

Part 7 – An Introduction to Portals

Before the advent of portals, the route builder had a formally terminate every rail line. It either had to dead-end, in which case turning a train around was difficult, or in a turning loop, not necessarily the best prototypical solution.

Portals are an ideal solution to the problem. They provide a place where trains can gracefully exit the route, and in addition, those trains can optionally be ‘turned around’ in the portal to return later in the opposite direction. If you opt to turn trains at a given portal, you have additional choices for loading and unloading them. You can even have a portal generate new trains at regular intervals.

A portal is a stargate

It may help to think of a portal as a ‘stargate’ to city somewhere off the map. You can send one-way trains to that city or request that they load or unload there and then return.

An example of portal usage might be with an oil refinery. You can load a train with aviation fuel and send it to a portal. In the portal, the train is ‘unloaded’ and can then return to the refinery for another run. You could even set up the scheduling so the train takes aviation fuel the first trip, diesel fuel the second and petrol fuel on a third.

Want to go a step further? Set up the refinery to work with two portals, perhaps at opposite ends of the map. On the first trip, the train loads with aviation fuel and travels to portal one. After unloading, it returns to the refinery, loads diesel fuel and travels to portal two to be unloaded. Then you repeat the whole schedule for as long as the session runs.

Any of the bulk commodity industries, like coal, grain, cattle or logs is a good possibility for industry-to-portal traffic. Or, let’s say you have current traffic from your forestry to your lumber mill. You could then have a train pick up your lumber at the mill and take it to a portal. The possibilities are limited only by your imagination.

Portals can create new trains

Portals can also be set up to generate new trains at regular intervals. You specify the consists you want to appear and how often they enter the route.

There are a couple of ways to use this functionality. In our previous examples, we talked about taking loads to a portal. We could also go the other way. For example, we could have the portal generate a train of loaded coal cars. When the

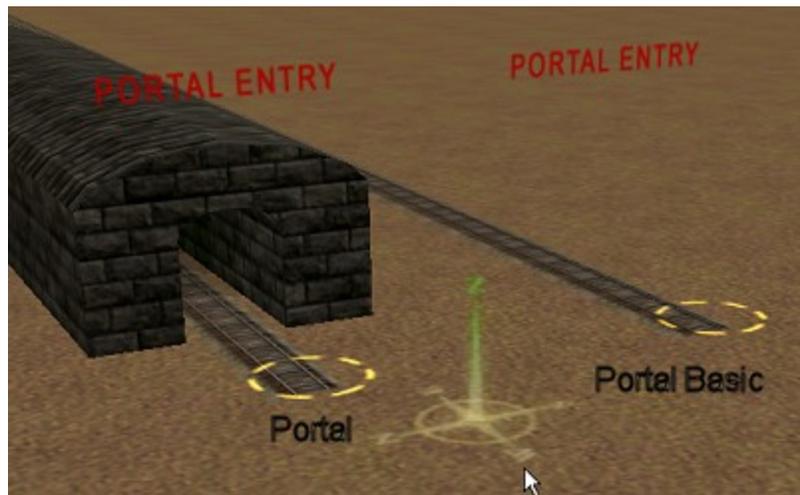
train comes out of the portal, it would travel to a power plant, unload, and then return to the portal.

Trains coming out of the portal don't necessarily have to travel to an industry, either. If you have a portal at each end of your map, you can set up trains to run between them, as if they are traveling your route between two off-map cities. Suppose, for example, you set up the portal to generate a trainload of new automobiles. When this train enters the map, it just travels the mainline to the second portal. Once it reaches that portal, you could either have it end there, or you could unload the train in the second portal and send it back to portal it came from.

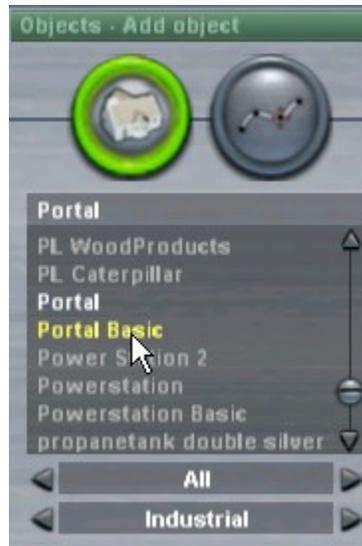
All of these options add traffic and interest to your route, but if that isn't enough for you, there are a number of third-party portal options available on the Download Station, adding even more versatility to one of the game's most useful tools.

Setting up a portal

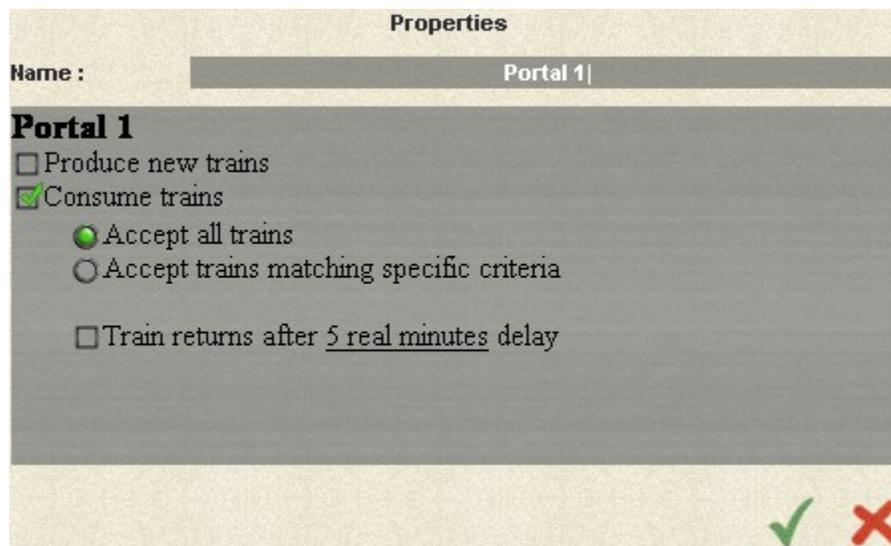
There are two types of portals you can use. As you can see below, one of them looks like a tunnel and the other just looks like regular piece of track.



Both the portal and the portal-basic operate the same way. Let's take a brief look at how to set them up. You create a portal by selecting the scenery objects tool. Select 'industrial' for the subcategory and scroll down to find 'portal' or 'portal basic'.



Place it on the map like a building and rotate it to get the alignment you want. Once you've got the alignment correct, select the question mark tool and click on the portal track. You'll see a screen like this:



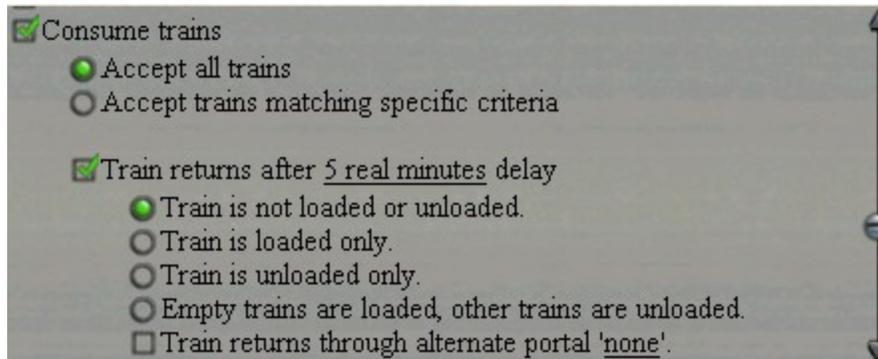
First specify a name for your portal. Pick a name that means something, not just 'portal one'. For example, some of the portals on my route are called 'East Shelton', 'Westfield', and 'Northhamton'. As you might suspect, the names refer to where the portals are physically located on the map, with East Shelton at the east end. A good naming scheme makes it easier for other people who might visit your map to orient themselves.

Next, decide what you want your portal to do. Will it accept trains or generate them? Or both?

Setting a portal to accept trains

Let's start by opting to receive trains. If you accept the default, trains entering the portal will exit the map for good. You can have the portal accept all trains or just a selected few.

You could also have the portal accept trains and turn them around. Let's look at that option. Check the box marked 'Train returns after ...'



From here you see the various options for handling trains that enter the portal. You are somewhat limited because if you opt to have trains return, they will *all* return. With this portal setup, you cannot have some trains turn around and others not turn around.

(If this restriction doesn't work for you—as it didn't for me—you can check the Download Station for other portal options. Personally, I solved the problem by using two portals, placed side by side. I send the trains I want to return to one portal and the trains that don't return to the other. For more details on this scheme, read my case study, "Using Multitrack Portals", a part of this tutorial.)

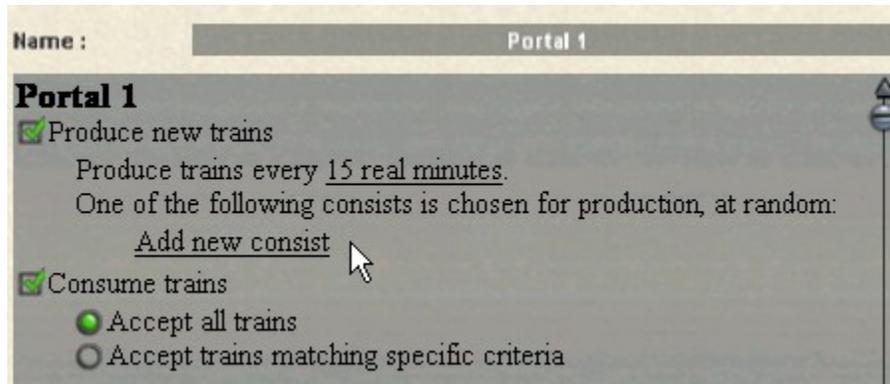
As you can see above, you can also set the delay time—the time it takes for trains to turn around and re-emerge from the portal. This delay time is the same for all trains.

Finally, you can also have trains return through an alternate portal. That's a cool idea, but again, if you choose this option, then *all* trains return through that portal. Too bad. The 'train returns' and 'alternate portal' ideas are fine, but without the ability to specify which trains get those options, they are of marginal use.

In TRS2006, portals also have the option to send trains to a portal on another map! So, you can start a train on your route and 'stargate' it to a portal on your friend's map. TRS2006 calls them 'iPortals'. If you're interested in knowing more, Chris, [atsfr3000](#), has prepared a tutorial on using them. You can find it on his site. [Click here](#)

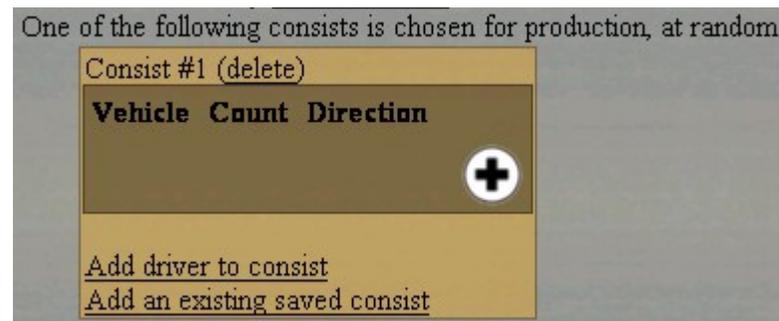
Portals can generate new trains

Creating new trains using a portal is easy. Just click the check box marked 'Produce new trains'. That opens this dialog box:



First, specify how frequently you want new trains to appear. Be careful not to schedule them too close together or you'll end up with traffic jams down the line.

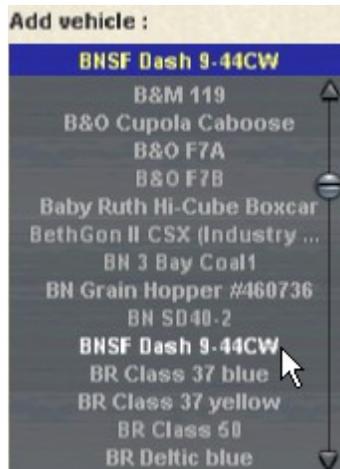
Then click 'Add new consist' to start building your train.



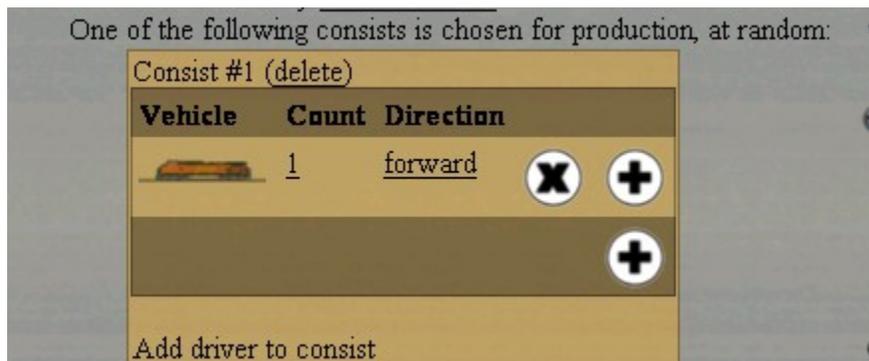
From here we can do three things: (1) We can build our train one car at a time, by clicking the plus sign. (2) We can specify which driver we want for the train, and (3) we can opt to use a previously saved consist for the train.

Note that if you want to use a saved consist, you have to select that first, before you click on the plus sign. Once you start building the train using the plus sign, the saved consist option disappears. If you want to use a saved consist with, say, a different locomotive, select the saved consist first, then add the locomotive using the plus sign.

Let's add a locomotive now. Click on the plus sign, which brings up a list:



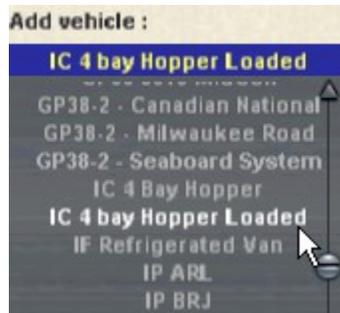
I've selected the BNSF Dash-9. Accepting that choice will take us back to the original screen:



The 'count' selection allows you to choose how many Dash-9's you want in your consist, and the 'forward' selection let's you specify which direction the loco faces. Clicking on the "X" instead will delete the locomotive entirely.

Some railroads prefer to run multiple unit locomotives with at least one engine facing in the opposite direction, so they don't have to be turned if next train for those locos goes in the opposite direction. If you want to do that, you'll have to add the reversed locomotive on a second line, since using the 'count' option will point all the locos in the same direction.

Now let's add some cars. Notice there are two plus signs on the screen. If you click on the top one, the one on the same line with the Dash-9, it will add a new vehicle to the list *above* the Dash-9. If you click on the single plus sign, it will add a new vehicle to the list *below* the Dash-9. Let's add some coal cars.



Now I've selected a loaded Illinois Central 4-bay hopper car.

Note here that you have two selections—either loaded or unloaded. This is important. Remember earlier we talked about taking loaded cars from the portal to an industry? In order to do that, the car must appear already loaded in this list, like the IC car above. You cannot load an empty car in a portal on a train that *originates* in the portal.



Now we have a locomotive and one car. We could add more loaded coal cars by clicking on the plus sign again, but if you want more than one of a particular car, it's better to just change the count. Let's say we want fifteen cars. Just click the "1" and it will bring up a dialog box, asking how many you want.

(There's another reason for using the count option. I've noticed that this dialog box gets extremely sluggish when you have a lot of cars in the list. If you use the 'saved consist' option and import a 3000 ton train, you end up with a very long list of cars. And because you can only see a few cars at a time, you find yourself constantly scrolling up and down the list. You're much better off to use only a few entries per train and use the count option.)

Okay, we have a locomotive and fifteen cars.

Vehicle	Count	Direction		
	1	forward		
	15	forward		
				
<u>Add driver to consist</u>				

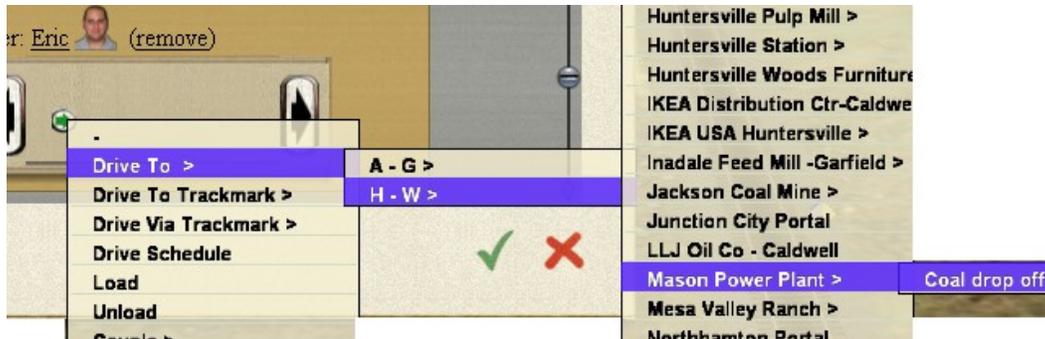
It's time to add a driver to the consist. Click the 'Add driver...' line, which brings up a list of the current drivers.



I've selected Eric as my driver for this consist. Then I click on the green arrow to return to the portal dialog.



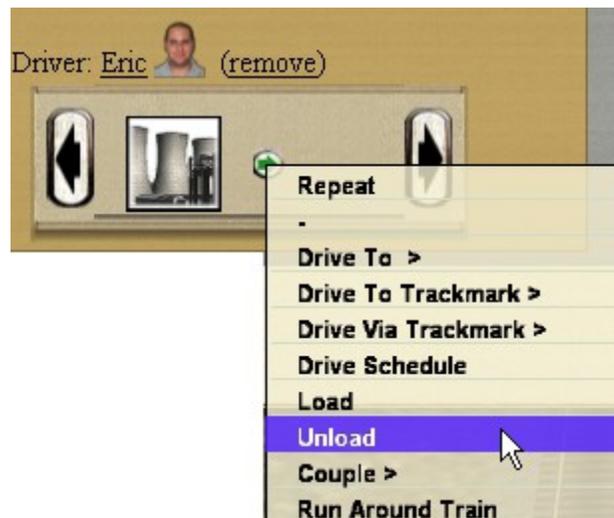
Now we have a train and a driver. We have to give them a path to travel. Since we have a loaded coal train, let's send Eric to the coal drop off at the Mason Power Plant. Click on the small green arrow, which opens the following dialog:



Back at the dialog again, we have our first train order;



Once Eric arrives at the power station, we have to tell him what to do there. Click the new green arrow and select 'unload'.



Finally, let's tell Eric to return to the portal:



That's it. We've created a train, added a driver and given him a path to follow. If you want to add more trains, just click the 'Add new consist' option. Once you begin your session, the portal will generate one of the trains you've created at the time interval you selected at the top of the dialog.

Important considerations when using portals

Portals are a great addition to any route, giving your trains more places to go and adding additional traffic for you to deal with. There are a few things to remember when using them.

First, if you've played with the scheduling, you've probably seen the 'repeat' option, that allows a train to travel a given path continuously for as long as the session lasts. This is a very useful option, but I suggest that you avoid using it for trains that *originate* in a portal.

Here's why. Let's say you've set up your portal to generate the coal train we set up above. That train runs from the portal to the power plant and back to the portal. If we put a repeat on that train it will keep doing that. The problem is that the portal will generate another new train in fifteen minutes (or whatever interval we set). Now we have a second coal train following the same route. If the session lasts for any length of time, the route will become cluttered with coal trains. Eventually you'll have a traffic jam, not to mention the poor power plant, which can't possibly use all that coal. :-)

The bottom line: Don't use the 'repeat' option for trains that *originate* in a portal.

Secondly, be aware that when a train emerges from a portal, the portal retains control of it until the train is almost completely clear of the portal. That means that you can't place signals too close to the portal or they will be ignored.

How close? Well, it appears that the game AI doesn't get control of the train until it's about three quarters of the way out of the portal. So if you have a train that's twenty cars long, you can't get control of it until it's about fifteen cars out of the portal.

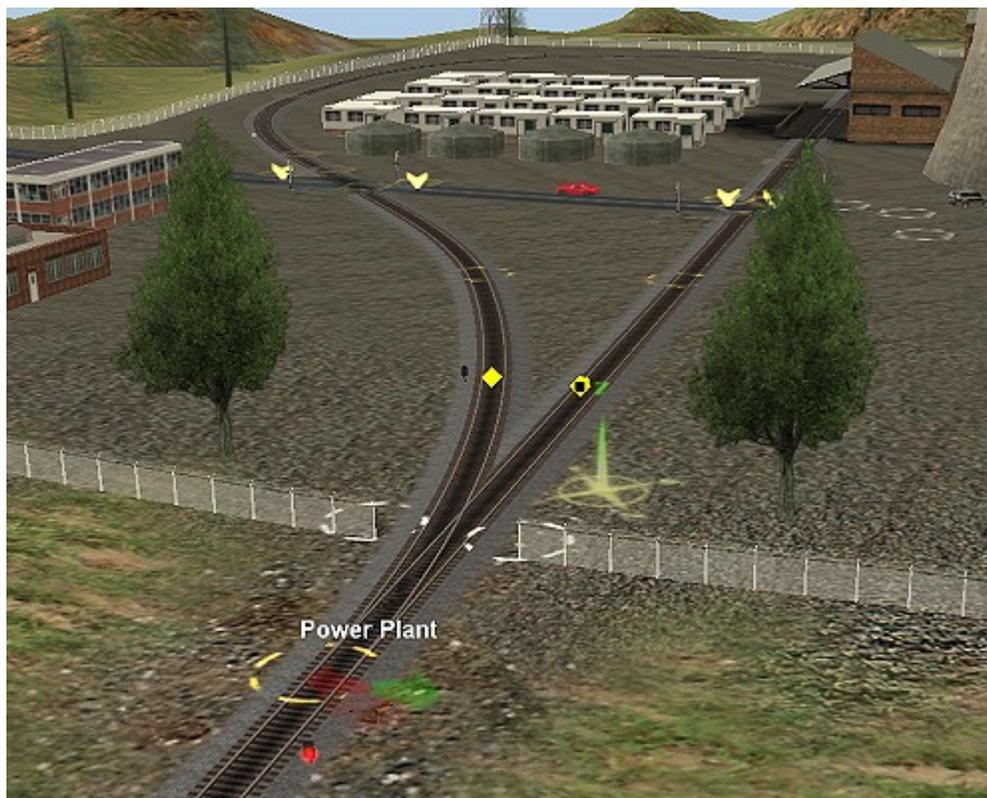
Even that is not enough, though. Remember that the train is moving as it comes from the portal. If you need to have it stop at a signal, you have to allow the three quarters of a train length *plus* the amount of time it will take the train to stop.

A good rule of thumb, then, is to allow *at least one train length* from the portal before you place any signals or switches. That means if you have a fifty car train coming out of the portal you should allow at least 2000 feet (50 cars times 40 feet each) from the portal before placing any train controls. (That's about 615 meters for those of you who speak metric.)

I'll have more to say about this distance issue and some illustrations of what happens if you ignore this rule in my case study on multitrack portals.

Finally, if you intend to use AI trains running between a portal and an industry, as we discussed earlier, you have to provide a turnaround loop at the industry so the train can return easily. If you don't, you'll have trains backing up on the mainline as they attempt to get back to the portal.

In our example earlier, we mentioned the Mason power plant. Here's the way I handled it:



In the picture above, you can see the reverse loop that allows unloaded coal trains to return to the mainline. There are two directional arrows, forcing inbound trains to take the right hand track to the coal unloader. After unloading, the

arrows also force the train to continue around the loop, so it heads back in the right direction.

There are some signaling issues here as well, but we'll discuss those in an upcoming case study.

[Updated 2/11/07]

One more thing to consider about portals: In the portals furnished with the game, you cannot specify properties for individual pieces of rolling stock. That means you can't give a portal locomotive a running number or designate cars to the loaded with a particular commodity when they come out of the portal.

There are, however, partial fixes. The download station contains a driver command you can use called "Instant Load" (Kuid 117290:1017:1). You add this command to your portal drivers and the cars are loaded as they emerge from the portals.



InstantLoad	
Type:	Driver Command
Downloaded:	1996
File Size:	26.57kb
File Type:	.cdp
Created by:	nzhorse
Date:	23rd October 2005
Version:	TRS2006
KUID2:	117290:1017:1

FTP Location: (for FTP users)
/Restricted/trainz/TRAINZ01/drivercommand/kuid2_117290_1017_1.cdp

Even this command has limitations. For example, it only works on some pieces of rolling stock. I experimented a bit and found that many of the cars furnished with TRS2006 will load correctly. Some cars with multiple load capability, like a container car, will only one type, such as the 40ft container, and you have no control over which one. Any car that has a menu, of course, may only load the default—if at all—because you can't get to the menu within the portal dialog.

Commonly used cars, like the Illinois Central coal hopper, the log wagon, the Baby Ruth boxcar, the ATSF stockcar, the GATX tanker and the woodchips gondola all load their single commodities just fine. Other cars don't work at all, and you'll just have to experiment in your individual situation.

To use the “Instant Load” command, you must add it in the Surveyor “Driver Commands” menu and then insert it into your path command for the individual driver.



I hope this tutorial has been a help to you. As always, I encourage you to experiment. Create a new, temporary route. Place a portal on it and run some trains to/from it so you can see how it functions. Good luck.

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