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Welcome to TrainPlayer

TrainPlayer simulates operating a model railroad layout on the computer. It is designed for all types of model railroad fan, from the one who has built a railroad empire in the basement, to the one who dreams of doing so, to the one who never will, but just likes to run trains.

Opening a layout file in TrainPlayer is like walking into a room and finding a fully-built model railroad with clean tracks, attractive scenery, a couple of trains, and a control panel sitting in the corner. You nudge the speed dial and one of the trains starts to move. You form a smile and crank up the speed. Welcome to TrainPlayer.

TrainPlayer works with pictures of track plans which have been specially prepared by the addition of electronic tracks. The pictures might be renderings by Kalmbach artists, or digital output from your favorite CAD program, or scanned-in drawings made with pencil and paper. A set of features known as **TrackLayer** -- described in the second half of this manual -- is used to apply the track, switches, and turntables. In TrainPlayer, you add trains, cars, and stations, and you're ready to run.

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What's New in Version 8.2

Version 8.2 delivers a new user interface based on an improved system of toolbars along with some new components. For a detailed description in a web-based PDF file, see [A New Style for the TrainPlayer User Interface](#).

8.2 features include:

- [Dynamic Toolbars](#) -- revamped toolbars with labels and new icons, context-sensitive, customizable, easy to follow
 - New [TrainPlayer Toolbar Reference](#) -- handy guide to the new toolbar buttons
 - Tabbed documents -- easier working with multiple layouts open
 - [Quick Access Toolbar](#) -- handy small set of selected tools embedded in the window frame
 - Scripting enhancements: new functions, improved working of rewinds
 - Easier scenery styling using the [Painter/Dropper tool](#)
 - [AnyRail import](#) improvements: now imports working transfer tables
 - [Paint Shop](#) improvements: new wireframe decal for painting Pedersen cars; new shaded-cylinder decal
 - Updated framework library, provides new app styles and other enhancements
 - Other fixes as listed in [TrainPlayer Version History](#).
-

The major effort in 8.1 went to the Linked Layouts feature, which was overhauled, expanded, and improved. For complete details about this feature and related changes in 8.1, including tips for multi-layout scripting, see the new web PDF document [Introduction to Linked Layouts](#).

Here is the list of 8.1 enhancements documented in this manual:

- Overhaul of linking features: see [Linked Layouts](#)
 - Improved [Layout Link dialog](#), now accessible from [Track Properties](#)
 - New property **LayoutID**. See [Layout Properties](#)
 - Scripting enhancements: multi-layout scripting (detailed in PDF linked above); two commands now take arguments (File Open, File Save As) -- see [Script Menu Commands](#)
 - Multi-document handling: [File Save All](#), [Stop All Scripts](#), [File Open <multiple>](#)
 - Turntable rotation now allows overhang -- see [Operating a Turntable](#)
 - Fixes in [Track Check dialog](#) -- better sizing, zooming to error region
 - New car-top display of numeric ids -- see [Car IDs](#)
 - New arguments for script functions (\$car, \$train, \$layout) -- see [TPL Reference](#)
-


in Version 8.0

- **Paint Shop!** a new facility for decorating your cars and engines with paint and decals. For overview, see [Decorating Cars](#). For usage info, see [Paint Shop](#).
 - New, improved [Color Chooser](#).
 - Improvements in [Map View](#): new markers for layout links; adjustable marker colors.
 - Links are now displayed as special labels with [adjustable font](#) on the layout; see [Linked Layouts](#).
 - New collision mode: dead stop. See [Operation Preferences](#).
 - New choice to show or hide Status Bar in [Full Screen View](#).
 - Various fixes, speed improvements, enhancements all over. Complete list is at [TrainPlayer Version History](#).
-

in Version 7.2

- [Digital clock](#) -- we finally did some modernizing of this device
 - [Route Finder](#) improvements -- now faster and more useful, can now throw switches along route
 - Advances in [Advanced Ops](#) -- more flexible dispatching, multiple start / finish locations
 - All-new [AO documentation](#), dozens of [new ready-to-operate layouts](#)
 - Modifiable font for loads -- see [Text Loads Style](#)
 - [Switchlist Robot](#): complete the deliveries in your AO session with one click
 - [1:1 Scale](#) -- now simulate a full-size model
 - Track capacity calculator, available via new [script function](#) \$CAPAC
 - Many tweaks and fixes throughout
-

What For?

 **Q:** Is there any point to moving little make-believe trains around an image of a model pretending to be a railroad?

A: Sure.

- **Explore layout designs.** When you're thinking about designing a railroad, there is nothing handier than a book of track plans. Well-designed plans give you ideas about how different track configurations might work with your theme and fit in the space you have. Attractive artwork inspires you to think about the terrain and the scenery. TrainPlayer brings you some great track plans to browse, appreciate, and try.
- **Develop operating plans.** If you had an operating railroad and an unlimited supply of rolling stock, how would you go about running it? You need to figure out how to deliver goods and passengers for your customers, what cars you need to run on what schedule, how to avoid delaying the express while the local is tying up the main line. With TrainPlayer, you can develop timetables and schedules by driving the layout and letting the program keep track of times and distances.
- **Test your equipment.** Do you already have a collection of cars? Customize the ones in the program so they match yours, and see if your 86-foot flatcars look realistic going around the 16-inch curves on your target plan.
- **Learn train moves.** It isn't obvious how to shuffle a dense yard of cars when you have a schedule to meet. With TrainPlayer, you can learn by practicing. Figure out how to classify cars so they're on the right tracks at the right time. Learn to minimize the number of moves it takes. Try your hand at a switching puzzle.
- **Teach train moves.** If you're already a skilled operator, use TrainPlayer to spread your knowledge. Use the recorder to capture a sequence of moves, and play it back for the learners. Demonstrate how to handle a meet on the main line, or switch an industrial siding.
- **Share your layout.** If you have a layout that welcomes visiting operators, TrainPlayer is an excellent introduction and training tool for them. Send them a copy of your layout before their visit and they'll feel far more comfortable operating with you! Or post a copy of the file on your website and allow people to experience your railroad from a distance.

and of course

- **Play with trains.** 



About This Manual



This manual is in two parts. The first covers TrainPlayer, and describes how to run trains on prepared layouts. The second covers TrackLayer, and describes how to prepare the layouts.

We don't really expect you to read the manual. Most of what you need to know about TrainPlayer you can figure out by opening a layout and running trains. But you might glance through to pick up tips which could enhance your enjoyment. TrackLayer is a little more involved, so it is recommended that you at least go through the TrackLayer tutorial.

The manual is organized by topic. The first chapter tells how to open a layout, what you'll see, and how you can adjust the screen as you like. The next two chapters describe how to run trains, and how to assemble and dismantle them. The next two chapters cover advanced features: scheduling and recording. Last is a chapter on how to tailor the program to suit your preferences. The TrackLayer portion begins with an introduction and some basic information about files and images, followed by a tutorial which goes through the process of building a layout. Subsequent chapters go into detail about drawing track, curves, switches, and turntables.

The manual assumes a basic level of familiarity with Windows. You should know how to operate a drop-down menu, and what it means to "navigate" in a file dialog. Menu commands are given as phrases, often in bold type, with > symbols separating levels: **Tools > Customize** refers to the Customize item on the Tools menu.

Many of the concepts in TrainPlayer, and diagrams in this manual, are based on the classic book *101 Track Plans for Model Railroaders*, by Linn Westcott, © Kalmbach Publishing, 1956. We no longer distribute these layouts with the program. The book is still in print and can be obtained from Kalmbach, Amazon, or most hobby shops. There is a free download [here](#).

Where to Go for Help



We're committed to delivering a quality product which runs on your machine and doesn't crash unless you want it to. If you have trouble with the program, the installation, or the layouts, here are some places to look for help:

- **Help menu.** The Help menu in the program has links to built-in online help, to web pages, and other sources. Try the online help, which includes index and full-text search.
- **Readme.** The Readme file installed in your TrainPlayer directory has up-to-date details about known problems, tips, version history, and other information. You can view the file from the Start menu, under TrainPlayer.
- **Web.** The [Support page](#) on our website has a list of resource, and Frequently-Asked Questions which cover many common problems.
- **User groups and forums.** There is a friendly, open, and well-attended [TrainPlayer Forum](#), where you can contact us or our users. If you have a problem, try posting a question. Joining the forum is simple and free.
- **Send e-mail.** Lines are open: support@trainplayer.com.
- **Send U. S. Mail.** The address is on the [Contact page](#) of the website.
- **If you find a bug** in the program or the layouts, send e-mail with the details and we'll try to fix it in an upcoming version. The e-mail should include the program version and operating system you are using, and a layout (.rrw) file if necessary to reproduce the problem.

File	New	Create a new document
	Open...	Open an existing document
	Open Layout...	Open from layout list
	Close	Close the active document
	Save	Save the active document
	Save As...	Save the active document with a new path or name
	Save All	Save all open documents
	Revert to Saved	Discard changes since last save
	Restore Backup...	Open backup file
	Publish...	Check layout and copy to publish directory
	Export Image...	Export layout to graphics file
	Import AnyRail...	Import and convert .any file
	Open Data Folder	Open TP App Data folder in Windows Explorer
	Module Manager...	Open Module Manager to arrange modules
	Properties...	Layout and train properties
	Preferences...	Preferences dialog
	Save Preferences	Save all settings now
	Print Setup...	Change the printer and printing options
	Print Preview...	Display full pages
	Print...	Print the active document
	Exit	Quit the application
Edit	Undo	Undo the last action
	Redo	Redo the previously undone action
	Cut	Cut the selection and put it on the Clipboard
	Copy	Copy the selection and put it on the Clipboard
	Paste	Insert objects from clipboard
	Delete	Erase the selection
	Select All	Select all objects
View	Fit To Window	Fit layout to current window size
see Adjusting the View	Refresh	Redraw layout and trains
	Pause...	Pause all trains
	Rotate Layout Clockwise	Rotate layout 90 degrees clockwise
	Rotate Layout Counter-clockwise	Rotate layout 90 degrees counterclockwise
	Auto-Follow	Follow lead car of train as it travels
	Follow Selected Car	Follow selected car as it travels
	Running Sounds	Turn on/off engine running sounds
	Car IDs	Show/hide labels on car tops
	Remove All Car IDs	Turn all car id's off
	Status Bar	Show/hide status bar
	Full Screen	Toggle full-screen view
Tools	Train Control Bar	Show or hide train control/train window bar
	Car Inventory Bar	Show or hide car inventory bar
	Map View	Show or hide map view window
	Route Finder	Show dialog for finding routes
	Clock	Show or hide clock
	Schedule	Show or hide schedule window
	Control Panel	Show or hide train control panel
	Train Tree	Show or hide train tree control

[Switch Window](#)
[Script Central](#)
[Ops Central](#)
[Car Chooser](#)
[Sound Chooser](#)
[Paint Shop](#)
[Road Styles](#)
[Enable Yard Mode](#)
[Check Track](#)
[Show Numbers](#)
[Highlight Track...](#)
[Show Tooltips](#)
[Resize / Rescale](#)
[Run](#)
[Customize...](#)

Show or hide closeup view of switch
Show or hide Script Central dialog
Show/hide Ops Central dialog
View car chooser
View chooser for all sounds
Show Paint Shop Dialog
Show Road Styles dialog
Enable yard mode
Check layout for errors and status
Display track and junction numbers temporarily
Prompt for track or junction, then highlight
Enable or disable tooltips
Drag outer rectangle to resize layout, inner to rescale track
Run mode
Customize menus and toolbars

Train

[Train Menu...](#)

Show menu to select a train

[New Train](#)

Create new small train

[New Locomotive](#)

Create steam locomotive

[Name...](#)

Provide name for train or cut

see [Add Car](#)

Add Car By Name...

Show car names list and car inventory bar

Add Car Car Chooser...

Show Car Chooser

Add Car Car Inventory Bar

Show or hide car inventory bar

Add Car Diesel

Add diesel locomotive to train

Add Car Steam

Add steam locomotive to train

Add Car Tender

Add coal tender to train

Add Car Pullman

Add passenger car to train

Add Car Baggage

Add baggage car to train

Add Car Reefer

Add refrigerator car to train

Add Car Hopper

Add hopper to train

Add Car Gondola

Add gondola to train

Add Car Boxcar

Add boxcar to train

Add Car Tankcar

Add tank car to train

Add Car Flatcar

Add flatcar to train

Add Car Caboose

Add caboose to train

see [Train Controls](#)

Speed Slower

Decrease speed by 1 MPH

Speed Faster

Increase speed by 1 MPH

Speed Half

Cut speed in half

Speed Double

Double the speed

Forward/Reverse

Reverse direction of travel

Stop

Stop train

[Uncouple](#)

Uncouple selected car

[Sound Horn](#)

Sound horn

Flip Train

Change train orientation

[Throw Upcoming Switch](#)

Throw next switch ahead of train

Stop All Trains

Immediately stop all running trains

see also [Car Popup](#)
below

Car Copy Car

Copy selected car to clipboard

Car Cut Car

Copy and delete selected car

Car Delete Car

Delete selected car

Car Paste

Insert objects from clipboard

see [Car Loads](#)

Car Load Empty

Mark car empty

Car Load Loaded

Load car or choose load

	Car Load Load Chooser...	Bring up Load Chooser dialog
	Car Load Load/Unload Car	Toggle loaded status of selected car
	Car Load Load/Unload Cut	Toggle loaded status of connected equivalent cars
	Car Load Load/Unload Train	Toggle loaded status of all cars in train
	Car Load Properties...	View/edit load properties in load collection
	Car Shift Forward	Swap car closer to front of train\Shift Forward
	Car Shift Backward	Swap car closer to rear of train\Shift Backward
	Car Properties...	Properties of selected car
see Train Script Menu	Script Play	Play script of selected train
	Script Stop	Stop script and train
	Script Rewind	Set train position to start of script
	Script Edit...	Edit or create script
	Script Start Recording	Start or stop recording
	Script Set Rewind Point	Set new Rewind Point to current positions
see Uncoupling Pin	Uncoupling Pin Right >	Move uncoupling pin one car to the right
	Uncoupling Pin Left <	Move uncoupling pin one car to the left
	Uncoupling Pin Front >>	Move uncoupling pin all the way to the right
	Uncoupling Pin Rear <<	Move uncoupling pin all the way to the left
	Properties...	Properties of selected train
Window	New Window	Open another window for the active document
	Cascade	Arrange windows so they overlap
	Tile Horizontal	Arrange windows as non-overlapping tiles
	Tile Vertical	Arrange windows as non-overlapping tiles
	Close All	Close all open documents
	Window Manager...	Dialog for arranging windows
Help	Contents...	Program instructions
see Help Menu	TrainPlayer Home Page	Main TrainPlayer website
	Frequently-Asked Questions	FAQ on TrainPlayer website
	Upgrade License...	Prompt to enter new license code
	Check for Upgrades...	Check website for updated versions and additional products
	About This Layout...	Layout and train properties
	About TrainPlayer...	Program information
Car Popup		<i>Called up by right-click on car</i>
see About Cars	Copy Car	Copy selected car to clipboard
	Cut Car	Copy and delete selected car
	Delete Car	Delete selected car
	Paste	Insert objects from clipboard
	Uncouple	Uncouple selected car
	Flip Car	Reverse car on tracks
see Add Car	Add Car By Name...	Show car names list and car inventory bar
	Add Car Car Chooser...	Show Car Chooser
	Add Car Diesel	Add diesel locomotive to train
	Add Car Steam	Add steam locomotive to train
	Add Car Tender	Add coal tender to train
	Add Car Pullman	Add passenger car to train
	Add Car Baggage	Add baggage car to train
	Add Car Reefer	Add refrigerator car to train
	Add Car Hopper	Add hopper to train
	Add Car Gondola	Add gondola to train
	Add Car Boxcar	Add boxcar to train
	Add Car Tankcar	Add tank car to train

	Add Car Flatcar	Add flatcar to train
	Add Car Caboose	Add caboose to train
see Train Menu above	Train Cut	Copy and delete selected train
	Train Copy	Copy selected train to clipboard
	Train Delete	Delete selected train
	Train Name...	Provide name for train or cut
	Train Flip Train	Change train orientation
	Train Sound Horn	Sound horn
	Train Throw Upcoming Switch	Throw next switch ahead of train
	Train Show Car IDs	Toggle appearance of labels on all cars of train
	Train Exclude From Ops	Toggle ops exclusion for all cars of train
see Train Script Menu	Train Script Start	Start all scripts and trains
	Train Script Stop	Stop all scripts and trains
	Train Script Rewind	Rewind all scripts to last snapshot
	Train Script Edit...	Edit or create script
	Train Script Remove...	Remove and erase script from train
	Train Properties...	Properties of selected train
see Car Loads	Load Empty	Mark car empty
	Load Loaded	Load car or choose load
	Load Load Chooser...	Bring up Load Chooser dialog
	Load Choose By Name...	Choose load name from list or type in
	Load Load/Unload Car	Toggle loaded status of selected car
	Load Load/Unload Cut	Toggle loaded status of connected equivalent cars
	Load Load/Unload Train	Toggle loaded status of all cars in train
	Load Properties...	View/edit load properties in load collection
	Shift Forward	Swap car closer to front of train\Shift Forward
	Shift Backward	Swap car closer to rear of train\Shift Backward
	Zoom To	Zoom to selected item
	Show Car ID	Toggle appearance of label on car top
	Exclude from Ops	Toggle whether car can be included in switchlists
	Show in Car Bar	Bring up car within its collection in car bar
	Show Waybill	Show car waybill
	Properties...	Properties of selected car
Layout Popup		<i>right-click blank spot on layout</i>
see Zooming	Stop All Trains	Stop all moving trains
	Zoom To	Zoom in and center on clicked point
	Zoom From	Zoom out from clicked point
	Zoom 50%	Zoom to 50% of full size
	Zoom 100%	Zoom to full size - one inch per grid
	Zoom 150%	Zoom to 150% of full size
	Zoom 200%	Zoom to 200% of full size
	Zoom 400%	Zoom to 400% of full size
	Zoom Fit to Window	Fit layout in window
	Zoom To Active Engine	Zoom to engine active in ops
	Zoom On Drag	Zoom so dragged rectangle fills window
	Auto-Follow	Follow lead car of train as it travels
	Follow Selected Car	Follow selected car as it travels
	Running Sounds	Turn on/off engine running sounds
	Paste	Insert objects from clipboard
	Layout Properties...	Layout, train, car properties
	Full Screen On/Off	Toggle full-screen view

Full Screen Show Main Menu
Full Screen Show Control Bar
Full Screen Show Close Box
Full Screen Show Train Tools

Show/Hide main menu in full screen
Show/Hide train control bar in full screen
Show/Hide close box in full screen
Show/Hide train toolbar in full screen

Turntable Popup

right-click turntable rim

see [Turntables](#)

Rotate Right (CW)
Rotate Left (CCW)
Show Bridge Track
Cut
Copy
Delete
Select All
[Properties...](#)

Rotate clockwise
Rotate counterclockwise
Show or hide bridge track(s)
Cut the selection and put it on the Clipboard
Copy the selection and put it on the Clipboard
Erase the selection
Select all objects
Properties of selected turntable

Track Popup

right-click a track section with track or edit tool

see [Editing Track](#)

[Delete Track](#)
[Hidden](#)
[Tunnel](#)
[Untouchable](#)
[All Retouchable](#)
Cut
Copy
Delete
Select All
[Place Train Here](#)

Delete selected track
Mark as hidden track
Mark as instant-tunnel track
Mark track and junctions as unselectable
Revert retouchable tracks to normal
Cut the selection and put it on the Clipboard
Copy the selection and put it on the Clipboard
Erase the selection
Select all objects
Move train to cursor

see [Add Car](#)

Add Car Here By Name...
Add Car Here Car Chooser...
Add Car Here Diesel
Add Car Here Steam
Add Car Here Tender
Add Car Here Pullman
Add Car Here Baggage
Add Car Here Reefer
Add Car Here Hopper
Add Car Here Gondola
Add Car Here Boxcar
Add Car Here Tankcar
Add Car Here Flatcar
Add Car Here Caboose

Show car names list and car inventory bar
Show Car Chooser
Add diesel locomotive to train
Add steam locomotive to train
Add coal tender to train
Add passenger car to train
Add baggage car to train
Add refrigerator car to train
Add hopper to train
Add gondola to train
Add boxcar to train
Add tank car to train
Add flatcar to train
Add caboose to train

see [Track Transforms](#)

[Paste Here](#)
[Split Track Here](#)
Highlight By Location
Select Location
Transform Selection Flip Horizontal
Transform Selection Flip Vertical
Transform Selection Rotate 90 deg CW
Transform Selection Rotate 90 deg CCW
Transform Selection Rotate...
[Advanced Link to Layout...](#)
[Advanced Create Action Here](#)
[Advanced Make Double Track](#)

Paste car or train on track
Split track and create junction
Turn on/off hiliting by entire location
Select all tracks of location
Invert selection horizontally
Invert selection vertically
Rotate selection 90 degrees clockwise
Rotate selection 90 degrees counter-clockwise
Rotate selection by specified angle
Connect track to separate layout
Split track, create junction, show action dialog
Split selected track into double

[Advanced Track To Scenery](#)

Create scenery object overlaying selected track

[Advanced Grow Roadbed Scenery](#)

Generate roadbed scenery below track

[Advanced Generate Trains...](#)

Populate layout with random set of trains

[Properties...](#)

Properties of selected track or object (circle, etc.)

Circle Popup

right-click rim of circle

see [Drawing Curves](#)

Cut

Cut the selection and put it on the Clipboard

Copy

Copy the selection and put it on the Clipboard

Delete

Erase the selection

Select All

Select all objects

Properties...

Properties of selected circle: id and radius

Horn Popup

right-click horn button on toolbar or control panel

see [Horns and Sounds](#)

Freight

Freight whistle

Horn

Diesel horn

Bell

Streetcar bell

Whistle

Loco whistle

Other...

Prompt to choose horn sound

Running Sounds

Turn on/off engine running sounds

Clock Popup

right-click clock window

see [Clock](#)

Start

Start clock

Stop

Stop clock

Reset

Reset clock to start time

Settings...

Clock settings

Digital display

If checked, display digital clock face

24-Hour

If checked, display time in 24-hour (military) format

Track Run Popup

right-click track section with Run tool active

see [Add Car](#)

[Place Train Here](#)

Move train to cursor

[Paste Here](#)

Paste car or train on track

Add Car Here By Name...

Show car names list and car inventory bar

Add Car Here Car Chooser...

Show Car Chooser

Add Car Here Diesel

Add diesel locomotive to train

Add Car Here Steam

Add steam locomotive to train

Add Car Here Tender

Add coal tender to train

Add Car Here Pullman

Add passenger car to train

Add Car Here Baggage

Add baggage car to train

Add Car Here Reefer

Add refrigerator car to train

Add Car Here Hopper

Add hopper to train

Add Car Here Gondola

Add gondola to train

Add Car Here Boxcar

Add boxcar to train

Add Car Here Tankcar

Add tank car to train

Add Car Here Flatcar

Add flatcar to train

Add Car Here Caboose

Add caboose to train

[Properties...](#)

Properties of selected track object

Station Popup

right-click station border with Station tool active

see [Stations](#)

[Station Properties...](#)

Properties of selection station

Cut

Cut the selection and put it on the Clipboard

Copy

Copy the selection and put it on the Clipboard

Delete

Erase the selection

Select All

Select all objects

Switch Script Popup

right-click a switch when Script Editor is up

[Throw Switch](#)

Throw switch

[Action...](#)

Define or edit junction action

see Script Inserts	Insert junction number	Insert junction number in script
	Insert throw here	Insert throw command to current position
	Insert throw alternate	Insert throw command to next position
Script Edit Popup		<i>right-click a script text window</i>
	Undo	Undo the last action
	Cut	Cut the selection and put it on the Clipboard
	Copy	Copy the selection and put it on the Clipboard
	Paste	Insert objects from clipboard
	Delete	Erase the selection
	Select All	Select all objects
Schedule Window Popup		<i>right-click inside Schedule Window</i>
see Schedule Window	Copy	Copy selection to Clipboard
	Select All	Select all text
	Clear All	Erase all text from schedule window
	Show Station Changes	Show or hide station arrivals, departures
	Show Script Output	Show or hide script comments
	Show Script Commands	Echo script commands as they execute
	Echo to Status Bar	Show output on status bar as well as in window
Scenery Obj Popup		<i>right-click a scenery object</i>
see Scenery Context Menu	Load Bitmap...	Attach bitmap to scenery object
	Cut	Cut the selection and put it on the Clipboard
	Copy	Copy the selection and put it on the Clipboard
	Delete	Erase the selection
	Select All	Select all objects
	Flip Horizontal	Flip object right for left
	Flip Vertical	Flip object top for bottom
see Polygon Smoothing	Smoothing Smooth This Vertex	Smooth or unsmooth right-clicked vertex
	Smoothing Smooth All	Smooth at all vertices
	Smoothing Unsmooth All	Unsmooth at all vertices
	Smoothing Auto-Smooth	Smooth all vertices while drawing
see Default Styles	Style Apply Default Fill	Set object fill to default fill style
	Style Apply Default Line	Set object line to default line style
	Style Use As Default Fill	Set default fill style to match object
	Style Use As Default Line	Set default line style to match object
	Save to Scn File...	Save selected object(s) to scn file
	Properties...	Properties of selected object
Transfer Table Popup		<i>right-click a transfer table</i>
see Transfer Tables	Move Right >	Rotate clockwise
	< Move Left	Rotate counterclockwise
	Show Bridge Track	Show or hide bridge track(s)
	Cut	Cut the selection and put it on the Clipboard
	Copy	Copy the selection and put it on the Clipboard
	Delete	Erase the selection
	Select All	Select all objects
	Properties...	Properties of selected object
Train Popup		<i>right-click a train in the Train Tree</i>
see Train Menu above	Cut	Copy and delete selected train
	Copy	Copy selected train to clipboard
	Delete	Delete selected train
	Name...	Provide name for train or cut

Flip Train	Change train orientation
Sound Horn	Sound horn
Zoom To	Zoom to selected item
Load All Cars	Fill all loadable cars
Unload All Cars	Empty all loaded cars
Show Car IDs	Toggle appearance of labels on all cars of train
Script Start	Start all scripts and trains
Script Stop	Stop all scripts and trains
Script Rewind	Rewind all scripts to last snapshot
Script Edit...	Edit or create script
Script Remove...	Remove and erase script from train
Properties...	Properties of selected train

Chooser Tree Popup	<i>right-click a file or folder in a chooser tree control</i>
---------------------------	---

see Choosers	Open	Open selected folder or item
	Refresh	Refresh folder
	Find...	Find name under selected folder in tree
	Find Next	Find next hit on previous query
	New Folder	Create new folder under selected
	Add File...	Add specified file to tree
	Remove	Remove folder and contents from tree
	Rename	Rename folder in tree
	Export Filenames...	Export names and paths under selected folder
	Download All...	Download contents of selected folder and subfolders
	Download Missing Items...	Download files not found locally
	Clear Download Cache...	Clear temporary download files
	Import from Folder...	Create new car collection from folder of image files
	Properties...	Folder or item properties

Chooser List Popup	<i>right-click a row in a chooser list control</i>
---------------------------	--

see Choosers	Open	Open selected folder or item
	Side Views	Show car side icons
	Top Views	Show car top icons
	Icon View	Show items as icons
	List View	Show items as list
	Properties...	Folder or item properties
	Refresh Thumbnail	Redraw layout thumbnail

Industry Editor Popup	<i>right-click a cell in a grid in Ops Central</i>
------------------------------	--

used in AO Grids	Add New Row	Add new grid row
	Duplicate Row	Duplicate selection
	Delete Row	Delete selection
	Copy	Copy the selection and put it on the Clipboard
	Select All	Select all objects
	Print Grid...	Print text on display in grid
	Refresh	Rebuild grid from source data
	Expand All Items	Expand all collapsed items
	Collapse All Items	Collapse all expanded items
	Field Chooser	Bring up fields to choose by drag and drop
	"Group By" Box	Show box for grouping by drag and drop
	Column Auto-Resize	Resize columns to fit
	Help	Display grid help

Car Bar Popup	<i>click down-arrow at right end of Car Bar</i>
----------------------	---

see Car Inventory Menu	Car Chooser...	Bring up car chooser
--	-----------------------	----------------------

Choose By Name...
Car Bar Settings...
Snap to Fit
Roll

Choose car from list of names
Bring up bar settings dialog
Snap image size to fit on change bar size
Roll train forward

Control Bar Popup

see [Control Bar](#)

Show Buttons Forward/Reverse
Show Buttons Uncouple
Show Buttons Horn
Show Buttons Load/Unload
Show Buttons Car Monitor
Show Buttons Speed Slider
Show Buttons MPH Display
Enable Yard Mode

right-click controls section of train bar

Show/hide forward/reverse button on control bar
Show/hide uncouple button on control bar
Show/hide horn button on control bar
Show/hide load button on control bar
Show/hide car monitor window on control bar
Show/hide speed slider on control bar
Show/hide mph display on control bar
Enable yard mode

Load Popup

see [Car Loads](#)

Empty
Loaded
Load Chooser...
Choose By Name...
Load/Unload Car
Load/Unload Cut
Load/Unload Train
Load Properties...

right-click Load/Unload button on control bar

Mark car empty
Load car or choose load
Bring up Load Chooser dialog
Choose load name from list or type in
Toggle loaded status of selected car
Toggle loaded status of connected equivalent cars
Toggle loaded status of all cars in train
View/edit load properties in load collection

Script Central Popup

see [Script Central](#)

Edit...
Delete
Copy
Select All
Enabled
Clear Sort Order
Refresh

right-click a row in Script Central list control

Edit in script editor
Delete script
Copy selection to clipboard
Select all rows
Enable/disable script action
Revert to standard sort order
Refresh grid contents

Note Window Popup

see [Note Window](#)

Hide
Framed
Auto-Fit
Auto-Hide
Properties...

right-click inside Note Window

Take down note window
Toggle frame around note window
Auto-fit window on change text
Automatically take down window after ten seconds
Set color and font of note window using scenery properties

Route Finder Popup

see [Route Finder](#)

Copy Row
Copy Route
Copy All Rows
Display Switch Positions
Set Switches Along Route

right-click a row in Route Finder list control

Copy selected row to Clipboard
Copy selected route to Clipboard
Copy all rows to Clipboard
Turn on/off throw positions, for route scripting
Set switches to open selected route

Road Styles Popup

see [Road Styles](#)

Create New Style
Delete Style...
Copy Style
Paste Style
Select By This Style
Make This The Default...
Set To Factory Default

from View>Windows>Road Styles or buttons in dislogs

Add new custom style
Delete current style
Copy current style to clipboard
Paste from clipboard to current style
Select all tracks having current style
Set global default to current style
Restore style to factory defaults

Video Options Popup

called up by right-click on video

	Hide Video	Hide video player
	Show Video	Show video player
Map Window Popup		<i>called up by right-click on Map View</i>
see Map View	Zoom To Cursor	Move view to be centered at cursor position
	Spotted Cars	Show/hide spotted cars on map
	Unspotted Cars	Show/hide unspotted cars on map
	Engines	Show/hide engines on map
	Industries	Show/hide industry locations on map
	Class Yards	Show/hide yard locations on map
	Staging Tracks	Show/hide staging locations on map
	Interchanges	Show/hide interchange locations on map
	XO Reserved Tracks	Show/hide XO reserved tracks on map
	Linked Tracks	Show/hide linked tracks on map
	Legend	Show/hide map legend
	Tooltips	Show/hide tooltips when hovering over highlights
	Dest Arrows	Show/hide destination arrows when hovering over unspotted cars
	Settings...	Open Map View Settings dialog
Car Swap Options Popup		<i>called up by right-drag from car window onto car</i>
see Car Swap	Replace This Car...	Replace car with chosen type
	Replace All of This Type...	Replace all cars of this type on layout
	Car Swap Settings...	Advanced car replace options
Scroll Popup	Page Up	Scroll view by fixed amount
via right-click scrollbar	Page Down	(Commands listed here are scriptable... those shown on menu are different)
	Scroll Up	
	Scroll Down	
	Page Left	
	Page Right	
	Scroll Left	
	Scroll Right	
Paint Shop Popup	Select This Color	Select right-clicked color for editing
see Paint Shop	Paste Decal	Paste decal from Clipboard
also Decorating Cars	Undo	Undo last change made in Paint Shop
	Redo	Revert last undo
	Copy Image	Copy image to Clipboard
	Save Image...	Save image to file
	Show All Decals	Highlight all decals
	Revert to Factory...	Reset colors to factory car
Decal Popup	Copy Decal	Copy decal to Clipboard
see Paint Shop	Cut Decal	Copy and delete decal
also Decorating Cars	Delete Decal	Delete selected decal
	Bring Forward	Bring selected decal forward in display order
	Send Backward	Move selected decal backward in display order
	Bring to Front	Move selected decal to top of display order
	Send to Back	Move selected decal to bottom of display order
	Transparent	Decal background transparent
	Lock Proportions	Lock to prevent changing proportions
	Flip Horizontal	Invert decal horizontally
	Flip Vertical	Invert decal vertically
	Edit in Paint...	Open image in paint program

	Return to Clone Site	Return clone to original site
	Properties...	Decal properties
Road Popup	Tracks	Show or hide track center line
	Rails	Show/hide double rail
	Ties	Show or hide ties on all track
	Roadbed	Show or hide roadbed under all track
	Track Labels	Show or hide labels on track sections
Display Popup	Background	Show or hide scenery
	Grid	Show or hide grid lines
	Trains	Show/hide trains
	Stations	Show or hide stations
	Foreground Scenery	Show/hide foreground scenery objects
	Background Scenery	Show/hide background scenery objects
Edit Popup	Undo	Undo the last action
	Redo	Redo the previously undone action
	Cut	Cut the selection and put it on the Clipboard
	Copy	Copy the selection and put it on the Clipboard
	Paste	Insert objects from clipboard
	Delete	Erase the selection
	Select All	Select all objects
Layer Popup	Foreground	Enable editing of foreground scenery
	Background	Enable editing of background scenery
Arrange Popup	Bring Forward	Bring selected object(s) forward
	Send Backward	Move selected objects(s) backward
	Bring to Front	Bring selected objects to front
	Send to Back	Move selected objects to back
Group Popup	Group	Combine selected objects into group
	Ungroup	Ungroup selected object
Track Tools Popup	Straight	Draw straight track
	Circle	Draw guide circle
	Turntable	Draw turntable
	Station	Define and view station areas
Scenery Tools Popup	Line/Poly	Drag lines to create scenery object
	Rectangle	Drag rectangle to create scenery object
	Ellipse	Drag to create circular scenery object
	Text	Drag to create text object
	Painter	Click a scenery object to recolor
Scripting Popup	Record	Start or stop recording
	Rewind	Rewind all scripts to last snapshot
	Stop	Stop all scripts and trains
	Play	Start all scripts and trains
	Edit	Edit or create script
	Pause	Pause all trains
	Script Central	Show or hide Script Central dialog
	Command Prompt	Bring up prompt for one-line script
	Set Rewind Point	Set new Rewind Point to current positions
Ops Popup	Ops Central	Show/hide Ops Central dialog
	Active Engine	Zoom to engine active in ops
	Schedule Window	Show or hide schedule window
	Route Finder	Show dialog for finding routes
	Waybill	Show/hide waybill for selected car

	Map Window	Show or hide map view window
Train Tools Popup	Slower	Decrease speed
	Stop	Stop train
	Faster	Increase speed
	Reverse	Reverse direction
	Uncouple	Uncouple selected car
	Auto-Follow	Follow lead car of train as it travels
	Upcoming Switch	Throw next switch ahead of train
Add Car Popup	By Name	Show car names list and car inventory bar
	Car Chooser	Show Car Chooser
	Car Inventory Bar	Show or hide car inventory bar
	Diesel	Add diesel locomotive to train
	Steam	Add steam locomotive to train
	Tender	Add coal tender to train
	Pullman	Add passenger car to train
	Baggage	Add baggage car to train
	Reefer	Add refrigerator car to train
	Hopper	Add hopper to train
	Gondola	Add gondola to train
	Boxcar	Add boxcar to train
	Tankcar	Add tank car to train
	Flatcar	Add flatcar to train
	Caboose	Add caboose to train

For general instructions about toolbars, see [Dynamic Toolbars](#).

This page shows all toolbars and all available buttons. Toolbars marked **(TL)** are available only with a TrackLayer license. Buttons marked **(H)** are hidden by default; to see these, click the down-arrow at toolbar right and use **Add or Remove Buttons**.

Main Tools



Open Layout	Open layout from Layout Chooser	
View	View Options subtoolbar	
Pause	Pause all trains and all action until click OK or press ESC	
Stop Trains	Immediately stop all running trains	(H)
Auto-Follow	Toggle: when on, view follows lead car of train as it travels	
Throw Next	Throw next switch ahead of train	(H)
Scripts	Script Tools subtoolbar	
Ops	Ops Tools subtoolbar	
Train	Train Tools subtoolbar	
Paint Shop	Show Paint Shop Dialog	
Full Screen	Toggle full-screen view	(H)
Refresh	Redraw layout and trains	(H)

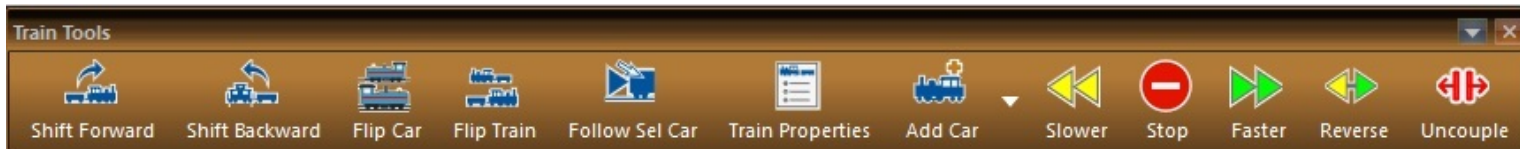
Build Tools

(TL)



Run	Run mode	
Edit Track	Edit track	
Straight	Draw straight track	
Circle	Draw guide circle	
Turntable	Draw turntable	
Station	Define and view station areas	(H)
Edit Scn	Drag selection rectangle to select scenery objects	
Scn Tools	Scenery Tools subtoolbar	

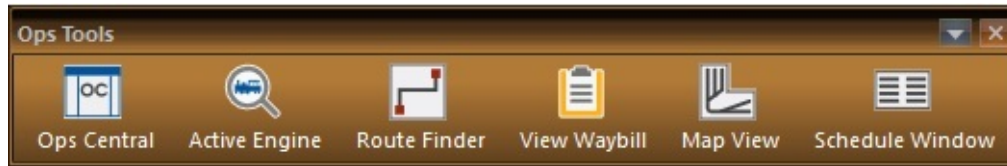
Train Tools



Shift Forward	Swap car closer to front of train
Shift Backward	Swap car closer to rear of train
Flip Car	Reverse car on tracks
Flip Train	Change train orientation
Follow Sel Car	Follow selected car as it travels

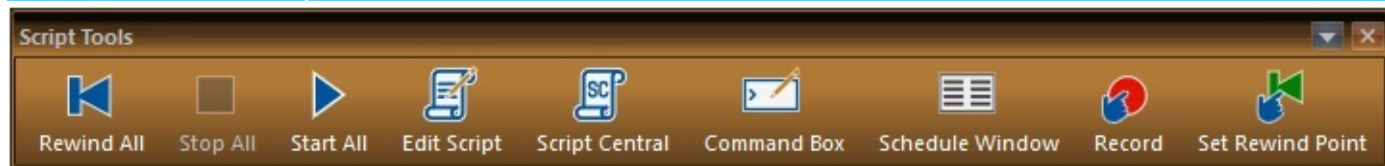
Train Properties	Properties of selected train	
Add Car	Add Car menu	
Slower	Reduce speed by 1 MPH. In Yard Mode, if speed goes below zero, reverse direction of travel.	(H)
Stop	Cut power and coast to a stop.	(H)
Faster	Increase speed by 1 MPH. In Yard Mode, if speed goes above zero, reverse.	(H)
Reverse	Reverse direction of travel (toggle Forward/Reverse).	(H)
Uncouple	Uncouple at pin position	(H)

Ops Tools



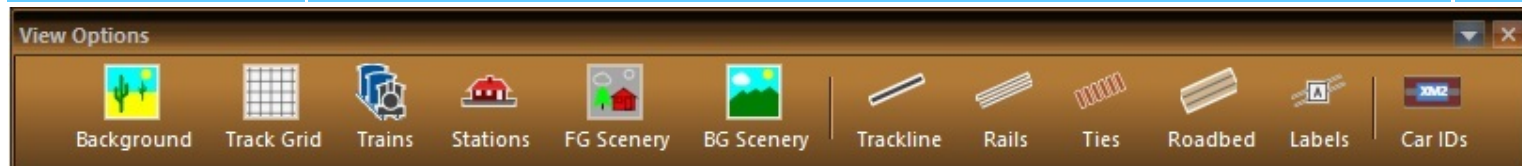
Ops Central	Show/hide Ops Central dialog
Active Engine	Zoom to engine active in ops
Route Finder	Show dialog for finding routes
View Waybill	Show/hide waybill for selected car
Map View	Show or hide map view window
Schedule Window	Show or hide schedule window

Script Tools



Rewind All	Rewind all scripts to last snapshot
Stop All	Stop all scripts and trains
Start All	Start all scripts and trains
Edit Script	Edit or create script
Script Central	Show or hide Script Central dialog
Command Box	Bring up prompt for one-line script
Schedule Window	Show or hide schedule window
Record	Start or stop recording
Set Rewind Point	Set new Rewind Point to current positions

View Options



Background	Show or hide scenery
Track Grid	Show or hide grid lines -- see Adjusting the Grid
Trains	Show/hide trains
Stations	Show or hide stations
FG Scenery	Show/hide foreground scenery objects
BG Scenery	Show/hide background scenery objects
Trackline	Show or hide track center line -- for info on track display see Road Styles
Rails	Show/hide double rail
Ties	Show or hide ties on all track
Roadbed	Show or hide roadbed under all track
Labels	Show or hide labels on track sections

Arrange Options

(TL)



Bring Forward	Bring selected object(s) forward
Send Backward	Move selected objects(s) backward
Bring to Front	Bring selected objects to front
Send to Back	Move selected objects to back
Group	Combine selected objects into group
Ungroup	Ungroup selected object

Scenery Tools

(TL)



Foregr Layer	Enable editing of foreground scenery
Backgr Layer	Enable editing of background scenery
Edit Scn	Drag selection rectangle to select scenery objects
Line/Polygon	Drag lines to create scenery object
Rectangle	Drag rectangle to create scenery object
Ellipse	Drag to create circular scenery object
Text	Drag to create text object
Painter	Click a scenery object to recolor
Arrange	Arrange Options subtoolbar
Scenery Grid	Show/hide scenery snap grid
Scn Chooser	Show or hide dialog for adding scenery objects
Scn Styles	Bring up Scenery Styles dialog

(H)



Getting Started

By now you have installed the program and figured out how to start it. It's time to open a layout and take a look around. Trains will be covered in the following chapters.

[About Files](#)

[Opening a Layout](#)

[Tour of the Screen](#)

[Layout Properties](#)

[About Sizes and Scales](#)

[Adjusting the View](#)

[Layout Printing](#)

[Help Menu](#)

What's Next:

Touch the speed slider on the control bar, and the train will move. See the next chapter for instructions on how to drive it.

About Files

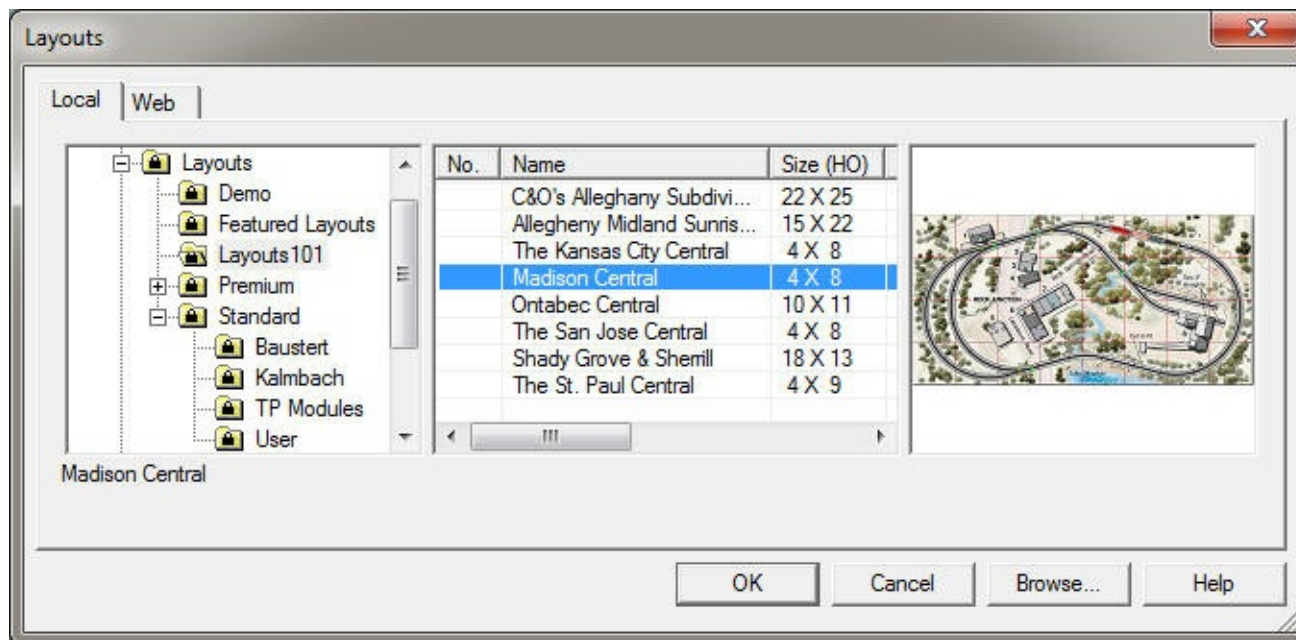
TrainPlayer has a lot of mechanism for dealing with files, because it has a lot of files to deal with. A fully-equipped TrainPlayer site has thousands of files, including layouts, layout backgrounds, car collections, scenery objects, and sounds.

Typically, the installer brings you only a small set of files. Most of the content you use comes by download from the web, and accumulates over time. To help you manage this content, both local and web, the program has special dialogs called "choosers," which organize the data into trees and allow you to browse preview images. For details, see [Choosers](#).

Where do you find the TrainPlayer files on your computer? The answer to this question has changed over the history of the program, as Windows conventions have evolved. In the latest version, most of your data files are found in your "application data folder," a system-defined location on disk which depends on your operating system. You can find this location easily by choosing the command **Open Data Folder** from the File menu. This opens Windows Explorer to your TrainPlayer app data directory.

Opening a Layout



When you start TrainPlayer, the [Layout Chooser](#) appears:



If the chooser doesn't appear at startup, you can bring it up using File > Open Layout. To open a layout: click to select it in the list, then click Open. Or double-click in the list. Multiple selections are allowed, causing several layouts to open at once.

To sort the list by number, name, size, date, or filename: click on the header at the top of the corresponding column. Click again to sort in reverse order. To resize the dialog: drag by the lower right corner. For more about this dialog, see [Layout Chooser](#) and [Choosers](#).

Other ways to open layout files:

- Use File Open  and choose a file from the Windows file system*
- Use File Open Layout  to bring up the Layout Chooser
- Double-click an .rrw file on your desktop or in Windows Explorer
- Select one or more .rrw files in Windows Explorer and drag them into the TrainPlayer window

* In the File Open dialog you can select more than one file to be opened. Use Shift or Ctrl keys to create a multiple selection.

Errors on Opening Layout

When you open a layout, the program checks to see if all the referenced components are available.

- If the layout refers to a non-existent background file, an alert informs you of this and the layout opens without the background.
- If the layout refers to cars or scenery objects which cannot be found in your local collections, the [Missing Car/Scenery dialog](#) comes up and offers to download the missing items.

- If the layout refers to other layouts linked to it, you will get an alert when the train reaches the jumping-off spot on the track and tries to go to the missing linked layout.
-

Revert To Saved

The command **File > Revert To Saved** restores the layout to the same state as when it was last opened. It has the same effect as closing the file, answering No if asked to save changes, then reopening the file.

This command is handy for resetting trains and switches back to a fixed starting point. Popular with script developers.

Read-Only Layouts

You can mark a layout file as ***Open for read only***. This mark gives the layout author a way to protect the file from inadvertently being overwritten. This mark is applied using a checkbox in the [Advanced Layout Properties](#) dialog.

When a file is marked for read only, it means that when you choose **File > Save**, the program instead brings up the **Save As** dialog, and offers a new filename different from the original. You can then click OK to save the file without modifying the original.

If you **do** wish to overwrite the original, you can change the name in the Save As dialog. Change it back to the original name, then answer Yes when prompted if ok to overwrite.

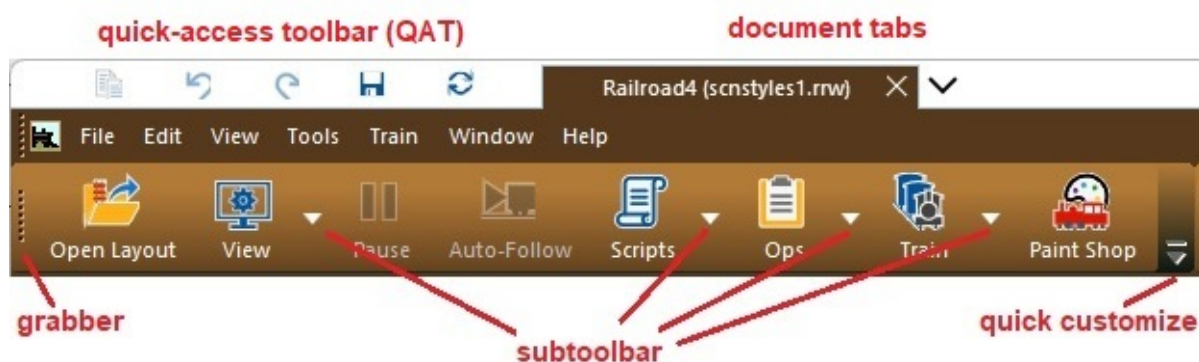
Dynamic Toolbars

At Version 8.2 we introduced a new user interface scheme called "Dynamic Toolbars." As before, it is based on customizable toolbars provided by [BCGSoft](#), now improved in several ways: toolbars are easier to see -- larger by default, with text labels and all new scalable icons; easier to navigate, with a new button groups in a simple hierarchy; easier to customize, with drop-down menus for fast adding and removing of common buttons. There is a handy new quick-access toolbar, and the list of open documents is now tabbed.

This page gives general instructions for working with toolbars. For details about the individual bars and buttons on them, see the [Toolbar Reference](#).

For a detailed description of the changes in 8.2, see the web-based PDF document [A New Style for the TrainPlayer User Interface](#).

Toolbar Operation

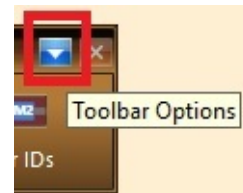


Default toolbar arrangement

By default, the program starts with one or two toolbars docked at the top of the screen: the **Main Toolbar** -- a set of common tools for all users (shown above), and the **Build Toolbar** -- tools for creating track and scenery, available only with a TrackLayer license.

The other toolbars are called **subtoolbars**; these are called up by clicking down-arrow buttons such as shown above.

At the right end of each toolbar is a **Quick Customize** button, providing ways to change toolbar contents. On a floating toolbar, this is a down-arrow on the title bar, with tooltip "Toolbar Options" =>



Also shown above are two components along the top: the Quick Access Toolbar (details [below](#)) and the Document Tabs, showing the layout name and filename of each open document. Click a tab to bring its layout to the front; click the X on a tab to close it.

Dynamic positioning (DP)

A new user-settable property called Dynamic Positioning controls several aspects of toolbar behavior. DP is on by default, which means:

- Only the Main and Build toolbars are shown at program start, and they are always docked to screen top.
- Only one subtoolbar is shown at a time -- when you bring one up, the others go down.* The aim is to devote screen space only to tools you are actively using.
- Positioning of subtoolbars is handled automatically -- they are initially positioned on top of the train window, and return there after a restart or reset

* Exception: when you click Arrange on the Scenery toolbar, both toolbars remain visible.

When DP is off, the toolbars work as they did in previous versions: you can position and dock them around the screen as desired, and they remain where placed.

To turn DP on or off, use the checkbox in [Preferences > Style](#).

Opening and closing toolbars

To show or hide toolbars:

- to show a specific subtoolbar, click the appropriate down-arrow button on a parent toolbar. When DP is in effect, this causes all other subtoolbars to be hidden.
 - to show or hide any toolbar: check or uncheck items under **View > Toolbars**, or go to the Toolbars tab of the [Customize dialog](#). These actions are not affected by the DP setting -- if DP is off, this is the way to see more than one toolbar at a time (at least temporarily).
 - to hide an individual toolbar: undock it if it is not already floating, then click the close button (X).
-

Moving and docking toolbars

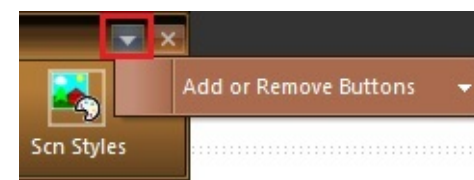
To undock a toolbar: press and drag on the grabber at left (see screen shot above). This converts the toolbar to a floating window, with quick-customize and close buttons on the title bar.

To dock a floating toolbar: drag by the title bar onto any edge of the main window, until the bar snaps into place, then let go.

To resize a floating toolbar: drag an edge or corner. You can change between a single row of buttons and a grid with multiple rows.

Adding and removing toolbar buttons

The quick way to modify a toolbar is to press the Quick Customize button. This brings up **Add or Remove Buttons**, from which you can choose a toolbar and check or uncheck items to be shown on it. This method is limited -- it lets you show or hide buttons only from the fixed set attached to each toolbar.



The more complete way to modify toolbars is to use the [Customize dialog](#). There you can add or remove any command on any toolbar using drag and drop.

Setting toolbar styles

To modify the appearance of toolbars, use the Toolbars section of [Preferences > Style](#) =>

- **Size:** choose one of three fixed button sizes. Default is Medium.
- **With text labels:** check to show text on all toolbar buttons. Default is ON.
- **Dynamic positioning:** check to enable [DP](#). Default is ON.



The choices here apply to all toolbars at once. To modify the appearance of a single toolbar, use the [Customize dialog](#). Any choice you make here is applied immediately on the screen, so you can experiment to find what you like best.

To revert to factory settings, (a) click **Reset** at the bottom of the Add or Remove Buttons menu, (b) click **Defaults** in Preferences > Style, or (c) click **Reset** or **Reset All** in the Toolbars tab of the Customize dialog.

Quick-Access Toolbar

The top left corner of the TrainPlayer window shows the Quick-Access Toolbar (QAT), a small customizable set of frequently-used commands.



This menu comes with a built-in list of eight common commands, five enabled by default -- as you can see =>

when you right-click anywhere on the QAT. Under **More>** are listed all the commands in the program which have icons associated with them.



To add or remove buttons from the QAT, just check or uncheck items on the menu. If you choose an item under More>, it is appended to the menu; unchecking removes it.

Tour of the Screen

Here is a screen shot of a layout surrounded by various gadgets, showing [Dynamic Toolbars](#) introduced at Version 8.2. Click for full-sized image.



Shown above are:

- [Main Toolbar](#) and [Build Toolbar](#): default arrangement for a TrackLayer user
- [Quick-Access Toolbar](#): small buttons for frequently-used commands
- [Document tabs](#): to select an active document
- [Train control bar](#): combination control panel and train window, for operating and displaying the selected train.
- [Layout](#): top view, with current zoom and view settings
- [Car inventory bar](#): source of cars for adding to the layout, by drag-and-drop or click
- [Zoom slider](#): for adjusting zoom of layout view
- [Status bar](#): showing messages and data of interest

Shown below are some of the optional docking windows:

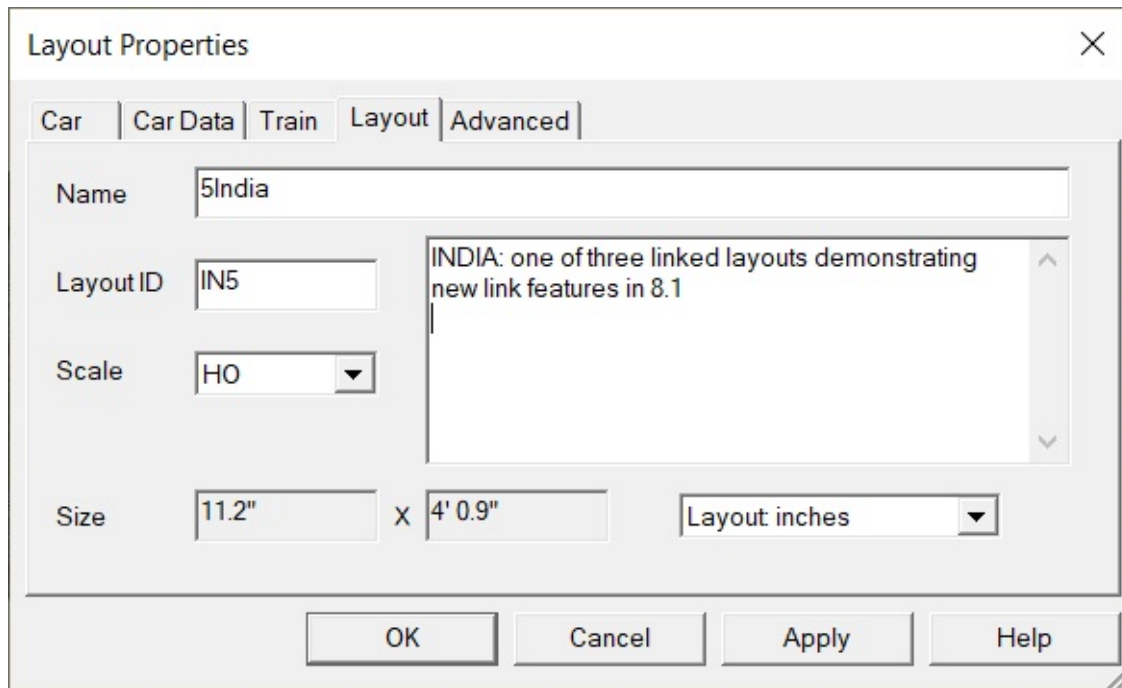
- [Train Tree](#) -- hierarchy of trains and cars (superseded by [Train Menu](#))
- [Switch Window](#) -- showing switches around active train
- [Map View](#) -- miniature view of entire layout, showing locations of various ops-related cars and locations
- [Clock](#) -- scale railroad clock, in antique (shown) or digital

- **Schedule Window** -- shows train movements, script output, messages



Layout Properties

Properties of the current layout. Called from **Properties** on the [Layout context menu](#). See also [About the Properties Dialog](#).



This dialog shows general properties of the layout and lets you edit certain items. Additional layout properties are on the [Advanced](#) tab.

Dialog controls:

Name Name of the railroad. This name appears at the top of the layout window and in other displays.

Layout ID Short text identifier used when working with [linked layouts](#). Assigned automatically by the program but can be edited. In order for linkages to work, the LayoutID must be unique among all open layouts..(New in 8.1)

Scale Choose your modelling scale -- see [About Sizes and Scales](#). The scale affects dimension measurements throughout the program.

Description Information about the layout, as provided by the author. Often includes the author's name, operating instructions, and other information of interest. **New in v 6.6:** if the layout has no description, but does have a master script with introductory notes, then the latter are displayed here.

Overall size of the layout image (width x height) in units selected

Size	from the drop-down to the right. The size shown here is approximate -- it is calculated from the image file, not the layout itself. These values are not editable; to change the layout size, adjust the grid.
Units	Choose model scale or prototype, English or metric. Units chosen in this dialog will apply throughout the program, but can be changed in several other dialogs.

About the Properties Dialog

The Properties dialog is for viewing and editing properties of the layout and the currently-selected car and train. It is inconvenient to do this with a normal *modal* dialog, because you have to close and open the dialog for each object you want to inspect. Instead (as of Version 5.2) the Properties dialog is *modeless* -- it stays on the screen as you click cars and trains around the layout.

The dialog has four buttons:

- OK** apply changes from all tabs and close the dialog.
- Cancel** close the dialog without applying changes.
- Apply** apply changes made in any tab to the selected car, train, and layout.
- Help** provide help for the current tab.

The Apply button is dimmed until you modify some property. Once you click it, the modifications are applied to the layout, and you can no longer cancel -- the Cancel button becomes dimmed, and OK becomes Done. At this point if you want to revert back to the original, you can use **Edit > Undo**.

The dialog belongs to the layout window. It does not remain on display if you close, minimize, or deactivate the layout.

Edits are applied automatically when you change the selected car or train. If you select a car, edit one of its properties, then select a different car, it behaves as if you had clicked Apply.

About Sizes and Scales

The Grid According to Westcott

The layouts in Linn Westcott's *101 Track Plans* are designed to be independent of scale, so that any plan can be used to design a railroad in any scale. Each plan in the book is overlaid with a square grid, with the following legend on many pages:

Ruled lines across plan are: **6" apart in N**
 9" apart in TT
 12" apart in HO
 18" apart in S
 24" apart in O

The idea is that you can take a plan designed for a 4x8 table in HO, divide everything by two, and get a perfectly good plan for a 2x4 table in N. It's a convenient system for a book of track plans, and TrainPlayer has been based on it for years.

However, as our N-scale users have pointed out, this approach does not give accurate measurements in most scales. N scale is approximately half of HO, but not exactly. To get it right, it is necessary to use true scale ratios, and to make some compromises in the Westcott model. We undertook these changes in Version 6.5 (2017), so that it now works as follows. The 1:1 scale was added in Version 7.2 (2020).

The Modelling Scales

The accurate approach is based on official scale specs as documented by the National Model Railroad Association (NMRA) and summarized in the following table:

Scale Name	Scale Ratio	Grid Spacing	Proto F/G	RRU/G
Z	220	4	73	1011
N	160	6	80	1103
TT	120	9	90	1241
HO	87	12	87	1200
OO	76	15	95	1310
S	64	18	96	1324
O	48	24	96	1324
I	32	36	96	1324
G	24	48	96	1324
1:8	8	120	80	1103
1:1	1	960	80	1103

Columns:

- **Scale Name:** official name of the modelling scale

- **Scale Ratio:** ratio of model to actual size. This defines the scale; "HO" means "1/87 actual size."
- **Grid Spacing:** Westcott-inspired distance between grid lines, in inches
- **Proto F/G:** prototype feet per grid square. Calculated from other columns; see below.
- **RRU/G:** internal units (RRU) per grid square. Calculated; see below.

The first two columns define the modelling scales, per NMRA standards. The next column gives the definition of the TrainPlayer grid, per Westcott. The other columns used to be fixed values, but are now variables, calculated as follows:

- **Proto F/G:** size of a grid square in prototype feet = (grid spacing in inches) x (scale ratio) / 12

A grid square occupies a slightly different amount of real estate in the prototype world, depending on scale. Values in the table indicate that a ninety-foot flatcar would just exactly fit inside a grid square in TT scale, where in N or HO it would fit with room to spare, but in O or G it would overflow.

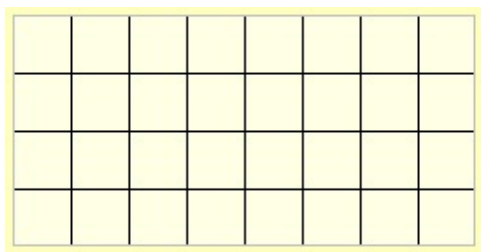
- **RRU/G:** RRU per grid square = 1200 x (proto feet per grid) / 87

Internal units of measurement in TrainPlayer are called RRU, defined as: 1 RRU = 0.01" in HO. Thus a 4x8 layout in HO is 4800 x 9600 RRU. Prior to version 6.5, a grid square was fixed at 1200 RRU in all scales; now it varies as shown in the table.

Consequences

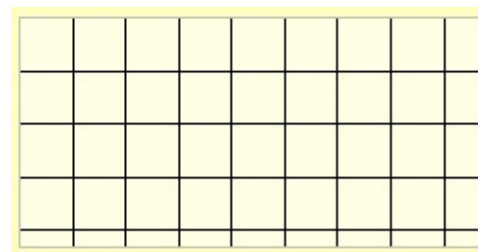
Changes made in 6.5 give accurate scaling at the cost of some simplifications of the Westcott model. The main one is this: when you change from one scale to another, the overall size of the layout does not multiply evenly. Start with a 4x8 HO layout, change to N scale, and you no longer get 2x4, but something a little larger. The grid does not remain fixed as before, but changes to maintain the required spacing (6" in N).

Try it. Create a 4x8 HO layout, then change it to N (using the drop-down in Layout Properties):



HO: 48 x 96"

change
scale
=>



N: 26 x 52"

The result is not 2x4, and the grid adjusts accordingly.

Adjusting the View

There are many ways to modify what you see on the screen:

- Turn **visible features** on or off -- background image, scenery layers, track styles. See the [View Options](#) toolbar
- **Zoom** in or out -- see [Zooming](#) below
- **Resize or rotate** the layout -- see [Rotating a Layout](#) below; also the [Resize/Rescale](#) tool
- Show or hide **toolbars** -- see [Dynamic Toolbars](#), [Train Control Bar](#), [Car Inventory Bar](#)
- Show or hide special-purpose **docking windows** -- found on the [Tools menu](#):

[Map View](#) -- miniature view of entire layout

[Schedule](#) -- window for display of message and script output

[Clock](#) -- railroad clock running at scale time

[Switch Window](#) -- simplified view zoomed to upcoming switch

- Open a **second window** -- see [Windows and Views](#)
- Use **Full-Screen view** -- see [below](#)

Zooming

Zooming the document image is a feature of many Windows programs, and there is a common zoom-slider control available for this purpose, found on the right end of the status bar:



To zoom:

1. If the zoom control is not visible at the lower right of your app window, use **View > Status Bar** to display it.
2. Click + or - button to zoom in or out by one tick. Press and hold button to auto-repeat.
3. Or, press and drag the thumb: right to zoom in, left to zoom out. Or click a spot along the slider bar to zoom to that point.

On the left of the slider is the magnification ratio, where 1:1 means the image is the same size as the model. For example, at 1:1, a 60-foot HO boxcar would measure 8.3" on the screen, the same as the model in the Walthers box. Maximum magnification is 2:1.

Other ways to zoom:

- Use zoom commands on the [layout context menu](#). When you choose a command from the context menu, the zoom will be centered on the point you right-clicked. Commands are:

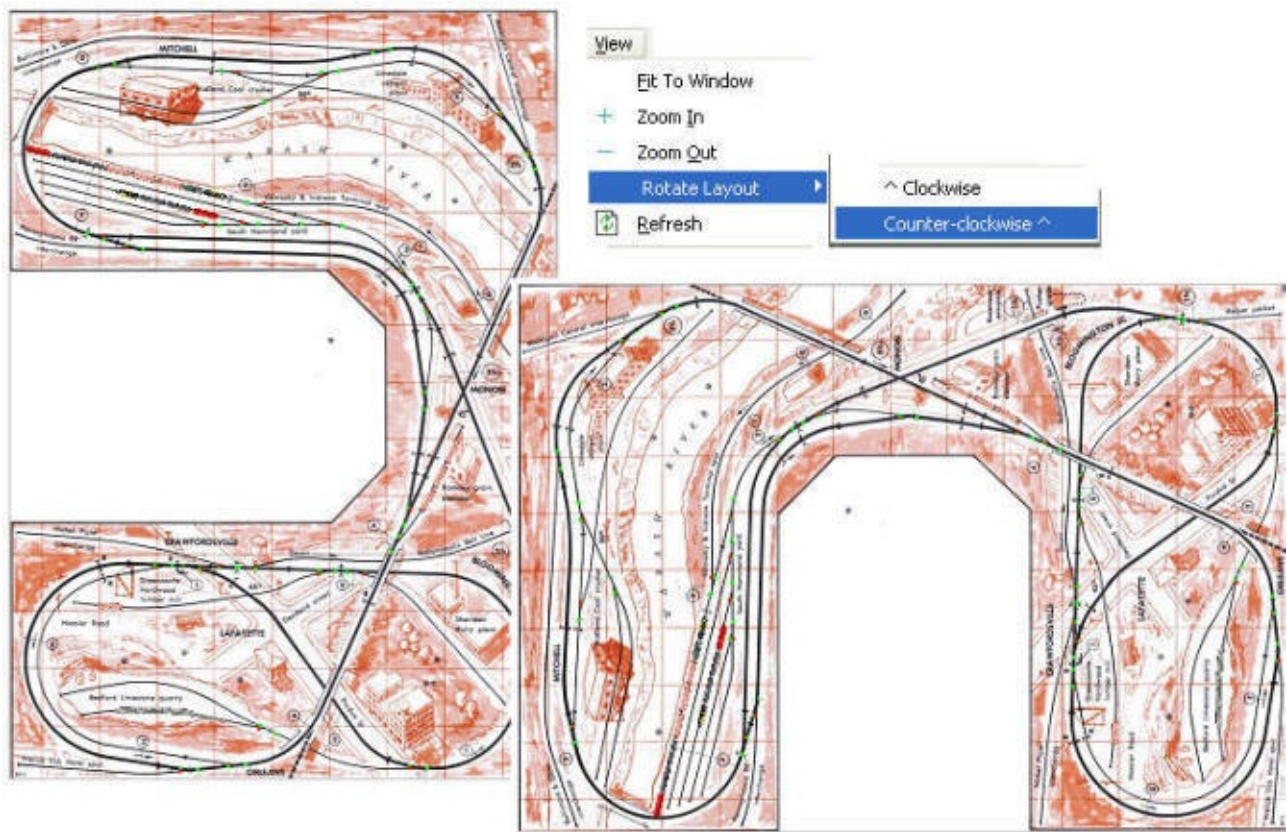
- **Zoom To/From:** zoom in or out by a fixed amount, centering on the right-clicked location.
 - **Zoom <percent>:** zooms to a specific magnification. 100% is defined as where grid lines are one inch (72 pixels) apart on the screen. At 50% they are a half inch apart, at 200%, two inches.
 - **Fit to Window:** scales so the entire layout fits into the frame window. This is a mode: when on, any resize of the window causes the layout to resize accordingly.
 - **Zoom To** when pointing to car in [train window](#): zooms view to center on indicated car
 - **Zoom On Drag:** zooms in to an area defined by a user-drawn rectangle. This command is available only in TrackLayer. To use:
 1. Activate the Edit or the Track tool. The command is dimmed if any other tool is in use.
 2. Right-click anywhere on the layout and choose **Zoom On Drag**. This checkmarks the item on the menu, and puts you in a special mode temporarily.
 3. Press and drag to define a selection rectangle around the area you want to zoom in on.
 4. When you release the drag, the indicated area will zoom to fill the window.
 5. The command works for one drag only; it automatically reverts to unchecked after each use.
 6. If you change your mind, choose Zoom On Drag again from the menu to toggle it off.
-

Rotating a Layout

Any layout can be rotated a quarter turn in either direction. Both the track and the background image are rotated, and both can be saved in the new orientation.

To rotate a layout, choose View > Rotate Layout > [direction]. The layout rotates 90 degrees in the indicated direction. Repeat for 180, 270, etc.

To save the layout in the new orientation, choose File Save or File Save As. Both the rotated layout and the rotated image file are saved. The default action in both cases is to overwrite the original background image. You are warned about this, and given an opportunity to save the image to a different file.



Dragging the View by Hand

As an alternative to using the scrollbars, you can pan the view by dragging with the mouse. When the view is zoomed in (so the layout is larger than the document window), and the **Run** tool is selected, then press and drag any point on the layout and the view will move.

If the layout extends beyond the window in only one direction, you can only drag that way. For example, if the layout is a long horizontal strip which extends to left and right, but is completely visible vertically, then you can only drag in a horizontal direction.

This feature can be disabled. In [General Preferences](#), uncheck the box "View drag by hand."

Auto-Follow

When a train is about to run off the edge of the screen, you can arrange to have the view automatically scroll so the train stays visible. This feature is called "Auto-Follow." It applies to the selected train. It happens when:

- the selected train is moving, including being dragged by hand
- the view is zoomed in such that there is more layout beyond the edge of the screen in the direction of travel
- **Auto-Follow** is turned on, i.e., the command is checkmarked on the menu

When these conditions are met, then when a certain car gets within a certain distance from the screen edge, the view starts to scroll. By default the car moving the view is the "lead car," meaning the car in front in the direction of travel -- engine if going forward, caboose if in


reverse. Or you can override this and choose a specific car, by checking the menu command **Follow Selected Car** -- when this is checked, then whatever car is currently selected moves the view.

Auto-Follow is automatically turned off whenever you scroll manually using the scrollbars. If this were not the case, then the view would oscillate when pulled in different directions. However, auto-follow is **not** turned off when dragging the view by hand.

Full Screen View

Full Screen View (FSV) removes menus and toolbars and extends the view to the edges of the screen*. Taken to the extreme, this would leave you with no way to operate the trains, so we provide ways to augment the view with various control devices.

To enter Full Screen View:

- choose **View > Full Screen** from the main menu, or
- choose **Full Screen > On/Off** from the layout context menu, or
- click the toolbar icon .

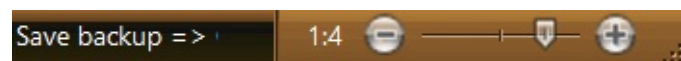
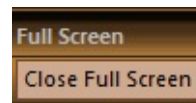
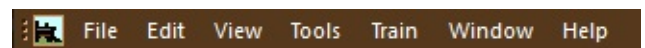
By default, the view enlarges to fill the screen, and you get a small floating close box, train toolbar, and the main menu across the top.

To return to normal:

- click **Close Full Screen** in the Close Box (if visible), or
- press ESC on the keyboard

To show or hide the controls: check or uncheck items from the submenu:

Main Menu	full menu bar -- gives access to all menus and functions
Control Bar	Train Control Bar and train window -- right-click to choose buttons
Close Box	small box with one button, for exiting full-screen view
Train Tools	Train Toolbar -- toolbar of controls for operating trains**
Status Bar	status bar with zoom slider at bottom of screen



Each checked device is displayed automatically on entering FSV, and taken down on leaving. Default is to display all except Control Bar.

Note: the Train Control Bar can be made very small. Any of its controls, including the speed slider, can be hidden from view. Any adjustments made in FSV apply only there, and you can have different TCB arrangements in normal vs. full-screen.. In FSV you might have, for example, a little window displaying just the car monitor =>



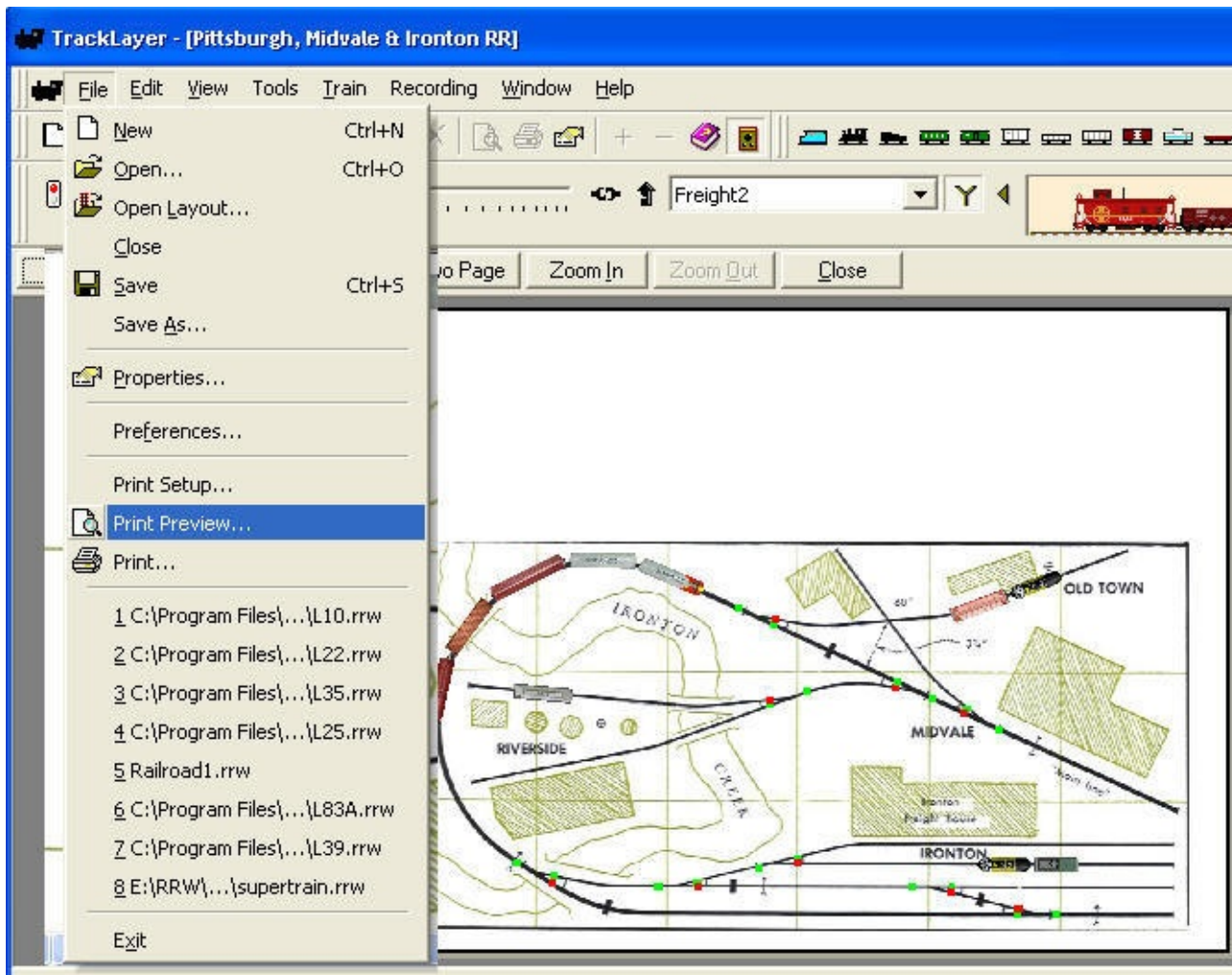
* Actually, not quite. Full-screen view retains scrollbars when needed.

** This toolbar by default is not optimized for use in FSV. Consider using Add or Remove Buttons to put speed and direction controls on the Train Toolbar -- see instructions under [Dynamic Toolbars](#).

Layout Printing

In TrainPlayer, you can print your layout as it looks on the screen -- with switch lights, with or without trains, background, track, or grid. The printout reflects the current settings on the View menu.

Use Print Setup, Print Preview, or Print commands on the File menu, the same way you do with most Windows programs.



The image is always scaled to fit the page. For most images, landscape orientation works best (choose in Print Setup). There is currently no way to scale up to print to multiple pages.

Exporting Images

Export Image was introduced as a way of creating a snapshot of your layout in a graphics file. The feature has been improved over time:

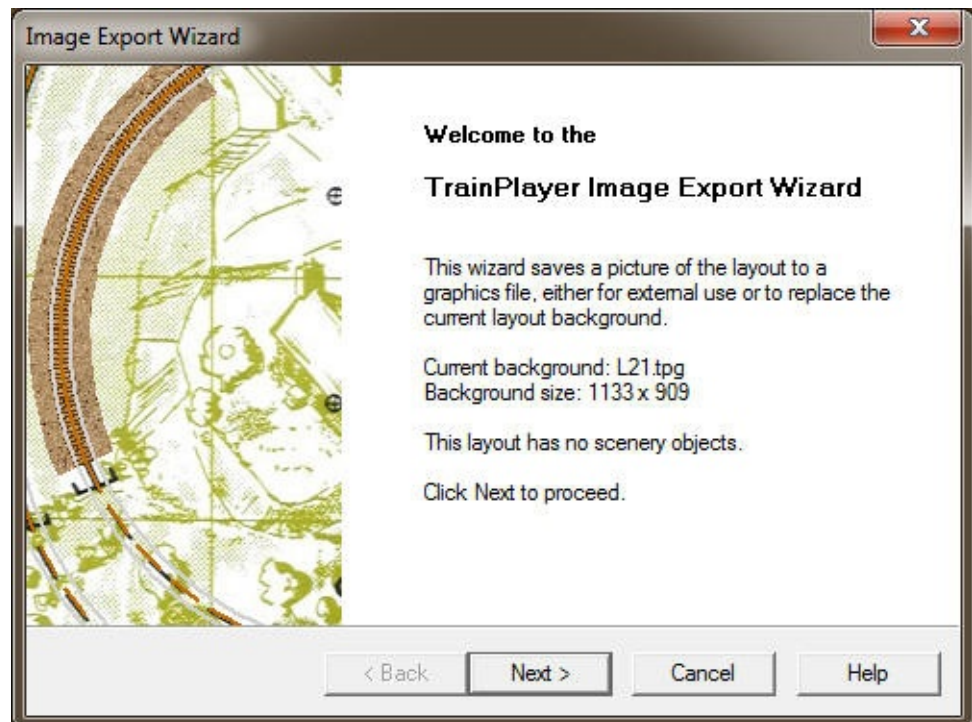
- A "Merge Background" mode is designed for layouts with lots of scenery (especially roadbed and ties). It draws the scenery into the background image, then deletes it from the layout and swaps in the new background. The result is a richer background underneath a simpler, more responsive track/scenery layer.
- The exported image is no longer limited to what you see on the screen. You can now choose at export time which features you would like to see in the output -- track, trains, scenery, stations, etc.
- Output sizes are now more sensible. The default is the native size of the current background, adjustable within reasonable limits.
- A wizard leads you through the steps of the process.

To export or merge, choose **File > Export Image**. This brings up the Image Export Wizard.

Image Export Wizard

Welcome screen

Introduces the wizard. Shows the current layout background image, if any, with its size in pixels. Reports whether the layout has scenery, and if so, how much.

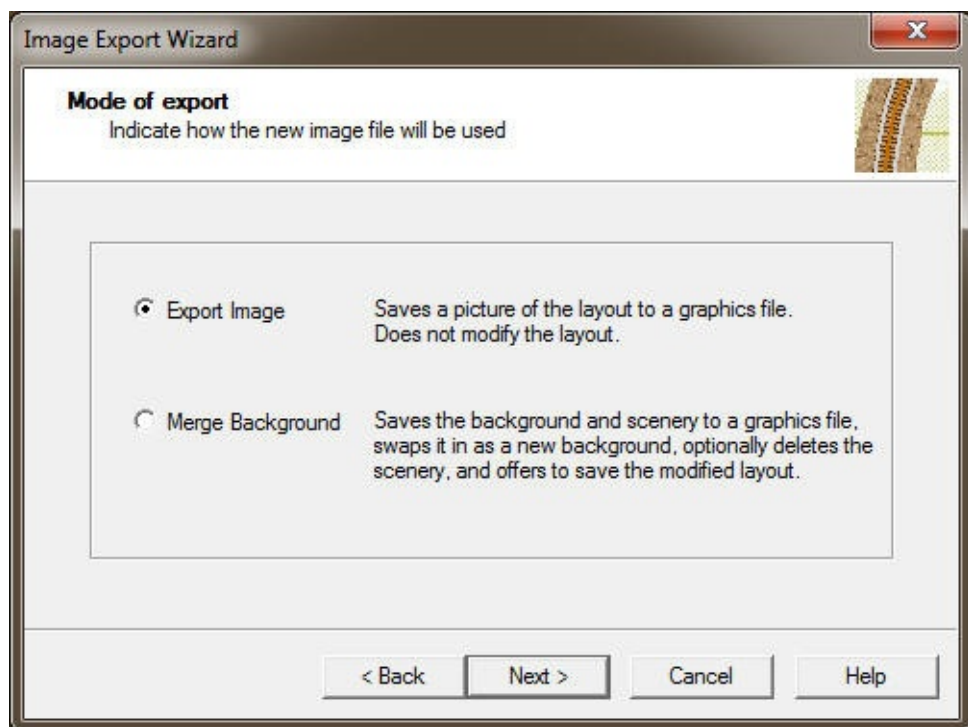


Export Mode

Choose **Export Image** if you wish to create a graphics file containing

an image of the layout. This mode does not modify the layout.

Choose **Merge Background** if you want to replace the current background image with a new one containing both background and scenery. In this mode you will be offered to have the scenery deleted after export.



Output File

Specify the output path for the graphics file. Use the Browse button to bring up a file dialog for choosing a path.

The text box shows the full path. Below that for convenience is the filename and extension, plus an indication of whether the file is new or already exists.

The initial path offered is unique, it does not match an existing file.

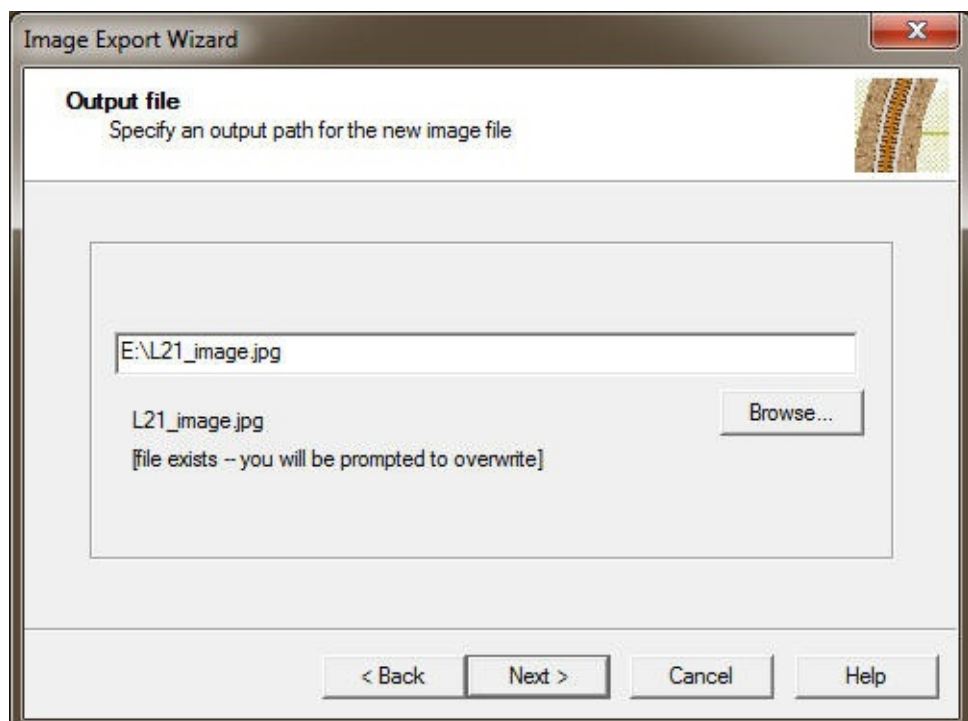


Image Features

Select the display features to be drawn in the exported image. Selections made here will not affect the layout on the screen.

The initial choices depend on the mode. For Export Image, choices match the features on display in the current view. For Export

Background, choices are Background and Scenery only.

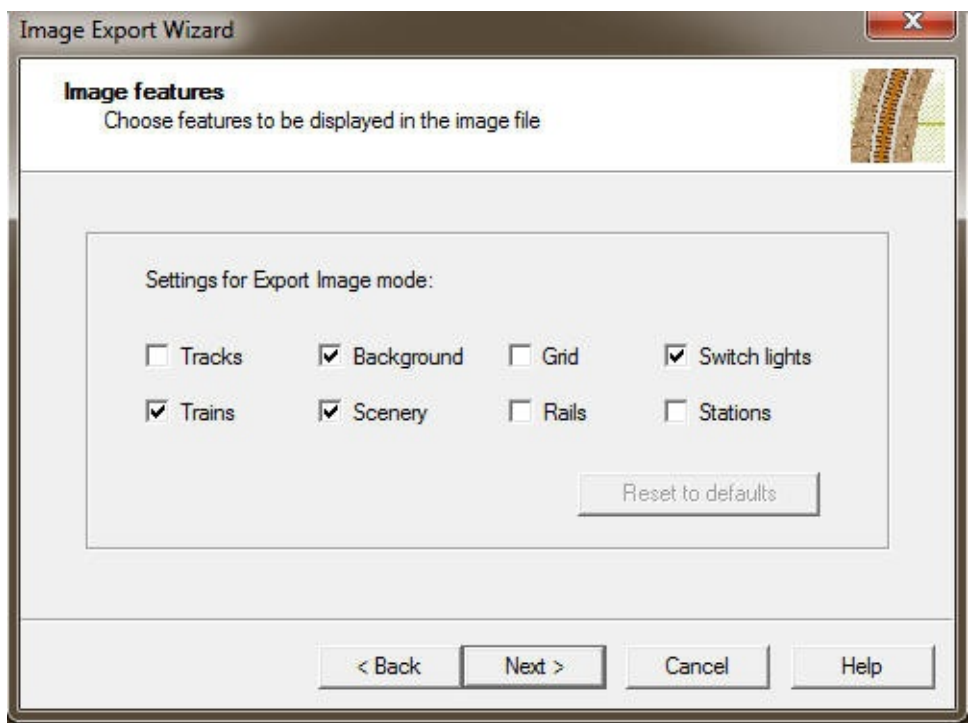
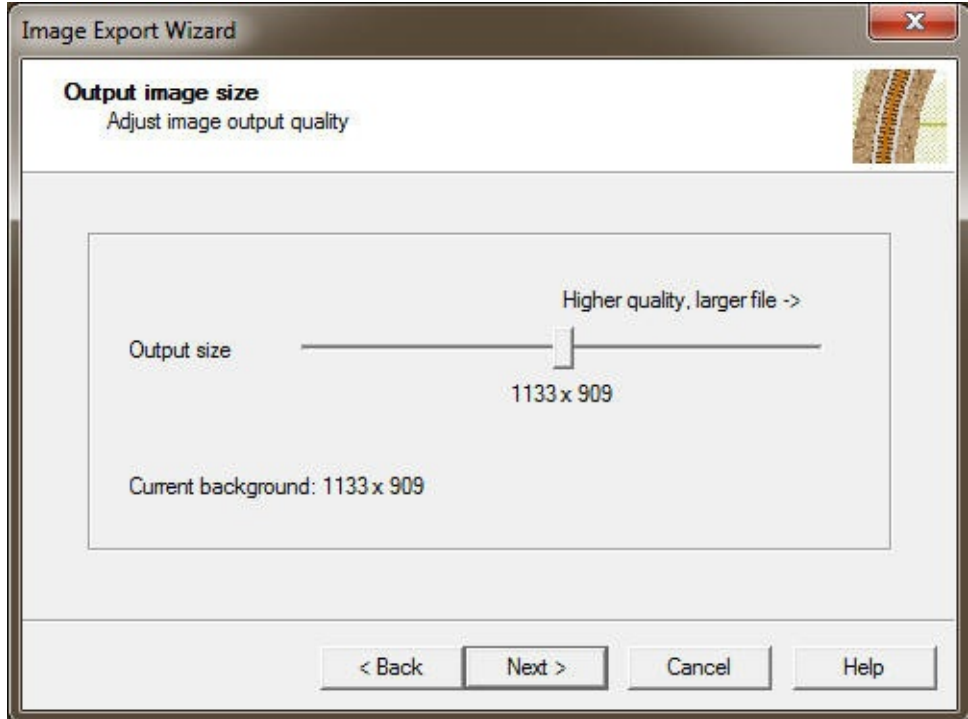


Image Size

Specify the size of the exported image.

The default choice (middle of the slider) is the current size of the background image if any; if there is no background, the choice is based on the size of the layout. Move to the right to generate a larger file with higher resolution, left for a smaller file.

You may need to experiment for best results. If you are not merging scenery, there is no reason to export a file larger than the current background; if you export ties and roadbed, you will want a larger file for a sharper image. However, choose too large and you may exceed memory capacity, so you will be alerted and required to choose a smaller size.



Finish Screen

Concludes the wizard and carries out the export. Your choices are shown. Checkboxes allow

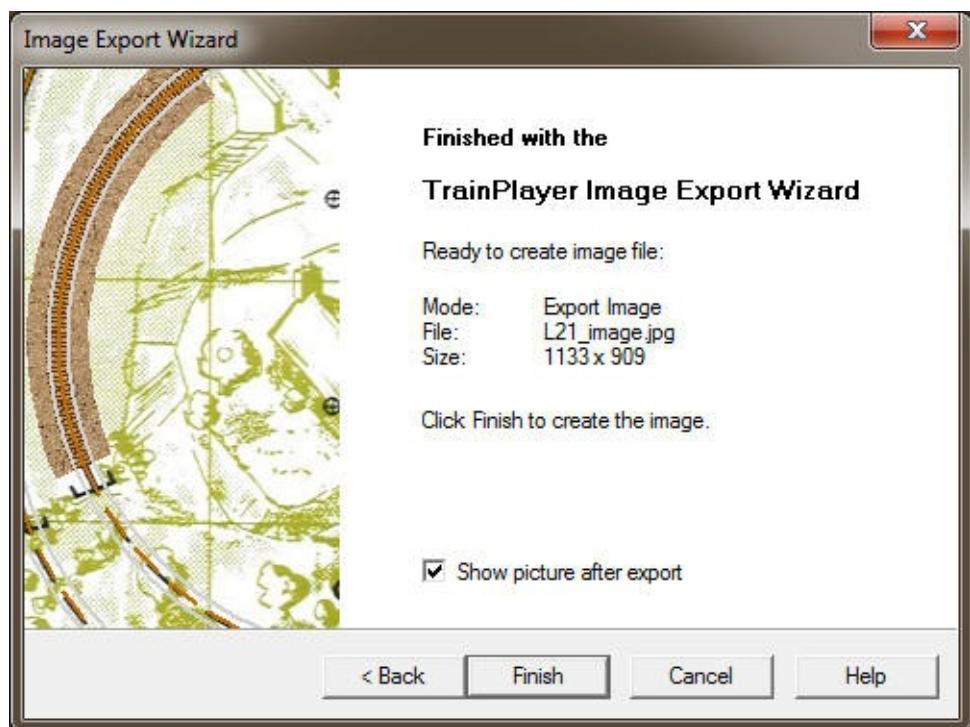
additional input:

Show picture after export (Export Image mode only) -- launch the new image in your default image viewing program.

Delete scenery after export (Merge Background only) -- delete all scenery from the layout, since it will be embedded in the background.

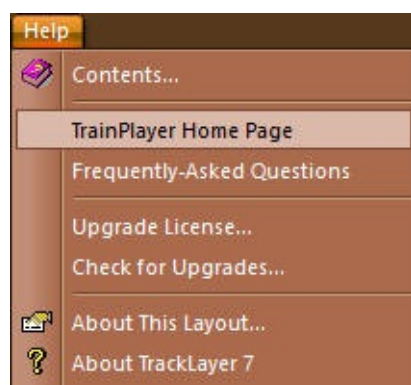
Save file after export (Merge Background only) -- bring up a file dialog for saving the modified rrw file.

Click Finish to do the export, or Cancel to dismiss the wizard without finishing.



The Help Menu

The Help item on the main menu provides access to built-in help and to license-related commands.



Menu commands:

<i>Contents</i>	Brings up the TrainPlayer User Manual in Microsoft Help Viewer. You can search or browse through the help, or jump to keywords in the index.
<i>TP Home Page</i>	Brings up the TrainPlayer home page in your browser.
<i>Freq-Asked Questions</i>	Goes to the FAQ portion of the web support page.
<i>Upgrade License</i>	Brings up the Upgrade License dialog to enter name and license key provided by e-mail from TrainPlayer.
<i>Check for Upgrades</i>	Brings up the Check for Upgrades dialog to see what other versions of program or car collections are available.
<i>About This Layout</i>	Brings up the Layout Properties dialog , showing author-provided comments and instructions about the layout.
<i>About <license></i>	Brings up the TrainPlayer About Box, showing the user name and license type.

Upgrade License Dialog

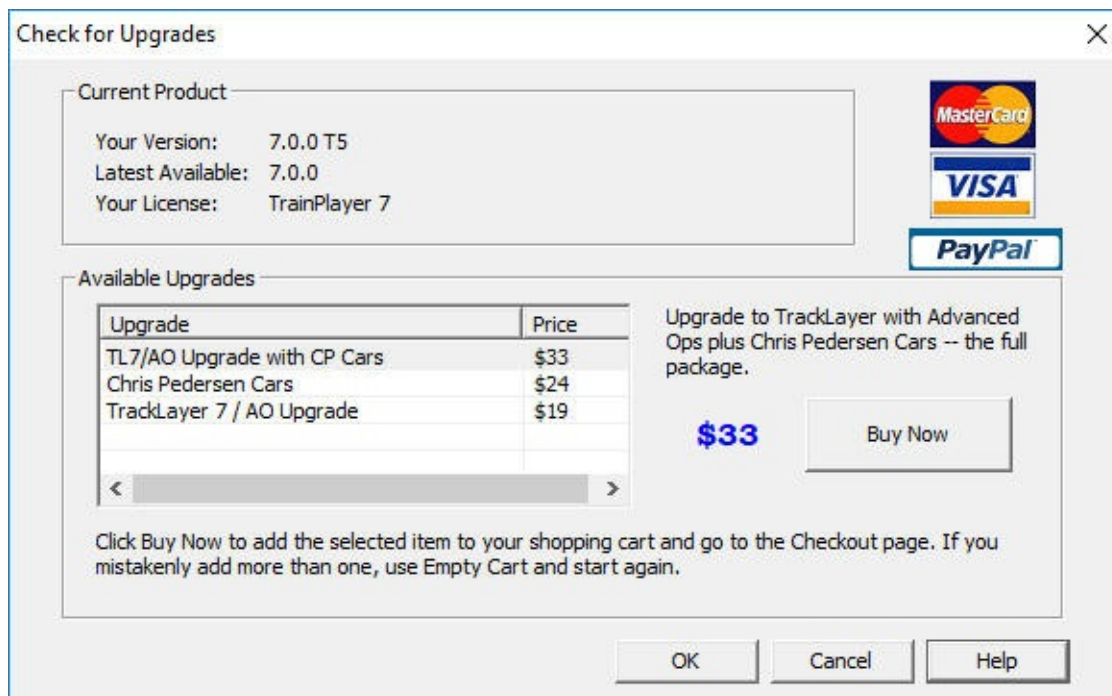
This dialog is where you enter the username and license key sent to you by TrainPlayer. The most convenient way to do this is to copy both the name and key from the e-mail, then paste into the Name box of the dialog; this will fill both lines at once.



If the key is valid, you are informed, and are then licensed to use the program.

Check for Upgrades Dialog

This dialog takes your current license into consideration and shows you what upgrades are available, if any.



The dialog check for three types of upgrade:

- **New version available** for free download. If the "Latest Available" version number is later than the one you are running, you are offered a free download of the new version.
- Updates available to **Chris Pedersen cars**. If new cars have been added or modified, and you are licensed to use the collections, then you are offered a free download of the new parts.
- **Chargeable upgrades**. If you are not running the full version of the system, you might be

offered one or more upgrades at special prices. For these, the button says **Buy Now**; clicking it adds the selected upgrade to your shopping cart, then takes you to the Checkout page, where you complete the purchase by entering card or PayPal information.

Once you click the button, it becomes dimmed, to prevent accidentally clicking twice.



Running Trains

If you've operated trains on a model railroad, then operating them in TrainPlayer should come easily. This chapter gives the details.

[About Trains](#)

[The Train Control Bar](#)

[Moving Trains By Hand](#)

[Yard Mode](#)

[Switches](#)

[Coupling and Uncoupling](#)

[Horns and Sounds](#)

[Turntables and Transfer Tables](#)

About Trains

In TrainPlayer, a train is defined as any contiguous set of cars, whether moving or not, with or without motive power -- a single car sitting on a siding is considered a train. However, a train will not move unless it has an engine. To move an engineless set of cars, you must either couple them to a powered train, or use "artificial means" equivalent to a railroader's hand reaching across the tracks.

In some areas, the TrainPlayer definition of the word "train" is different from that of the prototype, where the definition is "one or more engines, with or without cars, displaying markers." In this definition, a train need not have cars coupled to the engine, but cars without an engine are NOT a train.

In Ops, we use the prototype definition. In some older functions, such as the Train Tree window display, a train is defined as any contiguous set of cars, whether moving or not, with or without motive power -- a single car sitting on a siding is considered a train. However, such a train will not move unless it has an engine.

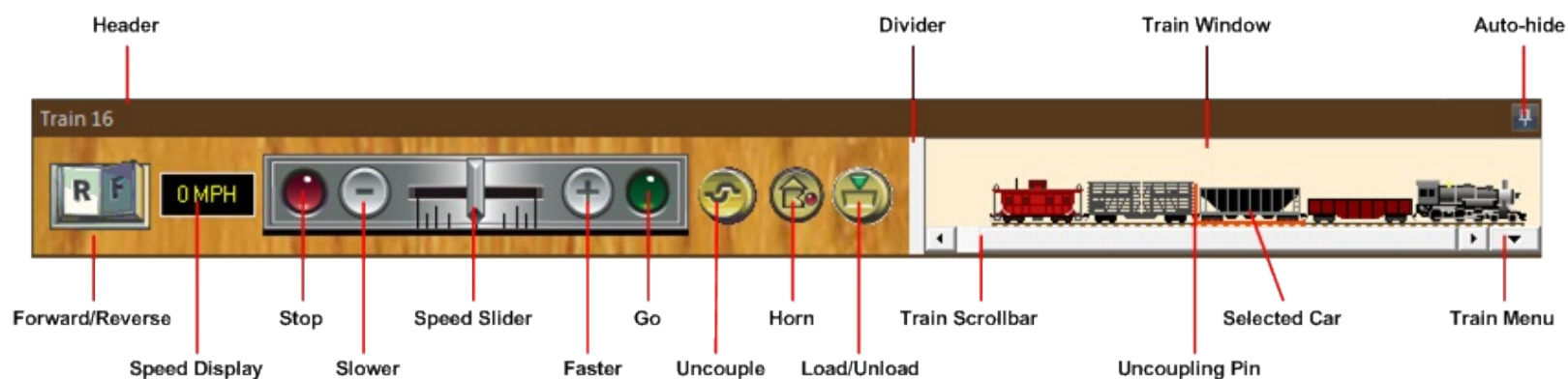
You may have any number of trains on your layout, all running simultaneously if you can manage it.

All of the layouts supplied with TrainPlayer come equipped with one or more trains. You don't have to settle for our selection -- you can delete or modify the provided ones and/or add your own, as described in [Building Trains](#).

The Train Control Bar

The Train Control Bar (TCB) is a combination control panel and train window, for viewing and operating a single train.

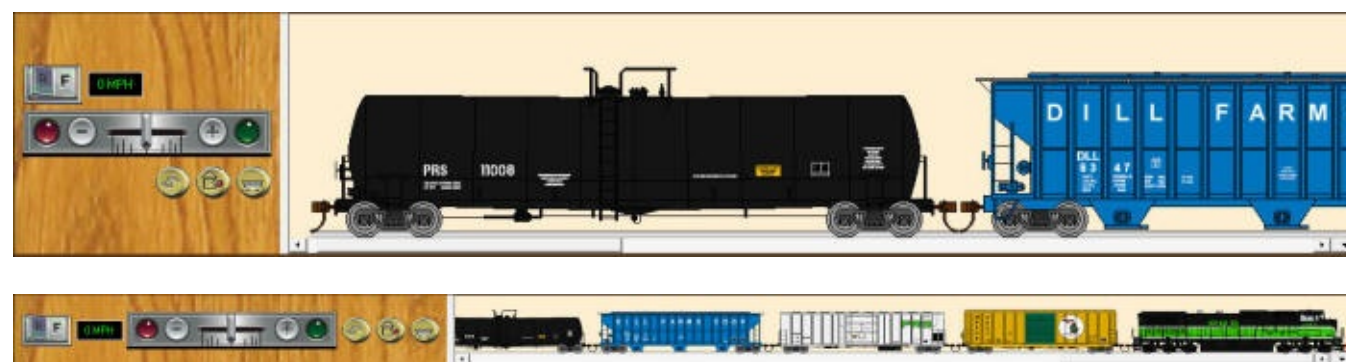
The TCB comes up by default docked across the top of the application window. It is meant to be displayed at all times, so has no Close (X) box. You can take it down or bring it back using **Tools > Train Control Bar** on the main menu.



To undock or dock elsewhere, press and drag the header. To auto-hide, click the push-pin icon at upper right; the bar will then collapse to a button when not in use; hovering over the button will bring it back.

The bar is in two inseparable parts: control panel on the left, train window on the right. You can change their relative sizes by dragging the divider in the middle. You cannot reduce the control panel below its minimum size, but you can reduce the minimum by removing buttons or enlarging the panel vertically.

Train side views are scrollable and resizable in both directions, so if you have Chris Pedersen cars, you can enlarge the bar to see them in full size, or make it smaller and they will scale to fit. The control panel wraps its buttons in multiple rows to improve fit.



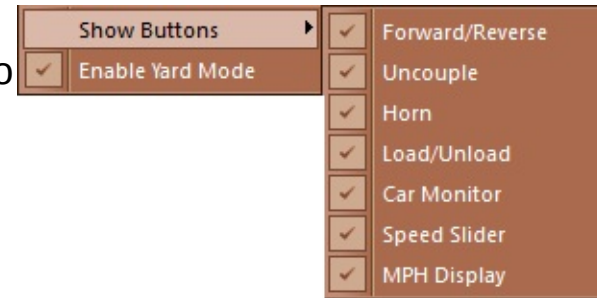
The control bar has everything you need to run and interact with trains. There is no longer any need to bring up the old [rotary-dial control panel](#), though it is still available if you want it.



Control Panel of the TCB

The control panel consists of a set of buttons and controls on a wood-panel background. They are arranged in one row, unless the control bar is resized tall enough so they can wrap to two or three.

Right-click on the wood to bring up the context menu. This allows you to choose which controls to show or hide. It also allows enabling **Yard Mode**, a way to set both speed and direction with a single gesture. In Yard Mode, the speed range is divided in half, with zero in the middle (as shown above); moving the slider away from zero increases speed, crossing zero changes direction.



Controls in the panel are:

Forward/reverse (rocker switch): click to change the direction of train movement.

Uncouple button: click to uncouple at the position indicated by the orange [uncoupling pin](#) in the train window. Dimmed if pin is not between two cars. To reposition the pin, click the desired spot in the train window.

Horn button: press and hold to sound train's horn. Dimmed if train has no engine. Right-click the button to select a different horn for the train, or to toggle running sounds on and off.

Load button: click to load or unload the selected car. Dimmed if no car is selected or car is unloadable; otherwise click once to toggle the status. Right-click for more options: ability to load or unload the entire cut or train; access to Load Chooser or list of load names.

Speed (MPH) display: shows current train speed, green if forward, yellow if reverse, in current units (MPH or kp/h). To set the speed: double-click the display so it converts to an edit box; enter a value, then press Enter. To change units, use the Metric checkbox in Preferences > General.

Speed controls on resizable plate:

Red light: glows yellow when train is moving in reverse; glows red briefly while pressed. **Click red light to stop train.**

Green light: glows green when train is moving forward. If train is not moving, click to start.

Slower (-) button: click or press and hold to reduce speed.*

Faster (+) button: click or press and hold to increase speed.*

Slider: drag right for faster, left for slower.* Click a point on the scale to go to that setting.

* Applies to panel in normal mode, or in yard mode when speed slider is right of center. In yard mode with slider left of center, moving it further left or clicking (-) increases speed in reverse.

Note: it is possible to resize the control panel such that the slider shrinks to zero and

disappears. In this case, you control speed and direction using buttons and lights alone.

Note: as of Version 7.1, the Train Control Bar can be made small. Now *any* of its controls, including the speed slider, can be hidden from view.

Train Window

The train window in the TCB shows a side view of the selected train. The same type of window is used to display car collections in the Car Inventory Bar (CIB), so much of this section applies to both.

The **uncoupling pin** is a tall orange spike in the train window (TCB only). Its position indicates where the train will separate when you uncouple, and where a car will be inserted when you add or paste. The **selected car** is indicated with a colored underline.

To move the uncoupling pin:

- Click a location in the train window between two cars, or at the end of a car. The pin moves there and the selected car changes. Or:
- Click a car top on the layout. This selects the clicked car, and moves the uncoupling pin adjacent to it.

Notes about the train display and interactions:

Image sizes: See discussion below under [Control Bar Settings](#).

Tooltips, menus: hover over a car image to see information about it; right-click to view and edit properties. (If you do not see a tooltip, check that Tools > Show Tooltips is on, and click the window to make sure it has focus.)

Selection (TCB): click a car to select it. Its image becomes underlined, the uncoupling pin moves to the clicked point. The car becomes selected on the layout, and highlighted with a pink X. **(CIB):** click a car type to select it in the Car Types listbox. Double-click to add a car of that type to the selected train.

Scrolling: a standard scrollbar appears beneath the train or collection when it is too long to fit in the window. Scrolling to the right moves toward the front of the train.

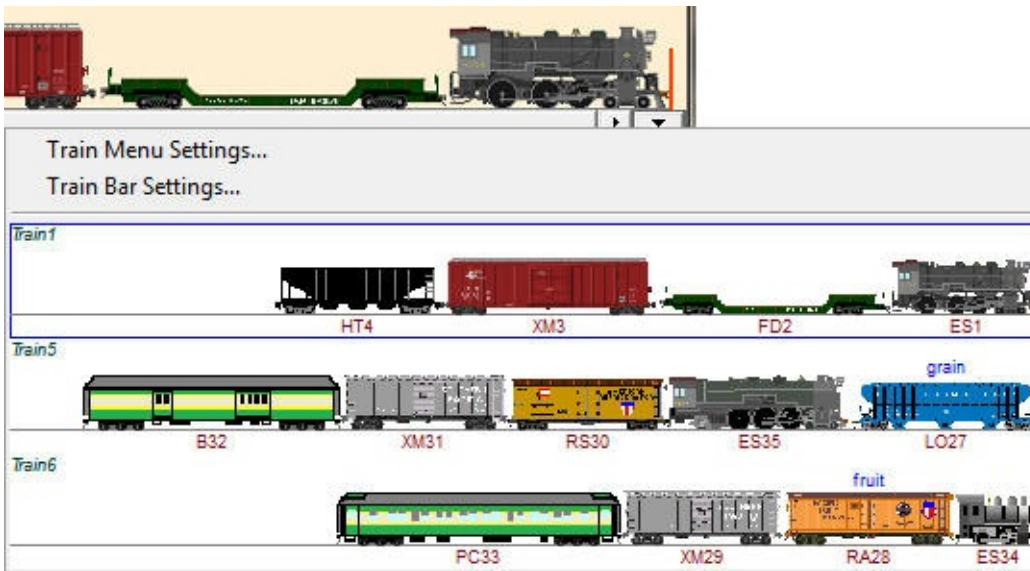
Menu: a down-arrow button at the right end of the scrollbar brings up a menu. In the TCB, this is the Train Menu -- a pictorial list of trains on the layout, used to select a train, described below. In the CIB, the down-arrow brings up the [Car Inventory Menu](#), described on the Car Inventory Bar page.



Train Menu

The Train Menu shows a list of all trains on the layout, and allows you to select one by clicking

it -- just like any other menu, except that it shows pictures, and the display can be customized.



At the top of the menu, above the list of trains, are two text commands:

Train Menu Settings	Settings for displaying trains in the menu; see Train Menu
Train Bar Settings	Settings for car image sizing; see below

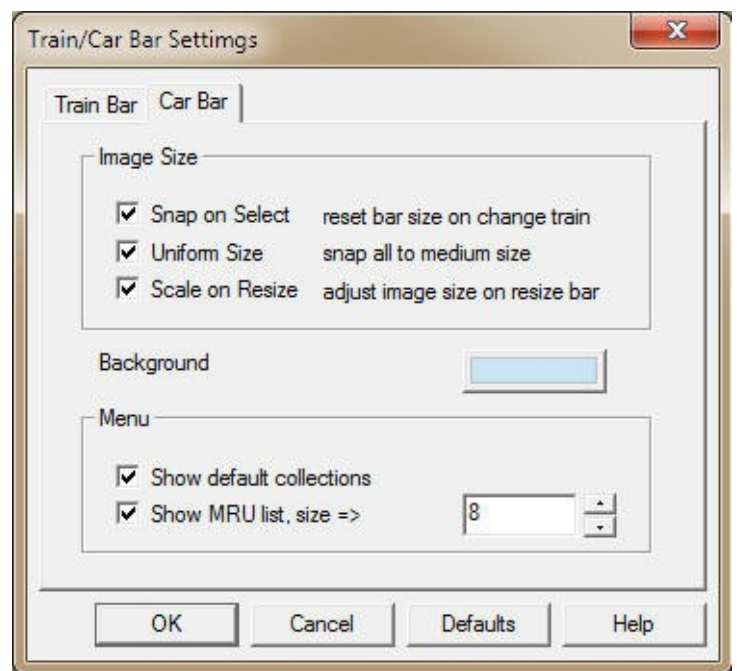
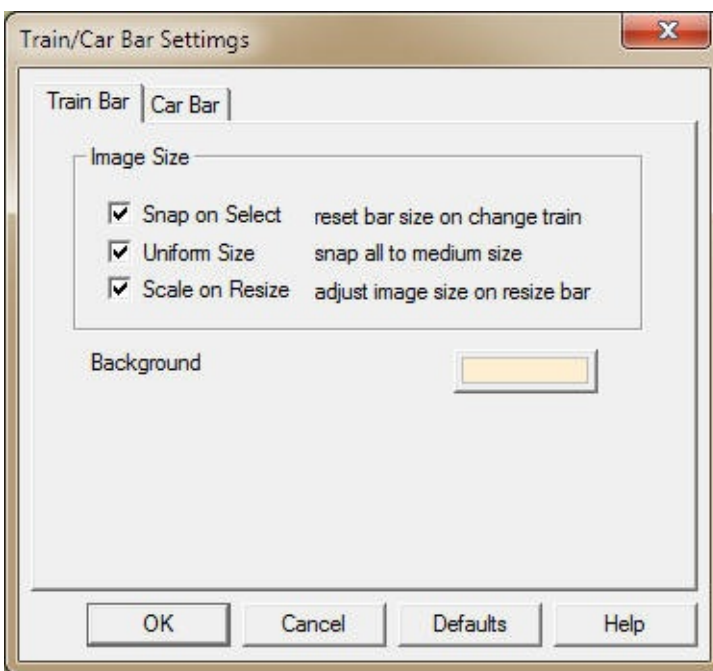
The first command applies to the Train Menu. For details of how this menu is used to display and select trains, and how to work the Train Menu Settings, see [Train Menu](#) in the Building Trains chapter. The other command applies to train or car bars, described here.

Control Bar Settings

The train and car bars offer some adjustability regarding how car images are to be sized and displayed. Click the down-arrow in the lower right of train or car bar, choose **Train[Car] Bar Settings...**, and get one of the dialogs shown below.

These bars are designed to let you adjust the height up to see more detail, or down to see more cars; then, with one click, snap back to a **standard size** designed for optimum viewing. "Standard size" depends on the cars and their size classes (see [50-Pixel Cars](#)) -- if you have a train with nothing but small cars, it can be drawn native size in a window about 30 pixels high; if the train has medium-size cars, it needs 50 pixels; Pedersen cars, still bigger. Mixed trains are sized according to the largest car.

You may have to experiment to find the right settings for you. If you have trains of all sizes, you might want to see each in its best size; on the other hand you might find it annoying to have the bar size keep changing as you click trains.



Dialog controls are:

Snap on Select

Checked means: whenever you select a train, draw the train in standard size, and adjust ("snap") the height of the bar so it will just fit. Uncheck to leave bar size alone when selecting trains. Default is ON.

Uniform Size

Applies only if Snap on Select is on. Checked means: on snap, show all trains medium size. Uncheck to allow size to change depending on train. Default is ON.

Scale on Resize

Checked means: when you drag to resize the height of the bar, scale the train up or down to fit the window. Uncheck to stop train from resizing. Default is OFF.

Background

Click to set bar background color. Default is beige for train bar, light blue for car bar.

Show default collections

(Car bar only): in the [Car Inventory Menu](#), include the names of all [default car collections](#)

Show MRU list + size

(Car bar only): in the Car Inventory Menu, include recent picks, as many as specified

Defaults

Click to reset current dialog to factory default settings

Moving Trains By Hand

In the real world, the only way to move a train is to attach an engine and give it power. For years this has also been true in TrainPlayer. Not any more! You can now reach across the track with a non-prototypical railroader's fingertip and move the train along the tracks, just as you would on a real layout if you needed to relocate some cars or your engine had stalled.

To enable this feature: check **Allow train drag by hand** in [Operation Preferences](#).

To move a train by hand: position the cursor over the car you want to drag. The cursor changes to a hand:

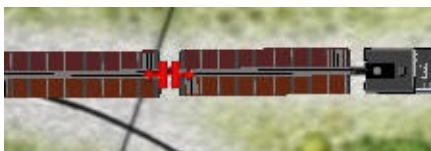


Press and drag in either direction, and the train follows. You will get the hang of this in about five seconds. Train dragging works no matter what tool you are using: Track, Edit, Run, etc. If you have [Auto-Follow](#) enabled, the view scrolls as needed when you drag near the edge.

To throw a switch while dragging: press the space bar. This throws the next switch coming up in the direction the train is moving. The train must be moving for this to work.

To couple while dragging: bump the train you are dragging into another one and they couple.

To uncouple: position the cursor between two cars; it changes to an uncouple icon, like this:



<== Click to uncouple at this position.

Note: the checkbox **Shift-click between cars to uncouple** in Preferences > Operation determines whether uncoupling requires shift-click instead of simple click. If this box is checked, the uncouple icon does not appear and uncoupling does not happen unless you are pressing the Shift key.

If the train is already moving: you can drag by hand; when you let go, the train resumes its previous speed and direction.

You can drag across linked layouts! push the train across a linked track stub and it will appear on the linked layout, where you can grab it and continue to drag. This works as of v 8.1.

What does not happen while dragging: some actions which normally occur for a moving train do not apply when the train is being dragged by hand. These include:

- *Crashes and bounces.* The train just stops when it can't go any further.
- *Acceleration/deceleration.* The train moves at the speed you drag.

- *Speed display* on control panel or toolbar.
- *Running sounds*.
- *Correct behavior on tunnel track*. If you attempt to drag the train onto a tunnel track (invisible link to another location), it can be made to work, but feels strange. The trick is to watch when the car you are dragging enters the tunnel; it jumps to the other end and takes the cursor with it, at which point you may have to continue the drag in another direction.

Switches

Where three or more tracks join at a point, they form a throwable switch. Green lights indicate the open route through the switch; reds indicate closed tracks. A train doesn't necessarily crash if it attempts to pass through a red light; it can roll right on through, or throw the switch automatically, depending on settings in the Options dialog.

To throw a switch: position the cursor over the "frog" -- the point where the tracks join -- so you see a blue highlight, then click. The lights change to show which route is now open.

If there are more than two routes through a switch, then each throw cycles to the next available open route. For example, here are the results of repeated clicks at a four-way junction:

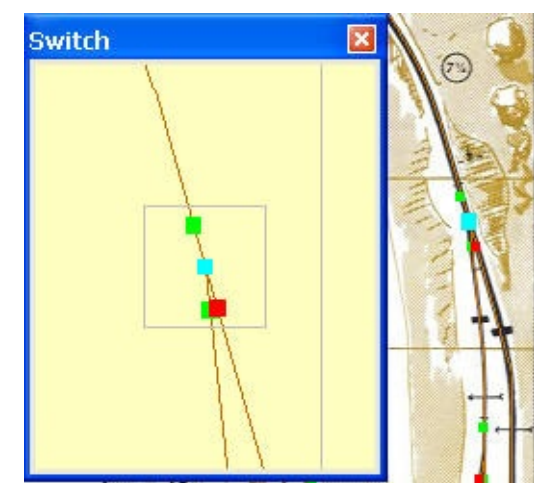


A switch will not open a route which requires a sharp turn. If a route through a switch forms too sharp an angle, then throwing the switch will not open that route.

If you prefer, you can have only the green lights show, or only the red, or you can change to different colors. For details of settings regarding switches, see [Switch Preferences](#).

Press the space bar to throw the next switch the selected train will cross. For details, see [Upcoming Switch](#) below.

The Switch Window



The Switch Window provides a close-up of the area around a switch. The chosen switch is shown in the center of the window, surrounded by a rectangular frame, zoomed in, without background, so that you can easily see and operate it.

To bring up the window, choose View Switch Window. The window can be positioned anywhere on the screen, resized, or docked to any side of the frame.

When the switch window is on display, and you position the cursor over a switch on the layout, the display zooms in on that switch.

By default, the window automatically updates every time the train goes across a switch, so that it shows the next switch in the direction of travel. (This feature can be disabled; see below.)

To throw the switch centered in the switch window, click the blue highlight, or press the space bar. To throw any other switch visible in the window, click its frog point.



To change characteristics of switches or the switch window, see [Switch Preferences](#).

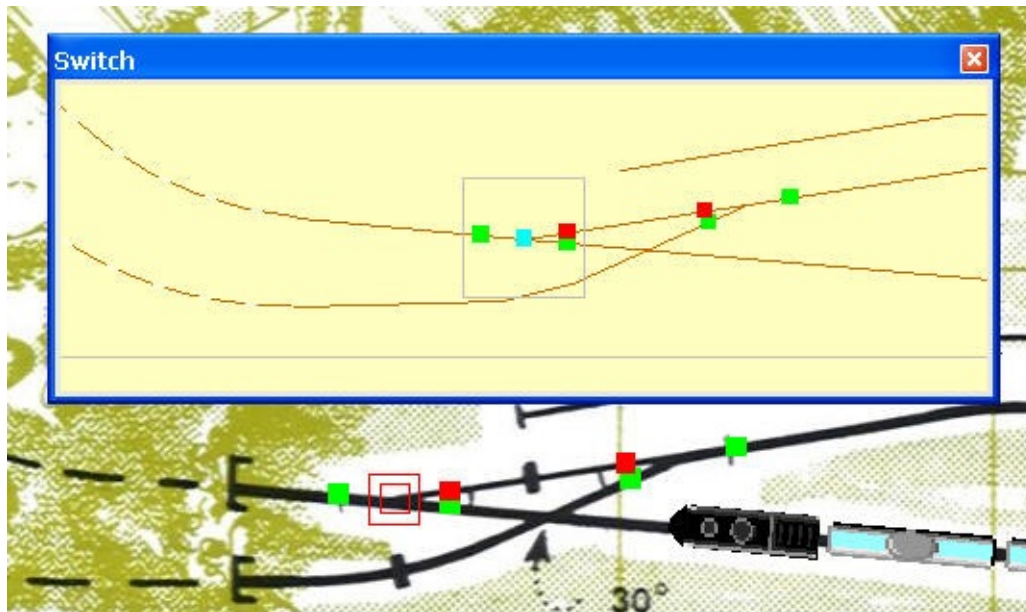
Upcoming Switch

As you drive, the program knows what switch is coming up next along your direction of travel, whether an inch or a mile away, and makes it easy to see and throw.

Note

You can click to throw any switch you can see in the Switch Window. However, in this window the switches do not highlight as you move the cursor.

When the Switch Window is on display, it automatically shows a close-up of the upcoming switch, while a red double frame highlights it on the layout, as shown here:



To throw the upcoming switch, press the space bar. This works whether or not the switch window is on display.

The upcoming switch changes whenever the train (a) passes over a switch or (b) reverses direction. The switch window automatically updates at those events (or not; see note below), as well as whenever you position the mouse cursor over a different switch on the layout.

Coupling and Uncoupling

TrainPlayer allows cars to be coupled or uncoupled anywhere on the track. You cannot couple if you are going too fast, but you can uncouple at any speed.

There are two general ways to uncouple: (a) indicate which cars are to be uncoupled, then issue an uncouple command, or (b) click directly on the layout in the space between two cars. To couple, as in real life, you simply move one car slowly into another, and they automatically couple.

To uncouple by command:

1. Specify the uncoupling point. The easiest way to do this is to click in the [Train Control Bar](#) to position the uncoupling pin. You can click between cars, or near the end of a car. Once the pin is positioned between two cars (not at the beginning or end of the train), you can uncouple.


For example, in this illustration, uncoupling will occur between boxcar and tanker:



Car	▶	
Script	▶	
Uncoupling Pin	▶	Right > Shift+Right
Properties...		Left < Shift+Left
		Front >> Ctrl+Right
		Rear << Ctrl+Left

Another way to specify the uncoupling point is to select a car by clicking on it. The uncoupling pin goes behind the selected car, unless it is the last car, in which case the pin goes ahead of it.

Another way: use the submenu **Train > Uncoupling Pin > (Right, Left, Front, Rear)** which lets you move the pin by one car or all the way to either end of the train. Keyboard accelerators are assigned to these commands so you can execute them using arrow keys. Moving the pin using one of these commands also changes the selected car.

2. Choose the Uncouple command in one of these ways: (a) by pressing Ctrl-U; (b) by clicking the Uncouple button  on the Control Panel or Train Toolbar; (c) by choosing Train > Uncouple from the main menu, or (d) by choosing Uncouple from the car context menu.

When the train uncouples, you are left driving only part of it. The uncoupled portion becomes a new train, no longer connected to your engine. The following illustration shows the result of the uncouple operation begun above:



To uncouple by click:

You can uncouple two cars by holding down the shift key and clicking in the space between the cars. When the cursor changes to a four-headed arrow, click to uncouple the cars. The Run tool must be active for this to work.

Uncoupling may require holding down Shift as you click; this is a setting in [Operation Preferences](#).

To couple:

1. Slow down and move toward the cars to be coupled. For example, if the situation is as shown in the above diagram, click into Reverse so the three-car train is moving toward the two stationary hoppers.
2. Bump gently. The cars couple automatically, and the train is reassembled as shown in the top diagram.

These instructions would have to be reworded somewhat to apply to other configurations, for example with the engine at the rear of the train, or going in reverse. Experiment.

Horns and Sounds

There are two types of sound associated with a train: the "horn" (or whistle or bell) which operates on demand, and the running sounds which you hear constantly as the train moves.

There are other sounds which come from the layout and not the train; these are discussed under Stations.

The TrainPlayer website now has a large and growing selection of all types of sounds. These are available on the Web tab of the various Sound Choosers.

To sound the horn: press the Horn button  on the control panel or control bar. The horn continues to sound as long as the button is held down.

To choose a different type of horn: either (a) right-click the Horn button on the control panel and choose from the context menu (see picture) or (b) right-click the train, choose Properties, and select a horn type from the drop-down in the Train Properties dialog.

Choose **Other** at the bottom of the menu to pick from a wider variety of horn and engine sounds via the [Sound Chooser](#).

To turn running sounds on or off: check or uncheck Running Sounds from the context menu on the Horn button (pictured) or the one you see when you right-click an empty space on the layout.



Running Sounds

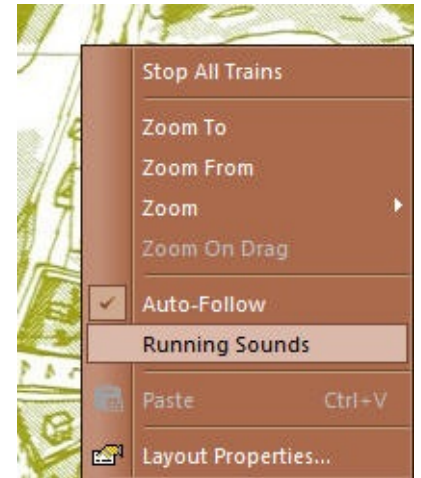
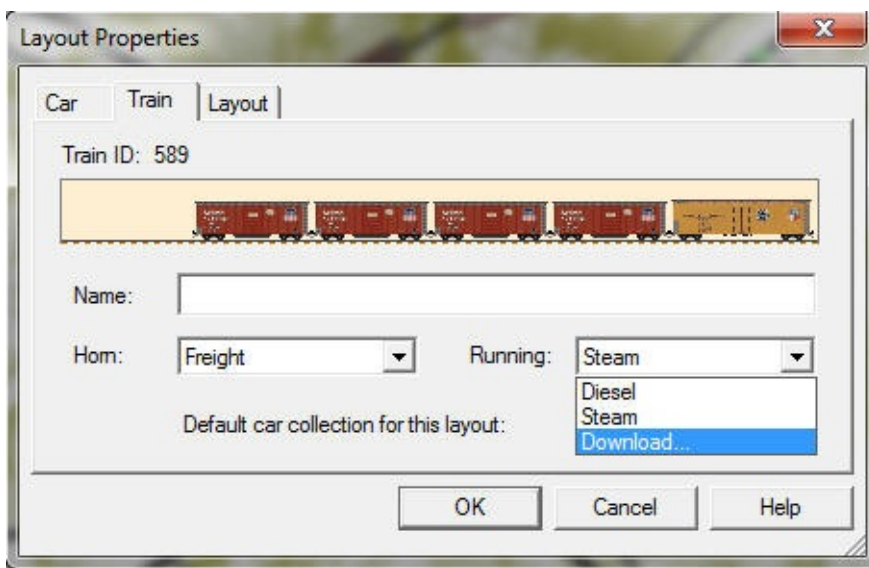
In TrainPlayer, you have several choices of speed-dependent running sounds, steam or diesel.

To choose running sounds:

1. Right-click a train or engine and choose **Properties**. Go to the [Train](#) tab, shown below.
2. There is a drop-down menu for running sounds. Choose one.

If you see only a small number of choices (as shown below left), choose **Download...** and you will get the complete set of running sounds available on our site. This may take a few minutes, but next time your choice of running sounds in this drop-down will be much larger.

3. To hear the sounds, start the train moving. If you don't hear anything, right-click a blank spot on the layout and check Running Sounds on the context menu (below right).



To add your own running sounds:

1. If you want to add your own running sounds, you will need a set of wav files, each having a sound at a different speed. The program cannot read mp3 or other formats; in fact there are variations on wav files and not all of them work in TrainPlayer.
 2. In Windows Explorer, locate the folder TrainPlayer\Sounds\Chuff in your data directory. You should see a collection of files with filenames like <name>_nn_mm.wav, where name is the sound name which will appear in the menu, nn is the minimum speed in MPH at which the sound takes effect, mm is the maximum speed (or the letters max representing the train's top speed). For example, the file "diesel_26_35.wav" is the sound listed on the menu as "diesel," which is played when the train is going between 26 and 35 MPH. Name your files accordingly and deposit them in the Chuff folder.
-

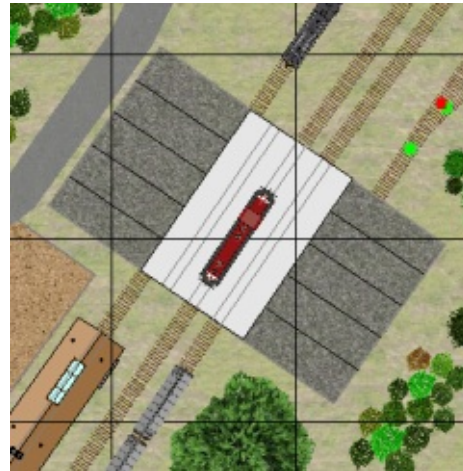
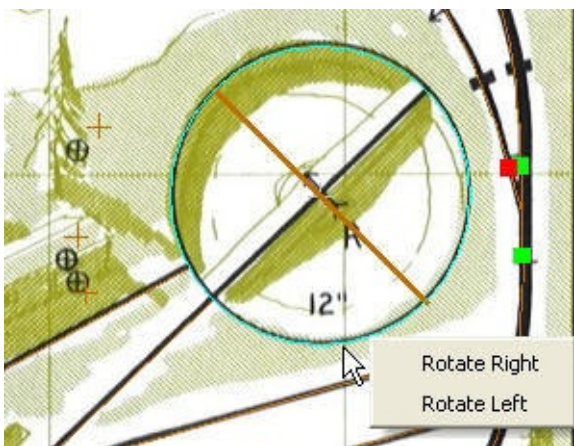
Turntables and Transfer Tables, Operation

About Turntables and Transfer Tables

Turntables and transfer tables are motorized devices for reversing cars or engines or moving them between tracks. They are popular on model railroads, because they are useful, don't take up much space, and are fun to watch.

A turntable is a rotating circular platform equipped with a single section of track through the center -- the **bridge** track -- and one or more sections of track touching the circumference -- the **external** tracks. Before you can drive a car onto or off the turntable, the platform must be rotated so the bridge track is aligned with an external track.

An alternative to a turntable is a **transfer table** -- a rectangular platform which moves laterally and has one or more bridge tracks. A short table can be used like a turntable, for moving a single engine (as shown here); a long table can serve as a moving staging yard for entire trains.



On this page are instructions for operating these devices. For info about creating and modifying them, see [Turntables and Transfer Tables](#) in the TrackLayer section.

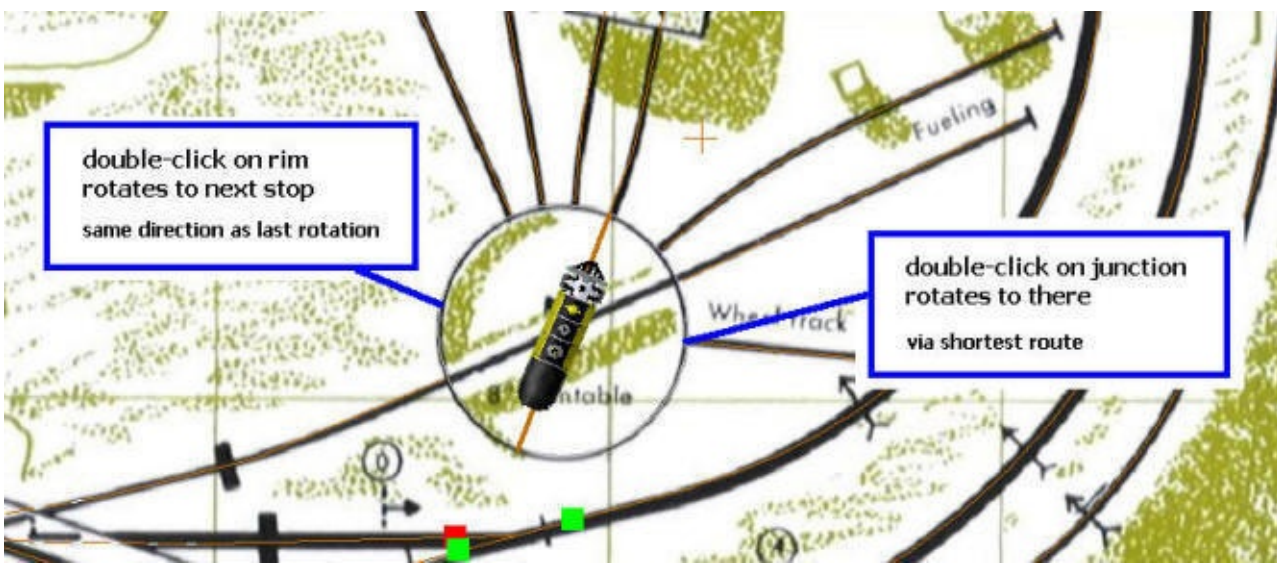
Operating a Turntable

Right-click a point on the circle and choose **^Rotate Right** (clockwise) or **Rotate Left^** (counterclockwise). The table will rotate in the indicated direction until either end of the bridge track hits an external track.

Or, double-click a point on the circle; the table will rotate in whatever direction it previously did. Double-click again and the table will stop rotating.

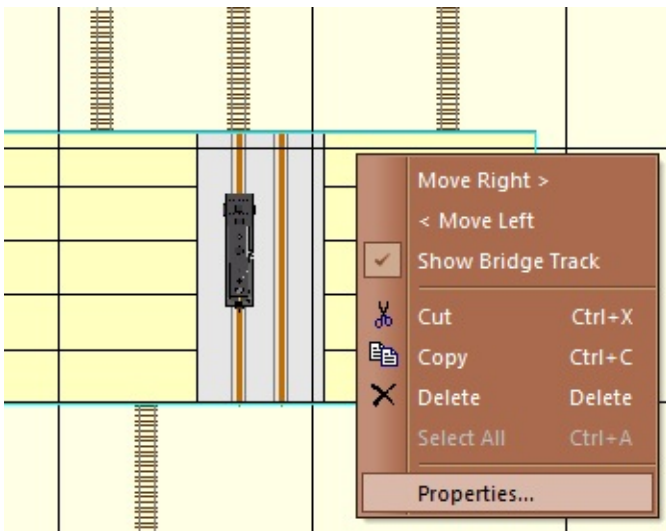
You do not have to rotate through each stop. You can double-click the point where any external track touches the table rim, and the turntable will rotate directly to that stop by the shortest route.

Note: a turntable will not rotate if a car or engine is fouling the junction, i.e., is partly on the table and partly outside. However, as of Version 8.1, a small amount of overhang is allowed: a car may extend up to 1/8 of its length beyond the rim, and will still rotate.



Operating a Transfer Table

Right-click a point on the transfer table and choose **Move Right** > or < **Move Left**. The platform will move in the indicated direction until either end of any bridge track hits an external track. Right and left are based on the initial orientation of the rectangle; if you have rotated the table, these terms may not apply.



Or: double-click a point within the transfer table, between the platform and an edge; the table will move in that direction. Double-click again to stop movement.

Or: double-click a point where an external track touches the table rim; the table will move until one of its bridge tracks connects to that track.



Managing Cars

Railroads need cars to carry goods and passengers. The typical model railroad has cars of various types sitting around on the track, a bunch more in a cabinet on the wall, and probably a few more still in their boxes, waiting to be painted.

In TrainPlayer, there are no cars waiting to be painted, and that cabinet is huge. There are thousands of car types to choose from, and an infinite supply of each -- when you pull one down from the cabinet, another appears in its place. All kinds of cars are available -- diesel locomotives, steam engines, freight cars, passenger cars, snowplows -- in a large variety of colors and styles.

Cars are organized in *car collections*, groups of cars related by style or road name, like individual shelves in the cabinet. Several car collections are provided with the program, many more are available by download. If you don't find what you need, and you have some artistic ability, you can create your own, or you can ask one of the friendly guys on the forum to make a custom set of cars for you.

With the introduction of Ops, freight cars have become more capable. They can carry loads. Each car is assigned a detailed classification, which determines what sorts of load it can carry, which in turn determines what sorts of industry it can serve. The loads themselves are objects much like cars, organized in downloadable collections.

[About Cars](#)

[Car Collections](#)

[Default Car Sets](#)

[Car Loads](#)

[Car Properties](#)

[Car Collection Editors](#)

[The Car Inventory Bar](#)

About Cars



There are some terms you need to know when working with cars. To understand them, consider this scenario.

You need some cars to carry grain on your prairie railroad. You go to your big-box hobby shop, wander the aisles until you find one called "Steam-Era Freight Cars," and locate a shelf called "Grain Cars and Hoppers." You pick out a nice model of a 2-bay open-side covered hopper in Great Northern colors. In TrainPlayer terms, a car built from this kit would be described as:

Car collection: Steam-Era Freight

Car class: covered hopper

Generic class: hopper

Car type: GN 70-ton 2-bay open-side covered hopper

The "car type" is the name on the box -- a particular model from a manufacturer. The "car class" is a code from an industry-wide list indicating what the car is used for or can carry. The "car collection" is a group of car types related by era, class, manufacturer, etc. The "generic class" is a program-assigned category, as described below.

When you add a car to your layout, you start by choosing a car type from a collection, and the program adds a car of that type on your track. You can then modify this car -- repaint it, change its size -- but you can't change its type. You can, however, modify the collection and change the car type definition, so next time you add a car of this type, it will have the style you want.

Generic Car Classes

Every car you add to a layout is assigned one of twelve generic classes:

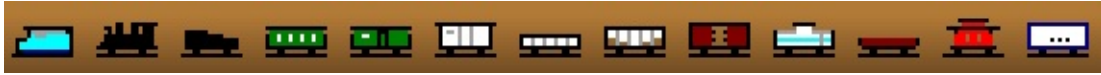
Diesel, Steam, Tender, Pullman, Baggage, Reefer, Hopper, Gondola, Boxcar, Tankcar, Flatcar, Caboose

This is partly for historical reasons, and partly because we have only these twelve icons on the car toolbar.

A car's generic class determines certain aspects of its behavior:

- Diesel and Steam are the only classes which have motive power. If you want a car to move when you hit the throttle, make sure it is classified as one of these (even if it is an electric trolley, mule-drawn wagon, handcar, etc.).
- Freight types are the six from Reefer through Flatcar.
- Passenger types are Pullman and Baggage.
- Only freight types are loadable. You cannot attach load types to engines, cabooses, or (currently) passenger cars.

When you add a car using the car toolbar, you are choosing a generic class. The actual car type you get is whichever member of the current [Default Car Collection](#) has been assigned to this class. For example, if you click the hopper icon, and the current default collection is "Default Steam," the car you create is of type "2-bay hopper."



AAR Codes

- To classify cars precisely for ops purposes, we use *AAR Codes*. An AAR Code is a one- to three-letter string representing a specific type of car, as classified by the [Association of American Railroads](#). The TrainPlayer list is adapted from that on the [Great Northern Empire](#) site (we appreciate the author's permission to use this list). For an informative article on the subject, see [AAR Freight Car Codes](#) from the Model Railroad Operations SIG.

In TrainPlayer, a two- or three-letter code refers to a specific type, where one letter is a generic type. For example, a code of "GD" means a side-dump gondola, suitable for gravel; "G" means a general-purpose gondola, suitable for loads which can be carried in any type of gondola.

The complete list of AAR codes available in TrainPlayer can be seen in the [AAR Codes Dialog](#), accessible when editing car properties.

A car load has a special string as its AAR property -- a list of individual codes indicating what cars can carry that load. For details, see [Load AAR Strings](#).

AAR Override

Normally an AAR code is assigned to a car "at the factory," which in our case means "in the Car Chooser." If you select a solid-bottom gondola, it will have a code of GB (as supplied by the author of the car collection) and will be restricted to jobs requiring that specific type.

To add flexibility in the ops system, Version 7.1 introduces new car property *AAR Override* (or *AAR/o*). A non-blank entry in this field replaces a car's factory-supplied code with another code, and the car then becomes available to the ops system as this type.

Example. You are working with a layout which calls for cars of type **GB** to carry mixed loads to an industry. The yards are populated with suitable cars from the default steam collection. You would like to upgrade to snazzy Chris Pedersen gondolas, but the CP cars you want are designated as type **G**, and ops will not use them. The solution is AAR Override -- bring in a CP car, set its override to **GB**, and ops will not know the difference.

This feature was designed to work with another new 7.1 feature: Car Swap, an ops-independent method for changing car types on a layout using drag and drop.

Types of Cars

The AAR code assigned to a car dictates its behavior. TrainPlayer recognizes several types of

cars based on their codes. Some of these can be overridden by adding or changing a code in the `carcodes.csv` file; the following rules apply when not overridden:

- **Passenger** cars: code starts with one of: B, C, D, P or is equal to EP, MA, MB, MR
- **Locomotive** power: code starts with E, except for ET (tender) -- all cars of this type move when power is applied
- **Freight** cars: all types which are not passenger or locomotive or tender or caboose
- **Loadable** cars: any car is loadable if it has a default load assigned to it (this applies to most passenger and freight cars)
- **Closed** cars: cars with codes not starting with G or H or F or O

Normally it is easy to tell whether a car is loadable -- most dialogs which display cars give you the option to show them with loads displayed, but (a) the option is dimmed for unloadable cars, and (b) for closed cars, loads are shown as text labels above the car.

Default Cars

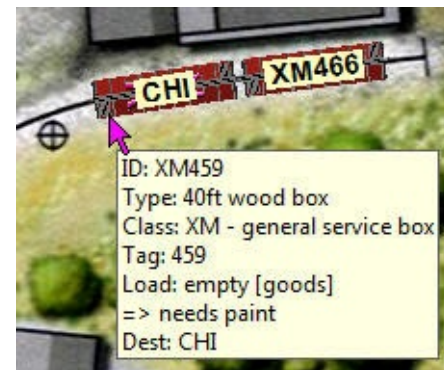
There are two ways to add cars to a layout: (a) using the [Car Chooser](#), which lets you pick any car from any collection, or (b) choosing from the Add Car menu or its toolbar (see [Adding Cars And Trains](#)). The second method is quicker, but means you don't get to choose the collection -- in this case the car comes from the *Default* collection, one of a few collections specially set up for this purpose.

The program comes with several basic default sets, including *Default Steam* and *Default Modern*. (Examples from Default Steam are shown at the top of this page; Default Modern examples are on the [Car Collections](#) page.) The program activates one or the other of these when you open a layout, depending on the ratio of steam to diesel engines on the layout. You can override this choice, and specify your choice of defaults for any layout, whether Steam or Diesel, or one of several others you can download, or one you create yourself. For details, see [Default Car Sets](#).

Car IDs

Every car on the layout has two forms of identification:

- a numeric ID (also called "tag"), assigned and managed by the program and not editable by you. This is used internally for keeping track of cars. The program goes to some trouble to ensure that every car on the layout has a unique tag, and warns you if this is not the case. The tag is shown on the car tooltip and in Car Properties. Or you can opt to have it displayed on the car top (see link below).
- a text label (also called "ID") is normally displayed on top of the car. Initially the label is a combination of the car class and the tag, where the class is represented by one or two letters -- a gondola might be labelled "G64," a steam engine "ES99." However, the label can be edited, so you can change it to say whatever you like. You do not need to ensure the label is unique. The label is shown in Car Properties, and also in the car tooltip (where



it is called "ID").

Note that a car top may display the identifying label or ID, or it may instead display the Dest value assigned to the car. See [Car ID Display](#).

Car Notes

New in version 6.0 is the ability to add a **car note** to any car. This can be any string of information you wish to attach to the car, like a post-it note stuck to the side. You create a car note in Car Properties. It is saved with the car in the layout file, and displayed in various places (tooltips, dialogs). It is accessible via the \$car system function in scripts, so it is handy for script authors keeping track of car movements.

Car notes are used to keep track of car movements. Each note contains a comma-delimited list of values, created and used by scripts. For info about this field and others described below, see the [AO documentation](#).

Car PropStr

For ops purposes, an additional string of data is often needed on a car, so we added one with a generic name. It is accessible in scripts via the [\\$CAR function](#), and in the [Car Data Props](#) dialog; can be displayed in the [Cars grid](#).

Car Dests

New in 6.3 is the **Dest** field. Similar to a car note, a dest is a short string of text associated with a car. Unlike a note, it can be displayed on top of the car in place of the usual id label. Dest values can be modified by scripts, or edited by hand in Car Properties. They are normally used in conjunction with [track labels](#) as a visual aid in ops.

Car Images

Cars are displayed in two ways: as top views on the layout, and as side views in the train windows. Each view of each car type is in a separate file, so a typical car collection has a folder containing dozens of small image files. You can find plenty of examples in your Cartypes folder.

These image files are not created or edited in TrainPlayer. If you want to modify car images -- say, to apply your own paint scheme to a set of cars, or create a new collection from scratch -- you will need to use a bitmap editing program such as *Paint*, which comes with Windows. You will also need to be aware of certain size and style limitations; details are spelled out on the [Car Collections](#) page.

Large Car Images

As of Version 5.2, certain car collections provide large, detailed side views in addition to the normal toolbar-sized ones. Here for example is an Athearn boxcar from the [Chris Pedersen Cars](#) collection:



In Version 6.0 we went a step further and introduced a new [50-pixel medium-sized car image](#). When you are working with any of these collections, the large and medium images can be seen in several places:

- [Car Properties](#) -- in the [car panel](#), scalable up to full size
- [Car Collection Editor](#) -- in the [car panels](#), scalable up to full size
- [Car Chooser](#) -- in the Preview window
- [Train Window](#) -- in the resizable train window
- [Car Inventory Bar](#) -- in the resizable car bar

All of these displays are resizable; for optimal viewing, enlarge until the image reaches its full size.

50-Pixel Cars

New in Version 6.0 are several new car collections in a new size category. Car collections now come in three sizes:



- **small**: the original cars since Version 1.0, with side images made from train gifs, maximum height around 28 pixels
- **medium**: new, more detailed images, with side views maximum height 50 pixels; sample shown above at full size
- **large**: the Chris Pedersen cars, with side views actual size of HO models

Medium size is now the standard for all default cars and for most new collections being built. The 50-pixel size allows for quite a bit of detail, without taking up too much screen space.

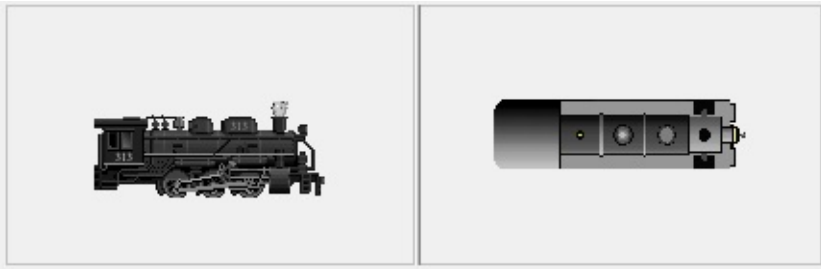
Every collection belongs to one of the three size types, as shown under **Image Type** in the Images tab of the Car Collection Editor. All cars in a single collection are of the same type. However, this does not mean your trains are restricted to a single type. A train can contain a mixture of sizes; for example, this train has four 50-px cars followed by two small, then two Pedersen:



In this case the program applies some rules and attempts to scale the cars more or less uniformly. For more about train side-view scaling, and what control you have over it, see [Train Control Bar Settings](#).

Car Panels

A single display device called a **car panel** is used to display cars of all size types. This panel appears in Car Properties and in several tabs of the Car Collection Editor. It consists of two images, side image on the left, top image on the right, separated by a moveable divider. All dialogs containing car panels are resizable, so you can make the panel as large as you like, then move the divider to make one size large relative to the other. Both side and top view rescale accordingly.



Most car panels have a checkbox nearby allowing you to turn on and off the display of the load for loadable cars.

Car Collections




A *car collection* is a set of car type definitions. To add a car to the layout, you choose it from a car collection. If you use a quick method -- click a button on the toolbar or choose from the Add Car menu -- you are choosing from a special collection called the Default Car Set. The other method is to select from the Car Chooser, where you can browse through many collections and choose cars from any.

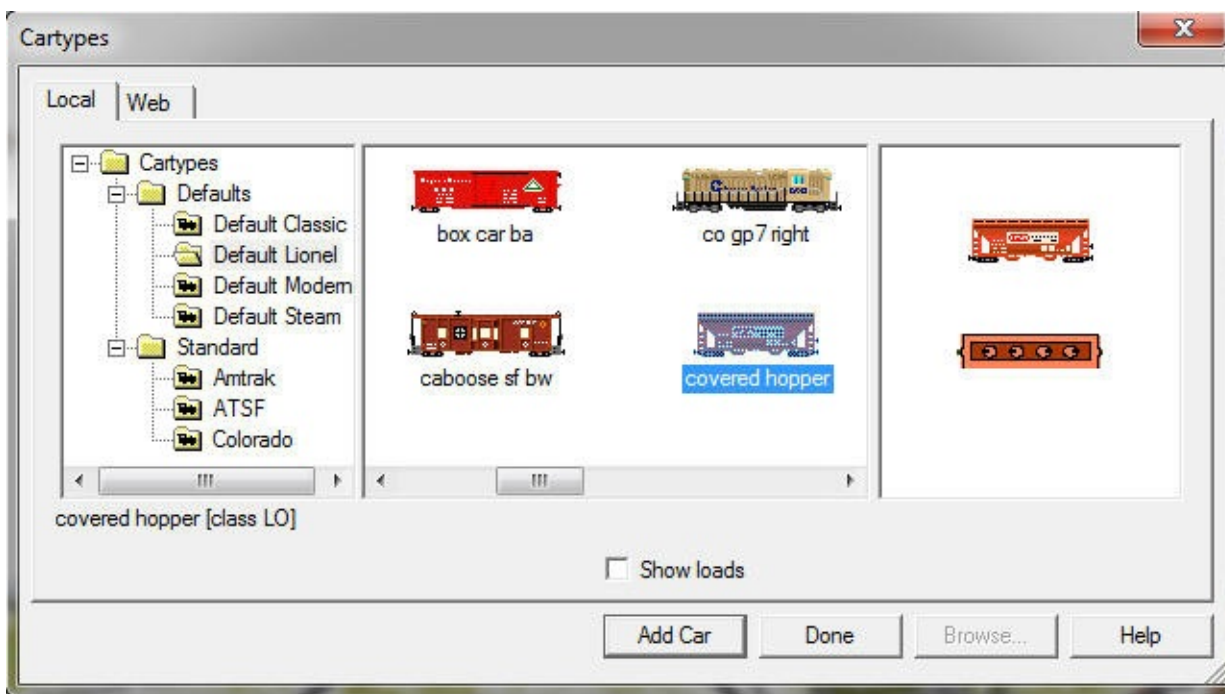
TrainPlayer is installed with several car collections, including a few default sets. There are many (many!) others available for download from the TrainPlayer website. You can shop through these on the Web tab of your Car Chooser; if you find a collection you like, you can download the entire set with one click, and then use the car types in your layouts.

If you have a layout which uses cars from some non-default collection, and you want to send it to your friend Joe, then if he is going to see the right cars he will need the same collection on his machine. If the collection came from TrainPlayer, Joe will be given a chance to download a copy for himself. If it is a custom set you created yourself, then you will need to *publish* the collection -- process it into a separate folder and send him a zip of that.

Using Car Collections

Most of the instructions for using car collections are found in other sections of the manual. Follow links below for details.

To browse car collections: choose **Other...** from one of the **Add Car** commands -- (a) on the Train menu, (b) on right-click of a car, (c) on toolbar button , (d) from Add Car Here on a track section. Any of these brings up the [Car Chooser](#), where you can browse and select cars to be added.



To edit a car type or collection: right-click an icon in the Car Chooser middle window, or a folder in the tree at the left, and choose **Properties**. This brings up the [Car Collection Editor](#), for browsing and editing the selected car type or any other type in the same collection.

To download a car collection: in the Car Chooser, go to the [Web](#) tab. Browse and find what you like, then click **Install**. The actual download is done into a temporary directory while you browse, so that you can view the images; clicking Install copies the files from the temp location into Cartypes.

To publish a car collection: in the [Car Collection Editor](#) (Collection tab), click **Export**. This brings up the [Car Collection Publisher](#).

Creating a Collection by Hand

If you know Microsoft Paint®, Adobe Photoshop®, or some other bitmap editing program, you can create your own car side and top images. This doesn't require a lot of artistic skill -- it's a little grid of pixels, not a blank mural -- and even less if you just want to copy an existing set and do a recoloring or kitbashing job.

To create your own collection from scratch:

1. Create an image for each side and top view in the collection. See instructions under [Editing Images](#) below.
2. Name the files appropriately. The name you give the side view image is the name you will see in the chooser for the car type, so make it something friendly. A top file is associated with a side, and must have the same name with "_T" before the extension. The top and side need not be in the same format.

Example: side = "Pacific Fruit Reefer.gif" top = "Pacific Fruit Reefer_T.bmp"

3. Collect all side and tops into a single folder, named what you want to call the collection.

This folder can go anywhere on your disk.

4. Bring up the [Car Chooser](#).
5. Right-click the folder under which you want the new collection to appear, and choose **Import From Folder**.
6. Navigate to the folder of images and click OK.

The program will create a new xml file and subfolder in your TrainPlayer\Cartypes directory, copy the side and top image files into it, then add the new collection to your chooser tree.

Editing Images in Microsoft Paint®

Click Paint... in the [Car Collection Editor Images tab](#) and it will open the selected image in Paint.

The preferred format for top and side images is 24-bit BMP, but other formats will work too (.jpg, .png, .gif).

To edit in Paint:

1. Zoom to enlarge the image so you can see what you're doing.
2. Use paint tools to color or modify the image to suit. Read the technical details below regarding sizes and shapes.
3. Save the file, either using File Save or confirming save when closing the window. (Do not use Save As.)
4. Return to TrainPlayer; the modified image will show up in the Car Collection Editor.

Changes made and saved in Paint cannot be undone or cancelled. If you want to modify factory-supplied images, we recommend you first make your own copy (using the Save As button) and work with that. If you accidentally change a factory-supplied image and want to revert to the default, download a new copy of the collection.

Note: if you prefer to use a program other than Paint when you click the Edit button, this can be arranged. There is a registry value called *PaintExeName* which you can set to the name of a program. This value is located under HKCU\Software\TrainPlayer\TrainPlayer\Settings. For help modifying this value, send e-mail to support.



Side-view images must be sized correctly so they will look ok when mixed with other cars, and so they will fit in the train windows.

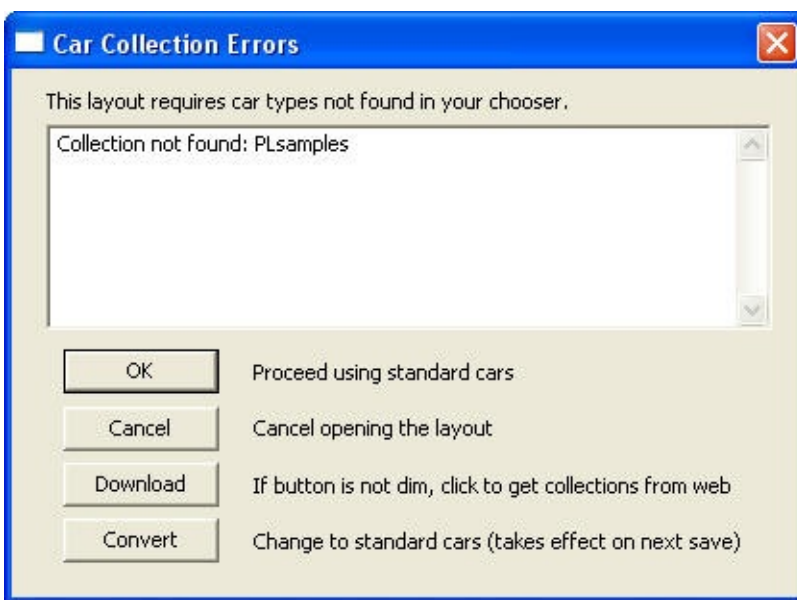
- Use a drawing space 32 pixels high.
- Draw the image so it touches the bottom. Do not exceed a height of 26 pixels, otherwise it will not show fully in the control panel.
- The width can be whatever you need -- to change the width, drag the tiny blue dot at right center. A good rule of thumb is that one pixel equals about a foot on the prototype, so a 50-foot car is around 50 pixels wide. (Note that the size in pixels is shown on the status bar as you drag the dot).
- The transparent color is whatever color is in the top left pixel. If the top left pixel is pink, then all pink pixels in the image will become invisible when the image is displayed. In the above example, the transparent color is light grey.

Top-view images may be any size or shape -- the program scales them as needed to fit the car tops on the layout.

- Top images must be oriented vertically, with the nose of the car at the top.
- The transparent color of a top image is taken from the lower left pixel.

Car Collection Errors

When you open a layout, it may require cars not found among your installed collections. When this happens, you are presented with an alert showing several choices:



OK: ignore the errors; for the current session, substitute cars from the standard set for the ones specified in the layout.

Cancel: do not open the layout.

Download: download and install the collection from the web, then proceed to open the layout with its full set of cars. This button is available only if you have an internet connection, and if the requested collection is available on our website.

If someone sends you a layout file, and it requires a car collection not available on our website, you will need to ask that person to send you the collection. Or zip it up and send it to TrainPlayer, so we can post it for general use.

Convert: modify the layout so that it uses standard cars instead of the specified ones. The modifications are saved the next time you save the layout. **Warning!** once you make this change to a layout, it cannot be changed back! The layout permanently forgets what car collection it was originally designed to use.

Default Car Sets

When you are adding cars to a layout, you have a big catalog of types to choose from. Flipping through it in the Car Chooser is straightforward but a bit of a job. As a convenient alternative, you can use the menu or car bar to choose from a special collection called the *default car set*.

What Is a Default Set

A default set is a collection with a full complement of the basic passenger, freight, and locomotive types, all related by theme or era. TrainPlayer comes with several of these. You can choose one to be associated with a layout, then use it as your main car source.

Here are some excerpts from the supplied default sets:

- **Steam** -- 1930's-era equipment with steam locomotives



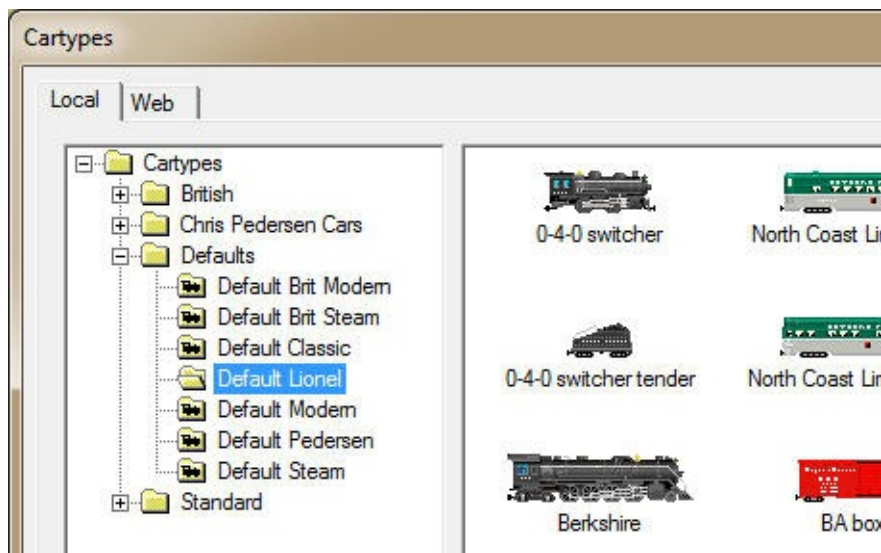
- **Modern** -- 1990's-era equipment with diesels



- **Lionel** -- O-scale equipment

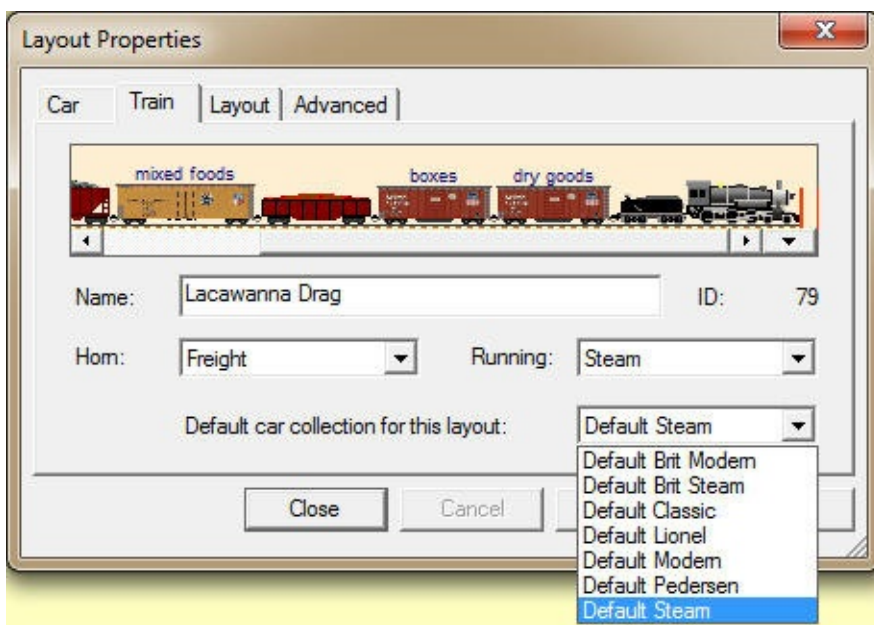


To browse the whole collection, open the Defaults folder in your Car Chooser and take a look around:



Choosing a Default Set for a Layout

A default car set is assigned to each layout you open. The program makes an initial assignment as described below; to override it, use the drop-down at the bottom of Layout Properties:



Choose the default car set you want to be associated with the layout. The choice you make is saved in the rrw file.

Note: it is no longer necessary to choose a complete default set as defined above. You can choose *any* car collection and use it as the layout default set.

Modifying this choice will affect the layout and the display as soon as you click OK or Apply -- all standard car types on the layout will be converted to the newly-chosen default set. Rules for doing this are complicated, but basically a boxcar of one style is converted to a boxcar of the other, unless it is a car which was not chosen from the default set to begin with.

The initial default assigned by the program is one of four sets -- Default Steam / Modern / Brit Steam / Brit Modern -- based on your US-UK preference, and the ratio of steam to diesel locos on the layout.

More default sets are available for download in your [Web Car Chooser](#).

Using the Default Set

The default set comes into play in the **Add Car** menu =>

The twelve class names below the line refer to cars in the current default set. When you choose **By Name**, the Car Inventory Bar comes up, showing the default set.

For more, see [Car Inventory Bar](#) and [Adding Cars and Trains](#).



Car Loads



A load is a batch of goods you can carry in a freight car. It has a name, like "coal" or "pipes," along with top and side images which are superimposed on the car images when you load a car. Associated with each load is a list of car types eligible to carry the load, so you can't put coal in a flatcar or farm equipment in a hopper.

Loads with images are suitable for use in open-top cars, like flatcars, gondolas, and hoppers. For closed cars, like boxcars and tankcars, any load names may be used as "closed-car loads," represented by generic symbols on top views, and by text on side views.

TrainPlayer comes with hundreds of load types and easy ways to browse and deposit them in cars. The loads come ready to use -- open a random layout, and you'll see that every freight car has already been assigned a typical load, ready to be loaded or emptied with a click. You can change the load associated with any car, and/or set a default load for each car type.

About Loads

Loads come in two varieties. *Open-car loads* are for open-top cars -- gondolas, flatcars, hoppers -- and have a pair of images for each load. *Closed-car loads* are for closed cars -- boxcars, reefers, tankcars -- and are represented by generic symbols in top views, text in side views. The above picture shows both types.

Loads are similar in many ways to car types. They come in sets, like car collections, each defined by a file of data and (for open-car loads) a folder of images. Like car types, they are selected from a chooser, and edited in a collection editor. The installer delivers a sample set of loads; more can be downloaded from the collections on the web.

There are several moving parts associated with loads, and they appear in various places in the program. Here is a compact guide to relevant reading matter:

Load Management

[Load Menu](#)

popup menu for choosing a load for a car

[Load Chooser](#)

dialog for choosing pictorial loads for one or more cars

[Load Collection Editor](#)

dialog for editing load collections or modifying individual load definitions

Loads Appear In

[Car Properties](#)

where the load for a car can be viewed or changed

[Car Collection Editor](#)

where a default load can be assigned to a car type

Loading Cars

Every freight car has a load type assigned to it, whether by default or by you. There are two

steps to loading a car: selecting a load for the car -- which you normally do once -- then toggling it on or off whenever the car is loaded or unloaded.



To select a load for a car:

- Right-click the car and make a choice from the Load Menu described below. This lets you choose from a list of load names or from the gallery of pictures in the Load Chooser. Both the Load Menu and Load Chooser offer ways to load more than just the selected car.
- Or: right-click, choose **Properties**, and select from the Load drop-down in Car Properties.

Either way, if the car already has a load assigned, it will be replaced by the new choice, and the car status will be set to Loaded.

Note: another way to set a load for a car is to set a default load for the car type. Then every time you create a car of that type, it will be assigned the default load. See [Default Loads](#) below.

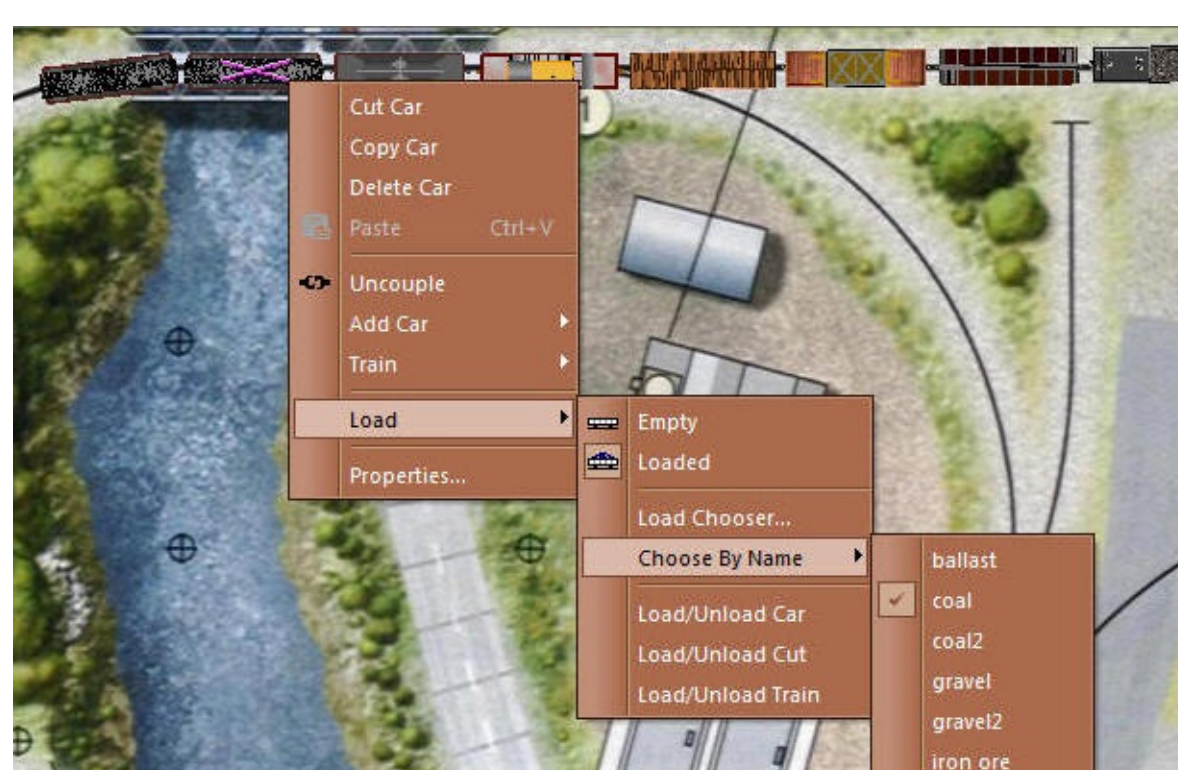
To load or unload the car:

- Right-click the car and choose **Load > Loaded** to mark the car as loaded, or **Load > Empty** to mark it empty.
- Or: click Loaded or Empty on the toolbar.  

Setting the loaded/empty status of a car modifies its image in side and top views. Emptying the car does not remove its assigned load type.

Car Load Menu

1. Right-click a freight car to see the **Load** submenu.



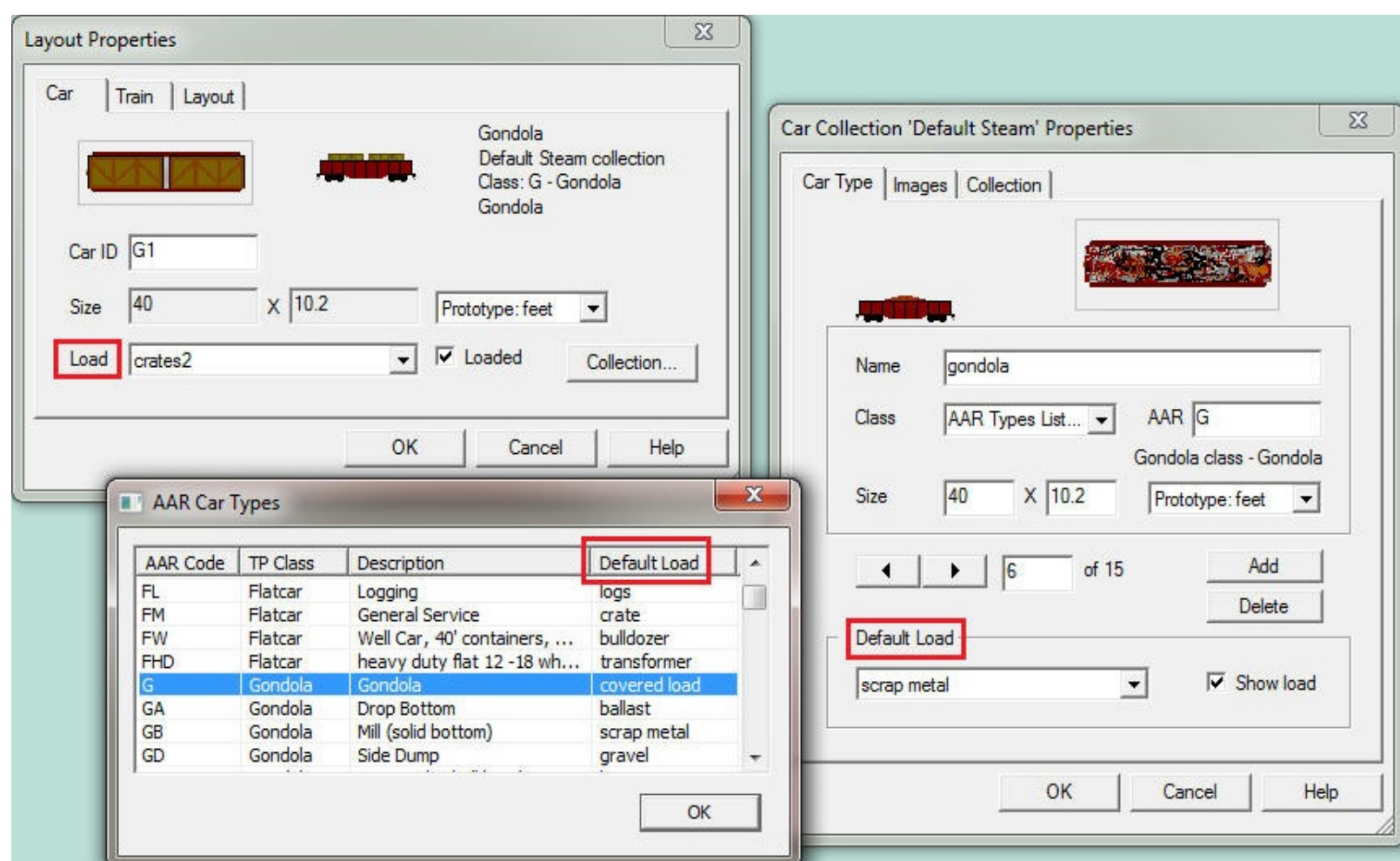
The menu does not appear for unloadable cars -- locomotives, tenders, or cabooses. Commands on the menu are:

- **Empty/Loaded:** changes the empty/loaded status of the car. If no load is associated with the car, choosing Loaded brings up the Load Chooser.
- **Load Chooser:** brings up the [Load Chooser](#) for selecting loads.
- **Choose By Name:** shows a list of loads suitable for the car -- pick one and it deposits the load in the car.
- **Load/Unload Car:** toggles the loaded status of the selected car.
- **Load/Unload Cut:** toggles the loaded status of the selected car and any coupled cars of the same type.
- **Load/Unload Train:** toggles the loaded status of all loadable cars in the train, regardless of type.

Note: the Load menu is also available from the main menu under Train > Car. This makes it accessible in Tools Customize, so you can create your own keyboard shortcuts or toolbar buttons for load commands.

Default Loads

The load system features a scheme of "cascading defaults," designed to make it easy to use loads without a lot of setup. The following diagram illustrates this.



In the **AAR Car Types** list (just above), you can see that a default load is assigned to each car

class, or AAR type. This allows you to open a random layout and find meaningful loads on all cars without having to specify anything.

In the **Car Collection Editor** (above right), a default load can be assigned to each car type, overriding the default based on the AAR code. The default load for a car type applies only when you create a car of that type -- it does not automatically change the load of every such car on the layout. For example, the diagram shows that the next time you create a gondola (class G) from the named collection, its load will be "scrap metal."

In the **Car Properties dialog** (top left), a specific load can be assigned to any car on the layout, overriding any defaults. The same result is achieved by dropping a load on the car from the load chooser, or choosing it by name from the load menu. In the illustrated example, gondola G1 is modified to have the load "crates2."

The loaded/unloaded status of a car is also changed by the program to accommodate switchlist moves or as a car is delivered to its destination. No user action is required for this.

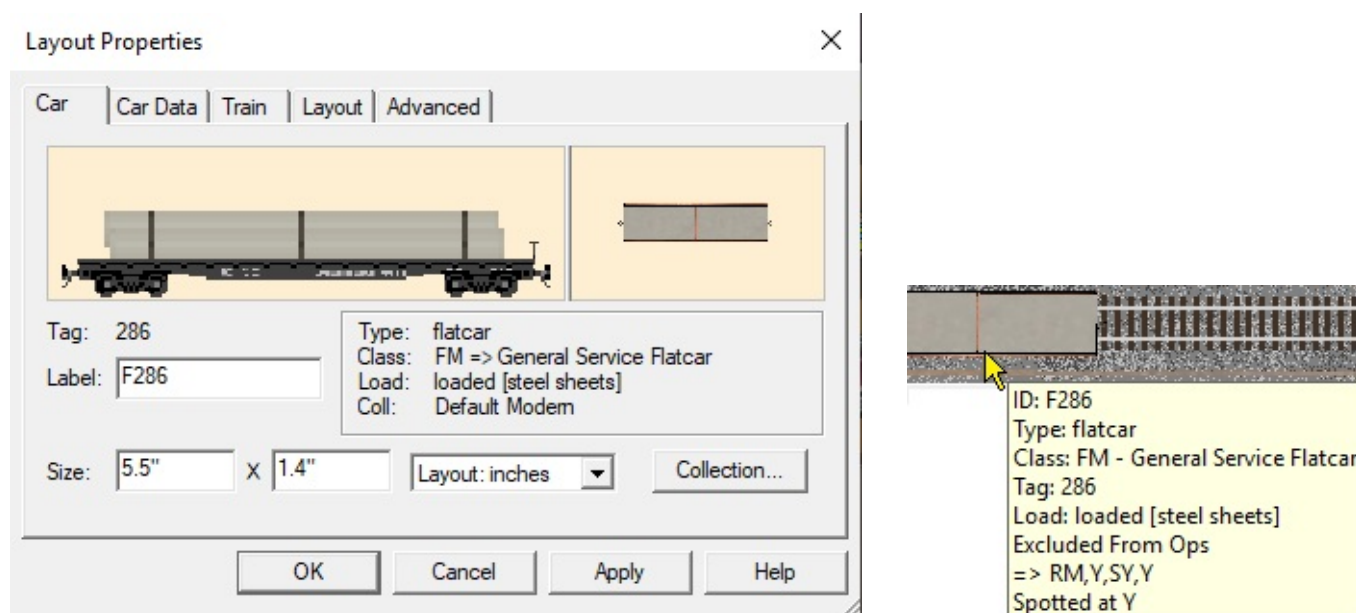
Creating Your Own Loads

Creating a new open-car load is just like creating a new car type. First you will need to decide which load collection you want it to go into, and use a paint program to prepare top and side images of the load. Then bring up the [Load Collection Editor](#) and follow the instructions for [Adding a New Car Type](#).

Creating a closed-car load is not necessary, as of Version 7. Any load names can be used in Ops, with no need to pre-register into the load list.

Car Properties

For viewing and editing properties of the selected car. Called from Properties on the Car context menu. See also [About the Properties Dialog](#).



As of version 6.6, car properties are split between two tabs: Car (this one) and [Car Data](#). In these tabs, you set properties of the individual selected car. You cannot change the car type -- if you have a boxcar and want a flatcar instead, you have to delete the car and create a new one.

Most of the properties you set in these tabs are displayed on the car tooltips, as shown above. (In the tooltip, the Car Note field is designated with a prefix of "=>.")

Dialog data on the Car tab:

Images Top and side images of the car type. Images resize with the dialog. These images belong to the car collection and cannot be changed here. Images are displayed in a [car panel](#).

Tag Internal program-assigned numeric ID. Every car on the layout has a unique tag.

Text The block of text at the upper right includes car type name, collection name, AAR code, class, class description, load information, identifying tag, and car notes if any.

Label The identifier of the car. This can be displayed on the car top (see [Car ID Display](#) below), and may be used in scripts to refer to this car. The initial ID assigned to a car is a one-letter initial of the car class, followed by a number which makes the label unique. You can change this to any short string, as long as it

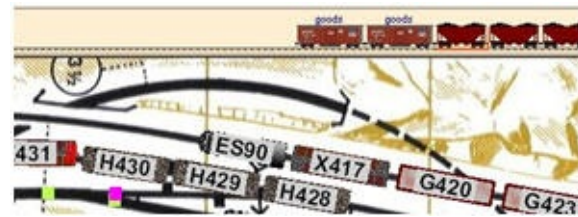
remains unique. See also [Car ids](#).

Size	Size of the car, length x width as viewed from the top, in units selected in the drop-down. Changing the size in this dialog changes only the currently-selected car. To change the size of all cars of this type, use the Car Collection Editor.
Units	Units for car size display. Units chosen in this drop-down will remain in effect throughout the program until changed.
Collection...	Click to view or edit the car type properties in the Car Collection Editor .

Car ID Display

It is often useful to see car identifiers on the layout. These can be turned on and off for all or selected cars.

Think of car ids as lighted signs on top of the cars. There are two mechanisms for controlling them: (1) inside each car is a switch to turn its own sign on and off, and (2) there is a master power switch to disable or enable all lighting. The idea is that you can display ids on a set of cars of interest, and with one click, turn them on or off without losing the selection.



Another feature affecting car id display is the option **Turn off labels while moving** in [Train Preferences](#). This causes ids to be suppressed when cars are moving, re-displayed when they stop. This applies both in and outside of ops.

The appearance of the id display can be customized. You can set font and background color. As of Version 8.1, you can choose to see numeric ids (train and car) instead of the car label. See [Train Preferences](#).

What you see on top of a car may not be its label or ids, but instead a code indicating the car's destination (the [car Dest](#)). If a car has a nonblank Dest field, you see that instead of the regular label. This is normally the case when running an ops session.

To turn ids on or off for specific cars:

1. Right-click a car and choose **Show Car ID**. This displays the id on the selected car, and turns on the master switch if necessary so you can see it.

If the id is already showing, the command changes to **Hide Car ID**. Choose that to turn off the id.

2. To toggle ids for an entire train: right-click any car of the train and choose **Train > Show Car IDs**. This changes to **Train > Hide Car IDs** if *any* car in the train is displaying an id.

To turn all car ids on or off (master switch):

1. Choose **View > Car IDs** from the main menu.

This toggles the master switch. If some ids are already showing, this command hides them but does not change the internal car switches; choosing the command again turns them back on. This item is checkmarked on the menu so you can tell if the master switch is on or off.

If you have not yet turned on ids for any cars or trains, then **View > Car IDs** turns them on for all cars on the layout.

2. Or choose **View > Remove All Car IDs**. This hides all the labels and resets all internal car switches to off. The next use of **View > Car IDs** will show labels on all cars.
-

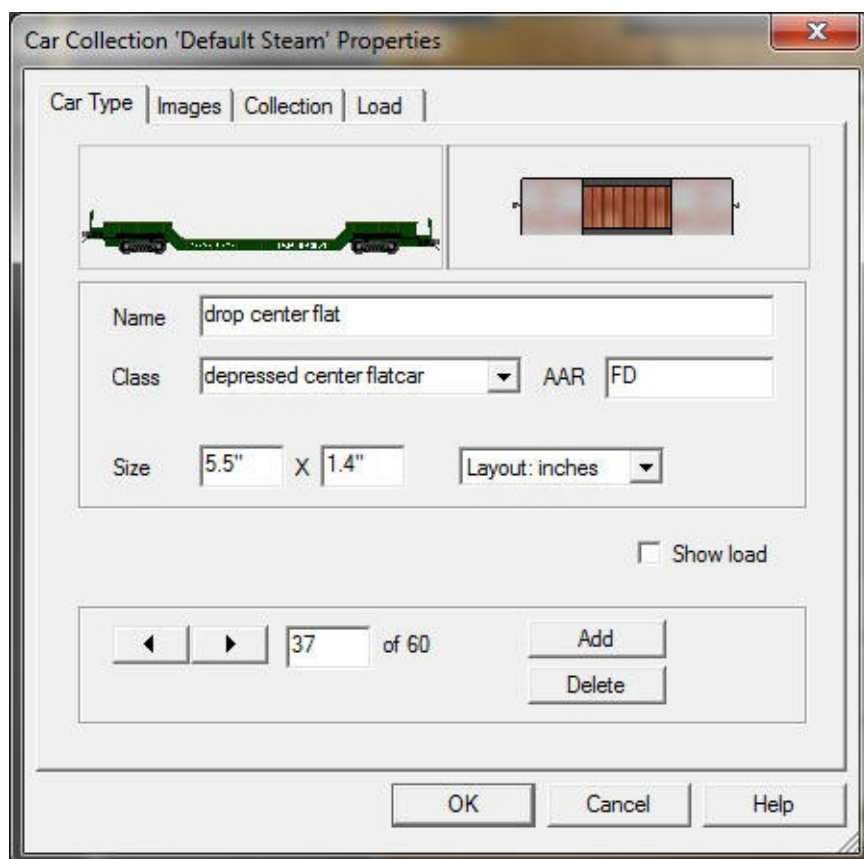
Car Collection Editors

The Car Collection Editor is for viewing and editing properties of car types within a collection. Also described on this page are the related dialogs [Load Collection Editor](#) and [AAR Car Types](#).

To bring up the Car Collection Editor: (a) click the **Collection** button in Car Properties, or (b) in the Car Chooser, right-click a collection in the tree and choose **Properties**. This dialog has three or four tabs. One has properties for the overall collection; others refer to a specific car type within it. The Load tab appears only when a loadable car is active.

Car Type Tab

This tab is for viewing and editing a single car type. It has VCR-style back/forward buttons to let you move to other types in the collection. The "current" type is the one on display in this tab. The instructions in this section apply if you are building a car collection or adding a new type; for most collections, all the data is already filled in.



images

Resizable [car panel](#) showing side and top views. Drag the divider to enlarge one side.

Name

Name of the car type. Enter a short, descriptive name, suitable for display on the icon in the car chooser.

Class

General category of car. Choose one unless you are assigning an AAR code, in which case the class will be automatically set to match the code. For more, see Car Classes below. To choose an AAR code from the dialog, select **AAR Codes...** -- the last item on the drop-down menu.

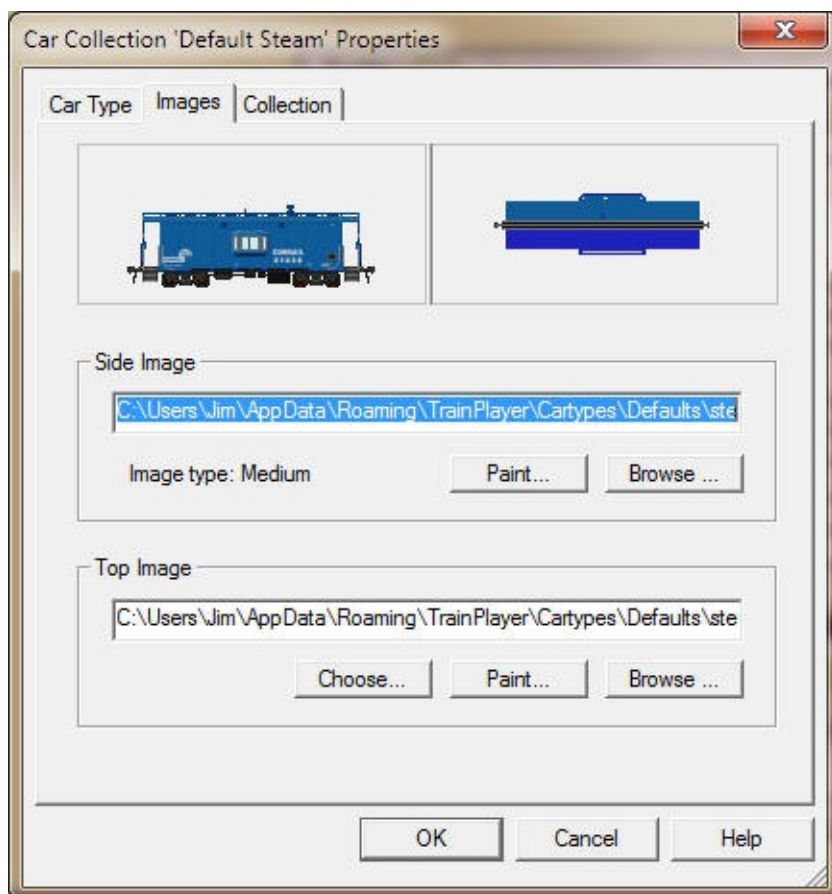
Note: if you want a car of this type to have power, choose Diesel or

Steam as its class.

- AAR** A one- to three-letter code specifying the car type in detail. You can either type a code into this box, or choose from a list. See [AAR Codes](#).
- Size** Dimensions of a car of this type -- length x width, as seen from above. Displayed in the units selected in the drop-down.
- Units** Units for size values. If you change the units in this drop-down, the choice will apply throughout the program.
- Show load** Check to have the load displayed in the car panel. Dimmed if car is not loadable. Note that in this dialog, the load you see is the default load connected to the car type; if may not match the load of a car on the layout.
- Arrows < >** Buttons for scrolling through the list of car types in the collection.
- Index** Position of current car type within the collection. You can type a number in this box to go to a specific index.
- Add** Click to add a new car type to the collection. See Adding a New Type below.
- Delete** Click to delete the current car type from the collection.

Images Tab

This tab is for changing the side and/or top images for the current type. Each car type has two images: a top view and a side view. Each view is in a separate graphics file.



images

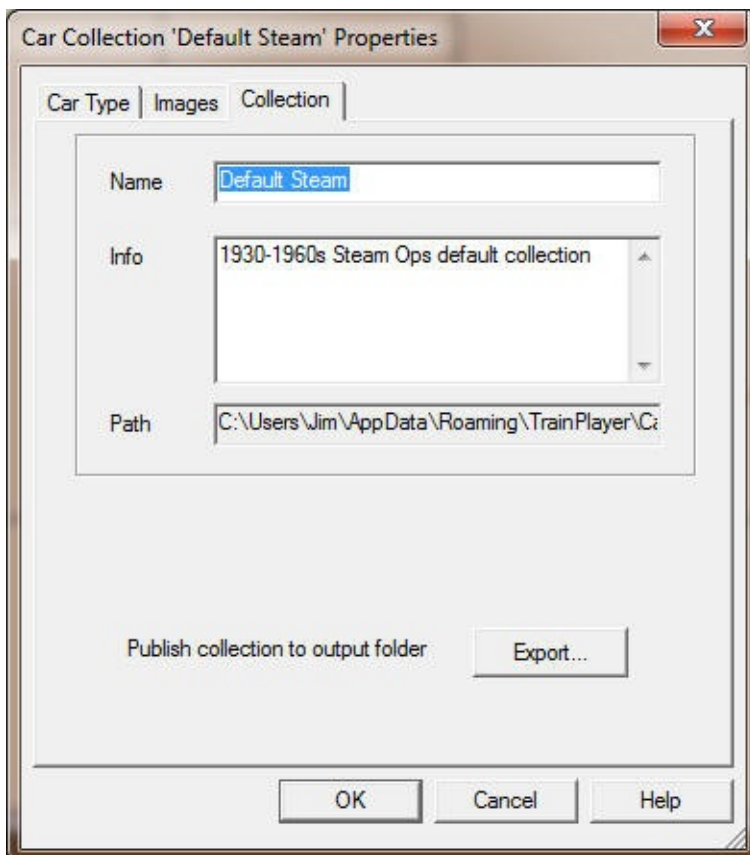
Resizable [car panel](#) showing side and top views

Side Image path	Path to the graphics file of the side image. To choose a different file, click Browse .
Image type	Image size type for the collection: small, medium, or large; see 50-pixel cars
Paint	Click to call up a paint program to edit the side image. See Editing Images .
Browse	Click to call up a file dialog to select a side image file. Supported types are as listed in the drop-down -- bmp, jpg, gif, png.
Top image path	Path to the graphics file of the top image. To choose a different file, click Browse .
Choose	Select a new top image from a chooser of available tops.
Paint	Click to call up a paint program to edit the top image. See Editing Images .
Browse	Click to call up a file dialog to select a top image file.

Note: CP car images are special cases in the Images tab. If a car type has a CP image, it is in a file with the same name and path as the top image, but with "_F" instead of "_t" at the end. If you want to view the large image in Paint, make this change in the Top Image box and click Paint. But then be sure to click Cancel! You do not want either of the paths in this dialog to point to a _F file.

Collection Tab

This tab is for editing properties of the overall collection.



Name This can be any name you like, but best to keep it short.

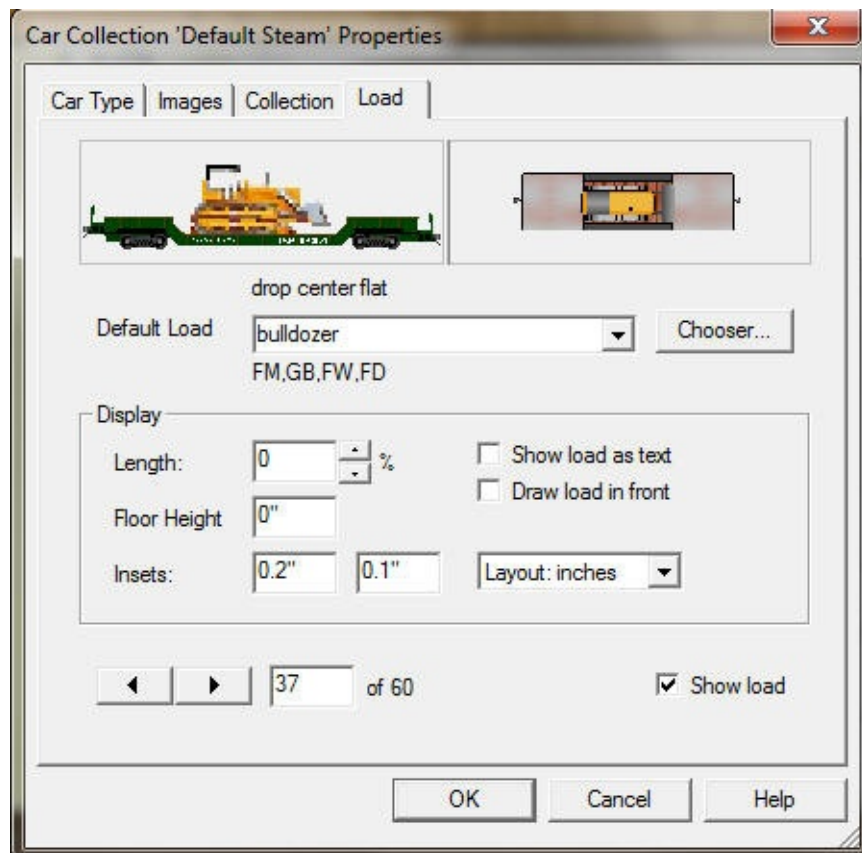
Info Description and author. If the collection is of your own creation, include some information about it.

Path Full pathname to the xml file defining the collection. You cannot change the path in the dialog.

Export Copy collection data to output directory and prepare for publication; see [Car Collector Publisher](#).

Load Tab

This tab gives properties of the default load for the car type, and access to adjustable parameters having to do with how loads sit in this type of car. Most of these parameters are new in Version 6.0, and are intended for experts to fine-tune their loaded cars. These settings take effect immediately on the car images, so you can fool with them to see what effect they have, then Cancel if you did not intend to make changes.



images

Resizable [car panel](#) showing side and top views

car type name

Name duplicated from Car Type tab

Default Load

Name of load to fill this car by default, if no other has been defined. Drop-down gives list of load names suitable for this car type.

Chooser

Click to bring up Load Chooser, where you can choose a new default load graphically instead of by name

Load AAR

List of AAR codes indicating cars which can accept this load; this duplicates what is seen in the Load Chooser

Closed Car

A text label "Closed Car" appears above the display frame when a car is

indicator

classified as closed; see [Types of Cars](#)

Display Length

Percent of car length which can be occupied by load. For most cars, leave the value at 100 (default) and loads will look ok; change to a smaller value if load images spill out over the ends of the car. Applies to both top and side views.

Show load as text

Check means this car type is closed, and a graphical load image will not work. Instead, display the load by name above the car. Applied by default to closed cars; use this checkbox to override normal behavior for special cars.

Draw load in front

Load image is to be displayed in front of car image. Use this for example in a barrel rack car, where there is one inner wall instead of two outer ones, and the load shows visibly.

Floor Height

Height of car floor above ground; for positioning loads within gondolas or drop bottom flats. Default of zero gives acceptable positioning in most cases.

Insets

Distance load should be inset from outer edges, in top view. These values represent the "wall thickness" of the car, ends x sides -- i.e., a larger value for the first value will cause the load to sit less close to the end walls

units

Units apply to insets and floor height

arrows

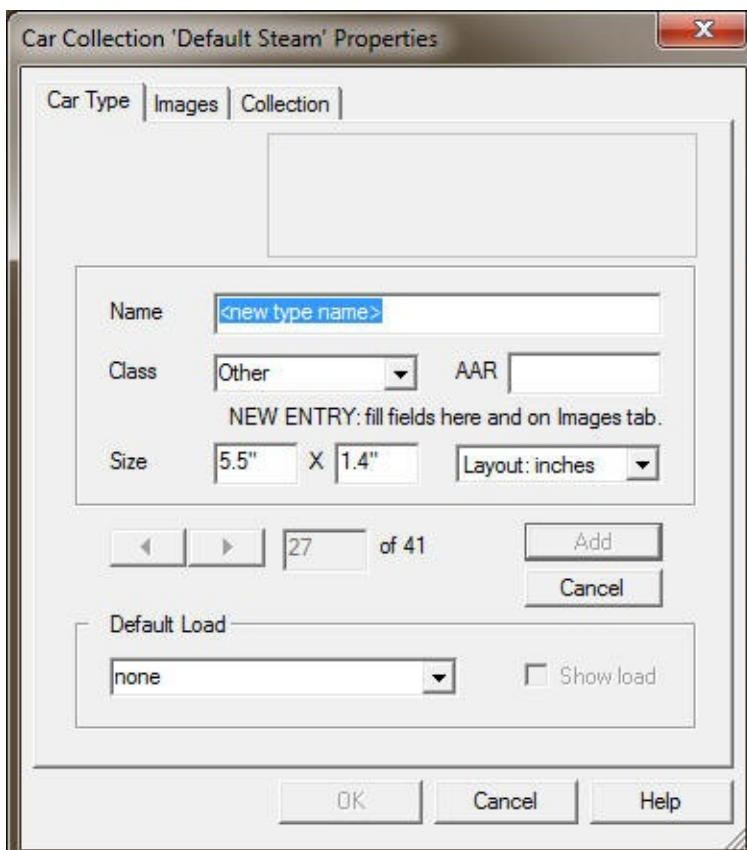
Click to move through the collection, same as on the Car Type tab

Show load

Toggles display of load in the car panel

Adding a New Car Type

To add a new type to a collection, click the Add button on the Car Type tab. This creates a new undefined type and blanks the dialog for entry of data. To provide a complete definition, you will need to enter data into both the Car Type and Images tabs.



Name	Provide a short, descriptive name of the new car type.
Class, AAR	Choose a car class or an AAR code.
Size, Units	Specify the car size, length x width, in the selected units.
Default Load	Choose a load to be the default for this car type.

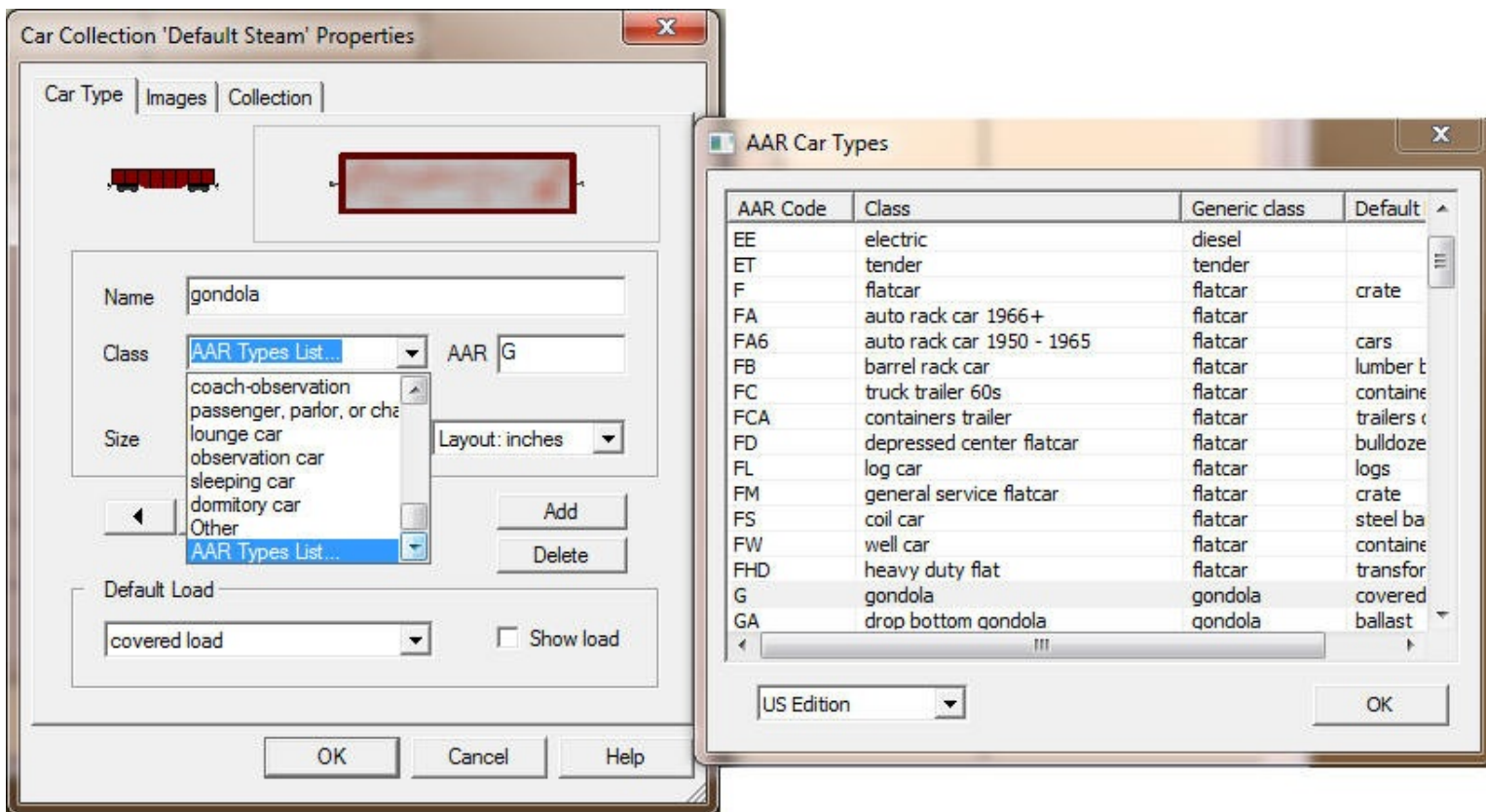
The OK button remains dimmed until you have entered all the necessary information. On Cancel, the new type is discarded and no change is made to the collection.

AAR Car Types Dialog

An AAR code is a symbol for a specific type of car, as explained under [AAR Codes](#). Every car and car type has one, whether assigned by the program or by you, as described here.

To assign an AAR code to a car type:

1. In the Class drop-down, choose the last item, "AAR Types List." This brings up the AAR types in a separate list window:



Each row has the AAR Code as defined in TrainPlayer, a description of the car type, the corresponding generic class, and the default load for the car type.

The class name varies depending on the setting in the drop-down at the bottom. The US version is shown in the screen shot; an alternate version is available for UK users. If you change the selection in the drop-down, it will change the entries in the Class column, and whenever a car description appears in the program (on dialogs, tooltips, etc.), the name given in this column will be used. This choice can also be made in Preferences -- see [Car Defaults](#).

2. Click a row in the list window to select a type. This updates the AAR text in the Car Type

tab.

Note: if you are in the Load Collection Editor, the code you select will be *appended* to the text in the AAR box (with comma) rather than replacing it.

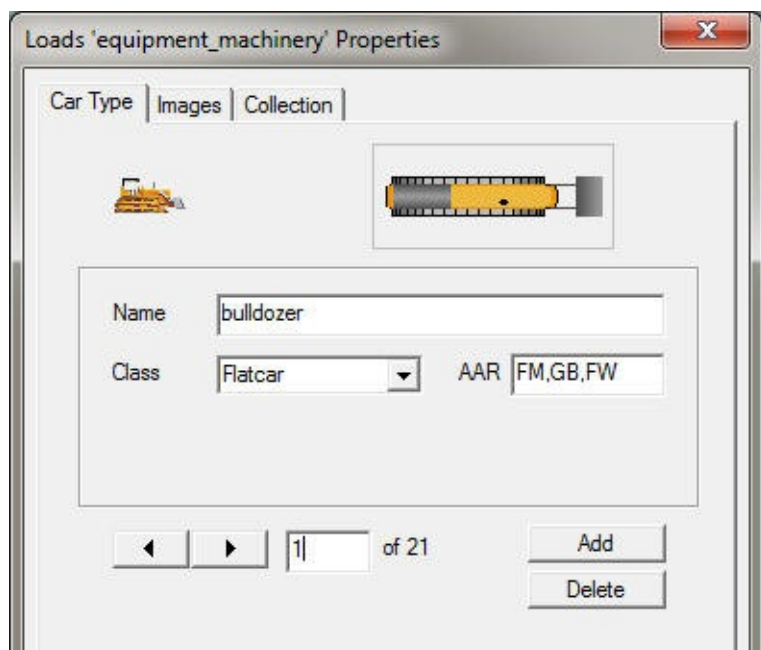
3. Or: type a code directly into the AAR box. If the code is a valid one, the list window will scroll to that type.

The AAR Car Types window remains up as you browse through the car collection. To take it down, click the close box or OK button.

Load Collection Editor

The Load Collection Editor is very similar to the Car Collection Editor, and can be operated as described above. To bring up the Load Collection Editor, right-click a load image in the Load Chooser and choose **Properties**.

The differences between the Load version and the Car Collection one are (a) some controls are removed from the former which do not apply to loads (Size, Units, Default Load, Show Load); (b) the AAR box in the Load dialog contains a different kind of string, described below.



Load AAR Strings

What you see in the AAR box for a load definition is not a single code, but a *list* of codes indicating all car types suitable to carry the current load. For example, as shown above, a bulldozer can be transported by a general-service flatcar (FM), or a well car (FW), or a solid-bottom gondola (GB).

A single-letter code represents all car types of the same class; for example, "G" means "all types starting with G." A minus sign before a code means "except this type;" for example, "F,-FA" means "all types F except FA."

A letter in parentheses is a display code for modifying the appearance of the load. At the

moment there is only one such code: "(S)" => "stretchable," meaning the load image is to be stretched horizontally to cover the entire car top. Without this indicator, a load image is shown at its natural size, even if it is shorter than the car. Stretchable loads are those like coal or gravel, which look like piles covering the whole car; unstretchable are those like bulldozers, which remain fixed size regardless of the size of the car.

You can use the AAR Car Types window to create a multi-code string. When you click a row in that window, it adds a comma and a new code to the string in the AAR box. For example, you can click three rows in the AAR Car Types window (one at a time) and get a string like "FA,FB,FC."

The Car Inventory Bar

The Car Inventory Bar (CIB) replaces the old twelve-button car toolbar with a new docking, resizable, scrollable window where you choose rolling stock to populate your layout. The window is a source of cars -- it shows a complete car collection, from which you can drag any car type onto the track or into the train window. Initially, the collection shown in the CIB is the default set associated with the layout, but you can choose any other set.

The CIB is one of two new control bars introduced in Version 5.2. The other is the [Train Control Bar \(TCB\)](#). Both use the same train display window -- see [Train Window](#).

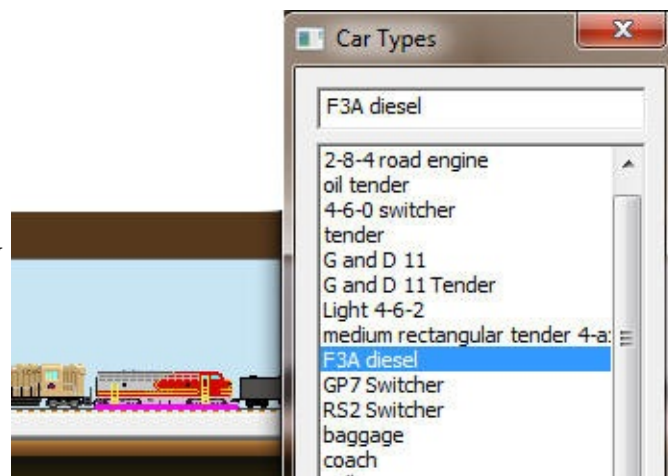


To view the Car Inventory Bar:

(a) toggle using **Tools > Car Inventory Bar** from the main menu. OR:

(b) in a track or train context menu, choose **Add Car > By Name** (or **Add Car Here > By Name**). This brings up the CIB at the bottom of the screen, along with a floating window called Car Types showing the same collection as a list of names.

The header of the CIB window shows the name of the collection on display. The order in which cars are displayed in the CIB is by car type. Engines are shown first, at the left, then passenger cars, then freight. You can hover over an image to see information about it -- in a tooltip if those are enabled, otherwise on the status bar -- or right-click and choose Properties to get the full details. Clicking a car type selects it -- gives it a pink underline, and highlights it in the Car Types window if visible.



Like the TCB, the Car Inventory Bar can be dragged by its header to undock or dock elsewhere, or it can be set up for auto-hide. It has a horizontal scrollbar for viewing long trains. It can be resized vertically, and can show large-image (Chris Pedersen) collections at any size up to full.

To add a car from the Car Inventory Bar:

(a) right-click a car image and choose Add Car; or double-click an image. This adds a car of the selected type to the current train at the insert position -- the place where you see the orange pin in the train window. To change the insert position, click a different spot in the train window.

(b) select the name in the Car Types list and click Add.

(c) press the image and drag. You can drag to:

- (1) any point along any track, where the cursor changes to an arrow -- let go and a new car is created at that position. OR:
- (2) the top of an existing train on the layout -- point to an end car or to a space between cars, where you see one or two red highlights around the cars -- let go and a new car is created, attached to the indicated car(s). OR:
- (3) a position in the train window. The orange pin moves as you drag -- let go and a new car is added at the pin position.

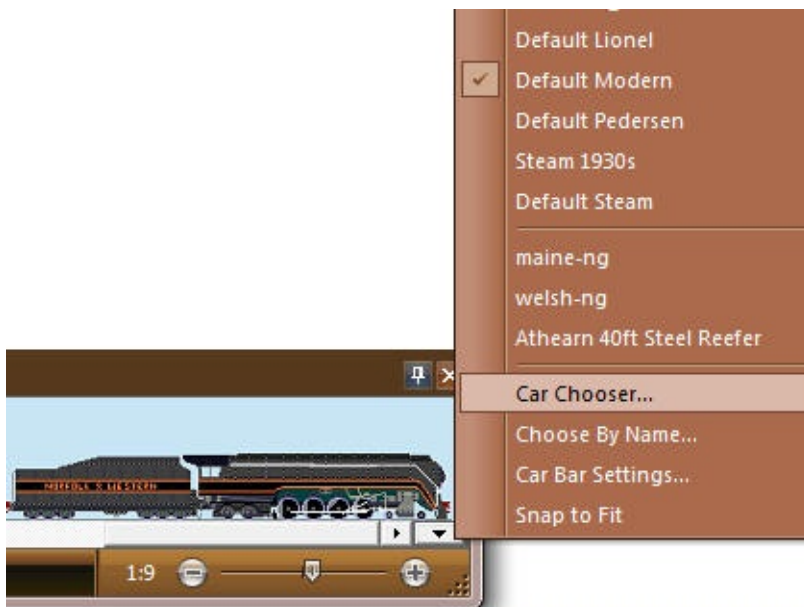
To display a different collection in the *Car Inventory Bar*:

Click the down-arrow and use the Car Inventory menu, as follows.

Car Inventory Menu



The down-arrow at lower right of the bar brings up the Car Inventory Menu, similar to this:



The menu is in three sections. At the top is a list of all installed default collections (see [Default Car Sets](#)). This is followed by a most-recently-used list of collections previously on display. Choose a name from either section to select it and display it in the bar.

Commands in the lower section of the menu are:

Car Chooser -- brings up the [Car Chooser](#), where you can (a) select an individual car type in the usual way, or (b) select a car collection to be displayed in the bar -- to do this, select a folder in the chooser tree, then click OK to dismiss the chooser.

Choose By Name -- brings up the Car Types list, so you can choose a car type by name.

Car Bar Settings -- brings up the [Car Bar Settings dialog](#), where you set properties of the bar and the menu.

Snap to Fit -- if checked, means bar height is automatically adjusted to fit the selected collection.

Decorating Cars

There are thousands of cars available for your use in TrainPlayer, but if you're looking for one with a particular color scheme or road name, you're probably out of luck. Or used to be. Version 8.0 introduces **Paint Shop**, a new facility for applying your own color schemes and decals to the cars and engines on your layout.



Despite the name, this is not a "paint program" or bitmap editor. The result of a Paint Shop session is not an image in a file, but rather a set of instructions for modifying the existing image from a car collection file. These instructions (which we're calling a **paint job**) are saved with the cars in the layout file, and do not affect the collections themselves. This means you can apply a custom paint job to some car on a layout, and a different one to the same car elsewhere.

About Paint Jobs

A paint job has two components: a **color scheme** and a set of **decals**, both described below. The system comes with a new set of artwork in the Decal Chooser -- hundreds of images of logos, road names, detail parts, and decorations. In addition, there are specialized types of decal which have special functions and no images.

A car has one paint job for its side view (as seen in the train bar, train menu, and various dialogs) and a different one for the top view (as seen moving around the layout). Creating and modifying paint jobs is done in the Paint Shop dialog. This dialog works on one car at a time, in both top and side view, and is modeless so you can do a series of cars without bringing it up each time. For details, see [Paint Shop](#).

About Color Schemes

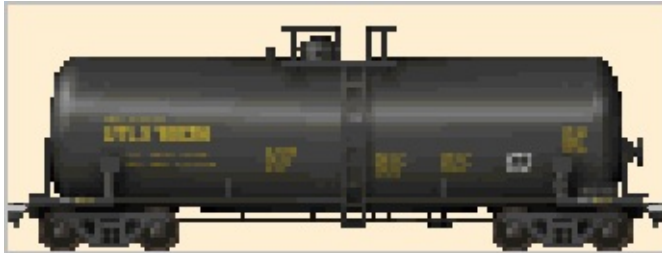
A color scheme consists of one or more **color change** instructions. Each has a pair of colors, FROM and TO, and means "wherever the original image has color F, change it to T." You can define as many of these as needed to repaint a multi-colored car.

The concept is simple, but in practice there is more to it. Generally a car with color F has not just F but also lighter and darker shades of it -- a range of colors around F. So when you specify the From color, you also give a number specifying the **range width**. The color change is thus more accurately expressed as "wherever the original image has color F or any within W shades of it, change them all to T."

Each color change also involves one more bit of data: a binary choice called **gradient**. When

this is off, then all pixels in the F band are changed to the color T. When gradient is on, then only pixels of exactly F are changed to T, F+1 are changed to T+1, etc. This has the effect of preserving shadings and gradients in the original image while still changing the overall color.

Here is an example showing the tankcar from the Default Steam collection -- the effects of color changes using different range widths and gradient choices.



original image



color change, narrow range



wide range no gradient



wide range with gradient

About Decals

Decals in Paint Shop are a bit like those in the real world: choose one from a gallery, drag it onto your car, and slide it into position. But the virtual ones go a lot further. When you slide them you don't have to keep them wet, and you never have to worry about wrinkles! Also, you can resize, flip in either direction, copy and paste, and choose opaque vs. transparent background.

In addition to the image-based decals available in the chooser, there are several other types used for special purposes. To create one, draw a rectangle, then choose a type:

- **Solid Color:** as it says, just a rectangular swatch of the color of your choice. This can be useful for covering up unwanted parts of the original image.
- **Mask Region:** a region in which no color changes are applied -- not unlike an area you cover with masking tape before spraying. An example is shown in the images above: the wheels and undercarriages are covered by a mask region, thus unaffected by the color changes.
- **Text Box:** a block of text in your choice of font and color. The font you choose determines

the text size; the rectangular region defines bounds for wrapping multi-word text.

- **Clone:** a copy of a region from elsewhere in the image. The initial rectangle defines the **clone site**; when you move or resize the decal, and it continues to display what is at that site. This is useful for covering up parts of the image -- make a clone of some blank area and use it to cover somewhere else.
- **See-Through:** a region which completely erases the image and shows through to the background. This can be useful for hiding portions of the image to be replaced by other decals.
- **Shaded Cylinder:** a region representing a horizontal cylinder (e.g., a tankcar), with an automatic gradient around a chosen color.
- **Wireframe:** a transparent decal automatically created from a car diagram, taking just the dark lines

For examples, see the [How-To sections](#) under Paint Shop.



Building Trains

In TrainPlayer, you can't modify the tracks on a layout, but you can equip it with the rolling stock of your choice. This chapter tells how.

[Selecting Cars and Trains](#)

[Adding Cars and Trains](#)

[Removing Cars and Trains](#)

[Relocating a Train](#)

[Naming Trains](#)

[Train Properties](#)

[Train Tree](#)

Selecting Cars and Trains

If there are any trains on a layout, then one of them is always designated the "selected train." This is the one

- which appears in the train window on the Control Panel or Train Control Bar
- which is being controlled by the the panel or bar
- which appears outlined or checked in the Train menu
- which is the one affected by most of the commands under Train on the main menu

To select a train: (a) click any car in the train, (b) choose its name or picture from the [Train menu](#), or (c) click its name in the [Train Tree](#).

At any given time there may be at most one "selected car" on the layout. If a car is selected:

- a pink X is shown on the car top*
- an orange line is shown under the car in the [Train Window](#)
- the uncoupling pin is positioned before or after the car
- the **Add Car** command will deposit its new car at the pin position
- Edit commands (cut, copy, delete) apply to the selected car



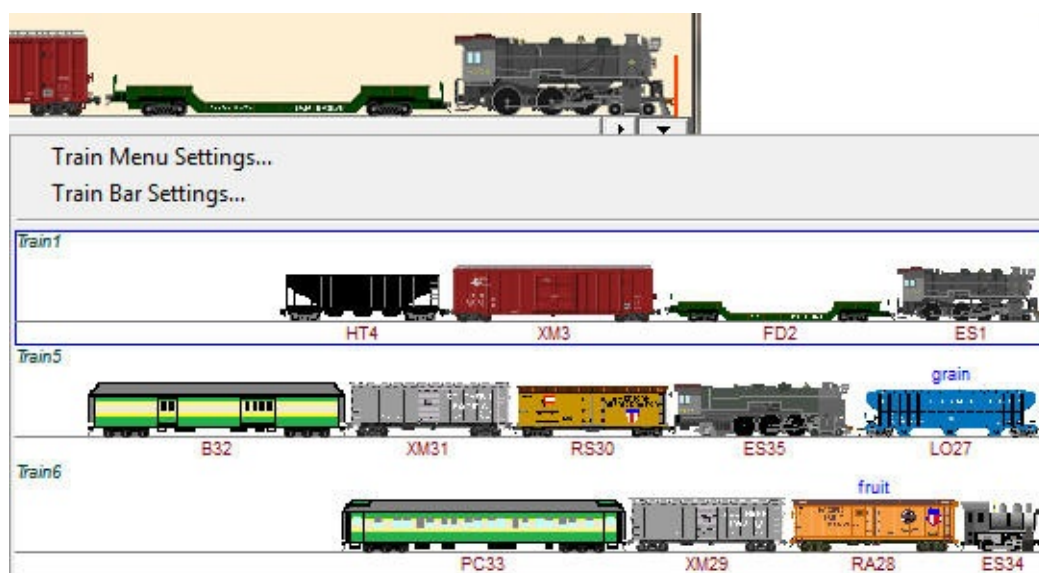
To select a car: (a) click its image on the layout, (b) click its icon in a train window, or (c) click its name in the Train Tree. When you select a car, you also select its train.

To unselect: click a blank space on the layout, or the blank space behind the train in the train window.

* When you first click to select a car, the X appears. By default it will disappear automatically after 5 seconds. You can change this behavior in [Operation Preferences](#).

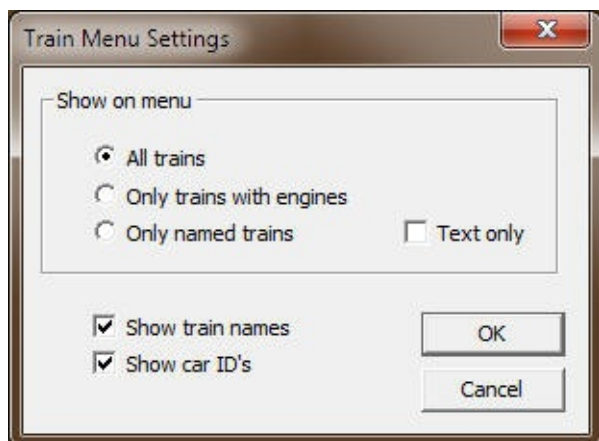
Train Menu

To select a train on the layout, you can choose from either a normal text menu or a menu of pictures. These can be annotated with the train and car identifiers if you choose.



The Train Menu appears when you click the down-arrow at the right in the [train window](#), or choose **Train > Train Menu** from the main menu. The currently-selected train is shown with a blue outline, or a checkmark if you have a text-only menu. To select a train from the menu, just click its row.

To specify what the train menu should display, click **Train Menu Settings...** and see the following dialog. (For information about the other menu item, see [Train Control Bar Settings](#).)



Controls are:

Show on Menu

choose whether you want to see all the trains on the layout, or only those having engines, or only those to which you have assigned non-default names

Text only

check if you want a normal text menu without pictures

Show train names

check if you want train names displayed along with the pictures. The train name is shown at top left of the picture. This option is disregarded if "Text only" is checked.

Show car ID's

check if you want each car to have its ID shown underneath (as in the picture above). This option is disregarded if Text only is checked.

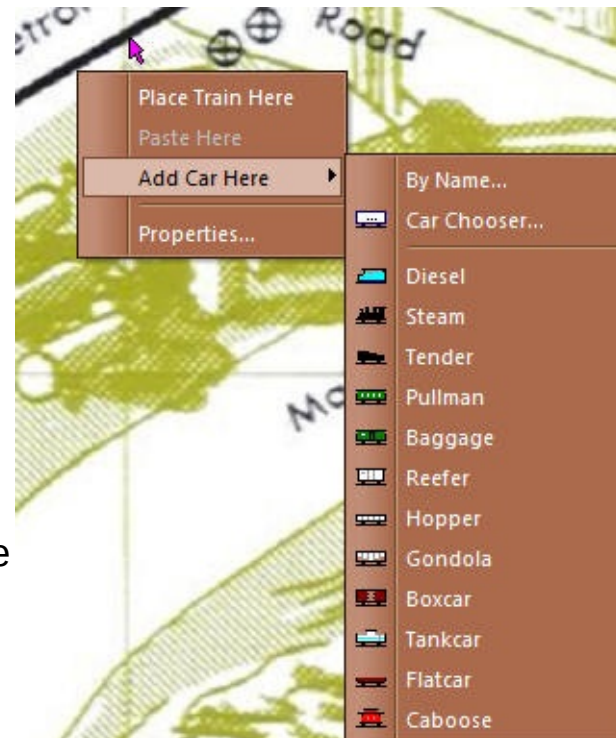
Note: trains do not have names until you provide them. Do not choose "Only named trains" or "Text only" unless you have some named trains on the layout. Most of the ops-ready layouts you can download from your web chooser have train names.

Settings you make in this dialog stay in effect until you change them again in this or another session.

Adding Cars and Trains

Building trains on your layout is a matter of choosing the types of cars and locos you want, and placing them on the track. There are a number of ways to do this:

- From the **Add Car** menu (shown at right). See below for instructions [accessing](#) and [using](#) this menu.
- From the **Car Chooser**. Choose a car from our huge catalog, click to add it to the selected train. See [Car Chooser](#).
- By **drag and drop**. Drag a car type from a car source and drop it onto a track or window or car. See [Car Swap](#) and [Drag and Drop](#) below.
- By **copy and paste**. Copy a car or train to the clipboard, then right-click a target track and choose **Paste Here**. Use just **Paste** to add the copied car(s) at the [position of the uncoupling pin](#).
- Using menu commands **Train > New Locomotive** or **New Train**. Each creates a new train on the first available track; the latter with a few cars behind the engine.
- Via **random train generation**. Populate some or all tracks with a random selection of cars and trains. Details [below](#).

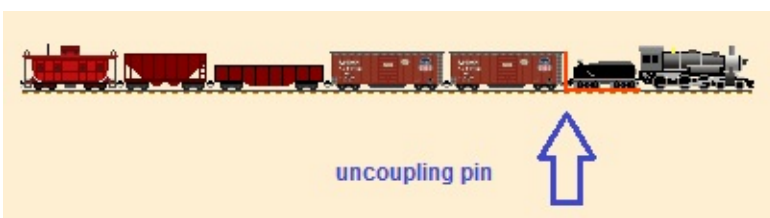


Once you build a train, you may need to rearrange its cars. For a handy method, see [Car Shift](#) below.

Accessing the Add Car menu

This menu provides ways of choosing the type of car you want to add. It comes up when you:

- right-click a track section and choose **Add Car Here**. This deposits the chosen car at the specified location on the track. Use this to place the first car of a train, or to deposit an isolated car.
- right-click a train and choose **Add Car**. This deposits the car in the clicked train at the clicked position. Use this to add or insert a car into an existing train.
- choose **Train > Add Car** from the main menu. This inserts the car into the selected train at the position of the **uncoupling pin** -- the orange spike in the train window.

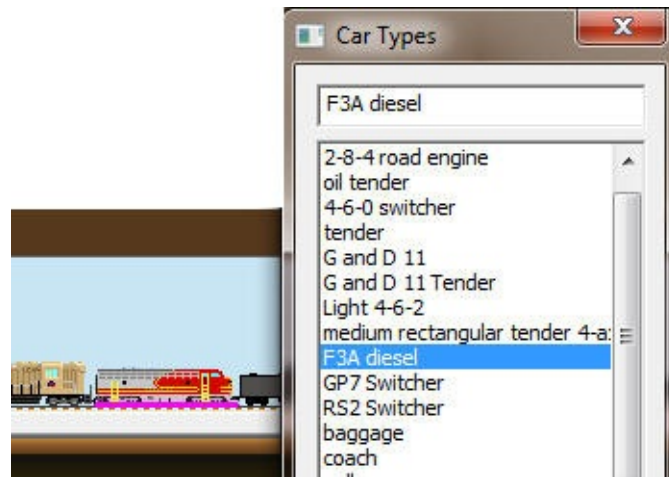


Reposition this pin by (a) clicking in the train window, (b) selecting a different car, (c) using a command from the **Train > Uncoupling Pin** menu. For more info, see the [Uncoupling Pin](#) description on the train control bar page.

Using the Add Car menu

On the Add Car menu, pick one:

- By Name...** This brings up both the Car Inventory Bar and the Car Type Names list box (shown at right), displaying the layout's default car set. Choose a car type by (a) clicking a name in the list box, or (b) double-clicking an image in the car bar, or (c) dragging an image from the car bar onto the layout or the train window. For more info, see [Car Inventory Bar](#).
- Car Chooser...** This brings up the [Car Chooser](#), where you can browse and select from the entire catalog of cars and locos, including both ones locally installed and others downloadable from the web.
- <a class name>**. As a convenient shortcut, the menu lists a dozen standard car classes. Each retrieves a car of that class from the default car set, if there is one. If there is more than one, the first one is used.

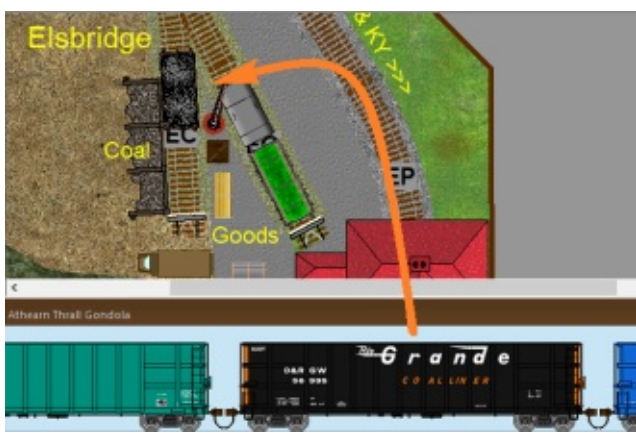


Car Drag and Drop

Drag and drop can be used to add new cars to the layout, or to change existing cars to new types. In both cases, you drag from one of two *car sources* onto various kinds of *drop targets*.

Car Sources:

- [Car Inventory Bar](#)** (shown below left) This is usually docked to the bottom of the screen. Scroll horizontally to the car type you want (the source car), press on the image and begin drag.
- [Car Chooser](#)** (below right). Navigate so the car type you want is visible in the middle pane, then drag the image. You need enough screen space to move the chooser off to the side so it doesn't obscure the target car.



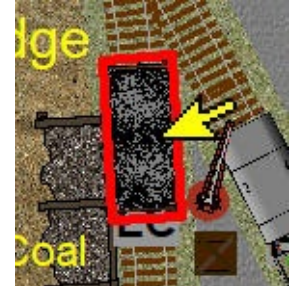
drag from Car Bar onto layout



or from Car Chooser middle pane

Highlighting:

As you drag across other cars, some highlight as shown here. A wedge indicates that dropping will add a new car, coupled at the wedge position. A full-frame highlight means the car will be swapped -- replaced by the dragged type. A car with no full highlight is not eligible for swapping with the dragged type.



couple to north end couple to south end Insert between cars swap car with new type

Drop Targets:

Release the mouse button when positioned at:

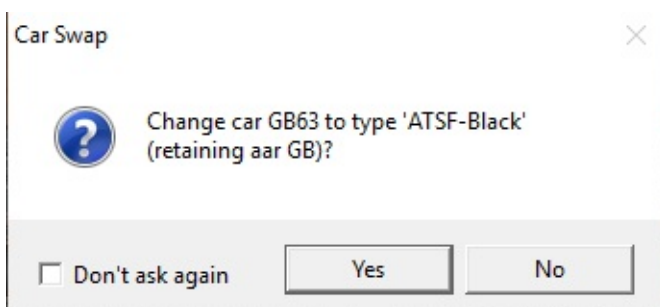
- a vacant spot on a track -- creates a new one-car train at that location.
- one end of an existing car top on the layout, or between two car tops (as in left images above) -- adds a source car, coupled at the wedge(s).
- the [Train Window](#) -- adds a source car at the uncoupling pin position.
- on top of a swappable cartop on the layout (rightmost image) -- does a [Car Swap](#), changing the target car to the source type, after confirmation.
- onto a cell in the [Cars Grid](#) or [XO Cars Grid](#) in Ops Central -- does a Car Swap.

Car Swap

To *swap a car* means to pull it off the layout and replace it with a different model. The brute-force way to do this is to delete the car and add a new one in its place, but this method changes the car data and is sure to foul up the layout's ops scheme. The Car Swap feature, introduced in Version 7.1, does the job in a safe and convenient way, using drag and drop.

To swap a car for another type:

1. Bring up a car source ([Car Inventory Bar](#) or [Car Chooser](#)) and navigate to the car type you want to swap in.
2. Make the target car visible on screen, either (a) its car top on the layout view, (b) its side view in the [train window](#), or (c) its car image in one of the Ops Central [car grids](#).
3. Drag from source to target. As you drag over a car, it is highlighted with a full red frame if it is eligible to be replaced by the source type, as determined by settings (see [below](#)).
4. Once the target car is highlighted, release the drag. You get an confirmation alert like this, telling what car is about to be replaced by what type, and what will be done about the AAR codes:

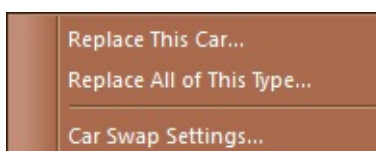


Choose YES, and the car will change to the specified type -- without changing its ID, car-top label, or other data except possibly for the AAR code. This will either change to match that of the new car type, or be left alone ("overriding" the new type), depending on settings.

The car swap operation is undoable, whether done on one or multiple cars.

Car Swap Settings

Car swap behavior can be modified by holding down the RIGHT mouse button as you drag. On release, you get a menu:

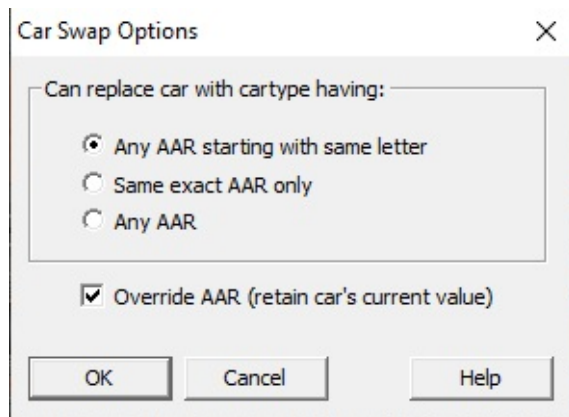


Choose **Replace This Car** to modify just the target car, same as if you left-dragged as above.

Choose **Replace All of This Type** to do the same replacement over all cars of the same type

as the target car. In this case, the alert tells the number of cars which will be modified.

Choose **Car Swap Settings** to bring up this dialog:



The radio buttons let you choose what happens when the source car type has an AAR code different from the target car. Choose when it is ok to highlight and replace the car:

- if both source and target AAR codes have the **same first letter**. This allows you to replace a GB with a GA but not an F.
- if both source and target have the **same exact AAR**. This prohibits you from replacing a GB with anything except another GB.
- **any time**. This allows you to replace a GB with an F or anything else.

The checkbox turns on or off the [AAR Override](#) flag on the target car. When this box is checked (recommended), the AAR code of the source car type is disregarded, and the target car retains its current code.

Note: to do a car swap which is guaranteed not to damage the ops setup, either check the Override box or choose the middle (exact AAR) radio choice. Any other choice is likely to cause breakage in the ops scheme when you are working with a fully-configured [Advanced Ops](#) layout.

Random Train Generator

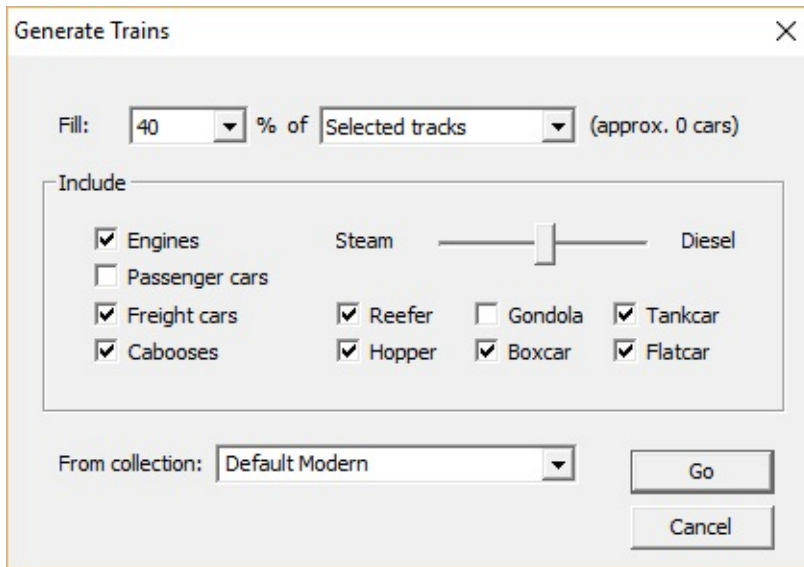
To populate a layout quickly with a random but realistic assortment of rolling stock, use the **Random Train Generator**. With this device, you indicate a target area of track, what kinds of cars you want on it and how densely you want them arranged, then click Go. This removes any existing cars from the target area and fills it with strings of cars of varying lengths and consists.

Before using the generator it you might want to do a File Save, so you can revert if the new trains are not satisfactory.

1. Using the Track or Track Edit tool, right-click a section of track and choose **Generate Trains...** (To populate a specific batch of tracks, start by shift-clicking or dragging a rectangle to select the ones you want, then right-click on any selected section.) Or:

In [Preferences > Trains](#), click **Generate Trains**.

Either method brings up the dialog:



2. Specify your choices:

Fill density (%)	<i>drop-down</i>	percentage of target track to be populated with trains. To clear the target tracks, choose zero.
Target tracks	<i>drop-down</i>	choose one: (a) selected tracks -- all sections currently selected, or if none, the single right-clicked section; (b) straight tracks -- all non-curve sections on the layout; (c) stub tracks -- all sections having one dead end; (d) all tracks on the layout.
Cars to include	<i>checkboxes</i>	check types of cars to be included, uncheck types to exclude. The six boxes on the right are dimmed unless Freight cars is checked on the left.
Steam-diesel ratio	<i>slider</i>	proportion of steam engines to be generated vs. diesel. Move the slider all the way left or right to restrict to a single engine type, otherwise you get a mixture. Slider is inactive unless Engines is checked at left.
Source collection	<i>drop-down</i>	Choose the collection from which generated cars are to be taken. The choices here are the same as on the menu of the Car Inventory Bar , and the list can be modified as described there.

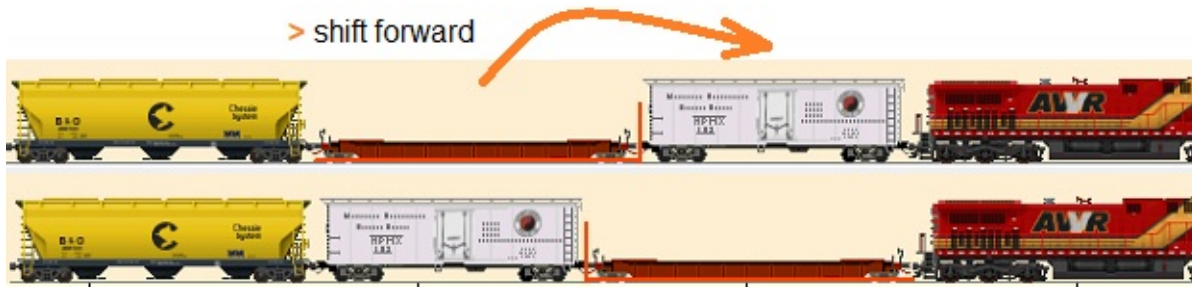
3. Click **Go** to generate trains as indicated, **Cancel** to dismiss the dialog without generating.

This operation is not undoable. If you are not happy with the results, repeat steps 1 and 2 until you get something you like.

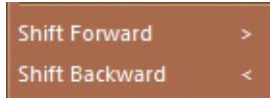
Car Shift

If you need to rearrange the order of cars in a train, you can use cut and paste, but that takes a lot of clicking and can cause changes in car data. The **Car Shift** feature, introduced in Version 7.1, makes the job easier. To "shift" a car means to move it one slot closer to the front

or back of the train, i.e. to swap its position with its neighbor ahead or behind.



To shift a car: right-click the car top on the layout (or the side view in the train window) and choose **Shift Forward** or **Shift Backward**. Forward moves the car toward the front of the train, i.e., to the right in the train window.



Or: select the car, then press the keyboard shortcut **>** or **<**. (shift-period and shift-comma on most keyboards). Press repeatedly and the car will keep shifting until it reaches the end of the train.

Removing Cars and Trains

To delete a train: right-click the train image or one of the train windows and choose Delete Train. The train is permanently erased from the layout.

To delete a car do one of the following:

- right-click the car image or icon in a train window and choose Delete Car
- click to select the car image and press the Del key
- select the car and choose Edit Cut or Edit Delete

All these actions are undoable.

Relocating a Train

Normally you place a train where you want it by driving it there. However, not all situations allow that, and sometimes you find yourself wishing you could just reach out and pick the thing up off the track. TrainPlayer has a couple of commands for this purpose: one moves a train from its current location to the spot of your choice, the other turns a train around end for end.

To move a train to a specific location:

1. Select the train to be moved.
2. Position the cursor on the destination track, right-click and choose **Place Train Here**.

The train jumps immediately to an end of the specified track. If it lands pointing in the wrong direction, read on.

To reverse the direction a train is pointing:

1. Right-click the train on the layout or in a train window.
2. Choose **Train > Flip Train**.

The train picks itself up, rotates 180 degrees, and sets down again.

To move or copy a train to a different layout:

1. Have the target layout open in a window on the screen.
2. Unselect the selected car, if any (see [Selecting Cars and Trains](#)).
3. Choose **Edit Copy** to copy or **Edit Cut** to move.
4. Click in the target layout to make it active.
5. Choose **Edit Paste**. The copied train is deposited at the normal new train location.

Naming Trains

On a real railroad, trains have names. You can name your trains in TrainPlayer, to aid in setting up switching moves, identifying car and train locations and giving your railroad that prototype feel.

In earlier versions of the program, train names were provided automatically but could be overridden. This is no longer the case. In 4.0, if you want trains to have names, you have to provide them yourself. There is some complexity about what happens to a name during a series of moves, so we provide the details on this page.

Definitions

The standard AAR definition of a **train** is: one or more engines, with or without cars, displaying markers. A train need not have cars coupled to the engine, but cars without an engine are *not* a train. Note that this is not the same definition used elsewhere in TrainPlayer.

Two or more cars coupled together and not coupled to a train is a **cut**.

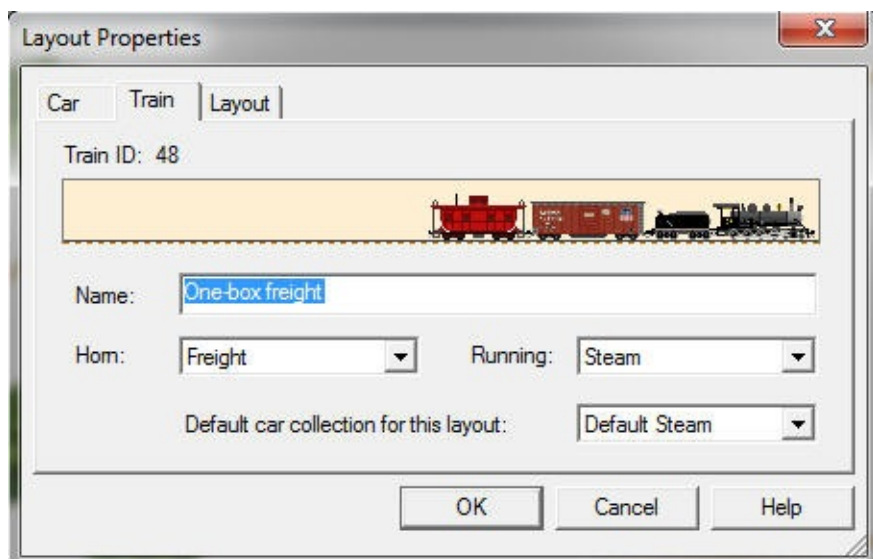
To name a train or cut:

You can name a train in either of two ways:

- Right-click any car in a train or cut (either on the layout or in a train window) and choose **Name**. Enter a name in the prompt dialog and click OK. The title of the dialog indicates whether you are naming a train or a cut.



- Or: Right-click a car, choose **Properties**, go to the Train tab and enter a name:



The name you supply may get passed around as cars are coupled or uncoupled. In general, for a train, the name stays with the engine; for a cut, it applies to that specific set of cars, whenever they are coupled together (in any order) and not coupled to any other cars. But there are other details to consider, as spelled out in the Naming Rules below.

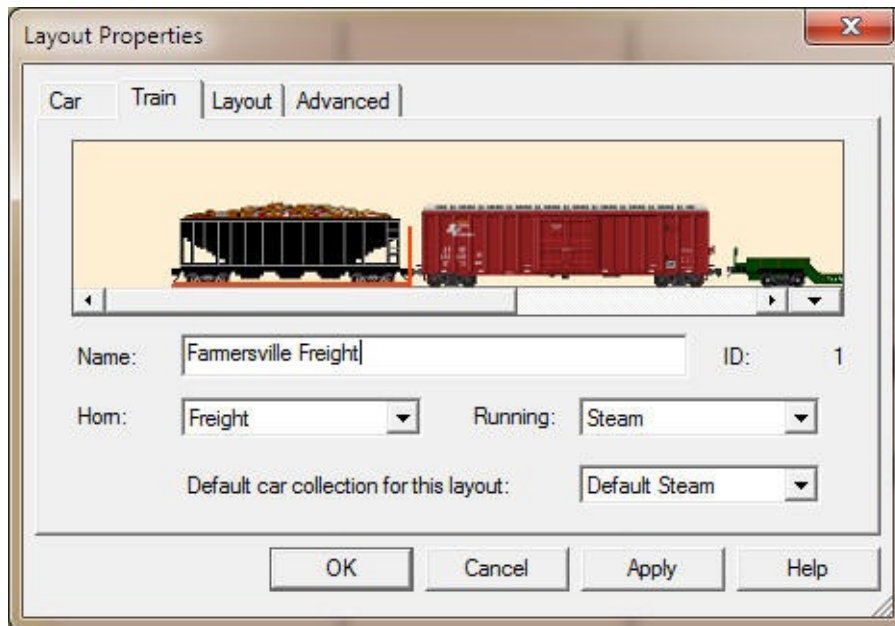
Train Naming Rules

It is not really necessary for you to know the details of how names move around. Our goal is to retain any name you provide, and make sure it shows up where you would expect. The particulars are as follows.

1. When you first open a layout, any old style names from previous versions are erased.
2. When you name a *train*, you are actually naming the engine.
3. The name of a train does not change when cars are coupled to it or uncoupled from it.
4. If all the cars are uncoupled from an engine, the engine retains the name of the train.
5. Cuts of cars may be named in the same manner as trains. The name is specific to the cut of cars.
6. If a named cut of cars is coupled to a named train, the train name is preserved.
7. If a named cut is uncoupled from a train, its original name returns. This rule allows a train to move a cut of cars around a yard without erasing the name of the cut.
8. If a named cut is coupled to unnamed cars, the cut name is lost. It will come back if the named cut becomes again isolated.
9. If two named trains are coupled, the new train takes the name of the *longer* train. For example, if “Helper 2345” with one car is coupled to “The Denver Flyer” with ten cars, the resulting train is called “The Denver Flyer.”
10. When two named trains uncouple, each retains its original name. Thus, when “Helper 2345” uncouples from “The Denver Flyer,” its name returns.
11. Copying and pasting a named train or named cut produces a named train or cut whose name is the original name plus a number. Copying and pasting “The Denver Flyer” gives you “The Denver Flyer1.” However, if you *cut* and paste, the name does not change.

Train Properties

Properties of the selected train. Called from Properties on the Train context menu. See also [About the Properties Dialog](#).



Dialog controls:

Shows side view of the train.

image

If the train is too long to fit in the window, you can enlarge the dialog. This train window is mainly for display but is partly interactive -- you can select a car by clicking, or access its car menu by right-clicking.

The train's name, used to identify it in the Train Tree, on the Train menu, and in scripts.

Name

The initial name assigned to a train is blank; for display purposes, a blank name is usually shown as "Train<id>" with the current ID of the train. Once you assign a name, it stays with the engine as the train consist changes. For more information, see [Naming Trains](#).

Choose the sound to be generated by this train when pressing the Horn button on the control panel or using Sound Horn from the Train menu.

Horn

Choose one of the four built-in loco sounds, or choose Other to bring up the [Sound Chooser](#). The sound you select for this train will remain attached to the engine if the train consist changes.

Running

Choose the sound to be generated by this train whenever it is moving. Sounds vary depending on speed. Default is either Steam or Diesel, depending on the train's engine type.

For more information, see [Running Sounds](#).

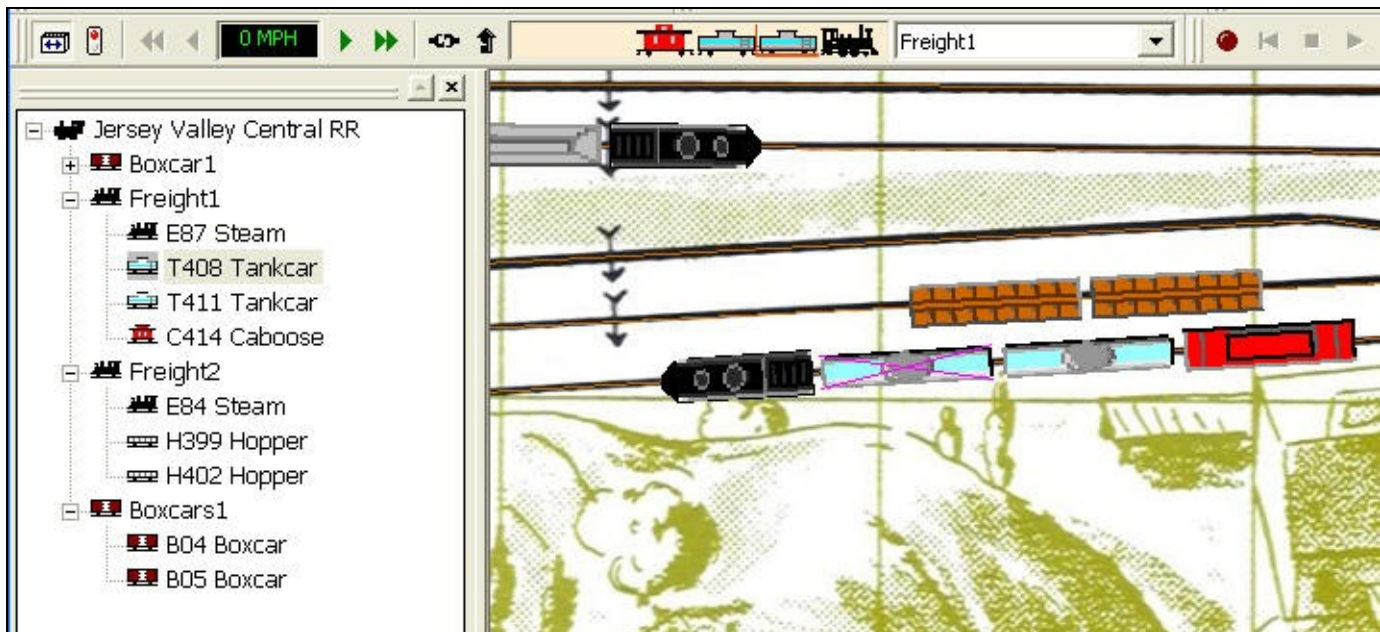
***Default Car
Collection***

The car collection to be available on menus and toolbar when this layout is active.

For more information, see [Default Car Sets](#).

The Train Tree

The Train Tree is a standard Windows tree control useful for surveying and navigating your rolling stock. It displays car ID's and train names. For example:

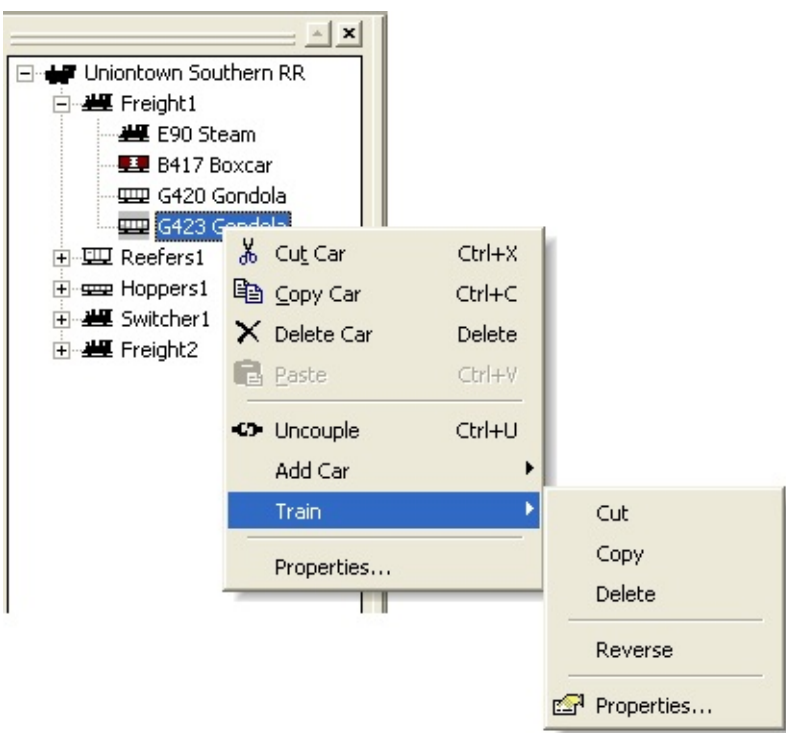


A train having a script attached to it is shown with **(s)** in the tree.

This tree shows that the Jersey Valley Central has four trains: two freights and two strings of boxcars.

To use the Train Tree:

- **Click to select a train and/or car.** If you click a train name, it selects the train and makes it active. If you click a car name, it selects both the train and the car.
- **Right-click a car or train and choose an action from the context menu.** The context menu is the same as the one you get when you right-click a car in a train window or on the layout:



Note: as soon as you right-click a car or train in the tree, it becomes the selected car or train.

- **Use up/down arrow keys to navigate the tree.** As you move to a car or train, it becomes selected.



Operations

Operations, or Ops, is the set of activities which give purpose to your railroad. It means not just running trains, but doing so in a way that generates revenue, by transporting goods from suppliers to consumers. In TrainPlayer, we provide tools and functions so you can simulate the customers, the goods they ship, and the daily patterns of work required to serve them.

This chapter briefly describes the Ops features in the program. For a deeper understanding of the system, consult the materials on the web, linked below.

[About Ops](#)

[Ops Central](#)

[About AO Grids](#)

[Further Reading](#)

About Ops


Ops is a package of features for operating your railroad. An ops session in TrainPlayer simulates a day's work on the railroad -- you report for duty, are assigned your engine and tasked with a list of cars to be transported (the "switchlist"). Your job is to deliver the cars to their destinations; completion of the task gets you a virtual pat on the back and a new switchlist for next session.

In TrainPlayer the Ops system involves several UI components along with a sophisticated engine which drives the process. There is a lot of data behind the scenes, but you do not need to know about it -- all the info you need for operating is on the screen and the car-top labels.

Ops Features

Like our product line, Ops has two levels: **Operator**, for the user who wants to run pre-prepared layouts, and **Builder**, for the author who designs op schemes and prepares layouts for operating. Features of the ops package are divided accordingly.

For the Operator:

- **Ops Toolbar** -- small toolbar providing quick access to Ops features, as detailed [below](#).
- **Car Monitor** -- a little window on the control panel showing number of cars remaining to be spotted. Double-click in the window zooms to the active engine. The window comes up by default in an ops-ready layout, is hidden in others, can be toggled using the control panel menu. 
- **Loads** -- features for loading and unloading freight cars with graphical loads; see [Car Loads](#).
- **Instructions** -- a page of info and instructions comes up on opening an ops-ready layout. Required moves are indicated by destinations shown on car-top labels.
- **Waybills** -- point to a car to see its waybill, showing status and route info; see [Waybills](#).
- **Map View** -- an interactive miniature view of the layout, showing cars and locations of interest; see [Map View](#).
- **Layouts** -- our AO gallery includes over two hundred fifty original ops-ready layouts. For the complete list with descriptions and thumbnail images, see the three galleries on the web: [Shelf-sized](#); [Room-sized](#); [Club-sized](#).

Also of interest to the Operator is the process of operating a pre-prepared layout. described [below](#).

For the Builder: all of the above plus:

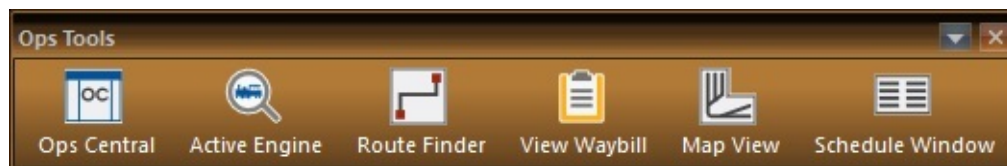
- [Ops Central](#) -- a tabbed dialog with the database of ops information for the layout.
- [Development Commands](#) -- a drop-down menu of actions for developing ops and preparing the layout.
- [AO Prep Checklist](#) -- a list of steps for preparing the layout, with current status reports; summarized [below](#).
- [Layout Tester](#) -- a dev command to run a series of tests to check for ops readiness and

report errors.

- [Route Finder](#) -- an interactive dialog for finding a list of routes between two locations.
- [Stations](#) -- the old way of identifying locations; deprecated for ops, but still useful for assigning location-specific sounds.

Also of interest to the Builder is the outline of how to prepare a layout for ops, given [below](#).

Ops Toolbar



Ops toolbar buttons from left to right:

- [Ops Central](#) -- bring up Ops Central dialog
 - [Active Engine](#) -- center and zoom the view on the Active Engine
 - [Route Finder](#) -- bring up Route Finder dialog for discovering track paths
 - [Waybill](#) -- bring up the Waybill window for the selected car
 - [Map View](#) -- bring up the Map View window
 - [Schedule Window](#) -- bring up the Schedule window for messages and reports
-

How To Run an Ops-Ready Layout

If you would like to operate one of our prepared layouts, the instructions are pretty simple:

1. Open an ops-ready layout.

In the layout chooser, open any layout under "Advanced Ops Layouts." If you have the whole package, there are over 200 plans available in three size categories. For a complete list, including thumbnail images, see the galleries on the web: [Shelf size](#), [Room size](#), [Club size](#).

You might find [Map View](#) to be helpful in learning your way around a large layout before you begin operating.

2. Read the instructions.

Each of these layouts automatically brings up a page of information about the layout, with instructions for operating. Enjoyable reading!

The introduction is on the front page of a tabbed dialog with a lot more data underneath, but you will not need to use any of this data until you are ready to build or customize.

3. Deliver the cars.

The layout opens centered on the Active Engine. Around the layout are cars with labels on top -

- short abbreviations referring to locations on the track. Your job is to use this engine to deliver the cars to their indicated destinations.

The instructions sound easy, but getting the job done requires planning and switching skills. Some of the layouts are quite challenging. Learn by doing!

The job is called a "switchlist." Once you complete it, you get a prize, then click a button and generate a new switchlist for the next session. You can stop at any time, save your situation, come back later and pick up where you left off.

How to Prepare Your Layout for Ops

If you want to ready your own layout for ops, the instructions are more involved, and many details are beyond the scope of this manual. But there are tools to help.

A good place to start is the "AO Checklist" built into the program. (You'll find this in the [Development combo](#) on the Advanced tab of Ops Central.) This outlines the steps needed to prepare your layout, with status reports. The steps are as follows, with references to other options in that combo:

1. *Tracks*. Add track labels to identify industries, yards, interchanges. Enter labels using Track Properties on selected tracks.
2. *Locations*. Edit Locations grid to provide locale names and track types.
3. *Cars*. Populate layout with cars suitable for the industries served. Position cars at industries, staging yards, interchanges.
4. *Industries*. Edit Industries grid to provide ship/receive instructions. Or use 'Build Industry Grid from Cars' to create a set of rows based on cars (and their loads) at industries.
5. *Sequence*. Edit Sequence grid to specify train movement patterns. Or use 'Add Basic Train Sequence' to create a single row suitable for basic operation.
6. *XO Cars*. Flag cars to be used for dedicated service. Use 'Flag XO Cars' to flag all engines and passenger cars; to flag a freight car, right-click and check 'Excluded from Ops' under Car Data.
7. *Document*. Use 'Edit Intro' to provide notes and instructions for the user.
8. *Test*. Run 'Test Layout' to check for errors and report on missing data.
9. *Generate*. Run 'Gen First Switchlist' to process the grid data and create switchlist #1.
10. *Save*. Save the layout. Save As is recommended, to avoid overwriting the original.
11. *Enjoy*. Deliver the cars and win the award! Click button to generate the next switchlist and

keep going.

Ops History

The Ops system in TrainPlayer has evolved through several stages. In Version 1.0 (2005) there were stations and simple tools for monitoring train moves in and out of them. Car loads were introduced in Version 2 (2006), then our first complete Ops system in 4.0 (2011). Along the way, scripting features were being developed, so that in Version 6 (2016) we brought out a series of script-based systems, from the Directed Ops Generator (DOG) to the full-featured YardMaster system in 6.4.

In TrainPlayer 7 the evolution took another large step. The extensive body of scripting code from YardMaster was converted to c++ and incorporated directly into the program. Older facilities were scrapped -- old engine, color codes, stations, ops windows -- and new ones introduced: Ops Central, track labels, new ops engine built from the ground up, based on logic developed over years.

Ops Further Reading from the website

AO PDF Files

- [AO1 Advanced Ops for the Operator](#)
- [AO2 Advanced Ops for the Designer](#)
- [AO3 Advanced Ops for the Expert](#)

AO Layout Galleries

- [Shelf size](#)
- [Room size](#)
- [Club size](#)

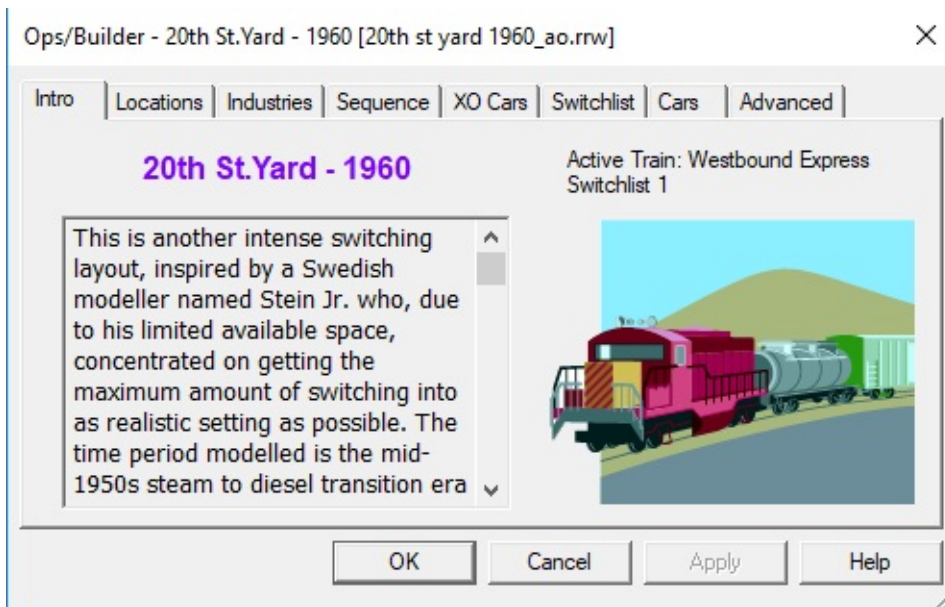
Older Documents

- [Advanced Ops User Guide](#) (PDF file)
 - [Tutorial: converting your layout for AO](#)
 - Sample layout for tutorial: [Marplain Crossing](#) (zip file)
-

Ops Central

Ops Central is the headquarters of Advanced Ops. It provides the casual user with instructions for running an operational layout, and provides the layout author much more: full access to the ops database, details of the car inventory, statistics about the layout, commands for setting up or converting a layout for AO use.

To view Ops Central, use the main menu command **Tools > Ops Central** or the toolbar button **OC**. However, you don't often need to do this, as opening an AO-ready layout usually brings up OC automatically. (TL users can change this preference on the Advanced tab.)



Ops Central is a tabbed dialog. The first tab is **Intro**, which displays a body of text created by the layout author -- usually a description of the railroad, operating instructions, and other information of interest to a user wishing to operate the layout.

Note: if you do not have a license for Advanced Ops, you only see a subset of the tabs shown above. Seeing and using the other tabs requires a license.

The next six tabs are spreadsheet-like grids where the complete body of AO data can be viewed and edited. Here is the list, with links to the individual help pages; also see [About AO Grids](#) for information common to all.

- [Locations](#) -- for managing named areas on the track and identifying as industries, yards, etc.
- [Industries](#) -- for specifying goods to be shipped and received by industries
- [Sequence](#) -- for scheduling regular train runs
- [XO Cars](#) -- for setting up dedicated service jobs
- [Switchlist](#) -- showing cars remaining to be moved in the current session
- [Cars](#) -- showing a list of all cars on the layout, with side views and details

The final tab in OC is **Advanced**, where you can set AO preferences or choose from a list of advanced commands for developers.

About AO Grids

The AO database consists of a group of data tables. You can see and edit these using grid controls on six tabs of [Ops Central](#).

Each grid has its own page of details. This page describes features common to all.

Working With AO Grids

The grids are miniature spreadsheets, each displaying a set of rows in a series of columns. Columns can be moved or sorted, some are editable, and there are a number of convenient features for working with them. Most of these are available through the context menus, described below. Other features include:

Rearranging columns: Drag a column header and drop it between two others, or hide it by dragging offscreen. To restore a hidden column, use [Field Chooser](#).

Grouping: Choose "Group By Box" to bring up a special box where you can drag columns in and out to group the fields in different ways.

Editing: On clicking a data cell, either (a) the column is read-only, so nothing happens; (b) a down-arrow appears so you can choose from a drop-down list; or (c) the text can be edited in place.

Sorting: click a column header to sort on that column. Click again to sort in reverse order.

AO Grid Column Tables

A table on each page describes the columns of each type of grid. These tables show column names and descriptions, along with:

Input type: **edit** = text is editable in place; **r/o** = read-only, cannot be modified; **combo** = has drop-down menu of the given type (see [list below](#)).

Hidden: H = column is hidden by default. To display a hidden column, use the [Field Chooser](#).

AO Grid Context Menus

Right-click a column header, row header, or cell in the grid, and you get a context-sensitive menu showing a subset of the following commands:

Command	Action	Notes
Move Row Up	Swap selected row with row above	only in orderable grids
Show Waybill	Display waybill window for car on selected row	only in car-based rows

[object] Properties	Bring up properties dialog for selected object	object = Car, Station, Load, Train, Track, Locale
Zoom to [object]	Zoom to selected object	
Add New	Add new empty row	
Duplicate	Duplicate selected row(s)	
Delete	Delete selected row(s)	
Copy	Copy selected rows or cells to the Clipboard	suitable for pasting into Excel or Notepad
Select All	Select all rows	
Print Grid	Print text on display in grid	
Refresh	Rebuild grid on display	
Expand All Items	Expand all collapsed rows	
Collapse All Items	Collapse all expanded rows	
Field Chooser	Shows list of hidden columns; drag one onto or off of grid header	
Group By Box	Shows box for grouping by drag and drop	
Column Auto-Resize	Resize columns to fit	
Help	Display grid help	

AO Grid Drop-Down Menus

When you click a cell in certain columns, a down-arrow appears so you can choose from a drop-down menu. The grid-specific pages in this help file tell which columns work this way, and include a two-letter code indicating which of the following lists you can choose from:

Combo Code	Type	List of
TL	track labels	all track labels on the layout
LD	load names	all names in the Load Chooser plus any others mentioned on layout
STG	storage tracks	labels of all tracks classified as yard or staging
EN	engines	labels of all engines on layout
AAR	aars	AAR codes of all loadable cars
SR	industry actions	Ship or Receive
TT	location types	industry, yard, staging, interchange, XO reserved



Scripting

You've worked out a particularly elegant sequence of moves in a dense yard, and you'd like to remember it so you can show it to your fellow operators on club night. TrainPlayer can help by letting you capture, program, and play back operations using "scripts," little programs written in a language designed for running trains.

Advanced Scripting in 6.1

Scripting was introduced in TrainPlayer version 2.3, back in 2006. Then, a script was something rather simple that you could attach to a train. In versions 6.0-1 we introduce Advanced Scripting, with plenty of enhancements, such as:

- Scripts may now be attached to locations on the layout, to spring into action when specified cars pass by
- A master script can be attached to the layout, to carry out startup operations when the layout opens
- The script language now becomes a full programming language, including variables, if, while, subroutines, inline procedures, arithmetic, system functions, property set/get
- New Script Central dialog organizes all scripts and reference materials
- Variables, system functions, function families

This chapter has been completely rewritten to describe the new system. See [About Scripting](#) for a guide to the documentation, or just march through the links below.

[About Scripting](#)

[Scripting UI Devices](#)

[Working With Scripts](#)

[How to Get Started in Scripting](#)

[TP Programming Language](#)

For more information, visit the [Scripting Page](#) on the TrainPlayer website.

How To Get Started

There is a lot of material to be covered on the subject of scripting. Here is a suggested recipe for easing your way into it.

1. Watch the Arlington in action.

Included with the release is the Arlington RR (filename arlington_s.rrw). This layout has a set of scripts which automatically run the Local along its route. At each stop, a Junction Action takes control of the train, pulls it into the station, waits while passengers exchange, then pulls it out again and turns it back over to the main script.

Instructions for running the demo:

1. Open **Layouts\Scripts and Puzzles\Scripting examples\Arlington RR** in the Layout Chooser.
2. Use **Tools > Schedule** to bring up the window which shows script text output. Right-click and make sure **Show Script Output** is checked.
3. Open **Script Central** using the button on the [Script toolbar](#). This dialog shows the scripts and junction actions on the layout, and a page of notes. Browse around if interested.
4. **Double-click Script 1 in the Scripts tab.** This opens the train script in the Script Editor. This dialog highlight script lines as they execute, to give you a dynamic picture of what the script is doing. (Note that it follows only the main train script, not the junction actions.)
5. Arrange windows on the screen so you can see all. (If tight for space, close Script Central.)
6. When ready, click on the toolbar: **Stop All** (if not dimmed), **Rewind All** (just to be sure), then **Start All**. Then sit back and watch.

The train starts to move and so does the script. Script comments and messages are echoed to the schedule window to keep you informed as the scripts run. With luck, the train will run all the way around the layout, making three stops, then wait a bit and start over. And you will have gotten a reasonable idea of what a script can do.

2. Record a script.

You can create a script without doing any programming or having any knowledge of the script language: just press **Record**, and let the program generate a script as you operate the train; change speed, throw switches, reverse, uncouple -- every action generates the corresponding script language. Press **Stop** when done, and there you have a script you can rewind, replay, save, and study. If you have the Script Editor up while recording, you can see the script as it gets created.

It is just that easy to record a script, but here are a few disclaimers. First, when you replay a recorded script, it may not exactly reproduce your sequence of actions. You have to cut it some slack as it tries to convert mouse moves into script commands. Second, the result is not optimized for readability. For example, varying the train speed while recording often generates a pile of speed-change commands, where in a hand-made script, only a single speed command is needed to do the job.

If you are not the programmer type, you don't need to go beyond this step. Use script recording to capture the action on your layout, then play it back, or send it to another TP user to play back.

3. Write a Junction Action.

The low-barrier way to write your first script is to right-click a track junction and create a little action there -- say a one-line script to announce something in the output window. Bring a car up next to the junction, roll it across, and the action executes. Do this a time or two and you might find yourself wanting to make fancier actions.

The procedure:

1. Choose a convenient junction or switch; use the Track or Edit tool, right-click and choose Action...
2. In the Junction Action Editor, you can choose a triggering device, or leave the default Any Train, then click in the text box to enter your script. You might start with something like this:

```
echo Crossing the junction!
```

3. Click **OK**. This saves the action to the layout (but not yet to the disk until you save the layout).
4. Bring up the Schedule Window so you can see the output.
5. Run a car across the junction, using the throttle. As soon as the center of an eligible car crosses (in this case the first car of any train), the action should trigger and show the message.
6. Go hog wild. Look at the Reference window in Script Central to get an idea what commands you can use, type one into the text box, run your car across and see what happens.

4. Write a Train Script

Writing a train script is no harder than writing a junction action, but it involves an additional complexity or two.

The procedure:

1. Select the train you want to drive and move it into a starting position. The script will begin running the train from this position.
2. Right-click any car and choose Train > Script > Edit. Either that or click the Edit button on the Script Toolbar. Either way you get the Script Editor, showing a blank script with a machine-generated header.
3. Type some commands into the text box. The most reasonable way to start is to give the train some speed and throw some switches to direct its route. Your code might look like:

```
speed 20  
throw J36 1
```

at J37 stop

except yours will of course have appropriate junction numbers for your layout.

4. Click Apply to save the code.
5. In the Script Editor, click Rewind. This highlights the first line of the script, and moves the train to its starting position if necessary.
6. Click Play. Off goes your train, until it gets to the destination, then it stops.

A couple of shortcuts:

- a. When the Script Editor is up on the screen, and the cursor is positioned at the next line in the text box, right-click a junction on the layout and you get a little menu of commands: Insert Throw Here, In... The first adds a Throw statement which causes the switch to go to its current position, ...
- b. You can copy code to the Windows Clipboard and paste it into the Script Editor. In case you prefer to do your editing in Notepad or elsewhere.

5. Join the Scripters' Forum

You will surely come up with questions. The best place to go for answers is our panel of experts.

6. Become an expert.

Script your layout, or do one of ours, send us the result and we'll post it for others to enjoy. To inquire, [send e-mail](#).

TrainPlayer Programming Language v. 8.2

The vocabulary and grammar you use to write scripts is called TrainPlayer Programming Language, or TPL. It recognizes a given list of commands and keywords -- some related to trains, such as setting speed and direction, and some standard programming constructs, like loops, ifs, and branches. It allows you to create and substitute variables, and to separate frequently-used code into subroutines and procedures. It is rudimentary but reasonably complete.

This document gives an overview of the components of the language. It does not attempt to teach you programming, or even give you much more than a brief overview and a command reference. The main documentation is built into the program, and can be found on the Reference tab of Script Central -- the same table of commands and variables as shown below, but with more detail and examples under each topic.

Further reading matter can be found on the [Scripting page](#) of the TrainPlayer web site. Of special note are two PDF documents giving a wealth of expert-level discussion and details:

- [TrainPlayer 6.1 - Extensions to the Trainplayer Programming Language \(TPL\)](#)
- [TrainPlayer 8.1 - Introduction to Linked Layouts](#)

Additions and changes for Version 8.1 are noted in the text below.

TPL Overview

A script consists of a series of *statements*. Some are *comments* -- text provided by the script author to annotate or explain -- and are skipped over when the script is executed. Others are either *executable statements*, which cause actions to occur, or *wait conditions*, which cause the script to pause for some specified event or time period before proceeding. The text in the script is sometimes referred to as *code*, and the act of creating it is called *coding*.

An executable statement begins with a *command* -- one of the words or phrases recognized by the language, such as those listed below -- followed by *arguments* providing data needed by the command. An argument might consist of a single string or numeric *value*, or an *expression* formed by combining multiple values using arithmetic operators. In place of a literal string or numeric value, you can use the name of a *variable*, and it will be replaced by the corresponding value when the statement is executed.

Statements are normally executed one after another as they appear in the script. However, this behavior can be altered using *flow* commands. A *loop* is a block of statements which are executed repeatedly a given number of times. A *branch* is a jump to another place in the script, sometimes based on a decision made in an *IF statement*.

A *call* is a jump to a separate external block of statements; these execute in their entirety, and then control jumps back to the statement after the call. There are three variations on this. A *subroutine* is a block of script code stored in a text file; a call to the subroutine executes the file and then returns. A *proc* is a small routine stored between two tags within another script; the first time it is encountered, as its parent script executes, it is extracted and saved in memory

under a specified name; subsequently it can be called using this name. A *function* is a body of code which carries out a calculation and returns a result to be used by the calling script.

Whenever a train script or junction action is running, it is connected to a train. Commands in the script which do not specify otherwise are directed to this train. *Train control* commands can be used to redirect commands from the script-owning train to another one.

Variables are created and assigned using a *Set* statement, or the equivalent *Let*. This takes the name of a variable and an expression; the expression is evaluated and its value assigned to the variable. If the name is new, the variable is created, otherwise the existing variable is updated.

TPL Statements

A script consists of a series of statements, usually one per line in a text file. Lines starting with * are comments, and are not executed. By default, comments starting with a single asterisk are echoed to the output window as the script runs; those starting with ** are not. Blank lines are ignored.

An executable statement consists of a command or wait condition name -- one of the words in the first column of the table below -- followed by any required arguments.

Multiple statements may be concatenated on a single line, using semicolon (;) as delimiter. As a special case, a wait statement may be followed immediately by a command on the same line.

Built-in Commands

A command is an instruction telling the program to take some action. There are two types: commands accessible from the program menus vs. those built into the language. The menu commands are described in the next section. The built-in commands are in these categories:

- **Train** commands: for setting speed and direction and operating the train owning the script. This group of commands is the script equivalent of the control panel.
- **Layout** commands: for throwing switches, rotating turntables, and carrying out other layout-based actions.
- **Train control** commands: for directing movements of other trains, or turning control over to them.
- **Flow** commands: for looping, branching, choosing different courses of action based on conditions.
- **Set/Let** commands: for creating variables and assigning values.
- **UI** commands: for taking input from or providing feedback to the user.
- **Subroutine** commands: for calling and defining subroutines, plus special commands for use within them
- **User interface** commands: for communicating with the user, both input and output

Most commands consist of a single verb followed by one or more arguments telling what to act on or what to do. In the table below, arguments are indicated by angle brackets -- you supply the value, not the brackets. Optional arguments are enclosed in braces; if omitted, these take

on default values.

speed 20	set speed of script owner to 20; start moving if stationary
echo "note to user!"	display message in output window
throw J35 1	throw switch at junction 35 to position 1
drive "Broadway Limited"	begin block of statements to be directed to another train

A complete list of commands is given [below](#). A better one is found in the Reference tab of Script Central.

Menu Commands

When you select any command from a menu, you see a cascading series of names starting with a top-level menu. Write these names down one after another and you have a command you can use in a script. Menu names must be separated by spaces, multi-word names must be quoted.

Version 8.1 update: two special menu commands can now take an additional argument: **File Open** and **File Save As** can be followed by a full pathname, or a path relative to the layout owning the script. If no filename is given, the file dialog comes up as before.

Examples:

file open	bring up Open File dialog
file "open layout"	bring up Layout Chooser; note quotes required around two-word command
file open mylayout.rrw	open named file; simple filename must be in same folder as current layout
file "save as" new.rrw	save current layout to specified filename
train "add car" boxcar	add car to selected train at insert position; note menu command applies to select

Wait Conditions

A wait condition tells the script to wait for a certain event or until a certain time before proceeding. There are only a few wait condition keywords, serving multiple purposes: AT a certain time on the clock, or when the first car of the train reaches a certain junction or station; AFTER an elapsed time, or when the last car passes the given location; or ON specified events.

at J35 stop	when first car of train crosses junction 35, stop train, continue with script
after 0:0:02 speed 20	wait 2 seconds, then set speed to 20

Flow Control

Script statements are normally executed one after another. Commands in the "flow control" category change this behavior, by jumping to other parts of the code based on some criterion. The following types of flow control are available:

- **Conditionals.** Use If/Endif to evaluate a criterion and take different courses of action depending on the result. A criterion is two expressions connected by a comparison operator, enclosed in parentheses.
- **Loops.** Use While/Endwhile to execute the same block of statements as long as a given criterion is met.
- **Branches.** Use Goto to jump to a specified location elsewhere in the code.
- **Calls.** Use Call to jump to an external body of code, execute it, then return and continue at the next statement.
- **Procs.** Use Proc to define a small subroutine within a script.

```
goto nextPart          jump to statement "nextPart:"
call sitandwait 10     call subroutine "sitandwait.txt" and pass one argument
```

If Statement

An IF statement takes the form

```
if (val1 comp-op val2)
    code block 1
[else
    code block 2]
endif
```

where val1 and val2 are string or numeric values, variables, or expressions, and comp-op is a *comparison operator*, one of:

```
= < > <> <= >=
```

The two values are compared using the given operator; if the result is TRUE, then code block 1 is executed; if FALSE, code block 1 is skipped, and control passes to the optional code block 2 or, if none, to the statement after the endif.

```
let ncars = $strain(train1, length) create a variable and assign value from a system function
if (ncars < 10)
    echo "short train"                compare value to literal; if true, output this text
else
    echo "long train"                 if comparison is false, output alternate text instead
endif
```

While statement

A while statement defines a loop. It takes a form similar to IF:

```
while (val1 comp-op val2)
    code block
endwhile
```


where the code block executes once every time the comparison expression evaluates to TRUE; if it is FALSE, the code block is skipped and control passes to the statement after the endwhile.

```
let i = 1           create variable and initialize
while (i < 10)     compare variable to literal; if true, go to next statement
  echo Line @i
  let i = i + 1    from here, jump back to start of loop
endwhile          when comparison is false, jump to here
```

Use a CONTINUE statement within a loop to go to the next iteration, or a BREAK statement to jump out and terminate the loop.

Let/Set statement

Set/Let statements take the form

```
set var expr
let var = expr
```

where *var* is the name of a new or existing variable, and *expr* is an expression, one or more *components* joined by *operators*:

```
comp [op comp [...]]
```

If *expr* is omitted, then the variable is deleted and removed from further use -- `let x=` undefines the variable *x* if previously defined.

A component is one of:

- a number
- an expression in parentheses
- a variable name, with or without prefix @
- a [display string](#)

Op is an arithmetic operator. Between two numeric components, it can be one of these four:

```
+ - / *
```

Between strings, only the + operator is used, and means concatenation of strings.

Examples:

```
let v = (2 + 6) / 12
let v2 = v + 99
set AllowYardMode 0
let s = "speed is " + $x_speed
let myvar =
```

Variables and Functions

A **variable** is a named value. You can make up a name, assign it a value, then use the name in place of the value in a script statement. This is the key to writing abstract code which can work on different input data.

To create a variable and/or assign it a value, you use a LET or SET statement. To represent it in a script statement, you normally* precede it with "@" -- a symbol you can read as "contents of," which identifies what follows as a variable name.

Example:

```
let CruisingSpeed = 55
...
at j22
    speed @CruisingSpeed
```

* You don't need to precede a variable name with @ when you refer to it in a LET or SET statement. If you want to embed a variable's contents into a larger string, use @ on both ends:

```
let s = "def"
echo The Alphabet: abc@s@ghi...
```

As of Version 6.3.1, you can edit a variable's value in the Reference tab of Script Central; see [Editing Variables](#).

A **system variable** or **function** is a value supplied by the system. You call for a system value by giving a function name, often followed by a list of arguments in parentheses. An argument might be the id of an object, a keyword requesting a specific action or value, or an input value for a calculation or operation. Sometimes you don't get a value back, you just call the function to do some work, using a CALL statement.

System function names begin with "\$". A list of them is given below, and also in the Reference tab of Script Central.

Examples:

```
echo Today's date is $DATE
echo Name of active layout is $LAYOUT(Name)
let r = $RAND(1,100)
echo A random percentage -> @r

let storedData = $READ("C:\myfile.txt")
let outputData = storedData + "additional info"
call $WRITE("C:\myfile_new.txt", @outputData)
```

A **function family** is a set of related functions with the same name, and a list of arguments which usually includes the identifier of an object and/or a keyword representing a specific value. Several function families provide access to objects on the layout -- cars, trains, tracks,

junctions, the layout itself -- while others work with general objects, like strings and files.

Some functions are "writable," meaning their values can be changed in LET or SET statements. Writable functions are indicated by "r/w" in the Reference listing in Script Central.

Example:

```
echo The load in box 44 is $CAR(x44, Loadname)
let newLoad = "Toy Tractors"
echo Changing load to @newLoad!
set $CAR(x44, Loadname) = newLoad
```

A **local** variable is one which is inaccessible outside of a certain limited region of code (or "scope"). Normally, when a variable is defined and assigned a value, it is "global" -- it can be referenced by any scripts or actions anywhere. But if it is named in a preceding LOCAL statement, then it is known only to the script (or subroutine or proc) where it is defined.

Example:

```
* train script 1
let gv = "a global value"
local lv
let lv = "a local value"

* train script 2
echo global value was defined as: @gv
echo value local to script 1 is undefined here: @lv
```

An excellent discussion with detailed descriptions of each system function can be found on the web in [TrainPlayer 6.1 - Extensions to the Trainplayer Programming Language \(TPL\)](#).

Subroutines

A **subroutine** is a named body of code stored in a file outside a script. The code can be executed within the script by inserting a CALL statement including the name of the file.

To pass data into and out of the subroutine, one or more arguments may be included in the call. Arguments are numbered from left to right in the call, and are represented within the subroutine as placeholders starting with "%". For example, wherever the subroutine contains "%1", it will be replaced by the first argument in the call.

Here is a simple example of a subroutine which takes a single argument. It doesn't do anything particularly useful, but the point of making it into a subroutine is that it could be made fancier if needed.

```
* subroutine sitandwait <secs> comment at first line of subroutine tells how to call
echo sitting for %1 secs...      using passed arg in a string
after 0:0:%1                     wait number of seconds given by arg 1, then return
```

These lines become a subroutine if stored as a text file `sitandwait.txt` in the TP Scripts folder.

A **proc** is a type of subroutine which is not defined in an external file, but in a section of another script. Using `proc` and `endproc` statements within a script, you define a callable block of code and give it a name.

```
proc sitandwait    defines proc and gives it a name
    echo ...       content as above
    after 0:0:%1
endproc            ends definition
```

This becomes callable once the script containing it is run. Including it within the master script guarantees this.

If either of the above is available, a script can then say

```
call sitandwait 5
```

to cause 5 seconds of idleness.

Display Strings

The term "display string" (DS) means a lengthy string for conveying information to the user or to a file. Each of the following commands takes a `ds` as argument, and all process it in exactly the same way:

- `ECHO ds`
- `NOTE ds`
- `NOTEBOX ds`
- `$MSGBOX([type,] ds)`
- `$WRITE(fname, ds)`

Display strings:

- may contain references to variables. User variables are prefixed by `@`, globals by `$`. These are substituted by appropriate values before the string is output.
- may be surrounded by quotes, or not -- author's choice. Quotes are removed before output.
- may be multi-line text blocks containing returns and blank lines. A multi-line string must be quoted, and any embedded quotes must be doubled.
- may be components of `LET` statements.

Quotes in TPL

Our general philosophy is: quotes are not required (except in certain situations listed below), but may be used if desired. Programmers used to formal languages tend to prefer quoted strings. Thus either of these is valid:

```
echo this is a string to be output
echo "this is a string to be output"
```

In a display string, variables are substituted whether or not the string is quoted. Examples:

```
echo the speed of the crossing train is $train($x_train, speed)
echo "today is $date and it is already $time"
```

Quotes are optional around most function arguments and keywords. Thus both of these work:

```
echo the speed is $train(train66, speed)
echo the speed is $train("train66", "speed")
```

Where quotes are required:

1. Around a multi-word command, registry setting name, or filename -- that is, any of these which contains a space. In a menu, this applies only to a single level of a cascading menu.

Examples:

```
file open "c:\my file.txt"    <== filename with space
file "revert to saved"       <== menu command
set "Default Car Length" 400 <== reg setting name
```

3. Around a string containing a parsable character, where the meaning of that depends on the context. In a function call, an unquoted string must not contain the character ")", because that would terminate the call. In a comma-delimited list, a string must be quoted if it contains comma. Examples:

```
call $write(c:\myfile.txt, a string with ) paren)    <== WRONG
call $write(c:\myfile.txt, "a string with ) paren") <== OK
```

4. Around a multi-line text block. This is the only way to define such a block, by enclosing it in double quotes and including carriage returns:

```
echo "this is a string
with multiple lines

and a blank line"
```

Note that if you want the string itself to include a quote, you must double it:

```
echo "string with embedded "" quote"
```

Table 1. TPL Command Reference

This table shows the command vocabulary as it stood at some point prior to release. For a more up-to-date listing, consult the [Reference tab in Script Central](#). Contents of that tab can be exported for printing if desired.

Flow Commands

Goto <label>	jump to statement after given label
Autopause <secs>	turn on pauses of given duration during train movements
If (<expr> <comp-op> <expr>)	compare two expressions, branch based on result
Else	begin alternate block after IF
Elseif (<expr> <comp-op> <expr>)	evaluate alternate after IF
Endif	end IF block
While (<expr> <comp-op> <expr>)	compare two expressions, execute or skip next block based on result
Endwhile	end WHILE block
Break	break out of WHILE loop
Continue	continue to next iteration of WHILE loop
Exit	terminate running script

Layout Commands

Throw <jxn> [<pos>]	throw switch to given position or next available
Rotate <ttbl> <jxn> [CCW]	rotate given turntable to junction, clockwise unless CCW added
Tablestop	stop turntable rotation
Sound [loop stop] <spath>	play or stop sound in named wav file. If LOOP omitted play once.

Set Commands

Set <var> <expr>	set variable to value; equivalent to LET <var>=<expr>
Reset <var>	reset registry variable to stored value
Let <var>=<expr>	set given variable to value of expression; create variable if needed

Subroutine Commands

Call <routine> <arglist>	call given subroutine or proc and pass any required arguments
Proc <routine>	begin definition of procedure of given name
Endproc	end procedure definition
Local <var[,var...]>	declare local variables
Return	return from subroutine or proc to calling script

Train Commands

Forward	set direction to forward
Reverse	set direction to reverse
Speed <mph>	set speed to given mph; starts train moving if stopped
Stop	decelerate to a stop
Uncouple <slot> OR <car> OR <car><car>	uncouple at given position, at given car, or between given cars
Horn [<msec>]	sound train horn for 3 sec or given time in millisec

Train Control Commands

Train <train>	select given train
Load [Toggle] [Car/Train/Cut] <ids> [<loadname>]	load given car(s) with given load or default
Unload [Toggle] [Car/Train/Cut] <ids>	unload given car(s)
Drive <train>	transfer control temporarily to given train
Enddrive	transfer control back to original train
Start <train> [<mph>]	start train script, or start train moving at 5 mph or given speed

User Interface Commands

Echo <string>	display given string in schedule window
Input <var> [<prompt>]	set user variable from input dialog, optionally using given prompt
Note [<string>]	display given string in popup window; hide window if no string
Notebox [<string>]	display string in window dismissable with ESC or click

Car Functions

\$CAR(label, ID)	numeric car id
\$CAR(label, Label)	car label
\$CAR(label, Loaded)	1 if car is loaded, otherwise 0
\$CAR(label, Loadname)	name of load assigned to car, if any
\$CAR(label, AAR)	car aar code
\$CAR(label, Note)	user-applied note on car
\$CAR(label, Dest)	user- or ops-applied destination tag on car
\$CAR(label, Track)	track number where car is currently located
\$CAR(label, ShowLabel)	1 to show, 0 to hide
\$CAR(label, <any>)	custom property; set blank to remove
\$CAR(label, Layout)	layout name where car is located
\$CAR(label, LayoutID)	layout ID where car is located
\$CAR(label, Class)	general car class
\$CAR(label, Type)	name of car type within collection
\$CAR(label, Position)	trackno, dist to S end, 1=>headed S
\$CAR(label, SortOrder)	user-applied integer value
\$CAR(label, Train_ID)	id of owning train
\$CAR(label, Car_ID)	id of car
\$CAR(label, Train)	name of owning train
\$CAR(label, Consist)	one-word description of train consist
\$CAR(label, ExcludeOps)	X => exclude car from switchlists
\$CAR(label, Load)	current load or 'unloadable' or 'empty'
\$CAR(label, Location)	at or near track or station
\$CAR(label, IsSpotted)	1 if car is at assigned dest, otherwise 0
\$CAR(label, PropsStr)	prop string used by scripts

Train Functions

\$TRAIN(name, ID)	numeric train id
\$TRAIN(name, NCars)	number of cars in the train
\$TRAIN(name, Car)	label of car i, i between 0 and NCars-1
\$TRAIN(name, Name)	train name, either user-assigned or Train<id>
\$TRAIN(name, Speed)	current speed, same as returned by \$SPEED
\$TRAIN(name, Direction)	F = forward, R = reverse, T = toggle
\$TRAIN(name, Length)	length in cars; returns same value as NCars
\$TRAIN(name, Flip)	invert train on track
\$TRAIN(name, <any>)	custom property; set blank to remove
\$TRAIN(name, CarIDs)	set of car id's in train
\$TRAIN(name, CarLabels)	set of car labels in train
\$TRAIN(name, Layout)	layout name where train is located
\$TRAIN(name, LayoutID)	layout ID where train is located

Layout Functions

\$LAYOUT(Name)	layout name
\$LAYOUT(LayoutID)	layout id
\$LAYOUT(Path)	rrw file pathname
\$LAYOUT(NTrains)	number of trains on the layout
\$LAYOUT(Train)	name of train i, i between 0 and NTrains
\$LAYOUT(TrackLabels)	space-delimited list of all track labels
\$LAYOUT(JxnLabels)	space-delimited list of all junction labels
\$LAYOUT(ReadOnly)	does rrw file open for read-only
\$LAYOUT(SaveVars)	does saving to rrw file save variables
\$LAYOUT(IDSet, type)	set of id's of given type
\$LAYOUT(Description)	text notes as shown in layout props dialog
\$LAYOUT(RoadStyleFromGlobals)	copy global settings to layout roadstyle

\$LAYOUT(Active)

1 if layout is active document window

Track Functions

\$TRACK(id, OccupiedBy)	return labels of cars on track
\$TRACK(id, Label)	user-applied label
\$TRACK(id, Length)	track length in rru
\$SCENERY(id, Show)	show scenery object
\$SCENERY(id, Hide)	hide scenery object
\$SCENERY(id, Toggle)	toggle visibility of scenery object
\$SCENERY(id, IsVisible)	1 if scenery object is showing, else 0
\$SCENERY(id, Label)	user-applied label
\$STATION(id, OccupiedBy)	return labels of cars in station
\$STATION(id, Label)	user-applied label
\$TURNTABLE(id, OccupiedBy)	return labels of cars on turntable
\$TURNTABLE(id, Track)	id of bridge track
\$TURNTABLE(id, AlignedTo)	id(s) of 1 or 2 locked external tracks
\$TURNTABLE(id, Label)	user-applied label
\$JXN(id, Label)	user-applied label
\$CAPAC(loc, mode)	number of car spaces at location; mode=all/free/occupied

String Functions

\$STRING(string, Length)	length of string in characters
\$STRING(string, Contains, argument)	returns 1 if string contains argument, 0 if not
\$STRING(string, StartsWith, argument)	returns 1 if string starts with argument
\$STRING(string, EndsWith, argument)	returns 1 if string ends with argument
\$STRING(string, NextToken[, delims])	returns next substring, removes from string

File Functions

\$FILE(name, Open)	open named text file, return id or 0 if fail
\$FILE(id, Close)	close file
\$FILE(id, ReadAll)	read contents and return as string
\$FILE(id, ReadLine)	read next line; return 'EOF' when done
\$FILE(name, SaveVars)	write all user variables to named file
\$FILE(name, ReadVars)	read all user variables from named file
\$FILE(name, Exists)	1 if file exists, else 0
\$FILE(name, Delete)	1 if file successfully deleted, else 0
\$FILE(name, GetNameExt)	return filename+ext only, no path
\$FILE(name, GetDir)	return directory path, no filename

Set Functions

\$SET(set, Add, value)	add new value at end; return new set
\$SET(set, Contains, query)	1 if set has member matching query, 0 if not
\$SET(set, ContainsSet, set2)	1 if all mems of s2 are in this set, 0 if not
\$SET(set, Count)	number of members in set
\$SET(set, Dedupe)	return set without duplicates
\$SET(set, Difference, set2)	return set minus set2
\$SET(set, EqualSets, set2)	1 if sets are equal to each other, 0 if not
\$SET(set, Find, query)	index of member matching query, -1 if none
\$SET(set, Get, i)	member i (first i = 0)
\$SET(set, Intersection, set2)	return intersection of set and set2
\$SET(set, Remove, i)	remove member i; return new set
\$SET(set, Sort)	return set sorted alphanumerically
\$SET(set, SortRev)	return set sorted in reverse order

\$SET(set, Union, set2)
\$SET(set, Randomize)

return union of set and set2
return set sorted in random order

\$SET(set, Flatten)

return set with subsets merged in

System Functions

\$RAND(i1,i2)

random integer between i1 and i2; defaults false,100 if not specified

\$SUBSTR(i1,n,s)

substring of s starting at i1, n chars long; if n = -1, go to end

\$FINDSTR(sub,s)

return zero-based position of sub within s, or -1 if not found

\$SETTING(name)

return named registry setting

\$RRCLOCK(arg)

rrclock functions: get, set t, add t

\$READ(f)

return contents of text file f as string

\$WRITE(f,[a],[s])

write string s to file f, optionally append; 0 if fail

\$STRLEN(s)

return length of s

\$MSGBOX([type],[s])

show message s with ok/cancel or yes/no buttons; return 1=ok/yes 0=no

\$VIEW(op,name)

get/set visibility of named window or feature; op=IsVisible,Show,Hide

\$SWITCH(j)

return switch pos at j (0 or 1 standard), -1 if j not a switch

\$SYSTEM(cmd)

execute system command in command box

\$NOTE(id)

get/set text of given note

\$OPS(mode,g.col,qry)

get/find values from Ops Central grids

\$AO_DEV(mode,arg)

getset<name> .getvar<name>,agent,y7,upgrade,checkXO,mon1,reset,cc:

System Variables

\$TIME

current time of day (h:m:s in 24-hour format)

\$DATE

today's date (mm/dd/yyyy)

\$LAYOUT

layout name

\$TRAIN

name of selected train

\$CAR

name of selected car

\$SPEED

speed of train in MPH (KPH if metric settings in effect)

\$KEY

numeric code of last key hit on keyboard

\$X_TRAIN

name of crossing train -- train owning calling script

\$X_SPEED

speed of crossing train

\$X_CAR

label of crossing car

\$DATADIR

TP application data directory path

\$CRASHES

count of crashes/bounces since layout open or last reset

Wait Conditions

AT <jxn>

lead car of train crosses junction

AT <(t j d)>

lead car of train crosses exact spot (dist d from jxn j on track t)

AT <h:m[:s]>

specified time is shown on layout clock; h:m required, secs optional

AT <station>

lead car of train enters named station

AFTER <jxn>

last car of train crosses junction

AFTER <(t j d)>

last car of train crosses exact spot

AFTER <h:m:s>

specified actual time has elapsed on wall clock

AFTER <station>

last car of train leaves station

ON STOP

train comes to a complete stop

ON COUPLE

train couples with another car

ON THROW <jxn>

specified switch is thrown by any means

ON TABLESTOP

turtable finishes rotating

ON KEY [<key>]

user presses any key or specified key

ON NOTECLOSE

user closes notepad with key or click



Scheduling

This chapter describes a couple of features helpful in making up a schedule or timetable for your railroad.

The idea is this. Suppose you are making up a timetable for the daily run of a train which goes from A to B with several stops in between. You will need to know the average time it takes to get from one stop to the next. The scheduling features help you with this, by reporting when the train arrives and departs at stations along the way. You can use these reports to calculate travel times for your schedule.

In TrainPlayer, the travel times are likely to be in minutes, rather than hours as the prototype would take. For this reason there is a *scale clock* -- a clock which runs faster than the one on your wall, so that, say, ten minutes on the layout equals an hour on the railroad. So you can run your simulated eight-hour shift all the way from A to B and still be done in time for lunch.

This chapter used to be bigger. With the introduction of Ops, the part about Stations was removed and expanded into its own chapter.

[Clock](#)

[Schedule Window](#)

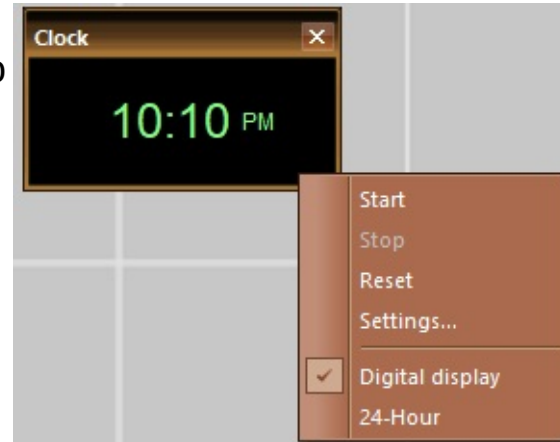
Clock

When operating a model railroad, it may take one minute to travel from Cincinnati to Columbus. Such time spans don't make for very convincing schedules. The model railroader's solution to this is the "scale clock," which runs at some multiple of normal speed. If that multiple is, say, 6, then it appears to take 6 minutes to make the trip, which is still record time but at least more manageable.

TrainPlayer offers an adjustable-speed railroad-style scale clock in its own dockable, resizable window. You can use it to time your operations, or start it and let the program refer to it as it keeps track of your schedule.

If the clock is visible when you open a layout, then it will start automatically as soon as any train moves. Or you can start it by hand.

New in 7.2: a digital clock face, with choice of 12- or 24-hour time =>



To operate the clock:

1. To show or hide the clock, use **Tools Clock**. If it is visible when you exit the program, it will come up again when you restart.
2. To start the clock: right-click in the clock window and choose **Start** from the context menu. The clock advances about once every scale minute.
3. To stop the clock: right-click and choose **Stop**.
4. To reset the clock back to its default starting time: click **Reset**.
5. To modify the starting time or clock speed, click **Settings**. This brings up the [Clock Settings](#) dialog.
6. Choose **Digital display** if you prefer that to the old-style analog face. When this option is checked, you can also choose **24-Hour** if you prefer that style.

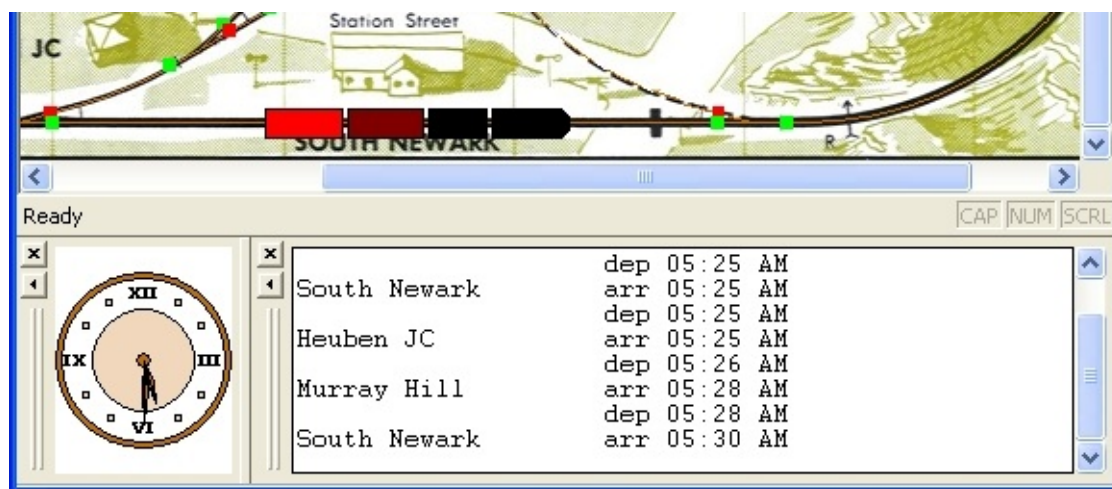
Schedule Window

Together the station definitions and the clock give the program enough information to keep track of train arrivals and departures. The Schedule Window reports and collects this data. It works automatically -- all you have to do is display the window and then start driving. Once you have driven your route successfully, the Schedule Window contains a schedule you can print out and hang on the wall for a future operating session.

The Schedule Window also serves as the output window when running scripts. When a script is running, it can report its activities in this window. By default, the window comes up automatically as soon as you start playing a script.

The Schedule Window also serves as the place where text switchlist instructions are displayed after an ops generation. During an ops session, you may want to turn off arrival and departure and script messages so the switchlist data doesn't scroll away.

Like the clock window, the schedule window is dockable and resizable. Our preference is to put the two side by side at the bottom of the screen, then adjust the divider between them until the clock window becomes square, like this:



To show or hide the Schedule Window: choose **View Schedule**.

To clear the window: right-click in the window, choose **Clear All**.

To copy the window contents to other programs: press and drag within the window to select the text you want to copy, then right-click and choose **Copy**. The selected text is copied to the Windows Clipboard. It can be pasted into Notepad, Microsoft Word, or any other program which accepts text.

To control the output: the context menu includes two checkmark items to specify what you want to see in the window: **Show Stations** and **Show Script Output**. Check or uncheck the type(s) of data you want.



Customizing

There are many ways to adjust the look and feel of TrainPlayer. Some have been covered in other chapters; this one describes more.

[Operation Preferences](#)

[Switch Preferences](#)

[General Preferences](#)

[Track Preferences](#)

[Train Preferences](#)

[Style Preferences](#)

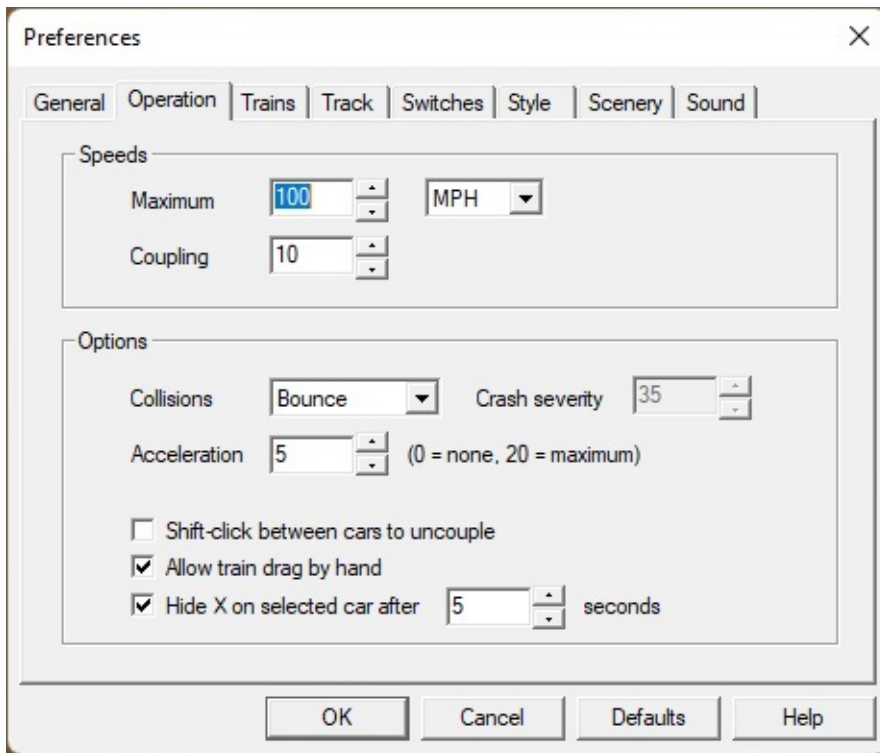
[Road Styles](#)

[The Customize Dialog](#)

[Windows and Views](#)

Operation Preferences

Settings related to train operation. Called from menu command **File > Preferences**.



Speeds:

Maximum speed

Sets the speed at the top end of the dial. No train can exceed this speed. Use the drop-down at the right to choose whether speeds are displayed in miles or kilometers per hour.

Coupling speed

Sets the speed below which coupling can occur. If trains approach each other with a relative speed below this value, the couple; above this value, they collide (bounce, crash, or stop).

Options:

Collisions

Determines what happens when a train hits a closed switch, end of track, or another train. Choose **Bounce** if you want the train to go into reverse and keep travelling. Choose **Crash** if you want the train to stop and destruct. New in 8.0: choose **Stop** to bring the train to an immediate dead stop.

Re Crash: the destruction is temporary. After a crash, the

train will repair itself as soon as you begin to move it.

Crash severity

Affects the amount of destruction upon crashing. The lowest values cause a bit of derailling; highest values cause cars to blow apart and scatter across the landscape. Has no effect unless Collisions is set to Crash.

Acceleration

Sets the amount of acceleration / deceleration when trains start, stop, or change speed. A low value reduces the effect and makes train control more responsive; a high value increases the effect so that trains take longer to come up to speed or coast to a stop. Set the value to zero to eliminate acceleration.

Shift-click to uncouple

Affects what happens when you point the mouse cursor between two cars on the layout. With this box unchecked, the cursor changes to an uncouple icon and a click causes the cars to uncouple. With the box checked, the cursor does not change unless you are pressing the shift key; this prevents accidental uncouplings.

For a picture of the uncouple icon, see [Moving Trains By Hand](#).

Allow train drag

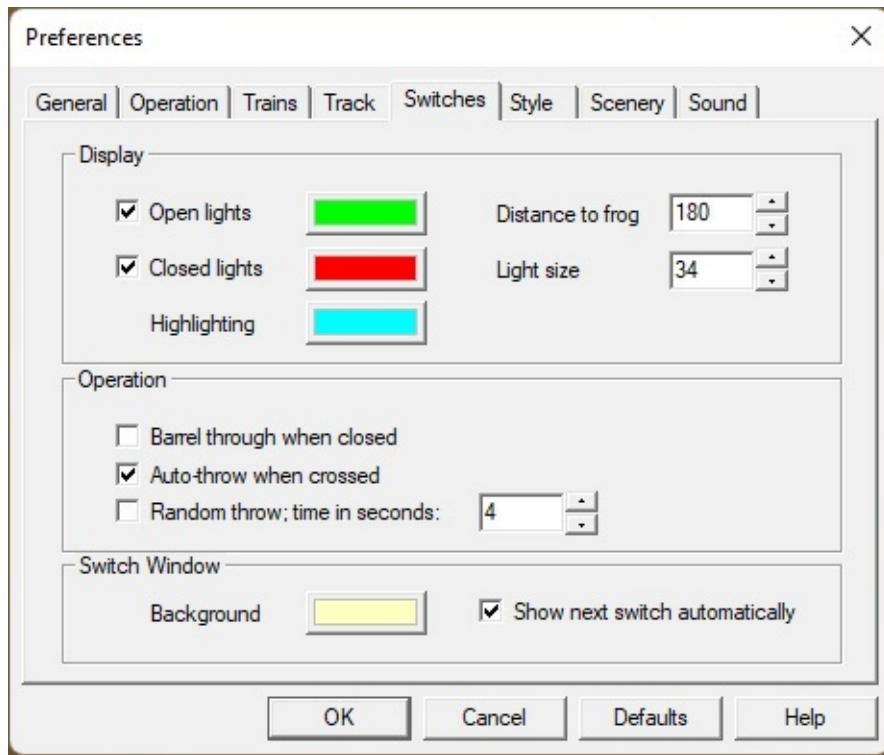
Check this box to enable trains to be moved by hand (see link above). If unchecked, then pressing and dragging on a car top has no effect.

Hide X on selected car

Check this box to cause the pink X on top of the selected car to go away after the number of seconds specified. If unchecked, the X stays visible until you unselect the car.

Switch Preferences

Settings for switch display and operation and for the switch window. Called from menu command File > Preferences.



Switch display:

Open lights

Check if you want to see highlight squares on the two tracks forming the open route through a switch. The default color is green, but you can change it using the color button.

Closed lights

Check if you want highlights showing the other track(s) not on the open route. Default color is red, change with color button.

Highlighting

Color of the highlight indicating when the mouse cursor is pointing to the frog (center) of a switch and can be thrown. *Note:* if you are in TrackLayer, this color applies only when the Run tool is active.

Distance to frog

Distance in arbitrary units between the center of the switch and the open / closed light.

Light size

Size of highlight square in arbitrary units.

Switch operation:**Open lights**

Check if you want to see highlight squares on the two tracks forming the open route through a switch. The default color is green, but you can change it using the color button.

Closed lights

Check if you want highlights showing the other track(s) not on the open route. Default color is red, change with color button.

Highlighting

Color of the highlight indicating when the mouse cursor is pointing to the frog (center) of a switch and can be thrown. *Note:* if you are in TrackLayer, this color applies only when the Run tool is active.

Distance to frog

Distance in arbitrary units between the center of the switch and the open / closed light.

Light size

Size of highlight square in arbitrary units.

Barrel through

Check to allow a train to pass through a closed switch. If this box is unchecked, then when a train attempts to enter a switch from a closed track (i.e., pass through a red light), it collides -- bounces or crashes, depending on the collision mode (see [Operation](#)).

Auto-throw

A stronger version of Barrel Through: allows a train to pass through a closed switch, then changes the switch to match the route taken. This is the default, and allows for easy if non-realistic operation -- the train meanders the layout, setting switches to follow the route as it goes.

Random throw

Check to have a random switch thrown every so often, where the time between throws is set in the number box to the right. This is a way to vary the route if you just want to let the trains run.

Switch Window:

Background

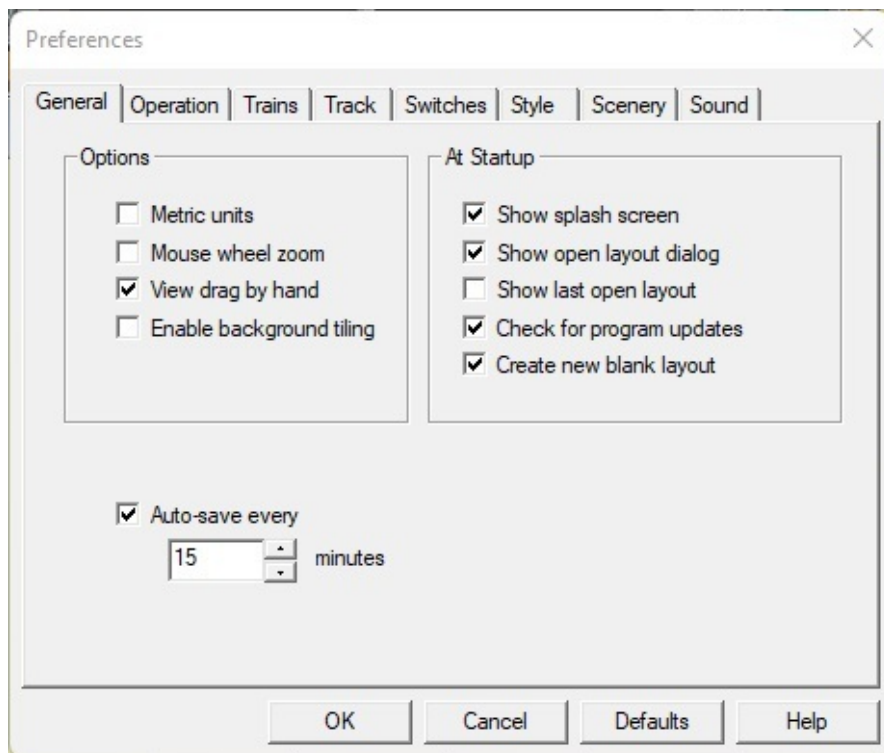
Click to set the background color of the Switch Window.

Show Next Switch

Check to have the window redrawn every time the train moves across a switch, so it is always showing the next switch coming up along the route. Uncheck if you prefer to operate the window manually. In either case, click a switch on the layout to reposition the window around that area.

General Preferences

Various program settings. Called from menu command **File > Preferences**.



General options:

Metric units

Select type of units for dimension and speed displays throughout the program. *Note:* Metric units are turned on whenever you select one of the metric choices in the units drop-down in various dialogs.

Mouse wheel zoom

Check this box if you want the mouse wheel to zoom the layout in and out. Uncheck if you prefer to use the wheel for default behavior (vertical scrolling).

View drag by hand

Check if you want to be able to scroll the view by dragging with the mouse. This feature only works when the Run tool is active. If the Run tool is active and this box is checked, then when you press a blank spot on the layout and drag, the view scrolls to follow. **Note:** dragging by hand cancels [Auto-Follow](#). For more, see [Dragging By Hand](#).

Enable Background Tiling

Check to allow background jobs to pre-draw regions surrounding the screen. Recommended when operating large scenery-intensive layouts. See

[Background Tiling](#) below.

Options at program startup / file load:

Show splash screen Display the splash screen for a few seconds. Click takes it down.

Show open layout dialog Bring up the [Layout Chooser](#).

Show last open layout Automatically open the latest layout from the Most Recently Used list.

Check for program updates Check the website to see if a newer version of the program is available. If you choose not to have this done on startup, you can do it manually using Help > Check for Updates.

Create new blank layout TrackLayer only: create a new layout on startup. This is the default behavior. If you do not check this box, the program will open on an empty window (or other content, depending on choices above).

Auto-save:

Auto-save creates a copy of your layout periodically, so that in case of program or computer crash, you won't lose much work.

To enable auto-save: check the box "Auto-save every" and enter the time between saves.

After the specified time, the program makes a copy of your layout in the system TEMP directory, overwriting any previous copy. The name of the file is the same as your layout, with "bak" appended. You see an indication on the status bar while the file is being saved.

To retrieve an auto-saved layout: use the command **Restore Backup** on the **File** menu. This opens a file browser in the directory where saved layouts are stored. Choose the one you want and open it.

Background Tiling

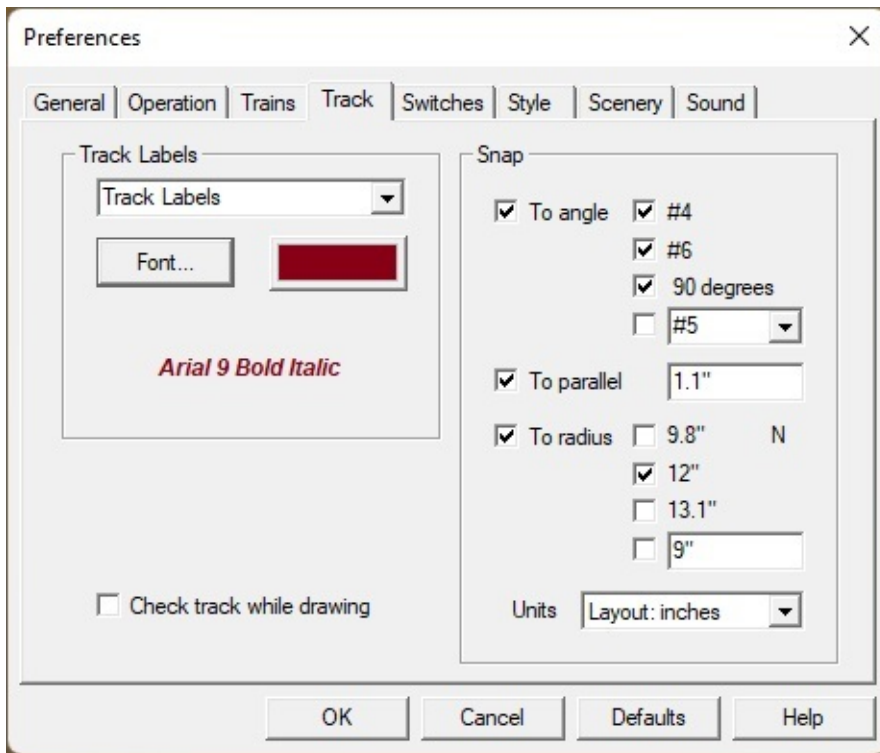
New in Version 6.6 is a feature to improve smoothness in train travel. When a moving train causes the view to scroll, it is necessary to draw the portion of the layout coming into view. This takes a bit of time, and makes the train stop for a moment, then lurch forward when the drawing is ready. Or it used to! Now the lurch is gone, because the areas surrounding the screen are being secretly pre-drawn in the background.

When the view changes -- due to zoom, scroll, refresh, etc. -- the visible portion on the screen is redrawn immediately. The new feature then kicks in, and starts a task in the background to draw all the neighboring portions ("tiles") surrounding the screen. By the time the train reaches the edge, the drawing is ready to scroll smoothly into view.

Background tiling can be disabled using the checkbox described [above](#). Normally you would leave it enabled, especially while operating around a large layout, but you might want to disable it while building or testing. The feature can cause a lot of activity in the background, and might lead to program crashes. Please let us know if you run into any problems.

Track Preferences

Settings for displaying and building track. Called from menu command **File > Preferences**.



Note: as of version 6.5, options for display of track and rails are no longer in this dialog, but are part of the road style system; see [Road Styles](#).

Track label font. A single font applies to all track labels. Use the Font and Color buttons to change it. The size you specify is not absolute; it applies at a normal zoom level, and the font is scaled when you zoom in and out.

Link label font. Layout links are shown in a special font; see screen shot under [Linked Layouts](#). To adjust this font, select **Link Labels** from the drop-down, then set the font and color.

Check Track. Check to have the track checker run every time you add or modify tracks, so if an error occurs you will be notified of it immediately. If this box is checked, and an error is detected while drawing, an alert appears describing the error.

Snap options. These options affect drawing certain track sections and circles in TrackLayer. This set of options is dimmed if you are running TrainPlayer.

Snap options aid in creating precise layouts quickly. Angle snap is for creating switches at one of a set of standard turnout angles. Parallel snap is for drawing yards and ladders, placing switch points in such a way that parallel tracks are evenly spaced. Radius snap is for drawing and editing circles with standard radii.

Applies when the Track tool is active, and you are drawing a straight section with its stationary point lying on another straight

section, i.e., you are creating the branch of a switch (see left diagram below). As you drag the moving end of one track, if the angle between it and the stationary track is close to one of the checkmarked choices, the moving line snaps to that angle. When snap occurs, the cursor changes to show the snapped angle.

To angle

You may choose up to four different snap angles: #4, #6, 90 degrees, and/or one other angle selected from the drop-down; choices are #1,2,3,5,7,8,10,12. *Note:* The designation "#N" means an angle which deviates from linear by one part in N. On a calculator, the angle is the arctangent of 1/N. For example, a #4 angle is 14.04 degrees. #1 is 45 degrees.

Angle snap choices are disregarded unless To Angle is checked. This allows you to turn the feature on and off without losing your preferred set of snap angles. An alternative to the To Angle check box is the toggle Snap On/Off on the Track context menu.

Applies in similar situation as angle snap, with one additional condition: the switch you are creating must be within a certain distance of an adjacent switch. This distance is set in the edit box to the right.

To parallel

Refer to the right diagram below. When parallel snap is in effect, and you start to draw anywhere near B, the starting point snaps to exactly B, where the distance to the neighboring track is as specified (default is 2" in HO). After the starting point snaps into place, then angle snap will kick in as you drag so that the track at B remains parallel to its neighbor.

Sometimes parallel snap can prevent you from creating a switch at a desired place. When this happens, hold down the Shift key as you begin to draw, so you can place the endpoint where you want, then release Shift as you continue to drag so angle snap will take effect.

Applies when you are modifying the radius of a circle: drawing a new circle with the Shift key up, or editing a circle with Shift down. When the radius is close to one of the checkmarked choices, it snaps to the exact value. The radius is displayed on the status bar as you drag.

To radius

You may choose up to four different snap radii: three standard choices and/or one other value you specify. All these choices are labelled in the selected units, using the scale of the current layout if one is open. For example, the above diagram shows the

standard choices as 18"-24" in HO; if the active layout were O, these choices would be displayed as 36"-48."

Units

Choose units for display of radius values. The choice made in this drop-down affects dimension displays throughout the program.

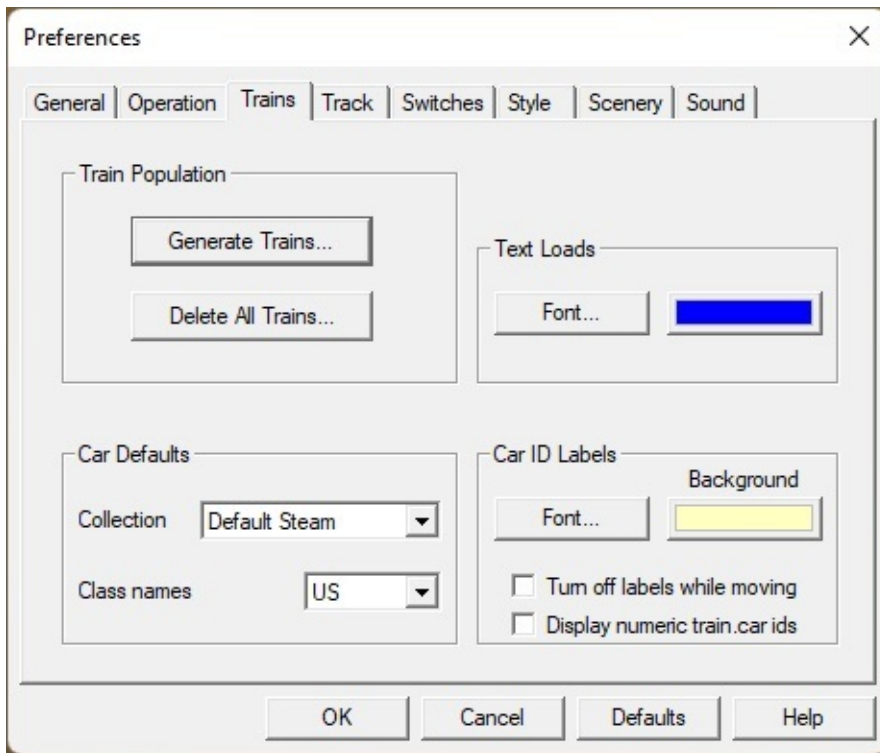


Snap examples. Left: user drags up and left from the main line at point A; when the angle is close enough, it snaps to exact #4 and the cursor changes. Right: user drags left from a point near B; starting point snaps to the exact point B, then angle snap takes effect so tracks remain parallel.

Any snap option can be temporarily overridden by holding down the Shift key as you drag. Or the entire set of options can be overridden using the **Snap On/Off** command on the Track context menu.

Train Preferences

Settings and actions for trains and car labels. Called from menu command **File > Preferences**.



Train Population - Generate Trains

Click to populate specified tracks with specified types of cars. Described under [Generate Trains](#).

Delete All Trains

Click to delete all trains from the layout. An alert warns that this operation is not undoable, and gives you a chance to cancel. If you click OK, all trains will be erased from the layout.

Note: if you just want the trains to be invisible but not deleted, click Trains on the [View Options toolbar](#).

Note: as an alternative, you can delete trains from all or selected tracks using the [Train Generator](#).

Text Loads Style

When a closed car is carrying a load, the load name is given as text above the car (side view) or as a set of red bars (top view). Here is an example from the Car Chooser =>

Two sizes of text are used for loads: a small blue font (top image at right) and a large, scaleable font which defaults to blue but can be modified (bottom image). The small font is used in (a) car chooser, middle window and preview top; (b) train menu; (c) waybill. The large one is used in (a) car chooser preview bottom; (b) train bar; (c) car properties; (d) car collection properties. The large one is the one you can modify here:

Font

Click to bring up the Font Selector dialog. The font size you choose applies when the car image is at full size; when the car size is reduced (e.g., when train bar is resized) then the font is scaled accordingly.

**color
button**

Click to bring up a system Color Chooser to specify a font color. The Font Selector offers you a combo with choice of sixteen basic colors -- if you want any other color, use the color button instead.



Car Defaults

These settings are general preferences involving cars.

Collection

Choose a default car collection to be in effect when you are creating a new layout. See [Default Cars](#). The types of cars you select here will be created from tools on the [Car Toolbar](#).

Class Names

Choose a language to be used when naming car classes. This is the same choice you can make in the [AAR Car Types dialog](#). The language chosen here affects car class names throughout the program, wherever car descriptions appear (dialogs, tooltips).

Car ID Label Style

Settings in this section are for adjusting the appearance of car-top labels, as described in [Car ID Display](#).

Font

Click to bring up the system Font Selector dialog to select font style and size to be displayed on car-top labels. Choose a font which is not so large that it exceeds the size of the car image.

Background

Click to bring up a system Color Chooser to specify the background color you want behind car labels. This color is overridden when color coding is in effect.

**Turn Off
Labels**

Check this box if you want car labels to be hidden while cars are moving, then automatically displayed again on stop.

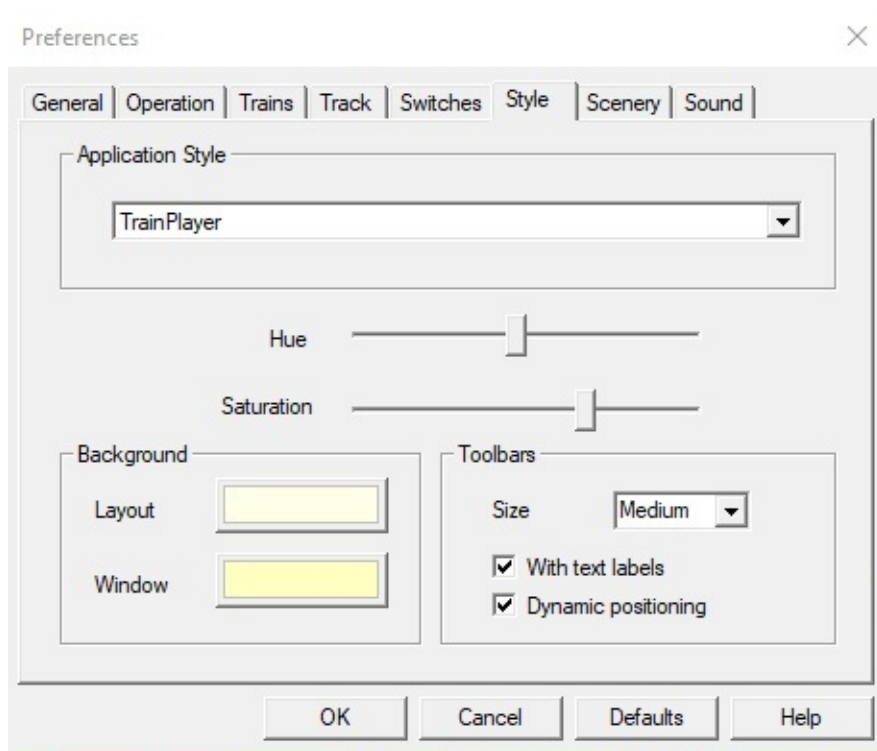
Display
Numeric

Check to replace the label with the id tags: train-dot-car. (As for the regular display, this applies only if the car is not displaying its Dest.)

Note: if the cars on your layout do not appear to match the settings chosen here, it may be that an ops-related script has changed them for the duration of the session. Many ops layouts impose their own colors using script SET commands.

Style Preferences

Settings for application style. Called from menu command **File > Preferences**.



Application Style

The "application style" refers to the overall color and design scheme used for windows, menus, toolbars, and dialogs. Choose one from the drop-down and the screen changes immediately, so you can experiment. A dozen new styles were added in Version 8.2 (2022), including Scenic and several Office and Visual Studio styles. The "TrainPlayer" style is one we developed to match the brass-and-wood motif of the program.

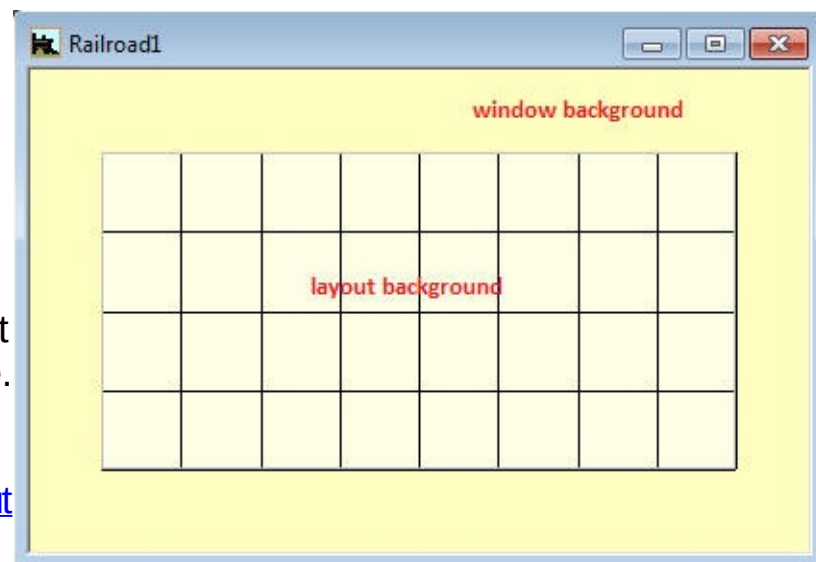
Some styles have adjustable colors (TrainPlayer is one of them). With one of these styles in effect, you can move the **Hue** and **Saturation** sliders to adjust the colors and brightness of the theme. There is no recipe for doing this -- fool with it until you get something you like.

Background Colors

There are two types of background on the TrainPlayer screen. Choose your favorite colors for each of these.

Layout background: color of the layout surface for a new layout or one which does not have a background image. Default is off-white.

To set a different background color for a particular layout, use the Color button in [Layout Properties](#).



Window background: color surrounding the layout when it does not fill the document window. Default is a light gold.

To change one of these colors, click the appropriate color button in the dialog and select from the system color chooser.

Toolbar Styles

The [Dynamic Toolbars](#) feature introduced at Version 8.2 offers a few style choices:

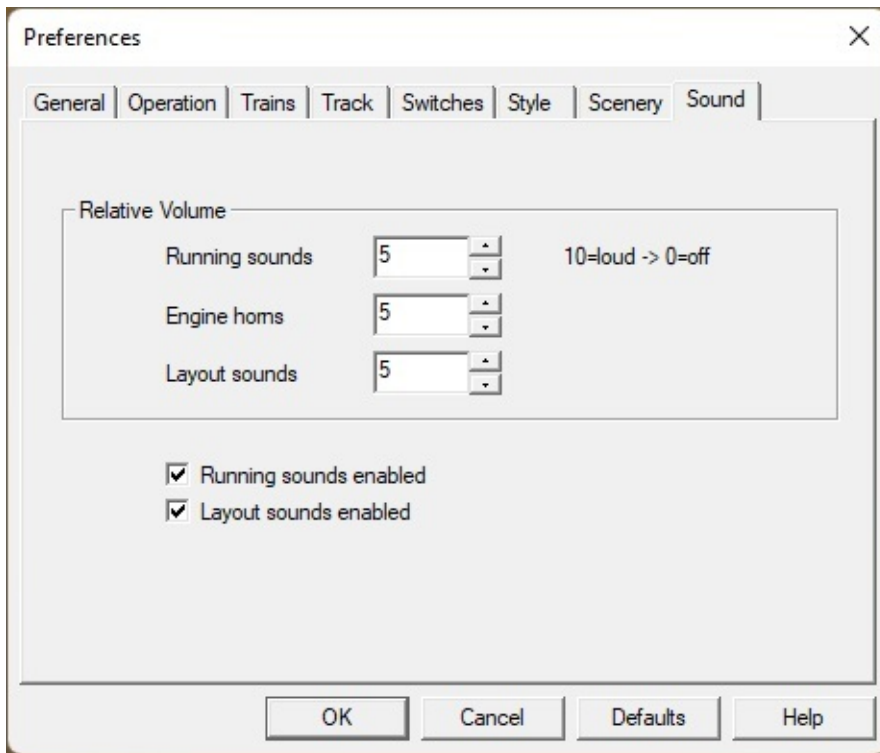
Size: choice of size (S, M, L) for all toolbar buttons. Default is M. This value can also be set in [Customize > Options](#).

With text labels: turn on or off text labels on all toolbars. Default is ON. This value can also be set on a per-toolbar basis in [Customize > Toolbars](#).

Dynamic positioning: turn on or off the automatic positioning and hiding of toolbars. Default is ON. For details, see [Dynamic Toolbars](#). Note that changing this setting may or may not cause an immediate change on the screen.

Sound Preferences

Settings to turn sounds on or off and adjust relative volumes. Called from menu command **File > Preferences**.



Sounds Relative Volume:

Numbers in this section adjust the relative volume levels of the three sound channels:

- **Running sounds:** speed-related engine sounds in one of three categories: steam, diesel, or electric; see [Running Sounds](#).
- **Engine horns:** on-demand engine sound triggered by pressing Horn button; see [Engine Horns](#).
- **Layout sounds:** built-in sounds for coupling, uncoupling, switch throws, plus layout sounds associated with Stations; see [Station Sounds](#).

The number for each channel is a value from 0 to 10, where 0 turns off the channel completely, 1 is very soft, increasing to 10, the native volume of the sound stored in the .wav file. Defaults are 5 for each channel.

Sounds On/Off:

Running sounds enabled Check to turn on engine running sounds. These sounds can also be turned on or off from the layout context menu; see [Running Sounds](#).

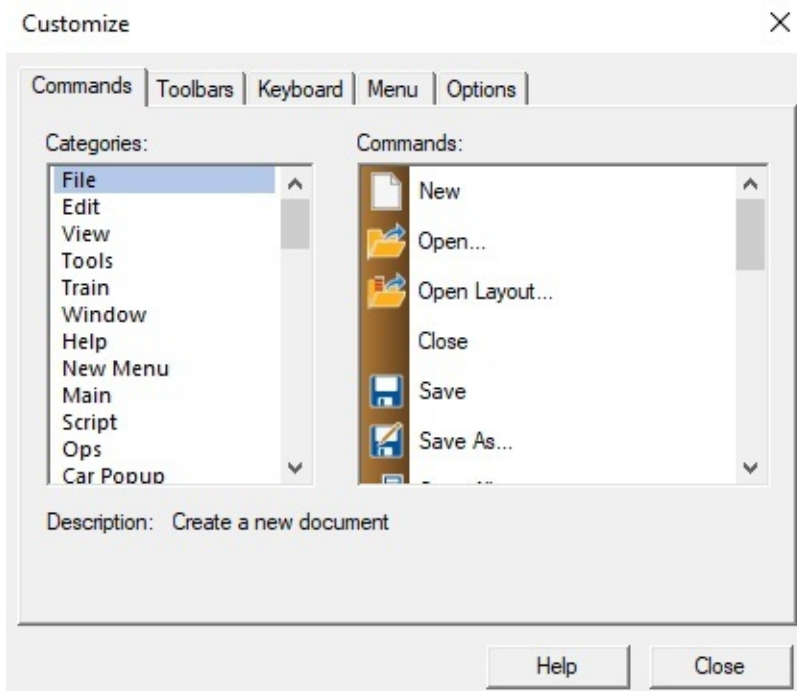
Layout sounds enabled

Check to turn on all sounds except horns and running sounds. These include switch throws, couplings, sounds associated with stations.

The Customize dialog

To modify the commands on toolbars, choose **View Toolbars Customize** or **Tools Customize** to bring up the Customize dialog, shown below. You can then use *drag-and-drop* to set up your toolbars. As long as the Customize dialog is on the screen, you can:

- Remove a button from a toolbar by dragging it off into space.
- Add a button to a toolbar by dragging it from the Commands window (Commands tab, shown below) to the place you want it on a toolbar. If the command has no icon, the button will be labelled with text.



- Drag the **New Menu** item to create a new drop-down menu on a toolbar. Once the menu is created, give it a name and then drag commands onto it.

The Customize dialog is brought to you by [BCGSoft](#).

For details of the individual tabs, see separate pages:

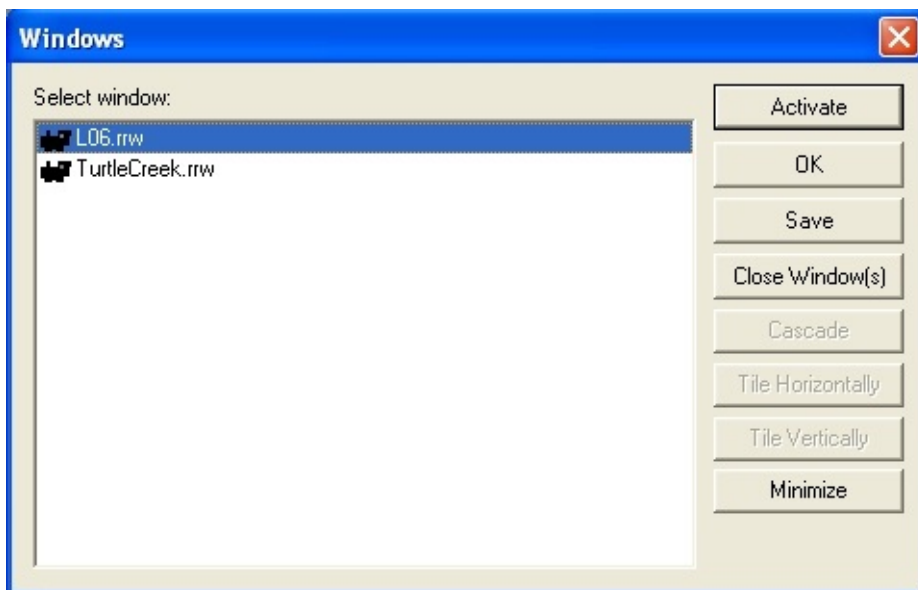
[Commands](#) [Toolbars](#) [Keyboard](#) [Menu](#) [Options](#)

Windows and Views

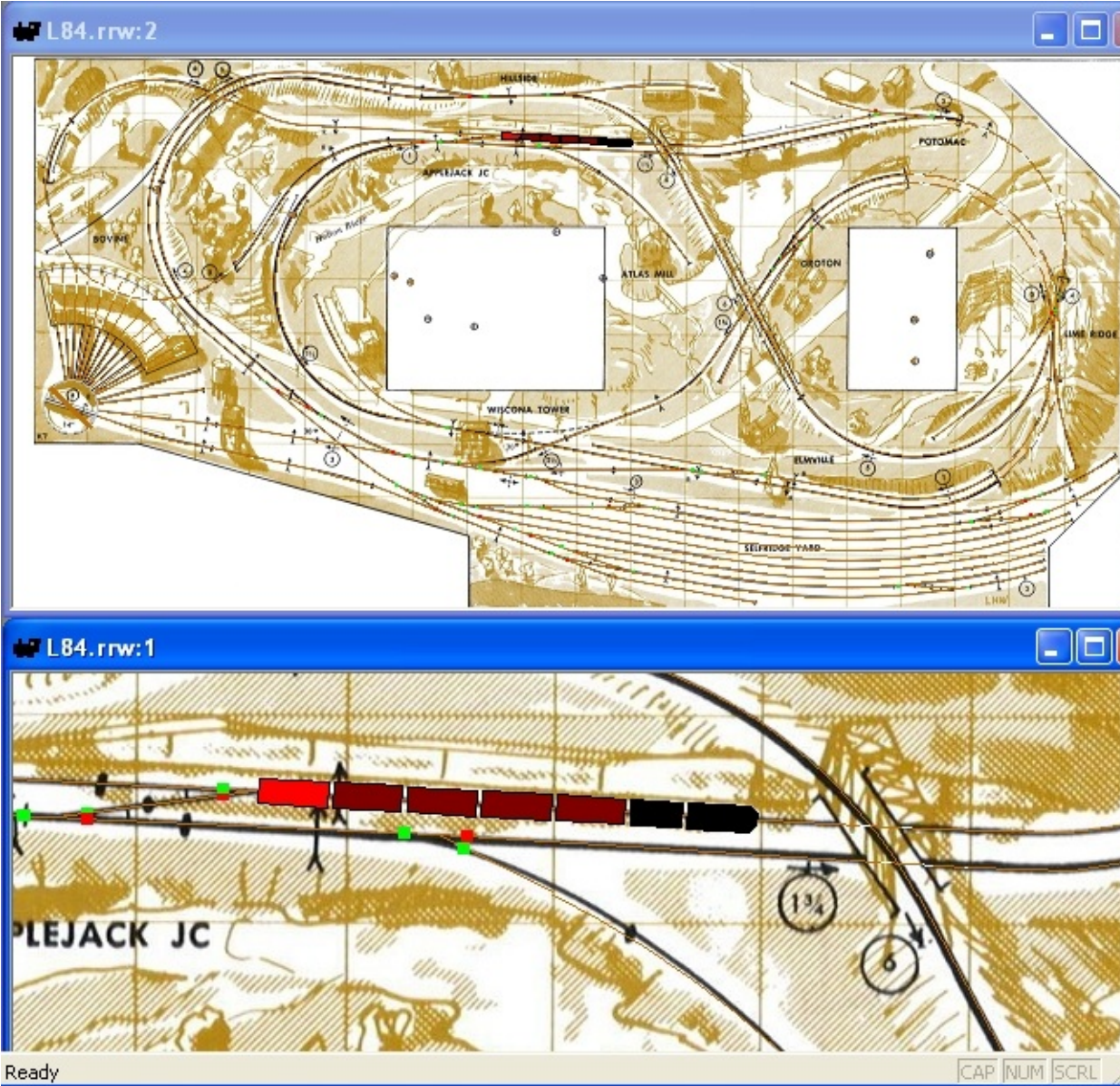
Some appearance features were described in [Adjusting the View](#). Others are available on the **Window** menu:



- **New Window:** creates a new window with a separate view of the same layout. Views in separate windows may be resized or zoomed independently. Trains runs in all visible views.
- **Cascade, Tile Horizontal, Tile Vertical:** rearranges the windows on the screen.
- **Window Manager:** brings up a standard Windows dialog for selecting and arranging multiple windows, shown below.
- **<Active Window>:** all open windows are listed at the bottom of the Window menu; choose one to activate and bring it forward.



An effective way to view a running railroad is to set up one window showing the overall layout, and another zoomed in and following the train, as shown here:



To set up a dual view, with a layout on the screen:

1. Choose **Window New Window** to create a second view of the layout.
2. In the original view, use **View Zoom In** to get a close view of the train. Right-click the layout and make sure **Auto-Follow** is checked.
3. Choose **Window Tile** (pick a direction based on the layout orientation) to arrange both windows together.
4. In the second window, choose **View Fit To Window** so you can see the entire layout in it.

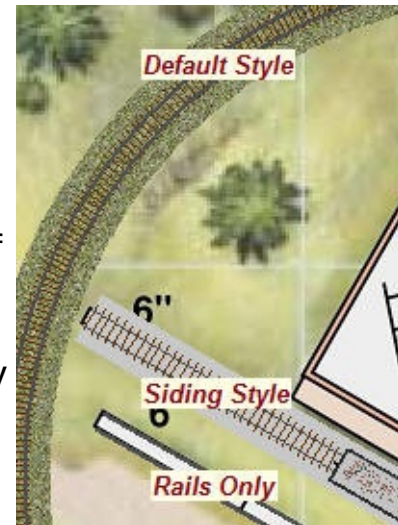
The train runs in both windows.

Road Styles

A **road style** is a specification of how track is to be displayed. In TrainPlayer 1.0 (2005), the track was a single 1-pixel brown line. Over time it evolved:

- track width became adjustable (2006)
- track did not all have to be the same color (2007)
- rails were added, as a full set of paired track sections (2008)
- roadbed and ties were added, as lots of little scenery objects (2010-11)
- roadbed, ties, and then rails became drawing techniques instead of objects (2013)

In the latest advance (Version 6.5, 2017), road styles have become fully configurable, different styles can apply to different areas of the track, and all parts of the system are brought together and managed in a single new visual dialog.



About Road Styles

Components: A road style consists of four components, each with its own set of adjustable properties:

- **rails** -- adjustable thickness, separation (gauge), color
- **ties** -- adjustable tie dimensions, spacing, color
- **roadbed** -- choice of solid color or bitmap, adjustable width
- **centerline** -- adjustable thickness, color

Each component has an on/off setting indicating whether it is to be visible in a given style. For example, a main line road style might have rails on ties on gravel roadbed, where a style for an industry siding might have just rails, without roadbed.

Defaults: There are three special road styles, all called "default," meaning "this is what you get if you don't change it:"

- **Factory Default:** a mainline style hard-coded into the program -- standard-gauge rail on ties and wide gravel roadbed. This is the style you get on a new layout if you have just installed the program. You cannot change it, but you can override it, or you can reset back to it.
- **Global Default:** this style is stored in the registry settings, like other user preferences. In fact this is the style you get on a new layout -- it starts out as the factory default, but you can change it to whatever you like.
- **Layout Default:** the style attached to each layout, applying to all track which has not been customized. This starts out as the global default, but can be changed. The layout default style is saved with the layout.

View Settings: Options on the [View Options toolbar](#) can be used to turn on or off display of track, rails, ties, and roadbed. These interact with the road style system in a special way: when

you change a view setting, it affects only track having Default style. Tracks with custom styles are unaffected.

For example, consider the above picture: if you toggled View Rails to OFF, rails would disappear from the *Default Style* tracks, but not from the custom *Siding Style* or *Rails Only* sections.

Road-Styling Your Layout

To add road styles to your layout, choose your level.

The minimalist approach: do nothing. There is a built-in style applying to all the track on a layout. You can turn it on or off, all or in parts, using menu commands or toolbar buttons. If you like the way it looks, you're all set.

With a bit more work: modify the default style. Bring up the [Road Styles dialog](#), tweak the settings until the track looks the way you like, click OK. All the track will adopt the new default style, and the style will be saved with the layout. If you want all track in the future to look the same way, set the global default style to to match.

The fully-styled layout: override the default with custom styles on portions of the track. Design and create a set of named styles in the Road Styles dialog, then in [Track Properties](#), apply them by name to selected track.

Some of this can be done with a TrainPlayer license, some requires TrackLayer. With TP, you can customize the default layout style, but cannot add your own custom styles. At either level you can open a fully-styled layout created by an author.

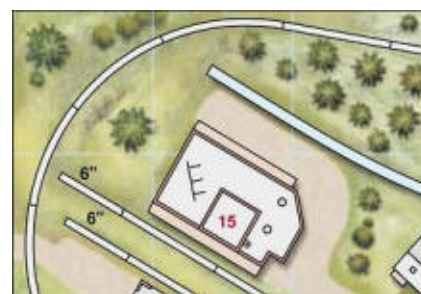
Road-Styling Tutorial

To demonstrate the techniques of road-styling, let's add styles to a typical plain layout.

Open the **San Jose Central**, found in your Demo folder.

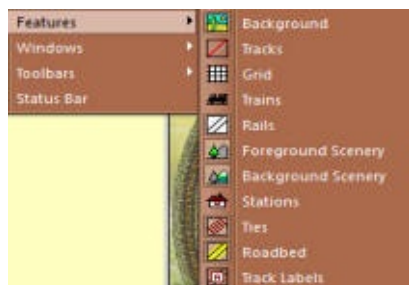
1. Open layout

On opening, the track is shown as a thick white line drawn as part of the background image.



Track display is normally turned off when you open a layout with a background image. To turn it on, use toggles on the View toolbar to turn on **Rails**, **Ties**, and **Roadbed**.

2. Set up view



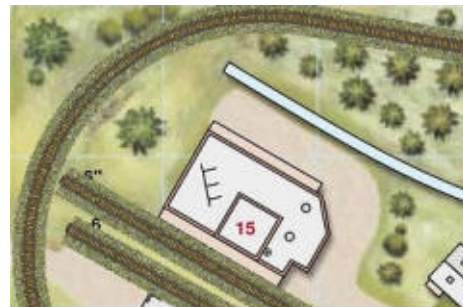
Note: these toggles are also available

on the toolbar: 

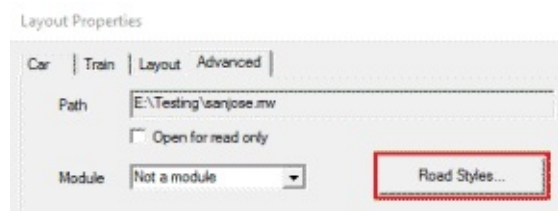
Suggestion: while you're at it, you might turn off the display of **Trains**. These tend to get in the way during road-styling.

What you now see on the tracks is the Layout Default road style.

Because this layout had no previous style, what you see is the same as the Global Default, which in turn matches the factory settings.



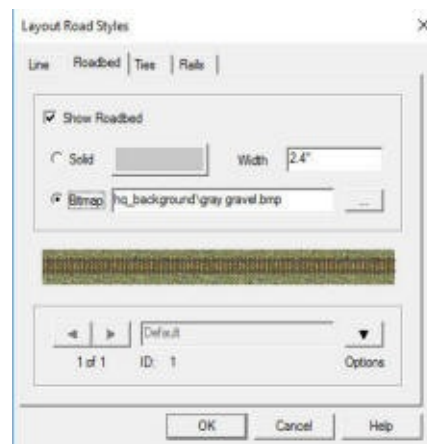
Let's modify the default style of the layout without changing anything global.



Right-click a blank spot on the layout, choose **Layout Properties**. Go to the **Advanced** tab and click the **Road Styles** button.

This brings up the Road Styles dialog.

The top part of the dialog shows the detailed features of the style. Click the tabs on the top to edit individual components and turn them on or off.



The bottom part is for managing the layout's list of road styles. We'll get to this shortly.

Feel free to experiment. If you Cancel the dialog, you haven't changed anything.* Drag a corner of the dialog to enlarge it and see the sample in more detail.

* With a couple of exceptions on the Options menu.

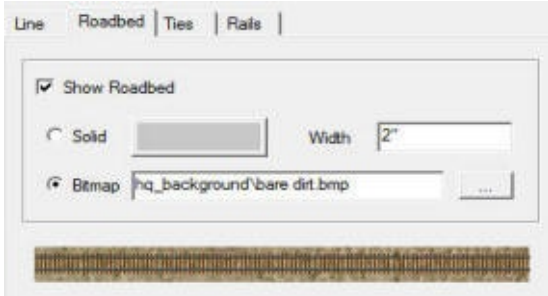
Let's change the default roadbed. Go to the Roadbed tab and make two changes:

3. Observe defaults

4. Bring up dialog

5. Explore dialog

6. Make changes

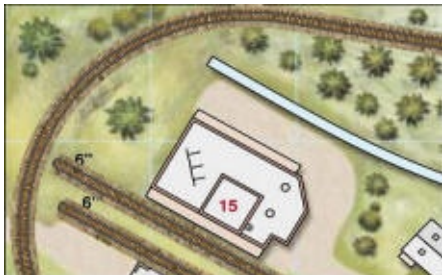


a. Change the Width to 2". Click outside the box to see the roadbed change on the sample.

b. Browse to a different pattern. Click the browse (...) button to bring up the Scenery Chooser, showing the folder of background image patterns. For this tutorial, choose Bare Dirt and click OK. Result should look as shown.

Click **OK** to take down the Road Styles dialog, then click **OK** to take down Layout Properties and apply the modified default style to the layout.

7. Apply to layout



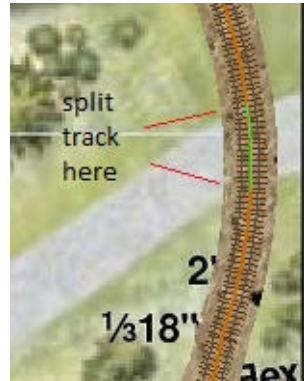
Now the entire layout has dirt roadbed.

At this point you might use **File > Save As** to keep what you've done so far -- but be careful and don't overwrite the original.

Now let's make a custom style for part of the track.

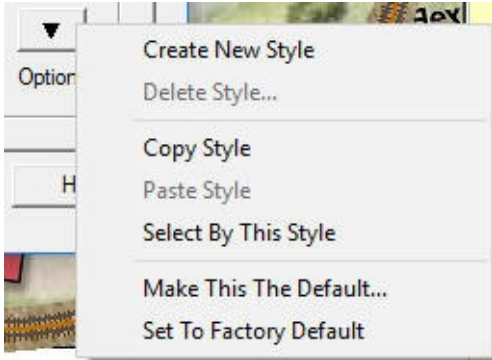
8. Choose track for custom style

A good candidate is at center right of the layout, where the track crosses the roadway, as shown at right. We don't want roadbed on the crossing.



To accomplish this, we will need to create a custom style and apply it to the portion of the track which crosses the road.

9. Create custom style



Repeat step 4 to bring up the RS dialog. Click the Options button, observe the menu, and select **Create New Style**.

This makes a copy of the default style, adds it to the end of the list, and gives it a generic name.

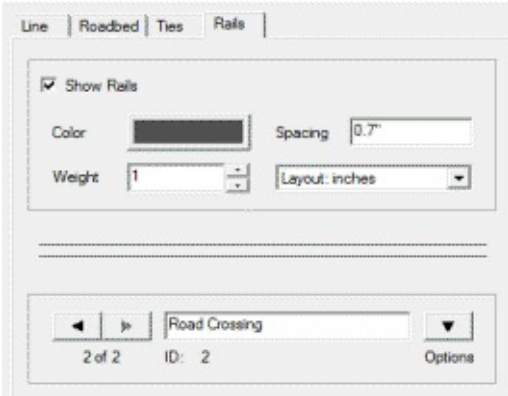
The style will show thin rails only. Go through the tabs, uncheck Show for all except Rails. In the

10. Customize the style

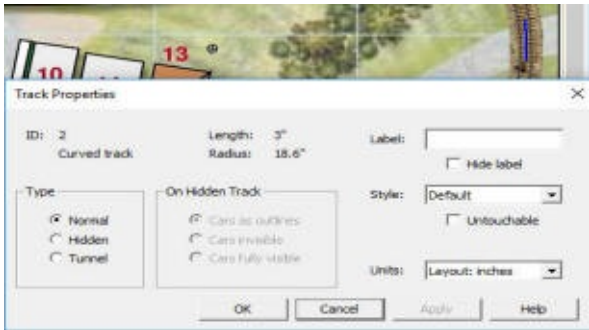
Rails tab, set the Weight to 1.

Enter a name for the style in the box at the bottom. Let's call it **Road Crossing**.

Click OK to save the new style.



11. Select target track



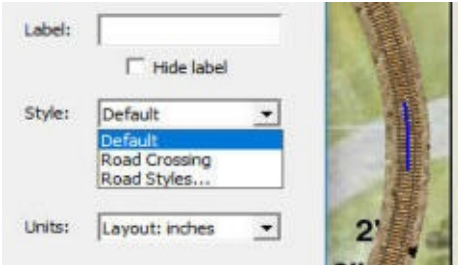
Before we can apply the new style to the target track, that track must be isolated as a single section. Currently it is part of a large curve. To isolate, use the Track Edit tool, right-click each end of the section where it touches the road, and choose **Split Track Here**.

Now select the new section, right-click and choose **Properties**. This brings up Track Properties as shown.

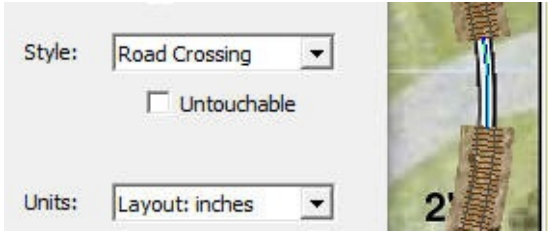
The Style drop-down shows the current style for this section to be Default. From the menu, choose **Road Crossing**.

12. Apply custom style

(Note that it is possible to bring up the RS dialog from this menu, as an alternative to step 4.)



13. Observe result



Click OK or Apply. Observe the change in the display.

File > Save to keep your work.



Welcome to TrackLayer

TrainPlayer lets you operate trains on prepared track plans. TrackLayer is the program which prepares the track plans. You can use it to edit plans provided by us, or draw your own from a diagram, or just sketch some track on a blank screen.

The two are actually the same program. When the program is in TrainPlayer mode, you get a collection of tools for building and running trains. In TrackLayer mode, you get one additional toolbar, with a half dozen tools for drawing and editing track, curves, switches, and turntables. Building and operating features are fully integrated --- as soon as you have a single piece of track down, you can put a train on it and operate with all the features of TrainPlayer.

The best way to get started with TrackLayer is to go through the next chapter, "[Getting Started](#)," and then work your way through the [tutorial](#) in the following chapter. The tutorial leads you through the complete process of preparing a small layout. The remaining chapters go into more detail on track-laying operations.

[About This Manual](#)

[Where to Go for Help](#)

Starting TrackLayer

There is only one program which contains both TrainPlayer and Tracklayer.

To start the program:

Select **TrainPlayer** from the Start menu under **Programs > TrainPlayer**, or double-click the icon on your desktop. The splash screen and about box will tell whether you are running in TrainPlayer or TrackLayer mode, as determined from the license key you entered.

The BuildToolbar

The main difference you see on the screen when you are in TrackLayer mode is the addition of the [Build Toolbar](#):



Tools on the Build toolbar are as follows.

Edit Track for selecting, moving, deleting track or other objects

Straight for drawing straight track sections and switches

Circle for drawing guide circles, used in making curves

Turntable for drawing turntables

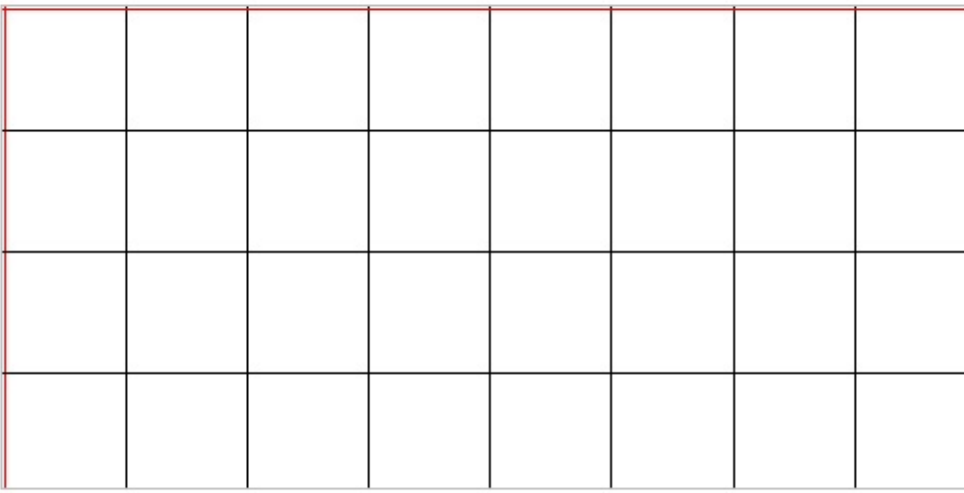
Station tool for drawing station areas (button hidden by default)

Edit Scn edit tool for working with scenery

Scn Tools show/hide subtoolbar of scenery tools

The Blank Layout

When TrackLayer starts, it presents a default blank layout: 4' x 8', HO scale, with a 12" grid:



At this point you can:

- **Load an image.** If you have a picture or track plan you want to work with, ignore the default layout and instead load the picture. If the image is already in the form of a graphics file, see "[Loading an Image](#)" in the next section; otherwise, see "[Preparing the Image](#)" to get the image ready for TrackLayer use.
- **Start drawing.** The default 4x8 space is ready for track, and useful for learning or sketching. If you want to start drawing, you can go to "[Straight Track and Switches.](#)"
- **Change the size and scale.** If a 4x8 HO layout isn't what you have in mind, create a new blank layout the size and shape you want. See "[Creating a New Blank Layout.](#)" Once you choose a particular size and scale, that becomes the default for all new layouts.



TrackLayer Tutorial

The BN Cascade Mining Division

This tutorial takes you through the steps of preparing a layout for TrainPlayer use, starting with a background image file. We've chosen a simple one: Chris Pedersen's **BN Cascade Mining Division**. You can start with the jpg file you already have (look in your chooser under Layouts/Demo) or you can download it from the web.

The BN CMD is a small loop with two major industries and a future branch.. Follow along in TrackLayer and see if you can build it.

Set up your TrackLayer preferences first

Go to File\Preferences \ Track to open that menu first

Ensure you have activated "Check Track" to catch any mistakes you make while laying track

If you want specific switch types, then select Snap to Angle and check the desired switch sizes. For your curves, select the radius sizes you want to conform to .

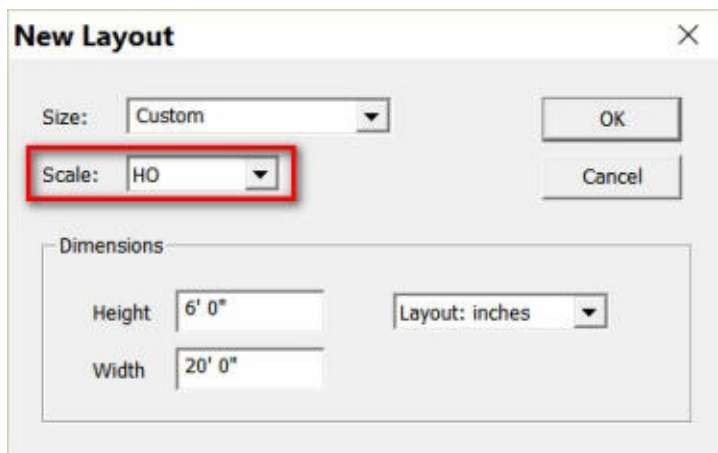
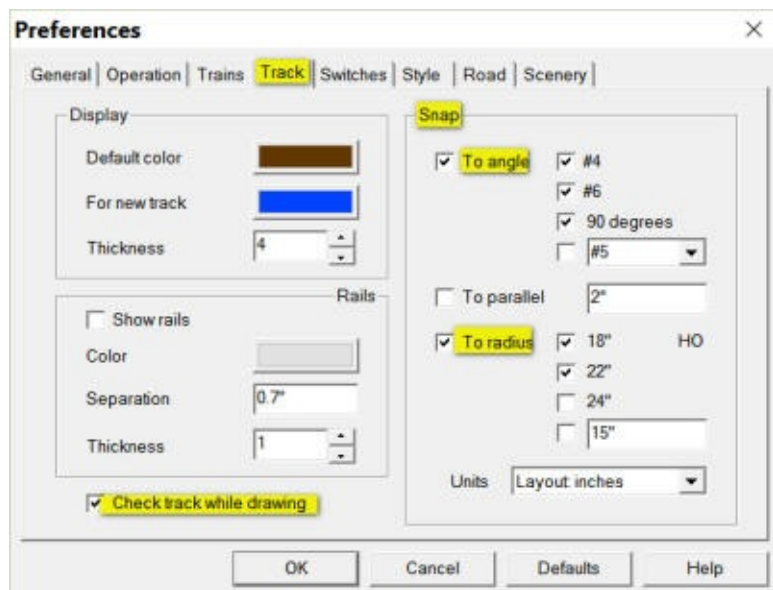
Press OK to lock your choices

Set the grid

The BN Cascade Mining does not have a grid overlaid on it but from the notes about this layout, we know it is 6 feet by 20 feet in HO scale.

So we use File/Open and select New Layout and select HO as the scale we want to use for our work

Open the image file




Use File Open to open the graphics file.

For this tutorial, use this file from your trainplayer\Layouts\Demo folder:

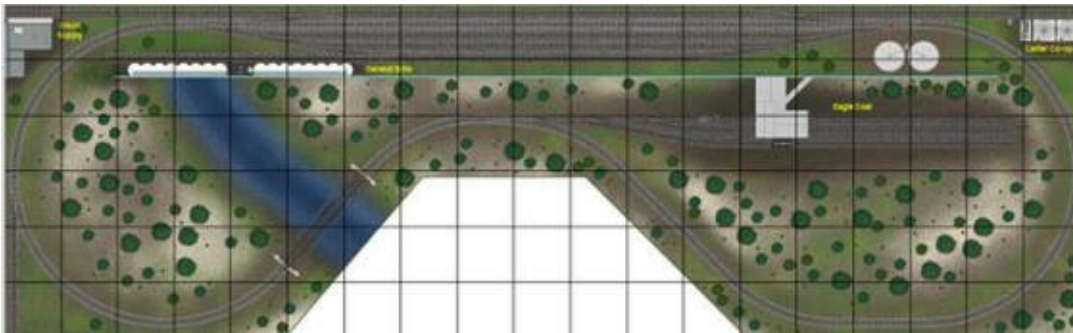
bn cascade mining division.jpg




The image opens, the grid appears in a default position, and the Edit Tool  becomes active.


Set the grid

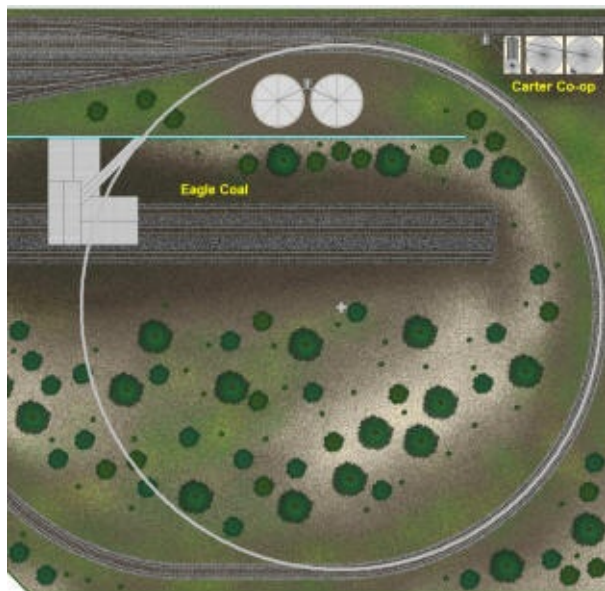
Point to an intersection point on the grid, press the Shift key (the cursor becomes a 4-headed arrow), and drag until you can see a 6 x 20 pattern of squares.



(Shift-drag moves the grid, drag alone resizes it. Dragging by an intersection point keeps the grid square.) After adjusting, use View Grid  to turn off the grid display.


Place a circle

Choose the Circle Tool  . Place the cursor near Eagle Coal, press and drag. Adjust until the circle exactly overlays the left-hand curve, as shown.



To move rather than resize the circle, press the shift key while you drag.

Add first tangent

Choose the Straight Track Tool . Point to the top of the left-hand circle (so it highlights), then press and drag to the right as shown.

Note that the straight section remains tangent to the circle as you drag.



Add Second Tangent

Continuing with the Straight track tool, drag until the moving end touches the right-hand circle (so it highlights), then release.

The straight snaps to be tangent to both circles.



Complete the loop

Repeat the above steps to add a segment completing the next portion of the folded loop. Press and drag from the bottom of one circle to the other (in either direction).

When you release, the circles disappear and become curved track sections.

If the result doesn't look like this picture, use Edit Undo to go back a step, then try again. Make sure a circle is highlighted when you start or end drawing each straight.



You might use File Save As to save a copy of the layout at this stage, and again every so often as you work.


Adding a switch to Eagle Coal

Go to File/Preferences and study your switch submenu.

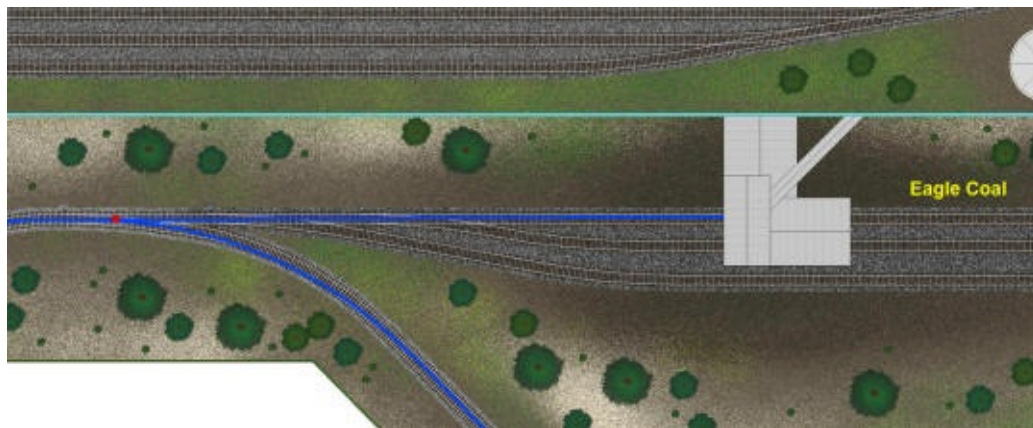
We suggest that although your switches can use any 2 colors to indicate safe passage, that you consider only 1 color. We prefer Red for passage denied.

If you want to operate your layout in a prototypical fashion, then you should remove ALL the check marks under "Operation."

Complete the Switch Placement

Choose the Straight Track Tool . Drag from the top of the circle over to the outside edge of the mine building.

The little red rectangle indicates the switch has been created and when you zoom in closer, you will see that the leg leading to the mine is Closed.



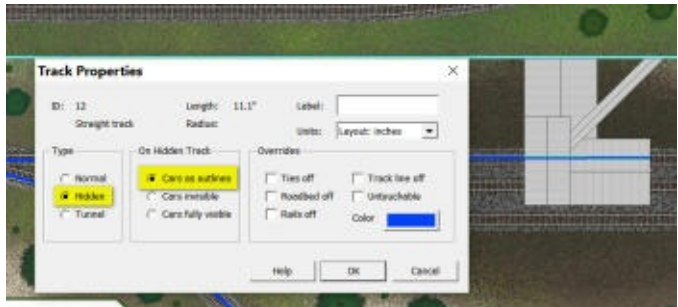
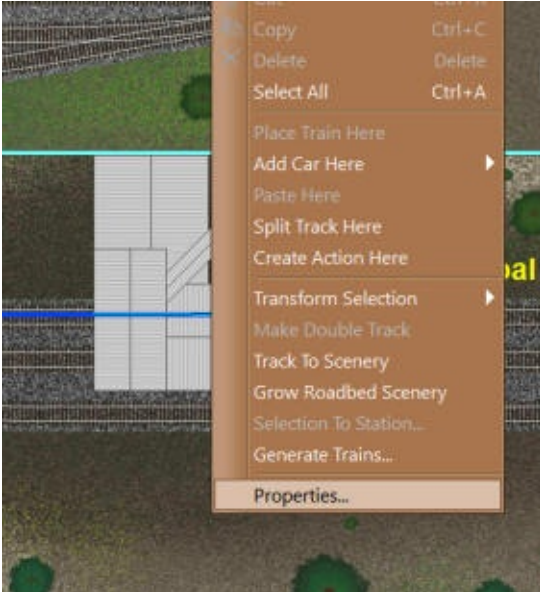
Hidden Tracks

Since our track will run under the loader portion of the mine,

we want to hide that track but we also want to see if there are cars under the building.

Draw a short straight segment to the other edge of the building. Next, select that new section and right click to bring up the Track Properties dialog. Select track type as Hidden and also "cars as outline". Then click OK.

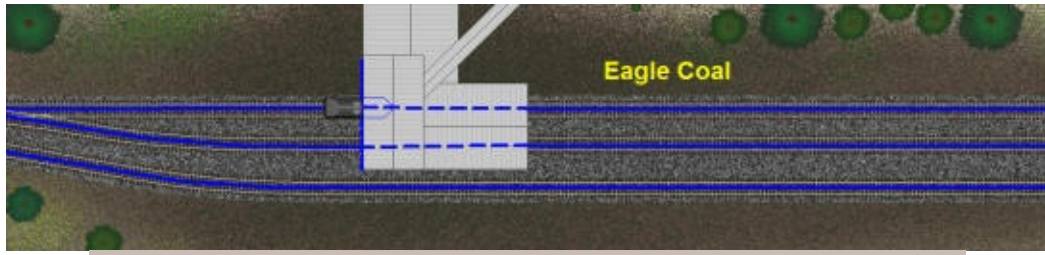
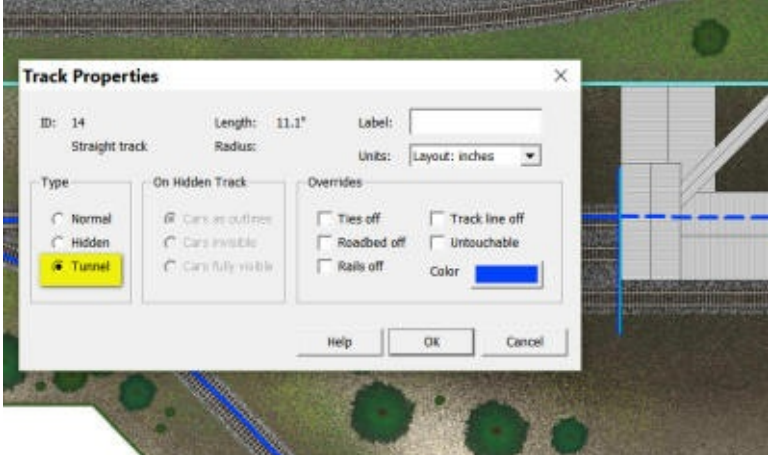
Repeat this process for the second hidden track.



Hidden Tracks part 2

If you want to ensure a crisp clean line when your hopper passes under the mine structure, then all you need do is add a straight section along the side of the mine wall. As shown above, open the track submenu and mark this new section as a "tunnel" piece.

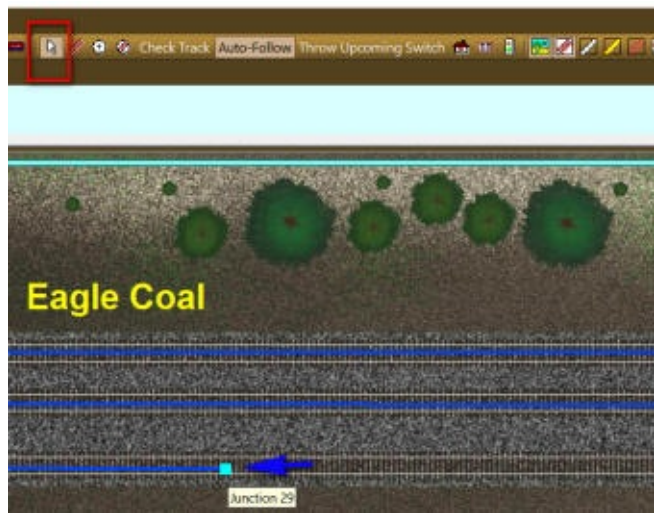
With the layout background image turned off, you can see the effect of this tunnel section



Another TrackLayer Shortcut

The Track cursor tool can be

used after your track has been laid to either re-position a switch slightly, to smooth out some “kinks” in your track work and also to extend the length of any siding.



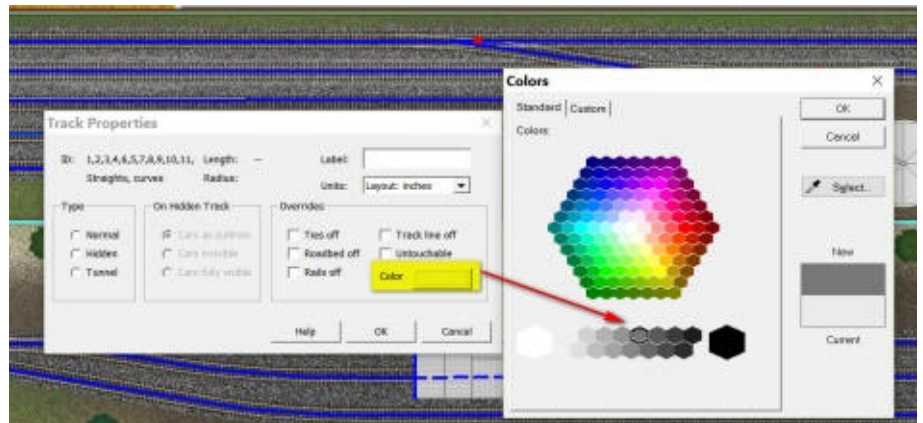
Just remember to position your Track cursor on a junction point to activate it, then drag that junction a short ways or right across your layout.

If something goes wrong, use Edit Undo.

Track Work is complete!

The track is complete!

Let’s do some tidying up. First we want to change the track color from the highly visible Blue to a muted Gray to suit the roadbed and ties.



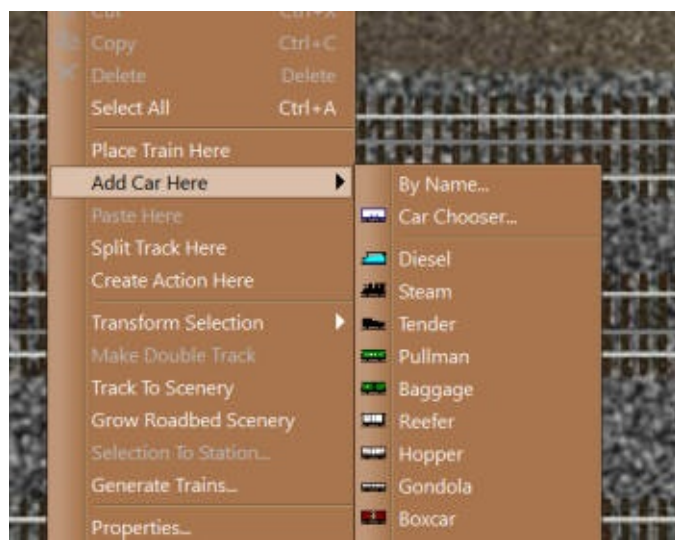
Click on any track segment to select it and bring up the Track main menu. Click on “Select All” to grab all the track work.. Then slide down to Properties to bring up the next submenu and choose your color. Save your work.

Adding Trains to this Layout 1



This layout is intended to represent the modern era. But you may choose any suitable cars from our collections which are of interest to you.

You can add them individually or in small groups. With your Edit Track tool, right click on any track. From the menu which appears, select “Add car here” – “car chooser” and pick the cars from the collection of your choice.

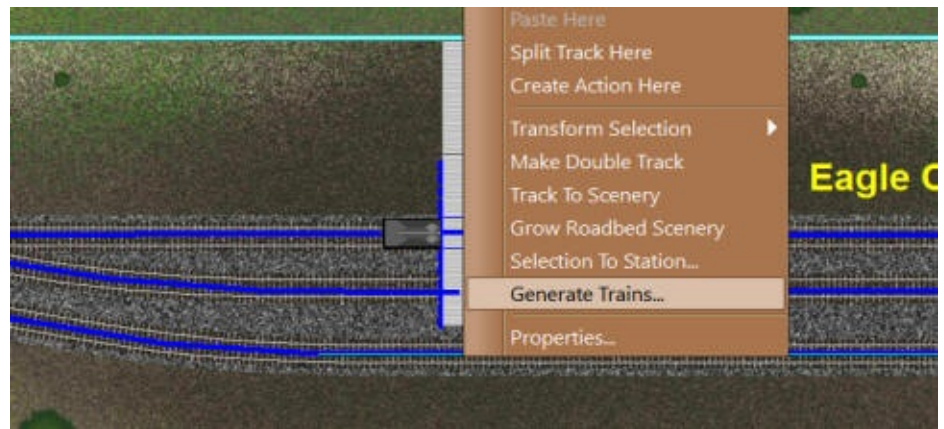


Adding Trains to this Layout

Alternatively, you can also use our updated “Train Generator” to speed up this process.

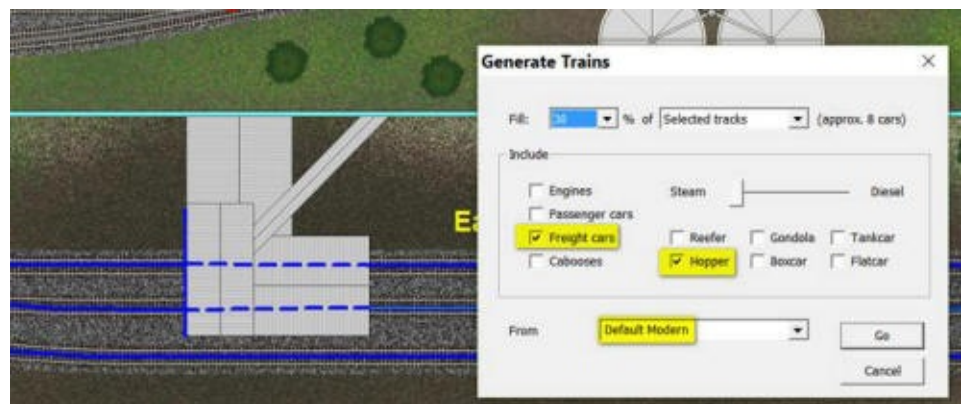
Step 1 – select the track where you want to place some cars using the Track cursor to highlight your choice of tracks.

Step 2 Bring up the Track Properties menu and Select “Generate Trains”



Step 3 – Decide which cars you want and the density of those cars on the available track and select OK.

Finally select a car collection as the source for the specified cars. Click Go.



If you don't like the results, do it again -- you get a different set of trains every time.

Resizing and Rescaling

In a computer simulation of a scale model of the real world, the term "resize" can have different meanings. Until now, the way to resize a layout was to adjust the grid, changing the mapping of the virtual layout onto the real one. For example if you have a 4x8 HO layout, and you drag the grid to double the number of squares, you end up with an 8x16 version of the same layout, as if you somehow stretched it to take up twice as much space in your garage.

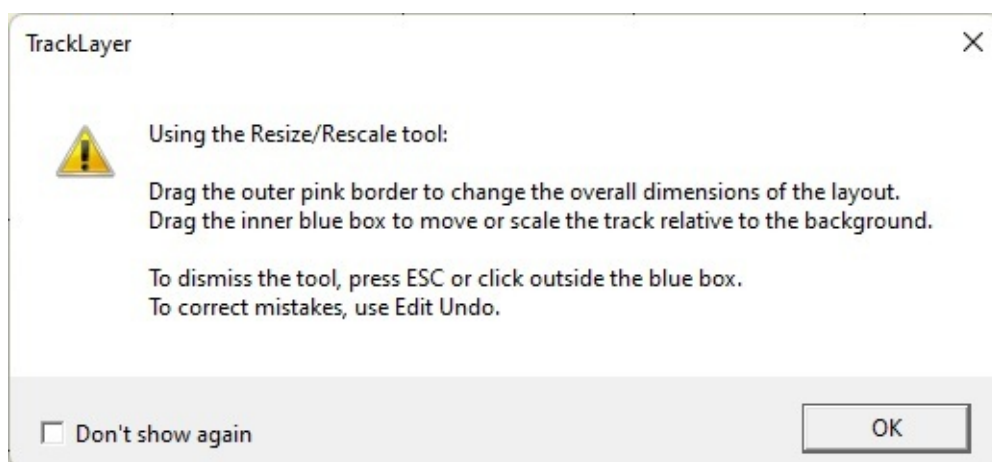
TrackLayer offers a dual-purpose tool which gives two new ways to resize your layout without modifying the background. One rescales or moves the entire set of track; the other changes the size and shape of the "benchwork." In your garage, the first method is like replacing the HO track with N -- it changes the overall size of the track relative to the scenery. The second is like adding a shelf -- it increases space for track beyond existing scenery.

Technically this means the bitmap size is now independent of the layout size, so the two no longer need to be the same size and shape. This fixes a few long-standing problems, adds flexibility in plan-bashing, and solves some import problems which arise when a CAD app doesn't generate an image of the right shape.

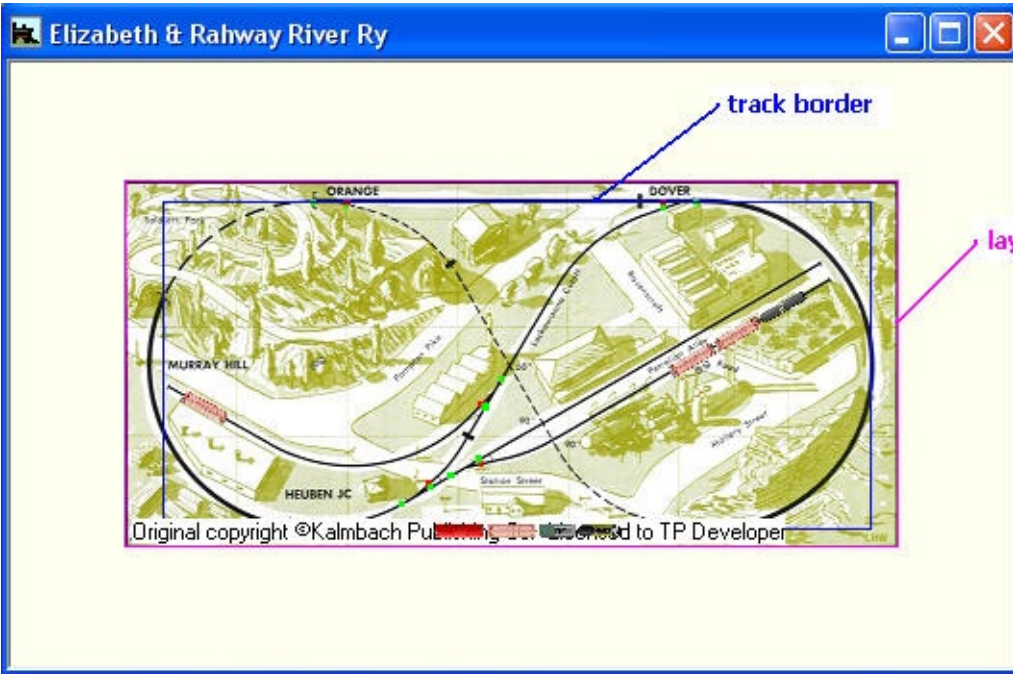
Resizing a layout to add or subtract track space:

1. Zoom out so the entire layout is smaller than the window on the screen. This is not required, but it's a good idea until you get the hang of resizing.
2. Choose the command **Tools > Resize/Rescale**.

The first time you choose this command, you get an alert with brief instructions. This appears only the first time you activate the tool after starting the program, so read it the first time it comes up. If you want to get rid of it permanently, check "do not show again."



Two rectangular frames appear: a pink one around the outer border of the layout, and a blue one surrounding the track.

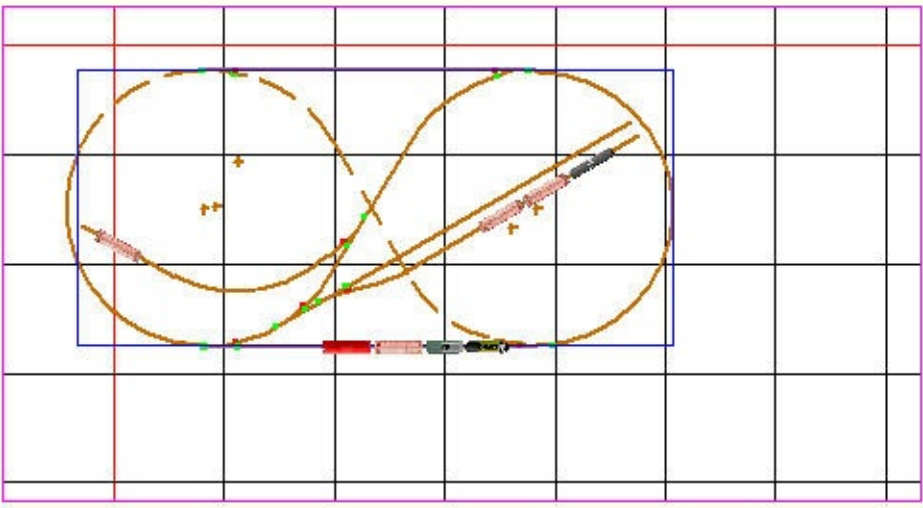


3. Press and drag the pink outer rectangle by any side or corner. The overall layout space changes while the bitmap remains in position or becomes cropped. Keep your eye on the status bar, which displays the size as you drag.
4. If you make a mistake or don't like the result, use Edit > Undo.
5. To dismiss the tool, (a) press ESC, (b) click a spot inside the pink but outside the blue rectangle, or (c) choose a different TrackLayer tool.



Rescaling or moving track relative to the background:

1. Do steps 1 and 2 as above.
2. Press and drag the blue inner rectangle by a corner to resize, or by the middle to move. Note: the blue border cannot be dragged by a side. The entire set of track moves or rescales proportionately.
3. See steps 4 and 5 above.

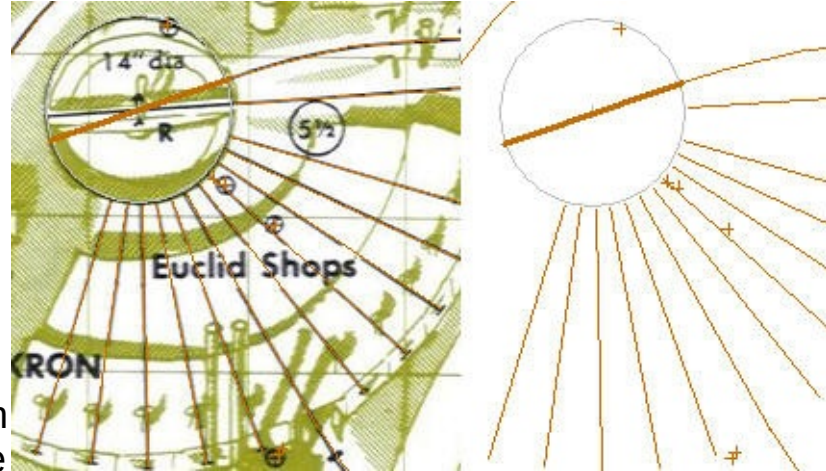




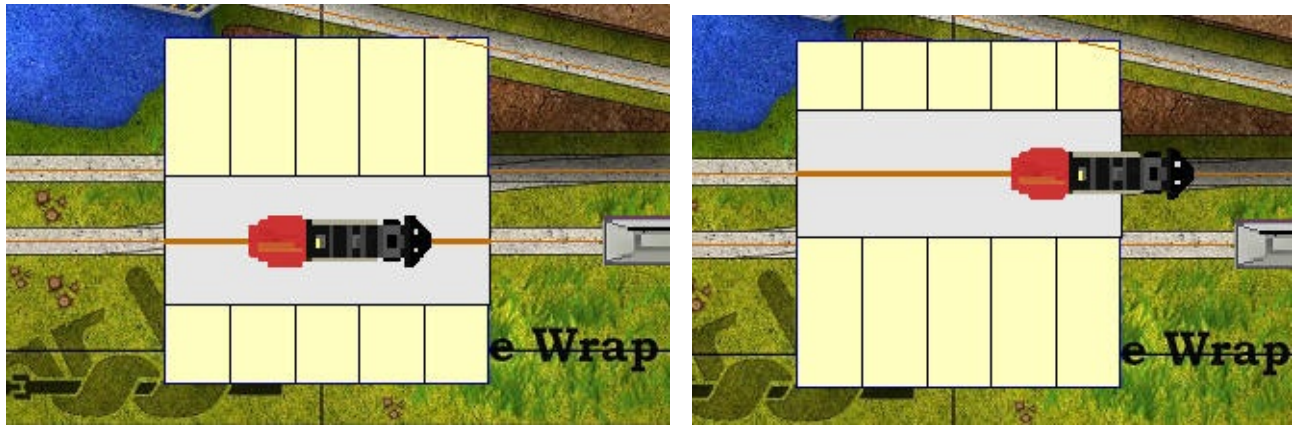
Turntables and Transfer Tables

The TrainPlayer portion of the manual describes how turntables and transfer tables look and behave (see [Turntables and Transfer Tables](#)). This section describes how to build them with TrackLayer.

A turntable consists of two objects: a circle and a **bridge track** which crosses the circle and passes through the center. When you rotate the table -- by double-clicking a point on the rim, or right-clicking and choosing a Rotate command from the menu -- the bridge rotates until either end is touching an end of an external **connecting track**. At this point it stops, and the superimposed endpoints become a single junction a train can cross.



An alternative to a turntable is a **transfer table** -- a rectangular bed with a bridge which moves laterally. In this case, a double-click inside the table area causes the bridge to move slowly in the direction of the click until it locks onto the next connecting track.



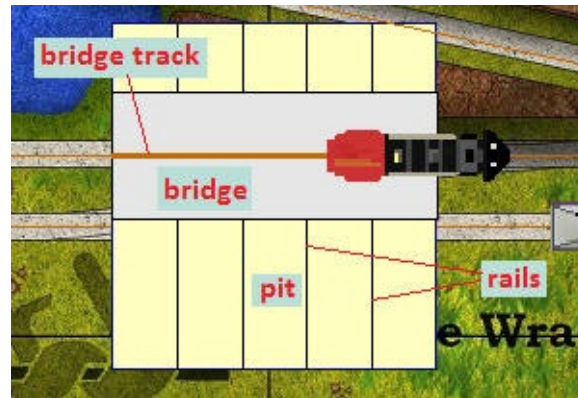
This section describes how to build and edit turntables and transfer tables.


[Creating a Turntable](#)

[Creating a Transfer Table](#)

Creating a Transfer Table

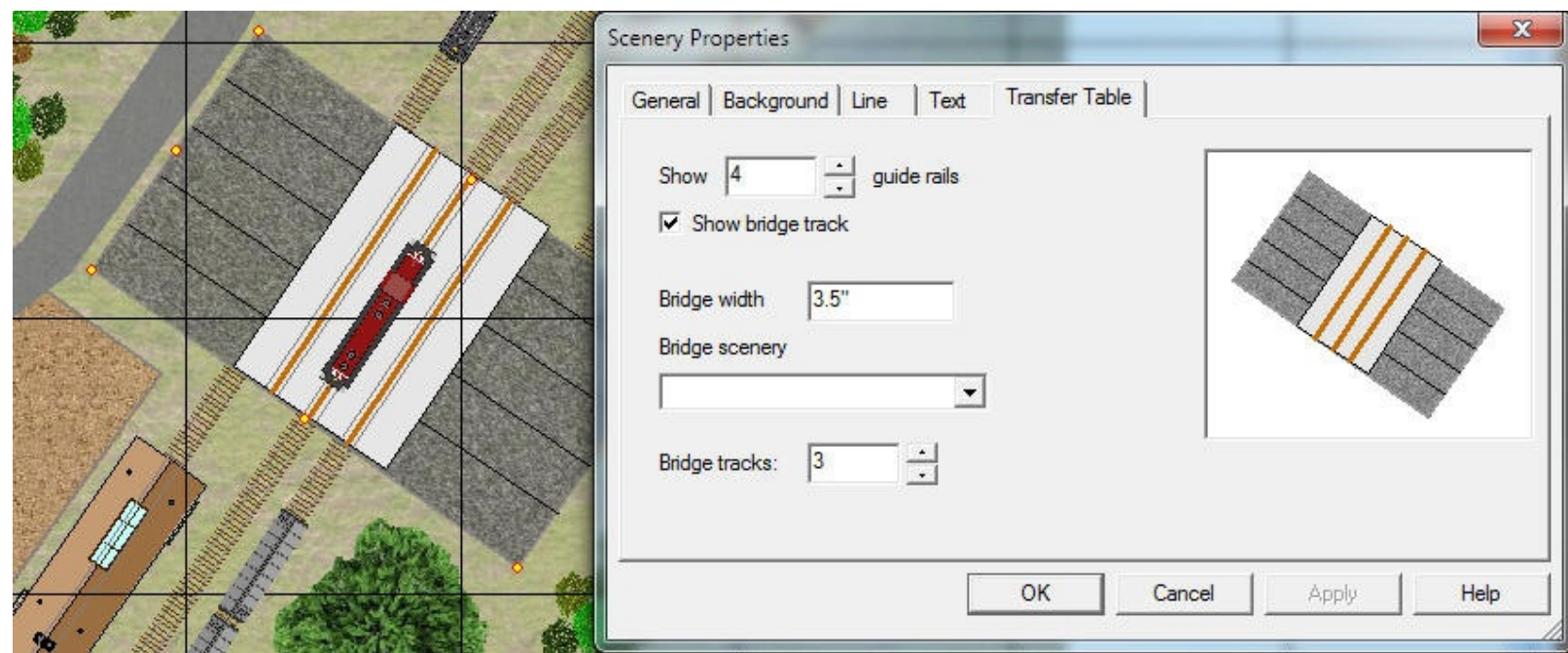
A transfer table has several moving parts, a combination of scenery and track. They are:



- **Pit:** the bed over which the bridge moves. This is a regular rectangular scenery object, so can be solid or filled with bitmap or pattern.
- **Rails:** lines perpendicular to the bridge, representing rails on which it rides. These are non-functional, just for display. You can change the number of them or remove them (default is to show four rails).
- **Bridge:** narrow rectangular platform which moves across the pit. You can adjust the width (default is 3" in HO). By default the bridge is shown as solid grey, but you can instead display a scenery object if you wish.
- **Bridge Track:** track on which the engine rides. Sits on top of the bridge and bisects it. This is a normal section of live track. In a multi-track table, the platform has more than one track, evenly spaced and separated by the distance specified for Snap to Parallel (see [Track Preferences](#)).
- **Bridge Scenery:** an optional scenery object representing the bridge (not shown in the above illustration). Several are available in the scenery collection, especially in the *hq_details_accessories* folder. Examples::  .
- When a transfer table has a bridge scenery object attached to it, the scenery moves along with the platform. To attach bridge scenery to a turntable or transfer table, see [below](#).

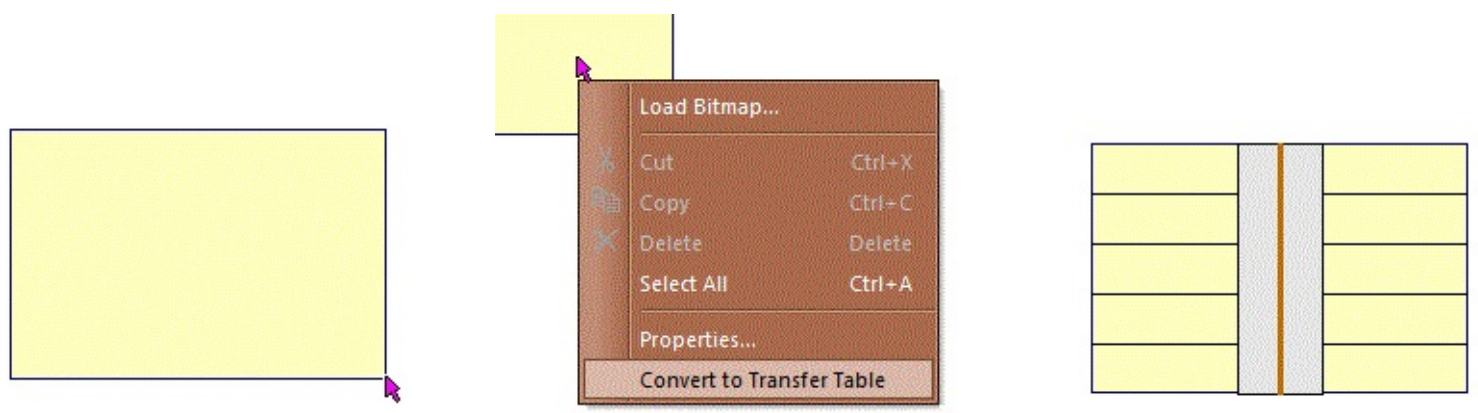
There is no special tool for creating transfer tables. You first create a scenery object for the pit, then convert it to a transfer table, as described below.

As of Version 6.3, you can create a **Multi-Track Transfer Table**, having more than one bridge track on the platform, as shown below. To do this, create a regular one-track table and then change the number of bridge tracks on the [Scenery Properties -Transfer Table](#) dialog.



To create a transfer table:

1. Choose the RectangleTool Tool on the Scenery Toolbar:
2. Draw a rectangle for the pit (below left). Size, position, and rotate to suit on the layout.
3. Right-click the rectangle and choose **Convert to Transfer Table**.



This adds a vertical bridge, single bridge track, and rails (above right). The table is now ready to hook up and use.


4. To add more bridge tracks, right-click the table, choose Properties, and adjust the number of bridge tracks.
5. Try it! Double-click anywhere in the pit, and the bridge will move. Double-click again to stop.

To connect external tracks:

The transfer table is not useful unless it has external tracks for entry and exit. An external track must have one endpoint lying on the edge of the pit, and is normally perpendicular to the rails. You must construct the table before drawing or attaching external tracks -- that is, if you already have tracks in place and you

attempt to move a table so that it touches them, it won't work.

Note: size, position, and rotate the table before connecting external tracks. These tracks do not move if you later decide to reposition the table.

1. Choose the Track tool. 
2. Begin drawing a track section outside the table. Drag the end until it touches and highlights the table edge, as shown here (left). When you let go, the track snaps to perpendicular (right).



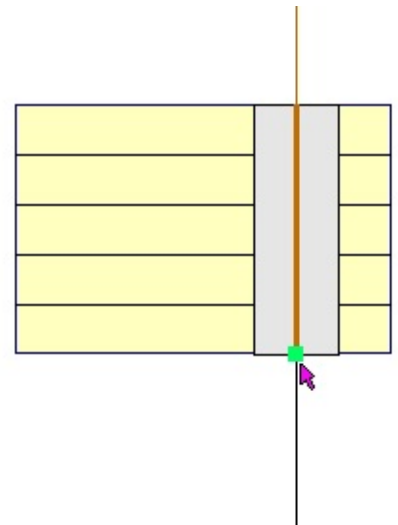
Note that the edge of the table will highlight only if you are touching a serviceable location. It must be (a) on one of the two edges perpendicular to the bridge, and (b) more than half a bridge width from the side of the pit.

3. Test your work! Double-click the pit on the external track side, and the bridge should move until it locks onto the track.

To make a cross-over:

If you want the engine to be able to drive straight across the table, you must take care to make sure the connecting tracks are aligned. Here's the best way:

1. Draw the first track as described above, to define where you want the cross-over.
2. Double-click to move the bridge until it locks onto that track.
3. Draw the second track, dropping the end onto the highlighted junction at the end of the bridge track, as shown here:



In this case, it is up to you to make the track perpendicular to the pit.

When you drop the end onto a junction, instead of on the pit edge, it will not snap. You may have to adjust the far end until all three tracks are aligned.

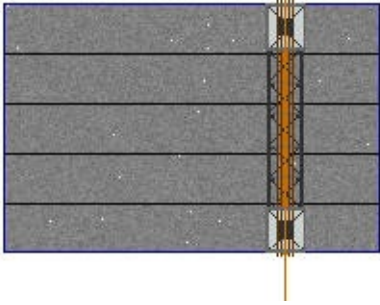
4. Test. Put an engine on one of the track sections, and verify that you can drive it all the way across.

To decorate a transfer table:

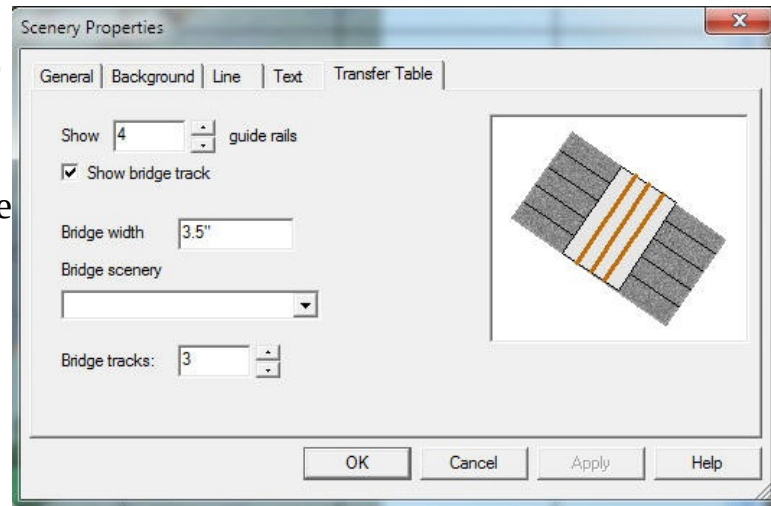
You can change the appearance of a transfer table in several ways:

- Change the pit color or background. Right-click the table and choose Properties to see the Scenery Properties dialog. You can set the background color or image in this dialog, as described [in the Scenery chapter](#).

For example, at left the pit has the "ground_concrete_01" image from the "background" collection.



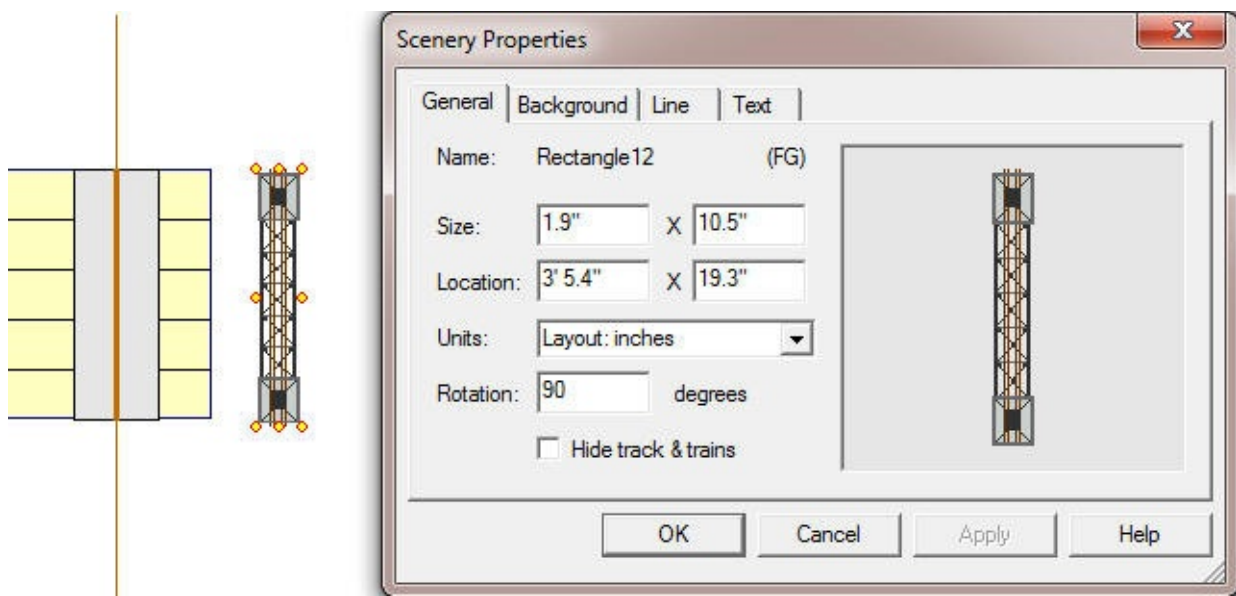
- Modify transfer table properties. In the Properties dialog, when you are editing a transfer table there is a special tab for this purpose, as shown at right. In this tab you can set:
 - Number of guide rails. Set to zero to remove rails.
 - Whether or not to display the bridge track(s). Normally you turn this off when you have a bridge scenery object.
 - Width of the bridge. Units are those in use throughout the program.
 - The name of a scenery object to be used as the bridge. See below for details.
 - Number of bridge tracks. Default is 1.



- **Add a bridge scenery object.** Here's how:

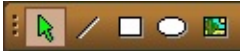
Note: These instructions apply to both transfer tables and turntables.

1. Choose or draw the object to be used for the bridge. The best source of bridge art is in the *hq_details_accessories* scenery folder.
2. Size and rotate the bridge so it aligns with the bridge track and is the same size. as shown below. Then position it right on top of the bridge track.
3. Display properties of the bridge object and note its name (in this case, "Rectangle12").



4. Select the transfer table and bring up its [Properties dialog, Transfer Table tab](#). In the case of a turntable, bring up the [Turntable Properties](#) dialog.
5. In the "Bridge Scenery" drop-down, select the name of the bridge object. (Note: this will not change the display in the properties dialog.)
6. Click OK and you are ready to go. Double-click to start up the table movement, and the new fancy bridge will move along with the bridge track.

To edit a transfer table:

To move, resize, rotate, or delete a transfer table, use the Scenery Edit tool: . You manipulate the transfer table by working with the pit as you would work with any other scenery object.

If you have a bridge scenery object, it is not connected to the table and will not move or delete along with the table. To manipulate both the bridge and the table as a single object, group them using the scenery

Group tool: 



Scenery Toolkit

The Scenery Toolkit in TrainPlayer is the armchair railroader's equivalent of that big box in the basement, full of miniature trees, buildings, bridges, earth powders, paints, and other decorative whatnot. In TrainPlayer, the box has an unlimited quantity, the objects are thin (they're just top views), and if you don't see what you like, there are tools for making your own. It's quick and easy! With Scenery Toolkit you can scenic an entire layout in an evening, and not spill a drop of Sculptamold on the floor.

This chapter describes how to create scenery on your layout. The tutorial in this leads you through the exercise of creating an entire scenic layout. For more exercise, try the [Clappison Junction tutorial](#) on the website.

[About Scenery](#)

[Tutorial: Jamestown](#)

[Scenery UI Devices](#)

[Choosing Scenery](#)

[Drawing Scenery](#)

[Editing Scenery](#)

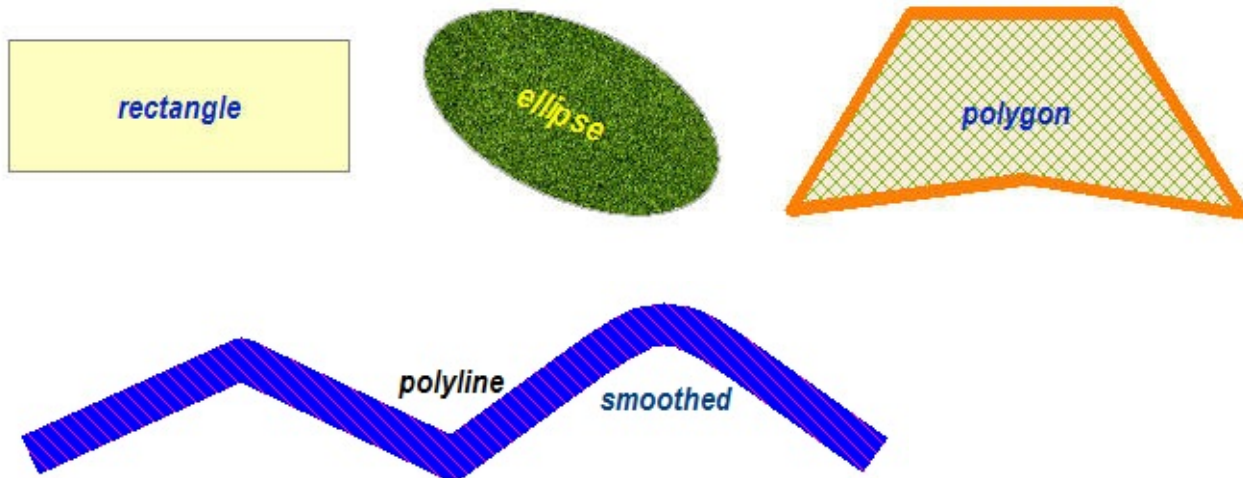
[Animated Scenery](#)

About Scenery

The Scenery Toolkit is not really a box of objects, it is a full-featured object-based drawing system. This page gives an overview of the objects you can create. The controls for doing the drawing and styling are described in the next section, [Scenery UI Devices](#).

Scenery Objects

Shapes. Scenery objects come in a few basic shapes in two categories: linear (line, polyline) and fillable (rectangle, ellipse, polygon). Shapes may be rotated to any angle. Any shape may have a string or block of text displayed on top of it.



Styles. Every object has a **Line Style**, which applies to the entire object (for a linear shape), or to the outer border (fillable shape). In addition, a fillable shape has a **Fill Style**, which applies to its interior region. Any style can be one of (a) solid color, (b) two-color hatch pattern, (c) [bitmap](#) (see below), or (d) no fill, i.e., transparent. A line style has all this info plus a thickness, expressed in layout units.

Default Styles. Each object has its own style. In addition, there is a set of **Default Styles** which determine how newly-created objects will look. The three default styles -- Line, Fill, and Text -- are edited in the tabs of the [Scenery Styles dialog](#).

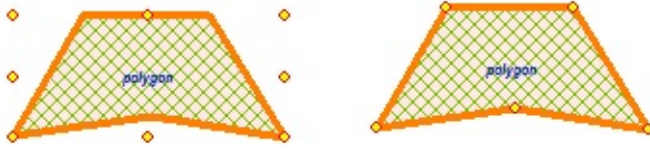
Layers.

The scenery objects on a layout reside in one of two layers: **Background**, for benchwork or ground-level scenery underneath the tracks, vs. **Foreground**, for structures and objects above the ground. The layers are drawn and edited independently, so that you can draw and manipulate foreground objects without accidentally modifying the background underneath.

With TrainPlayer 6.2, you can now easily move scenery objects between layers by using a check mark in [Scenery Properties](#). It is no longer necessary to copy and paste to change layers.

Polylines and Polygons. A **polyline** is a series of connected line segments. In a polyline of two or more segments, add one more between the start and end points and you have a closed, fillable **polygon**. Both types (which we will call "poly objects") have:

- **Two editing modes.** Click to select a poly object and you see normal drag handles at the corners of the rectangle occupied by the object. Click again and the handles appear on segment endpoints -- shared ones are called **vertices** -- which you can move to change the shape of the figure.



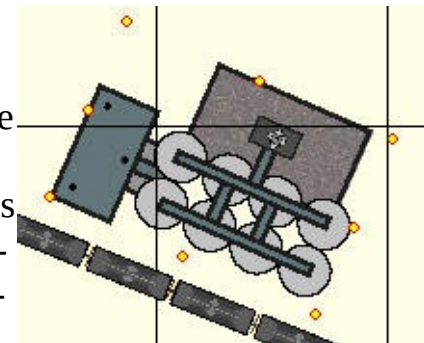
- **Smoothing at vertices.** "Smoothing" means changing a sharp corner to a smooth curve (a Bezier curve, to be exact). You can request to have this done at any or all vertices of a poly object. An example is shown in the right-hand vertex of the polyline at the top of this page.
- **Special context-menu commands.** When you right-click a segment in a poly object, the command **Delete Polygon Segment** shows up on the menu; choose it to delete the clicked segment. If you do this to a segment of a polygon, it becomes an unclosed polyline. When you right-click a polyline, the command **Close Polygon** becomes available, to automatically connect the endpoints and create a closed polygon.



- **Bitmaps.** We use the term "bitmap image" to refer to any image coming from a graphics file -- bmp, jpg, png, or other. The program comes supplied with a large variety of these, in two general categories: a **Background Pattern** is a texture designed to be tiled and used to cover an area, e.g., grass, water, gravel; an **Object Images** is a top-view of an individual object on the layout -- building rooftop, oil tank, tree -- usually with an irregular shape and a transparent background.

Grouped Objects. When creating a complex scenery object, it is convenient to be able to assemble several smaller objects together into a single **grouped object**. This object behaves as a single unit when moving, resizing, or rotating. For setting properties, usually it is necessary to ungroup the object back into its original parts -- except when applying a style using the Painter tool, which can work on individual group components. Grouped objects may be contained within other grouped objects.

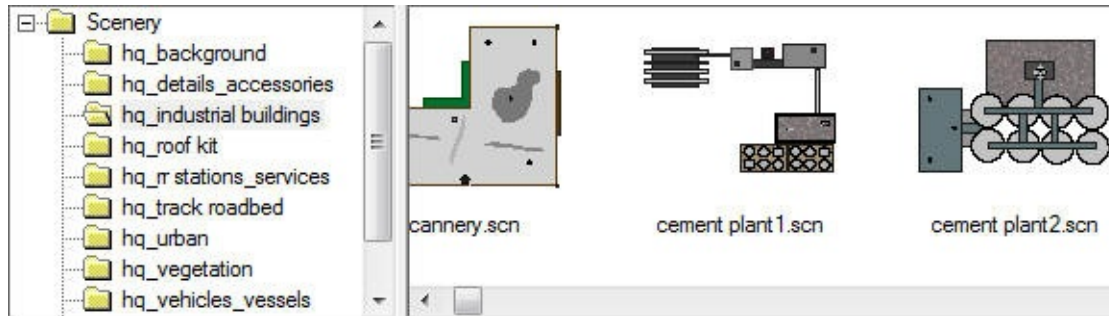
SCN Objects. New in 6.2 is the **SCN object**, a scenery object constructed from other objects. Like building a structure from a kit, you can assemble basic shapes into a complex object, give it a name and save it to a file for reuse in other layouts. For a concrete example (heh), at right is a cement plant made of rectangles and circles; the full assembly is treated as a single object, and can be used like any image-based object -- dragged out of the Scenery Chooser onto a layout, resized, rotated, etc. -- or can be modified to suit.



The scenery libraries offer a mixture of SCN objects and bitmap images. A SCN object has this advantage: when you add one to a layout, it is added to the layout scenery, and does not require an

external file. If you save the layout and send it to a friend, the cement plant shows up even if no such object resides on the recipient's machine. The same is not true of bitmap images, like the tree.

HQ Scenery Collection. Delivered with the program is a new set of folders containing high-quality scenery -- a mixture of bitmaps and SCN files.



The *hq_background* folder has tileable textures useful for background areas. *Hq_vegetation* has bitmaps of trees and bushes; copy and paste to make forests. *Hq_roof kit* has a collection of parts you can use to assemble custom roof designs. *Hq_track roadbed* has tileable textures designed for roadbed, used not only in scenery but also for track roadbed, as described in [Road Styles](#). Other folders have objects as named: details, accessories, industrial buildings, etc. -- browse around in the Scenery Chooser and see what you have.

For a lot more scenery images from older collections, visit the Web tab in the Scenery Chooser and browse our online collections. You can download and install any of the online folders into your local set. Or you may already have them if you have been running an older version of TrainPlayer.

Creating "Jamestown"

This tutorial takes you through the steps of creating a brand new layout with the Scenery Toolkit, starting with a blank image file. We've chosen to design a simple loop with some sidings for industries and stations.



Follow along and see if you can build it.

As with all good design concepts, we suggest that you start out with a rough idea of what you want your finished layout to look like. Do you want a lot of scenery or do you prefer bustling industries? This planning stage will help you decide what key design elements you want and where you would like to place them on your layout.

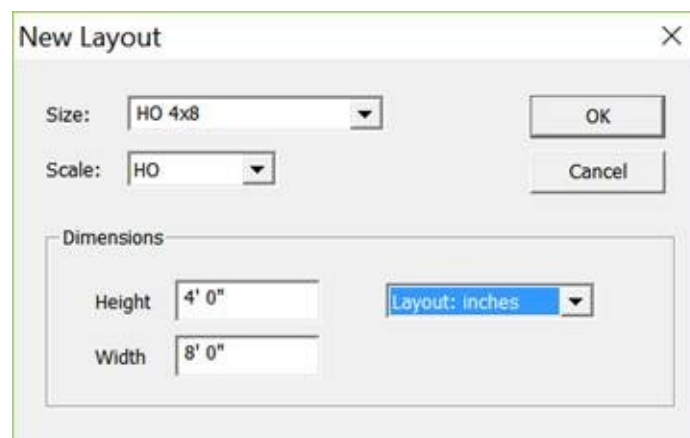
But, remember, the first goal of model railroading and virtual railroading is to have **FUN!!**

Open to blank screen

Use File New to open a new layout file.

For this tutorial, select HO 4x8

The image opens, the grid appears in a default position.

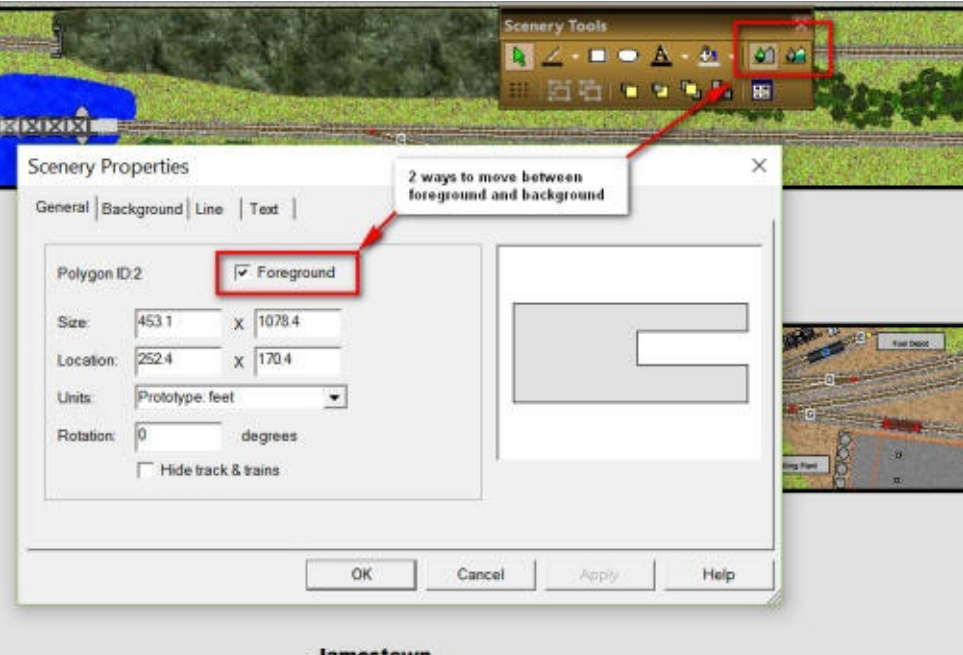


Note about Foreground and Background Layers

You should always plan on working the Background layer first and try to make it as complete as possible.

Then start to work on the Foreground layer by adding buildings, industries etc.

When you shift back to the Background layer after working in the Foreground, all of your images will disappear. Don't panic, they have just been temporarily suppressed to allow you to see the Background layer more clearly



Create your Background

From your Scenery toolbar, make sure you are in Background mode and that you have selected the Rectangle drawing tool as shown

With both Background and Rectangle active, use a left mouse click and drag and draw a large box across your basic grid pattern

We have used a 50 RRU line for the outside border. Then click on the rectangle to bring up the submenu. When you choose – Load Bitmap, it will open to the Scenery chooser and you can make your choice of a background texture in most cases from the HQ_background folder



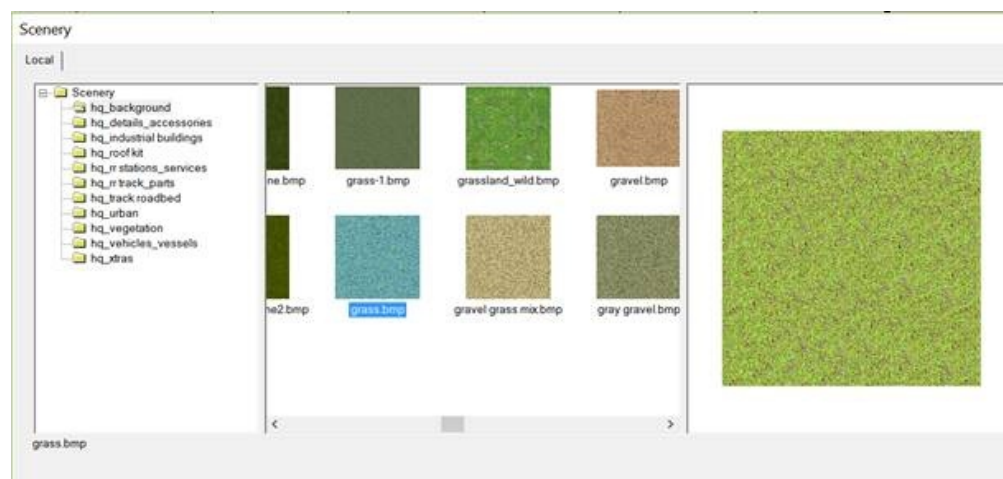
Adding Grass - 2 methods

1) Locate the Scenery Chooser icon on the Scenery Toolbar left mouse click on it and it will bring up the main Scenery Chooser window. This window provides you with a thumbnail view of the BMP

and SCN images.

Scroll through the selections in each folder.

When you find the image you want, left mouse click on it and drag it onto your layout to be positioned. You will need to manually adjust the selected image to fit the shaded box.



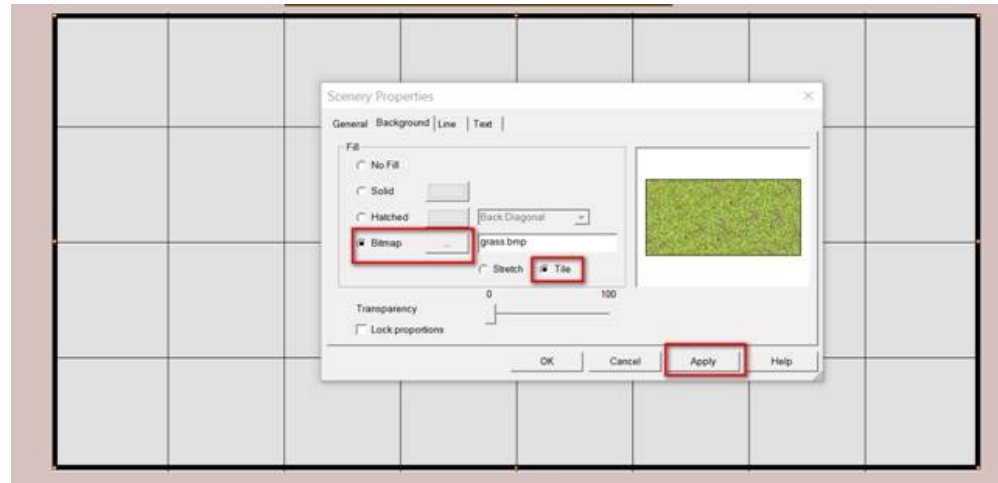
Hint - You will likely use the Scenery Chooser most frequently because it has the handy thumbnail sketch!!

2) Alternatively, you can place your cursor anywhere inside the shaded area and use a right mouse click to bring up a Properties submenu - select "Bitmap"

Then scroll through the folder to select your choice of background texture. ". A double click fills the rectangular box that you drew with "grass" .

TIP 1 - Using this method fills the shaded box completely

TIP 2 – to ensure that the “grass” looks more detailed and realistic make sure the Tile radio button is selected as shown here.



Reshape your Layout

We want to change the 4 x 8 layout to a shelf type with a peninsula! Easy enough to do. Start with your existing 4 x 8 and then turn on the Scenery Grid tool

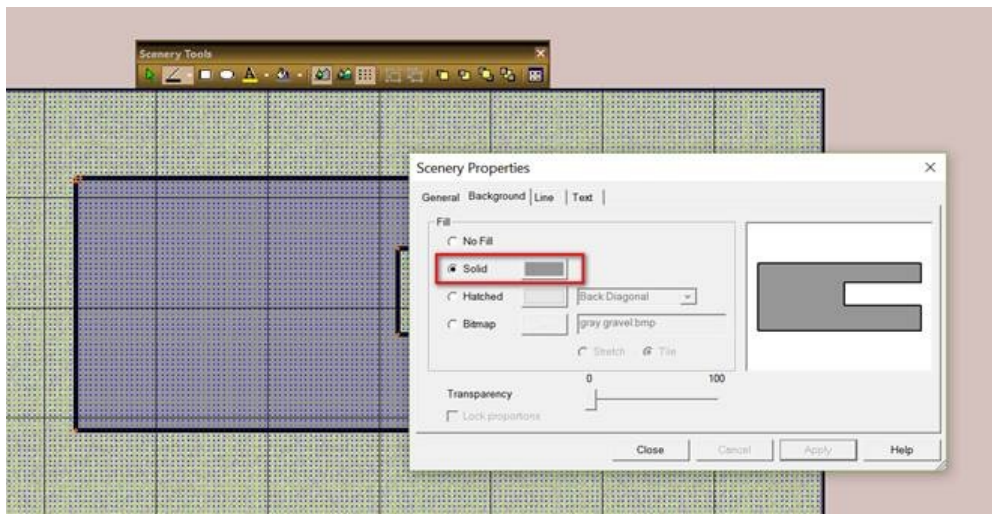
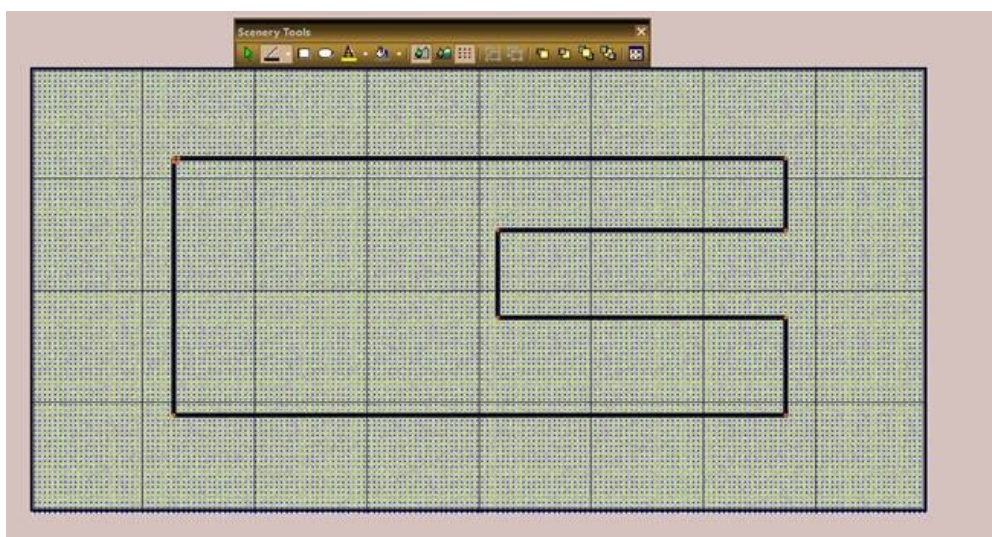
to assist in drawing a nice, straight peninsula. Use the Line tool to draw out the inside perimeter.

This perimeter is drawn in the Foreground of the layout while the grass main rectangle is in the Background view

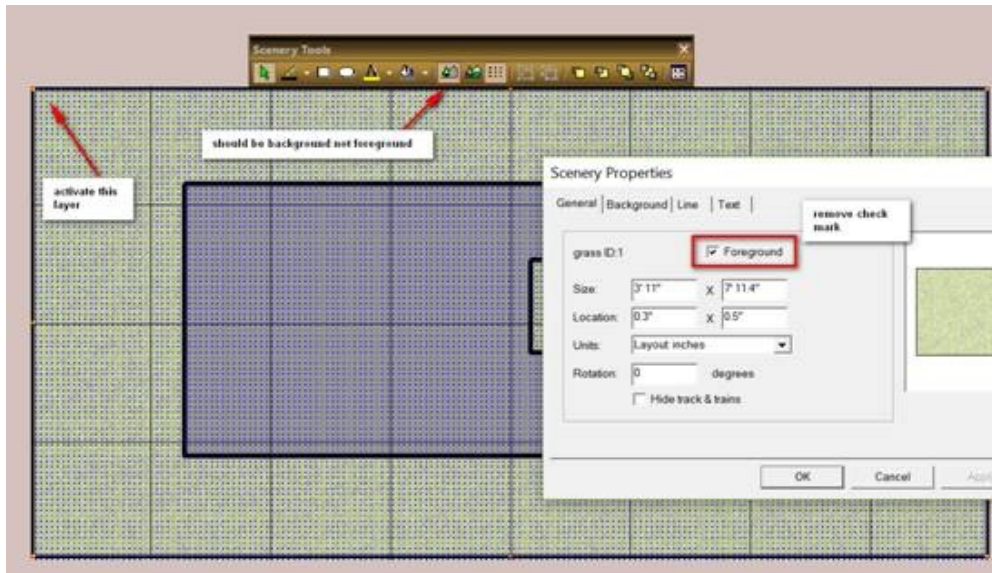
Since we want the “inside polygon” to represent our floor, we select a Solid – Gray colored to fill it .

Note:

To assist you to see the Scenery Grid, we have set the Grass on the Background tab to a 50% transparency level for the moment.



Moving from Foreground to Background layer is now as easy as clicking a check mark, regardless of how and where you drew or placed your image

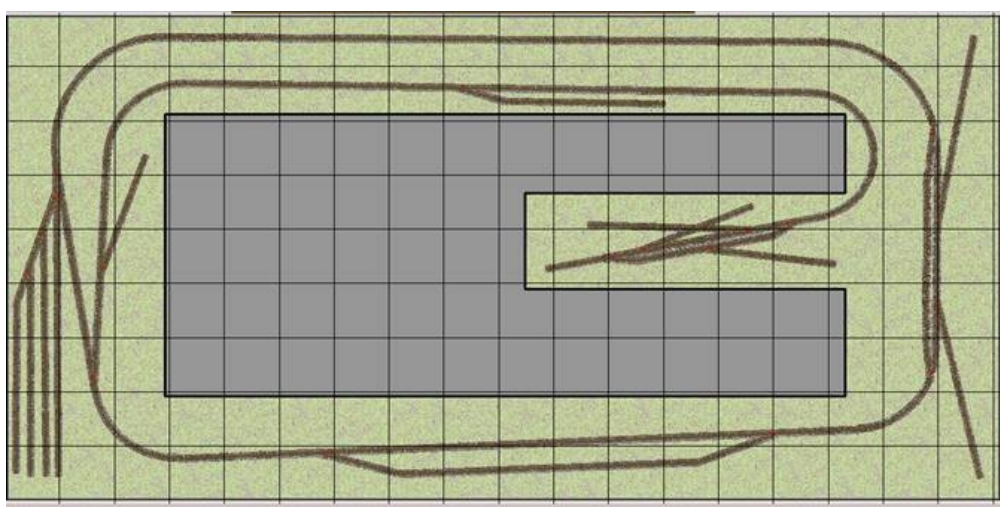


Adding your Track Plan

Now with the shape of your layout finalized, it is time to add your track work using the Track Layer tools covered in an earlier tutorial.

Here's what our track design looks like for Jamestown

You can also see that we used the Track Grid tool to change our layout's dimensions to 9' x 18'



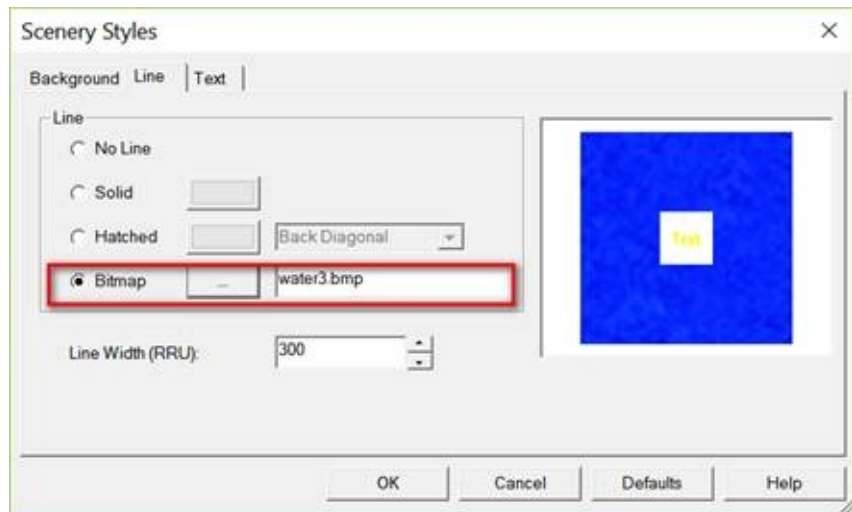
A River Runs Through It!!

To add a river, there are 2 methods - Using a "fat line" for a river OR Using the Scenery Line tool to define a river of varying widths

The Fat Line

For the "fat line" river, click on the little arrow on the Scenery Line Tool to open the Scenery Styles menu.

In the Background tab, we selected the "water3.bmp" and in the Line tab, we have set the Line to "use Bitmap" at a width of 300 RRU. Then click OK



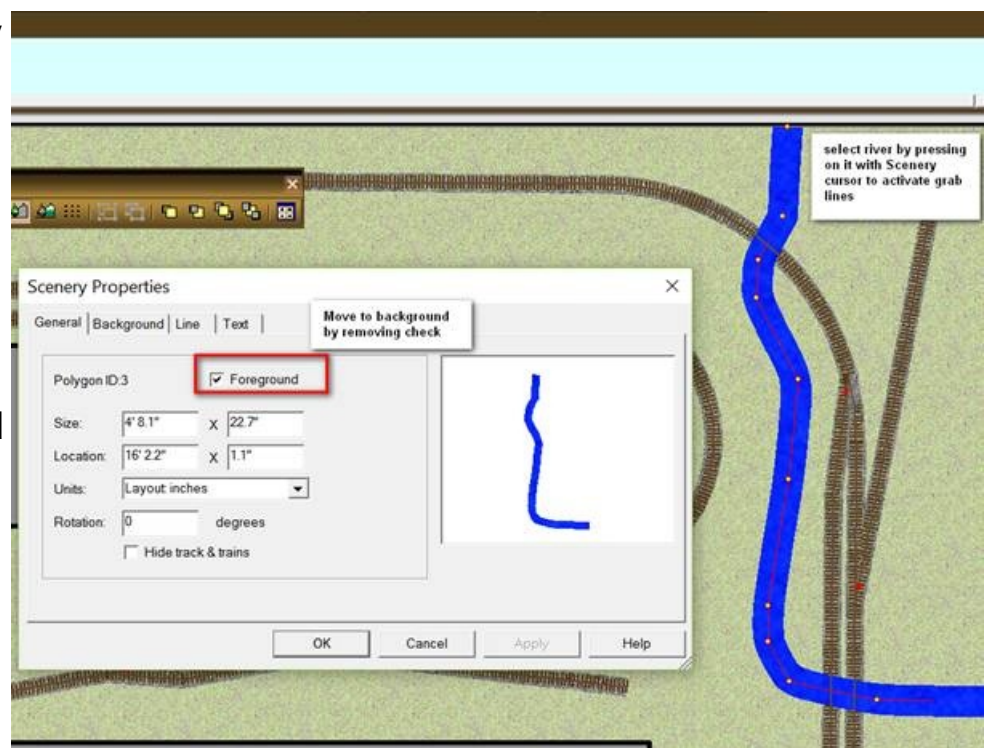
Working with the Poly line Tool

Refer to "Smoothing Vertices" section of this chapter for more details on how to draw gentle curves along your polyline [use SHIFT + Line tool while drawing]

We have selected the "river" by right clicking on it with our Poly Line tool to bring up the "grab" points and the Scenery Properties menu.

At this point, you can (a) drag any of the grab points to change the flow of the river, (b) change the width of your polyline and / or (c) move the river to the Background layer.

We recommend you move the river to the background if you intend to place a bridge over it and you wish to see the track on the bridge itself

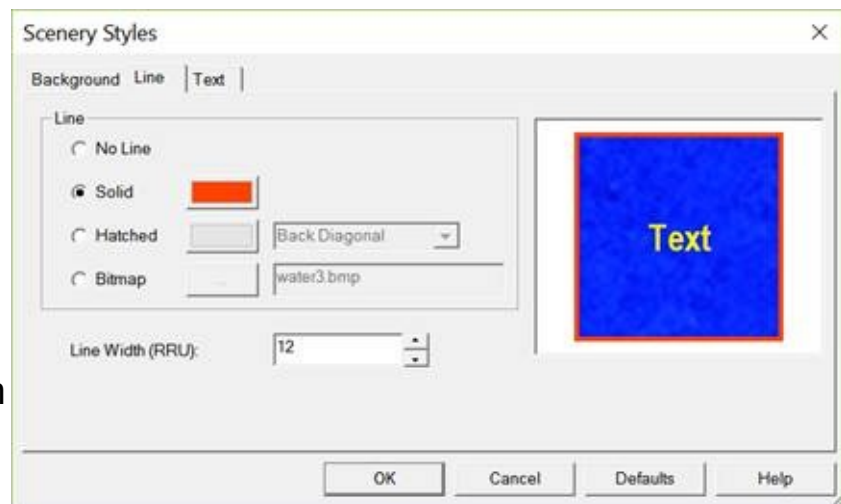


Add a River / Lake using the drawing tools

This option uses the Polyline tool to create a river of varying widths or an irregularly shaped lake or waterfront.



Start with the Polyline tool. We prefer to use a color which will be easy to find on screen while we are drawing [a bright red] So, we open the Defaults for the poly line tool, select a 12 rru wide, red solid line and we want to fill our finished polygon with "water3.bmp" which we had set on the Background tab.

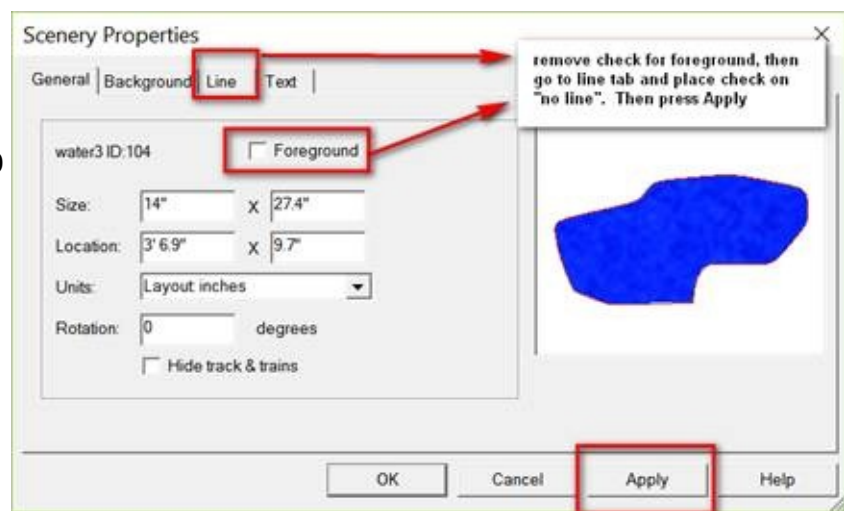


The bottom picture shows a thumbnail of what our lake looks like.

We want to edit it by removing the

Red outline and we also want to place it in the background layer.

Hint: A good habit to get into is to **Save** your work **often** in case something unexpected happens and it will!



Adding an industry

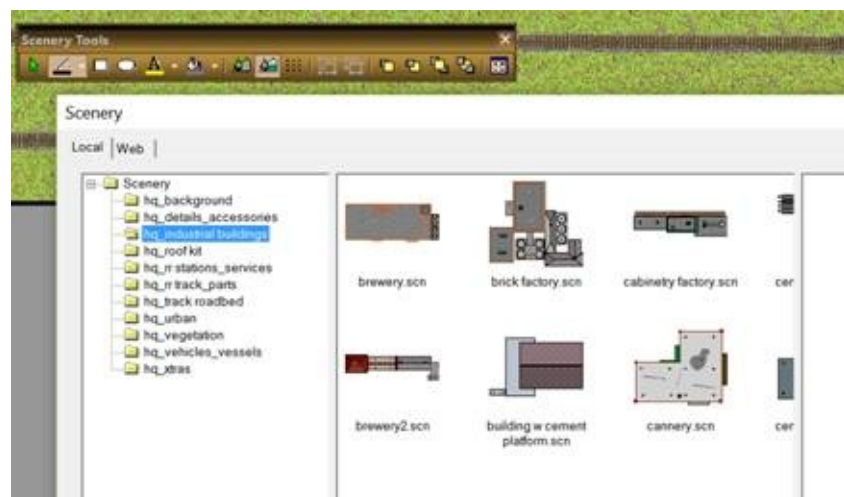
We strongly recommend that you try using any of the SCN graphics images which are provided within any of the Scenery folders with the HQ_ prefix.

Why??

Because they can be easily altered by ungrouping the image and adding or deleting some details, "re-painting" roof tops, changing their size, shape and orientation

But largely because the quality of the SCN image does NOT degrade as you Zoom in closer to the action

Just Click on the Scenery Chooser to access the library of images



Positioning and Sizing an Industry

Use a single left mouse click to "activate" the control points for the image.

We added a fuel dealer to Jamestown. The image's grab

points are showing when it is first placed on your layout. The top left hand control point controls the **rotation** of the image which allows you to place it correctly with your tracks.

For Jamestown where we have a peninsula shelf plan, we can make it look like we have made industry fronts merely by using the peninsula to hide portions of the industry from view.

How do you do that?

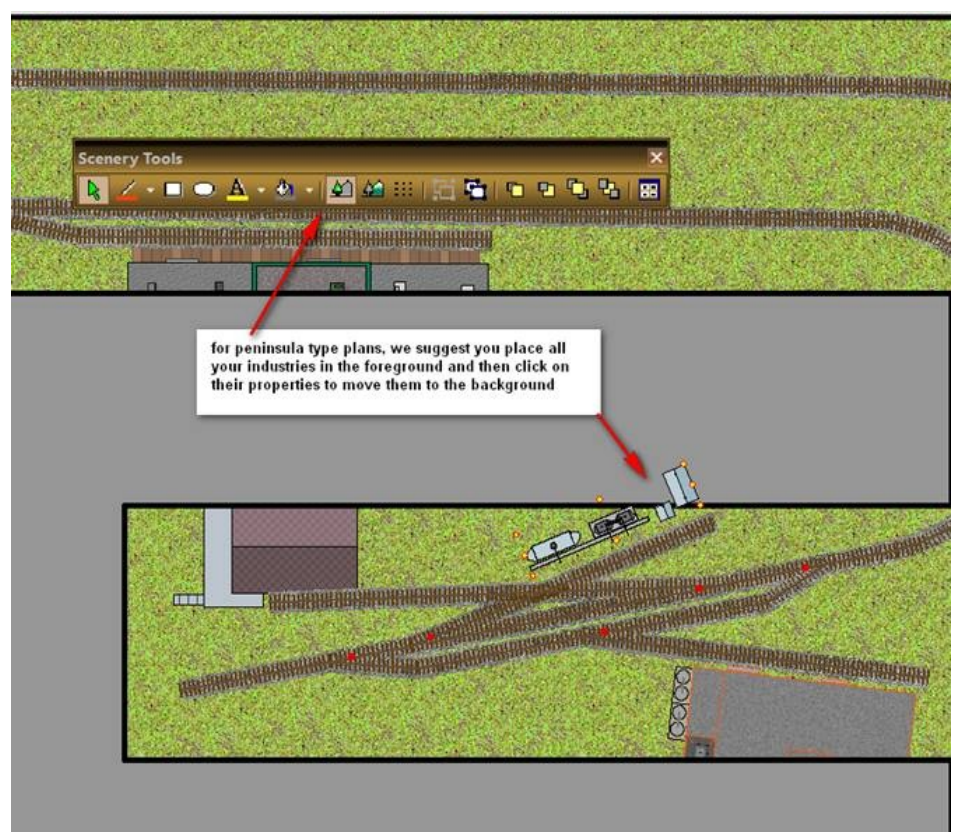
Make sure your peninsula is in your Foreground layer [check its properties settings by right clicking on it]. Then switch to the Background layer by pressing the icon on your scenery toolbar.

In the Background layer, place all your industries for the correct spots. When that is done, then switch back to the foreground layer and you will have something like the image on the right

You will likely want to add “ground cover” around these industries.

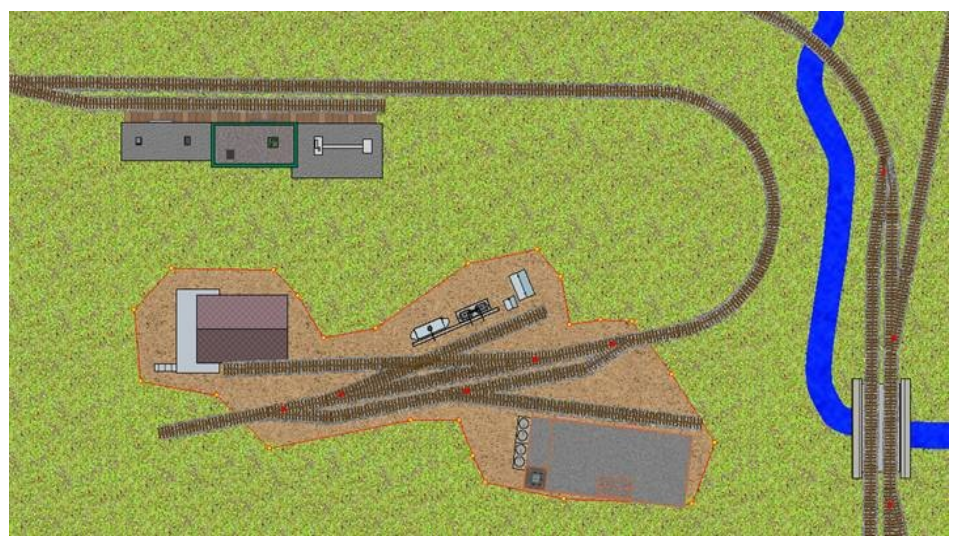
Use you poly line tool set to a red line and a “gravel” fill to trace a “cut out” around the area occupied by the industries.

When you complete the “cut out” the gravel will generally cover the industries. Just click on the cut out to activate its control points and then from the Scenery toolbar, use the “Send Back” prompt to send the gravel backward and reveal the industries. If the gravel cut out



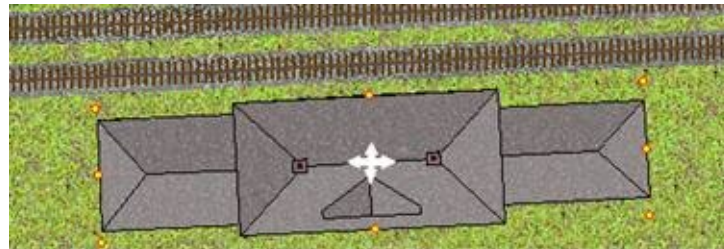
“disappears, just click once to bring it forward again, set it atop of the grass image.

Finally, switch back to the Foreground layer and watch the peninsula shape work its effect!



Moving an Image

If you need to move the industry image to somewhere else on your layout, again use a left mouse click to activate the image. Your cursor should now change to a 4 arrow head marker and this will allow you to move the industry anywhere you want on your layout



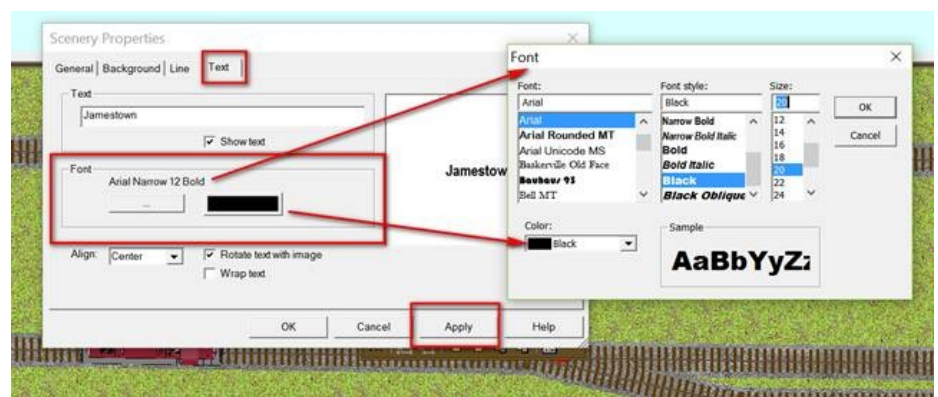
Naming your industry or Town

From your Scenery toolbar, ensure you are in Foreground mode; then press the Text tool icon. Near your industry, do a left mouse click and drag to create a new text box.

Insert whatever name you want for that industry.

As with other image boxes, you can click on it to move it around to whatever position suits you.

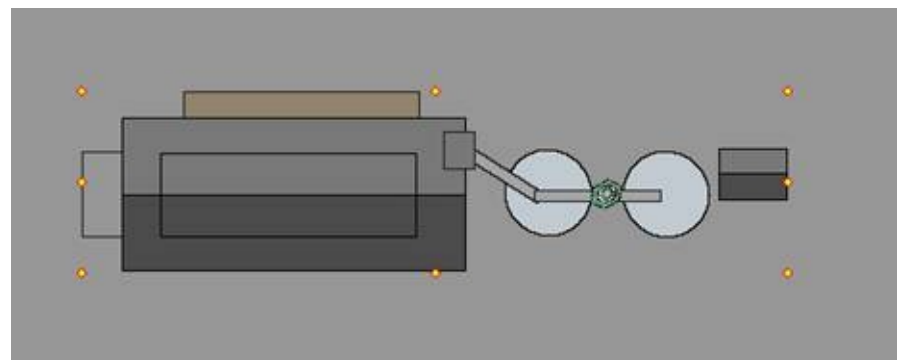
If you want to change the font size and font type and color of your new Text label, use a left mouse click to highlight it, use a right mouse click to open the submenu. At the submenu, select Properties/Text which will open this new menu ----->



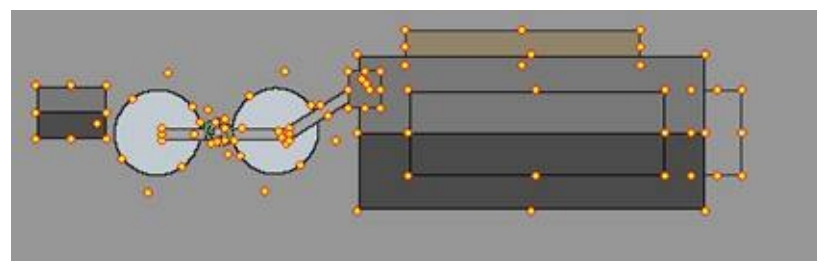
You can edit your original text in the Text box. If you click on the Font prompt, then you can adjust both Font size and Font type in the next pop-up window .

Font Color can be changed in the Color box.

Remember to hit the **Apply** button to have these changes reflected in your layout



Basic feed mill was created using rectangles and circle and using the Group feature to bind them together

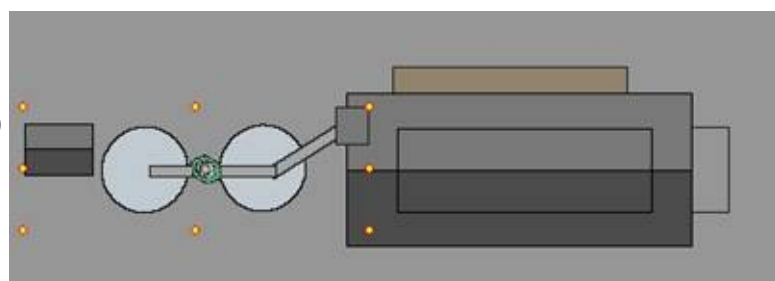


Using the Group / Ungroup feature

There will be situations where an industry image you want to use,

For the spot where we want this feed mill at Jamestown, we need to Flip it Horizontally first, then use the UnGroup to get at the main subcomponents

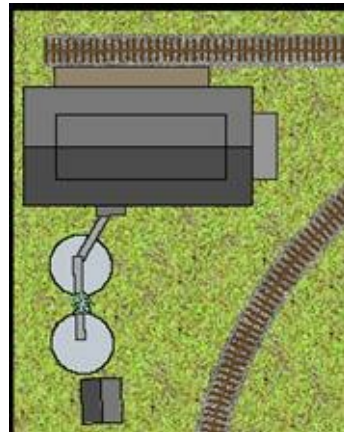
but does not fit the space on the layout. Don't despair just re-configure it. Here's how you will do that:



First, from the Scenery toolbar, then use a left mouse click with the Scenery Select tool to activate the control points for your image

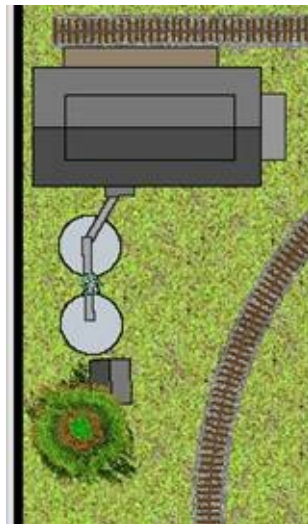
We then use the Scenery Cursor to grab the subcomponents we want to Group and re-position.

If you need to change something within this group, just click on it and select the Ungroup feature to break the group back into its original smaller pieces



Study the images on the right to see the various steps to use.

Finally, we drop it into place, Group the new Image again and resize it by grabbing a control point to reduce its size a bit. Done!



Using the Send to Back and Bring to Front Features

There will be times when you will place a factory too close to some vegetation and it will look wrong. You can either choose to move your trees!!

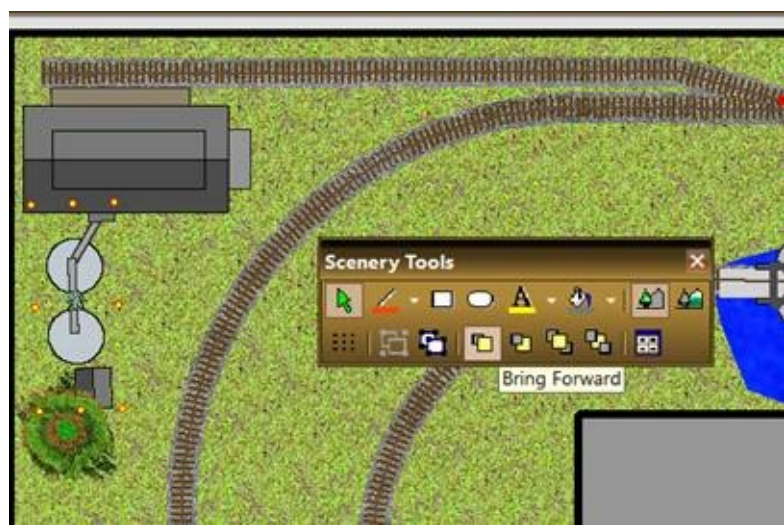
Or, you can use these features to change the appearance. Here's a step by step approach.

You decide which looks best to you!

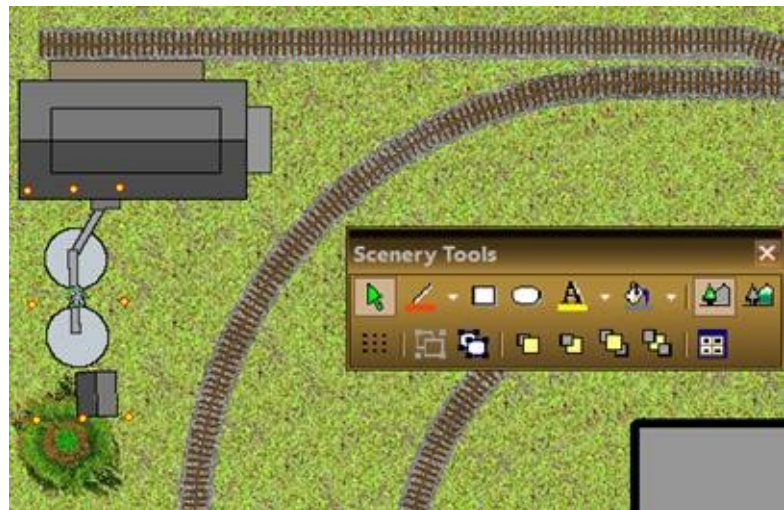
NOTE:

If the building image is in the Background layer, then you must move your tree image(s) to the same level IF you want the shed roof higher than the tree line

Normally any images located in the Foreground layer will cover all or parts of any image on the Background layer



Here, the tree towers over the pump shed. We want the shed to be taller than the tree, so we Ungroup the main feed mill image then select the Shed and silo sub assembly. From the Scenery toolbar, we select the Bring Forward feature and click on it until the shed roof is clearly above the tree



Add more scenery items, trains and enjoy!

Use **Train\ New Train** to create a train on your layout. You're ready to begin operating.

Only your imagination will limit the layout designs you can now create with TrainPlayer Scenery Toolkit!

Look under the Layouts / Demo to see and operate the final version of Jamestown.

Scenery UI Devices

The Scenery Toolkit involves a lot of moving parts. Here is an illustrated guide. Many are not available without a TrackLayer license.

Scenery Toolbar

The Scenery Toolbar is brought up by clicking **Scn Tools** on the [Build Toolbar](#) =>



Note that the **Edit Scn** button is duplicated on the Build Toolbar. This is for ease of developing a layout, when working on scenery and track at the same time.

Below is a quick reference to the tools. For detailed instructions on how to use them, see chapters [Drawing Scenery](#) and [Editing Scenery](#).



Foregr Layer

to select the foreground as the active layer for drawing and editing. In this mode, background objects cannot be selected or modified.

Backgr Layer

to select the background as the active layer. In this mode, foreground objects are hidden altogether.

Edit Scn

to select and edit objects. Click, shift-click, or press and drag to select, unselect, move, resize, or reshape objects. Ctrl-drag to duplicate objects. For details see [Selecting Objects](#). (Button is hidden by default -- use Add or Remove Buttons.)

Line/Polygon

to create a line, polyline, or polygon. To create a line segment, press and drag. For a polyline, start or end at an existing endpoint (where cursor changes to +). For a polygon, draw a polyline with a segment which closes the figure (or use Close Polygon from the [context menu](#)).

Rectangle

to create a rectangle object. Press to locate one corner, drag to adjust the opposite corner. Press Shift to restrict shape to square.

Ellipse

to create a circle or ellipse. Press to locate the center, drag to adjust the radius; press Shift while dragging to move the center. For an ellipse, create a circle, then adjust the shape by selecting and dragging a corner.

Text

to create a text-only object. Drag a rectangle to indicate the location, then enter the text when prompted.

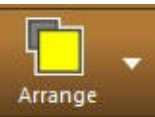
Painter

to apply a chosen style to an object. Click to activate the tool, then press Shift (cursor becomes a dropper) to pick up the color or object style at the cursor, release Shift to retain the style. Then click selected object(s) to apply that style. For more, see [Dropper and Painter](#) below.

Arrange

Click to bring up [Arrange subtoolbar](#) below.

- Scenery Grid** to show or hide the scenery drawing grid. Snap is in effect whenever the grid is on. To adjust grid properties, use **File > Preferences > Scenery**.
- Scn Chooser** to bring up the [Scenery Chooser](#), for browsing, downloading, and introducing scenery objects onto the layout.
- Scn Styles** to bring up [Scenery Styles](#), for setting default styles.



Arrange subtoolbar

The Arrange Toolbar is brought up by clicking **Arrange** on the Scenery Toolbar. It applies to selected scenery objects; buttons are dimmed if there is no selection or if the button would have no effect.



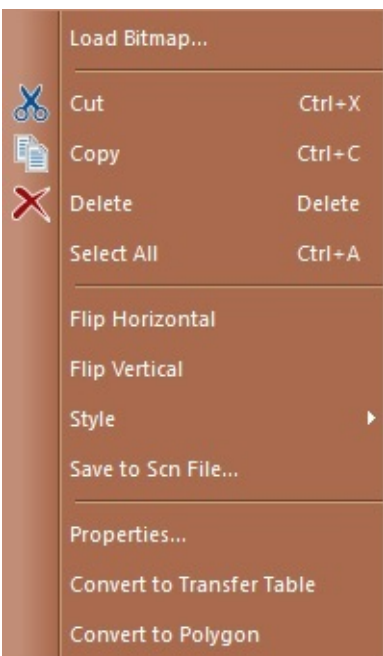
- Bring Forward** to move the selected object(s) forward in the display order, toward the front.
- Send Backward** to move selected objects toward the back.
- Bring to Front** to bring selected objects to the front.
- Send to Back** to move selected objects to the back
- Group** to group selected objects. Dimmed unless multiple objects are selected.
- Ungroup** to ungroup a grouped object, reverting it back into its original components. Dimmed unless at least one grouped object is selected.

Scenery Context Menu

Right-click a scenery object and you get this context menu =>

If the right-clicked object is one of multiple selected objects, then the chosen command will generally apply to all of them. Where the description below says "object" it means "all selected objects."

- Load Bitmap...** Browse for an image and set as background fill for the object 1
- Cut, Copy, Delete** Standard editing commands over the selection 2
- Select All** Select all scenery objects in the active layer
- Flip Horizontal, Vertical** Invert object across vertical or horizontal axis
- Style >** 10

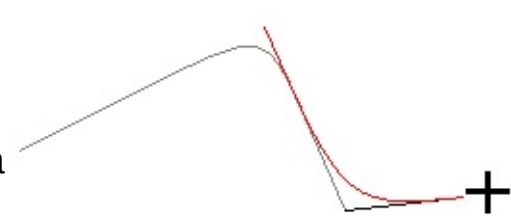


Copy	Copy style of touched object to internal clipboard	
Paste	Paste previously-copied style to selected object(s)	
Use As Default	Set default fill and line styles to match selected object	
Smoothing >	Submenu (for polylines and polygons only)	3
Smooth This Vertex	Smooth or unsmooth the right-clicked vertex	4
Smooth All	Smooth at all vertices	
Unsmooth All	Unsmooth at all vertices	
Auto-Smooth	Smooth each vertex while drawing polyline	5
Save to Scn File...	Save selected object(s) to scn file	6
Properties...	Bring up Scenery Properties dialog to edit object(s)	
Convert to Transfer Table	Rectangle only: replace object with a transfer table	7
Convert to Polygon	Rectangle only: replace with a closed four-sided polygon	8
Delete Polygon Segment	Polyline/polygon only: delete the right-clicked segment	9
Close Polygon	Polyline only: connect first point with last to form closed polygon	
Start, Stop Animation	Animated object only: start or end animating action	

Notes

1. **Load Bitmap** is a shortcut for bringing up the object properties dialog, setting the background type to Bitmap, and browsing for an image file. It calls up the Scenery Chooser in image mode, showing image files only, no SCNs.
2. These commands are also available on the main **Edit** menu. Scenery objects can be copied from one layout and pasted into another.
3. The **Smoothing** submenu appears only for a polyline or polygon object. It affects vertex points (points shared between pairs of segments); a smoothed vertex has a curve fitted automatically between the two segments. For more, see [Polygons](#).
4. **Smooth This Vertex** requires that the polygon be in "point editing mode," where vertex points are highlighted instead of the standard drag handles; see [Polygons](#).
5. **Auto-Smooth** means that smoothing is applied whenever you draw two segments sharing

an endpoint. When auto-smooth is in effect, you see a red construction arc as you draw each segment, as shown here.



6. When you save selected objects to a scn file, they become a single unit you can later drag onto a layout. You are prompted for output filename. If you save the file in any folder under TP Scenery, then the new object will show up in that folder in the Scenery Chooser. For more, see [SCN Objects](#).

7. **Convert to Transfer Table** is the way to create a turntable-like device in a rectangular space. See [Transfer Tables](#).

8. **Convert to Polygon** creates a closed polygon in place of a rectangle. You might do this is to create a trapezoid or other four-sided figure: start with a rectangular polygon and adjust corners.

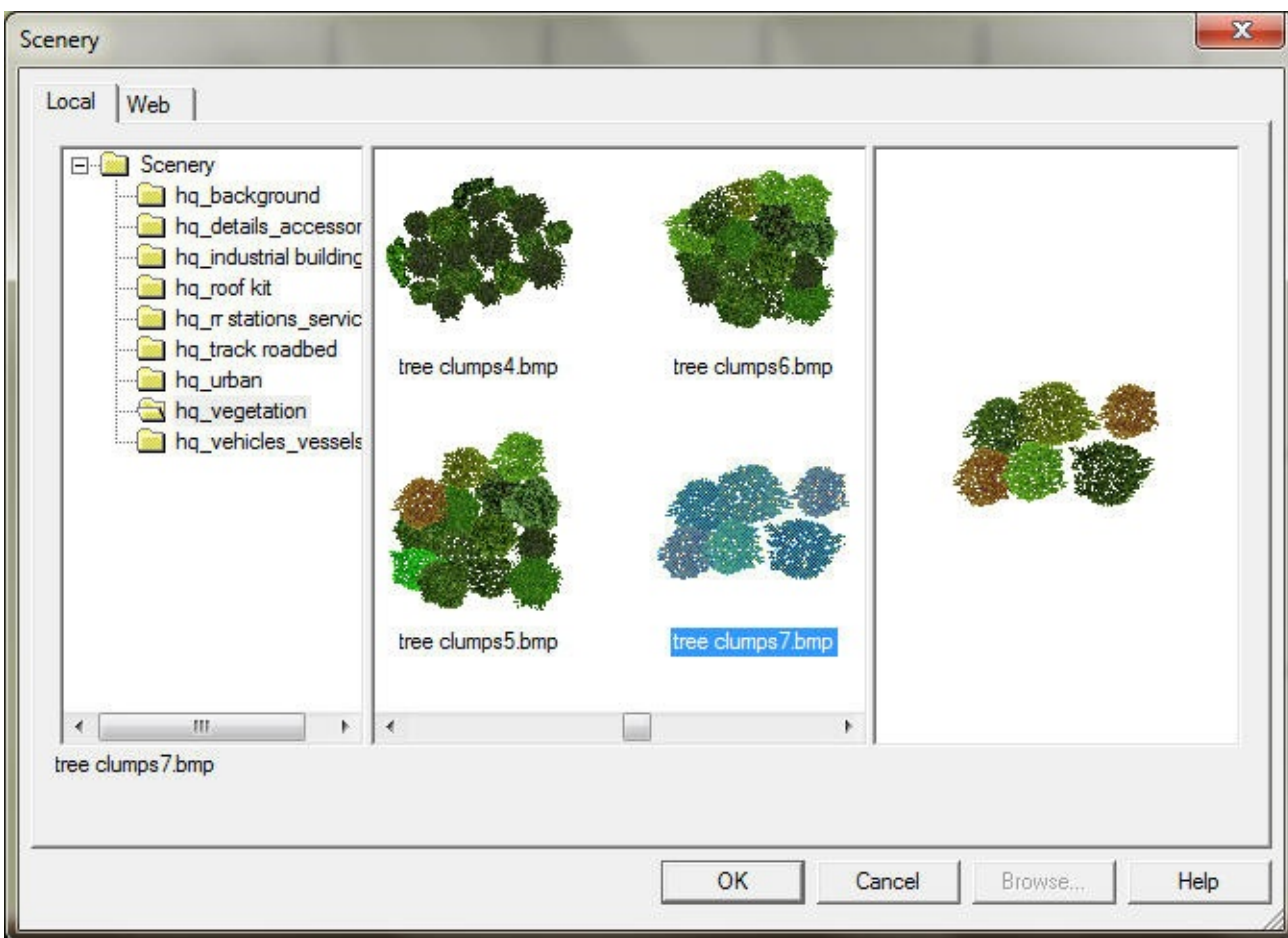
9. **Delete Polygon Segment** removes a single segment from a polyline or polygon. In the latter case, the polygon becomes unclosed and unfilled.

10. The **Style** submenu copies style information. **Copy** puts both fill and line styles of the selected object onto an internal clipboard; **Paste** copies the styles from the clipboard to selected object(s) on this or another layout (dimmed if no Copy has been performed). **Use As Default** changes the [default styles](#) to match the selection (dimmed when the selection style already matches the default).



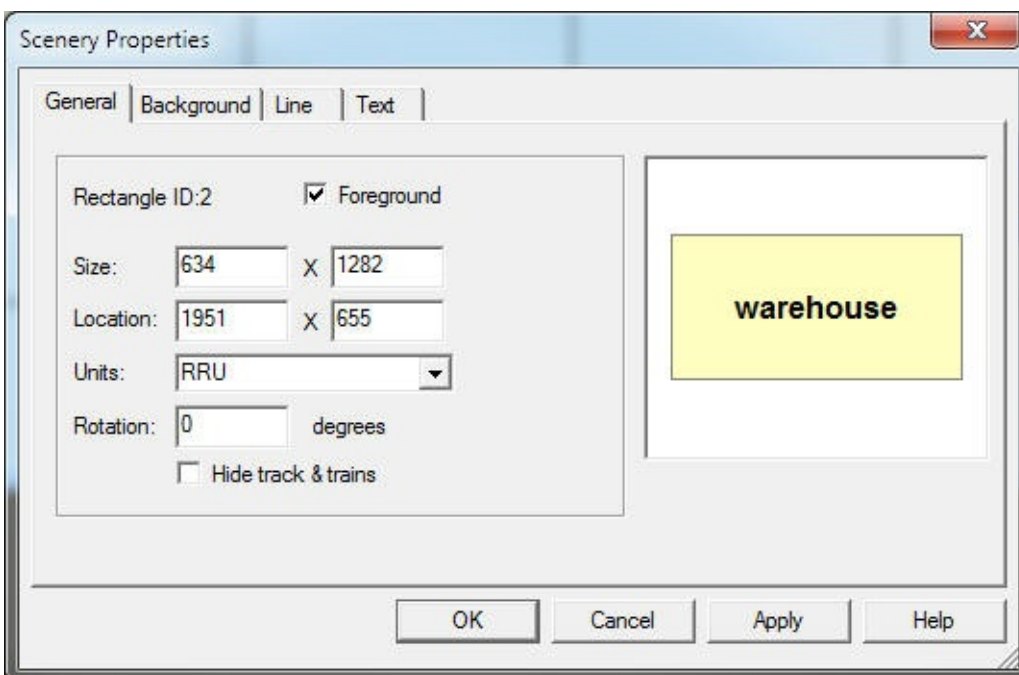
Scenery Chooser

The Scenery Chooser presents a gallery of scenery objects you can use on your layout. Browse through the new High-Quality set on your local drive or through the much larger collection on the web, find the one you want, and just drag it into your layout. For details, see [Choosing Scenery](#).



Scenery Properties

When you right-click an object and choose Properties, it brings up the Scenery Properties dialog, where you can view and edit the attributes of the object. If there are multiple objects selected, you edit their common attributes all at once. The dialog has four tabs, each described on its own page: [General](#), [Background](#), [Line](#), [Text](#).



The Scenery Properties dialog is modeless -- it does not have to be taken down while you work

on the layout. If you change properties in the dialog and click OK, changes are immediately applied to the selected scenery on the layout. If you modify the selected scenery on the layout, changes are reflected in the dialog.

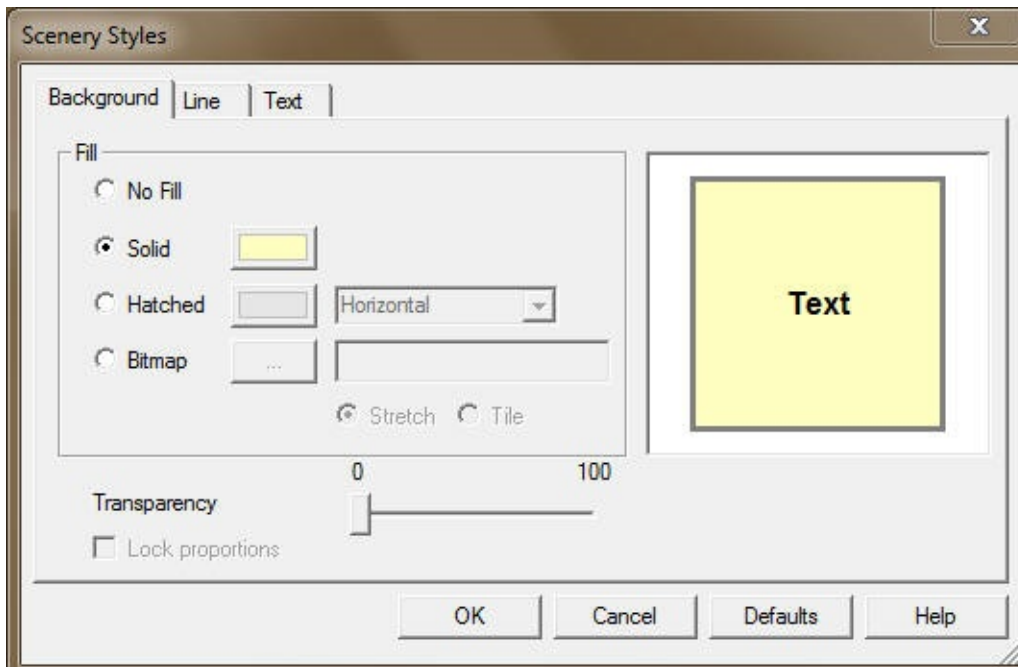


Scn Styles

Scenery Styles

The Scenery Styles dialog is used for setting [default styles](#) -- those which are applied automatically to newly-created objects, or applied manually by using the [Painter tool](#).

This dialog has three tabs, so similar to the tabs in Properties that they are documented on the same pages: see [Background](#), [Line](#), [Text](#).



The Scenery Styles dialog is modal -- you must click OK or Cancel before you can go back to working on the layout. The Defaults button resets the current tab back to factory default values. Changes you make in Scenery Styles do not cause any visible change on the layout or to selected scenery objects.

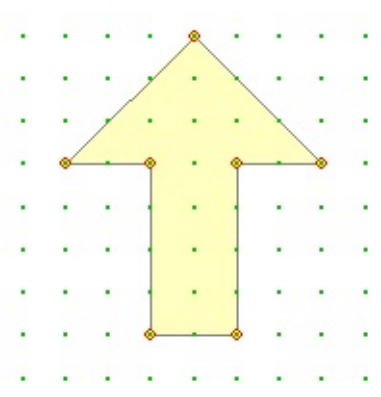
To bring up Scenery Styles, click the Scn Styles button on the [Scenery Toolbar](#).



Scenery Grid

Scenery Grid

The Scenery Grid is an aid in drawing and constructing precise scenery shapes. It is a grid of dots. When the grid is on (visible), most mouse movements snap to the dots. If you are dragging an object or a multiple selection, it is the top left corner which snaps to the nearest dot.



To show or hide the grid, click **Scenery Grid** on the [Scenery Toolbar](#).


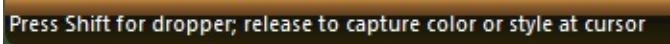


The grid is visible only when you are using one of the scenery tools. When you change to a track or run tool, the scenery grid goes down, but its visibility is remembered -- the next time you activate a scenery tool on this layout, the grid becomes visible if you left it that way.

The size, spacing, and color of grid dots can be modified; see [Scenery Preferences](#).



Scenery Painter and Dropper

The dual-function Painter/Dropper tool provides a quick way to change styles and colors of scenery objects. This feature was introduced in Version 6, then reworked and improved in 8.2. Here's how to use this tool:

1. Click the **Painter button** to activate the tool. The button is redrawn showing a color swatch =>  and the status bar shows this hint: 
2. Press and hold the **Shift key** and move the cursor around the screen. The cursor changes to the eye-dropper  and the swatch changes as you move. When the cursor is over a scenery object, the dropper picks up the fill and line styles of the object; otherwise, it picks up whatever color is under the cursor. The swatch changes accordingly.
3. When you see what you want, **release the Shift key**. This captures the style or color, and reverts the cursor.
4. Point to a scenery object to be restyled. The cursor changes to a paint can .
5. Click to apply the captured style or color to the object.

If the dropper was loaded from another object, the entire style is applied, including background fill, line style, and line width. If it was loaded with a color only, then only the background of the target object is changed -- it is set to solid fill of the loaded color.

Notes:

- If multiple scenery objects are selected, clicking any of them with the Painter tool will apply the style to all at once.

- If the target object is a grouped object, the style is applied only to the clicked component.
- All Painter restylings are undoable.
- If the dropper is active and you are positioned over a line or polyline scenery object, then only the line style is picked up, not the background fill -- indicated by a hollow swatch =>
When such a style is applied to another object, only the line style of the target object is changed.



Choosing Scenery




TrainPlayer offers a large and growing collection of scenery objects of all types -- buildings, trees, factories, streets, vehicles, background patterns, industrial complexes -- a regular Walthers catalog of goods you can add to your layout. A subset of these is delivered to your disk when you install the program. Many more are available on the web, easily downloaded with a few clicks.

About the Scenery Chooser




Like the other [Chooser dialogs](#), the Scenery Chooser is a resizable, three-panel dialog with a tree on the left, a list in the middle, and a preview panel on the right. There are two tabs, one for local scenery (stored on your disk), the other for scenery on the web. See also [Scenery Chooser](#).

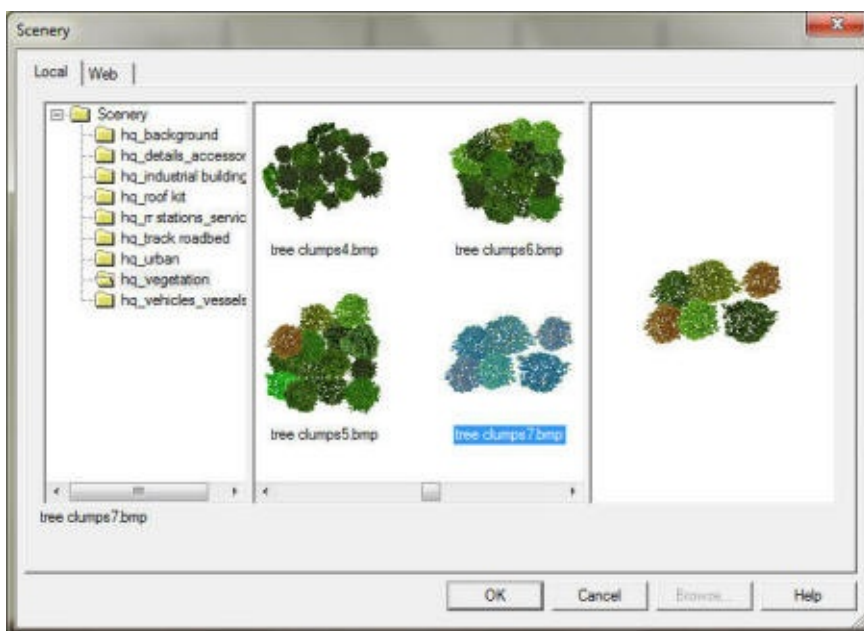
The Scenery Chooser is modeless, so you can work on the layout without taking it down. It offers an easy drag-and-drop mechanism for adding scenery objects to the layout. Navigate through the collections using the tree, find what you want, drag it onto the layout, and adjust its size and location to suit.

To call up the Scenery Chooser: click the last tool in the Scenery Toolbar --  -- or use the menu command **Tools > Scenery > View Scenery Chooser**.

Using the Chooser

To add scenery to your layout:

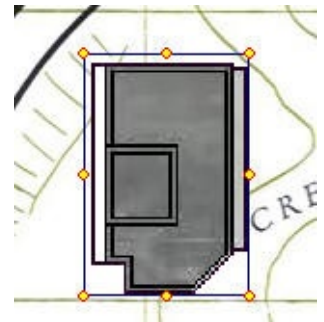
1. Select the layer you want to work in, using Edit Foreground  or Edit Background . Added objects will go in this layer.
2. Click the Scenery Chooser tool , or select **Tools > Scenery > View Scenery Chooser** from the menu. This brings up the Scenery Chooser:



3. Click a folder in the tree to see its contents in the middle pane.

4. Point to the object you want, press the mouse button, drag to a location on the layout, then release. The object appears on the layout, possibly somewhat resized.

5. Click the object to select it, so it shows "drag handles" on the sides and corners, as shown here:



To move the object, press and drag by the middle. To resize, drag one of the handles. To rotate, drag by the handle at the upper right. For more information, see [Editing Scenery](#).

6. Repeat steps 2-5 to add more objects. When you are finished, click **Done**.

To add a single scenery object:

The drag-and-drop method above works no matter how many objects you are adding, but if you only want to add one object, there is an alternative method:

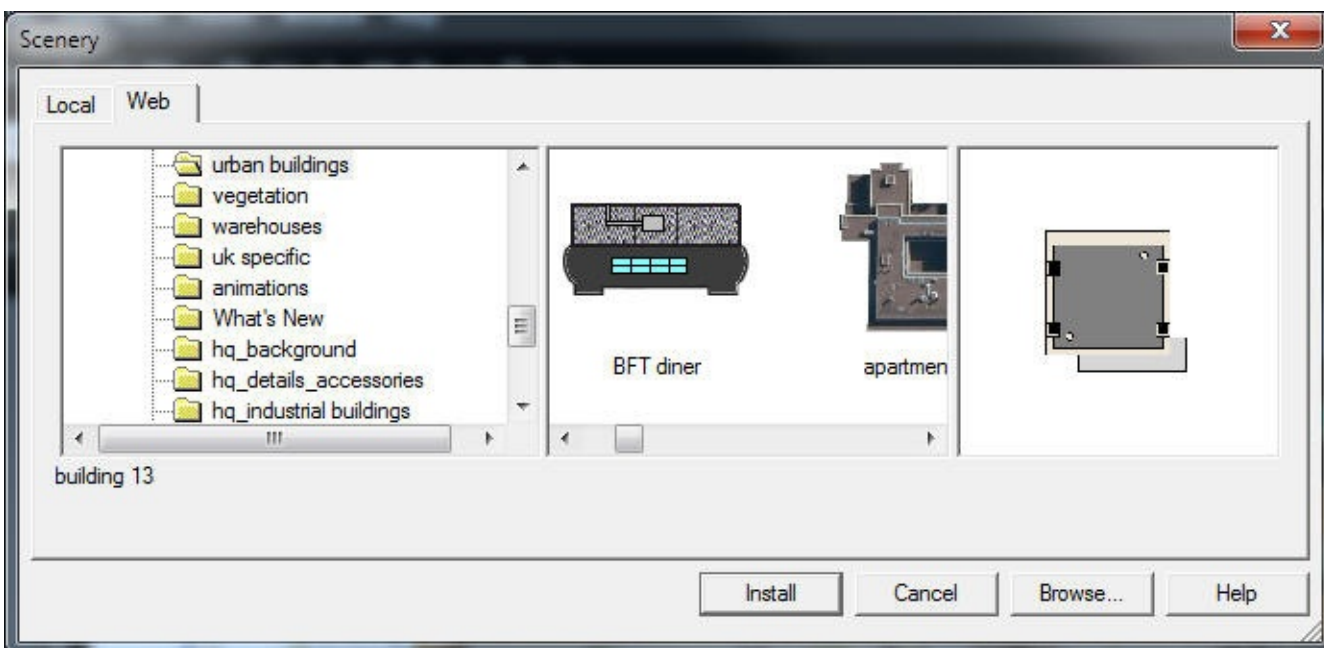
- Click to select an object in the middle pane, then click **OK**. The object is deposited in the middle of the layout window, and the dialog is taken down.

Note: once you have dragged an object from the dialog, the OK button changes to say "Done" and will not add an object when clicked.

What you are creating on the layout is a rectangular object with a bitmap fill. You could get the same result by creating a rectangle object and editing its properties.

Downloading Scenery from the Web

To see the scenery objects available on the TrainPlayer web site, click the **Web** tab. For details, see [Scenery Web Chooser](#).



Objects you see in these folders must be installed to your disk before you can add them to your layout. Here's how:

1. Click a folder in the tree to see its contents in the middle pane. This may take a minute -- the program has to download the folder into a temporary directory before it can display the images.
 2. When you find the object or set you want, click **Install**. This copies the downloaded files into your Scenery folder. It then switches back to the Local tab and selects the installed folder, so you are ready to add objects as described previously.
-

Drawing Scenery



If you are building a layout on a plywood sheet, you can use the Scenery Chooser to plop a few buildings and trees on it and you're set. But the more serious layout will require ground cover, water, roads, and other fanciness which can only be constructed by drawing. This section describes how to draw your own scenery objects.

Drawing New Scenery Objects





The general procedure for drawing a new scenery object is as follows:

1. Select a layer. Choose one:

-  **Edit Foreground Layer** to create smaller objects in the foreground.
-  **Edit Background Layer** to create larger shapes behind the foreground objects.

The layer you choose becomes the active layer, where new objects will go. When the foreground layer is active, background objects cannot be selected or modified; when the background layer is active, foreground objects are not displayed at all (but can be made visible using the [View Options](#) toolbar).

2. Select a drawing tool. Choose one:

-  **Rectangle** to create a rectangular or square object.
-  **Ellipse** to create a circle or ellipse.
-  **Line/Polygon** to create a line, a polyline (chain of line segments), or a polygon.
-  **Text** to create a plain text label.

3. Press and drag. Press the left mouse button where you want one end or corner of the object; drag and release where you want the opposite end or corner.

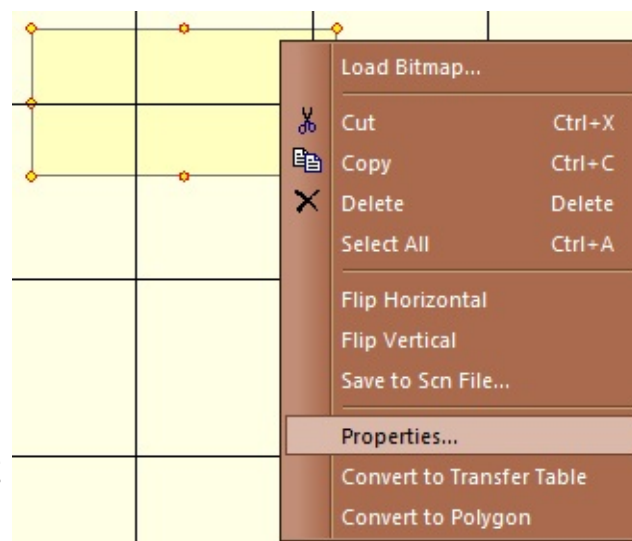
- If you are using the **Ellipse** tool, you will be dragging a circle. Press the Shift key as you drag if you want to move instead of resize the circle. To create an ellipse, you first draw a circle, then adjust as described below.
- If you are using the **Line/Polygon** tool, you are dragging a line. To create a polyline or polygon, the point where you press to start or release to end must coincide with the endpoint of another line -- wait until the cursor changes to a + before pressing.
- If you are using one of the other tools, you are dragging a rectangle.
- If you are using the **Rectangle** tool, press the Shift key while dragging to constrain the shape to a square.

4. Enter data if prompted.

- If you are using the **Text** tool, you are prompted to enter a line of text.

5. Adjust the object. Click somewhere in the interior of the object to select it, so it shows "drag handles" on the sides and corners as shown at right, then:

- Move: point to the interior of the object (cursor changes to four-headed arrow), press and drag to move the object.
- Resize: point to any drag handle except the upper right (cursor changes to a double-headed arrow), press and drag to move that side or corner. Hold down Shift as you drag to resize the object without changing its proportions.
- Rotate: point to the upper right handle (cursor changes to a circle), press and drag to rotate the object.




6. Set properties. To change the attributes of the object -- color, style, fill, text, etc. -- point to it, press the right mouse button, and select **Properties** from the context menu (as shown above). This brings up the Scenery Properties dialog, described in detail under Editing Scenery.

The style you see before editing properties is the [default style](#) for the line, fill, and text. If you want the object to come up with a different style, edit the defaults in the [Scenery Styles dialog](#).

Drawing Polygons

For most objects, a single press-and-drag operation creates the object. For polylines and polygons, a further steps are required, as follows:

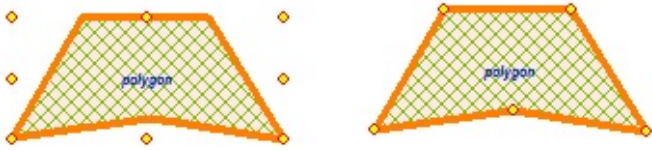
1. Choose the **Line/Polygon** tool .
2. Press and drag to create a line segment.
3. With the cursor still positioned at the end of the first segment (cursor changes to +), press and drag to create another segment. Since the two segments share an endpoint, they are automatically fused to create a single two-segment polyline object.
4. Repeat step 3 to extend the polyline.
5. Finally, for a closed polygon, draw a segment connecting the two free ends of the polyline, forming a closed figure. The resulting polygon is automatically filled with the default background color.

As a shortcut for step 5, you can right-press on any segment and choose **Close Polygon**. This automatically adds the closing segment.

It does not matter in which order or direction you draw each segment -- as long as one end or the other coincides with the endpoint of another segment, they will join.

Another shortcut for creating a polygon: create a rectangle with the Rectangle tool, then right-press and choose **Convert to Polygon**. This results in a four-sided polygon.

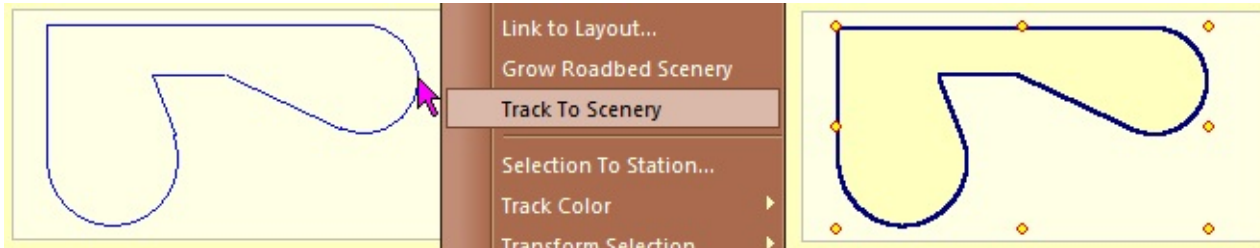
Two editing modes. When you select a polyline or polygon object, its drag handles are on the rectangular space around it. Dragging by these handles changes the overall size and shape of the figure. To adjust the position of a single vertex point, click a second time on the object and change from normal editing mode to **Point Editing Mode**; drag handles now appear on the vertex points, and can be used to move those points individually.



Click repeatedly to toggle between these two editing modes.

Drawing Polygons Using Track Tools (Track To Scenery)

An alternative method of creating a polyline or polygon allows you to create shapes containing straight line segments and circular arcs, using the track drawing tools. This feature is convenient for creating custom benchwork shapes. To create scenery using this method:



1. Using the Straight Track and other track tools, draw track in the desired shape.
2. Select all the track to be converted; use shift-click to add or subtract from the selection as needed. When the whole set is selected, right-click any selected section and choose **Track To Scenery**.

The program converts the selected track to one or more polyline scenery objects in default style. If the track forms a closed figure (as shown in the picture) then the resulting object will be a closed, filled polygon. Otherwise, it will be one or more line or polyline objects. If more than one polyline is created, all created objects are grouped together into a single object.

The new scenery is created in the currently-active layer. If you want it to be in a particular layer, choose that layer in the scenery toolbar before doing the conversion.

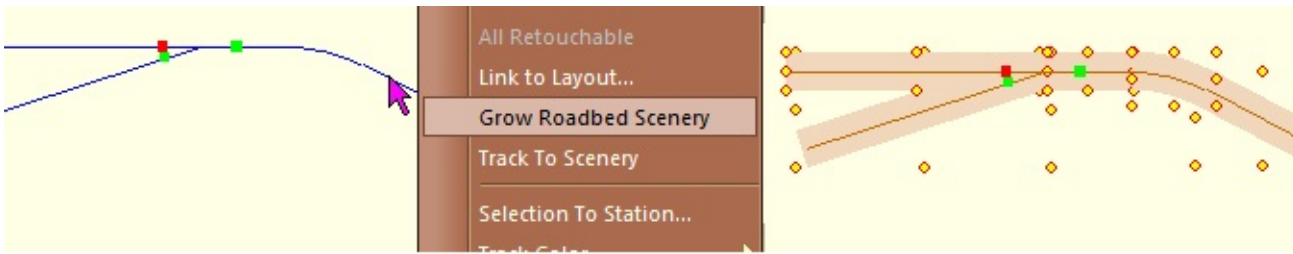
After the conversion, the Scenery Edit tool will become active, and the new scenery object(s) will be selected. You can then drag them around, group them, restyle, etc. The original track will be deleted *unless there are any cars or trains on it*, in which case it will remain intact.

The operation can be undone using **Edit > Undo**. If a grouped object was created, the undo has two steps: first undoes the grouping, second undoes the track->scenery conversion.

Creating Roadbed Scenery

Roadbed is normally displayed as a track drawing style, as described under [Road Styles](#). An

alternative is to create a set of scenery objects to fit underneath the track. To do this:



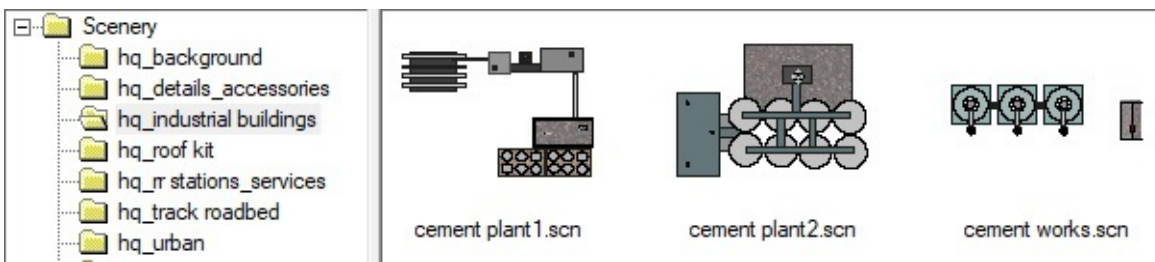
1. Select the track section(s) where you want roadbed.
2. Right-click a selected track section and choose **Grow Roadbed Scenery**.

The program generates polygon scenery objects under all selected track sections, overlapped to look like a continuous thick section of roadbed. Style and width are taken from the Roadbed choices under **File > Preferences > Road**. The generated objects are regular scenery, so you can change the style of one or many parts by selecting and editing as described elsewhere in this chapter.

If you create roadbed as scenery instead of drawing it as a track style, it is more flexible in that you can have more than one style on a layout, and it need not appear under all the tracks. The disadvantage is that if you have a lot of roadbed, the large number of scenery objects will be cumbersome and slow the program down.

Creating SCN Objects



A SCN object is a scenery object made up of other objects, as introduced in [About SCN Objects](#). These are the key to creating your own structures, trestles, athletic fields, or whatever custom objects you require. For plenty of examples, look in the Scenery Chooser for **.scn** extensions:



To create a SCN object:

1. Use the scenery tools to create your object, assembling and decorating the necessary shapes, polygons, text, etc.
2. Select the entire assembly and join it into a single grouped object.
3. Right-click the grouped object and choose **Save to Scn File**. This opens to the Scenery folder, the recommended location for saving.
4. Give the object a useful name and click OK to save it. Thereafter it will appear in your Scenery chooser.


Scenery Convenience Tools

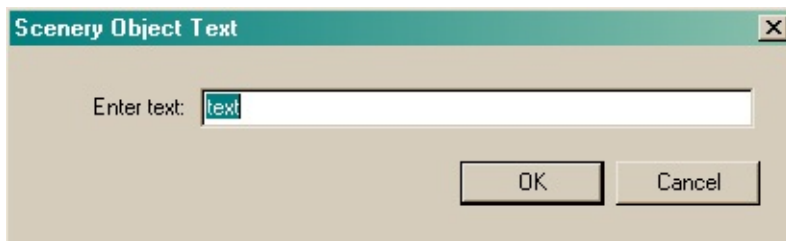
- The **Text** tool  creates a rectangle object with a text string, no fill and no border line. On dragging to create a new object, you are prompted to enter the text string. Note that the overall size of the object is the rectangle you define by drawing; it is not automatically adjusted to fit the text.
- The **Scenery Chooser**  allows you to drag in pre-defined objects. These are rectangle objects with image fill, marked as stretch-without-distortion. The object size is automatically adjusted to fit the image. See [Choosing Scenery](#).

Text Labelling

When you have completed placing scenery around your layout, you may want to go back and add place names, track directions or even building names to your layout. For individual objects, you can add a text label via the Text tab of **Scenery Properties**. For other situations, you may want a text box separate from any specific object. For example:



To create a label, select the Text tool . Press and drag a box in the area where you want to place your text. When you release the button, a prompt dialog appears:



Enter the text and click OK. The label appears on the layout.

Click on the text to select the object, so you can reposition, rotate, or adjust properties of the label. Note that the font size rescales as you zoom the layout, but not when you resize the text scenery box.

Madison WI

Scenery Properties [X]

General | Background | Line | **Text**

Show text

Text:

Font: Arial 9 Bold

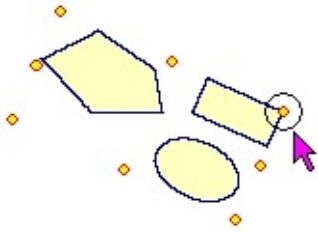
Color:

Rotate text with image

OK Cancel Apply




Editing Scenery



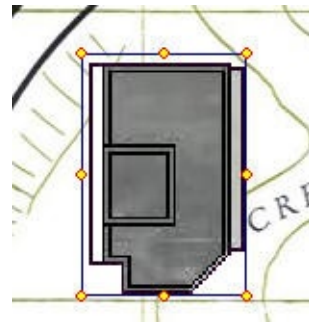
Drawing or choosing scenery is the equivalent of taking a pre-built structure out of the box. Editing is the rest of the job -- placing it where you want, making it the right size and shape, painting, labelling, and adding trim. This section describes how to edit scenery objects, whether drawn by hand or dragged in from the chooser.


About Editing Scenery

Most editing is done using Scenery Select tool, the green arrow  at the end of the toolbar. With this tool active, you can click on any type of scenery object to select or modify it. As a convenience, you can edit some objects when using other tools: when using the Rectangle tool, you can edit rectangle objects; the Ellipse tool can edit ellipses; and the Line/Polygon tool can edit linear or polygon objects.

Selecting Objects

Before you can work with a scenery object, you must select it. A selected object is drawn with "drag handles," as shown at right -- one on each corner, and one in the midpoint of each edge.



- **To select a single object:** click anywhere in the interior of the object. To unselect, click outside the object.
- **To select multiple objects:** (a) hold the Shift key down while clicking to select an object. This will add the object to the selection, or remove it if it is already selected; or (b) use the Scenery Select tool  and drag a rectangle around the objects you want to select. Press Shift to add the surrounded objects to the selection.

Standard Editing Operations

As with just about any selection in any Windows program:

- **To delete selected object(s):** choose **Edit Clear** from the main menu, or press **Del**.
- **To copy selected object(s) to the Clipboard:** choose **Edit Copy** from the main menu; or right-click a selected object and choose **Copy**; or press Ctrl-C. A copy of the selected object(s) is made on the Windows Clipboard. If you choose **Cut** (Ctrl-X) instead of Copy, the objects are copied and then deleted.
- **To paste objects from the Clipboard:** choose **Edit Paste**, or press Ctrl-V. Objects previously copied to the Clipboard are deposited at the upper left of the screen, selected and ready to move into position.
- **To undo an editing operation:** after any move, resize, rotation, property change, or other

modification of selected objects, choose **Edit Undo** or press Ctrl-Z to revert back to the state before the change.

- **To redo an undone operation:** after an Undo, choose **Edit Redo** or press Ctrl-Y to undo the undo and revert back to the changed state.

Moving and Resizing

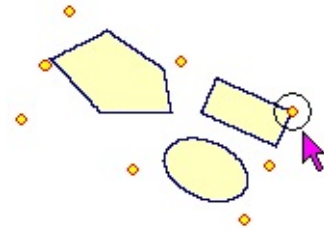
Once one or more objects is selected:

- **To move the selected object(s):** press the interior of any selected object (the cursor changes to a four-headed arrow) and drag. All selected objects will move simultaneously.
- **To resize a single object:** press a drag handle on any side or corner (cursor changes to a two-headed arrow) and drag. The side or corner will move relative to the rest of the object. Note: this does not work if you are pointing to the upper right corner -- that one does rotation, described below. Note that the orientation of the two-headed cursor may not be correct if the object has been rotated.
- **To resize multiple objects:** if you want to change the size or shape of several objects at once, you must first group them, as described below.

Rotating

If an object is selected:

- **To rotate the selected object:** point to the upper right corner of the object (cursor changes to a circle) and drag. The object will rotate around its center. (Once the object has been rotated, these instructions may not be strictly correct, because the draggable corner may no longer be in the upper right.)
- **To rotate several objects:** the way to rotate more than one object at a time is to group them, as described below. A grouped object can be rotated the same way as any other single object. The picture above shows rotating a grouped object.

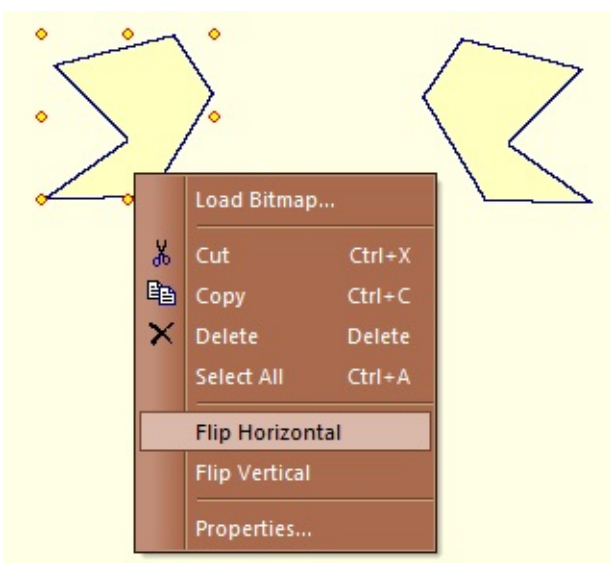


An alternative way of rotating an object is to type an angle into the properties dialog; see [Editing Properties](#) below.

Flipping

If you find a right-handed widget in the scenery catalog, but you need a left-handed one, you can flip it.



1. Use the Scenery Edit tool.
2. Right-click an object and choose **Flip Horizontal** or **Flip Vertical**.



The object is inverted across the appropriate axis. If multiple objects are selected, each flips on its own individual axis, but if they are grouped, the flip is on the group's axis. Flipping an object with a non-zero angle of rotation will change its rotation angle. The operation is reversible with **Edit > Undo/Redo**. If the object has a bitmap image, the image is flipped in memory, without modifying the image file.

Grouping and Ungrouping



Some operations, such as moving or setting properties, work on several selected objects at once. Other operations, such as resizing or rotating, work only on a single object. Grouping is a way of turning several objects into a single one, so the latter type of operation can be performed on the group.

- **To group two or more objects:** select at least two objects by shift-clicking or using the Scenery Edit tool, then click **Group** . The selected objects become a single grouped object, with a single set of drag handles, which can be manipulated the same way as any other single object. Note that the Group tool is dimmed unless you have at least two objects selected.
- **To ungroup a grouped object:** select at least one grouped object, then click **Ungroup** . The grouped object reverts to a set of individual objects.



Grouping can go more than one level deep, that is, a grouped object may contain other grouped objects. In this case you have to ungroup more than once to go all the way back to the initial separate objects.

Changing Display Order

If multiple objects overlap on the layout, two factors determine which one appears in front: (a) all objects in the background layer are behind all objects in the foreground, and (b) within a layer, objects are drawn based on their semi-arbitrary positions in a list. This order may be changed using special editing commands:

- **To move an obscured object in front of its neighbors:** select the object and choose **Bring to Front** . This changes the order of objects so the selected one comes all the way to the front. Use **Bring Forward**  to bring the selected object(s) one step closer to

the front.



- **To move a front object behind its neighbors:** select the object and choose **Send to Back** . This moves the selected object all the way to the back. Use **Send Backward**  to go one step backward.

You can use these commands on multiple selected objects, in which case all of them will be moved up or down relative to the unselected neighbors.

These features come in handy when you're adding details like sidewalks, vegetation etc. The images below show a concrete driveway being added to the scene. In the left image, the driveway is on top. sending it to the back gives the image on the right.



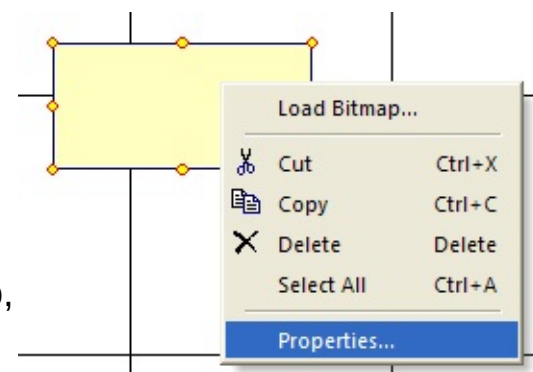
Another way of changing the display order of objects is to move them from one layer to another. For example, moving an object from the foreground to the background will cause it to be drawn behind all foreground objects.

- **To move an object from one layer to another:** select the object and cut it to the clipboard, using **Edit Cut** or Ctrl-X; activate the alternate layer, using the Background Layer  or Foreground Layer  tools; then paste, using **Edit Paste** or Ctrl-V.
- An alternate way of changing the layer of a scenery object is to use the **Foreground** checkbox in [General Scenery Properties](#).

Editing Scenery Properties

In case you don't want all your scenery objects to be plain yellow, you will need to learn about the Scenery Properties dialog. This is a dialog with four tabs, used to modify the properties of one or more objects. Each tab has its own help page, linked from the Help button on each tab. For general info, see [Scenery Properties](#); for detailed instructions on each tab, see:

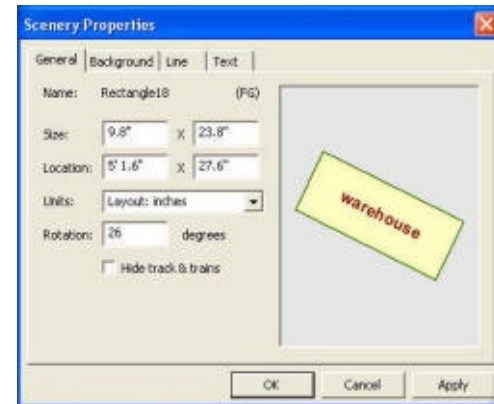
- [General Scenery Properties](#)
- [Background Scenery Properties](#)



- [Line Scenery Properties](#)
- [Text Scenery Properties](#)

The easy way to bring up the appropriate page is to click the **Help** button on the dialog.

The Scenery Properties dialog has a preview pane, showing a picture of the selected object(s) with changes as they are being applied. The changes do not affect the objects on the layout until you click **OK** or **Apply**.



To change the properties of one or more objects:

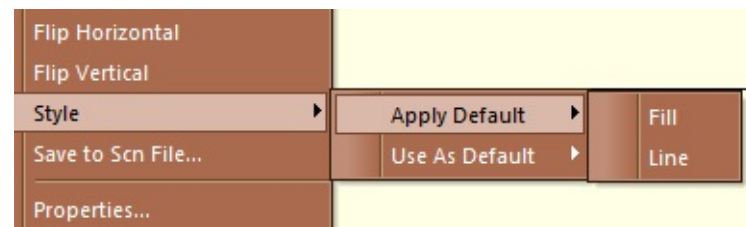
1. Select the object(s).
2. Right-click a selected object and choose **Properties** (as shown above). This brings up the Scenery Properties dialog.
3. Change values in the dialog as desired. Refer to the above help pages for details. A sample drawing of the object(s) shows how the changes will look.
4. Click **Apply** to apply the changes to the selected object(s) without taking down the dialog, or **OK** to apply the changes and dismiss the dialog, or **Cancel** to dismiss the dialog without applying the changes.

Any changes made in the Scenery Properties dialog can be undone using **Edit Undo**.

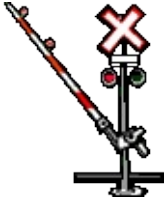
Setting Scenery Styles

There are several ways to apply styles to scenery objects:

- Using the Scenery Properties dialog as described above. This is the most complete method, giving access to all the details of all types of style.
- Using the [Painter tool](#). This is a quick way to apply a style to several objects or components of a grouped object. With this tool active, clicking on a fillable object sets its fill style to the default; clicking on a line object sets its line style.
- Using commands on the [Scenery Context Menu](#). These commands apply default fill or line styles, or allow you to redefine the defaults from the selected object.



Animated Scenery



Animated images in TrainPlayer are little movies you can place around your layout. These can be made to play continuously, or on demand, or automatically whenever a train passes a given spot. You can choose from a supplied collection of animations (small but growing), or find many more by searching the web, or create them in your favorite paint program. They can be connected with sounds, so that, say, a crossing signal will both move and clang as the train passes by.

To see animations in action, check out this video: [animation demo](#)

About Animated Images

An animated image is a new type of scenery object. It can be moved, resized, rotated, and styled just like any other, but it has a special type of background consisting of a series of frames, each with its own image and duration. These are in one of two formats:

Animated gif: the well-known animation files you see all over the web. These can be loaded directly into scenery objects in TrainPlayer.

Image sequence / ANM file: a series of separate files for each image, plus a text file with extension ".anm," listing the frames and durations. The image files may be in any popular graphics format -- bmp, png, jpg, gif -- and the simple text file can be created by the program or by hand. This scheme was designed to make it easy for users to create their own animations.

Because animated images are tied to scenery, creating and manipulating them requires TrackLayer with Scenery Toolkit. Viewing and playing them in an existing layout can be done in TrainPlayer [except: in the current version, you cannot start or stop animation if you don't have access to the scenery toolbar.]

Triggers: events which cause animations to start and stop. We have in mind a variety of these, but for the time being there are only two:

Station trigger: animation starts when the lead car of a train (any train) enters a given station, and stops when the last car leaves. This is the same scheme which controls sounds attached to stations, so if you want a sound to play at the same time the animation moves, use a station trigger on the animation, and specify a sound on the same station.

Junction trigger: animation starts when the lead car of a train crosses a given junction, and ends when the last car crosses it.

Triggers are specified using the Scenery Properties Animation tab, as described [below](#).

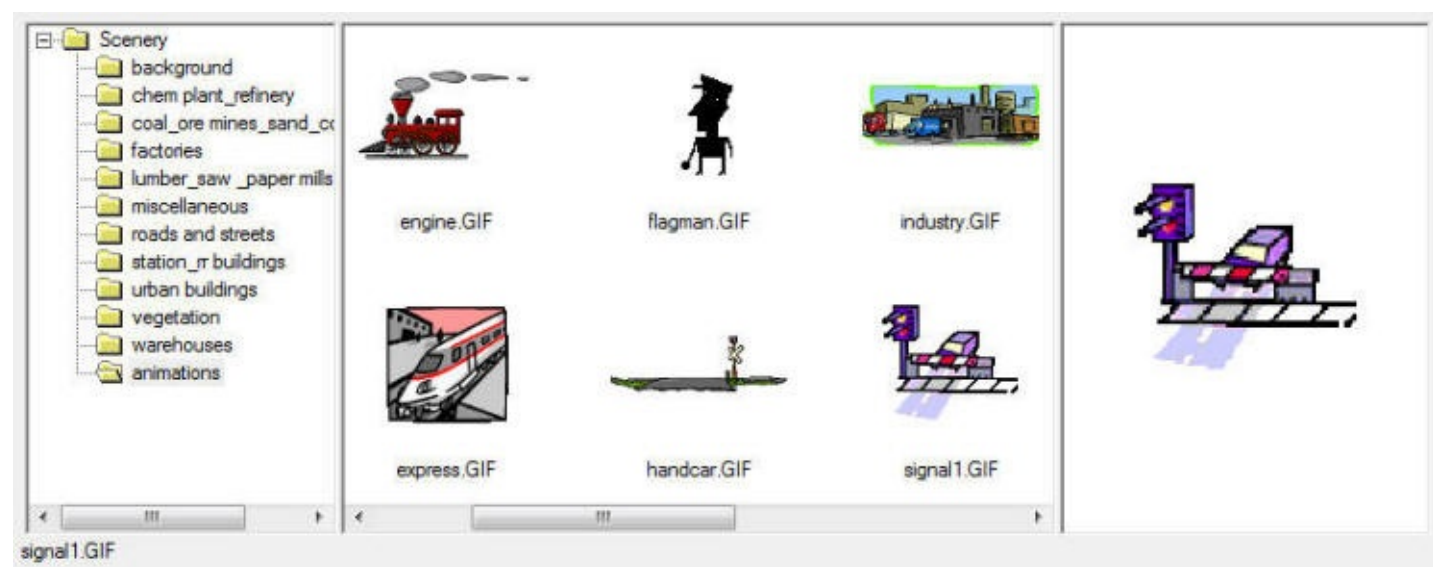
Adding Animation to Your Layout

There are two ways to add animated images to your layout: from the Scenery Chooser, or via Load Bitmap. The first is easier, the second more flexible.

Using the Scenery Chooser

The initial release of this feature comes with a small set of sample animations in both gif and anm formats. More will become available over time in the web scenery collections. To add one of these to your layout:

1. Bring up the Scenery Chooser using **Tools > Scenery > View Scenery Chooser** or the button on the scenery toolbar.



2. Click to open the new **animations** folder. (If you don't see it, try right-clicking the Scenery folder and choosing Refresh.)
3. Press an image and drag onto the layout. That's it -- it starts playing immediately. (To stop, use the Scenery Edit tool, right-click and choose **Stop Animation**.)

Confession: most of the animations in our sample set came from the Microsoft Office Online clip-art collection. There do not appear to be restrictions on distributing these, unless we missed some fine print.

Using Load Bitmap

The alternative to loading an image from the chooser is to create the scenery object first and then attach the image. The procedure is the same as when adding a non-animated image, as follows:

1. Select the Rectangle tool on the scenery toolbar, and drag to create a rectangle where you want the animated image. By default this gets a beige background.
2. Select the Scenery Edit tool (green arrow), right-click the new rectangle and choose **Load Bitmap**. You get a standard file dialog.

This is the same dialog you use for static background images. It is still used for that, but now supports three more types of input:

- a. **Browse to an anm file** -- the program will create an animated image.
- b. **Browse to a gif file** -- the program will examine it and decide whether to create an animated or static image.
- c. **Browse to the first of a series of images** -- the program will create an animation and anm file automatically. This process is described in detail [below](#).

Once you successfully load an animated image, you get an alert confirming the import and reporting the number of frames.

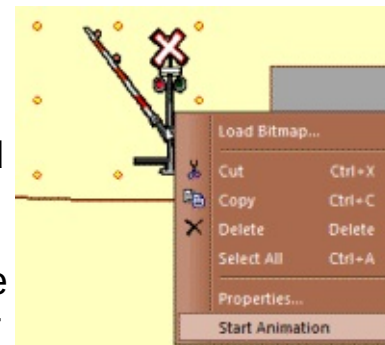
An animated image created using Load Bitmap does not automatically start playing upon creation. To start it, use the Scenery Edit tool, right-click the image and choose **Start Animation**.

Working with Animated Images

Animated images work basically like other scenery objects.

To manipulate: Use the Scenery Edit tool (green arrow on the scenery toolbar), click to select an image, then you can move, resize, rotate, and restyle it as usual. It keeps animating as you move it around.

By default, an animated image has its proportions locked, so resizing the image will not distort it. To rotate an image, drag the handle at its upper right.



To stop or start animation: select the Scenery Edit tool, right-click the image and choose **Stop Animation** or **Start Animation**, as shown ==>

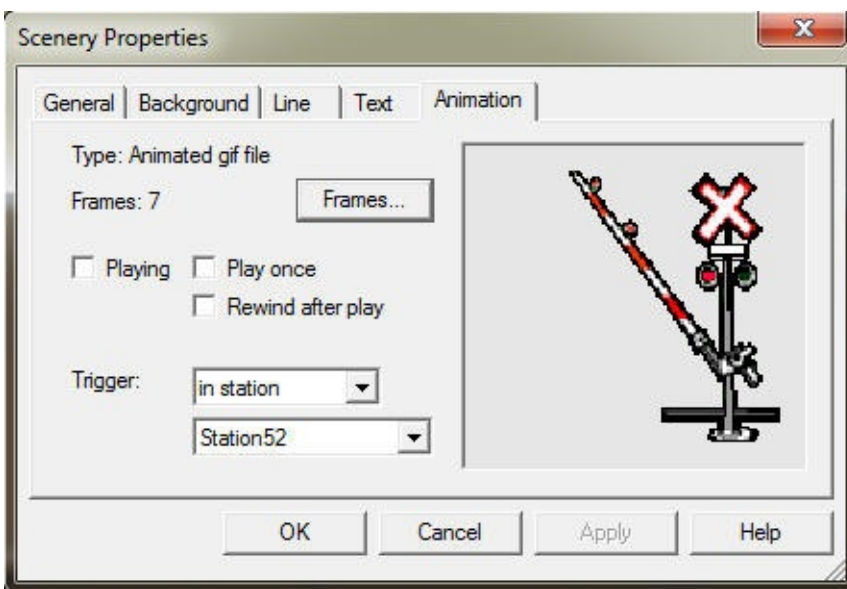
Once you start an object moving, it keeps going until you stop it, or until a trigger event causes it to stop. If you save the layout while the object is animating, it will come back that way the next time you open the layout.

To set object properties: select, right-click and choose Properties. Most properties of standard scenery objects apply to animated ones.

To trigger animation on train moves: see the following section.

Animated Image Properties

To view or adjust properties of an animated image, right-click on it (using the Scenery Edit tool) and choose **Properties**. The Scenery Properties dialog appears, showing the new Animation tab.



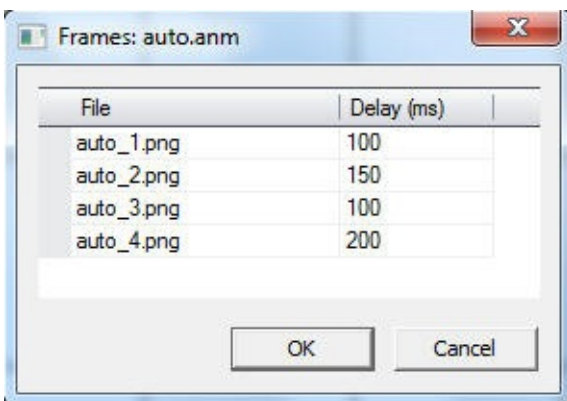
This dialog is modeless -- it remains up while you work on the layout. You can select different objects on the layout and adjust their properties one at a time, or shift-click to select multiple objects and set all their common properties at once.

Controls on the Animation tab:

Type: *Animated gif file vs Image series/anm file.* This is read-only -- you can't change the type in this dialog.

Frames: number of frames in the animation. Read-only.

Frames button: click to bring up the Frames dialog, showing filenames and durations in a little grid:



If the animation type is anm, then you can edit the values in this grid; for animated gifs, the data is uneditable [in fact, for the time being, the Frames button does nothing at all if you are dealing with gif rather than anm].

Times are in milliseconds. Filenames can be changed -- they need not be numbered sequentially once they have been listed in an anm file -- but they must exist and all be in the same folder as the anm file.

This dialog appears automatically whenever you import a sequence of image files.

Playing: check or uncheck to start or stop animation. The setting does not take effect until the dialog comes down.

Play once: check if you want the animation sequence to play once and then stop, instead of repeating continuously. This applies whether you start the animation manually from the context menu or automatically based on a trigger.

Rewind after play: check if you want the image to revert to its first frame after every play. If you do not check this box, then stopping the animation will freeze it, and starting it later will pick up where it left off. [Note: due to a bug in the current version, you may need a View Refresh to update the image so it will go back to its first frame.]

Trigger type drop-down: choose a trigger action, or None. At the moment there are two actions available: when a train passes through a station, or when it crosses a junction.

Trigger id drop-down: choose the station name or junction id where animation is to start and stop. The drop-down shows either station names or junction numbers, depending on the trigger type choice.

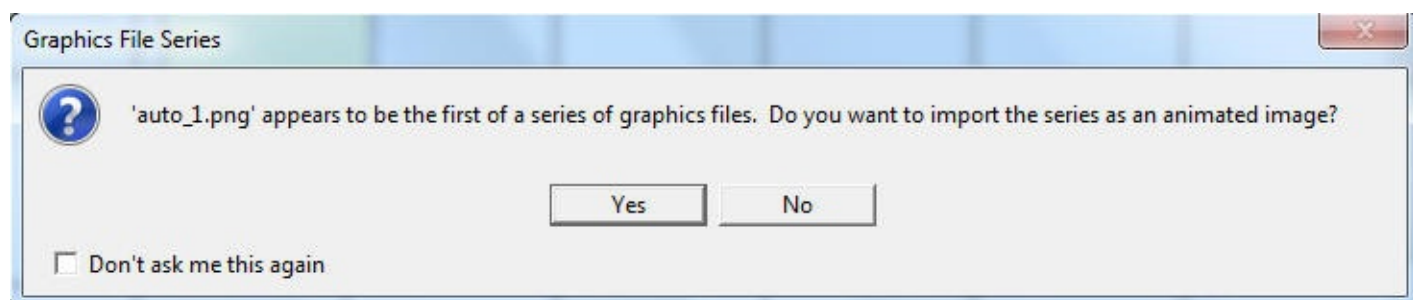
Preview window: shows a thumbnail of the selected image. For the moment, the preview is static and does not move, but this may change in a future version.

Normally in the Background tab of Scenery Properties, you can choose a different image for a scenery object. However, what you cannot do is change the background from static to animated, or vice-versa. If you try this, an alert tells you it is not allowed.

Creating Your Own Animations

If you want to create your own animations, one method is to obtain a program capable of making animated gifs. Many such programs are available -- Adobe ImageReady, CyD GIF Studio, Microsoft GIF Animator, several shareware titles -- but TrainPlayer offers an easier way: create a series of images, give them suitable filenames, and import them with one click into a single object.

A series of images is a set of files in the same folder with names ending in underscore, then sequential numbers starting with 1; e.g., *flagman_1.png*, *flagman_2.png*, *flagman_3.png*. Using **Load Bitmap**, if you browse to a file whose name ends with "_1," and there are other files with the same name but different numbers, the program will prompt and ask if you wish to create an animated image from the series, like this:

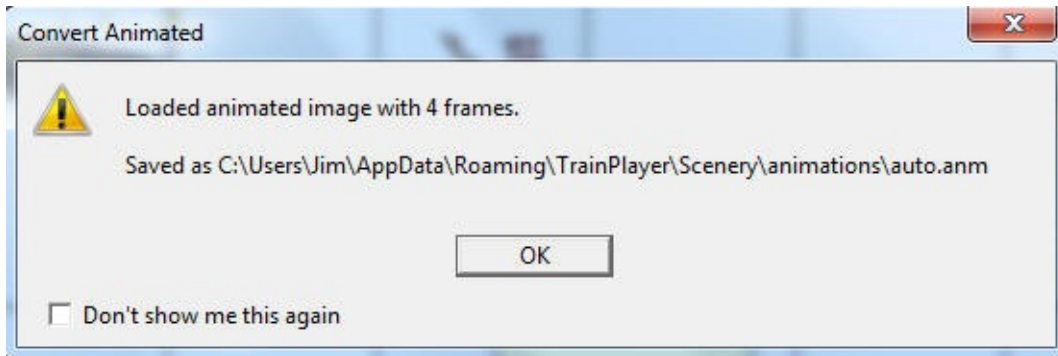


Click **Yes**, and the program will create a file with the name of the series and extension.anm

(e.g., *flagman.anm*), then load it into the scenery object.

When you create an animated image from a series of files, the Frames dialog (shown [above](#)) comes up so you can set the frame timings. By default, all are set to 100 ms.

After a successful load, an alert informs you of the number of frames, and the output anm filename if applicable:



If you create an anm file from a series of images, and want it to appear in your Scenery Chooser, copy the anm file and all the component image files to your Scenery\animation folder. Note that the chooser will display only the anm file, not any of its components.

If you create an animation sequence and want to send it to us or to a friend, zip the entire set of images, along with the anm file, and send the zip.

If you have an animated gif, and you want to modify it, you will need to split it into separate frame files. TrainPlayer has the ability to do this; in fact, it does this job whenever you read in an animated gif -- the gif is split into frames, which are saved in your Windows Temp directory. You can capture these and use them to make your own animation sequence. For details, send e-mail and request information.



Modular Railroading

If you've been to a train show and seen a miniature hundred-car coal train winding along what appeared to be miles of track, then no doubt you've seen modular railroading in action. It's a way of creating a huge layout in a short time, often for a temporary display. You get a bunch of railroaders to each bring a section, then you arrange them on the show floor and hook them together with sections of track, so trains can run from one end to the other, or around a giant loop.

Modular Railroading in TrainPlayer provides tools for building virtual modules, arranging them in patterns, and automatically hooking them together so you can test drive the overall layout. The arranging is done by drag and drop, and the hookup is a one-click operation, so it's easy to experiment with different patterns. TrainPlayer provides a large library of pre-built modules, including all types of corner, junction, yard modules, scenic run-throughs, and lots of interesting plans you can use as the basis for your own designs.

The majority of modular railroading is done in N scale, according to standards from the [NTRAK Modular Railroading Society](#), but there are also a growing number of HO module clubs using similar standards. TrainPlayer supports modules in any scale, and provides pre-designed units for both N and HO.

For a quick start, skip the reading matter and try the [tutorial](#).

[About Modules](#)

[About Modular Layouts](#)

[Modular Layout Tutorial](#)

[Building a Modular Layout](#)

[Building a Module](#)

[The Module Manager](#)

[Module Manager Settings](#)

About Modules

In principle, any layout can be used as a module, in the sense that it can be brought into the Module Manager and strung together with others. However, this only makes sense if the a layout is constructed in such a way that it can hook to a neighbor for continuous running. We use the term **module** to refer to a layout constructed in this way. In the Layout Chooser, all layouts under the Modules folder are in this category.

Module Standards

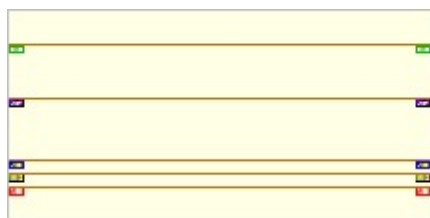
Every module must have sections of straight track ending at certain positions near the layout edges. These positions are called **connection points**.

The numbers and positions of connection points on a module depend on a scale-specific body of standards, of which there are several. The most popular modules are N scale, based on standards published by the [NTrak Modular Railroading Society](#). HO scale standards are less universal; ours are based on HOTrak as published by the Ottawa Valley club. In TrackLayer, you can build modules in any scale, based on standards of your own invention, but all the layouts in the collections are either NTrak or HO.

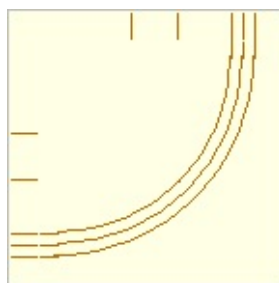
A module is designed to be oriented a certain way. The **front** is the edge closest to the viewer; in the diagrams below this is at the bottom. The track closest to the front is the **main line**, which generally runs uninterrupted around the entire layout. For full details about the the ordering, positioning, and labelling of tracks, see [Building a Module](#).

Sizes of modules vary but are not random. The typical NTrak straight module is 2 feet deep and 4, 6, or 8 feet wide. The depth may vary -- an extension may be added to front or back -- but if the widths were to vary, it would become impossible to arrange a series of modules into a seamless loop. And if the width were much bigger than 8 feet, you'd never get the thing in the truck.

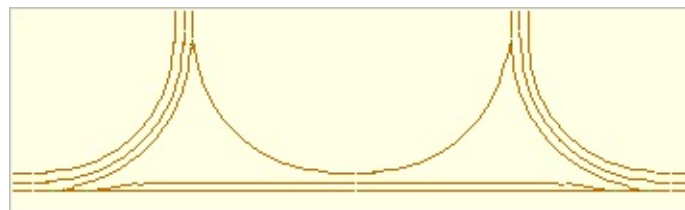
Module Types



Straight



Corner



Junction

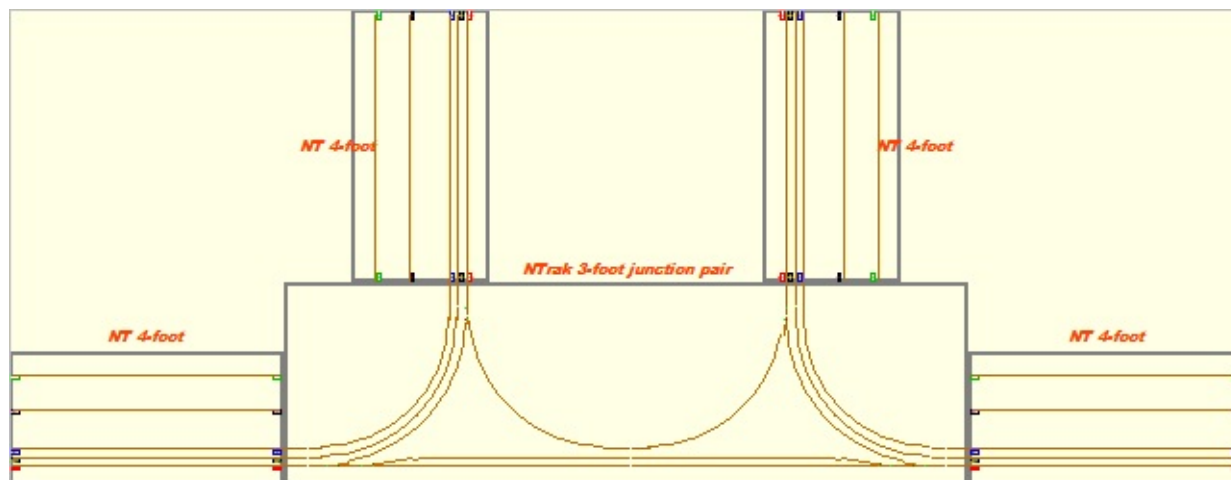
A **straight module** has connection points on opposite edges of a rectangle. You can join another module on either side. The main line is in front, and generally goes straight across.

A **corner module** has connection points on adjacent sides of a square, with curved track between. When you join two modules onto a corner, they form a 90-degree angle. Only the outer tracks proceed through a corner module.

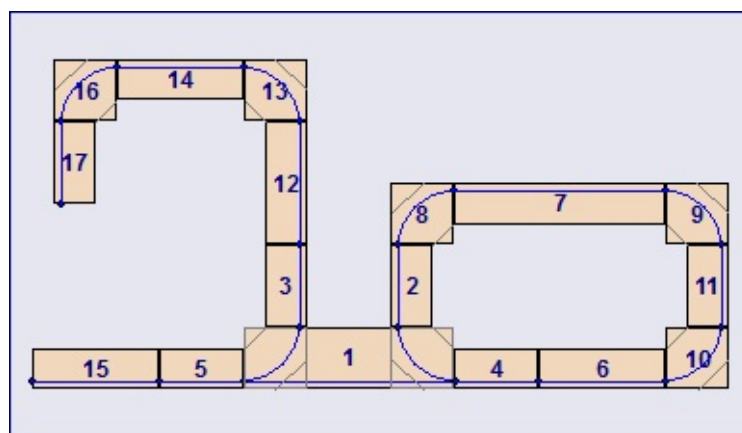
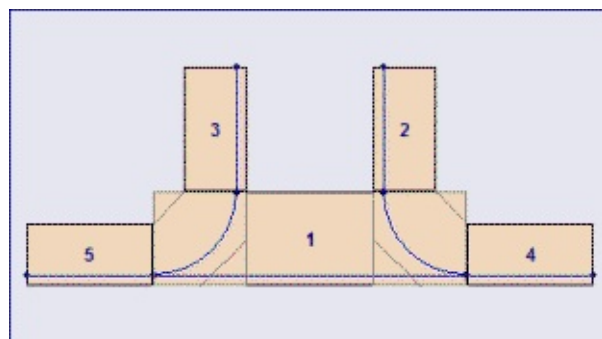
An **inside corner module** is an inverted corner which introduces a turn in the opposite direction. Inside

corner modules are not common.

A **junction module** has four sets of connection points on three sides of a rectangle, in a back-to-back corner arrangement. You can join up to four other modules to a junction -- one on each side, two at the top (i.e., with reference to the above diagram). Switches in the track provide a choice of travel directions for a train going through a junction -- it can go straight across on the main line, or make a 90-degree turn into a **branch**, another chain of modules. This picture shows a junction module with all its connection points hooked up:



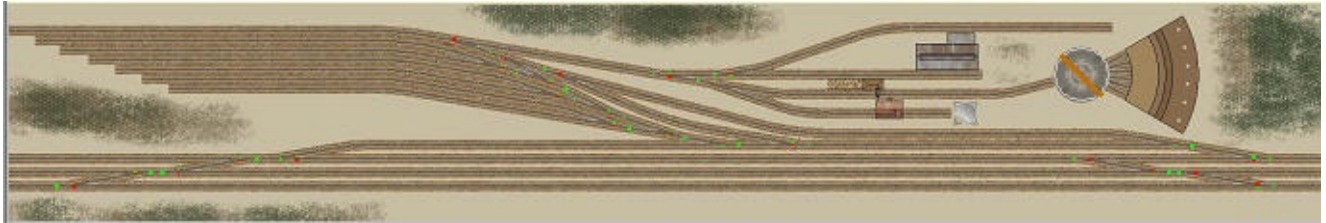
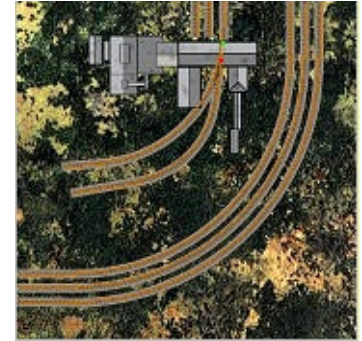
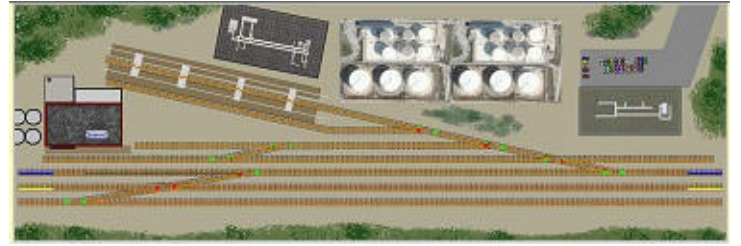
Junction modules allow a variety of show-floor arrangements. Without them, you can set up only chains and loops. Using junctions, you can create spidery patterns with multiple loops and chains, all connected.



Scenic Modules

Each module is a TrainPlayer layout, so it can be decorated in the usual ways: by adding a bitmap background, or by adding scenery with the Scenery Toolkit. When a module is fused into a layout, any scenery objects it has are carried along with it. If it has a bitmap background, on fusing this is converted to a rectangular scenery object the same size as the module.

Here are some examples of scenic modules our layout artists have designed. You can find these and many more in the web layout collections.



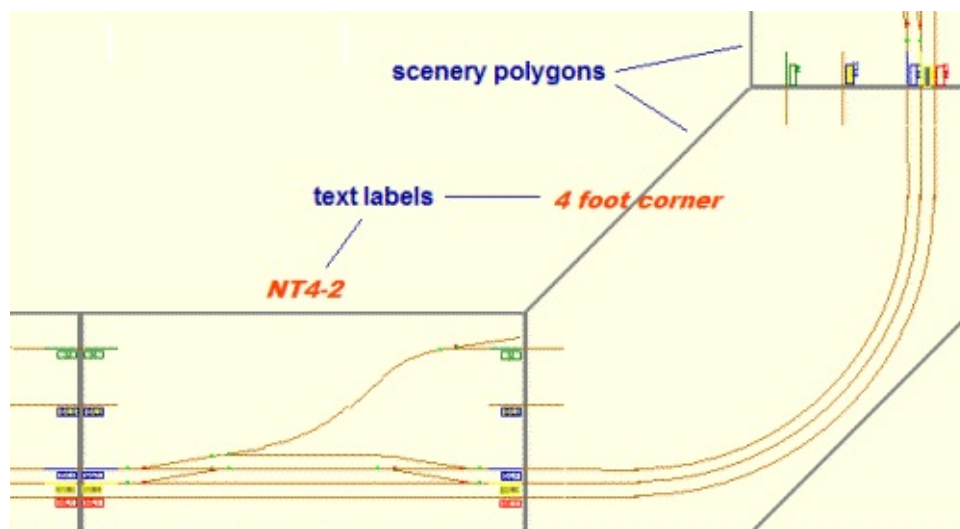
About Modular Layouts

Modular Layout is the term for a layout built from a series of modules -- fully assembled, electrically connected, and ready to run. In TrainPlayer, a modular layout is any layout built using the Module Manager.

Modular Layout Features

In most ways, a modular layout is like any other TrainPlayer layout. It consists of a single set of track, scenery objects, stations, and so on. However, it also has some special features:

- **A set of modules.** The information supplied in the Module Manager is attached to a modular layout and is saved with it. This includes filenames of the modules and their positional arrangement. One way you can tell if you are working with a modular layout is to bring up the Module Manager -- if the layout has module data, you will see it.
- **Special scenery objects.** The default display of a modular layout has (a) heavy grey lines outlining each module, (b) large orange text labels showing module names, and (c) rectangular objects with background images or colors for modules which have them. All of these are scenery objects created during the assembly process. They reside in the background scenery layer, and can be edited when that layer is active. You can change the styles and colors of these objects -- or get rid of them -- using the Module Manager Settings dialog.
- **No background image.** A modular layout does not have a single bitmap background image. Instead, if there is a background image behind any module, it becomes a scenery object in the modular layout.



Modular Layout Files

A modular layout is stored in an rrw file, like any other layout, but with an additional section containing module information. This section contains sequence and position information about the modules. It does not contain the modules themselves, but filenames pointing to them.

When you open a modular layout file, it displays the full layout. If you bring up Module Manager, it displays the assembly, based on information stored in the rrw file. If you then click OK, each module is

reloaded from its stored pathname, and a new modular layout is created from them. This is a one-way operation -- modules are read-only, not dynamically linked. So:

- If you make changes to a module, the changes are not reflected in the modular layout. Changes will be seen only if the layout is rebuilt from its assembly.
- If you make changes to a modular layout, they are not reflected in the associated modules. There is no way to transfer changes made in the overall layout back into the source modules, except by copying and pasting between layouts.
- If you move or rename the modular layout or any of its module files, the layout might lose them and be unable to rebuild.
- If you want to send the layout to a friend, you should supply the module files along with the main layout rrw.

In short, modules are external files, like homemade scenery objects or linked layouts. Techniques for dealing with external files are given in the [Publishing](#) chapter.

Tutorial: A Loop of Modules

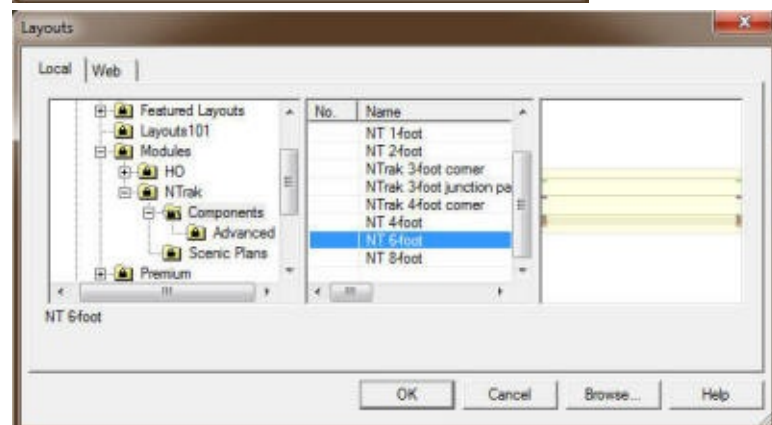
This exercise demonstrates most of the features of the modular railroading system. In it, we will build a large loop layout from a set of basic component modules. The result will not lead to very interesting operation, but you can run trains around it.

1. Start with a blank layout or no layout. If you start with an existing layout, a new blank one will be created automatically.

2. Choose **Module Manager** from the **File** menu. This brings up the Module Manager with a blank workspace.



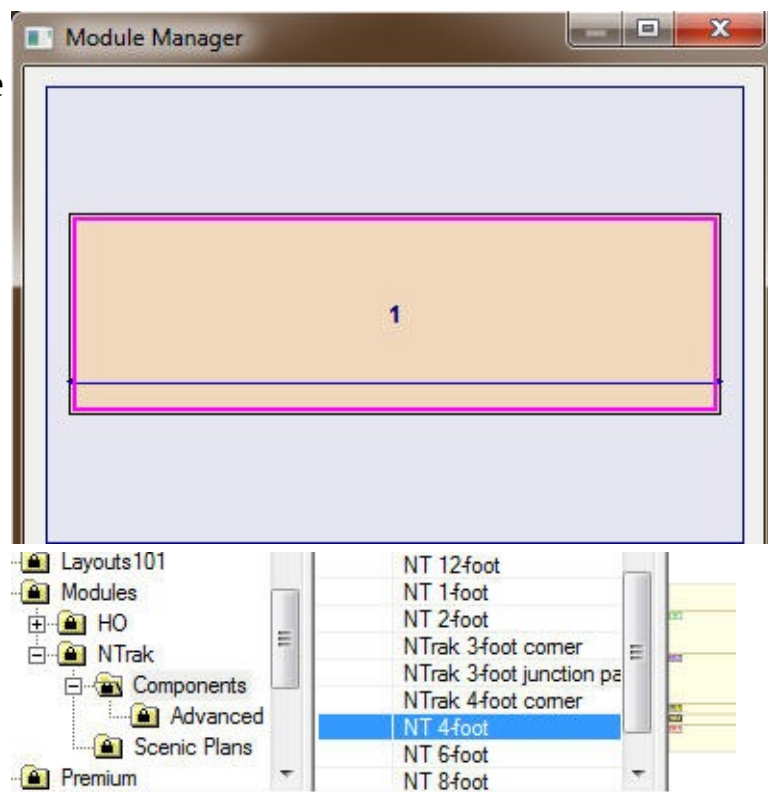
3. Click **Add...** This brings up the Layout Chooser. By default, it opens to the *NTrak Components* folder.



4. Position the two windows side by side so you can work with both together.

5. Click in the Layout Chooser to select **NT 6-foot**, a plain N-scale module template six feet long.

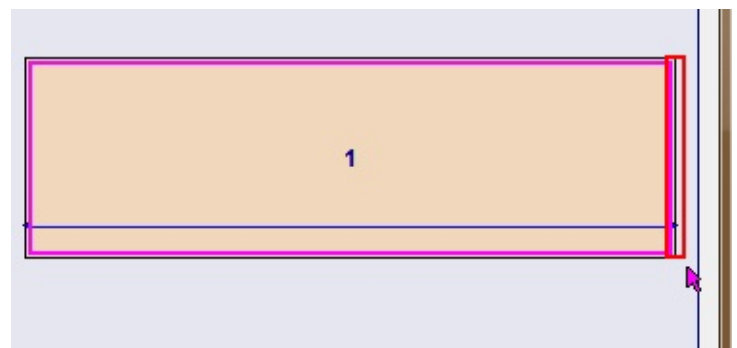
6. Press the selected row and drag it into the Module Manager workspace. It appears as a framed rectangle filling most of the workspace, with a label showing it as module #1 in the assembly.



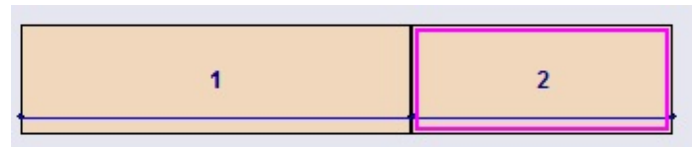
7. In the Layout Chooser, click to select *NT 4-foot*.

8. Press and drag the selected row into the Module Manager. Keep the mouse button down for the next step.

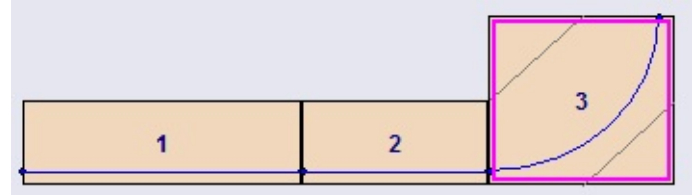
9. Position to the right-hand edge of the 6-foot module, until you see a narrow highlight box.



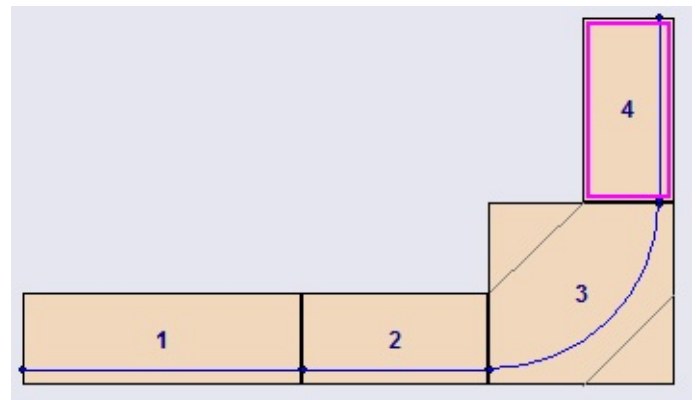
10. Release the mouse button. You now have two modules joined end to end.



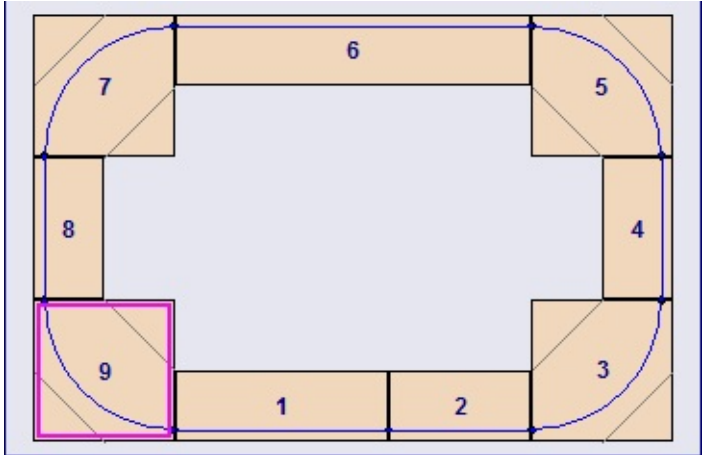
11. Drag in the *NTrak 4-foot corner* and drop it at the right-hand edge of the assembly.



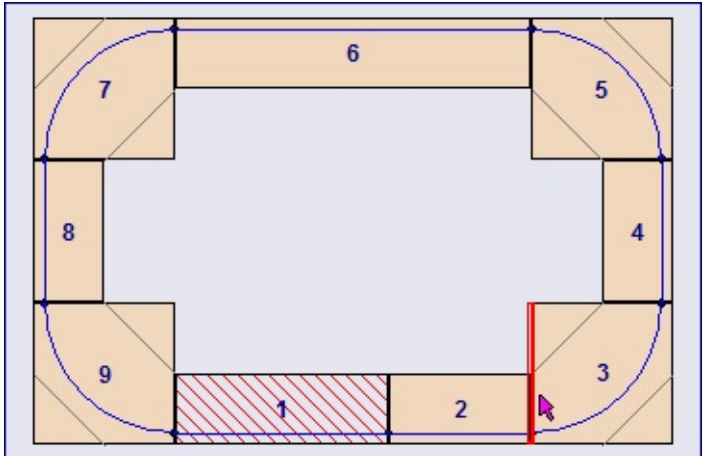
12. Drag in another *NT 4-foot* and drop it on the top edge of the corner module. In this case the right-hand edge does not highlight; instead, the highlight is at the top, as you might expect.



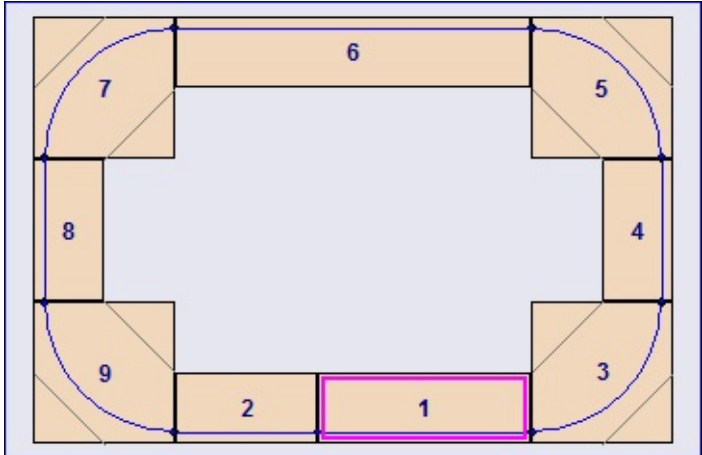
13. Continue in this fashion, adding in order: **4-foot corner**, **NT 10-foot**, **4-foot corner**, **NT 4-foot**, and **4-foot corner**. The result is a closed loop.



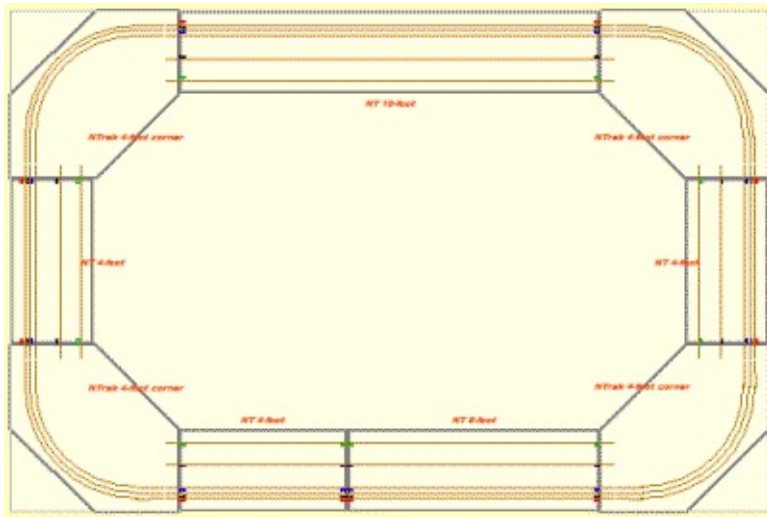
14. For educational purposes, try a rearrangement. Press on the middle of module #1 and begin to drag. It becomes hatched.



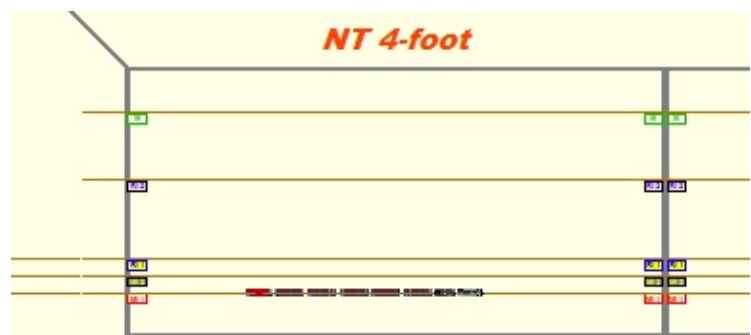
15. Drag to the edge between #2 and the corner (#3) and let go. The result is a swapping of the two straight modules.



16. Now you're ready to turn the assembly into a layout. Click **OK**. The Module Manager is dismissed, and the assembled modular layout displayed.

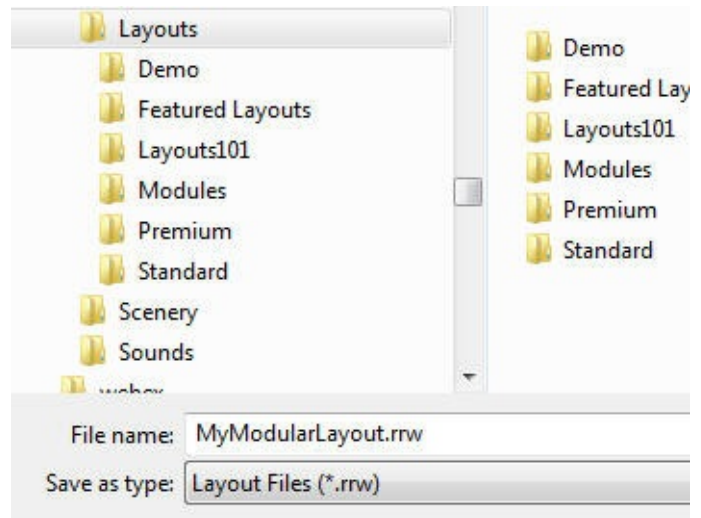


17. Add a train and run it around, to convince yourself that the track is continuous.



18. Save the modular layout using **File > Save As**. Do not save it into the Modules folder -- it is a full layout, not a module. Save it where you keep other user-built layouts.

For this tutorial just give it a name, and it will go directly under Layouts.



19. Close the layout. Reopen it from either the Layout Chooser or the File menu (at the top of the recently-used list). Choose **File > Module Manager** to convince yourself that you can get back the modules and continue to work with the assembly.

Building a Modular Layout

This section describes the basic steps for building a layout from modules, and gives information about how the process works.

How to Create a Modular Layout

Creating a modular layout involves three basic steps:

1. **Prepare modules.** If you are a member of a club, and you have your own module, spend a pleasant evening working up a TrainPlayer version of it to add to your collection of modules. If not, you can skip this step and choose modules from our large and growing collections of templates and samples.
2. **Assemble.** Bring up the Module Manager, introduce modules one at a time, and arrange them in chains, loops, or more complex patterns. It's fun and easy. Arrangement is done by drag and drop, and the program takes care of aligning and snapping the modules together so they will hook up correctly.
3. **Fuse.** This is the easiest step for you: just click OK. The Module Manager does the work -- loads in each module, positions it, and fuses it to its neighbors by adding short sections of track. The result is a finished layout, ready to add trains and run. If you're interested in the details of this process, see the next section.

Once you have created a modular layout, you can save it to a file as with any other layout. However, it is not fully self-contained, so you need to exercise caution before moving it or sending it to someone else. See the section about modular layout files below.

The Module Fusing Process

In the real world, modules are scooted around on the show floor until their connection points line up, then short segments of track are added to connect them. In TrainPlayer, the Module Manager does this automatically, in a process called **fusing**. Fusing one module to another involves several steps:

1. **Locating the connection points.** The program searches a narrow stripe along the edge of each layout for any junctions at the ends of straight track segments.
2. **Aligning the modules.** A specific connection point on each edge -- the one closest to the front of the module -- is designated as the **registration point**. The two modules are adjusted front to back until their registration points line up.
3. **Introducing gaps.** If the connection points on a module are at the very edge, then there will be no room to insert connecting track. The program detects this situation, and backs the connection point junctions a little ways from the edge.
4. **Adding connecting tracks.** Wherever a connection point on one module has a partner at the same position on the other, a segment of straight track is added between the two points.
5. **Detecting loop closures.** After fusing one end of a module, the program looks at the other end to see

if it is touching any other module. If so, it means there is a loop, and one more fusion will be required to finish the job.

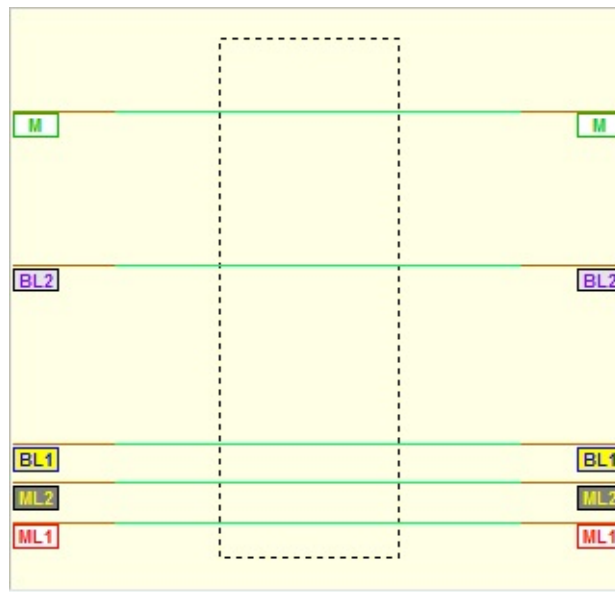
The overall process of building a modular layout is a matter of marching down the list of modules, fusing each to the next, closing loops when necessary.

Building a Module

The general procedure for constructing your own virtual module is the same as for building any layout in TrackLayer. You can start from scratch, draw your track plan, and carefully make sure it conforms to specs. Or you can take an easier and more reliable approach: start from a preconfigured plan or template and modify to suit. This is the method our artists used to create the scenic layouts already available.

Module Starting Points

- **From an existing physical module.** If you already have a real module you take to shows, to work with it in Module Manager you will need to construct a virtual replica of it using TrackLayer. First you will need to convey the track plan to electronic media -- for example by taking a scan of an overhead photo -- then "trace over" it, applying track. This process is described in the *Getting Started* chapter of the TrackLayer manual. The procedure is the same whether you are creating a module or a regular stand-alone layout.
- **From a sample plan.** We provide a generous collection of NTrak and HO sample modules, some just track plans, others with structures and scenery. The set you get installed with the product is small; the rest are found in the Web tab of your Layout Chooser, under the Modules folder. You can add or remove track or scenery or otherwise modify as desired.
- **From a template.** In the Components folders under Modules\[HO or NTrak] you will find a series of bare-bones module templates of various sizes. Here for example is a picture of the two-foot NTrak template:



Each NTrak template comes with five tracks going all the way across (HO templates have three). These tracks form different railroad lines running around the layout. Each is labelled according to its purpose, as follows:

ML1 = main line 1, 4" back from the front of the module. This is the track which is used to align a module with its neighbors, so it must be present and correctly positioned. Normally the main line goes straight across each module and all the way around the layout.

ML2 = main line 2, 5.5" back.

BL1 = branch line 1, 7" back.

BL2 = branch line 2, 11" back.

M = mountain line, 14" back.

For HO modules, only ML1, ML2, and BL are present (at 4", 7", and 14" from the front).

The picture shows how you can remove the inner tracks and just leave the connecting stubs. Using the Track edit tool, drag a selection rectangle so it surrounds the middle portions of all five lines (as shown), then press Del. This leaves short stubs on the sides, which you can connect with your own trackage.

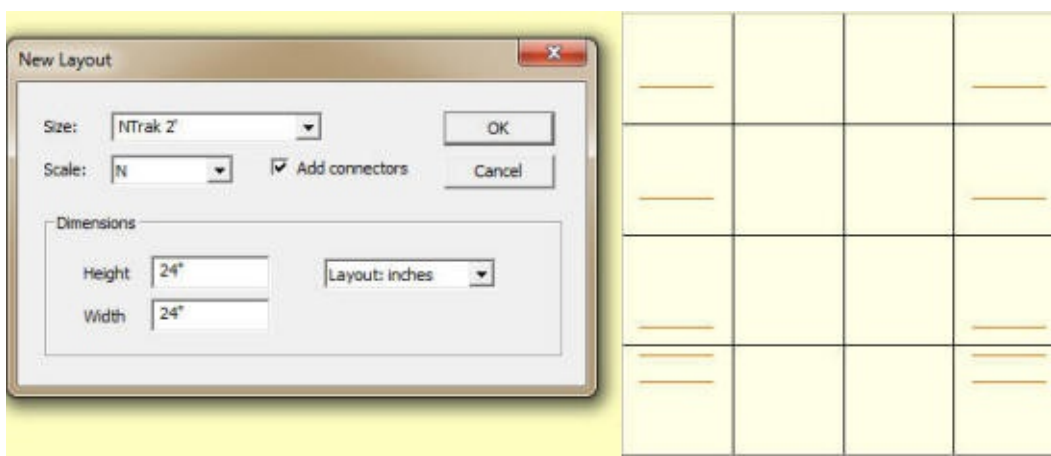
The labels on the tracks are scenery objects. If you want to get rid of them, use the Scenery Edit tool.

- **From an existing layout.** You can start with just about any layout and convert it into a module, as long as you can add connecting tracks at the side edges and tie them somehow into the existing track. To make room for the connectors, it may be necessary to resize the layout using the Resize/Rescale tool.

Here is an example in which the Custer & Front Range has been enlarged and modified to work as an NTrak module. Connecting tracks were copied from a template and pasted into the enlarged side areas, then connecting tracks (shown in red) were added by hand.




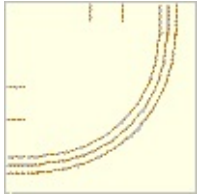
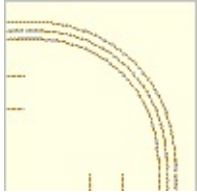
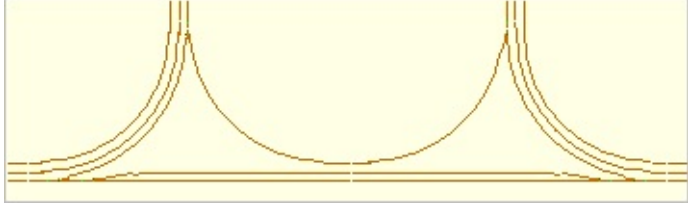
- **From scratch.** Even if you start with a blank layout, TrackLayer provides assistance in creating modules. Choose **File** > **New** to bring up the New Layout dialog. Choose one of the standard NTrak sizes from the Size drop-down. If "Add connectors" is checked, then the new layout will be created with stubs on each side, appropriately positioned as shown below.



This feature is available only for NTrak modules, not HO or other scales.

Module Orientation

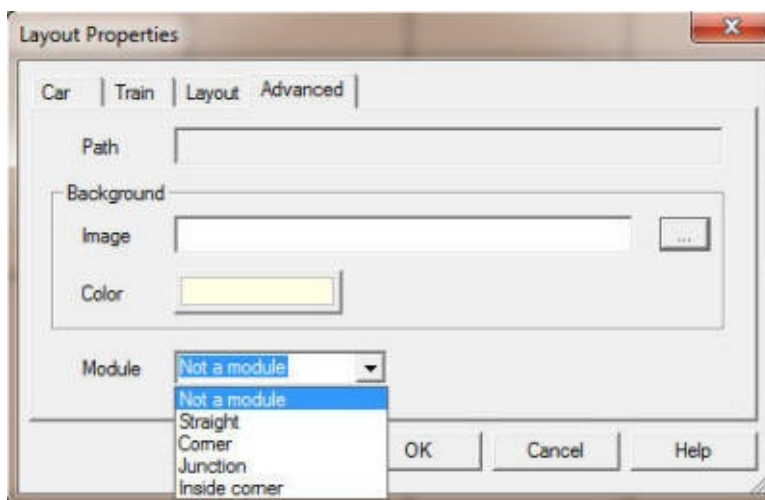
The Module Manager requires module layouts to be oriented in specific ways, as shown in the following table.

<i>Straight</i>		Main line across bottom
<i>Corner</i>		Main line from lower left to upper right
<i>Inside Corner</i>		Main line from upper left to lower right
<i>Junction</i>		Main line across bottom, switchable to alternate main on each end

Whatever method you use to create a module, make sure it is oriented as shown here. Do not use View Rotate or other means to reorient it, or the Module Manager will not interpret it correctly.

Module Tags

The program is not (yet) smart enough to look at a layout and determine that it is a module. It is up to the creator of the module to supply this information. This is done by selecting a tag from a drop-down menu in the Layout Properties dialog:



If you are creating a layout to be used as a module, select the appropriate tag. This will inform the Module Manager how to interpret the layout. This is not vital for a straight module, but corners and junctions must be tagged or they will not work.

The Module Manager

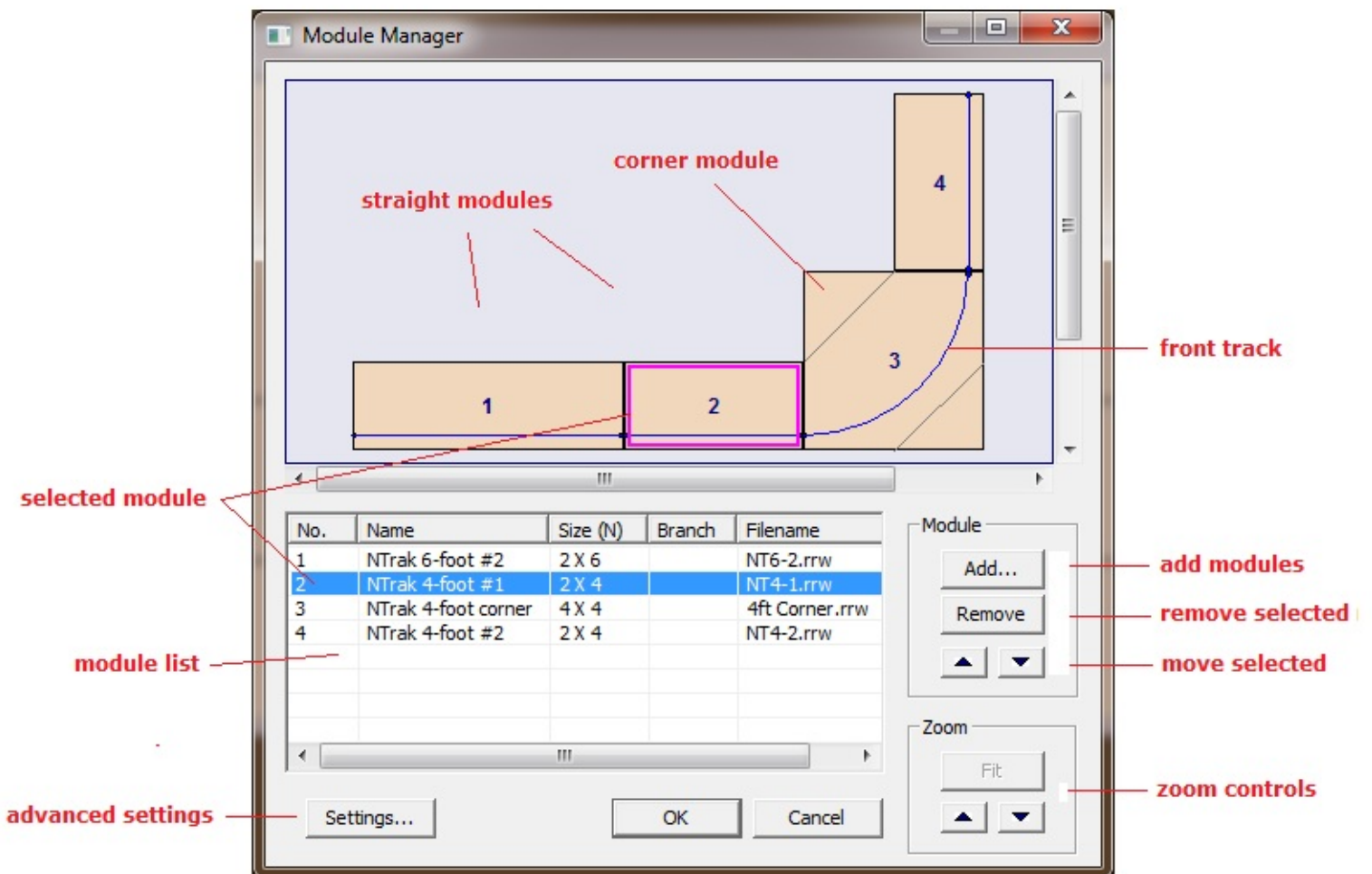
The Module Manager is a dialog for organizing and assembling modules into modular layouts. Called from the menu command **File > Module Manager**.

The process you carry out in the Module Manager is called *assembly*. It's like sliding dominoes around on a table: you position them end to end, using special corner and junction units to make turns. They can only fit together in certain ways, so they are like magnets -- you drop them roughly into position, and the program snaps them into place.

The dialog is operated mostly by drag and drop. To build a modular layout, you introduce modules by dragging them in from other windows-- Layout Chooser or Windows Explorer -- then you rearrange or delete them by dragging, or change the sequence by moving rows up and down in a list. Once you have an assembly you like, click OK, and the program automatically creates the full modular layout. It reads in the track and scenery of each module, positions them according to your assembly, automatically adds little track sections between modules, and presents you with a complete layout, ready to add trains and run.

Tour of the Module Manager

The Module Manager is a resizable dialog with several components, as shown in this annotated screen shot:



The upper half of the dialog is the workspace where modules are schematically displayed and

manipulated. The workspace starts out empty; this example shows an assembly in progress with three *straight modules* and one *corner module*. Modules are by default displayed as filled rectangles with numeric labels. Corners are shown as squares, with 45-degree cutoff lines suggesting the typical shape of an actual unit.

Along one edge of the each module is the *front track*, a line approximating the route of the main track going around the assembly. In a train show, viewers stand on this side of the layout.

Beneath the workspace is the *module list*, a list box showing the sequence of modules with their details. Each row begins with a number which corresponds to a labelled module in the assembly.

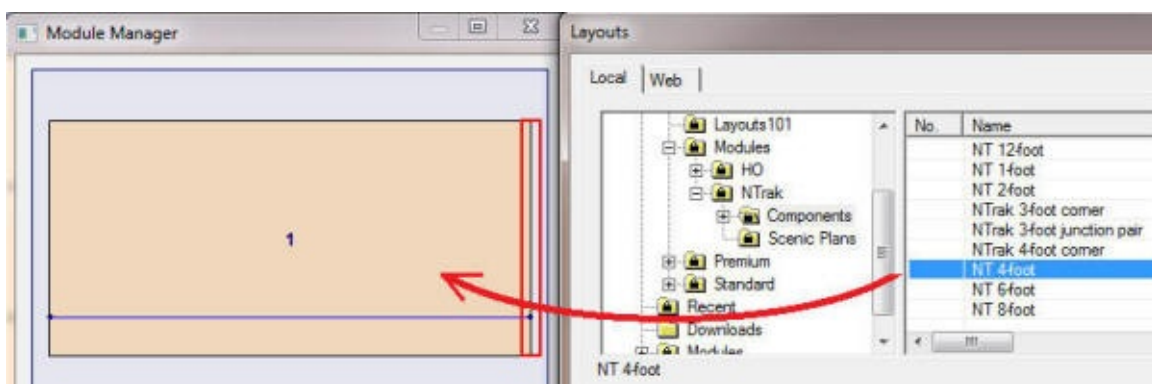
The highlighted row in the list shows the *selected module*. This one is shown in the workspace with a pink frame. You can select a module by clicking on it in the workspace, or by clicking its row in the list box.

Buttons around the module list are for editing the assembly and modifying its properties, as described below.

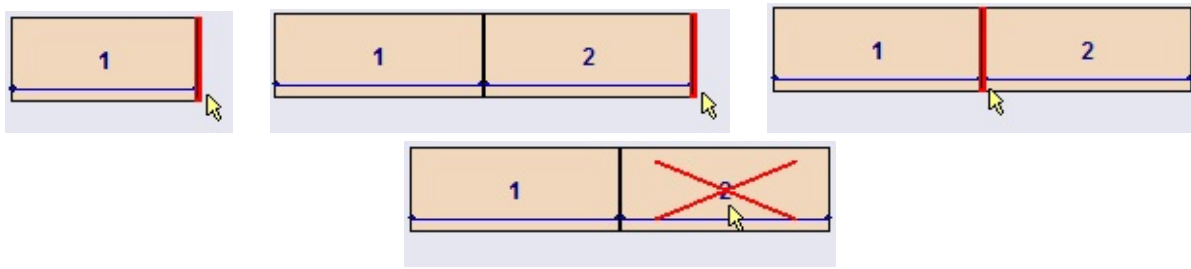
Adding Modules to the Assembly

To begin creating an assembly:

1. Click **Add...** to bring up the Layout Chooser.
2. Navigate to a Modules folder if necessary. By default the chooser comes up pointing to the *NTrak Components* folder.
3. Choose a layout to be the *base module*. This just means all other modules will be positioned relative to it -- the base retains its orientation as others are moved around.
4. Press on the selected layout, drag it off the Layout Chooser list, and drop it into the Module Manager window. When you let go, the module is displayed in standard orientation, filling the window.



5. Choose a second module and drag it into the MM. You can drop it on either end of the existing module, as indicated by red highlights which show up while you are dragging (see left image below). Let go while a highlight is showing, and the incoming module will snap onto the existing one.

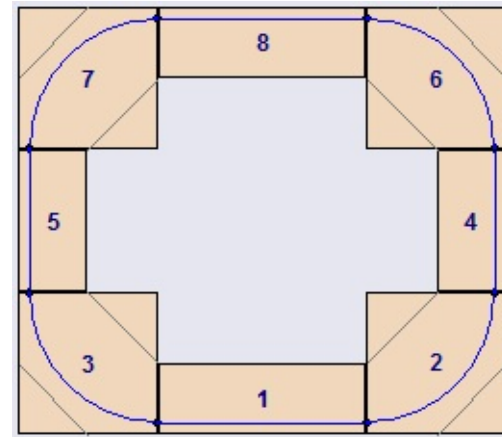


6. Continue dragging modules in to build the assembly. Additional modules can be dropped onto either end of the chain, or in between two linked modules -- wherever the highlight shows up.

7. To replace a module, drag another one onto the center of it. In this case the highlight is a red X (above right), indicating that the incoming module will replace the existing one.

8. To make a turn, add a corner module.

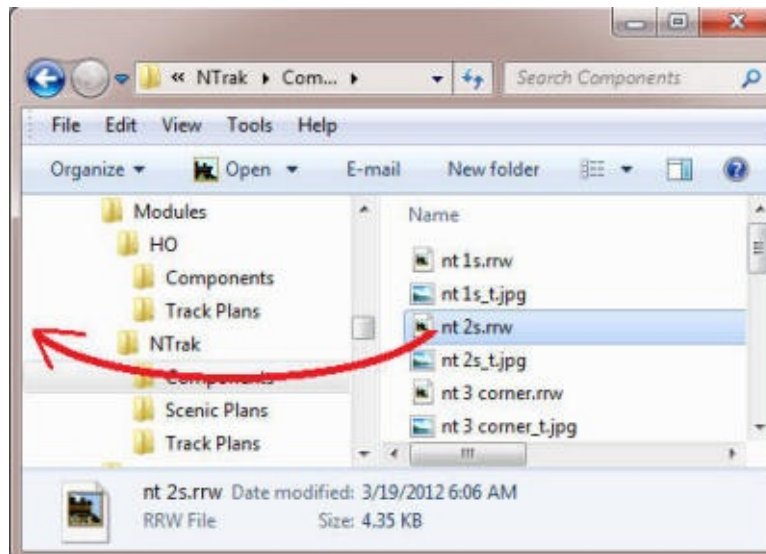
9. To make a loop, add four corners, and the right number of modules in between so that the ends just meet.



Dragging Modules from Windows Explorer

An alternative method of adding modules to the Module Manager is to drag them from Windows Explorer instead of the Layout Chooser. To do this:

1. With TrainPlayer running and the Module Manager visible, bring up Windows Explorer (Start > All Programs > Accessories). Navigate to a folder of module layouts.
2. Choose a module layout and drag it into the MM window. Highlighting and locations of attachment are the same as described above.



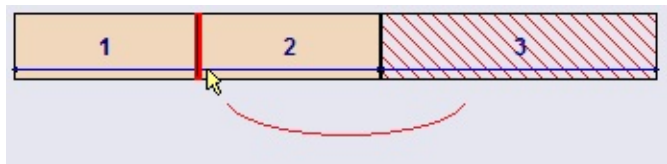
Be sure to choose a file with extension *.rrw*. If you drag the wrong type of file, nothing will happen when you drop it.

Rearranging Modules

Once you have more than one module in the Module Manager window, you can move them around or delete them by drag and drop, or by rearranging rows in the list box. After any such operation, the overall assembly is reconfigured to reflect the change.

By drag and drop:

1. Position the cursor over the middle of a module, press the left button, and begin to drag. The module takes on a hatched pattern, meaning it is "on the move."



1. Drag to any of the locations indicated above -- to the edge of a module, on top of a module -- and let go. The module is moved from its original location to the new one.
2. To remove a module from the assembly: drag the module and release it on an empty space, where nothing is highlighted, i.e., drag it out of the assembly onto the floor.

By list box:

1. Select a module by clicking on it in the workspace, or by clicking a row in the list box. The module is highlighted with a colored frame, and the selected row is highlighted in the list box.
2. Click the up or down arrow to the right of the list box (labelled "move selected" above). The module will trade places with the one immediately above or below it in the list.
3. To remove a module: click Remove. The selected module will be removed from the assembly.

Zooming Modules

By default, the Module Manager displays the entire assembly, regardless of how large it becomes. You can enlarge or maximize the window, but for very large assemblies this may not be enough, and you may want to zoom in for a closer look. This is the purpose of the zoom controls at the lower right of the dialog.

To enlarge the view: click the up arrow. Each click zooms in by a fixed amount. There is a limit -- you can't zoom so far that the module edges disappear; the up arrow is dimmed when you reach the limit. When the view is enlarged, scrollbars appear so you can move around.

To shrink the view: click the down arrow. Each click reduces by a fixed amount, until the assembly goes to a fixed minimum size.

To restore to normal fit-to-window mode: click **Fit**. This resizes the assembly to fit in the window.

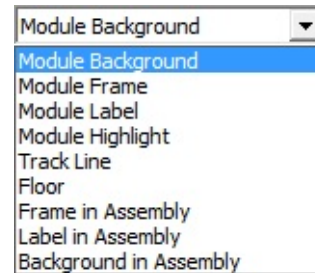
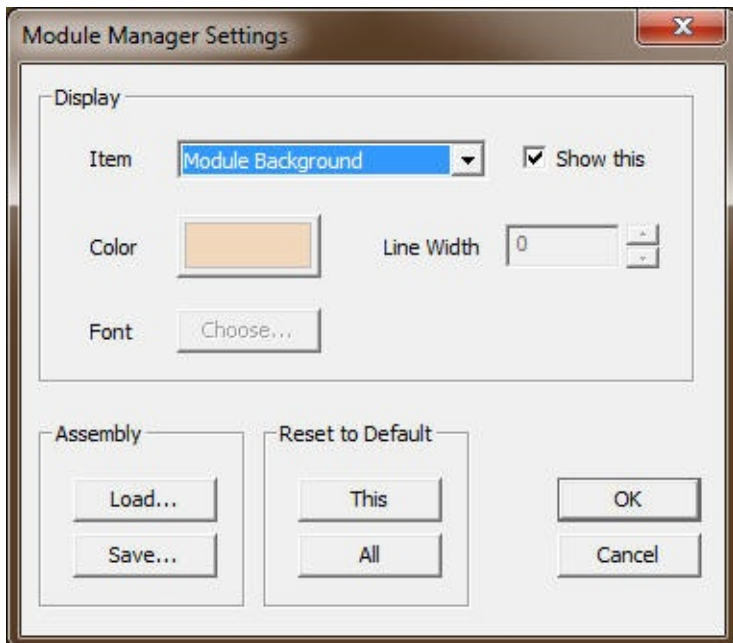
Settings

The Settings button at the bottom of the dialog brings up the [Module Manager Settings](#) dialog. This

allows you to set display features applying to the Module Manager and to the resulting modular layouts.

Module Manager Settings

Sets display properties in the Module Manager and in layouts created by it. Called from the Settings button on the [Module Manager](#) dialog.



In this dialog you can adjust most elements of the display in the Module Manager, and some module-related ones in the assembled layout. The drop-down menu at the top gives you a choice of display elements; you choose one, then specify whether you want it visible, and set its color, font, and line width, or whichever apply.

Choices you make in this dialog apply immediately in the Module Manager window, so you can experiment with different options and see what they do. (This does not apply to items with "in Assembly" in the name -- these do not apply until you click OK to leave the Module Manager to create the assembled layout.) If you Cancel out of this dialog, the Module Manager display reverts to its previous state.

Module Manager Settings dialog controls

Item

Select a feature of the display to be edited. The full list of features is shown in the screen shot above; where these features appear in the display is shown in pictures below. Settings in this section of the dialog apply only to the selected feature.

Show this

Check this box if you want the selected item to appear in the display. Applies to all items except *Floor*.

Color

Click to choose a color for the selected item. Applies to all items except *Background in Assembly*.

Click to specify a font for the selected item. Applies only to

Font	<i>Module Label and Label in Assembly.</i>
Line Width	Choose a line width in pixels for the selected item, where zero means thinnest possible. Applies to <i>Module Frame, Module Highlight, Track Line, and Frame in Assembly.</i>
Load	Click to retrieve an assembly previously saved as a Module Definition (MDEF) file. For information about MDEF files, see below.
	Warning! Loading an MDEF file replaces the current contents of the manager, without asking if you want to save it first.
Save	Click to save the current assembly to MDEF, for later reuse. See below.
Reset This	Reset the current display item to factory settings. Changes do not become permanent until you click OK.
Reset All	Reset all display items to factory settings. Changes do not become permanent until you click OK.
OK, Cancel	Click OK to retain the current settings and make them permanent. Click Cancel to revert to settings in effect before the dialog came up.

Module Definition (MDEF) files

Module definition files provide a lightweight, convenient way to avoid having to rebuild the same assembly more than once. A file with extension MDEF is a simple xml file, readable in Notepad, which contains a list of the current set of modules and their arrangement -- basically the same information you see in the Module Manager listbox.

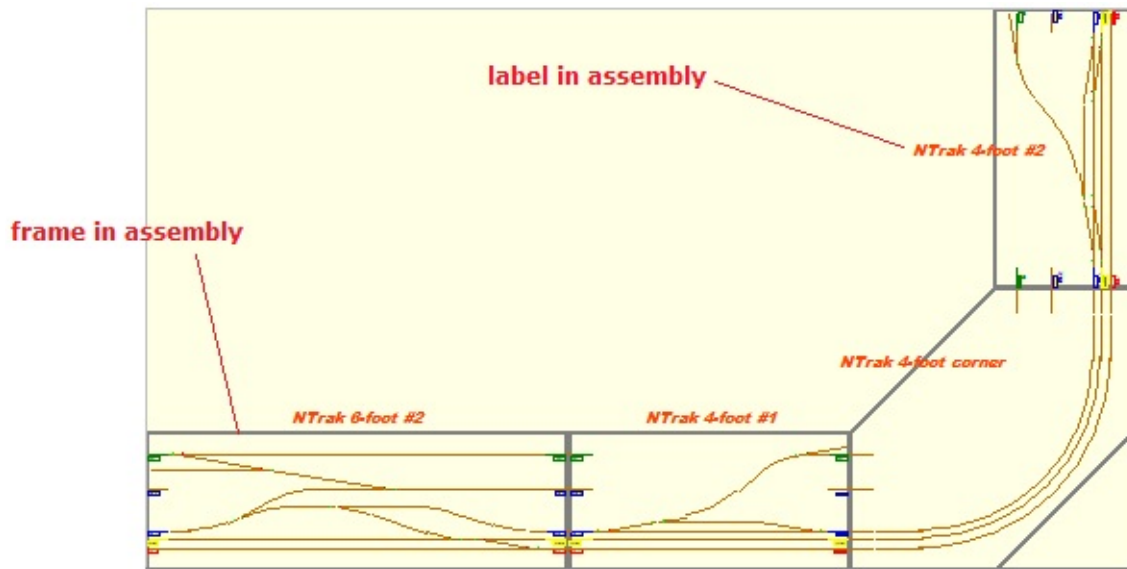
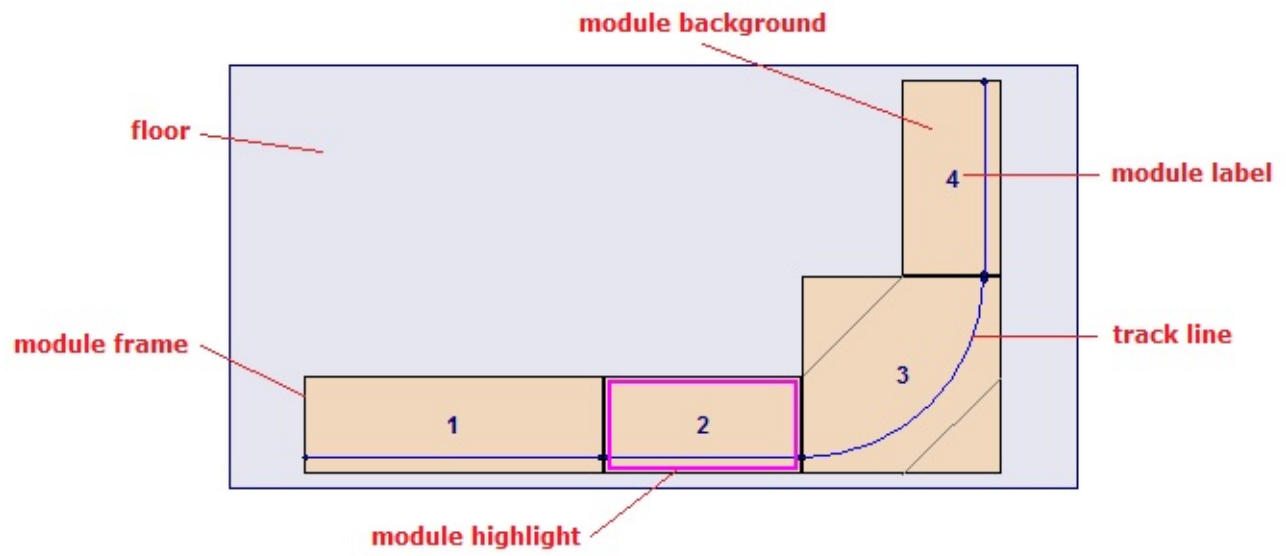
If you have an arrangement you might want to reuse, save it to an MDEF file. Later you can load it and get back the same arrangement.

MDEF files are not designed to be portable or exportable. They contain pathnames pointing to the individual module files. If you move or rename any of these, the mdef may not load correctly.

For convenience, you can load an mdef file by dragging it from Windows Explorer directly into the manager workspace. The incoming file replaces the current contents of the window.

Module Display Items

Features of the display which have user-settable properties are indicated in the following screen shots. Those with "in Assembly" in the name refer to features of the assembled layout, others to the assembly as it appears in the Module Manager.



"Background in Assembly" is not shown in these shots -- this turns on or off any background images or solid-color backgrounds in the individual modules.

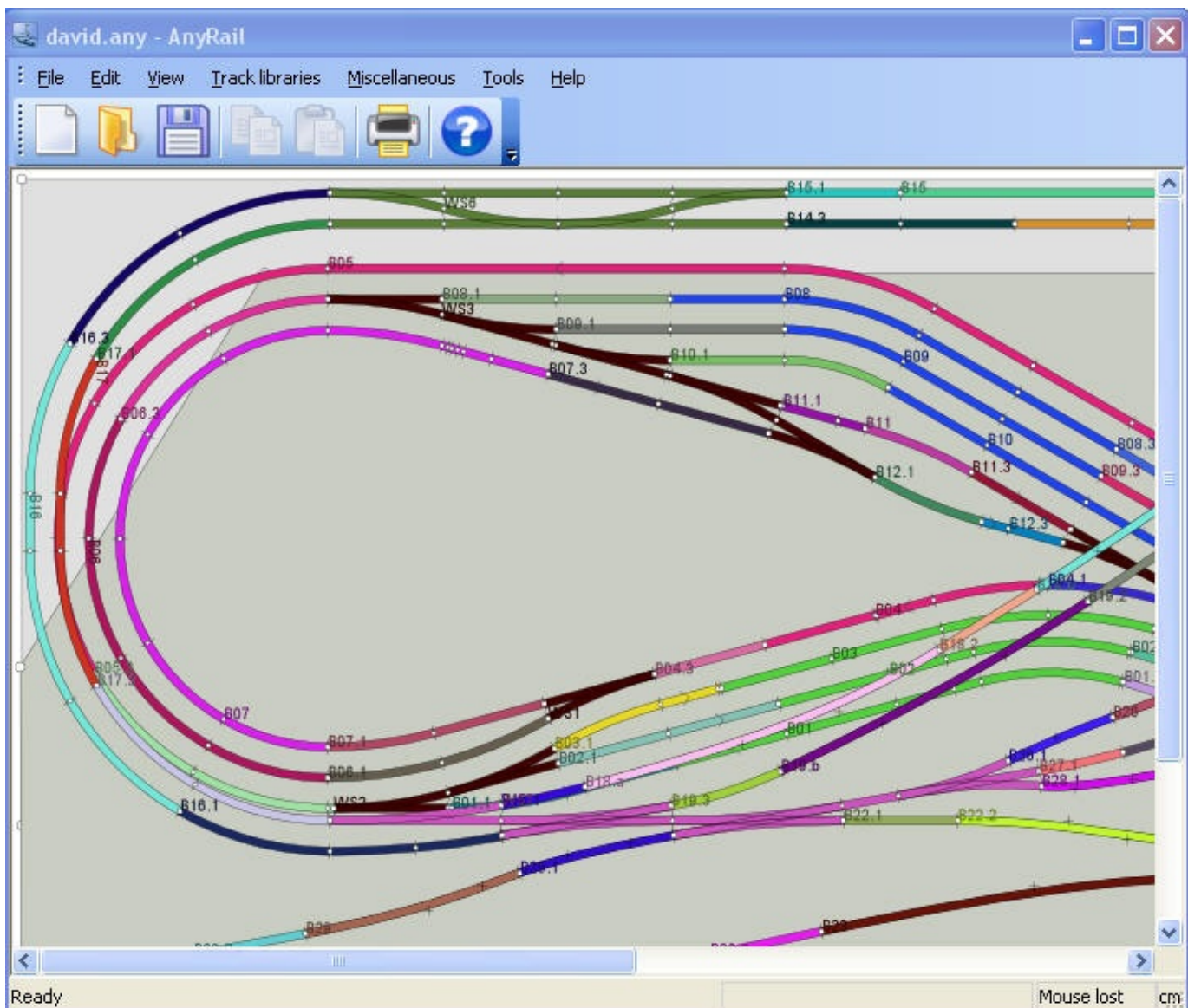
Importing CAD Layouts

To convert a layout created in a CAD program, you must be running TrackLayer -- the import feature is not available in TrainPlayer. Details of the import process vary depending on the input.

As of Version 8.0.1, we no longer support importing any format except AnyRail.

Importing from [AnyRail](#)

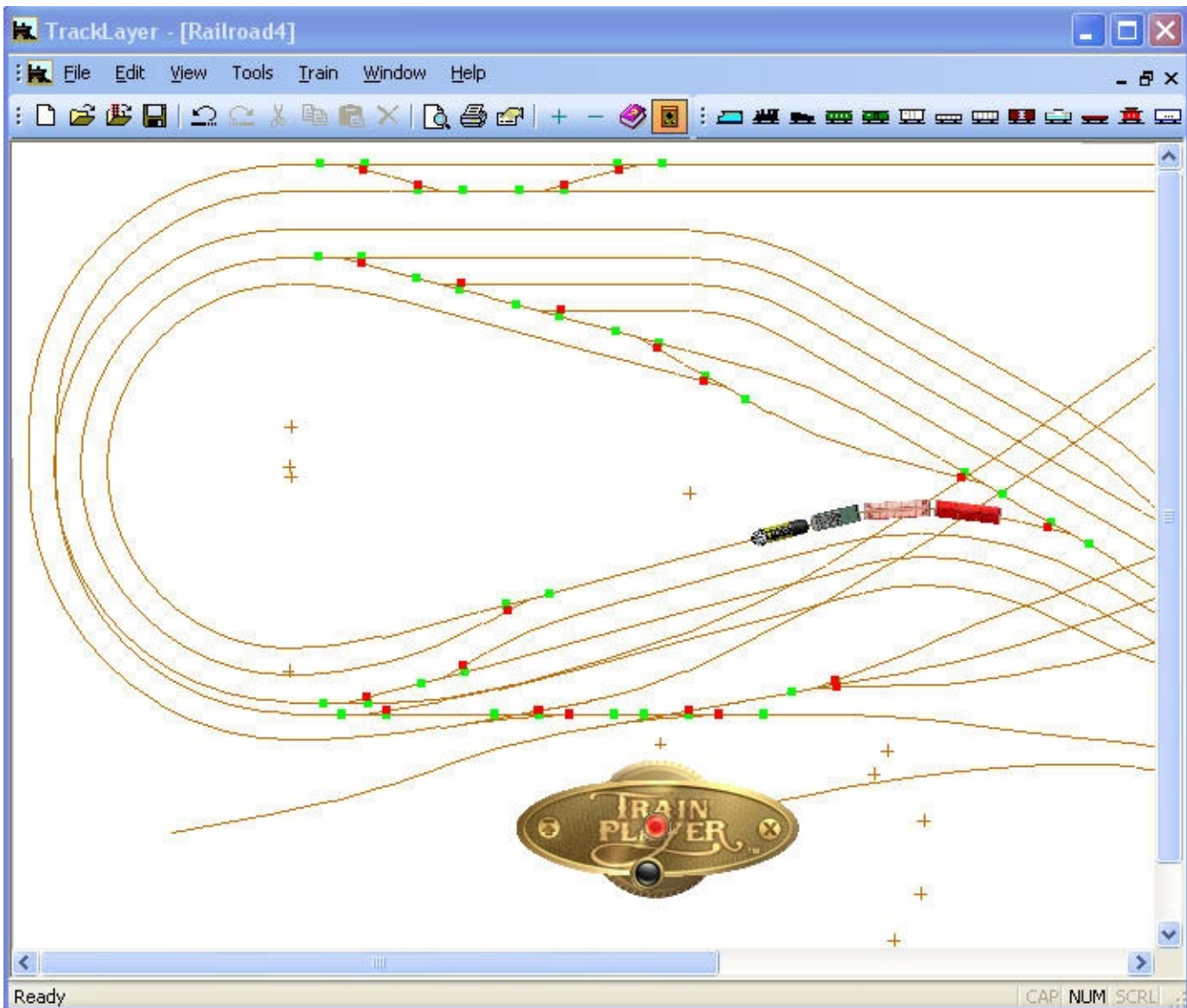
To convert from AnyRail, you must have an installed copy of AnyRail 3.11 or above. You will need to export the layout from AnyRail before you can import it into Tracklayer.



To import from AR:

1. Start AnyRail and open the layout to be converted.
2. Choose File > Export as TrainPlayer. (If you do not see this command on the File menu, see notes below). Choose an output file name. You are actually saving two files, one a file with extension xml containing the data, the other a jpg of the graphics.

3. Start TrackLayer and choose File > Import AnyRail. Open the xml just created.
4. The import proceeds, with a progress bar displaying status. On completion, the layout is ready to test and run.
5. Save the converted layout as rrw file.

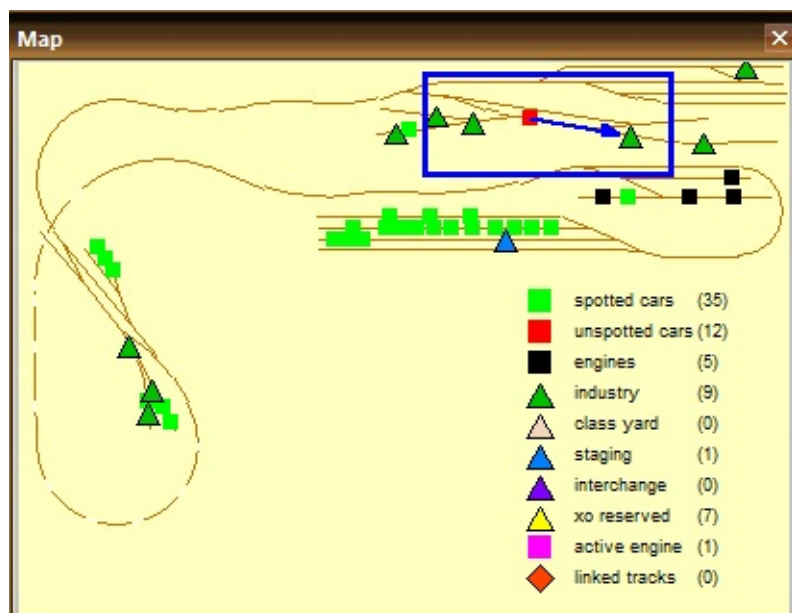


Notes

1. A common problem in a converted layout is gaps in the track, where the train crashes or bounces instead of rolling on through. Usually this means the track sections were not connected in the input file. To fix it, drag one of the disconnected junctions on top of the other, so they fuse and become a single junction.
 2. If turnouts or slipswitches do not work properly, it is likely to be due to errors in the conversion. Please report it.
-

Map View

Map View is a miniature track-only view of the entire layout, showing the locations of chosen cars and tracks. It has a draggable box showing what part of the layout is currently on view, plus tooltips and destination arrows which pop up as you hover. Map View is a convenient tool for finding your way around a large, unfamiliar layout, and for seeing at a glance what ops jobs need doing.



Map View Features

Dockable Window. Map View is a dockable, resizable window. Drag by its header to dock or undock, or by a side or corner to resize.

View Box. A blue box on the map shows what portion of the layout is visible in the layout window. Press and drag this box, and it causes the view to scroll; or scroll the view, and it causes the box to move.

Map View Context Menu. Right-click anywhere on the map to bring up the context menu shown at right. It has a two sets of checkable items indicating what you would like to see on the map:

- Cars (shown as colored squares): **Spotted** = those already parked at their destinations; **Unspotted** = remaining to be moved for the current switchlist; **Engines** = engines only, no tenders. (Note that if a switchlist is in progress, the Active Engine is shown in a special color. Also note that the currently-selected car is shown with an X.)
- Locations (colored triangles): **Industries**, **Yards**, **Staging**, or **Interchanges**. Each triangle is located at the center of a rectangle enclosing the tracks at that location.
- Links (colored diamonds): tracks linked to external layouts. See [Linked Layouts](#).

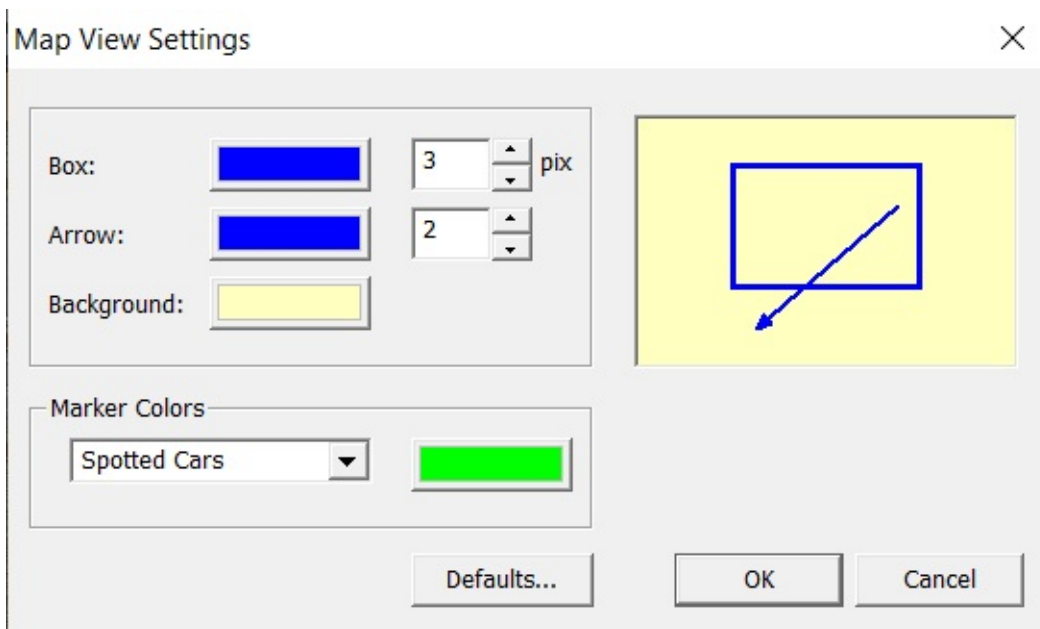


A third set of items turn on or off map features:

- **Legend:** check to display a little table showing what symbols are on display and how many of each. The legend is anchored to the bottom right corner of the map window.
- **Tooltips:** check to enable tooltips as you hover over car or location symbols.
- **Dest Arrows:** check to affect behavior when you hover over a car: if the car is unspotted, an arrow appears, pointing to the car's next destination.

Zoom To Cursor. Right-press any spot on the map and choose **Zoom To Cursor**. The view in the layout window scrolls to the indicated position. (It doesn't actually change the zoom level). This is an alternative to dragging the view box across the map.

Settings. Brings up the Map View Settings dialog, where you can change colors and line widths. Click **Defaults** to revert to factory settings.




Click any of the four color buttons to bring up the [Color Chooser](#). Individual marker colors may be set by choosing a type from the drop-down, then setting the color for that type.

The Train Window

This page is obsolete. The Train Window is now described under [Train Control Bar](#).

Yard Mode

Yard sessions are easy in TrainPlayer! When you're operating in "yard mode," rotating the speed dial controls both the speed and the direction. Thanks to our users for suggesting this handy feature.

To enable yard mode: right-click the Control Panel and check "Enable yard mode." Or use the command Enable Yard Mode on the Tools menu, or click the **Y** button on the toolbar .

When yard mode is enabled, a brass Y appears in the upper right of the control panel, as shown in the illustration at right.

To use Yard Mode with the speed dial:

1. Rotate the speed knob counterclockwise, so it goes past the zero point at around 7:00.
2. The train stops and goes into reverse. Speed remains zero until you rotate past the stop button at 6:00.

If the train is already in reverse when you rotate into yard mode, it stays in reverse.


3. Continue to rotate counterclockwise. The train speed increases in the usual way -- slowly at first -- as the train moves in reverse. You can rotate all the way around to maximum reverse speed at the 7:00 position.
4. While yard mode is in effect, the stop button flashes.
5. To end yard mode: (a) rotate back clockwise past the starting point, or (b) click the stop button, which immediately stops the train and returns to normal mode.

To use Yard Mode with the speed slider:

When yard mode is enabled, the speed slider divides into two sections, as shown here:

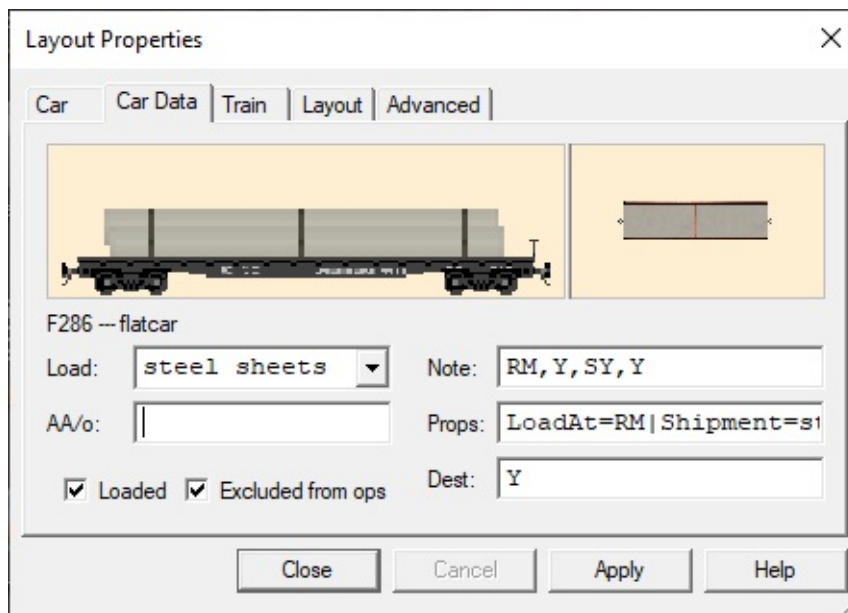


In normal operation, zero speed is at the left; moving to the right increases speed. In yard mode, zero is in the middle; moving to the right increases speed, while moving to the left begins yard mode and switches into reverse.

To disable yard mode: click the brass Y on the control panel, or click the toolbar button , or uncheck "Enable yard mode" on the context menu.

Car Data Properties

For viewing and editing properties of the selected car. Called from Properties on the Car context menu. See also [About the Properties Dialog](#).



As of version 6.6, car properties are split between two tabs: [Car](#) and Car Data (this one). The Car Data tab handles certain text fields and load information. It is specifically designed to make it easy for a script author to click around the layout, assigning script-related data to cars.

To make text editing easier, the text in the data boxes in this tab are displayed in fixed (Courier) font. The size of the font is shared among several windows, and can be adjusted in the [Script Central Settings tab](#).

Dialog data on the Car Data tab:

Images

same as in [Car tab](#)

Text

The text just below the side view shows car label and car type name. The label can be edited in the Car tab.

Load

Name of load assigned to car. Choose a different load by name from the drop-down, or select Load Chooser from top of list. This item is dimmed if car is unloadable (engine, tender).

Note

An optional string of information attached to the car. A car note may be used to keep track of a car's home location, reporting marks, etc. It has specific uses in Advanced Ops. For more, see [Car Notes](#).

AA/o

AAR Override: a user-supplied AAR code which replaces the one assigned at the car factory. For more information, see [AAR Override](#).

Props

A second optional string attached to a car, accessible via \$CAR function; see [Car PropStr](#).

Dest

User-supplied short text string indicating car's current destination, normally matching a track label on the layout. For more, see [Car Dests](#).

Loaded

Check indicating whether car is loaded. Clicking this box changes the load status of the car and updates the picture to show or hide the load. Checkbox is dimmed if car is unloadable.

Excluded /

If checked, this car is marked "XO," meaning not available for use in regular ops. For discussion,

ops

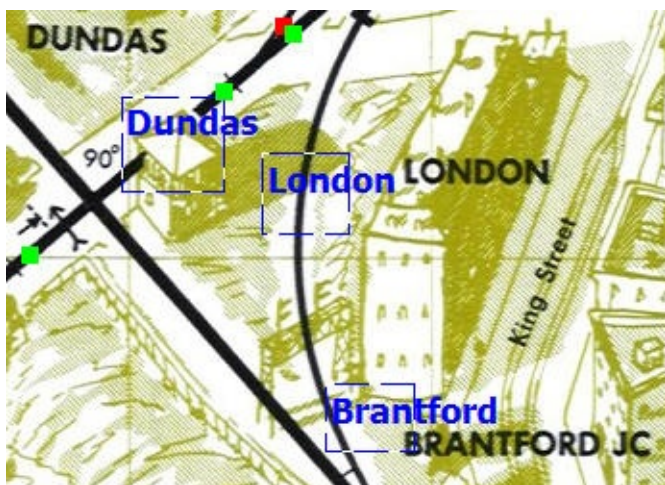
see [XO Cars](#).

Stations

In TrainPlayer, a "station" is a named location on the layout. It may represent a terminal, loading dock, warehouse, yard, city, or any place a train might stop to interchange passengers or goods. By defining stations on the layout, you give the program a way to keep track of where a train has travelled.


Stations were introduced in an early version of TrainPlayer. As of Version 7, they are phased out as the method of identifying locations for ops or scripting; now track labels are used for these purposes. However, stations still have uses -- scheduling, site-specific sounds -- so they are still part of the program.

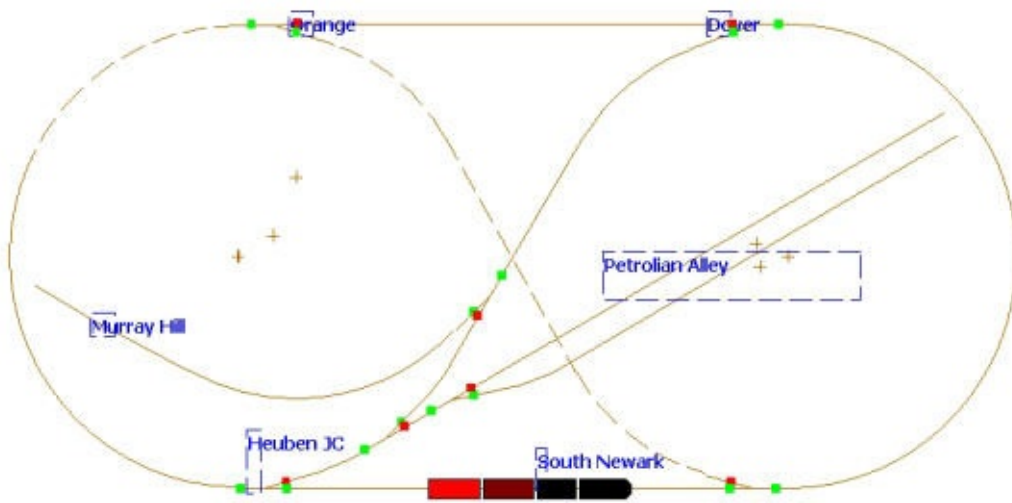
A station is represented on the layout as a rectangular area, with a dashed blue outline and one or two lines of text. Stations are visible only (a) when you are using the Station tool, or (b) when you choose View Stations.



Stations may have sounds attached to them. The sound will play whenever a train goes through the station. Available sounds include farm noises, traffic, crossing bells, running water, and many others, or you can supply your own.

Creating a Station

1. Click to select the Station tool  on the main toolbar, or choose Tools Stations. If there are stations defined on the layout, selecting this tool causes them to become visible as dashed blue rectangles with names:



2. To create a new station: press and drag to form a rectangle around the desired station area. This must enclose some section of track, or it will be disregarded.

3. When you release the mouse button, the Station Properties dialog comes up so you can supply a name and other information for the new station. Enter a name and click OK, or click Cancel to abort creating the station.

To modify a station:

To change a station's name: position the cursor on one edge of the station's rectangle so it highlights, right-click and choose [Station Properties](#). You are prompted to enter a new name.

To change size, shape, or position: position at a side or corner of a station, then press and drag.

To delete a station:

Position the cursor on one edge of the station's rectangle so it highlights, then press the Del key.

To define a sound at a station:

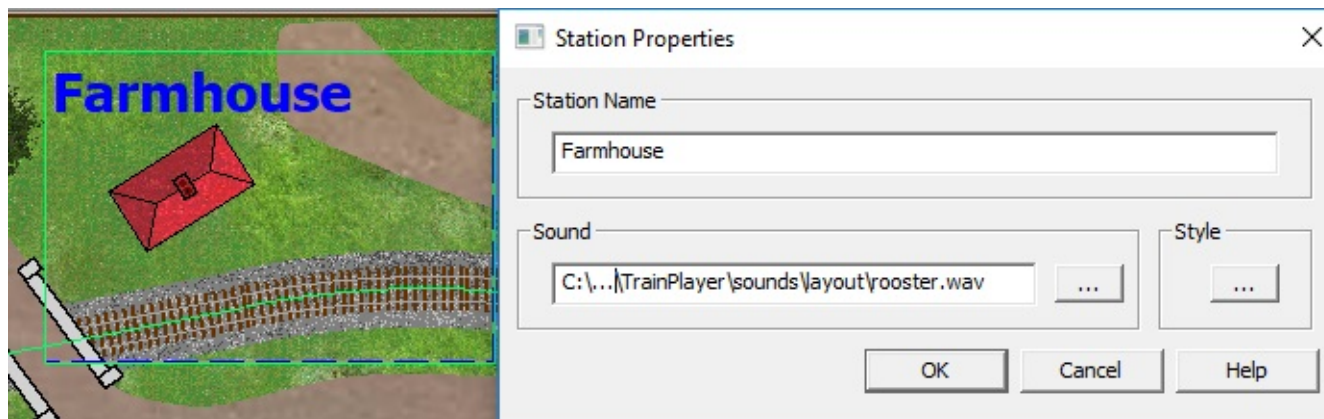
Right-click the station and choose Station Properties. Click the browser button (...), and you are presented with the [Sound Chooser](#) dialog.

Choose a sound from the list. Click the preview window to hear the sound. If you like it, click OK and it will become the station sound, played once whenever a train arrives at the station. See also [Station Sounds](#).

Station Properties

The Station Properties dialog is where you define a station. To bring it up, (a) activate the Station tool so that stations are visible, (b) right-click a station border and choose **Properties**.

As of Version 7, stations are no longer used in Ops, but they can be converted for such use. See [Locations](#).



Dialog controls:

Station Name: A name to identify the station.

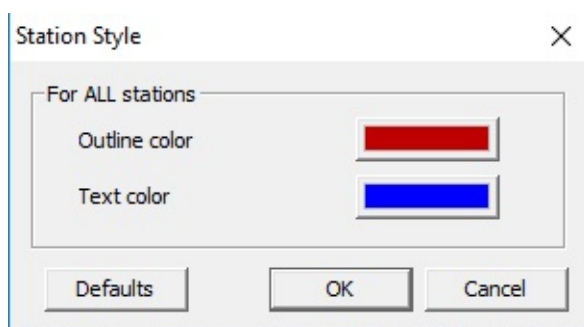
You can give a station any name you like, but it should be unique on this layout.

Station Sound: Sound to be played when a train enters the station area. The sound begins playing when the first car crosses the station boundary, stops when the last car exits.

To choose a sound, click the Browse button to call up the [Sound Chooser](#). To remove the sound, erase the contents of the edit box.

Station sounds are Layout Sounds. All such sounds can be turned on or off with a checkbox in [Sound Preferences](#).

Style: brings up the Station Style dialog, where you can specify colors of station text and outlines.





Getting Started

Where you start with TrackLayer depends on what you have to start with. If you have a picture of a track plan -- from a book or magazine, web site, CAD program, or a sketch on a piece of paper -- then you're the user TrackLayer was designed to accommodate. Most of the features of the program are aimed at tracing over a diagram, applying track where lines are already laid out.

If you don't have a diagram, you can draw a plan by hand on a blank tabletop. If a rectangular space will do, choose the size and scale you want and you're ready to lay track. If you are designing for an L- or odd-shaped space, you might consider using a drawing program to make a scale drawing of the space outline, as background for sketching track.

[Starting TrackLayer](#)

[Layout and Image Files](#)

[The Overall Process](#)

What's Next:

Try your hand at creating a small layout, the **BN Cascade Mining Division**, in the [tutorial](#).

Layout and Image Files



About Layout Files

A layout for use in TrainPlayer consists of one or two files:

- The **layout file** (extension .rrw). The layout file contains the definitions of all tracks, trains, stations, and every other object and bit of data about the layout.

See for yourself -- an rrw file is plain text in xml format, so you can open it with Notepad or any text editor. You can change its extension to .xml and double-click -- it will open in your browser in collapsible outline form.

- The **image file** (extension .jpg, .bmp, .png, .gif, .tpg). The image file contains the background graphics -- scenery, text, and track lines in a picture of the track plan.

Not all layouts have image files -- in fact, not many do*. In the old days it was typical to start with an image of a track plan and add track on top. Now, with built-in scenery tools, a complete layout can be developed with no image file, and most of our latest downloadable layouts consist of rrw file only. For this reason, we've removed from this section a batch of old instructions on dealing with image files.

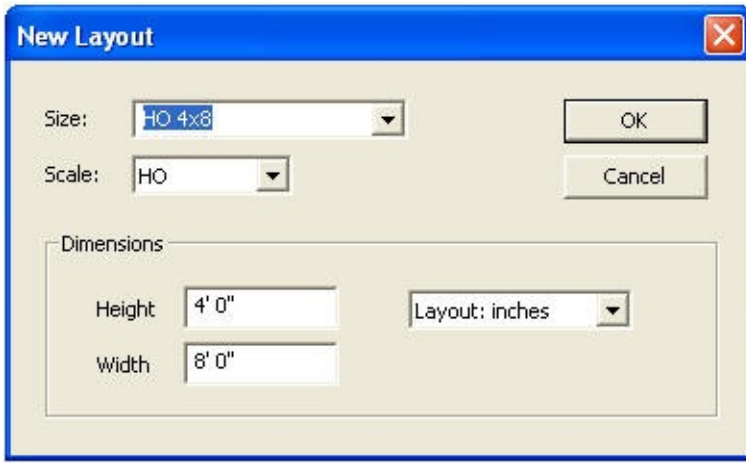
It is still possible to create a layout starting with an image file -- simply choose a graphics file (one of the above extensions) from the File Open dialog. This opens the image so you can begin adding track, and later save as rrw.

* Exception: importing a layout from AnyRail produces an image file, which shows the AR image underneath the TP track.

Creating a New Blank Layout

If you don't have an image and just want to sketch track on a blank screen, start by creating a space with the dimensions you have in mind.

1. Choose **File New**. The New Layout dialog appears:



2. If you want a layout of standard size and dimensions, try the Size drop-down and see if your choice is there. The program offers a collection of standard layout arrangements, including various NTrak modules. If you choose one of the standard sizes, you can skip the rest of this section and just click OK.

OR:

3. Choose the scale you want in the Scale drop-down, and enter the dimensions you want in the Height and Width boxes. Click OK to dismiss the dialog and create the new drawing space.

You can select the units you want to use for display and data entry, using the drop-down at the right. Units you select in this drop-down will become the defaults throughout the program.

The Overall Process



Here are the basic steps in preparing a layout for TrainPlayer use. All are described in more detail throughout the manual.

1. Prepare the image

If you're starting with a picture of a track plan, you'll need to turn it into a graphics file on your computer. If the image is on paper, you'll need to scan and crop it; if on a website, download it; if in a CAD program, export it. The result needs to be a high-resolution graphics file in any of several standard formats.

You don't actually need a background image. You can start with a blank screen and just lay track freehand.

2. Adjust the grid

To create an accurate layout, you need to establish the relationship between the image on your screen and the real-world dimensions on the layout. You do this by adjusting the TrackLayer grid. The grid is defined in real-world units -- in HO, for example, grid lines are defined to be 12" apart -- so when you overlay the grid on the image, you tell TrackLayer all it needs to know about layout size and dimensions in any scale.

Many published layouts have grid lines included in the image. Adjusting the grid in TrackLayer is a matter of dragging it with the mouse until it matches the one on the background.

3. Draw curves and turntables

Curves and turntables are a little tricky to create, more so when working in an area already crowded with track. Therefore the experienced track layer draws these items first.

4. Draw straight track and switches

Drawing straight track is easy -- you just trace over the lines on the image with a series of connected line segments. Switches are created automatically whenever three or more segments come together.

5. Add special features

Most layouts have sections of track hidden in tunnels or underneath the layout. You can mark these sections in TrackLayer so that when trains pass over them, they appear hidden. Or you can mark a section of track as "tunnel," so that a train entering at one end immediately emerges at the other.

6. Debug

TrackLayer provides tools for checking your work. Diagnostics can spot overlapping junctions, zero-length tracks, and other problems, so that you can fix them before anyone derails.

7. Annotate and save

Give the layout a name, add descriptive or historical comments and credit to the designer, then save the file, and you're ready to run.

8. Add trains and enjoy

Actually you can add trains at any point during the building process, and drive them over whatever track is available.



Dimensions



The first part of the process of developing a layout in TrackLayer is to specify its size and dimensions. This is done by overlaying the image with a grid of standard size, as described in this chapter.

For background on layout dimensions and scaling, see [About Sizes and Scales](#) in the TrainPlayer part of the manual.

[About the Grid](#)

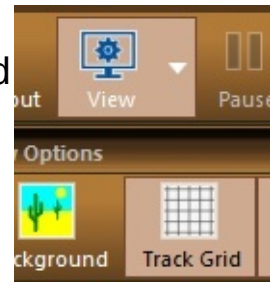
[Adjusting the Grid](#)

[Resizing and Rescaling](#)

About the Grid

The grid in TrainPlayer is an adjustable, scale-independent measuring device, showing the relation between distances on the screen and those on a real-world layout. It is based on the scheme described in *101 Track Plans*, in which any plan can be used for any modelling scale. In TrainPlayer, the concept is the same, but details are adjusted for more accuracy; see [About Sizes and Scales](#).

To turn the grid display on or off, use the **Track Grid** button on the View subtoolbar =>



If you are creating a new layout by drawing track on top of a pre-drawn image, you will need to specify the real-world dimensions of the image. This is done as described in [Adjusting the Grid](#).

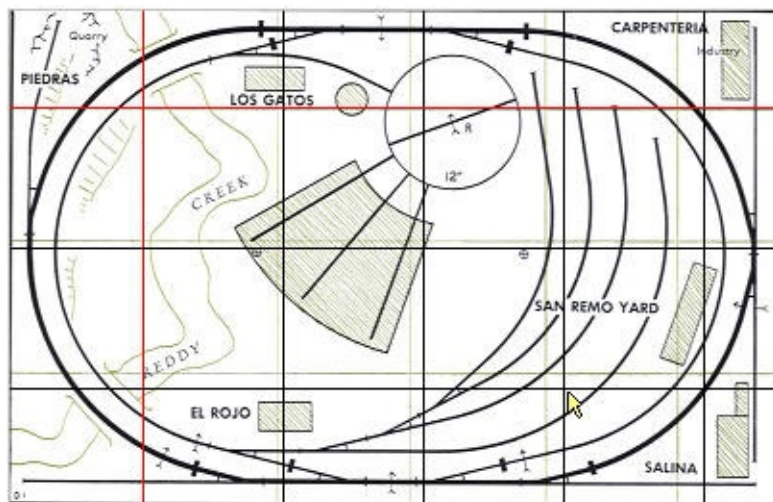
Adjusting the Grid

These instructions apply to the TrackLayer user who is creating a layout based on a pre-drawn image. To specify how the image maps to real-world dimensions, you adjust the spacing between grid lines. If the plan has a drawn grid (e.g., any of the *101 Track Plans*), you will need to adjust the TP grid to match it; if not, you resize the grid until the overall dimensions of the layout are what you want.

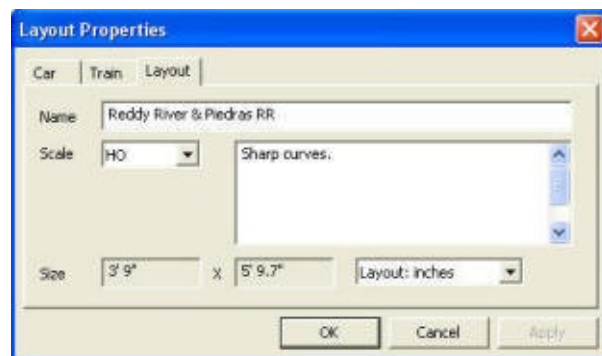
The grid has an anchor point which stays put as you drag. This point is at the intersection of two red grid lines, initially at the upper left of the layout.

To adjust the grid:

1. Turn on grid display if necessary. Use the **Track Grid** button on the [View subtoolbar](#).
2. Select the **Track Edit** tool on the [Build toolbar](#).
3. Point to a grid line or intersection point, press and drag. This resizes the grid relative to the anchor point.
4. If you are dragging a corner, grid squares remain square; dragging a line generates a non-square grid.
5. If you press Shift while dragging, the entire grid shifts, including the anchor point. This is helpful if you are trying to overlay a drawn grid.
6. To check the dimensions after adjusting: right-click and choose [Properties](#), and check the overall dimensions.



Overlaying the TP grid on a printed plan

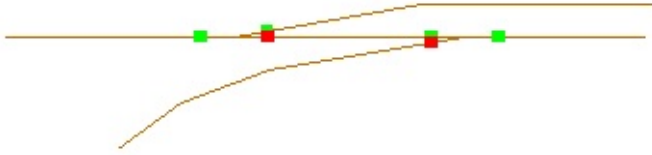


Overall size changes, as shown in Properties




Straight Track and Switches

The electronic track on a TrainPlayer layout is like sectional track from the hobby shop. It consists of an interconnected set of line segments, mostly straight but some curved. The point where two segments join together is a "junction," and the train rolls right across it. The point where three or more segments meet is a "switch," which you can "throw" to choose between alternate routes.



Unlike sectional track, TrainPlayer track segments can be any length, and joined at any angle. Switches can have any number of branches. Track segments can have special properties, like the ability to hide the train, or cause it to jump instantly from one end to the other. And, of course, TrainPlayer track never needs cleaning.

Straight track is easy to work with -- you just draw a series of line segments, and you're ready to drive trains. Draw three or more tracks to the same point and you automatically get a working switch. Since you can draw any curve as a series of short straight segments, it is possible to build the entire layout using nothing but straight track, but you'll get better results if you take the trouble to learn about curves too.

Before you work on a real layout, we suggest you start with a blank screen and learn some of the basic drawing operations. The tool you use most in TrackLayer is the Straight Track tool , used for creating straight track segments and switches. Since curves can be represented by a series of short segments, you can build the entire layout with the Straight Track tool, although you'll get better results if you learn to make curves as described in the next chapter. In this chapter we describe how to create straight track.


[Drawing Straight Track and Switches](#)

[Editing Track](#)

[Special Track](#)

Drawing Straight Track and Switches

To draw straight track:

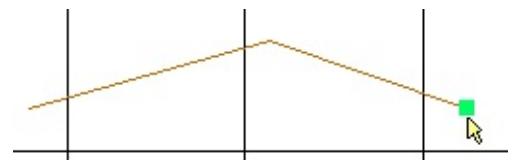
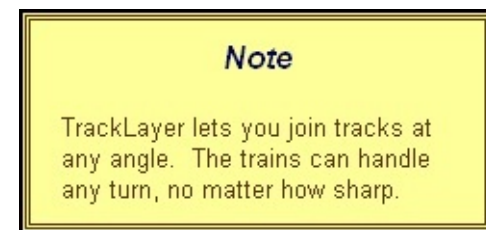
1. Choose the Straight Track tool .
2. Press the mouse button where you want one end of a track segment.
3. Drag to where you want the other end, release the button.



You have a point-to-point railroad! If you wanted to, you could add a train and start operating.

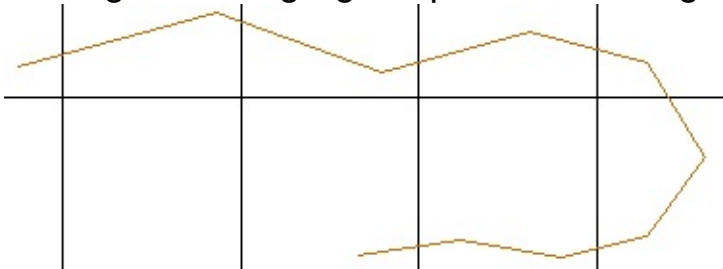
Note: if you want a perfectly horizontal or vertical track, press **Ctrl** as you drag. See [below](#) for details.

4. Position the cursor on one endpoint, so it highlights with a little green square (see picture above right).
5. Press and drag.



You now have a continuous section of road with a bend in the middle.

6. And so on. You can draw segments in any order and any direction -- they'll join together as long as the highlight square is showing when you press or release the mouse button.

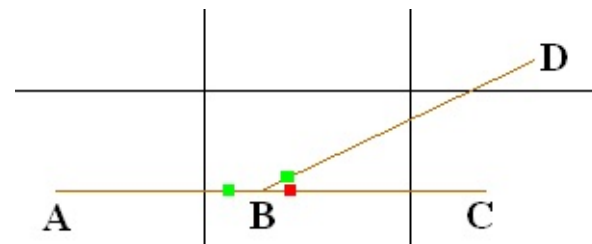


To draw a switch:

A switch is automatically created whenever three tracks join. This happens when you begin or end drawing a segment at either an existing junction or a point along an existing track.

To draw the switch shown here:

1. Draw the mainline in two segments, A-B and B-C.
2. Draw the branch in either direction, B-D or D-B. Junction B highlights when you begin or end drawing the branch.



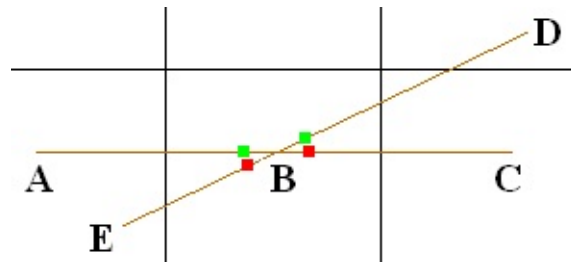
OR:

1. Draw the mainline in one segment, A-C.
2. Draw the branch in either direction, B-D or D-B. The track segment AC highlights when you begin or end at B. Junction B is created by this operation, chopping AC into two parts.

As soon as you release the mouse button using either method, the switch is created and the stop/go lights appear. You can test the switch by clicking at B.

To draw a multi-way switch:

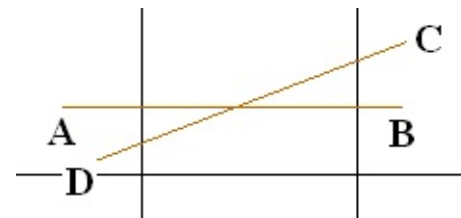
Simply draw more than three segments to a switch. Whenever more than three segments join, a multi-way switch is formed with more than two routes through it. Each throw opens a different route.



In this picture, the current open route is A-B-D. The first throw opens route A-B-C; the second, E-B-D; the third goes back to A-B-D.

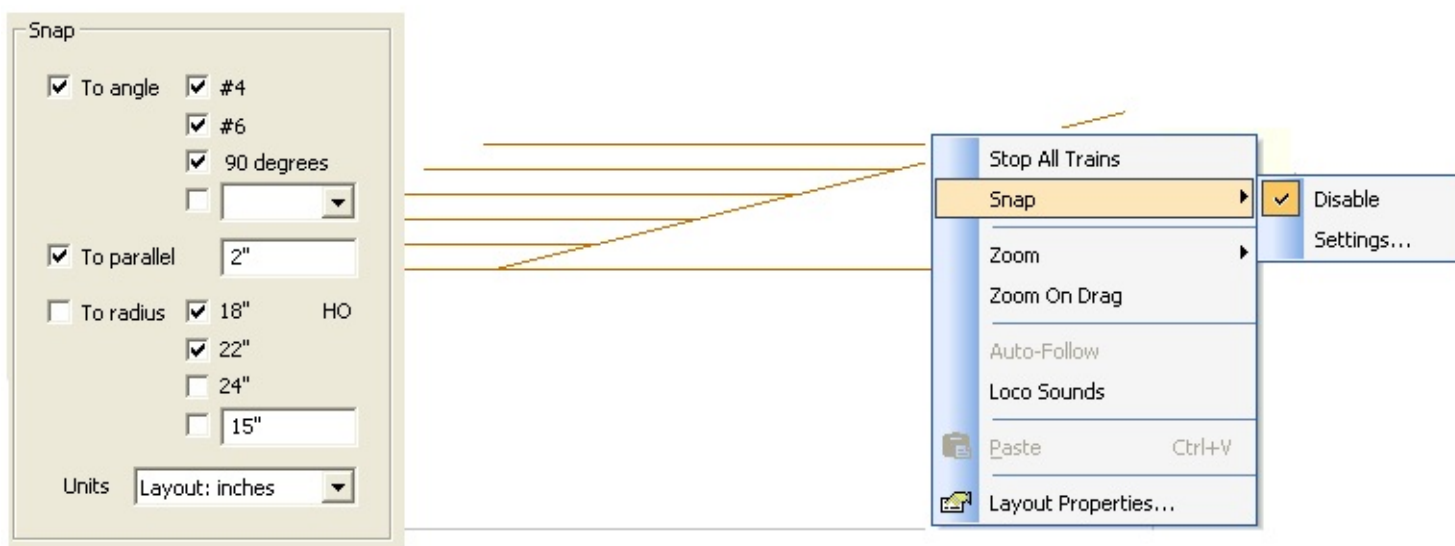
To draw a crossing:

Draw tracks which cross but do not join. In this example, AB and DC cross each other, but there is no junction in common, so trains cannot go from one track to the other.



Track Snap

Snap features assist you in drawing precise switches and curves.



Snap takes effect only when you are drawing new track, not editing or moving existing sections. By default it is disabled, as it tends to get in the way when you are tracing over an existing plan. But when you are drawing a new layout from scratch, it is invaluable. Enable it as follows:

1. Set up your choices in [Track Preferences](#). Here you specify what sorts of snap you wish to enable, and at what angles or radii, as shown above left.
2. Use the Track or Circle tool. Snap does not apply when using other tools.
3. Use the Snap Disable/Enable command on the layout context menu (above right) to turn snap off and on as needed while drawing.
4. When angle or parallel snap is in effect, you can disable it temporarily by pressing **Shift** as you draw.

There are three kinds of snap:

- **To angle:** applies when you are creating a new switch. Restricts the switch angle to one of up to four choices.

Refer to the [diagram](#) above. After you have drawn section AC and want to create a switch at B, angle snap takes effect when you press at B and drag toward D (but not if you drag from D toward B). As you drag, when the angle DBC gets close to one of the predefined values, it snaps to that angle.

Switch angles are given not in degrees or radians, but as integers. The integer indicates the slope, or ratio of "rise over run" between diverging tracks. For example, at a #4 switch, the tracks are one unit apart at a distance of four units from the frog.

- **To parallel:** applies when you are creating a new switch in the vicinity of another. Restricts the distance between parallel tracks to a specific value.

Parallel snap is designed for creating ladder tracks, such as those shown in the diagram above. Once you have drawn the base section and the branch, you create each ladder track by pressing on the branch and dragging away from it. When parallel snap is in effect, the starting endpoint of a new track is not exactly where you press, but snapped to a nearby point such that the distance between the new track and its neighbor is a fixed value (default is 2" in HO).

- **To radius:** applies when you are creating a circle. Restricts the radius to one of up to four choices.

When you are using the Circle tool, and dragging without the shift key pressed, then you are adjusting the radius of a circle as you drag. When radius snap is in effect, if the radius is near one of the predefined values, it snaps to that value.

More details about snap features are given in [Track Preferences](#).

Drawing Straight Horizontal/Vertical Track

To draw perfectly horizontal or vertical track when using the Straight Track tool, hold down CTRL as you drag. This restricts the line to one direction or the other, depending on the

direction you are dragging. (Be sure to keep Ctrl pressed until *after* you release the mouse button.)

As mentioned above, pressing SHIFT as you drag is a way to temporarily avoid angle and other snap actions. As a reminder, as soon as you press the mouse button you get a message on the status bar:

Press SHIFT to avoid snapping, CTRL to draw strictly horizontal or vertical

Track Coloring

To color track, create a road style and apply it to the track. See [Road Styles](#).

Editing Track

If you've drawn some track and want to make changes, there are several choices. You can correct a mistake by undoing it. You can delete a single track object -- track segment, curve, circle, turntable -- by point-and-press, or you can select several and delete them all at once. You can move or resize track objects, or copy them from one place and paste them into another.

Once a network of track is laid and interconnected, it's a little tricky to move it around without fouling something up. This is especially true where curves are involved -- the program attempts to keep straight segments tangent to their curve arcs, and this can restrict movement.

Undo/Redo



If you make a mistake, the easiest and safest way to fix it is to immediately undo it. To undo the latest drawing or editing operation:

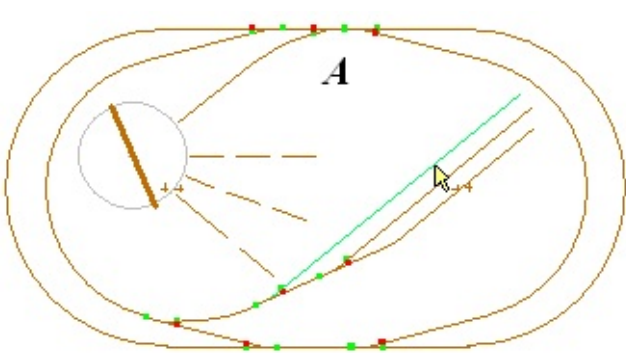
1. Choose **Edit Undo** <, or press Ctrl-Z. The last operation is undone, and the layout reverts back to its previous state. The menu command includes the type of operation which will be undone, e.g., Undo New Track.
2. You can use the command repeatedly to undo earlier operations. There is no limit on the number of undo's -- you can go all the way back to the blank screen or the file you started with.
3. If you change your mind, use **Edit Redo** (Ctrl-Y) to undo the last undo.

Undoable operations include deleting, adding, or moving track, circles, stations, or turntables, and changing most track properties. Train moves are not undoable, nor changes made in the Properties dialog.

Deleting objects

You can delete a single object -- track segment, circle, or turntable -- by point-and-press, as follows:

1. Choose the Track tool  or the Edit tool .
2. Position the cursor on the segment or object to be deleted, so it highlights (see **A**). On a circle or turntable, point to a spot on the circumference of the circle.
3. Press the **Del** key, or right-click and choose **Delete**, **Delete Track**, or **Edit Cut** from the context menu. Note that context menus differ depending on what type of object is highlighted.



When you delete a turntable or its bridge track, both the circle and the track are deleted.


To delete multiple tracks or objects:

1. Select the objects as described below.
 2. Delete with the Del key or a menu command, as in step 3 above.
-

Selecting objects

To move or delete a collection of objects, you must first select the ones to be modified. You can choose them one at a time, or several at once by dragging a selection box.


To select individual objects:

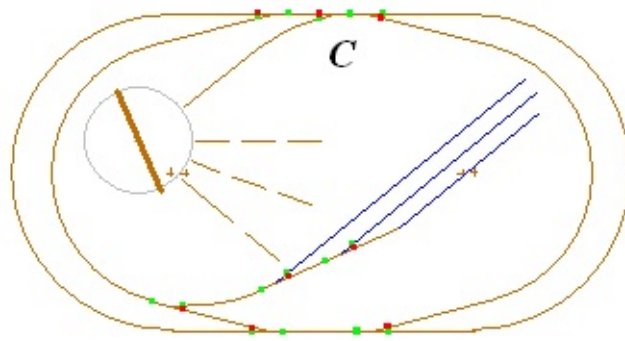
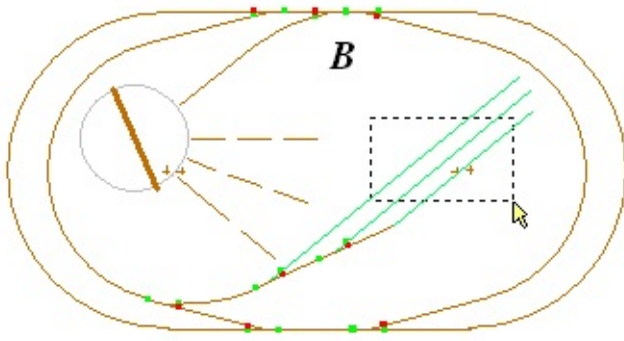
1. Choose the Edit tool .
2. Click a track segment, circle, or turntable. The object is selected, and turns navy blue.
3. To select another object, press Shift and click the object.
4. To unselect a selected object, press Shift and click the object.

To unselect all objects: click an empty spot on the layout.

To select all objects: choose **Edit Select All** or press Ctrl-A.

To select all objects in a given region:

1. Choose the Edit tool .
2. Press and drag to form a selection rectangle (see **B**). Any track or object intersecting the rectangle is highlighted in green. It is not necessary for the track or object to be completely enclosed by the rectangle.
3. Release. Highlighted track becomes selected (see **C**).




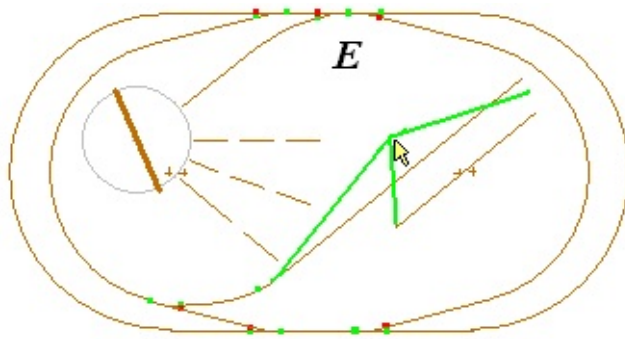
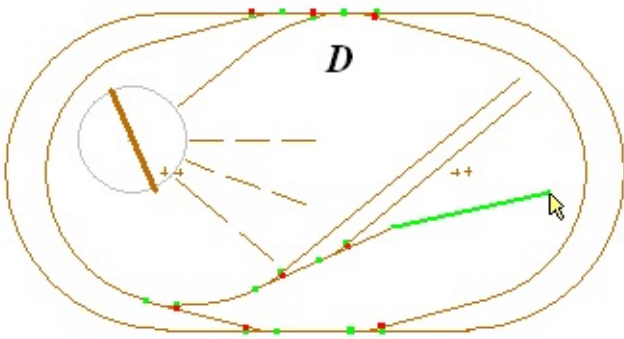
If you hold down the shift key while dragging, the newly-selected items will add to the previous selection.

Moving objects


Once a network of track is laid and interconnected, it's a little tricky to move it around without fouling something up. One simple and safe operation is to move a track endpoint or junction.

To move a track endpoint (shown in **D**):

1. Choose the Edit tool .
2. Position the cursor over the endpoint you want to move, so you see the green highlight square.
3. Press and drag. The endpoint moves, the other end remains anchored.



To move a junction or switch (shown in **E**):

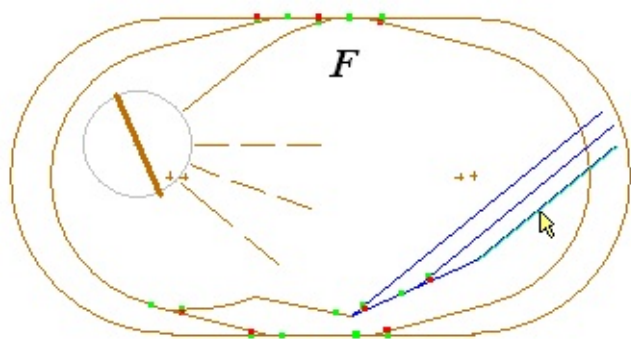
1. Choose the Edit tool .
2. Position the cursor over the junction or switch you want to move, so you see the green highlight square.
3. Press and drag. The junction or switch moves, the other ends of all attached tracks remain anchored.

To move a collection of track and/or other objects (shown in **F**):

1. Select the tracks and objects to be moved, by shift-clicking or dragging a selection rectangle.
2. Point to any of the selected tracks or objects, press and drag.

All selected tracks and objects move as a unit. Attached tracks which are not selected are repositioned so as to remain attached.

In this example, five segments in a yard are all being moved at once. One end of the yard lead track remains fixed, the other end moves with the selection. The resulting angles are not train-friendly.



Copy/Paste

Selected objects -- tracks, circles, turntables -- may be copied to the TrainPlayer clipboard and then pasted elsewhere on the layout or in another layout. These objects cannot be pasted into other programs.

To copy a collection of objects:

1. Select the objects as described previously.
2. Right-click any object and choose **Copy**, or choose **Edit Copy** from the main menu, or press **Ctrl-C**. The objects are copied to the clipboard.

To paste copied objects:

1. Choose **Edit Paste** from the main menu, or press **Ctrl-V**. Objects on the clipboard are added to the layout in the upper left corner, and are selected so that you can drag them into position.

Pasted objects do not automatically connect to existing track, even if you position them so it looks like they should. To connect pasted track with existing track, you can delete and redraw a segment, or you can drag one junction on top of another and they will "fuse."

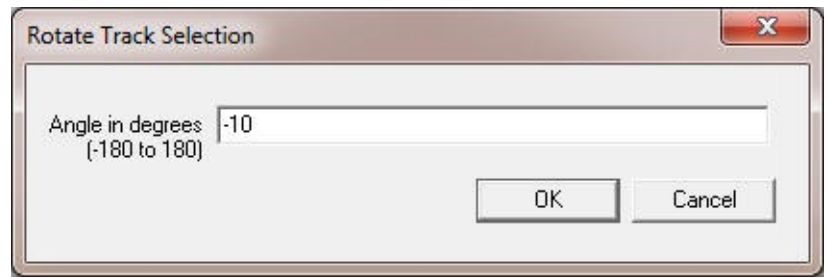
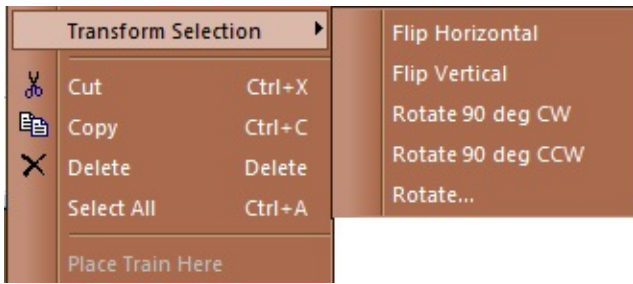
Track Transform, Rotate, Flip

A selection of track can be rotated by an arbitrary angle, or flipped horizontally or vertically.

To rotate or flip track:

1. Select one or more track sections. To select an entire area (such as a yard), you can start by dragging a selection rectangle around the area, then shift-click to include or exclude individual sections.

2. Right-click a selected section and choose a **Transform Selection** command, Flip or Rotate.



To rotate by an arbitrary angle, choose **Rotate...** and enter an angle in the dialog. A positive value rotates clockwise.

The selected tracks are rotated or flipped about the center of the rectangle enclosing the selection. If there are adjacent unselected tracks, these will be reoriented as necessary to remain connected. For example, here is a rotation of -10 degrees on a selected yard:



Junctions shown in red remain fixed, while those touching the selected tracks move.

Transform Selection is undoable, so you can experiment with it, then undo, and nothing will be harmed.

Ties and Roadbed

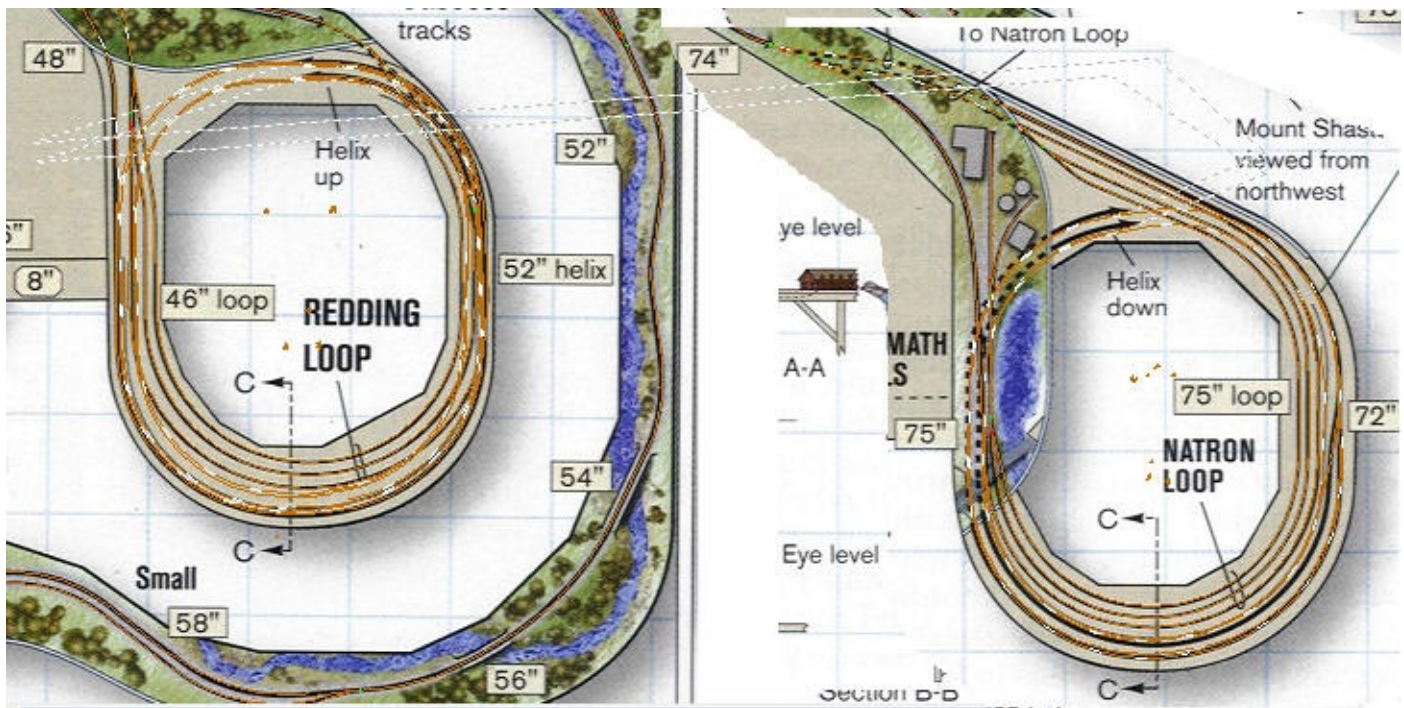
If you want to add ties and/or roadbed to your track, see [Road Styles](#).

Special Track

Once you have some track down, you can mark sections of it to have special properties. A section can be marked as:

- **Hidden track.** When a train passes over a section marked Hidden, the cars become thin outlines. This simulates passing through a tunnel or a section of track underneath the layout. Hidden track is shown on the layout as dashed lines. You specify this type by choosing **Hidden > With Car Outlines** from the track context menu.
- **Hidden track with hidden cars.** If you choose **Hidden > No Car Outlines**, then cars disappear completely when they pass over this section of hidden track.
- **Tunnel track.** When a train enters one end of a section of tunnel track, it "tunnels through" and immediately begins to emerge at the other end. Tunnel track is used when the layout has multiple images, for example a separate picture for upper and lower levels. As soon as the train leaves the upper level diagram, it appears at the corresponding place on the lower level diagram, as long as the exit and entry points are connected by a length of tunnel track. Tunnel track is shown on the layout as light grey lines, visible only when the Track Tool is in use.

This illustration shows tunnel track (hard to see) connecting levels of the helix in John Armstrong's Southern Pacific Shasta Division, from Model Railroader, Apr 2005:



Tunnel track is also used to specify "clipping regions." See details below.

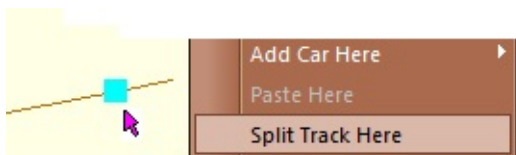
- **Untouchable track.** When track is marked Untouchable, it becomes like the background - it cannot be selected or moved or highlighted. This is an advanced feature. Untouchable track is used for building helices or other constructions requiring curves right on top of each other; for a step-by-step procedure, see [Helices](#).

- **Linked track.** You can mark a stub section of track as "linked," and connect it to another layout. When the train reaches that stub, it "jumps" to the other layout and continues on its way. Details [below](#).
 - **No ties or roadbed.** Track with this mark are excluded when displaying ties or roadbed.
 - **Double track.** Choose a set of tracks and clone them to get parallel double track. See [Double Track](#) below.
 - **Overpass track.** This track sits on top of all others, and hides trains passing beneath. See [Overpass Track](#) below.
-

Split Track Here

For various reasons, the you sometimes need to introduce a junction into a straight or curved section of track. In the past this was done as described under [Isolating Track](#) below; as of v. 5.3 it can be done directly, like this:

1. Use the Track Edit tool.
2. Right-click a point along a track where you want to create a junction, and choose **Split Track Here**.



The track is split and a junction created at the indicated point. There is no immediate visible evidence of this, but you'll see the new junction if you hover over it. The operation is undoable. Works on both straights and curves.

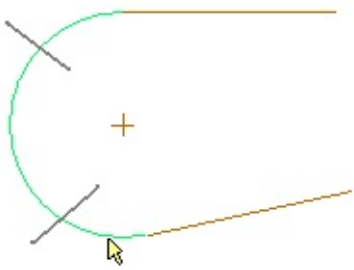
Isolating Track

Most of these properties can be applied only to one or more complete segments of track. To apply a property to a portion of a track segment or curve, you must first isolate that portion by chopping it out.

Note: while these instructions are still valid, most steps are obsolete. You no longer need to introduce a temporary track in order to split a segment; instead, use [Split Track Here](#).

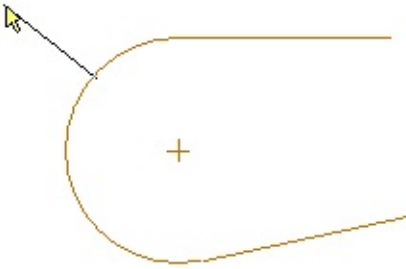
To isolate a section of track:

	Say you want to isolate the portion of this curve between the hash marks. You can see the full
--	--

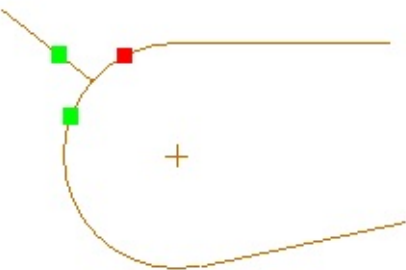


extent of the original curve by highlighting it.

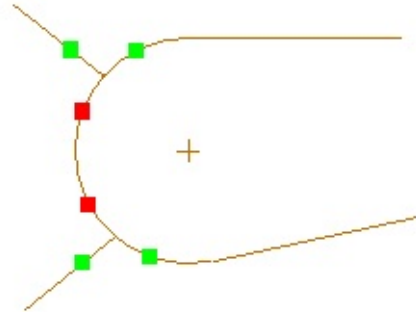
Use the Track tool  for this procedure.



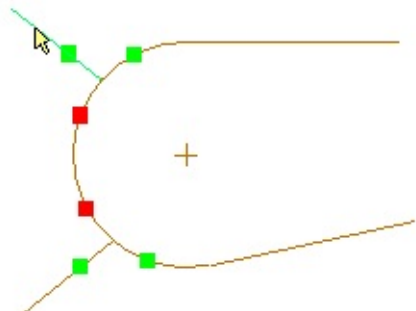
1. Draw a straight segment touching the curve where you want the first chop point.



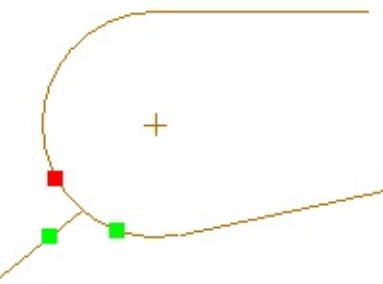
2. When you release, a switch is formed.



3. Repeat, drawing another segment at the other chop point.



4. Point to one segment and press Del. The segment and switch disappear.



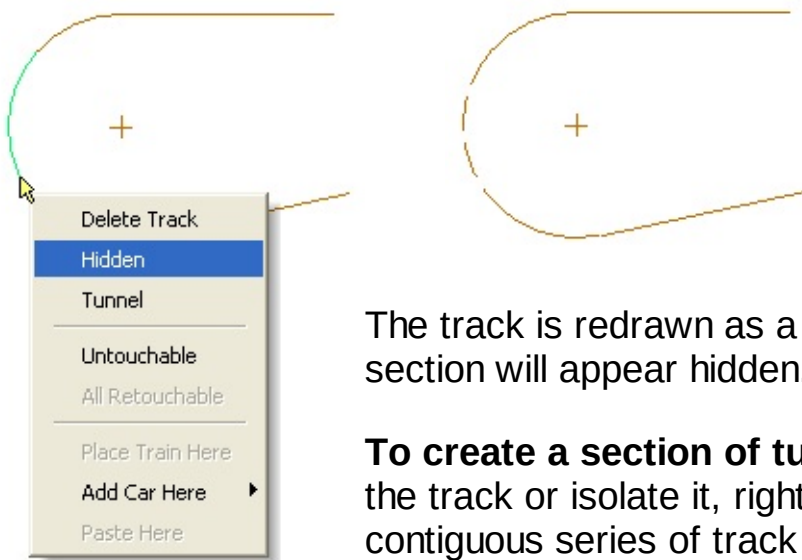
5. Repeat for the other segment.

6. A small portion of the original curve is now isolated between two new junctions.



Modifying Track

1. If necessary, isolate the segment of track to be hidden. This is not necessary if you want to hide one or more entire segments.
2. Point to the segment to be hidden, so it highlights, then press the right mouse button.
3. Choose **Hidden** from the context menu.



The track is redrawn as a dashed line. Trains passing over this dashed section will appear hidden.

To create a section of tunnel track: the procedure is the same: draw the track or isolate it, right-press and choose Tunnel. When a contiguous series of track segments are marked Tunnel, the train hyperspaces across all of them at once.

To mark a section of track untouchable: same procedure again. Be careful when you use this feature! Once a section is marked untouchable, you can no longer select it, move it, delete it, create a switch or junction in it, change its properties, or connect any other track to it -- it becomes dead. Make sure the track is fully connected and its properties set before you mark it untouchable.

To reenable an untouchable section: right-press any track and choose **All Retouchable**. This reverts **all** untouchable track to its normal state.

Clipping Regions

Hidden track works fine for long tunnels, but for short sections going beneath underpasses or behind scenery, a better scheme is required. In TrainPlayer, tricks involving track marked Tunnel are used to hide specific areas.

Note: as of Version 7.1, you may be able to skip this section. If what you are trying to do is create an overpass, you can now do it with one checkbox -- see [Overpass Track](#) below.

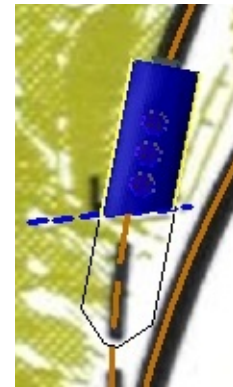
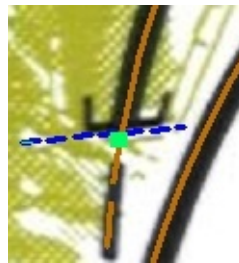
These tricks can be used to indicate clip angles at tunnel portals, or to define regions of invisibility.

Tunnel portal clipping:

where the train is moving between hidden and normal track, and needs to be clipped to a specific angle.

For this effect, draw a section of Tunnel track passing over the junction between hidden and normal track. This section defines the clip angle.

The tunnel track section must not be connected to anything else, must not form a switch with the track it crosses, and must pass directly over the hidden-to-normal junction.



Overpass clipping: where the train is to be completely hidden as it passes through a given region.



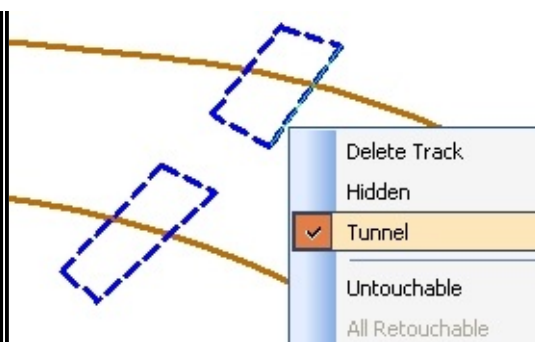
For this effect, draw a "clipping box" surrounding each area to be hidden.



A box must consist of exactly four connected

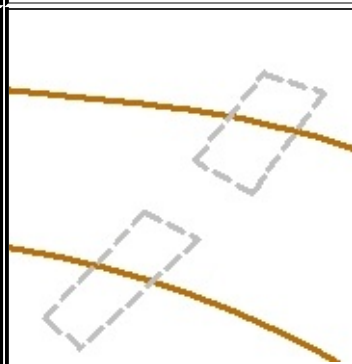
track segments, all marked Tunnel.

As a shortcut, you can shift-click to select all segments at once, then point to any one and choose Tunnel from the context menu.

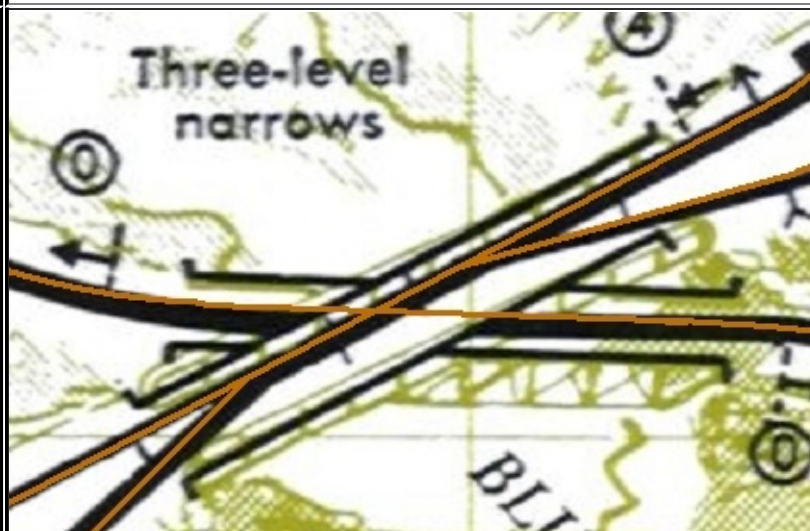


Boxes appear as dotted gray lines, shown only when Track or Edit tool is active.

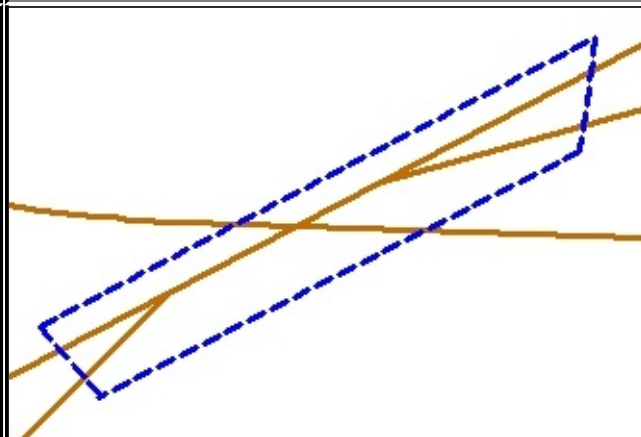
When trains pass, the portion within each clip box is completely hidden.



Over-underpass regions: where trains going underneath are to hide, trains on top to remain visible.



For this effect, first draw a clipping box as above, defining the hidden region.

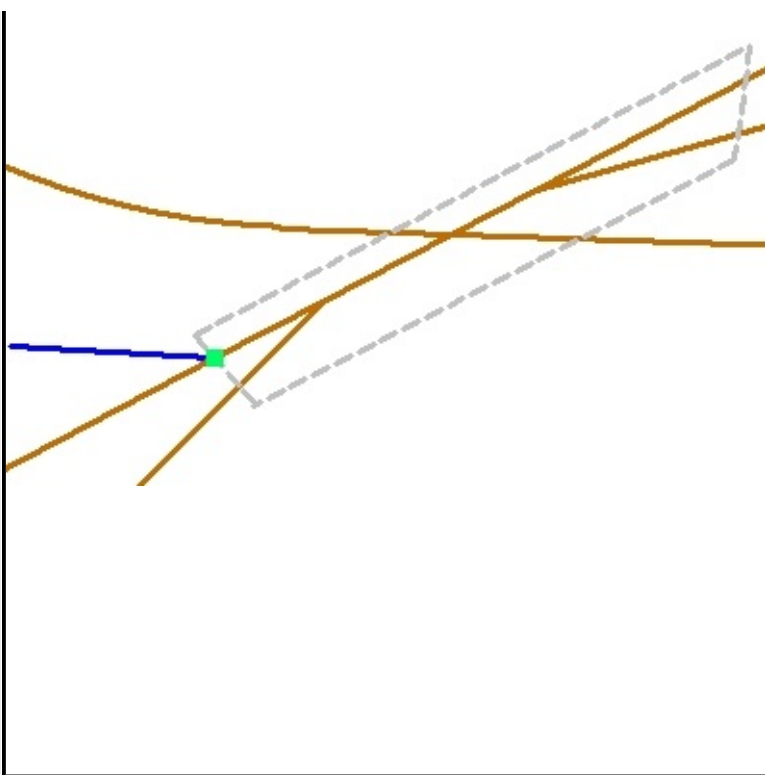


Then identify the track(s) to be on top, where trains are to remain visible. To do this, introduce a junction where any top track crosses the clip box

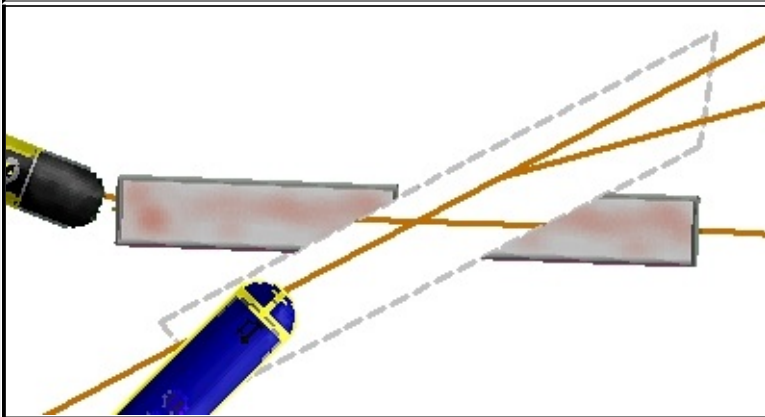
boundary.

Best procedure is: (a) mark the tunnel track as Untouchable; (b) draw a temporary segment to the point where you want the junction; (c) delete the segment.

This junction serves no purpose except to flag a track as being on top. All other track "electrically connected" to the junction is also on top.



Trains passing on top tracks remain visible, while those on non-top tracks are clipped.



Linked Layouts

It is possible to set up a link between two layouts such that when a train drives off of one, it lands on the other. Pick any stub or siding, specify a target layout or remote track, drive off the siding, and poof! the scene changes and you are running the same train in a different place. Great for connections between multi-level layouts, N-Trak modules, or just cruising randomly through your layout collection.

This feature was introduced in version 2.1 (2005) and not improved until 8.1 (2021), when it was extensively reworked to offer these improvements:

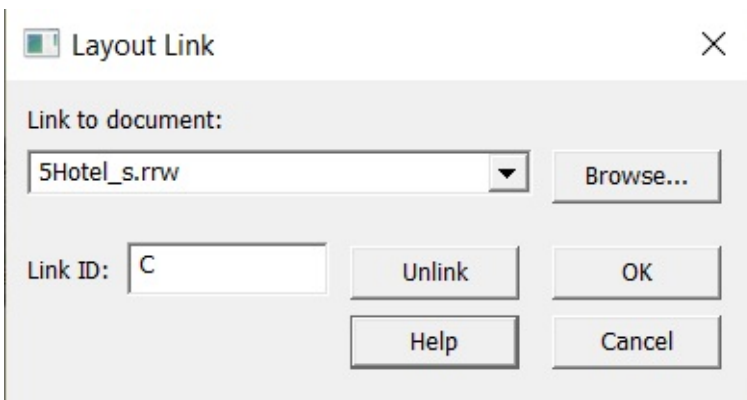
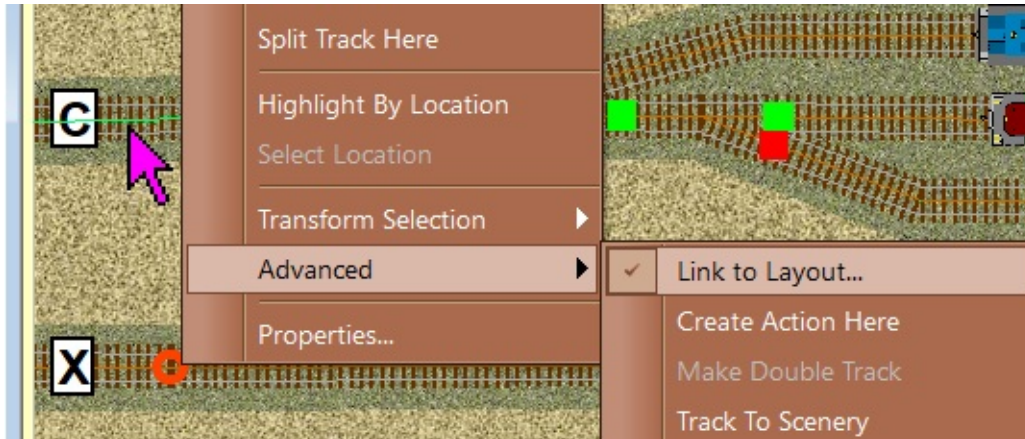
- A train in the process of jumping from one layout is no longer in a fragile state -- it can couple or uncouple anywhere on either layout
- A train can be hand-dragged across a link -- push one end across, then grab the other end and pull
- Cars and trains crossing to a new layout are automatically renumbered as necessary to prevent duplicate ids
- Focus remains with the selected train and its window as it moves between layouts
- Images are clipped for smoother appearance during jumps
- A link need not go to a different layout, but instead may land on another track on the same layout
- Various enhancements allow scripts to work in multi-layout systems

- The dialog for configuring links is improved, and now available from Track Properties

A detailed description of the new 8.1 features is given in the PDF document on the web: [Introduction to Linked Layouts](#). That document includes instructions for creating multi-layout scripts.

To link layouts:

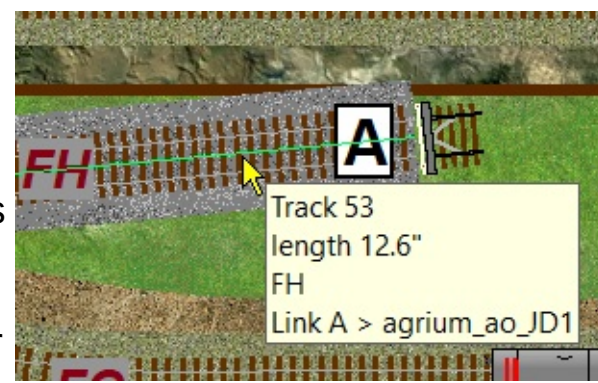
1. Choose the jumping off point. This must be a "stub" track, one with no connections on one end (e.g. a siding or yard track). When the train reaches the end of this track, it will begin its jump to the linked layout.



2. With the Edit or Track tool selected, right-click the track section and choose **Advanced > Link to Layout**. (Alternatively, choose **Properties**, then click the Link button -- see [Track Properties](#)). The [Layout Link dialog](#) appears.
3. Choose the target layout. In the **Link to document** box, enter the path to a layout file, or use the **Browse** button to navigate to one. Or, if the layout is already open in another window, choose it from the drop-down menu. Choose **Self Link** from the drop-down if you want to link the selected track to another on the same layout.
4. Assign a "Link ID." The Link ID is a label used to connect this track to a specific track on the target layout. In the example, this particular jump-off point is called **A**. When the train jumps from this point onto the target layout, if it finds a linked track called **A**, it will land there. If it does not find a matching label, it will jump to an arbitrary place. Thus, in order to set up a precise jump, you will need to follow this same procedure on both layouts.
5. Click **OK**, and the link is set up. The link label is displayed on the track as a boxed letter (shown at right), and the track tooltip gives the link label and target.

Note: layout links are also shown by special symbols in [Map View](#).

6. Drive (or hand-drag) a train onto the linked track, and keep going as if you were driving right past the stub. The train will begin the jump. The target layout will be automatically opened if necessary, and will be brought to the front and activated (assuming the jumping train is selected); cars will be renumbered if necessary and moved to a new train on the target layout.
7. While the train is jumping, you may change its speed or direction, and both parts will move together.



To unlink:

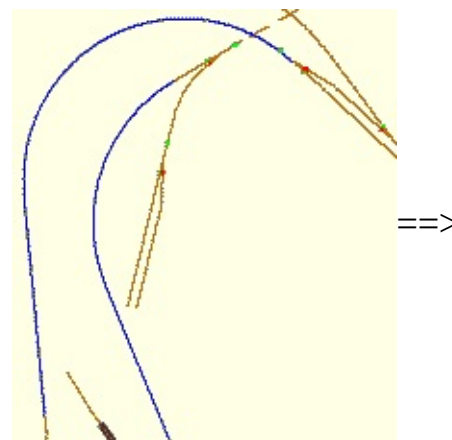
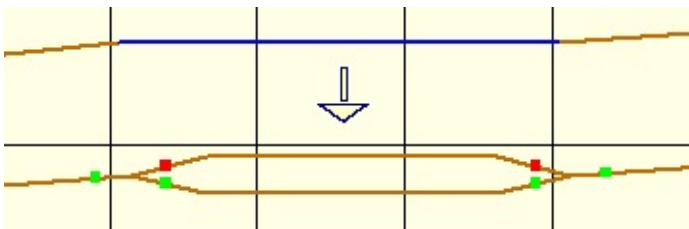
1. Right-click a linked track section, toggle **Advanced > Link to Layout** to uncheck it. Alternatively, uncheck the Link box in Track Properties.

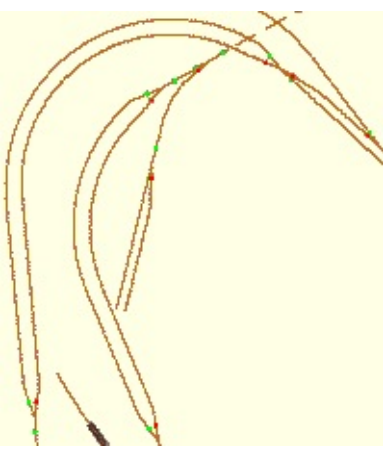
Double Track

If you've ever tried to create a length of parallel double track --say for a passing track or a double-track section of main line -- you know it's not easy, especially if curves are involved. Now a feature introduced in TrackLayer 5.3 does the engineering for you. Here's how to use it:

1. Use the Track Edit tool. Click or shift-click to select one or more track segments, defining the stretch you want to double.
2. Right-click any selected track and choose **Make Double Track**.

The entire selection splits in two, joined at the ends by Y switches:





While doubling works over an arbitrary selection, for best results you should be careful to select a contiguous set of tracks between two well-chosen endpoints, with no switches in the selection. If you try it and don't like the results, use **Edit > Undo**.

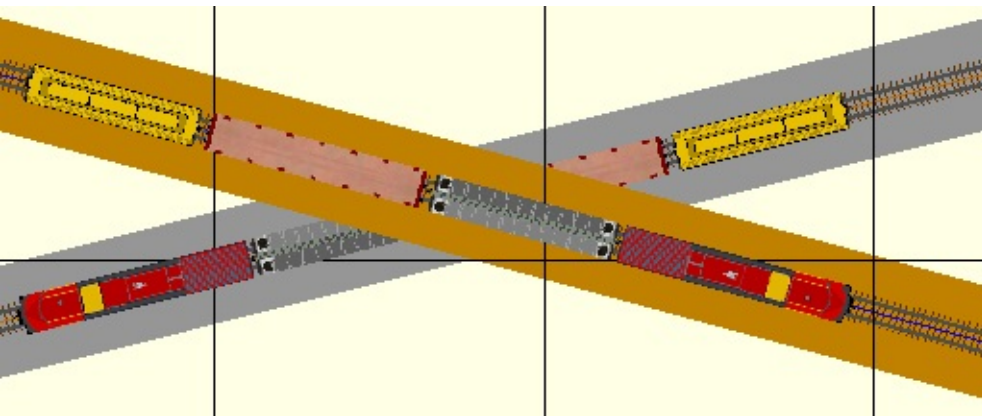
The distance between parallel tracks is taken from the default layout road style rail separation; see [Road Styles](#).

Note: **Make Double Track** is dimmed unless you have already selected some track, i.e., turned it blue. It won't work just to point at a track and press the right mouse button.

Overpass Track

As of Version 7.1, you can with one click designate a length of track as "overpass." This means:

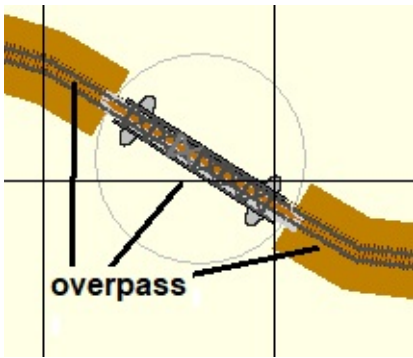
- the overpass track and its roadbed, ties, and rails are drawn on top of any other track or scenery
- trains passing on top of the overpass are fully visible*
- trains passing below the overpass are hidden as they go under



* Or not. Overpass track is subject to the same visibility properties as normal track. You can for example make an overpass be hidden track with cars invisible.

To turn a section of track into overpass, just select the track and apply the Overpass checkbox in [Track Properties](#). You do not need to define a road style or set up clip boxes. If you wish you can provide a RoadStyle with a custom trackbed to represent the Overpass deck but this is not essential.

Note: using overpass track is the best way to create a turntable bridge. Mark as Overpass the bridge track and a short segment on each external connection, as shown below. Then you can (a) attach a scenery object on the bridge (see [Bridge Scenery](#) on the Transfer Table page); or (b) create a special road style to represent the bridge (see [Road Styles](#)). Either way, the train stays on top.



Track Properties

Properties of the selected or right-clicked track section(s). Called from **Properties** on the [Track context menu](#).

The screenshot shows the 'Track Properties' dialog box. It has a title bar with a close button. The main area contains the following controls:

- ID(s):** 1
- Type:** Straight track
- Length:** 5.8"
- Jxns:** 1 - 12
- Label:** [Text Field]
- Hide label
- Style:** Default [Dropdown]
- Untouchable
- Overpass
- Link:** Linked [Button ...]
- Units:** Layout: inches [Dropdown]
- Visibility:** Normal, Hidden, Tunnel
- On Hidden Track:** Cars as outlines, Cars invisible, Cars fully visible
- Buttons:** OK, Cancel, Apply, Help

The Track Properties dialog shows properties of one or more sections of straight or curved track. It allows you to override general track style preferences and apply different styles to particular sections. This dialog does not apply to circles or turntables.

This dialog is modeless -- it remains up while you click around the layout. When you change the selected track, the properties of the new selection are displayed and can be modified without dismissing the dialog.

Dialog controls:

ID / type	Track section integer ID and track type (Straight or Curve). Read-only. If multiple sections are selected, the ID field displays a list of id's, the type field a mixture of types if applicable.
Length / Radius	Length of track section, with radius if curve. For multiple selections, no value is shown unless it is the same for all selected sections. Read-only.
Jxns	IDs of junctions at each end of track (single selection only)
Label	A user-supplied string of text for identifying the track section; see below .
Hide Label	Check this box to prevent displaying label on track.
Style	Name of the road style attached to selected track. First choice is always Default, last calls up Road Styles dialog; in between are names of custom styles. See Road Styles .

[Untouchable](#) marks the selected section as inert so it cannot be modified by any track tools. This can also be set using the **Untouchable** command on the Track context menu. To restore an untouchable track to normal, use the checkbox in this dialog (to restore the selected track) or choose **All Retouchable** from the context menu (to restore *all* untouchable track).

Untouchable

Check this box to make the selected track(s) into overpasses, on top of other tracks and trains. See [Overpass Track](#).

Overpass

A check means this track is linked to another track, on this or another layout. If checked, click the more button (...) to create or configure the link in the [Layout Link dialog](#).

Link

Units of length and radius. Changes to this combo affect Units combos in other dialogs.

Units

Normal, [hidden](#), or [tunnel](#). You can see and change the type of the selected section(s) here in this dialog; alternatively, use **Hidden** or **Tunnel** commands on the Track context menu.

Visibility

If Hidden is chosen as the track type, then this radio specifies how cars are to be displayed as they go over the hidden track: (a) outlined = thin black lines outline the car tops; (b) invisible = cars are completely hidden; (c) visible = cars are drawn normally.

On Hidden Track

Track and Junction Labels

You may attach a string of text to a track section or junction, as a way of identifying that location. The label can be referenced in scripts or used in certain dialogs as a way of locating the track or junction. It is typically used in conjunction with the [car Dest property](#) to indicate where a car is to be spotted.

A track label is normally displayed at the center of the track section. Font and color can be set in [Track Preferences](#). Display of the label can be suppressed using the Hide Label checkbox.

To label a track section by hand, right-click it, choose Properties, and enter a string in the Label box

You cannot provide a junction label by hand. This is only done via script functions (using \$TRACK, \$JXN, \$TURNTABLE families).

When you supply a label for a track or junction, you can use the [Highlight Track dialog](#) to locate that object by label.



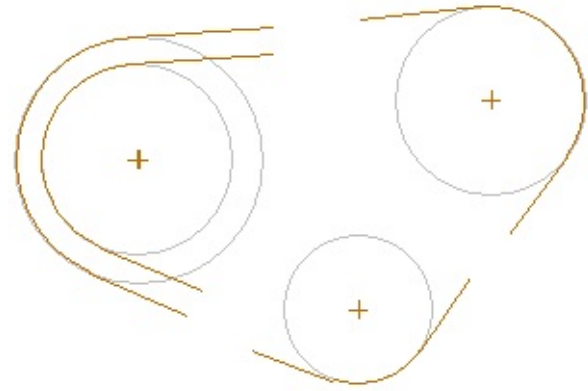
Curved Track

All curves in TrackLayer are circular -- if you want splines or spiral easements, you will have to draw them by hand using short straight segments.

A curve is created by three objects: a circle and two "legs," like a horseshoe. The circle establishes the radius and position of the curve, while the legs establish the end points and the approach tracks.

TrackLayer goes to some trouble to help you make nice curves. The program keeps the leg segments exactly tangent to the circles, both when drawing and editing.

This chapter describes how to draw and edit curves and circles.



[Drawing a Curve](#)

[Editing a Curve](#)


[Loops and S-Curves](#)

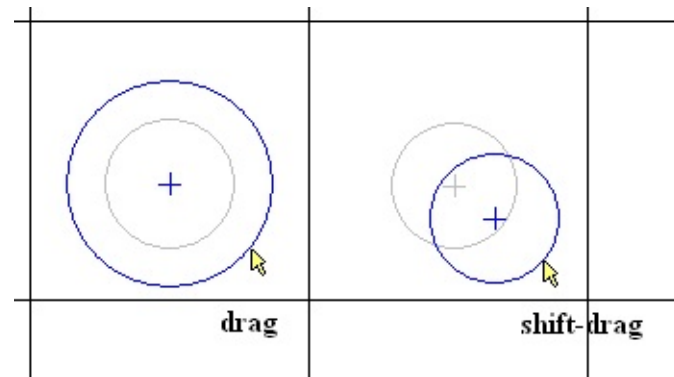
[Helices](#)

Drawing Curves

To draw a curve, first you place the circle, then attach the legs. If you do this right, the circle disappears and a curved track is generated between the leg segments.


To draw the circle:

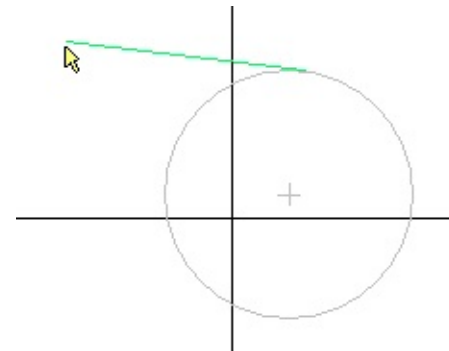
1. Choose the Circle tool .
2. Press the mouse button near where you want the center of the circle.
3. Drag to adjust the circle's radius.
4. To move the circle instead of resizing it, press the **Shift** key as you drag.
5. Continue dragging, toggling the shift key as necessary, until the circle is where you want it; then release.



Note: in version 3.1 you can have the radius snap to a specific value as you drag; see [Track Preferences](#).

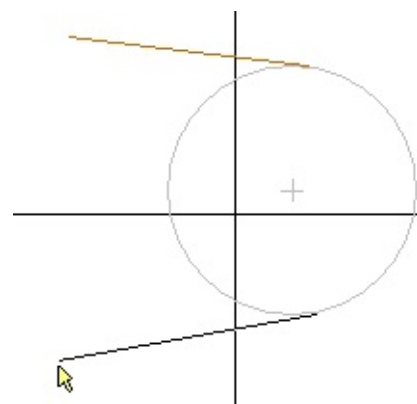
To draw the first leg:

1. Choose the Straight Track tool .
2. Position the cursor on the circle where you want the leg to join the curve. The circle highlights.
3. While the circle is highlighted, press the mouse button.
4. Drag to where you want the other end of the leg. While you drag one end, the other end adjusts automatically to remain tangent to the circle.



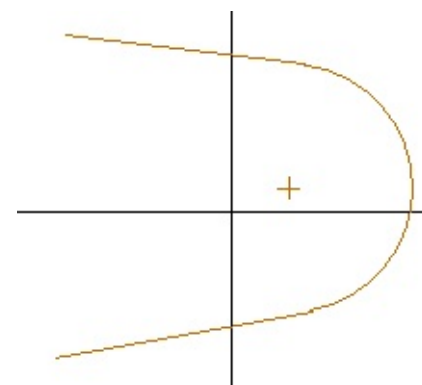
You can draw a leg in either direction, either starting on the circle or ending on it. Just be sure that before you press or release the mouse button, the circle is highlighted so the segment will connect.

To complete the curve:



Draw the second leg as you did the first. This time, when you release the mouse button, the circle disappears and the arc section between the two legs becomes a curve.

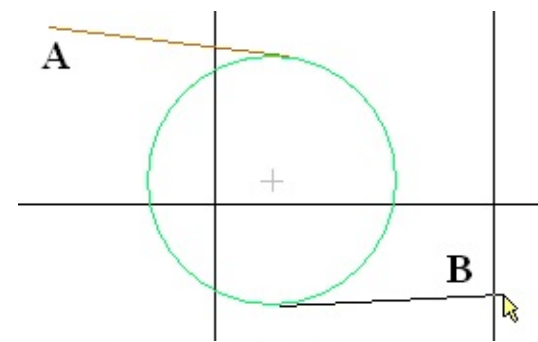
When the train comes down one leg, it will go smoothly into and around the curve and exit on the other leg.



Notes

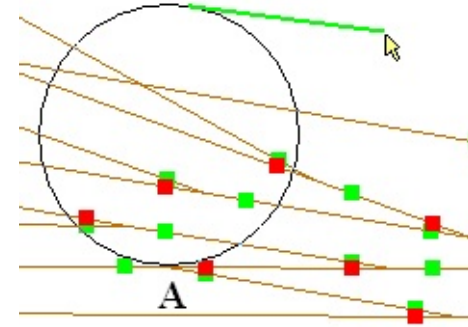
- **All curves must be horseshoes.** That is, if you go clockwise from leg A onto the curve,

then you must also go clockwise from the curve onto B. In other words, when you draw the second segment, don't orient it backwards, as in the picture at right.



- **Avoid crowds.** If you are working in a crowded area, and a track end happens to lie near the rim of a circle, then as soon as you draw the first leg to that circle, it will automatically form a curve with that track end.

In the picture at right, when you draw the tangent segment at the top (green), the curve will automatically connect to the track end at A, whether you meant it to or not.



If this happens, **Undo** and try a different approach: draw the other leg first, or temporarily move the offending track end away from the circle.

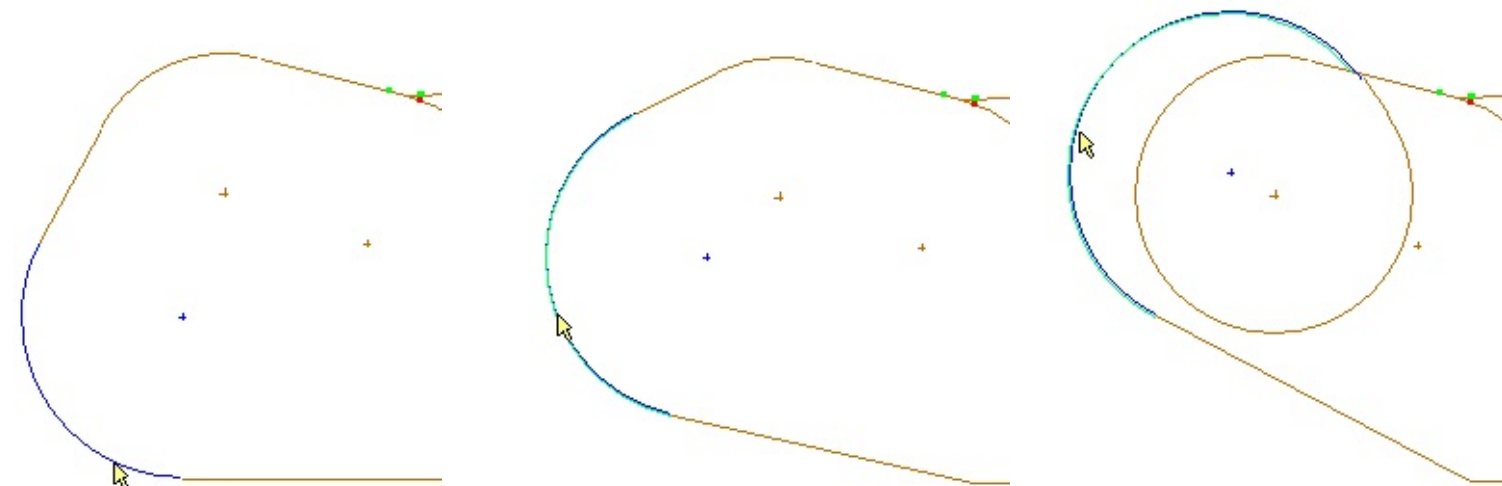
- **Watch the highlights.** If the curve doesn't form automatically after you release the second leg, it probably means you didn't get one leg close enough to the circle. Be sure the circle is highlighted when you start or end drawing the leg segment.,
-

Editing a Curve

Editing curved track is like editing straight, except a little trickier. When you move a curve, or a straight track tangent to a curve, the program adjusts connections points as you drag so as to maintain tangency. If a curve is tied into a network of straight sections, this can cause quite a bit of movement, and if you attempt to move a curve too far, track can become tangled.

To move a curve:

1. Choose the Edit tool .
2. Click to select the curve to be moved (shown at left). The curve turns blue.



3. Press and drag carefully. As you drag, attached straight sections, and curves on the far ends of those, are automatically adjusted (see above center). If you drag too far, some curves may not be able to stay tangent, and you can end up with a spiral (above right). If this happens, Edit Undo and try again.




Because of the requirement that curves remain tangent, ***you cannot drag a junction which joins a curve and a straight***. In the diagram at left, dragging the highlighted point has no effect, because anywhere you try to drag it will cause the tangency to break.

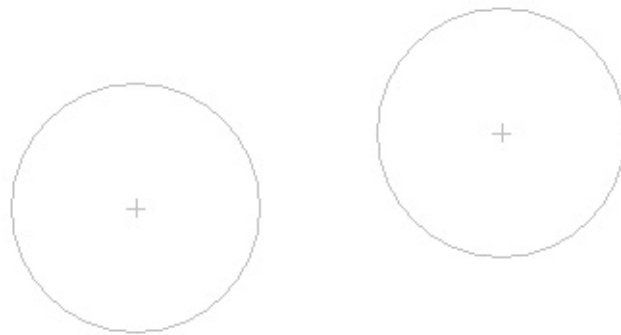
Loops and S-Curves

You don't have to draw curves one at a time. Some constructs, like loops and S-curves, work better if you draw more than one circle before you add the straights.

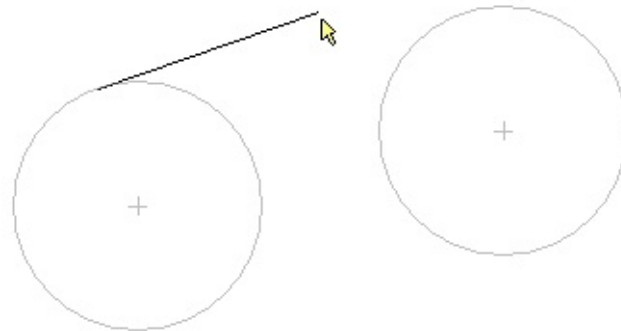
To draw a loop:

1. Draw two circles.

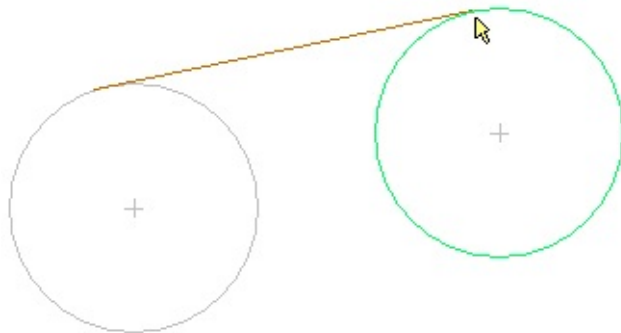
Use the Circle tool . Remember: use the shift key to move, unshift to resize.



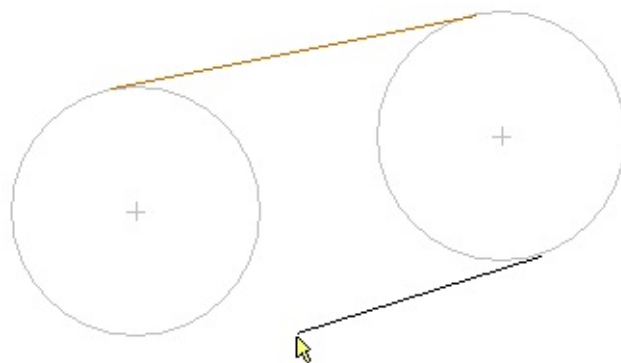
2. Begin on either circle and drag a tangent to the other.



3. Release when the destination circle is highlighted.

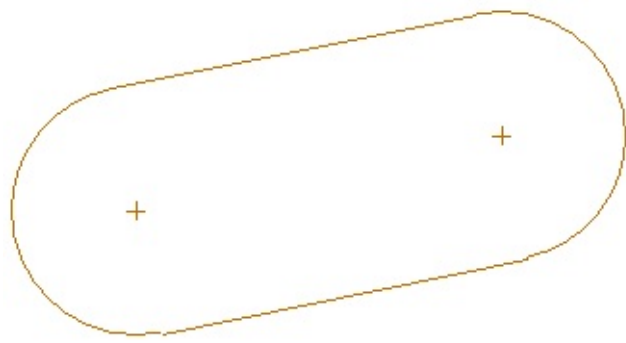


4. Repeat the procedure on the other side of the loop.



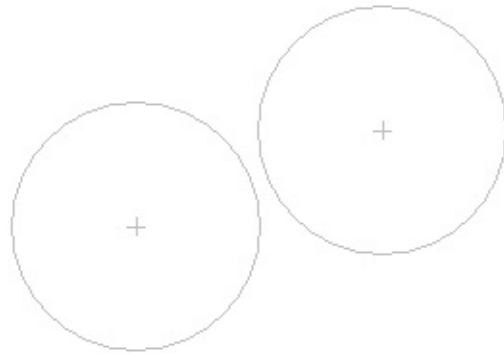
5. When you release the second tangent,

both circles become curves, and the loop is complete.

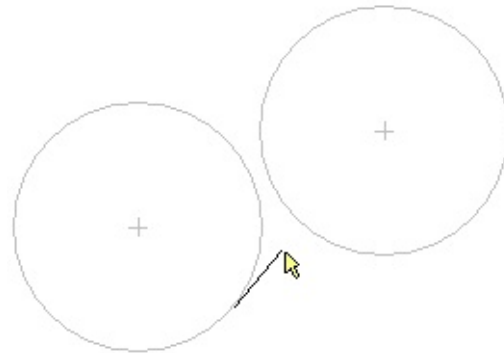


To draw an S-curve:

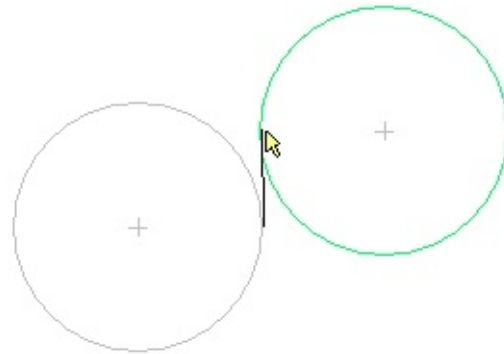
1. Draw two circles. Leave a little space between them.



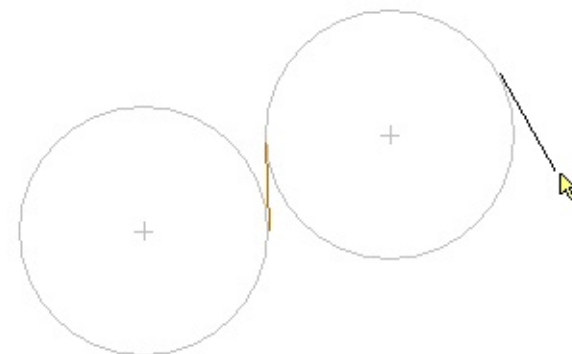
2. Begin a tangent on the inside edge of one circle.



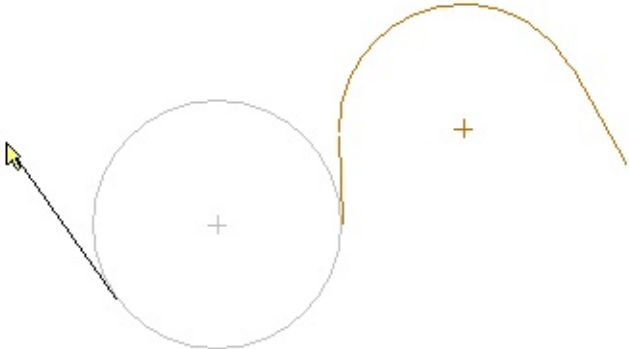
3. Drag to the inside edge of the other circle. Release when the destination circle is highlighted.



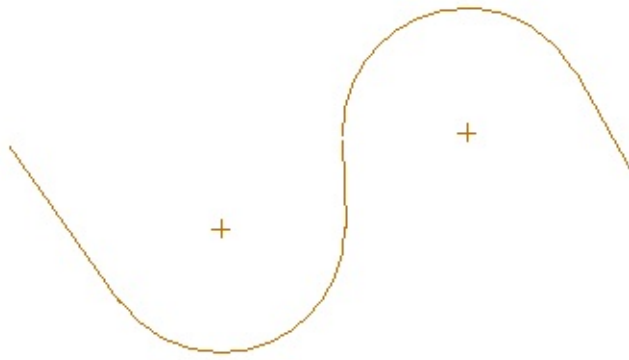
4. Draw an outer tangent. This completes one curve and removes one circle.



5. Draw the other outer tangent. This completes the other curve and removes the other circle.



6. The completed S.

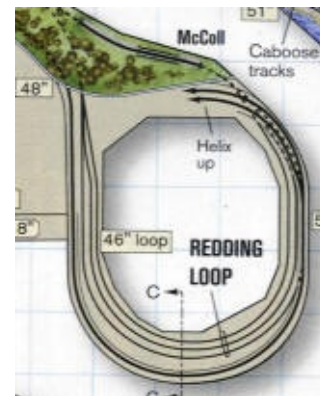


Helices

A helix is a device for moving a train between levels of a multi-level layout. The train enters at one level, changes altitude gradually as it proceeds up or down a series of loops, and emerges at another level.

Many modern track plans and club layouts have helices. For an elegant example, see John Armstrong's **Southern Pacific Lines Shasta Division**, featured in *Model Railroader*, April 2005.

It takes some effort to draw a helix in TrackLayer, but it's worth it. When a train enters the helix and climbs it in a series of slow loops, it comes to life and makes sense out of that bundle of looped wires on the track plan.



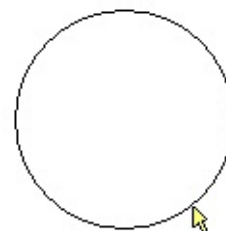
Drawing a Helix

Draw a helix by starting at the bottom, with the lower approach track and the lowest loop. Proceed upwards, adding and connecting new loops right on top of the lower ones.

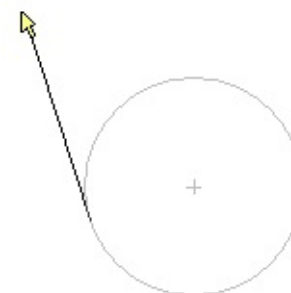
To do this requires a special device, because normally if you put circles on top of each other, then when you try to add tangents, they won't snap to the right places. The secret is to mark track as "untouchable." Once a loop is in place, you can mark it so it will not be affected when you add the next loop. As you draw each loop, you leave a little "handle" sticking out so you can connect it to the next loop.

In this example, we will construct a circular two-loop helix, with the lower approach from the northwest and the upper exit to the northeast.

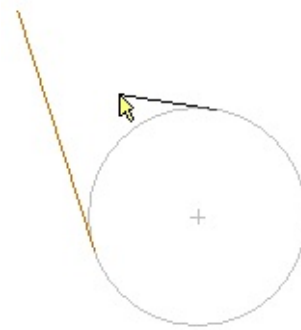
1. Draw a circle (Circle tool .



2. Draw the lower approach track (Track tool .



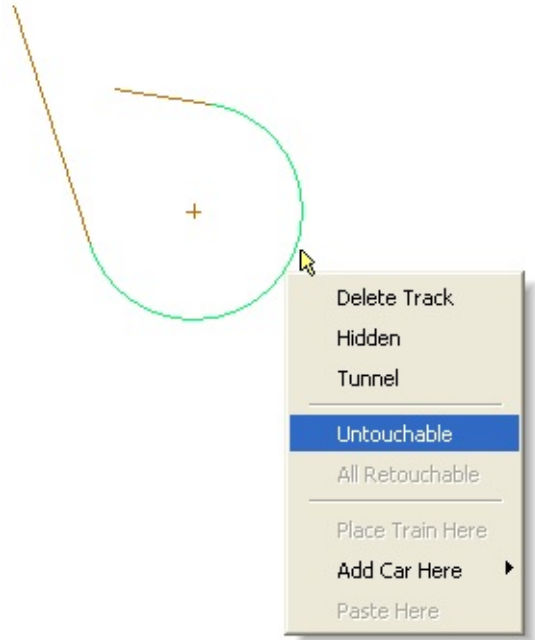
3. Draw a short straight segment at the top of the circle. This completes a large curve, and serves as a handle to connect to the next loop.




4. Mark the curve "untouchable." Right-click on the curve so it highlights as shown, and choose **Untouchable**.

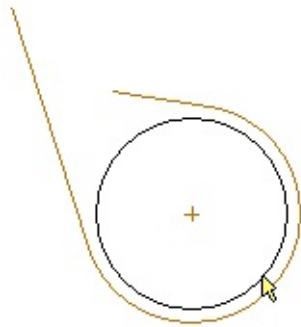
This causes the curve to become unresponsive: it will not highlight, you cannot connect track to it, and most important, tangents you create on the next loop will not snap to it.

Before you mark the curve untouchable, you might want to mark it **Hidden**. See notes below.



5. Draw a circle for the second loop (Circle tool ). Start at the center of the first circle, and drag until the circle is superimposed on the first one.

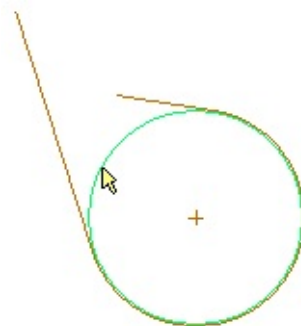
This illustration shows the drag in process, not quite finished.



6. This shows the second circle in place.

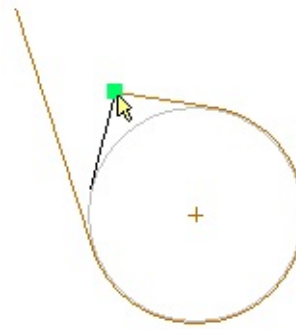


7. Draw a short segment to connect the second loop to the first. Begin by highlighting the circle as shown...

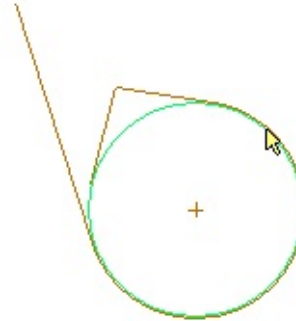


8. ...and connect to the handle drawn in step 3.

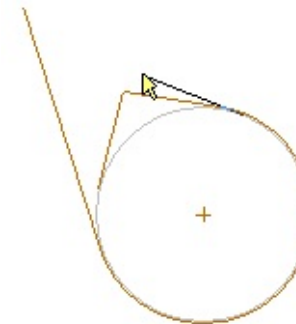
Don't worry about the kink in the track, you'll fix it shortly. You now have the first leg of the second curve.



9. Draw the other leg of the curve. Begin on the circle at about the same place as in step 3...




10. ...and drag to form a new handle, near (but not right on top of) the first.



11. You now have one complete but kinked loop, and another almost-complete loop with handle.



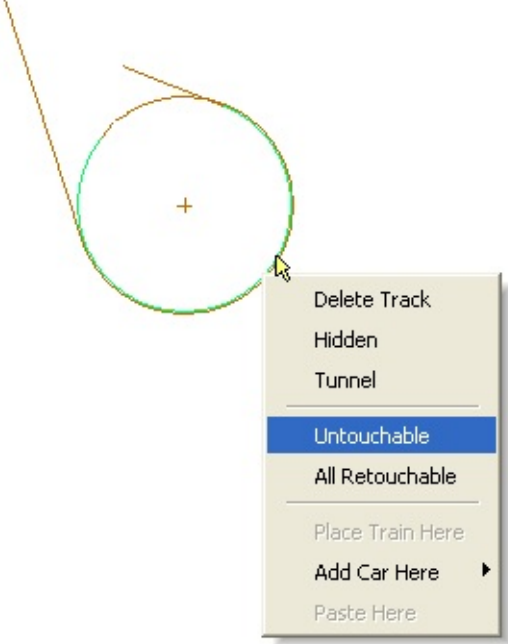
12. Fix the kink. Use the Edit tool . Point to the junction so it highlights as shown, press and drag to move it into position.



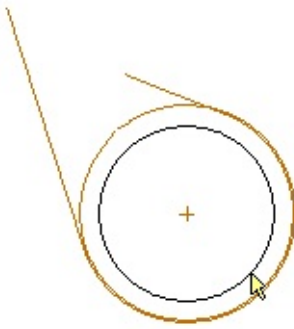
13. Release when the junction is on the circle.



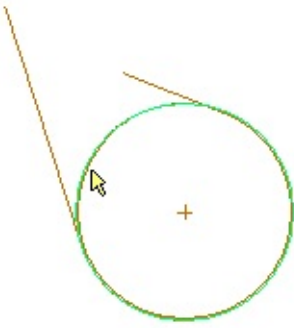
14. And so on. Mark the second curve untouchable.



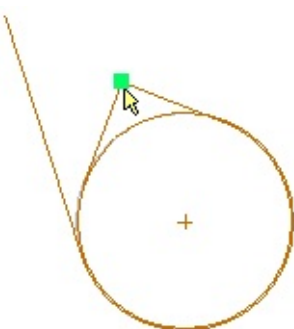
15. Draw the next circle.



16. Draw the segment to connect to the previous handle.



17. Release when connected.

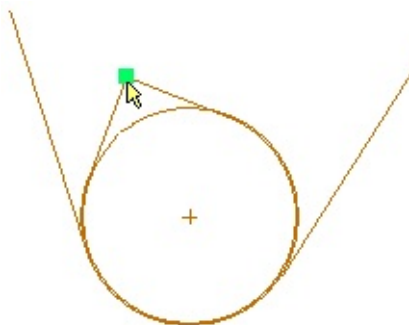


18. Draw the upper approach track, tangent to the topmost circle.

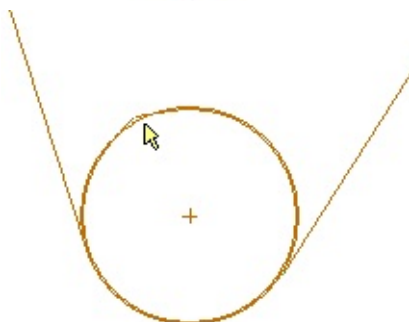


19. Fix the kink in the previous layer.

Be careful when moving this junction that it does not land on top of the earlier one, i.e., do **not** release where you see a green highlight square.



20. And you're done.



21. Test the helix. Add a loco on one of the approach tracks, give it some speed, and watch the show. It should make two complete loops around before exiting.



Notes

- For best appearance, the train should hide as it goes around the lower loops, and appear when it gets to the top one. You can arrange this by marking track as hidden, starting with the lowest loop and continuing until the top loop. Mark each track as you add it, and be sure to apply the hidden mark **before** you mark a track untouchable, otherwise you won't be able to.

In the above example, tracks added in each of the following steps should be marked hidden before going on to the next step: 3, 4, 8, 10.

- If you mark a track untouchable by mistake, you can no longer select it so you can't unmark it. Instead, choose **All Retouchable** from the track context menu. All untouchable tracks become unmarked and touchable.
-

Creating a Turntable

Turntables are a little tricky to get right, because the connecting tracks have to be laid precisely. The program helps by snapping objects into position, but can have trouble in crowded areas. When you're working in an area with a turntable, it works best to construct the turntable first, before adding the surrounding track. First, zoom in so you have room to work, and so junctions and tracks don't overlap.

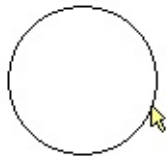
There is a special tool for creating turntables. It works just like the Circle Tool, except that after you size and position the circle, it automatically adds a bridge track and makes a working turntable.

Two tips about creating turntables: (1) draw the circle first, before adding the connecting tracks, and (2) make sure either the circle or an end of the bridge track is highlighted when you start or end drawing a connecting track. If the track doesn't snap to have one endpoint exactly on the circle, the turntable won't work.

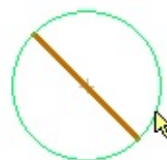
If you encounter problems with turntables in published layouts, see [Repairing a broken turntable](#) below.

To create a turntable:

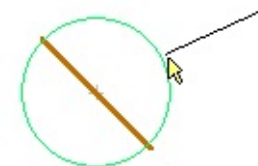
1. Choose the Turntable Tool  or **Tools > Turntable** from the menu.



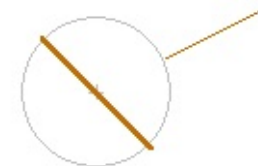
2. **Draw the circle.** Point to the center, press and drag to the desired radius. Press the **shift key** to move the circle instead of resizing it.



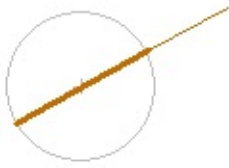
3. When you release the mouse button, the bridge track appears automatically, oriented at a random angle. The Turntable Tool is automatically deselected and the Track Tool selected instead.



4. **Draw a connecting track.** Start where you want the far end of the track, press and drag in toward the circle. When the circle highlights, release. (You can do this in the other direction if you prefer: start by highlighting the circle, then draw outwards.)



5. When you release, the connecting track snaps to be perpendicular to the circle rim.

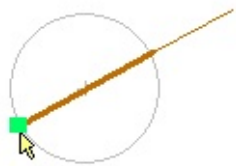


6. **Test.** Double-click anywhere on the rim of the circle. The table should rotate until the bridge track is aligned with the connector, then stop. (If the table just keeps rotating, double-click the rim again to stop it, then see [Repairing](#) below.)
-

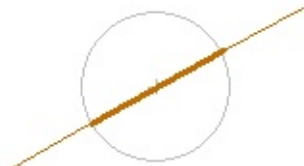
To make a cross-over:

If you want the engine to be able to drive straight across the turntable, you must take care to make sure the connecting tracks are aligned. Here's the best way:

1. Draw the first connector, as in steps 4-5 above.
2. Rotate the table until it stops in the aligned position, as in step 6.



3. Point to the free end of the bridge track, so it highlights with a green square. (When you are pointing to the bridge track end, only the track end highlights, not the circle.)

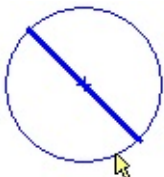


4. Press and drag outwards to form the second connector. You will have to eyeball where to drop the track end so that it aligns with the bridge -- in this case the program does not help.

You can draw the other direction if you prefer, starting at the far end and dragging in toward the circle. Just make sure the bridge end and not the circle is highlighted when you press or release.

To move or resize a turntable:

1. Choose the Edit Tool .



2. Click any point on the rim of the turntable or the bridge track. Both are selected and colored dark blue.
3. Press the rim of the circle and drag. Both the circle and the bridge track move together.
4. Press the shift key while dragging to resize instead of move.

Note that when you are editing, the shift key behaves opposite to the way it works when creating a new circle or turntable. When dragging a selected circle or turntable without

shift, it moves as a rigid unit; with shift, it resizes, and also allows you to reorient the bridge as you drag.

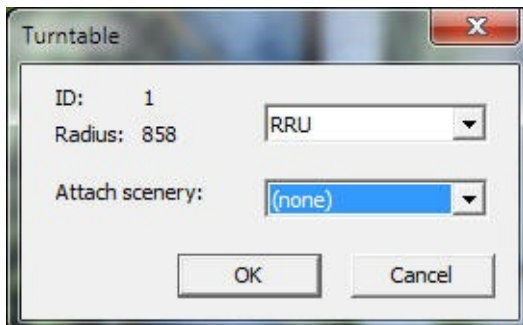
To delete a turntable:

1. Choose the Edit Tool .
2. Point to the rim of the turntable, so the circle highlights.
3. Press the **Del** key.

You can also delete a turntable by selecting it or including it in a set of selected objects, then using **Edit Delete** or **Edit Cut**.

Turntable Properties

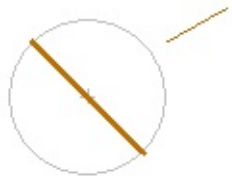
Right-click on the rim of a turntable, choose **Properties**, and you get this little dialog:



This gives you the turntable ID and radius in your choice of units. The Attach Scenery drop-down lets you connect a scenery object to rotate along with the bridge track. See [Bridge Scenery](#) in the Transfer Table chapter.

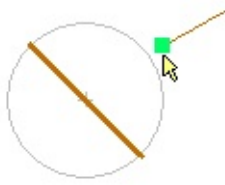
Repairing a broken turntable

If you spend any time with the track plans having turntables, you are likely to encounter some which need repair. The most common problem is that rotation doesn't stop where it should -- the bridge comes to a connector and just rolls right on by. This usually means the connector is not positioned right.

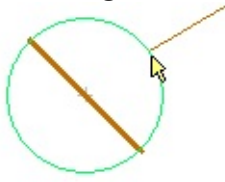


The most common breakage is when the connector is not quite touching the circle. To repair:

1. Choose the Edit Tool .



2. Point to the end of the connecting track closest to the circle, so it highlights with a green square.



3. Press and drag until the circle highlights, then release.



4. On release, the connector snaps perpendicular to the rim.

5. Test the turntable. Should work now.

Other problems are harder to correct. You may find a phantom junction along the rim of a turntable -- you see a green highlight square where there is no track -- or other problems. In most cases the best course of action is to delete the turntable and all connecting tracks, and start over.



Advanced Topics

After you've got the hang of drawing layouts, you should check them for errors, and take some final steps if you want your layout to be used by others. This chapter explains how.

[Debugging and Repairing](#)

[Publishing Your Layout](#)

[Importing CAD Layouts](#)

Debugging and Repairing

Preparing a layout in TrackLayer is a many-step process fraught with possibilities for error. This section gives some tips for avoiding errors and describes tools to help you spot and correct them.




Zoom in

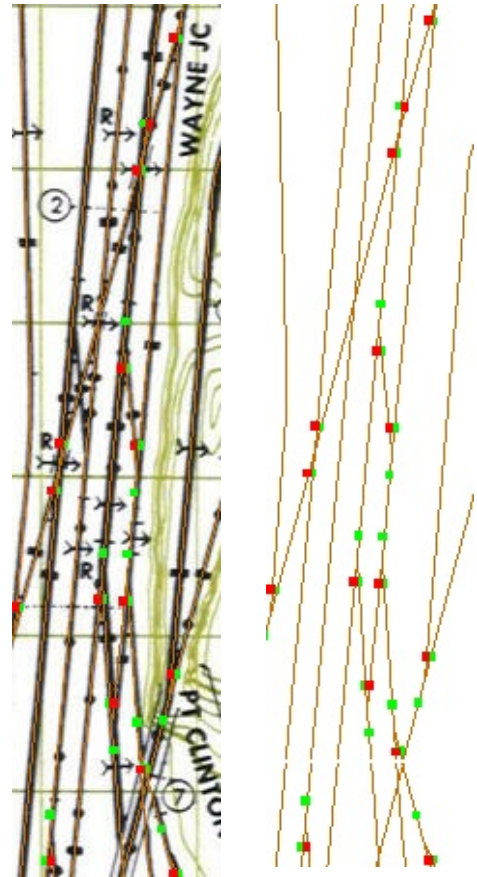
Work on one section of the layout at a time. Zoom in so you have room to work.

You can draw tracks out to the edges of the window, then when you scroll over to work on the next section, hook up or move the disconnected track ends.

Inspect visually

When you are working in a crowded area, it's easy to forget a crossover or siding, and it's not easy to tell you've done it. Here are two ways to check for missing track:

- **Mouse over.** With the Track tool  or the Edit tool  active, when you move the cursor over a section of track, it highlights in green and stands out against the background. This makes it easy to tell where there is a background line with no track on it.
- **Flash the background.** In the picture at right, there is a crossover missing -- can you spot it? Try this: use the View Background button  to turn the background on and off, say once per second. As it flashes on and off, your eye can usually spot differences in the track patterns.



Test the layout

- **Throw the switches.** If you can't get a switch to throw, it probably means bad trackwork in the vicinity.
- **Test the turntables.** Make sure rotation stops where it should.
- **Drive a train.** The ultimate test of a layout is whether a train navigates it correctly. Drive around and see.

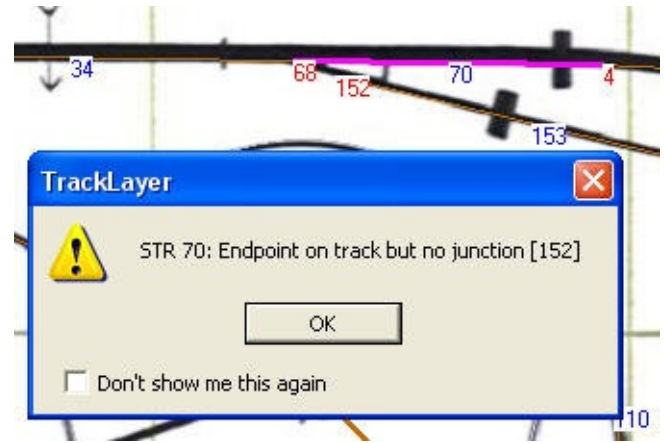
Track Checker

TrackLayer can help you find errors. Use the command Tools > Check Track. This runs a series of tests against the layout, as listed in the table below. Results are reported in the [Track Check dialog](#).

If you are laying a lot of track, you might want to turn on [Check Track While Drawing](#) in Track Preferences. This will alert you to errors as soon as they occur.

If errors are found, they are listed in an alert box as shown. Each error is listed with an object type (3-letter code from the following table), the object's number, and the error text; the corresponding track or junction on the layout is highlighted in pink.

- STR straight track section
- CUR curved track
- JXN junction / switch
- CTR circle center
- CAR car
- TRN train
- CIR circle
- TTB turntable
- STN station



In the example shown, tracks 34, 70, and 153 meet near a common point, but there is no switch there. The fix is to drag junction 152 on top of 68, so a switch is created.

Error conditions found by Check Track include:

Object flagged for delete	object has been deleted
Invalid object ID	object ID is out of range
Unretrievable object	object no longer exists in memory
Invalid junction number on track	junction number on one end of track is out of range
Same junction number on both ends of track	track has both ends on same junction
Bad track length	track length is zero
Invalid station number	track points to non-existent station
Object has zero space	track or circle has no dimensions
Junction has no tracks	invalid junction, disconnected from any track
Invalid track number on junction	junction is connected to invalid track ID
Superimposed junctions	two junctions are at or near the same place
Invalid radius	circle radius is zero or negative
Station is missing name	station object has no name
Tracks superimposed	two track segments are on the same line segment
	endpoint of one track lies near point on

Endpoint on track but no junction

another track

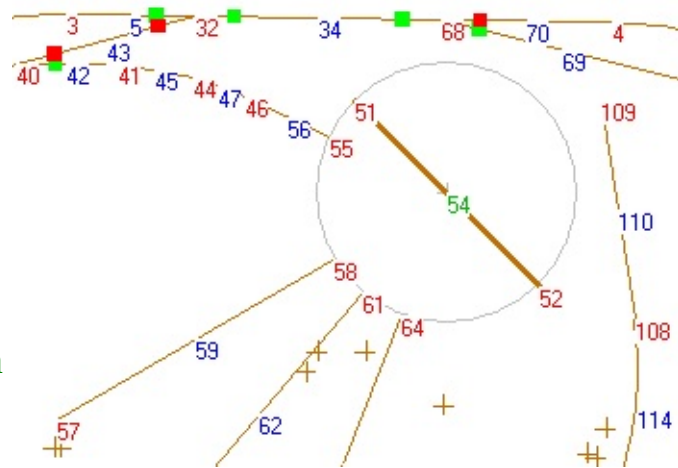
Track Numbers

To identify tracks and objects, use **Tools > Show Numbers** to turn on the display of track and junction numbers. Track numbers are shown in blue, junction numbers in red.

If the Scenery Edit tool is active, instead of track and junction numbers, scenery object numbers are displayed in green.

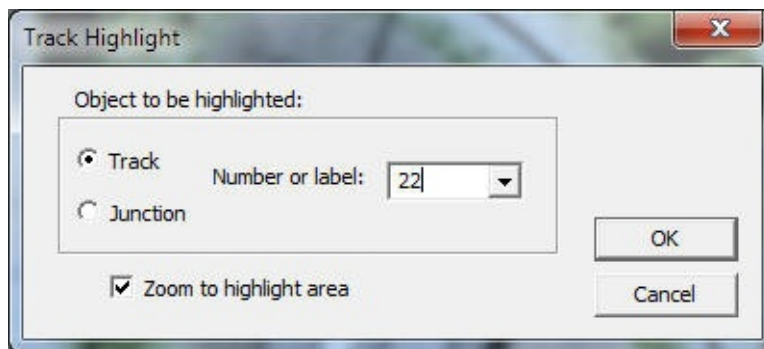
This command is a toggle; use again to turn off the numbers.

Another way is to use tooltips. Choose **Tools > Show Tooltips** to enable this feature. Then hover the mouse over a track, junction, switch, circle, turntable, or station and you will see a note indicating its number and other data. If you do not see the tooltip, try clicking in the layout window to make sure it is the active window.



Highlight a Track or Junction

If an error message gives a track or junction number you're having trouble finding on the layout, use **Tools > Highlight Track**. This brings up the Track Highlight dialog:



In this dialog, use radio buttons to indicate whether you are looking for a track or a junction, then enter the desired number or label, or choose a number from the drop-down. The corresponding object will be highlighted in pink on the layout.

Check the "Zoom to highlight area" box if you want the view to move to that location when you click OK.

To turn off the pink highlight, click any empty space on the layout.

Publishing Your Layout



If you have an interesting layout and you've gone to the trouble of laying track on it, consider sharing it with other TrainPlayer users. If you take the following few steps to make it ready, and are the artist or have rights to distribute the artwork, we will be glad to post it in our user collections.

1. Check for errors. Run Tools > Check Track. For details, see [Track Check Dialog](#).
2. Test switches and turntables.
3. Add some trains. Put suitable rolling stock at reasonable locations for starting an operating session.
4. Add comments. In Layout Properties, add as much commentary as you like, but please include your name, the author or designer of the layout, and any operating instructions.
5. Use File > Publish to bring up the [Layout Publisher dialog](#) to finish the job.

If you do not have any external files -- you created your layout using only images found in the Scenery folder and SCN objects made from them, and your layout does not have a bitmap background -- then you are ready to publish. and can skip the rest of this.

External Files

A TrainPlayer layout is stored in a text file with extension *rrw*. This file contains information about track, stations, and other layout objects, but does not have all the data you need to run the layout. Additional data is stored in external files referenced by the *rrw*. If you want to send a layout to someone else, you need to know about these files and make sure the recipient has access to them.

One external file is the background image. If a layout has a background image, it is often stored in a file in the same folder as the *rrw*, with the same filename but a different extension -- jpg, tpg, bmp, gif, or png. But this does not have to be the case -- the background image can reside in a file anywhere on your disk, with its pathname referenced in the *rrw* file.

Many external files are stored in system folders common to all TrainPlayer users. These include car collections, loads, sounds, and many scenery objects. When you open a layout, the program looks for these files in your local system data folder; if it doesn't find them, it looks in the TrainPlayer web collection, and offers to download what it finds there. Failing both, the program proceeds using standard replacements for the missing objects. In any case, you do not have to provide these common files to a recipient.

Other types of external file may come from anywhere on your disk. These include background images, linked layouts, components of window snapshots, scenery object bitmaps, and module layouts. If you want the layout to work for the recipient the same way it does for you, you will need to provide these files along with the *rrw* file. How do you find out what these files are, and what is the best way to transmit

them?

To see a list of external files required by a layout, run [Track Check](#) or [Layout Publisher](#).

To include external files when you are transmitting a layout, you have several choices. This is because when the recipient opens the layout, the program looks in several places to find them:

1. Alongside the *rrw* file. If an external file is found in the same folder as the *rrw*, it will be taken from there.
2. In a *_files* subfolder. If the layout is named *abc.rrw*, the program looks for a folder in the same location called *abc_files*, and if found, looks there for external files.
3. At the path stored in the *rrw*. What is stored for an external object is its path relative to the *rrw* file, as determined at the time the file was saved. (If it is not possible to derive a relative path, then the absolute path is stored.) This means that if the layout and its external files are in different folders, you can send them separately as long as you maintain their locations relative to each other.
4. In the appropriate system folder -- Layouts, Scenery, Sounds, etc. If an external file resides in the system folder on the recipient's computer, then it will be taken from there.

The simplest way to transmit a layout and its external files is to take advantage of #1, and just put them all into a single folder.

RZP (Zip) Files

TrainPlayer Version 5 introduces a new type of format for transferring layout data: the *railroad zip file*, with extension *rzp*. This is a standard zip file -- you can change the extension to *zip* and work with it just like any other zip file. The *rzp* file contains a layout, background bitmap if any, and a *_files* subfolder containing external files. The recipient can open it directly, just as they would for a normal *rrw* file.

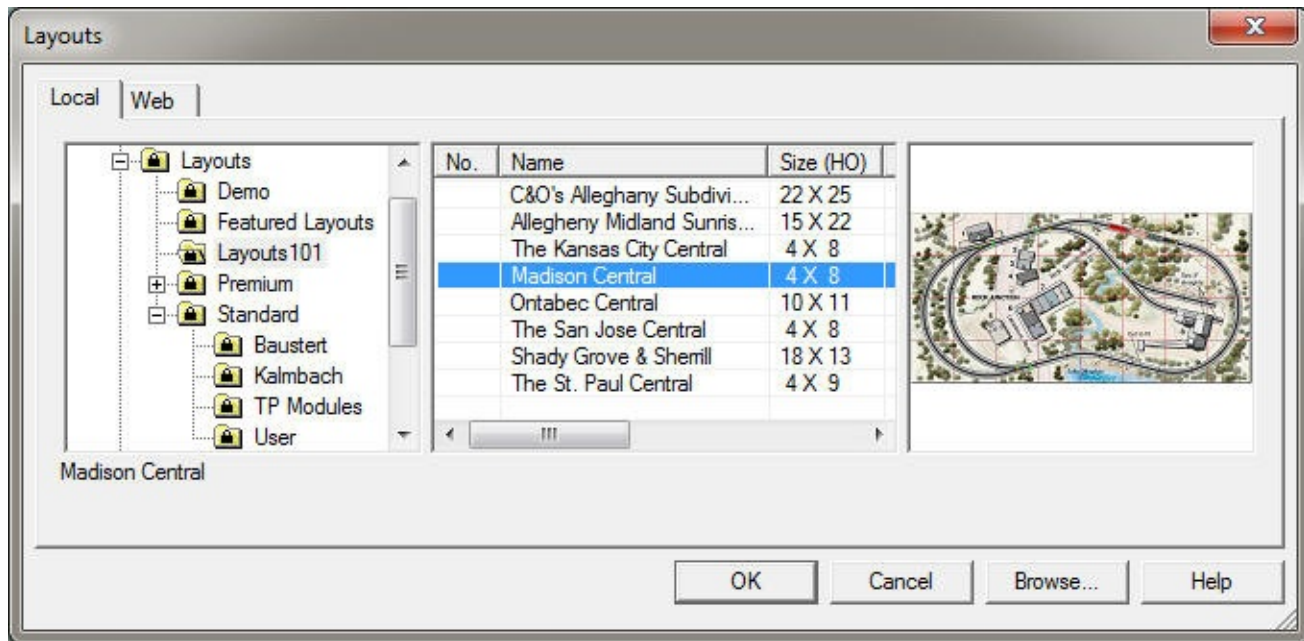
To save a layout to an *rzp* file: use **File > Save As**, choose type *rzp* from the drop-down. The program creates a zip file, copies all components into it, and saves it to the indicated location.

To open an *rzp* file: use **File > Open**, choose type *rzp* from the drop-down, then browse to the file. Or: drag the *rzp* file from Windows Explorer into TrainPlayer. In either case, the program unzips the file into a temporary location, opens the *rrw* from there, and locates its external files in the *_files* subfolder alongside.

To unzip an *rzp* file to your disk: open the *rzp* file as indicated above, then use **File > Save As** and choose type *rrw*. The *rrw* file will be saved to the indicated location, and alongside will be a *_files* subfolder containing external files.

Choosers

A chooser is dialog used to select layouts, cars, scenery, or sounds.



A chooser has three panels: a tree control (left), a list box (center), and a preview window (right). In general, what you do is click a folder in the tree to see its contents in the list, click an item in the list to see its preview, then double-click to open it.

Each chooser has two tabs, one for local content on your disk, the other for content available by download from the web. As long as you have an internet connection, when you select an item from the web tab, it downloads and becomes part of your local content.

Instructions in this section are for all choosers. For details specific to each type, see the individual help pages:

[Layout Chooser](#)

[Layout Web Chooser](#)

[Car Chooser](#)

[Car Web Chooser](#)

[Sound Chooser](#)

[Sound Web Chooser](#)

[Scenery Chooser](#)

[Scenery Web Chooser](#)

Contents of a Chooser

In general, the files you see in the local tab of a chooser are those in the corresponding folder (and subfolders) in your TrainPlayer application data directory.* The files and folders you see in the web tab are those on our website.

You cannot modify the Car, Scenery, or Sound chooser trees. If you want the files in these sets to be organized differently, you can rearrange them on the disk and the chooser trees will reflect your changes. The exception is the local Layout chooser, where you can add folders of your own and reorganize the tree to suit.

*You can easily locate and inspect your application data directory. Choose **Open Data Folder** from the File menu, and it will bring up Windows Explorer in that location.

Operating a Chooser

Components of a chooser work generally as follows. Details differ; see the individual help pages.

Tree: Click a folder to select it. If it contains files, you will see a list of them in the list window. If it contains subfolders, click the + sign to expand it so you can select a subfolder.

List: The list window shows a collection of files or objects as either a table or a set of icons. Icon view can be changed to list view using the context menu. Click an icon or a row of the table to make a selection; in most cases you will then see a picture of the selected object in the preview window.

Preview: The preview window shows a small picture. In the Sound chooser, you can click the picture to play the sound; in other choosers the preview is not interactive.

Buttons: Each chooser has four buttons at the lower right, which differ depending on the context. Click the left button (which might say *OK*, *Download*, *Install*, *Add Car*, or *Done*) to carry out the default action on the selected item; Cancel to take down the chooser without further action; Browse to browse the file system for a layout (available only in the local Layout chooser); or Help to go to the appropriate page of the help system.

Resizing: A chooser window can be resized by dragging its lower left corner. Individual panes can be resized by dragging the divider bars between them.

Modality: Layout and Sound choosers are "modal," meaning once you click OK, the selected item is opened and the chooser goes away. Car collection and Scenery choosers are not: they remain on the screen as you choose multiple items.




Context menus: Right-click an item in either the tree or list window to see a menu of context-specific commands. Menus differ depending on the chooser; see the individual help pages for menu screen shots and details.

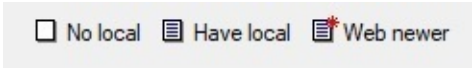
Web tab: If you have a live internet connection, the web tab of each chooser shows content available on our website. Selecting an item or collection from this tab causes it to be downloaded to your machine and added to your local content. Details vary depending on chooser; see individual help pages.

Search: If you are looking for a particular file, use Find and Find Next on the tree context menu. Right-click a folder to search through it and its subfolders (to search all, select the topmost tree item), choose Find, and enter all or part of an item name or path. If a match is found, it is selected in the list window. If there is more than one match, Find Next goes to the next one.

Sort: Items in the list window can be sorted on any column, when the window is in list (not icon) view. To sort, click the header of a column. To sort in the reverse direction, click the header again.

Status icons: Web chooser lists and trees show icons next to items, indicating how the local version of a file compares to its web version. There are three choices:

-  (empty document) -- you do not have a local version of this file
-  (filled document) -- you have an up-to-date local version
-  (filled document with red star) -- you have a local version, but the version on the web is more recent than the local one



No local Have local Web newer

For car collections, icons appear on the entire collections. i.e., on folders in the tree rather than rows in the list window. A legend at the bottom of the dialog reminds you what the icons mean.

Export: contents of folders in chooser trees can be exported to text or xml files. This is an expert feature, used mostly by us to manage our file collections, but you might find it useful in various ways.

The exported file contains the same data as what you see in list (not icon) view -- item name, filename, date, etc. -- for each file under the folder you are exporting. To export the entire tree, right-click the root item. Exported data can be in one of two formats: comma-delimited text, or structured xml.

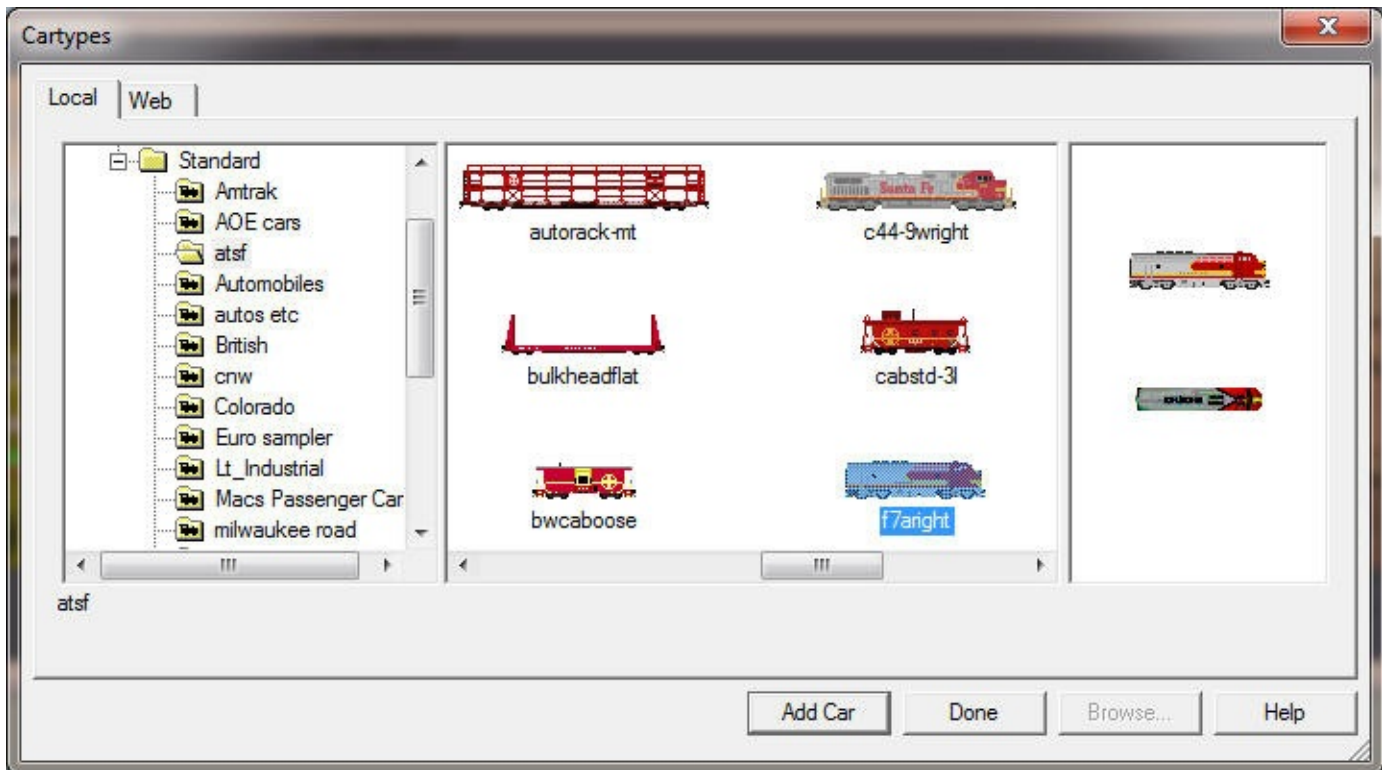
To export :

1. Right-click a folder and choose Export. This will export data about all files contained in the selected folder and its subfolders.
2. In the file dialog, specify the output file and format (.txt for delimited text, .xml for structured xml).
3. Click OK.

The file is generated. Take a look at it in a text editor or web browser.

Local Car Chooser

The local car chooser is for selecting cars and adding them to the layout. This chooser is also used to create new car collections.



For general information about choosers, see [Choosers](#).

To Add a Car to the Layout

1. Choose a car collection in the tree and click to open it. A car collection is shown as a folder with a locomotive icon. When you open a collection, you see its cars in the list window.
2. Click one of the cars in the list window. You see its side and top view in the preview window.
3. To add this car to the layout, click Add Car, or double-click the icon. The car is added to the currently-selected train at the current position of the insert pin. If there is no train selected, the car is added to a random track.

The car chooser is a modeless dialog: it remains on the screen so you can keep adding cars. When you are finished, click Done. If you change your mind, use Edit > Undo to remove added cars.

You can choose whether you want the list view to show side views (as shown above), or top views, or a list showing type name, class, AAR code, filename, and date.

Tree Contents

Defaults

Collections which can be selected as default car sets; see [Default Cars](#)

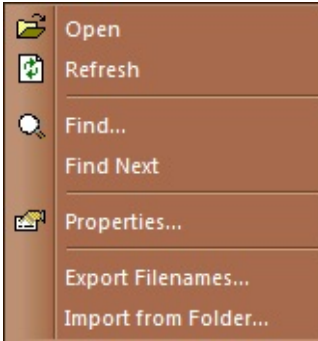
50 px Collections

Our standard sets of medium-high-res cars and engines

<other>

Collections downloaded from web

Tree Menu



Open

Open folder to show subfolders or files

Refresh

Reload contents from disk

Find...

Search for name or filename. See [Search](#).

Find Next

Go to next hit after Find

Properties...

Display folder or car collection properties

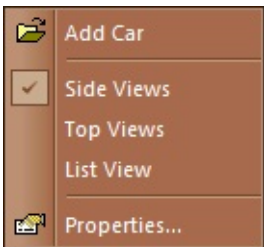
Export Filenames...

Export text or xml file of folder contents. See [Export](#).

Import from Folder...

Under the selected folder, create new car collection from a folder of image files. Dimmed if selection is not a folder. See [Creating a New Collection](#).

List Menu



Add Car

Add selected car to layout

Side Views

Display icons of side views

Top Views

Display icons of top views

List View

Show contents in list form. List includes name, class, AAR code, date.

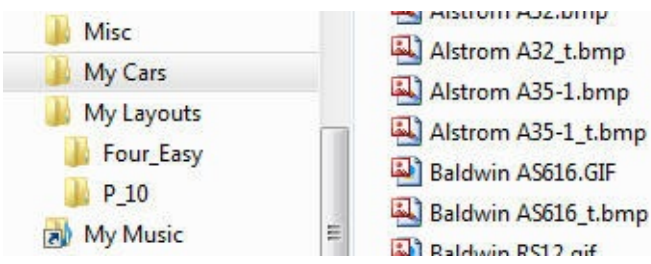
Properties...

Display and edit car type properties

Creating a New Car Collection

Here's how you can create a new car collection if you have a set of side and top images. For more information, see [Car Collections](#).

1. Collect or prepare the set of images. You will need at least a side view for each car type; for top views, you can create your own or choose from among the ones you already have. Many side-view icons of the correct size are available as gif files for download from various web sites.
2. Gather the image files into a folder, named as you want to name the collection. If you have created car-top images, you need to make sure their files are named correctly. In the example below, we have prepared a folder of images called "My Cars."



3. Point to a folder in the tree where you want the new collection to appear. This must be a folder, not a car collection. In the example below, we are creating the new collection at the top level, right under Cartypes.
4. Right-click and choose Import from Folder (below left).

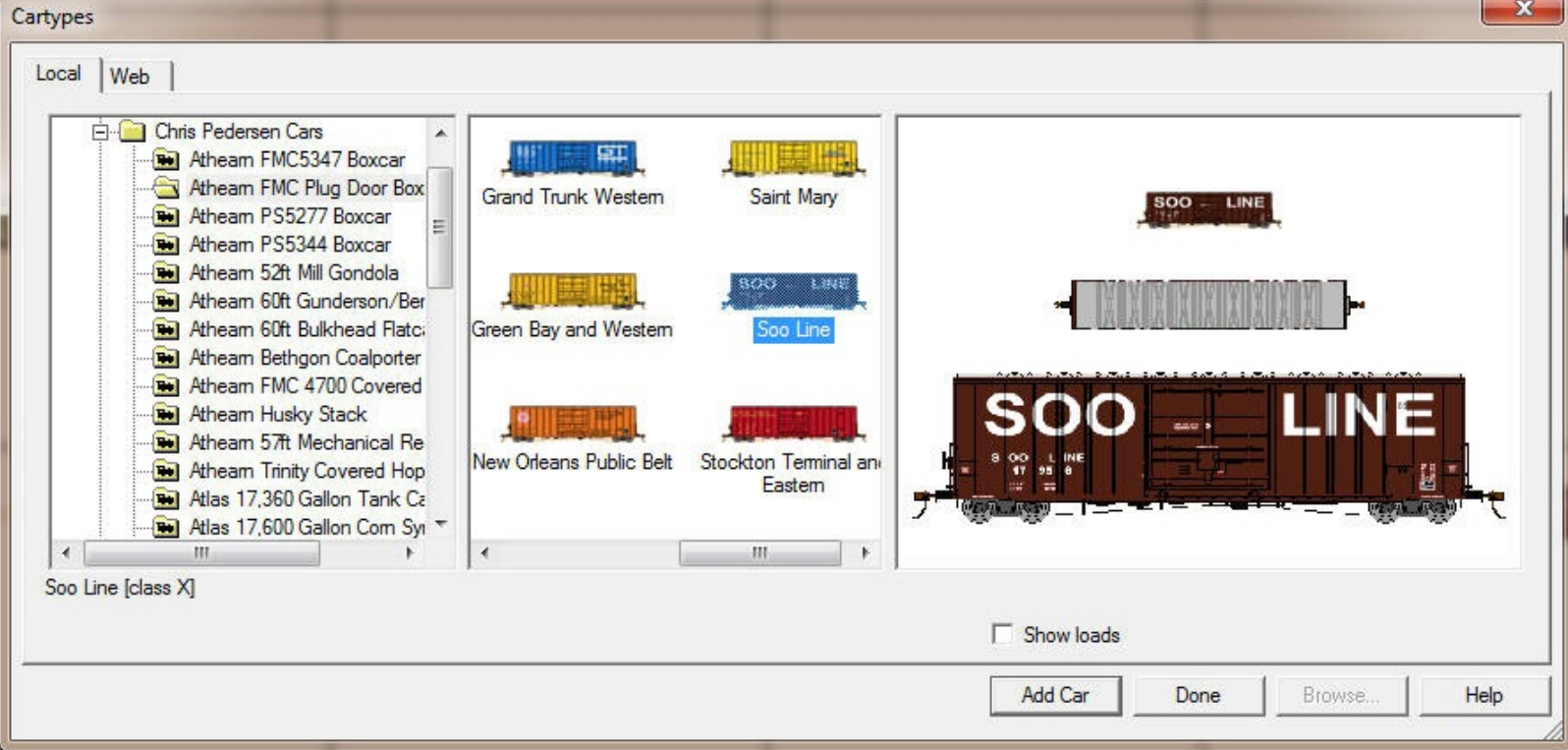


5. In the Browse for Folder dialog, navigate to the folder where the images are stored (in this case, "My Cars").

A new collection is created in your tree and under the TrainPlayer\Cartypes folder. The image files are copied from the original folder into the new. You see the new collection in your chooser tree (above right), ready to use.

Large Car Images

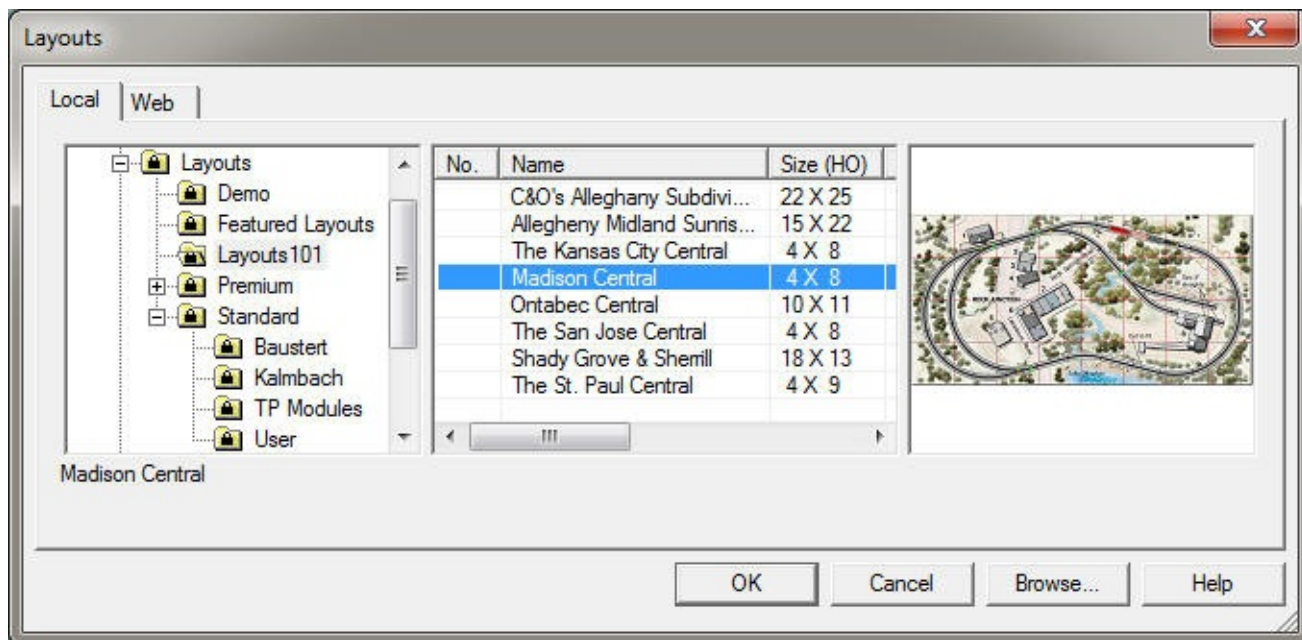
If the selected collection has [large car images](#), they are displayed underneath the side and top images, as shown here:



For optimum viewing, enlarge the right panel -- the large image looks best when drawn full size.

Local Layout Chooser

The local layout chooser is for selecting a layout to open and run.



For general information about choosers, see [Choosers](#).

To Open a Layout

The local layout tree shows folders of layouts which reside on your disk.

1. If a folder has a + sign next to it, click to expand it and show its subfolders; if not, click to show its contents in the list window.
2. Click a layout in the list to see its preview.
3. To open the previewed layout and take down the dialog, click OK.

The local layout chooser has features not available in other choosers. For one, you can click the Browse button to bring up a regular file dialog to choose a layout to be opened. For another, you can modify the contents of the tree, by adding and populating your own folders. For instructions, see [Adding Your Own Layouts](#) below.

A folder is shown with a padlock if it is "locked", meaning it represents a folder on the disk and cannot be modified (except by rearranging the files on the disk). An unlocked folder is one you create by hand, which you can populate with layouts from anywhere and organize as you wish.

Tree Contents

Layouts	Entire layouts folder from TrainPlayer app data directory
Recent	Layouts recently opened (same as at bottom of File menu)
Downloads	Downloaded layouts (note 1)
CD Layouts	Layouts residing on CD (note 2)

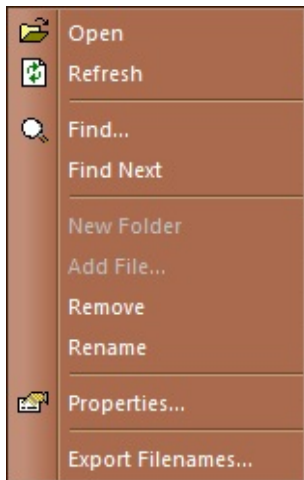
<user-added folders> Folders created manually or dragged in; see [Adding Your Own Layouts](#)

(1) The Downloads folder contains aliases to layouts recently downloaded. There is no actual folder named Downloads on the disk.

(2) The CD Layouts folder appears in the tree if (a) you ran the installer from a TrainPlayer CD and chose to run the layouts from the CD, and (b) you have the CD currently mounted. In this case the CD Layouts folder contains the entire set of layouts on the CD.

If you have been running an earlier version of TrainPlayer, you may not see all your previous layouts in the tree. Folders you previously added by hand or by drag-and-drop will need to be re-added.

Tree Menu



Open

Open folder to show subfolders or files

Refresh

Reload folder contents from disk (note 1)

Find...

Search for name or filename. See [Search](#).

Find Next

Go to next hit after Find

New Folder

Create folder in tree (2)

Add File...

Browse for file, add to open folder (2)

Remove

Remove file or folder from tree (2, 3)

Rename

Rename folder in tree (2, 3)

Properties...

Display folder properties

Export Filenames...

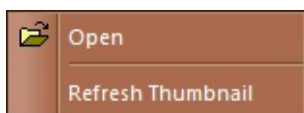
Export text or xml file of folder contents. See [Export](#).

(1) Refresh is available on locked folders and folders containing other folders; is dimmed for folders created manually.

(2) Editing commands are dimmed on or inside a locked folder, as these cannot be modified. For more, see [Adding Your Own Layouts](#).

(3) Remove and Rename are dimmed on special folders (Layouts, Recent, Downloads).

List Menu



Open

Open selected layout and take down dialog

Refresh Thumbnail

Recreate thumbnail image from layout

Adding Your Own Layouts to the Tree

The local layout chooser is more flexible than the others. In addition to showing you layouts residing in your TP Layouts folder, it can also show layouts stored in other locations. You can add files or folders to the chooser and organize them so you can find them easily.

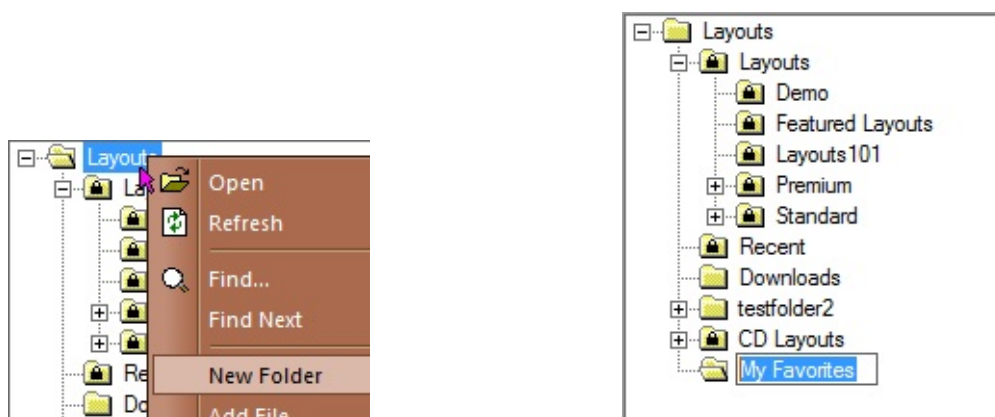
For example, you might create a "Favorites" folder containing the layouts you like best. One way to do this would be to create a new folder on your disk and copy the files into it, a process which requires time, expertise, and disk space. An easier and more economical way is to leave the files where they are, and create a folder in the chooser tree containing shortcuts pointing to them. A very convenient way to do this is to drag files or folders into the chooser tree from

Windows Explorer.

There are restrictions on what you can do in the chooser tree. The main one is that you cannot modify a locked folder -- you can't add a folder or file to one of these, or rearrange subfolders in it, or rename it, otherwise it would no longer match what's on the disk. In a typical situation there is only one unlocked folder in the tree -- the Layouts folder at the top -- so this is the starting place for adding your own content.

To create a folder:

1. Right-click a folder in the tree and choose New Folder (below left). This command is dimmed in most places, but always available on the Layouts folder at the top.
2. The folder is created at the bottom of the tree and called "New Folder," with the name selected. Type the name you want for the folder (below right).



To create a subfolder, repeat the process starting on an existing folder. To delete a folder or subfolder, right-click and choose Remove (dimmed if the folder is locked or is within a locked folder).

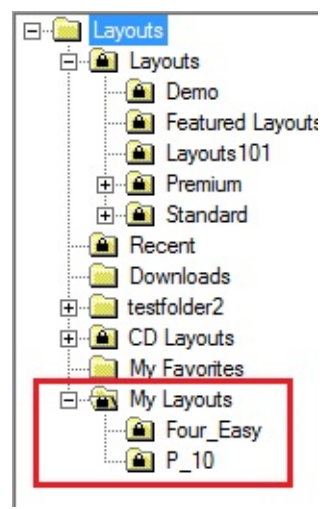
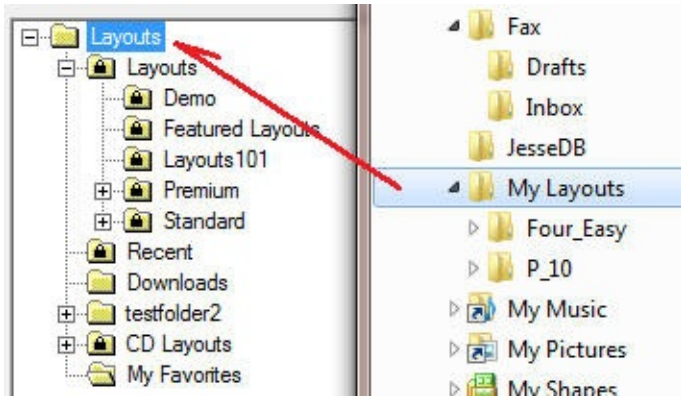
To add a layout to a folder:

1. Right-click the folder and choose Add File.
2. In the file dialog, navigate to the layout (.rrw) file you wish to add, and click OK.

The program adds an alias pointing to the layout file. You do not see a change in the tree, but if you click on the selected folder, you'll see the layout in the list window.

To add layouts from Windows Explorer:

1. Open Windows Explorer and position it alongside TrainPlayer.
2. Navigate in Windows Explorer to a folder containing layouts and/or subfolders. In this example, we are bringing in a folder called My Layouts, with two subfolders.
3. Position the mouse on the folder in Windows Explorer, press, and drag to an unlocked folder in the chooser tree (shown by the arrow below left).

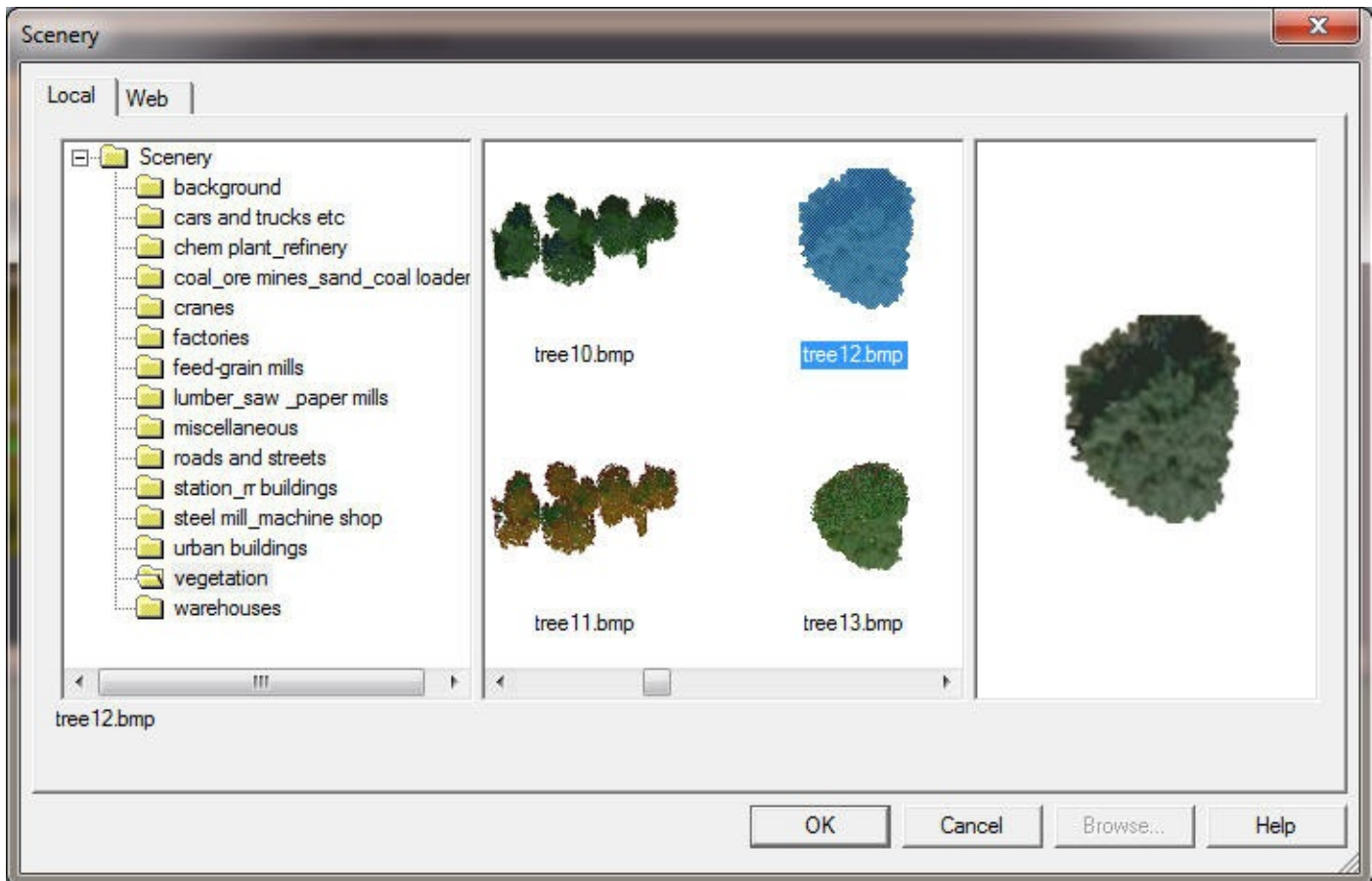


When you release the mouse button, the new folder and subfolders appear in the chooser tree (above right).

Dragged-in folders are automatically marked as locked, because their contents reflect files on the disk.

Local Scenery Chooser

The local scenery chooser is for selecting scenery objects and adding them to the layout.



For general information about choosers, see [Choosers](#).

To Add Scenery to the Layout

1. The local scenery tree shows folders of scenery objects residing on your disk. Click a folder to see its contents as icons in the list window.
2. Click an icon to see a larger view in the preview window.
3. To add the selected object to your layout, point to its icon, press the mouse button, and drag the object to a spot on your layout. Alternatively click OK to deposit the selected object in the center of the layout and take down the dialog.

Note: You can click on a spot on your layout with the chooser open, then double click with your mouse on a scenery object in the chooser to place that scenery object directly where you wish it on your layout.

The scenery chooser is a modeless dialog: it remains on the screen so you can keep adding scenery (unless you clicked OK in step 3). When you are finished, click Done or Cancel.

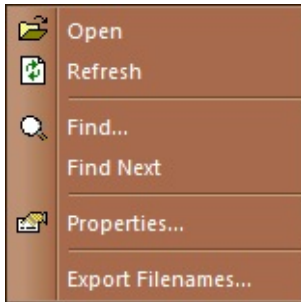
Tree Contents

<named folders>

Scenery objects in the named categories (1)

(1) Folders in this tree are those in the Scenery folder in your TrainPlayer app data directory. By default these match those available on the web. However, if you change the arrangement of files on your disk, the changes will be reflected in the tree.

Tree Menu



Open

Open folder to show subfolders or files

Refresh

Reload contents from disk

Find...

Search for name or filename. See [Search](#).

Find Next

Go to next hit after Find

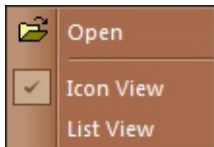
Properties...

Display folder properties

Export Filenames...

Export text or xml file of folder contents. See [Export](#).

List Menu



Open

Add selected scenery object to layout

Icon View

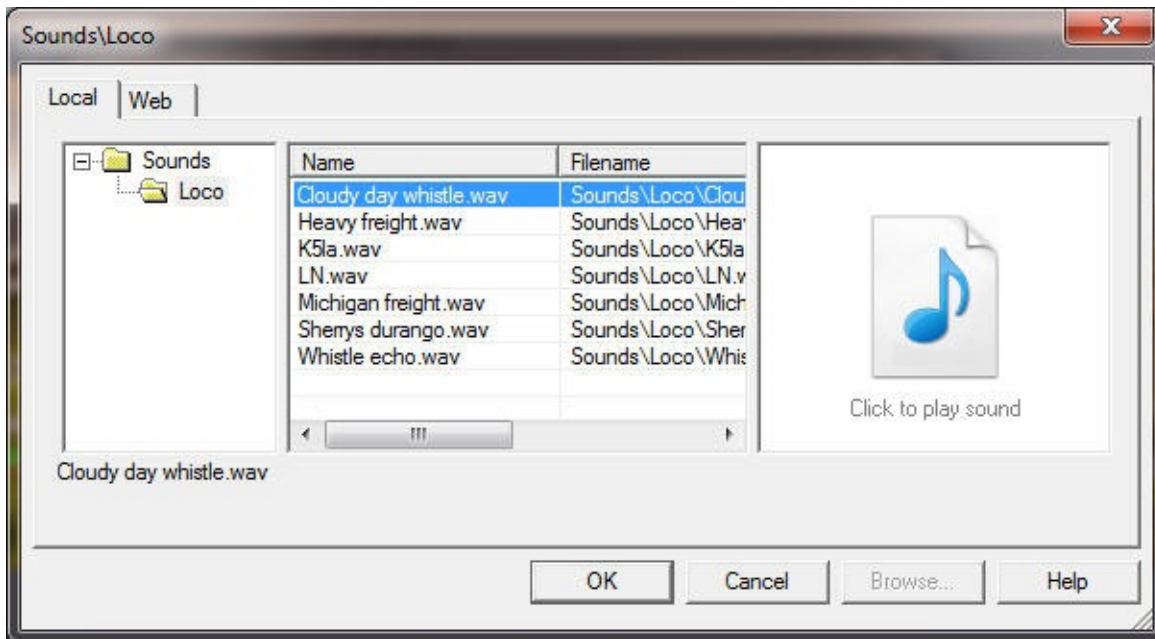
Show scenery objects as icons

List View

Show scenery objects in list form

Local Sound Chooser

The local sound chooser is for selecting locomotive horn sounds, or layout sounds to play when the train passes a given area.



For general information about choosers, see [Choosers](#).

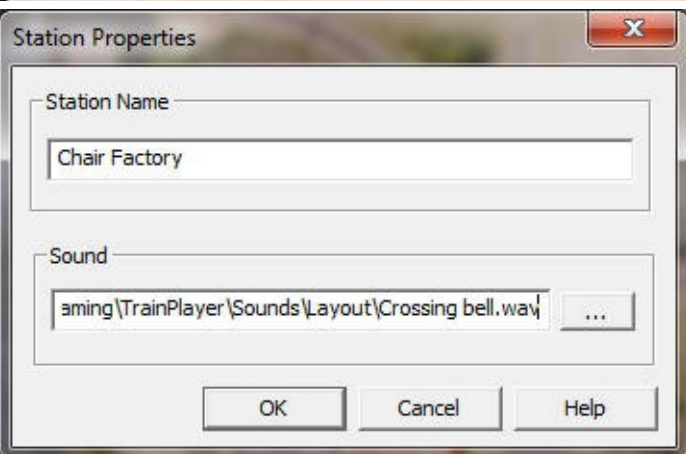
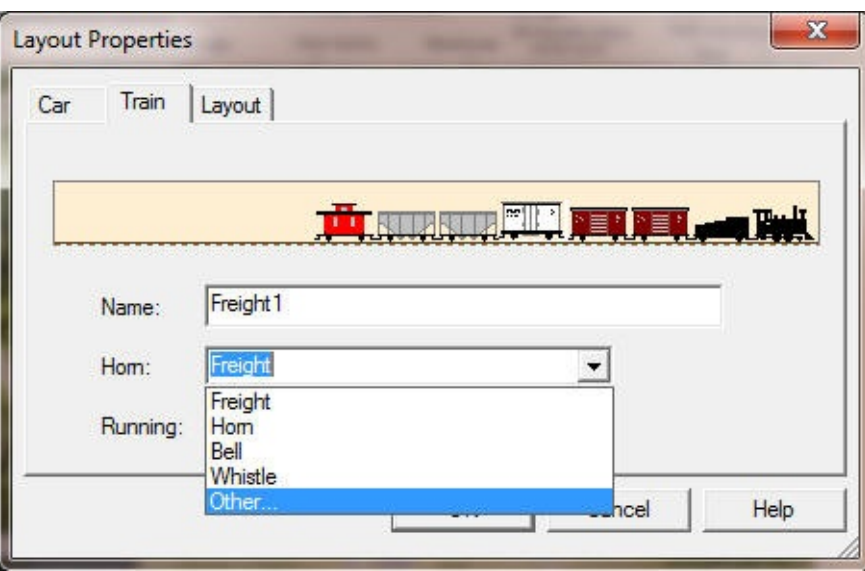
To Add a Sound to your Layout

The sound chooser shows a subfolder of sounds on your disk; which folder depends on whether you are choosing an engine horn sound or a layout sound.

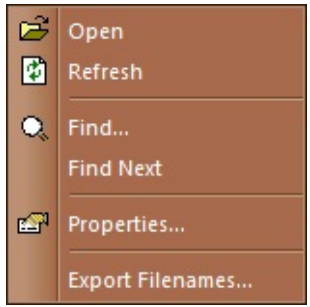
1. Click the folder in the tree to show the list of sounds it contains.
2. Click a sound in the list to select it.
3. Click the icon on the right if you want to hear the sound.
4. If you like it, click OK to choose the sound and take down the dialog.

Tree Contents

Sounds\Loco	Engine horn, bell, whistle sounds. Shown when chooser is called from "Other..." on Horn menu in Train Properties (below left).
Sounds\Layout	Sounds to play when the train passes an area on the layout. Shown when chooser is called from Sound browse button in Station Properties (below right).



Tree Menu



Open

Open folder to show list of sounds

Refresh

Reload folder contents from disk. Dimmed on root folder of tree.

Find...

Search for name or filename. See [Search](#).

Find Next

Go to next hit after Find

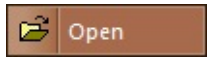
Properties...

Display folder properties

Export Filenames...

Export text or xml file of folder contents. See [Export](#).

List Menu



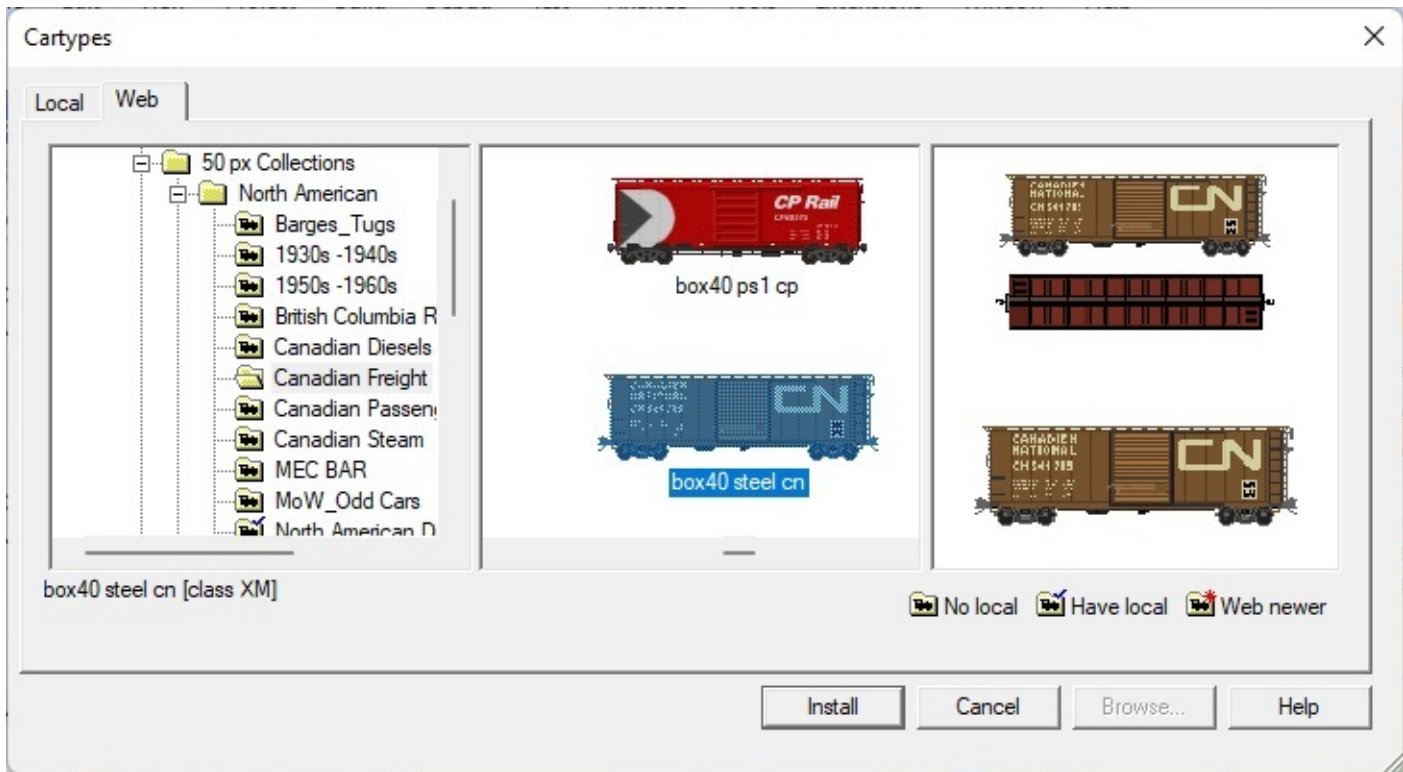
Open

Choose selected sound, take down dialog

For more information about sounds, see [Horns and Sounds](#); also [Stations](#).

Web Car Chooser

The web car chooser is for downloading and installing car collections from the web. You must have a live internet connection while using this chooser.



For general information about choosers, see [Choosers](#).

To Download a Car Collection

1. Choose a car collection in the tree and click to open it. A car collection is shown as a folder with a locomotive icon. When you open a collection, it is downloaded to a temporary directory called the "cache," then shown in the list window. Once a collection is downloaded to the cache, it remains there for future access, until you (a) use the Clear Download Cache command, or (b) choose Refresh on the collection.
2. Click one of the cars in the list window. You see its side and top view in the preview window.
3. To add this collection to your local set, click Install. This copies the files from the cache directory to their permanent location in your Cartytypes directory, then switches to the [Local Car Chooser](#) so you can add them to your layout.

In the web car chooser, unlike others, status icons are shown on the folders in the tree instead of on individual items in the list. Decorations on the folder icons indicate whether you have a local copy of a car collection, and if so, whether there is a newer version available on the web. For more, see [Status Icons](#).

Tree Contents

50 px Collections

Defaults

Schenk 200px Collections

<other>

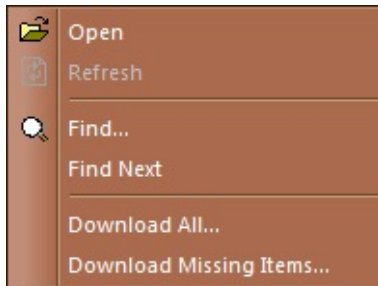
Our standard sets of high-res cars and engines

Balanced collections suitable as default car sets; see [Default Cars](#)

Extra high-res cars and engines by Jim Schenk

Obsolete low-res collections

Tree Menu



Open

Open folder or download collection to cache folder to show contents

Refresh

Re-download car collection to cache folder. Dimmed unless selected item is car collection.

Find...

Search for name or filename. See [Search](#).

Find Next

Go to next hit after Find

Download All...

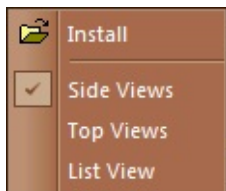
Download and install all car collections within the selected folder and subfolders.

Download Missing Items...

Look at all web car collections within the selected folder and subfolders; if collections available on the web are not yet installed on your local machine, download and install those (on root Cartypes folder only)

Clear Download Cache Remove local cached files, force re-download

List Menu



Install

Install selected car collection

Side Views

Display icons of side views

Top Views

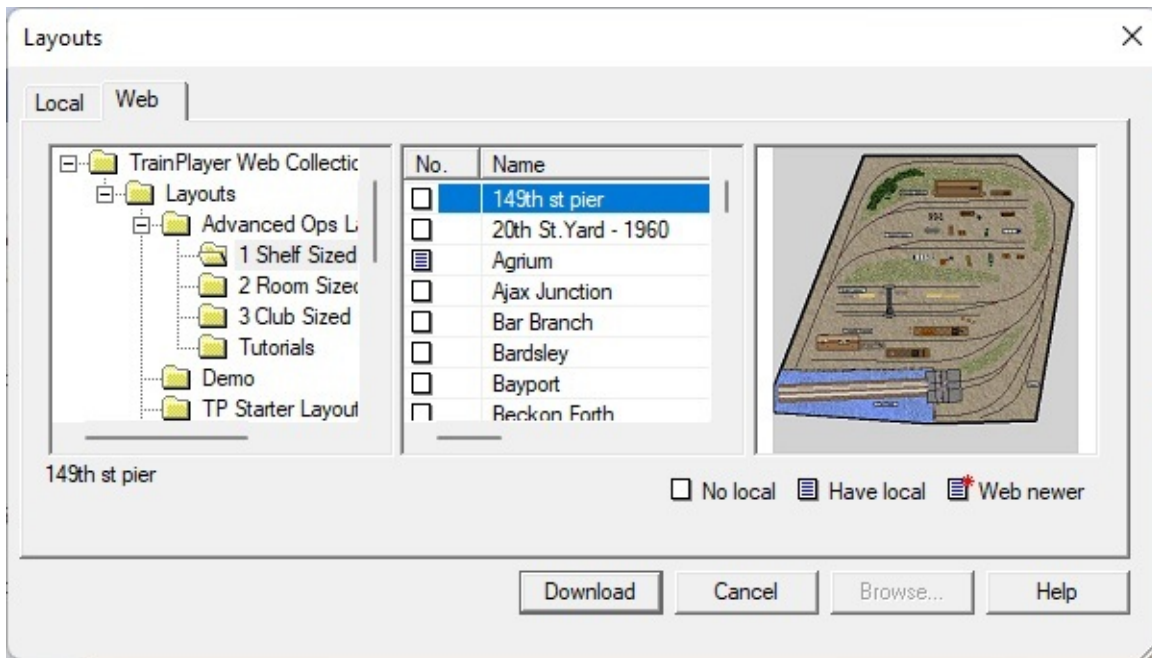
Display icons of top views

List View

Show contents in list form. List includes name, class, AAR code, date.

Web Layout Chooser

The web layout chooser is for downloading layouts from the web. You must have a live internet connection while using this chooser.



For general information about choosers, see [Choosers](#).

To Download a Layout

The web layout tree shows layouts available for download from the web. The folders you see in the tree may show the entire collection, or a subset of it, depending on the license you purchased.

1. If a folder has a + sign next to it, click to expand it and show its subfolders; if not, click the folder to show its contents in the list window.
2. Click a layout in the list to see its preview. This requires a short download.
3. If you like the layout and want to use it, click Download to download it and add it to your local collection. The dialog then switches to the [Local Layout Chooser](#) so you can open the layout.

The downloaded version will go into the same folder in your local tree as its folder on the web. For example, in the above illustration, if you clicked Download you would get a copy of "Benjamin's Room" deposited in your local Layouts folder under Standard\User.

Tree Contents

Advanced Ops Layouts

Ops-ready layouts of all sizes, fully set up and ready to run

Demo

Sample layouts for use with free demo version

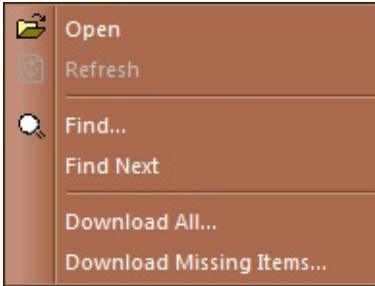
TP Starter Layouts

Small layouts for practice and tutorials

Scripts and Puzzles <other>

Scripted layouts ready to run, switching puzzles
Many more layouts including user contributions

Tree Menu



Open

Open folder to show subfolders or files

Refresh

Always dimmed in this web chooser

Find...

Search for name or filename. See [Search](#).

Find Next

Go to next hit after Find

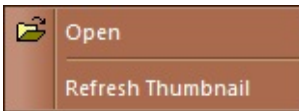
Download All...

Download and install all layouts within the selected folder and subfolders.

Download Missing Items...

Look at web layouts within the selected folder and subfolders; if some on the web are not yet installed on your local machine, download and install those

List Menu



Open

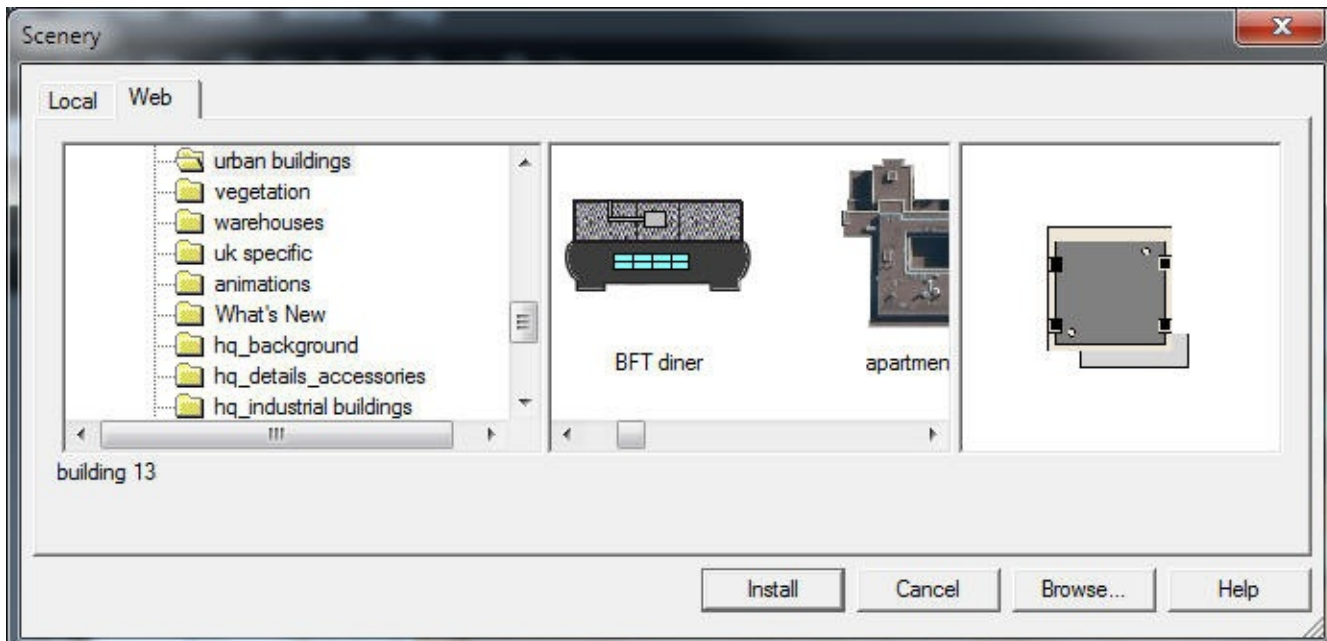
Download selected layout(s), then switch to Local tab. Works over multiple selection.

Refresh Thumbnail

Redownload thumbnail image

Web Scenery Chooser

The web scenery chooser is for downloading folders of scenery objects from the web. You must have a live internet connection while using this chooser.

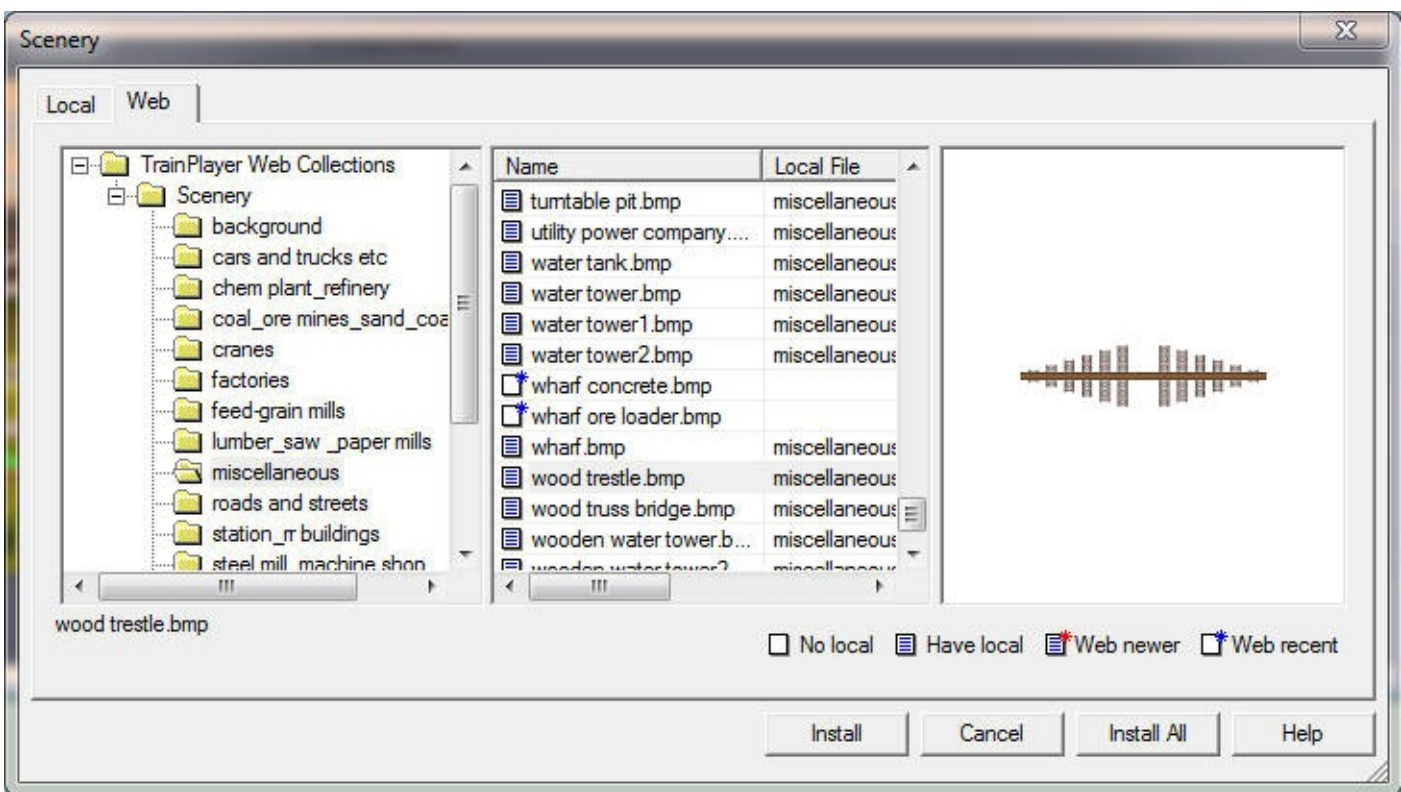


For general information about choosers, see [Choosers](#).

To Download a Scenery Folder

1. The web scenery tree shows folders of scenery objects available on the web. Click to open a folder containing the types of object you want.
2. The objects in the folder are downloaded to a temporary folder on your disk (called the "cache"), and the list window displays the object images.
3. Click an icon to see its larger image in the preview window.
4. If you like the set and would like to use it in your layouts, click **Install**. This copies the files from the cache into your local scenery folder, then switches to the [Local Scenery Chooser](#) so you can add them to your layout.

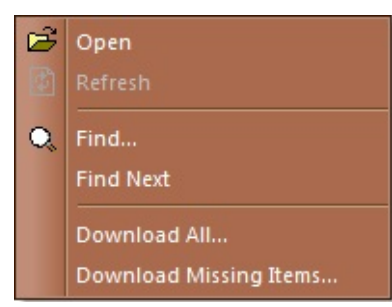
As an alternative to icon view, you can choose to view the objects in list form. This displays status icons indicating which objects you do and don't have in your local set, and which are new on the web.



Tree Contents

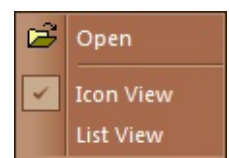
Scenery Named folders of scenery objects

Tree Menu



- Open** Open folder to show subfolders or files
- Refresh** Re-download scenery folder. Dimmed on parent or root folder of tree.
- Find...** Search for name or filename. See [Search](#).
- Find Next** Go to next hit after Find
- Download All...** Download and install all scenery objects within the selected folder and subfolders.
- Download Missing Items...** Look at all scenery objects within the selected folder and subfolders; if some on the web are not yet installed on your local machine, download and install those
- Clear Download Cache** (on Scenery folder only) Remove local cached files, force re-download

List Menu



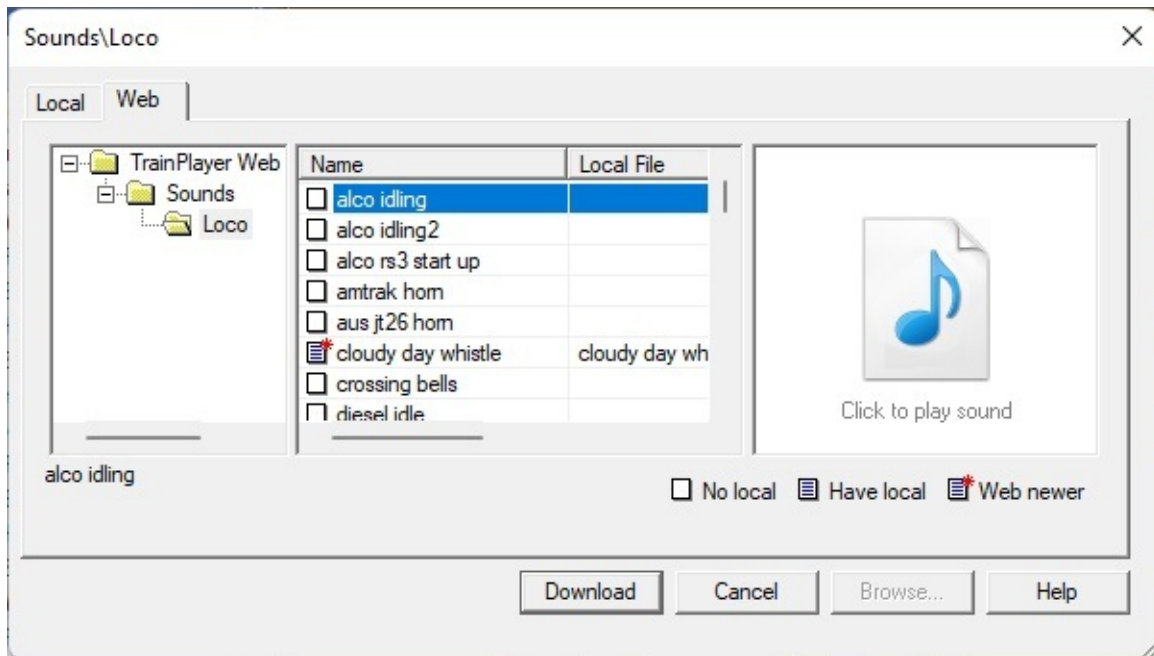
- Open** Download selected scenery folder, then switch to local tab
- Icon View** Show scenery objects as icons
- List View** Show scenery objects in list form, with status

List View

icons (see [Status Icons](#))

Web Sound Chooser

The web sound chooser is for downloading sounds from the web. You must have a live internet connection while using this chooser.



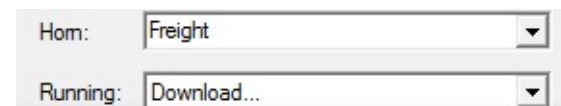
For general information about choosers, see [Choosers](#).

To Download a Sound

A web sound chooser shows a subfolder of sounds available on the web; which folder depends on whether you are choosing an engine horn sound or a layout sound.

1. Click the folder in the tree to show the list of sounds it contains.
2. Click a sound in the list to select it.
3. Click the icon on the right to hear the sound.
4. If you like it, click Download to download the sound and add it to your local collection. After the download, the chooser switches to the [Local Sound Chooser](#) and highlights the downloaded sound.

Engine running sounds (steam chuffs, diesel grinds) are available on the web, but not through a chooser. These are downloaded when you choose Download from the Running menu in Train Properties, shown at right. You only see this choice on the menu if there are running sounds on the web you do not already have in your local collection.



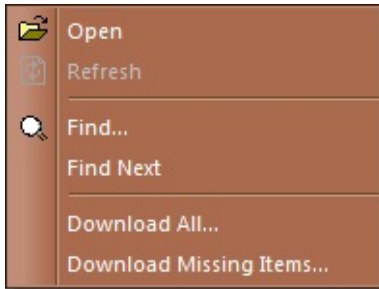
Tree Contents

Sounds\Loco

Engine horn, bell, whistle sounds. Shown when chooser is called from "Other..." on Horn menu in Train Properties.

Sounds\Layout Sounds to play when the train passes an area on the layout. Shown when chooser is called from Sound browse button in Station Properties.

Tree Menu



Open

Open folder to show subfolders or files

Refresh

Always dimmed in this web chooser

Find...

Search for name or filename. See [Search](#).

Find Next

Go to next hit after Find

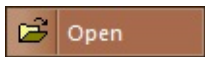
Download All...

Download and install all sounds within the selected folder and subfolders.

Download Missing Items...

Look at all sounds within the selected folder and subfolders; if some on the web are not yet installed on your local machine, download and install those

List Menu



Open

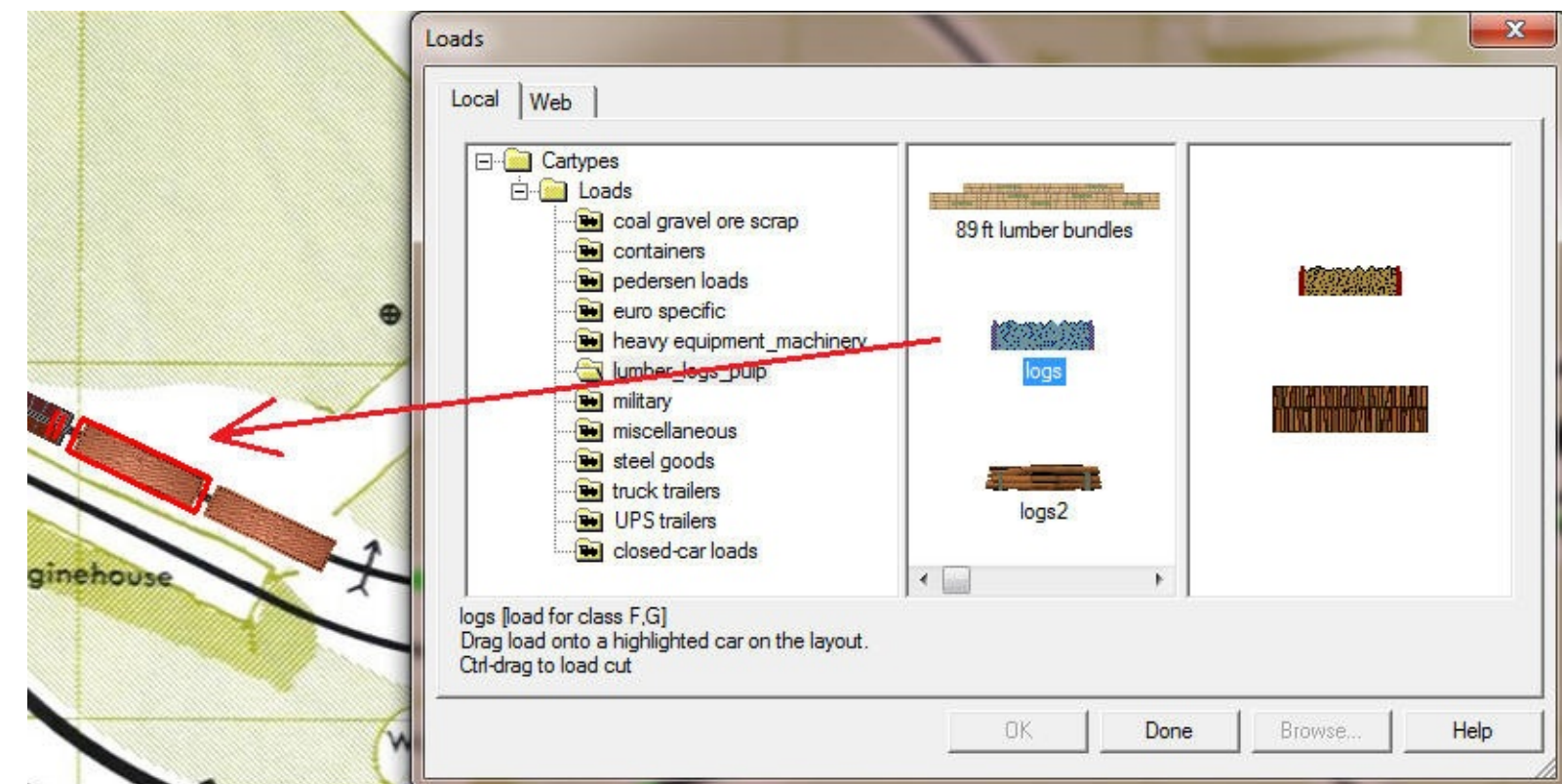
Download selected sound and switch to local tab

For more information about sounds, see [Horns and Sounds](#); also [Stations](#).

Load Chooser

The Load Chooser appears when you (a) select Load Chooser from the Load menu, (b) choose Loaded for a car which has not yet been assigned a load, or (c) double-click the Load Car toolbar icon.

The Load Chooser is much like the Car Chooser. It shows about a dozen folders named for types of goods, each containing an assortment of pictorial loads in that category. When you click a load, it shows top and side views in the preview window, and data in the lower left about what sorts of cars can carry the load.



Note: the behavior of the Load Chooser changed at version 5.2. The following instructions have been revised.

To operate:

Browse the collection -- click a folder in the tree to see its contents.

Select a load by clicking its image in the middle panel. Note the indication on the status bar at lower left: it shows the types of car (by AAR code) which are suitable for carrying the selected load.

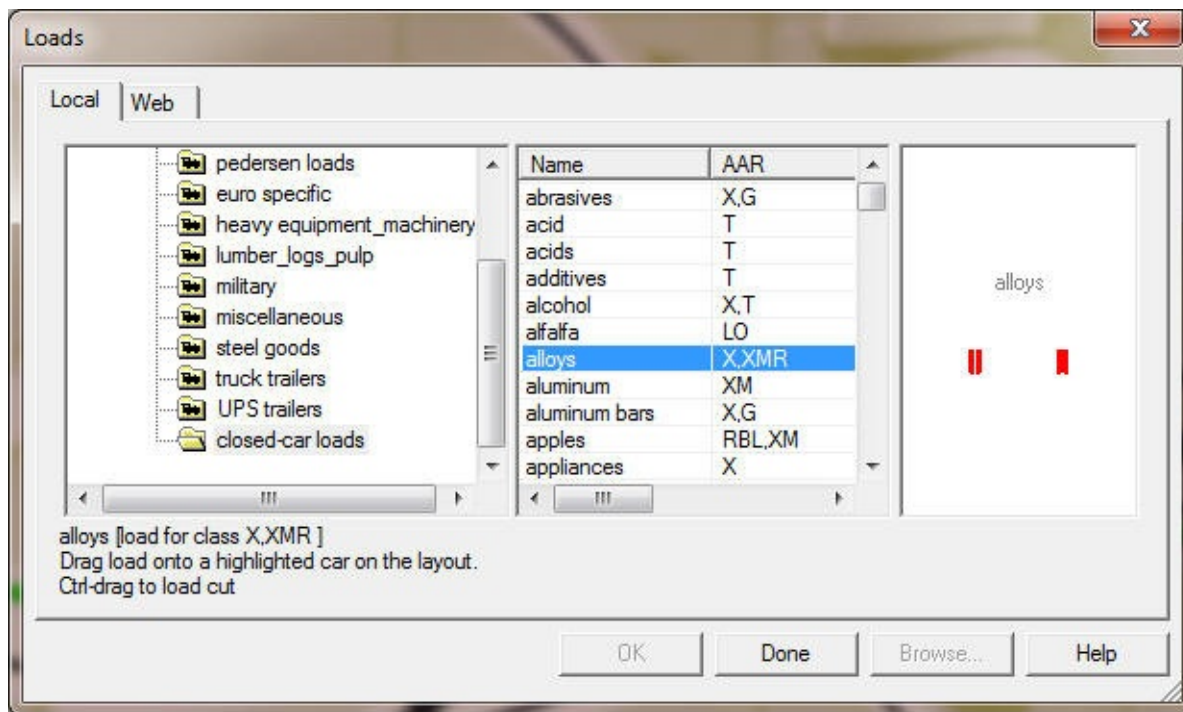
Press on the load image and **drag the load onto the layout**. As you move over a suitable car, it is highlighted with a red outline, meaning that the load can be deposited there. Release the mouse button over the car you want to load.

Hold the Ctrl key down while you drag if you wish to load more than one car at a time. When Ctrl is down, an entire cut of cars is highlighted at once and can be loaded with the dragged load. (*Cut* means a connected group of cars of the same class.)

To modify a load or see its properties, right-click the load icon in the middle window and choose Properties. You get the [Load Collection Editor](#).

Closed-car loads

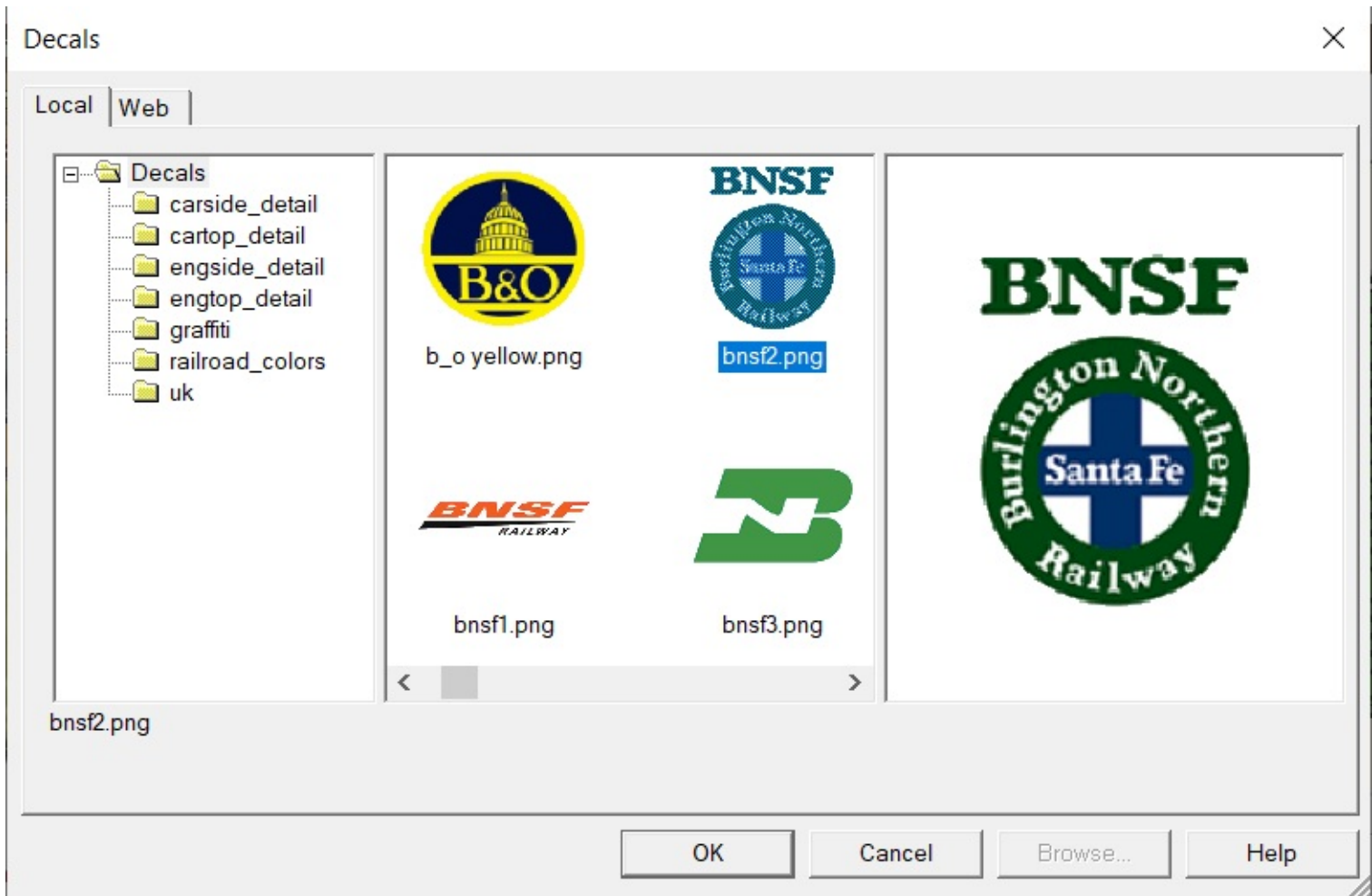
One special load folder works differently: **closed-car loads**. These are loads without pictures, for loading on boxcars, refrigerated cars, covered hoppers, and other closed cars. When you select this folder, the center panel changes to list view and shows you a lengthy collection of load names:



In this case the preview window shows the load as text, which will be displayed above side views of the car, and as a pattern which will be overlaid onto the car top image. By default, all closed-car loads are shown as a pair of double red bars, but you can change this: right-click the load, choose Properties, go to the Images tab, click Browse.

Local Decal Chooser

The local decal chooser is for selecting decals and adding them to the car image in [Paint Shop](#).



For general information about choosers, see [Choosers](#).

To Add Decals to the Car Image

1. The tree shows folders in your Decals directory. Click a folder to see its contents as icons in the list window.
2. Click an icon to see a larger view in the preview window.
3. To add a decal to your car, press and drag the icon from the list window onto the Paint Shop window.

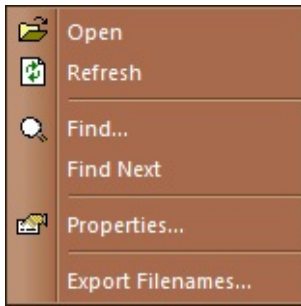
Note: The size of the decal is not adjusted as you drag. Resizing the Paint Shop window changes the relative size of decal vs. car.

The decal chooser is a modeless dialog: it remains on the screen so you can add multiple decals.

Tree Contents

Folders in the tree are those in the Decals folder in your TrainPlayer app data directory.

Tree Menu



Open

Open folder to show subfolders or files

Refresh

Reload contents from disk

Find...

Search for name or filename. See [Search](#).

Find Next

Go to next hit after Find

Properties...

Display folder properties

Export Filenames...

Export text or xml file of folder contents.
See [Export](#).

List Menu



Icon View

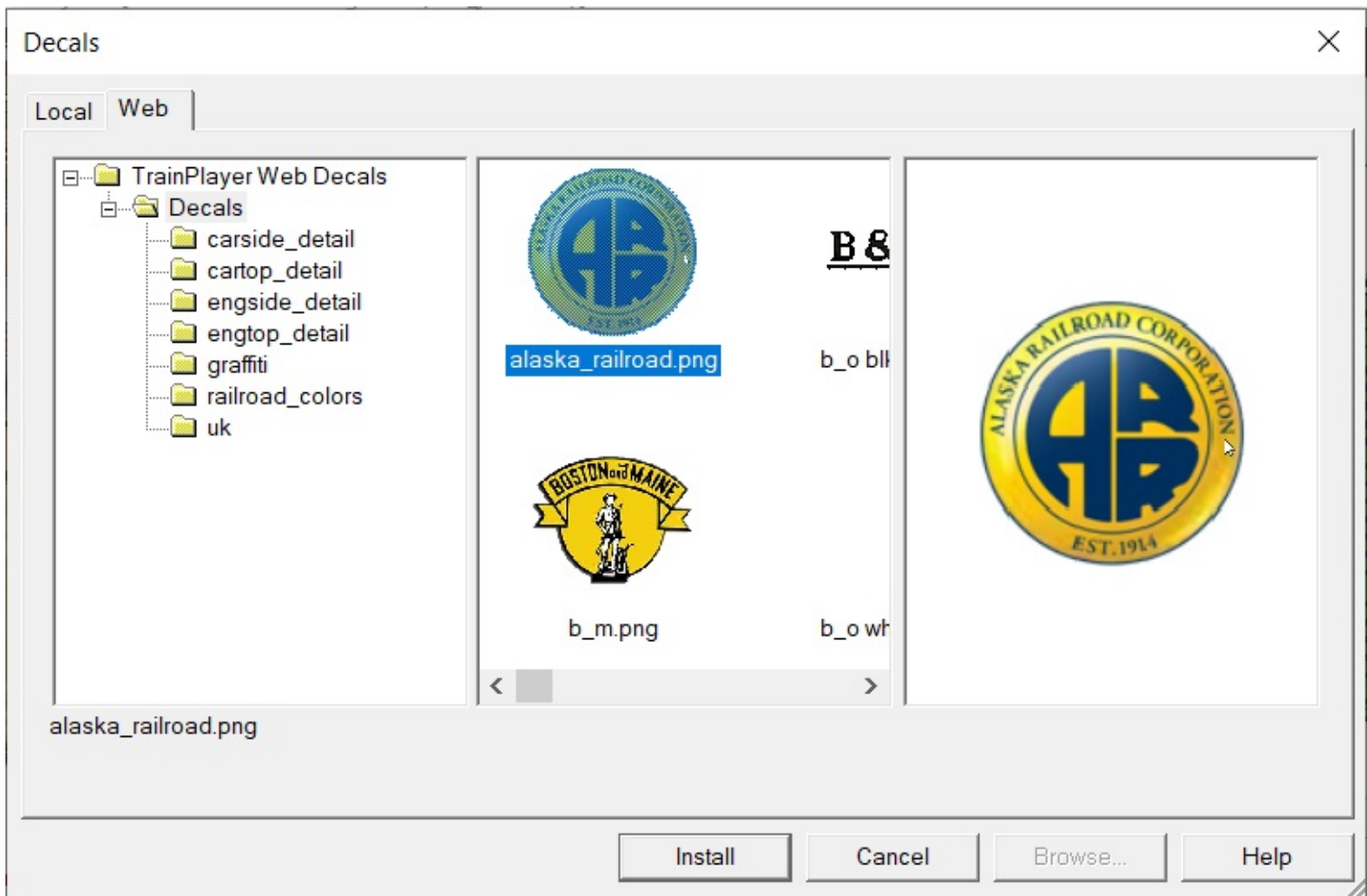
Show decals as icons

List View

Show decal filenames in list form. Paths are relative to Decals folder.

Web Decal Chooser

The web decal chooser is for downloading folders of decals from the web. You must have a live internet connection to use this chooser.



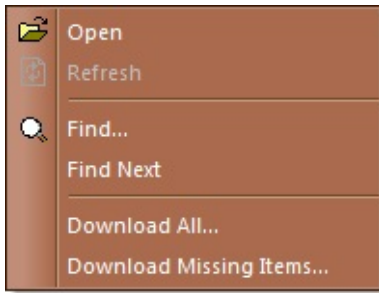
For general information about choosers, see [Choosers](#).

To Download a Decal Folder

1. The web tree shows folders available on the web. Click to open a folder.
2. The decals in the folder are downloaded to a temporary folder on your disk. On completion, the list window displays the images.
3. Click an icon to see a larger image in the preview window.
4. To use the folder on your machine, click **Install**. This copies the files from the cache into your local decals folder, then switches to the [Local Decal Chooser](#) so you can add them to your cars.

As an alternative to icon view, you can view the decals in list form. This displays status icons indicating which objects you have in your local set, and which are new on the web.

Tree Menu



Open

Refresh

Find...

Find Next

Download All...

**Download Missing
Items...**

Open folder to show subfolders or files

Dimmed, not available for decals.

Search for name or filename. See [Search](#).

Go to next hit after Find

Download and install all decals within the selected folder

Download and install decals available on web but not locally

List Menu



Icon View

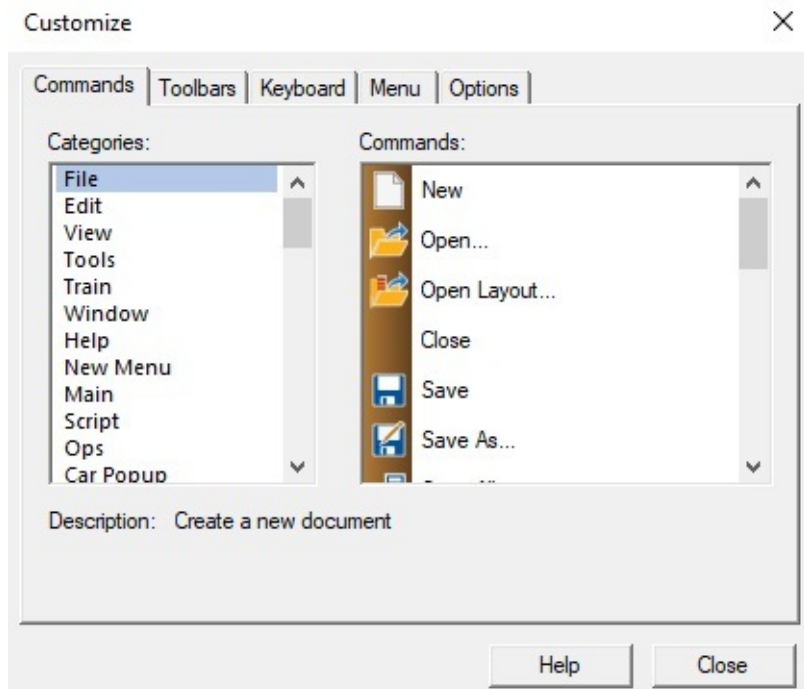
List View

Show decals as icons

Show decals in list form, with status icons (see [Status Icons](#))

Customize Commands

For arranging commands on toolbars. Called from **Tools > Customize**.



This tab allows you to add or remove buttons on toolbars. To add a button to a toolbar, locate the command in this dialog and drag it onto the toolbar where you want it to go. To remove a button from a toolbar, drag it off the toolbar and drop it anywhere (this only works when the Customize dialog is visible.)

Dialog controls:

Categories

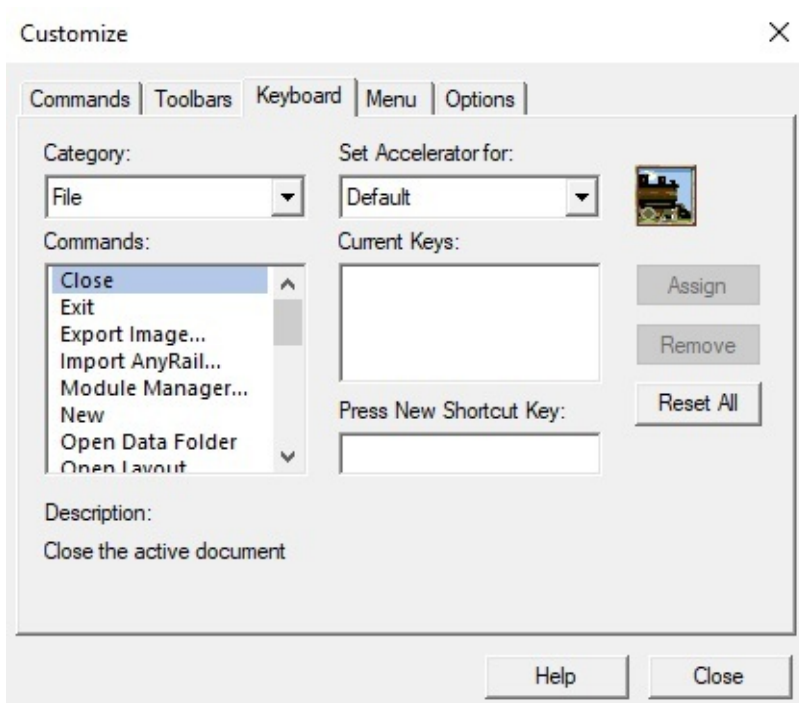
Select a menu to see its commands on the right. Or choose "All Commands" to see the complete list of commands from all menus. The "New Menu" item can be dragged onto a toolbar to create a new, empty menu.

Commands

Locate a command in this list, point to it, press the left mouse button, and drag the command onto any toolbar. If the command does not have an icon, the toolbar button will show the command name.

Customize Keyboard

For assigning keys to menu commands, and seeing a list of assignments. Called from menu command **Tools > Customize**.



In this tab, you select a command from the menu and choose a key on the keyboard to execute that command. If the command already has a key assigned to it, you can change it.

The **Help** button works differently in this tab. On the first click, it brings up this page you are reading. Take this down and click Help again and you get the [Keyboard Guide](#) shown below. Alternate clicks of the Help button bring up one or the other.

Dialog controls:

Category Select the menu containing the command you want to operate by keyboard.

Commands Select the command you want to attach to a key.

Set Accelerator for This is non-functional, always set to Default.

Current Keys Shows the key(s) currently assigned to the selected command, if any.

Press New Shortcut Click this box so it has the focus, then press the key you want to assign to the command. The key name will echo

in this box.

Assign Click to complete the assignment. If you do not click Assign, nothing will change. This button is dimmed if no key has been entered.

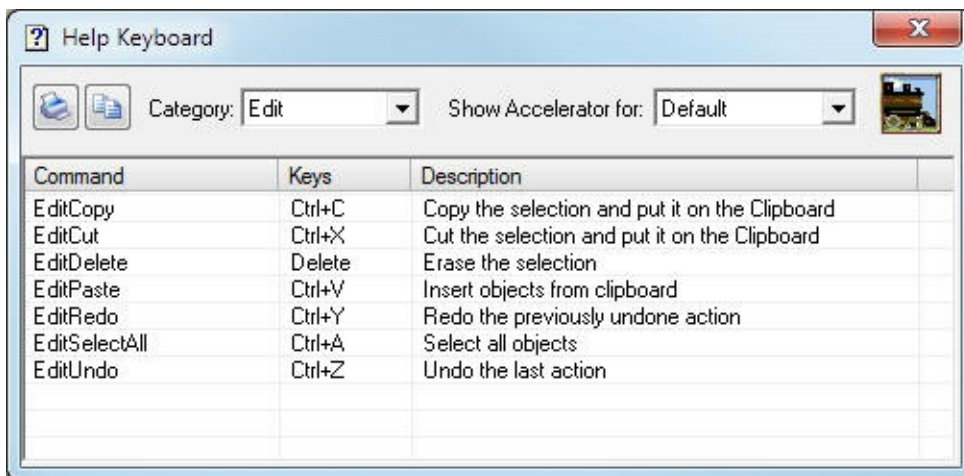
Remove Click if you want to remove the current key assignment for the command. This button is dimmed if no key is currently assigned.

Reset All Erases all key assignments and resets to factory values.

Help Brings up this help page or [Keyboard guide](#) on alternate clicks.

Keyboard Guide

Built into the tools customization scheme is a special dialog showing all the commands in the program, with the description string attached to each one and the keyboard assignment if any. (To see this, click **Help** twice on the Keyboard tab as described [above](#).)

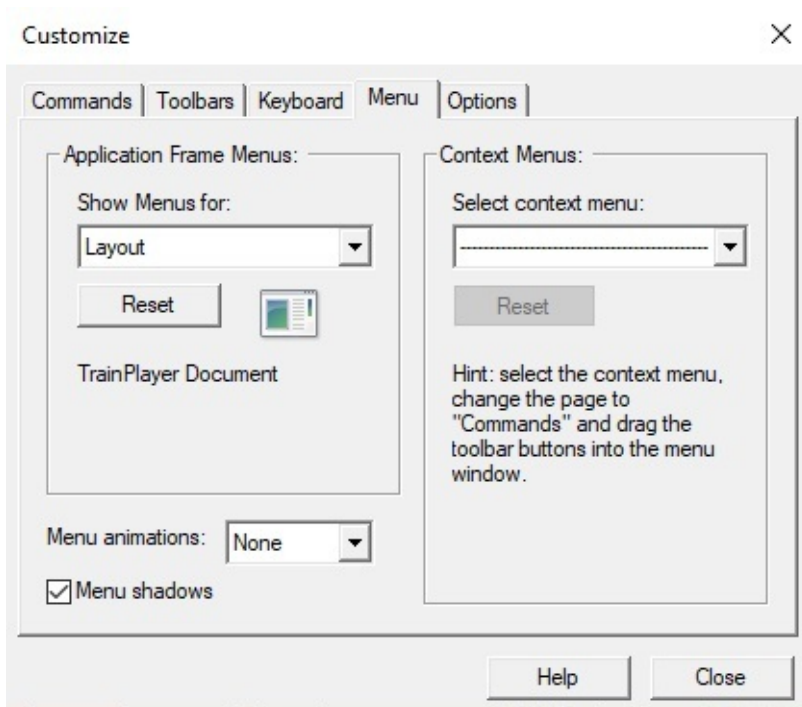


Instructions: Choose a main menu name in the Category drop-down and you will see the commands under that menu. Click a column header to sort on that column. The Show Accelerator drop-down is not used.

You can select a row by clicking it; if you then Shift-click another row, it selects a range. Use the buttons at the upper left to print the list or copy selected rows to the Windows Clipboard, suitable for pasting into Excel.

Customize Menu

For resetting or customizing menus. Called from menu command **Tools > Customize**.



Dialog controls:

Application Frame Menus

Choose one of the two main menus: Layout (the menu when a document is open) or Default; then click Reset to reset the selected menu to factory content.

Context Menus

Choose Popups, then click Reset to reset all context menus to defaults.

Menu animations

Choose the action to be taken when you expand a menu.

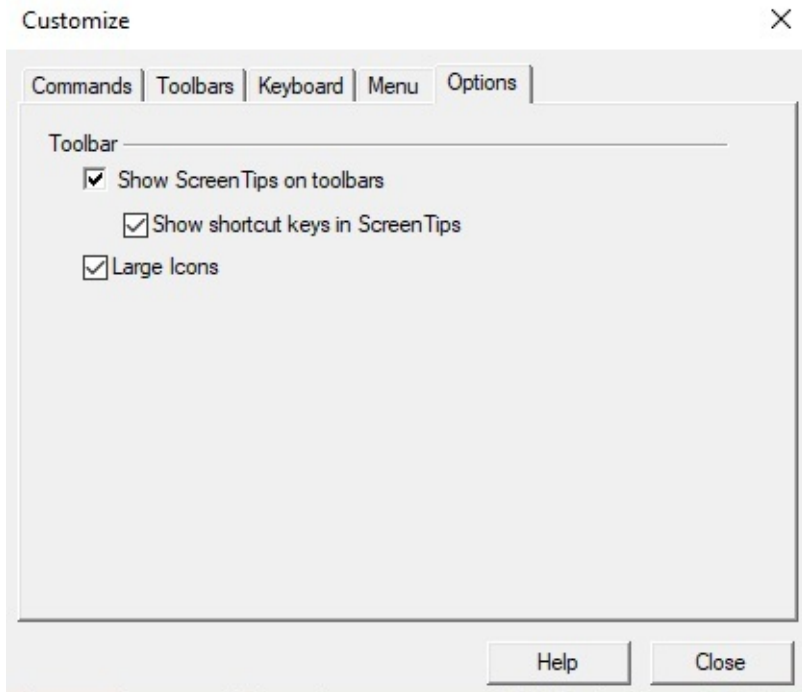
Menu shadows

Check if you want menus to have a three-dimensional look with shadows.

It may be necessary to reset all menus after you upgrade to a new version, if the menu commands don't seem to be doing what they should. To reset all menus, click Reset once for each of the three menu choices.

Customize Options

For setting miscellaneous toolbar options. Called from menu command **Tools > Customize**.



Dialog controls:

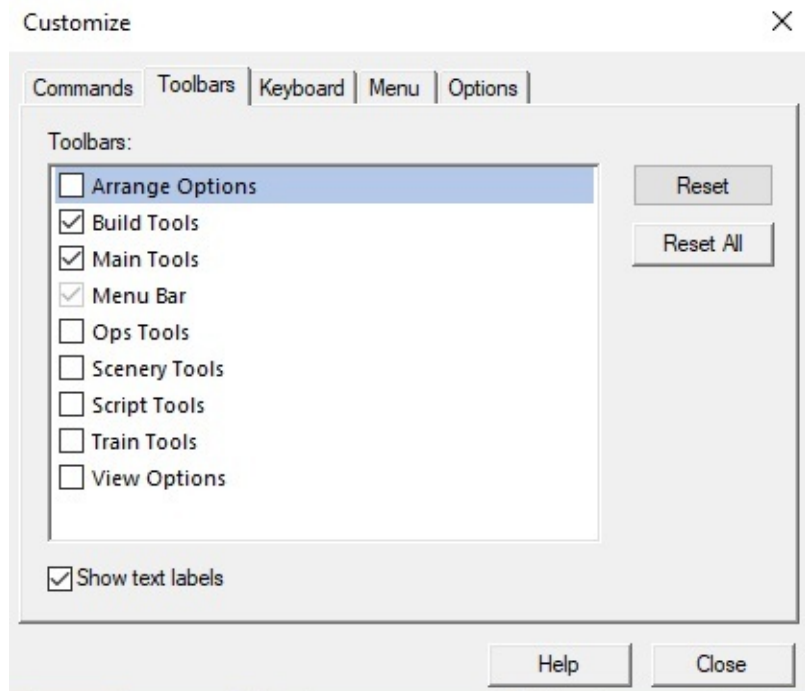
Show Screen Tips Check if you want to see a tooltip whenever the mouse hovers over a toolbar button.

Show shortcut keys Check if you want a tooltip to include the command's keyboard shortcut. For example, with this box checked the tooltip for File New becomes "New (Ctrl+N)."

Large Icons Check if you want larger icons on the toolbars.

Customize Toolbars

For choosing toolbars to be displayed. Called from menu command **Tools > Customize**.



Dialog controls:

Toolbars

Choose which toolbars are to be visible. Most can also be made visible from View > Toolbars on the menu.

Reset

Reset the selected toolbar to factory settings. This synchronizes the toolbar with the menu, and positions it in default docking position.

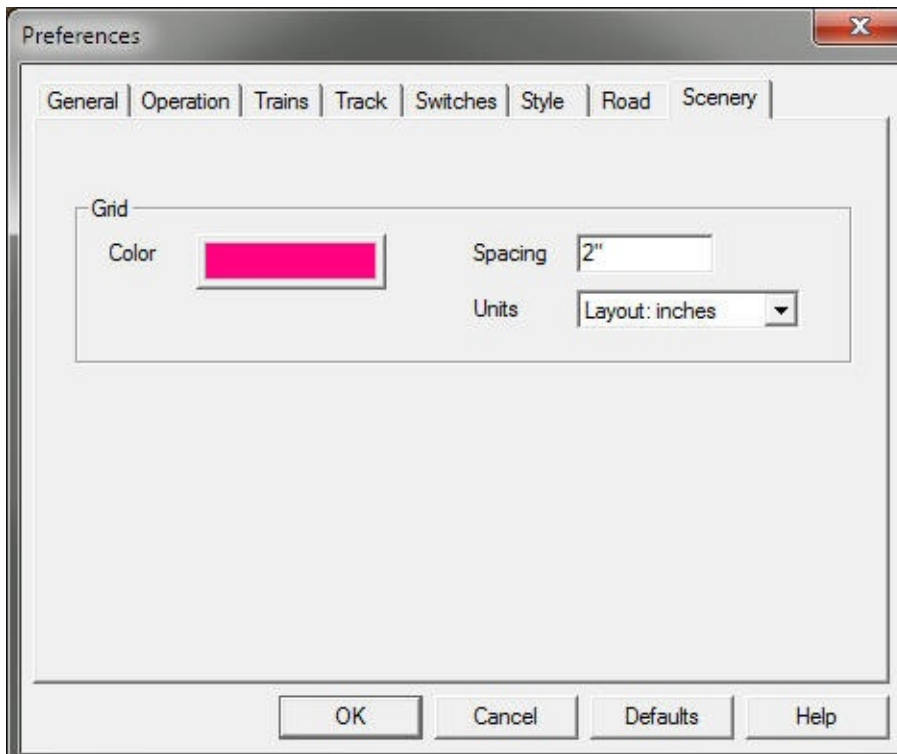
Reset All

Reset all toolbars to factory settings. This may be necessary after upgrading to a new version, if toolbar buttons do not seem to be working as expected.

Scenery Preferences

Settings for scenery options. Called from menu command **File > Preferences**.

In Scenery Preferences, you indicate settings only for the [Scenery Grid](#). To set preferences for default styles, use the [Scenery Styles](#) dialog.



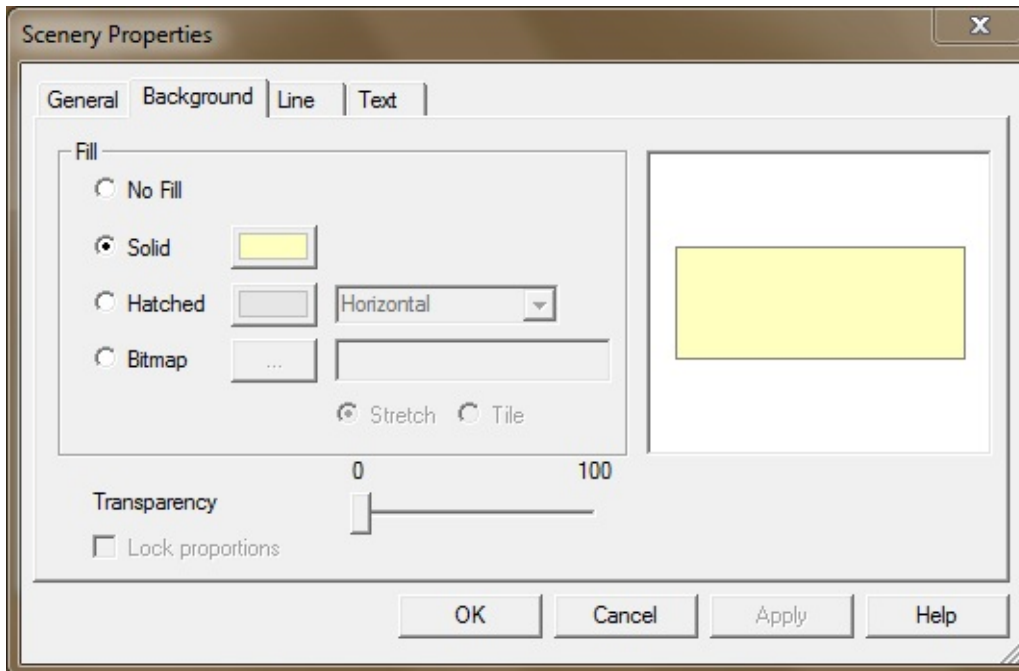
Grid Preferences

- **Color:** color of grid dots. Default is medium grey.
- **Spacing:** distance between dots. Default is 100 RRU, or 1" in HO.
- **Units:** units for display of spacing value.

Scenery Properties/Styles: Background

Properties: Background fill properties of the selected scenery object(s). Called from Properties on the scenery context menu. See [Editing Scenery Properties](#).

Styles: Default background fill style. Called from arrow button on Paint tool  See [Scenery Styles](#).



This dialog sets properties of the color or pattern which fills the object. The default is a solid ivory color (shown above). If multiple objects are selected (including grouped objects), the fill properties chosen in this dialog apply individually to each.

Dialog controls:

Select one of four choices using the radio buttons.

No Fill

Choose this if you do not want the object to be filled. An object with no fill is transparent.

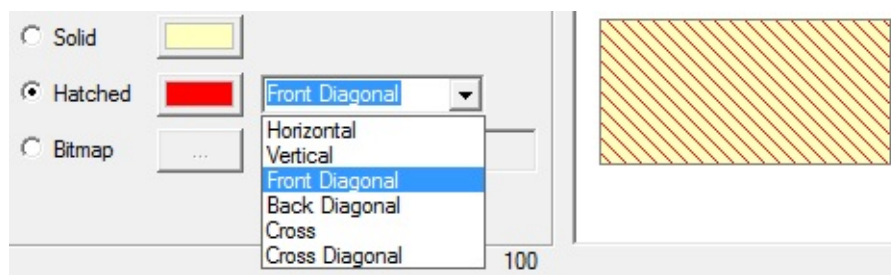
Choose this to have the object filled with a solid color.

Solid

To change the color, click the colored button to bring up the [Color Chooser](#) dialog.

Choose this to fill the object with one of the system-defined hatch patterns. Choose a pattern from the drop-down choice list:

Hatched



Set the foreground (line) color of the pattern using the color button next to Hatched. The background color is set with the button next to Solid.

The hatch patterns are provided by system "brushes." They do not offer much flexibility -- you cannot change the line width, and the patterns do not stretch or rotate.

Choose this to fill the object with an image. Click the Browse button ("...") to bring up the [Scenery Chooser](#), where you can select an image from the scenery collection or import one from the file system.

Bitmap

The appearance of the image within the scenery object is affected by the Stretch/Tile radio described below.

Note: a shortcut to performing this operation is to use the **Load Bitmap** command on the [Scenery context menu](#).

Choose Stretch to cause the image to stretch so that it fills the object.

Stretch/Tile

If Lock Proportions is checked, the image will fill as much of the object space as possible without distorting; otherwise, the image will fill the complete space, distorting as necessary.

Choose Tile to show the image in its native size and proportions, drawn repeatedly to fill the object space. Tiled images do not scale or rotate.

Adjusts the degree of transparency of the background fill or pattern.

Transparency

When set to zero (slider at left), the object is completely opaque, and obscures objects underneath. When set to 100 (slider at right), the object is fully transparent, as if you had chosen No Fill. Values in between cause the background to be semi-transparent -- see-through to an adjustable extent.

Note: choosing a non-zero value for transparency adds complexity and slows down the drawing process. It is not recommended that you use transparency for large background objects.

***Lock
Proportions***

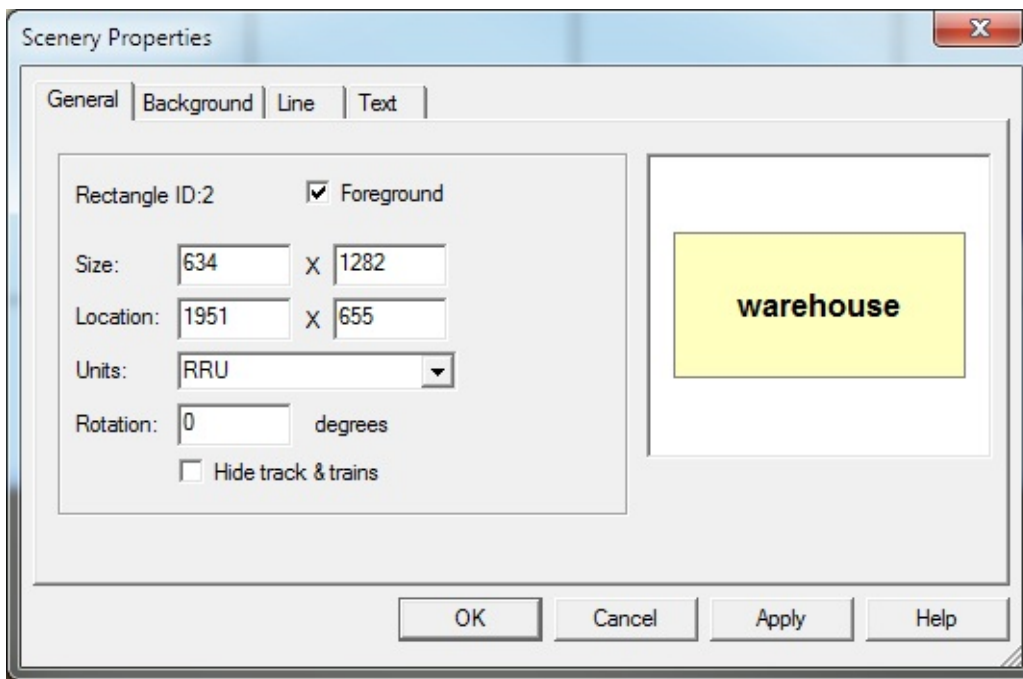
Specifies whether the image can be stretched independently in both directions (unchecked) or must retain its native proportions (checked).

This setting is ignored unless Stretch is chosen as the display mode.

Scenery Properties: General

General properties of the selected scenery object(s). Called from Properties on the scenery context menu.

See also: [Editing Scenery Properties](#).



This dialog sets general properties of a scenery object. If multiple objects are selected, the dialog displays "--" for values which differ among the objects; any change you make applies to all. Most of the values in this dialog are normally adjusted by moving the object on the layout rather than entering numeric values, but both are possible.

Dialog controls:

Name Name of the object. This is a program-generated name consisting of the object's type and its ID. It cannot be changed.

Foreground Check this box to move the scenery object into the foreground layer. Uncheck to move to the background.

Size Height and width of the unrotated object's rectangular bounds, in units chosen from the drop-down menu. You can enter a new value in either box to change the dimensions of the object.

Location Coordinates of the upper left corner of the unrotated object, relative to the upper left corner of the layout. You can enter new values to change the object's position on the layout. Units are as chosen from the drop-

down.

Units

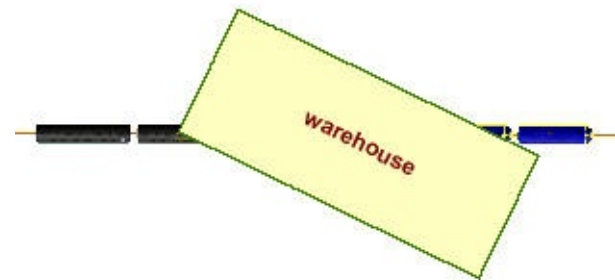
Specifies units of length for display and entry of size and location values. Any choice you make here will apply in similar Units menus throughout the program.

Rotation

Angle in degrees by which the object is rotated clockwise from normal. Enter a new value to change the orientation, or enter 0 to return the object to normal.

Specifies whether the object sits above or below track and trains.

Check this box if you want the object to appear on top, so that track is obscured and trains disappear as they travel beneath, as shown here.




Hide track & trains

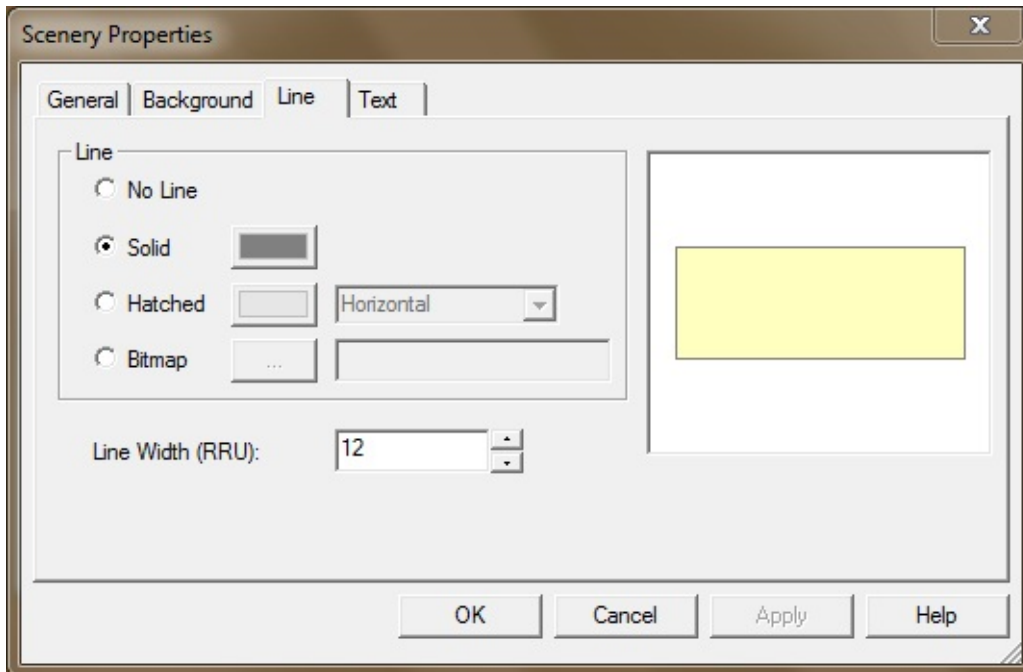
Uncheck the box to have the scenery at ground level, with track and trains passing above it.

Note: if the object has a non-zero transparency setting (see Background Properties), and this box is checked, then the trains will disappear but the track will be partially visible.

Scenery Properties/Styles: Line

Properties: Line properties of the selected scenery object(s). Called from Properties on the scenery context menu. See [Editing Scenery Properties](#).

Styles: Default line style. Called from arrow button on Line tool  See [Scenery Styles](#).

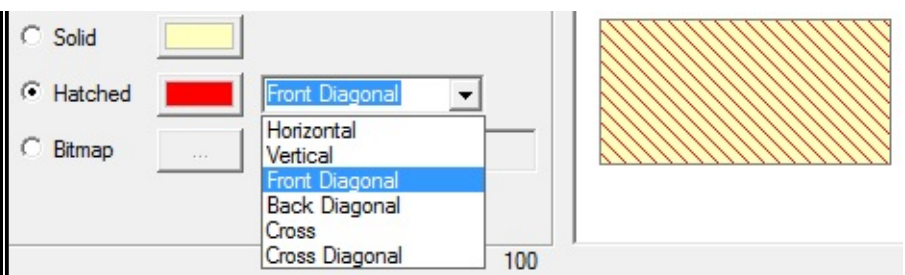


This dialog sets properties of the line bordering the scenery object. If multiple objects are selected, this dialog sets the same line properties for all. If you do not want the object outlined, set its line width to zero.

Dialog controls:

No Line	Choose this if you do not want the line to be filled. In fact this will make it invisible.
Solid	Choose this to have the line drawn in a solid color. To change the color, click the colored button to bring up the Color Chooser dialog.
	Choose this to fill the line with one of the system-defined hatch patterns. Choose a pattern from the drop-down choice list:

Hatched



Set the foreground (line) color of the pattern using the color button next to Hatched. The background color is set with the button next to Solid.

The hatch patterns are provided by system "brushes." They do not offer much flexibility -- you cannot change the line width, and the patterns do not stretch or rotate.

Bitmap

Choose this to fill the line with an image. Click the Browse button ("...") to bring up the [Scenery Chooser](#), where you can select an image from the scenery collection or import one from the file system.


The bitmap used for a line style is always tiled, not stretched.

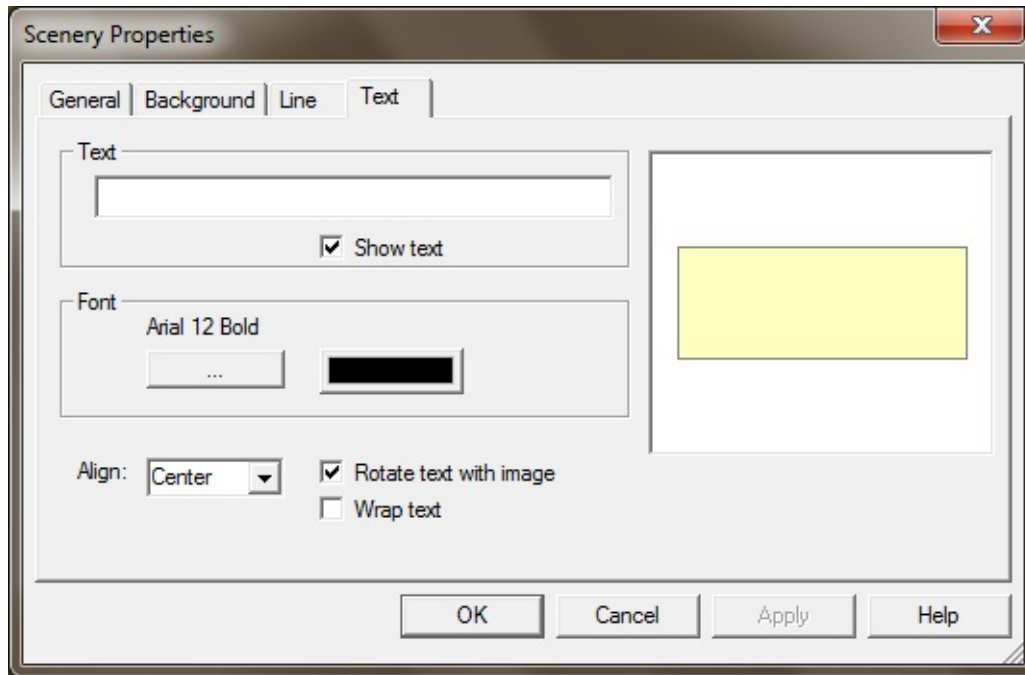
Line Width

Thickness of the line, in RRU (1 RRU = 0.01" in HO). Default is 10, a fairly thin line.

Scenery Properties/Styles: Text

Properties: Text properties of the selected scenery object(s). Called from Properties on the scenery context menu. See [Editing Scenery Properties](#).

Styles: Default text style. Called from arrow button on Text tool  See [Scenery Styles](#).



This dialog is used to add text to an object and specify its style. You may enter a single line or multi-line block of text to be displayed in the box, aligned left, right, or center. If multiple objects are selected, the text is applied to each individually. If a grouped object is selected, the text is displayed on top of the group.

Dialog controls:

Text	The text string to be displayed on the object. Enter whatever you want it to say.
Show text	Check this box to have text displayed on the object. In order to see text on the object, you must both check this box and enter a text string. If this box is unchecked, the rest of the dialog is inactive.
	Click to bring up the Font dialog to change the text font and style. Change the settings so the sample looks the way you want, then click OK.

Font

The fonts shown in the dialog are those available on your machine. They may not display the same way on another machine.



The size you choose is not meaningful in an absolute sense -- see note below regarding text sizes.

Note: in the current version, not all features in the Font dialog are working. For example, choosing Strikeout or Underline has no effect.

Color

Click the colored button to bring up the [Color Chooser](#) dialog.

Align

Choose Left, Center, or Right to position the text horizontally within the box.

Rotate text with image

Specifies how to handle text in a rotated object.

If this box is checked, text is rotated to the same orientation as the object, as if it were painted on the rooftop -- this is shown in the picture above.

If the box is unchecked, text is displayed horizontally, regardless of whether the object is rotated -- like a label on a map.

This option applies only to single-line text. Wrapped text cannot be rotated.

Wrap Text

Check this box if you want the text to be displayed on multiple lines, wrapped to fit within the box.

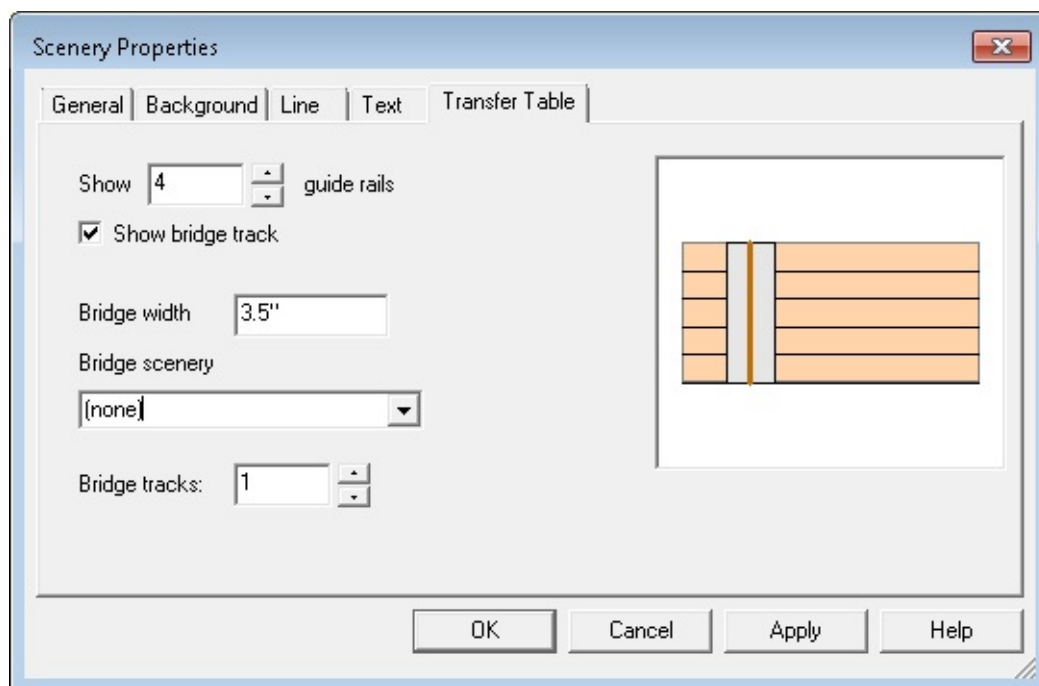
This option is incompatible with text rotation. If you choose to wrap text, the text will be displayed horizontally.

When Wrap Text is on, you can manually enter a carriage return into a text block by entering the characters "\n" (backslash n). This will cause a break between lines at the indicated point. For example, this would give a two-line note:

line one\nline two

Scenery Properties: Transfer Table

Properties: Transfer Table properties of the selected scenery object. Called from Properties on the scenery context menu, when a Transfer Table is selected. See [Editing Scenery Properties](#).



This dialog sets properties of the selected transfer table. To create one, see [Creating a Transfer Table](#).

Dialog controls:

Show Guide Rails	Specify the number of rails to display beneath platform. These rails are thin black lines purely for decoration.
Show Bridge Track	Show or hide tracks on platform.
Bridge Width	Width of platform, in current units (as set by Units dropdowns in several other dialogs). This value applies only when the number of bridge tracks is 1; otherwise the width is set automatically (see note below).
Bridge Scenery	Specify a separate scenery object which is to move along with the bridge platform. For details, see Decorating a Transfer Table .

Bridge Tracks

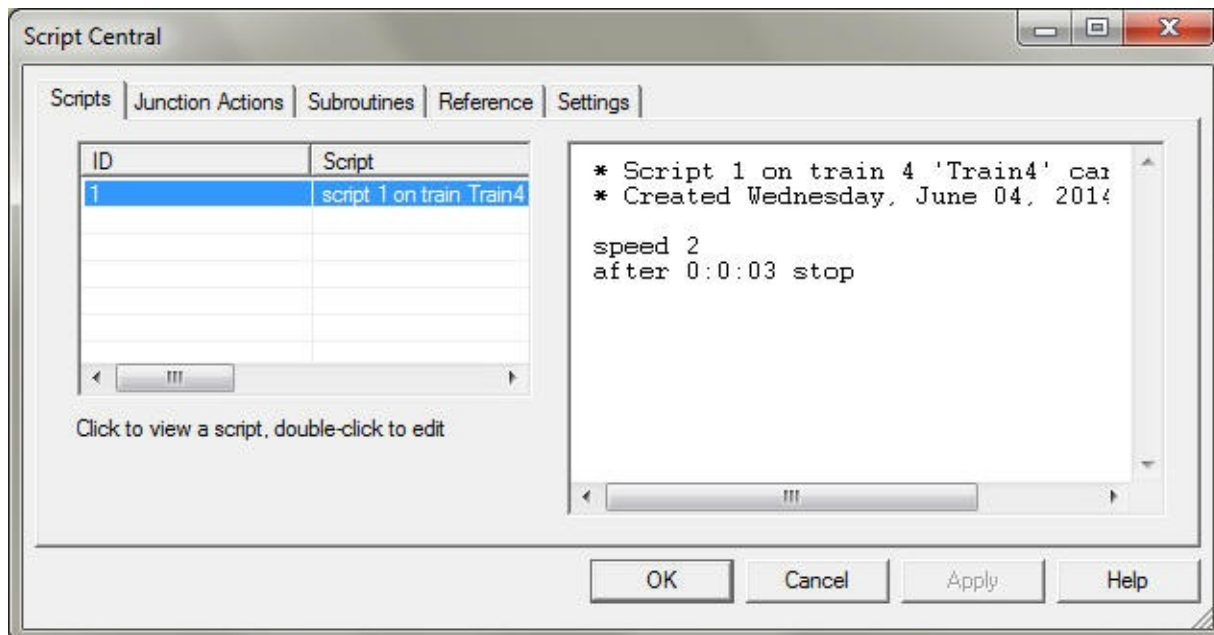
Number of tracks on platform, at least 1, up to 8.
Default is 1. See note below.

When you change the number of bridge tracks, the program automatically sizes the platform and positions the tracks. The separation between tracks is the distance specified in [Track Preferences](#) called "To Parallel" -- the distance used when using track snap to create yards. The platform size is adjusted to fit the number of tracks plus the same gap at either end, so that if you have N tracks, the total width is $(N + 1) \times \text{gap}$.

This applies only if there are multiple bridge tracks. If there is only one, then the platform size can be adjusted in the Bridge Width box.

Script Central

Script Central is a single dialog for managing scripts of all types on your layout. It is a tabbed dialog, with tabs as listed below. It is modeless, so it stays on the screen while you work, and provides handy reference material while you are developing or trying to understand a scripted layout.



Script Central Tabs

Script Central has six tabs as follows. Links go to detail pages.

1 - Scripts	Train scripts, master scripts, and script notes	Scripts tab
2 - Junction Actions	Junction action scripts	Junction Actions tab
3 - Subroutines	Subroutines and procs available in Scripts folder	Subroutines tab
4 - Reference	Reference data for commands, variables, and other language elements	Reference tab
5 - Settings	Settings and actions applying to all scripts	Settings tab
6 - Variables	User-defined variables	Variables tab

All tabs except Settings share the same format -- list on the left, text box on the right -- and support many of the same operations, such as:

- Click a row in the list, and its contents show up in the text box. In tabs 1-3, the text can be edited and saved.
- Right-click a row in the list, and you get a context menu, with commands applying to the selected script.
- Double-click a row (or choose Edit from the context menu) to edit in the

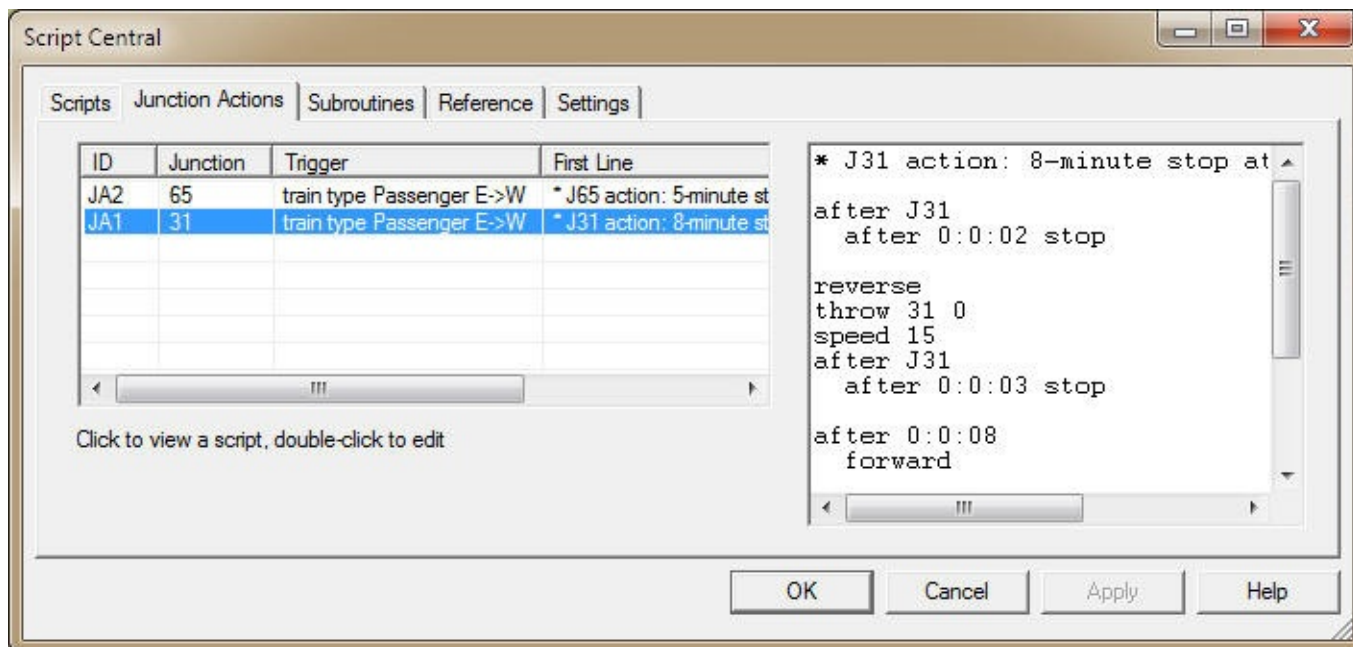
appropriate editor, depending on the script type.

- **Click OK or Apply to save changes made to the text. These changes are saved with the layout in memory; they are not saved permanently until you save the layout. Click Cancel to take down the dialog without saving. Cancel changes to Done after you have saved any change. Note that changing tabs in the dialog saves your changes quietly.**

For details of the individual tabs and their context menus, click links above.

Script Central - Junction Actions Tab

For viewing and editing junction action scripts. See also [Script Central Tabs](#).



This tab shows a list of all junction actions on the layout. If there is more than one action at the same junction, they are listed separately and given different id's. When this tab is active, a junction on the layout is highlighted to match the selected item in the list.

List contents:

- ID** Unique program-assigned id for each action.
- Junction** ID of junction where action is attached.
- Trigger** Trigger type, direction, and identifier if any; as specified in [Junction Action Editor](#).
- First Line** First line of action script.

Actions:

- Click list item** Selects action script and displays it in the text window. The corresponding junction on the layout is highlighted.
- Double-click row** Brings up Junction Action Editor for editing and viewing script.

Right-click row Brings up context menu, commands as listed below.

Text window Text is editable. Text is in code style: fixed-size font, no wrap. Changes are saved on clicking OK or Apply or on changing tabs.



Context menu:

Edit in JA Editor Brings up Junction Action Editor for editing and viewing script.

Delete Deletes action and removes from the list.

Copy Copies selected row(s) to Windows Clipboard as tab-delimited text

Select All Selects all rows for delete or copy

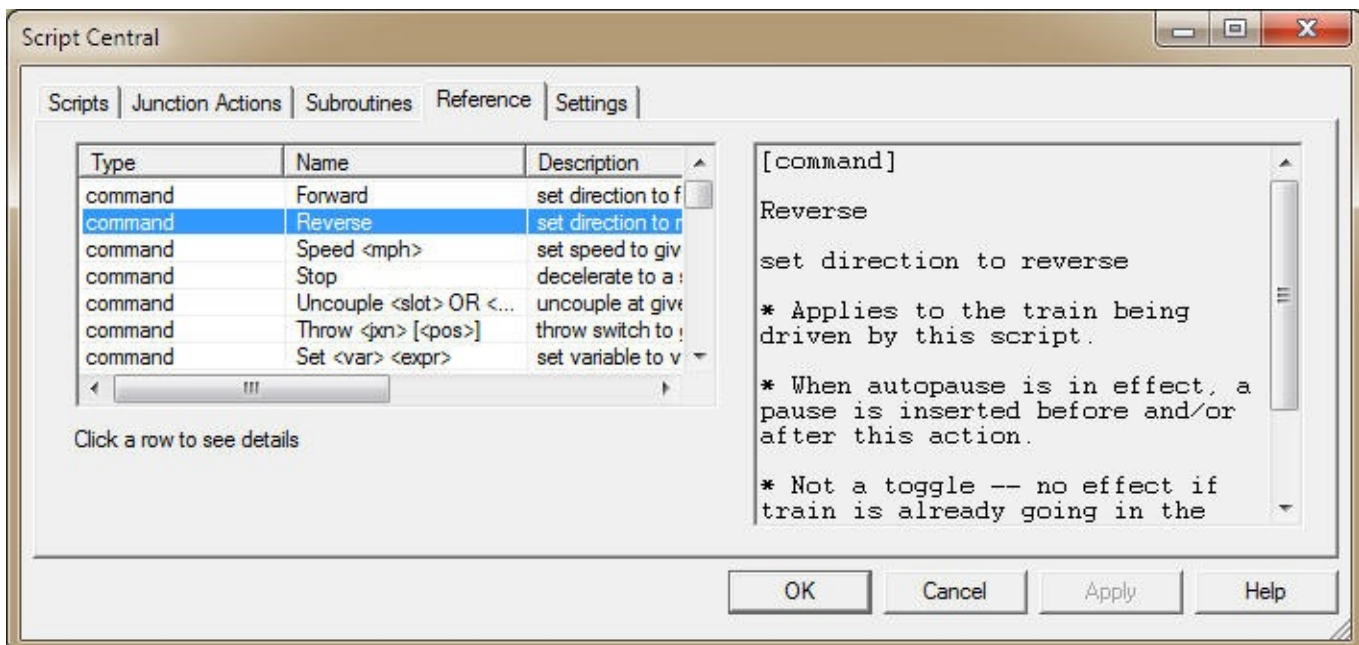
Enabled Check to enable action, uncheck to disable. When disabled, no cars or trains cause action to trigger.

Refresh Rebuilds list; sometimes needed if changes have been made externally

Attach To Junction Disconnects action from current junction, brings up Choose Junction dialog for choosing a new junction where action is to be connected

Script Central - Reference Tab

A compact reference to the scripting language. Provides information about commands, wait conditions, system and local variables. See also [Script Central Tabs](#).



The Reference tab is your best source of information about the details of the language. It is built into the program, so will never be out of date when new commands are added. Unlike a paper manual, it is always available, and conveniently displayed on your screen as you work. You can copy and paste from it to save typing.

Script Doc Notes File

Much of the information shown with each reference entry is taken from a text file distributed with the program. The file is named *scr_doc_notes.txt* and it resides in the root TP app data folder. If you don't have this file, or your version is out of date, and you have an internet connection, then a new version of the file is automatically downloaded when you bring up the Reference tab.

List contents:

Type Command, wait condition, variable, or one of a dozen other types of scripting element. Command names include subcategory. Function and variable names include "*r/w*" where value is settable.

Name Command, variable, or function name with calling sequence when applicable

Description Brief explanation of the entry

Value

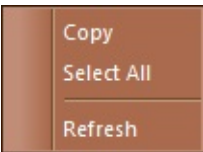
For system variables, functions without arguments, and user variables: current value

Actions:

Click list item Selects item and displays it in the text window. The text includes data from the list window plus notes taken from the system doc notes file.

Right-click row Brings up context menu shown below.

Text window Text is not editable. It wraps to fit the box.

**Context menu:**

Copy Copies selected row(s) to Windows Clipboard as tab-delimited text (suitable for pasting into Excel)

Select All Selects all rows for copy

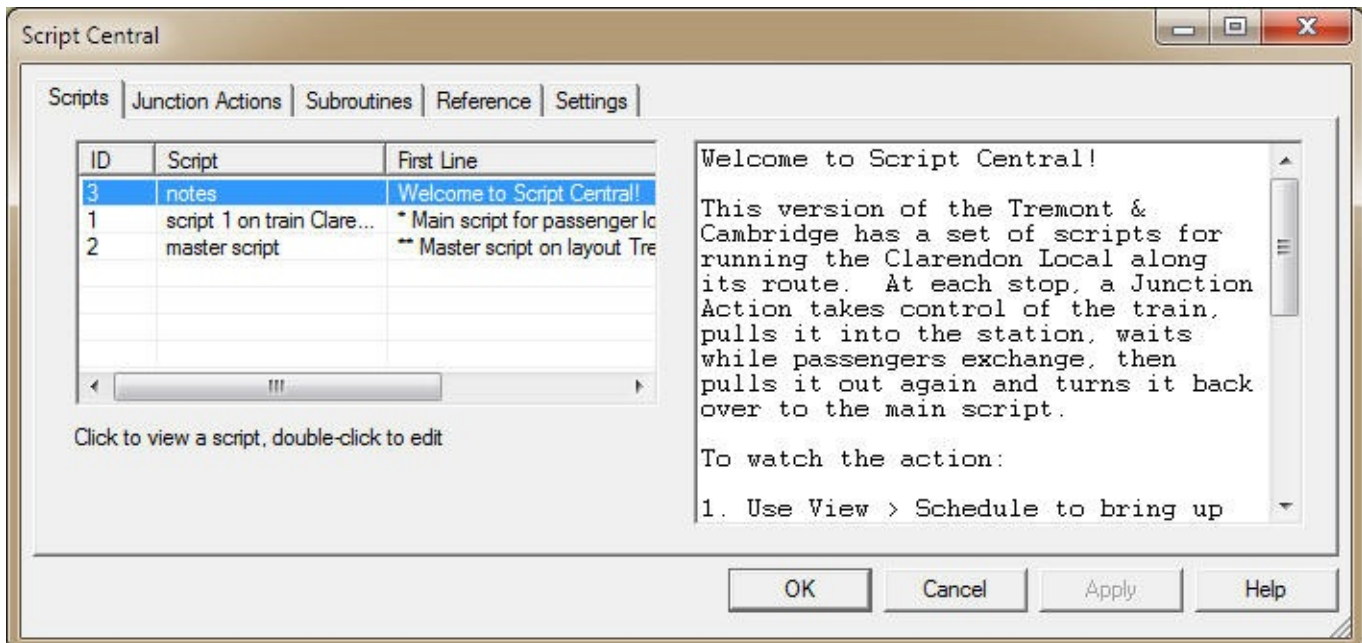
Refresh Rebuilds list and updates variable entries to latest values

Editing variables

As of version 6.4, user-defined variables are no longer displayed or edited here; instead see [Variables tab](#).

Script Central - ScriptsTab

For viewing and editing train scripts, master script, script notes, and interactive command box. See also [Script Central Tabs](#).



Script Notes

Script notes are blocks of text you (the script author) can add to Script Central. You might use these to give instructions for a user of your script, or to provide background info about it, or to jot notes to yourself about what's going on in the scripts. You can add one or more of these to the first tab of Script Central, edit as desired, and then bring up whenever useful.

Interactive Command Box

In the Scripts tab you may create a special type of window called the **interactive command box (ICB)**. This starts as a blank space (with a comment at the top) and acts as a sort of scratch pad. Enter a script command, then press Return -- the command executes immediately. You may enter a new line or edit an existing one; in either case, when you position the cursor at the end and press Return, the line is executed.

There are some special considerations when executing script commands one by one; for information, see [Script Command Prompt](#).

Contents of the ICB are saved with the layout, so you can go back and reuse lines entered in an earlier session. There is only one ICB; once you have created one, the command is dimmed so you cannot create another.

List contents:

ID Unique program-assigned id for each row.

Script For train script: script name and owning train; otherwise, item type ("master" or "notes").

First Line First line of script or note.

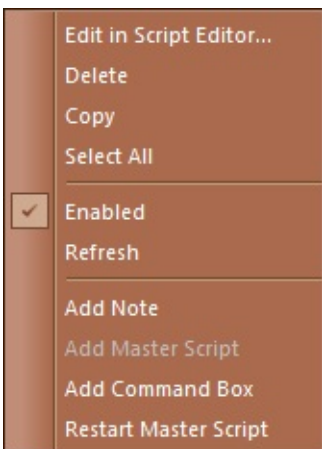
Actions:

Click list item Selects item (script or note) and displays it in the text window.

Double-click row For train or master script: brings up [Script Editor](#) for editing and viewing script. For note: does nothing; editing is done here.

Right-click row Brings up context menu, commands as listed below.

Text window Text is editable. Text is in code style: fixed-size font, no wrap. Changes are saved on clicking OK or Apply or on changing tabs.



Context menu:

Edit in Script Editor Brings up Script Editor for editing and viewing train or master script; for a note, editing is done in this tab.

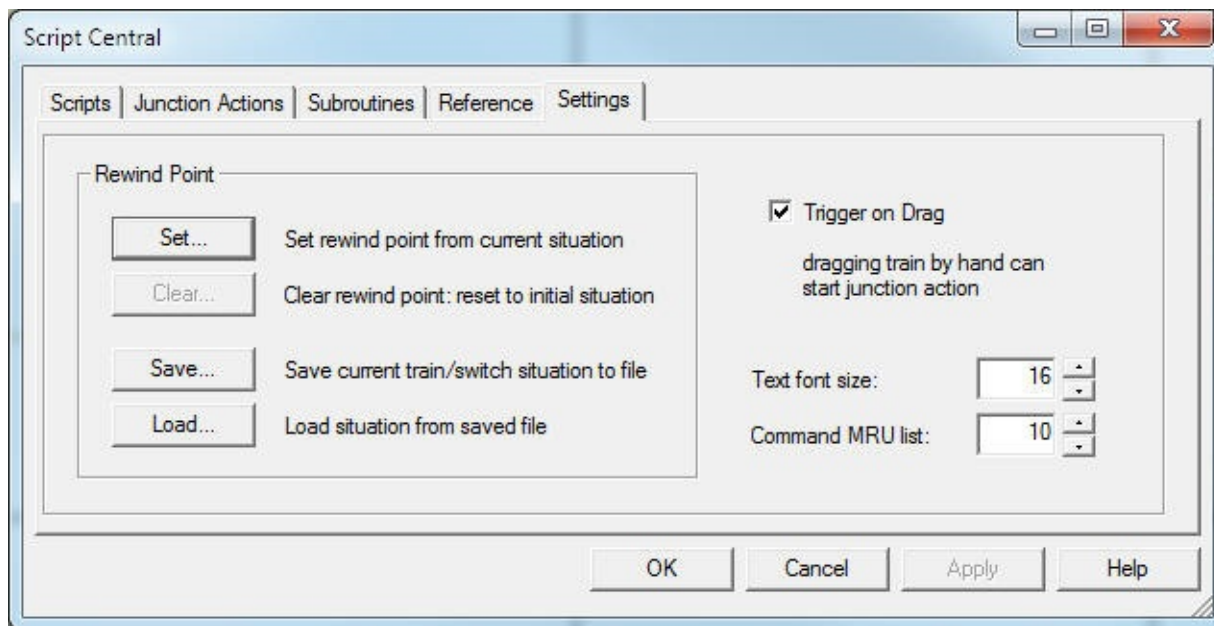
Delete Deletes item and removes from the list. For a train script, this removes the script from the train.

Copy Copies selected row(s) to Windows Clipboard as tab-delimited text

Select All	Selects all rows for delete or copy
Enabled	Master script only: check to enable automatic run on open, uncheck to disable.
Refresh	Rebuilds list; sometimes needed if changes have been made externally.
Add Note	Creates a new, empty note and selects it so you are ready to enter text into it. See Script Notes .
Add Master Script	Creates an empty master script if the layout does not have one. Dimmed if master script already exists.
Add Command Box	Creates an Interactive Command Box -- a window for entering script commands with immediate execution. See ICB above.
Restart Master Script	Reruns the master script if the layout has one. This command does not do a full rewind or change any train positions, it just restarts the master script at the first line.

Script Central - Settings Tab

For script-related actions and settings. See also [Script Central Tabs](#).



This tab is a standard dialog, not the list-text style of the others. It has a set of buttons dealing with the Rewind Point, and these other items:

Trigger on Drag: if checked, means a junction action can be triggered by dragging an appropriate train across the junction by hand. If unchecked, the train must be driven using the throttle in order for the action to trigger. Default is OFF (unchecked), to prevent accidental triggerings as you drag trains around the layout. For related info, see [Working with Junction Actions](#) and [Junction Action Editor](#).

Text font size: size in points of the Courier font used in Script Central text windows, Script Editor, Junction Action Editor, and Schedule Window. As of version 6.6, this font is also used in text input boxes in various places, including Car Data Properties. Default size is 16.

Command MRU list: number of entries in the drop-down MRU list of the [Script Command Prompt](#) dialog. If you reduce the size of the list, it will be truncated and older entries will be dropped.

The Rewind Point

A *rewind point* is a snapshot of train and switch positions. If a rewind point has been saved, then after a session of moving trains around, you can click **Rewind** (on the script toolbar or menu) to put the trains and switches back where they started. This is useful when you are developing or running scripts, since a script relies on trains being in certain locations when it starts up.

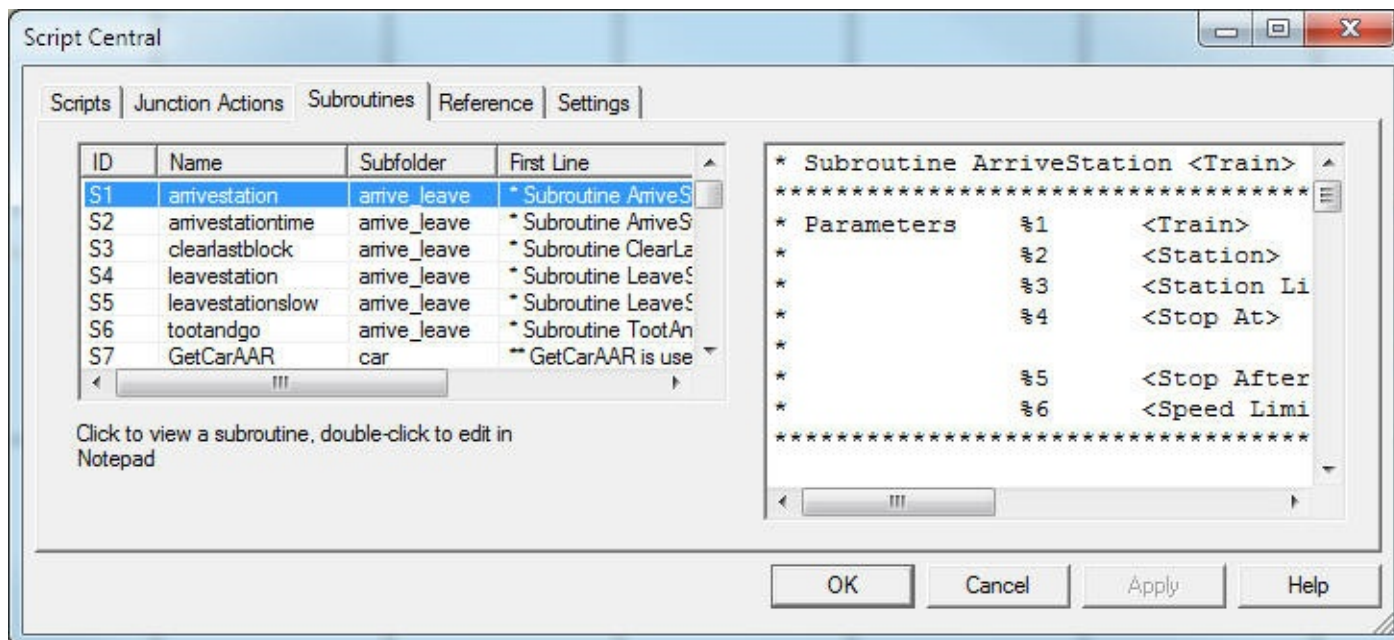
There is only a single rewind point associated with a layout, even if there are multiple scripts. This can be set or cleared using buttons in this Settings tab. If the rewind point is cleared, then it reverts to the initial train and switch positions as they were when the layout was opened.

Dialog Buttons:

- Set*** Save the current train and switch positions as the layout's rewind point. This overwrites any previously-defined point.
- Clear*** Erase any saved rewind point, and replace it with the initial positions when the layout was opened.
- Save*** Save the current train and switch positions to a file, with extension .xml and "_situ" appended to the filename.
- Load*** Load a saved situation and position the trains and switches accordingly. This does not change the layout rewind point.

Script Central - Subroutines Tab

For viewing and editing subroutines and procs. See also [Script Central Tabs](#).



This tab shows all the text files located in your TP Scripts folder and subfolders, whether or not they are used by the current layout. If you want to prevent a file in that folder from appearing in this list, rename it to start with underscore, e.g., "_hiddenfile.txt".

Also shown in the list are any procs defined in code which has been processed by the layout. Usually procs are defined in the master script, and are processed automatically on layout open, so they appear in the list in this tab.

List contents:

- ID** Unique program-assigned id for each row. Starts with S for subroutine, P for proc.
- Name** Name of subroutine file or proc. Subroutine files are in folders under <TP app data dir>\Scripts.
- Subfolder** Name of subfolder under Scripts directory
- First Line** First line of routine.

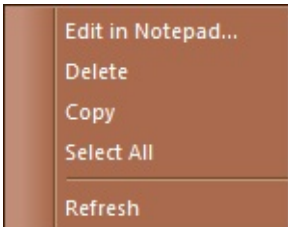
Actions:

- Click list item** Selects routine and displays it in the text window.

Double-click row For subroutine file: brings up Notepad. For proc: does nothing; editing must be done in code where proc is defined.

Right-click row Brings up context menu, commands as listed below.

Text window Text is editable. Text is in code style: fixed-size font, no wrap. Changes are saved on clicking OK or Apply or on changing tabs.



Context menu:

Edit in Notepad Brings up Notepad for editing and viewing selected subroutine; does nothing for procs.

Delete For subroutine: deletes file, after confirmation. Not applicable to procs. Does not work over multiple selected rows, only on right-clicked one

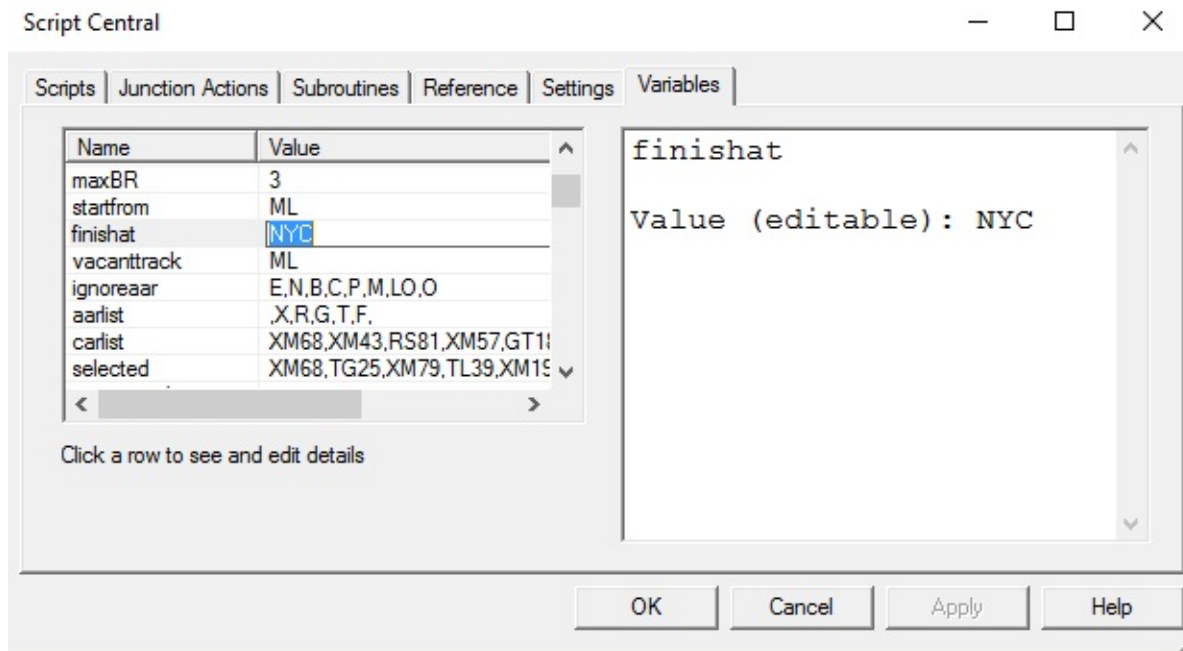
Copy Copies selected row(s) to Windows Clipboard as tab-delimited text

Select All Selects all rows for copy

Refresh Rebuilds list; sometimes needed if changes have been made externally

Script Central - Variables Tab

For viewing and editing user-defined variables. See also [Script Central Tabs](#).



User Variables

User variables are those defined in LET and SET statements, as described in [Variables and Functions](#). When a variable is defined and given a value, and is not declared LOCAL, it appears in the Variables tab. The value can be changed directly in this tab, either in its cell in the list window, or in the text box.

List contents:

Name Variable name as defined in LET or SET statement

Value Current value of variable; can be edited in-place

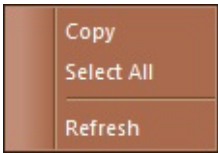
Actions:

Click Name cell Selects variable and displays it in the text window.

Click Value cell (or double click): begin editing value

Right-click row Brings up context menu, commands listed below.

Text window Text is editable. To edit a value, edit the text which follows(editable): then click OK or Apply.



Context menu:

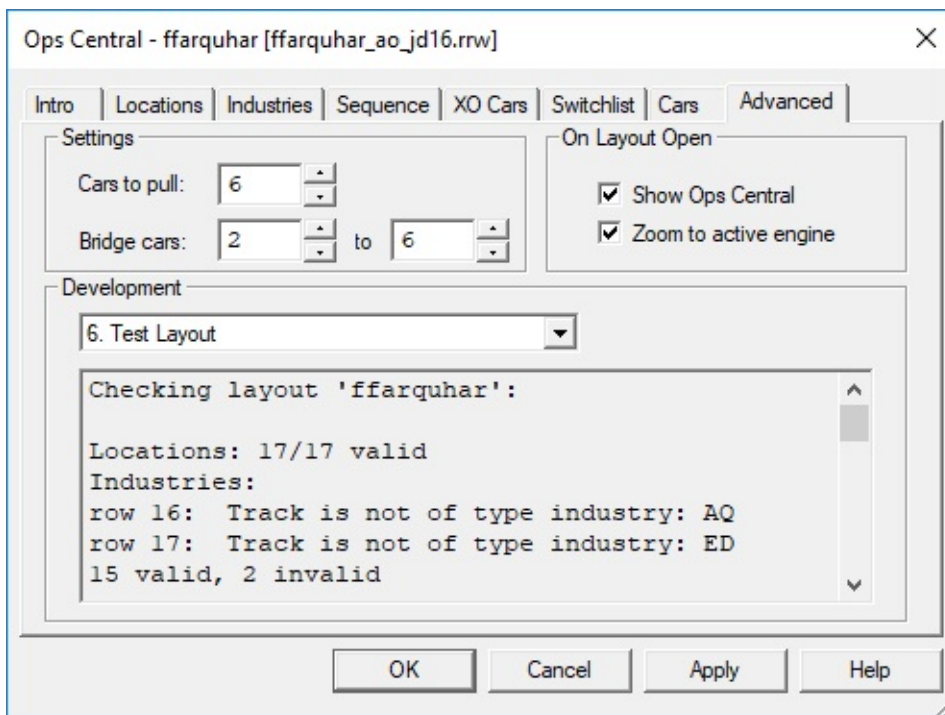
Copy Copies selected row(s) to Windows Clipboard as tab-delimited text

Select All Selects all rows for copy

Refresh Rebuilds list and recalculates current values

OC Advanced Tab

The last tab in [Ops Central](#) is the Advanced tab, which provides tools for layout authors and ops developers.



This tab is in two sections. On top are settings and preferences; underneath a drop-down menu of development actions, with a box for output or editing.

OC Advanced Settings

Settings made in the Advanced tab apply to the current layout only.

<i>Setting</i>	<i>Description</i>
Cars to pull	Approximate number of cars to be pulled from the industries in a switchlist. Default = 10. See Note 1.
Bridge cars	Minimum and maximum number of bridge traffic cars to be included in each switchlist. Default = 2 to 6.
Show Ops Central	If checked, OC is opened whenever the current layout opens; if unchecked OC does not appear unless requested.
Zoom to active engine	If checked, whenever the current layout opens, the view will zoom to the active engine; if unchecked, the layout opens to the saved view.

Notes

1. Cars to pull: A similar number of cars will be supplied to the industries from staging. The total number of cars to move in a switchlist will be approximately 2x the value entered here. The number you specify is not exact -- other factors can modify this figure such as unavailability of suitable vacant spots for the available car types.

OC Development Combo

The combo box in the Development section offers a variety of commands to prepare the layout for AO.

Each command ending with ellipses (...) brings up a confirmation alert and allows Cancel before taking action. The text in those alerts is the same as shown here.

For details about what these commands do and how they do it, see the [AO Documentation](#), a set of PDF files on the web.

<i>Command</i>	<i>Description</i>
<Choose>	(inactive place-holder)
1. Show AO Prep Checklist	Show list of steps in AO development, with status reports.
2. Build Industries Grid from Cars...	For each car type (AAR code) located on an industry track, adds one R row to the Industries grid.
3. Add Basic Train Sequence...	Chooses an arbitrary engine, assigns a train name, and creates an initial row in the Sequence grid.
4. Flag XO Cars...	Applies XO flag to engines, cabooses, and passenger cars, as required before switchlist can be generated.
5. Edit Intro	Displays Intro text and permits editing.
6. Test Layout	Runs a series of tests on the AO data and reports results.
7. Generate First Switchlist...	Processes data in AO grids, generates waybills and creates switchlist #1.
Edit Note	Permits entering or editing a page of notes.
Import AO Locations from Stations...	For each station: generates a unique label, applies it to the station's tracks, adds a new row to the Locations grid.
Import AO Industries from Stations...	For each station having industry data: adds a new row to the Industries grid for each in and out load.
Import AO Data From YardMaster...	Adapts a YardMaster layout (ym, y2, y3) for AO use by extracting data from scripts and notes.
Show Variables	Displays all internal AO variables and current values.
Show Counts	Displays counts of AO objects, with breakdowns of car counts by AAR code.
Reset Trains to Start Positions...	Moves trains and switches back to positions captured in Gen First Switchlist.
Generate New Switchlist...	Erases the current switchlist and creates a new one from current car positions. Normally this is done in the Award window after completing a switchlist.
	Moves all unspotted cars to their destinations,

Complete Current Switchlist... completing the current switchlist. This operation cannot be undone.

Switchlist Robot

The command **Complete Current Switchlist** is new in Version 7.2. It uses a new gadget we call the "Switchlist Robot," which goes to each unspotted car and instantly transports it to its destination. Or tries to! Success is not guaranteed, depending on how much empty track is available at the target. But the Robot is sophisticated, makes optimum use of track space, and usually gets the job done. The next step after CCS would normally be to generate a new switchlist.

The command can be run from the above [Dev Combo](#), or from one of the script subroutines:

- **CCS** -- Complete Current Switchlist -- delivers the current set of unspotted cars. Should be followed with a Generate New Switchlist.
- **ASL** -- Advance Switchlist -- automatically completes one, then generates another, over a specified number of cycles

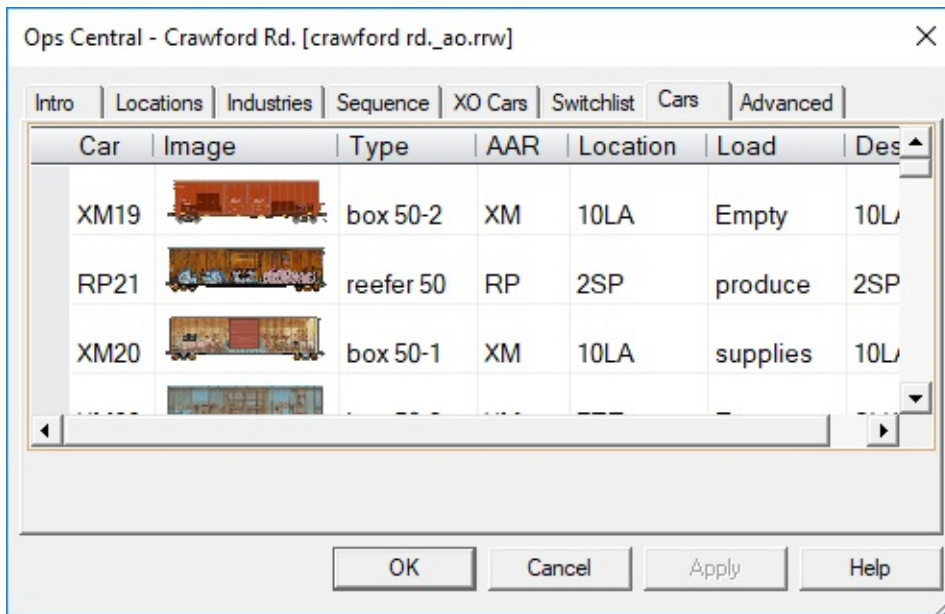
These routines can be found in the [Subroutines tab](#) of Script Central. All contain info and instructions in the text. The ASL routine is described in the PDF document [Advanced Ops for the Expert](#).

We developed the Robot for purposes of testing and tweaking ops plans on complex layouts. Testing becomes very efficient when you can click a button and watch it automatically run through twenty switchlists! For the record, it would have to be considered cheating if you used this command instead of driving your engine and properly delivering the cars. But for the well-intentioned user who is stuck completing the job or otherwise ready to move on: feel free to CCS.

When you complete a switchlist using the Robot, there is no award.

Cars Grid

The Cars Grid shows the list of all cars on the layout, with images and a lot of detail about each one, some of it editable. The ability to sort or group by various properties makes this a handy tool for managing your rolling-stock inventory.



Cars Grid Rows

Every car on the layout is shown in the Cars grid, even those also shown in the XO Cars grid.

Cars Grid Columns:

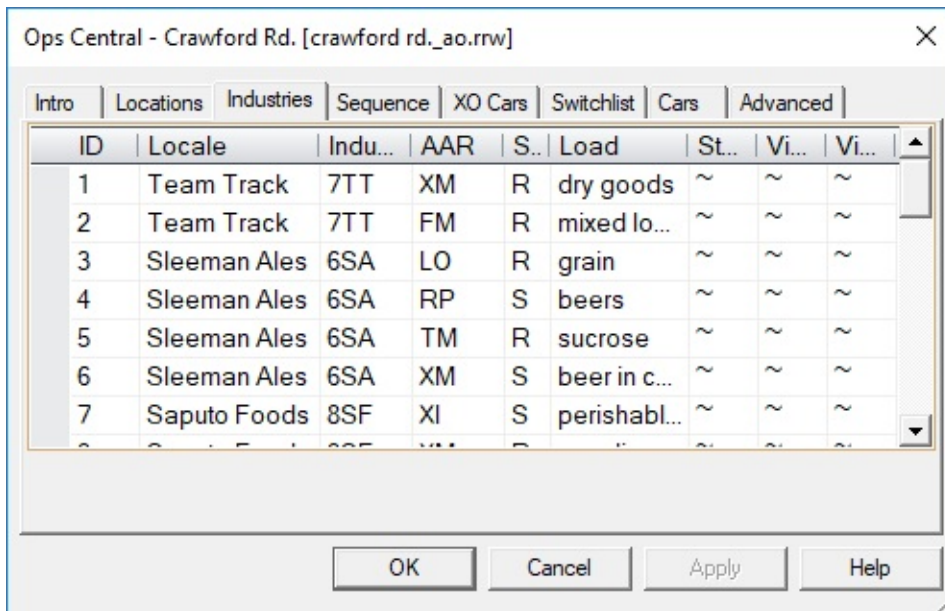
Column Name	Input Type	Hidden?	Description
Car	r/o		Label on car
Image	r/o		Car image
Type	r/o		Car type
AAR	r/o		Car class from AAR codes list
Location	r/o		Current location of car -- station or track label
Load	combo (LD)		Load currently in car, or MT or "Empty" if unloaded
Class	r/o	H	General car class
Car_ID	r/o	H	Internal numeric ID of car (also called Tag)
Train	r/o	H	Name of train containing car, if train is named
Train_ID	r/o	H	Internal numeric ID (tag) of train containing car
Consist	r/o	H	One-word description of train consist

SortOrder	edit	H	User-supplied tag for sorting grid
ExcludeOps	edit	H	Flag indicating whether car is excluded from ops
CarNote	edit	H	User-supplied note attached to car
Dest	combo (TL)		User- or script-supplied destination code
TrackLabel	edit	H	Label assigned to track where car is located
PropsStr	edit	H	Second user-supplied string attached to car
IsSpotted	r/o	H	1 if car is located at its destination, else 0
AarOverride	edit	H	AAR code to apply to this car, overriding code from cartype

For general information about the grids, see [About AO Grids](#).

Industries Grid

The Industries Grid shows the list of industries on the layout, with editable data about their shipping and receiving requirements.



ID	Locale	Indu...	AAR	S..	Load	St..	Vi...	Vi...
1	Team Track	7TT	XM	R	dry goods	~	~	~
2	Team Track	7TT	FM	R	mixed lo...	~	~	~
3	Sleeman Ales	6SA	LO	R	grain	~	~	~
4	Sleeman Ales	6SA	RP	S	beers	~	~	~
5	Sleeman Ales	6SA	TM	R	sucrose	~	~	~
6	Sleeman Ales	6SA	XM	S	beer in c...	~	~	~
7	Saputo Foods	8SF	XI	S	perishabl...	~	~	~

The Industries grid can be constructed by hand -- adding rows to the grid and filling them in one at a time -- or automatically, either by [importing](#) older data or [generating](#) rows based on cars.

Industry S/R Directives

An Industry is defined by a row in the Locations grid, where it is assigned Class = Industry and given a name. If it is to be served by the railroad, it must also be represented by one or more rows in the Industries grid.

Each row in the grid is a "Ship/Receive Directive," an order from the industry for a particular type of load to be shipped or received in a specified type of car, possibly with directions regarding routing.

Industry Grid Columns:

Column Name	Input Type	Hidden?	Description
ID	r/o		Row identifier
Locale	r/o		Track location name (assigned in Locations grid)
Industry	combo (TL)		Track label classified as Industry in Locations grid
AAR	combo (AAR)		Car type required for shipment to/from industry
S/R	combo (SR)		Shipping vs. Receiving
Load	combo (LD)		Load name

Staging	combo (TL)		Car source or destination yard
ViaIn	combo (TL)		Optional way point where inbound car must change to another train
ViaOut	combo (TL)		Optional way point where outbound car must change to another train
BridgeTraffic	edit	H	<Staging><Loadname> = routing of bridge traffic for this AAR (see note below)
Comment	edit	H	Author-provided comment regarding this industry

Note regarding Bridge Traffic: What this column refers to is the car types listed in the Industries Grid (nothing else). As far as Bridge Traffic is concerned the only columns that are relevant are the AAR column and the Bridge Traffic Column as though these two columns were a separate Bridge Traffic grid of AAR, Staging Start, and Load Name. None of the other data in the grid is used in this calculation.

When generating a switchlist (according to the [AO Expert doc](#)):

If the Switchlist Generates Bridge Traffic (train travels from one Staging yard to another Staging Yard.

And if there are still unallocated cars Available in the StartAt staging.

Then we can select extra cars, up to the Max Bridge value, to travel from one staging yard to the other.

If the car type selected does not have an entry in the Bridge Column it is applied a default load.

If the car type selected does have an entry in the Bridge Column and it Starts from the StartAt Staging yard.

Then it will carry the listed load (which can include the MT code to make it travel empty).

This is what permits us to force all Coal Hoppers to travel across a layout as loaded cars in one direction and as empty cars in the opposite direction.

Generating Industry Data

The best way to generate an initial version of the Industries grid is this three-step process:

- ensure the Locations grid has an entry for every industry to be served;
- at each of these locations, place at least one car of the appropriate class (loaded or not) to be delivered to the industry;
- use the Dev command **Build Industry Grid From Cars** (aka **BIGFC**).

This creates an initial grid with one row per industry, each having the corresponding car and load type, and marked as "Receiving." This basic grid can then be enhanced by duplicating and editing rows.

Importing Industry Data

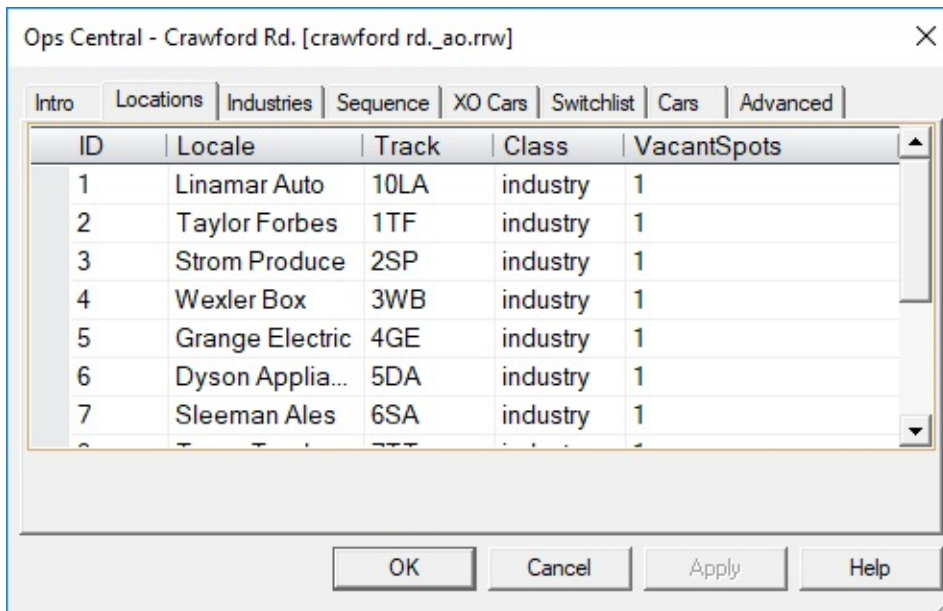
In pre-7 layouts, stations could be designated as industries, and given commerce data such as lists of incoming and outgoing loads. This data can be converted to a basic Industries grid, using the Dev command **Import Industry Data From Stations**. For each station-based industry, this generates two rows in the grid, one Shipping, one Receiving, using the first name on each load list.

This method is not the preferred one -- BIGFC generally gives better results. Either way is just a start; the resulting grid needs to be inspected and edited.

For general information about the grids, see [About AO Grids](#).

Locations Grid

The Locations Grid shows the list of track labels on the layout, with editable fields for friendly location names and track classifications.



The grid shows a row for every track label on the layout. You cannot directly add or delete rows in this grid, only by adding or deleting labels on the tracks themselves.

A special feature of the Locations grid is that it can be used to modify the tracks. If you change a track label in the grid, it prompts for confirmation, then makes the same change to the track labels on the layout.

In earlier versions, locations were indicated by "stations" -- named regions of track. These are no longer used for ops, but can be used to add location-specific sounds to your layout; see [Stations](#).

An alternative to creating the Locations grid by hand is to import station data from an older layout, described [below](#).

About Locations

A Location is a set of tracks sharing a common track label. Each location is classified as one of five types:

- **Industry** -- a customer site which generates traffic for the railroad, can either dispatch or receive loads.
- **Classification Yard** -- an intermediate site for sorting and routing cars into new trains (load status is not changed).
- **Staging Tracks** -- the connection with the extended railroad system, all individual car movements will start and end in Staging.

- **Interchange** -- a specialized form of Staging Track used to simulate transferring cars to and from other railroads.
- **XO Reserved** -- tracks for the predefined routing of XO dedicated service cars which are excluded from the AO waybill system.

Creating a location by hand is a two-step process. First you apply a label to the track(s) on the layout, then find the corresponding row here in the Locations Grid and enter name and location type.

Locations Grid Columns:

Column Name	Input Type	Hidden?	Description
ID	r/o		Row identifier
Locale	edit		Friendly name for this location
Track	edit		Short track label identifying location
Class	combo (TT)		industry, yard, staging, interchange, XO
VacantSpots	edit		number of cars which can be accommodated on location tracks

Importing Location Data

In pre-7 ops, a location was identified by a Station, a named object associated with a set of tracks. In the current version, these can be converted to Locations using the Dev command "Import Locations from Stations." This takes the the following action at each Station:

- generates a unique two-letter track label from the station name;
- applies that label to the associated tracks;
- copies the station's name to the locale name;
- assigns the location type from station properties -- Industry unless flagged as Yard or Interchange.

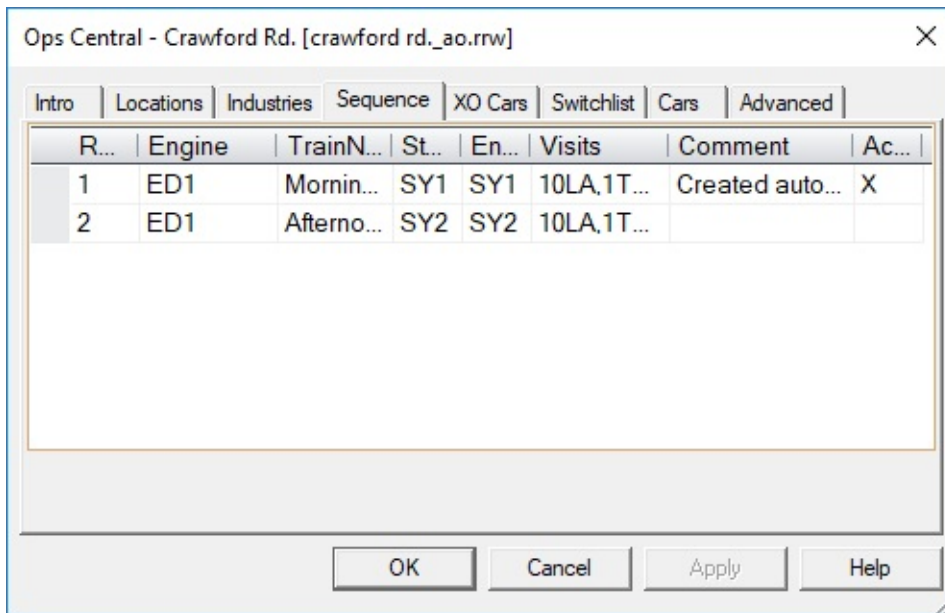
The result is a first pass at a Locations grid, in need of inspection and editing.

Stations are referenced in this process but not removed even though no longer needed. They can be deleted by hand using the Station tool.

For general information about the grids, see [About AO Grids](#).

Sequence Grid

The Sequence Grid shows the list of trains to be run in sequence in an operating session.




The Sequence Grid shows all sequenced trains in the order they are to run. This grid is normally built by hand, but there is a shortcut to build a simple sequence, as described [below](#).

Sequenced Trains, Active Train

A typical railroad has limited equipment to serve many customers, so scheduling is necessary. In AO this takes the form of a list of trains to be run in sequence. Each row of the grid represents a "Sequenced Train" -- a regular, named run between two designated points, using a specific engine.

At any given time, exactly one row is marked with an X in the "Active Train" column. The Active Train is the one currently working on the switchlist. When this train completes its run, a new switchlist is generated, the next train in sequence becomes active, the X changes rows.

Zoom To Active Train -- zoom and center the layout view on the active engine -- is an action you can carry out in several ways:

- automatically on opening an ops-ready layout -- this happens if *Zoom To Active Engine* is checked in Ops Central [Advanced tab](#)
- by double-clicking on the [Car Monitor window](#) in the control panel
- by right-clicking the layout and choosing **Zoom > To Active Engine**
- by clicking the button on the Ops toolbar 

Sequence Grid Columns:

Column Name	Input Type	Hidden?	Description
-------------	------------	---------	-------------

ID	r/o	Row identifier
Engine	combo (EN)	ID of engine assigned to drive train
TrainName	edit	Name to be assigned to train
StartAt	combo (STG)	The Staging or Interchange supplying inbound traffic to the industries (see note below)
EndAt	combo (STG)	The Staging or Interchange receiving outbound cars pulled from the Industries (see note)
Visits	edit	Industries to be visited
Comment	edit	Notes regarding train route, frequency
Active	r/o	X => this row is currently the active train
CarsToPull	edit	Number of cars for this train to pull per switchlist

Note regarding StartAt/EndAt: StartAt and EndAt is not a literal translation (although it often is) -- it is all about where the cars start and end at, not the train. The train starts from wherever it has been located (or parked) on the layout.

The actual start and end point of the train is dictated by the engine position -- an engine could start and end at the EndAt position but travel to the StartAt position to locate the inbound traffic. Similarly a train could start from an intermediate class yard, visiting both the start and end points for car movements before returning to the class yard. That is it could gather up all the outbound cars from the industries and take them to the EndAt location, then visit the StartAt location to bring in all the new cars intended for the industries. StartAt and EndAt are often (but not always) the same location.

Creating a Basic Sequence

In a new layout, or a small one with a simple operating scheme, a basic sequence can be generated using the Dev command **Add Basic Train Sequence**. This creates a single row in the Sequence grid -- basic, but adequate for generating switchlists and operating.

For general information about the grids, see [About AO Grids](#).

Switchlist Grid

The Switchlist Grid shows the list of cars to be moved during the current operating session.

ID	Car	PullFrom	Dir	SpotAt	Load
1	XM49	JF	>>	CST	
2	FL48	JL	>>	CST	
3	FL47	JL	>>	CST	
4	GB46	RJY	>>	CST	
5	XM45	RJY	>>	CST	
6	XM44	RJY	>>	CST	
7	XM43	RJY	>>	CST	
8	XM8	MY	>>	JB	supplies
9	FL52	MY	>>	JL	lumber
10	YME3	CST	>>	MY	

The Switchlist Grid is generated automatically and cannot be edited. It shows a row for each move to be completed -- that is, one for each unspotted car -- and is automatically updated as cars are moved.

Note that it is not necessary to view the switchlist in order to operate. The necessary information is displayed on the car-top label: blank if the car is spotted at its destination, or a track label indicating where it is to be delivered next. These labels are updated as moves are completed.

Switchlist Moves

A switchlist is a statement of work to be carried out, in terms of cars to be moved from one location to another. Each row is a "Switchlist Move" (SLM), which specifies a car and an action: either pull the car from its current location, or spot it at a given destination. Once the car has left its spot or arrived at the new one, the move is complete and is removed from the switchlist.

Switchlist Grid Columns:

Column Name	Input Type	Hidden?	Description
ID	r/o		Row identifier
Car_ID	r/o	H	Numeric ID of car assigned to this move
SR_ID	r/o	H	ID of row in Industries grid which requested the car

Car	r/o		Label of car assigned to this move
PullFrom	r/o		Track label = current location of car
Dir	r/o		Always >>
SpotAt	r/o		Track label = car destination
Load	r/o		Name of load being transported
Image	r/o	H	Car side image

Generating a Switchlist

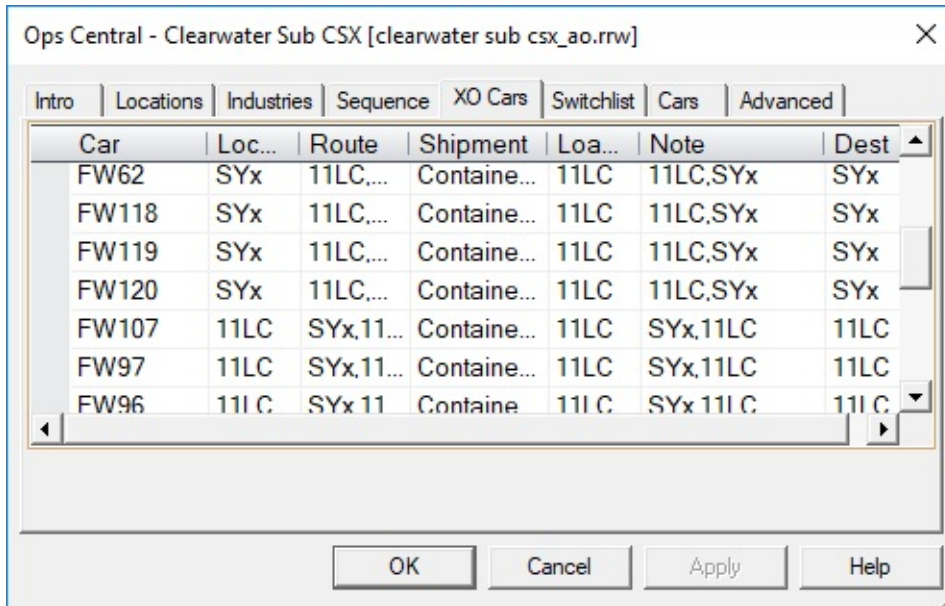
A switchlist can be generated in one of three ways:

1. In a new or newly-upgraded layout, suitably prepared and tested, use the Dev command "Generate First Switchlist." This generates a first switchlist and makes the layout ready for AO operation.
 2. On completion of a switchlist, enjoy your award, then click the New Switchlist button. This generates the next switchlist to be carried out, based on current car positions and waybills.
 3. If you completed a switchlist but dismissed the Award dialog, you can find a "Generate New Switchlist" command in the Dev menu. This does the same as if you had clicked the button.
-

For general information about the grids, see [About AO Grids](#).

XO Cars Grid

The XO Cars Grid shows the list of cars not being used for regular industry-driven freight service. This includes cars incapable of carrying freight, bulk trains with blocks of cars travelling as a single entity, along with others set aside for special purposes. This grid is used to specify those purposes.



Car	Loc...	Route	Shipment	Loa...	Note	Dest
FW62	SYx	11LC,...	Containe...	11LC	11LC,SYx	SYx
FW118	SYx	11LC,...	Containe...	11LC	11LC,SYx	SYx
FW119	SYx	11LC,...	Containe...	11LC	11LC,SYx	SYx
FW120	SYx	11LC,...	Containe...	11LC	11LC,SYx	SYx
FW107	11LC	SYx,11...	Containe...	11LC	SYx,11LC	11LC
FW97	11LC	SYx,11...	Containe...	11LC	SYx,11LC	11LC
FW96	11LC	SYx 11	Containe	11LC	SYx 11LC	11LC

About XO Cars

Each row in the grid represents a car marked "XO," which stands for "Excluded From Ops." A car marked XO is exempt from regular service and will not be assigned a waybill automatically. In an AO layout, engines, tenders, and cabooses are automatically marked XO. Other cars so marked have been selected by the layout author for dedicated service -- passenger runs, maintenance of way trains, and others.

Note: to mark a car as XO, right-click the car and choose Exclude from Ops, or use the checkbox in [Car Data Properties](#).

Every XO car on the layout is shown in the grid. Several columns identify the car and its current location, some of them copied from other grids and included here for convenience; these are not editable. Other columns specify that certain goods are to be transported over a given route; two of these are maintained by the program as the car progresses.

XO Cars Grid Columns:

Column Name	Input Type	Hidden?	Description
ID	r/o	H	Row identifier
Car	r/o		Label on the car
Location	r/o		Car's current location (track label)
Route	edit		List of stops specifying the route
Shipment	combo (LD)		Load name
LoadAt	combo (TL)		List of locations where car should be loaded (or retain current load) before departure (note below)
Note	edit		Stops remaining along route (for internal use)
Dest	combo (TL)		Location where car is to be delivered next (for internal use)
Image	r/o	H	Car side-view image
Class	r/o	H	Car class
Locale	r/o	H	Track location name (from Locations grid)
ID	r/o	H	Car ID
AAR	r/o	H	Car AAR code

***Note regarding LoadAt:* cars are not normally loaded in Class Yards, and for XO cars loading is not limited to Staging or Interchanges. It can also occur at Industries and XOreserved tracks. If a location that the car is directed to is missing from this loadat list the car will be unloaded.**

Other details of what all this means and how to set it up are to be found in the [AO User's Guide](#). The casual ops user does not really need to know any more than what is shown on the car tops -- that certain moves in the switchlist come from instructions in this grid.

For general information about the grids, see [About AO Grids](#).

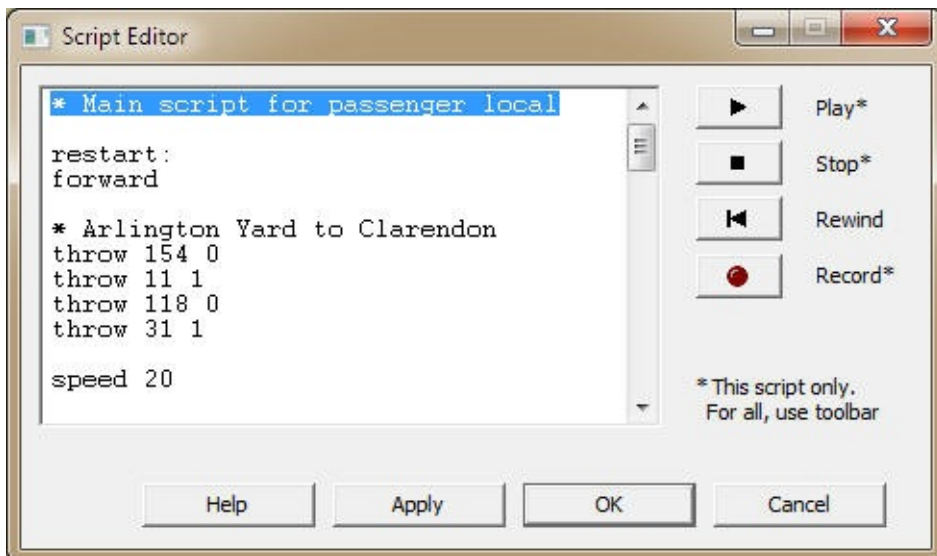
Script Editor

The Script Editor is a dialog for developing train scripts, and watching them in action. It provides an editable text box with special features for script development, along with player buttons for playing, stopping, recording, and rewinding the script. As the script executes, the active line is highlighted in the text box, so you can follow along with the action.

To bring up a Script Editor, (a) select a train and choose **Train > Script > Edit** from the menu; (b) click the Edit Script button on the Scripts toolbar; (c) double-click a train script entry in the Scripts tab of Script Central.

Each train script has its own Script Editor window. If you have multiple scripts on your layout, you can have multiple windows showing the different actions in each. The dialog is modeless, so it remains up as you run the layout.

If there are multiple train scripts on the layout, then the buttons in each Script Editor work differently from the corresponding ones on the Script Toolbar. In the latter, Play, Stop, and Rewind apply to all scripts at once; in the Script Editor, buttons apply only to the script in the window.



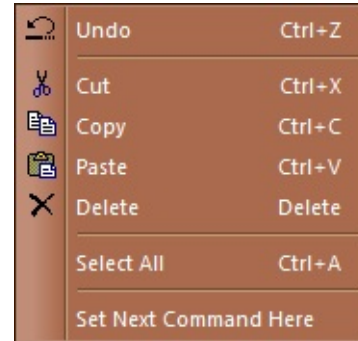
Dialog controls:

The Script Editor is always working on a single script. If you bring it up on a train having no script, it creates an empty one for you to fill in.

Text box	Editable box for script text. Highlight shows current line. Right-click for editing or Go To commands.
Play	Begin executing the script at the current line.
Stop	Stop the script and the train. If recording is in progress, stop it.
Rewind	Reset to first line of script, restore train and switch positions to layout Rewind Point
Record	Begin recording train moves, capturing them starting at the current line. Apply: update scripts on layout (not saved permanently until layout save); OK: apply and

Context Menu

The context menu in the Script Editor and other script windows gives access to standard editing commands, as shown here. In addition, the Script Editor provides an additional command:



Set Next Command Here

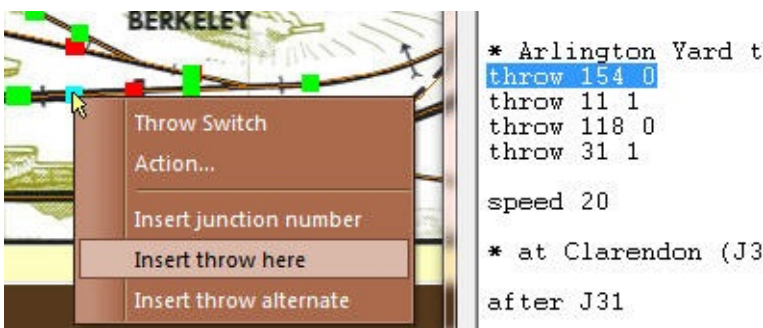
Set Next Command Here is handy for debugging and development. Point to any line in the script, right-click and choose Set Next Command Here, and that line becomes highlighted -- the next to execute when you press Play.

This command is undoable. Undo goes back to the statement which was active before.

There is a catch. This feature lets you start at the script statement to be executed, but does not reposition the trains. It's up to you to make sure the trains are in suitable positions when you start playing the script.

Switch Shortcuts

As another convenience for script authors, you can insert text into the script window by choosing a command from a context menu on the layout. As long as the Script Editor is visible, and you are using the track or edit tool, then right-click a junction or switch and you get three new commands on the context menu:



Each of these commands inserts a bit of text at the position of the cursor in the text box. What is inserted depends on what you right-clicked:

Insert junction number Insert the number of the clicked junction. Need not be a switch.

Insert throw here

Insert a THROW statement with the junction number and its current position; for switches only

Insert throw alternate

Insert THROW plus junction number plus alternate position; for 2-way switches only

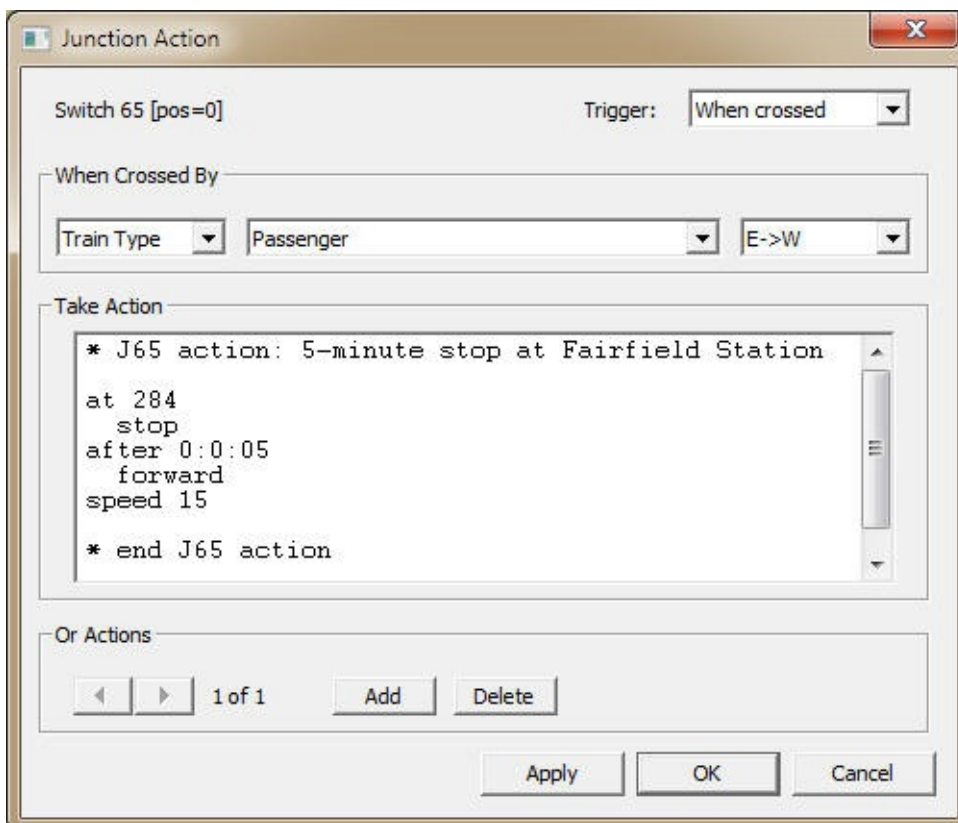
This applies to the Junction Action Editor also, and to the script windows in Script Central -- whenever any of these is visible on screen, junction context menus can insert into it. If more than one is showing, the frontmost one gets the insert.

Junction Action Editor

The Junction Action Editor is a dialog for creating and editing junction actions. To bring it up, (a) using the track edit tool, right-click a junction and choose **Action...**, or (b) double-click a row in the Junction Actions tab in Script Central. Either way, the dialog comes up with reference to a specific junction, where there might be one or more actions defined to trigger on different events.

The dialog is modeless, so it can remain on the screen while you work on the layout. You can move around to different junctions (or change your selection in Script Central) and change what junction the dialog is showing. The dialog works on one action at a time, with arrow keys for moving through the list of actions at the junction.

The Junction Action Editor is a good place to develop action scripts, but unlike the Script Editor, it is not a place to run or test them. There are no Play or Stop buttons in this dialog. To test a junction action, you have to run a suitable car across the junction.



Junction Action Triggers

A junction action begins execution when some train or car passes across it. You can choose what triggers the action -- a specific car or train, or a class of them. The list of choices for **trigger type** is as follows, where the first column is the name, second tells what kind of argument is required if any, third shows what will actually trigger the action:

Any Train		first car of any train
Car	<i>car id</i>	car with specified id (id = label)
AAR	<i>aar code</i>	car with aar code matching (or starting with)

		specified code
Train	<i>train id</i>	first car of train with specified id (id = name or train+no)
Train Type	<i>train type</i>	train of type Freight, Passenger, Mixed, or Switcher, as assigned by the program
Any Last Car		last car of any train
Last Car Of	<i>train id</i>	last car of train with specified id
Any Car		any car of any train

A trigger has both a type and a **trigger direction**. Consider a track going horizontally across the screen, with a junction in the middle: a train can cross it from left to right (W->E) or the other way (E->W). You can specify whether an action is to be triggered by one or the other or both.

The orientation of the layout is taken into account at the time you assign a direction to a trigger. If travel across the junction is more or less horizontal, then the choices you have are W-E or E-W; if closer to vertical, they become N-S or S-N. (If you assign a direction and later rotate the layout, results are unpredictable. If it triggers the wrong way, change it to the other.)

For additional notes regarding triggers, see [Working With Junction Actions](#).

Dialog controls:

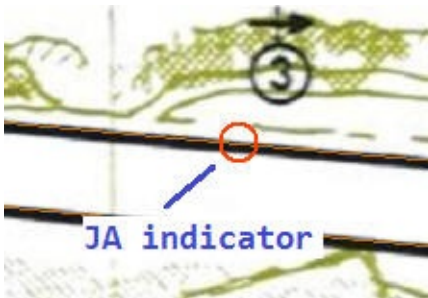
The Junction Action Editor is always working on a single action. If you bring it up on a junction having no action, it creates an empty one with a default trigger.

Label	Upper left of dialog indicates the junction number; if it is a switch, its position is also given
Trigger	Choose one: trigger when crossed by car(s) as specified below; or disabled, do not trigger
When Crossed By:	Controls enabled if trigger is not disabled:
Type	Trigger type, as listed above
Name	Name or identifier or other required argument if any; see note below
Direction	Choose one: E-W, W-E, or Any. Choices change to N-S, S-N depending on tracks at junction
Take Action	Action script, an editable text box.

Or Actions:	Other actions defined at the same junction:
Arrows	Move through list; dimmed if only one entry
Add	Create a new action at the end of the list
Delete	Delete the current action from the list. If there is only one action, this removes it from the junction.
Buttons	Apply: update actions on layout (not saved permanently until layout save); OK: apply and dismiss; Cancel: dismiss without saving -- changes to Done after any save

Note: The choices offered in the Name drop-down are limited to cars and trains currently sitting on the layout. You cannot assign a trigger to a car or aar type which is not present. This is a limitation we may remove in future versions.

On clicking OK, if you have created a new action at a junction, it is displayed with a Junction Action indicator (as long as edit or track tool is active):



Route Finder

If the switchlist tells you to deliver a string of hoppers to Punky Junction, the first thing you'll need to know is how to get there. Even on a small layout, it's not always easy to figure this out. That's why we developed the Route Finder, a device which calculates all possible routes between two points and displays them interactively so you can choose one.

To use, select **Tools > Route Finder** or the button on the [Ops toolbar](#). You see this dialog:

Route Finder

To generate routes, select From and To locations, then click Go.
Specify location by junction number, track label, locale or station name.

From: Track label: GSb

To: Track label: GY

Distance by air: 9' 10.5"

Filter... Go

Name	From	To	Via	Length	Switches	Turns	Route
Route 1	Jxn 70	Jxn 95	GY,GSa,GSb	13' 5.3"	14	2	77 1, 104 0, 105 1,
Route 5	Jxn 70	Jxn 95	GY,GSa,GSb	16' 3.1"	14	2	77 1, 104 0, 105 1,
Route 10	Jxn 70	Jxn 95	GY,GSa,GSb	18' 7.4"	19	2	77 1, 104 0, 105 1,
Route 13	Jxn 70	Jxn 95	GY,GSa,GSb	18' 7.6"	19	2	77 1, 104 0, 105 1,
Route 16	Jxn 70	Jxn 95	GY,GSa,GSb	16' 3"	14	2	77 1, 104 0, 105 1,
Route 17	Jxn 70	Jxn 95	GY,GSa,GSb	9' 11.2"	9	0	77 1, 104 0, 105 1,
Route 28	Jxn 70	Jxn 95	GY,P3,PSa,G...	14' 10.7"	17	2	77 1, 104 1, 74 ERR
Route 31	Jxn 70	Jxn 95	GY,GSa,GSb	11' 5.2"	13	2	77 1, 104 1, 74 ERR

Click a route to highlight it on the layout.

Help Done

Boxes at the top are for input of the two endpoints; below is a listbox showing details of each route as it is discovered.

To operate:

1. In the "From" and "To" boxes, select the endpoints of the route you want to find. For each end, you can select one of the following from the appropriate drop-down menu:

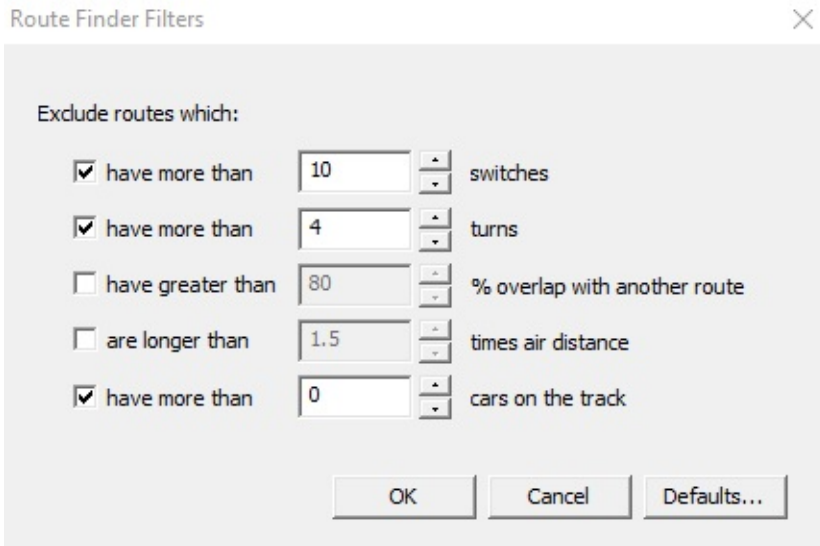
- **Junction number** -- a specific track junction or switch. This is the most precise way to identify a location.
- **Track label** -- track(s) having a given label. The actual route endpoint is the junction closest to the center of a rectangle enclosing all tracks with the given label.
- **Locale** -- name of a location, as listed in the Locations tab of Ops Central. This is the same as specifying a track label; the locale name is simply an alias.
- **Station** -- name of a station. The endpoint is the junction closest to the center of the station's track set.

As soon as you have made choices for both ends, the dialog shows the distance between the two points, expressed in current units (as set in many other dialogs).

2. Click **Go**. The program begins finding routes, and displays a new row in the list for each one it finds. The information shown for each route is:

- **Name:** unique name assigned to the route.
- **From, To:** actual junctions used as endpoints, based on choices made in step 1; same for every row.
- **Via:** comma-delimited list of the locations the route passes through on its way.
- **Length:** total length by rail of the route. To change the units of measure, select from a Units drop-down in some dialog which has one (e.g., Layout Properties).
- **Switches:** number of switches the route passes through.
- **Turns:** number of junctions where the train is going to have to reverse direction along the route.
- **Route:** a list of junction numbers along the route where switches are located, with optional switch positions. See item 5 below.

3. If the resulting list is too long, click the Filter button to bring up the Route Finder Filters dialog:



The image shows a dialog box titled "Route Finder Filters" with a close button (X) in the top right corner. The dialog contains a section labeled "Exclude routes which:" followed by five filter options, each with a checkbox, a text input field, a spin button, and a label:

- have more than switches
- have more than turns
- have greater than % overlap with another route
- are longer than times air distance
- have more than cars on the track

At the bottom of the dialog are three buttons: "OK", "Cancel", and "Defaults..."

Here you can cut down the number of results by eliminating those which:

- have more than a given number of throwable switches along the route
- have more than a given number of "turns" -- acute angles requiring change in direction of motion
- have too much overlap with another route, expressed in percent of the total route length
- are too long from one end to the other (as the crow flies), expressed as a multiple of the shortest route's length
- have more than a given number of cars sitting on tracks along the route

After you change one of these settings and click OK, the table of routes is recalculated.

4. Click a row in the list and the corresponding route is highlighted in pink on the layout, like this:

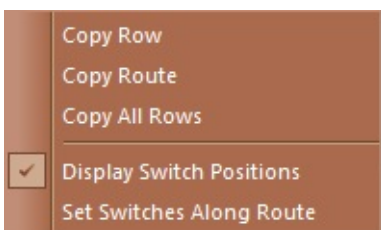
To generate routes, select From and To locations, then click Go. Specify location by choosing either station name or junction.

From Station: Sherman
Junction: 147
Distance by air: 34.1"

Name	From	To	Via	Length	Switc.
Route 1	Sherman	Denver ...	Interchange	34' 4.7"	12
Route 3	Sherman	Denver ...	Lyons, Interch...	32' 1.7"	9
Route 4	Sherman	Denver ...	Lyons, Interch...	49' 2.5"	12
Route 5	Sherman	Denver ...	Interchange	39' 0.1"	11
Route 8	Sherman	Denver ...	Lyons, Interch...	33' 7.5"	9
Route 13	Sherman	Denver ...	Interchange	34' 4.4"	10
Route 14	Sherman	Denver ...	Interchange	49' 8.8"	11
Route 18	Sherman	Denver ...	Interchange	11' 8.2"	8
Route 19	Sherman	Denver ...	Interchange	27' 0.6"	9
Route 23	Sherman	Denver ...	Lyons, Interch...	42' 8.5"	12
Route 25	Sherman	Denver ...	Interchange	27' 5.5"	12
Route 26	Sherman	Denver ...	Lyons, Interch...	28' 6.5"	11

If you have [Map View](#) visible, the route is also highlighted there.

5. It is possible to make use of a route. The string in the Route column can be read and interpreted by some scripting applications. In support of this is the context menu you get on right-click of a row:



The first three commands provide ways to copy the route string(s) to the Windows Clipboard, suitable for pasting into a text file or script editor. The next command **Display Switch Positions** (DSP) is a toggle which changes the format of the string between:

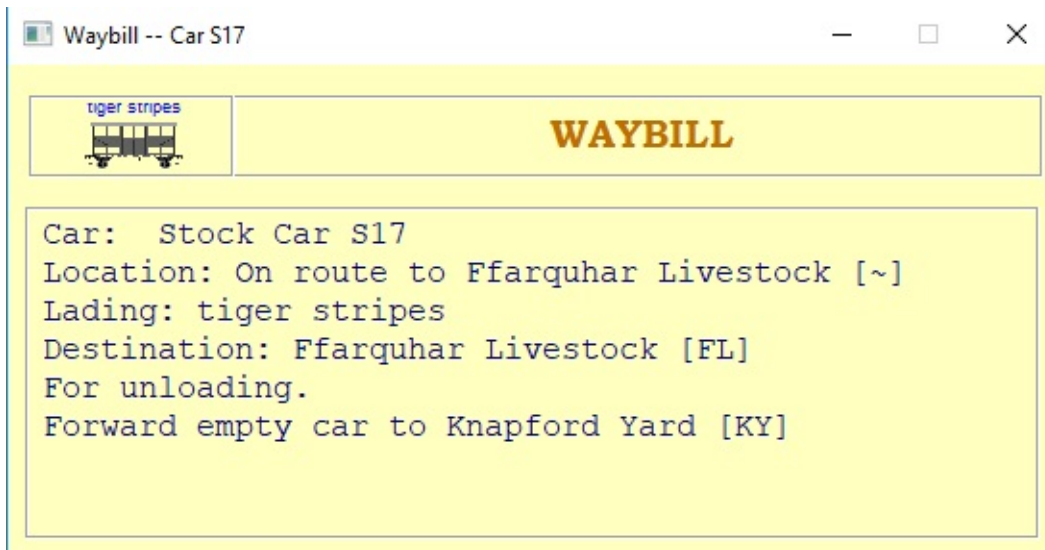
- **Normal**: space-delimited list of junction numbers defining the route
- **With DSP on**: comma-delimited list of pairs, junction number followed by switch position; position is 0 or 1 for a normal two-way switch, blank for any other switch.

Set Switches Along Route throws all the switches along the selected route, so that a train starting at one end will follow the route to the other end.

Note: the Route Finder does not find the shortest or most efficient or most logistically effective route for you. It finds ALL possible routes (subject to filters that you set). The selection of the BEST route is up to you and depends on a number of factors in each session.

Waybill Window

The Waybill Window shows the current waybill for the selected car. This tells the status of the car and, if applicable, where it is headed. The waybill is for information only. To see it, right-click a car and choose **Show Waybill**.



About Waybills

In regular operation a waybill describes an ops-oriented task assigned to a car in response to a directive received from an industry. Typically it describes a cycle -- for example, the car is to transport a given load to a given destination and then return empty to a given yard. A waybill identifies a car and its class, and typically represents a series of car moves.

Cars marked XO (Exclude from Ops) are not assigned waybills by this scheme; see [About XO Cars](#).

Every waybill is one of the following types, as displayed in the title of the waybill window:

- WAYBILL -- an order to move a loaded car to or from an industry.
- HOME ROUTE ORDER -- an order to return an empty car from an industry to its home staging location.
- EMPTY CAR ORDER -- an order to move an empty car to an industry to collect an available shipment.
- CAR MOVEMENT ORDER -- an order to move an engine or other non-revenue-earning car to a new location.
- ROUTED CAR MOVEMENT ORDER -- an order to move a dedicated service car over a regular route to a new location (or series of locations).
- NOT IN SERVICE -- an unused car in staging (or interchange) which is available for loading or for fulfilling an empty car order.

Depending on the waybill type, additional information is shown in the window. This might include the car's home location, ultimate destination, routing info, or other data appropriate to the order.

Waybills are created automatically to satisfy customer demand each time a new switchlist is generated. Only cars located in Staging or Interchange can receive new waybills, and all cars already tasked must complete all the legs of their intended journey before they become available for retasking.

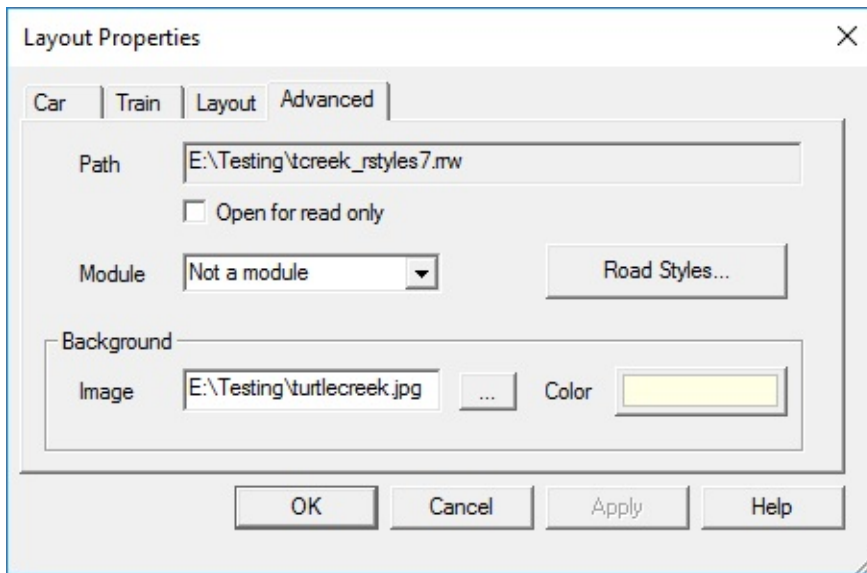
Waybill Window

The Waybill Window is modeless, so it stays up as you click around on different cars. To close, click the X.

The window can be moved, resized, or minimized. There is no context menu.

Advanced Layout Properties

For viewing and editing advanced properties of the layout. Called from Properties on the Layout context menu. See also [About the Properties Dialog](#).



Advanced layout data:

Path Full pathname of the layout (.rrw) file. This item is not editable; to change the path, save the layout to a different location.

Open for read only Check to mark the layout as *open for read only*. When this box is checked, then the next time you save the file, you will be prevented from overwriting the original. For more, see [Read-Only Layouts](#).

Module Indicates whether the layout is designed to be used in a modular layout, and if so, what kind of module.

See [Module Tags](#), [Building a Module](#).

Road Styles... Calls up the dialog for viewing and editing the road styles belonging to the layout. See [Road Styles](#) and [Road Styles Dialog](#).

Pathname of the background image file, blank if none. To remove the background image from a layout, erase the contents of this box. To change to a different image, enter a filename or use the browse (...) button to browse for a different image file.

Background Image **Caution:** it is not recommended to change the background image file! If you change from one background to another,

it is likely that the track will no longer match the background, the size and shape of the background will be wrong, and other problems will arise. You are warned about this when you dismiss the dialog.

Background color of the layout. A color button appears on the dialog if the layout is new or has no background image. Click to bring up the color chooser to select a new background color for the layout.

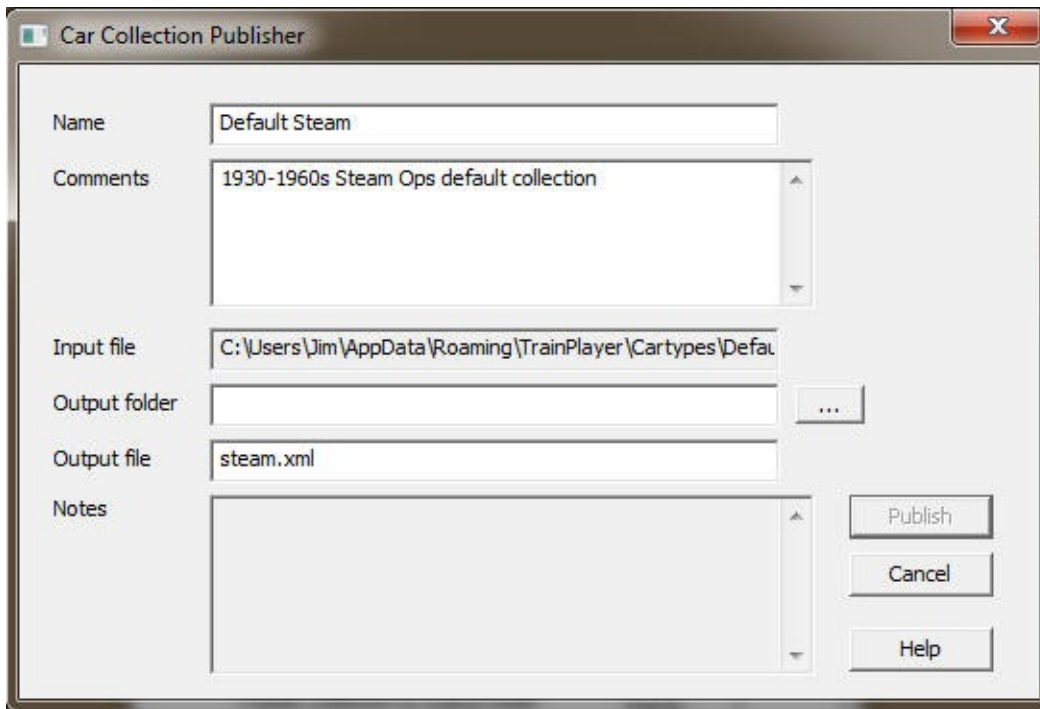
Background Color

The default color is set in [Preferences \(Style tab\)](#) -- this applies to all new layouts. The color you choose here in Layout Properties applies only to the current layout.

Trick: choose black as the background color, and it will reset the layout to the default color. If you really want a black background, choose a nearly-black shade instead.

Car Collection Publisher

Copies a car collection to an output folder. Called from Export button in [Car Collection Editor](#).



Publishing a car collection means preparing it for delivery to other users: checking for errors, gathering all the image files in one place, giving them uniform names, splitting multi-image files into separate parts, creating a new xml index, and so on.

The job is done in this dialog, called up when you are editing a car collection. It does not modify the original collection, but makes a new copy in a different location. The new copy is not activated or added to your chooser tree, although you can drag it into the tree if you'd like to see it. If you edit properties in this dialog, the changes will apply to the published copy only; an alternative is to edit the properties of the original before publishing.

To publish a car collection:

1. Inspect the Notes box. If errors are reported, cancel the dialog, fix the errors, and try again.
2. Inspect and edit Name and Comments. These should be made presentable for other users. If the comment box is empty, you should add descriptive information and author name. You might consider doing this to the original collection instead of here -- cancel this dialog, edit in [Car Collection Editor](#), then publish.
3. Choose an output folder. You do not need a new folder for each collection -- typically you have one output folder where you put all published collections. Note: if you have already published this collection to that location, the old version will be overwritten without warning.
4. Inspect the output filename. You should not normally change this. This filename (minus xml extension) is used as the collection identifier, and is written into layout files; if you change it, then layouts using the original collection will not recognize the new, and vice-versa.

5. Click Publish. Files are copied, the new published collection is created, and the dialog is dismissed. An alert informs you of successful publication.
 6. If you want to send the collection to another user, zip the files in the output folder. Include the xml file plus the folder of image files (which has the same name as the xml file).
-

Dialog controls:

Name	Name of the collection. This can be any name you like. Changing the name here will affect only the published collection, not the original.
Comments	Description and author. If this box is blank, please provide some information to be included in the published version.
Input file	Full pathname of original collection xml file. This file is not modified by the publish operation.
Output folder	Destination for the published collection. The xml file will go in this folder, along with a subfolder containing the image files. To select a new output folder, use the Browse (...) button.
Output file	Name to be given to the published xml file. This is usually the collection name plus xml extension. Use caution when changing this name: you may break existing layouts.
Notes	Errors encountered while processing, if any.
Publish	Click to carry out the publish operation. A confirmation message is displayed on completion. Note: no warning is given if the output collection already exists -- it will be overwritten.
Cancel	Click to abort without publishing.

For more information, see [Car Collections](#).

Control Panel

For operating trains. Called from menu command **Tools > Control Panel**.

Note: this control panel has been superseded by the [Train Control Bar](#). The one described below is still available -- call it the "old-fashioned free-standing control panel" -- but the TCB is the preferred device.



The TrainPlayer Control Panel provides all the tools you need to operate trains, in a classy brass-and-walnut frame. If it takes too much room on your screen, you can choose the minimized version and still control speed and direction.

The panel operates a single train at a time. If you have more than one train, select the one you want to operate -- see [Selecting Cars and Trains](#). The selected train appears in the control panel train window, and speed and direction indicators are adjusted to match.

Features of the control panel:



- **Train Window:** Displays the train being controlled. Allows selecting a car and/or

uncoupling point, scrolling the train, viewing car or train properties. For details, see [Train Window](#).

- **Horn Button:** Press and hold to sound the horn. Right-click to choose horn type.
- **Speed Dial:** Controls the train speed. To rotate, press and drag anywhere on the perimeter of the dial. Double-click a point on the perimeter and the speed dial will jump to that value. In [Yard Mode](#), you can rotate counter-clockwise past stop and go into reverse.
- **Speed Dial Knob:** Shows the current dial setting. Press and drag on knob to rotate dial.
- **Forward/Reverse:** Click to change the direction of train movement. Green light indicates forward, red reverse.
- **Minimize Button:** Change control panel to compact form. The minimized control panel allows dial rotation, stop by click, and reverse direction when yard mode is enabled.
- **Uncoupling Pin:** Shows location of the next uncouple, add car, or paste operation. To change the position of the pin, click between cars, press right or left arrow keys, or select a car. For more, see [Train Window](#).
- **Train Scroller:** Press to scroll the train horizontally within the window. Press and hold to auto-scroll. Pressing the right scroller moves the train to the left, and vice-versa.
- **Uncouple Button:** Click to uncouple at the current position of the uncoupling pin. This button has no effect if pin is at front or end of train.
- **Speed Display:** Displays current speed in miles per hour (MPH) or kilometers per hour (KPH). To change from MPH to KPH, select a metric setting in Layout Properties or various other dialogs.
- **Stop Button:** Click to stop the train. Button shows lit red when stopped, flashing red when in yard mode. Clicking stop exits yard mode and returns direction to forward.
- **Close Button:** Click to remove control panel from the screen. To bring it back, use **Tools > Control Panel**.
- **Context menu.** Right-click anywhere on the control panel (except in train control window) to access the context menu, with these commands:
 - **Lock in position:** When checked, causes the control panel to become unmoveable so it can't be dragged. When unchecked, panel can be dragged anywhere on screen. Used to prevent accidentally dragging while operating controls.
 - **Enable yard mode:** When checked, allows control panel to be operated in [yard mode](#). Uncheck for normal operation. You can also enable yard mode by using the



Tip

The default maximum speed is 100 MPH. You can change this in Operation Options.

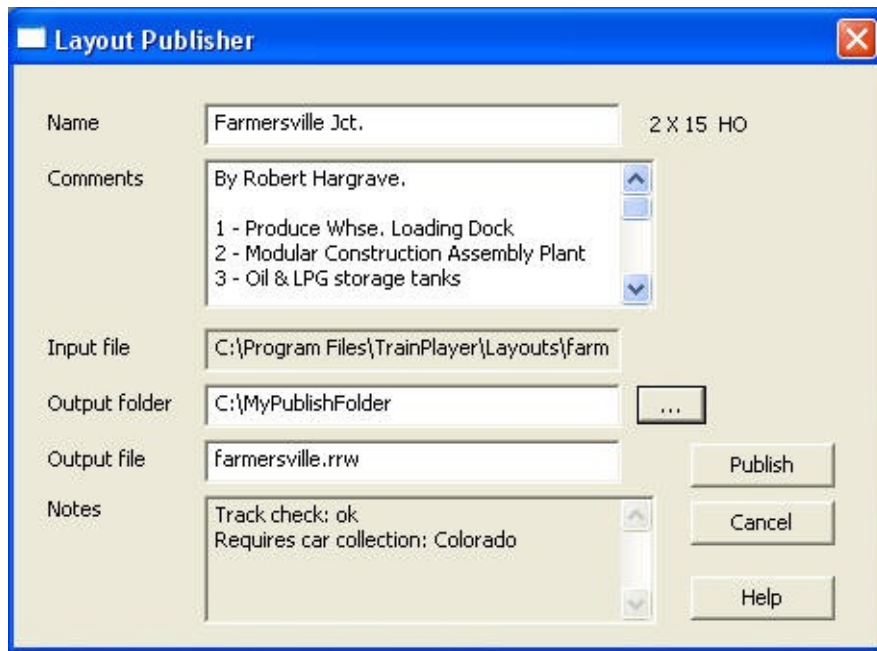
Yard Mode toolbar button, or choosing Enable Yard Mode from the Tools menu.

- **Locked:** Icon appears when control panel is locked and unmoveable. To lock, choose Lock in position from the context menu. To unlock, use the same menu command or simply click on the lock icon.
- **Yard mode enabled:** Icon appears when Yard Mode is enabled. To enable or disable Yard mode, see above. You can also disable yard mode by clicking the Y icon.

The TrainPlayer control panel was custom designed by Rick Fernandez of [creativeblox](#).

Layout Publisher

For copying layout components to an output folder. Called from menu command **File > Publish**.



Publishing a layout means preparing it for delivery to other users: checking for errors, gathering the layout and image files in one place, giving the files uniform names, creating a thumbnail image, and other steps.

The job is done in this dialog. It does not modify the original layout, but makes a new copy in a different location. The new copy is activated and remains open after publishing. If you edit properties in this dialog, the changes will apply to the published copy only; an alternative is to edit the properties of the original before publishing.

Three files are created when you publish a layout: <name>.rrw, the layout file in xml format; <name>.jpg [.gif, .bmp, etc.], the background image file in a graphics format; and <name_T>.jpg, a thumbnail image of the background.

To publish a layout:

1. Inspect the Notes box. If errors are reported, cancel the dialog, fix the errors, and try again. If the layout has links to external files or car collections, you should publish those too.
2. Inspect and edit Name and Comments. These should be made presentable for other users. If the comment box is empty, you should add descriptive information and author name. You might consider doing this to the original layout instead of here -- cancel this dialog, edit in [Layout Properties](#), then publish.
3. Choose an output folder. You do not need a new folder for each layout -- typically you have one output folder where you put all published layouts. If this layout has already been published to the output folder, you are prompted to confirm overwrite.
4. Inspect the output filename. Keep this name simple but descriptive. Warning: if there are other layouts with links to this one, changing the filename will break the connections.

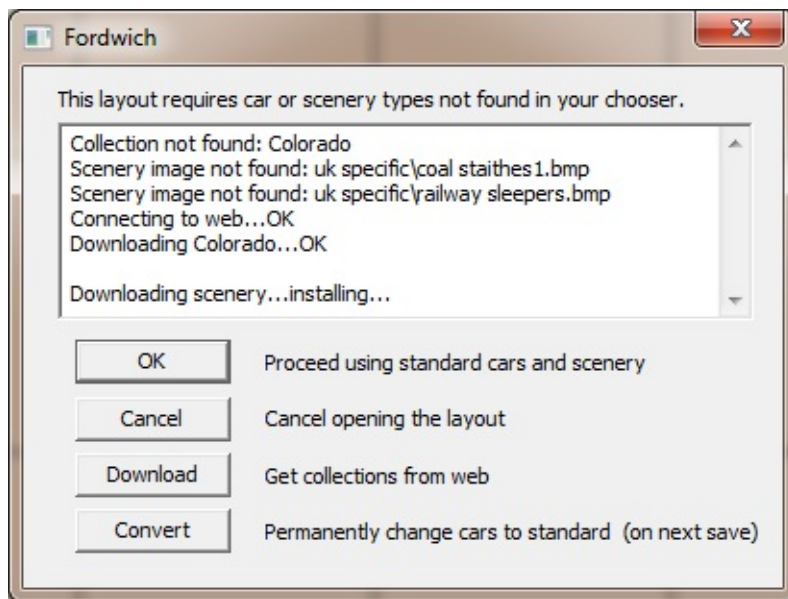
5. Click Publish. The new published layout is created, and the dialog is dismissed.
 6. If you want to send the layout to another user, zip the three files created in the output folder.
-

Dialog controls:

Name	Name of the layout. This can be any name you like. Changing the name here will affect only the published layout, not the original.
Comments	Description and author. If this box is blank, please provide some information to be included in the published version.
Input file	Full pathname of original layout file. This file is not modified by the publish operation.
Output folder	Destination for the published layout. Three new files will go in this folder. To select a new output folder, use the Browse (...) button.
Output file	Name to be given to the published layout file. This is usually the layout name plus rrw extension.
Notes	Errors encountered while processing, list of external links, if any.
Publish	Click to carry out the publish operation.
Cancel	Click to abort without publishing.

Missing Car/Scenery Alert

To report and optionally download missing cars and scenery. Comes up automatically if you open a layout which references data not found in your local collection.



When you open a layout, it attempts to retrieve the required cars and scenery from your local data folder. If it fails to find some of them, you see this alert, with a list of the missing items in the window. To proceed, you have four choices. Click one:

Dialog controls:

- | | |
|-----------------|---|
| OK | Open the layout without the missing items. Cars not found are converted to generic types; missing scenery objects are simply omitted. These conversions are temporary; the next time you open the layout, you will get this alert again. |
| Cancel | Cancel and do not open the layout. |
| Download | Connect to the web and look for missing items there. If a missing car type is found on the web, the entire car collection is downloaded and installed; missing scenery items are downloaded individually, so that you may end up with partially-filled scenery folders on your local machine. |
| Convert | Permanently convert missing cars to generic types, so that the next time the layout is saved, the missing cars will be dropped. Applies only to cars, not scenery. |

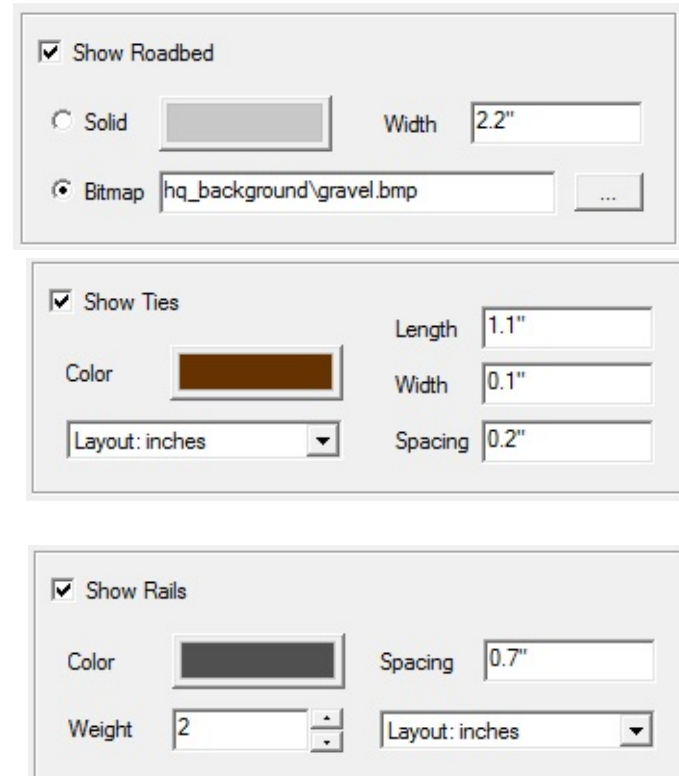
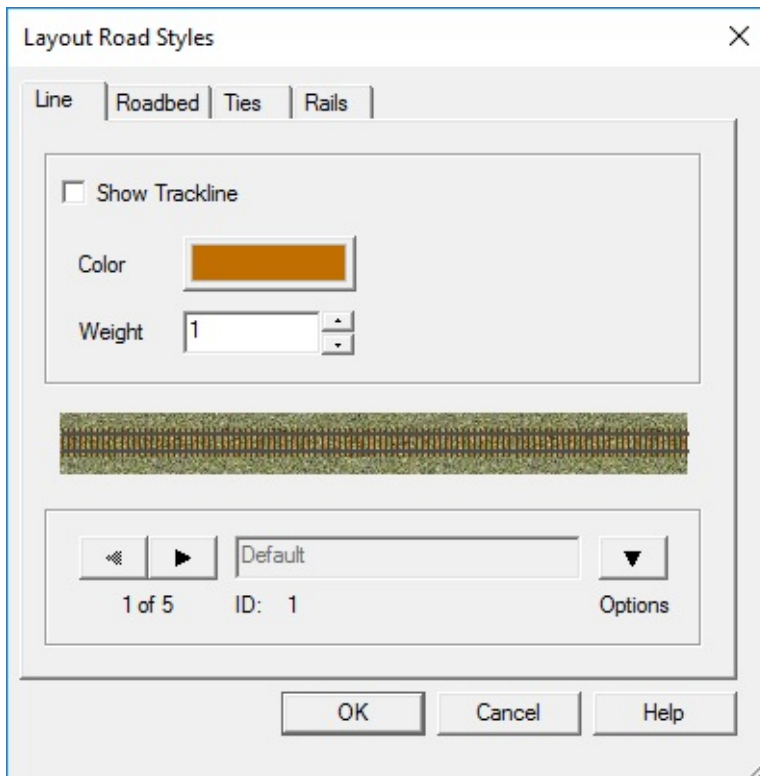
If you choose to download missing items, you may not get all of them. If for example the layout author included custom scenery objects not in the TrainPlayer collections, then the download will not retrieve them.

Road Styles Dialog

The Road Styles Dialog is used to create and manage the set of road styles belonging to a layout. It is called up from (a) the **Road Styles...** button in Advanced Layout Properties or (b) the **Road Styles...** item in the Style drop-down menu in Track Properties.

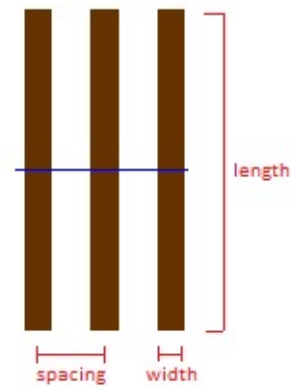
For background, see [Road Styles](#). Road styles are designed and named in this dialog, but not applied to tracks; that is done in [Track Properties](#).

The Road Styles Dialog has a tab for each of the four style components. Each tab shows details specific to that component, then has a section shared by all tabs.



Tab-Specific Controls

- **Show <feature>** checkbox at the upper left of each tab. Check to turn the feature on in the current road style, uncheck to turn it off. In the Default style, the state of this checkbox is linked to toolbar buttons*.
 - **Color button** -- displays and sets the color of the feature. In the case of roadbed, applies only when type is solid.
- Note: handy shortcut** -- right-click any color button; you can copy and paste colors between color buttons in all dialogs.
- **Units combo** on some tabs-- selects units for all dimension values. Any choice of units made in any tab applies to all other tabs.
 - **Feature-specific properties:**



<i>tab</i>	<i>control</i>	<i>units</i>	<i>description</i>
Line	Weight	<i>pix</i>	thickness of track center line
Roadbed	Solid vs Bitmap		whether roadbed is solid color vs. tiled bitmap pattern
	Bitmap		path of bitmap in Scenery folder; click (...) to browse
Ties	Width	<i>dim</i>	overall width of roadbed
	Length	<i>dim</i>	length of each tie; see diagram >>
	Width	<i>dim</i>	width of tie; see diagram >>
Rails	Spacing	<i>dim</i>	distance between tie centers; see diagram >>
	Spacing	<i>dim</i>	distance between rails
	Weight	<i>pix</i>	thickness of each rail

Values marked *dim* are dimension values, displayed and edited in units chosen in any Units combo. Those marked *pix* are line thickness values -- pixels more or less, but scalable.

* **Note:** When you are working on the Default style, the visibility of a feature as given by the Show <feature> checkbox is just temporary. Features of the default style can be turned on and off in this dialog but also outside it by using commands on the [View Options toolbar](#).

Common Controls

- **Track sample diagram** -- shows how the track looks according to the current choices in all tabs. To enlarge the sample, resize the dialog.
- **Selector panel** -- used to move among the set of styles and operate on them:

< > Arrows	Click to choose a style for viewing and editing. Dimmed if there is only one; use the Options menu to create a new one.
Name box	Shows the style name. Can be edited in all styles except Default.
ID	Shows the Road Style ID. Assigned by program, cannot be edited.
Options button	Click to display the Options menu, described below.

- **OK, Cancel** -- when you work in the Road Styles dialog, you are working with a temporary set of styles copied from the caller. Click **OK** to copy the modified set back and save all changes made to any style on any tab. Click **Cancel** to discard all changes and leave the caller unmodified.*

For the most part, modifying the road style set is undoable. After clicking OK in the Road Styles dialog, you may use Edit > Undo to revert most changes.*

* Exception: when you delete a style, the associated tracks revert back to default. This operation is NOT undoable, nor reversed on Cancel.

Options Menu

The Options menu provides a set of commands which for the most part operate on the current style.

Create New Style	Adds a copy of the default style to the end of the list, gives it an ID and a generic name, then positions to it for editing.
Delete Style...	Deletes the current style, removes it from the list, and removes references to it from any connected tracks, which then revert to default style. (1)
Copy Style	Copies the current style to the clipboard, suitable for pasting into a style in this or another layout. (2)
Paste Style	Replaces the current style with that on clipboard. Dimmed if no style has been copied.
Select By This Style	Selects all tracks on layout having the current style, and reports how many were affected. (3)
Make This The Default...	Copies the current style into global registry settings so it becomes the default for new layouts. This does not affect the current layout.
Set To Factory Default	Sets the current style to factory-supplied settings.

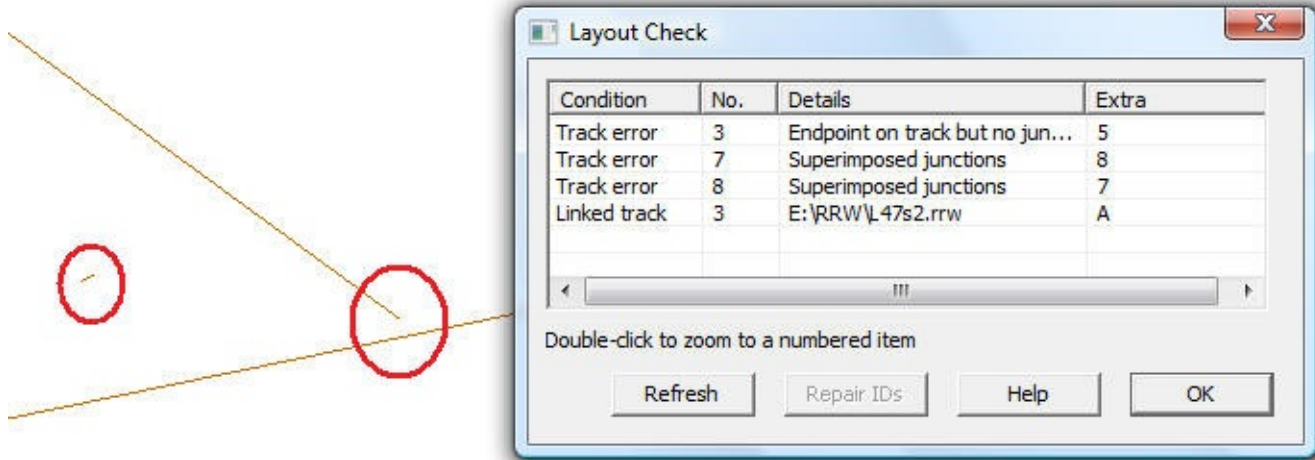
1. Delete Style asks for confirmation, because it is not undoable -- once a deleted style is removed from associated tracks, it cannot be restored, except by closing the file without saving, or using File > Revert To Saved.

2. The road style clipboard is internal, not associated with the Windows clipboard. Contents of the road style clipboard are lost on program exit.

3. Select By This Style actually searches by ID, not by style. It finds all tracks having the same *road style ID* as the current choice in the dialog, whether or not that style matches what is showing on the screen. If the style in the dialog has been modified but not yet saved, the results may not be what you expect.

Track Checker

For testing track and reporting layout condition. Called from menu command **Tools > Check Track**.



The Track (Layout) Check dialog checks your layout for track and train errors, and for certain non-error conditions. Use this dialog to check for mistakes while you are drawing a layout, or after the drawing is finished. Also use it to inspect a layout before publishing or sending to a friend.

Four columns are shown in the list box:

- **Condition:** what the line is reporting -- one of the following:
 - track or junction error
 - duplicate car or train ID
 - link to external layout (not an error)
 - required car collection (not an error)
- **No.:** the track or junction number where the error occurred. This item is blank for conditions other than track errors. Double-clicking on a row zooms to that area, as long as there is a track or junction number associated
- **Details:** nature of the error, name of the linked file, or other information
- **Extra:** when applicable, an additional bit of information depending on the condition. For example, "superimposed junctions" shows one of the two junctions in the No. column, the other under Extra.

The dialog not only reports errors, but helps you fix them. When you double-click a numbered item in the list, it zooms in and highlights the track or junction in error. The dialog is modeless, so it stays up while you fix errors.

In addition to reporting errors, the Layout Check dialog reports if your layout has any links to external layouts, or requires any car collections not normally installed. This information can be useful if you are planning to publish the layout.

Dialog controls:

	Displays errors and external links.
[list box]	If an error has a number in the No. column, you can double-click that line to zoom in and highlight the error area.
Refresh	Click to repeat the track check, for example after you have fixed an error. The layout is rechecked and a new list of errors presented.
Repair IDs	Click to repair Duplicate ID errors.

Track Errors

The comprehensive list of errors reported by the track checker is given here. Many of these are designated "internal," meaning they are program errors a user should not see unless the layout has been corrupted.

Unspecified error	internal
Object flagged for delete	internal
Invalid object ID	internal
Unretrievable object	internal
Invalid junction number on track	internal
Same junction number on both ends of track	internal
Bad track length	usually means there is an invisible track of zero length
Invalid station number	track references a non-existent station

Object has zero space	track or circle is defined at a point
Jxn has no tracks	a junction exists but has no tracks connected to it
Invalid track number on junction	junction references a non-existent track
Superimposed junctions	two junctions are very close together
Invalid radius	internal
Station is missing name	a station has been defined with a blank or empty name
Tracks superimposed	two sections of track share the same line
Endpoint on track but no junction	one track almost meets another but does not connect
Duplicate ID	two cars or trains have the same ID
Station has no tracks	station is not connected to any track

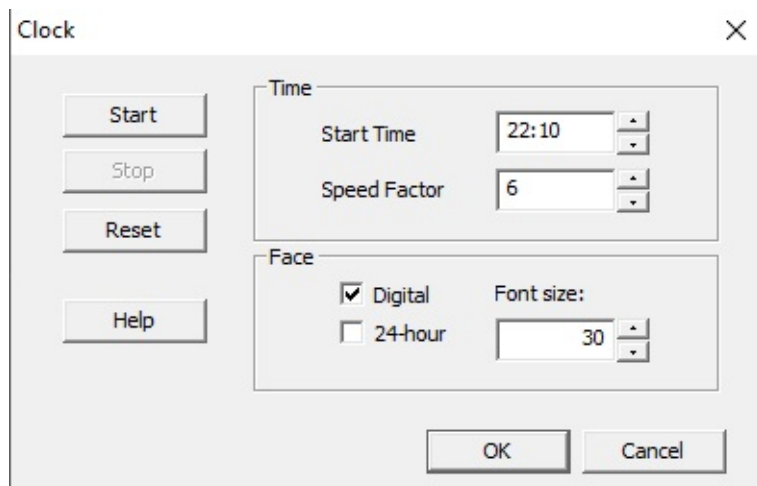
Most of these errors are rare. The two most common are illustrated in the diagram above:

- ***Endpoint on track but no junction*** (see right-hand red circle in diagram): one track endpoint lies near another track but doesn't quite touch it. Normally this indicates you meant to create a switch but didn't quite. The fix is to use the Edit tool, pick up the stray end, and drop it carefully on the other track.
- ***Superimposed junctions*** (left-hand circle): means two junctions are very close together. Normally this means you meant to have a single junction but accidentally created two instead. The fix is to move one junction on top of the other, so they fuse into one. In the diagram, the problem is that there is a tiny piece of stray track; the fix is to delete it.

If you get other errors and can't figure them out, drop us a note and send the rrw file. Most problems can be fixed by editing the rrw file, as a last resort.

Clock Settings

For setting clock parameters. Called from Settings on [Clock context menu](#).



The TrainPlayer clock has properties you don't find in an ordinary clock: it can run at the speed of your choice, and with one click it can be reset to a specific time when you want your operating session to begin. These properties are set in this dialog. Some of these settings can also be made directly from the context menu.

Dialog controls:

Start

Click to start the clock running. Button is dimmed if clock is already running.

Note: the clock starts automatically whenever it is visible and you start any train running.

Stop

Click to stop the clock.

Reset

Click to reset clock back to the indicated start time.

Start Time

Time the clock will show on program startup and on reset. Default is 5AM.

Speed Factor


Clock speed as a multiple of wall clock speed. Default is 6, meaning the TP clock runs 6 times faster than a wall clock -- one TP hour goes by in ten actual minutes.

Face

Choose Digital or not; if digital, 24-hour or not. You cannot choose a font, but you can adjust its size here.

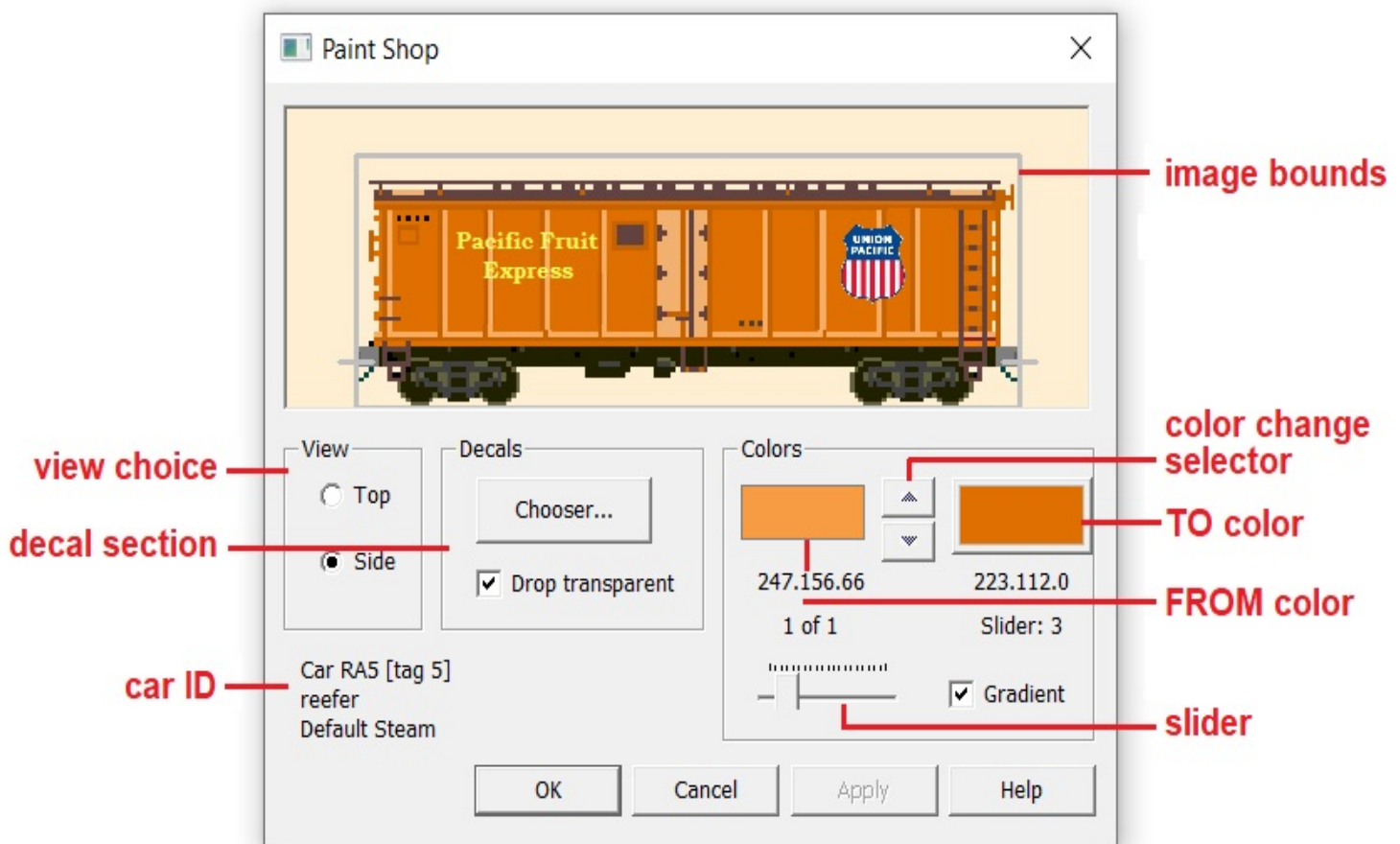
For more information, see [Clock](#).

Paint Shop

For painting and decorating cars and engines. Called from **Tools > Paint Shop** or toolbar button . The dialog is modeless and resizable, and works on one car at a time, both side and top view. To bring a car into Paint Shop, click to select the car on the layout.

For background, see [Decorating Cars](#).

Tour of Paint Shop



View

At the top of the dialog is a resizable window showing the working car image, either side or top view as selected by the **view choice** button. Around the image is a grey frame showing the **image bounds**, the space defined by the image file. Decals should not extend beyond these bounds, as they will be clipped when drawn on the layout.

Note: The background color in the image window is the same as the one for the Train Bar, and can be modified in [Train Bar Settings](#).

Decals

The **decals section** contains a button to bring up the [Decal Chooser](#) -- a gallery of pictures you can drag into Paint Shop -- along with the **Drop Transparent** checkbox, specifying how a picture should initially look when dragged in. A decal brought from the chooser is called **file-**

based because it is from an image file in the Decals folder; to create other, non-file-based decal types, press and drag as described [below](#).

Colors

This section is for managing the list of color changes to be applied to the car. Each item in the list has two colors: the **FROM color**, one of the colors in the original image file, as displayed on an uneditable swatch; and the **TO color**, the color you choose to replace FROM, as displayed on an interactive color button. Clicking the button brings up the [Color Chooser](#), updated and enhanced for use with Paint Shop.

To move up and down the list of changes, use the **color change selector** buttons. To add a new item to the list, start by choosing a FROM color using **Select This Color** (see [below](#)), then click the right button to choose a TO color.

Note: you can right-click either button and choose **Copy Color**. You can then **Paste Color** to another color button.

Slider, Gradient

The **slider** adjusts the "precision" of the FROM color. At the left end (position 0), it selects exactly that color and no others. Moving to the right selects an increasingly wide range of colors around the one shown, until at the right end (position 20), FROM contains all the non-background colors.

The **Gradient** checkbox specifies how the selected color change is to be applied. Unchecked means change every shade in the FROM band to the single TO color. Checked means "maintain the range" when converting FROM to TO -- convert F to T, F+1 to T+1, F-1 to T-1, etc. This has the effect of preserving any gradients in the image while still changing the base color.

Text Labels

Beneath each color are shown its RGB values. Below those are the current list position and slider position.

Car ID identifies the car you are working on and its collection. Note: to see the raw image files, select the car on the layout and go to Properties > Collection > Images.

Below the Car ID is an area for status messages, such as when you are pointing to a decal.

Paint Shop Mouse and Keyboard Actions

When you move the mouse over a decal, it is highlighted with a frame, and its description appears at the lower left of the dialog. The cursor is a 4- or 2-headed arrow, indicating that you can (a) press and drag to move or resize the decal in that direction, or (b) press an arrow key to move by one pixel.

When you are not on a decal, or when Shift is down, the cursor is a plus (+). Press and drag to create a new solid white decal. When you release the drag, [Decal Properties](#) comes up for you to specify type and details.

To create a new decal on top of an existing one, press **Shift** before you drag.

To create a copy of a decal, point to it and press **Ctrl**, then drag.

These keyboard accelerators are hard-coded in Paint Shop and not customizable: Ctrl+C/X/V = Copy/Cut/Paste, Ctrl+Z/Y = Undo/Redo, Del = Delete.

Paint Shop Menu

Comes up on right-press at a point where there are no decals, or at any point when Shift is down.

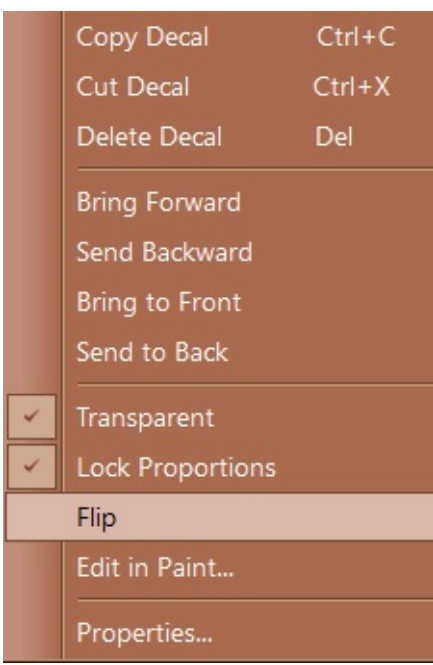
Select This Color		
Paste Decal	Ctrl+V	
Undo	Ctrl+Z	
Redo	Ctrl+Y	
Show All Decals		
Revert to Factory...		

Select This Color	pick the color where the mouse button was pressed. Dimmed if pointing to the background color. Normally creates a new entry in the color-change list, with the selection shown as both FROM and TO and the slider set to default. If the selected color is already in the list as either FROM or TO, then that entry becomes active.
Paste Decal	if a decal has been copied to the clipboard (using Copy Decal , below), this command pastes a copy of it at the cursor position. Command is dimmed if there is no decal on the clipboard.
Undo, Redo	revert or restore the last Paint Shop action -- color change, decal move, property change.
Show All Decals	display highlight frames around all decals at once. To remove the highlights, click anywhere.
Revert to Factory	remove all or part of the paint job from the current view. A confirmation dialog offers the choice of deleting all decals, or removing all color changes, or both.

Decal Menu

Comes up on right-press within a decal. Commands apply to the highlighted decal only.

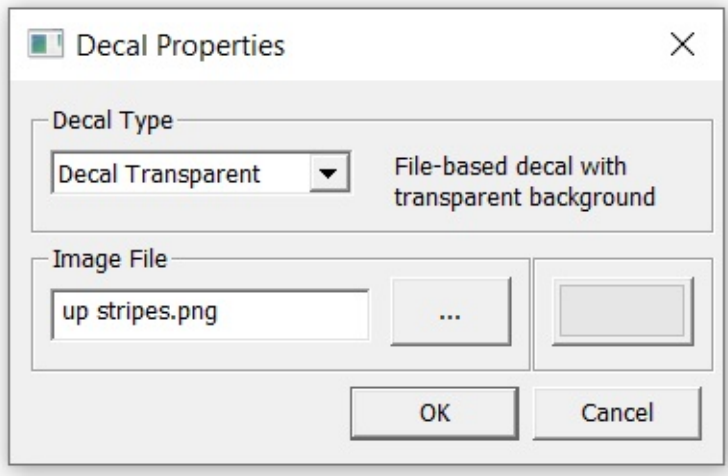
Copy, Cut, Delete	these edit commands apply to the highlighted decal
Position commands	these move the highlighted decal higher or lower in the display order. Applicable to all types except mask regions.
Transparent	(file-based decal only): toggle background transparency on or off. This is a shortcut; it can also be done in Decal Properties, or by setting the Drop Transparent check and then dragging a decal in from the chooser.
Lock Proportions	toggle the ability to change proportions upon resizing. Defaults to on (checked) for any decal dragged in from the chooser.



Flip	(file-based decal only): invert the image horizontally or vertically or both.
Edit in Paint	(file-based decal only): open the image file in MS Paint (or your choice of editor -- see under editing car images). Caution: if you modify the image in Paint and save it, you will overwrite the factory version. To see the changes in the Decal Chooser, refresh it or close and reopen.
Return to Clone Site	(clone region only): move the clone region back to the location where it was originally defined. This original site is highlighted with a green outline whenever you press on the clone region.
Properties	bring up the Decal Properties dialog, to set decal type and details.

Decal Properties

Decal Properties is a modal dialog brought up (a) from **Properties...** on the menu, or (b) automatically whenever you drag out a new rectangle.

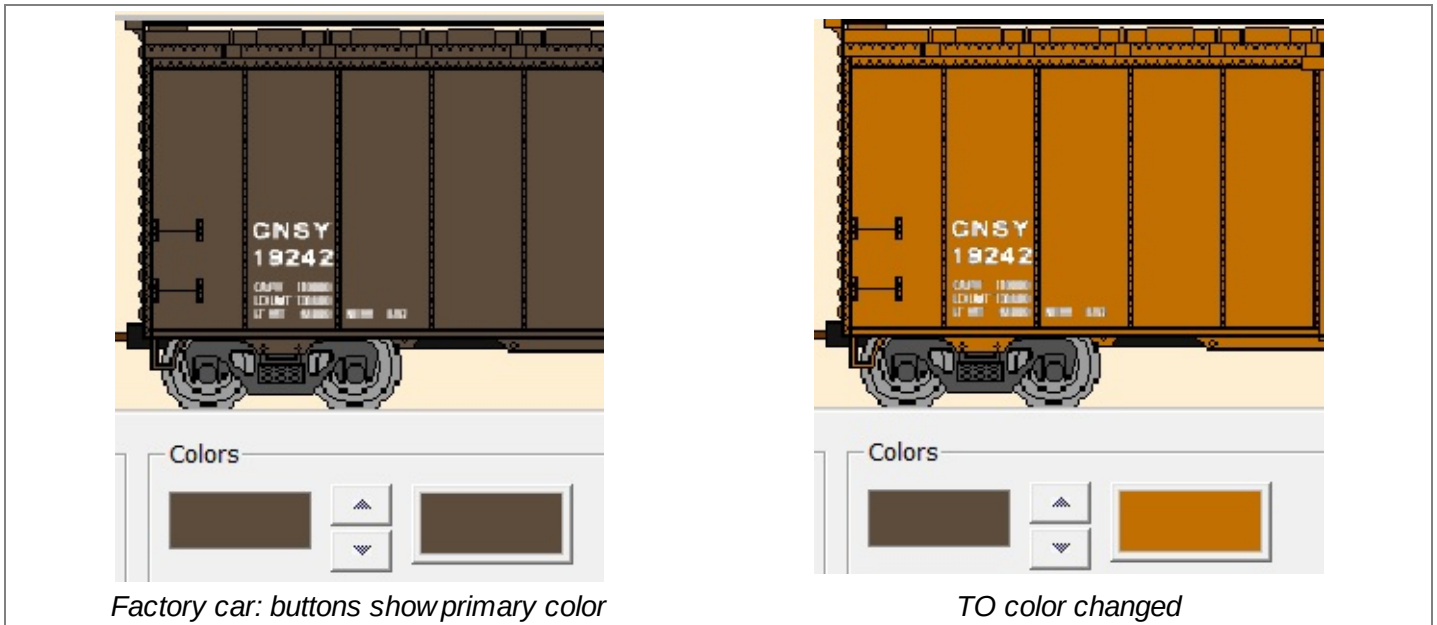


Decal Type is one of seven choices. The selected type determines the meaning of the three dialog controls: the edit box, the browse (...) button, and the color button.

Decal Transparent	File-based decal with native background. Edit box shows the image pathname relative to the Decals folder. Browse button brings up the Decal Chooser. Color button is not used.
Decal Opaque	File-based decal with transparent background. Controls same as above.
Solid Color	Rectangle of solid color. Color button is active, others do not apply and are dimmed.
Mask Region	Rectangle where all color changes are prevented. No controls apply.
Text Box	Text string with transparent background. Edit box shows the text to be displayed. Browse button brings up the Font dialog. Text color may be selected there, or by using the color button.
Clone Region	Rectangle of paint copied from original location. No controls apply.
See-Through Region	Rectangular invisible region.. No controls apply.
Shaded Cylinder	Horizontal cylinder with shading gradient from darker than selected color to lighter.

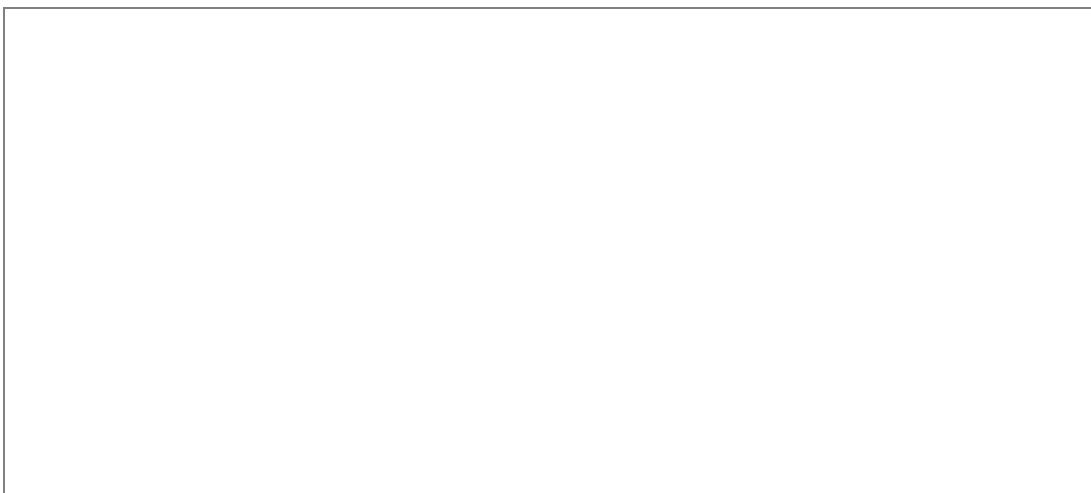
Paint Shop How-Tos

How Paint Your Car



1. Bring up Paint Shop. Bring in the car by clicking it on the layout or train bar. Choose the view to work on (side or top). The TO and FROM colors are automatically set to the primary color of the image (as shown above left).
2. Click to TO button and choose a new primary color (for example as above right).
3. If the color does not fill the area you want, experiment with the slider. Moving it to the right causes a wider range of FROM values to convert to TO.
4. To make a second color change, point to a pixel of the second color, right-click and choose **Select This Color**.
5. Repeat steps 2-3 until the second change looks good.
6. Continue for as many color changes as you need. Use **Undo** to go back a step, or **Revert to Factory** to remove all and start over. Use **Apply** or **OK** to apply the paint job to the car on the layout.

How to Apply Regular Decals

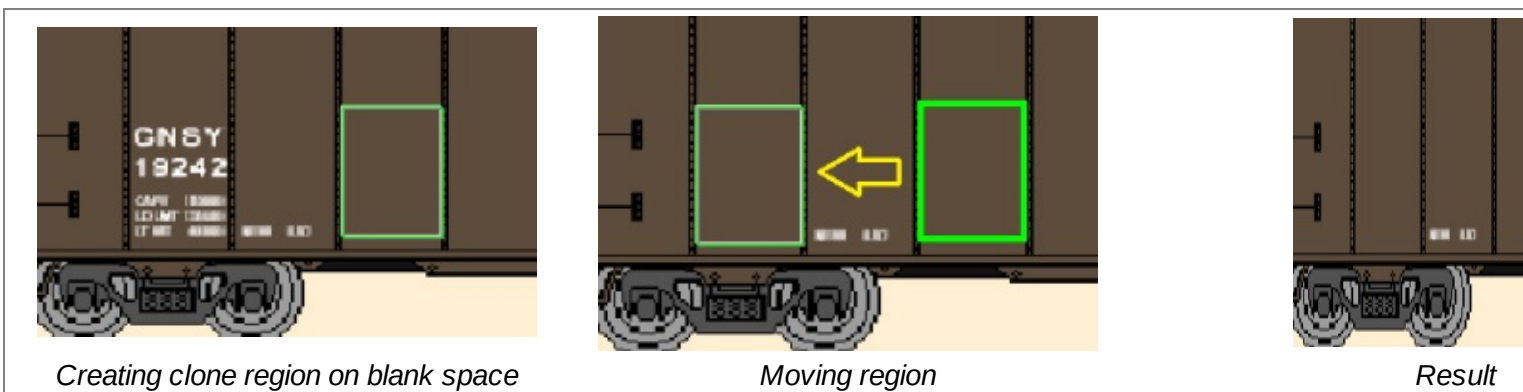




1. Click the Chooser button to bring up the Decal Chooser.
2. Navigate to the image you want. Drag it onto the car in Paint Shop (for example as illustrated).
3. Slide it into position and resize as needed. Note that the initial relative size of decal to car can be adjusted by resizing the Paint Shop window before dragging the decal.
4. By default, the decal shape is locked -- resizing can only be done by dragging a corner, retaining proportions. To unlock, right-click and uncheck Lock Proportions.
5. To create a second copy, press Ctrl and drag the decal. If you have overlapping decals, use position commands (Bring to Front, etc.) to set the order.

How to Hide Old Decorations

Many car images come with logos, lettering, and other decorations you want to hide before applying your own scheme. The left picture shows an example -- say we want to cover the block of lettering shown.



One way is to create a decal of solid color covering the block. This is straightforward, but works only if the car has a uniform color. A more general method is to use a Clone Region, as follows:

1. Locate a blank area the size and shape of the area to be covered.
2. Drag to create a new decal on that area, and choose its type as Clone Region. Click OK,

and you'll get a highlight frame around the new CR (see picture at left).

3. Drag the CR on top of the area to be covered (middle picture). While you drag, the original site of the clone is highlighted with a thick green frame. This happens whenever you point to a CR and press the mouse.
4. Let go and observe the result (right picture). You can resize the CR a little if necessary.
5. The context menu for a CR includes the command **Return to Clone Site**. This moves the CR back to where it was originally defined.
6. If you want to redefine the clone site, (a) move the CR to the new site, (b) right-click and choose Properties, (c) click OK.

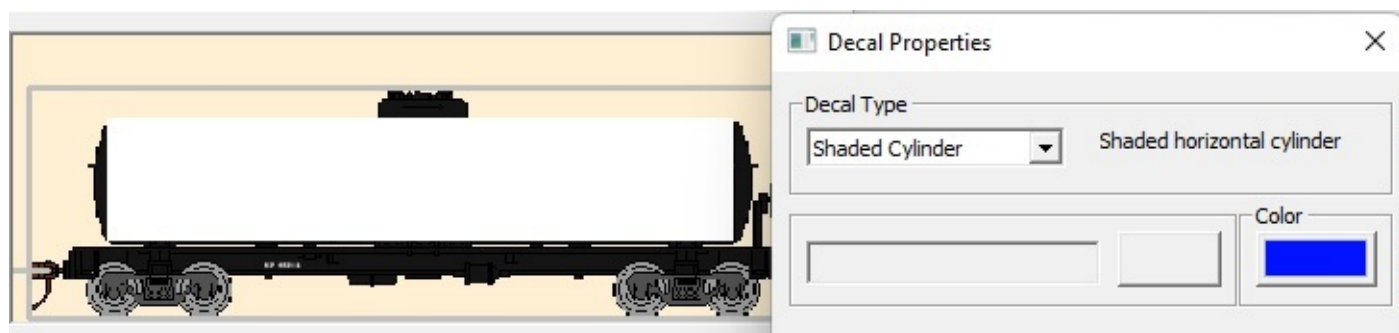
How to Create Your Own Decals

If you have a graphic file you would like to use as a decal, all you have to do is place it in your Decals folder (or any subfolder). Close and reopen the Decal Chooser, and you should see the new image, ready to use.

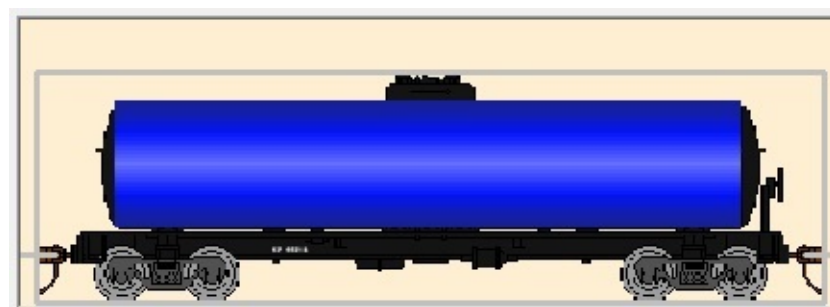
Caution: if you use one of your own decals in a layout, then want to share that layout with another user, you will need to supply the decal, along with instructions about where to put it. The program doesn't provide support for this situation.

How to Create a Shaded Tankcar

1. Start with a tankcar. Drag a decal over the body of the tank and select Shaded Cylinder:



2. Choose a base color for the cylinder, using the Color button.
3. Click OK, and you get a result like this:

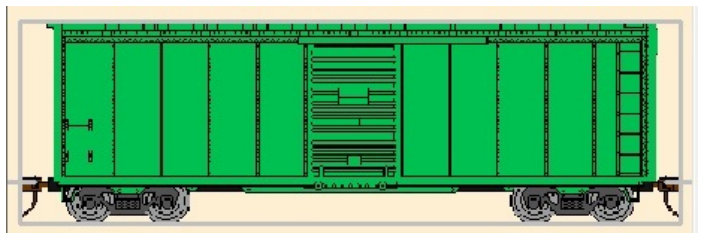
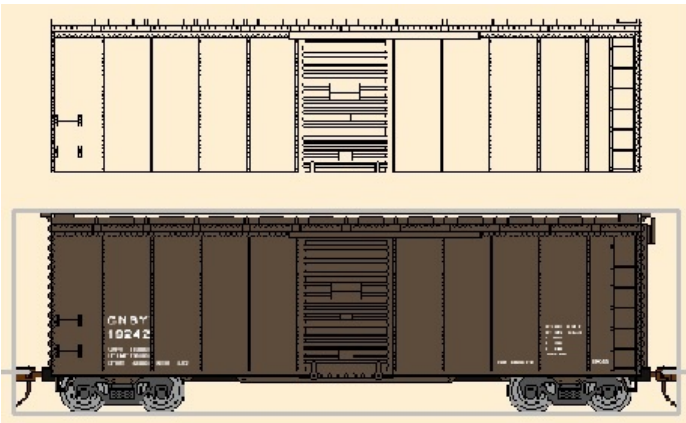


The chosen color forms two stripes, at 1/4 and 3/4 of the decal height, and other stripes are generated to give a smooth gradient both darker and lighter than the base color.

How to Work with Wireframes

Wireframe decals are useful for painting certain cars which have dark details. Many of the Chris Pedersen cars are in this category. What you do is create a wireframe decal to capture the details, then erase or repaint the car, then apply the decal on top.

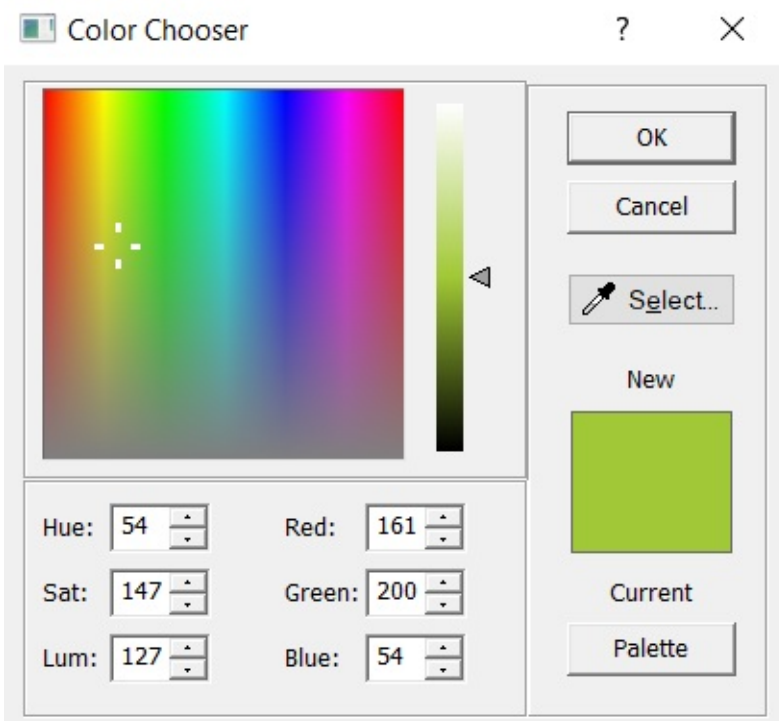
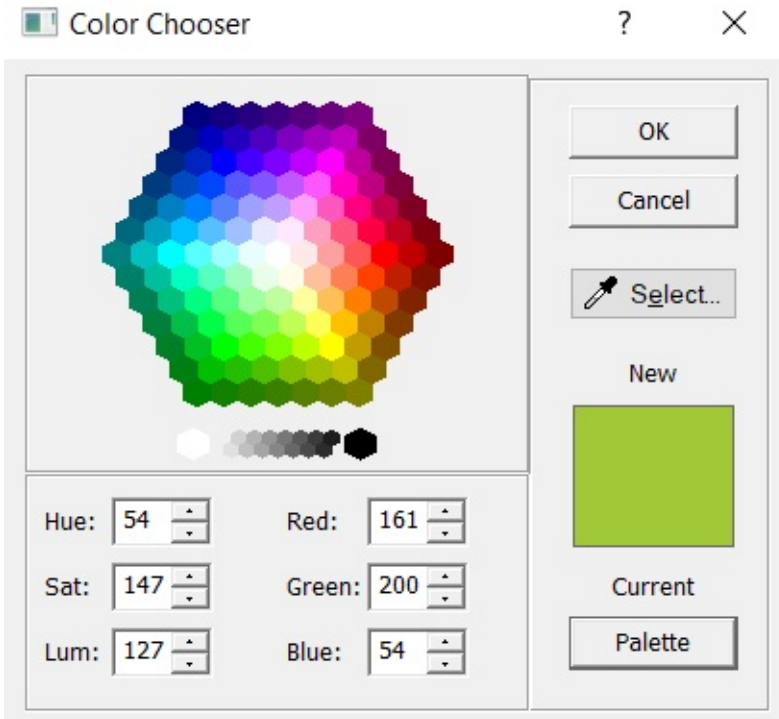
1. Start with a car image having dark lines you wish to capture. Below for example is a Pedersen boxcar with dark framing.
2. Drag a decal over the body and select Wireframe.
3. Click OK and nothing appears to happen, but in fact you have created a new decal which is positioned exactly over the image. Below left shows after moving the new wireframe decal off the image so you can see it.
4. Now you can apply a solid-color decal on top of the original image, then put the wireframe on top of that, and you get the result shown on the right.



Color Chooser

For selecting colors. Called via color buttons on several dialogs.

The Color Chooser offers two panels for selecting colors ("palettes"): a 64-cell hexagonal grid of standard colors (shown below left) vs. a rainbow spectrum with luminance slider (right). Click the Palette button to toggle between these modes.



To select a color, do one of:

- Click a color in the panel, then click OK.
- Double-click a color in the panel.
- Enter numbers in the text boxes to specify Hue/Saturation/Luminance or Red/Green/Blue

values.

- Click the Select button, then move the cursor around the screen (including outside the application window) and click when you find the color you want. The New box updates as you move, showing the color under the cursor.

Dialog controls:

Color panel	One of the two palettes described above. In the full-spectrum mode, you can cover the full range of colors by dragging the white cursor and the vertical slider.
Select	Click to change cursor to an eyedropper, then move the dropper around the screen until New shows the color you want, then click. To cancel, press ESC.
New/Current	New shows the color you will select by clicking OK. Current shows the original color in effect when the dialog was brought up (the one you will replace). The New color is also reflected in the HSL and RGB values, and by a highlight in the color panel.
Palette	Click to toggle between color panels.
Hue/Sat/Lum	Values showing the New color in HSL (hue, saturation, luminance or lightness) representation. Adjust to suit. Note that as you drag the cursor around the rainbow palette, the luminance value stays fixed.
Red/Green/Blue	Values showing the New color in RGB representation. Adjust to suit.
