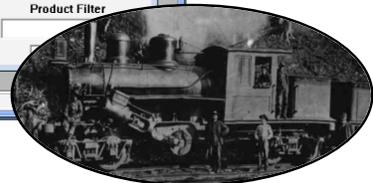


# SHIP IT!

*(by rail of course)™*

*SwitchLists For Operating Your Layout*



Version 9.0 Beta A (c)1995-2017 Albion Software C:\shipit\_test\example2\match: Session #1

File Edit View Options Window Help

Shipping Stock Industry Trains Divisions Generate Diagnostics Print Window Help

Browse Shippers

Industry Name	Town Name	Product Name	AAR Code	Car Type	Train Type	Secondary
B & L E	Butler	produce	RP	Reefer	general freight	
B & L E	Butler	general freight	XM	Boxcar	general freight	
B & L E	Butler	paper	XM	Boxcar	general freight	
B & L E	Butler	truck & auto parts	XM	Boxcar	general freight	
B & L E	Butler	supplies	FM	Flat Car	general freight	
Keystone #2	Butler	Coal	HD	Hopper	general freight	
Babcock Mine #1	Duquesne	Coal	HD	Hopper	general freight	
Wilsons Granary	East Pittsburgh	grain	XM	Boxcar	general freight	
Crucible Scrap Ya	East Pittsburgh	crushed steel loa	GB	Gondola	general freight	
Vulcan Forge	East Pittsburgh	Forged Metals	XM	Boxcar	general freight	
Westinghouse Air	East Pittsburgh	air brakes	XM	Boxcar	general freight	
PRR Interchange	East Pittsburgh	tractor parts	XMR	Boxcar	general freight	
PRR Interchange	East Pittsburgh	fertilizer	XM	Boxcar	general freight	
PRR Interchange	East Pittsburgh	powdered metals	XM	Boxcar	general freight	
Hall Feed & Fertil	Hall	Hall's Blended Fe	XM	Boxcar	general freight	

Insert Change Delete Diagnostics Close

Town Filter Industry Filter Product Filter

Filter On Filter On

Created by

**ALBION SOFTWARE**

2405 Aspen St  
Richardson, TX 75082  
albionsoftware.com



# Welcome

Welcome to Ship It! - the prototypical operations generator that is simulation-based. Ship It! automates the process of generating operating sessions. No longer will you have to spend hours planning out your operating sessions, or track mountains of paperwork. Once the database describing your layout has been built, a simple click of a button will generate a new operating session for you. Ship It! is not a random car movement generator - every car movement is based on the requests of the shippers and consignees (receivers) on your layout. Ship It! is designed to mimic the prototype, hence the name. As you begin to enter your layout's information into the software, you will begin to feel like a shipping agent overseeing a living transportation network. It doesn't matter whether your layout is a 4 x 8 oval or a club-size layout as big as a barn - realistic operation is possible on it, and Ship It! can help bring it to life.

## Key Features

- All car movement is caused by the requests of shippers & consignees - nothing is random.
- Loads and empties are routed across divisions via interchange trackage.
- Hidden and fiddle staging is supported (off-line towns & industries can be simulated).
- Automatic blocking by towns on the schedule
- Individual cars can move more than once during an operating session.
- Empties are scheduled as well as loads.
- Car dwell time (duration) can be set for each product shipped (and received).
- Number of cars (amount) can be set for each product shipped (and received).
- Frequency of shipments can be set for each product sent to a consignee.
- Car lading and location is tracked through time.
- Switchlists include train schedules & Conductor & Engineer instructions.
- Supports Local vs. Through Train Types (local - through - local).
- With our Car Cards program, switchlists can be printed to waybills
- Scheduler (featuring string diagrams) is included.
- Railbase (our inventory program) is available (and shares the same database)
- Status (number of cars, lading, etc.) of all industries can be printed out (Industry Status Report)
- Select multiple locomotives and develop helper service.
- Print out Yard Arrival and Yard Departure Reports, Train Length Reports - more than 24 reports in all!
- Connect up to 6 divisions via one interchange. Multiple interchanges (unlimited) per division.
- Set priorities for shippers and consignees.
- Industry Activity Report charts shipments and arrivals across many sessions.

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#### Acknowledgements

Thanks to my wife Maria, and my daughters Sylvia and Alysia for their constant support and love during this development. I could not have done it without them. Thanks to lead Beta tester Doug Sandmeyer for all his hard work, and all the other Beta testers for their time, effort, and support. Thanks also to Harry Bonham for his suggestions and help with the manual. A special thanks to Dick Bradley, MMR for the inspiration to create a “non-random” switchlist generator. Photos and general harassment courtesy of my friend John Fiero (he keeps me laughing at least).

2020 addition - special shout-out of thanks to Fred Theiss and Dale Kreutzer for their help in Beta testing - but most of all for their suggestions and encouragement. Thanks guys - you are the BEST!

Bill Appell, Dec. 1995, updated October 2020

Edition 4 for Version 9.0  
01/03/2021

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# Table of Contents

## Introduction

- Welcome
- Requirements
- Installation
- Getting Started**

## 1 How Ship It! Works

- Introduction
- Prototype Operation
- Ship It! Versus The Prototype

## 2 A Database Explained

- Introduction

## 3 Browse And Update Windows

- What Is A Browse Window?
- What Is An Update Screen?
- Building Your Layout's Database
- Related Files Explained
- Which Files Should I Fill Out First?
- Entering Data On The Fly
- Bypassing The Mouse

## 4 Deleting & Changing Records

- Cascading Changes
- What About Deletes
- Deleted Related Records Only When Necessary
- Delete Error Message

## 5 The Main Window

- Introduction

## 6 The File Menu

- Introduction
- Backup, Restore, Export
- Database Tab
- Names and Dates Tab
- Options 1 Through Options 6 Tabs
- Exporting to Ship It! 8

## 7 Rolling Stock Menu

- Introduction
- Update AAR Type Window
- Update Road Names Window
- Update Rolling Stock Window
- Revise Location Tab

## **8 Industry Menu**

- Introduction
- Update Industry Window
- Update Products Window
- Update Consignee Window
- Update Shipper Window
- Balancing Shippers & Consignees

## **9 Train Menu**

- Introduction
- Update Train Types Window
- Update Locomotives Window
- Update Trains Window
- Staging Tab
- Session Generation Tab
- Viewing Train Schedules
- Copy Train
- Update Train Schedule Window
- Condensed Switchlist, Blocking Trains
- Update Motive Power, Helper Service

## **10 Generate Menu**

- Introduction
- Start Fresh
- Generate Session
- Add New Cars
- Stuck Car Processing
- Measuring Siding and Train Cap in feet (or other units)

## **11 Print Menu**

- Introduction
- Preview
- Starting Car Locations
- Ending Car Locations
- Switchlist
- Orphan Industry Report
- Industry Status Report

## **12 Division Menu**

- Introduction
- Definitions, How Divisions Work
- How Automatic Car Routing Works
- How Pre-Set Car Routing Works
- Division Diagnostics
- Update Divisions Window
- Update Towns Window
- Update Interchanges Window
- Update & Viewing Car Routes
- Browse Car Route List
- Update Car Route Details

## **13 Diagnostics**

- Selection Window Not Appearing
- File Error in get\_divname
- File Error in get\_train\_type
- Other Errors
- Division Problems

## **14 Sample Layouts**

- Example 1 -The H&R RR
- Example 2 - The Union Lines
- Example 3

## **15 Divisions Tutorial**

## **16 Setting Up Hidden Staging**

- Introduction
- Two Types of Staging
- Definitions, How Loads & Empties Convert
- How To Set Up Staging
- A Paired Set of Staging Trains
- Staging Used in a Turn or "Out and Back"
- Through Staging as Part of a Loop
- Through Staging in a Point to Point Layout
- Return Loop Staging
- Common Staging
- Disappearing Cars, Local & Thru Pick Ups

## **17 Local and Through Trains**

- Introduction
- Using One Train
- Using Two Train
- Example 1
- Sending & Receiving as a Thru Train

## **18 Improving Car Movement: Layout Capacity And Balancing**

## Minimum System Requirements

- Any version of Microsoft Windows (including Win 11, Win 10, Win 8, Win 7, VISTA , XP; older versions will likely run too, but have not been tested in the latest version of Ship It!
- Mouse
- Printer supported by Windows

## Installation

Double-click on the installer after downloading it. I strongly advise using the default setting for the installation directory - this will help if you install any of our other software packages.

## Backups

There is an automatic backup system as well as full backup and restore functionality. Read chapter 6 for more information.

## Support

**There is an email list for Ship It! users at <https://groups.io/g/shipitusers>. This is the best place to obtain support.** You can communicate with all types of users here, from experts to new users. Most everyone there is willing to share their knowledge to help the new user. It's also a good place to talk to folks interested in operation in general. This has been set up independently from Albion Software.

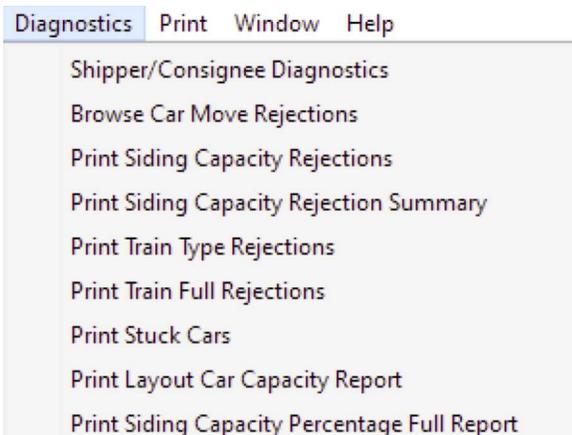
See the “Quick Checklist for Lack of Car Movement” in Chapter 1

Chapter 13 (Common Problems) and Chapter 15 (Tips, Suggestions, Diagnostics) are also recommended.

If you are setting up divisions and interchanges, study chapter 12 carefully. Before adding a second division, get cars moving in a single division first.

If not enough cars are moving (or cars are becoming “stuck”), try the option “Last Pass Random Generation” (See Options Tab 5 - File, Options in the pulldown menu).

There are numerous reports that can help you in debugging your operations:



There are many good diagnostic reports under the Diagnostics menu. In particular, “Print Stuck Cars”, “Print Layout Car Capacity Report”, and “Print Siding Capacity Percentage Full Report”, will give you insight into what is happening when you generate sessions.

“Browse Car Move Rejections” will list rejections of car movement during session generation due to: destination being full, train type mis-match, and train too full.

Finally, make sure you read Chapter 18 “Improving Car Movement: Layout Capacity And Balancing”.

## Getting Started

### Note & Tips:

For Installation, see page IX

### Start Small

If you have a medium to large layout with lots of towns & industries, consider starting off by entering just a section of your layout to start with. Data entry can get tiresome after a while; by starting off small, you can generate some action to test the program and keep your interest high (sort of like finishing your layout in sections - I bet most of you have both raw benchwork and highly detailed scenes on your layout at this moment!). Starting small also allows you to experiment on a smaller scale while learning the program.

### If You Have Divisions

Stay away from more than one division until you have success on a smaller scale. The interaction and scheduling between industries in different divisions adds a higher level of complication. It's best to learn the program while staying with one division.

### Required Reading

**Chapter 1 - How Ship It! Works - is absolutely essential reading.** The introduction, chapter 2 (A Database Explained), chapter 3 (Browse & Update Windows), chapter 4 (Deleting & Changing Records), chapter 5 (The Main Window), and chapter 6 (The File Menu), all rate high in importance. Luckily, most of these chapters are short. **Do not forget Chapter 14, "Sample Layouts"**. This chapter includes schematics and explanations of the two sample layouts. Two other important chapters are **Chapter 15, "Tips, Suggestions, Debugging"**, and **Chapter 16, "Divisions Tutorial"**. Both of these chapters are very helpful and provide concrete examples of applying Ship It! to model railroad operations.

### I. Create A Schematic

Ship It! requires you to enter a lot of highly detailed information about your layout into your computer. It is easier if you first create a schematic diagram of your layout. A schematic is nothing more than a point to point diagram of your layout. On this schematic you should label all divisions, towns, industries, interchanges, and yards.

### II. Set Your Options

From the File menu, select Options. Next select the database you want to hold your layout data (usually primary), and make sure enable second pass is checked. See chapter 6 for further explanation.

### III. Data Entry

Fill in the following browse windows in this order: Divisions, Towns, Industries, Train Types. See chapters 12, 8, 9, and 3 for information about entering this data.

### IV. Make A List

For each industry, list in two columns on a blank sheet of paper, each product the industry ships and receives. These will become your shipper and consignee records. For each product shipped from a given industry, an industry is needed to receive that product. Interchanges and yards can also be used to receive, or even produce, goods. When your list is complete, enter all the products in the Products browse window, making sure you select the correct AAR type for each product (see chapter 8). If necessary, add more AAR types (keeping in mind your available rolling stock). Next fill out the Shipper and Consignee browse windows. For each industry, you can have multiple shipper and consignee records (similar to many industries in real life which both ship and receive many products). For the sake of simplicity, leave the duration and frequency fields at their default of 24 hours (see chapter 8) - these can be easily revised later on.

### V. Rolling Stock

Enter at least one car for every industry (that you have added to the industry file), into the Rolling Stock browse window (see chapter 7). Eventually you will need to enter all of your available cars, but you can start with less to make it easier. Just make sure the majority match the AAR types used in the products shipped and received by those industries.

### VI. Motive Power

Enter at least one locomotive into the Motive Power browse window (see chapter 9)

### VII. The Train Schedule

Enter at least one train in the Trains browse window (see chapter 9). Make sure the train type matches that used in the majority of the shipper and consignee records you filled in earlier. Next, create a schedule for the train (chapter 9 also). Make sure the train will visit the towns where the industries exist that you have filled out shippers & consignees for.

### **VIII. Orphan Industries**

Select Orphan Industry Report from the Print menu to tell you if you have any unmatched shippers and consignees. These are consignees or shippers that have nowhere to ship their goods to or receive their goods from.

### **IX. Generate & Print**

Select Start Fresh from the Generate menu. When it has finished, select Generate Session from the generate menu to generate your first session. To print your car locations, select Starting Car Locations from the Print menu. To print your switchlist, select Print Switchlist from the print menu. See chapter 10 for information on generating sessions, and chapter 11 for information on printing your reports.

### **X. Congratulations!**

You have generated your first operating session with Ship It!.



# 1

## How Ship It! Works

## Introduction

**Ship It!** routes cars based on the requests of the shippers and consignees (receiving industries) on your layout. There are also other variables which affect the routing of cars that you need to be aware of. In this chapter we will examine each of these in turn so that you will be able to design your transportation system to give you the type of operating sessions you desire most.

## Prototype Operation

In the real world, a car movement is born when a customer orders a car load of goods from a manufacturer. The manufacturer (shipper) then contacts the railroad to request an empty car so it can be loaded and shipped to the customer. This constitutes the first move of a car in connection with this customer order.

When the requested empty arrives, it is loaded by the shipper. The pickup of the loaded car is then scheduled, the car appears on the switchlist for the train that will pick it up, and the car begins its journey to the consignee. This constitutes the second move of the car.

If the car is traveling to another division, or perhaps across the country, there may be many moves before it arrives at its destination. It may first be delivered to the yard for classification, and it may need to pass through several interchanges and several railroads before the consignee receives it. The second move, that of the loaded car from the shipper to the consignee, could be many moves.

When the car arrives at the consignee, it is then unloaded, and becomes empty again ready to be filled with another shipment. Empties are normally routed back to their home district, following, in reverse, the route they took to get there, unless there is a direct connection to the home road. Empties on the way home may be intercepted and loaded as required, in order to better utilize car movements. The movement of an empty car home is the third move (at least) generated by the customer's request for a load of goods. This move could land the car at another shipper, ready to be loaded again.

## Ship It! Versus The Prototype

### Industries, Shippers and Consignees

Inside the Ship It! program, you will build a database containing all the information about your shippers and consignees. Each industry can (and probably will) have many shipper and consignee records. For example, that furniture factory on your layout ships furniture, but it also receives lumber, textiles, glue, varnish, nails, and other manufacturing supplies. Each of these goods to be

received will have its own entry (unless you want to group them together under a miscellaneous supplies category), and each can request cars to be delivered at a different frequency. For example, a carload of lumber might be requested every day, but a carload of varnish might be requested once a week.

## What Triggers Car Movement?

It is the matching up of goods to be shipped and goods to be received that triggers car movement inside Ship It!. When one industry requests what another industry produces, car movement is established. Other criteria are involved, but this is the basis for all load movement within Ship It!.

## The Delivery of Empties

In the above prototype scenario, a car movement is born when a customer orders a load of goods from a manufacturer. This first move is the delivery of an empty to the manufacturer. In Ship It!, things work a bit different. Each shipper record has a field within it called **Empties On Hand**. This means the shipper always wants to have so many empties on hand for him to fill. This is similar to the prototype situation of a large industry that has an arrangement with the railroad to send it so many empties per day. When a session is generated inside Ship It!, one of the things looked at is **Empties On Hand**. Each industry is examined to see if it has the number of empties that it wants. If it doesn't, empties are scheduled (if available) to be delivered there.

## Loads Convert To Empties And Vice-Versa

In the prototype, after an empty is delivered to a shipper it is loaded. Inside Ship It!, the same is true. Each shipper entry has a field called **Duration**. This is the number of hours it takes to load the empty. After **Duration** number of hours has passed, the empty automatically becomes a load. Ship It! keeps track of all the available loads.

## Time Inside Ship It!

You don't need to operate with a fast clock while using Ship It!. However, the program does need to track time, so a decision was made to define the time span between the start of one session and the start of the next session as 1 day (24 hours). This does not mean you need to operate your trains every 24 hours, but even if you don't operate your trains for 3 months, only 1 day will have passed inside Ship It!, since you started your last operating session. This impacts **Duration** time. For example, let's say you set the duration time in the shipper record for the loading of furniture at 48 hours. The program would not convert this empty to a load until the second session after the empty was delivered. In

other words, the car would sit there, not available for shipment as a load, until two sessions (2 days or 48 hours) had passed. Time is also present within each train's schedule; this sets up the timing within the 24 hour session.

### What Starts Load Delivery?

In the above-mentioned prototype scenario, the customer contacts the shipper and orders goods. In Ship It!, it is the consignee entries in the database that do the calling. Always keep in mind each industry may have more than one consignee entry. When a session is generated, each consignee record (request) is examined. Each consignee record has a frequency field. This field indicates how often the industry would like a car load of those particular goods delivered. Ship It! keeps track through time of all the car movements that have occurred. If the industry has not received a carload of those goods within **Frequency** number of hours, then a load request is triggered.

### Matching Available Loads and Load Requests

When a session is generated, all available loads and load requests are examined. When a match is found between an available load and a load request, the matchup is further examined to see if a delivery can take place.

### Other Factors

The match-up must pass the following tests if a loaded car movement is to occur:

- Products** - the products must match. In other words if a shipper is shipping bananas and the consignee is requesting apples, a match would not occur.
- Train size** - the maximum capacity (number of cars) of the train doing the delivery must not be exceeded.
- Siding capacity** - the maximum capacity of the consignee's siding must not have been reached yet (there must be enough room for all the cars being delivered).
- Train type** - the shipper and the consignee train type fields must match. Train type is set up by the user. Examples include wayfreight, general freight, extra, local, hot shot, passenger, etc.
- Train schedule** - the movement of the car must be physically possible. In other words, there must be a way for the car to get to where its going . The route the car must take must be part of a train's schedule, or a combination of train's schedules.

### The Last Step

In the prototype, when a car is delivered it is unloaded. This takes time, depending on the load. In Ship It! the same is true. There is a duration field in the consignee record. This is the number of hours it takes to unload the car. After duration number of hours has passed, the load automatically becomes an empty.

### What happens to empties?

In Ship It!, empties are available to be picked up by any industry requesting them. If an empty remains at the industry where it was unloaded for more than double the duration time, then it is moved toward the home yard, across divisions if necessary. What actually happens within the program is any load converted to an empty becomes an available empty.

### Empties Are Matched Also

Within Ship It!, shippers that require empties create empty requests. As with loads, empty requests are matched up with available empties.

The match-up must pass the following tests if an empty car movement is to occur:

- **Car type** - the AAR car type must match . In other words if a shipper is requesting an AAR type XM (boxcar), the movement would not occur unless the available empty was also of AAR type XM.
- **Train size** - the maximum capacity (number of cars) of the train doing the delivery must not be exceeded.
- **Siding capacity** - the maximum capacity of the shipper's siding must not have been reached yet (there must be enough room for all the cars being delivered).
- **Train type** - the shipper and the consignee train type fields must match. Train type is set up by the user. Examples include wayfreight, general freight, extra, local, hot shot, passenger, etc.
- **Train schedule** - the movement of the car must be physically possible. In other words, there must be a way for the car to get to where its going . The route the car must take must be part of a train's schedule, or a combination of train's schedules.



**2**

# **A Database Explained**

## Introduction

Ship It! is a database application. In order to generate operating sessions for you, Ship It! needs to know everything about the towns, industries, and cars on your layout, plus a whole lot more. In fact, Ship It! will force you to define things on your layout you haven't wrestled with yet. Hopefully you will find your layout coming alive, and in the process enjoy it a whole lot more. After all, designing, modeling, and detailing a layout is so much work a lot of us ignore the operating aspect of it. Ship It! provides you with a framework to design your layout operations around. This framework is the database within Ship It!.

A database (don't let these computer terms fool you) is nothing more than a collection of highly organized information. An empty database is like an empty library - there's lots of shelves, all organized and numbered by a system (the dewey-decimal), just waiting to be filled with books. Ship It's database, likewise is organized by a system (the one programmed inside it), and likewise is empty, except for some AAR types already input.

The database within Ship It! is a collection of related tables of data. There are tables for rolling stock information, towns, industries, consignee and shippers, etc. Within each table there are many groups of information called rows. For example, in the industries table there will be a row for each industry. Within each industry row, there will be detailed information such as name, capacity, town, etc. These pieces of information are called columns (or fields). It is good to understand this because you will be entering a lot of information into Ship It!. However if you are one of those folks saying just now, "Don't give me any of this computer bull.", don't worry - you'll be able to enter information into the database without understanding the nuts and bolts of it.

## Industry Table

	<u>Name Column</u>	<u>Town Column</u>	<u>Capacity Column</u>	<u>Industry Column</u>	<u>Description Column</u>
<i>Row 1</i>	Millers Granary	Thurston	3	Industry	Largest Shipper
<i>Row 2</i>	Harrison Yard	Harrison	20	Yard	Main Yard
<i>Row 3</i>	Harrison Bakery	Harrison	3	Industry	
<i>Etc.</i>					

# 3

## Browse and Update

## Introduction

You will be using two main types of windows for entering all the information about your layout - the browse window and the update window.

### What Is A Browse Window?

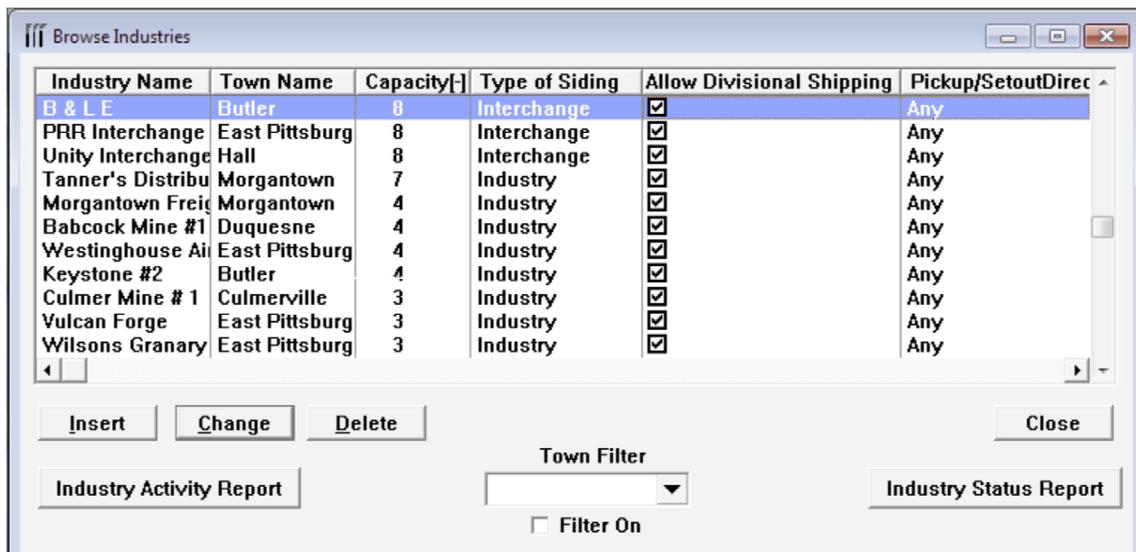
The first picture below shows a typical browse window. A browse window contains a scrolling area that allows you to “browse” through the records of your database. The browse window is simply a view into your database; with it you can examine all the information you have entered so far. The browse window is also where you insert, change, and delete records within your database.

### Tip:

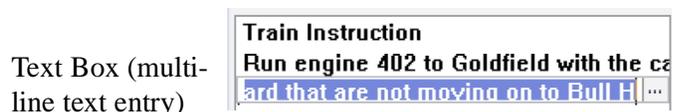
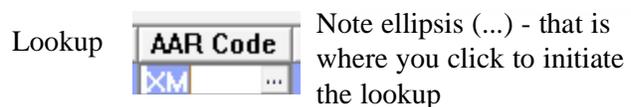
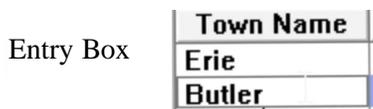
To quickly locate the record you wish to view, press the letter of the first word in the leftmost column. For example, in the screen below you would press the letter “K” if you wanted the highlight bar to jump directly to the record for “Keystone #2”. This is useful if the data you want to view has scrolled off the screen.

### How Do You Insert, Delete, And Change Data?

Almost all of the browse windows in Ship It! feature edit-in-place. Edit-in-place allows you to enter and revise data right in the browse window. When you press the insert button on the browse window, a blank row will appear and wait for you to enter information. If there is a record highlighted in the browse window and you press the change button, entry mode is enabled for the highlighted row. This allows you to tab through the fields or click on them one by one to enter and revise data. All the typical window controls (check boxes, drop lists, lookup buttons, etc) are utilized inside the browse when entry mode is in effect.



Browse Window



Note ellipsis (...) - that is where you click to initiate the text box.

### Edit-In-Place Controls

## Building Your Database

There are many types of information that need to be entered into Ship It! The next picture is a small sampling of the data tables used by Ship It!

File	Description	Found Where?	Order for Beginner Entry
Car Routes	Car Routing between divisions	Division Menu	1
Car Types	CAR Types	Rolling Stock Menu	1
Consignee Records	One for each product that an industry receives.	lccr , Industry Menu	4
Divisions	List of Divisions	Division Menu	1
Interchanges	List of Interchanges	Division Menu	4
Industries	List of Industries	lccr , Industry Menu	3
Locomotives	List of Locomotives	Train Menu	4
Products	List of Products	lccr , Industry Menu	2
Road Names	FRR, B&O, etc.	Rolling Stock Menu	1
Rolling Stock	A List of All Your Cars	lccr , Rolling Stock Menu	4
Car Route Details	List of Interchanges passed through in Car Route	Division Menu	5
Schedules	List of Train Schedules	Train Menu	6
Shipper Records	One for each Product that an Industry receives	lccr , Industry Menu	4
Towns	List of Towns	lccr , Division Menu	2
Trains	List of Trains	Train Menu	5
Train Types	List of Train Types	Train Menu	1

## Related Files Explained

Many of the files in Ship It! are related. This keeps you from having to type the same information over and over again when filling out the database. For example, each industry on your layout must belong to a town. Compare the browse windows for the town “Culmerville” and Industry “Culmer Mine #2” below. Notice the town name appears in each. This data did not have to be typed in twice. When you click on the lookup ellipsis (... in the town column) in the industry browse, the town browse window will appear, allowing you to select a town.

Town Name	Division	Populate	Staging	Initials	Notes
Erie	B&LE North	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ER	
Butler	Butler Divi	<input checked="" type="checkbox"/>	<input type="checkbox"/>	BT	
Culmerville	Butler Divi	<input checked="" type="checkbox"/>	<input type="checkbox"/>	CM	
McBride	Butler Divi	<input checked="" type="checkbox"/>	<input type="checkbox"/>	MB	
River Valley	Butler Divi	<input checked="" type="checkbox"/>	<input type="checkbox"/>	RV	

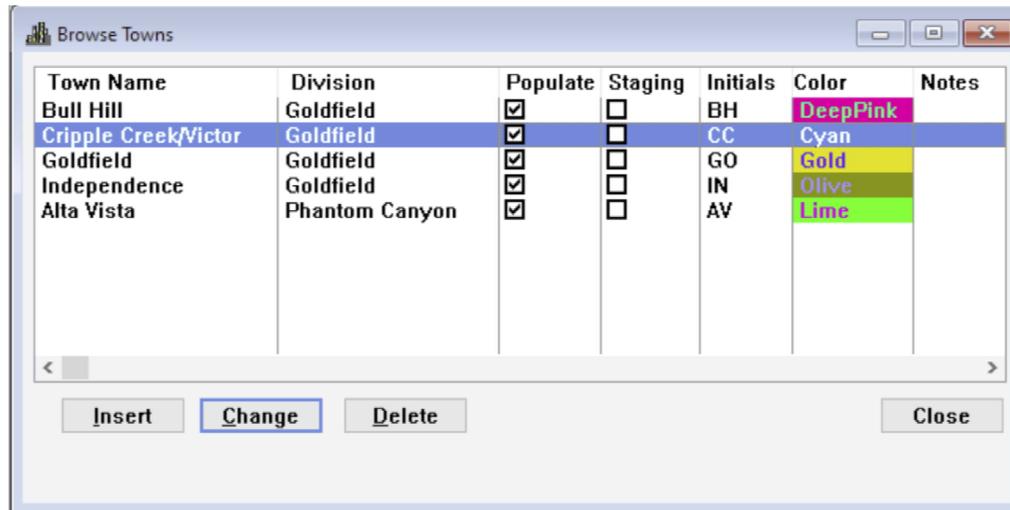
Industry Name	Town Name	Capacity	Type of Siding	Allow Divisional Shipping
B & L E	Butler	8	Interchange	<input checked="" type="checkbox"/>
PRR Interchange	East Pittsburg	8	Interchange	<input checked="" type="checkbox"/>
Unity Interchange	Hall	8	Interchange	<input checked="" type="checkbox"/>
Tanner's Distribu	Morgantown	7	Industry	<input checked="" type="checkbox"/>
Morgantown Freig	Morgantown	4	Industry	<input checked="" type="checkbox"/>
Babcock Mine #1	Duquesne	4	Industry	<input checked="" type="checkbox"/>
Westinghouse Ai	East Pittsburg	4	Industry	<input checked="" type="checkbox"/>
Keystone #2	Butler	4	Industry	<input checked="" type="checkbox"/>
Culmer Mine # 1	Culmerville	3	Industry	<input checked="" type="checkbox"/>
Vulcan Forge	East Pittsburg	3	Industry	<input checked="" type="checkbox"/>
Wilson's Granary	East Pittsburg	3	Industry	<input checked="" type="checkbox"/>

## Which Files Should I Enter Data In First?

Data can be entered in the database “on the fly”, that is, at the point it is required. However, for the beginning user it is better to have the data already entered. Then, when you are comfortable with the software, you can try entering data “on the fly”. The rightmost column in the file on page 3-3 shows which data files you should fill in first, so that data is available when you need it. First fill in all the columns labeled 1, then all the columns labeled 2, and so forth. Unless of course, you’re brave and want to try data entry on the fly.

## Entering Data On The Fly

Entering data on the fly is used when you need to select an item from a browse window, but the item has not been entered yet. Let’s say you are entering the record for a new industry, and you have entered the town field. The towns browse window appears, allowing you to select the town the industry is located in. The following picture shows the town browse window asking for the user to select the town where the industry resides. At this point, if you do not see the town you need, it can be entered via the insert button. The insert, delete, and change buttons here perform the identical functions as in a normal browse window.



## Bypassing The Mouse

The following keys will allow you to insert and delete records, plus hop from field to field, all without the use of the mouse:

### The Insert Key

Similar to pressing the insert button.

### The Delete Key

Similar to pressing the delete button.

### Tab

Advances to the next entry field or control

### Shift-Tab

Goes back to the previous field or control

### Enter

Similar to pressing the OK button.

### Esc

Similar to pressing the cancel button.

### Page Up

Scrolls browse list one “page” up.

### Page Down

Scrolls browse list one “page” down.

### Ctrl-Page Up

Scrolls browse list to top.

### Ctrl-Page Down

Scrolls browse list to bottom.

# 4

## Deleting and Changing Records

## **Introduction**

Changing and deleting records for unrelated information is straight-forward. The change button on a browse allows you to change the highlighted record, and the delete button allows you to delete it. However, when the information in the files is related, you should be aware of a few things.

## **Cascading Changes**

When you change a record referenced by other files, that change will “cascade” through all the related records in the database. For example, each record in the towns file is referenced by many other files including the industry, shipper, and consignee files. If a town name was changed from Harrison to Jackson in the towns file, that change would also occur in all the related files. You would not have to call up all the files the town was referenced in and change them manually; the change would occur on its own.

## **What About Deletes?**

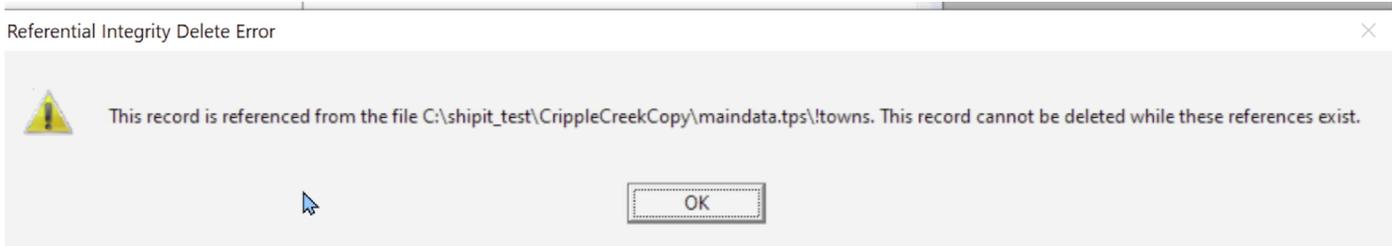
If you attempt to delete records referenced by other files, an error message will appear because the software has been designed to prevent you from mistakenly deleting too much data at one time. For example if you attempt to delete a town record that has industries belonging to it, you will be prevented, because deletion of that town record would cause deletion of those industries. In order to delete a town record, you will need to delete all the industries that reside in that town. To delete the town Harrison, for example, you would need to delete all the industries that belong to Harrison. But to delete those industries, you would first need to delete all the shipper and consignee records belonging to those industries.

## **Delete Related Records Only When Necessary**

Delete records that other files refer to only if necessary. If you need to change the name of a town, don't delete it and create it over again - use the change button. Only delete a town if you are eliminating it from your layout.

## **Delete Error Message**

The following error window occurred when a division record deletion was attempted. If you read the message, it will tell you which file has the referenced records in it. In this case it is the towns file that is referencing the town record. If you need to delete that particular division record, you will need to go into the towns file and delete any records there that reference the division record. When that is accomplished you will be able to delete the division record.



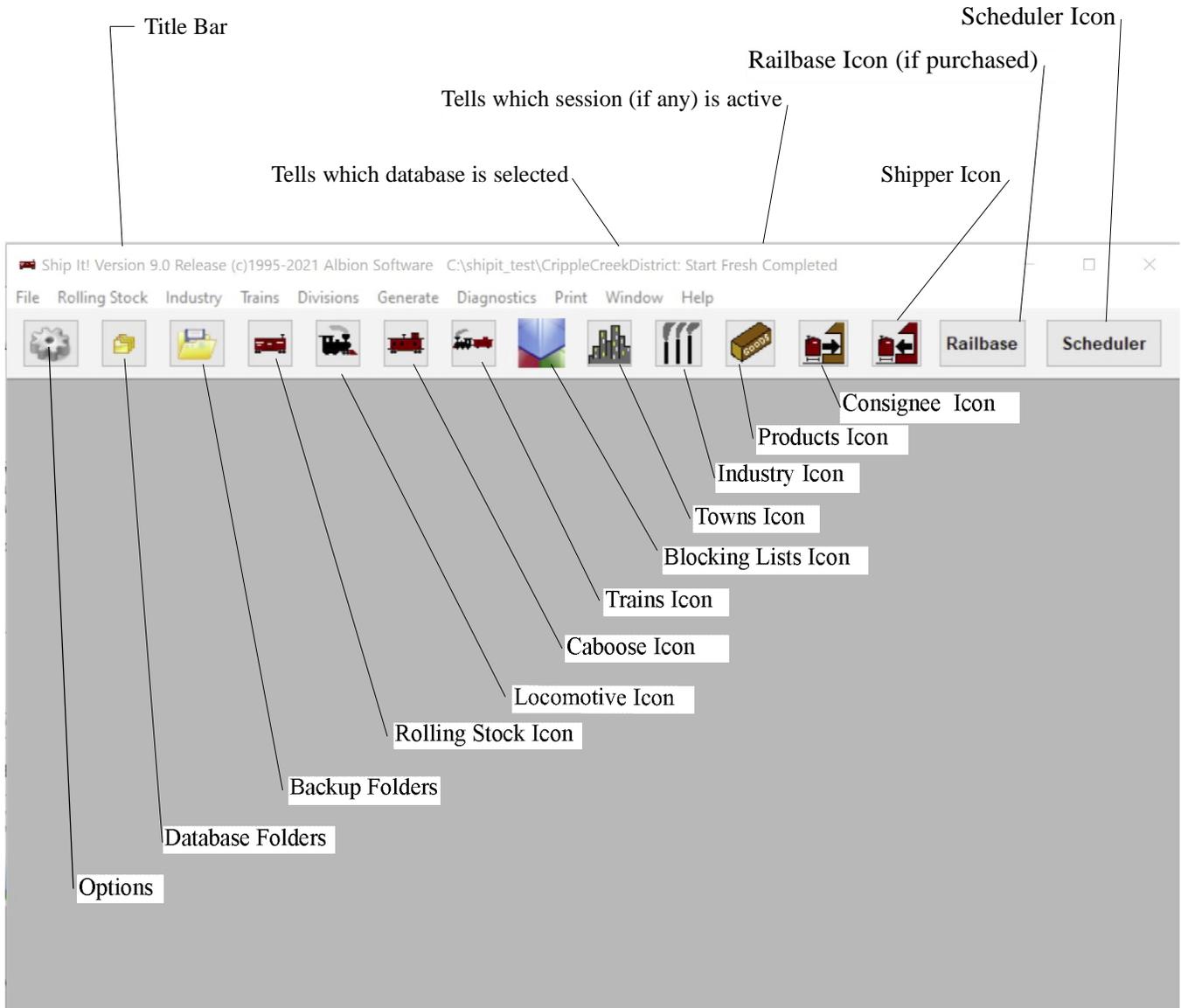
# 5

## The Main Window

## Introduction

The main window is your work area for Ship It!. Here you will open up database windows, generate sessions, and print out reports. The **Menu Bar** (see below) contains every function available inside Ship It!. The **Title Bar** (see below) lets you see at a glance what session you are in and what layout database is active.

The row of **icons** allow you quick entry into files. Not every file has an icon for it, but all files appear in the pull down menus (click on the menus in the **Menu Bar** below). A table in chapter 3 lists many files and which menu they fall under.



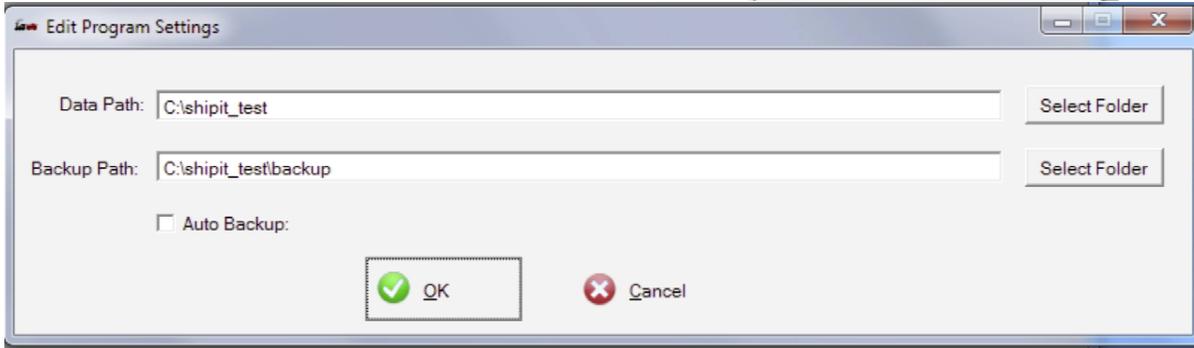
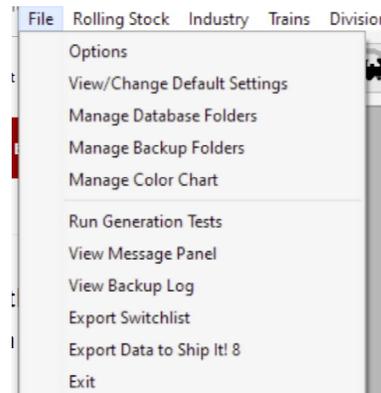
# 6

## The File Menu

## The File menu

**Options** allows you to set many configuration options, as detailed in the Options Tabs sections below.

**View/Change Default Settings** brings up the Edit Program Settings window below where you can specify the root data path for your Ship It! databases and also the default path for backups to be saved to. There is also a checkbox for turning on or off the AutoBackup feature (described later).

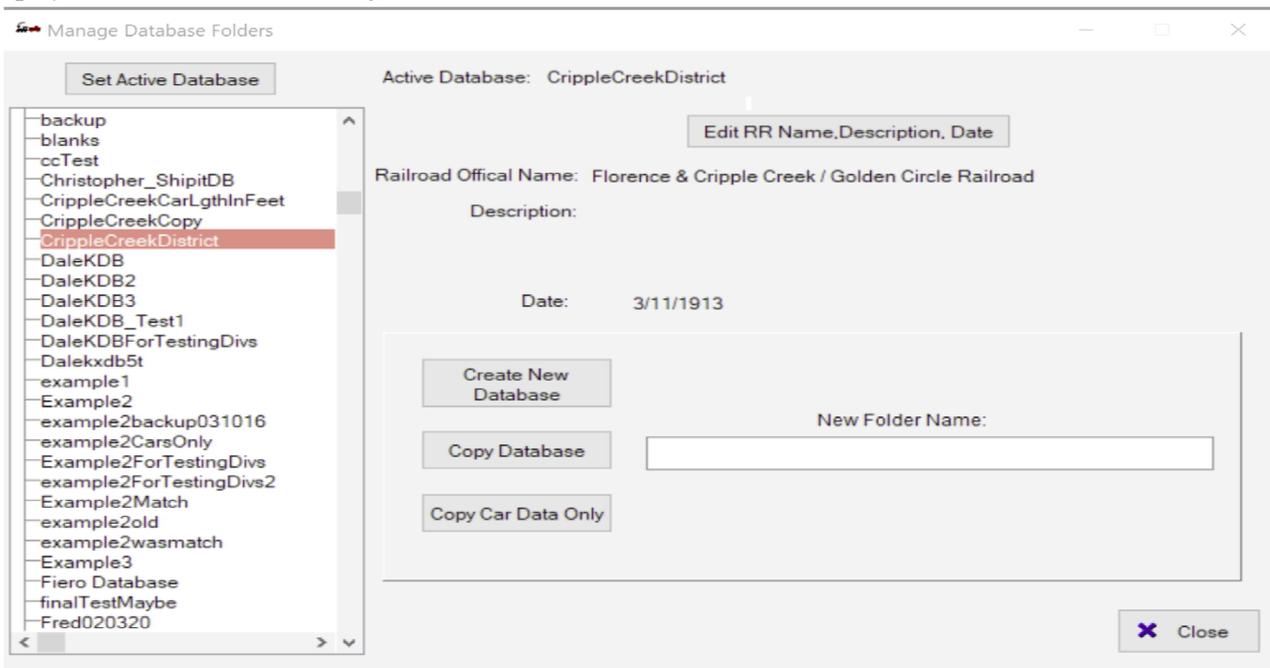


**Manage Database Folders** calls up the following window that allows you to create, copy, and set as active any of the layout databases you have created. Previous versions of Ship It! only allowed you to have 4 databases. Going forward the program now supports unlimited databases.

**Folder Pane** - This is the large vertical pane on the left side of the window. At the top of this window is the root Data Path - which you set in the Edit Program Settings window directly above. The program simply displays all of the folders existing in the root Data.

Path. It is possible to add, change and delete folders right from within Windows Explorer rather than using Ship It! to do so. But please only do this when Ship It! is closed, as the Folder Pane may not display correctly otherwise. Do not be afraid to change your root Data Path (inside the Edit Program Settings window) should you need to, as the program will read all of the folders inside the new root Data Path and display them

**Set Active Database** - Use this button to make the



highlighted folder your active database. You can also double-click on any highlighted folder to make it active.

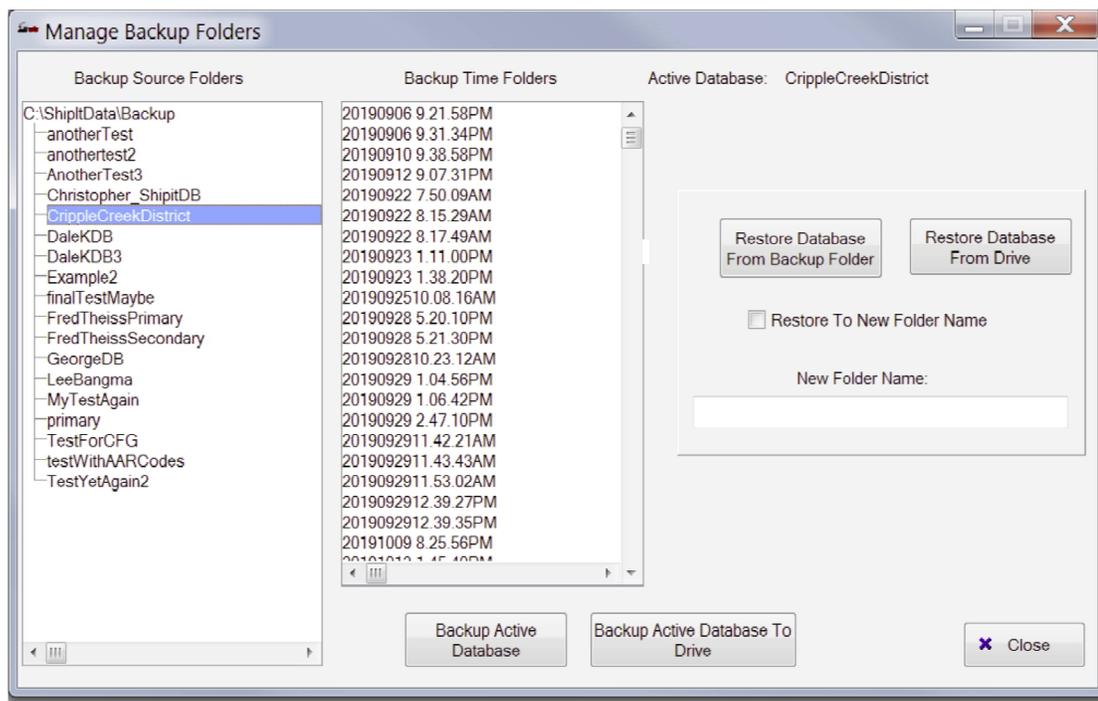
**Edit RR Name, Description, Date** - Allows you to edit these text fields. RR Name and date will appear on your switchlists.

**Create New Database** - does what it implies. Before clicking on this, you must fill out the New Folder Name entry box.

**Copy Database** - to use this, first highlight in the Folder Pane, the folder that you wish to copy from.

Then fill out a name for your new database in the New Folder Name entry box. Next press the Copy Database button. You will now have an exact copy of your database in a new folder.

**Copy Car Data Only** - This acts just like Copy Database, except that only car data is copied to the new database.



**Manage Backup Folders** is very similar to the Manage Database Folders window, except that it displays all the folders in the Backup Path.

**Auto Backup** - If Auto Backup is turned on (see the previous page or go to “View/Change Default Settings” in the File pull-down menu), the data in the active database will be saved every time you exit Ship It! Your data will be saved in the following fashion: The Backup Source Folders pane will hold the name of your database folder. the Backup Time folders pane will hold the date/time stamp of each backup in the following format: Year/Month/Day/Time.

**Backup Active Database** - this button allows you to backup your data whenever you want, in the same name format as the Auto Backup mentioned previously.

**Restore Database** - This button will restore the highlighted database, overwriting the database that it was

initially backed up from. You would use this if you experimented with a change and it did not work out, or if your active database had become corrupted for any reason.

**Restore To New Folder Name** - This checkbox allows you to restore your backed up database to a new folder name. To use this option, you must fill out a new folder name in the entry box so designated.

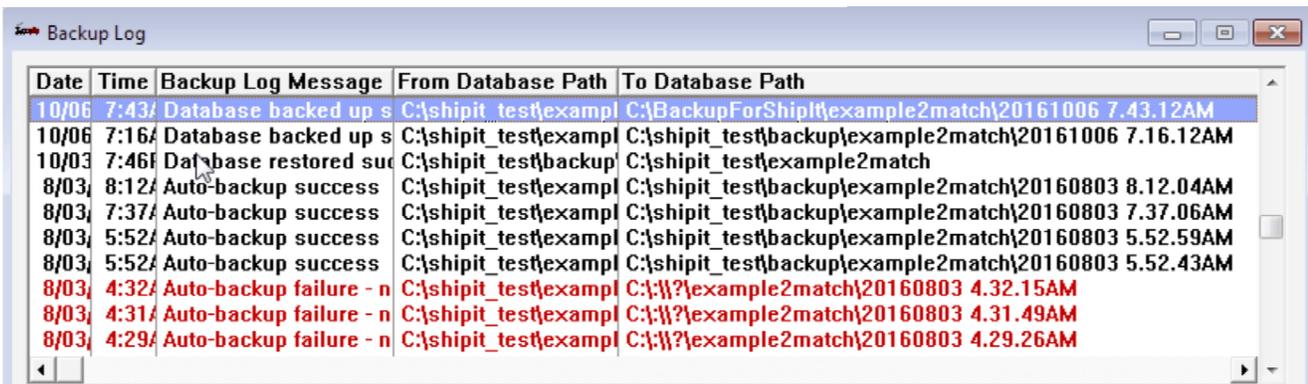
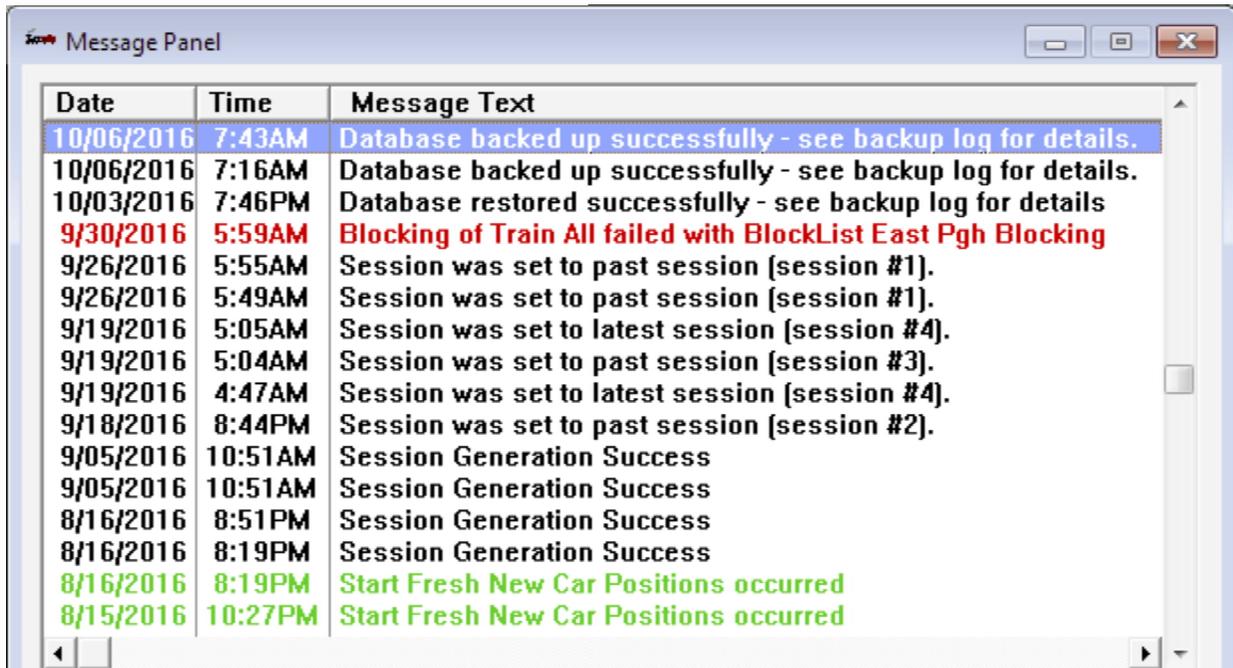
**Backup Active Database To Drive** - allows you to backup your database to a drive. You can use this to backup to a thumb drive.

**Restore Database From Drive**- allows you to restore a database from a drive. If you backup to a thumb drive on one computer, you can then restore that database to another computer where Ship It! is installed.

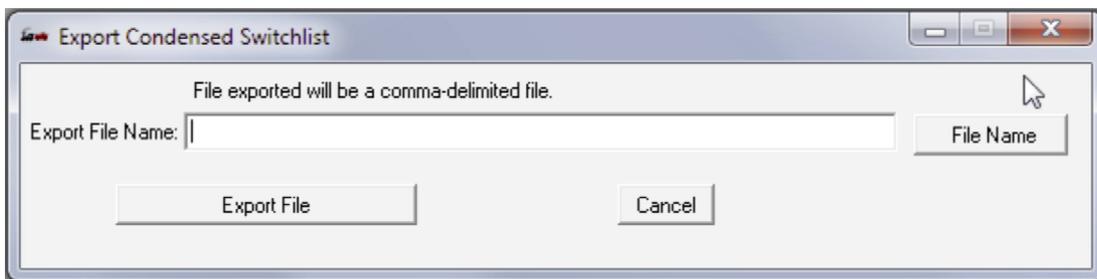
**Run Generation Tests** - allows you to run the same test that run when sessions are generated.

**Manage Color Chart** - is used in the Car Cards program, and is here for future use.

**View Message Panel** - The Message Panel displays important messages, such as backup messages, session generation messages and warnings.



**Export Switchlist** - Displays a window that allows you to export condensed switchlist data to a CSV file for import into other software programs. In conjunction with other software, this file can be used to create your own switchlists.



**Ship It! 8 datapath required to export data to Ship It! 8.** - See the end of this chapter.

## Options 1 Tab

### Enable Third Pass

For absolute maximum car movement, turn this option on. However, one of the side effects of this is that some empty car movements between divisions may occur before empty car movements within a division. If this causes problems, turn this option off.

### Increment Date Each Session Generation

If this box is checked, Ship It! will increment the historical date in the Names & Dates Tab each time you generate a session. If you want to stay at the same date, uncheck this box.

### Distribute Cars Only In Home Division For Start Fresh

If you end up with empties which cannot find their way home, check this box before you start generating sessions. This will prevent the system from placing cars outside of their home division during start fresh. If you use Pre-set car routes, it is possible a car was placed by start fresh outside its home division (where its home yard is located) will not be able to find its way home.

### Multiplication Factor For Sending Empties Home

Ship It! automatically routes empties to their home yard if they have not been requested by a shipper within a certain amount of time. What this does is give you control over the length of this time. This factor is multiplied by the duration time (see chapter 8) for the empties consignee record. For example, if the duration time for a hopper of coal was 24 hours, and the multiplication factor was 2, then the empty would sit (if it was not requested by a shipper) for 48 hours before being sent back to its home yard. To decrease this amount of time, decrease the multiplication factor. But keep in mind this variable is applied to all the industries on your layout. Because it is dependent on the duration time, this total number of hours can be different for each product received. If your empties are sitting too long when you feel they should be moving, try reducing this variable and see what happens! If empties are not being picked up locally (inside the same town), try increasing this number so the empty stays longer, rather than returning to the home yard.

This variable is also used to determine the time-out period (in a similar calculation to the above) for loads being sent to their storage yard (see chapter 8, Shipper Update window.)

### Multiplication Factor For Maximum Number of Loads

This factor (with a default of two) controls the build-up of loads at a shipper. This factor is multiplied by the number of empties requested to calculate the maximum number of loads which will build up. If the number in the empties field (in the Shipper Update Window) is two, and this factor is set to two, no more than four loads will build up. No more empties will be requested till the number of loads there drops to three. **If your sidings are becoming clogged with loads, reduce this factor to 1.5 or 1. If you are not getting enough empties delivered, raise the factor to 1.5 or 2. This factor can make a big difference in session generation!** Keep in mind this factor is a global value (it pertains to all shippers on the layout). Together with the empties field, you can control the requesting of empties and the build-up of loads very closely.

### Allow Both Thru and Local Pickups for Non-staging

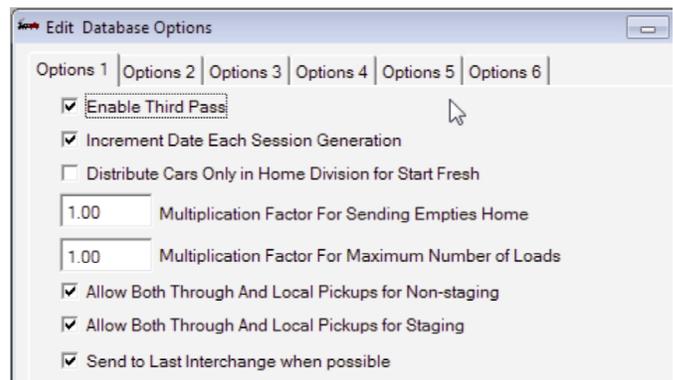
If this option is checked, the program will allow cars to be picked up if their train type matches either the local type or the through type that was set up for them. Train types of cars are set up in the Consignee Update window. Each train's train type is set up inside the Train Update window. If this option is checked, any car to or from staging will be evaluated so that if its local train type matches the train or its through type matches the train, the movement will be allowed. Note: This checkbox is for setting up non-staging. See below for staging.

### Allow Both Thru and Local Pickups for Staging

This option is identical to the option above, except it affects **Staging** only.

### Send to Last Interchange When Possible

This option should be used when one finds the same car being set out and picked up at the same location during the same schedule stop. This option prevents this from happening by sending the car to the last interchange in the car route (bypassing the intermediate stops).



## Options 2 Tab

### **Process Staging In Early Generation, Process Staging In Mid-Generation**

These control when cars are processed for staging.

Staging works by sending cars (when they arrive in staging "towns") without destinations to the default staging destination for the train they are on. This needs to happen or the cars would remain inside hidden staging. Cars cannot remain in hidden staging because it is very hard to drop off and pick up cars inside hidden staging! This is the reason for the "default staging destination" required for any train visiting a staging town - the cars need to have a destination because they are not allowed to remain in hidden staging. The default staging destination gives them a place to go.

These checkboxes determine when cars are processed to be sent to their default staging destinations. It is usually best to process staging at the end of session generation (to do this, leave the early staging and mid staging checkboxes blank.) However, there are many cases when staging needs to be processed earlier. For example, when you have "paired" staging trains (trains that convert to each other, and run back and forth between hidden staging yards at opposite ends of the layout), you often need to have staging processed earlier on.

The advantage to leaving staging to process at the end is that it gives more of a chance for cars to be requested by on-line industries. It is almost always preferable for them to be moved by actual requests rather than being "forced" by the staging routines to go to the default staging destination.

The bottom line is that it may require some trial and error to determine the best settings for these checkboxes. If you have paired staging, check the mid-staging checkbox and see if it accomplishes your goals when you generate sessions. If it does, leave it alone. If it does not, try checking both early and mid-staging. If you do not have any paired staging, try leaving both checkboxes blank. There is one situation which may arise where you should also leave early staging unchecked. If you notice in your switchlists symptoms of duplicate cars, or if the same car moves twice when it should only move once (particularly in association with staging), you should leave "early" staging unchecked.

### **Do Not Convert Loads Out Of Staging**

If this box is not checked, when loads out of staging are dropped off at the default staging destination (see chapter on staging) they will convert to empties. Checking this box will prevent this conversion from taking place - these

loads will then be available for request from other industries. It is recommended that you check this box, unless you are using "paired" staging (when staging trains run back and forth between staging yards on opposite ends of the layout, converting to each other - see chapter 17.) **Do not use this option with paired staging!**

### **Send Empties Home From Staging**

Sometimes empties can get "trapped" in staging, particularly if you are using paired staging trains. If you notice a large amount of empties building up in staging, you can check this box. This will cause empties to be sent to their home yards from staging.

### **Allow Build Up Of Load Requests**

If this box is unchecked, load requests for an individual industry will not build up. In other words, if there are unfulfilled requests for a product an industry is requesting, no more requests will be made for that industry until the existing ones are fulfilled. If this box is checked, requests will keep accumulating (as long as the frequency and amount fields of the consignee warrant it).



### **Allow Delivery of Cars if Duration is Low Enough**

Setting this caption can help increase car movement in and out of small sidings. The drawback is that there is a chance that the siding can be overfilled (but only by 1 car). It's calculated in this fashion - if an existing car there will change-over (finish loading or unloading) before the arrival of the car being placed, the program will move the new car in, in the hopes that the existing car will be picked up by a train. But if the train is filled and the car is not picked up, the siding will be overfilled. My advice is to enable this option as it will increase movement. **Note:** This option has no effect when siding capacity is measured by actual length of car (see Option Tab 5).

**Turn On Diagnostics Mode** With this option on, the software collects data on car movement rejections. See Chapter 15 for more information on Diagnostics.

**Stop Generation on Error** When you turn this option on, error messages will print out to the screen during session generation. This halts generation until you press OK. With this setting off, messages will not be printed to the screen. Regardless of the setting here, all error messages are output to “errors.txt”, which is viewable from the menu item **“View Error Messages”** in the **Diagnostics Menu**. 95% of these error messages are triggered by making changes such as deleting industries, towns, etc, while cars are “on the layout”. Either a “Start Fresh(old car positions)” or a “Start Fresh (new car positions)” will clear most, if not all, of these messages.

**Don’t Print Town in Switchlist if there are no Moves** Setting this option will prevent towns with no cars moves from being printed on a switchlist.

### Options 3 Tab

#### **Force Usage of Existing Empties at Industry**

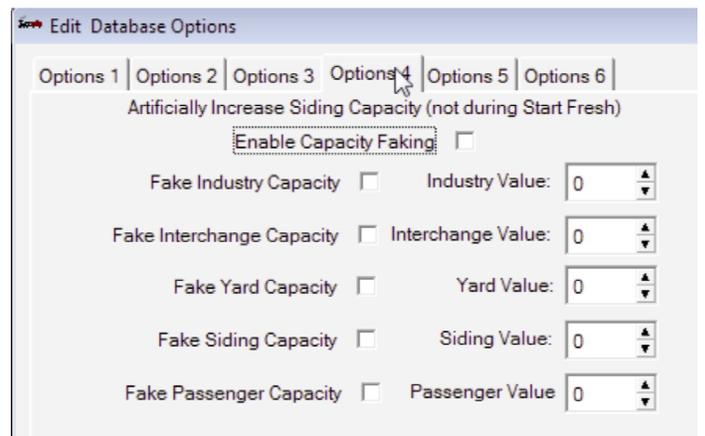
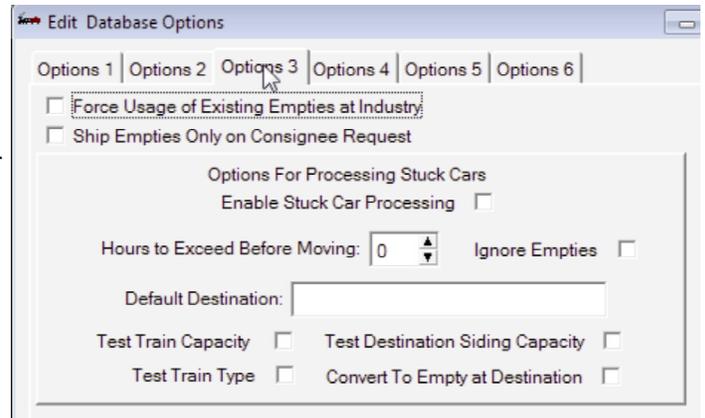
This option forces the utilization of empties sitting at industries that are requesting empties (in other words, the car will not move if the industry where it is located is requesting an empty of the same car type.)

#### **Ship Empties Only at Consignee Request**

Only ship empties if there is a request from a consignee for that type of load. This may help if cars are sitting too long and clogging the system.

#### **Stuck Car Processing**

See Chapter 10 for an explanation of Stuck Car Processing



### Options 4 Tab

#### **Exaggerating Siding Capacity**

This feature allows you to artificially increase siding capacity during session generation. Note that this does not affect Start Fresh.

#### **Enable Capacity Faking**

This turns it on and off, allowing you to leave your settings in place.

#### **Fake Industry Capacity, Fake Interchange Capacity, Fake Yard Capacity, Fake Siding Capacity, Fake Passenger Capacity**

These checkboxes allow you to turn on and off capacity faking for different types of industries. What you can do here is set up the types of industries to benefit your usage of this feature. For example, suppose you only want to turn capacity faking on for one interchange (you suspect it is getting jammed during session generation and preventing car movement). Simply set the type of this particular industry to “interchange”, and make sure no other industries are set to this type (unless you want them to have capacity faking turned on also). Then when you generate a session, only the industries of type “interchange”, will have capacity faking turned on. Because there are five types that you can use for this purpose, there is a lot of flexibility in setting up this feature. See the Rolling Stock Update Form for the industry types.

## Industry Value, Interchange Value, Yard Value, Siding Value, Passenger Value

This is where you set up how much to increase the amount of extra capacity the industry will have during session generation. You can enter in a number to increase the capacity by, or a percentage of the original (empty) capacity. Enter in a numeric value based on the following rules.

1. If the number is less than 100, this number is added to the original (empty) capacity of the industry. So if the original capacity was 2, and you entered 1, the total capacity would go up to 3 (only during session generation, not during Start Fresh).
2. If the number = 100, nothing changes. The original capacity is used.
3. If the number is greater than 100, percentages are used. For example, if you enter in 200, the siding capacity is doubled. If you enter in 150, the siding capacity is increased by 1.5 times, and then rounded. For example, if you started with a capacity of 5, and used 150 for a value, you would end up with an 8 car capacity during session generation. If you enter in 500, you would increase car capacity by 5X. The maximum value you can enter is 1000 (which would increase capacity tenfold).

This feature is primarily for testing. If you are concerned that it is siding capacity that is limiting your operation, you could enter a value of 1000 into each “Value” field, and then turn the option on for all industry types. This would effectively eliminate siding capacity as a test during session generation.

## Options 5 Tab

### Measure Siding and Train Capacity by Length (feet or other units)

Turning on this option tells the program to measure siding and train capacity by units of measurement, such as feet or meters, instead of using the number of cars. See Chapter 10 for an explanation of this feature.

### Enable Start Fresh Siding Percentage

This option forces the program to use a different algorithm for populating the sidings during Start Fresh (new car positions). The advantage here is that you can fine-tune how Start Fresh populates your sidings. Try values between 50 and 80. In the example 2 database, I found that the best percentage to use was 70. This is easy to determine by trial and error. Run trials with various settings, generating around 6 sessions for each. Print preview the Industry Activity Report (which is a list of all the car movement generated) for each trial. Whichever setting gives you the longest report (indicating more car movement) is probably the one you’ll want.

### Enable Last Pass (4th pass) Random Generation.

This option, when turned on, generates a last pass of car movement generation using a different algorithm than the rest of the program, in order to try and move cars that have not moved in the current session. **This can create car movement and unclog bottlenecks.** See Chapter 10 for further explanation of this feature

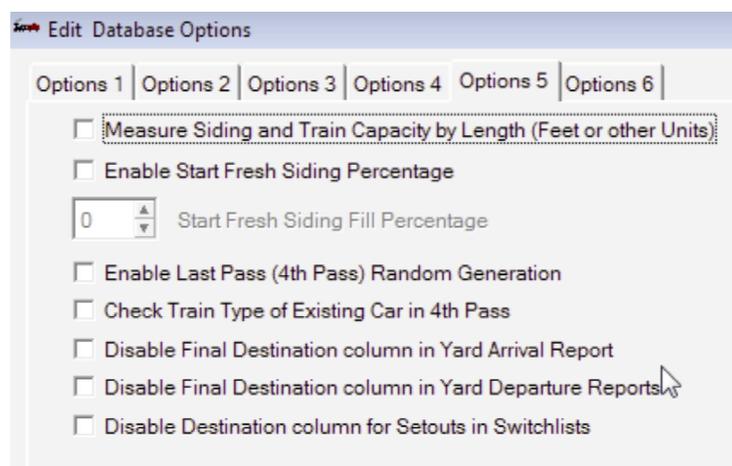
### Check Train Type of Existing Car in 4th Pass

## Options 6 Tab

### Use Book Marked Session On Start Up

This option tells the program to load a book marked session on program start, if one is book marked. See the chapter on session generation for more information on book marking.

6-8



### If Database Checks Fail, Don’t Stop Session

**Generation** - there are database checks that run before session generation: the first session generated each day, or if it has been an hour since the last session generation. Normal behavior is to stop generation to allow you to fix the problems. This option lets you overwrite this behavior. See Chapter 10 for explanation of this option.

**Exporting Data to Ship It! 8** - Use the Options 6 tab in the Options window (in Ship It 9) to set the Ship It! 8 database destination for your exported data from Ship It! 9. You must choose one of the four databases supported by Ship It! 8 (Primary, Secondar, Example1, and Example2). Use the button titled “Set Ship It! 8 Path” to choose the database to output to. Some things to be aware of: The data in the Ship It! 8 folder will be replaced by the Ship It! 9 data. The following data tables are replaced: aar codes, cars, consignees, divisions, industries, products, schedules, shippers, towns, trains, train types. To export your data, go to the File pull-down menu and select the menu item “Export data to Ship It! 8” Note: interchanges, car routes, locos, caboose, and motive power are not exported.

**7**

# **Rolling Stock**

**The Rolling Stock menu** allows you to view and update the data files pertaining to rolling stock on your layout. The **AAR Codes** window allows you to define all the AAR types that pertain to your era. The **Reporting Marks** window allows you to input all your road names (this saves you typing later on). Last of all, the **Rolling Stock** window is where you input all of your car information. The **Rolling Stock** file uses data from the other files in this menu.



## AAR Codes - Browse and Edit

**AAR Codes** provide selection choices in the product and rolling stock browses. AAR Codes are used by the products table to determine what type of car is required to ship a product, and are also used by the rolling stock table.

### Affects:

During operating session generation, affects car selection and delivery to industries. If a product, such as coal, calls out an AAR type of HD (hopper), then only hoppers will be used to ship the product, and only empty hoppers will be shipped to the industry producing that product (for the purpose of loading with coal).

### Fields

**1 AAR Code** AAR Mechanical Designation. Ship It! comes with some basic AAR Types already entered into the database. If you need more, see The Official Railway Equipment Register for your era. These can be found at flea markets, etc. Private codes can also be used. Required.

**2 Car Style** Boxcar, hopper, etc. Optional.

**3 Primary Default Train Type** This field defines the primary default type of train that will pick up this car type. In most cases the train type is set by the shipper or the consignee, but when cars are initially populated (via start fresh) some end up in the home yard. The default train types are then used. Also, when **add new cars** is selected, the default train type is used. Every car on your layout will have at least a primary train type. If you set up secondary train types also, your cars will have two train types. Primary and secondary train types are both necessary if you are using both local and through train types. The primary train type is usually the local train type.

**4 Secondary Default Train Type** This field defines the secondary default type of train that will pick up this car type. The secondary train type is used when through train types are involved.

**5 Color** This field is used in Car Cards and may be used here in the future.

**6 Notes** This is an optional field, used primarily to describe car features more accurately.

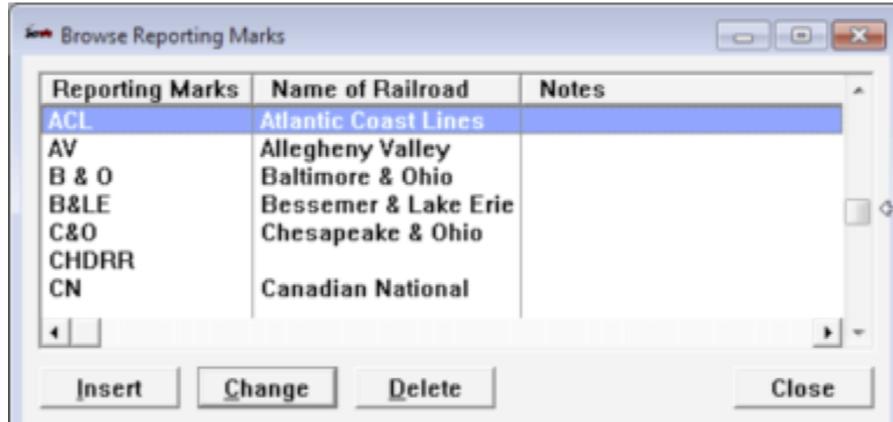
AAR Code	Type of Car	Primary (Default) Train Type	Secondary Train Type	Color	Notes
FM	Flat Car	General Freight		DeepPink	
GB	Gondola	General Freight		Brown	Solid Bottom
HD	Hopper	General Freight		Cyan	
HMA	Ore Car	General Freight		Khaki	
RP	Reefer	General Freight		DarkGreen	Power generated inside
SC	Stock Car	General Freight		Coral	
TA	Tank Car	General Freight			
XM	Boxcar	General Freight		DarkGoldenR	Standard Automobile
XMR	Boxcar	General Freight			

## Reporting Marks - Browse and Edit

Allows you to enter road names so you can select the road name from a browse window when entering rolling stock data, rather than having to re-enter it each time.

### Affects:

This file is not related to any other, it is only used to select from. If you change a road name here, that change will not affect any other file.



## Rolling Stock - Browse and Edit

Each car must be tracked on the layout. The switchlist identifies the car by the road initials and the road reporting number.

### Affects:

The AAR code of the car affects car selection and delivery to industries. See the AAR Browse section for more information.

- 1 Number** This is the reporting number for the car. Required.
- 2 Reporting Marks** When you select this field, the Road Names Browse Window pops up allowing you to select the reporting marks from a list. Required.
- 3 AAR Code** Selecting this field causes the AAR Codes Browse Window to pop up. Select the AAR code of the car from this list. Required.
- 4 Car Style** This is a display-only field (you can't edit it) controlled by the AAR code selection above. If you wish to change this field, you must change the AAR code of the car.
- 5 Home Yard** This designates what yard the car belongs to. This is the yard the car returns to (or attempts to return to) when it is empty and is not immediately

## Fields:

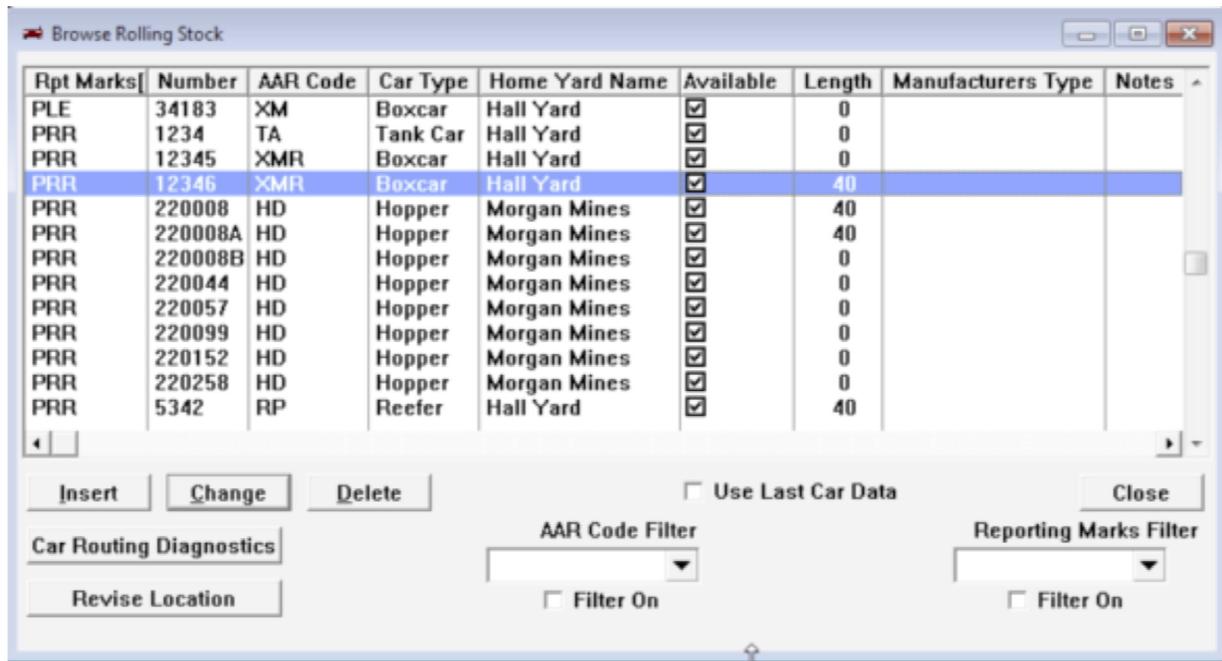
- 1 Reporting Marks** Enter the initials of the railroad here (as they would be found on a car). Required.
- 2 Road Name** Enter the full length railroad name. Optional.
- 3 Notes** This is an optional description field.

needed elsewhere. Also, for the first session, extra cars not placed at industries are automatically assigned to their home yard. New cars added to the layout also start out at their home yard. Selecting this field causes the Industry Browse Window to appear. Select your choice from this window. Required.

**6 Available** When this box is checked, the car is available on the layout. Uncheck this box if you want to remove the car from the layout (couplers need adjusted, etc.) or if you don't want start fresh put the car on the layout. If the car is marked as unavailable (box unchecked), and you make it available, you will need to run **Add New Cars** (see chapter 10) to put the car on the layout (unless you are going to run **Start Fresh**).

**7 Car Length** If you are using the option "Measure Siding and Train Capacity by Length" from Tab 5, Options Window, you must set the length of each car that is available. You can use any units you like, as long as you are consistent. You must round to the nearest unit (no fractions or decimal fractions). See chapters 6 and 10 for further explanation of this feature.

**Use Last Car Data** Mark this checkbox to fill in most of the columns in this row with data from the last car that was entered. The only field that is not filled in is the **Number** field, to prevent you from entering duplicate car numbers by mistake.



**AAR Code Filter** To filter (limit) the browse by AAR code, choose the AAR code you wish to filter by and set the Filter On checkbox.

**Reporting Marks Filter** To filter (limit) the browse by reporting marks, choose the reporting mark you wish to filter by and set the Filter On checkbox.

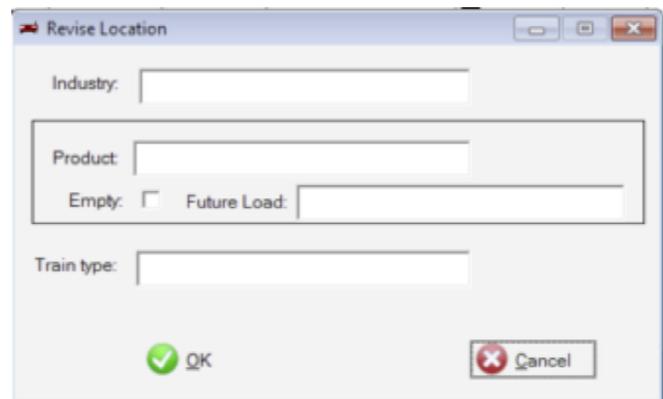
## Revise Location

This button is used to update the Ship It! layout database. This can be used if you find at the end of an operating session that cars did not get delivered to the correct destination. It can also be used to pre-set car locations before generating an operating session (for the first session or otherwise). **The car must be available for this to work.** The new position will appear in the ending car location report for the current session, and in the starting car location and the industry status report for the next session.

**1 Industry** Use this to revise the location of the car. Selecting this field causes the Industry Browse Window to appear. Select your choice from this window.

**2 Product/Empty** The product field is used to indicate what you would like the car to be loaded with. This field works together with the next field, the empty checkbox. If you would like the car to be an empty, check the empty checkbox. This will make the products field inaccessible. To make the products field accessible again, uncheck the checkbox.

**3 Train Type** This field will restrict the type of train that can pick this car up. Required. **Note: if this field is**



**left blank, the cars location will not change!**

**4 Future Load** This field, mainly used for populating staging yards, can be used to select the type of load an empty will turn into. Because staging automatically converts empties to loads and vice-versa, you should use this field when you want to pre-place loads into staging. Make sure you also check the empties box.

# 8

## Industry Menu

**The Industry menu** allows you to view and update the data files pertaining to the industries on your layout. The **Industry** window allows you to list and describe all the Industries on your layout. The **Products** window allows you to list all the products your industries ship and receive. The **Consignee** window is where you list all the products received by each industry, and the **Shipper** window is where you list all the products shipped by each industry.

## Industry - Browse and Edit

**Affects** - Capacity directly affects the generation of operating sessions. If there are not enough “slots” open, cars will not be delivered (car movements will not be generated). Remember that industries need room for empties being loaded also. The town the industry belongs to affects car movements because the towns appear on the trains schedule.

**Name** Enter the name of the industry here.

**Town** Selecting this field causes the Browse Towns Window to appear. Select the town the industry belongs to. Required.

**Capacity** If you are using the option “Measure Siding and Train Capacity by Length” from Tab 5, Options Window, you must set the capacity to length of the siding (in the units you are using). If the above option is set, the text “(Round Length to nearest Unit)” appears to the right of the Capacity entry box (as shown below). You must round your units - fractions and decimal fractions are not allowed. If the “Measure by Length” option is not set, then enter the number of cars this siding can hold. See chapter 10 and chapter 6 for further information on the option “Measure Siding and Train Capacity by Length”.

**Allow Shipping Between Divisions** This checkbox allows you to prevent shipments from occurring to and from divisions for this industry. All consignee and shipper records



for this industry will be affected. This is a good way to keep shipments between certain industries within their division. The default is a checkmark.

**Notes** Optional description field.

**Type** Select one of the options here. If yard or interchange is selected, the industry is included in the Yard Arrival and Yard Departure (style 2) reports.

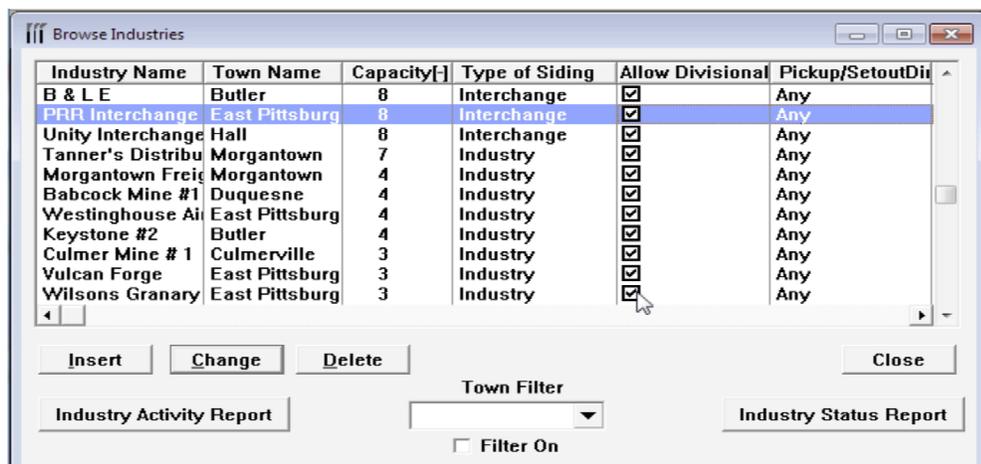
**Pickup/Setout Direction** This is used in cases where there is no run-around available. For instance, if the industry spur for a westbound train had facing points (preventing a setout), you could disable the setout for the westbound train by selecting eastbound as the pickup/setout direction. The default is any direction.

**Note: Be very careful when using this option. If set to anything other than “any”, the industry will need to be visited by a “turn”, which must visit the town from two directions on the same schedule. Otherwise the industry will not be able to ship or receive cars. I cannot emphasize this strongly enough. I recommend using “any”, particularly when starting out. I also highly recommend run-around tracks!**

**Town Filter** To filter (limit) the browse by towns, choose the town you wish to filter by and set the Filter On checkbox.

### Industry Status and Industry Activity Report -

These buttons allow you to print the respective reports for the highlighted industry alone.

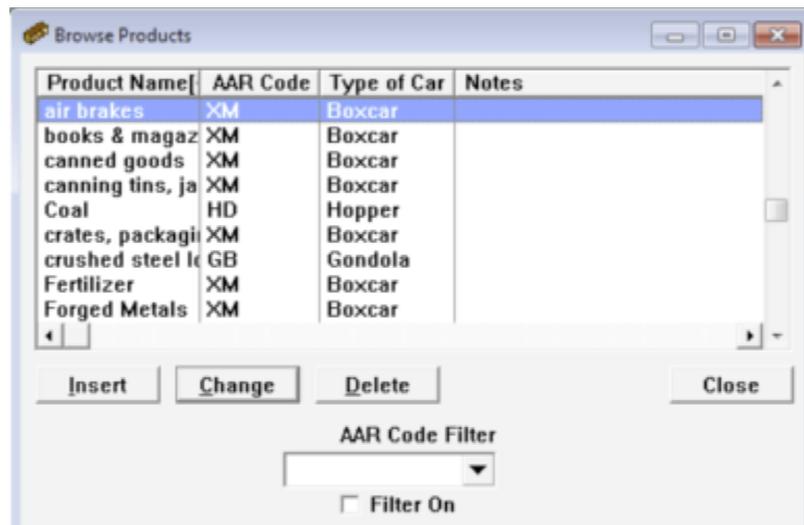


## Product - Browse and Edit

The products file provides the connection between the type of product shipped or received by an industry and the car's AAR type. It also provides a selection list for filling out the products field in the shipper and consignee update windows.

### Affects

Car movement is directly affected by the products file because it links goods that are shipped or received with the type of cars required to carry those goods. If the type of empties required by a shipping industry are not available, then delivery of those empties will not occur.



## Fields

**Product** Enter the name of the product here.

**AAR Code** Selecting this field causes the AAR Code Browse Window to appear. Select the AAR code of the car from this list. Required.

**Car Style** This is a display-only field controlled by the AAR code selection above.

**Notes** Optional description field.

**AAR Code Filter** To filter (limit) the browse by AAR code, choose the AAR code you wish to filter by and set the Filter On checkbox.

## Consignee - Browse and Edit

The consignee records are where everything falls together in Ship It! When you are building consignee records, you are setting up all the products received on your layout, whether they are received by actual industries on your layout, or by off-line industries via interchanges. When sessions are generated, consignee records are matched against shipper records. If there is a match between products, then a car movement is considered.

### Affects

These records have a direct bearing on car movement. This is where you will be able to fine tune your operating sessions. You say there isn't enough coal traffic? Increase the amount field of the foundry to receive more cars per shipment. Decrease the frequency hours, so shipments of coal will be received more often. Cut down on the duration time so the loads are emptied faster. Of course, you may also need an increased amount of coal available, so you might also change the matching shipper records or create additional shippers of coal at interchanges or other industries.

**Note:** The Town, Industry, and Product filters allow you to filter the browse by these categories.

## Fields - General Tab

**Industry** Selecting this field causes the Industry Browse Window to pop up. Select the industry whose consignee activity you are defining in this record. Required.

**Town** This is a display-only field, which is filled in automatically when the industry is selected above (each industry in the industry file already knows which town it belongs to). If you wish to change this field, you must change the industry.

**Product** Selecting this field causes the Products Browse Window to appear. Select the product the industry receives from this list. This will determine what type of goods are received at this industry. Required.

**AAR Code** This is a display-only field, which is filled in automatically when the product is selected above (each product in the products file already knows which AAR type it needs). If you wish to change this field, you must

Industry Name	Town Name	Product Name	AAR Code	Car Type	Train type	Duration	Amount	Frequency	Do Not Convert
B & L E	Butler	canned goods	XM	Boxcar	general freig	48	1	33	<input type="checkbox"/>
B & L E	Butler	Hall's Blended F	XM	Boxcar	general freig	24	1	27	<input type="checkbox"/>
B & L E	Butler	LCL Freight	XM	Boxcar	general freig	24	1	150	<input type="checkbox"/>
B & L E	Butler	crushed steel lo	GB	Gondola	general freig	24	1	150	<input type="checkbox"/>
B & L E	Butler	Coal	HD	Hopper	general freig	24	3	34	<input type="checkbox"/>
Crucible Scrap Y	East Pittsburg	loose scrap	XM	Boxcar	general freig	24	2	25	<input type="checkbox"/>
Crucible Scrap Y	East Pittsburg	Coal	HD	Hopper	general freig	24	1	150	<input type="checkbox"/>
Vulcan Forge	East Pittsburg	Coal	HD	Hopper	general freig	24	1	24	<input type="checkbox"/>
Vulcan Forge	East Pittsburg	powdered metals	XM	Boxcar	general freig	48	1	40	<input type="checkbox"/>
Vulcan Forge	East Pittsburg	supplies	FM	Flat Car	general freig	48	2	40	<input type="checkbox"/>
Westinghouse Ai	East Pittsburg	supplies	FM	Flat Car	general freig	48	1	30	<input type="checkbox"/>
Westinghouse Ai	East Pittsburg	Coal	HD	Hopper	general freig	24	2	24	<input type="checkbox"/>
PRR Interchange	East Pittsburg	air brakes	XM	Boxcar	general freig	24	1	29	<input type="checkbox"/>
PRR Interchange	East Pittsburg	Forged Metals	XM	Boxcar	general freig	48	1	42	<input type="checkbox"/>
PRR Interchange	East Pittsburg	Coal	HD	Hopper	general freig	24	2	24	<input type="checkbox"/>

change the product.

**Car Type** This is a display-only field, which is filled in automatically when the product is selected above

**Duration** This determines how long in hours it takes to empty a car loaded with the product called out above. The loaded car will sit for that many hours before the program converts it to an empty - then it becomes eligible for pickup and delivery as an empty. Required.

**Amount** This number defines how many cars this industry likes to receive per shipment of the products called out above. Required.

**Frequency** This number indicates how often (in hours) this industry likes to receive the products called out above. Ship It! keeps track of all sessions. When sessions are generated, Ship It! looks back through time to see when each industry last received each type of product. Let's say the frequency was set at 24 hours. Ship It would calculate how many hours ago the industry last received a shipment of that type of goods. If it was more than 24 hours, then another shipment would be requested.

**Priority** This field lets you prioritize consignees in order to indicate they should receive shipments before other consignees. As long as the number here is higher than at another consignee, it will receive priority. Note: in-town shipments always receive higher priority than out of town shipments, regardless of the settings here.

**Do Not Convert** Use this checkbox to prevent loads from changing to empties and vice-versa. This is useful when you want to ship loads to an interchange or yard to be picked up by another train. Normally loads and empties will reverse their state after their duration is exceeded. You can use this to implement intra-divisional car interchange (train to train interchange of cars within a single division). **Note:** This option is not required (and should not be used) when you are shipping *between* divisions. It should only be used for transferring cars between trains within a single division. To set up the transfer of cars between 2 or more divisions, see Chapter 12, "Division Menu".

**Receive As Through Type** This is only here for database compatibility to previous versions. Use "Allow both local and thru pickups" in the options window (chapter 6) instead.

**Send As Through Type** See item 2 (Receive as Through Type) above.

**Train Type** Selecting this field causes the Train Types Browse Window to appear. Select the train type from this list. If you are not using divisions you only need to fill out this field (and not the secondary train type below). The primary train type field controls what type of train will ship the products received at this industry. If the train is not of the correct type, it will not be scheduled to deliver cars at this industry. If the secondary train type below is not filled in, the primary train type applies to all pickups & setouts of the car involved, even if the car passes through many interchanges. **Note: the primary train type must be filled out.**

**Secondary Train Type** This optional field is only used by the program when a car shipped to the consignee pass-



## Shipper - Browse and Edit

The shipper records are where everything falls together in Ship It! When you are building shipper records, you are setting up all the products shipped on your layout, whether they are produced in actual industries on your layout, or generated off-line in interchange trackage. When sessions are generated, these shipper records are matched against the consignee (receiver) records. If there is a match between products, then a car movement is considered.

### Affects

These records have a direct bearing on car movement. This is where you will be able to fine tune your operating sessions. You say there isn't enough coal traffic? Increase the number of empties requested by the mine. Cut down on the duration time so empties are loaded faster. Of course, you may also need an increased demand for the coal, so you might also change the matching consignee records or create additional requests from interchanges or other industries. It is all in your hands.

### Fields

**Industry** Selecting this field causes the Industry Browse Window to pop up. Select the industry whose shipping activity you are defining in this record. Required.

**Town** This is a display-only field, filled in automatically when the industry is selected above (each industry in the industry file already knows which town it belongs to). If you wish to change this field, you must change the industry.

**Product** Selecting this field causes the Products Browse Window to appear. Select the product from this list that the industry produces. This will determine what type of empty cars will be delivered to this industry to be loaded. Required.

**AAR Code** This is a display-only field, which is filled in automatically when the product is selected above.

**Car Style** This is a display-only field, which is filled in automatically when the product is selected above (each product in the products file already knows which car style it needs). If you wish to change this field, you must change the product.

**Primary Train Type** Selecting this field causes the Train Types Browse Window to appear. Select the train type from this list. If you are not using divisions you only need to fill out this field (and not the secondary train type below). The primary train type field controls what type of train will ship the products from this industry. If the train is not of the correct type, it will not be scheduled to deliver cars at this industry. If the secondary train type below is not filled in, the primary train type applies to all pickups & setouts of the car involved, even if the car passes through many inter-

changes. **Note: the primary train type must be filled out.**

**Secondary Train Type** This optional field is only used by the program when a shipped car passes through interchanges during divisional car routing. This field only applies if you utilize the divisions and interchange features of Ship It!. This is the way it works: On the first movement of a car (to the first interchange on a multi-divisional run), the car will travel on a train of the primary (local) type. Then the car will be picked up at this interchange by a train of the secondary (through) train type. It will travel on the secondary type trains (even if it has to be picked up/set out by multiple trains) until it reaches an interchange in the division of its destination. From this last interchange, it will again travel on its primary (local) train type. For more information, see chapter 18.

**Storage Yard** This field contains the name of a yard or interchange (it could be an industry, too) which will receive the loaded cars if they sit too long at the shipper before being sent out. The reason for this is to help eliminate bottlenecks (if your siding is jammed up with loads waiting delivery which nobody is asking for, it can slow things down.) The time-out period is calculated using the "Multiplication Factor For Sending Empties Home" variable contained in the options window, and works the same way (see chapter 6.) **Important: The storage yard field should not contain an industry that has a consignee requesting the same type of load. The Storage Yard must be in the same division as the Shipper.** **Note:** the new storage yard feature in the shipper update window can be used to send your cars to an **icing plant**. Just set the duration field to 1 in the shipper window. As long as no train visits the town where the shipping industry resides before the 1 hour duration is up, the car will be sent to the storage yard (icing plant) first.

**Notes** This is an optional description field.

**Duration** This determines how long in hours it takes to load an empty car at this industry with the product called out above. The empty car will sit for that many hours before the program converts it to a load - then it becomes eligible for pickup and delivery to an industry requesting it. Required.

**Empties** This number defines how many empty cars this industry likes to have on hand for loading with this particular product. As existing empties are converted to loads, it will request more empties until it has the number specified. Required.

**Priority** This field lets you prioritize shippers in order to indicate they should receive empties before other shippers. As long as the number here is higher than at another shipper, it will receive priority. **Note: Priority has been enabled only in certain circumstances. See the section at the end of this chapter on balancing your shippers and consignees for a more detailed explanation.**

**Note:** The Town, Industry, and Product filters allow you to filter the browse by these categories.

Industry Name	Town Name	Product Name	AAR Code	Car Type	Train Type	Secondary Train Type
B & L E	Butler	produce	RP	Reefer	general freigh	
B & L E	Butler	general freight	XM	Boxcar	general freight	
B & L E	Butler	paper	XM	Boxcar	general freight	
B & L E	Butler	truck & auto parts	XM	Boxcar	general freight	
B & L E	Butler	supplies	FM	Flat Car	general freight	
Keystone #2	Butler	Coal	HD	Hopper	general freight	
Babcock Mine #1	Duquesne	Coal	HD	Hopper	general freight	
Wilsons Granary	East Pittsburgh	grain	XM	Boxcar	general freight	
Crucible Scrap Ya	East Pittsburgh	crushed steel loa	GB	Gondola	general freight	
Vulcan Forge	East Pittsburgh	Forged Metals	XM	Boxcar	general freight	
Westinghouse Air	East Pittsburgh	air brakes	XM	Boxcar	general freight	
PRR Interchange	East Pittsburgh	tractor parts	XMR	Boxcar	general freight	
PRR Interchange	East Pittsburgh	Fertilizer	XM	Boxcar	general freight	

## Balancing Shippers and Consignees

Special credit should be given here to Dr. Jean C. Piquette for developing the concept of demand and priority as used in the program, along with suggesting the use of a storage yard to alleviate blockage at shipper locations.

For Ship It! to perform to its optimum, shippers and consignees should be balanced. What each consignee receives must be balanced by what each shipper ships. If you experience good car movement the first few sessions, and then experience steadily declining car movement each session thereafter, your shippers and consignees are not balanced. This situation is made worse if there is a high percentage of 1 or 2 car sidings on your layout, because sidings get filled.

Ship It! will not move cars to a siding that is full. Therefore, if sidings are blocked by loaded cars waiting to be shipped, empty cars waiting to go to their home yard, empties waiting to be loaded, or loads waiting to be emptied, cars will not be able to move.

Because of this, keep your duration times at or under 24 hours. There may be instances when you want longer duration times, but try to keep these to a minimum. If you have the luxury of long sidings, you may increase duration times for those industries, but keep in mind this will slow your car movement. Above all, do not have any duration times above 24 hours when you are starting out.

Frequencies should also be kept low (at or under 24 hours) for the same reasons. If industries are not requesting goods very often, loaded cars will not be moved from their shipping locations, and these sidings will then be unable to receive goods.

## The Snowball Effect

When durations and frequencies are set too high, one filled siding leads to another, and the situation steadily gets worse until few cars are moving.

## Balance in Numbers

There should be an adequate supply of loaded cars to ship to consignees requesting them. Likewise, there should be enough consignees to use all the loads that your shippers will be shipping. Pay particular attention to the amount field for the consignees (the amount of cars desired), and the empties field (number of empties requested) for shippers. **Use the Diagnostics button on the Shipper and Consignee Browse windows to see matchups between shippers and consignees.** This can help you balance them.

## Industry Activity Report

This report will list the activity of industries across many sessions. It will give you a snapshot of activity across many sessions that will alert you to industries that are bogged down.

## Industry Status Report

This report lists the status of each industry at the beginning of the next session. It will list siding occupancy and status of the individual cars there. Also shown is when each car arrived. Cars that have sat for many sessions are indicative of either a balancing problem, train type problem (cars are the wrong train type for the trains visiting the town), or division/interchange problem (cars unable to move across divisions.)

## Last Pass Generation

In Tab 5 of the Options Window, there is a setting to "Enable Last Pass Random Generation". **Turning this feature on can help keep cars moving on your layout.** Ship it! will attempt to move any car that has not moved yet in the current session, regardless of whether another industry has requested that car. This helps negate the need for super-accurate balancing of shippers and consignees.

## Loads and Empties Sitting Too Long?

If loads and empties sit too long at sidings they are occupying valuable real estate on your model railroad. Fortunately, there are ways to get these cars moving inside Ship It!

Empties get routed home when a time-out occurs. The time-out is set up by the “Multiplication Factor for sending Empties Home” variable in the options window (see chapter 6.) The formula is this: the multiplication factor is multiplied times the duration time of the consignee. When the empty sits without moving for this number of hours, then the empty is routed to its home yard on the next train. For example, if the duration time is 24 hours and the multiplication factor is .5, then the time-out period is 12 hours. There may be times when you need empties to be available (as opposed to being sent home right away) for use in the same town, or in towns ahead on train schedules, so this may take some experimentation.

For shippers, there is a field called “Storage Yard”. This is the name of the yard where loads are sent after they “time-out”. The time-out for loads is calculated exactly the same way as for empties, except that the shippers duration time is multiplied by the “multiplication factor” (yes, the same one used for empties) instead of the consignees duration time. When setting this up, you must make sure that cars can get to the storage yard (the cars must be able to get there on a single train and the storage yard must be in the same division..) The purpose of the storage yard is to open up critical siding space to allow for more car movement, so make sure the storage yard you select has lots of space! If you do not fill in the storage track, the load will sit at the shippers siding until requested by a consignee.

## **The Build-Up of Loads**

### **Multiplication Factor For Maximum Number of Loads**

This factor (with a default of two) controls the build-up of loads at a shipper. This factor is multiplied by the number of empties requested to calculate the maximum number of loads which will build up. If the number in the empties field (in the Shipper Update Window) is two, and this factor is set to two, no more than four loads will build up. No more empties will be requested till the number of loads there drops to three. If your sidings are becoming clogged with loads, reduce this factor to 1.5 or 1. Keep in mind this factor is a global value (it pertains to all shippers on the layout). Together with the empties field, you can control the requesting of empties and the build-up of loads very closely.

### **Old Loads**

Ship It! will process older loads (loads sitting for a longer time) first (as long as there is a request for them.)

### **Demand and Priority**

**Note: Demand and priority only work under the follow-**

**ing two cases:**

1. When both shippers and consignees are within one division, and the consignees are in the same town.
2. When the shipper is in one division and the consignees are in a different division than the shipper. In this case, the consignees can be in the same division as each other or in different divisions than each other, as long as they are in a different division than the shipper.

**Keep the above limitation in mind when reading the following section.**

For both shippers and consignees there is a priority field. As long as the priority number is higher, any given shipper or consignee will receive their loads (or empties) before others that have a lower priority number. Giving a shipper/consignee a higher priority number ensures that the shipment of an empty or a load to them will be looked at first before a shipment to a shipper/consignee with a lower number. But keep in mind that Ship It! does not look at the priority value when generating sessions - it looks at the demand variable explained below.

In the Industry Activity report, there is a demand variable listed. Demand is a variable that is created when a shipper or consignee requests an empty or a load. The initial value is set to the priority value for the shipper or consignee, plus one (which is added to represent the request.)

Each time that the particular shipper or consignee requests a car, the demand variable is incremented by one. Each time a car is delivered to the shipper or consignee, the demand variable is decremented. Shippers/consignees with higher demand variables receive attention first. The demand variable changes through time, depending on how often cars are requested and received.

The demand variable should never get below the priority value (Ship It! takes care of this.)

### **Clear Demand**

There is a Clear Demand menu selection in the Generate menu. This resets the demand variable to the priority value. You will need to use this whenever you change priorities for shippers and consignees. If you don't use this, the priorities will not change, because Ship It! looks at the demand variable when generating sessions, not the priority value.

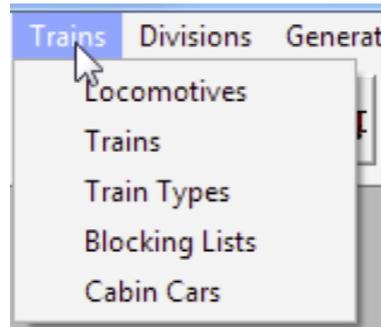
### **Train Schedules**

Train schedules are important for balancing, because the more often a train visits an industry, the quicker it can clear out empties and loads that need to move. Lower duration times (less than 24), do no good if an industry is visited only once per operating session. Smaller sidings (1-2 cars) benefit from increased train visitation and lower duration values.

9

# Train Menu

**The Trains menu** allows you to view and update data pertaining to the setup of trains on your layout. The **Locomotives** window allows you to list and describe the motive power on your layout. The **Trains** window allows you to define all the trains that will be scheduled for your operating sessions. The **Train Type** window allows you to define the types of trains that run on your layout.



### Scheduling Trains

Scheduling trains is an important part of designing your operating sessions. Sessions cannot be generated until at least one train is scheduled. You may schedule an unlimited amount of trains. Trains can originate or end at any town, and divisions can be crossed. Trains can perform out and back runs, or terminal to terminal runs. No provisions are made for keeping track of locomotives. It is your responsibility to make sure locomotives are available when called to head trains. There are currently no provisions for scheduling meets. It is your responsibility to arrange for avoiding “cornfield” meets.

### Train Types - Browse and Edit

This data provides train type selection in the Trains, Shipper, and Consignee browse windows.

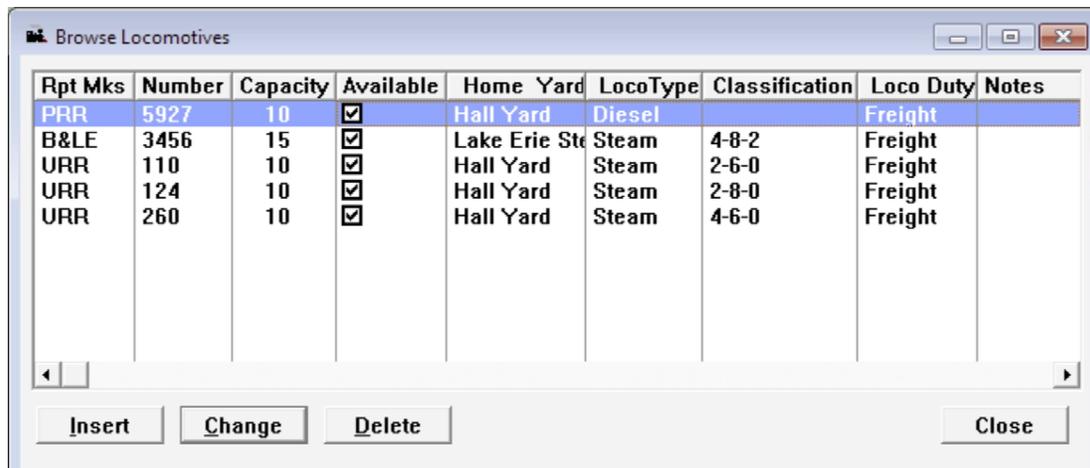
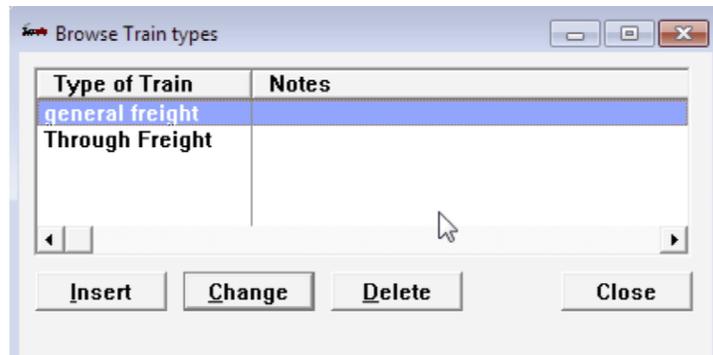
#### Affects:

Trains will not pick up or deliver products or empties if their shipper and consignee records do not match the type of train.

### Fields

**Train Type** This defines the type of train. Common entries would be General Freight, Way Freight, Hot Shot, Through Freight, etc. This field is used in the train, shipper, and consignee update windows to determine what type of train can pick up or deliver each product. **Note: Use more than one train type only if you want to restrict what trains can pick up and deliver.** Required.

**Notes** This is an optional description field.



## Locomotives - Browse and Edit

This window provides modelers with an area to document the locomotives on their layout. When filling out the **Locomotives** field in the **Update Motive Power** window, this data provides a selection list.

### Affects:

Has little effect on operating sessions, other than providing a way to identify and select locomotives for heading trains. Most of the fields are optional because it is the modeler who assigns locomotives to trains, not the program.

### Fields

**Number** Enter the locomotive's reporting number. Required

**Reporting Marks** Enter the reporting marks (usually initials) of the railroad here. Required.

**Type** Select Diesel, Steam, or Electric. Optional.

## TRAIN MENU

**Classification** Enter the name or class of locomotive. Optional.

**Duty** Select Freight or Passenger. Optional.

**Home Yard** This designates what yard the locomotive belongs to. Selecting this field causes the Industry Browse Window to appear. Select your choice from this list.

**Available** When this box is checked, it means that the locomotive is available for service. Optional.

**Capacity** This indicates how many cars this locomotive can haul over the steepest grade. Note: When operating sessions are generated, the program uses the **Max. Cars** field in the **Update Trains** window, not this field, to determine the maximum cars for the train. This information appears (totalled) in the **Total for Locos Below** field in the **Browse Motive Power** window.

**Notes** This is an optional description field.

Number	Train Name	Type of Train	Do Not Schedule	Do Not Generate	Max Cars	Class	Direction	Notes
1	test	general freight	<input type="checkbox"/>	<input type="checkbox"/>	10		Westbound	
100	East Pittsbur	general freight	<input type="checkbox"/>	<input type="checkbox"/>	10		Southbound	
1000	Morgantown	general freight	<input type="checkbox"/>	<input type="checkbox"/>	10		Southbound	Occurs i
200	Butler Pickup	general freight	<input type="checkbox"/>	<input type="checkbox"/>	10		Northbound	
300	Morgantown	Through Freigh	<input type="checkbox"/>	<input type="checkbox"/>	10		Northbound	
301	Erie-Morgant	Through Freigh	<input type="checkbox"/>	<input type="checkbox"/>	10		Southbound	
400	Munhall Run	general freight	<input type="checkbox"/>	<input type="checkbox"/>	10		Southbound	

Buttons: Insert, Change, Delete, Close, Print SwitchList, Copy Train, View Schedule, View Motive Power, Print Condensed Switchlist, Browse Condensed Switchlist

## Update Trains Window

This window allows you to define the trains that will run during your operating sessions

### Affects:

The two fields here that affect your operating sessions most are Train Type and Max. Cars.

### Fields - General Tab

**Train Number** This is used to identify the train. Required because it is used on the printed schedules.

**Train Name** This is also used to identify the train, but in a more expressive format. Required only if you want it to appear on the printed schedules along with the Train Number.

**Train Type** Selecting this field causes the **Train Types** browse window to appear. Select the train type from this list. This controls what type of train this is. If the train is not of the same type as is listed for the shipper or consignee records, it will not be scheduled to stop at the shipper or consignee. Required.

**Train Class** Priority - first class, second class, third, etc. Not required.

**Car Capacity** Depending on the setting "Measure Siding and Train Capacity by Length" from Tab 5, Options Window, this is either the maximum number of cars this train can pull, or the maximum length of cars this train can pull (not the individual cars, but their combined length). This affects operating sessions because if the train is at its maximum capacity part way through its schedule, it will not be allowed to pick up more cars until some are dropped off. This information also appears in the **Total Req'd** field

in the **Browse Motive Power** window. **Note: if measuring train capacity by length, the length of the locomotive(s) and caboose are excluded.** When using the option “Measure Siding and Train Capacity by Length”, you must be consistent in your units, and you cannot use fractions or decimal fractions (you must round to a whole number). See chapter 10 and chapter 6 for further information on the option “Measure Siding and Train Capacity by Length”.

**Notes** This is an optional description field.

**Direction** This indicates the direction that the train is heading. This is used for the Conductor and Engineer instructions in the switchlist. Required.

## Fields - Staging Tab

**Convert To Next Train In Staging** Check this box if this is a train you want to convert to another train number inside staging.

**Next Train** If you check the **Convert To Next Train In Staging** box, you must enter this field to select the train the current train turns into inside staging. **Note: if you change the next train, you must also reselect the default staging destination below, even if it looks like its pointing to the correct town!**

**Default Staging Destination: Town** Any train that stops at a town designated as staging (in the towns update window) must have this field filled out. The reason for this is cars do not get dropped off inside staging, and any cars on the train must have a destination to go to. On a train that converts to a next train, the default staging destination is the last stop on the trains schedule. This must be a staging town and also must be the first stop on the next trains schedule. On a train that does not convert to a next train, the default staging destination **cannot** be the last town in the trains schedule if that town is in staging. See the chapter on staging for more information.

**Default Staging Destination: Industry** This field is simply the industry inside the town selected above where you want the cars dropped off at. Typically this would be a yard or interchange.

**See the chapter on staging for ideas on how to utilize the staging features built into Ship It!**

## Fields - Session Generation

**Do Not Schedule Train** Check this box if you do not want to schedule this particular train. This will cause the program to skip this train when operating sessions are generated. No cars will be assigned to this train, nor will any schedule be printed when switchlists are printed. This allows you to pick and choose which trains you want to operate at any given session.

**Do Not Generate Moves** Check this box if you do not want any car movements generated for a particular train.

This differs from Do Not Schedule Train in that the train schedule will be printed, but no cars will be automatically assigned to it. This is handy if you want to run some trains (like passenger trains) whose consist you set up yourself.

**Session Generation** This field lets you specify when you want sessions generated for the current train. You can choose to generate a schedule for a train on only odd or even session numbers. This is useful for staging when you wish to run trains every other session. See the chapter on staging for more information.

**Blocking List** This field lets you specify a blocking list for the train. The train will be blocked using this list during session generation, saving you the task of doing so. Blocking

The screenshot shows the 'Update Trains' dialog box with the 'Staging' tab selected. The 'General' tab is also visible. The 'Train Number' is 100, 'Train Name' is 'East Pittsburgh Pickup', 'Train Type' is 'general freight', and 'Train Class' is empty. The 'Max. Cars (or Train Length in Units)' is 10. The 'Train Direction' is set to 'Southbound' (selected with a radio button). There are also radio buttons for 'Northbound', 'Eastbound', and 'Westbound'. A 'Notes' field is at the bottom. Buttons for 'OK', 'Cancel', and 'Record will be Changed' are at the bottom.

The screenshot shows the 'Update Trains' dialog box with the 'Staging' tab selected. The 'Session Generation' tab is also visible. The 'Convert To Next Train In Staging' checkbox is checked. The 'Next Train (turns into inside staging):' field is empty. The 'Default Staging Destination' section has fields for 'Town:', 'Industry:', and 'Arrival Time:'. A 'Clear Staging Destination' button is at the bottom right. Buttons for 'OK', 'Cancel', and 'Record will be Changed' are at the bottom.

The screenshot shows the 'Update Trains' dialog box with the 'Session Generation' tab selected. The 'General' and 'Staging' tabs are also visible. The 'Do Not Schedule Train' and 'Do Not Generate Moves' checkboxes are unchecked. The 'Session Generation' section has radio buttons for 'All' (selected), 'Even', and 'Odd'. The 'Blocking List:' field is empty. A 'Clear Blocking List' button is at the bottom left. Buttons for 'OK', 'Cancel', and 'Record will be Changed' are at the bottom.

## TRAIN MENU

### Viewing Train Schedules

The only way to view train schedules is by first going to the **Browse Trains** window (from the train icon). Make sure the correct train is highlighted (use your arrow keys, or click on it with your mouse), then click on **View Schedule**. This will cause the **Browse Train Schedules** window to appear (see below).

### Train Schedule - Browse and Edit

This window displays a schedule of the towns a train visits. You can insert, change, or delete towns on the schedule.

**Tip:** The order of the towns is set by the **Arrival Time** field - to change the order, change the arrival time for the towns.

**Note:** You must specify the departure yard (where a train originates) as the first stop on a train's schedule. Make sure you specify the arrival time (departure times are not used in the actual calculations.)

### Fields

**Arrival Time** This field defines when the train is scheduled to arrive at the town. Enter the time in the following format: **7:30 AM**. Required. **Note: this field must be filled in, because the program uses arrival times for all of its calculations.** Therefore do not leave these blank. Departure times are for documentation purposes only. **Also, do not use an arrival time of 12:00 AM.** If two towns in the same schedule have the same arrival time, this will also cause problems.

**Town** Selecting this field causes the **Browse Towns** window to pop up. Select the town that the train will be arriving at. Required.

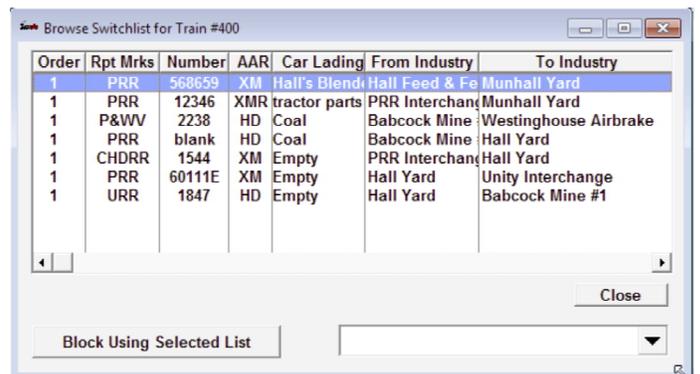
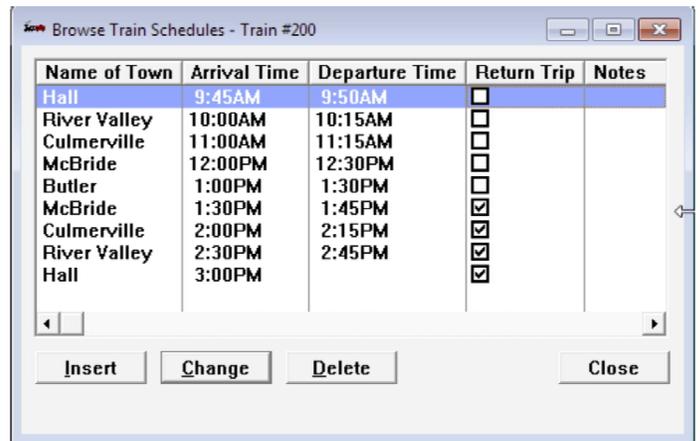
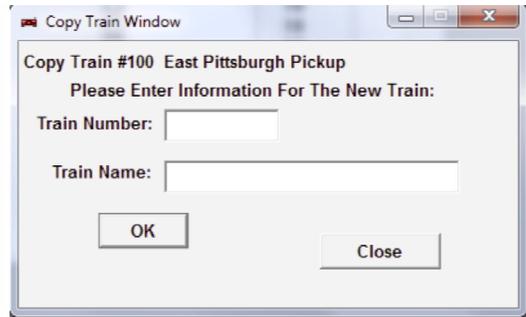
**Return Trip** Check this box if the train is on its return trip when it stops at this town. If the train is not on its return trip, this box should remain unchecked.

**Notes** This is an optional description field.

**Departure Time:** This field defines when the train is scheduled to depart from the town. Enter the time in the following format: **7:30 AM**. Note: This field has no bearing on car movement. Moves are calculated using arrival

### Copy Train

The Copy Train Button in the Browse Trains Window allows you to copy a train and its schedule to a new name and number. The Copy Train Window is seen to the right. Simply highlight the train you wish to copy and press the Copy Train button. Then fill in the new Train Number and Train Name. Press OK to complete. Copy Train also creates a "maindata.bak" in case "maindata.tps" becomes corrupted during the copy.



### Print Condensed Switchlist

Use this button to print your switchlists in the condensed format (two to a page.) You must generate your sessions with the option "Export to Condensed Switchlist Database During Session Generation" turned on to use this (see chapter 6.) Note: Ship It! Car Cards can be used to change fonts and add logos to the condensed switchlist.

### Browse Condensed Switchlist

Use this button to view the switchlist database records for the highlighted train.

### Print Switchlist

Use this to print a switchlist (long form) of the highlighted train.

## Blocking

You can assign a separate blocking list to each train using the **Block Using Selected List** button. Use the drop-down list on the right to select the blocking list you want.

**Blocking Lists** From the Trains menu (or from the blocking icon) lets you maintain your blocking lists. From the Blocking List Browse, you can build your lists by hand, or have the program create them for you.

Blocking lists are based on a train number. The purpose of this is to limit the selection of towns in the blocking list to those on the train's schedule. This is to prevent mistakes.

**NOTE: Blocking is done automatically during session generation. There are two critical steps you need to take in order for this to happen:**

1. You must create blocking lists (usually one per train, unless they share the same set of towns in the schedule).
2. You must assign a blocking list to each train that you want blocked. This is done from the Session Generation Tab on the Trains Update Window. Place your cursor into the entry box titled "Blocking List" on that window and make your selection from the blocking lists you have created.

### **Generate New List From Train Schedule -**

This button will create a blocking list that is the exact match of a train's schedule. You can use the reverse blocking list button below to reverse the list, or you can modify the order of the list by pressing the View Blocking List button.

To build one manually, use the **Create Empty List** button on the Blocking List Names Browse to add a new blocking list. Then with the new list name highlighted, press the **View Blocking List** button. This window will allow you to add train schedule stops to your new blocking list

**Copy Blocking List** - Copies the highlighted blocking list to a new name of your choice.

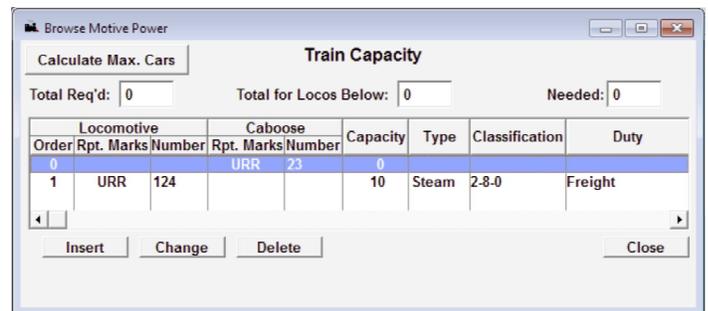
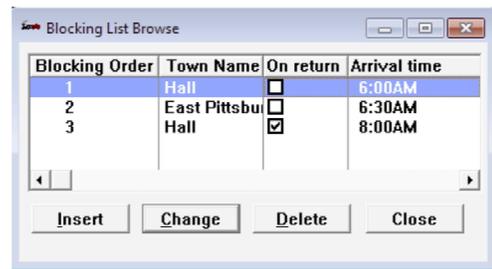
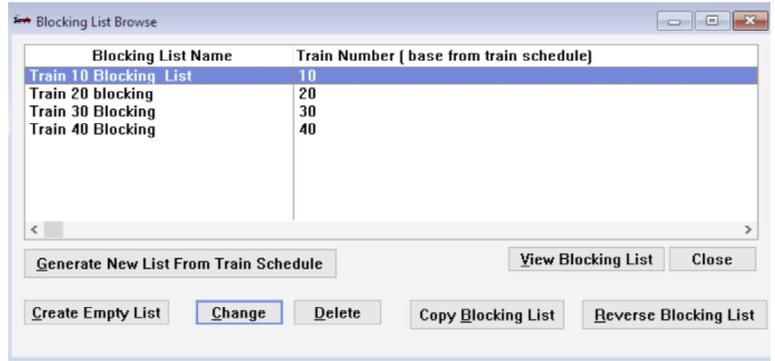
**Reverse Blocking List** - Reverses the highlighted blocking list.

### **View Motive Power**

Use this button to view motive power for the selected train.

### **Browse Motive Power**

This window displays a list of the motive power and the



caboose assigned to the highlighted train. You can insert, change, or delete these items by clicking on the various buttons. If you choose Insert or Add, the **Update Motive Power** window appears. This is where you set up M.U. locomotives and helper service.

### **Determine Required Motive Power**

You can use this window to determine if you have enough pulling power for your train. The **Total Req'd** field displays the capacity for the train (from the Maximum Capacity field in the Train Update window). The **Calculate Max. Cars** pushbutton calculates the maximum actual number of cars leaving any town on the trains schedule. Note: for a town by town breakdown of the number of cars on the train, print out the **Train Length Report**. The **Total for Locos Below** field displays the total hauling capacity of all the locomotives in the browse window. The **Needed** field tells you how much hauling capacity you still need (the Total for Locos Below field is subtracted from the Total Req'd field).

## Update Motive Power

This is the window where you select your locomotive or caboose. If you enter a caboose, the locomotive fields are disabled. Likewise, if you enter a locomotive, the caboose fields are disabled. To the right are screen shots depicting a locomotive and a caboose being entered.

The **Locomotive Order** field is only required for locomotives, and determines the order on the train. Using the **Pick Up At** and **Drop Off At** fields, you can specify where the locomotive or caboose is picked up or dropped off. This information appears in the Yard Arrival Report, Yard Departure Report, Locomotive/Caboose Location Report, and the Switchlist. The switchlist only displays the sidings if there is enough room. Use the **Clear Fields** buttons to clear the pick up and drop off fields. **Note: You must fill out the pick up and drop off locations for the motive power to appear in the switchlists and reports.** Also, in the industry update window, make sure that your yards or interchanges are marked as yards or interchanges. Be careful when filling out the pick up and drop off locations - if the train is a turn, you must select the correct town in the schedule (because the same town will appear twice in the schedule).

## Helper Service

Use the pick up and drop off fields to add helper service to your train. You can add one or more locomotives on at any town, and drop off one or more locomotives at any town. Use the Train Length Report to determine where you need to add any extra pulling power. This report lists the actual number of cars on a train when it leaves a town, based on what occurs in the switchlist.

## Locomotive Browse

When reassigning locomotives between sessions, it is best to use **Clear Motive Power Assignments** in the Generate menu. This will clear all loco assignments. It is your job to determine if the locomotive can be used more than once in a session, based on schedules.

The screenshot shows the 'Update Motive Power for Train #100' dialog box. The 'Locomotive Order' field is set to 1. The 'Locomotive Number' field contains 124, and the 'Reporting Marks' field contains URR. The 'Caboose Number' field is empty, and its 'Reporting Marks' field is also empty. The 'Pick Up At' field is set to 6:00AM, and the 'Drop Off At' field is set to 8:00AM. Both 'Pick Up At' and 'Drop Off At' fields have 'Clear Fields' buttons next to them. The 'Town' field for both pick up and drop off is set to 'Hall', and the 'Siding' field for both is set to 'Hall Yard'. At the bottom, there are 'OK' and 'Cancel' buttons, and a status message that says 'Record will be Changed'.

The screenshot shows the 'Update Motive Power for Train #100' dialog box. The 'Locomotive Order' field is set to 0. The 'Locomotive Number' field is empty, and the 'Reporting Marks' field is empty. The 'Caboose Number' field contains 23, and the 'Reporting Marks' field contains URR. The 'Pick Up At' field is set to 6:00AM, and the 'Drop Off At' field is set to 8:00AM. Both 'Pick Up At' and 'Drop Off At' fields have 'Clear Fields' buttons next to them. The 'Town' field for both pick up and drop off is set to 'Hall', and the 'Siding' field for both is set to 'Hall Yard'. At the bottom, there are 'OK' and 'Cancel' buttons, and a status message that says 'Record will be Changed'.



# 10

## Generate Menu

**The Generate menu** allows you to set up and generate operating sessions. **Start Fresh** is used to set up your first session. It can also be used to “reset” your sessions back to the first session. **Generate Session** is used whenever you need to generate a new operating session. The purpose of **Add New Cars** is to allow you to add more rolling stock without having to **Start Fresh** again. You can also clear existing empty and load requests and motive power assignments.

## The Concept of Sessions

Ship It! Operating sessions run from 12AM to 12PM. A single Train’s schedule cannot cross the boundary of midnight. A work-around is to use the same train number, with an a tacked on one train, and a b tacked on the other.

Whenever you generate an operating session, the session number is incremented. Before version 9, you could only view (or print switchlists for) the current working session. Version 9 added the ability to “go back in time” to view or print out data for past sessions. Car Cards version 3 also added this ability. The Set Active Session window, described later on in this chapter, allows you to navigate between sessions.

## Start Fresh New and Generate

This menu selection combines Start Fresh (new car positions) and Generate session. It places you ready to operate using session 1.

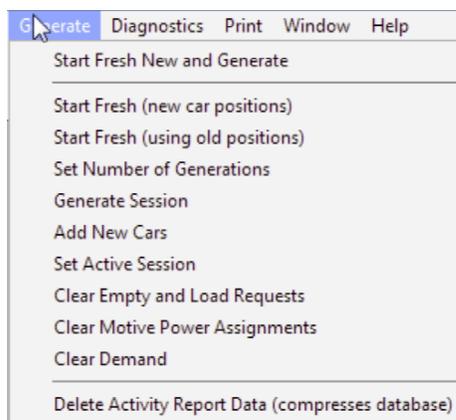
## Start Fresh (new car positions)

**Start Fresh (new car positions)** populates your layout with cars. It must be run before an operating session is generated (unless you use Start Fresh New and Generate). Start Fresh attempts to distribute both empties and loads throughout your layout, while allowing extra space for the first session deliveries. When **Generate Session** is selected to create the first session, it uses the car positions from Start Fresh. If the car layout after **Start Fresh** is not pleasing to you, don’t give up! Stick around to see what happens as you generate sessions and your layout begins to have a life of its own.

Start Fresh does nothing more than distribute cars. *It does not create an operating session.* If you select **Start Fresh** after the first session, it will clear the car locations from the layout and re-populate the layout with cars. Be aware when you select **Start Fresh** you may need to redistribute the cars on your layout.

## Start Fresh (using old positions)

**Start Fresh (using old car positions)** differs from **Start Fresh (new car positions)** in that cars are not re-populated around the layout. It cannot be used initially to populate your layout, because there are no cars populated. **Existing car locations are utilized, so you do not have to move any cars.**



Loads and empties are reassigned according to the shippers and consignees at existing locations. All future destinations (such as those used for interchange traffic) are cleared. The advantage here is that you do not have to spend time moving cars around.

## **Why Use Start Fresh?**

If you make large changes to either your layout or the database inside Ship It!, you may need to select Start Fresh. For example, if you embark on a rebuilding program on your layout, and tear out a yard or an existing town, you will need to revise the database to reflect those changes, and then do a Start Fresh to make a clean start.

## **24 Hours Between Sessions**

When Generate Session is selected, it advances the internal time clock by 24 hours (from the start of the previous session). Based on the elapse of time, the first thing Generate Session does is to convert empties to loads and loads to empties (based on their duration times). The cars Start Fresh distributes all have a duration time assigned to them based on the values in the shipper and consignee records.

## **Duration Times**

A problem would occur if you set all your duration times for 48 hours. In this case, no loads or empties would be converted until the next session, and you will limit the action on your layout. It is best to have a mix of duration times, with the majority set at less than or equal to 24 hours. This helps to keep the action going. Some users set all duration times to 1 hour!

## **When Start Fresh Completes**

If Start Fresh does not complete successfully, it means that you have not entered sufficient information into the database. Likely causes are no shipper or consignee records, and not enough cars in the rolling stock file. Remember, after Start Fresh completes, you have still not generated yourself an operating session. You still need to generate a session.

## Title Bar Information

Session status information is displayed in the title bar of the main window. You are kept abreast of exactly where you are in terms of session generation. **No Session** indicates you have not generated any sessions yet, and you have not completed Fresh Start. **Start Fresh Completed** indicates you have completed Start Fresh but have not generated a session yet. **Session #1** indicates you have generated session 1 and can now print out switchlists and starting and ending car location lists for that session.

## Starting Car Locations

There is one report you can print out after completing **Fresh Start: Starting Car Locations**, found in the **Print** menu. This is the initial car layout for the first session.

## Set Number Of Generations

This allows you to generate more than one session at one time.

## Generate Session

Generate Session is where the action begins. Ship It! keeps track of all previous car locations, lading, car arrival times, etc., so all you need to do to generate an operating session is to click on Generate Session!

## Session Numbering

The first session is session number 1. Each subsequent time you select **Generate Session**, the number is incremented.

## A Layout Alive

Your layout will come to life and generate unique switchlists for you. You will be surprised at the way car traffic ebbs and flows across your layout. Ship It! is based on the prototype. Every car movement is generated by a request from a shipper or a consignee. You will discover that the shipment of empties is a big part of freight operations. It may come as a surprise that many cars do not move at all during a session, but this is what happens on the prototype. Many of us, (myself included, before I wrote this program), think maximum car movement means good operation, but this is simply not the case. Operation is more satisfying and more prototypical when every car does not move during every session. With Ship It!, you can set it up so certain industries hang on to cars for many days using the **Duration** field. And you can be assured when that car's duration time has exceeded, it will convert to a load or an empty, and will be available for shipment once more.

## What Happens Inside Generate Session?

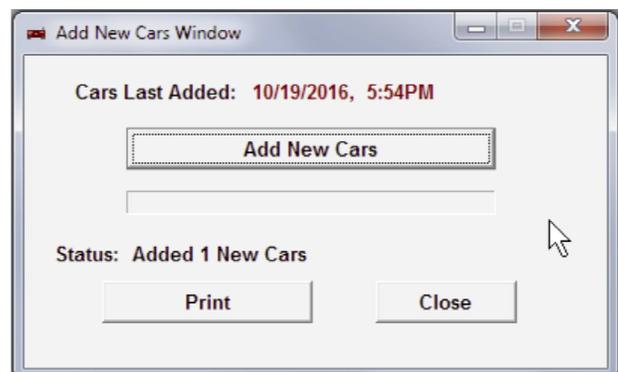
For a detailed explanation of all the factors controlling the generation of car movement within Ship It!, see Chapter 1, "How Ship It! Works". In particular, read the sub-section called "How Ship It! Compares With The Prototype". The first thing that happens within **Generate Session** is loads get converted to empties and empties to loads, depending on their duration time and how long they have been at their present location. Next, lists of available empties and empty requests are generated and compared for matching items. If a match is found between an available empty and an empty request, certain criteria are examined before generating the car movement. Available loads and load requests are also generated and compared as above. See the above-mentioned chapter for more detailed information concerning the criteria. When car movements are generated, an internal database is updated that keeps track of all cars through time, along with lading, duration, and arrival times. manual.

## Add New Cars

The purpose of **Add New Cars** is to allow you to add more cars to your layout without having to **Start Fresh**. New cars that you add to the database, or cars that you mark as available (when they were unavailable previously), will be added to your layout if there is enough room in their home yard.

## How To Add New Cars To Your Layout

First add the new car information to the rolling stock database (don't forget to add home yard information). Then select "Add New Cars" from the Generate pull-down menu. Press the "Add New Car" button in the window that appears. You will be notified how many cars were added. You can also print the cars that have been added. Note that this report will print out all of the cars that have been added to this database through time. The report is sorted with the most recently cars added at the top, so you can view or print out only the most recently added.



If Add New Cars is unable to add new cars to the layout because the car's home yard is already full, the following message will appear in the Message Panel. Note: view message panel is found under the File pull-down menu.

Date	Time	Message Text
10/19/2016	5:54PM	Add New Cars Failure: Car PRR 220008B was not added. Home Yard Morgan Mines was full.
10/19/2016	5:54PM	Add New Cars Failure: Car PRR 220008A was not added. Home Yard Morgan Mines was full.
10/19/2016	5:54PM	Add New Cars Failure: Car PRR 220258 was not added. Home Yard Morgan Mines was full.
10/19/2016	5:54PM	Add New Cars Failure: Car PRR 220152 was not added. Home Yard Morgan Mines was full.
10/19/2016	5:52PM	Car was made unavailable: Id = 44, Car = ACL 17199

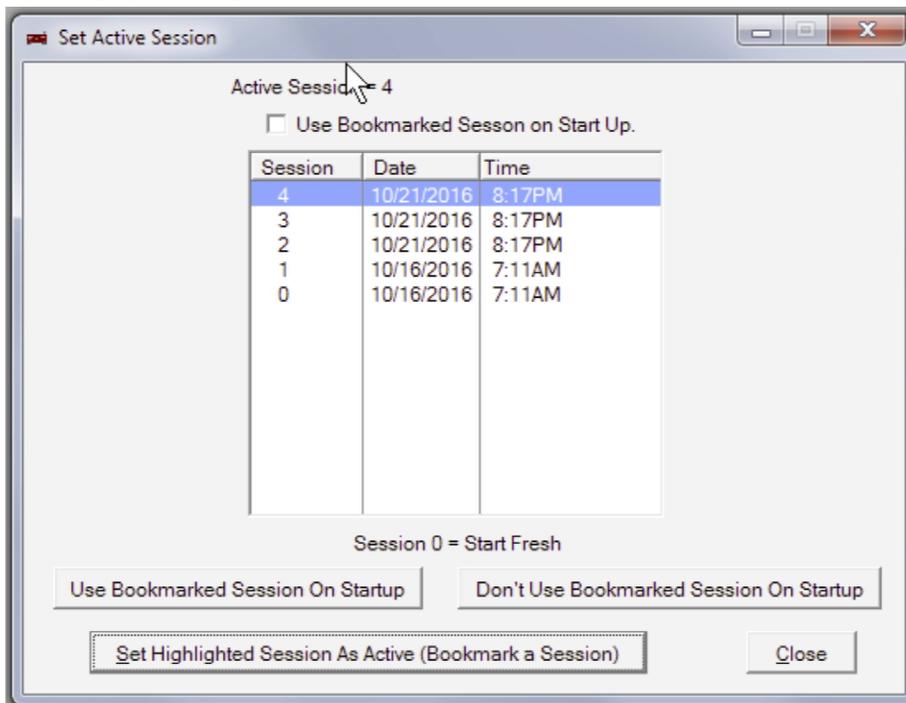
**Add New Cars Failure Message (when home yard is full).**

**Note:** You must also use **Add New Cars** if you wish to mark a car as being available (if it was unavailable previously) . After the car has been added to the layout, you can change its location via the **Revise Location** button in the Rolling Stock Browse Window.

**Note:** Make sure the AAR type of the car has a default primary train type in the AAR type database. If you are using local and through trains, fill out the secondary default train type there also. **If these fields are not filled in, the car will not be added!**

**Set Active Session (Bookmarking a Session)**

The Set Active Session window below allows you to “time travel” (so to speak). Your Ship It! database keeps track of all moves, so that you can go back in time and revisit operating sessions. If you want to enable a different session than you are currently on, simply double-click on a session, or click on the button at the bottom of the window with the desired session highlighted. If you are going to be working with a different session than the most recent one, you can tell the program to go to that session on program start up by clicking on the button titled “Use Bookmarked Session on Start Up”.



**Clear Empty and Load Requests**

Ship It! normally saves unfulfilled empty and load requests from past sessions so that requests at the bottom of the list get filled. This menu item is used to clear all requests from past sessions. This is used when changes are made in the database and you want them to show up quickly. For example, let's say you had a frequency of 48 hours for a consignee and you wanted to change it to 24. Without this menu item, you would have to wait until

existing requests were filled before the new setting would have an impact.

**Clear Motive Power Assignments**

This can be used to clear all motive power (and caboose) assignments in one fell swoop. This is useful when you want to re-assign your motive power before the start of a session.

## Clear demand

Clears demand variable, which has to do with priority. See the end of chapter 8 (Shipper & Consignee Balancing) for more information.

## Delete Activity Report Data

### Trim Session Database

Use these only if you need to make your database smaller (for backup purposes or other reasons).

## Last Pass (4th Pass) Random Generation

This option (located in Options Tab 5) causes the program to generate a last pass of car movement using a different algorithm than the rest of the program. The program attempts to move any car that has not moved in the current session. Car properties such as product, loading, unloading, next destination, and final destination are ignored. Only the car type, whether the car is a load or an empty, and optionally (see the option below) train type, are considered when attempting to move the car. If the car is an empty, the program tries to find a shipper that uses the same car type, first in the town that the car is currently sitting at, and then in the towns ahead on all of the train schedules that impact the car. If the program finds a shipper with the same car type as the car, and there is room for the car at the location of the shipper, (and train length has not been violated), the car is moved. If the car is a load, the program tries to find a consignee where the car type matches. “Random Generation” is a misnomer here – I only call it random because many of the rules inherent in Ship It! are broken, in order to get more cars moving. The principle of car type, however, is still utilized.

## Check Train Type of Existing Car in 4th Pass

Turn this option on only if you care about what type of train picks up cars that are being moved in the 4th pass (Last Pass). Turning this option on can limit the amount of car movement going on in the 4th pass.

## Stuck Car Processing

This feature is for moving cars that have become “stuck” (cars that for any number of reasons have not moved). You set up destinations for cars to go to when they become stuck, and Ship It! 6.0 will send the cars there. The Options 3 tab (File, Options in the pull-down menu) contains the settings for Stuck Car Processing.

## Enable Stuck Car Processing

This checkbox turns on the feature.

## Hours to Exceed Before Moving

This can be set between 24 and 240 hours (1-10 sessions, or days).

For example, if this is set to 48, only cars that have not moved in 48 hours will be moved by Stuck Car Processing.

## Ignore Empties

This checkbox tells the software to ignore empties if they are

stuck. You may want empties to stay where they are – for instance, if they are in a yard, or if you just want them available for use by shipping industries.

## Default Destination

This is where a car will try to go to when it becomes stuck. It is possible to override this setting by creating a Stuck Car Destination for any individual industry. See the section on “Stuck Car Destinations” for further explanation. One caveat is that you must have a train that goes between the industry where the stuck car is at and the default destination. The options listed below are also tested if those options’ checkboxes are marked.

## Test Train Capacity

If checked, this tells the software to check the capacity of the train seeking to move the stuck car. Keep this turned off if your main interest is moving stuck cars (and you are not so much concerned about train capacity.)

## Test Train Type

If checked, this tells the software to check if the train type of the train seeking to move the stuck car matches the train type of the stuck car. Keep this turned off if your main interest is moving stuck cars (and you are not so much concerned about train types.)

## Test Destination Siding Capacity

If checked, this tells the software to test the siding capacity of the destination for the stuck car to see if there is enough room there for the car. Keep this turned off if your main interest is moving stuck cars (and you are not so much concerned about siding capacity.)

## Convert to Empty at Destination

This is a unique feature that lets you convert a stuck car to an empty as it is delivered to the stuck car destination. This will let Ship It! move the now empty car across divisions, because once a car is converted to an empty at the stuck car destination, Ship It! can then send the empty “back home” across divisions like it normally does. This is the only way to send stuck cars across divisions.

## Reasons why stuck cars may not move

1. If you have train type testing, siding capacity testing, or train capacity testing turned on.
2. If you do not have a train going from the town where the stuck car is, to the town where the stuck car destination exists. This means that stuck cars cannot move on multiple trains (across divisions), except as described in the feature Convert to Empty at Destination above.
3. You do not have a default destination set up in the Options Window, Tab 3.

## **Specific Stuck Car Destinations**

You can set up a specific stuck car destination for any industry. The software will use this instead of the default stuck car destination. If you set up a specific destination, the software will use any of the options that are set up for this destination (see screen shot and descriptions below).

From the Industry menu (pull-down menu at the top of the main frame), select the option “Stuck Car Destinations”. The browse window displayed works like all the other browse windows in Ship It! Use the Insert button to add a new stuck car destination.

### **Industry where car is located**

When you choose an industry here you are telling the software that you wish any car that gets “stuck” here, to move to the stuck car destination below.

### **When stuck, move car to this industry**

This is where you select the “stuck car destination” for cars stuck at the industry selected above.

### **Ignore Empties**

This is the same as the “Do not move empties” option in Tab 3 where you set up the defaults for stuck car processing. Note that whatever setting you choose (on or off) will override the default setting in Tab 3 (Options Window).

### **Test Capacity of Destination Industry**

This is the same as the “Test Destination Siding Capacity” option in Tab 3 (Options Window) where you set up the defaults for stuck car processing. Note that whatever setting you choose (on or off) will override the default setting.

### **Convert to Empty at Destination**

This is the same as the “Convert to Empty at Destination” option in Tab 3 (Options Window) where you set up the defaults for stuck car processing. Note that whatever setting you choose (on or off) will override the default setting.

## **Measuring Siding and Train Capacity in Feet or other units**

You must mark the checkbox titled “Measure siding capacity and train length in feet (or other units)” on Tab 5 of the Options window (File pull-down menu, Options)

Turning on this option tells the program to measure siding and train capacity by units of measurement, such as feet or meters, instead of using the number of cars. The advantage of doing this is that you can be more accurate – you will not have to rely on an average car length. You do not have to tell the program what units you are using, but you must be consistent in your use of units. There are three places where you must fill in units:

1. The Rolling Stock browse (where you must fill in the car length rounded to the nearest unit of measurement used)
2. The Industry Browse (where you must fill in the length of each siding, again rounded to the nearest unit of measurement used).
3. The Train Update Form (where you must fill in the length allotted to cars on the train, again rounded to the nearest unit of measurement.) Note that the length specified here does not include the locomotive or caboose – these are not added in to calculate train length. Calculate your train length accordingly.

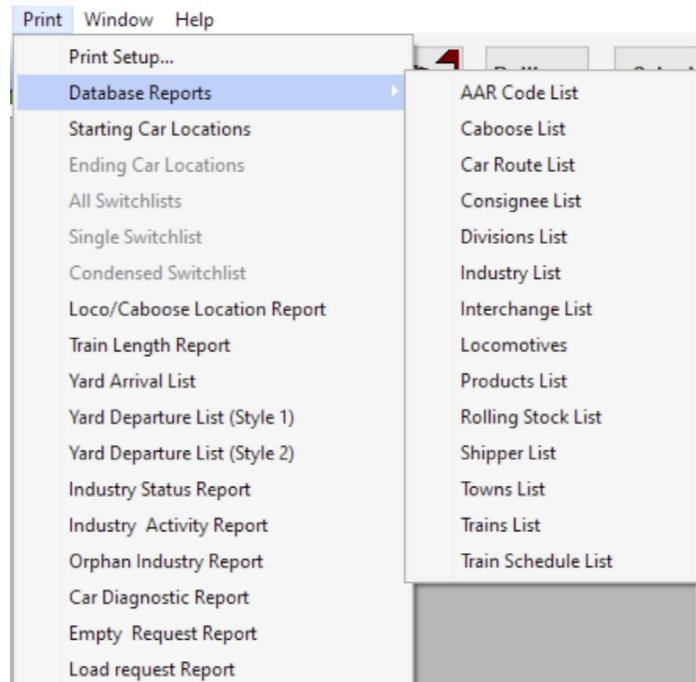
**Note:** If your industry Browse does not have the words “(Round Length to Nearest Unit)” beside the text entry box for Car Capacity, you have not set the option “Measure siding capacity and train length in feet (or other units)” as mentioned above.

**11**

**Print Menu**

**The Print menu** allows you to print operating session information. **Print Setup** allows you to set your printer options. Your printer options are determined by your printer driver. The **Preview** option, when checked, allows you to preview your reports before sending them to your printer.

**Starting Car Locations** prints out a report detailing all car locations at the start of the current operating session. **Ending Car Locations** prints out a report detailing all car locations at the end of the current operating session. **Switchlist** prints out a list of each train's schedule, complete with Conductor & Engineer instructions, and a breakdown of all the switching moves that occur at each town. **Orphan Industry Report** prints out a list of all the consignees and shippers that do not have any matches on your layout (this is useful for debugging). The **Industry Status Report** gives the status of all cars on the layout, by industry. The **Empty Request Report** and the **Load Request Report** let you know what your various industries are requesting. Other reports are described further on in this chapter.



## Preview

The **Preview** menu option allows you to control whether you wish to preview your reports on-screen before you send them to your printer. Simply click on the **Preview** menu item to toggle this option on or off. When you click on this option, the **Print** menu will close, but if you click on **Print** to open it again you will see the check mark has either been added or removed. You can then click on the report you would like printed. Note: Some reports always enter preview mode, no matter what the setting.

## The Print Preview Window

This window, shown below, allows you to view your reports before you send them to the printer. On the title bar you will see various options, such as zoom. The spy glass allows you to zoom also. The page spin box lets you advance through the pages of the report. The across and down box allows you to display more than one page on the screen.

## Starting Car Locations

**Starting Car Locations** prints out a report detailing all car locations at the start of the current operating session.

Included is information such as: Town (where the car is located); Industry (what siding the car is on); Car Type (boxcar, hopper, etc.); Road (car road initials); Number (car reporting number). This information should sound familiar to you now, especially if you have started building your database! This is information you have to enter into the database to fully describe your layout.

## Ending Car Locations

**Ending Car Locations** prints out a report detailing all car locations at the end of the current operating session. The information is in the same form as **Starting Car Locations** (see the previous column).

## Why Use These Reports?

These reports are used at the start and/or end of an operating session to verify your car locations. Use them to determine if every car was switched correctly in the previous session, or to set things back up after you ran some trains around for the heck of it, (please don't stop doing this just because you're a "serious operator" now!), without getting into an operating session. While I'm diverging, one of the things I use to track where I'm at in an operating session is a highlighter. After every pickup or

delivery I will cross it off the switchlist. That way I can stop in the middle of a session if I want to. Believe it or not, with this system you can operate your trains by yourself or with one or two guests. You don't have to wait till the guys come over once a month to operate!

### All Switchlists

Use this menu option to print out all switchlists for the current operating session. If this option is greyed out it is because you have not run generated an operating session yet. Refer to the chapter titled "Generate Menu", to learn how to do this.

### Single Switchlist

Use this menu option to print out a single switchlist for the current operating session. When the Trains Browse window appears, highlight the train desired and press the Print Switchlist button.

### Train Schedules

The switchlist will print out every train schedule, unless the checkbox Do Not Schedule Trains is checked in the Trains menu. Each train schedule will contain a section for each scheduled town wherein every switching move is detailed. There is also a Train Schedule List you can print out

### Switchlist Description

The top of each switchlist sheet tells you what session is current, and what train is scheduled. Each town in the trains schedule is listed, starting with the town of departure.

**When operating, all the switching that should be done at the current town is listed within the box. You do not need to refer to any previous or future town's switching instructions. Just follow the instructions within each box as you arrive at each town. When you arrive back at the yard, each car in your train should be listed as a set-out.**

Arrival and Departure times are listed to add a prototypical flavor. Keep in mind you do not need to use a fast clock. Conductor and Engineer instructions are given at the beginning of the switchlist for each town. The text for this is generated from the fields in the trains file. Pickups and Setouts are listed separately, so a car being picked up and set-out in the same town will have two lines in the section for that town. The lading is called out for each car, also to give the operator a better feel for what is going on. This helps us think of our trains as performing

an actual service, as opposed to just moving cars around.

### Orphan Industry Report

This report lists all the shippers with no matching consignee for their products and all the consignees with no matching shipper to receive products from. In order for a delivery to occur in Ship It!, a shipper must exist that ships the same goods a consignee wants to receive. What this report does is print out each shipper that does not have anywhere to ship its goods, and each consignee that does not have anyone to ship them goods. In this way you will be able to optimize the network of industries on your layout. Keep in mind interchanges are a great source for eliminating orphans. An interchange can ship or receive any product because the ultimate destination is off-line. This is the best way to increase car movement. The following picture shows an orphan industry report with two orphan consignees.

### Loco/Caboose Location Report

This report lists all the arrivals and departures of locomotives and cabin cars. This helps you in set up and in making sure that these items are located properly when they are needed. Helper service locomotives show up on this report.

### Train Length Report

This report shows the number of cars on a train between towns on a trains schedule. This is valuable for setting up helper service (adding on extra locomotives between towns).

### Yard Arrival and Yard Departure Report

Your Yardmasters will love these reports!. Complete car, caboose and locomotive information is given for anything entering or leaving a yard. For cars arriving at a yard bound for other destinations, their next and final destinations are given. In the Yard Departure Report, complete consists are given for trains leaving the yard. There are 2 styles of yard departure reports. Style 2 is formatted similar to the yard arrival report.

### Industry Status Report

The industry status report gives you valuable information about each car at every industry on the layout at the beginning of the next session. Information includes the status of the car (loading or unloading which product, and how many hours till the loading or unloading is complete, and whether the car is an available load or an available empty). Also included is the session and time when the car arrived at its location. For cars routed

between divisions, their next destination and their final destination is noted.

### **Industry Activity Report**

This report gives you a list of industries with their activity (shipped loads, shipped empties, received loads, received empties) for each session listed. This is a good way to look at the activity going on at each industry. You can generate many sessions, then look at the report to see the activity. This is very useful for balancing. There is also a demand variable listed there. See the end of chapter eight for balancing tips.

### **Orphan Industry Report and More**

Selecting this option brings up the Shipper/Consignee Diagnostics window, where you can print out a list of shippers or consignees that don't have a matching consignee or shipper. For more information on this diagnostics window (and all it can do for you), please see Chapter 15, "Tips, Suggestions, Diagnostics". There is also a Train Failure Orphan report as well as a Train Routing Failure Orphan report. There are also reports on successful matchups (for both Single and multiple trains).

### **Car Diagnostic Report**

This report shows you consecutive locations for the selected car. Full information from the database is included for help in debugging. You can show any cars location history from any given session to the current one. **Note:** the next and final destination fields in this report are usually only filled out when the car is going to another division.

### **Empty Request & Load Request Reports**

The empty & load request reports tell you what your industries are requesting at the beginning of the next session. These reports, along with the switchlist and the industry status report, should enable you to see more clearly what's going on your layout.

### **Debugging Your Sessions**

Use these reports to debug your session generation. For example, if you see many industries have load requests, but no loads are being delivered, some examination of the reports will show you why. Perhaps the sidings are full (the industry status report will show you this), or perhaps no loads are available to be shipped (look at the shipping industries cars in the industry status report). Perhaps there are no loads because no empties were available to be delivered to the shipping industry.

### **A Snapshot In Time**

Please note the reports are a snapshot in time - at the start of the next session. Therefore, not everything going on in a session will be visible, but you can infer a lot based on loading & unloading times, and how long a given car has been at its location (all of which is given).

### **Other Reports**

Each of the databases has a report for it so that you can obtain printouts. There is no sorting functionality beyond what you get for each printout. If more advanced reports are needed, Railbase Professional is available (it's compatible with the database and offers many ways to query, sort, and print reports on your databases, in addition to providing a great way to track your rail-related assets).

# 12

## Division Menu

The **Divisions** menu allows you to view and update data pertaining to the divisions on your layout. The Divisions window allows you to list the various divisions on your layout (you must have at least one division). The Towns window allows you to list all the towns on your layout. The Interchanges window lets you list and edit the interchanges on your layout. The Car Routes window lets you list the routes that rolling stock can take as they travel across divisions. Route Details, not shown in this menu, is accessible only through the Browse Car Routes window. The Route Detail Window lists the sequence of interchanges cars pass through as they travel across divisions.



## **What is A Division?**

Divisions (perhaps districts is a better word) within Ship It! are used solely to define interchange traffic. If you do not want interchange traffic on your layout, then use a single division (much easier to set up!) I define interchange traffic as when it takes at least two car movements to get from the shipper to the consignee (receiver). The first move is from the shipper to the interchange, and the second move is from the interchange to either another interchange or to the consignee. If you don't want car movement on your layout like this, just use one division.

## **What is an interchange?**

An interchange is a connecting point between two or more divisions. The interchange physically consists of an interchange storage track. This is where cars are dropped off and picked up. In Ship It!, you can have multiple interchanges per division. This allows you to model one main division with several branch lines connecting to it. You can also have one interchange connect up to six divisions. With this feature, you can model one main division (your main yard/interchange) that is the focus of up to five on-line or off-line divisions that interact with it.

## **How Divisions Work**

The purpose of divisions within Ship It! is to enable the transfer of products from a shipper in one division to a consignee in another. This is easy if a train is scheduled across divisions. If there is no such train scheduled, a car would need to be dropped at a connecting interchange by a train from the shipping division. A train from the consignee's division would then pick the car up and deliver it. If the shipper and consignee were separated by many divisions, the above transfer would need to take place many times.

As described in Chapter 1, "How Ship It! Works" the program attempts to match shippers and consignees. When one industry ships what another receives, car movement

is considered. The routing of cars across divisions works in a similar way. If a mill requiring coal is matched up with a mine several divisions away, the hoppers will be routed through the necessary interchanges.

To trigger divisional routing, there must be a shipper with loads available (not requested already by the home division), and a consignee requiring those loads (whose needs aren't being met by its home division). Then there must be trains on both sides that visit the common interchange.

If you want train to train interchange of cars to occur between divisions, do not schedule any trains to travel between those divisions (except those that serve interchanges) unless you use a different *train type*. because if cars can get to where they are going on a single train, they will be scheduled to do so, in preference to being scheduled on two or more trains via an interchange.

## **What is a Car Route?**

A car route is a list of interchanges that a car passes through to get from one division to another. If you only have one interchange, you do not need any car routes - the interchange you set up between your divisions is where the cars will pass through to get from one division to another. If you have multiple interchanges, the car route will consist of a list of these interchanges in consecutive order. With more than one interchange, a car route is necessary to tell Ship It! how to get from one interchange to another. If you have more than one interchange, and do not have a car route, your divisional traffic will fail.

## **What is Pre-set Car Routing**

Pre-set car routing is a legacy (older) style of car routing that is still in place, but only to serve older databases that used it in the past. If you are creating a new database, it is best to avoid using pre-set car routes, because there will be little to no work done on this feature in the future.

## How Car Routing Works

When there are no pre-set car routes set up for a consignee, automatic car routing takes place. All existing car routes in the database are examined in turn, until one is found that matches the needed criteria. Each car route is examined like this (you don't need to understand this!):

1. All interchanges are found for the division that the industry is located in.
2. All interchanges are found for the division that the car is going to.
3. Each car route is examined until one is found that goes from an interchange in the car's originating division to an interchange in the car's destination division.
4. The car is then assigned two addresses: a "next destination" address and a "final destination" address. The "final destination" is the requesting industry (where the car eventually ends up).
5. The car is then sent to the next destination.
6. When the car reaches the next destination, the car route is again searched for (as in step 3 above, except that the originating division will have changed to the current division).
7. The "next destination" address is then updated to suit.
8. The process is repeated until the division containing the final destination is reached. The "next destination" then becomes the requesting industry, and a car movement is created from the last interchange to the requesting industry (final destination).

## First and Last Interchanges

The examples below should help clarify the role of the first and last interchanges. If a consignee was set up according to example 1, the sequence of interchanges that a car would pass through would be: Monon, Ill. Central, Decatur, and Springfield.

<u>Car Route</u>	Example 1
1 Roachdale	
2 Monon	← First Interchange
3 Ill. Central	
4 Decatur	
5 Springfield	← Last Interchange

If a consignee was set up according to example 2, the sequence of interchanges that a car would pass through would be: Decatur, Ill. Central, Monon.

<u>Car Route</u>	Example 2
1 Roachdale	
2 Monon	← Last Interchange
3 Ill. Central	
4 Decatur	← First Interchange
5 Springfield	

The above examples demonstrate: that a car route can be used for more than one consignee; a portion of a car route can be used; and a car route can be used for both directions. The selection of first and last interchanges determine this.

## Train Schedules Are Critical

Train schedules are crucial in divisional car routing. **The program does not test for train schedules when it routes cars via interchanges.** It works on the assumption there are always trains to take the car where it needs to go. **Ship It! always assumes that any car in a division can get to any interchange in that division on a single train. If you do not provide that train, you will end up with stranded cars!** This means you have to provide trains that travel from each town in a division to each interchange in that division. This only makes sense. I'd be pretty ticked off if I owned a factory in a town that had rail traffic but did not have access to an interchange! You would be surprised at how many times I have seen this in peoples databases. **If you notice cars that have been dead-ended, make sure a train is available to take them where they are going.**

If you have reasons for not having a train that connects a town to an interchange (perhaps the prototype didn't), then you may want to rethink your divisional/interchange set up or add the train anyway. Stranded cars are no fun at all (even if prototypical!)

## Industry Status Report

The **industry status report** is useful because it lists the next destination and final destination for all cars that have them assigned. Any car routed through an interchange will have it's next and final destination filled out. This makes it easy to find cars that have been stranded. Just look for those cars that have not moved for many sessions and have their next and final destinations filled out. Keep in mind that each interchange has a "storage track" which must be assigned. This is where the cars are routed to and is actually an industry in the database. .

## The Interchange Storage Track

This field is found in the interchange update window, and is one of the most critical items when setting up an interchange. The interchange storage track is the yard where the cars are "stored" while waiting for pick up by the next train. This track is a yard or an industry which you have set up beforehand in the industry database. Keep in mind that each industry belongs to a town. Likewise, the interchange storage track belongs to the same town that its yard (or industry) does. It is this town that your trains must visit to be able to pick up and drop off cars. I cannot emphasize this strongly enough. If your trains do not visit the town that the interchange storage track belongs to, you will have (you guessed it) stranded cars! To put it all together, you must have trains going from every town in a division to every

interchange in a division. In order to do this, the trains must go to the correct town (the town that the interchange storage track belongs to.)

## Do Not Convert

The **Do Not Convert** box in the consignee update window should not be used to set up consignees when shipping between two divisions - use if for 1 division only.

## Another Rule

Unless cars are routed through an interchange, they cannot get to their destination on more than one train. The exception is when you are using “Do Not Convert” (see above and Chapter 8.) If you expect cars to travel on more than one train, you must create divisions that force the program to route the cars through an interchange. Contrary to popular opinion (or maybe not!), computer programs are rather stupid. Ship It! cannot “see” all of the train schedules like you and I can. It has tunnel vision and can only see a train schedule one step at a time. If a car has its next and final

## Divisions - Browse and Edit

Each layout, no matter how small, must have at least one division. Divisions are used in the **Towns** and **Interchange** windows.

## Fields

**1 Division Name** Enter the name of the division here. required.

**2 Notes** This is an optional description field.

## Towns - Browse and Edit

Each town must lie within a division (easy if you have only one division!), and each industry must lie within a town.

## Affects:

Train scheduling and switchlist generation is affected by the towns on your layout.

**1 Name** Enter the name of the town. Required.

**2 Initials** Enter initials of town (used for condensed switchlist only.)

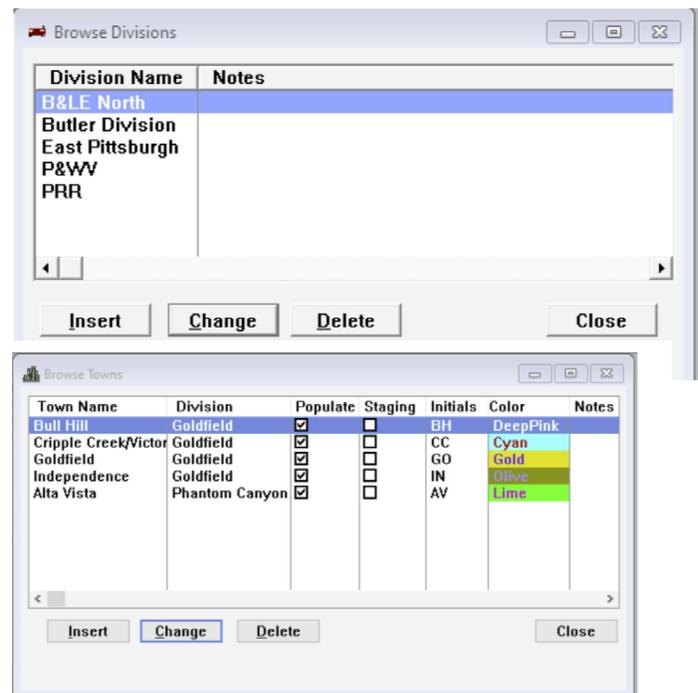
**3 Division** When you select this field, the Division Browse Window pops up, allowing you to select the name of a division. Required.

**4 Staging** Check this box if this is a town that exists in a staging yard. Trains that enter staging towns will not drop off any cars - the same consist will leave the town that entered it. Industry in staging towns will never have cars dropped off at their sidings. The lading will automatically convert (loads to empties & vice-versa), and the train will leave the town intact. This allows you to set up hidden staging. **This box should not be checked if the town does not belong in staging.** When this box is checked, any trains that

destination filled out, and cannot get there on a single train, Ship It! will not look for several trains that will take it to its destination, no matter how obvious it is to us that it could do so. Ship It! cannot think for itself. You must do the thinking for it and provide the necessary divisions, trains, interchanges, etc.

## Draw A Schematic

In order to design your division/interchange set-up, you must draw a schematic showing your towns, interchanges and divisions. Don’t even think about just “doing it in my head”. It doesn’t have to be fancy, but every town and yard should be listed there. At this point develop some train schedules also. After all, your interchanges (and divisions) will be based on where your trains pick up and drop off cars, so you need to have an idea of where this will occur! Along with the train schedules, you should develop some patterns of car movement. Only when you know where your cars are coming from and where they are going to can you design your interchanges and divisions.



stop at the town must have their Default Staging Destination filled out. This tells the train where to drop off any cars left over after its run (cars that would have been sitting in the staging industry). See the Train Update window (chapter 9) for further explanation.

**5 Populate** Make sure you have this checked if you want the industries in this town populated during start fresh. Uncheck this if the town is a staging town and you don't have a train that departs from here initially (otherwise the cars would just sit until a train enters the staging, where it would have to couple to them.)

**6 Color** For future use - used now in Car Cards.

**7 Notes** This is an optional description field.

## Interchanges Browse and Edit

This window allows you to define the interchanges on your layout. **Note: Refer to Chapter 16 for an example of how to set up interchanges.**

### **Affects:**

Directly affects the cross-divisional routing of cars. To cross divisions that are not connected by trains, cars must pass through interchanges.

### **Fields**

**1 Interchange Name** This is used to identify the interchange. Required.

**2 Thru 7 Connecting Divisions** An interchange can connect as few as two divisions and as many as 6 divisions. Fill out the connecting divisions in these fields, starting with connecting division 1.

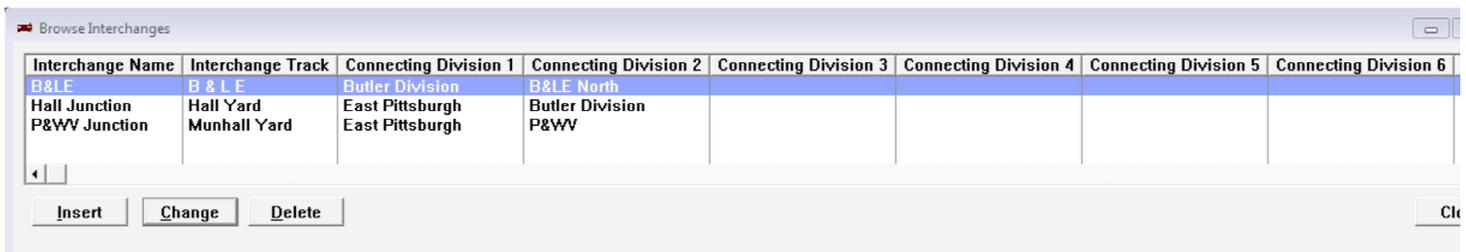
**Warning:** Because of a bug in the development software used, when division names are changed, this change will not be reflected in the interchange update window. **If you change any division names, you must also change those division names in the interchange update window (if they are used there.)**

**5 Storage Track** This is a very important field. Each interchange must have an area where it can store cars

between transfer to trains. Selecting this field will bring up the **Industry** browse window, allowing you to select track-age where the interchange stores cars. This will be an industry, interchange or yard you have previously established. I have received tech support calls where cars were not crossing divisions. This was caused by an incorrect storage track entry in the interchange update form. I cannot over-emphasize the importance of filling out this field correctly. It is crucial for the successful interchange of cars across divisions.

The storage track is where the physical interchange of cars will take place - this is where your trains will pick up and set out cars. **The trains that you expect to do divisional interchange work must stop at the towns that the storage tracks belong to. Both trains must stop there - the ones doing the pick up and the ones doing the set out.** You must have a train from each adjoining division stop there so that cars can pass from one division to another. When you are setting up divisional interchange of cars, it is very important that you have a train (or trains) to transfer cars between each town in a division and each interchange. If cars do not have a way to get between the towns and interchanges, cars will become “stranded”.

**Note:** The storage track can be a yard - it does not have to be a single track siding. The more room it has, the better - if the storage track gets filled, this can severely limit your car movement.



## Car Routes - Browse and Edit

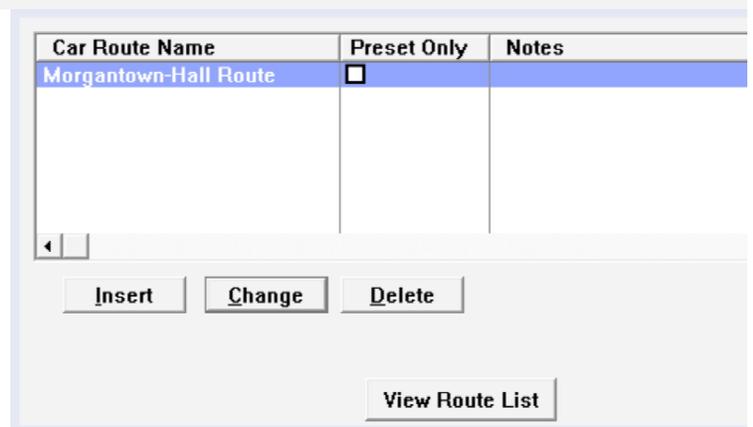
This window allows you to name your car routes.

**Affects:** If you only have two divisions, you can ignore car routes. **If you have two or more interchanges, car routes are needed to define the routes cars may take.** A car route is a sequence of interchanges the car will pass through on its way from one division to another. You can have a very complex network of divisions. Car Routes define the path cars take when they travel from one division to another. For a good example of car routes, see Chapter 14, “Sample Layouts”.

### **Fields**

**1 Car Route Name** This is used to identify the car route. Required.

**2 Notes** Optional description field.



**3 Use For Presets Only** When checked, this prevents the automatic car routing from using this Car Route. This allows you to prevent cars from automatically being routed on complex car routes where they might get stranded.

## Viewing Car Routes

To view a car route list go to the **Browse Car Routes** window. Make sure the correct route is highlighted then click on **View Route List**.

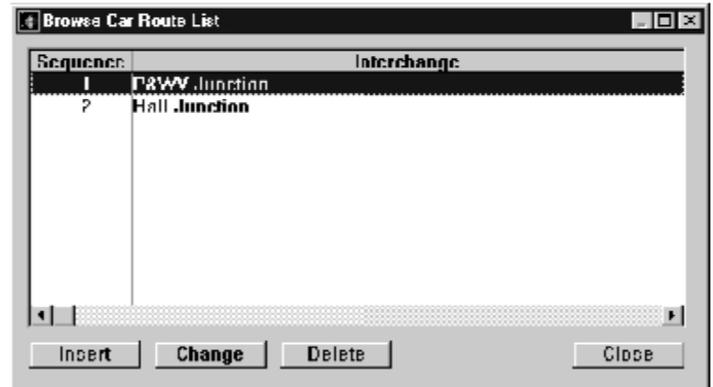
### Car Routes - Browse and Edit

This window allows you to define the sequence of interchanges that make up a car route. Cars will follow the paths defined between divisions.

#### Fields

**1 Sequence** This defines the order of the interchanges travelled through. It does not matter which interchange comes first or last. But the order between the first and last is significant, because it defines the sequence of interchanges travelled through. This sequence must be physically possible on the layout, or cars will be scheduled, but will never reach their ultimate destination. The cars will end up sitting at the last possible destination, and will never move from there because the next step of their journey is not possible.

**2 Interchange** Selecting this field causes the Browse Interchanges window to appear, allowing you to select an interchange.



## **Division Diagnostics**

Division diagnostics are available to help you test your division/interchange set up. This menu item is found under the division menu. You will be prompted for a shipper and a consignee. The diagnostics will test the routing between the two.

Depending on what the diagnostic test finds, different messages will appear. If the shipper and consignee are in separate divisions, and the divisions/interchanges are set up correctly, each interchange and interchange storage track will appear in series of consecutive messages. You must examine this sequence of interchanges to determine if it is the one you desired. Version 7 added the capability to look for and list the trains required. Each train will be listed. Also, if a required train is not found, this is listed also.

It is very important that you scrutinize each movement of the car (from shipper to the first interchange, from the first interchange to the second, etc., from the last interchange to the consignee). It is possible that the interchange (or sequence of interchanges) involved are not what you had in mind. The test may look successful, but you could still end up with stranded cars. This is why you need to examine the sequence of interchanges listed and compare them to the train schedules you have established.

Division diagnostics is really just a way of testing out your divisions/interchanges without running any sessions. But you need to apply your own logical thinking to it. Only you know the path of car movement you want your cars to take.

### **The Messages:**

If the shipper and the consignee are in the same division, a message will appear telling you this. This means that car traffic between the shipper and the consignee will not go through an interchange.

If the shipper and the consignee are in adjacent divisions (divisions connected directly through one interchange), a message will print out stating “Shipper and consignee are in adjacent divisions. Car Route not required for this shipment. Interchange = (software fills in the interchange name). Interchange Storage Track = (software fills in interchange storage track name).” This lets you know that a car route is not required for this shipment, and that a car can get from the shipper to the consignee. There is only one interchange involved here. In other words, the car will be set out and picked up at only one interchange on its journey from shipper to consignee.

If the shipper and the consignee are not in adjacent divisions and the interchanges/divisions have been set up correctly, a message will print out stating “Shipper and consignee are NOT in adjacent divisions. Car Route IS required for this shipment. Interchange = (software fills in the interchange name). Interchange Storage Track = (software fills in interchange storage track name).” Then for every interchange a car must go through to get from shipper to consignee, a message window will appear stating the name of the interchange and the name of the interchange storage track, in this format: “Next Interchange = (software fills in the interchange name). Next Interchange Storage Track = (software fills in interchange storage track name).” Note: the software is not telling you to create a car route by saying a car route is required. Indeed, it has found one, or else it would not be listing interchanges (instead it would give the error message discussed below.)

You may notice that “extra interchanges” are listed. In other words, there may be 5 interchanges listed between shipper and consignee, yet the train you have scheduled runs between all 5. Therefore, the car would not need to stop at all the interchanges. If you have checked the option ‘Send To Last Interchange’ in the Options window, the car will not stop there, but division diagnostics will still list out all the interchanges. This is because it not analyzing any train schedules (it does not know what train the car should go on.)

If division diagnostics cannot find the an interchange and a car route (if one is necessary) between the shipper and the consignee, the following error message will appear “Division setup fails. Car cannot get between shipper and consignee.” This is what I call a “hard” error. That means there is no doubt that something is wrong with your interchange/division set-up, and division diagnostics is telling you so. If you get this message, you either did not define your interchange correctly (if you have one at all) or you do not have a car route that lists the interchanges between the shipper and the consignee. Analyze your schematic and print out your interchanges and car routes to determine what went wrong.

Division diagnostics attempts to find an interchange that connects the division the shipper belongs to. It also attempts to find an interchange that connects the division the consignee belongs to. When it finds the interchanges that these two divisions are associated with, it attempts to find a car route that lists both interchanges. This is the car route that will be used. If it can’t find a car route, and the divisions are not adjacent, the error message listed above will appear. Your task is then to create the interchanges and car routes necessary for division diagnostics (and Ship It!) to succeed.

Even if you get the message “Shipper and consignee are NOT in adjacent divisions. Car Route IS required for this shipment.....”, you may not be out of the woods. be absolutely sure that all the interchanges necessary are listed out in subsequent message windows. If not, you have a problem. This is what I call a “soft” error. In other words, the software has not determined that something is wrong, yet it is listing an incomplete sequence of interchanges. How can you tell this is happening? This is where your schematic comes in. You must understand completely what interchanges the car must pass through from shipper to consignee. If you don’t, you may miss this type of error. You must be able to trace the cars movement across your schematic diagram and list the interchanges it must pass through. If the software does not display a message for each of those interchanges, you can be sure something is wrong. The simplest thing that can go wrong is for you to have an incomplete car route. **A very strong possibility is for you to have the interchange storage track in the wrong location.**

# 13

## Diagnostics and Tips

## Checklist for Lack of Car Movement

1. Check your train types. Cars and trains must match. If you are starting out, use a single train type for everything.
2. Make sure you read chapter 19 (Improving Car Movement: Layout Capacity and Balancing)
3. Can all of your industries receive from “any” direction? Set all of your industries pickup/setout direction fields to “any” when starting out. See chapter 8, Update Industry window for more information on this.
4. Do you have cars of the correct AAR type (those associated with your industries) available?
5. Are you using a single division? It is best to start out with one division and get cars moving before adding multiple divisions.
6. Are your train schedules set up correctly? Your trains origination point should be the first stop on the schedule. Arrival times must be filled out for every stop on the schedule. Departure times are not required. Stay away from 12:00AM as an arrival time. Do not have two towns in the same schedule with the same arrival time.
7. The “Do Not Convert” option in the Consignee Update window should not be used for every industry (use sparingly). See chapter 8, Update Consignee window for more information.
8. Test the matches between your industries by printing the Orphan Industry Report. This will list industries that do not have product matches. Better yet, use Shipper / Consignee Diagnostics (Chapter 15) to help you look for orphans.
9. When starting out, keep all of your duration and frequency times at or under 24 hours. If durations are too high, your sidings will be clogged with cars that are loading/unloading. If your frequencies are set too high, not enough cars will be shipped to consignees. See the end of chapter 8 for an explanation of balancing your shippers and consignees.
10. Check your train capacity. If any trains are set to capacity of one, they will only be able to move one car!
11. A car must be able to get from its shipper to its consignee on one train, unless you have divisions/interchanges correctly set up, or you are using “do not convert” (see warning in line 6). It is very important to understand this. Your trains should visit all towns. If a shipment cannot get from the shipper to the receiver on one train, it will not be delivered (note the exceptions above.) If you are using divisions, see chapter 12 for further information on how to set up divisions/interchanges. **Run Shipper / Consignee Diagnostics (described in this chapter) to determine if cars can get between shippers and consignees. Also read the entire section on Diagnostics in this chapter.**
12. Turn on Last Pass (Random Generation). This setting is found in the Options Window, Tab 5. When turned on this setting causes the program to try and move any cars that have not yet moved in the current session, whether or not a shipper or consignee has requested the car. This can help get your traffic moving, regardless of whether your shippers and consignees are perfectly in balance.
13. If you want more control over moving stuck cars, try turning on the option “Enable Stuck Car Processing” in Tab 4 of the options window. Read the section on “stuck car processing” in Chapter 10. Read this thoroughly, as it is not as simple as just turning the option on - there is significantly more set up work than when using “last pass random generation”.

## Is Your Car Fleet Balanced With Your Industries?

You must have the same AAR Types in your fleet that your industries are asking for. If these cars are not available (or there are not enough of them, car movement will be severely restricted. Movements of cars will not occur if they are not of the AAR type requested by the various industries.

## Siding Capacity - Single Car Sidings

Another potential bottleneck is siding capacity. Avoid single car sidings if you can. This is hard to do with an existing layout, but try and utilize the single car sidings for low volume shippers and receivers or have single car sidings be only shippers, or only consignees. Above all don't have many single car sidings shipping and receiving with one another, because you are bound to end up with a bottleneck. Just one siding full will cause car movement with the others to fail in a cascading effect. Keep in mind that empties have to be delivered also. If an industry with a one car siding has multiple shippers and consignees, don't count on getting much car traffic out of it. Remember, empties have to arrive before they can turn into loads, and if the siding is occupied with a shipment that is unloading, the empty will not be scheduled for delivery and the loading of the new shipment will not occur. See the section on balancing at the end of chapter 8. To test siding capacity, use the option called “Artificially Increase Siding Capacity”. See Chapter 6 for more information.

## Car Routes & Divisions

Car routes are only needed if you have more than two interchanges - with only one interchange, you do not need a car route.

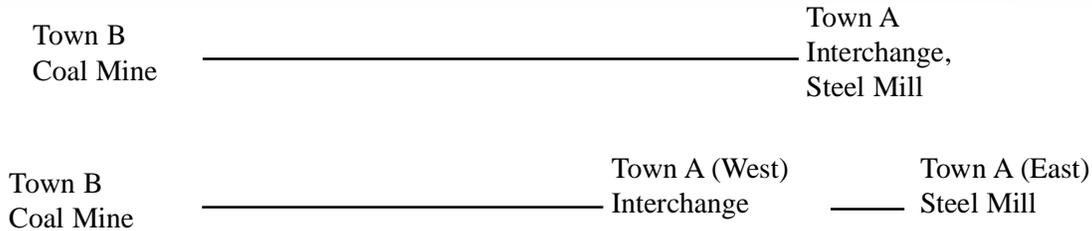
## Train Capacity

If your train capacity is consistently exceeded (trains running full), you may have some industries that rarely get serviced. This is because the train is full (or will become full later), by the time their movement is analysed. To fix this situation, simply run more trains, or increase the capacity. To test for this condition, increase capacity and generate sessions.

## Cars Dead-Ended At An Interchange

It is possible for cars to get dead-ended at an interchange. You will know this has occurred because the cars will sit there forever. If you notice this happening, look in your Industry Status Report to see if the car(s) have a next destination and final destination set. If they do, examine which interchange or industry is there. Then make sure that you have a train scheduled that stops at both the current car location and the next destination. Keep in mind that train schedules are not examined when cars are routed across divisions. **For divisional routing, the program makes the assumption that a car can get from any interchange in the division to any town in the division.**

## Single Train Delivery Supercedes Divisional Routing



If a car can get to its destination via a single train, it will do so instead of going via divisional routing. Let's say you have a train running from Town B to Town A and there is an interchange in town A. Because the Steel Mill is in the same town as the interchange, and because there is a train that runs between the two towns, the coal will be delivered directly from the mine to the mill (without being delivered to the interchange first). This is because when a train arrives at a town, it always has access to all the industries there (unless the consignee or shipper records are of a different train type). In order to ensure that the hoppers are routed through the interchange, the revised schematic below shows that Town A was split into two parts (west and east). The original train travels between Town B and Town A(West), but does not go on to Town A(East). A new train is created to travel between Town A(West) and Town A(East). The hoppers are dropped off at the interchange because there is no single train that could take them to their destination.

## Cars May Interchange Within A Single Division

It is possible to set up train to train interchange of cars within a single division. To do this, choose a location (some type of industry or small yard) to act as a holding yard. Establish a consignee record for this industry using the product you want interchanged. Then check the "Do Not Convert" checkbox in the consignee update screen. This prevents the load from unloading (converting to an empty). This carload will then be available to any consignee requesting it. See the HR&R example in Chapter 14 for an example of this.

## Frequency & Duration

Beware of setting your frequency & duration values too high in the consignee & shipper update screens. This will slow down your car movement. Keep an eye on your industry status reports to tell you what is going on.

## Using The Reports For Debugging

The Industry Status Report, combined with the Empty and Load Request Reports, can help you with problems you may encounter in setting up your operations. For example, if you see industries with load requests, but no loads are being delivered, you can use the reports to determine why. Perhaps the sidings at the requesting industry are full (look at the industry

status report). Perhaps no loads are available to be shipped (look at the shipping industries cars in the industry status report). Perhaps there are no loads because no empties were available to be delivered to the shipping industry. Perhaps there are cars there (you can see them on the layout) which you think should be moving. A look at the industry status report will tell you how long the cars have been there and if they are available. If they are not available, the hours given in parentheses tell you how many hours are left till they are loaded or unloaded. In this case you see that they still have 20 hours to unload. With this information you can go back to the consignee (or shipper) screen, and lower the duration time so that the cars don't sit for so long.

## Helping Cars To Move More Than Once In A Session

The way to develop the most car action with double and triple moves in a session is to use a lot of interchange traffic. When cars are routed through interchanges, there is no duration time. A car dropped off at 10 AM can be picked up again at 10:05 by another train. If you do not want to set up interchange traffic (interchange setup is more complicated), you can simply cut your duration times for the shippers and consignees to the minimum - one hour. This will make your cars available in a shorter amount of time.

## Passenger Trains & Through Trains That You Wish To Assign Cars To Yourself

To schedule passenger trains, check the "Do Not Generate Moves" box in the Trains Update Window. When this box is checked, the train's schedule will be printed, but no car moves will be generated for it. Along with passenger trains, you can set up through freights this way also if you want to do them by hand (do not enter the cars into the rolling stock database, or uncheck the "Available" box in the Rolling Stock Update Window before you run "Start Fresh").

## Using Directions For Industries

Be very careful when using this option. If set to anything other than "any", the industry will need to be visited by a "turn", which will visit the town *from two directions on the same schedule*. Otherwise the industry will not be able to ship or receive cars. I cannot emphasize this strongly enough. I recommend using "any", particularly when starting out. Also, I am a firm believer in run-around tracks!!

## Car Diagnostics

In the Car Diagnostics report, the next and final destinations will only be filled out if the car is destined for another division.

## Revise Car Location

When using this, make sure you fill out the train type field. Otherwise, the car will not move.

## Default Train Types (AAR Type database)

Make sure you fill out the primary default train type in the update AAR window. If you are using multiple train types, fill out the secondary train type also. If you don't do so, your cars may get stranded. This information is used when cars are placed in their home yards during Start Fresh (after all sidings are filled half-way.)

## Arrival Times

The program uses arrival times for all of its calculations. Therefore do not leave these blank. Departure times are for documentation purposes only. **Also, do not use an arrival time of 12:00 AM.** If two towns in the same schedule have the same arrival time, this will cause problems.

## Departure Yards - Train Origination

You must specify the departure yard (where a train originates) as the first stop on a train's schedule. Make sure you specify the arrival time here (departure times are not used in the actual calculations.)

## Interchanges

For interchange of cars to occur, trains from both divisions have to go to the same town (this is the town that the interchange storage track belongs to.) Make sure you study chapter 12 if you are setting up divisions and interchanges.

## Cars Not Moving

If you have cars not moving, chances are that you have your divisions/interchanges set up incorrectly or the cars are of a different train type than those doing the pickup. Use division diagnostics (chapter 12) to determine if your set-up is correct. If

you suspect your cars are of the wrong train type, try sending an extra (that matches the train type of the cars - look at the industry status report or car diagnostics) to the town to see if it picks the cars up. **Cars with their next and final destination filled out have a definite destination in mind.** They want to go the next destination on one train. If you provide that train (and it match the train type of the cars), the cars will go on that train. Turning on the “Last Pass Random Generation “ option (see Chapter 6) can help move these cars.

### Cars with Next & Final Destinations

When you see cars in the industry status report having next & final destinations, this means these cars *have to* go to these destinations. They cannot be requested by another industry. A train must be available to take them to their next destination - if not, it is possible you have your interchange storage track or train schedules set up so the cars cannot get to their next destination.

### Cars Switching Trains in Staging

If this happens, check your default staging destinations. Reselect the default staging destination to fix this problem. If you had changed the “next train” (staging set up for the train) previously, and did not reselect the default staging destination, a problem would occur because the default staging dest. would still be from the older “next train’s” schedule. Reselect the default staging destination to solve this problem, even if the town (and industry) name looks correct.

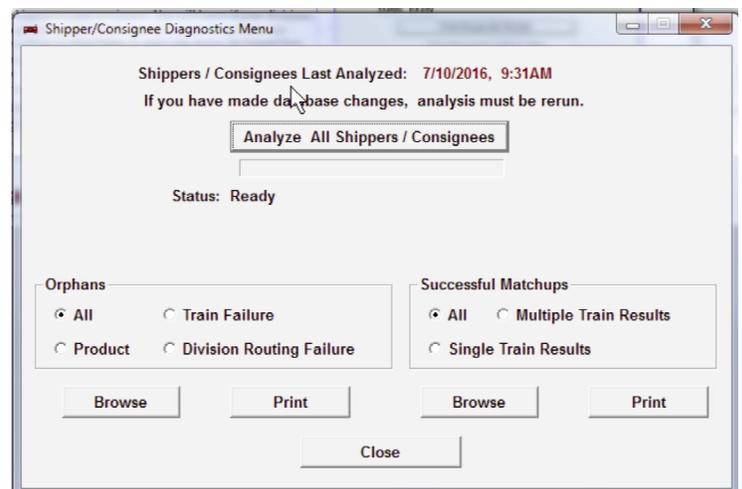
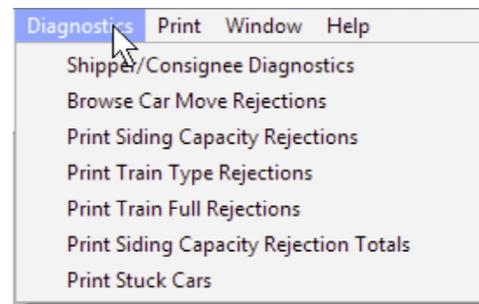
## Diagnostics

### Shipper/Consignee Diagnostics

Before you can use any of the diagnostic features, the program has to analyze your Ship It! database. From the Shipper/Consignee Diagnostics press the button titled Analyze All Shippers/Consignees. With a large database this may take some time. The program is actually doing a dry-run of a session generation, checking out each shipper and consignee, and examining if cars can get between them. It is also analyzing divisional car routing and trains. When it finishes, you have a detailed record of the successes and failures of these attempted routings. You will know whether you have the necessary trains to get cars from your shippers to your consignees. You will know if your divisions, car routes, and interchanges are working to allow trains to carry cars across divisional lines to get from shipper to consignee.

**Orphans** – this lists both failures where you have a shipper that has no consignee (or consignee with no shipper), as well as when a the shipper or consignee has become an orphan because no cars can get to it.

**Successful Matchups** – this lists all shipper and consignees matchups, or those where the matchup is enabled by a single train or multiple trains across divisions. A sample of the report follows.

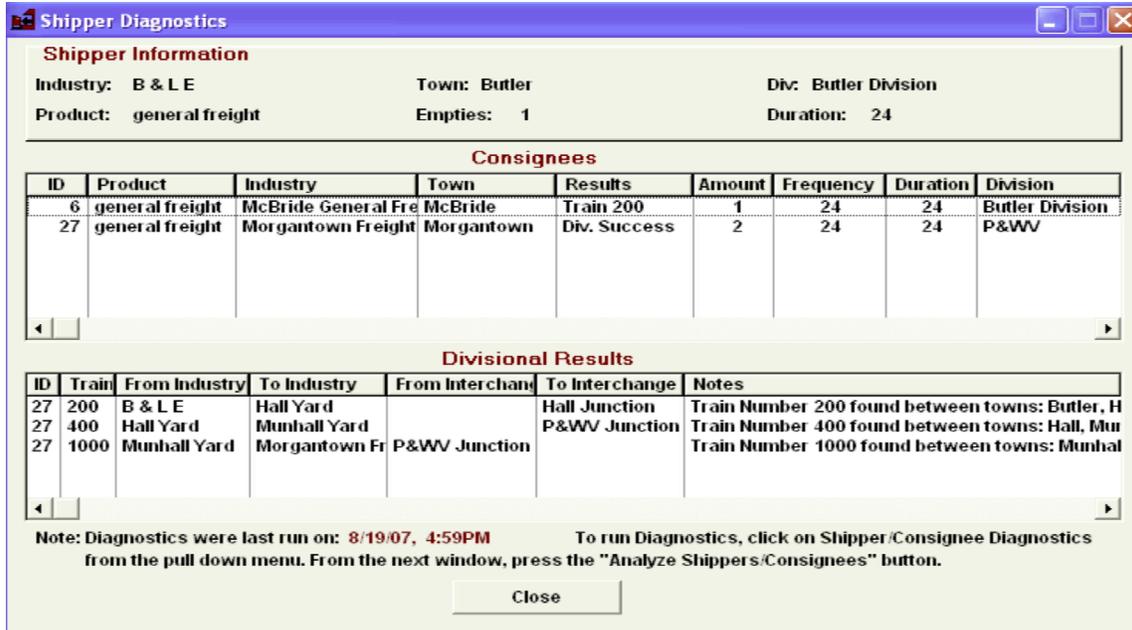




In order to demonstrate failures I turned off the generation of moves for Train 200 in Example 2, and re-ran the Shipper/Consignee Analysis. The above printout is the result. The same shippers were printed out (using the Diagnostic Results Report). The results are **Train Not Found** and **Div. Failure** (Train 200 was not able to move any cars because “generate moves” was turned off for that train). In addition, if you look at the divisional results you’ll see that “There is no train between the towns of Butler, Hall.” **This feature will tell you when you do not have your trains set up correctly for divisional movement!** There us also a warning “Check train type also.”, because having a different train type can stop the pick up of cars.

## Diagnostics Browse Windows

In both the Browse Shippers Window and Browse Consignees Window there is a Diagnostics button. Once an analysis has been run, pressing these buttons displays a window similar to the one below:



For the above window, the row for the general freight shipper at the B&LE interchange was highlighted when I pressed the Diagnostic button. This is the same example that was used in the preceding reports (for this example, Train 200 had car move generation turned on).

There are several items to note. Shipper information is displayed in the raised panel at the top of the screen. In the first browse window, the consignee matches are listed, along with their results. The second browse window displays any divisional results. If there are more than one set of divisional results, these can be distinguished by the ID number in the leftmost column . In the above example, ID 27 in the bottom window matches up to ID 27 (Morgantown Freight) in the top window. Note that the same information contained in the report is contained in this overall window.

With this feature, not only can you see at a glance, all the matching consignees for a shipper, you can see the analysis results as well.

## View Error Messages

Session Generation error messages can be viewed here. If there are no errors, only the heading appears, in this format: “Generation Error Message File - Session #\_\_, (Date of session generation). Regardless of the setting “Stop Generation on Error” (Options Tab 2), errors will be output here. For more information on the “Stop Generation on Error” option, see Chapter 6.

## Browse Car Move Rejections

If you have set the Option “Turn On Diagnostics Mode” (File Menu, Options Tab 2), this browse window will display car rejections from the last session generation (note: multiple generations do not accumulate - only the last generations rejections are displayed). The purpose of these diagnostics is to answer the question, “Why hasn’t car “xyz” moved?” . Hopefully this will also pinpoint possible bottlenecks in your system. Three Tabs are displayed in the window:

**Siding Capacity** - This tab shows every car not moved because there was no room at the destination for the car.

**Train Type** - This tab shows every car not moved because the train type did not match between shipper, consignee, and train. This will show every car not moved for this reason. During Session Generation, an attempt is made to move every car, many times per session. Diagnostics cannot tell between a move you think was legitimate and one you think was not - it simply displays them all.

**Train Full** - This tab shows all cars not moved because the train that tried to pick them up was full.

Please note that a given car could show up multiple times, even in a single tab. This is because the program attempts many times to move each car, on different trains, and to different destinations.

**Car Search:** To search for a car, simply start typing the car number as soon as you enter the window. You don't need to select the search field - in fact it works better if you don't. As long as the "focus" of the window is on the browse, the program will get closer and closer to the car for each digit of the car number you type in.

**Filters:** You can filter by car or rejection type.

## Reports

There are three reports that list rejections: **Print Capacity Rejections**, **Print Train Type Rejections**, **Print Train Full Rejections**. More reports include: **Print Stuck Cars Report**, which lists cars that have not moved since a given session (the report asks for a session before it prints). This report is sorted so that cars that have stayed in place the longest are at the top. **Print Siding Capacity Car Move Rejection Totals** - this report is a listing of the industries that have car rejections, sorted so that the industry with the highest number of rejections is at the top. This is valuable, because **the ones at the top of the list are usually your bottlenecks!**

## Error Messages

### Selection Window Not Appearing

If in the process of entering data into fields on an update window, a selection window does not appear when one should, simply click on another field, then click back in the field giving you a problem. The selection browse should now appear.

Normally a selection window will appear every time you enter a field that is supposed to trigger one. But when you return to the field after your selection, you cannot get the selection browse to appear by clicking in this field *because you are already there*. By clicking in another field, and then clicking on the original field again, the selection browse is triggered.

### File Error in get\_divname

If you get this error message, check to see if all of your rolling stock records have the **Home Yard** field filled in. You must have a home yard for each car if the program is to run correctly. This error can be triggered by a blank value in this field.

### File Error in get\_train\_type

This error can be caused by having towns and industries that are not on a train schedule. If you get this error, make sure that all of your towns are visited by a train.

### Other Errors

Many error messages are non-fatal in Ship It!. Hundreds of error checks go on during the generation of an operating session, many of them of no real significance. Even though an error message was produced, your switchlists could be fine. Many, if not most, errors can be fixed by issuing a **Start Fresh**. If you have wish to test this without losing your session data (the record of what has gone on in previous sessions, along with all of your present car locations), back up the data files from the appropriate sub-directory, then try **Start Fresh**. If you need to, you can always reload your data files. If you are unable to correct the error on your own, write it down exactly as it is worded and contact us at Albion Software. We will assist you in every way possible. **Note: Start Fresh (new car positions) clears out more errors than Start Fresh (old car positions).**

### Motive Power Not Showing Up On Switchlists

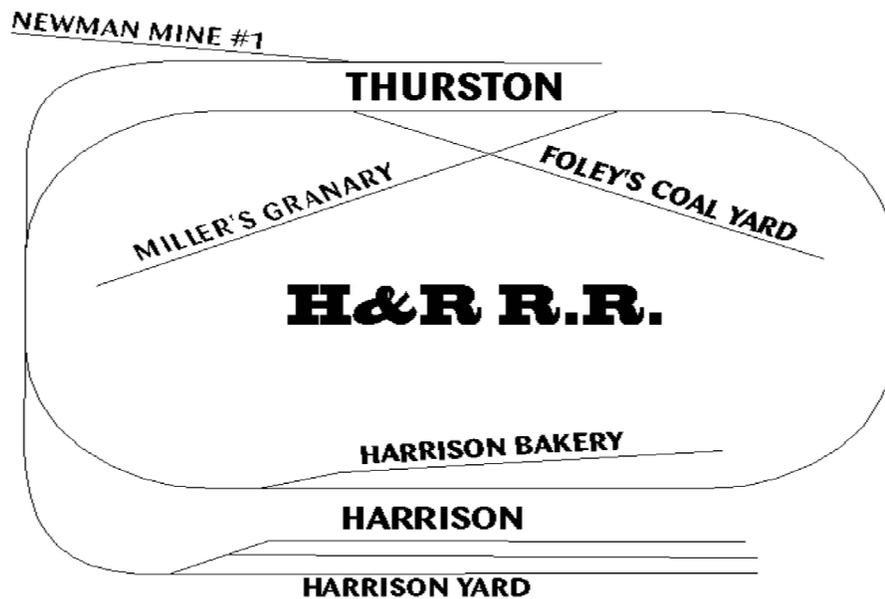
You must fill out the pick up and drop off locations for the motive power to appear in the switchlists and reports. Also, in the industry update window, make sure that your yards or interchanges are marked as yards or interchanges. Be careful when filling out the pick up and drop off locations - if the train is a turn, you must select the correct town in the schedule (because the same town will appear twice in the schedule).

### Yards/Interchanges Not Appearing On Yard Lists

In the industry update window, make sure that your yards or interchanges are marked as yards or interchanges - if they are not, they will not appear in the Yard Reports.

# 14

## Sample Layouts



### Example 1 - The H&R RR

The H&R RR is a simple layout ideal for you to examine while learning Ship It!. This layout was developed for testing purposes, and is a good example of how much operation you can get from a small layout. There is some repetition of car movement, but on the whole, this layout is quite enjoyable to operate. I never actually built this layout, but I spent many hours running cars on it by the 0-5-0 method (hand) on a chalked-in track plan on the basement floor.

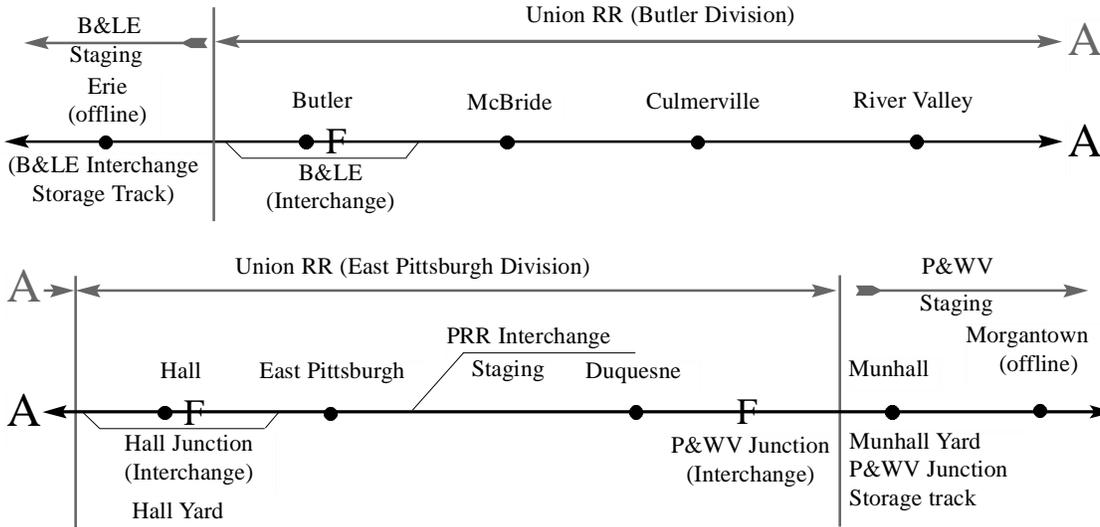
Generate some sessions with it and print out the switchlists. See how you can affect the switchlists by changing parameters such as duration, frequency, and amount, in the consignee & shipper update screens. Add some products or even some more industries. This is a good way to learn Ship It! before tackling the data entry on your layout.

Beta Tester Larry Goss (Northern Maine RR), came up with the following idea:

“ I made a few simple changes to your example #1 which I think might be useful to other new users. I added a branch north out of Harrison serving one town with one industry which consumes coal. I then added a local to serve the branch which departs Harrison after the return of the Thurston Daily. Finally I set the Do Not Convert box for the Harrison Yard coal consignee. To my surprise, not only did my new local take coal up the branch, but it also worked local industries in Harrison both before and after its trip up the branch! It is also interesting to watch the other coal users in Harrison using the coal set out in the yard.”

This is a good example of how to develop train to train interchange of cars within a single division. See chapter 8 for an explanation of “Do Not Convert”. Thanks, Larry!

The Union Lines



Example 2 - The Union Lines

F - Denotes an Interchange

● - Denotes a Town

The Union Lines is my home layout. Essentially, it is a point to point layout with staging yards at both ends. There are four divisions on this layout (two of them are off-line, and exist only in staging). From the busy schematic above it would appear that this is a large layout, but this is not the case. Except for the staging, it occupies an area no larger than 10 ft. x 22 ft. in my basement. **Off-line divisions are an easy way to expand the size of your layout!**

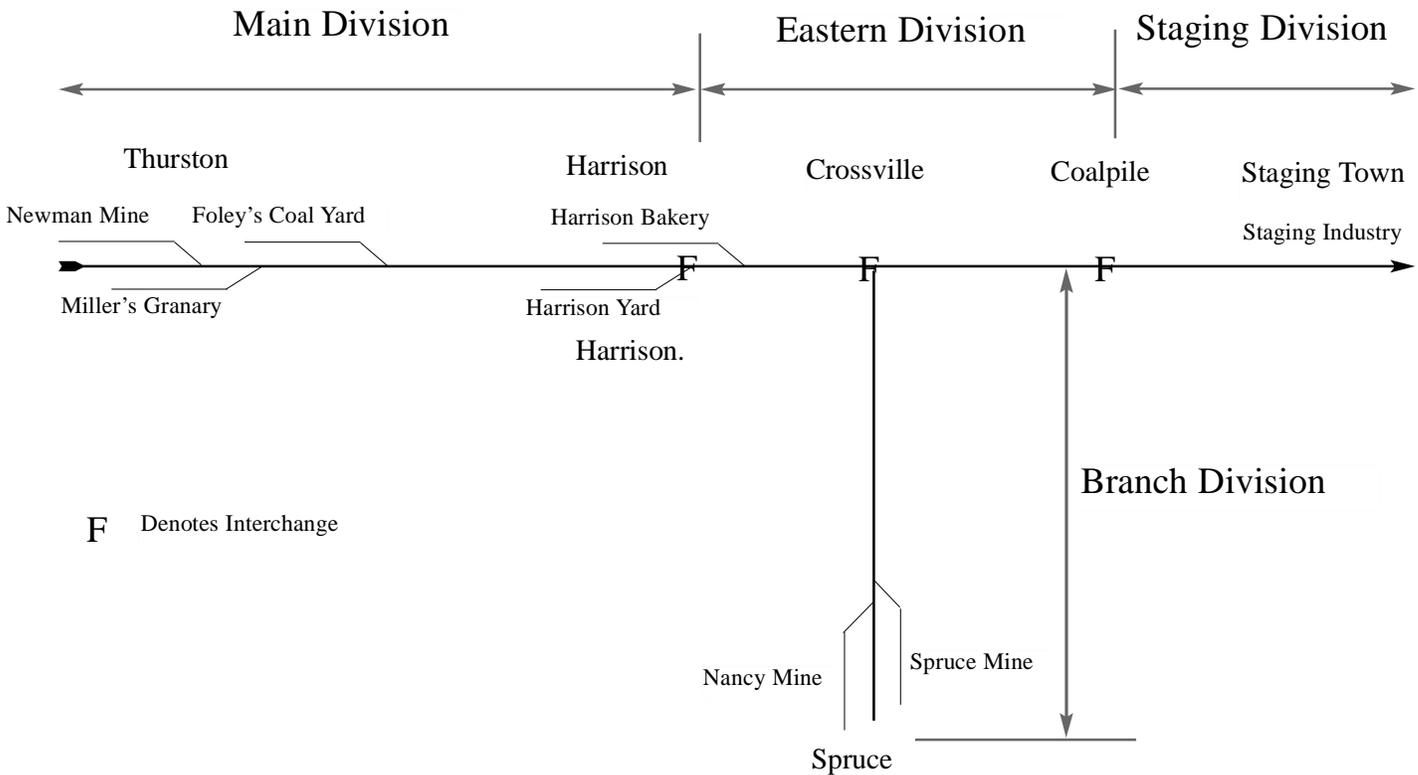
There is a lot of interchange traffic on this layout. Many industries ship and receive goods to and from other divisions or off-line staging. If you want to implement divisions on your layout, examine the data-base for this example. Briefly, here are some industries that ship goods across divisions: Morgantown Junkyard (P&WV) ships to Crucible Steel (Union RR East Pgh. Div.); Tanner's Distributorship (Morgantown - P&WV) ships to McBride Cannery (Union RR Butler Div.); the industries in East Pittsburgh receive coal from Keystone Mine # 2 in Butler. There are more examples of this - print out some switchlists and you will see how cars travel from one end of the layout to another via interchanges.

Examine train #1000 (Morgantown Run). To do this, click on Trains in the pull-down menu section. Next click on trains again. Then double-click on Train #1000 in the browse box that appears. This train is interesting because it never physically runs on the layout. It exists solely in staging and "runs" in the computer only. Its purpose is to ship cars between Morgantown & Munhall (and eventually onto the layout). These towns exist only in staging, so the cars never really need to go anywhere. But it gives the on-line industries more industries to interact with (instead of just an interchange), which enhances the realism and expands the size of the layout.

Train #300 (Morgantown-Erie Through) is a good example of a through freight running solely between two off-line towns. Note that the train is scheduled across divisions. I set up a unique train type (Through Freight) to ensure that the coal loads and empty hoppers would only travel back and not be intercepted by other industries. This is a good example of how **Train Type** is used.

Note on the diagram there are several interchange storage tracks called out. These are interchanges whose storage tracks are not directly adjacent to the interchange (actually they are very close on the layout). Also note the interchanges are shown in the diagram as being inside one division or another - this merely indicates ownership of an interchange by a division.

There are three interchanges - B&LE Interchange, Hall Junction, and P&WV Junction. Study the Divisions, Interchanges, and the Car Routes records to see how these were set up. All of these are under the divisions menu on the main screen. Examine these carefully, along with the Divisions Chapter in the manual. These are good examples of how to set up divisions on a layout.



### Example 3

Example 3 is found in the secondary directory. It combines many of the advanced elements found in Ship It! It uses hidden staging, multiple interchanges and divisions, and local/thru train type switching. The basis for this layout is Example 1. The same industries and towns are found in Example 3, except that it has been expanded. Three divisions have been added (see diagram.) The Eastern division consists of two towns (Crossville and Coalpile.) These towns only contain interchanges.

The Hidden Staging division (which connects at Coalpile) contains one industry called Staging Industry. This industry receives flour from Millers Granary (in Thurston), coal from the mines at Spruce and Thurston, and baked goods from Harrison. It ships grain to Millers Granary and supplies to Harrison Bakery.

The Branch division contains the town of Spruce, and the two mines there: Nancy Mine and Spruce Mine. Coal is produced at these mines and carried to Crossville interchange on the Crossville Turn (a local train). From there, the Crossville-Harrison Through (through train) takes the hoppers to either Coalpile interchange (where the staging train takes them into staging and back) or Harrison Yard.

Boxcars of flour travel from Millers Granary via the Thurston Daily (local) to Harrison Interchange. From there the Harrison Crossville Through takes the cars to Coalpile. From Coalpile, the Staging Train takes the cars into staging, where they convert to empties and return to Coalpile.

Empties entering staging (requested there by the shippers in the staging industry) are converted into loads (supplies and grain) and sent back to Harrison and Thurston.

The town of Harrison has been broken into two towns (Harrison and Harrison. - notice the period at the end of the word Harrison.) Any small change like this in a name will cause the name to be different, yet look similar. Because we have checked the options "Allow local and through pickups..." from the options window, our through train can pick up and set out cars at sidings. This is fine, except for those industries where we don't want this to happen, such as Harrison Bakery (I wanted Harrison Bakery to be switched by the local, not the through.) Because the through train (Harrison-Crossville Through) does not visit Harrison (it only visits Harrison. - again, notice the period), the Bakery is not switched by the through train. It is switched by the local, which takes its cars to Harrison Yard (the interchange). From there the cars travel on the Harrison Crossville Through to Coalpile. *Note: one of the towns must have an interchange for this to work.*

The Storage Track field in the Shipper update window has been filled out for both Spruce and Nancy Mines. This keeps the mine tracks free of cars by sending them to Harrison Yard, where they can be requested by other industries.

If you are interested in setting up some of the more advance features in Ship It!, I strongly suggest spending some time studying this example.

### **Please Note:**

The best Option Window settings for the example programs are different. If you do not use these settings, you may get incorrect or non-optimal results.

For Examples 1 & 2, the following settings should be used:

Options Tab 1: Check all boxes except "Distribute cars only in home division during Start Fresh". Set both multiplication factors to 1.

Options Tab 2: Check "Process staging early in generation" and "Process staging in mid-generation". Leave all others blank.

For Example 3, the following settings should be used:

Options Tab 1: Check all boxes except "Distribute cars only in home division during Start Fresh". Set both multiplication factors to 1 or .5.

Options Tab 2: Check "Do not Convert Loads out of Staging". Leave all others blank.

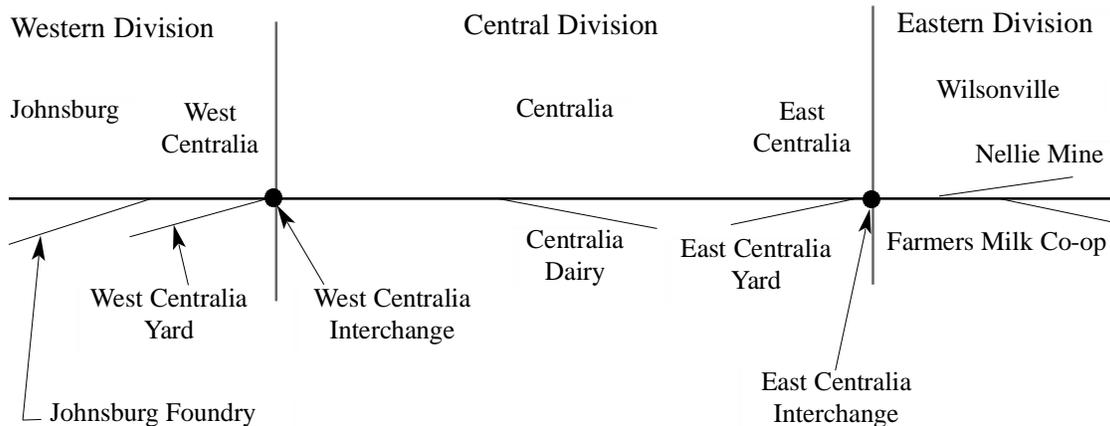
# 15

## Divisions Tutorial

## A Tutorial on Divisions

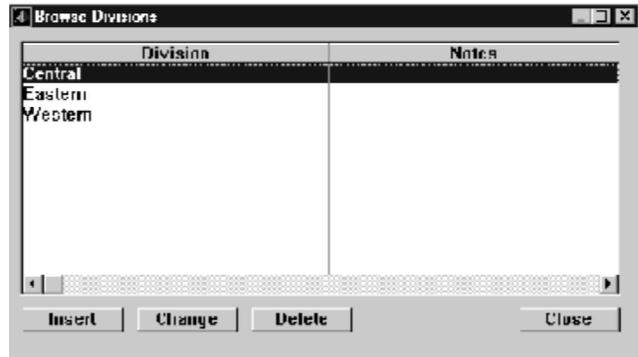
This tutorial is designed to help you understand how to set up and make use of the division and interchange features of Ship It!. Before embarking on this tutorial you should be familiar with the rest of the program (setting up industries, consignees, shippers, train schedules, etc.) and also have practiced entering data into the various

areas. This tutorial is not designed to teach you how to enter data or navigate the various screens of Ship It!; its sole purpose is to teach you how to set up divisions and interchanges. When you have finished you should have a working example of divisional interchange of rolling stock within Ship It!.



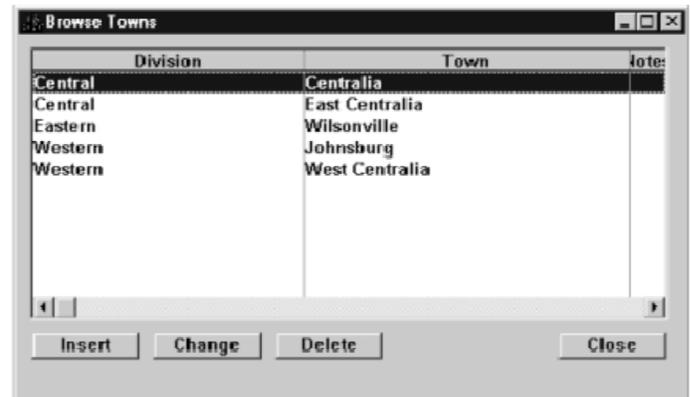
### Step 1.

Enter the three divisions (select Divisions from the Divisions pull down menu to gain access to the scrolling browse). The picture to the right shows how the Divisions scrolling browse should look after you have entered the divisions:



### Step 2.

Enter the five towns (select Towns from the Divisions pull down menu to gain access to the scrolling browse). The picture to the right shows how the Towns scrolling browse should look after you have entered the towns (please make sure you select the correct division for each town).



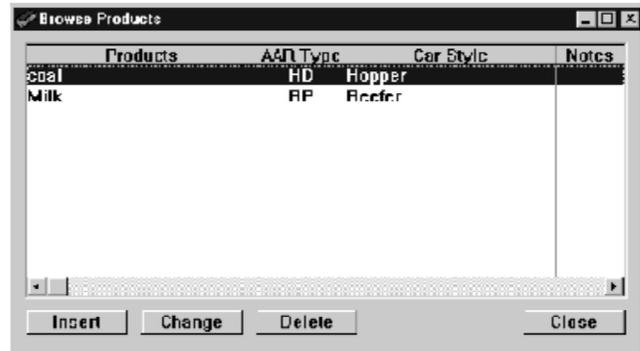
**Step 3.**

Enter the six industries (select Industries from the Industries pull down menu to gain access to the scrolling browse). The picture to the right shows how the Industries scrolling browse should look after you have entered the industries (please make sure you select the correct town for each industry). The siding capacity is also important.



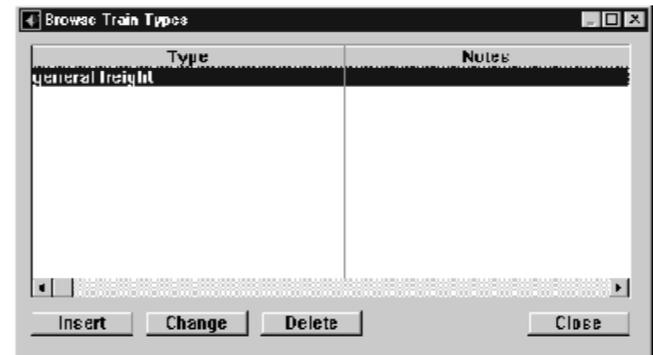
**Step 4.**

Enter the two products (select Products from the Industries pull down menu to gain access to the scrolling browse). The picture to the right shows how the Products scrolling browse should look after you have entered the products (please make sure you select the correct AAR Type for each product).



**Step 5.**

Enter the train type used in this example (select Train Type from the Trains pull down menu to gain access to the scrolling browse). The picture to the right shows how the Train Type scrolling browse should look after you have entered the data. There is no need for more than one train type unless you want to restrict some trains from picking up cars.



**Step 6.**

Enter one consignee for Centralia Dairy (select Consignee from the Industry pull down menu). Fill the update form as shown to the right. Most of the fields should be selections from information you have previously entered. **Note:** fill out the **Primary Train Type** field as general freight in the **Train Type/Pre-sets Tab** (the only field from this tab filled in).

Town:       A

Product:       Freq

AAR Type:       P

Car Style:

Notes:

       Record will be Changed

**Step 7.**

Enter one consignee for Johnsbury Foundry (select Consignee from the Industry pull down menu). Fill the update form as shown to the right. Most of the fields should be selections from information you have previously entered. **Note:** fill out the **Primary Train Type** field as general freight in the **Train Type/Pre-sets Tab** (the only field from this tab filled in).

Town: Johnsbury  
Product: Coal  
AAR Type: HD  
Car Style: Hopper  
Notes:  
OK Cancel Record will be Changed

**Step 8.**

Enter one shipper for Nellie Mine #1 (select Shipper from the Industry pull down menu). This shipper will supply Johnsbury Foundry with coal. Fill the update form as shown to the right. Most of the fields should be selections from information you have previously entered.

Product: Coal  
AAR Type: HD Car Style: Hopper  
Primary Train Type: general freight  
Secondary Train Type:  
Storage Yard: Clear S  
Notes:

**Step 9.**

Enter one shipper for Farmers Milk Cooperative. (select Shipper from the Industry pull down menu). This shipper will supply Centralia Dairy with milk. Fill the update form as shown to the right. Most of the fields should be selections from information you have previously entered.

Product: Milk  
AAR Type: RP Car Style: Reefer  
Primary Train Type: general freight  
Secondary Train Type:  
Storage Yard: Clear S  
Notes:

**Step 10.**

Enter the East Centralia Interchange data. (select Interchange from the Divisions pull down menu). This interchange connects the Eastern Division to the Central Division. Fill the update form as shown to the right. Cars being dropped off will be stored at East Centralia Yard while awaiting pickup (note the storage track field).

Connecting Division 2: Eastern  
Connecting Division 3:  
Connecting Division 4:  
Connecting Division 5:  
Connecting Division 6:  
Storage Track: East Centralia Yard  
Notes:  
OK Cancel Record will be Changed

**Step 11.**

Enter the West Centralia Interchange data. (select Interchange from the Divisions pull down menu). This interchange connects the Western Division to the Central Division. Fill the update form as shown to the right. Cars being dropped off will be stored at West Centralia Yard while awaiting pickup (note the storage track field).

**Step 12.**

Enter the Car Route name (select Car Routes from the Divisions pull down menu). The purpose of a car route is to tell the program what route(s) cars take through interchanges. Because we have more than one interchange in this example, the car route is necessary to explain to the program how a car would travel from the Eastern Division to the Western Division via interchanges. With only two adjacent divisions, there is no need for a car route. After you have entered the route name, press the View Route List button to enter in the sequence of interchanges that make up a car route.

Route Name	Notes
East-West	

**Step 13.**

Enter the sequence of interchanges that will make up the car route. There is no need to have two car routes, each going in different directions (one West - East, the other East-West). All you need to have is one car route - the program will read it from either direction. For this example, make sure the scrolling browse for your car route looks like this:

Sequence	Interchange
1	Last Centralia Interchange
2	West Centralia Interchange

**Step 14.**

Start entering the train information. There will be three trains, one train for each division. The update form for Train #100 is shown to the right. Enter the information exactly as you see it, except for the locomotive number. When you get to the locomotive field, a blank select screen will appear, unless you have entered locomotives into the file. By pressing the insert button, you can enter one "on the fly". See Chapter 3 for further information.

**Step 15.**

Enter the information for Train #200 as you see it to the right.

Train Name:	Centralia Local
Train Type:	general freight
Train Class:	
Max. Cars:	10
Notes:	

OK Cancel Record will be Changed

**Step 16.**

Enter the information for Train # 300 as you see it to the right.

Train Name:	Johnsburg Turn
Train Type:	general freight
Train Class:	
Max. Cars:	10
Notes:	

OK Cancel Record will be Changed

**Step 17.**

The scrolling browse for the trains should now appear as it does to the right. Step 18 will involve entering train schedules for each of these trains. To do this, highlight the train you wish to build a schedule for and click on the View Schedule button.

300	Johnsburg Turn	general fre
-----	----------------	-------------

Insert Change Delete

Print Switchlist Copy Train View Schedule

Print Condensed Switchlist Browse Condensed S

**Step 18.**

Enter a train schedule for train #100. As you insert each record in the schedule, the arrival time will set the sequence order in the schedule. For entering AM times, you can omit the AM. For PM times, you must include PM. Make sure that you check the Return Trip checkbox in the update form for the last stop "Wilsonville". This indicates to the program that this stop occurs on the return trip of the train. Note that the return trip indication does not appear in the scrolling browse - but please don't forget to enter it. For convenience sake, we are not creating a new train for the trip back. This can easily be done by adding another train with a different number and altering the schedule to suit. For this example, please follow these screens. Enter the times exactly.

Browse Train Schedules - Train #100 - Last Centralia Turn

Time	Arrival Time	Notes
Wilsonville	6:00AM	
Fast Centralia	7:00AM	
Wilsonville	8:00AM	

Insert Change Delete Close

**Step 19. (reference only - no work involved)**

The update form to the right shows the checkbox “checked”. Any stop on the return trip of the train must have this box checked. Note: the arrival time must be filled in because Ship It! uses this in its calculations. The departure time is for documentation only.

**Step 20.**

Enter the train schedule for Train #200 as shown to the right. The second occurrence of “Centralia” and “East Centralia” will both have their return trip checkboxes marked, because these stops occur on the return trip of the train.

Town	Arrival Time	Notes
East Centralia	9:00AM	
Centralia	10:00AM	
West Centralia	11:00AM	
Centralia	12:00PM	
East Centralia	1:00PM	

**Step 21.**

Enter the train schedule for Train #300 as shown to the right. The second occurrence of “West Centralia” will have its return trip checkbox marked, because this stop occurs on the return trip of the train. Remember to enter the arrival times correctly. This has a direct bearing on the successful interchange of the cars.

Town	Arrival Time	Notes
West Centralia	12:00PM	
Johnsbury	1:00PM	
West Centralia	2:00PM	

**Step 22 - Run Some Trains!**

First make sure you have cars of the correct AAR type (HD & RP) entered into the rolling stock database. If you are not familiar with the process of generating sessions, read Chapters 10 and 11. Then generate sessions 1 through 3 at least. If you have entered the data correctly, you should see reefers of milk shipped from Farmer’s Milk Co-op to the East Centralia Yard on Train #100 (likewise with hoppers of coal bound for Johnsbury Foundry. Train #200 should deliver the reefers of milk to Centralia Dairy, and the hoppers of coal to the West Centralia yard. Finally, Train #300 should deliver the hoppers of coal to Johnsbury foundry. Also note the travels of the empty cars back to the shipping industries. Print out the switchlists and the industry status reports and track the cars as they ship products. Who knows, with some more industries, this might be a fun layout to build!



# 16

## Setting Up Hidden Staging

## Two Types of Staging

In model railroads, staging usually falls into two types: hidden staging (non-accessible) and fiddle staging (accessible). Ship It! can handle both types of staging. This chapter is about setting up hidden staging using Ship It!

### **Fiddle Staging**

If you have access to your staging (switching access, that is), your best bet is to not use the hidden staging features of Ship It! This will be easier to set up and will allow for more prototypical operation. In addition, with fiddle staging, you can set up one or more off-line divisions, thereby expanding the size of your layout. Your computer will not know where your layout ends, which is a big bonus. Your layout can expand "virtually"; Ship It! will keep track of cars as they travel on off-line divisions. The cars will "leave" the layout, and sit in your fiddle yard until their trains return them to the layout. Meanwhile, they will travel "virtually" on one or more trains, be dropped off at some far away industry, convert to a load or empty, get picked up by a virtual train, and eventually end up back in the fiddle yard (even though the car never left at all). With fiddle staging, Ship It! does not know the boundaries of your train room! You can use Ship It! to quickly and easily "expand" the size of your layout.

### **Hidden Staging**

Hidden staging is used when you do not have switching access to your staging yard. When this is the case, the same train (same consist) must exit staging that entered it. You do not want to pick up or drop off any cars inside hidden staging. Because Ship It!'s main task is to drop off and pick up cars to/from industries, this becomes a problem. There is also the problem of empties and loads to consider. Do loads still convert to empties, and empties to loads? What about duration times? Hidden staging throws a monkey wrench into all of this. Ship It! has tools and routines built into it to overcome these problems - this chapter will explain how they work.

Because load/empty conversion is such an important part of the prototype (and such an integral part of Ship It!), I knew that this had to continue with hidden staging. Duration times would have to become zero, because empty/load conversion would have to occur whenever the train left staging. The main problem became where to send the cars if they had no on-line requests. The train simply could not wait until every car became requested - it would have to stay on its schedule. The solution became the "default staging destination".

### **Staging Towns**

Each staging yard will contain one (or possibly more) staging towns. A "staging town" is any town that has it's

staging checkbox (towns update window) checked. This tells Ship It! that any industries belonging to that town are "staging industries".

### **Staging Industries**

You will need to set up industries inside your staging. These industries should have shippers and consignees that ship/receive products that correspond with the goods shipped/received by your on-line industries. You should set up one industry per staging town that contains many shippers/consignees.

### **Default Staging Destination**

Every train visiting a staging town must have a default staging destination or errors will occur during session generation. Cars dropped off at staging industries (they really stay with the train) convert immediately to loads or empties, and leave with the train when the train leaves staging. The default staging destination is an industry on the train's schedule that any cars go to who do not have requests from on-line industries. The default staging destination is almost always an online industry (not in staging) on the current trains schedule. This industry is where cars which do not have online requests will go to when the train leaves staging. There is only one case when the default staging destination will itself be in staging, and this is when you set up "paired" staging (discussed below). When paired staging is set up, the default staging destination will be at the end of the trains schedule (where the train converts to the next train.)

It is very important that you understand the concept of the default staging destination before you set up hidden staging. Simply put, the default staging destination is where all cars in staging go to that do not have on-line requests. If none of the cars are being requested by on-line industries, then all of the cars will go to the default staging destination. The default staging destination provides a destination for any cars on a staging train that do not have on-line requests.

### **How Empties and Loads Convert Inside Staging**

When loads arrive in staging, they are converted to empties. If there are no on-line requests for these cars, they will be sent to the default staging destination for the train they are on. When empties arrive in staging, they are converted to loads. What loads they are converted to depends on the AAR type of the car and the shippers associated with the staging industry. If there are multiple shipper records set up for this industry (the default staging destination industry), the program cycles through the shipper records, assigning cars the loads specified there. This is not randomly done - the AAR types of each car must match the AAR type specified for the product being shipped before the assignment takes place. **If you are**

shipping mixed freight, your staging industries should have multiple shipper records. If an empty entering staging does not match any of the shippers AAR types in staging, then the car will remain empty. For it to convert to a load, it must be able to find a shipper record that uses the same AAR type in the staging industry.

## Staging Options

The options window has many staging options. The staging options are: Allow both through and local pickups for staging; Process staging in early generation; Process staging in mid generation; Do not convert loads out of staging; and Send empties home from staging. Make sure you read about these staging options in Chapter 6. Most of these options were added in later versions of Ship It! in response to customer requests, so they may pertain to you also.

## Staging trains can pick up from and deliver to on-line industries.

The same rules for creating car movements exist for staging trains as for other trains. The only difference is cars cannot be dropped off or picked up in staging. When you build off-line industries in staging, the cars are never dropped off there. The duration time for these shippers and consignees becomes zero. The car is converted as soon as it arrives. Empties leave staging as loads, and loads leave as empties. Any train entering staging leaves with the cars it came with.

## Staging Trains?

Staging trains are built like any other train. You create industries with shippers and consignees to generate your traffic. In staging these industries are considered off-line. The program thinks of them and treats them as normal industries (except for the fact cars never get dropped off there). There is another way to build staging trains which does not involve creating industries. Using the Revise Car Location Tab in the Rolling Stock Update Window, you can “salt” your staging with rolling stock. When doing this you specify lading, location, and train type. What makes this work is *cars do not remain in staging*. The first train out of staging will take those cars with it. If you have paired staging trains set up (as in the above example), you can start a train off by “salting” a staging yard with cars. Those cars will keep going back and forth between the two staging yards involved as long as the cars do not get requested by on-line industries. When setting up a staging train, you must set up a *default staging destination*. This destination, described elsewhere in this chapter, is extremely important. If your staging is not working the way you want, there is a good chance the default staging destination is not set up correctly.

## How To Set Up Staging

### Example - Staging Yard to Staging Yard on a Point to Point Layout

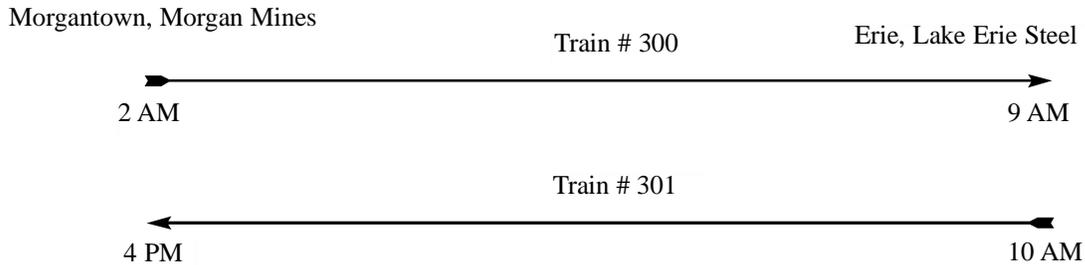
This example covers how you would set up two staging yards at either end of a point to point layout. Refer to the schematic for Example 2 - The Union Lines, in the Sample Layouts Chapter. The example 2 database matches the screen shots here. The plan here is to ship loaded coal hoppers from Morgan Mines in Morgantown, WV to Lake Erie Steel in Erie, PA. Empty hoppers will then return to Morgan Mines on another train. Both towns (and their respective industries) exist solely in staging. What you experience as an operator are a loaded coal drag which emerges from staging, crosses the layout, and ducks back into hidden staging at the other end. Some hours later (scale time), another train emerges (same loco, same consist - except empties instead of loads, at least in the database) and travels back to Morgantown.

To set this type of staging up requires 2 towns which exist in staging, and two trains which travel between the towns. Each town requires an industry where the cars will be shipped to.

## Setting Up Your Towns

In the towns update window, there are two checkboxes which are important here: **Staging** and **Populate**. The **Staging** checkbox should be checked for both Erie and Morgantown, because this tells Ship It! that the towns and any industries in them are staging. The **Populate** checkbox should only be checked for Morgantown. This tells the computer to populate the town with cars during Start Fresh. In this case, the **Populate** checkbox for Erie is not checked because we don't want any cars there at the start of a session. This is because the first train to depart (of the two we are setting up) is the one which originates in Morgantown. If we allowed Erie to be populated on Start Fresh, the train arriving in Erie staging would have to couple onto the cars already there. Unchecking the **Populate** checkbox for Erie prevents this.

## Example 1: A "Paired" Set of Staging Trains



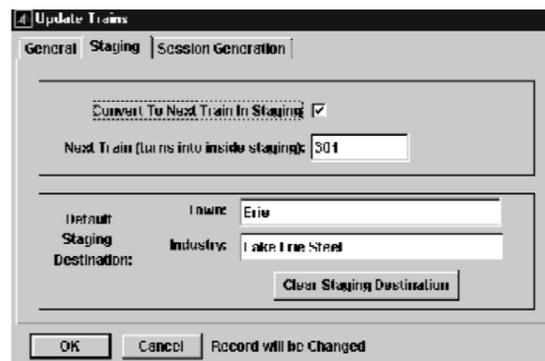
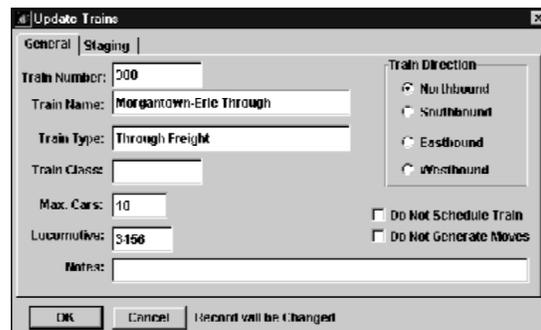
Note that the default staging destination for Train #300 is Lake Erie Steel, and the default staging destination for Train #301 is Morgan Mines. Train #300 becomes Train #301 inside Erie Staging. The default staging destination for a paired train is the last stop on the trains schedule. This is where the train converts into the other train and where the new train departs from, and is also inside staging. Train #301 becomes Train #300 inside Morgantown Staging.

### Setting Up Your Trains

When setting up two staging yards which “feed” each other, you need two trains. In our example we have Train #300, The Morgantown-Erie Through, and Train #301, The Erie-Morgantown Through (guess what their schedules are!). Each train “converts” into the next train. In other words, inside staging Train #300 becomes Train #301, and vice-versa. The Update Trains Window has a staging tab, where you set this up.

You must check the **Convert to Next Train** checkbox and select the next train to convert to when setting up trains which run back to back from staging yard to staging yard like this example. You must also click in the **Next Train** field. This causes a browse select for the Trains file to appear. Select the train you wish to convert to. When the train leaves staging, it will leave as the train you specify.

The Default Staging Destination fields are very important but sometimes confusing entry fields! When you click on



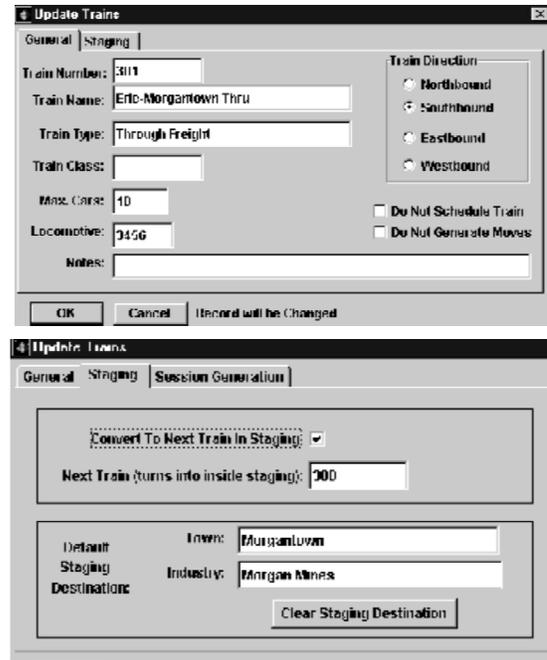
Screen Shots For Train #300

the towns field, a browse select appears containing the towns in the trains schedule. When you click on the industry field, a browse select appears containing the industries in the town you selected above (The Default Staging Destination Town).

The default destination is where any cars must go which are not destined already for on-line industries. Because the cars cannot be left in staging, they must have a place to go. The default staging destination provides these cars a destination. When setting up paired staging, the default staging destination should be the last stop on the current trains schedule, and the departure point of the next trains schedule. This is where the current train converts into the next train and must be inside staging.

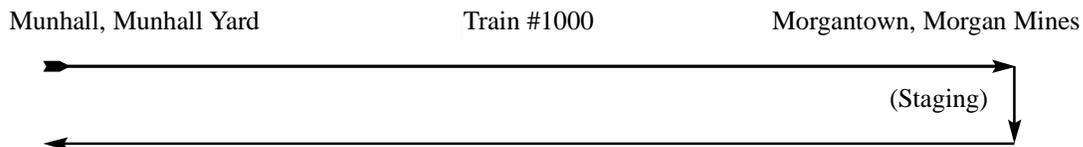
### Running Only 1 Train of a Pair per Session

In the Session Generation tab of the Trains update form, there are selections for running your trains **All** sessions, **Even** sessions, or **Odd** sessions. One train of the pair should be set up for odd, and one should be set up for even. That way they will alternate sessions.



Screen Shots For Train #301

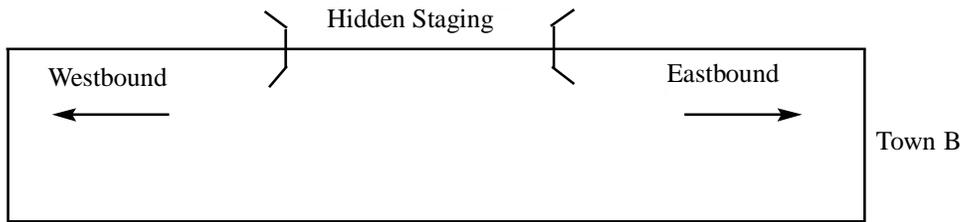
### Example 2: Staging Used In A “Turn” or “Out and Back”



Staging is easier to set up for a “turn”. Example 2 above shows how Train #1000 is set up for hidden staging. Train #1000 is part of the Example 2 database which comes with Ship It! Train 1000 originates in Munhall, travels to Morgantown, and returns to Munhall. Since Morgantown is set up as a staging town (the staging checkbox is checked in the Town Update Window for Morgantown), all the cars arriving there will also depart when it returns back to Munhall. The default staging destination town is Munhall for this train, and Munhall Yard is the default staging destination industry. **Note: The default staging destination cannot be a staging town itself (unless it converts to another train), or you will see multiples of the same car in the staging area destination.** Because all of the cars must leave Morgantown with the train, the default staging destination is Munhall. Another rule for the default staging destination for a “turn” is it must occur *after* the staging town in the schedule. In this case it works out better because the default staging destination is also the origination point for the train. This allows for more car movement because cars will travel back and forth between Morgantown and Munhall, going through the load/empty cycle.

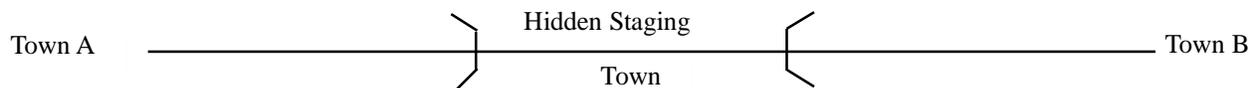
There is no next train because the same train number returns which went out.

### Example 3: Through Staging as Part of a Loop



Hidden staging can be set up as a part of loop operation. Designate a town in your hidden staging area and mark it as staging (using the checkbox in the Town Update Window). Both Eastbound and Westbound trains can be set up. These trains can start and terminate inside hidden staging, but the hidden staging cannot become the default staging destination unless you convert to another train.

### Example 4: Through Staging in a Point to Point Layout



Through staging can also be implemented in a point to point layout. Designate a town in your hidden staging area and mark it as staging (using the checkbox in the Town Update Window). You can either set up one train or you can convert to another train inside staging. A single train would originate in Town A, stop in the staging town in the middle, and terminate at Town B. The next train checkbox would not be checked, and the default staging destination would be Town B. If you set up two trains, the first would originate in Town A and terminate in the hidden staging town. The second train would originate in hidden staging and terminate in Town B. The first train would have its next train box checked; this next train would be the second train. The default staging destination would be the hidden staging town. For the second train, there would be no staging information filled out.

### Example 5: Return Loop Staging



The train would leave town "A", enter the staging loop, and return back to Town "A". The staging loop would be set up as a staging town and would appear in the middle of the trains schedule. The default staging destination for this train would be Town "A". The set-up is very similar to a "turn" or "out and back".

## **Common Staging**

When sharing a common staging area with more than one train, if you want to keep the consist pure (bananas on the banana train, and meat on the meat train), you will need to use different train types, or create a different town (you could have a different town on each staging track.). This is because the program wants to send cars out of staging on the next available train, even if it is not the train you intended the cars to go on (and even if it is not going to the default staging destination for those cars).

## **Disappearing Cars**

If you run into a situation where cars have been picked up in staging, but then do not get dropped off anywhere, it may be the case that the wrong train has picked up the cars. The program wants to send cars out of staging on the next train, whether or not that train is going to the default staging destination of those cars. So if you have disappearing cars, look to see if the cars have gotten on the wrong train. If they have, isolate them by using a different train type or send them to a different staging town.

## **Preload Your staging**

You can pre-load your staging by using the revise car location tab - see Chapter 7. If you have paired staging set up, the loads will convert back and forth forever (unless they leave the staging train). Use the empty checkbox on the revise location tab and fill out the future load field - the car will convert to this load in staging. If you wish to create an empty in staging, fill out the product field, and it will convert to an empty in staging.

## **Local & Thru Pickups**

There is one important option you need to be aware of when setting up staging. This option is called "Allow both Through and Local Pickups for Staging". If this option is checked, the program will allow cars to be picked up if their train type matches either the local type or the through type that was set up for them.

Train types of cars are set up in the Consignee and Shipper Update window. Each train's train type is set up inside the Train Update window. If this option is checked, any car to or from staging will be evaluated so that if its primary type matches the train or its secondary type matches the train, the movement will be allowed.

This allows through trains to pick up or drop off cars at an industry. Do not attempt to use the checkboxes "Receive as Thru" or Send as Thru", found in the Consignee Update window. These do not work with stag-

ing.

## **Cars In Staging Not Moving**

Cars in staging will not move for the following reasons: if the number of cars exceeds the maximum capacity of the train, or if the train type of the cars does not match the train type of the train



# 17

## Local and Through Trains

**This Chapter** explains how to set up local and through trains on your layout. Before you attempt to set up local and through train types, make sure that you are able to ship carloads across your divisions using a single train type.

The most popular reason for using local and through train types is to allow you to pick cars up on a local way freight, take these cars to an interchange, and then have the cars picked up on a through train. Depending on the destination of the cars, they will be dropped off at interchanges along the mainline. From there, other local freights will take the cars to their destinations.

### Using One Train Type

#### **Simpler Local / Through Train Set Up**

By careful train scheduling, you can set up local and through trains without using two train types. Use general freight (or anything) for all your trains (just so they all match.) Next make sure the trains you call Through Freights (even though they are of the general freight train type) do not visit any towns that have industries in them (or they will switch them). From interchanges (these need to be set up with divisions - see chapter 12), run trains to the towns with industries. You may need to use the technique described at the end of the chapter to make this work. This technique involves splitting up one town into two towns, and is explained also in chapter 14 (see Example 3), and chapter 15 (see the example involving the steel mill and the interchange.)

### Using Two Train Types

#### **Primary and Secondary Train Types**

If you are setting up local and through freights, each car should have two train types associated with it - the primary type and the secondary type. The primary is for your local train type and the secondary is for your through train type.

### **Cars and Train Types**

In Ship It!, each car on your layout has a train type associated with it. From the moment the car is placed on the layout, it has a train type. When you are setting up to use local and through train types, you must set up both primary and secondary train types. The primary is usually the local train type and the secondary is the through train type. There are four areas where you will be setting up these train types.

The first is the default primary and secondary train types. For every AAR type used, you must specify both a primary and a secondary train type. This is used during Start Fresh and Add New Cars. During Start Fresh, if a car is placed at an industry, it acquires the train type of the shipper or consignee that requested it. If the car is not placed at an industry, but placed in its home yard, then it uses the primary and secondary train types filled out in the AAR update window (the default train types.) Add New Cars uses the primary and secondary default train types when it places cars in their home yards.

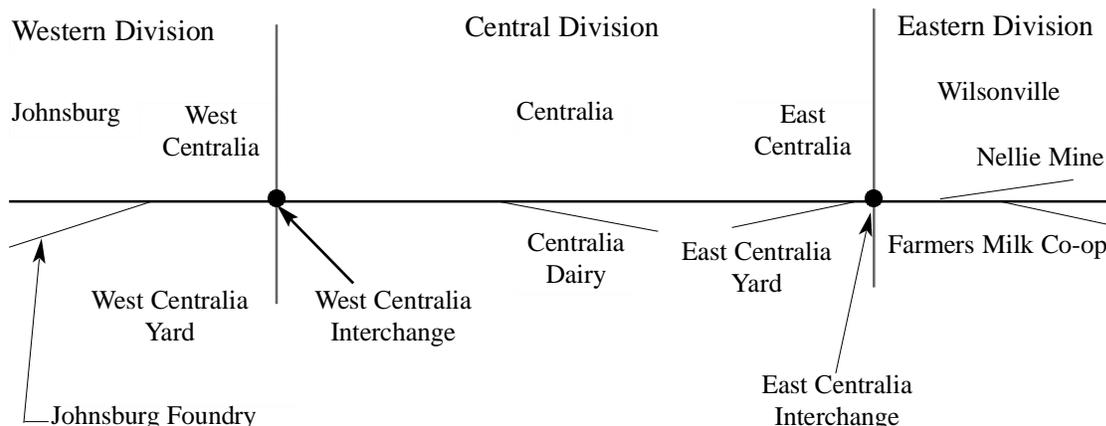
The whole idea here is for every car to have both a primary and secondary train type. This means that it can travel on the primary type (usually the local) or the secondary type (usually the through). Note that if you are not using both local and through train types (if you are only using a local type), you need only fill out the primary type.

The second area is the shipper update window. There are fields for both primary and secondary train types here. The third area is the consignee update window. It too has fields for both primary and secondary train types. The fourth area is the train type of the train itself. Here there is only one train type - a train cannot change its train type.

### **How Local and Through Trains Work**

On the first movement of a car (to the first interchange on a multi-divisional run), the car will travel on a train of the local type. Then the car will be picked up at this inter-

### **Local and Through Trains - Example 1**



## LOCAL AND THROUGH TRAIN TYPES

change by a train of the through train type. It will travel only on through type trains (even if it has to be picked up/set out by multiple trains) until it reaches an interchange in the division of its destination. From this last interchange, it will again travel on its local train type.

**Note:** Cars can change train types only at interchanges.

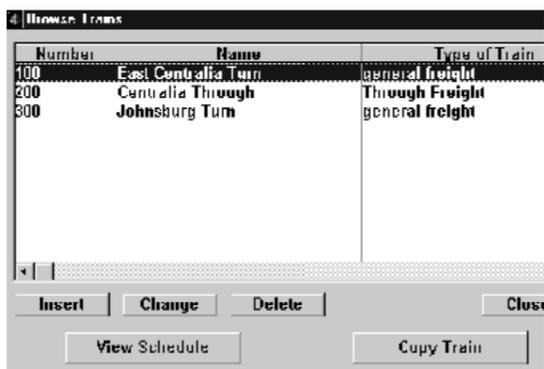
### Example 1

In this example, we will use the database from Chapter 16, The Divisions Tutorial. If you would like to build this database, follow the instructions there, and modify it per the information below.

This example has three divisions: Western, Central, and Eastern. Each of these divisions has one train that runs the length of the division. First create a *Through Train* type. Next, change the train for Centralia, the *Centralia Local*, to this through train type, and rename it the *Centralia Through*. If you wish, you may also add Wilsonville to the beginning of its schedule, and Johnsborg at the end.

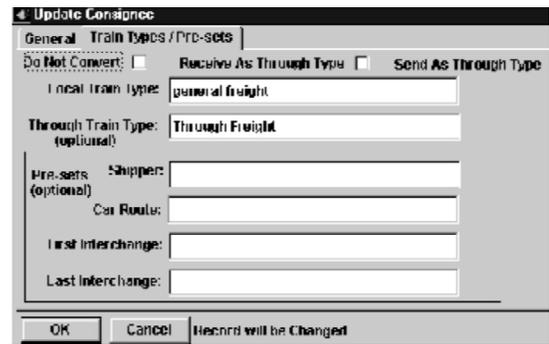
In the **Consignee** update form for Johnsborg Foundry, add the same through train type from the preceding paragraph to the **Secondary Train Type** field (the screen shot shows the old terminology, Through Train Type.)

What we are after is a shipment of coal that will go on the *East Centralia Turn* (a local type - general freight) from Wilsonville to East Centralia. At the East Centralia Interchange, the train type of the car will change from the local type (general freight) to the through type (through freight). This hopper will then travel on the *Centralia Through* to West Centralia. Lastly, the hopper will change its train type back to local (general freight), the *Johnsborg Turn* will pick it up and take it to Johnsborg Foundry, and our delivery will be complete.



Number	Name	Type of Train
100	East Centralia Turn	general freight
200	Centralia Through	Through Freight
300	Johnsborg Turn	general freight

Buttons: Insert, Change, Delete, Close, View Schedule, Copy Train



Update Consignee

General Train Types / Pre-sets

Do Not Convert:  Receive As Through Type:  Send As Through Type:

Local Train Type: general freight

Through Train Type (optional): Through Freight

Pre-sets (optional): Shipper:  Car Route:

First Interchange:  Last Interchange:

Buttons: OK, Cancel, Record will be Changed

### Sending and Receiving As a Through Train Type

You can also ship and receive directly to a through train.

The best way is to simply mark the checkbox in the Options window (File, Options) titled **“Allow Both Thru and Local Pickups for Non-staging”**. If this option is checked, the program will allow cars to be picked up if their train type matches either the local type or the through type that was set up for them.

Train types of cars are set up in the Consignee Update window and the Shipper Update window. Each train’s train type is set up inside the Train Update window. If this option is checked, any car will be evaluated so that if its local train type matches the train or its through type matches the train, the movement will be allowed.

The checkboxes titled “Send as Through” and “Receive as Through” in the Consignee Update window are for previous version compatibility only. I do not recommend using these at all. They are there only for people who used them in previous versions. If you wish to send and receive directly from a through train, use the “Allow both thru and local pickups...” explained above.

### If Your Through Train Does Work That A Local Should

If you are using the “Allow both thru and local pickups option”, there are times when your Through Train may do work destined for the Local. If this happens, you need to isolate those industries which you do not want worked by the Through Train. The way to do this is to create another town. For example, if your town is Reading, you may want to create a town called Reading2, or Reading. (notice the period), or Reading\_. Make it so the name differs only slightly from the real town. Then place your industries (the ones which should not be worked by the Through Train) in the new town. Then create a local train to run between the two towns. This will enable your shipments to get to the town served by the Through Train. **Note:** The town served by the through train must be an interchange (its yard must be an interchange storage track.) Example 3 (explained in Chapter 14) uses this technique. Look at the town of Harrison (and the town Harrison. -notice the period).



# 18

## Improving Car Movement: Layout Capacity and Balancing

## A Tale of Two Layouts

The two layouts being discussed use the same database as a starting point - my own **Cripple Creek District Railroad**, currently under construction at my home in Texas. The layout is now fully operational and I have begun scenery and building construction (as of October, 2020). I designed this layout with operation in mind. The Cripple Creek area circa 1912 is perfect for this, as it featured multiple gauges, numerous mines and associated industries, complex trackage with tight curves and steep grades.

There are two divisions - Goldfield and Phantom Canyon. The only town in the Phantom Canyon division is Alta Vista (right now this consists of a single dead end curve of track that leads into Goldfield Yard). Goldfield Yard is the interchange between the two divisions. Therefore, any cars headed in or out of Alta Vista must stop first at Goldfield Yard - resulting in increased action. Alta Vista represents the trip downhill to Florence through the stunning scenery of Phantom Canyon. I hope to model this section in the future (luckily I have room for it).

I have learned through the years that two main items affect the operational quality of any layout. First and foremost is capacity - siding capacity and yard capacity. These added up represents layout capacity. Siding capacity totaled up is important, but even more important is the number of car spots at each industry. The other item is the placement and size of run-around tracks and yard leads.

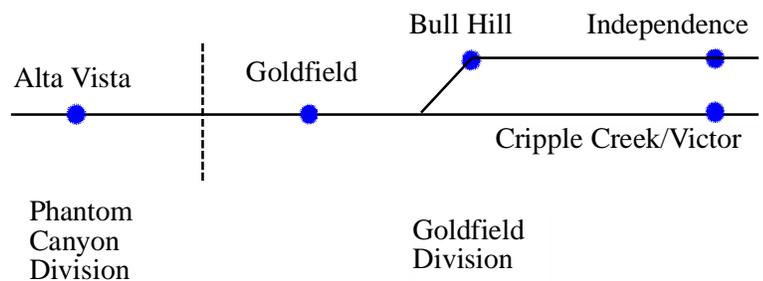
I have worked on many Ship It! databases over the years, and the toughest ones to get operations working well on are those with too many one and two car capacity sidings. Therefore I designed the layout to minimize these. Only Portland Mine and Ajax Mine have two car capacities. I'm okay with this because if it becomes a problem I could eliminate one of them easily, as they both exist in staging (and actually share staging trackage with Elkton Mine, Anaconda Mine, and Cripple Creek Yard - with a total of 16 car capacity. Because it is all shared, I can increase or decrease the car capacity of any of those (as long as I don't exceed 16) should I need to.

The placement and car capacity of run around tracks and yard leads is also critical. It's helpful to have a run around near industries with opposing points on the switches, so that you don't have to take the train all the way to the next town to use its run around. The capacity of the run around can be an issue as well - if too small operation can become tedious, but that depends on what you like. For my HOn3 layout, I tried to make them as long as I could within the confines of my layout - and ended up with ones that can handle 5 or 6 cars. For my narrow gauge operation that is sufficient.

Industry Name	Town Name	Capacity[-]	Type of Siding	Allocation	Picture
Goldfield Yard	Goldfield	21	Yard	<input checked="" type="checkbox"/>	Alt
Independence Yard	Independence	9	Yard	<input checked="" type="checkbox"/>	Alt
Alta Vista Yard	Alta Vista	8	Yard	<input checked="" type="checkbox"/>	Alt
Golden Cycle Mine	Bull Hill	6	Industry	<input checked="" type="checkbox"/>	Alt
Theresa Mine	Bull Hill	6	Industry	<input checked="" type="checkbox"/>	Alt
Cripple Creek Yard	Cripple Creek/Victor	6	Yard	<input checked="" type="checkbox"/>	Alt
GF Stampmill	Goldfield	5	Industry	<input checked="" type="checkbox"/>	Alt
GF Loading Dock	Goldfield	5	Industry	<input checked="" type="checkbox"/>	Alt
Lillie Mine	Independence	3	Industry	<input checked="" type="checkbox"/>	Alt
Vindicator Mine	Independence	3	Industry	<input checked="" type="checkbox"/>	Alt
Elkton Mine	Cripple Creek/Victor	3	Industry	<input checked="" type="checkbox"/>	Alt
Anaconda Mine	Cripple Creek/Victor	3	Industry	<input checked="" type="checkbox"/>	Alt
Golden Cycle Mill	Bull Hill	3	Industry	<input checked="" type="checkbox"/>	Alt
Portland Mine	Cripple Creek/Victor	2	Industry	<input checked="" type="checkbox"/>	Alt
Ajax Mine	Cripple Creek/Victor	2	Industry	<input checked="" type="checkbox"/>	Alt

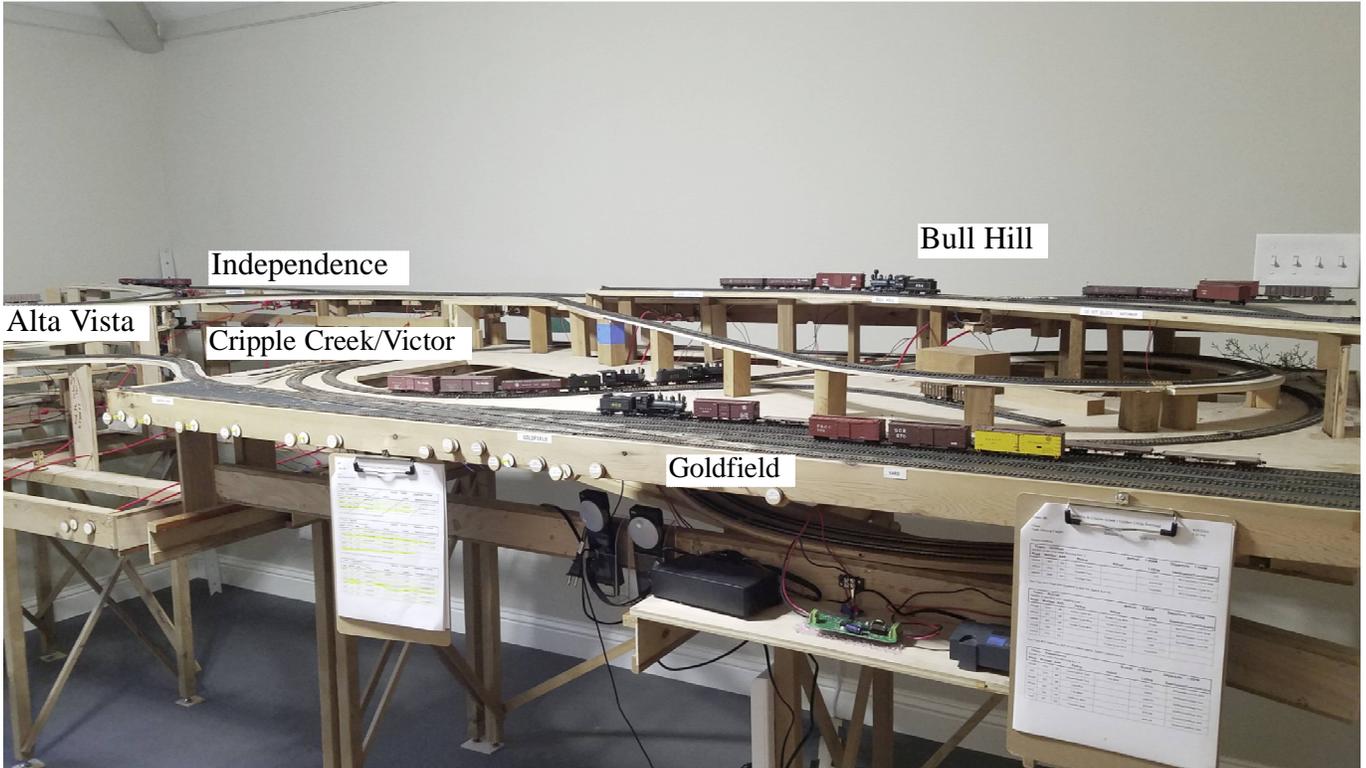
Industry Name	Town Name[+]	Capacity	Type of Siding	Allocation	Picture
Alta Vista Yard	Alta Vista	8	Yard	<input checked="" type="checkbox"/>	Alt
Golden Cycle Mill	Bull Hill	3	Industry	<input checked="" type="checkbox"/>	Alt
Golden Cycle Mine	Bull Hill	6	Industry	<input checked="" type="checkbox"/>	Alt
Theresa Mine	Bull Hill	6	Industry	<input checked="" type="checkbox"/>	Alt
Ajax Mine	Cripple Creek/Victor	2	Industry	<input checked="" type="checkbox"/>	Alt
Anaconda Mine	Cripple Creek/Victor	3	Industry	<input checked="" type="checkbox"/>	Alt
Cripple Creek Yard	Cripple Creek/Victor	6	Yard	<input checked="" type="checkbox"/>	Alt
Elkton Mine	Cripple Creek/Victor	3	Industry	<input checked="" type="checkbox"/>	Alt
Portland Mine	Cripple Creek/Victor	2	Industry	<input checked="" type="checkbox"/>	Alt
GF Loading Dock	Goldfield	5	Industry	<input checked="" type="checkbox"/>	Alt
GF Stampmill	Goldfield	5	Industry	<input checked="" type="checkbox"/>	Alt
Goldfield Yard	Goldfield	21	Yard	<input checked="" type="checkbox"/>	Alt
Independence Yard	Independence	9	Yard	<input checked="" type="checkbox"/>	Alt
Lillie Mine	Independence	3	Industry	<input checked="" type="checkbox"/>	Alt
Vindicator Mine	Independence	3	Industry	<input checked="" type="checkbox"/>	Alt

The Cripple Creek District Railroad



Capacity of yard and switching leads is important for the same reason. Yard and switching leads need to be even longer, as you need to include the length of the locomotive.

The two Browse Industry windows displayed here show the capacity of the industries, sorted by capacity in descending order (note the browse where capacity is highlighted by a red box). The other browse is sorted by town name, so that you can see the industries belonging to each town. Note that in version



Cripple Creek District Railroad September, 2020

9 and above you can double-click on almost any column header and have the browse sort by that column. Double click again, and the sort will reverse its order. A plus or a minus sign shows up in the header, telling you whether the sort is in ascending or descending order.

### Configuring Your Shippers

The Duration (hours that it takes a car to be loaded) and Empties (the number of empties the shipper wants to have on hand and ready to ship) can be critical to layout operation. My standard “go-to” for Duration is 24 hours. Some suggest 1 hour. Anywhere between 1 and 24 is probably a safe choice. If one were to use 48 hours for a majority of shippers this could clog up operation, as the empty can sit for two sessions before moving.

For deciding on the number of empties, I think about the type of operation I am looking for, and then look at the siding capacity for the industry. I also take into account the number of empties for any other shippers at that industry as well as total of loads for all the consignees at that location. Looking at the Browse Shippers window for the Cripple Creek District, you can see that the duration is set for 24 hours for all the shippers. The majority of the empties are set to 1. The shippers that are set to 2 have two qualities - the

Industry Name	Town Name	Product Name	AAR Co	Car Type	Tr:	S	Σ	Duration	Empties
Theresa Mine	Bull Hill	gold ore	GB	Gondola	Ge			24	2
Anaconda Mine	Cripple Cree	gold ore	GB	Gondola	Ge			24	2
Lillie Mine	Independenc	gold ore	GB	Gondola	Ge			24	2
Golden Cycle Mine	Bull Hill	gold ore	GB	Gondola	Ge			24	2
Vindicator Mine	Independenc	gold ore	GB	Gondola	Ge			24	2
Goldfield Yard	Goldfield	coal	GB	Gondola	Ge			24	1
Alta Vista Yard	Alta Vista	mercantile item	XM	Boxcar	Ge			24	1
GF Stampmill	Goldfield	gold ore 2	HMA	Ore Car	Ge			24	1
Golden Cycle Mill	Bull Hill	refined gold	XM	Boxcar	Ge			24	1
Alta Vista Yard	Alta Vista	livestock feed	XM	Boxcar	Ge			24	1
Elkton Mine	Cripple Cree	gold ore	GB	Gondola	Ge			24	1
Alta Vista Yard	Alta Vista	meat	RP	Reefer	Ge			24	1
Alta Vista Yard	Alta Vista	machinery	XM	Boxcar	Ge			24	1
Goldfield Yard	Goldfield	explosives	XM	Boxcar	Ge			24	1
Portland Mine	Cripple Cree	gold ore	GB	Gondola	Ge			24	1

product is gold ore, and the siding capacity is at least 3. Because the theme of this layout is gold mining, I want my mines to have lots of empties to fill up with gold ore.

## Configuring Your Consignees

With consignees, there are three values that need configure: Duration (time it takes to empty the car); Amount (the number of cars the consignee wants to receive); Frequency (how often a shipment should be received).

The first screenshot to the right displays the Consignee Browse sorted by amount. The next screenshot below shows it sorted by frequency.

All durations but one are set to 24. The one set to 12 also has a frequency of 72. and an amount of 1. The product is explosives. What I am telling the software is that I want only 1 car of explosives delivered every three days - but I want it unloaded quickly.

All the amount values are 1 except for three consignees - and those consignees receive gold ore. The highest amount is 6. Here I am telling the software that Alta Vista Yard (with an amount of 6), wants to receive the majority of the gold ore. Alta Vista Yard is down Phantom Canyon - these ore cars are going downhill to Florence CO, where there is a large ore processing plant. The other amounts over 1 are Golden Cycle Mill and Goldfield yard - both receivers of gold ore. Again the emphasis is on the shipping and receiving of gold ore as a primary operating concept of the layout. Another thing to note is that the shippers and receivers of gold ore are balanced - there are high numbers of cars asked for by the shippers *and* the consignees. If, for example, the amounts for the gold ore consignees were all set to one, what would happen? The shippers of gold ore would have empties sitting around for multiple sessions and possibly clogging up the sidings involved.

## A Layout Balanced

I have generated 26 sessions of the Cripple Creek District, and because you can look at prior sessions and compare them, I know that this layout is indeed balanced. The number of cars moving each session does vary, but it never begins dropping (or continues dropping) on consecutive sessions.

## Important Diagnostic Reports

New to version 9 are two reports that help you understand the dynamics of Layout and Siding Capacity in terms of available space.

## Layout Car Capacity Report

See the first report on the next page. This report lists the percentage full of the various types of industries as well as the percentage full of the entire layout. These numbers are based off of industry siding capacity and the location of cars at the end of the current session. This report also lists the car count by AAR Code, as well as the number of stuck cars per AAR Code. Stuck cars are those who have not moved during one or more sessions. The software does some data analysis. For

Industry Name	Town Name	Product Name	AAR	C: Tr	Duration	Amount	Frequency
Alta Vista Yard	Alta Vista	gold ore	GB	G: Gt	24	6	24
Golden Cycle Mill	Bull Hill	gold ore	GB	G: Gt	24	2	24
Goldfield Yard	Goldfield	gold ore	GB	G: Gt	24	2	24
Independence Yard	Independence	mercantile items	XM	Bi: Gt	24	1	24
GF Stampmill	Goldfield	gold ore	GB	G: Gt	24	1	24
Alta Vista Yard	Alta Vista	refined gold	XM	Bi: Gt	24	1	24
Cripple Creek Yard	Cripple Creek/Victor	livestock feed	XM	Bi: Gt	24	1	24
Independence Yard	Independence	explosives	XM	Bi: Gt	24	1	24
Golden Cycle Mine	Bull Hill	explosives	XM	Bi: Gt	24	1	48
Goldfield Yard	Goldfield	gold ore 2	HMA	O: Gt	24	1	24
Golden Cycle Mine	Bull Hill	coal	GB	G: Gt	24	1	24
Theresa Mine	Bull Hill	coal	GB	G: Gt	24	1	24
Cripple Creek Yard	Cripple Creek/Victor	mercantile items	XM	Bi: Gt	24	1	24
Golden Cycle Mill	Bull Hill	machinery	XM	Bi: Gt	24	1	24
Independence Yard	Independence	machinery	XM	Bi: Gt	24	1	24
Cripple Creek Yard	Cripple Creek/Victor	explosives	XM	Bi: Gt	24	1	24
GF Loading Dock	Goldfield	livestock feed	XM	Bi: Gt	24	1	24
Golden Cycle Mill	Bull Hill	coal	GB	G: Gt	24	1	24
Theresa Mine	Bull Hill	explosives	XM	Bi: Gt	12	1	72
Ajax Mine	Cripple Creek/Victor	coal	GB	G: Gt	24	1	24
Independence Yard	Independence	coal	GB	G: Gt	24	1	24
Goldfield Yard	Goldfield	meat	RP	R: Gt	24	1	24
Elkton Mine	Cripple Creek/Victor	coal	GB	G: Gt	24	1	24
Cripple Creek Yard	Cripple Creek/Victor	meat	RP	R: Gt	24	1	24

Industry Name	Town Name	Product Name	AAR	C: Tr	Duration	Amount	Frequency
Theresa Mine	Bull Hill	explosives	XM	Bi: Gt	12	1	72
Golden Cycle Mine	Bull Hill	explosives	XM	Bi: Gt	24	1	48
Cripple Creek Yard	Cripple Creek/Victor	meat	RP	R: Gt	24	1	24
Independence Yard	Independence	mercantile items	XM	Bi: Gt	24	1	24
GF Stampmill	Goldfield	gold ore	GB	G: Gt	24	1	24
Alta Vista Yard	Alta Vista	refined gold	XM	Bi: Gt	24	1	24
Goldfield Yard	Goldfield	gold ore	GB	G: Gt	24	2	24
Golden Cycle Mill	Bull Hill	gold ore	GB	G: Gt	24	2	24
Alta Vista Yard	Alta Vista	gold ore	GB	G: Gt	24	6	24
Goldfield Yard	Goldfield	gold ore 2	HMA	O: Gt	24	1	24
Golden Cycle Mine	Bull Hill	coal	GB	G: Gt	24	1	24
Theresa Mine	Bull Hill	coal	GB	G: Gt	24	1	24
Cripple Creek Yard	Cripple Creek/Victor	mercantile items	XM	Bi: Gt	24	1	24
Golden Cycle Mill	Bull Hill	machinery	RP	R: Gt	24	1	24
Independence Yard	Independence	machinery	XM	Bi: Gt	24	1	24
Cripple Creek Yard	Cripple Creek/Victor	explosives	XM	Bi: Gt	24	1	24
Independence Yard	Independence	explosives	XM	Bi: Gt	24	1	24
Golden Cycle Mill	Bull Hill	coal	GB	G: Gt	24	1	24
Elkton Mine	Cripple Creek/Victor	coal	GB	G: Gt	24	1	24
Ajax Mine	Cripple Creek/Victor	coal	GB	G: Gt	24	1	24
Independence Yard	Independence	coal	GB	G: Gt	24	1	24
Cripple Creek Yard	Cripple Creek/Victor	livestock feed	XM	Bi: Gt	24	1	24
GF Loading Dock	Goldfield	livestock feed	XM	Bi: Gt	24	1	24
Goldfield Yard	Goldfield	meat	RP	R: Gt	24	1	24

example, if it sees all of the cars for a single AAR code stuck, it suggests that those cars may be orphans - meaning that they have no shippers or consignees calling for that type of car. It can also suggest that you may have too many cars of a given AAR Code, if there are too many stuck cars. The Stuck Car Report becomes a valuable adjunct here, as that report lists how many sessions a car has been stuck. These are important things to know, as a car that is not moving, and perhaps will never move is only wasting valuable siding capacity. In the worst case, it is also limiting car movement.

## Siding Capacity Percentage Full Report

See the second report on the next page. This report lists all of your sidings, along with the total capacity, the number of cars there at the end of the session, plus the percentage full. The report is sorted by percentage full, with the most full sidings at the top, thus giving you a snapshot of what sidings are full or perhaps close to full.

Florence & Cripple Creek / Golden Circle Railroad  
Layout Car Capacity Report

Session: 1

12/12/2020  
1:36 PM

Industry Capacity:	41	Cars:	10	24% Full
Interchange Capacity:	0	Cars:	0	0% Full
Yard Capacity:	44	Cars:	22	50% Full
Siding Capacity:	0	Cars:	0	0% Full
Passenger Capacity:	0	Cars:	0	0% Full

**Total Layout Car Capacity: 85                      Total Cars: 32                      Layout Capacity Percentage: 38% Full**

Car Count by AAR Code

AAR Code	Car Count	Stuck Car Count	Analysis
GB	15	0	
XM	10	0	
FM	3	3	Possible orphan AAR code (no shippers/consignees for this AAR code).
HMA	2	0	
RP	2	0	
<b>Total</b>	<b>32</b>	<b>3</b>	<b>9% Stuck</b>

Florence & Cripple Creek / Golden Circle Railroad  
Siding Car Capacity Report

Session: 1

12/12/2020  
1:33 PM

Industry	Type	Capacity	Number of Cars	Percent Full	Town
Alta Vista Yard	Yard	8	8	100% Full	Alta Vista
Golden Cycle Mill	Industry	3	3	100% Full	Bull Hill
Goldfield Yard	Yard	21	11	52% Full	Goldfield
Cripple Creek Yard	Yard	6	3	50% Full	Cripple Creek/Victor
Golden Cycle Mine	Industry	6	3	50% Full	Bull Hill
Portland Mine	Industry	2	1	50% Full	Cripple Creek/Victor
Anaconda Mine	Industry	3	1	33% Full	Cripple Creek/Victor
Lillie Mine	Industry	3	1	33% Full	Independence
GF Stampmill	Industry	5	1	20% Full	Goldfield
Ajax Mine	Industry	2	0	0% Full	Cripple Creek/Victor
Elkton Mine	Industry	3	0	0% Full	Cripple Creek/Victor
GF Loading Dock	Industry	5	0	0% Full	Goldfield
Independence Yard	Yard	9	0	0% Full	Independence
Theresa Mine	Industry	6	0	0% Full	Bull Hill
Vindicator Mine	Industry	3	0	0% Full	Independence

## Layout and Siding Capacity Suggestions

A general recommendation for almost every layout is to have the layout capacity percentage to be less than 50% full. Having operated multiple times on a layout whose yard was always 80 - 90% full, I can fully attest to the operational challenges that happen when a layout or yard is too full. To get even a single car into the proper track in that yard was a challenge. Perhaps that layout owner was desirous of having those challenges. In that case there is nothing wrong with that scenario.

It is certainly fine for sidings to fill or get close to being full, as long as there is car moment in and out of those sidings. Yards and interchanges are different, in that when they are full, any car moves that require entry to that yard or interchange will fail.

It can also depend on your operational intent. It could be your intent to create the type

## Stuck Cars and Siding Capacity Rejections

There are five more reports that help with layout and siding capacity.

The **Stuck Car Report** lists any cars that have not moved during the last session or longer. It will also list the number of sessions that the car was stuck. The first report on the right shows the stuck cars on the Cripple Creek District. The previous Layout Car Capacity report gave in its analysis that perhaps the flat cars were orphans, and no industry was calling for flat cars. This is true - as I had forgotten to create at least one shipper and one consignee for this car type. If you have cars that are stuck 2 sessions or more, you may have a problem that you want to investigate.

The **Siding Capacity Rejection Summary** gives you an overview of car moves that have been rejected due to lack of siding capacity. The **Siding Capacity Rejection** report gives more detailed information about each rejection. The **Train Type Rejections** report lists any car moves that did not happen due to a different train type. The **Train Full Rejections** report lists any car moves that were rejected due to a train being full.

Sometimes there are easy remedies for these issues, sometimes not. For example, if you have too many train full rejections, perhaps you may want to increase the capacity of the train. Or perhaps you have multiple industries on a single siding and you are seeing a lot of siding capacity rejections for these industries. You can take a look at the amount value or the empties value for these industries and reduce them if they are greater than one. Or you can take one of the industries offline by removing the shippers and consignees for it.

Florence & Cripple Creek / Golden Circle Railroad						12/11/2020
Stuck Car Report						2:50 PM
Car No.	Rpt. Marks	AAR	Industry	Town	Sessions Stuck	
F&CC	101	FM	Goldfield Yard	Goldfield	1	
F&CC	102	FM	Goldfield Yard	Goldfield	1	
F&CC	105	FM	Goldfield Yard	Goldfield	1	

## Cripple Creek Capacity Demo

In order to give a better example on how to use these reports, I will copy my Cripple Creek District Railroad database, and then proceed to "cripple" it (pun intended) by reducing various yard and siding capacities, and also perhaps change up the car mixture so that I have too many or too little of certain types of cars.

## Reducing Goldfield Yard Capacity

For the first test, I will reduce the size of Goldfield Yard, from 21 cars to 11. Then I will print out the reports and share them with you.

## Siding Capacity Rejections Report:

Siding Capacity Rejections						12/11/2020
						5:58 PM
Number	Road	Destination (filled)	Train Number	Setout Time	Origin	
47	DRGW	Goldfield Yard	10	5:30AM	Alta Vista Yard	
8025	UC&N	Goldfield Yard	20	5:00PM	Golden Cycle Mine	
568	F&CC	Goldfield Yard	20	5:00PM	Theresa Mine	
806	DRGW	Goldfield Yard	30	7:30AM	Anaconda Mine	
653	F&CC	Goldfield Yard	30	7:30AM	Cripple Creek Yard	
674	GCR	Goldfield Yard	20	5:00PM	Golden Cycle Mill	
890	DRGW	Goldfield Yard	20	5:00PM	Theresa Mine	
7273	C&S	Goldfield Yard	20	5:00PM	Independence Yard	
807	DRGW	Goldfield Yard	30	7:30AM	Anaconda Mine	
3509	DRGW	Golden Cycle Mill	20	8:00AM	Goldfield Yard	

This report went from "nothing to print" to ten rows, 9 of them for Goldfield Yard. Interestingly, Golden Cycle Mill also has a rejection - this shows how interrelated car movement actually is. Because Goldfield Yard could not hold enough cars, Golden Cycle Mill became full, and then itself refused cars. Looking at the details of the report we see that Goldfield Yard wanted to send a car to Golden Cycle Mill, and Golden Cycle Mill wanted to send a car to Goldfield Yard, and both were denied due to capacity rejections.

### Stuck Car Report:

This report is similar, although not identical to the siding capacity rejection report. The three flat cars are stuck because they are orphans, not because of a lack of capacity. DRGW 50 is stuck, but does not appear on the capacity rejection report, or any of the other rejection reports. It's quite possible that it is simply not being requested for use. DRGW 3509 does appear in the capacity rejection report. This car actually does move from it's location in Alta Vista Yard into Goldfield Yard. This is a false positive. It was rejected at some point for lack of capacity in Goldfield Yard, but later on during session generation it was able to be moved. The software at the time of this writing, does not clean these up, but I have added this to the list for future development.

Stuck Car Report						Session: 1	12/11/2020 6:01 PM
Car No.	Rpt. Marks	AAR	Industry	Town		Sessions	Stuck
DRGW 47		RP	Alta Vista Yard	Alta Vista		1	
DRGW 806		GB	Anaconda Mine	Cripple Creek/Victor		1	
DRGW 807		GB	Anaconda Mine	Cripple Creek/Victor		1	
F&CC 653		XM	Cripple Creek Yard	Cripple Creek/Victor		1	
DRGW 50		RP	Cripple Creek Yard	Cripple Creek/Victor		1	
GCR 674		XM	Golden Cycle Mill	Bull Hill		1	
UC&N 8025		XM	Golden Cycle Mine	Bull Hill		1	
F&CC 101		FM	Goldfield Yard	Goldfield		1	
F&CC 102		FM	Goldfield Yard	Goldfield		1	
F&CC 105		FM	Goldfield Yard	Goldfield		1	
C&S 7273		XM	Independence Yard	Independence		1	
DRGW 890		GB	Theresa Mine	Bull Hill		1	
F&CC 568		XM	Theresa Mine	Bull Hill		1	

### Siding Car Capacity Report:

Compare this report to the same report from the Cripple Creek District earlier this chapter. Alta Vista Yard is now only half full, demonstrating reduced movement from Goldfield Yard to Alta Vista Yard. This is because Goldfield Yard is also an interchange between The Phantom Canyon Division and the Goldfield Division. Goldfield Yard is now 72% full, with only 3 car capacity open.

Siding Car Capacity Report						Session: 1	12/12/2020 11:37 AM
Industry	Type	Capacity	Number of Cars	Percent Full	Town		
Anaconda Mine	Industry	3	3	100% Full	Cripple Creek/Victor		
Golden Cycle Mill	Industry	3	3	100% Full	Bull Hill		
Goldfield Yard	Yard	11	8	72% Full	Goldfield		
Cripple Creek Yard	Yard	6	4	66% Full	Cripple Creek/Victor		
Golden Cycle Mine	Industry	6	4	66% Full	Bull Hill		
Alta Vista Yard	Yard	8	4	50% Full	Alta Vista		
Portland Mine	Industry	2	1	50% Full	Cripple Creek/Victor		
Lillie Mine	Industry	3	1	33% Full	Independence		
Theresa Mine	Industry	6	2	33% Full	Bull Hill		
GF Stampmill	Industry	5	1	20% Full	Goldfield		
Independence Yard	Yard	9	1	11% Full	Independence		
Ajax Mine	Industry	2	0	0% Full	Cripple Creek/Victor		
Eikton Mine	Industry	3	0	0% Full	Cripple Creek/Victor		
GF Loading Dock	Industry	5	0	0% Full	Goldfield		
Vindicator Mine	Industry	3	0	0% Full	Independence		

### Layout Car Capacity Report:

Compare this report to the same report from the Cripple Creek District earlier this chapter. Total layout car capacity has been reduced by ten cars, so the overall layout capacity is 43% full rather than 38%. Total Yard capacity is the same at 50%, likely because of Alta Vista Yard being only half full now. The capacity stats don't indicate a problem in this report, but the number and percent of stuck cars does (13 out of 32 cars being stuck, resulting in 40% stuck).

Layout Car Capacity Report						Session: 1	12/12/2020 11:53 AM
Industry Capacity:	41	Cars:	15	37% Full			
Interchange Capacity:	0	Cars:	0	0% Full			
Yard Capacity:	34	Cars:	17	50% Full			
Siding Capacity:	0	Cars:	0	0% Full			
Passenger Capacity:	0	Cars:	0	0% Full			
<b>Total Layout Car Capacity:</b>	<b>75</b>	<b>Total Cars:</b>	<b>32</b>	<b>Layout Capacity Percentage:</b>	<b>43% Full</b>		

### Number of Car Moves:

By looking into the car movement database I can count the number of car moves. The other way to compare results is to simply print out the switchlists and compare them visually. Notably, in the original database where Goldfield Yard has a capacity of 21, there are 41 car moves. When Goldfield Yard is restricted to 11 car capacity, there are only 24 car moves.

### Increasing Car Movement Without Increasing the Size of Goldfield Yard

What would happen if I did not have room for 21 cars at Goldfield Yard? Is there a way to overcome this restriction? Let's see if we can figure this out. First and foremost, we know there are three orphan flat cars sitting in their home yard (which is Goldfield Yard). Any car not being utilized will end up sitting at their home yard, taking up valuable yard space. So let's make these cars unavailable to the software, do a Start Fresh (new car positions), and gen-

Car Count by AAR Code			
AAR Code	Car Count	Stuck Car Count	Analysis
GB	15	3	Too many of this code? See Stuck Car report for number sessions stuck.
XM	10	5	Too many of this code? See Stuck Car report for number sessions stuck.
FM	3	3	Possible orphan AAR code (no shippers/consignees for this AAR code).
RP	2	2	Possible orphan AAR code (no shippers/consignees for this AAR code).
HMA	2	0	
<b>Total</b>	<b>32</b>	<b>13</b>	<b>40% Stuck</b>

erate session one. Then we will re-examine all the reports plus count the number of car moves we have in the database (if you are doing this on your layout you will need to review your switchlists). Using the AAR Code filter in the Rolling Stock Browse I can quickly find and edit these cars to make them unavailable

**Siding Capacity Rejection Report:**

This report went from ten rejections down to seven. Not bad for a simple change.

Siding Capacity Rejections					Session: 1	12/12/2020 5:42 PM
Number	Road	Destination (filled)	Train Number	Setout Time	Origin	
674	GCR	Goldfield Yard	20	5:00PM	Golden Cycle Mill	
8025	UC&N	Goldfield Yard	20	5:00PM	Golden Cycle Mine	
568	F&CC	Goldfield Yard	20	5:00PM	Theresa Mine	
7273	C&S	Goldfield Yard	20	5:00PM	Independence Yard	
50	DRGW	Goldfield Yard	30	7:30AM	Cripple Creek Yard	
653	F&CC	Goldfield Yard	30	7:30AM	Cripple Creek Yard	
3509	DRGW	Golden Cycle Mill	20	8:00AM	Goldfield Yard	

**Stuck Car Report:**

This report went from thirteen stuck cars down to six. Though to be honest we should reduce the thirteen down to ten, as those orphan flat cars no longer exist on the layout. But still, ten stuck cars down to six is pretty good for a simple change.

Stuck Car Report					Session: 1	5:45 PM
Car No.	Rpt	Marks	AAR	Industry	Town	Sessions Stuck
F&CC	653		XM	Cripple Creek Yard	Cripple Creek/Victor	1
DRGW	50		RP	Cripple Creek Yard	Cripple Creek/Victor	1
GCR	674		XM	Golden Cycle Mill	Bull Hill	1
UC&N	8025		XM	Golden Cycle Mine	Bull Hill	1
C&S	7273		XM	Independence Yard	Independence	1
F&CC	568		XM	Theresa Mine	Bull Hill	1

**Siding Car Capacity Report:**

This report has some significant differences, notably that Goldfield Yard is now at 45% full versus 72% full.

Siding Car Capacity Report					Session: 1
Industry	Type	Capacity	Number of Cars	Percent Full	
Golden Cycle Mill	Industry	3	3	100% Full	B
Cripple Creek Yard	Yard	6	5	83% Full	C
Alta Vista Yard	Yard	8	6	75% Full	AI
Golden Cycle Mine	Industry	6	4	66% Full	B
Portland Mine	Industry	2	1	50% Full	C
Goldfield Yard	Yard	11	5	45% Full	G
Anaconda Mine	Industry	3	1	33% Full	C
Lillie Mine	Industry	3	1	33% Full	In
GF Stampmill	Industry	5	1	20% Full	G
Theresa Mine	Industry	6	1	16% Full	B
Independence Yard	Yard	9	1	11% Full	In
Aiax Mine	Industry	2	0	0% Full	C

**Layout Car Capacity Report:**

Yard capacity is unchanged here, industry capacity is more open at 29% full. Notably, the stuck car count is much less, with now only 20% stuck. Interestingly, no Gondolas are stuck - significant because these are shipping Gold Ore (which is the primary concept of this layouts operational goal!).

**Number of Car Moves:**

The number of car moves rose to 32 versus 24 prior to making unavailable the flat cars that were not called for by any shippers or consignees. Although still not at 41 (when Goldfield Yard had a capacity of 41), we have come half way to that number with a small change - simply using the reports to recognize cars that were either not utilized or under-utilized.

**How Can We Further Increase Car Movement?**

Making cars that were not used unavailable was easy, and definitely improved car movement. What other steps can be taken to improve car movement without increasing the size of Goldfield Yard?

Because in this test we have only restricted Goldfield Yard capacity, it seems logical that any solution revolves around Goldfield Yard. I am suspicious of this theory because of the interrelated nature of car movement. But let us see how this plays out.

Goldfield Yard is both a yard and an interchange, and because a yard in Ship It! can also serve as an industry, I cheated a bit and made Goldfield Yard a receiver (consignee) of Gold Ore. After looking at the consignees for Goldfield Yard, I realize that I have 3 products being requested by Goldfield Yard: gold ore 2 (AAR HMA), gold ore (AAR GB), and meat (AAR RP). Goldfield Yard is also a shipper for both explosives and coal.

I could change these shippers and consignees, but it is going

Layout Car Capacity Report				Session: 1	12/12/2020 6:12 PM
Industry Capacity:	41	Cars:	12	29% Full	
Interchange Capacity:	0	Cars:	0	0% Full	
Yard Capacity:	34	Cars:	17	50% Full	
Siding Capacity:	0	Cars:	0	0% Full	
Passenger Capacity:	0	Cars:	0	0% Full	
<b>Total Layout Car Capacity:</b>	<b>75</b>	<b>Total Cars:</b>	<b>29</b>	<b>Layout Capacity Percentage: 39% Full</b>	
Car Count by AAR Code					
AAR Code	Car Count	Stuck Car Count	Analysis		
GB	15	0			
XM	10	5	Too many of this code? See Stuck Car report for number sessions stuck.		
RP	2	1	Too many of this code? See Stuck Car report for number sessions stuck.		
HMA	2	0			
<b>Total</b>	<b>29</b>	<b>6</b>	<b>20% Stuck</b>		

to be hard to overcome the capacity limitation of Goldfield yard, especially since it is an interchange, and once that yard gets full, traffic will come to a screeching halt between the divisions. Let's see if getting rid of the interchange - really just putting Alta Vista Yard into the Goldfield division and deleting the now unnecessary interchange will help. I will also have to add Alta Vista Yard as a stop for all trains, because all those loads need to get down to Alta Vista, and all those empties need to get back to the mines and elsewhere.

Removing the division and altering the train schedules did not help the first generation, as the number of moves dropped to 30, so I decided to generate 6 sessions for each configuration of the Cripple Creek District database.

With the new ability in version 9 to set the active session to a previous session (see Set Active Session in the Generate menu), you can go back to any session to print switchlists, look at diagnostic reports, etc. This allowed me to generate the 6 sessions all in a row, and then navigate through them to view any reports I thought would help my analysis.

Normal represents Cripple Creek District with Goldfield yard having a capacity of 21, and there still being 2 divisions and an interchange in Goldfield Yard.

Test 1 represents Goldfield Yard at 11 car capacity with the 3 unused Flat cars made unavailable. and still with 2 divisions with interchange traffic.

Test 2 represents Test 1 with only 1 division and all trains visiting Alta Vista Yard

Test 3 represents Test 2 with Stuck Car Processing turned on (with Independence Yard as the Stuck Car Destination).

Test 4 represents Test 3 with fourth pass generation (random generation) also turned on.

Test 5 represents Test 1 (still with 2 divisions and interchange traffic, but with Stuck car processing turned on and fourth pass (random) generation turned on.

Test 1 is a typical example of a database with a bottleneck - session after session more cars get stuck - evidenced by less and less movement each session.

Out of all these configurations, Test 5 is the easiest to put in place, and arguably has the best movement, along with Test 4. The difference between 4 and 5 is that 5 preserves the interchange traffic and allows you to keep the trains that travel between Alta Vista and Gold field. The choice, however, should be made based on the users overall preference, and that can only be determined by looking over the switchlists - running some trains if the layout is already built or imagining those car moves if the layout is not operationally ready.

The new features in version 9 that allow you to create an unlimited number of databases, and that also allow you to easily copy and rename really come in handy for creating test scenarios.

Move Count For Various Configurations

Session	Normal	Test 1	Test 2	Test 3	Test 4	Test 5
1	41	32	30	30	30	36
2	24	17	18	18	18	21
3	36	12	29	29	26	24
4	39	10	22	22	28	28
5	41	5	27	29	28	25
6	38	3	20	22	28	31