mill. So when building such a line, make sure to keep an eye on the industries that supply your goods, as you never know when your supply may get cut off.

STOCK MARKET

While *Sid Meier's Railroads!* is mostly about laying track and running a railroad, you will need to pay close attention to the stock market if you wish to succeed.

Starting Stock

Each competitor's company has a total of ten shares of stock, four of which they already own. The remaining shares can be purchased by anybody – the company's owner or his competitors. Stocks are bought and sold one share at a time; each represents 10% ownership of a company.

Selling Stock

Sometimes the price of a project can turn out to be more than you bargained for. Maybe a bridge costs more than expected or perhaps you need to build an elevated track on what you thought was level ground. Or maybe you just want your route to have that brand-spanking new 4-8-4 Golden State, but you are strapped for cash. Well, fear not. You can raise needed cash in the stock exchange.

Selling Your Stock

By selling some of your stock, you can easily get some quick cash in exchange for a share of your company. To sell your stock, click on the **Plus (+) button** next to your name in the upper-right hand corner of the screen. Then click the **Sell button**. This will sell 10% of the shares in your company and give you immediate cash. The amount is indicated by the number below the **Sell button**.

It is also possible to sell your stock on the **Competition screen** by clicking the **Sell button** on the left end of your stock bar (see "Competition Screen", p.37).

Selling Stock in an Opponent's Company

You can also sell stock that you have purchased in a competitor's company, of course. This too can be done from the **Main screen** or from the **Finance screen**.

- From the **Main screen**: Click on the **Plus (+) button** next to the competitor's name in the top right-hand corner of the screen, then click the **Sell button**.
- From the **Finance screen**: Click on the **Sell button** at the left-hand end of the competitor's stock bar.

Buying Stock

You can purchase shares in any company as long there are shares available. If all ten shares of a company have already been purchased, you must wait for one to become available (after a competitor sells a share).

Buying Stock from the Main Screen

Click on the **Plus (+) button** next to the name of the chairman of the company you want to purchase a share of. If there is stock available, the **Buy button** will be activated. The buy or sell price of the stock appears below the appropriate button.



The **Buy and Sell buttons** become visible when you click on a the **Plus (+) button** next to a competitor's name (or your name). In this example, the **button** clicked on the **Plus (+) button** next to his own name (FeralTomNew). He can now sell a 10% share of his company, earning \$200k, or he can purchase another 10% share of his company for \$260k.

Stock Price

The price of stock is determined by a number of things. Some are fairly obvious – the more profitable a company is, the higher the value of its stock. However, the value of stock is also affected by the company chairman's net worth and by the value of the stocks in other companies that the chairman owns. Thus, if you own a lot of shares in a competing company and that company's share prices go down, your company's stock prices will also decline somewhat.

Stock prices increase through various actions, incoming profits and random events. The higher your stock price when you sell, the more money you will get. Selling stock will also lower your stock price, so if you sell a significant portion of your stock quickly, you will get less money for every sale. Selling your stock over time can net you more cash as your price recovers from each sale.

Be cautious, as every bit of interest you sell in your company is that much more interest your opponents can buy of it, making it easier for them to buy you out of business and out of the game (see "Victory and Defeat", p.39).

Be sure to keep an eye on your opponents' available stocks as well, because every share of their stock you own will make it cheaper for you to buy them out in order to gain victory.

Playing the Market

As the game begins, every player's stock starts at the same low level. As each new railroad expands, their stock price will rise with their increase income and net worth. But as competition begins to take its toll – resources become scarcer, once profitable routes run dry – stock prices will level and even drop.

The smart speculator buys stock low and sells it high. By buying stock early in the game (either your own or your opponents') and holding onto it through that early burst of growth, you can earn yourself a tidy profit.

The benefit is clear – cold, hard cash when you sell. The downside is that you will have less cash to spend on your own initial routes, which could cost you in the long run if you get left behind in the race to profitability.

COMPETITION SCREEN

The **Competition screen** is the place to go to check in on the state of your railroad and income and those of your opponents. Knowing how to properly read this screen is essential to expanding your empire and making sure that your company is not bought out by your foes.

Cash

This is the amount of cash you or your opponent has at any given moment. This is extremely useful information. An opponent who is accumulating a lot of cash may be planning to buy you out.

Net Worth

Net worth is sum of all things you own. Stock, track, depots, trains, cash and purchased industries all factor together to make up your net worth. This rating becomes important as some game objectives can only be completed by increasing your net worth to a certain level.

Ann. Profits (Annual Profits)

This shows the amount of money you have made minus the amount of money you have spent. If your income is greater than expenses, it will be a plain number. But spend more than your income for the year and the number will be contained in parentheses.

Track and # of Trains

This shows the distance of track that you have laid as well as the number of trains you own. More trains and track can mean more money, but can also mean more maintenance expenses.

Stock

Under this heading you can see the percentage of stock you own in your own railroad as well as your current stock price.



EVENTS AND PATENTS

Throughout the game, random events will take place, causing an effect on various aspects of the game. Some events will cause a increase or decrease in the price of certain industries. Others will cause share prices to rise or fall. The third kind of event is the patent auction, which will immediately result in an auction for exclusive access to a new invention: a patent.

Patents

Throughout the game, patent auctions will randomly appear, allowing the competitors to bid on new railway inventions. Lower maintenance costs, cheap bridges and tunnels, and stronger engines are all benefits of new patents.

When a patent first becomes available, an auction window will appear, allowing all players to bid on the patent. The winner will receive exclusive ownership of the patent for 10 years, after which it will become public domain and all players will then receive the bonus.

For a complete list, head to the “Industry & Patent Descriptions” chapter (p.63).

STATIONS

There are three levels of train station in *Sid Meier's Railroads!*: Depots, Stations, and Terminals. Upgrading them will yield a variety of useful benefits that pay off in the long run.

Depots

Depots are the cheapest and most basic kind of stations, providing only rudimentary services and abilities. Depots cost \$50,000.

Stations

Stations offer added services, including a Post Office (+25% mail revenue), Restaurant (+25% passenger revenue) and an Exchange Siding (+25% faster loading & unloading, +50% faster car switching). You can upgrade a depot to a station for \$100,000.

Terminals

Terminals justify their extra expense by offering all the services of a station, with the added amenities of a Hotel (additional +25% passenger revenue) and Marshalling Yard (additional +25% faster loading & unloading, +25% faster car switching). You can upgrade a station to a terminal for \$150,000.

Upgrading a Station

Once you have built a depot, you can upgrade it into a station (and upgrade that station into a terminal) by selecting the city that station is in, and then clicking the **Upgrade button** in the **Selection panel** and then clicking either the **Station** or **Terminal button**, depending the station type you are upgrading to.

GAME ECONOMY

Carrying Goods

There are several distinct goods that can be shipped for profit in *Sid Meier's Railroads!*, ranging from harvestable natural resources like wood and coal to refined goods such as paper and food. The price paid for each shipment of a good depends on a number of factors, including:

- The global supply of and demand for the good (supply and demand set the base price)
- How long it took for a shipment to arrive at its destination
- For passengers and mail, the distance a car travelled from its source to destination

As the game progresses, the marketplace continually updates; generating new demand for goods and reducing demand as shipments are delivered.

City & Industry Growth

All cities and industries have a size, and the rate at which resources are produced depends on the that size. Additionally, the amount of resources a city or industry can stockpile are dependent on its size (excess resources are abandoned – though you would still get paid for delivering them). Industries come in small, medium and large sizes, while cities come in four sizes: village, town, city and metropolis.

For each carload picked up from an outlying industry, or each carload delivered to a city, a city or industry's growth increases a little bit. Depending on its current size, once enough cargo passes through a city or industry, it will grow to the next size, increasing its production rate and storage capacity. Be aware that neglecting a city or industry can also have consequences; their growth will slowly decrease if they are not being served at least one carload of goods every so often, and can even shrink back to a smaller size if they are truly abandoned.

VICTORY AND DEFEAT

The ultimate objective in *Sid Meier's Railroads!* is to drive all of your opponents out of business and achieve a monopoly in the railroad business. This is achieved by accumulating enough cash to buy up all of an opponent's shares in their own railroad. However, all shares of a railroad must first have been bought by a player or players (either the owner of that railroad or someone else) before the entire railroad can be bought out. Once all shares in a railroad have been bought, that railroad's buyout price will appear on the **Competition screen**. Once all of your competitors have been 'bought out', you win.

Note that an opponent has no say in whether he will be bought out; if somebody else has enough cash, he's vulnerable to being bought out... you too!

You get a bonus in addition to your final score for each opponent that you buy out of the game.

Buyout Price

The buyout price for a competitor's railroad is listed on the **Buy button** under their portrait on the **Competition screen**. This price is equal to twice the current price of stock in that railroad for each share that you do not already own.

For example, imagine you own nine out of ten shares in an opponent's railroad and that railroad's stock is currently going for \$100,000. Because you need to spend twice the current share price for each outstanding share in that company to buy out that opponent, in this case a buy out would cost you \$200,000.

Now, imagine that you do not own any shares in a company with a current share price of \$100,000. You would need to pay twice the share price for each of the shares you do not own (all 10), so your buyout price for that company would be \$2,000,000.

The Mechanics

If you have enough cash on hand, simply click on the **Buy** button underneath the portrait of the opponent you wish to buy out on the **Competition screen**. The cash will be subtracted from your total, and your competitor is out of the game. His rail network becomes part of your company, and you are free to manage that line in any way you see fit.

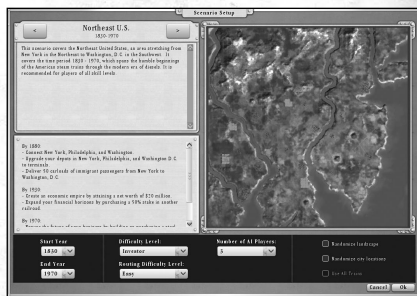
Note that if another opponent had stocks in the company you just bought out, that opponent would receive payment for those stocks at the going rate of twice the stock's value.

How to avoid a hostile takeover

Remember that you can be bought out by your opponents – at which point you are out of the game. The best way to defend yourself against this ugly fate is to make sure that you have a lot of shares in your own company, and that your company is the most profitable in the game. The more profitable a rail line is, the higher its stock value, and the more expensive it becomes to buy out those who hold that stock. Having lots of cash on hand doesn't protect you from being bought out – it just allows you to buy out others.

Scenario Objectives

Each scenario has certain objectives – game challenges that must be completed by a certain date. These objectives are displayed during the scenario setup, and you can check them during play by going to the **Victory screen**. Scenario objectives are only active during single-player games – they do not affect multiplayer games of *Sid Meier's Railroads!*



In a solo game, you can choose to turn scenario objectives on or off during the game setup process.

Example scenario objectives

The Northeast US scenario's objectives for 1880 include: connect New York, Philadelphia and Washington, DC; upgrade depots in New York, Philadelphia and Washington, DC, to terminals; and Deliver 50 carloads of passengers from New York to Washington, DC – by 1880. Achieving all three of these in time will add a significant bonus to the player's final score.

Objective Bonuses

If a player completes an objective by the specified time, a bonus will be added to his final score – whether he wins or loses the game. If the player achieves all objectives for an era, he receives a larger bonus to his final score. If the player achieves all objectives for all eras, the bonus is even bigger.

Running Out of Time

If a scenario ends with more than one competitor in play, victory is awarded to the competitor with the highest game score, which is equal to the competitor's net worth plus his bonus points for achieving objectives. If game scores are tied (extremely unlikely), the game ends in a tie.

The Final Score

Your final score is equal to your game score modified by the difficulty of the game you were playing. The difficulty modifier is based upon the game difficulty you chose and the number of opponents you played against. Thus, to get the highest possible difficulty modifier you need to play on Robber Baron level against three opponents. The lowest possible difficulty modifier is achieved by playing at Investor level against zero opponents.

The Hall of Fame Screen

This screen displays the highest scores achieved by players of *Sid Meier's Railroads!* on that computer.

CHAPTER 4

RAILROADS MULTIPLAYER

INTRODUCTION

Playing *Sid Meier's Railroads!* against human players can be a fun and rewarding experience. After all, what's better than buying out Vanderbilt, Gould and Morgan? Why, buying out your friends, of course!

HOSTING A LAN GAME

1. Select the **Multiplayer option** from the **Main Menu**.
2. From the **Multiplayer menu**, select **LAN**.
3. The **LAN Games screen** will appear. Click on the **Host Game button**.
4. The **Host Game panel** will appear. Here, you can edit the **Game Name** (by default, this will be "[name]'s Game", where [name] is the name of your Mac). You will also need to select a game type. The first time you play a LAN game, select **Scenario** from the **Game Type drop-down menu**.
5. When you are happy with your game name and game type, click the **OK button**.
6. The **Scenario Setup screen** will appear (this is similar to the **Scenario Setup screen** for a single player game). Here, you can adjust the gameplay options. When you are happy with them, click the **OK button**.
7. The player lobby will appear, where you can adjust your character and difficulty level. When you are happy with these, check the **READY? checkbox** to the right of your player details.
8. When all the players in the lobby have checked their **READY? checkboxes**, the **Launch button** will activate. Click it to start the game.

JOINING A LAN GAME

1. Select the **Multiplayer option** from the **Main Menu**.
2. From the **Multiplayer menu**, select **LAN**.
3. The **LAN Games screen** will appear. Click on the game you wish to join, then click on the **Join Game button**.
4. The player lobby will appear, where you can adjust your character and difficulty level. When you are happy with these, check the **READY? checkbox** to the right of your player details.
5. When all the players in the lobby have checked their **READY? checkboxes**, the host will be able to start the game.

VICTORY AND DEFEAT

Victory and defeat in a multiplayer game work in the same way as in a single-player game against computer-controlled opponents (see "Victory and Defeat", p.39). The object of the game is to buy out all of your competition and be the last remaining tycoon on the scene. If another player buys all of your stock, you are out of the game, but you can continue to spectate until the game is over.

COMMUNICATING WITH OTHER PLAYERS

Once you are in a multiplayer game, pressing the **Return (↵)** key brings up a chat window. You can enter a chat message into the text box, and choose the players you want to receive the message by using the checkboxes next to the names of each player. Press the **Return (↵)** key again to send the message or the **Escape (esc)** key to cancel the chat message.

PLAYING ONLINE USING GAMERANGER

Before you play an online multiplayer game of *Sid Meier's Railroads!*, you will need to download and install GameRanger. The GameRanger application can be downloaded from <http://www.gameranger.com/>.

NOTE: You must ensure that Game Ranger is able to find the **Sid Meier's Railroads! application**. For information on how to do this, see point 5, **How do I make sure GameRanger can find Sid Meier's Railroads!?** in the FAQs.

When playing an online multiplayer game, we recommend that you choose the most powerful computer among those playing to host the game.

TO HOST A GAME:

1. Double-click on the **GameRanger application icon**.
2. The **GameRanger application** will open.
3. Click on the **Host button** in the **GameRanger window**.
4. The **Host Game window** will appear. When you are happy with your settings, click the **OK button**.
5. Wait for at least one other player to join the game. When you are ready to begin, click the **Start button**.
6. The **GameRanger application** will launch the **Sid Meier's Railroads! application**. When the *Sid Meier's Railroads!* pre-game **Options window** appears, click the **Play button**.
7. The **Host Game panel** will appear. Here, you can select a game type. The first time you play an online game, select **Scenario** from the **Game Type drop-down menu** and then click the **OK button**.
8. The **Scenario Setup screen** will appear (this is similar to the **Scenario Setup screen** for a single player game). Here, you can adjust the gameplay options. When you are happy with them, click the **OK button**.
9. The player lobby will appear, where you can adjust your character and difficulty level. When you are happy with these, check the **READY? checkbox** to the right of your player details.
10. When all the players in the lobby have checked their **READY? checkboxes**, the **Launch button** will activate. Click it to start the game.

TO JOIN A GAME:

1. Double-click on the **GameRanger application icon**.
2. The **GameRanger application** will open.
3. From the list of available games, double-click on a **Sid Meier's Railroads! game**.
4. When the host starts the game, the *Sid Meier's Railroads!* pre-game **Options window** will appear. Click the **Play button**.
5. The player lobby will appear, where you can adjust your character and difficulty level. When you are happy with these, check the **READY? checkbox** to the right of your player details.
6. When all the players in the lobby have checked their **READY? checkboxes**, the host will be able to launch the game.

CHAPTER 5

ENGINE DESCRIPTIONS

INTRODUCTION

This chapter lists all of the trains available in the game. This information is historically accurate, except that occasionally an engine type's "Purchase Year" – the year that it becomes available to buy – has been altered to enhance the game experience. For example, if historically two trains became available around the same time and then no new trains were introduced for the next 30 years, one engine type's Purchase Year will be pushed back by around a decade to bridge the gap.

ENGINE TYPES

What follows is a list of all engine types appearing in *Sid Meier's Railroads!*. The list is organised by scenario and era.

Each train has the following statistics:

PURCHASE YEAR

This is the year that the engine becomes available for purchase in a scenario.

PURCHASE COST

The price of the engine (in whatever currency is used in the scenario).

TOP SPEED

The engine's top speed while carrying no cargo, mail or passengers.

PREFERRED CARGO

What kind of cargo the engine is designed to haul.

INITIAL MAINTENANCE COST

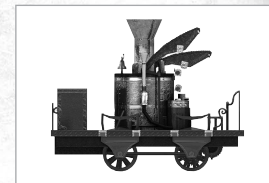
This is the cost you must periodically pay to maintain the engine. As the engine ages the maintenance cost rises.

THE UNITED STATES

ERA: 1830-1880

0-4-0 Grasshopper

Purchase Year: 1830
Purchase Cost: \$10,000
Top Speed: 30 mph
Preferred Cargo: Passengers
Initial Maintenance Cost: \$500



HISTORY

A short wheel base set the 0-4-0 Grasshopper apart from other early engines, allowing it to hug the curves of the winding and twisting Baltimore and Ohio Railroad for which it was designed. Taking its name from the insect-like movement of its vertical pushrods, this steam locomotive, designed by York, Pennsylvania resident Phineas Davis, was the winning design in a contest held by B&O.

4-2-0 Norris

Purchase Year: 1834
Purchase Cost: \$20,000
Top Speed: 40 mph
Preferred Cargo: Passengers
Initial Maintenance Cost: \$1,000

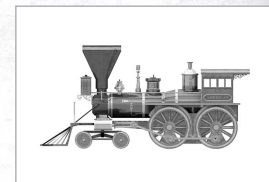


HISTORY

The 4-2-0 Norris held a near monopoly on the American rail system in the 1840s, breaking the control of British-based designs on American locomotives. Its longer wheel base and swivelling four-wheeled truck at the front of the engine gave it a level of manoeuvrability that was adapted into nearly every passenger train to follow. This, coupled with the 4-2-0's ability to function on an incline, won international fame for designer William Norris and tied his name forever to his successful engine.

4-4-0 American

Purchase Year: 1843
Purchase Cost: \$30,000
Top Speed: 50 mph
Preferred Cargo: Passengers
Initial Maintenance Cost: \$2,000

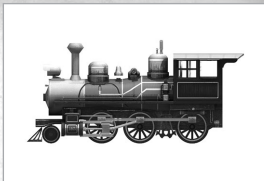


HISTORY

One of the most versatile and reliable engines to touch rail in its era, the 4-4-0 American steam locomotive defined 19th century American rail travel. Capable of passenger, freight and switcher work in equal measure, the 4-4-0 was built on a simple, easily repaired frame that kept maintenance costs to a minimum. It was this exceptional adaptability that turned the 4-4-0 into the United States' national engine, the only locomotive to bear the name "The American."

2-6-0 Mogul

Purchase Year: 1856
Purchase Cost: \$30,000
Top Speed: 50 mph
Preferred Cargo: Freight
Initial Maintenance Cost: \$2,500

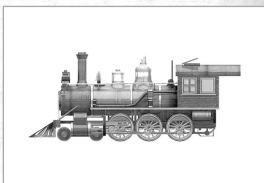


HISTORY

The 2-6-0 Mogul's six driving wheels made the engine a powerful freight hauler. Yet the Mogul's two additional guiding wheels gave the locomotive the stability to run at impressive speeds. A creation of the famed Baldwin Locomotive Works for the Louisville & Nashville Railroad, the engine's powerful wheel base also made it an alternative passenger train for areas with steep grades.

4-6-0 Ten Wheeler

Purchase Year: 1866
Purchase Cost: \$40,000
Top Speed: 60 mph
Preferred Cargo: Passengers
Initial Maintenance Cost: \$3,000

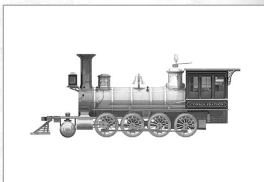


HISTORY

It was well after Septimus Norris had made his initial design that the Ten Wheeler was adopted for any sort of rail service. But once upon the rails, the 4-6-0 Ten Wheeler was recognized for its versatility, first as a freight engine, but then as a powerful passenger train. Thanks to these varied capabilities, the Ten Wheeler continued on to become the second most popular engine in the United States of its time.

2-8-0 Consolidation

Purchase Year: 1880
Purchase Cost: \$40,000
Top Speed: 60 mph
Preferred Cargo: Freight
Initial Maintenance Cost: \$3,500



HISTORY

The 2-8-0 Consolidation served as America's most popular freight engine from the end of the 19th until the mid-20th century. The 33,000 built in those seventy years were capable of hauling double the weight of their predecessor engines, cutting expenses nearly in half for tycoons shrewd enough to employ them. For decades to come, no other engine could compare to the Consolidation for sheer hauling power and the ability to work on grades.

ERA: 1881-1930

4-6-2 Pacific

Purchase Year: 1900
Purchase Cost: \$60,000
Top Speed: 80 mph
Preferred Cargo: Passengers
Initial Maintenance Cost: \$4,000

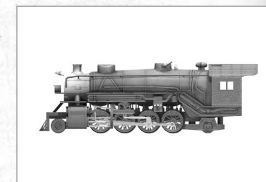


HISTORY

Taking its name from the ocean it had to cross for its first use, the American-built and New Zealand-christened 4-6-2 "Pacific" went on to become endlessly popular in United States as the country's premier express passenger locomotive. The 4-6-2's strength was hauling numerous cars over long distances at high speeds, and the Pacific name became synonymous with some of the most famous railways of the time – The North Coast Limited, The Sunset Limited, and The Broadway Limited.

2-8-2 Mikado

Purchase Year: 1910
Purchase Cost: \$50,000
Top Speed: 60 mph
Preferred Cargo: Freight
Initial Maintenance Cost: \$4,000

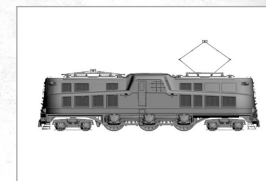


HISTORY

The 2-8-2 Mikado was first designed for Japanese railways. Though it had several names, its design held steadfast: eight driving wheels which gave it immense hauling power and an extra pair of wheels on both the front and the back of the engine which allowed for a longer firebox and a more stable ride. Despite its moniker switching to "MacArthur" during World War II, the Mikado remained a solid choice for any freight line.

P5a Class

Purchase Year: 1925
Purchase Cost: \$60,000
Top Speed: 70 mph
Preferred Cargo: Mixed
Initial Maintenance Cost: \$4,000



HISTORY

The P-5a was one of the first mainline electric passenger expresses. Its ability to keep tight schedules, running lines between New York City and Philadelphia, made it an indispensable addition to the Pennsylvania Railroad for which it was designed. When the GG1, one of the most famous electric engines, began working the same passenger ways, the P-5a was transferred to freight work, at which it similarly excelled.

ERA: 1931-1970

F-Series

Purchase Year: 1935
Purchase Cost: \$65,000
Top Speed: 80 mph
Preferred Cargo: Passengers
Initial Maintenance Cost: \$4,500



HISTORY

While diesel engines had been used for some time in high-speed passenger trains, it was generally assumed that no diesel could haul freight as well as a powerful steam locomotive. No engine, that is, until the EMD F-Series. First touching rail in 1939, the F-Series outperformed the average freight hauling steam locomotive and was versatile enough to haul passengers as well. With over 1,700 F-Series sold, this engine marked the beginning of the end of the steam era in America.

4-8-4 Golden State

Purchase Year: 1940
Purchase Cost: \$80,000
Top Speed: 90 mph
Preferred Cargo: Mixed
Initial Maintenance Cost: \$4,500



HISTORY

The 4-8-4 Golden State, known as the GS or "General Service," was a powerhouse of passenger transport in the 1930s. Built by the Lima Locomotive Works for California's Southern Pacific Railroad, the Golden State found itself in stiff competition with other express lines looking to cash in on the sudden rise in passenger travel taking place in California and throughout the country. But as the Southern Pacific soon discovered, this new engine was more than capable of keeping pace with the competition. With enough horsepower to haul heavy lines of passenger cars, the Golden State fortified its position as a well-respected and profitable locomotive.

GP-Series

Purchase Year: 1950
Purchase Cost: \$90,000
Top Speed: 120 mph
Preferred Cargo: Passengers
Initial Maintenance Cost: \$2,500



HISTORY

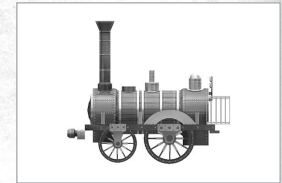
If General Motors' EMD GP Series was to be known for anything, it was pure freight-pulling power. The GP was a highly successful "road switcher," designed to gather rail cars outside the engine yard, but was quite capable as a freight handler, and in four years over 2,500 were sold, going on to become the best selling diesel in America in the 1950s.

GREAT BRITAIN

ERA: 1825-1840

2-2-0 Planet

Purchase Year: 1828
Purchase Cost: £10,000
Top Speed: 30 mph
Preferred Cargo: Passengers
Initial Maintenance Cost: £500



HISTORY

While previous designs had assured their place in railroad history, the innovations of the Stephenson's 2-2-0 Planet gave the father and son team a visible legacy in nearly all future rail travel. The 2-2-0's horizontal cylinders, attached to the front of the engine instead of the rear for better balance, as well as a multi-tubular boiler, would soon become important standards. And while later engines improved on the 2-2-0's various flaws, such as its unsteadiness at increasing speeds, its strengths found their way into the blueprints of innumerable engines to come.

2-2-2 Patentee

Purchase Year: 1834
Purchase Cost: £20,000
Top Speed: 40 mph
Preferred Cargo: Passengers
Initial Maintenance Cost: £1,000



HISTORY

Unsteadiness and small fireboxes had plagued the Stephenson's early engines. The solution came in the form of an extra pair of wheels behind an expanded firebox. These improvements were patented and this more stable, more powerful engine, the 2-2-2 Patentee, continued on to become the iron standard of British passenger transport for the next four decades, carrying English ladies and gentlemen well into the next century.

ERA: 1841-1922

4-2-2 Iron Duke

Purchase Year: 1845
Purchase Cost: £30,000
Top Speed: 50 mph
Preferred Cargo: Passengers
Initial Maintenance Cost: £2,000

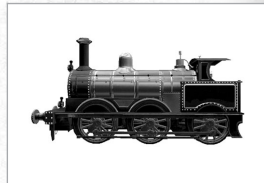


HISTORY

Little could Arthur Wellesley, the first Duke of Wellington, have known that by shuttering his windows in iron to keep out the stones of angry protesters, he would be placing himself into the annals of locomotive history. The Iron Duke, named for Wellesley, was designed by Daniel Gooch for Isambard Brunel's Great Northern Railway. It quickly became renowned for its ability to haul long passenger trains at up to 80 mph as well as its distinct broad gauge construction.

0-6-0 Dx Goods

Purchase Year: 1857
Purchase Cost: £30,000
Top Speed: 50 mph
Preferred Cargo: Freight
Initial Maintenance Cost: £2,500

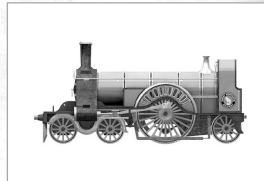


HISTORY

When speed could be traded for sheer hauling power, a 0-6-0 was the engine an early rail magnate bought. John Ramsbottom, a superintendent of the London and North Western Railway, created just that in the Dx Goods – an engine capable of hauling long lines of cars over both hillock and plain. Over 900 were constructed, leaving a lasting mark on the way Great Britain hauled her freight.

4-2-2 Stirling

Purchase Year: 1868
Purchase Cost: £40,000
Top Speed: 60 mph
Preferred Cargo: Passengers
Initial Maintenance Cost: £3,000

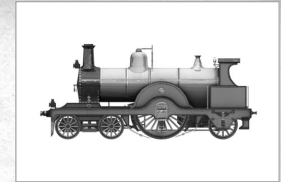


HISTORY

Considered one of the most handsome trains ever built, the 4-2-2 Stirling "Single" was the creation of Patrick Stirling, superintendent of the Great Northern Railroad. The Stirling's single pair of eight-foot driving wheels allowed it to reach impressive speeds of 75 mph with a full load of cars following behind. This strength at high speeds made the Stirling the obvious choice as the first engine to run what became known as "The Special Scotch Express" from London to Edinburgh, later to be renamed "The Flying Scotsman".

4-2-2 Johnson Midland Spinner

Purchase Year: 1886
Purchase Cost: £35,000
Top Speed: 60 mph
Preferred Cargo: Mixed
Initial Maintenance Cost: £3,500



HISTORY

Samuel Johnson's Midland Railroad was known for a few things – fast trains, on-time passenger lines and a never-before-seen level of beauty in their trains. The Midland "Spinner" (so called for the slipping its single driving-wheel tended to do as it started up), fulfilled both requirements. Light, fast and undoubtedly handsome, the attractiveness of the engine and the impressiveness of Johnson's timetables made the Spinner an exceptional train for its time.

4-4-0 Claud Hamilton

Purchase Year: 1896
Purchase Cost: £50,000
Top Speed: 80 mph
Preferred Cargo: Passengers
Initial Maintenance Cost: £4,000

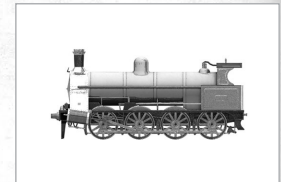


HISTORY

A train able to haul 350 tons of passengers up the graded rails from London to North Walsham at fifty miles an hour has its career made. But if that train has additions well before its time, such as a water collection system that doesn't require making a stop, then that train is exceptional. F.V. Russell's 4-4-0 Claud Hamilton, introduced in 1900, was such a train. Painted in becoming sweeps of the Great Eastern Railway's royal blue trimmed with shades of vermilion and gold, the 4-4-0 was not only a machine built by precocious mechanics, but an impressive draw to the passengers who wanted to ride on a stately engine.

0-8-0 Webb Compound

Purchase Year: 1903
Purchase Cost: £50,000
Top Speed: 80 mph
Preferred Cargo: Freight
Initial Maintenance Cost: £4,000

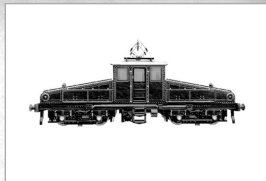


HISTORY

Slowly hauling long lines of coal along the London & North Western Railroad was far from glorious work, but few trains excelled at it quite like the 0-8-0 Webb. Named for the railway's superintendent, Francis Webb, eight driving wheels granted the locomotive hauling power and ability to work on steep grades, but left it lacking the balance needed for speedy passenger transport.

ES1

Purchase Year: 1906
Purchase Cost: £60,000
Top Speed: 100 mph
Preferred Cargo: Passenger
Initial Maintenance Cost: £3,000



HISTORY

Tunnel travel was exceedingly dangerous for steam engines as thick smoke obscured the vision of many an engineer and endangered the well-being of many an engine. When electric locomotives first began appearing in Britain, the heavily-tunnelled Quayside region became a quick candidate for the clean, smokeless engines. It was not just safety that made the ES1 electric preferable to any steam engine, but also its freight-pulling capabilities.

4-6-2 A1

Purchase Year: 1922
Purchase Cost: £65,000
Top Speed: 90 mph
Preferred Cargo: Mixed
Initial Maintenance Cost: £4,000



HISTORY

The 4-6-2 A1 entered into service in 1922 with its fair share of problems. A short steam stack meant that the engineer's vision was often obscured. Slipping wheels tore apart rails in a few weeks of use. But what the 4-6-2 had was speed and style. The first British train to have a certified run at over 100mph, and with an eye-grabbing livery, the A1 became famous as part of the "Flying Scotsman" line, running nearly 400 miles from London to Edinburgh every day in the longest non-stop service of its age.

ERA: 1923-1947

4-6-2 A4

Purchase Year: 1935
Purchase Cost: £70,000
Top Speed: 90 mph
Preferred Cargo: Passenger
Initial Maintenance Cost: £4,500



HISTORY

Designed by Sir Nigel Gresley of the London & North Eastern Railway, the A4 holds the high speed record for a steam locomotive, having broken 126mph. The engine's streamlined exterior was specifically designed to attract the eye of the passengers it was designed to carry. These engines quickly became the most popular passenger trains in Britain, and despite a few reliability issues, were kept in use until the widespread use of diesel engines.

Class 40 1-Co-Co-1

Purchase Year: 1957
Purchase Cost: £75,000
Top Speed: 90 mph
Preferred Cargo: Mixed
Initial Maintenance Cost: £3,000



HISTORY

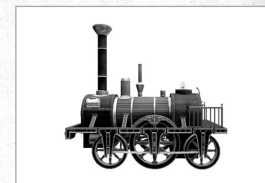
It wasn't until the 1950s that steam began to be phased out in Britain. When the call finally came to switch the faster steam locomotives with the more efficient diesels, the British Railway Class 40 was one of the leaders of Great Britain's dieselization. A 2,000 horsepower machine capable of hauling freight and passengers in equal measure, the Class 40s were reliable enough to be kept in service until the mid-1980s.

GERMANY

ERA: 1835-1870

2-2-2 Adler

Purchase Year: 1834
Purchase Cost: DM20,000
Top Speed: 40 mph
Preferred Cargo: Passenger
Initial Maintenance Cost: DM1,000

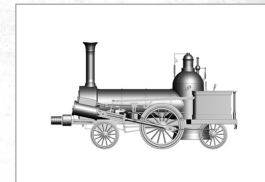


HISTORY

The 2-2-2 Adler (German for "Eagle"), was designed by the English locomotive firm Robert Stephenson & Company to christen the inaugural German rail line, the Ludwigsbahn. A variation on the 2-2-2 Patentee design, the Adler had an impressive career for an early engine, continuing its four-mile service between Nuremberg and Furth until the mid-1800s, when it was finally dismantled and sold for scrap.

2-2-2 Beuth

Purchase Year: 1843
Purchase Cost: DM30,000
Top Speed: 50 mph
Preferred Cargo: Passenger
Initial Maintenance Cost: DM2,000

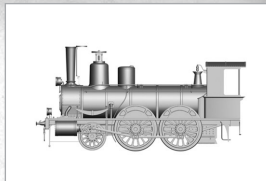


HISTORY

With the Stephenson's engines being shipped throughout Europe and William Norris' 4-2-0 cropping up overseas, manufacturing mogul August Borsig decided it was time to demonstrate the strength of German locomotive design. Though not entirely free of English and American influence, Borsig's 2-2-2 Beuth was more stable than Norris' 4-2-0, thanks to its evenly distributed wheels, proving German designers capable in their own right.

2-4-0 Médoc

Purchase Year: 1857
Purchase Cost: DM30,000
Top Speed: 50 mph
Preferred Cargo: Freight
Initial Maintenance Cost: DM2,500



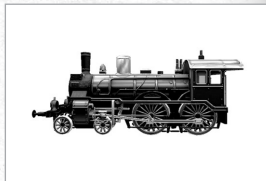
HISTORY

A play on a French design, the 2-4-0 Médoc, designed for the Swiss-Western Railway, employed a lengthened boiler, which drew more energy from the heat produced within the engine. Its four driving wheels made it a power engine, turning the Swiss Alps from true obstacles to mere molehills. Despite a tendency to rock as they rolled, Médoc engines were well-received and continued in service until the end of the 19th century.

ERA: 1871-1920

4-4-0 Class S3

Purchase Year: 1880
Purchase Cost: DM40,000
Top Speed: 60 mph
Preferred Cargo: Passenger
Initial Maintenance Cost: DM3,500

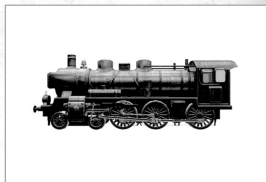


History

At the turn of the 19th century, a new technology called “superheating” promised to make engines more efficient. Endorsed by the chief engineer of the Prussian State Railways, Robert Garbe, the 4-4-0 S3 was one of the first engines to use superheating, making the S3 extremely fuel-efficient, cutting its coal consumption by over 10% and its water consumption by 30%. This made the S3 an ideal express passenger train, able to heft trains of cars over significant grades and using less fuel to do it.

4-6-0 P8

Purchase Year: 1900
Purchase Cost: DM60,000
Top Speed: 60 mph
Preferred Cargo: Mixed
Initial Maintenance Cost: DM4,000

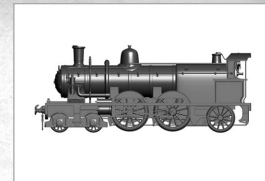


HISTORY

There were high hopes for the first 4-6-0 P8s. Expected to be express passenger trains with running speeds of up to 70mph, unfortunately the P8s had numerous flaws and design defects. But with serious adjustments during the first two decades of the 20th century, the P8 went on to become one of northern and eastern Europe’s most popular mixed service engines, 3,800 being built and spread from Denmark to Poland.

4-4-2 de Glehn Atlantic

Purchase Year: 1910
Purchase Cost: DM40,000
Top Speed: 80 mph
Preferred Cargo: Passenger
Initial Maintenance Cost: DM3,500

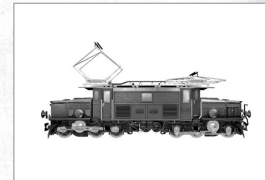


HISTORY

Englishman Alfred de Glehn made a name for himself in the French rail industry by creating some of the first compound engines in the 1910s. Known as much for their fuel and water conservation as for their complicated internal workings, the 4-4-2 de Glehn Atlantics were put into service for France’s Northern Railway. Yet despite their complexity, in the hands of a competent engineer and mechanic, these machines were surprisingly hardy, completing some of the tightest schedules on the continent at the time.

Ge 6/6 Crocodile

Purchase Year: 1920
Purchase Cost: DM50,000
Top Speed: 40 mph
Preferred Cargo: Mixed
Initial Maintenance Cost: DM2,000



HISTORY

Known in certain circles as “Mountain Dinosaurs”, the Crocodile engines were a highly popular family of engines on the rail systems cruising through the Swiss mountaintops. Trying to lift themselves from dependence on foreign coal, the Swiss were quick to adopt electrification as an alternative to steam and, in 1921, the 6/6 Ge Crocodile first took to the Rhaetian Railway. 15 had been built by 1929 and were kept in use until the 1990s.

ERA: 1921-1980

4-6-2 Class 01

Purchase Year: 1925
Purchase Cost: DM65,000
Top Speed: 70 mph
Preferred Cargo: Passenger
Initial Maintenance Cost: DM4,000

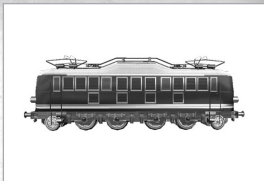


HISTORY

Dr. R. P. Wagner had high hopes for the newly-formed German State Railway in 1922: that an engine from Munich could receive repairs in a shop in Nuremberg, with the same parts being available throughout the German nation. With this in mind, the 4-6-2 Class 01 became Germany’s first standardized engine, improving on previous machines thanks to vastly simpler maintenance. This made running near continual passenger trains easy, putting the engines in a class all their own.

1-Do-1 Class E18

Purchase Year: 1935
Purchase Cost: DM70,000
Top Speed: 100 mph
Preferred Cargo: Passenger
Initial Maintenance Cost: DM4,000



HISTORY

The Class E18 had quite a bit to live up to, its predecessor engines able to reach speeds of 90mph. Yet the E18, built in 1935, soundly defeated them and became one of the fastest German passenger trains, reaching 100mph. As an extra feature, improved safety systems were included to deal with the high speeds, and the E18 was set for mass production just as World War II set in. Only 53 of the engines were made due to the war, but nonetheless quickly became mainstays of the German rail systems.

V200 B-B

Purchase Year: 1952
Purchase Cost: DM70,000
Top Speed: 90 mph
Preferred Cargo: Freight
Initial Maintenance Cost: DM4,000

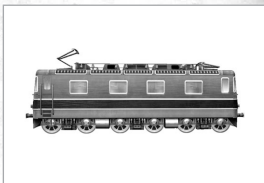


HISTORY

The V200, built in 1953, bore a powerful diesel-hydraulic engine, which was significantly lighter than an average diesel-electric engine of equal strength. This gave the machine better control without sacrificing power. So well-designed were the V200s that they were capable of hauling 30% more weight than expected, moving at over 60mph with a full load on graded tracks.

Bo-Bo-Bo RE Class 6/6

Purchase Year: 1970
Purchase Cost: DM80,000
Top Speed: 90 mph
Preferred Cargo: Mixed
Initial Maintenance Cost: DM3,000



HISTORY

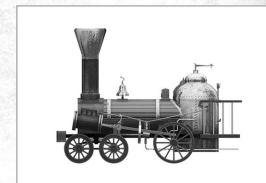
Hoping to create an engine that could produce enough horsepower to haul heavy freight over mountainous terrain, the Swiss Federal Railway commissioned the Re 6/6 in 1972. The 10,590hp machine released onto those Swiss rails was capable of hauling almost 900 tons up high grades at 50mph. But with a top speed of 87mph, it also came into use as a speedy and – thanks to its manoeuvrable wheel arrangement – steady passenger express.

FRANCE

ERA: 1842-1870

4-2-0 Norris

Purchase Year: 1834
Purchase Cost: F20,000
Top Speed: 40 mph
Preferred Cargo: Passengers
Initial Maintenance Cost: F1,000

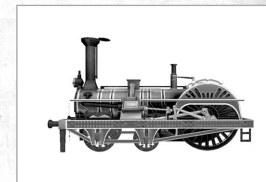


HISTORY

See p.47.

4-2-0 Crampton

Purchase Year: 1852
Purchase Cost: F25,000
Top Speed: 50 mph
Preferred Cargo: Passenger
Initial Maintenance Cost: F2,000

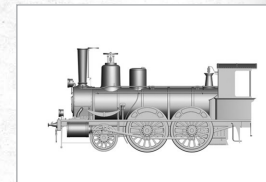


HISTORY

Locomotive designer Thomas Russell Crampton learned his trade in his home of England. Yet when the Paris-Lille line requested a new engine, the 4-2-0 Crampton took its first step into France. Capable of reaching speeds of 80mph, this machine had an extremely low center of gravity that increased stability. This, combined with a variety of innovations developed by Crampton himself, made him famous in France for engine design and gave his locomotives a grand history within the country.

2-4-0 Médoc

Purchase Year: 1857
Purchase Cost: F30,000
Top Speed: 50 mph
Preferred Cargo: Freight
Initial Maintenance Cost: F2,500



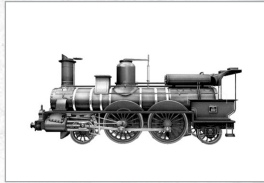
HISTORY

See p.56.

ERA: 1871-1914

2-4-2 Class 121

Purchase Year: 1879
Purchase Cost: F40,000
Top Speed: 60 mph
Preferred Cargo: Passenger
Initial Maintenance Cost: F3,000

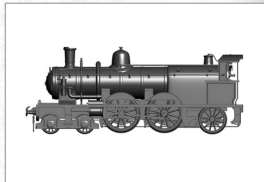


HISTORY

The Ligne Imperiale – Imperial Line – of the Paris, Lyon & Mediterranean Railway was an auspicious honour to run. But then the 2-4-2 Class 121 was an auspicious engine. More stable than the 4-2-0s of the time, the Class 121's extra pair of driving wheels made it a significantly more powerful engine as well. And with an impressive artistry to its design, the Class 121s became one of the most pleasing and efficient passenger trains in France.

4-4-2 de Glehn Atlantic

Purchase Year: 1910
Purchase Cost: F40,000
Top Speed: 80 mph
Preferred Cargo: Passenger
Initial Maintenance Cost: F3,500



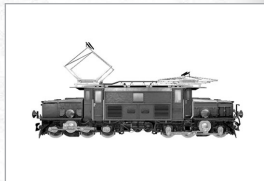
HISTORY

See p.57.

ERA: 1915-1945

Ge 6/6 Crocodile

Purchase Year: 1920
Purchase Cost: F50,000
Top Speed: 40 mph
Preferred Cargo: Mixed
Initial Maintenance Cost: F2,000



HISTORY

See p.57.

4-6-2 Nord Pacific

Purchase Year: 1931
Purchase Cost: F60,000
Top Speed: 70 mph
Preferred Cargo: Passenger
Initial Maintenance Cost: F3,500

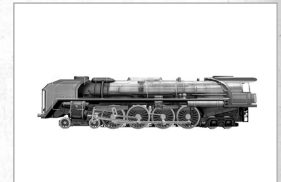


HISTORY

André Chapelon's 4-6-2 Nord "Super" Pacific, built in 1923, could do it all. While able to run with a 550-ton train at 60mph, it could also do it extremely efficiently, expending less than 1kg of fuel per horsepower. With the strength to reach 75mph – the French speed limit at the time – with little trouble (capable of breaking 125mph if no-one was looking...!), the 4-6-2 Nord stood as an excellent passenger train as well as a powerful freight-puller. A more well-rounded engine would be tough to find.

4-8-4 242 A1

Purchase Year: 1935
Purchase Cost: F60,000
Top Speed: 80 mph
Preferred Cargo: Mixed
Initial Maintenance Cost: F3,500

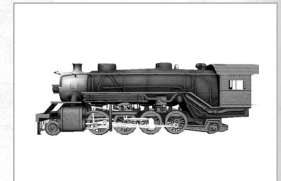


HISTORY

The 4-8-4 A1 was the train that could have been. Just as master designer André Chapelon was finishing its unique construction, which could hit speeds of nearly 100mph and produce 5,500 horsepower with half the weight on an equivalent American engine, the French National Railway was attempting to bring about the electrification of French rails. More powerful and efficient than any electric, the 4-8-4 never saw expanded use, since the National Railway continued its electrification project.

2-8-2 Class 141

Purchase Year: 1942
Purchase Cost: F70,000
Top Speed: 70 mph
Preferred Cargo: Freight
Initial Maintenance Cost: F4,000



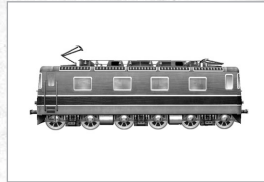
HISTORY

Known in its birthplace as the Mikado, the 2-8-2 design on which the Class 141 was born had been shipped from the United States across the globe during the first two decades of the 20th century. Changing the form but keeping the function, French firms began to create their own 2-8-2s, using the machine's near 3,000 horsepower to haul freight across the rolling French countryside.

ERA: 1946-1989

Bo-Bo-Bo RE Class 6/6

Purchase Year: 1970
Purchase Cost: F80,000
Top Speed: 90 mph
Preferred Cargo: Mixed
Initial Maintenance Cost: F3,000

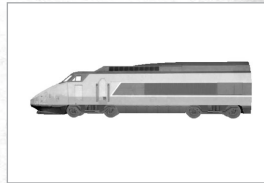


HISTORY

See p.58.

TGV

Purchase Year: 1981
Purchase Cost: F100,000
Top Speed: 200 mph
Preferred Cargo: Passenger
Initial Maintenance Cost: F1,200



HISTORY

The TGV, short for Train à Grande Vitesse or high-speed train, is just that – pure, unadulterated speed. Constructed in 1976, the French TGV set its speed record in 1990, breaking 320mph. And while its speed is unquestionable, this also makes the TGV an extremely specialized machine, incapable of hauling any cargo other than passengers or mail. But with numerous lines across France, connections to Germany, Belgium and the Netherlands and imitators throughout Europe, the success of the TGV as an express passenger train can be seen throughout the continent.

CHAPTER 6

**INDUSTRY
& PATENT
DESCRIPTIONS**

INTRODUCTION

To be a successful rail baron, you will need detailed knowledge of the industries that supply and demand goods brought by rail. It is also critical to keep abreast of new innovations in the railroad industry (patents).

INDUSTRIES

Following is a list of the industries in *Sid Meier's Railroads!*.

AUTOMOBILE FACTORY



Effect: Converts steel to automobiles

Scenarios Available In: All United States scenarios, Germany

HISTORY

Self-powered vehicles had been in existence since the 17th century, yet not until the discovery of the internal combustion engine, developed independently by Karl Benz and Gottlieb

Daimler, did automobiles begin to appear in any great number. And when Henry Ford perfected his mass-production process for the Model T, the automobile became an important part of daily American life.

BREWERY



Effect: Converts grain to beer

Scenarios Available In: Germany

HISTORY

One of the first chemical processes man ever harnessed – taking average, everyday grain and turning it into a wondrous new form – was fermentation. Since the time of the Egyptians, beer has been

providing nutrients and social lubrication to people across the world. Planting itself firmly in the German culture, beer production in Germany was regulated until the 1980s by the *Reinheitsgebot*, a series of rules controlling beer ingredients and prices passed in the 16th century that remains a symbol of traditional German heritage to this day.

CANNERY



Effect: Converts fish to food

Scenarios Available In: Great Britain, Northwest U.S.

HISTORY

It was a need that required fulfilling: a method of storing food for long period that could also made for easy transportation. When a French newspaper offered a hefty prize for such a discovery,

it was Nicolas François Appert who claimed it. His method of hermetically sealing food in glass containers, while effective, made the items to fragile to transport. But when Englishman Peter Durand created a method of canning food in easily-opened tin containers, food storage had found its new golden chariot.

CATTLE RANCH



Effect: Produces cattle

Scenarios Available In: Great Britain, all United States scenarios

HISTORY

The family Bovidae, or bovines, have had a long relationship with humanity, being domesticated in Europe and Asia nearly 9,000 years ago. Since then, selective husbandry has created

various breeds specialized in their meat yield, dairy production or adaptability to harsh climates. An essential part of British cuisine for centuries, it was with the fast food explosion at the beginning of the 20th century that beef became the most important meat in the American diet. And with the modernization of preparation and transportation techniques, cities like Chicago became huge centers for the meat packing industry.

CHEMICAL PLANT



Effect: Converts nitrates to pharmaceuticals

Scenarios Available In: France, Germany, Great Britain

HISTORY

Since the time of the Greeks, the understanding of the composition and combination of elements has been a topic of much concern. But René Descartes' contributions to the scientific method and Antoine

Lavoisier's discovery of the law of conservation of mass helped usher in a new age of modern chemistry. Chemical companies, such as Germany's Badische Anilin- und Soda-Fabrik, began cropping up across Europe, mass producing dyes, bleaches and chemical creations for the first time at affordable prices.

COAL MINE



Effect: Produces coal

Scenarios Available In: All

HISTORY

The fuel that powered the Industrial Revolution, coal has found its way into use across the world. Britain's first railway was constructed from the coal mines around the city of Shildon, to

Darlington and on to the port at Stockton. Coal also became essential for producing coke, which propelled the profitability of iron and steel processing to new heights.

CORN FIELDS



Effect: Produces cornmeal

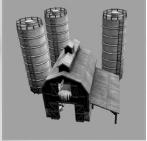
Scenarios Available In: Southwest U.S.

HISTORY

Corn (or “maize”) has been a staple of the Native American diet for thousands of years, having been cultivated as early as 9,000 years ago in Mexico. As the crop spread throughout the

Southwest US and into the Midwest, it became the quintessential American crop and an extremely versatile product, being used for everything from sweeteners to fuel additives.

DAIRY FARM



Effect: Produces milk

Scenarios Available In: France, Midwest U.S.

HISTORY

Guernsey, Jersey, Brown Swiss – some of the finest breeds of dairy cow have emerged from the peripheries of the French countryside, spreading outwards across the world to produce the

richest milk available. Technological advances, such as pasteurization to help remove unwanted bacteria and glass-lined milk cans to help protect against contamination during transportation, made milk safe as well as mobile, moving the milk market into a new realm of viability.

FISHERY



Effect: Produces fish

Scenarios Available In: Great Britain, Northwest U.S.

HISTORY

With spears, nets, and trained birds, fishing has been a key part of the human diet for millennia. As an island, Great Britain’s key source of sustenance was the sea. So widespread was fishing in the

country that regulations needed to be mentioned in the Magna Carta, as the numerous fishing traps lining the River Thames made clear navigation nearly impossible.

FOOD PLANT



Effect: Converts grain to food

Scenarios Available In: France, Germany, all United States

HISTORY

For a significant part of human history, a population was limited by the amount of grain they could produce to feed themselves.

However, with the creation of a regulated agriculture system by Islamic societies in the Middle Ages, and Britain’s grand agriculture revolution lasting from the 1600s until the 1850s, fewer farmers were able to produce enough food for their entire country. This allowed for greater specialization and innovation in other fields, turning the United States and France into veritable breadbaskets.

FROMAGERIE



Effect: Converts milk to cheese

Scenarios Available In: France

HISTORY

In the 9th century, Charlemagne, after being received in a monastery in the French province of Aveyron, made a surprising request. So impressed was the Holy Roman Emperor with the monks’ food that

from then on, he required two donkey-loads of Roquefort cheese – made from local sheep’s milk – shipped across the Empire to his palace in Aachen. It would appear that Charlemagne was not alone, as France since has become one of the world’s premier cheese producers, as well as one of its major consumers.

FURNITURE PLANT



Effect: Converts wood to manufactured goods

Scenarios Available In: Germany, all United States

HISTORY

As long as humans have been walking upright, they’ve needed a place to sit and take a rest. And that meant furniture. Furniture materials, styles and uses have been as varied as the people who

needed them. In the United States, furniture construction was the realm of the skilled labourer until the mid-1800s, when furniture manufacturing reached new heights, and towns such as Grand Rapids, Michigan became world-renowned for the quality of their products.

GOLD MINE



Effect: Produces ore
Scenarios Available In: Southwest U.S.

HISTORY

The history of gold mining and prospecting is forever intertwined with the railroads and indeed of American history. From the crude days of riverbed panning to modern cyanide extraction methods, one thing is certain; all that glitters in the ground is definitely not gold. Because of its applications in jewellery, and because significant quantities of ore must often be mined to find even small quantities of gold, its value as a precious substance has always been a constant in human society.

GRAIN FARM



Effect: Produces grain
Scenarios Available In: France, Germany, all United States

HISTORY

Grain farming has been a part of world culture since pre-history, spreading from the Fertile Crescent outwards, to Europe, Asia then later to the Americas. In Germany, grain became essential in that country's rise as the world's second largest producer of beer. In the north of France and the central United States, ample fertile lands have made wheat production an integral part of local economies and diets.

HOSPITAL



Effect: Consumes pharmaceuticals
Scenarios Available In: France, Germany, Great Britain

HISTORY

Whether trying to balance the amount of bile, blood or phlegm in the body to regulate mood or practicing blood letting, medicine has had its fair share of setbacks. But in the 18th century, thanks to advances in chemistry and biology, medicine began to take giant leaps forward. With the connection between germs and disease discovered by Louis Pasteur, vaccines became available for the first time, helping to prevent diseases that, until the modern age, were the scourges of man.

LUMBER MILL



Effect: Produces lumber
Scenarios Available In: Germany, all United States

HISTORY

Legend has it a squirrel was once able to go from the Delaware River in Pennsylvania to Ohio without ever touching the ground and that the Black Forest in Germany got its name because its trees were so dense, no light could pierce its shadows. The United States and Germany both benefited highly from their dense woodlands, which created lucrative logging opportunities for the paper, furniture and fuel industries.

NEWSPAPER



Effect: Consumes paper
Scenarios Available In: Germany, all United States

HISTORY

While pamphlets had been an important method of sharing information since the invention of movable type, the creation of news agencies and the invention of the telegraph meant that information could be sent and printed at speeds not previously possible. The first and most famous agency, taking the name of its founder, Julius Reuter, was organised in Paris in 1858 and used telegraphs – and pigeons – to make sure their organisation got the scoop.

OIL WELL

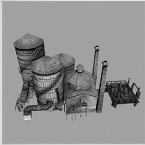


Effect: Produces oil
Scenarios Available In: all United States

HISTORY

Whether for lighting, warfare or medicine, oil has found uses across the continents for centuries. For much of the 19th century, the western world was lit by kerosene, derived from refined oil. But it was not until the American Industrial Revolution that oil became an essential world energy source. And of course, the invention and mass-production of the automobile changed the world's energy landscape forever.

PAPER MILL



Effect: Converts wood to paper

Scenarios Available In: Germany, all United States

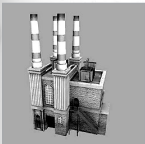
HISTORY

First documented in China, wood-pulp papermaking was a secret, closely guarded by the Han Dynasty that brought about its creation.

Until the 19th century, mass-producing paper was a difficult

business, yet with the contributions of John Gamble and the brothers Fourdrinier, mass production became possible by the 1850s. In Germany, Guttenberg's printing press made paper a highly valued commodity starting in the 15th century, while in the United States, the country's high literacy rate made large quantities of paper a necessity.

POWER PLANT



Effect: Consumes coal and oil

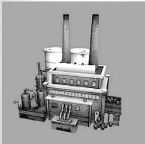
Scenarios Available In: All

HISTORY

Energy, for the greater part of human history, has been produced through the sweat of man and beast. Yet with industrialization, power demands reached new heights, and energy was needed

by factories and mills of all varieties. Whether created by the watermills of the Netherlands, the coal reserves of Great Britain or the oil fields of the United States, each new power source enabled its consumers to accomplish previously unheard of feats of industry, making each nation a production powerhouse in its era.

REFINERY



Effect: Converts oil to manufactured goods

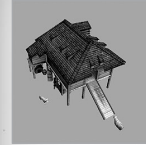
Scenarios Available In: all United States

HISTORY

Since the 17th century, whale and plant oils were essential parts of the everyday European lifestyle. Refined into all manner of goods – soap, make-up, lubricants – whale oils became a hotly

demanded product. Hotly demanded, that is, until a new oil took hold of the scene – petroleum. With the advent of the internal combustion engine and the development of the country's highway system, petroleum became an integral part of the daily life in the United States. As well, its versatile use for all manner of products cemented its grasp over the oil refining industry well into the future.

SHEEP FARM



Effect: Produces wool, nitrates

Scenarios Available In: France, Great Britain

HISTORY

Among the first animals to be domesticated, sheep have provided food and clothing for thousands of years. With the textile boom of the Industrial Revolution, what had already been one of the most

important industries in Great Britain spun to new heights. British scientists of the time also discovered that nitrates, easily accessed from refined animal wastes, could be used for important medical breakthroughs in the dilation of blood vessels.

SMELTER



Effect: Converts ore to gold

Scenarios Available In: Southwest U.S.

HISTORY

Gold is the single most ubiquitous form of currency ever used on the planet, having been a currency in some form for over 2,500 years. In its most opulent form, bullion gold bars are bought and

sold as highly desirable investments. Making gold bars requires smelting the metal, removing impurities and casting the molten gold into a form of standardized weight and dimensions, such as a bar, which can then be bought and sold based on current market prices.

STEEL MILL



Effect: Converts coal to steel

Scenarios Available In: All

HISTORY

Steel had been produced in Asia for centuries before the English (with the contributions of various inventors such as Henry Bessemer) turned steel into a massive industry. In the United

States, U.S. Steel (formed by the interests of J. Pierpont Morgan, Andrew Carnegie and Elbert Gary) became the world's largest steel provider as well as its largest corporation, with profits flowing in from the country's ever-expanding rail system.

STOCKYARD

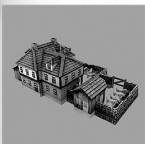


Effect: Converts livestock to food
Scenarios Available In: Great Britain, all United States

HISTORY

While Great Britain stood as the originator of some of the most renowned breeds of cattle, the American Midwest, with its vast tracts of grazing land, became one of the world's largest beef processors. With the Chicago Union Stockyards as the meatpacking industry's hub, men like Gustavus Swift and Philip Armour made their fortunes by producing and shipping continually larger amounts of beef. But when scandal broke with the publishing of Upton Sinclair's *The Jungle*, the U.S. government stepped in, demanding new safety measures be taken to protect public health.

SWINE FARM



Effect: Creates livestock, nitrates
Scenarios Available In: Germany

HISTORY

Wild boar, domesticated across the eastern hemisphere, remains an important food source in Asia and Europe. Pork is a highly adaptable meat that can be used to produce all manner of food products, such as ham or sausages. Austria, Switzerland and Germany, with exceptionally high levels of pork consumption, became known for their varied sausage and wurst recipes, which spread across the world with immigration.

TEXTILE MILL



Effect: Converts wool to clothing
Scenarios Available In: France, Great Britain

HISTORY

British industry made clothing into a huge business with local textile mills, powered by steam and coal, which spun seemingly endless streams of cloth for profit. And while clothing that protected the wearer from the elements has always been a necessity, it was the French haute couture, or high fashion, that made fine clothing a far more serious matter. France had been the center of European fashion for decades, but the ease of new transportations in the 19th century brought shoppers from all over the continent – and the world – to shop at Paris' finest clothiers.

VINEYARD



Effect: Produces grapes
Scenarios Available In: France

HISTORY

Grapes have long been a part of the world diet, as jelly, juice or as a treat in themselves. In the United States, during the beginnings of the Temperance movement, grape juice was marketed and used as a sacrament substitute (or “non-fermented wine”) for church services, finding a ready market among the anti-alcohol activists of the time. Yet no market could be as wide as that of its fermented partner, allowing grapes to be grown on every continent in the world.

WINERY



Effect: Converts grapes to wine
Scenarios Available In: France

HISTORY

Wine has been an integral part of Mediterranean societies since the Greeks, as can be seen by the inclusion of gods of wine and revelry in a number of their pantheons – Dionysus for the Greeks, Bacchus for the Romans. With France, Spain and Italy as the top three grape and wine producing countries, this importance endures, and each region still has its own famous libations – Sherry in Spain, Chianti in Italy, Champagne in France.

WAR FACTORY



Effect: Converts steel to arms
Scenarios Available In: France, Great Britain

HISTORY

Victory in battle has always been part-strategy, part-technology. By the early 19th century, rapid advancements in firearms such as the bolt-action rifle and Samuel Colt's revolver made warfare more deadly than ever before. Yet in many instances, strategy had not yet caught up with technology, so old line-firing tactics gave way to the mowing down of soldiers in the face of the latest developments in arms.

PATENTS

Here is a list of the patents up for auction in any given game of *Sid Meier's Railroads!*

BALDWIN'S SAND BOX

Effect: + 50% speed up hills

HISTORY

One of the greatest problems for any locomotive design is traction. Whether going uphill, over slippery terrain, or starting while hauling a lengthy trail of cars, slipping wheels can damage the expensive rails and the even more expensive engine. The invention to solve this, thought to have been created by the renowned Baldwin Locomotive Works, was the sandbox. By adding a tube that sprayed sand in front of the wheel for extra traction, the sandbox made wheel slippage a problem of the past and was adopted by trains throughout the world.

BIRKENSHAW'S MALLEABLE RAILS

Effect: - 25% track cost

HISTORY

All the chugging power of even the strongest engine is pointless without a good rail. It was John Birkenshaw's wrought iron that would become that good rail. Wrought iron, with its malleability, allowed rails to bend rather than snap as heavy weights were applied to them. Extraordinarily resistant to boot, Birkenshaw's invention made constant rail repairs a thing of the past, greatly decreasing the cost of any rail system savvy enough to employ them.

GREATHEAD TUNNELING SHIELD

Effect: - 50% cost of tunnels

HISTORY

Tunnelling shields, a mobile protective covering to keep the roof from caving in on large scale excavations, had been chiefly employed in the modern era by two Englishmen – first by Marc Isambard Brunel, father of the renowned railway engineer Isambard Kingdom Brunel, and then James Greathead, in his work on London's underground railways. Greathead's improvements on Brunel's design would become the basis of tunnelling systems for years to follow and would create a new standard of safety for large-scale public works projects.

MCCOY'S LUBRICATOR

Effect: - 50% maintenance costs

HISTORY

Elijah McCoy's parents were American slaves seeking a better life in Canada, later moving to the United Kingdom, where young Elijah studied mechanical engineering. Upon his return to the United States, McCoy found little work available to him as an engineer, so instead took an arduous job lubricating engine parts for the Michigan Central Railroad. The wheels in McCoy's mind began turning, and before long he received a patent for an automatic lubricator, which allowed trains to run without the need for stops over long distances, greatly reducing their maintenance needs.

PARSONS' STEAM TURBINE

Effect: Increases the cargo-carrying power of every train in a player's fleet.

HISTORY

Charles Parson was born into an age where producing great amounts of power was a nigh-on impossible venture. Parson took it upon himself to design a new type of engine, a steam-powered turbine, which allowed machines that used it to literally run circles, around their predecessors. The level of power produced by the Parsons' steam turbine was unrivalled and became an important stepping stone for all turbines to come.

PRATT BRIDGE TRUSS

Effect: - 50% cost of bridges

HISTORY

Building bridges had been a far from perfect science before the 19th century. Building with expensive stone or pliable wood could mean disaster for the thousands of pounds of locomotive running overtop of it or even worse, bankruptcy for the train's owner. But once mass-produced iron and steel became available, it was the design of two brothers, Thomas and Caleb Pratt, that helped make bridges both safe and cost-effective with their ground-breaking Pratt Truss design.

PULLMAN'S PALACE CAR

Effect: + 25% passenger revenue increase

HISTORY

Before George Pullman, passenger cars were the equivalent of human cattle cars, with as many suffering passengers stuffed inside as possible. His new passenger car helped save the train commuter from being pulverized and earned him a tidy profit. The Pullman car became renowned for its luxurious dining facilities, comfortable seating and even libraries and the design was copied and reproduced worldwide.

SWIFT'S REFRIGERATOR CAR

Effect: + 25% revenue on all perishable goods (Food, Grain, Milk, Fish, etc.)

HISTORY

Until the invention of the refrigerated car, meatpacking was a seasonal industry: meatpackers took advantage of the cold winter months in order to do their business safely, if less profitably. But with the creation of the first true refrigerator car by Chicago meatpacking mogul Gustavus Swift, meat could be shipped long distances the whole year round, greatly increasing the industries' revenues.

WESTINGHOUSE AIR BRAKES

Effect: + 50% speed increase in turns

HISTORY

Prior to the invention of Westinghouse's airbrake, train stoppage was often unreliable, especially heading into sharp turns. This led to all manner of damages to locomotive and land. The automatic airbrake was a breath of fresh air for railway workers, as they now knew that when the time came, they would actually be able to stop the engine, meaning they could go much faster around curves in the rails.

CHAPTER 7

THE RAIL BARONS

INTRODUCTION

When railroads first came upon the scene, some of the greatest minds of the world saw the potential they had to change the world and to generate profits. As you play *Sid Meier's Railroads!* you will face these captains of industry and world leaders, challenging them for a place among their numbers.

OPONENTS' BACKGROUNDS

Following are descriptions of the opposing Rail Barons who appear in the game.

JAY GOULD

"His touch is death," stated Daniel Drew, about his one-time partner, Jay Gould. Known as one of the shrewdest of the rail barons, Gould made his name as a cutthroat speculator. As president of the Erie Railroad, Gould gutted that company for profit before losing his position due to the outrage at his manipulations. As age and illness descended upon Gould, he looked westward, buying heavily into the famous but poorly-managed Union Pacific Railroad. But what was expected to be another gut-and-run turned out to be a sincere interest in remedying Union Pacific's woes; Gould modernized and expanded the previously forsaken railroad.



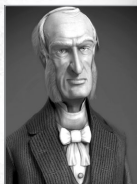
JAY COOKE

A financier first, Jay Cooke not only made millions of his own through shrewd investing, but raised nearly two billion dollars for the Union during the Civil War through clever advertising campaigns. In the 1870s, applying those same techniques, Cooke began work on his Northern Pacific Railroad. Construction, though, was plagued with setbacks and Cooke was forced to declare bankruptcy, causing a nationwide depression, in what became known as the Panic of 1873.



CORNELIUS VANDERBILT

Cornelius Vanderbilt began his career in transportation working on ferries between Staten Island and Manhattan as a youth, eventually building an entire fleet of transport ships and earning himself the nickname "The Commodore". He entered the rail business in the 1860s, first purchasing the New York and Harlem Railroad and later the Hudson River and New York Central Railroads, merging them together into one of the Northeast's largest rail systems. Despite a costly failed attempt to acquire the Erie Railroad, Vanderbilt still left behind an estate worth over \$100 million.



J. PIERPONT MORGAN

J. Pierpont Morgan, taking after his wealthy financier father, became one of the most important investors in American history. As railroads became a key force behind the American economy, Morgan became a connector between railroads looking for investments and the investors themselves, as well as a board member on the famous New York Central Railroad. From selling out-of-date rifles to the Union Army to saving the United States from a depression, Morgan's skill as a businessman, no matter how questionable his ethics, could not be denied.



GEORGE HUDSON

George Hudson, England's "Railway King", was the son of wealthy farmers, and began a successful career as a draper before becoming a major investor and proponent of the Northern Midland Railway, later becoming the director of the burgeoning rail system. Through equal parts acumen and machination, Hudson eventually came to control one third of the rail lines in Britain. But as investigations into Hudson's finances arose, confidence in his businesses fell, leading the "King" into a dethroning bankruptcy.



ISAMBARD BRUNEL

Isambard Brunel began his work as an engineer beside his father, designer of the Thames Tunnel, before heading into his own, designing various bridges and steamships throughout his career, such as the massive Great Eastern steamer. Appointed the chief engineer of the Great Western Railroad, Brunel helped build the line's distinct broad gauge rail system, which he believed to be superior to standard gauge rails in smoothness of ride and cargo capacity. Yet when the decision was made that all of Britain's rails must use standard gauge, it ended the distinct flavour of the Great Western Railroad.



GEORGE STEPHENSON

Helping his father work coal-mining equipment in his youth, George Stephenson always had a penchant for machinery, and would go on to become one of the first and finest locomotive designers of his age. Responsible for the design of Britain's first steam-powered rail system, the Stockton & Darlington Railway, Stephenson made a name for himself throughout Great Britain as a premier locomotive expert. Along with his son Robert, Stephenson's designs ushered in a new era in transportation the world over.



BARON ROTHSCHILD

Member of the famous banking family, Baron James Mayer de Rothschild followed in his family's footsteps of becoming one of France's most prominent bankers. After the installation of King Louis-Philippe, a loan from de Rothschild helped shore up the finances of the new constitutional monarchy, as well as working to ensure peace between France and Austria. Rothschild also helped fund many of the projects of Louis-Philippe's successor, Napoleon III, taking a key role in the expansion of the continental rail system.



CHARLES DE GAULLE

For Charles de Gaulle, speed was of the essence. A career soldier, de Gaulle was one of the first to call for the mechanization of the French forces before World War II. After the war, de Gaulle was placed in charge of the French provisional government, but later resigned due to unhappiness with the country's new constitution. Yet when his country needed him again, de Gaulle returned to the presidency, transforming France into a modern and independent nation. One effort, the blanchissage, or redesign, of Paris led to the creation of Paris' underground rail system, the RER.



NAPOLEON III

Emperor Napoleon III, born Charles Louis Napoléon Bonaparte, after being elected President of the French Second Republic, seized control after his term ended. Though he gave rise to the French Second Empire, the liberty of French citizens took a heavy blow under the new emperor, but was partially balanced by a new level of prosperity and modernization. Part of this modernization was the French rail system, which went from almost nonexistent to nearly 11,000 miles in only thirty years under Napoleon's reign.



OTTO VON BISMARCK

A master statesman, Otto von Bismarck, the "Iron Chancellor," was a key figure in the construction of the German Empire in 1871. Guiding his country through wars with Denmark, Austria and France, with the empire's establishment, a new level of prosperity swept the German states. Along with this prosperity came a new surge in railroad construction, unifying the empire through both politics and transport. Yet Bismarck, after losing favour with both his emperor and much of the country he helped to form, was forced to resign.



HELMUTH VON MOLTKE

Chief of the General Staff in Germany at the outbreak of World War I, Helmuth von Moltke the Younger nearly guided Germany to victory using a quick barrage of mobile troops, but French and Belgian troops cut a hole in von Moltke's plan – they destroyed their own rail systems. Using nearly 30,000 workers, Moltke hoped to repair the destroyed rail lines and earn himself a victory over France before turning his attention to the Russians breathing down his flank. But speedy Russian mobilization and French resistance entrapped Moltke, leading to drawn out trench warfare and eventual German defeat.



CZAR NICHOLAS II

Known for his obsession for grand schemes (while tending to ignore the day-to-day care of his subjects), Czar Nicholas II, Russia's final monarch, brought about the creation of the famed Trans-Siberian Railroad, as well as an increase in Russian coal and iron production, thanks in large part to his shrewd Minister of Finance, Sergei Witte. Yet due to his increasingly harsh reactions to the growing labour unrest in his country, and a less than keen understanding of his citizens, Nicholas was killed shortly after the Bolshevik Revolution of 1917.



JIM HILL

A Canadian businessman, Jim Hill's coal conglomerate gave him a specific interest in seeing that North America be covered from coast to coast in rail. Investing in the St. Paul & Pacific Railroad, Hill expanded the line, populating its paths with settlers and industry. Hill had a voracious appetite for expansion, organizing one of the most successful transcontinental railroads ever built and joining forces with some of the most shrewd investors of the age, like J. Pierpont Morgan.



JIM FISK

In an age of quiet, reserved businessmen, "Jubilee Jim" Fisk was a rebel upstart. Deciding schooling was not for him, Fisk tried his hand at various paths, among them running off with the circus, before he found his way into Wall Street. Together with Daniel Drew and Jay Gould, Fisk tricked Cornelius Vanderbilt into spending exorbitant amounts of money attempting to buy out the Erie Railroad, only to snatch it out from the Commodore's grasp at the last minute. Though his exuberant behaviour might have been the source of his success, it also was his ultimate undoing: he was shot to death by a business partner, Edward S. Stokes, during a dispute over a young Broadway showgirl named Josie Mansfield.



CHAPTER 8

THE SCENARIOS

INTRODUCTION

From the Pacific Northwest to the rolling German hills, each scenario presents a distinct series of challenges for the player to overcome as they build the world's greatest railroad.

Each scenario has its own unique victory objectives, adding extra points to your final score and allowing you to win a goal victory!

You can see each scenario's objectives on the **Scenario Setup screen** or you can see them in game by pressing **F3**.

NORTHEAST U.S.

Time Period: 1830 – 1970

Difficulty: This scenario is recommended for players of all skill levels.

Area: The Northeast United States covers an area stretching from New York in the Northeast to Washington, D.C. in the Southwest.

OVERVIEW

This scenario spans the humble beginnings of the American steam trains through to the modern era of diesels. With its ample resources and numerous population centers hugging the coast, the Northeast United States is an industrialist's delight. Mountains are rare, but the region's numerous rivers will need to be bridged in order for the goods of the west to be carried to the cities of the east. In the far north, rich New York City has much to provide for those willing to foot the bill to reach it. A passenger line from The Big Apple to the national capital, Washington D.C. could be most lucrative.

HISTORICAL BACKGROUND

After the War of 1812, the United States was in a period of recovery. This victory against one of the most powerful nations in the world drew the United States together, unifying the country in a collective feeling of nationalism. Yet not fifteen years later, another event would bring the nation together in a different way – the arrival of the railroads.

At first, much American railroad construction was based upon original British designs, the Stephenson's locomotives being imported across the Atlantic. Yet America's first railroad, the Baltimore & Ohio, found that the northeast's many hillocks and mountains were a distinct challenge for British locomotives and began searching the states for locomotive designers who could fulfil their needs.

With the initial challenges being overcome by men like William Norris and Phineas Davis, later railroads and locomotive designers turned what was once a distinctly English industry into one that fit the United States. Rail systems spread across the Northeast, hauling coal from Appalachian mountain ranges and passengers between coastal cities well into the 20th century. When in the 1970s the U.S. government finally stepped in due to the railroads' dwindling popularity, it took over what had become one of the largest rail systems in the world.

SOUTHWEST U.S.

Time Period: 1850 – 1950

Difficulty: This scenario is recommended for moderate to advanced players.

Area: The Southwest United States stretches from Las Vegas to Los Angeles, and from San Diego to Phoenix.

OVERVIEW

This scenario begins in the early days of the railroads, running through the steam era and into the birth of diesel. Sparse in its population and even sparser in its resources, the Southwest United States is filled with stretches of flat, unproductive desert and cities surrounded by mountains. While a few measly rivers meander through the countryside, valleys and gorges fill the southeast area of the map, making the construction of a flat, straight track nearly impossible. The far north and the western coast hold the Southwest's bounty and linking these two areas could result in a vast income.

HISTORICAL BACKGROUND

With the outbreak of the Mexican-American War in 1846, American forces in the Californian territories quickly seized control of the lightly populated region. Yet, not two years later after gold was struck in 1848, a new wave of settlers from across the continent rushed to get their part of the newly discovered fortune.

The journey to California, through steep mountains and scalding deserts, made a faster, safer form of transportation a necessity for the growing territory. With the completion of the Transcontinental Railroad in 1869, the east and west were linked by rail for the first time in their history, greatly speeding up the settlement of the newly acquired American West.

And with the impressive growth of a ranching community called Los Angeles and a small watering hole known as Las Vegas, the desert was slowly transformed into a series of brilliant oases. As the population of the Southwest blossomed, expanding rail systems took advantage of the region's brutal beauty, and trains like the California Zephyr becoming famous for their domed viewing cars and carefully planned journeys through rugged vistas.

NORTHWEST U.S.

Time Period: 1850 – 1930

Difficulty: Not for the beginner.

Area: The Northwest United States covers an area stretching from Vancouver in the Northwest to Boise in the Southeast.

OVERVIEW

This scenario presents a quick game because each objective must be completed within a tight deadline. Mountains and rivers abound in the Northwest United States, making bridges, elevated track and tunnels the rule rather than the exception. But ample resources make the region worth exploring. The three coastal cities of Vancouver, Seattle and Olympia form a highly lucrative strip of markets for both processed goods and passenger travel once they are fully developed. But because nearly all the resources and towns are located around the edges of the map, connecting the cities requires laying track over water and under mountains, which is extremely costly.

HISTORICAL BACKGROUND

Since the expedition of Lewis and Clark in 1804, the Oregon Territories had been a hotly contested region between the United States and Great Britain. With the signing of the Oregon Treaty in 1848, the Pacific Northwest became a verdant new addition to America's territorial acquisitions, its vast forests feeding the growing lumber industry.

Various railroads emerged to take advantage of the Northwest's rich lumber and mineral deposits. Jay Cooke's Northern Pacific, despite serious setbacks, completed numerous lines through the region, as did the famous Union Pacific. And with the advent of electric rails, one of the United States' first electrified rail systems, the Chicago, Milwaukee, St. Paul & Pacific Railroad proved the viability of electricity over steam, hauling heavy loads through the rigors of the Northwest domain.

MIDWEST U.S.

Time Period: 1840 – 1970

Difficulty: Not for the beginner.

Area: The Midwest United States covers an area stretching from Chicago in the west to Pittsburgh in the east.

OVERVIEW

This scenario presents a quick game because each objective must be completed within a tight deadline. Flat, open plains and a whole range of blooming cities make passenger transport in the Midwest United States an extremely cost-effective business. And while the mighty Mississippi and the Great Lakes may make the connection of distant locations expensive, numerous healthy cities towards the middle of the region should have rail lines rushing to provide the fastest connections possible.

HISTORICAL BACKGROUND

The link between the developed east and the burgeoning west became a city located on the southwestern shore of Lake Michigan – Chicago. The city, after the construction of its first railroad in 1848, quickly became one of the largest railway centers in the nation, the Chicago Union Stockyards acting as the center of the meatpacking industry of the late 19th and early 20th centuries.

Yet Chicago was not the only city in the region to experience an explosive development. Pittsburgh to the east, the center of J. Pierpont Morgan and Andrew Carnegie's company U.S. Steel, affirmed its place as the largest steel producer in the United States at the start of the 20th century.

The industries of the two cities made places such as Cleveland, Cincinnati and Louisville important shipping points around the region. Yet as industry dwindled throughout the Midwest, most places in the region suffered a loss of population, except for Chicago, which continued to grow, eventually becoming one of the largest cities in the United States.

GREAT BRITAIN

Time Period: 1825 – 1947

Difficulty: This scenario is recommended for beginners to moderately advanced players.

Area: This scenario covers the majority of Great Britain.

OVERVIEW

This scenario begins in the early days of steam technology, starting with Stephenson's Planet, and continuing into the modern era with classic machines like the A4 Mallard and Gresley's Flying Scotsman.

Flat, open ground allows straight, cheap railways as far as the eye can see. Few rivers and no mountains make construction all the simpler, allowing for grand passenger rails between the various cities and profitable goods trains throughout. And having learned its lesson after numerous invasions over the centuries, plentiful fortifications dot the British landscape, providing a hefty profit for anyone who chooses to enter the arms trade.

HISTORICAL BACKGROUND

The defeat of the Emperor Napoleon a decade earlier ushered in a new era of prosperity and supremacy for Great Britain. Thanks in grand part to their powerful navy, Great Britain had expanded its economic might across much of the world. Yet within her borders, a new expansion was taking place, the birth of the railroad, which followed hotly on the heels of the Industrial Revolution.

The success of the Stockton & Darlington Railway combined with the inspiration of the Stephenson Locomotive Company designs made Britain a quick adopter of new rail technology. These newborn railways spread like wildfire as a spirit of "Railway Mania" swept the country in the 1840s. Hundreds of new lines were formed, yet a number of rail lines stood out, some for their technical achievements, others for the gall of their owners. Among these were Isambard Brunel's Great Western Railroad and George Hudson's Midland Railway.

Yet over the next several decades, a series of government consolidations narrowed the number of lines to four in 1921. The lines were then divided into six when the rail systems were nationalized under British Railways in 1947, finally removing them from private hands.

FRANCE

Time Period: 1842 – 1989

Difficulty: This scenario is recommended for beginners to moderately skilled players.

Area: This scenario covers the majority of France, roughly 50,000 square miles.

OVERVIEW

This scenario begins some 10 years after the world's earliest railways and continues into the birth of the late-blooming modern French rail system, and finally sees the introduction of the pioneering high-speed TGV.

The hilly French terrain can wreak havoc on the pocketbook of the up and coming rail operator. Goods dot the land as far as the eye can see, but will often be blocked by hillock and valley, which slow travel and increase costs. If these obstacles can be overcome, then a rich bounty is there for the taking. Far to the south, the rich Spanish regions of Catalonia, Aragon and Cantabria hold vast wealth for any willing to spend the money needed to pierce the Pyrenees.

HISTORICAL BACKGROUND

Because of much political and social unrest after the fall of Napoleon Bonaparte, France found itself lagging behind as railroads swept Great Britain and the United States. Yet a great exchange was taking place as American and English designs were shipped to France and French rail designers travelled abroad to learn the tricks of the trade. By the 1850s, with the reign of Napoleon III, France had started to employ steam and steel extensively.

And where French designers had once lagged behind, in a few decades, they quickly took to the fore, with some of the most talented locomotive designers – Thomas Russell Crampton, Alfred de Glehn and André Chapelon – creating wonders in the realm of steam locomotion. Constructing locomotives that were more efficient and more powerful than any that had ridden French rails, this excellence of design was to continue into the modern era with the construction of the world's fastest train, the French TGV.

GERMANY

Time Period: 1835 – 1980

Difficulty: This scenario is recommended for moderately skilled to advanced players.

Area: This scenario covers much of Southeast Germany and also significant cities, such as Frankfurt, Hamburg, Nurnberg, Cologne and Berlin.

OVERVIEW

The train selection in this scenario is slanted towards diesels and electrics, so the late era is recommended for most players.

Rolling hills cover the German landscape, making gaps a constant obstacle and bridges a constant necessity. Yet with mountains confined to the south, no grand works are needed, allowing access to fertile and productive resources with little trouble. Because the majority of the grand cities are located towards the center of the region, goods transport quickly becomes extremely lucrative.

HISTORICAL BACKGROUND

While locomotives had been talked about in Germany for nearly a decade, it wasn't until 1833 when the Ludwigsbahn, Germany's first rail line, opened for service using a Stephenson engine, the Adler. Within the next decade, German designers began making truly German locomotives, such as August Borsig and his Beuth engine. By 1841, both passenger and freight engines had been developed, including the signature Altklasse, the forerunner of German freight trains. Another forerunner, one of the first electric engines, designed by Werner von Siemens, made rail travel through nearby Switzerland and Austria easier than ever.

In 1871, with the creation of the German Empire, what had been a diverse and varied set of rail systems running through the various German states, now had to conform to a standard. But little conforming was done for nearly thirty years, until the "Iron Chancellor," Otto von Bismark, finally organized the nationalisation of the German rail system. Consolidation would continue throughout the next several eras of German history, leading to formation of the modern Deutsche Bahn, the national German railway system.

CHAPTER 9

A BRIEF HISTORY OF THE RAILROADS

INTRODUCTION

This section provides an overview of the history of railroads around the world. It is impossible in the space available to do justice to this fascinating topic; there are thousands of great books and videos available for those who seek to know more.

THE LIFE AND TIMES OF THE “IRON HORSE”

OF ROCKETS AND RAINHILL

English engineer George Stephenson was hardly the first man to ever harness the power of steam. What he did do was create the first truly reliable steam engine in 1825, the creatively named “Locomotive” for the Stockton & Darlington Railway, a small-gauge coal line in Northern England. Stephenson’s creation could not only pull more than any horse team, but do it for far less money.

But it wasn’t until his victory at Rainhill trials in 1829 (in which his Rocket, designed with his son Robert, beat the competition to become locomotive of Britain’s first true railroad, the Liverpool & Manchester), that the Stephenson name would become forever linked with the history of railroads.

The Robert Stephenson and Company locomotive works would go on to become one of the most important early locomotive creators, shipping their engines across the world. Germany’s first engine, the Adler, running on the premiere rail line of the country, the Ludwigsbahn between Nurnberg and Furth, was a Stephenson creation. A similar engine, L’Aigle, was shipped to France as that country’s railway program began to find its footing.

And in the United States, Stephenson designs were imported and acted as important influences for years. But each country was soon to declare their independence from Stephenson’s designs, making trains that served the specific needs of their national railways.

PULLING AWAY FROM THE PAST

The United States was one of the first to break away from Stephenson’s designs, building more balanced and manoeuvrable engines like the 0-4-0 Grasshopper, designed for the winding Baltimore & Ohio Railway, and the Brother Jonathan for the Mohawk & Hudson Railroad.

Men like Henry Campbell and John B. Jarvis were to make lasting impressions on locomotion at home and abroad with their innovations. Jarvis, with the help of Stephenson, created the swivelling wheel truck, allowing trains a new level of stability at significant speeds. Campbell, borrowing from both Jarvis and others, created the design that was to become the American 4-4-0 engine type, the most popular engine ever in the United States.

RAILWAY MANIA

In Great Britain, the Stephensons were joined by other premier designers, engineers and tinkers. The most widely known among them was the head of the Great Western Railroad, Isambard Kingdom Brunel. Brunel was a master surveyor and designer and his Great Western Railway became known as a series of engineering wonders. Hoping for a smoother ride and more cargo space, Brunel built his railway at a gauge wider than any other, meaning no trains from other rail systems could ride his routes. When word came down from the British government that all railways in Britain must be rebuilt at the same gauge, it was Brunel's distinct rail system that was forced to spend thousands of pounds in making their track conform to national standards.

Railway Mania, an epidemic of over-speculation and investment, swept Britain in the 1840s as railways were built across the country. Men like George Hudson made enormous fortunes shipping passengers and goods throughout the nation, using the rails and the industries that came with them to generate huge profits.

A MULTITUDE OF MACHINES

German rail design would expand in a most haphazard way, as the many states and cities of the German region, not yet unified under a single flag, all made their own design choices. So while political unification took a mere four decades, railway unification would take much longer. Yet both owe much to the savvy and hard-nosed politics of Otto von Bismarck, Germany's "Iron Chancellor."

Among the visionaries of the German railways, August Borsig quickly proved himself as one of the country's foremost locomotive designers as rails first made their way into the country. His 2-2-2 Beuth was the first engine constructed completely in Germany.

THE RAILS OF THE EMPEROR

French railway development was hampered by unrest following the fall of Napoleon. Few railways were built until the reign of Emperor Napoleon III, whose reign saw thousands of miles of track laid across the country, with Paris as the key stop for nearly all routes. More than a little funding for such projects came from some of France's most powerful financiers, like Baron James Mayer de Rothschild.

France too would find its own national designers. While Great Britain stood as the originator of the rails, and America its largest consumer, France would eventually stand out as one of the premiere innovators of both steam-driven locomotives and later diesel and electrics as well. The designs of Thomas Russell Crampton, Andre Chapelon and Alfred de Glehn would each command respect from the world of railroading.

DRIVING AN INDUSTRY

In the United States, Manifest Destiny and the desire for westward expansion made a transcontinental rail system a necessity. Construction began in the early 1860s from both ends of the new rail system: Omaha, Nebraska and Sacramento, California. By 1869, the Herculean task was complete. This new feat brought a level of unity to a country with a bloody civil war still fresh in its mind and ushered in a new era of migration from east to west.

Yet while settlers swept across the country in search of fortune and freedom, in the corridors of finance, new fortunes were also booming. The Civil War was highly profitable for many financiers of the age – J. Pierpont Morgan and Jay Cooke

among them. By the turn of the century, these men had become captains of industry, grand parts of their fortunes earned by investing in the extremely profitable railways of the time.

Others would make their way into the rail business: men like Jay Gould, renowned as a wily speculator and investor and Cornelius Vanderbilt, a shrewd shipping magnate who became feared for his business acumen.

Four of the richest men of their era, Morgan, Cooke, Gould and Vanderbilt, sometimes colluding with their fellow rail operators but more often engaging in cutthroat competition, all performed minor miracles in American finance. Gould, a revolutionary for his use of advertising, managed to raise nearly two billion dollars for the United States through the sale of war bonds. Cooke very nearly cornered the whole of the American gold market. Morgan, along with another mogul of the age, Andrew Carnegie, was a co-creator of the United States' largest steel concern and the world's largest corporation. And Cornelius Vanderbilt became the richest man in the country through selling his control of the New York Central.

ACROSS AN OCEAN AND A WORLD APART

Rail systems tended to bring with them a new level of industry wherever they were constructed. Napoleon III's rail systems brought to France a renewed prosperity, while the rails in Britain made fortunes for both rail moguls and industrialists. In Russia, the extensive rail construction under Czar Nicholas II bolstered the economy, but could not stop the growing economic and social unrest that would soon spell disaster for the Czar.

In this era, Great Britain (using the hulking economy it had created during the Industrial Revolution, matched with the strongest navy in the world) continued to expand its grand rail system, making the country one of the dominant trading forces of the late 19th century. Out of their infancy, locomotives became more than simple machines, transforming into works of care and craft. The 4-2-2 Stirling and the 4-4-0 Claud Hamilton were perfect examples of functional beauty.

And while Britain's place at the top of the economic food chain was for the moment assured, the work of three German inventors would shortly change the face of rail travel. Rudolf Diesel and the engine which bears his name, patented in 1893, and Werner von Siemens' electric train, built in 1879, would redefine the look and power of trains forever. The third inventor, a man named Karl Benz, would patent the world's first internal combustion engine, a device that would forever alter the way people travel.

THE WHEELS OF WAR

The First World War proved one of the other important uses of railroads: defense. France's rail system was essential to its defense strategy, while newly unified Germany relied heavily on its rail system to execute the "Schlieffen Plan" put into motion at the beginning of the war. Under the command of Helmuth von Moltke, Germany hoped to win a quick victory over the French in order to turn their troops eastward against the French-allied Russians. But little went according to plan as France and Great Britain counterattacked, ending the German advance.

After the German defeat, one of the many demands the Allies imposed on the country was to forfeit a substantial portion of its rail cars and infrastructure, a punishing blow to the developing economy of the new Empire, and one whose effects would be felt for years to come.

NEW TRICKS FOR OLD TRAINS

After the war, steam remained the predominant energy source powering locomotives. The skilled designers of the French railway systems, which had been nationalised in 1938 into the Société Nationale des Chemins de Fer Français (SNCF), created some of the most efficient steam engines in the world, such as André Chapelon's 242 A1.

Britain, too, continued its use of steam. And while on the continent steam locomotives of an unheard of level of efficiency were being created, Britain's steam engines held a slightly more tangible record – the fastest steam-powered locomotive ever. In 1939, the 4-6-2 A4 set the locomotive speed record of 126 mph.

The United States at this time was experiencing a renaissance of steam design. With Americans travelling more than ever before, passenger transport became a highly lucrative business. Trains designed to catch the eye and lighten the pocketbook were carrying Americans all across the country. Famous train lines such as the 20th Century Limited Express used luxurious travel to attract new passengers. New, more powerful trains also emerged, such as the 4-8-4 Golden State, which made its naming hauling the famous Daylight passenger express from Los Angeles to San Francisco.

CHANGING POWERS

As trains became a normal part of life throughout the United States and Europe, a problem arose. Trains servicing large cities like New York or Baltimore caused excessive amounts of pollution, noise and accidents. Starting at the turn of the 20th century, these places became the testing ground for new, electric commuter trains, which would be able to run without dangerous and unhealthy smoke. Electric trains quickly became the standard for servicing large cities.

While electric trains were quickly shown to be both reliable and cost-effective for urban commuting, they had yet to prove their worth as long distance freight or passenger engines. In the Northwest United States, it was the Pennsylvania railroad, using its P-5a electric engine, that showed that electric could be both powerful and profitable.

One hemisphere away, the Swiss, whose mountainous homeland made using steam engines both costly and slow, quickly adopted electric trains in order to reduce their dependence on imported coal. A long line of powerful electric trains were to follow, including the Ge 6/6 Crocodile, which could haul man or freight over the high peaks of the Swiss landscape.

Diesel engines, despite their cheap running costs, only found their way into use in the 1930s, and were not widely used until the forties and fifties, for it was assumed no diesel engine could ever be as powerful as an equivalent steam engine. In the United States, the EMD F-Series proved that argument wrong. Far from the first diesel, but certainly one of the most successful in the United States, the success of the F-Series prompted the creation of the next great American diesel, the EMD GP, an immensely strong and efficient engine.

Germany too began experimenting with diesel, creating the V series in the 1930s, with the culmination of the line, the light and efficient V200, being constructed in 1953.

POST-WAR TRAVEL

With the onset of the Second World War, trains once again took up their role as important troop and supply lines. As one of the greatest world conflicts of all time came to a close, great changes were to sweep the world of trains.

The chaos brought about by the end of the war in Europe gave some countries the chance to expand their railways and others to transform them completely. In France, the provisional leadership of Charles de Gaulle helped guide the country through its difficult reconstruction. De Gaulle also helped bring about the construction of Paris' underground rail system in order to further aid commuter travel in his homeland. For Britain, the end of the war saw the beginning of a nationalized rail system, one held completely in public hands. In a divided Germany, two new rail systems were founded, the German Federal Railways in the West and the German Imperial Railways in the East, with little economic interaction allowed between the two.

The United States had a very different approach after the war. The popularity of the car in the United States encouraged the growth of the national highway system. This too helped make road, rather than rail, the more popular method of travel. And while rail travel remained popular well into the fifties, thanks in part to scenic trains such as the California Zephyr, in less than two decades much of passenger travel in the United States would be controlled by Amtrak, a government rail company.

THE MODERN RAILROAD

As the world shifted away from train-based travel, trains remained important for long distance freight hauling, especially in the United States. And while many of the major American cities adopted subways and elevated trains in the fight against road congestion, long distance passenger travel diminished significantly in the United States.

In Europe, on the other hand, trains, subways and trams became essential for travelling within and in between population centers as a shared economy made travel between the various nations more important than ever. France, still one of the premier train designers, created the TGV, the world's fastest train, electric or otherwise. The popularity of the TGV design spread throughout Europe and remains an important link for passengers travelling around the continent.

APPENDIX

TECHNICAL SUPPORT

Every effort has been made to make *Sid Meier's Railroads!* as compatible with current hardware as possible. However, if you are experiencing problems when running *Sid Meier's Railroads!*, please read on.

The latest version of the FAQs can be found by selecting the **View FAQs** button in the **Support** tab of the *Sid Meier's Railroads!* pre-game **Options window** (this is the window that opens when you start the game), or by going straight to the Feral website: <http://support.feralinteractive.com>

CONTACTING FERAL

If the FAQs and/or updates do not solve your problem, then please feel free to contact us. The following information must be obtained *before* contacting Feral Technical Support:

1. The error message displayed when the problem occurred (if any).
2. A **Sid Meier's Railroads! Report.txt** file. This contains:
 - An Apple System Profiler Report of your Mac
 - Any Crash logs that exist for *Sid Meier's Railroads!*
 - A list of the game's contents

All the information required can be obtained by opening *Sid Meier's Railroads!* and clicking on the **Support** tab in the *Sid Meier's Railroads!* pre-game **Options window**. In the **Support** tab, click on the **Generate Report** button. Once the report is generated it will appear as a file in your **Downloads** folder. Now click on the **Create e-mail** button. Remember to attach the **Sid Meier's Railroads! Report.txt** file to your e-mail. In your e-mail, please include a brief description of the problem you have experienced with *Sid Meier's Railroads!*. We will do our best to help you.

E-Mail: railroadssupport@feralinteractive.com

If you prefer to speak with a member of the support team, call on the following toll-free number:

North America Callers

Tel: **1-888-592-9925** (Toll Free)

Available between 9.00am and 6.00pm Central Standard Time, Monday to Friday.

United Kingdom Callers

Tel: **020 8875 9787**

Fax: **020 8875 1846**

Available between 9.00am and 6.00pm GMT, Monday to Friday.

International Callers

Tel: **+44 20 8875 9787**

Fax: **+44 20 8875 1846**

Available between 9.00am and 6.00pm GMT, Monday to Friday.

Outside of business hours, please leave a message with your name, number and the game for which you are seeking support.

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