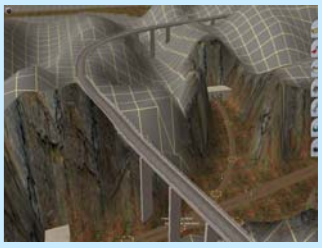
September 2004
v2n3

Virtual Railroader™

The 'zine of small computer railroading



Muscle end of Doughnut job - 3 MeC SD40-2s

In this issue

From the Publisher

Pushing the boundaries

By Alfred Barten

This issue is all about pushing the boundaries of our train sims, seeing how far we can go, and exploring new uses and techniques.

In my editorial I look at what distinguishes sims from models, what the basic ingredients of a computerized sim are, and what some people have done by way of finding new uses for familiar sims.

Continuing the theme, John D'Angelo begins the first of a series on building a lake, then sailing around on it, driving around it, and flying over it – all with *Trainz*. John also tells us where to find a variety of drivable *Trainz* objects in this month's edition of *Download Gold*.

In "Rocky Ridge Mine," Rich Blake describes his concept for a modular system to expand the LARS interactive industry system made possible by *Trainz TRS2004* interactive industries capabilities.

In the *BVE Extra* section I describe ways of using a helicopter to take a peek at the stage prop nature of *BVE* scenery techniques.

Of course we have much more to tell you in this issue. Wayne Cooke (Cookie, as he's known) shows us an industry he's built into his *Maine Central* route. Is it a coincidence that the industry is the doughnut industry? Cookie also built a coffee car to go with doughnut train.

We also have the first part of a fascinating paper Rob Crawford is writing on the history of the American passenger station. And Colin McKinney presents part two of his basic track-laying series for *Basic Trainz*.

Last month I wrote about the *Mad River & Big Timber Waybills* program for generating switch lists. This month I show how to build your own using an *Excel* spreadsheet. The sample is included in our library.

Finally, there's some big news for *BVE* fans with the introduction of *BVE Beta 4* by Mackoy. We show how to download and install it. We have also expanded the *BVE Extra* section to be something like a virtual pullout covering five topics. One of the five is a quick look at Don Clark's Bo'ness routes. One version of Bo'ness is a rescue scenario, another example of someone pushing the boundaries of what the sim was originally intended to do.

This issue is our biggest yet. We hope you enjoy it.

Cheers and happy reading,

Al

From the Editor

A sim for every reason

By Alfred Barten

I built my first simulator 57 years ago, when I was 7. That was long before the advent of today's desktop computer. It was even 4 years before we got our first TV. Whereas today's sims are powered by electricity and electrons, mine was powered by imagination – something 7-year-olds are well endowed with, as any follower of the "Calvin and Hobbes" comic strip can attest.

We lived at 90th and Lexington in New York's Borough of Manhattan. From our 9th floor corner apartment I watched the buses roam up and down Lexington Avenue (it was two-way, then). There were a number of different styles of buses in New York, depending on the bus' age and route. I knew the buses well, and in some cases identified them by imitating the distinctive sounds they made, since I had no other way of describing or naming them.

I had already built a fleet of model buses out of colored construction paper. I had a template that let me trace a pattern on the paper. I simply cut around the outline, folded and pasted, and – voila! A bus!

This Corgi model is a step up from my paper models, which also ran on the "streets" of an Oriental rug.

My sim was different, though. I found that by placing my wooden wheelbarrow on its side along the end of my bed, the wheel would be horizontal and perfectly placed at the left-hand corner of the bed where the driver – me – would sit cross-legged. I "drove" the full route up and down Lexington Avenue, from downtown to the Bronx and back, dutifully stopping at every even-numbered street corner. That was a far different experience from holding a paper model in my hand and pushing it across the floor.

Although I had built "models," however simply, I hadn't experienced simulation until I had at least imagined those models performing in real-life simulations. Similarly, the electric trains I watched run in circles didn't become part of my sims until I began running them in schedules, or imagining them in the real-life processes of transporting goods and passengers.

Sims take us way beyond our models, just as model railroading takes us beyond our model building. The sims that most of us here are involved with – the ones on our computers – are virtual counterparts of the more physical sims we were familiar with before we had desktop computers (I realize that some of you out there may be young enough to have never known life without computers, but many of us date back to the "good old days").

The computer has made it far easier for us to get inside our sims (like my wheelbarrow bus), to experience the excitement of driving, of being there. This is interesting when we realize that – at least for us older folks – we can remember a time before anyone could see Earth from space. The push of civilization in recent centuries has been to give us a greater and greater distant view of things, placing us increasingly outside and remote. Suddenly the sim has put us back inside, where we can look outward and have a more visceral experience.

Boeing 747 by Sanford Mace.

The ability of the computerized sim to give us all possible views is what makes sims so valuable as education, presentation, and design tools. Eventually we can expect to have dedicated sim tools for various disciplines outside the train world (and in many cases already do), but in the meantime we can look at some of the things people are doing with train sims. As reported here in past issues, John D'Angelo used *Trainz* to reconstruct the events surrounding Casey Jones's last ride, and in the process gained new insight into

what may really have happened on that fateful evening. We've also shown that *Trainz* can be used as a handy presentation tool for architects and engineers. Others have built drivable helicopters, cars, buses, and boats. A recent visit to Sanford Mace's web site uncovered a drivable landing run of a Boeing 747 in *BVE*. Sanford is also working on amusement park and canal boat rides for *BVE*.

I'm not a computer programmer or a software engineer, and I'm hardly an expert on game engines, but a few searches on the web turned up enough information to let me say that a game engine is primarily graphics rendering software that can have other capabilities such as playing sounds. A key component for train sims is collision detection – the ability to predict the intersection of moving objects. We also can see from building routes in *BVE* that our movement follows a path. In *Trainz* we have the ability to select alternative paths on the go. With this little bit of information we can begin to imagine all sorts of uses for train sims beyond those that were intended by the game designer. It just takes a little imagination – like taking a wooden wheelbarrow and seeing a bus.

Al

Feature

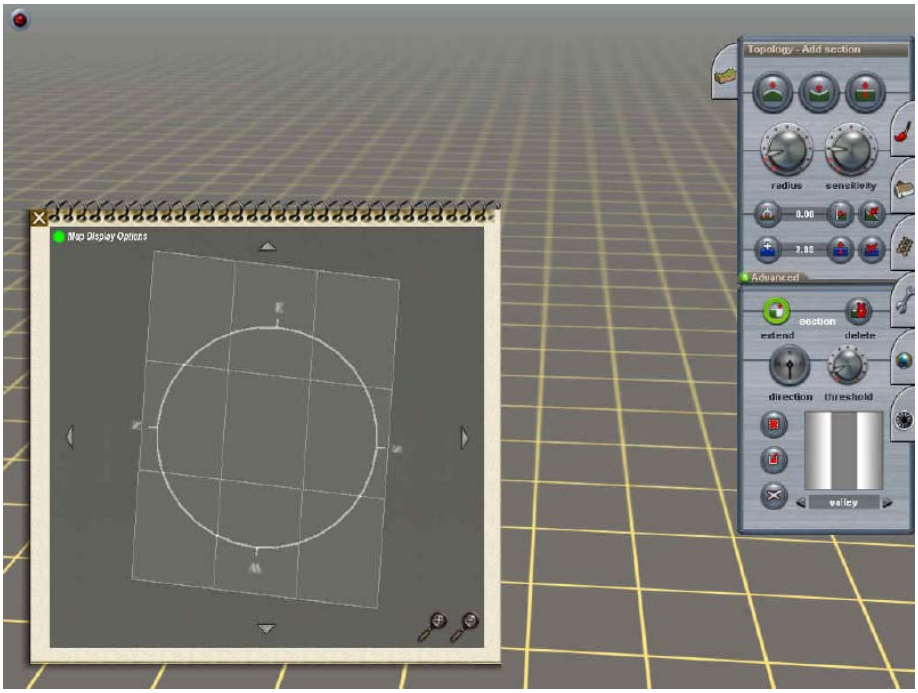
Let's make a lake, then sail on it, drive around it and fly over it!

By John D'Angelo

Some of the nice extras you can get with *Trainz* are drivable objects. In addition to running trains, you can experience, close up, the fun of traveling around your route in alternate modes of transportation. These drivable objects can be found in different configurations. Boats, cars and airplanes can be downloaded from the Trainz Download Station (DLS) and are treated as locomotives for control purposes. There is a bit of setup involved in order to use the drivable objects properly, but it is not a very difficult process.

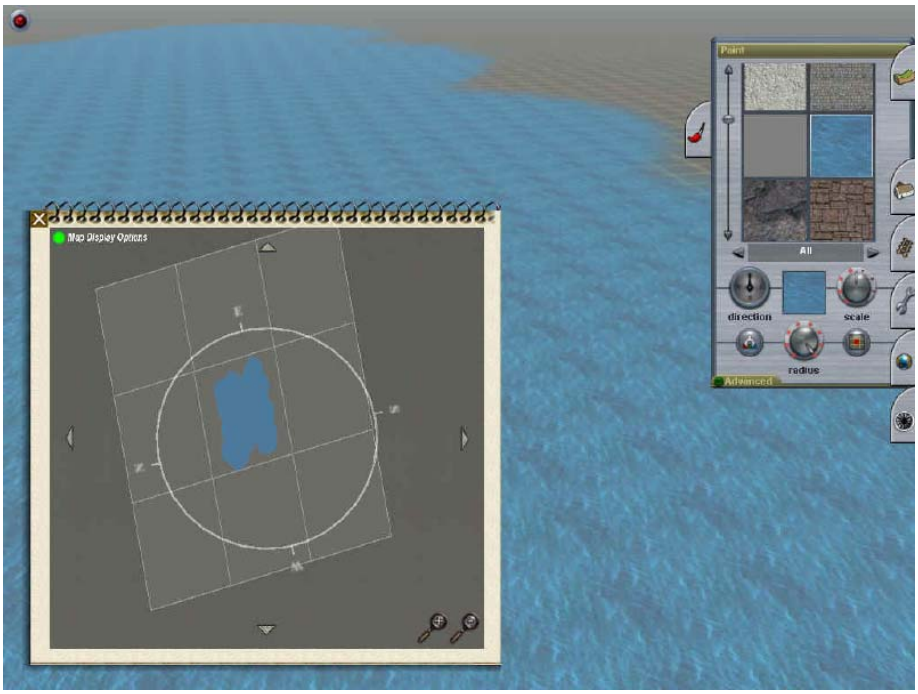
To demonstrate the setup for these objects, I decided to model a Maine lake and then set up a drivable sailboat to sail around the lake, put in a road for a drivable truck to drive around the lake and, finally, set up a route for a drivable airplane to fly around the lake.

The lake will occupy one baseboard, and since we will be flying over it, I will expand the route by one baseboard outboard of this center baseboard. The result will be a total area of nine baseboards, but the visual appeal will be very nice. After the lake is completed it can be saved as a route that then can be merged with any other routes you may have, if you want to pop in a lake somewhere. The side of one baseboard is close to ½ mile in true scale, so "Crystal Lake" will be close to ½ mile in size. Let's get started.

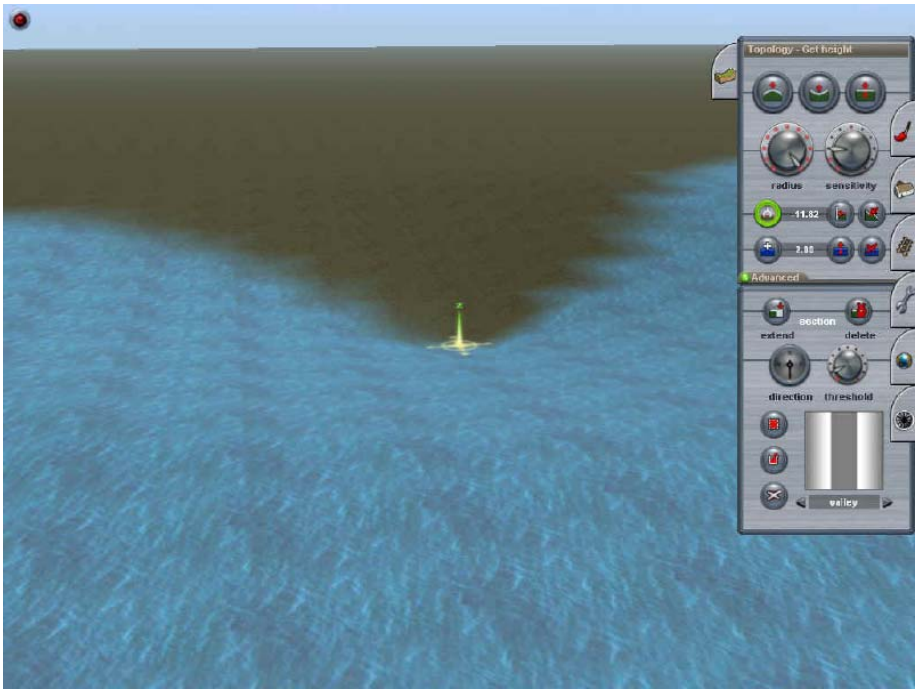


Nine baseboards, centered on the future lake.

To start the creation of the lake I selected a light blue texture from the Paint menu and filled in an area in the center baseboard to represent the lake.

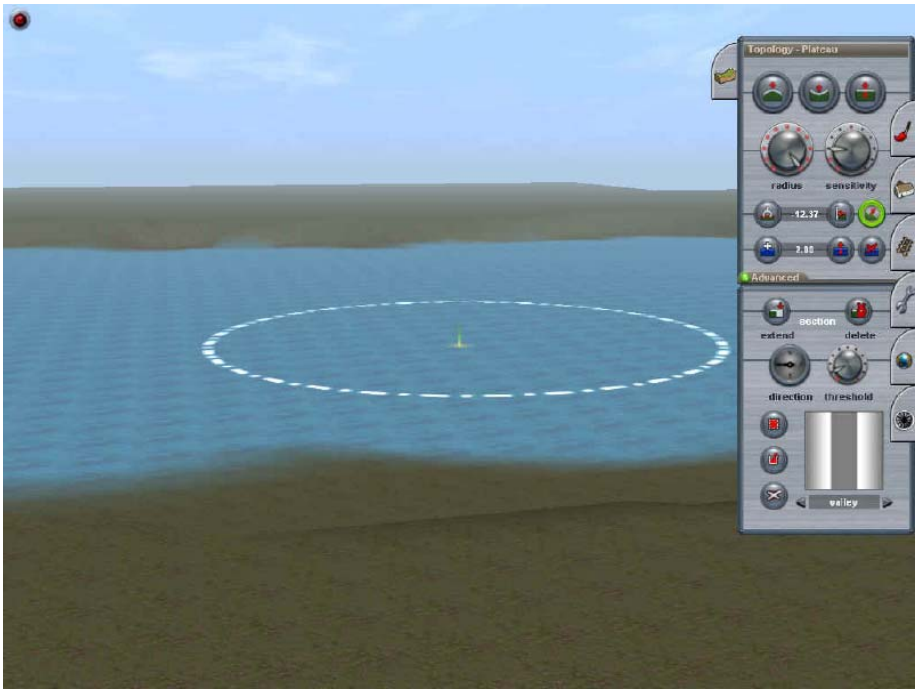


The lake bottom has been colored in.



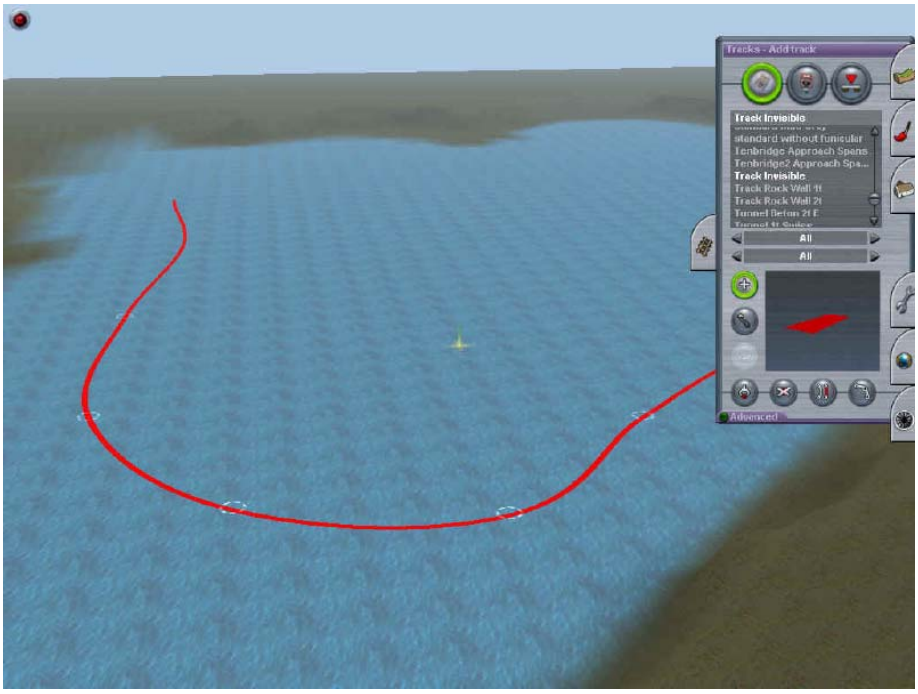
Creating the bottom level of the lake.

Using the Topology menu, I used the Adjust height 'A' tool to drop the ground level for the lake so that later on I can add in the water. After dropping the bottom at this point I used the Plateau 'P' tool to spread out the bottom over the blue area.



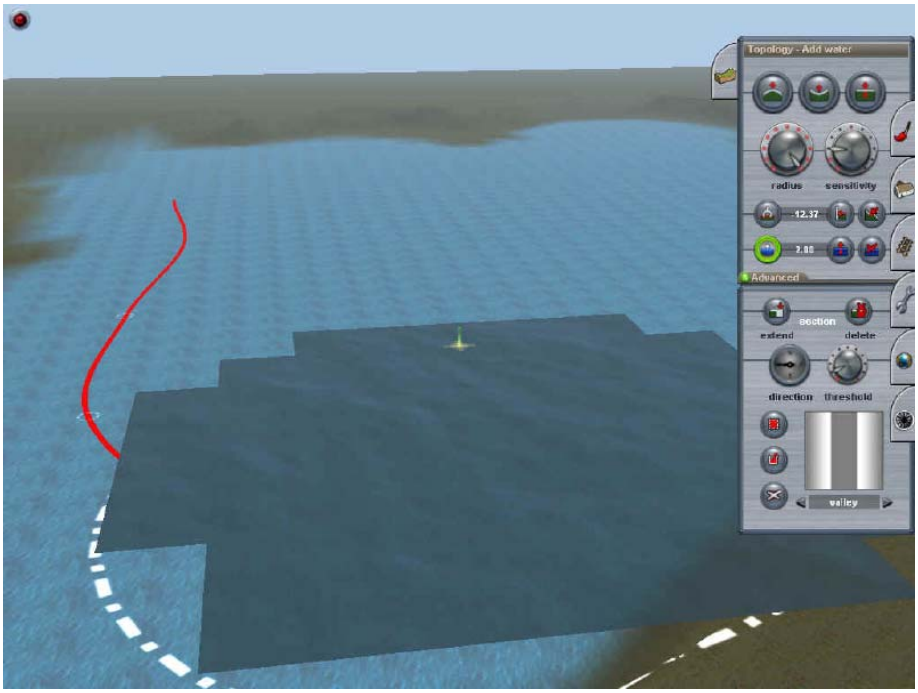
The lake bottom has been formed.

There is now a dropped area filling the blue section. Notice that I dropped the level past the blue line. I also have now filled in the remaining baseboards with a basic dark green texture that I use as my basic woods texture. When water is added, having the dark texture in the dropped section will add to the realism of the image.

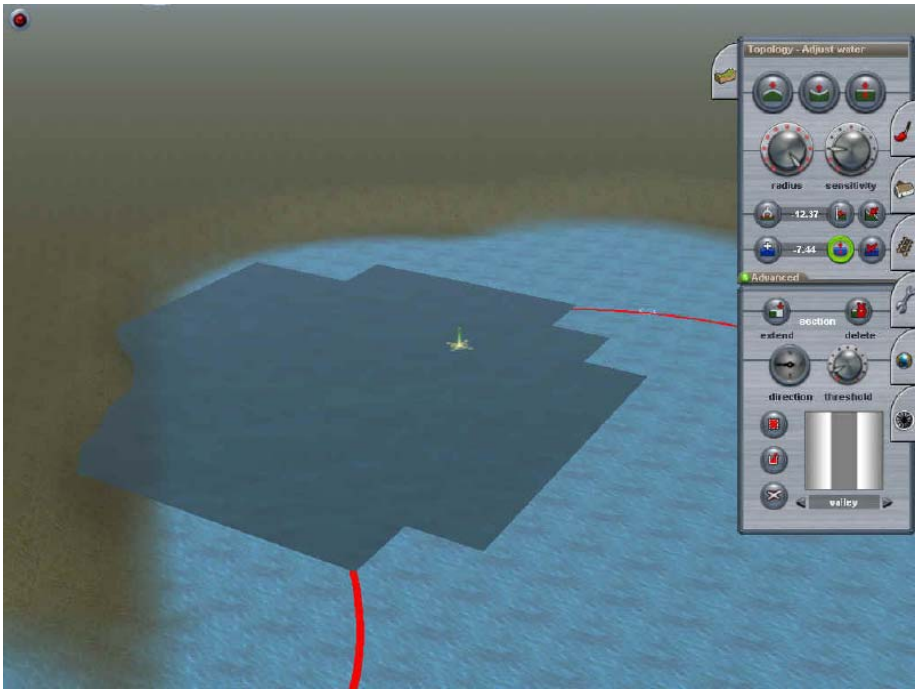


Laying in the sailboat track.

I use the Track Invisible selection from the Track menu for all of the drivable objects to drive on. It is treated as a track item, and you can add junctions with alternate routes if you wish. In this case I just worked out a route to circle around the lake. Once the track is laid, there is some trial and error involved when you add water and the sailboat. The sailboat has a fixed height at which it travels over the track. You will need to drop the level of the track so the sailboat is positioned at the waterline of the boat. Since you can't adjust the spline height of the track while the sailboat is on the track, there is an adjustment process of removing the boat, dropping the track and replacing the boat, but it isn't very difficult.



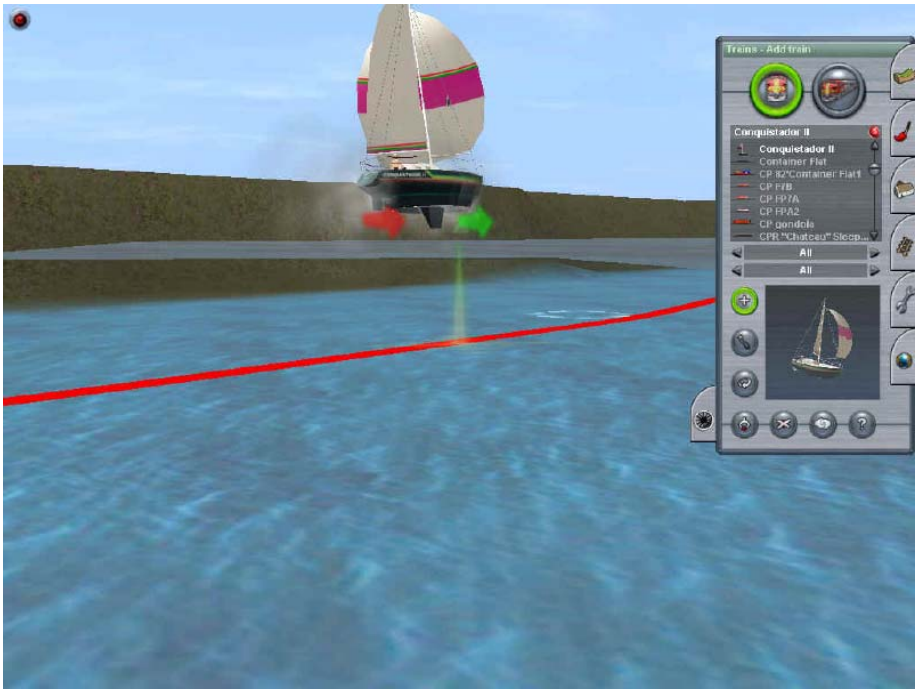
A test section of water is added.



The water is brought down to the proper lake level.

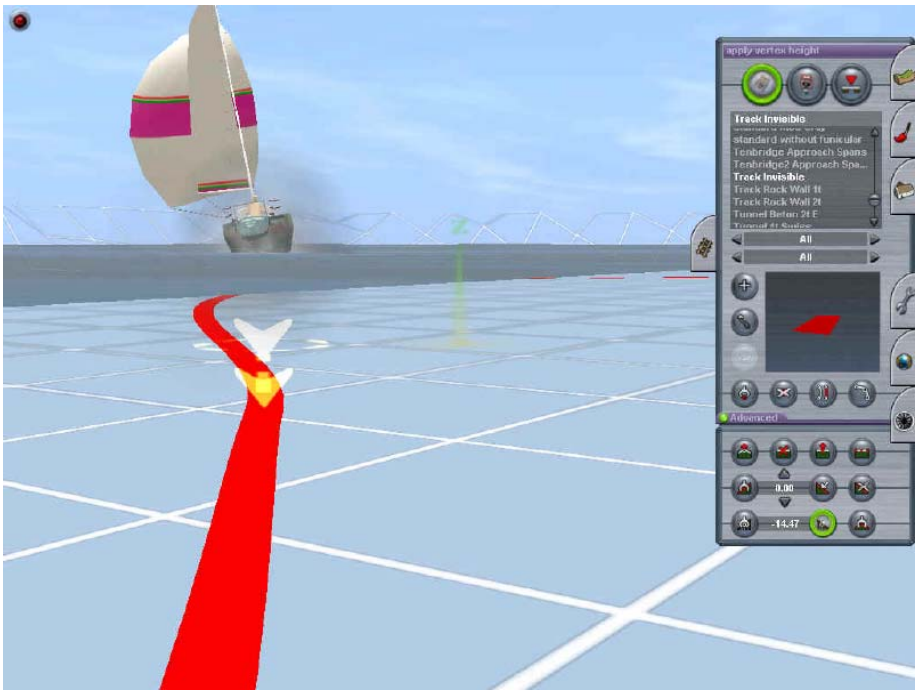
Note the left edge of the water. Using the Adjust water height 'E' tool on the Topology menu, I have pulled down the level of the water until it rests on the bank of the lake.

It's time to pop the sailboat in and see how it sits.



Some adjustment is needed.

Looking at the sailboat from this angle, you can see that it is sitting too far above the water level. We will remove the boat, drop the track level, then check it again.



Just right!

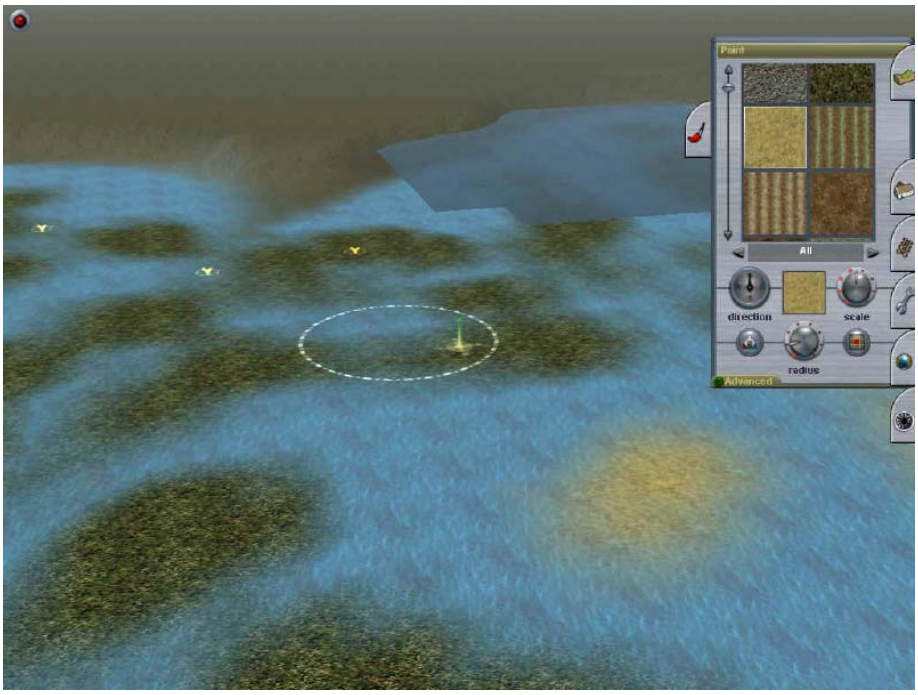
Now the hull sits properly on the top of the water. Since the track is below the bottom of the lake, I use the wireframe mode to view the track. I then remove the boat one last time. With the Track menu open, use the Get vertex height tool to get the spline height that is proper, then click on all the other track vertexes with the Apply vertex height tool to level the track around the lake at the proper height.

Ok, we now have a completed sailboat path at the proper height; it's time to bring the lake to life.

Bullfrog Alley.

A real lake such as Crystal Lake in Maine is filled with all types of birds and animals, and the sounds they make are what give the lake its beauty. In order to bring this lake to life we will be adding colors and textures, trees around the lake, and the sounds of nature. At the DLS, Bossman has compiled hundreds of sound files called KB_ (File Name) for use in *Trainz*. I have downloaded a whole batch of his sound files and they appear as objects that you can place on your route. In the above view, I have placed a group of reeds and have place the sound file for a bullfrog on the sailboat path by the reeds. When you sail over that point you will hear the bullfrog croaking in the reeds. I stay in wireframe mode for the placement of these files; they will need to be placed before the rest of the water is added. Water blocks the view of any underwater objects, even when using wireframe mode. I added along the route the sounds of crows, birds, geese, loons, wind noises, and even

crickets. I spaced them apart so you are not overwhelmed with sounds, but they sure do bring the lake to life. Ayah!

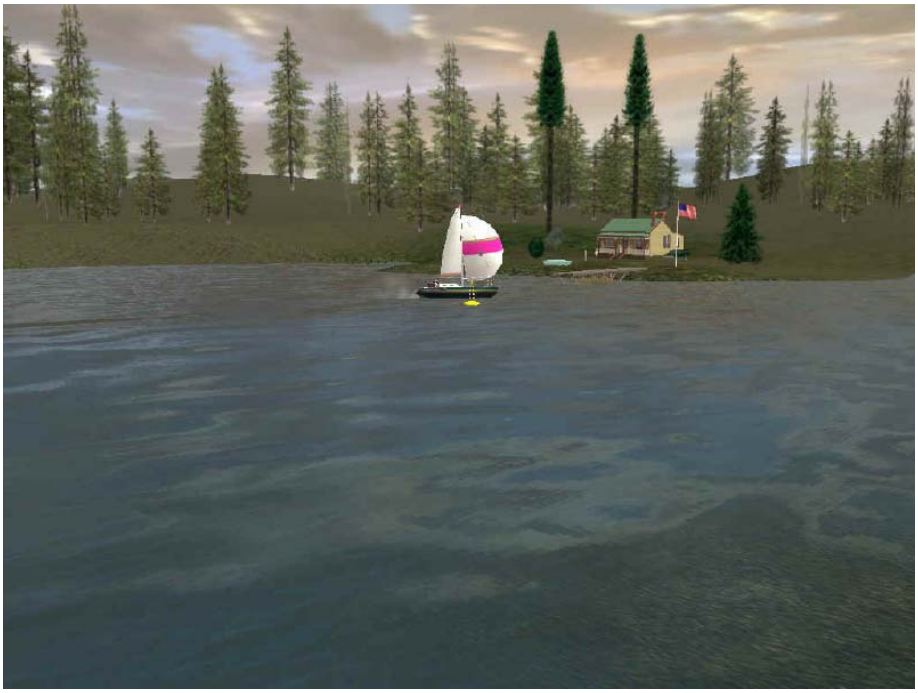


Coloring in the bottom.

The final step in the creation of the lake bottom is to make different colors and textures to break up the basic blue. Lakes have different grasses and shadows that give them character, and this is the final step before filling the lake with water. When you add the rest of the water, be sure to start at the point where the water has already been leveled so that the new water will match the height you set. Note that when out of wireframe mode, the track cannot be seen, but the spline points (vertexes) are visible. If you want to move or check a spline later on, you will need to remove the water at that spot in order to see the spline. Since the track cannot be seen once the water is in, I use a pair of buoy markers to mark the track for the placement of the boat to make it easier.

Sailing along.

From the World menu, I selected the October Sky to accent the colors (it's available from the DLS) and you can see how coloring the bottom adds life to the water. I decided to use the Rippling water selection for the water. The horizon at this point is flat because I have not made the hills around the lake or added any trees yet.



Buoys, a cabin, trees and hills complete the scene.

Well, that's one out of three. Now it's time to add the road for the drivable truck.

John

Feature

Build a switch list generator with Excel

By Alfred Barten

BC Switchlist No.	4	Pick up all waiting cars.						
		EB1		WB2	EB3		WB4	Range
Ouray								
	Freight House	na	BX	2	na	BX	2	4 to 2
	Mine	na	GE	2	na	GE	2	4 to 2
	Team Track	na	RF	0	na	RF	1	2 to 1
	Team Track	na	TK	1	na	TK	1	2 to 1
Ridgway								
	Mine	na	GE	2	na	GE	2	3 to 2
	Team Track	1	BX	0	0	BX	1	2 to 0
	Team Track	1	FL	0	1	FL	1	2 to 0
Colona								
	Stock Yard	na	ST	2	na	ST	2	3 to 1
	Team Track	1	BX	na	1	BX	na	2 to 0
	Team Track	1	FL	na	0	FL	na	2 to 0
Montrose								
	Stock Yard	1	ST	0	1	ST	0	2 to 0
	Team Track	1	BX	0	1	BX	0	2 to 0
	Team Track	1	FL	1	0	FL	1	2 to 0
Cimmaron								
	Mine	na	GE	2	na	GE	2	3 to 2
	Grainery	2	BX	2	2	BX	2	3 to 2
	Team Track	1	BX	1	1	BX	1	2 to 1
	Team Track	1	FL	1	1	FL	1	2 to 1
Gunnison								
	Yard	1	BX	na	1	BX	na	2 to 1
	Yard	1	FL	na	1	FL	na	2 to 1
	Yard	1	RF	na	1	RF	na	2 to 0
	Yard	1	ST	na	0	ST	na	2 to 0
	Yard	1	TK	na	1	TK	na	2 to 0
	Yard	na	GE	na	na	GE	na	na
	Stock Yard	1	ST	na	1	ST	na	2 to 1
	Warehouse	1	BX	na	1	BX	na	2 to 1
	Siding	1	BX	na	1	BX	na	2 to 1
	Siding	1	FL	na	0	FL	na	2 to 0
	Siding	0	RF	na	0	RF	na	2 to 0
	Siding	0	ST	na	1	ST	na	2 to 0
	Siding	1	TK	na	0	TK	na	2 to 0
	Siding	na	GE	na	na	GE	na	na
TOTALS		21		16	16		19	
Consists								
	Box	9		5	8		6	
	Flat	6		2	3		3	
	Gondola - Empty	na		6	na		6	
	Refrigerator	1		0	1		1	
	Stock	3		2	3		2	
	Tank	2		1	1		1	
TOTALS		21		16	16		19	

Blue numbers are randomly generated each time you open the file or make a change, such as changing the Switchlist number.

Last month I described the *Mad River & Big Timber Waybills* freeware program by Lee Solomon and used it to generate switch lists for John D'Angelo's *Black Canyon TRS2004* route. This month I'll show you how to build your own switch list generator using an *Excel* spreadsheet. My home-built switch list generator is not as flexible as the *Mad River & Big Timber Waybills* program in that I've designed it specifically for the *Black Canyon*. If I wanted a switch list generator for some other route, I would have to build another version for that route. However, the process is so easy that having to build another version shouldn't be a deterrent.

Getting started

The first step is to plan your switching needs. This begins with examining the track plans and drop-off points. Since I'm still working with the *Black Canyon* route, I've include last month's *Black Canyon* track plans at the end of this article for convenience.

Next you will need to determine what points along the line receive cars, what kind(s) of cars, and how many of each (maximum and minimum).

Building the spreadsheet

You will need to organize the spreadsheet in a way that gives you the information you want. I laid it out like a timetable, so I could include all the trains in a day's schedule – eastbound 1 and 3, westbound 2 and 4. The eastbound (EB) trains read top to bottom, while the westbound (WB) read bottom to top. I included a slot for each destination and car type at the destination.

I totaled each drop-off column as a means of providing a check against the totals of the consist columns described in the next paragraph.

As a guide to assembling consists, I added a second tier of data to the spreadsheet. The car totals for each consist should equal those in the first tier.

Inserting formulas

There's nothing fancy in the formulas. To place a formula in cell, place the cursor in the cell and press the = key and type in the formula. If it's a formula in which you add cells from various places, you can place the cursor in a cell to be added, for example, and press the + key. Keep doing this till you have all the cells added in. Backspace over the dangling + sign at the end and you have it.

If you want to total a column, highlight that part of the column that includes the cells to be totaled and the cell where the total is to appear. Then click the summation (sigma) symbol on the tool bar.

The random generating cell takes the formula INT(RAND()*(b-a)+a), where **INT** stands for integer, **RAND** stands for random, **b** is the maximum drop-off quantity, and **a** is the minimum drop-off quantity. I've made note of the drop-off range in use for each cell in the Range column.

Generating a switch list

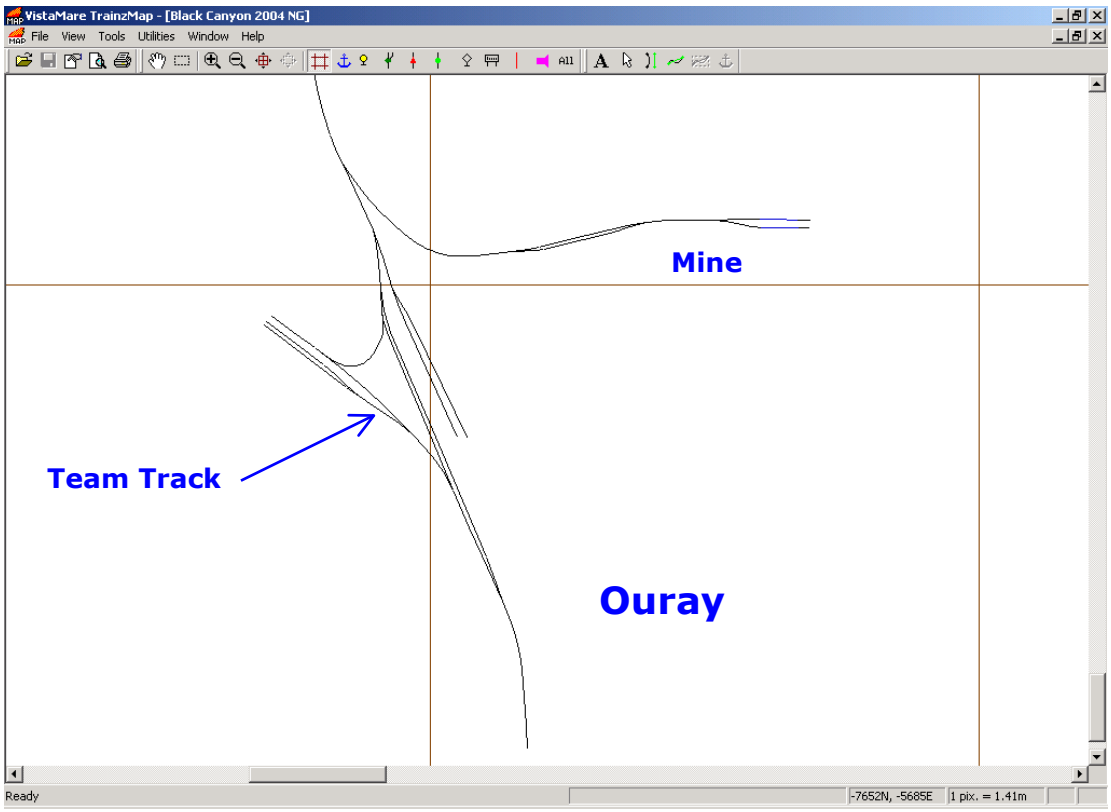
Every time you open the file the random numbers are updated. Another way to update the numbers is to make a change to the spreadsheet. I accomplished this by using the Switch List Number cell. Each time I want a switch list I increment the number.

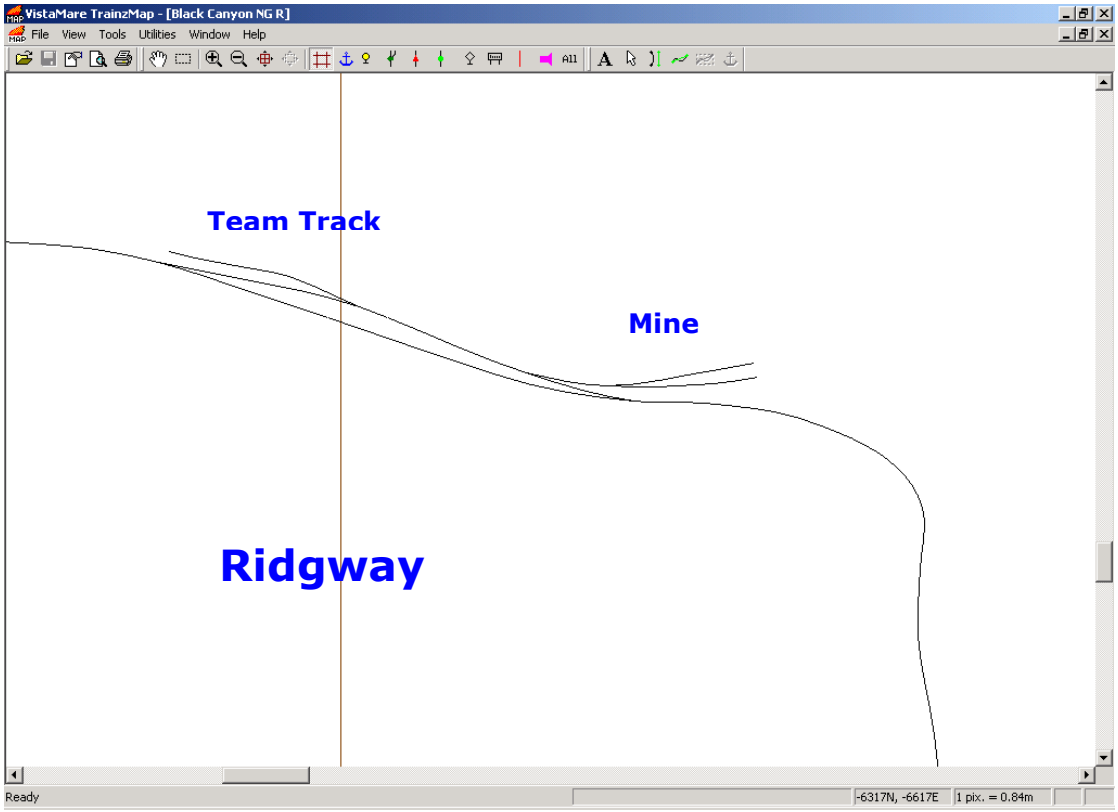
That's all

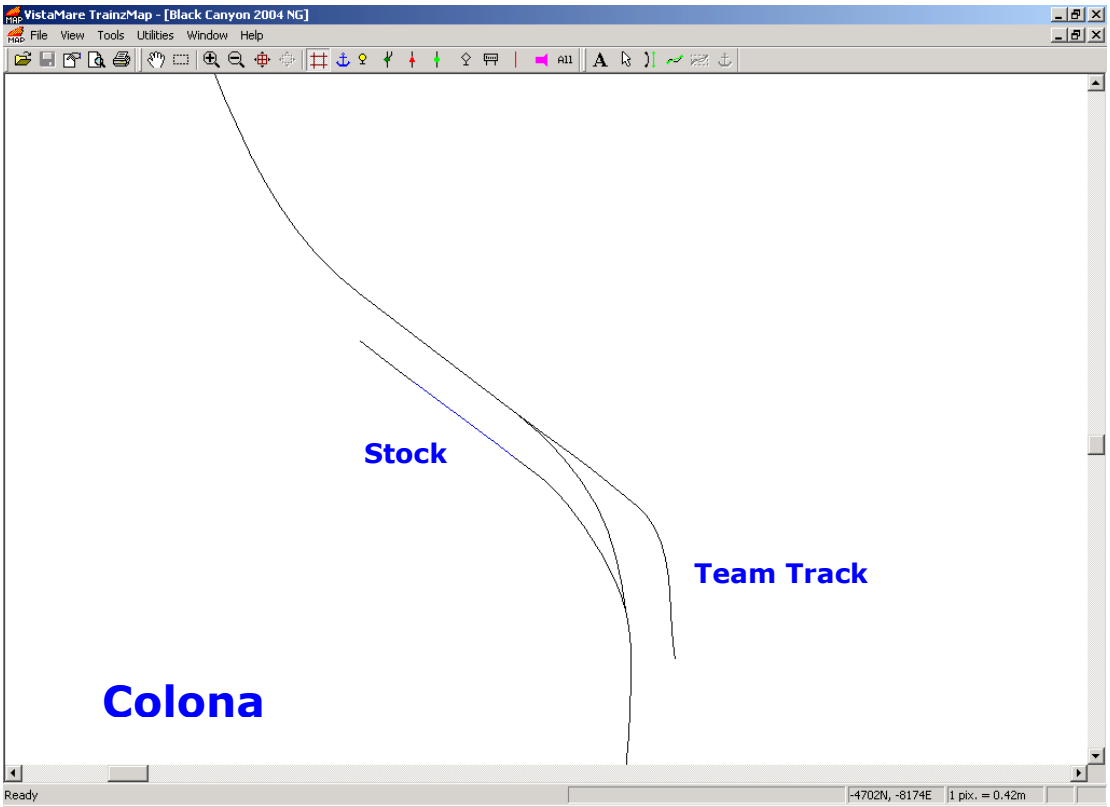
That's all there is to it. We've added the *Black Canyon* version of the spreadsheet to the Library. Feel free to download it and distribute it, and make any changes you need for your own route.

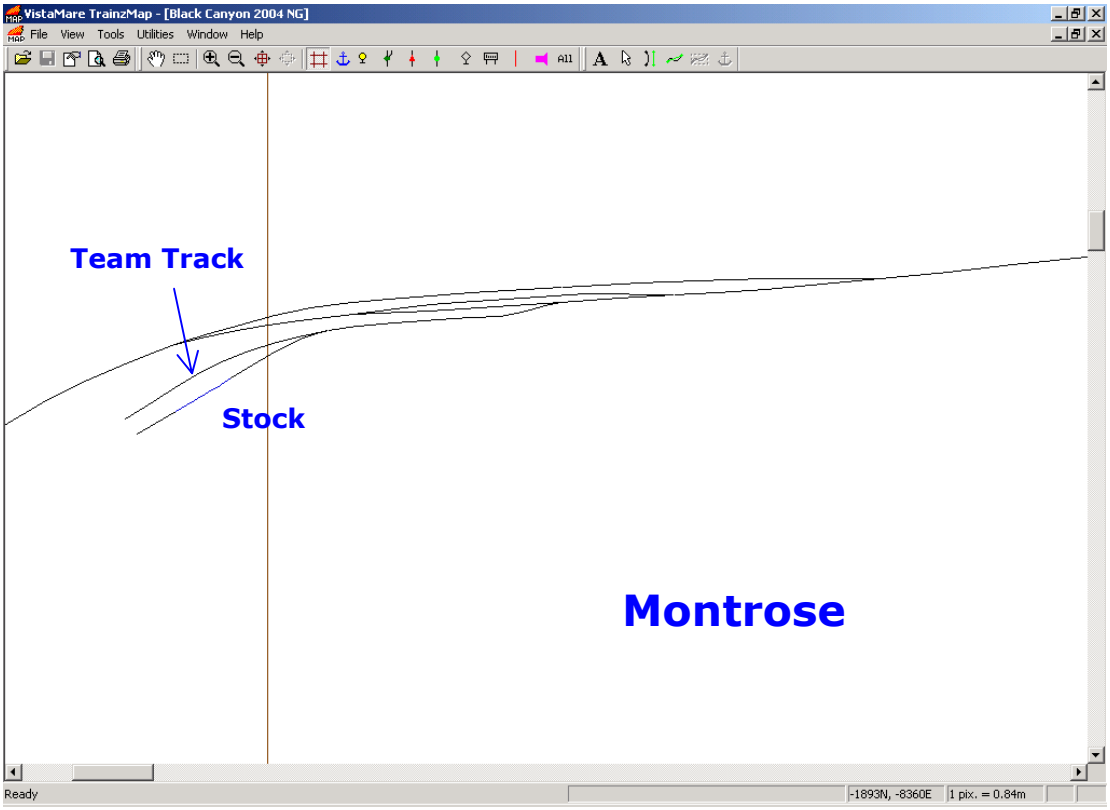
Cheers,

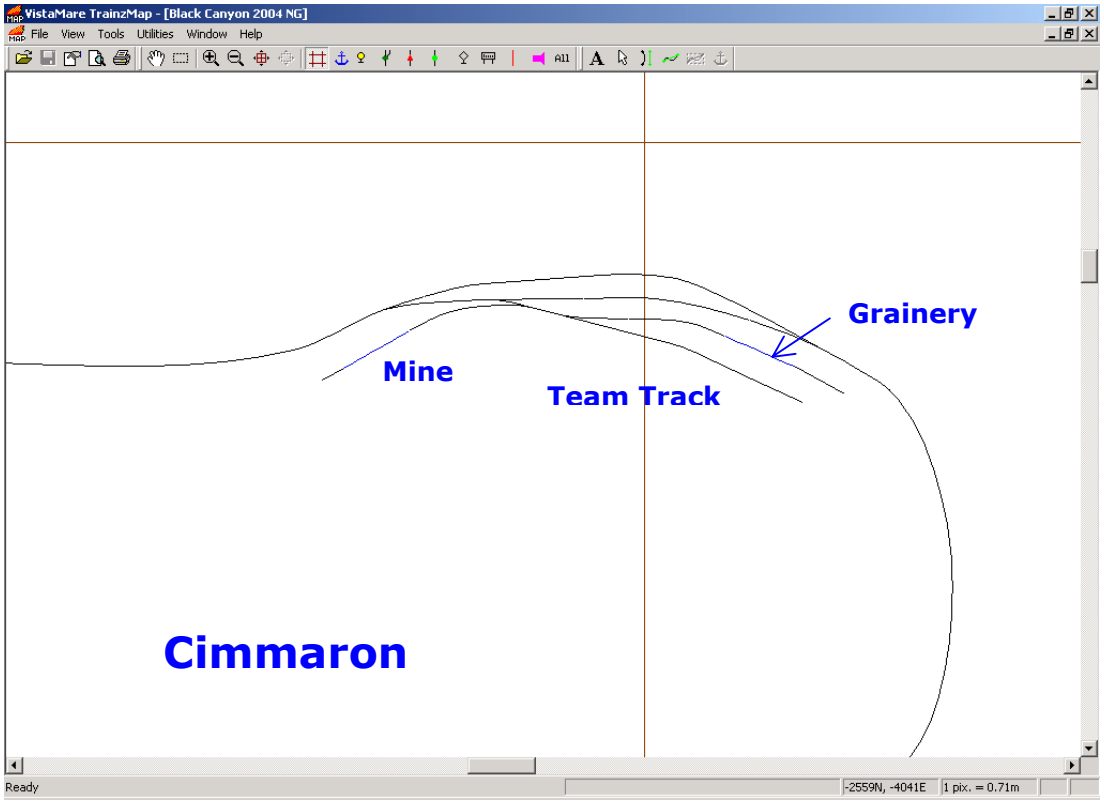
Al

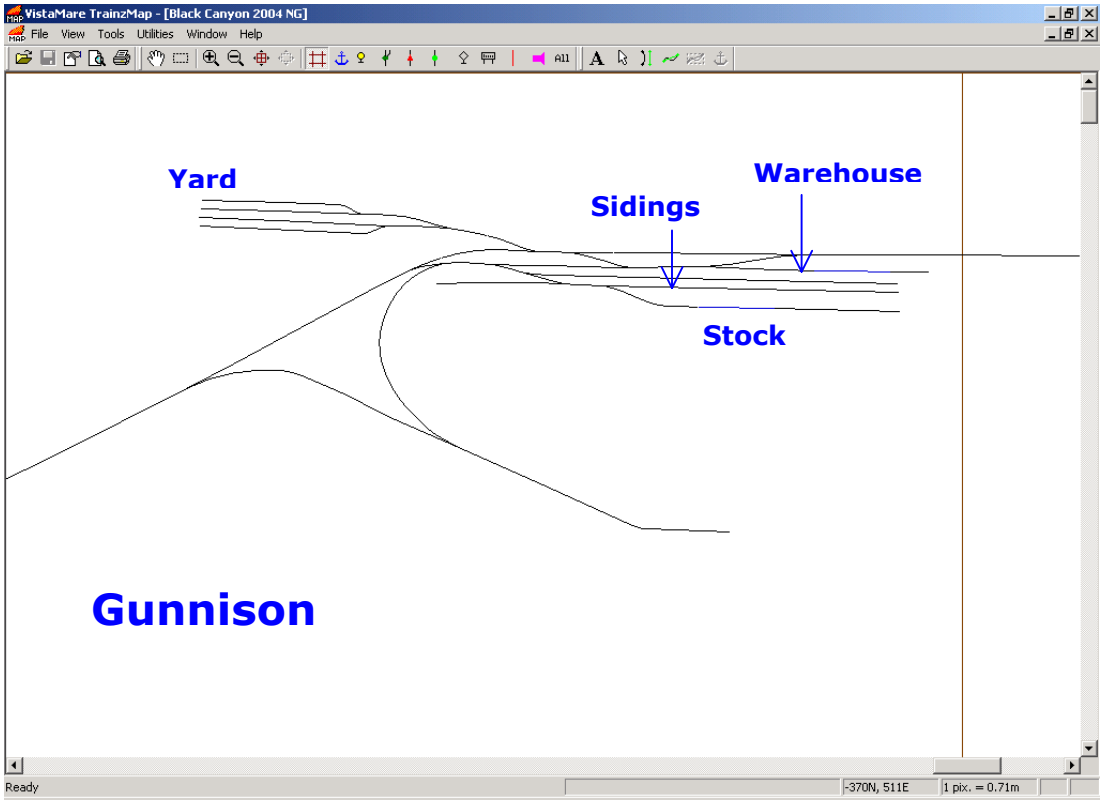



VistaMare TrainzMap - [Black Canyon NG R]
File View Tools Utilities Window Help
Team Track
Mine
Ridgway
Ready
-6317N, -6617E
1 pix. = 0.84m


VistaMare TrainzMap - [Black Canyon 2004 NG]
File View Tools Utilities Window Help
Stock
Team Track
Colona
Ready
-4702N, -8174E
1 pix. = 0.42m


VistaMare TrainzMap - [Black Canyon 2004 NG]
File View Tools Utilities Window Help
Team Track
Stock
Montrose
Ready
-1893N, -8360E
1 pix. = 0.84m


VistaMare TrainzMap - [Black Canyon 2004 NG]
File View Tools Utilities Window Help
Grainery
Mine
Team Track
Cimmaron
Ready
-2559N, -4041E
1 pix. = 0.71m


VistaMare TrainzMap - [Black Canyon 2004 NG]
File View Tools Utilities Window Help
Yard
Sidings
Warehouse
Stock
Gunnison
Ready
-370N, 511E
1 pix. = 0.71m

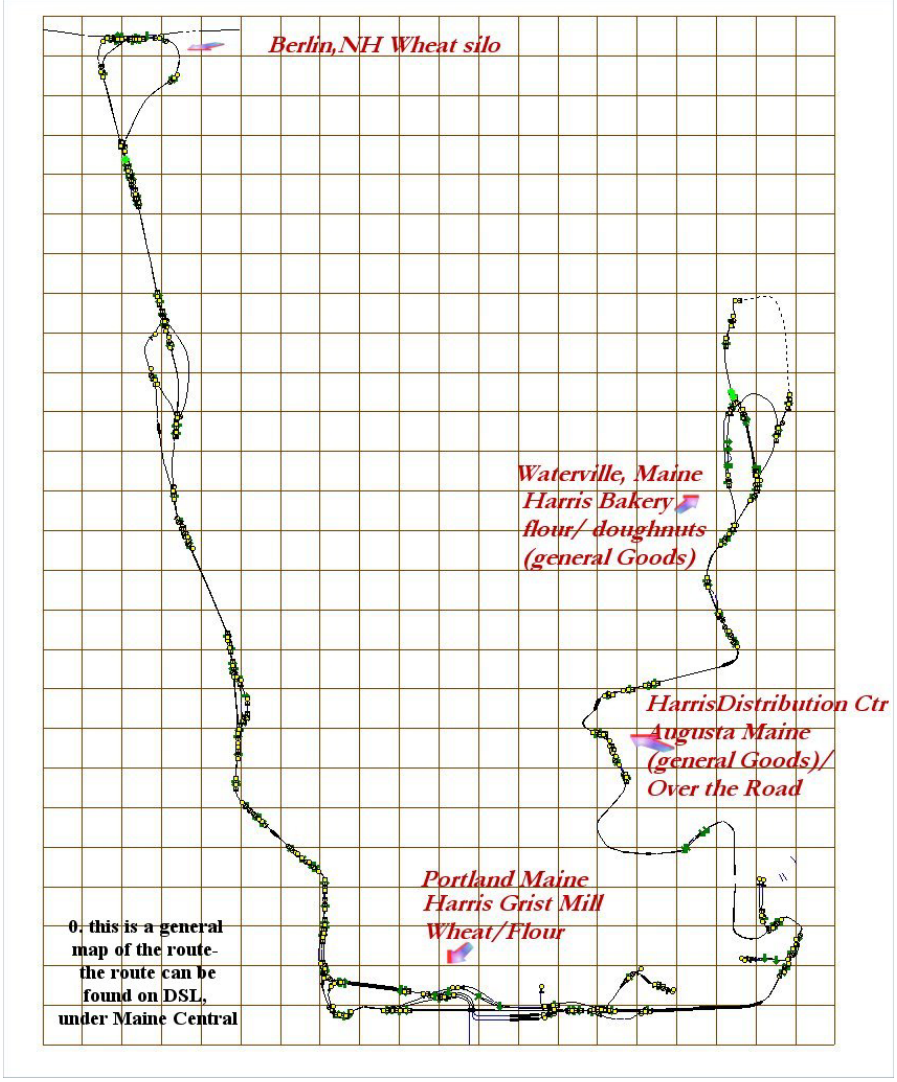
Feature

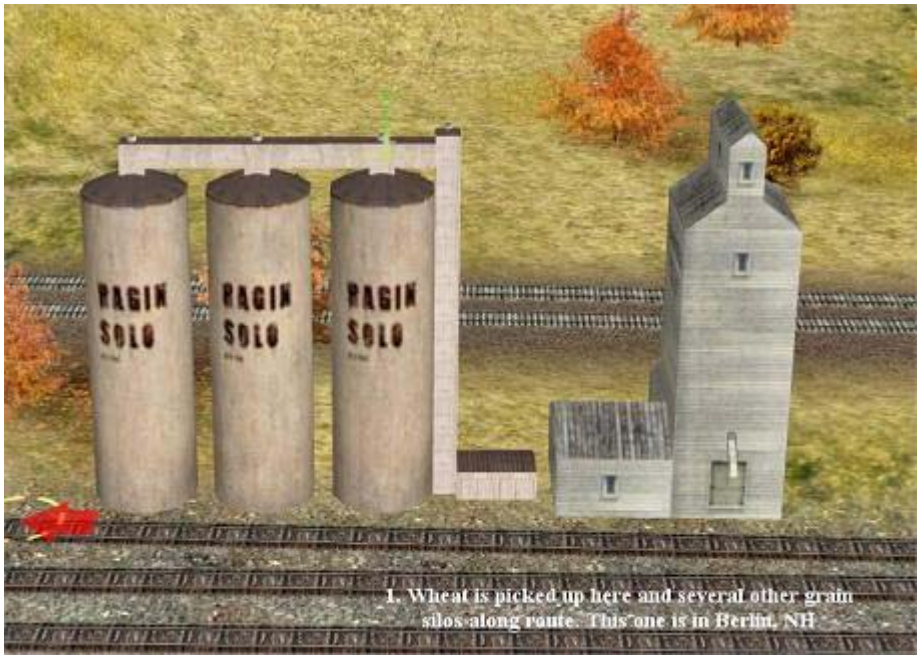
Cookie builds a doughnut empire

By Wayne Cook

Wayne Cook, known by his friends as Cookie, and known on the Trainz Forum as gandy-dancer, sent us some pictures of an industry he has added to his Maine Central route. We are always interested in modeling industries, since industries are what drive most railroads. The doughnut industry, however, provides a welcome break from the more customary mineral, forestry, and heavy manufacturing industries usually associated with railroading. Perhaps we can get Cookie or someone else to model a complementary coffee industry.

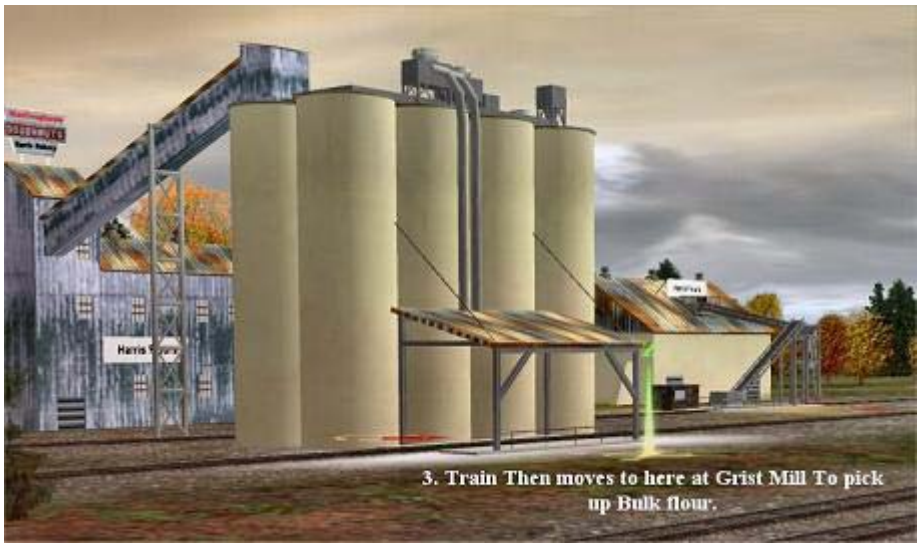
Al

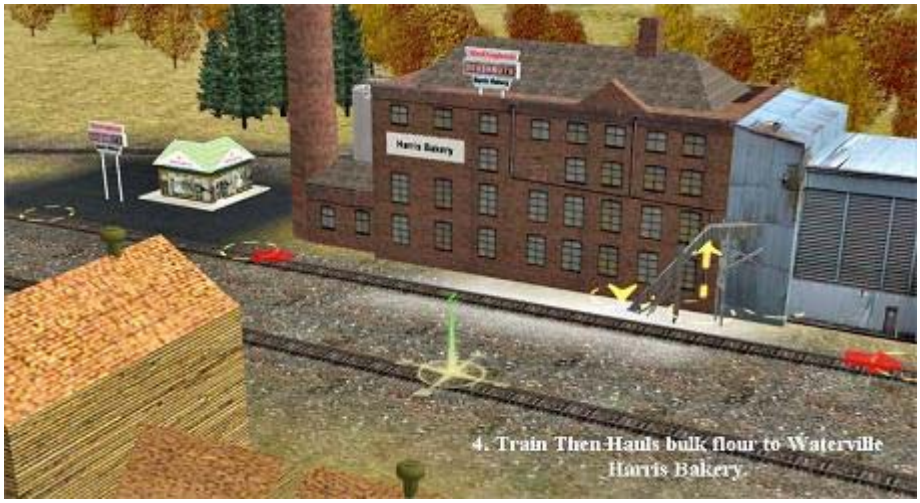




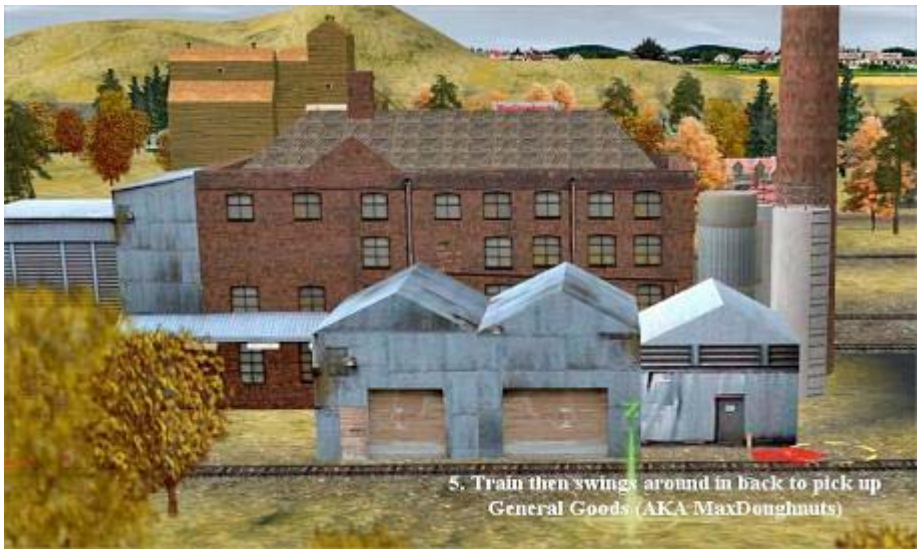
1. Wheat is picked up here and several other grain silos along route. This one is in Berlin, NH

2. Wheat is hauled to here to Harris Grist Mill in Portland, Maine.


3. Train Then moves to here at Grist Mill To pick up Bulk flour.



4. Train Then Hauls bulk flour to Waterville Harris Bakery.


5. Train then swings around in back to pick up General Goods (AKA MaxDoughnuts)


6.Distrubtion Center where train drops General Goods

7. Other side of Distrubtion Ctr where doughnuts are loaded on Semis

8. part of over the road fleet

9. Fleet of local vans

10. Harris Bakery Doughnut Sign


MaxDoughnuts
HARRIS BAKERY
11. Harris Bakery Doughnut Shop
(note Police car in Front!!!)


Junction 798
Donut job - ready to run out of
Waterville Yard -
3 SD40-2 ponies at headend

Donut job - heading south on NE Branch

-Muscle end of Donghnut job -3 MeC SD40-2s

Doughnut Job consist All cars are LARS-compatible. Gondolas and cylindrical grain hoppers are used for bulk grain, covered hoppers for flour, and boxcars for general goods (doughnuts – if the engineer and fireman don't eat em all!!!).

Name	KUID
SD40 MEC 617	128675:101890
SD40 MEC 618	128675:101891
SD40 MEC 619	128675:101892
40ftBoxcar_Bangor&Aroostook4088ant	2:56063:100240:1
40ftBoxcar_BAR376ant	2:56063:100005:1
40ftBoxcar_Boston&Maine79079ant	2:56063:100265:1

40ftBoxcar_MaineCentral8044ant	2:56063:100253:1
40ftBoxcar_RailBox17033ant	2:56063:110009:1
40ftBoxcar_RF&P_Linking_N&Sant	2:56063:100059:1
40ftBoxcar_State_of_Maine_BAR5313ant	2:56063:110036:1
40ftBoxcar_State_of_Maine_New-Haven45077ant	2:56063:110034:1
40ftBoxcar_Union_Pacific172575ant	2:56063:100268:1
40ftBoxcar_Vermont_Railway202ant	2:56063:100067:1
50ftBoxcarErieLackawanna39936ant	2:56063:110255:1>)
#54'_UP(LARS)	64038:15533792
#54'CRDX(LARS)	64038:15533128
#54'FarmersCoop(LARS)	64038:15533124
#54'GN_Hopper(LARS)	64038:15533400
#54'GTW(LARS)	64038:15533241
Gov of Sask. Grain1	2:95761:15005:2
Gov of Canada Grain3	2:95761:15003:2
Gov of Canada Grain2	2:95761:15002:2
Gov of Canada Grain1	2:95761:15001:2
Gov of Alberta Grain4	2:95761:15009:2
Gov of Alberta Grain2	2:95761:15004:2
Gondola4axleCN888277ant	2:56063:15048:1
Gondola4axleCN121121ant	2:56063:15046:1
Gondola4axleBN521555ant	2:56063:15045:1
CP Cylindrical Grain1	2:95761:15010:2
CN_231119_(LARS)	87907:15098
CN Cylindrical Grain1	2:95761:15006:2
CN Cylindrical Grain2	95761:15007:2
MeC Caboose #1204	128675:101884

Enjoy!

Cookie

Gates of progress

History of the American passenger station, part 1

By Rob Crawford

You leave the Pennsylvania Station at a quarter to four,
Read a magazine and then you're in Baltimore.
Dinner in the diner; nothing could be finer
Than to have your ham and eggs in Carolina.

– Glenn Miller Orchestra, "Chattanooga Choo Choo"

INTRODUCTION

Between 1850 and 1930, passenger train travel was the catalyst of America's rapid geographic and economic growth. The development of railroads in America brought with it, as it already had in Europe, new and unique building types that were almost entirely without precedent. The specific requirements of operating a railroad dictated the need for specific buildings and facilities to accommodate them, the most familiar of which is the passenger station or depot. As a work of architecture and engineering both, the depot represented a new *type* of building; a new concept that solved unique problems with equally unique solutions. A building with humble beginnings in the United States, its development often drew on European counterparts as models, but as the railroads spread across the country, the depot gradually acquired iconic status and thus became an ideal vehicle of expression of prevailing contemporary trends in American architectural design. The passenger station exemplifies American architectural development in ways no other building can, perhaps because, unlike other public spaces, our lives were once more intimately associated with it.

As nineteenth century America moved rapidly from a rural agricultural nation to an urban technological one, the depot became the portal for all the activity associated with the transition – it was the gateway to the world. Everything from mail to visitors to new farm implements came and went by rail. Over the better part of 130 years, passenger stations hosted the mundane and the momentous occasion alike: commuting to work, going off to war, greeting loved ones from out of town. "Railroad stations reflected the diverse and shifting society around them. They made a distinct comment about the prosperity, hard times, or values of a community."[1]

Functionally, the depot emerged in response to the operational needs of 19th-century railroading, and no understanding of stations

[1] Potter, Janet Greenstein, *Great American Railroad Stations,* p. 2.

is really complete without some understanding of that context. Traditionally, U.S. railroads have been operated by division. In the early days of railroading, divisions were roughly 150 miles in length, with each end being a "division point." At these points, locomotives needed to be fueled (steam locomotives also required more extensive maintenance approximately every 300 miles) and fresh crews were needed to replace tired ones. Further, each division was divided into "sections" of anywhere from 15 to 30 miles, as this was the most feasible length of line that one "section gang" could be responsible for. So the railroads needed some sort of facilities at the division points – to service locomotives, to house crews, and to make and break trains to manage traffic flow.

The depot and its companion roundhouse became as sun and moon to railroading; one facility keeping a very public profile, marketing the railroad's image to the public and stimulating revenue, the other watching over those railroad activities more removed from public view but nevertheless essential to the business. Depot facilities, then, frequently contained numerous supporting structures in addition to the passenger station. Their number and placement varied according to the size and resources of the railroad operating them, but included roundhouses, shops, control towers, yards, and offices. These buildings were decidedly vernacular in architectural character, reflecting their utilitarian purposes and the "bottom-line" philosophy of railroading, and performed the tasks of sorting and classifying trains and "turning" locomotives. While the term "turning" does refer to the physical turning of locomotives on turntables, wyes, or loops, it also refers to the process of maintaining them in the roundhouses and shops (figs. 1 and 2).

*Fig. 1. Atlantic Coast Line roundhouse, Albany, Georgia, c. 1930. Note the monitor roof, which helped ventilate the building. (*Great American Railroad Stations, *p. 28)*

Roundhouses were tricky things to design; they consumed valuable space and had to be planned carefully in order to function at peak efficiency. There had to be, for instance, enough stalls. They had to be well ventilated. The turntable and stalls had to be long enough to accommodate the locomotives. This was of continual concern as railroads found that satisfying their needs for greater power, speed, and performance often led to the development of longer, bulkier, and heavier locomotives, which in turn strained and reduced the efficiency of existing maintenance facilities (at best) and occasionally required construction of new ones (at worst) large enough to handle them. For example, the Delaware and Hudson Railroad discovered that even 105 feet (at Oneonta, New York) of turntable was still not enough to handle its largest locomotives in the 1930s, so crews were forced to split the engine from the tender and move them into the roundhouse one at a time.

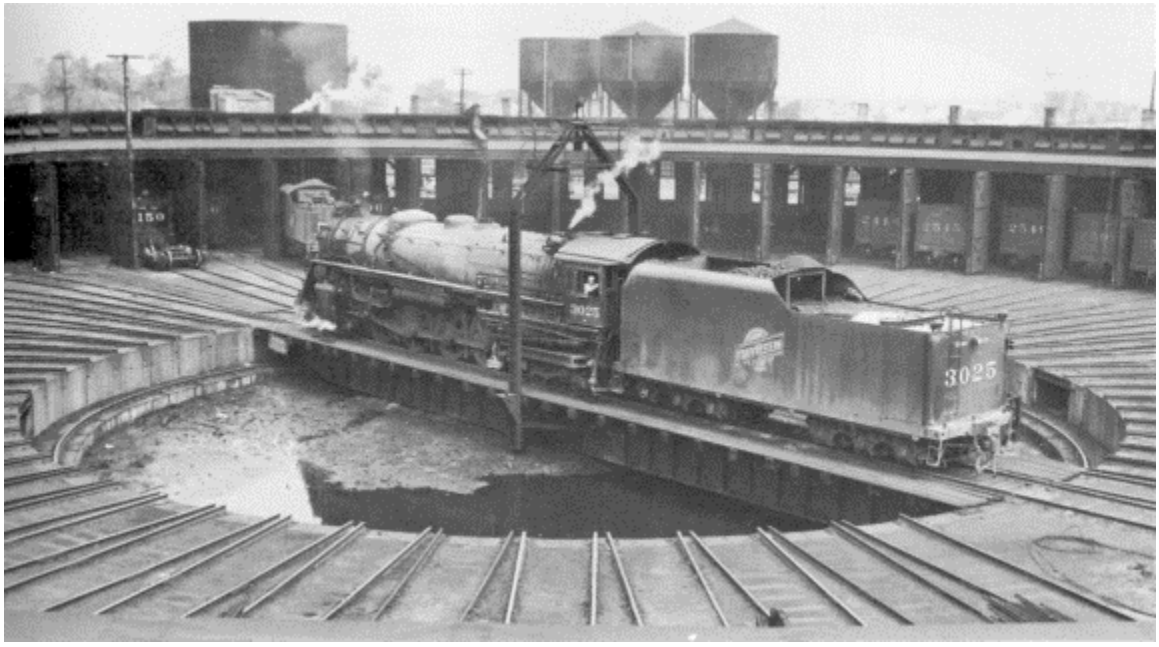


*Fig. 2. Roundhouse at Chicago & Northwestern's Proviso Yard (Chicago). Note standing water in the pit. (*Track Planning for Realistic Operation, *p. 47)*

It required at least a day to get a cold boiler going (although the fires were only put out as needed for major repair and maintenance work – otherwise they burned all the time) and about four hours to build up enough steam pressure to move the locomotive out of the house. All the functions associated with locomotive maintenance, from cleaning to building a head of steam, produced toxic fumes, and adequate ventilation was therefore essential. Also, drainage was important – to carry away ash from the pits, for example. Poorly drained turntable pits meant that in winter, snow often had to be dug out before the table would rotate.

In addition to the roundhouse, where the daily tasks of maintenance were performed, there were various job-specific shops, each housing unique tools and personnel. These buildings, or "back shops," were where locomotives could be and often were built completely from scratch. Overhead cranes could lift boilers, chassis, running gear – anything. To allow for the longitudinal movement of the crane, these shops were (and still are) always rectangular. The machine shop housed lathes and forges and was where replacement parts were cast. "Car" or "body" shops were home to carpenters and upholsterers. There were various administrative offices. Maintenance facilities employed platoons of inspectors, boilermakers, machinists, metal fabricators, painters, carpenters, blacksmiths, and pipefitters (all craftsmen); as well as wipers, oilers, ash-pit men, and hostlers (all unskilled laborers).

Boilermakers performed one of the most essential and dangerous jobs, that of building, repairing, and testing boilers. There are many smaller tubes within the boiler, in order to expose as large a surface area of water as possible to the heat to generate steam. Over time, these tubes can crack, plug, or otherwise fail, sometimes fatally; boiler explosions were fairly common. A common roundhouse task was the monthly cleaning of the boiler, which used long rods and water under high pressure to ream out the tubes.

Machinists performed much of the "voodoo" associated with steam railroading. Few people were as versatile or had as much experience with heavy mechanization as they, who serviced nearly all of the hundreds of interworking metal parts, great and small, from bearings to entire wheel assemblies. Using lathes, they "trued" the drivers and fabricated bearings, pistons, valves, shafts, cams, and pushrods – sometimes to tolerances of a few thousandths of an inch on components as large as five feet across.

Hostlers and wipers were the most numerous. Hostlers moved locomotives in and around the shops, fueled and watered them, and operated the turntables and switches. Wipers cleaned the locomotives using wash racks with rags and high-pressure water hoses.

Normal working hours for men on these jobs were 10 hours per day, 6 days a week, although depending on weather, traffic volume, and so forth, some might have worked 75 hours a week or more. It was an inherently dangerous environment and working conditions were hazardous to say the least, with fire the cause of most concern. Fireproof materials were used in maintenance buildings according to contemporary ideas – brick, masonry, and sheet iron were preferred. There were other hazards in the form of heavy machinery parts, open pits of lye, scalding steam, toxic fumes, poor light, and rough weather. Maintenance activities usually took place at a site somewhat removed from the more presentable area of town, and the buildings that housed them were built according to function (like roundhouses) rather than

architectural style – that was left to the passenger stations, the public relations buildings of the railroads – but not without ingenuity and craftsmanship.

In contrast to shop facilities, the depot was strategically placed at a location convenient to the public, either in the heart of an urban area, where the railroad could capitalize on existing sources of revenue, or in a location from which the railroad and other interested parties (landowners, businessmen, etc.) could stimulate growth. In other words, markets brought railroads, and railroads in turn brought more markets. There were many towns that had no cultural attractions or refinements of any sort, but which did have an abundance of nearby natural resources, or a large pool of cheap labor, or a profitable industry, or a similar economic incentive to the railroad. In these towns and cities, the depot became the closest thing to a local landmark the area had to offer.

Fig. 3. Telegraph lines being erected on the Union Pacific near Ogden, Utah. (*Great American Railroad Stations,* p. 9)

After the invention of the telegraph, the depot increasingly began to serve many of these communities as an informal town center, a fact still evident today in the thousands of nationwide instances of "Railroad Avenue" or "Depot Street." News, gossip, election results, livestock market reports, and more came in over the telegraph wire, and thus the railroad and the depot played important roles in "nation-building," particularly after the Civil War. The railroad telegraph (fig. 3) was contact with the outside world and train time was what everyone kept time by. Indeed, in a powerful example of the extent to which railroading and depots have shaped our world, timekeeping itself came to be measured according to railroad standards. By 1870, the United States was informally divided into more than 80 separate time regions. This presented a challenge to the railroads, which needed to operate safely and efficiently, and prompted them to divide the country into "Standard Railway Time Zones (Eastern, Central, Mountain, and Pacific)." The plan was implemented by 600 railroad companies in 1883 and was quickly adopted by the American public as the official time by which to judge all clocks (Western Union flashed the correct time over its wires once a week at noon), even though the United States government did not formally recognize these zones until 1918.

The *raison d'être* of the depot telegraph, of course, was to allow agents along the entire line to report on the progress and positions of trains. Telegraphy was a skill required of all agents, in some cases until the 1980s. "Each station had a two-letter identifier, rather like the three-letter identifier airports have today, and each message to a particular depot began with those two letters."[2] In practice, however, the identifier was often unnecessary, as each agent had an audibly distinct "hand" when sending Morse code.

The telegraph also made the scheduling of trains by timetable much more efficient. Traditionally, train movements have been controlled through orders and signals. In order to adhere to the timetable, each train order permits movement at a specified speed for a specified distance over a specific track before a new set of orders must be received. The system was a precursor to today's air traffic control protocols and could not have functioned without the depot and the agent. Typically, the stationmaster or his (or her, in some cases) employee would receive orders for a train, by telegraph, from a central dispatcher. There were three copies of the order – the original for the train crew, a carbon for the dispatcher, and another carbon for the stationmaster's records. The formality of their exchange was an almost martial, but nonetheless important, safety measure.

Fig. 4. Boswell, Ind., 1949. "Hooping up" orders to an eastbound crew on the New York, Chicago & St. Louis (Nickel Plate). (*Great American Railroad Stations,* p. 8)

As a train approached a station, it would pass over and trip a pneumatic sensor in the track (usually about four or five miles away) that sounded a bell in the station and alerted the agent to gather his orders for the crew. When the train "hit the bell," the agent checked the timetable for the train and took any orders he had for it out to the platform. If the order was a "Nineteen" order, the engineer was signaled to stop, get off the train, and either he or the conductor signed for receipt of the order personally. If it was a "Thirty-one" order, on the other hand, the agent on the ground would hold it up ("hoop it up") on a loop of wire known as a "flimsy." The engineer was signaled to slow the train, and he or the fireman would lean out of the cab and grab the order "on the fly." (Fig. 4.) Occasionally, of course, the crewman missed, and the train had to stop while he walked back to get it. Once the orders had been delivered, the agent telegraphed "OS" ("on sheet" or "on schedule") back to the dispatcher, followed by the station, train number, and time. In

[2] Halberstadt, Hans and April, *The American Train Depot and Roundhouse,* p. 32.

this way and on all railroad systems, the dispatcher knew which trains were where and at what time. It was a somewhat complicated system, and one that was not completely supplanted until well after the advent of a computer-driven Centralized Traffic Control (CTC) system.

Over time, station functions became more and more complex. In addition to conducting train movements and promoting the company through ticket sales, depots began to take on ancillary responsibilities, such as shipping express cargo for Wells Fargo Railway Express Agency (REA) and serving as Western Union telegraph agencies. A key development and another major source of revenue was hauling the mail. By the turn of the century, the U.S. Postal Service had become one of the railroads' largest patrons, fitting rather seamlessly into the overall operations of any given line. Much like train orders, mailbags could be picked up easily "on the fly." A mailbag would be suspended from a large ring on a metal crane that was swung out from the station platform. A similar arm could be extended from its mounts next to the door of the mail car, and it would hook the ring and pull off the bag as the train went by; clerks in the car sorted mail for delivery while en route. Railroads were granted annuities by the federal government to haul mail on express trains, which could take priority over all except passenger trains, thus giving rise to the Railway Post Office, or RPO. The Southern Railway, for example, was awarded a contract for $140,000 in 1902 to haul mail between Washington and Atlanta and between there and New Orleans. "The idea was to move the mail fast; as an incentive, the railroad had to pay cash penalties if the mail was late, $100 for every thirty minutes' delay."[3] As a consequence, mail operations, along with railroad work in general, acquired an aura of Romance:

[The] thought of a special train, devoted wholly to written and printed communications of one kind or another, was cherished by the people. The picking up of mail pouches from the stanchions of way stations, while the cars fled past, was dramatic. [4]

Railroad work was strenuous and dangerous as well as glamorous, and railroad employees had their own unique camaraderie and acquired a certain mystique and special social stature as a result. It is not surprising, therefore, that this was the era that bestowed upon America some of its most famous folk songs and heroes. The "Old 97" of folk song fame was famous first for being a crack mail train – at least as famous in its time as the Concorde jet was in its, and arguably more so: today, the nature of our technological advances keeps them somewhat more removed from the masses they serve. So highly specialized, they do not lend themselves to broad understanding or even, necessarily, broad application. To the

[3] Lyle, Katie Letcher, *Scalded to Death by the Steam,* p. 15.

[4] Holbrook, Stewart. *The Story Of American Railroads,* as quoted in Lyle, *op. cit.,* p. 14.

average citizen, for instance, modern convenience does not directly benefit from advanced space flight. The tangible technology of railroading, however, grew quickly to become widely available to and widely appreciated by multitudes of people who often needed to look no further than their own backyard to witness it and imagine its potential.

As the 19th century came to a close, the station became symbolic of the character of its surroundings. In small towns, it manifested itself as the horizontally oriented, one-sided plan so familiar to our minds. In large cities, it took shape variously as Gothic church or as Neoclassical temple. No matter how great or small, the passenger station was "a symbol of urban wealth, technical development, and cultural sophistication. [It] could say something about a town that a City Hall or a Cathedral could not."[5] Indeed, by the height of passenger travel around the turn of the century, the passenger station was firmly entrenched as the social and cultural *embassy* of its city.

Rob

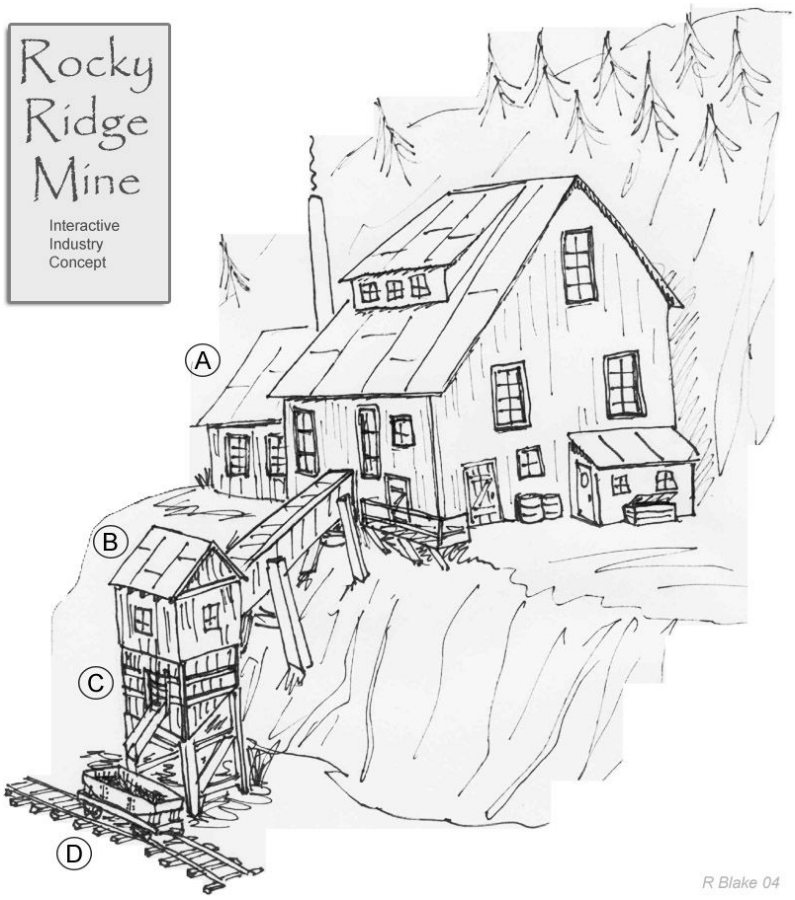
[5] Halberstadt, *op. cit.,* p. 99.

Rocky Ridge Mine

A modular industry design concept

By Rich Blake (a.k.a. Slugsmasher)

One of the most exciting things we have seen with the introduction of *TRS2004* is the implementation of interactive industries that will load and unload various products. This makes for realistic train services and adds an entirely new interest in operating sessions. The industries have also added a renewed interest with model creators by allowing them to create animated effects and interactive structures and rolling stock.



One of the first pioneers in creating custom industries was Lars Llundjburg (Trainz ID – LLJ) who created the LARS industry system. The LARS system can use custom products of any type and only has a small piece of track for the actual industry interface. Any kind of structure can be placed next to the track to simulate an active industry. The only limitation to the LARS system is that it does not allow for *animated* interaction.

My Rocky Ridge Mine is a design concept that exploits many of the content creation possibilities available with *TRS2004*. The goal is to create an industry "system" that can be used for various structures and settings similar to the LARS concept. The Rocky Ridge Mine takes the LARS system one step further by adding animated particles to "load" coal or ore hoppers.

The mine uses a modular construction technique. This allows the structures to be changed without having to make an entirely new mine. Keep in mind that the following text assumes that the reader is familiar with content creation procedures, and if not, then it makes a good study in what is possible. Taking a look at the illustration, a description of each module element is as follows.

Detail A. This is the main structure. Using common construction techniques in your favorite modeling program, just about any type of building can be made to depict your particular mine. In the configuration file, the structure is made height-adjustable so that it can be placed on or above trackage as required. A separate model can be made of structure supports to be added as needed for exposed elevation above ground. In my design the structure sits on a small ridge.

Detail B. This is the main coaling house and conveyor assembly. They are actually two separate objects. The conveyor chute is made as a spline object. Spline objects are like track in that they can be adjusted end to end in height and angle. This configuration allows for any type of elevation or distance from mine to coaling house. The ends of the conveyor are hidden inside each of the respective structures. The coaling house is another standard structure item with height-adjustability added to the config file.

Detail C. This is the actual "industry" part of the system, a common coaling tipple with coaling chute to load cars or loco tenders. Made as a standalone object, it becomes the central part of the modular system. The tipple is made as a fully animated object so that when cars are placed next to it, the coal "dumps" into the cars using Twinkles PFX particle effects. The coaling chute can also be made to animate by lowering to loading position and then raising back up to storage position when loading is completed.

Detail D. – This is the track and trigger, which is actually a part of the coaling bin structure. The car that sits there is a facsimile of my Gilpin ore car, which is configured to load and unload coal and various LARS mineral products. The track triggers of the industry should be set to a little over one car length. This allows multiple bins to be connected together for loading a string of cars. Only a short piece of track is needed between them.

All of the elements fit together to make a nice mining scene that also provides an operational opportunity. One thing that can be added is a coal dumping facility, which would be an additional industry element with it's own track and triggers to dump the cars. The main structure of the Rocky Ridge Mine could be used by

removing the small shed on the wall facing the viewer and replacing it with an entryway for track. The actual industry portion could just be a piece of track with triggers and pfx attachments for dumping coal.

This is just one way to do things. This modular concept could be applied to other types of industries as well. With the right combination of modeling, scripting and design skills the various possibilities with the *TRS2004* industry systems is almost endless.

Rich

Basic track-laying, part two

By Colin McKinney

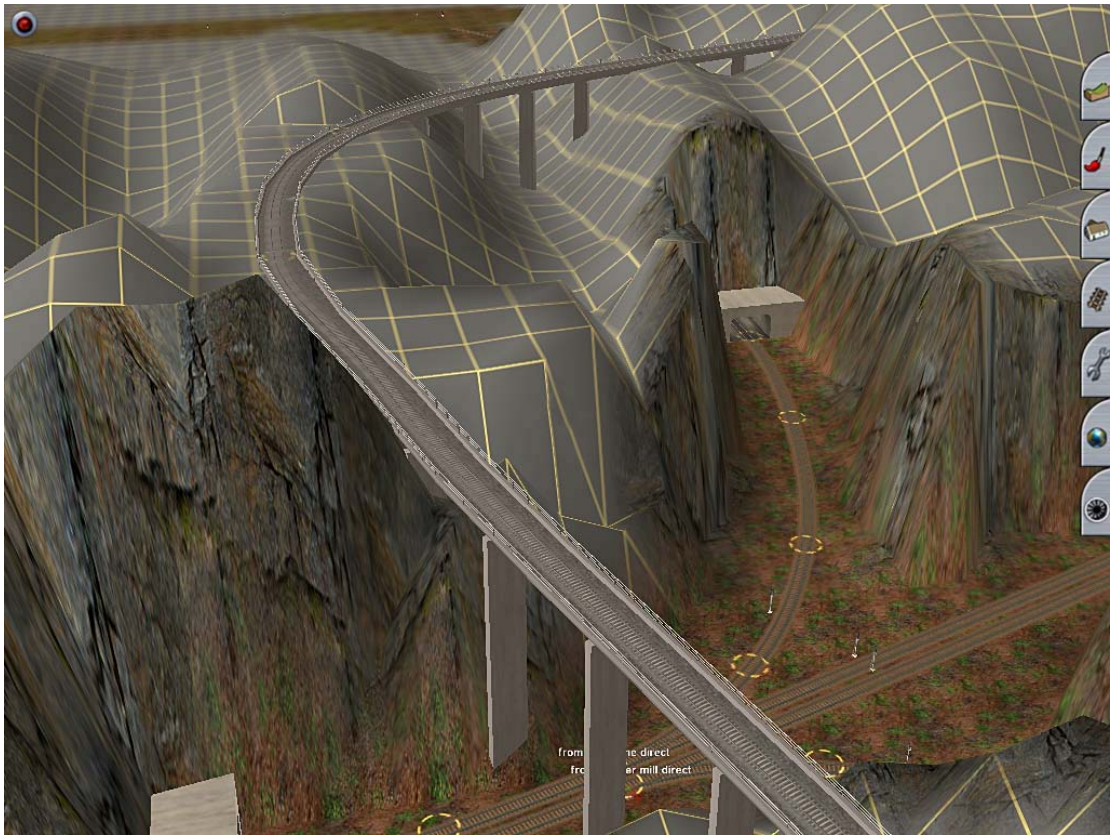


Figure 1: Screen shot from a 'work in progress'. Techniques covered in this tutorial will introduce you to skills for creating hills, valleys, bridges, cuttings, and tunnels.

Basic track-laying, part one was published in the July issue of *Virtual Railroader* and is also part of the *Basic Trainz* section at the *Virtual Railroader* web site. In this second part we enter the world of three dimensions and look at track-laying on embankments and through cuttings, up (or down!) inclines, over bridges, and through tunnels (see figure 1).

3-D: adding hills and valleys

Start with a blank section of baseboard. Open the top panel ('Topology') by clicking the tab or pressing F1. With the mouse pointer, turn the radius dial to about the '12 o'clock' position. Select the top left button ('Height up') and move the mouse to the baseboard. You will see a circle. Hold down the left mouse button briefly, and notice how a hill is created inside the circle. Now select the top middle button ('Height Down') – this time, the circle on the baseboard creates a depression when you press the left mouse button (see figure 2).

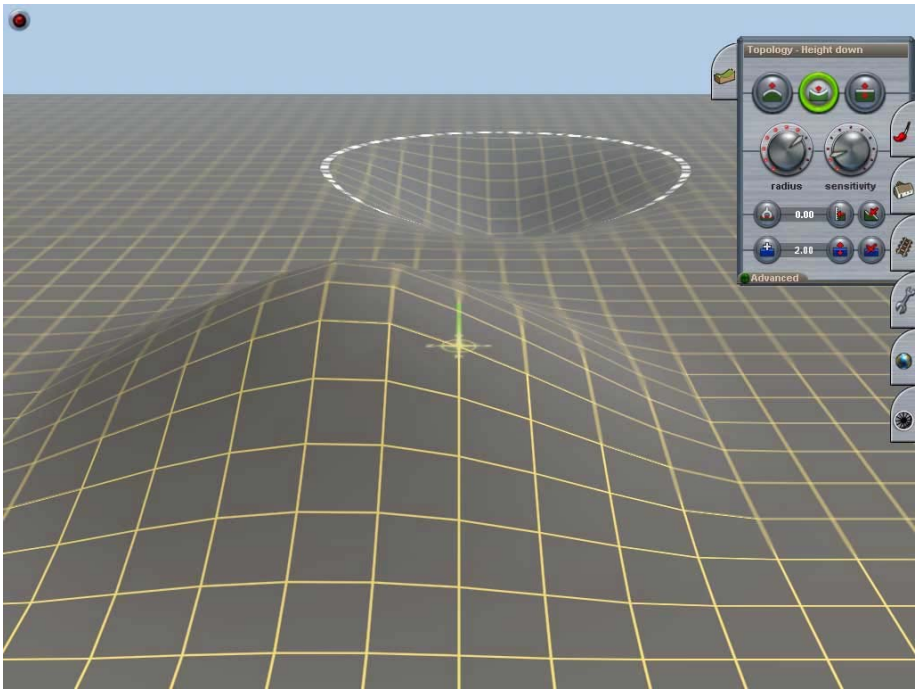


Figure 2: A hill and a depression created. The 'Height down' button is shown selected.

Close the Topology panel (click on the tab) and open the Tracks panel. Lay two lengths of track, right across both the hill and the depression (see figure 3).

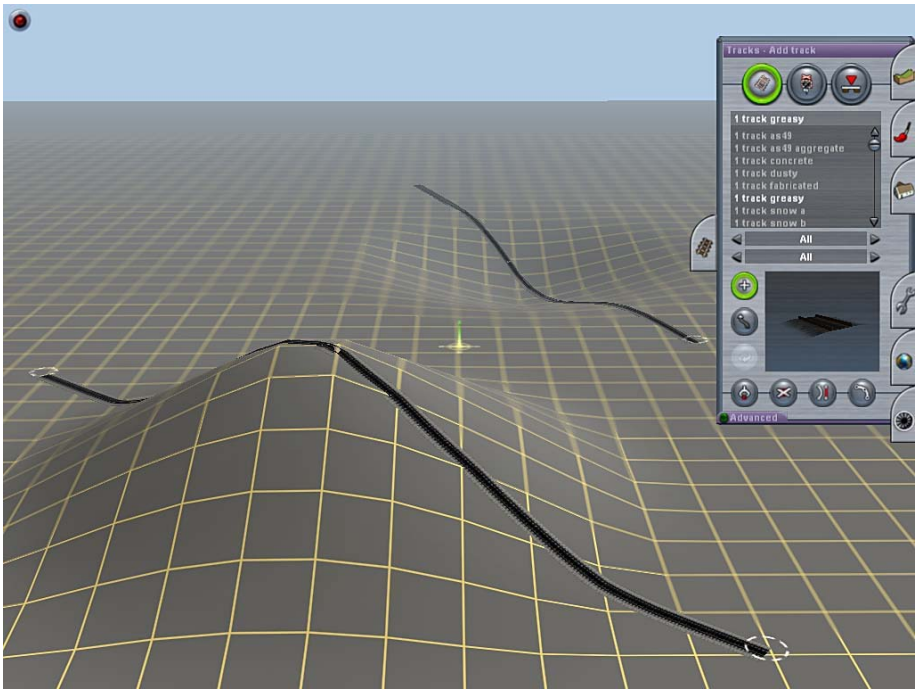


Figure 3: Impossible-looking tracks laid across the hill and depression.

Note: if your track was rigidly straight, passing over the depression like a bridge and straight through the hill, it won't affect anything in this tutorial. (It happened that way because of the setting for the 'fixed track vertex height' option in the Surveyor Options menu).

To make a cutting / embankment

On the Track panel, click on 'Advanced', then on the top right button of the drop-down extension, 'Smooth spline height'. Now click the mouse arrow on the two tracks you have made. The effect of this tool is to instantly create a cutting if the track previously went over a hill, or if the track went over a depression, this tool brings the ground up to create an embankment (see figure 4).

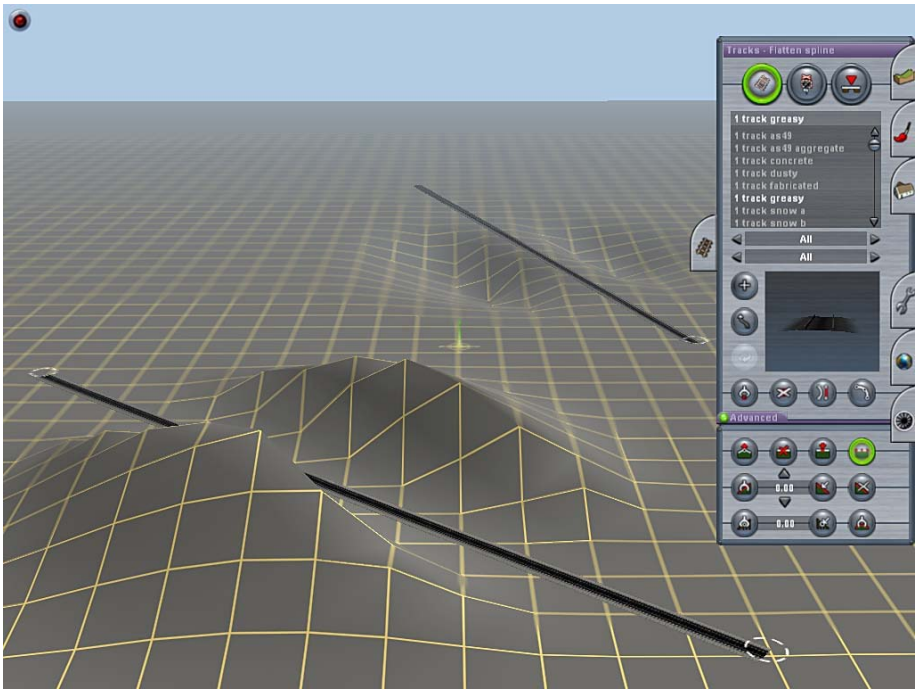


Figure 4: The tracks in the previous screen shot after 'Smooth spline height' has been applied.

To make a basic incline (gradient)

Starting once again from a flat baseboard, create (Topology panel) a bigger hill this time – in fact, let's call it a mountain – then lay a track (Track panel) from the base level to part way up the side of the mountain (see figure 5). Then, as before, click on the 'Advanced' button to reveal the drop-down extension then click on 'Smooth spline height' and then on the track. In a flash, you have a smooth incline from base level to where your track ended, hugging the side of the hill (see figure 6).

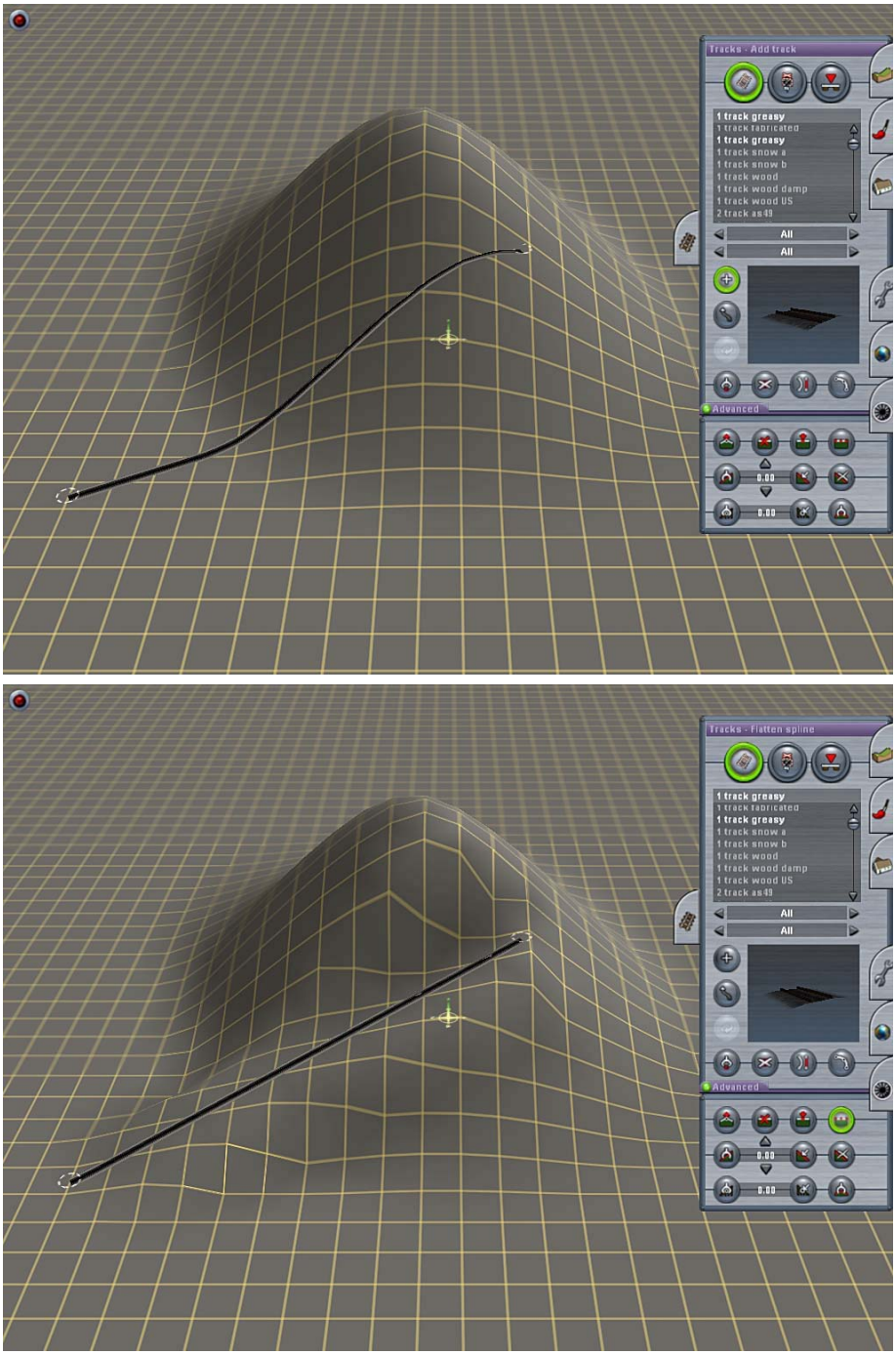


Figure 5 (above): Mountain with track from base level. Figure 6 (below): The same track as in the previous screen shot after 'Smooth spline height' has been applied.

Note: *Surveyor* contains another more mathematically precise system for building gradients, which is beyond the scope of this basic tutorial.

Building a bridge

Add another mountain (Topology panel) a short distance from the previous one, leaving a space between them (see figure 7). A bridge will be built across this gap.

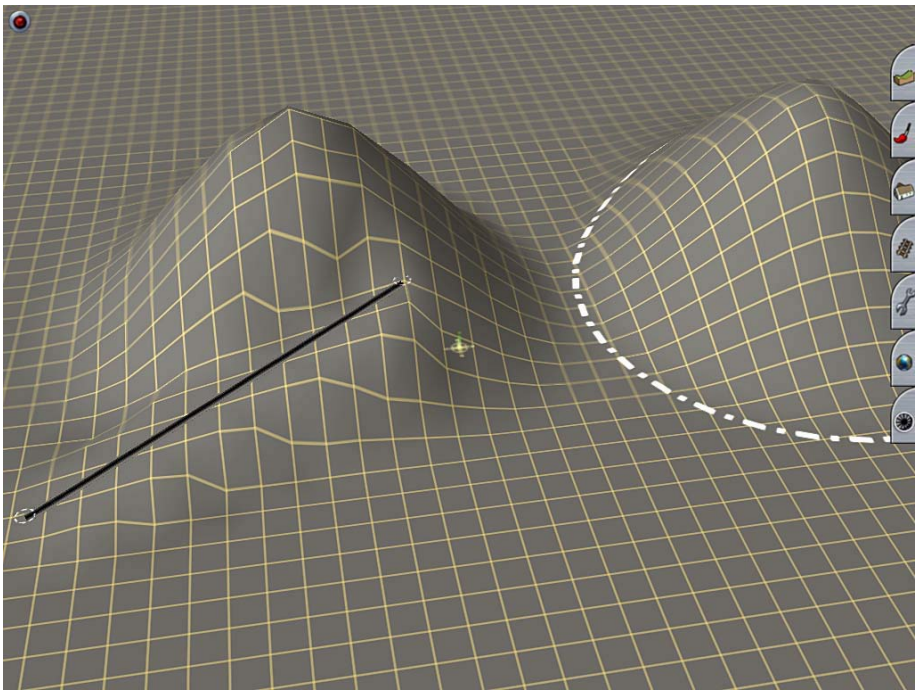


Figure 7: Another mountain added. The Topology panel has been closed for better visibility.

A bridge needs to be level. To achieve this, the height of the track on both sides of the gap has to be the same. In the Topology panel, click the button below the radius dial ('Get height'). The number in white figures to the right of this button represents the height of the compass in its present position. To move the compass to the end of the track, ***right***-click the mouse until the compass is exactly on the end of the track. This may take a few attempts, because each time the compass is repositioned, the view of the layout changes. Zoom in ('Page Up' on the keyboard, or the mouse wheel if you have one) for greater accuracy. In the example, it can now be seen that the height of the track is 32.60 units (see figure 8).

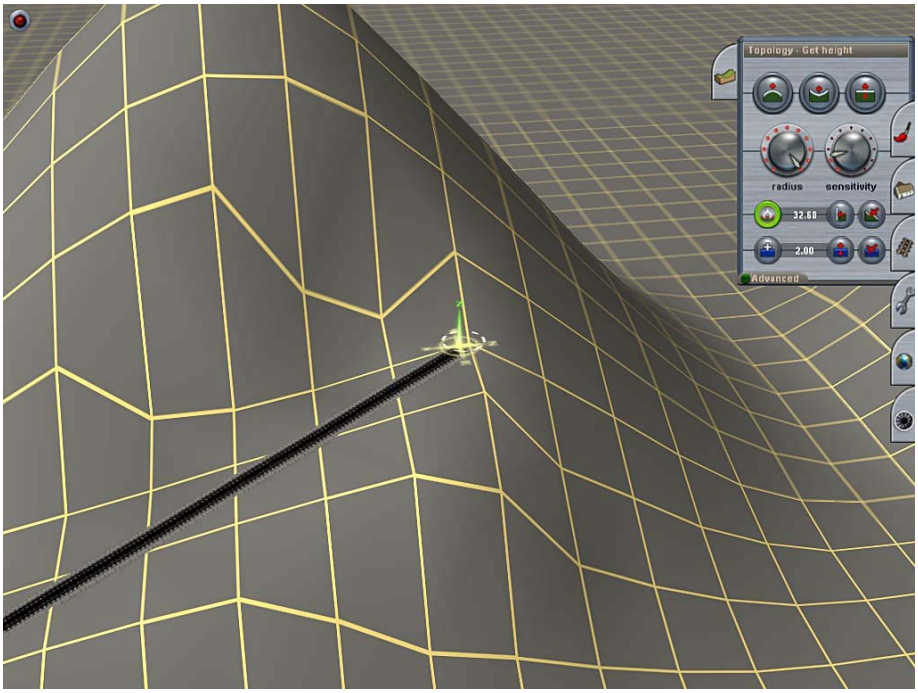


Figure 8: Getting the height of the track. The view is zoomed in for greater accuracy when positioning the compass.

Now (***left***-) click on the button in the Topology panel to the right of the 'Get height' button, on the other side of the figure indicating the height of the compass ('Use height'). The mouse position is indicated by a dotted circle: reduce the radius as far as possible by turning the 'Radius' dial anti-clockwise. On the mountain where the track ends, click the mouse arrow a short way beyond the track-end. The area being applied by this action is at the same height as the track-end. The reason for doing this will become apparent soon. (If a short section of track disappears, 'find' it by using 'Smooth spline height' on the Track panel again, then return to the Topology panel).

Zoom out again, and position the mouse pointer (not really a 'pointer', as it should still be showing a small circle because 'Use height' on the Topology panel is selected) on that part of the new mountain where you want the track to continue after the bridge is built. Press the left mouse button, and an area will be flattened that is at exactly the same height found earlier, when the 'Get height' button was first employed (see figure 9). In the example shown, this action created a small promontory. The Track panel was then opened, and some more track laid from this projection and away into the distance. 'Smooth spline height' has not yet been applied to this new section of track.

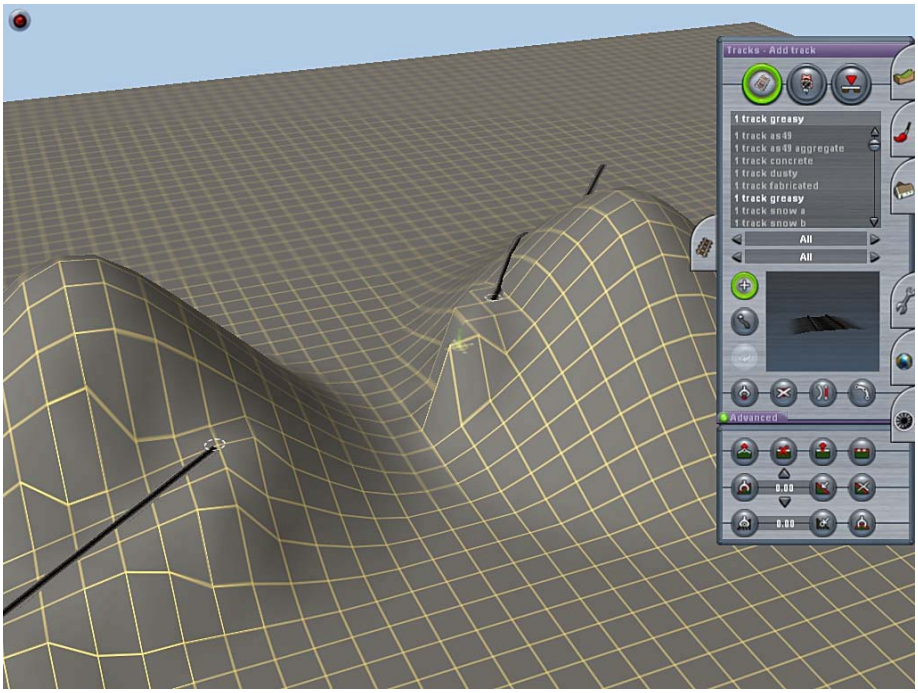


Figure 9: 'Use height' has been used to make a promontory on the second mountain, which is the same height as the end of the track on the first one. More track has been laid but 'Smooth spline height' has not yet been applied.

Open the Track panel and locate the arrow at the right-hand end of the strip just above the large 'Add track' button. This is indicated clearly in figure 10. Click this arrowhead once, and the choice of tracks in the main panel above changes from 'All' to 'Bridges'. Select the bridge you want to use. As with any choice in *Surveyor*, a small picture of your selection is indicated in the lower screen in the Track panel. In this example, the bridge chosen is 'UK Bridge Steel 1t concrete'. (1t means single track; 2t means double track). Make sure the 'Add track' button is selected, then in exactly the same way that you would lay track, extend the bridge from one track-end to the other (see figure 10).

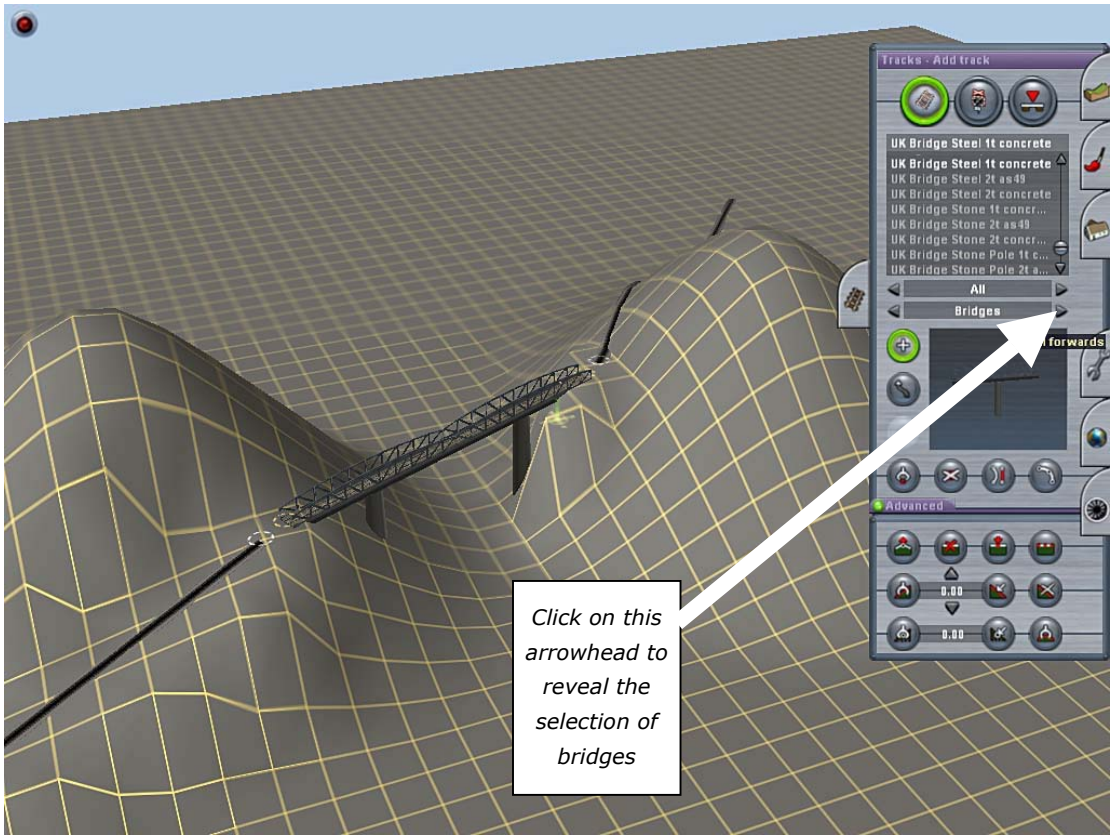


Figure 10: The bridge has been built! The arrow indicates where to change track options to 'Bridges'.

It's easier to join a track spline TO a bridge spline; don't try to do it the other way around. Select 'Move track' and move the white track-end splines and mouse-click them on to the yellow bridge splines. It may be necessary to change the perspective (i.e. use the keyboard arrow keys) to do this job properly. When the track joins the bridge, it will probably move out of its previous alignment, just as it does when you join ordinary track splines. That's why the ***last*** step is to use 'Smooth spline' to make all track visible (see figure 11).

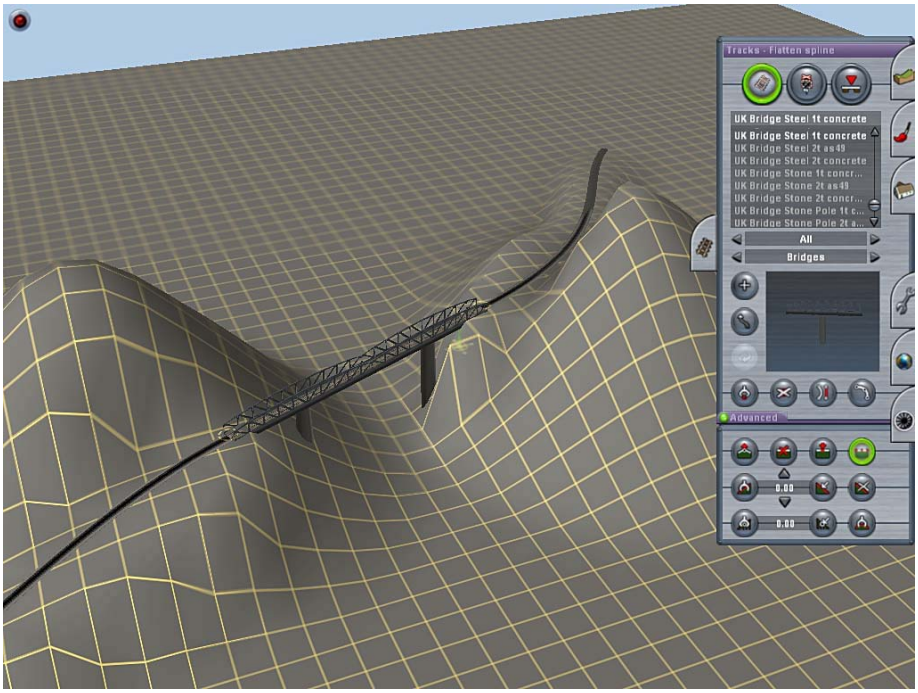


Figure 11: The final steps in the process: the track is joined to the bridge and 'Smooth spline' is applied.

Tunnels

If you can make a bridge, you can make a tunnel – in fact, it's easier, because you don't normally have to worry about equalising the height at either end, which is necessary for a bridge.

Make a hill, and lay some track TO one side of it and AWAY FROM the other side. In the Track panel, click the arrow at the right of the lower of the selection strips (where you earlier made the change from 'Tracks' to 'Bridges') until the selection of tunnels is reached (see figure 12).

Choose a tunnel style, then (making sure 'Add track' is selected) 'Stretch' the tunnel from one side of the hill to the other. Finally, join the track spline at each end to the tunnel spline. Sometimes a little fine-tuning around the tunnel entrances is necessary, using the Topology panel (typically 'Height up') and, if necessary, 'Smooth spline' (Track panel, Advanced drop-down menu) to make track properly visible.

Hint: If, as sometimes is the case, you want to make a curve in a tunnel, the way to see what you are doing is to select 'Wireframe view' (see figure 13). Then you can add and move spline(s) as required to introduce the curvature you need. For detailed instructions about this operation, see 'Basic track-laying, part 1'.

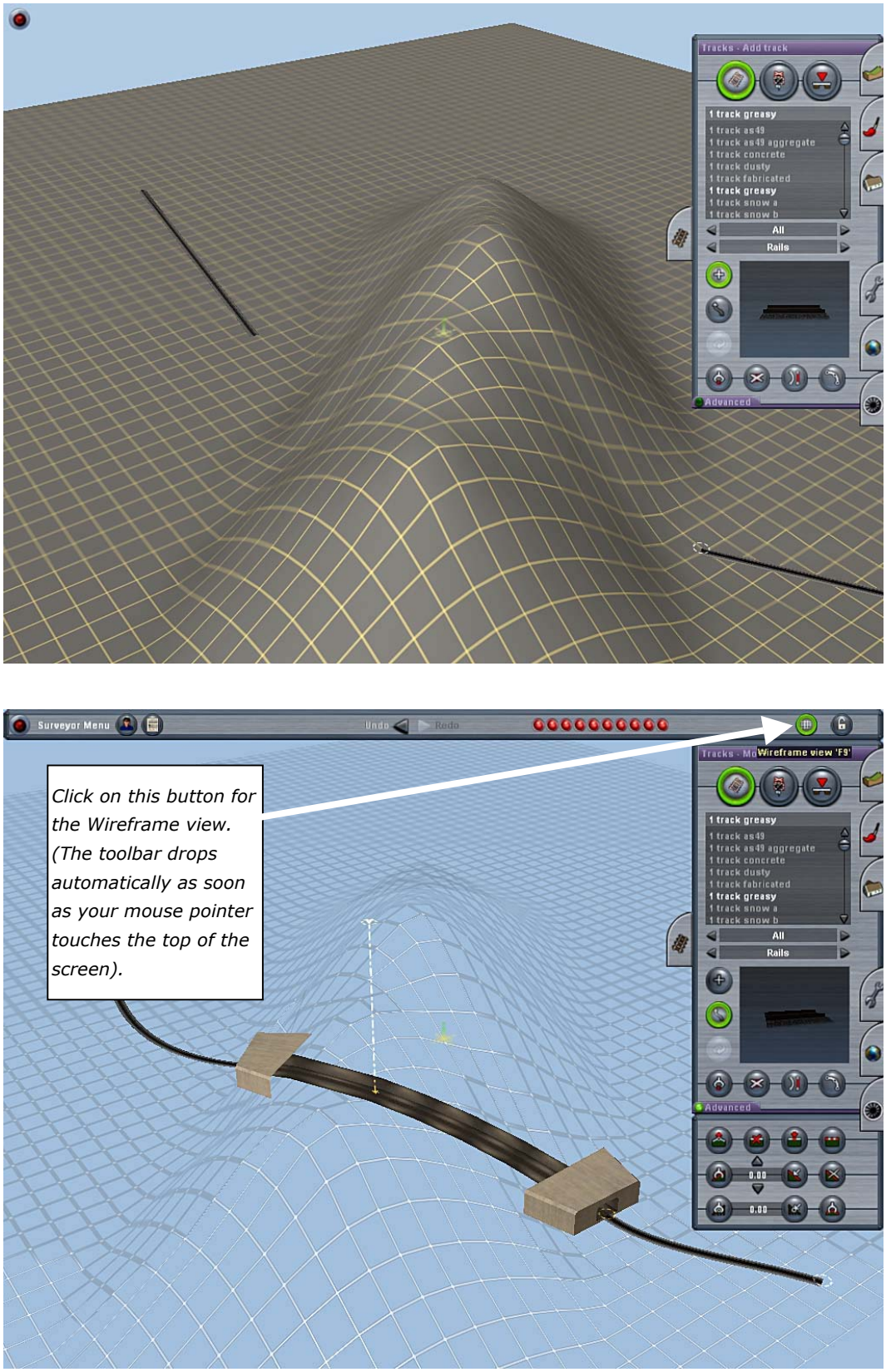


Figure 12 (above): Hill with tracks, ready for tunnel. Figure 13 (below): Wireframe view: tunnel curvature altered.

Final notes

These track-laying guidelines have been written with the beginner in mind, mainly because the Auran manuals can be confusing for the novice. However, the 'World Builder's Guide', which deals thoroughly with all aspects of *Surveyor Mode*, is an exception, being easier to follow than the others. If you haven't already discovered this manual, do so now: Start *Trainz*, but instead of clicking on the first item, 'Launch Trainz', click on 'Trainz Manual' then choose the second manual, 'World Builders Guide'. The best way to use this is to print it out and have a hard copy to refer to while you experiment with the finer points in *Surveyor*.

If you can't print out a manual, the next-best thing is to refer to it easily on-screen while you are using *Trainz*. If you are used to working with *Windows*, you are probably familiar with Alt+Tab, which allows you to toggle between open applications (programs). When you are working with *Trainz*, this feature seems to be unavailable. However, there is a way: while in *Trainz*, press the 'Windows' key (on most keyboards it's on the bottom left). This brings up the *Windows* Start menu, and you can now select and open the *Windows* program you want (e.g. the World Builder's Guide). After that, toggle using Alt+Tab as usual. (What should be the '*Trainz*' logo will probably be a featureless rectangle, and the identifying label will read 'JET [Open GL]' or 'JET [Direct X9]', depending on how your system is configured).

Colin

U-drive: A look at drivable objects

By John D'Angelo

One great thing that T*rainz* has is the ability to use more than just trains for transportation. At the Trainz Download Station (DLS) you can find a plethora of drivable objects. In my article on creating a lake [in this issue – *ed*.] I showed how you can use invisible tracks and drivable objects that would allow you to sail on, drive around and fly over the lake. I've broken down the following list of objects you can get from the DLS into three groups; Ground Transportation, Water Transportation and Air Transportation.

Mack truck with tanker load.

Ground Transportation

Three LARS-capable trailer-trucks.

The Mack-Truck by Idiotbouy is an excellent drivable device. Not only can you drive it on your roads, you can give it different trailer loads to carry. The tractor unit has been modified by Boweavel into four additional colors, giving five different types for your tractor-trailer operations.

Item	KUID Number	Created By
Mack-Truck	50567:15770:1	Idiotbouy
Mack-Truck-Blue	41426:15510	Boweavel
Mack-Truck-Red	41426:15511	Boweavel
Mack-Truck-Black	41426:15512	Boweavel
Mack-Truck-Flame	41426:15513	Boweavel

In addition to the drivable cabs, you need to attach trailers so they can carry a load. What is interesting about these trailers is that they CAN carry a load because they are LARS-compatible. It would be very easy to set up a company to deliver potatoes, for example. You would place the LARS Industry track for food at the side of the building. When you connect the invisible track to the industry track, it also becomes invisible.

You can now pull up your trailer, load up on potatoes, and head down that long, lonesome road. The trailers are available in two packs with five different schemed trailers in each pack, these are also by Boweavel.

Item	KUID Number	Created By
Pack 1	41426:15426	Boweavel
Pack 2	41426:15429	Boweavel
Tanker-Trailer	50567-16672:1	Idiotbouy

Water Transportation

Rail ferry picking up a reefer.

Rail ferry at Northport.

Sailboats, tugs, rail ferries, and even an ocean liner. They are all out there waiting for you to take the helm.

Item	KUID Number	Created By
Conquistador II	60238:9024	Vulcan
Tugboat Marion	60238:9022	Vulcan
Tug Pusher	60238:9011	Vulcan
Rail Barge	60238:15030	Vulcan
Rail Ferry TRS	60238:9025	Vulcan
RMS Mauretania	316:4	Austin316hockey

The rail ferry and rail barge can carry train carloads from one destination to another, and it is the use of invisible track that makes this effect possible. It takes a little work to set it up properly, but once it is set up, it makes for a great operating possibility.

Air Transportation

Sopwith Pup at the Flying Club

Item	KUID Number	Created By
Sopwith Pup	46219:25	Jonny211
Generic helicopter	4468:9495:1	Jetstreamsky

ZEPPL127 (Graf Zeppelin)	67261:26002	Whecsailor

While these guys don't carry loads, you can have a ball flying over your route, perhaps setting the invisible track levels so you can buzz down a city street, scattering the folks below.

I guess that wraps up the alternate transportation *Download Gold* for now, but always remember to take a new peek from time to time, because you never know what might show up.

John

Beta 4 and more

By Alfred Barten

- ***BVE Beta 4***
- ***Operations on the SRPS***
- ***Another view of things***
- ***BVE Toolbox***
- ***Flushing Line route added to Library***

Luigi Cartello's Ferrovia Genova-Casella *(FGC) route displayed in* BVE Beta 4*.*

BVE Beta 4

The next major iteration of *BVE* is now in public beta form and can be downloaded from Mackoy's web site. *BVE Beta 4*, as it's called, changes frequently as Mackoy continues to update the beta before formal release (date unknown). The most striking feature is the full screen-width cab view and the availability of high resolution (1024

x768) graphics, a vast improvement over the 640 x 480. The traditional right side panel is gone, with its features now accessible via right-mouse button and hot key. The results are truly impressive.

BVE Beta 4 requires *.NET Framework*, available free from Microsoft. Version 1.1 is current.

The new *BVE* does not support the original RW route format – at least not at this time. There is no mention of whether or not it will be supported in the future. A word to the wise: don't throw away your earlier versions of *BVE*.

To get *BVE Beta 4*, copy/paste or type the following address into your browser's URL line (do not try to exercise the link as it appears here): http://mackoy.cool.ne.jp/beta/download.html . After you download the current *Beta 4*, scroll down the page a bit and download the corresponding version of the *Uchibo* route. It comes complete with train and, when installed, should serve as verification that your *Beta 4* is working properly.

Installing *Beta 4* is a little tricky, since the installer displays Japanese characters with only single letters in parentheses for selections you must make. It took me a long time to figure out that some of the selections in the lower corner right-hand mean Next, not Cancel.

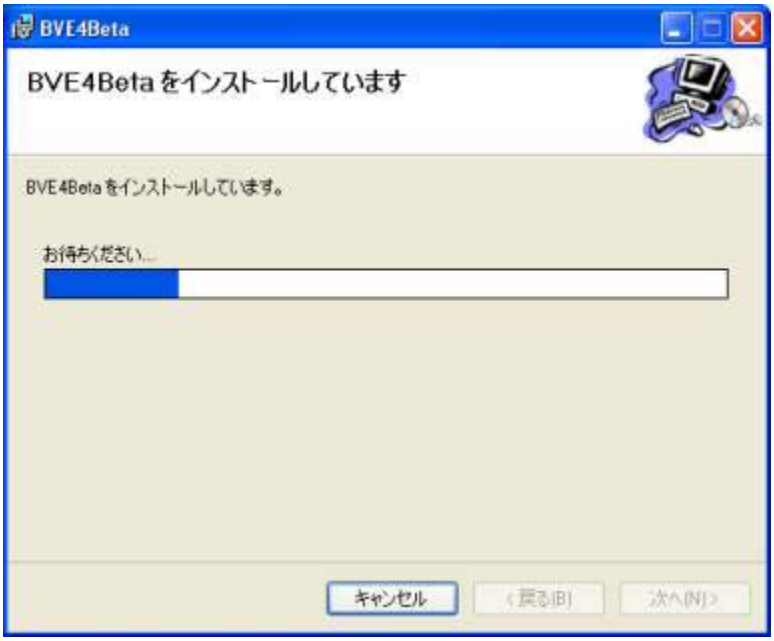
The following five screen shots will guide you through the installation.

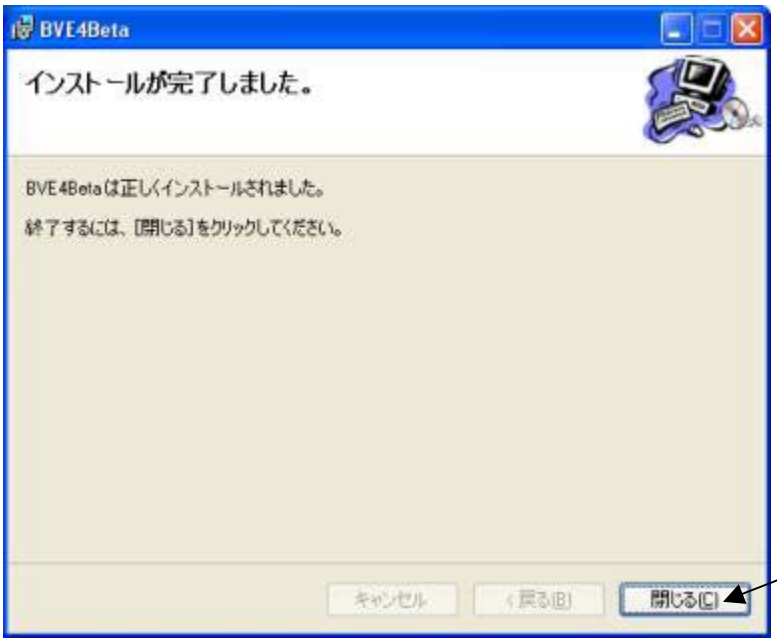
Click (Next)

Default selection works OK

Click (Next)

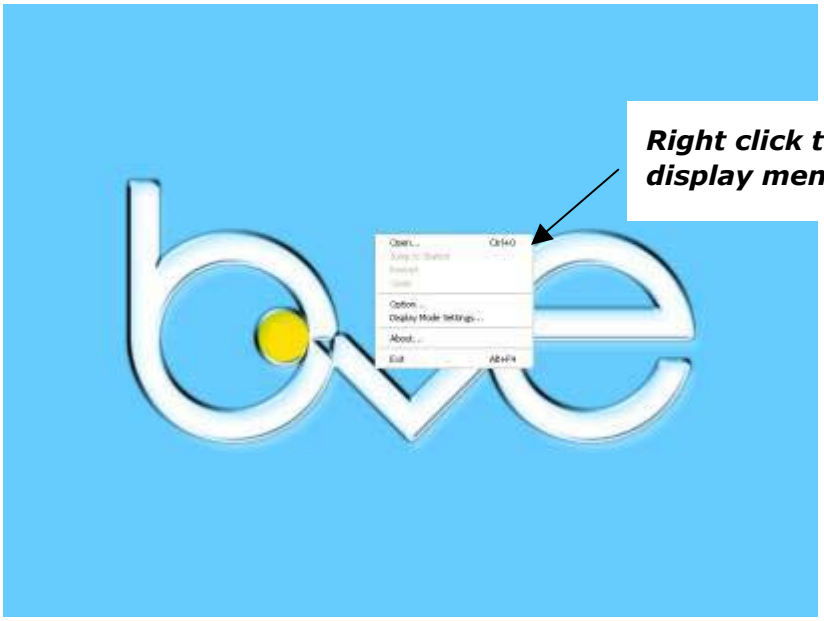
Click (Next)





Click (Complete)

Beta 4, by default, installs to C:/Mackoy/BVE4Beta. Once installed, you will need to go into the BVE4Beta folder and rename a pair of INI files. The default **String.ini** is for Japanese characters. Rename the **String.ini** file to **String-original.ini** (or anything else of your choosing). Then rename the **String-En.ini** file to **String.ini**. Now you will have English text for announcements, etc. For other languages, you can try using the INI you have installed in an earlier rendition of *BVE*.



Operations on the SRPS

Don Clarke created a fun route to drive, especially with the vintage 0-6-0 J36 Class steamer "Maude." He also created a rescue scenario using a Class 47 diesel train to retrieve a stalled Class 20 diesel train and haul it backwards to the shed at the start of the route. In the process, Don has also done a great service for the Scottish Rail Preservation Society (SRPS), whose line (the Bo'ness and Kinneil Railway) and equipment he has modelled. The routes are available at the SRPS web site. You can get the J36 at the SRPS site, but will need to go to the *BVE UK Train Collection* web site for the diesels. (You can get "lost" in the *BVE UK Train Collection* site, like a kid in a candy emporium; so don't forget to come back to SRPS.) If you follow the links from SRPS you will find all kinds of historical information about the J36, which dates back to 1891. As a Class, the J36's remained in service till the early 1960s. Don's J36 will find a welcome spot on other routes on my roster.

The first two following shots are from the cab of "Maude" and the latter two are of the rescue operation. If you fail to stop in time when rescuing the stalled train, it's all over for you and "back to driving school." The time to stop is when you hear the clunk of cars joining. You will not get a *BVE* message, so keep a good listen. When you return to Birkhill you will have to imagine you are pulling the cars – or at least that's my take, because *BVE* doesn't let you move objects, which the stalled train clearly is.


BVE
Bo'ness
F
1
RL
ATS
ATS RUN


BVE
10.5
F
3
RL
ATS
ATS RUN

Another view of things

Building scenery for a *BVE* route is a lot like designing stage sets. You are only concerned with what people can actually see. This limitation on the viewer's part makes it possible to omit the backside of buildings, for example, and generally makes life simpler for the route designer and object builder.

If you want to see how someone else solved a particular problem, you can (and should) take a look at the route and object files to see how things were constructed and placed. If you'd like to have a more visual look, you could use Hans-Martin Finken's helicopter to fly above the track and have a look at the route's "stage sets." If you can't find Hans-Martin's helicopter (my copy is several years old) you can make a crude substitute by taking any locomotive and raising the cab position. Sanford Mace's CarRideV2 cab could give the impression of being in a hot-air balloon, which might be a nice way to hover above the rails. You can get Sanford's files from the file library at *Train-sim.com*.

In the shot above, I used Hans-Martin Finken's helicopter to fly over Don Clarke's *Bo'ness - Birkhill SRPS Branch* route. This is a very interesting ride, revealing the stage prop nature of *BVE* scenery techniques.

In the above shot I used Sanford Mace's CarRideV2 "train" to simulate a balloon ride over the *FGC* route.

To raise the car ride vehicle to balloon height, open the train.dat file inside the CarRideV2 folder using Notepad and change the Cockpit numbers to read as follows:

#COCKPIT

0

15000

0

The important number here is the 15000, which represents the cab height in centimeters. Use a different number if you like.

Sanford has also created a utility that lets you alter the vertical and lateral potions of Hans-Martin's helicopter as well as add a forward/backward tilt. Look for the helicopter flight control program at the http://www.train-sim.com file library or at http://bve-train.de.

BVE Toolbox

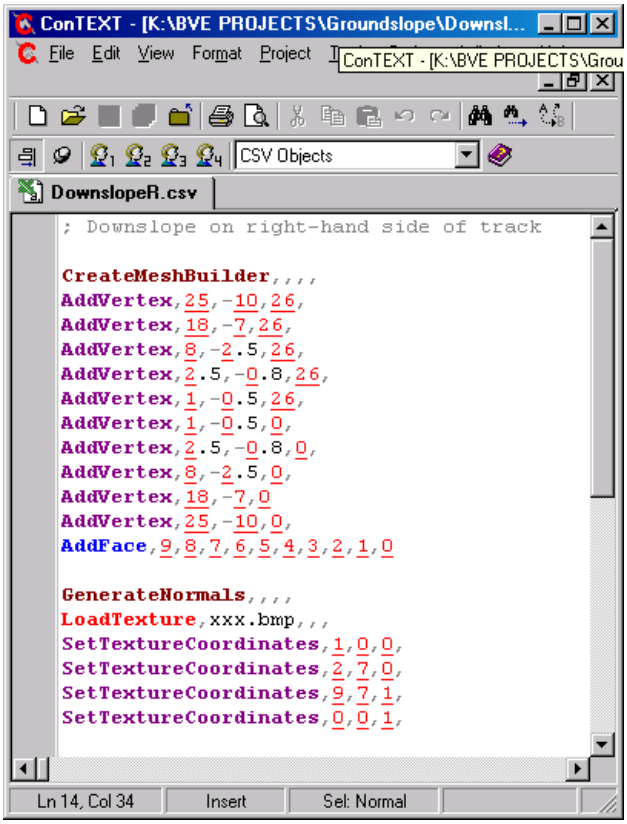
***ConTEXT* Editor**. One nice thing about *BVE* is that add-ons can be constructed using simple tools that are usually free. Generally speaking, all editing can be done in Notepad or WordPad. If you do a lot of work with a text editor, you may want to have a look at *ConTEXT*, a free editor with customizable features, such as a highlighter that provides color and bold emphasis to selected statements. Derek Kaye has already created a customized *BVE* highlighter, *CSV Objects*.

You can get *ConTEXT* at http://www.context.cx/ and the *CSV Objects* highlighter at http://bvesimulator.topcities.com/Downloads/csv_objects.chl .

I had some minor problems getting up and running, so I'll pass along what I discovered.

Download and install instructions.

1. Download *ConTEXT*.
2. Install *ConTEXT*. By default it installs to C:\Programs\ConTEXT folder. Choose another directory if you like.
3. Download csv_objects.chl.txt and place it in the C:\Programs\ConTEXT\Highlighters folder.
4. Launch *ConTEXT* and open a new file.
5. If you like, turn on Wordwrap [Options > Wordrap]. Wordwrap only works on text you type in. Once the initial margin is set it can't be changed. If you edit a line you've typed, reformat it by selecting Format > Reformat Paragraph or pressing the Ctrl-B key combo.
6. Select Tools > Set Highlighter > CSV Objects. If CSV Objects does not appear in the list of available selections, remove the .txt file extension from csv_objects.chl.txt. If you can't see file extensions, turn them on. Select Start > Settings > Control Panel > Folder Options, select View tab, and make sure "Hide file extensions for known file types" is unchecked.
7. With ConTEXT running and CSV Objects selected, test by typing a CSV command, such as "createmeshbuilder" without the quotes. It should display in bold maroon text. Here is what a CSV file should look like.



Flushing Line route added to Library

Ernie Alston has graciously agreed to let *Virtual Railroader* provide a home for his classic New York City *Flushing Line* route. This is a rendition of the Interboro Rapid Transit (IRT) #7 line from Times Square to Flushing. It includes an R36 Redbird subway train.

This was one of the first Western routes following the discovery of *BVE* in late 1990. It was the one that got me started with *BVE* and remains one of my favorite routes because of its sounds, dynamics, driving skill requirements. I've come to realize that graphics and motion are things we most often associate with a simulation, but sounds are the most memorable and most likely to recall a memory of a past experience. In this regard, the *Flushing Line* is superb, with its train announcements, its screeching of wheel on rail, and its rumbling through special track work. These effects make up for any loss of realism in the lack of smooth curves. (Smooth curves were a later development in our brief *BVE* history.)

The first screen shot is from the *Flushing Line* right out of the box. In the second shot I've borrowed some people from Mackoy and added a few of my own. I've also switched to the R1 10-car trainset by Edward Yee at http://www.nyctba.com/.

The *Flushing Line*, being in the older RW format, does not run in the new Beta 4. This is one line that's worthy of a conversion to the CSV format, which would enable it to run in *Beta 4*.

Al

Credits

Virtual Railroader is published monthly, except June and December, by Alfred Barten.

Visit our web site at http://www.virtualrailroader.com for details about the authors and for information about other issues of *Virtual Railroader* and our predecessor, *Virtual Model Railway Journal*.