

# **Midwest Central**

## **Operations Manual**

Version 3.0 October 2007



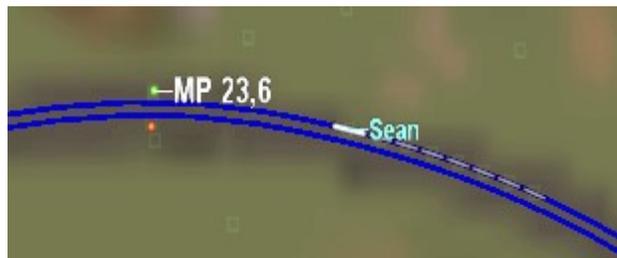
This document has been updated to include MidCen Release 2. Unless otherwise noted, the comments apply to both the original, MidCen Build 360, and Release 2. Changes are noted in red.

### **Overview**

Midwest Central is a fictional American railroad connecting the sister cities of East Shelton and Westfield. The original version operates over 25 miles of double track mainline between portals at the east and west end. In Release 2, the eastern portals are eliminated and the track extends an additional ten miles to East Shelton proper, where there is also an interchange with BNSF railroad.

The original version also includes branch line service to Junction City, Northampton, Renfield and South Claremont. Each of these off-map cities is reached through a portal. In Release 2, a single track mainline is also extended five miles south through the mountains to the actual town of South Claremont.

A unique milepost system makes it possible to locate various places on the map. For example, the East Shelton portals are located at milepost 9.0 and the Westfield portals are at milepost 34.3. Everything else on the map is located between them. Trackside milepost markers every mile or so pinpoint your location, and they are particularly easy to see using the overhead map view.



In Release 2, the mileposts run from mile 0 at East Shelton to milepost 34.3 at the Westfield portals. The milepost system, with an S prefix, also extends from Huntersville to South Claremont at MP S4.6.

Within the map itself, MidCen serves three towns: Huntersville at MP14.7, Garfield at MP18.0, and Caldwell at MP27.3. Each of these towns has an interactive passenger station and a number of local industries. In Release 2, East Shelton, MP0 and South Claremont, MP S4.0, also have passenger stations.



The picture above is Huntersville. In addition to the pulp mill and meat packing plant in the background, there are several smaller industries. The passenger station is lower left.

MidCen also operates a small, five-track yard and maintenance facility, shown below, located just east of Garfield, at MP17.2. With a capacity of about 75 cars, the yard serves as central switching point and corporate headquarters for the railroad. **Release 2 includes a small yard at East Shelton as well.**



Although they are not included in the basic map, Midwest Central operates a fleet of fourteen locomotives. Ten of them are GP38-2's, purchased over the years from other railroads and repainted in the MidCen green and brown livery. They are numbered 9801-9810.

The other motive power includes a trio of SD-40-2's, numbered 9821-9823 and a venerable SW7, numbered 7901.

These locomotives are available on the download station. Just search for content with my userid: crb001.

## Important Operational Concepts

### Portals

Mainline traffic entering or leaving the map does so through a pair of portals at each end. Generally, outbound traffic exits through the right portal and trains entering the map come in through the left portal. That's pretty simple, but there is one important thing to remember: Traffic exiting the route through the right portal never returns. Since the only choices with the Auran portals are "all trains return" or "no trains return", the right hand portal should be set to "no trains return."

For trains you do want to return, you send them to the left portal instead. That portal is set to "all trains return" at whatever time delay you choose. A crossover has been provided from the right track to the left track at each end, so the train can exit through the left portal.

In operation, for trains to exit permanently, simply leave them on the right track and allow them to exit through the right portal. If a train is to return, send it to the left portal through the crossover. See the picture below.



The East Shelton Portals

Here's a summary of the portal activity:

East Shelton Portal Eastbound  
East Shelton Portal Westbound

Trains exit permanently  
Exiting trains return and new westbound trains  
are created

Westfield Portal Westbound  
Westfield Portal Eastbound

Trains exit permanently  
Exiting trains return and new eastbound trains  
are created

Note that trains returning through the left portal are in addition to those created by the portal.

In Release 2, the dual East Shelton portals have been eliminated and the main line extends all the way to East Shelton itself. At East Shelton, the main line narrows to single track and then interchanges with a north-south BNSF mainline. The BNSF mainline is three baseboards long and ends with a portal at the north and south end. See below:



The picture shows the east end of the East Shelton yard. You can see the turntable and small engine house in the foreground. Near the top of the picture is the yard itself, just beyond the tree. The Amtrak passenger train has entered the route from the BNSF north portal, and the coal train has entered from BNSF south. The left two tracks in the yard complex are the MidCen mainline, and the Amtrak train is crossing to the right main before heading west.

Partially visible on the left side of the picture is the East Shelton industrial area, with five industries, including the power plant, Bock Brewery and brickworks. The left track in the foreground is the return track from the industry loop.

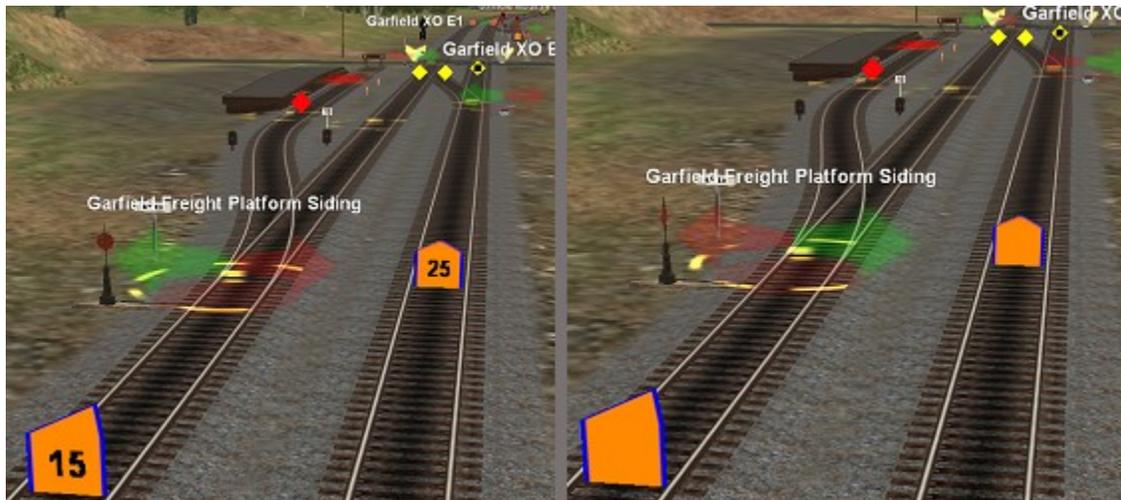
### Invisible Speed Signals (ISS)

One of the less prototypical characteristics of TRS is the lack of speed control through switches. If the mainline speed is 70, trains will also take the switch into the sidetrack at 70. Fortunately, there is a third-party workaround, in the form of the "Invisible Speed Signal," created by BPanther. It allows you to control the train speed through either or both sides of a turnout.

The Midwest Central website has a complete tutorial on the operation of the ISS, and new surveyors are strongly encouraged to check it out so you understand how it works. In brief, you place the control some distance from the switch. You then tell the control the name of

the switch it's supposed to watch and what speed you desire. You can opt to control only one path through the switch—the sidetrack, for example—and the other path is unaffected.

In the drawing below, the left picture shows how the ISS is controlling train speed into the freight platform and also thru the crossover. The right picture demonstrates how mainline traffic is unaffected by the ISS. The ISS can control either or both paths, even a 3-way.



There is one important restriction on the use of the ISS. It is a *session-based* control, which means if you load the Midwest Central route without loading a saved session, ALL of the ISS controls will return to their default (turned *off*) values. Since there are 60+ ISS controls in MidCen territory, it would be a tedious, time-consuming project to reprogram them all.

With that in mind, there is a downloadable “base” session for each version of MidCen. The session has no rolling stock, but it does have the mainline portals and the ISS controls set to the correct values. Use this session as a starting point to make your own sessions.

When you load the base session, I suggest you immediately save it under a different name, then add any rolling stock you wish. Since you haven't changed the base session, you can reload it again anytime you wish and create an alternative scenario.

## AI Trains

Midwest Central was designed specifically to run a lot of AI traffic. These computer-controlled trains can have several different forms. Some trains enter through a portal, say at Westfield, and run the whole mainline to East Shelton—through trains, if you will. Other trains might enter through a portal and travel to a particular industry, where they load or unload, then continue on and exit the map. Still other trains might start in the yard, and travel to a coal mine. After loading, they travel to a power plant to unload. Then they return to the yard and wait for, say, thirty minutes, before repeating the run.

All these trains can run automatically without user input. When you run one or more trains yourself, using AI traffic serves to add interest and activity to the route. Nothing's cooler than to be running down the mainline and encounter an unexpected train coming the other way.

To facilitate AI traffic, a number of industries feature turn loops, so AI traffic can enter, load or unload, and be on their way. For example, Jackson coalmine, all the forestry's, all the power plants, and both Lumber mills have turn loops. See the picture below:



In the picture, a long drag of coal hoppers has just finished loading at Jackson coalmine. After making the turn, the train will return to the mainline. By contrast, the other coalmine, Big Walker, has only a Y. There's only room to turn the loco, which adds a bit of a challenge to operations at that industry.

### The Signal System

Midwest Central uses the standard USA2 signals, and the route has been subjected to hundreds of hours of testing. The Auran AI system has well documented flaws and it's been a challenge to work around them. For some problems, there's not much you can do but clean up the mess when an AI train decides to run the wrong way through a directional arrow. The train ends up on the wrong track and blocks oncoming traffic. The only thing that seems to help is to keep trains well separated.

The Auran AI system looks two blocks ahead of the train. If the blocks are clear, that's fine. If not, if one of the blocks is occupied, and there is an alternate path to the destination—such as through an industry—the AI will choose that path. Furthermore, once it has chosen the bogus path, the AI doesn't seem to check again to see if the path becomes clear.

So, when you have one train closely following another, there's an excellent chance it will decide to take a little detour through an industry instead of staying on the mainline. Later we'll mention keeping incoming portal trains well separated. This is why we do it.

Having said all this, the route actually runs pretty well. During testing, I often start with six to eight AI trains on the map and turn them loose to proceed on their assigned chores. As time progresses some trains leave the map and others enter from the portals. I often start a session when I go to bed at night and check back eight hours later to see how things are going. 😊

Sometimes the route is actually still running. 😊

At any rate, I've spent a LOT of time debugging the signaling. For that reason, I strongly suggest that you do not change the signals.

### **Operations Tips**

If you expect to run long duration sessions such as described above, I recommend you set the mainline, dual-track portals to about 30 minutes between new trains. That seems like a long time, but if the route is running unattended, shorter durations have proven to cause traffic jams. If a session only lasts an hour or so, it's fairly easy to predict what trains will be where. But in long-duration sessions, there is a much greater chance that competing trains might want to same piece track. We keep the new arrivals well separated to avoid problems.

Remember, too, that trains which exit through the left portals will also return, so you might set the left portal return delay to ten or fifteen minutes so that they don't interfere with those created by the portal itself.

For the single-track portals, I recommend setting new trains to appear at 60-minute intervals. You need to leave plenty of time for the AI to sort out who gets the track when you have trains wanting to leave the route and others wanting to enter it, especially when you have a long single track between the mainline and the portal.

While you wait for the first new trains to emerge from the portals, start with other traffic already on the route. You might start with several trains in the yard and send them to industries before they exit the route. Or you can have them run loop routes, such as from the forestry to the lumber mill and back. Be sure to include a delay somewhere along the way, otherwise the train will empty out the forestry in a run or two and it will have nothing to pick up later.

Other trains you can start somewhere along the route. For example, you could place a long drag of loaded tank cars near the Renfield portal, then program it to run to McPherson Naval Air Station to unload. Once unloaded, send it back to Renfield to exit the map. That's about a 35-minute round trip.

Once you get your AI traffic running to your satisfaction, spot a few cars at various places around the map, such as at a grain elevator. Then grab a locomotive and take it out yourself on the local run. Cool. 😊

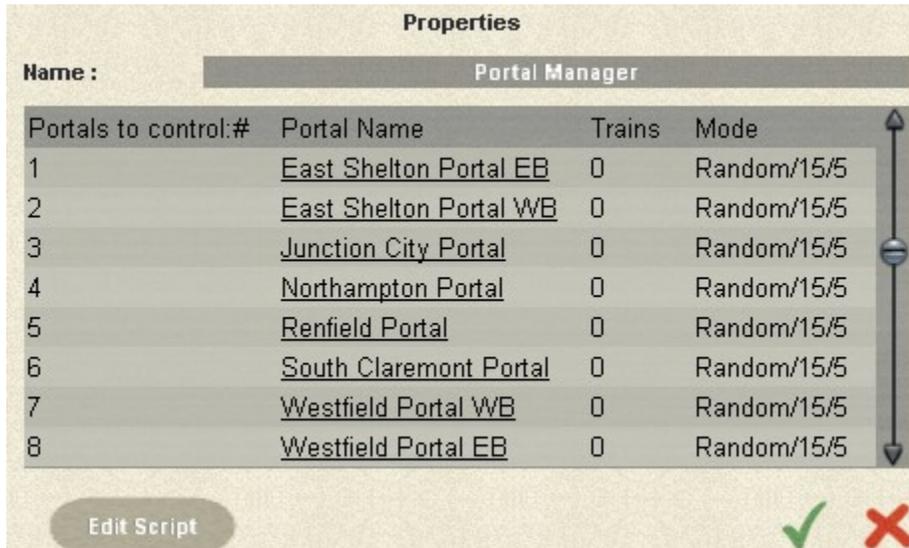
### **The Portal Manager**

Some of the saved sessions for Midwest Central utilize the Portal Manager rule by Jürgen Schmitz, <kuid2:192081:14:1>. The portals that come with TRS2004 and later were major improvements over earlier trainz versions, but they have a number of limitations. For one, new trains are generated at random and you have no control over the sequence. Secondly, the interval between trains is fixed, and third, you have to go navigate to each portal separately to set its parameters.

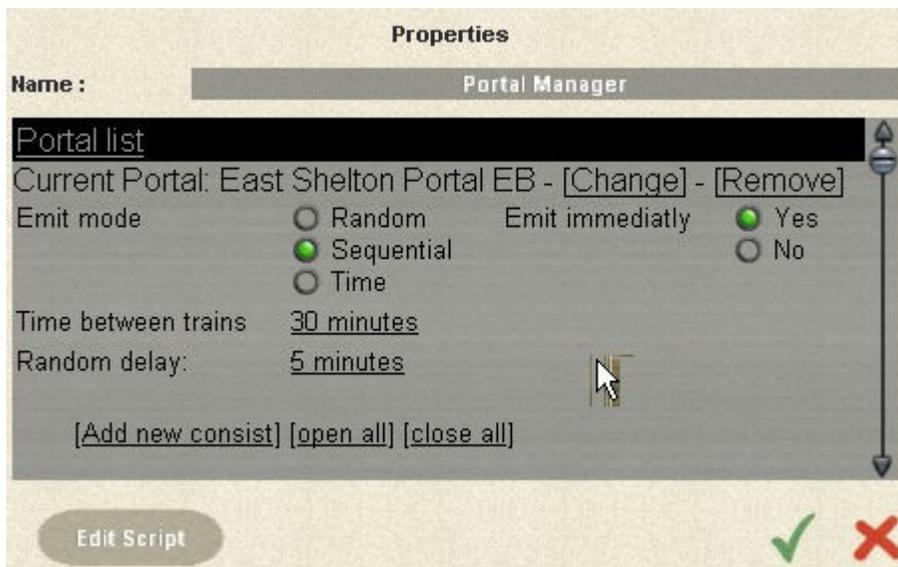
The Portal Manager option, on the other hand, gives the user a much greater degree of control. You can now specify whether you want new trains generated randomly or

sequentially. You can also specify if you want the first new train from the portal emitted immediately. Let's say you set the normal portal delay to 30 minutes. With the Auran portal, you had to wait 30 minutes before the first train would emerge from the portal. With the Portal Manager, you can get the first train right away, if you wish.

Finally, the Portal Manager allows you program all the portals from the same place where you edit driver commands. Just add the Portal Manager rule to the list of available commands and click "edit" to program your portals.



With the Portal Manager, you can build a list of as many portals as you wish to control. To program each portal, just click the name and you can set the parameters for that particular portal.



In the picture above, you just pick the options you wish for that particular portal. Then just add one or more consists, in the same way you would with the Auran portals. I have found the Portal Manager a useful, easy-to-use tool, and a great addition to Surveyor.

The only thing you apparently can't do with the Portal Manager is have trains return. For that, I go to the portal itself and just turn on the "all trains return" option only. I still use the manager to generate new trains.

### The Yard Bypass Tracks

The main yard has both eastbound and westbound bypass tracks and you want your through trains to take them. Unfortunately, the trains seem to want to detour through the yard itself instead of taking the bypass. I've placed a track mark on each bypass for that reason, so when you're traveling eastbound from Westfield to East Shelton, include a "Drive via Yard Bypass Eastbound" in the engineer setup. Same thing when traveling west.

The picture below shows the trackage just west of the main yard. On the right, the bypass track heads east. On the left, the westbound bypass skirts the yard, coming toward the camera.



### Industries

As with any railroad, Midwest Central's forte is moving bulk commodities, the main ones being coal and lumber. MidCen also does a good business moving livestock. **New in Release 2 are oil, bricks, and iron ore.**

Coal:

Our coal clients include the Jackson and Big Walker mines, both located at the east end of the route, at MP9.3. Coal from these mines can be taken to the Mason Power Plant, MP15.9 and Caldwell Power Station at MP28.2.

Logging:

Three logging camps offer pickup of logs, and two lumber mills receive those logs and make lumber and woodchips. The names and locations are:

Tall Tee Logging	MP12.0	Garfield Lumber Co.	MP18.4
Wingate Logging	MP33.1	Tremont Lumber	MP28.2
West Valley Forestry	MP34.0	South Claremont Logging	MP S4.0 (Rel2)

Products from the lumber mills can be taken to several places, including:

Huntersville Furniture	MP14.9	IKEA manufacturing	MP14.5
Garfield Paper Mill	MP18.0	Holt manufacturing	MP18.0

Livestock:

Out west, three cattle ranches have livestock pickup, and cattle may be taken to the Armour Meat Packing Plant at Huntersville, MP14.9. The cattle ranches are:

Mesa Valley Ranch	MP31.3	Crown Ranch	MP29.7
Pearson Ranch	MP24.0		

Mesa Valley is worth a special mention. Being the furthest from the yard, it also has a turn loop, permitting out-and-back operations to service all three ranches, as shown below.

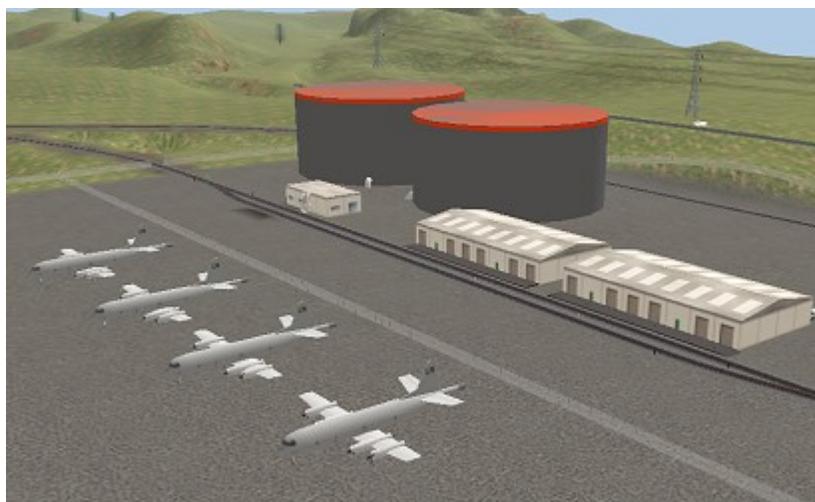


Crown and Mesa Valley ranches also accept delivery of hale bales from two local farms and livestock feed from the Inadale Feed Mill in Garfield. The hay and feed are stored in the sheds near the track.

### Fuel:

While there were no oil wells or refineries within MidCen's territory in the original release, several opportunities existed for fuel deliveries from off-map sources. McPherson Naval Air Station, MP21.5, operates helicopters and P3 fixed-wing aircraft, and has a large tank farm. Food and warehouse facilities permit additional deliveries. See the picture below.

Smaller fuel operations exist at LLJ Oil in Caldwell, MP27.9, and Huntersville Petroleum at MP14.9.



McPherson Naval Air Station

In Release 2, oil was discovered in the hill country around MP6.0 and two oil fields, Cradoc and Pella, have been placed in operation. To service the new oil fields, a refinery is now in operation in the Tremont industrial area, around MP28.

The picture below shows the industrial area at Caldwell. On the left is the IKEA distribution facility (in blue) and the grey-colored tanks of LLJ Oil. Four smaller industries, including Weber Farm Equipment and Despey Radar Systems are clustered to the right, as is the passenger station. National Grain Company is the white building at the right rear.



### Iron Ore (Release 2)

A new iron ore mine has opened at South Claremont, and loaded trains can now be taken to Freikenberg Iron Works, just west of the Junction City turnoff, about MP31. Freikenberg produces general goods.

### Bricks (Release 2)

Located near the new oil fields, the Ashcroft Clay Pit is the source for brick clay. Loaded hoppers of clay (and loads of coal) can be taken to the East Shelton Brickworks, which in turn produces pallets of bricks.

### Bock Beer (Release 2)

In the original release, Stockman grain elevator #1 was located at MP11. That industry has gone out of business, and the site was taken over by the Getreide Barley Elevator. Pick up loads of barley there and take them to the Bock Brewery, located in the industrial area at East Shelton. The brewery produces kegs of beer.

The picture below shows the industrial complex at East Shelton. In the left foreground is the Bock Brewery. To the right, a MidCen train is delivering loads to the clay mountain at the brickworks. Above the brewery is East Shelton Distributing and just visible down the track from the brickworks is East Shelton Manufacturing. The yard and town are on the left edge of the picture.



### Asset downloads

As you might suspect with a large map, Midwest Central has quite a few dependencies. In MidCen build 360, the original version, there are 593. Of these, almost all are available on the download station. With my broadband connection and first-class ticket, the asset download took about ten minutes.

In Release 2, the number of assets climbs to 701, and the baseboard count rises from 133 in the original version to 185 in Release 2.

After you download the assets, you'll find some are missing. These items, such as the portal manager and the meat packing plant, are not on the download station, but can be obtained from other sites. Visit the MidCen homepage for download information on these assets. In Release 2, although the asset count is higher, all of the added assets are available on the download station.

Release 2 also replaces a number of assets in the original with new ones. All of the grade crossings have been upgraded to new ones by BNSF50. The turntable in the main yard has been replaced by Andi06's cool automatic turntable, and Andi's station kits have replaced all of the passenger stations. These new station platforms are longer and have bypass tracks so other trains can get around stopped passenger traffic.

In the Release 2 picture below, an eastbound coal train, headed by 9821 and 9822 pass an Amtrak train in the bypass track at the Huntersville station



Once you download all the assets, you'll also find a number of "broken" items, 34 to be exact. These are scenery elements created before TRS2004/2006 and have a few parameters incorrect. My experience is that this scenery works fine in spite of the reported errors. If you get a warning when you load either route, ignore it, and everything should work fine.

As always, email me if you have problems.

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