MODEL RAILROAD MANAGER

VERSION 1.1

OCTOBER 2002

MRRM

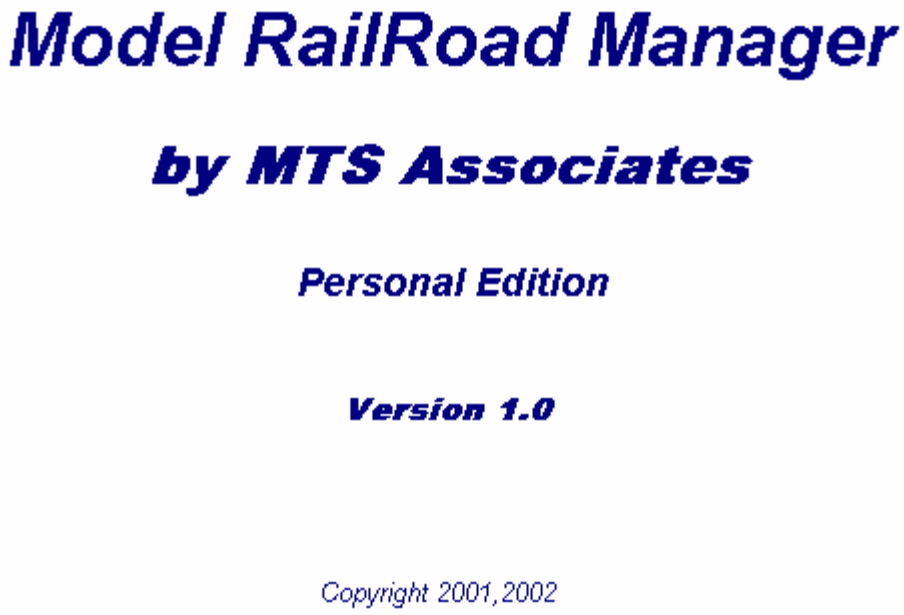
Welcome

Thank you for licensing the Model RailRoad Manager software from MTS Associates.

This manual assists understanding the features of the Model RailRoad Manager(MRRM) software product.

We first present an overview of the MRRM Product Architecture.

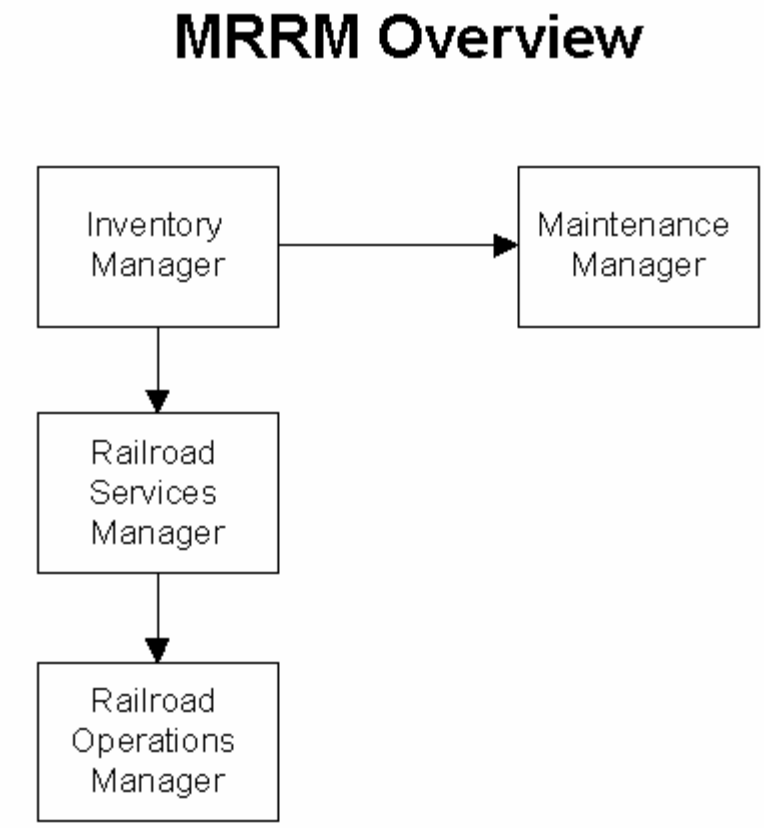
This is followed by an introduction to navigating the look and feel common to our software products. This chapter walks you through getting around the MRRM software. It steps you through login, moving around, and exit from the MRRM software.



MRRM_Overview_Summary

MRRM Overview

Model RailRoad Manager software comprises: Inventory Manager , Maintenance Manager , Railroad Services Manager, and Railroad Operations Manager.



Inventory Manager

The Inventory Manager is a tool for recording the rolling stock and stationary objects that make your railroad. Once you inventory your railroad you can also maintain it and build services to be performed on your railroad.

You may also 'temporarily' integrate rolling stock that visitors bring to your railroad so that your industries can use this rolling stock within any railroad services that you create.

The Inventory Manager is discussed in the 'Inventory' chapter.

Maintenance Manager

Locomotives need servicing. Cars need repairs. Scenery gets damaged. Platform integrity gets weakened. Wiring goes faulty. Buildings need work. The Maintenance manager provides a ticket system to schedule needed work and track its completion so that the item can be restored to full service. The archiving feature allows you to remove completed maintenance actions to archive files which you can then use to observe maintenance trends occuring on your railroad. A Preventative Maintenance (PM) feature for rolling stock allows you to schedule maintenance based on days between PM or number of times used. Every time you run a train with MRRM, the usage count for each car and locomotive used gets incremented. You set thresholds

which when reached trigger maintenance needed alerts.

The Maintenance Manager is discussed in the ‘Maintenance’ chapter.

Railroad Services Manager

After you name the items comprising your railroad, you can begin to create the services that will operate on your railroad. Beginning with the industries that you support on your railroad, you can create shipping and receiving activity for freight. Industry traffic leads to waybill generation and the capability to create manifests for trains. Tools to quickly generate traffic are easy to use. Schedules for regular passenger or freight are supported. Extra trains can be quickly defined. Time and distance can be imposed if you need the challenges implied. Locomotive horsepower effectiveness in pulling a train is impacted by grade and weather. MRRM lets you define grade and weather impacts on consist pulling power requirements. Switchlists can be created for each train’s Conductor as well as for the tracks managed by any of your Yard Masters or other track managers. MRRM is meant to let running your railroad be realistic without being overbearing.

The Railroad Services Manager is discussed in the ‘Industry’, ‘Train Service Plan’, and ‘Build Services’ chapters.

Railroad Operations Manager

The Railroad Operations Manager is used while you and your friends are running (Working) the railroad. Multiple trains can be run concurrently. Track the stop sequence of each train as it progresses on its schedule. Note the rolling stock pickups and setouts at each stop in accordance with the train’s manifest. Dry run the train stop sequence and check its weight pulling capacity for the load along its route, grade and weather conditions. Shipments generally require multiple related trains to setout the empties at the Shipper, pick up the loaded cars from the Shipper when they are ready and deliver them directly or via a yard(s) to the Consignee, pick up the empties from the Consignee when they are unloaded and return the cars to their home yard or other spot. Track each shipment for your customers. Observe the cars currently at each siding as well as cars scheduled to be set out at each siding or picked up from each siding. Alarm message report if you have a space problem at a given siding or you can have the offending car(s) removed from the manifest. MRRM allows you to have multiple stops on each siding. Track the cars at each spot and planned pickups and setouts.

Make changes to waybills or manifests at the last minute before a train starts or at any time while the train is running. You control the computer. The computer does not control you!

If you want to integrate your railroad with your computer, the Railroad Operations Manager will assist you. This is still under design and development, however, so you’ll have to wait for this capability to mature. Sorry!

The current Railroad Operation Manager capabilities are discussed in the ‘Operate Services’ and ‘Digital Command Control’ chapters.

In addition to these four managers, the program includes important control capabilities which are discussed in the 'Administration', 'Input / Output', and Utilities chapters.

Summary of Chapters

The following paragraphs summarize each of these chapters in the order that they will be presented later.

Administration

In this chapter you enter your product registration information, set your model railroad scale settings, and set the skill level of the program's User (Beginner, Intermediate or Advanced) and input the Users (yourself, friends, visitors) who can be assigned operating roles (Conductor, Engineer, etc.) on your railroad.

Inventory

This chapter guides you through getting your Model Railroad rolling stock and other layout information into MRRM. Data can either be manually entered through a graphical user interface (GUI) or electronically imported from existing spreadsheets or databases (see Input / Output Chapter for details).

Maintenance

Once you have entered some (or all) of your inventory information, you can begin to log maintenance actions on your railroad. This chapter shows you how to enter and track maintenance activity.

Industry

This chapter, for Users having Intermediate or Advanced skills, guides defining the commodities (Lading!) that your railroad transports. Ignore this chapter if you only serve passenger traffic. You also need to enter the shippers, consignees and other participants that live on your railroad. Importantly, this chapter covers creating shipments between parties that live on (or off!) your railroad and supports multiple leg shipments where each leg involves rail or another mode of transportation (truck, air, sea)

Train Service Plan

For Users having Intermediate or Advanced skills, the Train Service Plan is a key to fun and games. Train categories, Scheduled and Extra Trains, Consist Locomotive Power, Stop to Stop Metrics, Schedules, Railroad Jobs and Train Crews are defined or assembled into an overall plan for your railroad.

Build Services

Once you have a Train Service Plan, a User having Intermediate or Advanced skills, can generate Waybills to move loaded cars from shippers to consignees throughout the world (via off layout and intermodal support). MRRM also provides simple methods to order empty cars to be set out or picked up at an industry. Train manifests can be created for freight trains. Switchlists can be generated in a variety of easy to use schemes from truly realistic to 'just for fun' operations. Specific trains can be assigned to schedules in the Train Service Plan or created ad hoc! For each scheduled or extra train you can assign your (real life) Users as Actors for Railroad Employees and Jobs.

Operate Services

Users with Advanced skills can use the Operate Services capabilities of MRRM. This chapter covers multiple train manifest status tracking, waybill status tracking, shipment forwarding status, train weight/horsepower/grade evaluation at each stop on the train's schedule, train orders, siding current and projected space, stop current and project car assignments..

Digital Command Control

Manage each locomotive's DCC decoder assignment with up to 100 configuration variables per decoder. This very advanced area is still under development.

Input/Output

This chapter guides you through database data inputs and outputs through 'flat files'. A flat file is simply a text file where each database record is placed on a single line and columns of that record are separated by tabs. These files can be created or edited with a spreadsheet program like Microsoft Excel or even the Microsoft Notepad program that comes with Windows. The tables are sequenced in accordance with their hierarchical interdependence.

Utilities

This version of MRRM contains two utility programs to help you to have more fun while operating your railroad: MRRM FastClock and MRRM StopClock. If you or your crew are working on your railroad to a 'Schedule', a FastClock helps you to overcome derailment time and other delays by letting you play with time as clocked to your model world. The MRRM StopClock allows you to calibrate the MPH of any of your trains passing between two selected points on your railroad - like a radar trap! Use StopClock to establish reasonable stop2stop metrics used in your schedules.

MRRM_Navigation

Navigation

This chapter teaches you how to get around the MRRM software. It steps you through login, moving around, and exit from the MRRM software.

The menu is the primary entry point to MRRM's functions. Menu items generally open a window. Each window typically has a set of tab pages. A tab page usually contain one or more panes containing database content, a set of control buttons at the top, and a collection of command buttons on the right.

Starting with a screen layout , we show how each tab page is divided into one or more panes. Each pane may be a list of information in a database table. Each row in the list is a record in the table of the database. A pane may alternately display a form (or template) containing all the detail data associated with the instant table row. Generally to switch from Table List format to Template Form, double-click the row in the list or select the row in the list and click the Frm button. To return to the List, click the Tbl button

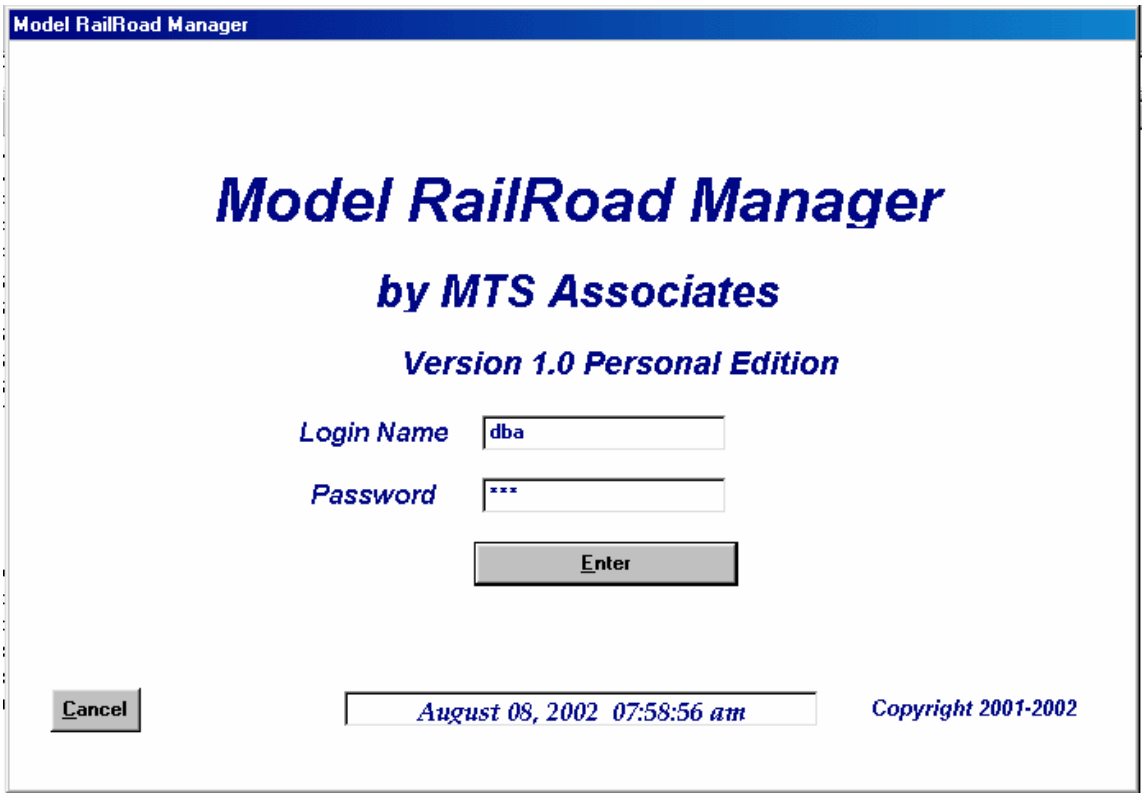
The MRRM program uses many drop-down lists in lists and forms. A drop-down list makes it easy to select a value based on the set of possible or previously defined values of a given type. For example, if prompted to identify the locomotive as the head or a slave of a consist, a drop-down list of all locomotives in your current inventory are displayed for you to choose one.

MRRM also makes use of many command buttons. These buttons are typically placed on the right hand side of a tabpage

Like all mouse based Windows applications, it is very important that you and your computer both know which of the many objects visible on the screen is the focus of attention. To the computer, the focus of attention is generally the last object that you clicked. To you, the focus of attention is generally the object you are staring at the moment. Remember to click that item before commanding the computer to perform the next request. For example, if you want a given command button to act on a specific row (record) in a pane, click the mouse on the row of the pane, then click the command button. Generally the computer can then figure out what you want it to do. Remember - computers are dumb!

Login

To enter MRRM, use the mouse to double left click on the MRRM application file or MRRM short cut icon from the Windows desktop. This will launch the application beginning with a splash screen and automatically proceeding to a login dialog box.



The cursor will appear in the *User ID* field. Enter your user ID and use the tab key to navigate to the *Password* field.

Enter your login name and password. The standard Login Name is dba. The standard password is sql

Click on the OK command button.

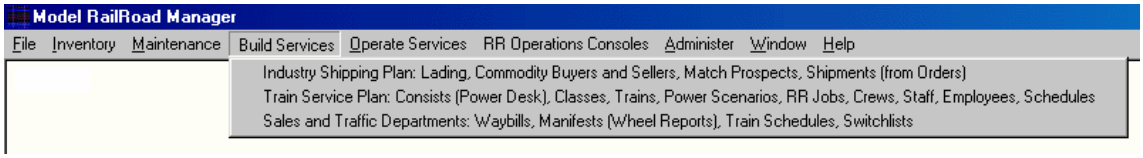
Result: The message line at the bottom right of the dialog box will change from stating the current date and time to stating: *Please wait. Connecting* …. (while the application connects to the MRRM database server.) then *Please wait. Loading* ….. (while the program and various data are configured for use.) The first time you run MRRM, the program creates an entry in your registry to coordinate the MRRM database with the Windows ODBC administration program.

Note: This program is currently a client/desktop program. It has been designed to allow client/server operation in the future. In client/server mode, multiple concurrent club members or other users can access a single database from desktop or portable or handheld computers via a wired and/or wireless local area network. The plan is to allow train control of DCC equipped engines and stationary objects from a PC or handheld computer. Also, computers can access or update current status of shipments, rolling stock, waybills, manifests, train stop status, and so forth

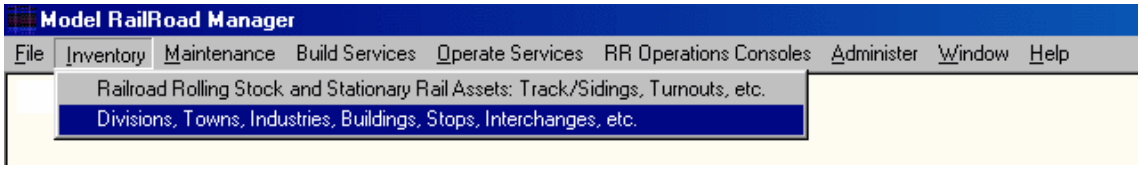
Screen Layout

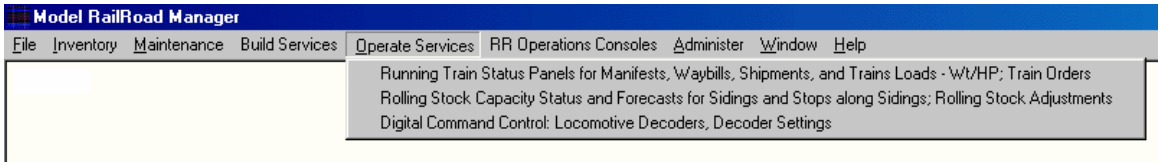
MRRM is structured for your ease of use. Although MRRM has many screens, standard characteristics appear on all of the screens, such as the master frame window which contains the menu bar at the top, and the message display at the

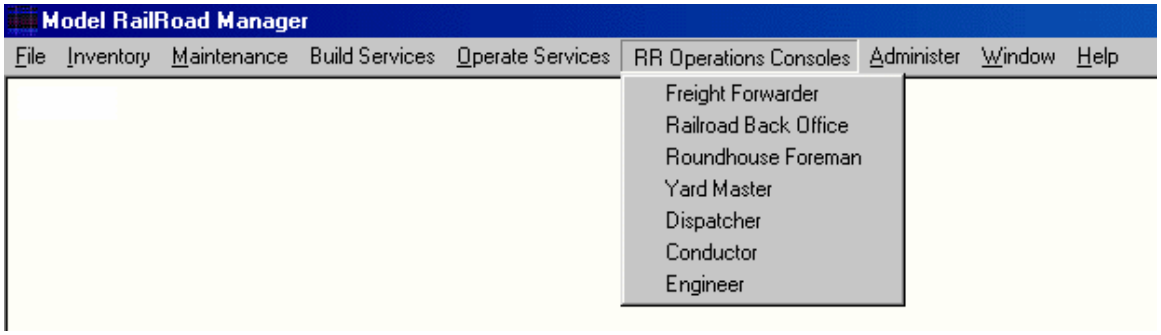
bottom.



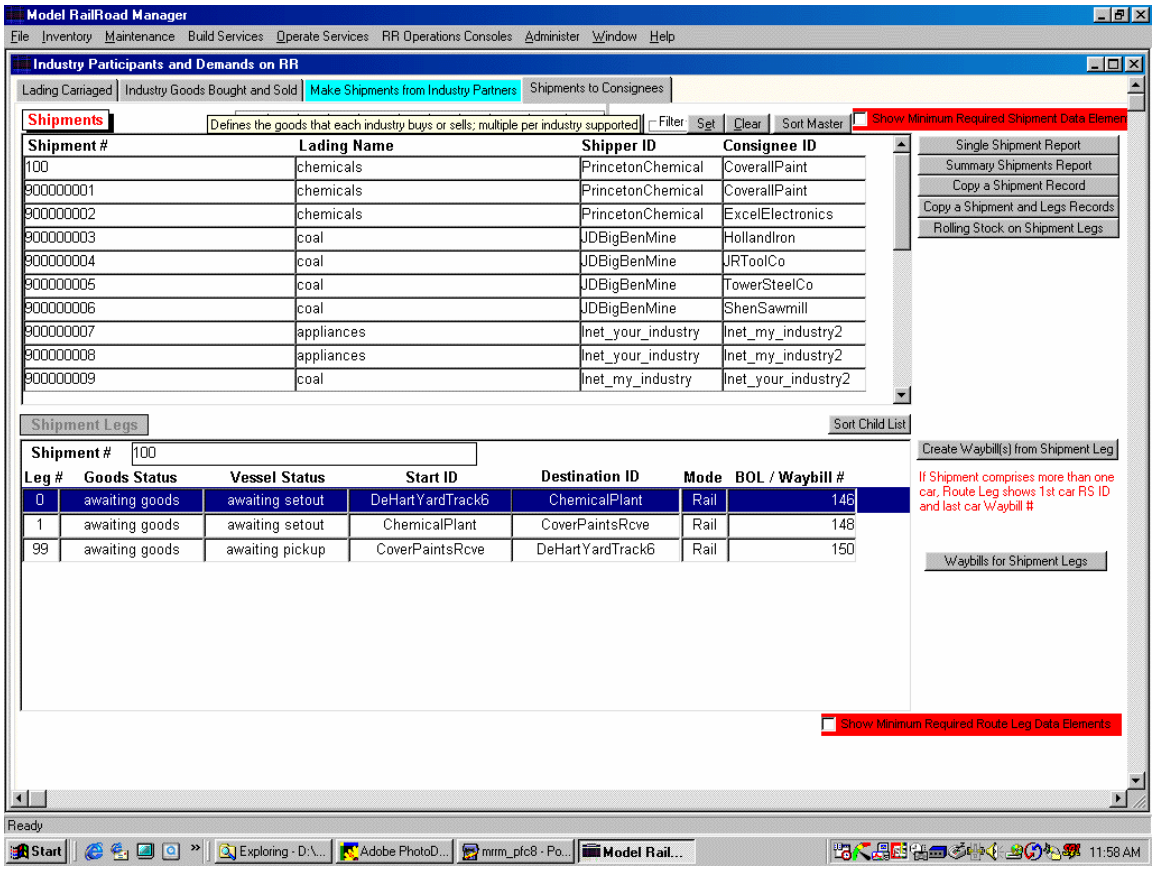
The menu consists of the four main functions (Inventory, Maintenance, Build Services, and Operate Services), RR Operations Consoles, Administer, File, Window and Help.







Windows where you can enter or view data, named Tab Pages, include window title bars, tabs, command buttons, and panes. A sample screen layout is provided below to identify these characteristics as they appear.



Standard components of MRRM that are activated by single left mouse clicks include:

?? The Horizontal Menu at the top of the screen with associated drop down menus enables you to select actions to perform or items to see

?? The labeled Tabs enable you to select specific types of actions or items

Each tab page (in this case named Shipments to Consignees) of a window includes:

?? A window title in a contrasting color (in this case named Industry Participants and Demands on RR)

?? Panes of data in rows, labeled with a title in the top left hand corner (in this two panes; an upper pane Shipments and a lower pane Shipment Legs)

?? Sometimes, sets of radio buttons or sets of check boxes (in this case two check boxes one of which is Show Minimum Required Shipment Data Elements)

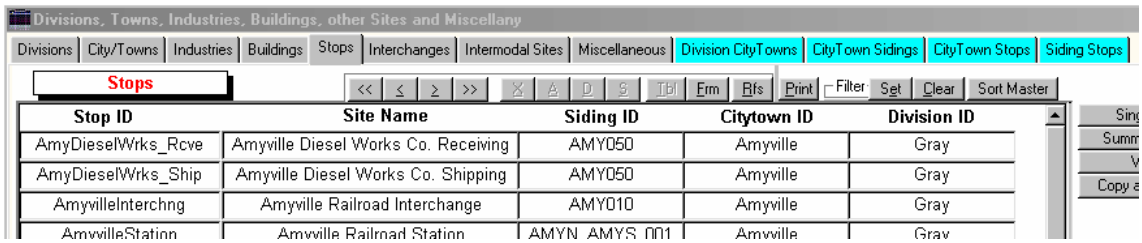
?? Command buttons in one or two columns to the far right of the screen (in this case the command buttons include Copy a Shipment and Legs Records and Create Waybill(s) from Shipment Leg.

If you need to contact Customer Support, please report both the window title, tab page title and the Pane title of the particular pane on the tab page with which you are having difficulties.

Lists and Forms

Related information is viewed in both lists and forms (forms are sometimes called templates). A list view only contains the most significant subset of data for each member or item of the list. All of the data detail associated with each member or item on the list is included on the form.

The following is an example of a list, in this case of Stops at some Siding.



To access the form associated with one member or item on the list:

1) Double-click anywhere on the row describing the member or item in the associated list, OR
2) Click anywhere on the row describing the member or item and click on the Frm (Form) command button (which is located at the top of the tab page), OR
3) Type the shortcut key combination alt-F (see underlined F).

Result: This will bring up the associated form.

To add a new record, bring up a blank form by clicking the Add (A) command button or type alt-A.

To return to the list format, click on the Table List (Tbl) command button or type alt-T.

***Note**: If (like when you first start using MRRM) there are no rows on a list, go to the form view then click the 'A' button at the top of the tabpage and a form with named but empty fields will display for you to enter needed information*.

Inside a Form

Once on a page containing a form, you have alternative options for moving about.

To see the remainder of a form, click the mouse on the lower arrow of a vertical scroll bar. To move between fields use the Tab Key.

Text Conventions

This document uses specific typefaces and layout styles to signify information and certain operating features. The following list describes common text conventions.

Bold typeface is used to indicate items that you can either select from a menu or use to issue a command or response.

Italics are used to indicate command parameters such as login *username*. *Italics* are also used to introduce new terms and for dialog box names.

Commands

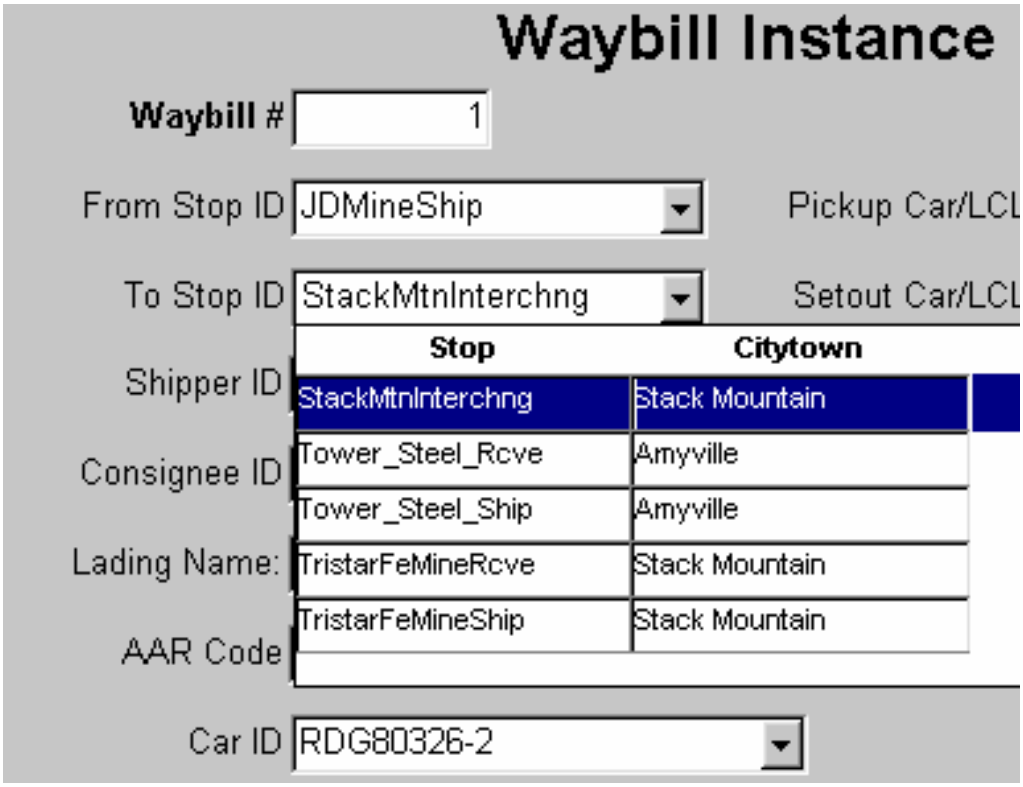
Command buttons carry out the command associated with the button.

To invoke the command, use the mouse to point to the name on the button and click on it. Commands that are grayed out are not available for use at this time.

Drop-Down Lists

Fields that only require a selection from a given list are displayed with a drop down arrow to the right of the field.

Click on the drop down arrow for the list to appear.



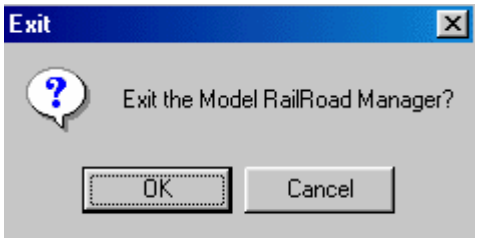
Use the vertical scroll bar to locate your selection. Click on the appropriate selection and it will appear in the field.

Exit

To exit the system, from the horizontal menu:

1) Click on File, and then click on Exit, OR
2) Click on 'X' in very upper left of the outside window.

Result: The Exit MRRM message box will appear.



Click on the OK command button to exit.

Result: The MRRM application will close.

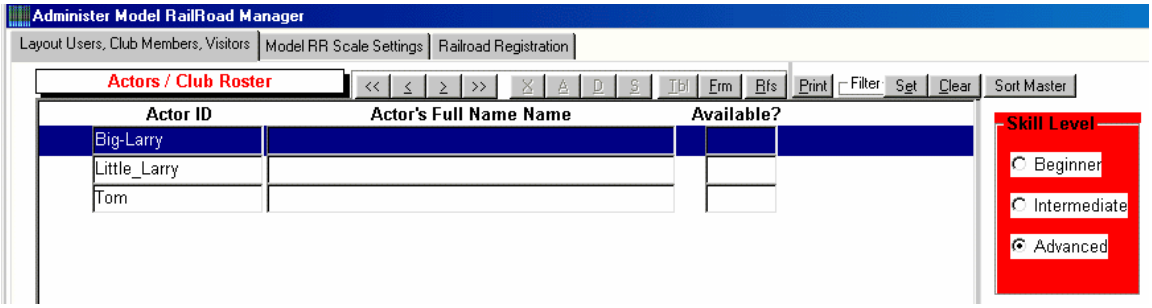
And now let's get started with the fun stuff!

MRRM_Admin_Maintenance

Administration

In this chapter you enter your product registration information, set your model railroad scale settings , set the skill level of the program's User (Beginner, Intermediate or Advanced) and identify the Users (yourself, club roster, friends, visitors) who can be assigned operating roles on your railroad.

Layout Users

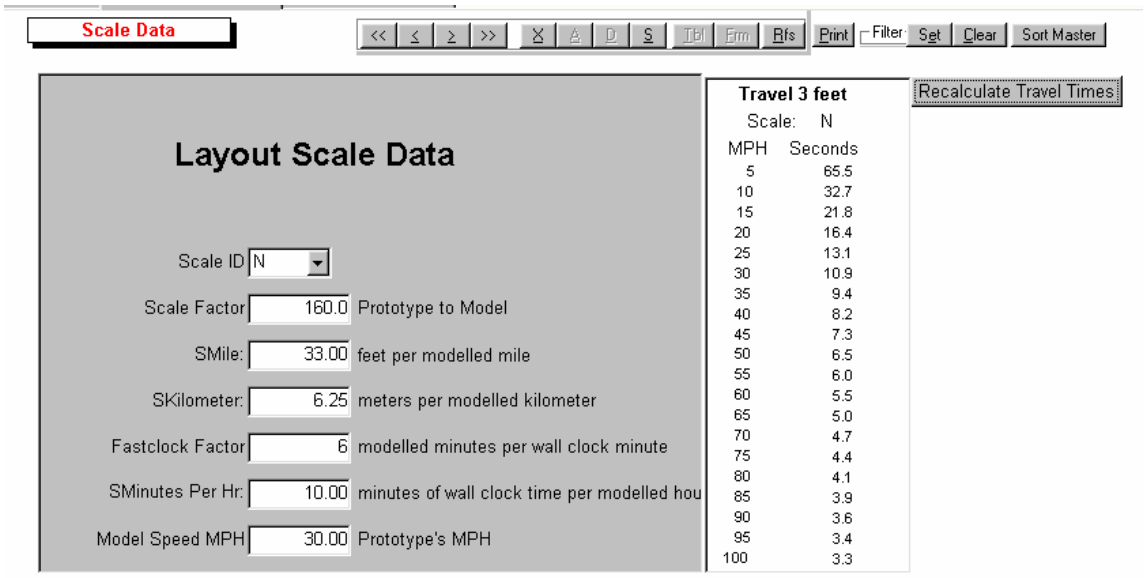


Select the skill level that you prefer for your copy of MRRM. Skill levels are Beginner, Intermediate, and Advanced. The skill level may be changed at any time. The skill level determines which functions/features are made operational for you. So when starting out with MRRM, you may want to set skill level to Beginner and the software may simpler. The normal initial installation sets the skill level to 'Beginner'.

The above pane is used to enter the Users of your railroad. That is, real people like you and me. These entries allow you to assign operating roles when assigning crews, dispatchers et cetera. To temporarily exclude a User (not here today? Just wants to watch?) turn off the Enabled flag. Then when you are assigning Users to Train Crews and other Railroad jobs, only the worker Users are listed in the drop down menus.

Model Railroad Scale Settings

MRRM is intended to support N (my scale), HO, O, Z, TT, STD, S, and G scales.



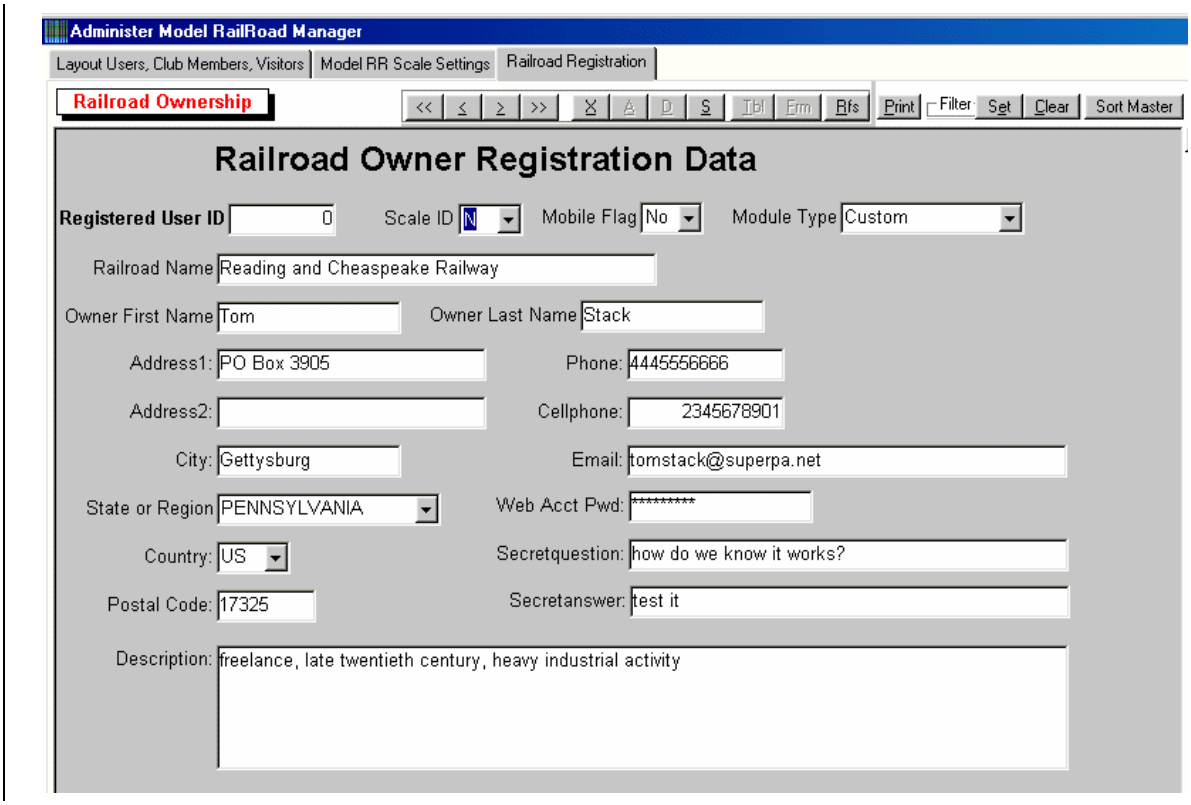
Select your scale from the drop-down list. The correct scale factor will automatically be inserted for you. The length of an SMile in your scale will be computed as will S Kilometers in kilometers.

Next enter a FastClock factor (or set to 1 if don't care about fast clock operations). The number of Sminutes in a real clock hour are computed and inserted.

Finally, insert a Prototype MPH and MRRM will convert to KPH and vice-versa. Average Smile speed in feet per wall clock minute is computed for you. Average Skilo speed in meters per wall clock minute is also computed.

If you click the 'Recalculate Travel Time' button, the time in wall clock seconds for a train of your scale to travel three (3) feet of track at various MPH are displayed.

Layout Registration Data



This screen is used to collect your registration information to be sent to MTS Associates. It also will be used to get updates and information access via the Internet in the future. MRRM does NOT require an Internet to operate. However, MRRM is Internet-aware. This means that it can use the Internet with and without a Browser to access information on the MTS Web Site. More on this later!

The 'mrrm.ini' file

```
[database]
dbms=ODBC
database=mrrm
servername=

[user]
role=end user
skill_level=Beginner
rem skill_level=Intermediate
rem skill_level=Advanced
show_min_data=Yes
make_pda_files=Yes
train_arrival_leadtime=0:30
full_empty_a_warning_only=no
siding_a_warning_only=no
last_maintenance_ticket=327
```

```
[internet]
internet_use="Off"

[filepaths]
win_ini=c:\windows\win.ini
ftp_client=c:\ws-ftp32\ws_ftp32.exe
http_client=C:\Program Files\Internet Explorer\IEXPLORE.EXE
email_client=C:\Program Files\Qualcomm\Eudora\Eudora.exe
calculator=c:\windows\calc.exe
pix_viewer=C:\WINDOWS\KODAKIMG.EXE

[window_names]
rem a window name is the title in the main window of the program; use to run 1 copy only
ftp_client="WS_FTP32"
http_client="Internet Explorer"
email_client="Eudora"
calculator="Calculator"
```

There is a file named ‘mrrm.ini’ in your ‘MRRM’ folder. The mrrm.ini contains several control directives that the MRRM application reads and acts upon when the program begins to execute. This file can be modified by the application as well as by you. (You can modify it with the Windows Notepad program.) A sample mrrm.ini file is listed on the right side of this page.

To change the startup skill level to intermediate, type rem before the skill_level=Beginner line and remove the rem before the skill_level = Intermediate line.

To remove the red checkboxes that allow display of the minimum data required for selected tables, set the show_min_data= No.

Other features will be added from time to time that uses this mrrm.ini file.

MRRM_Inventory

@Inventory

This chapter guides you through getting your Model Railroad rolling stock , track , turnout and other railroad related and layout information into MRRM. Data can either be manually entered through a graphical user interface (GUI) or electronically imported from existing spreadsheets or databases (see Input/Output Chapter for details).

The first step in using MRRM is putting the basic data into the system. Once you have entered this information, you do not need to enter it again. This information will

always be immediately available to you through the click of the mouse. However, you can update, amend or add information at any time.

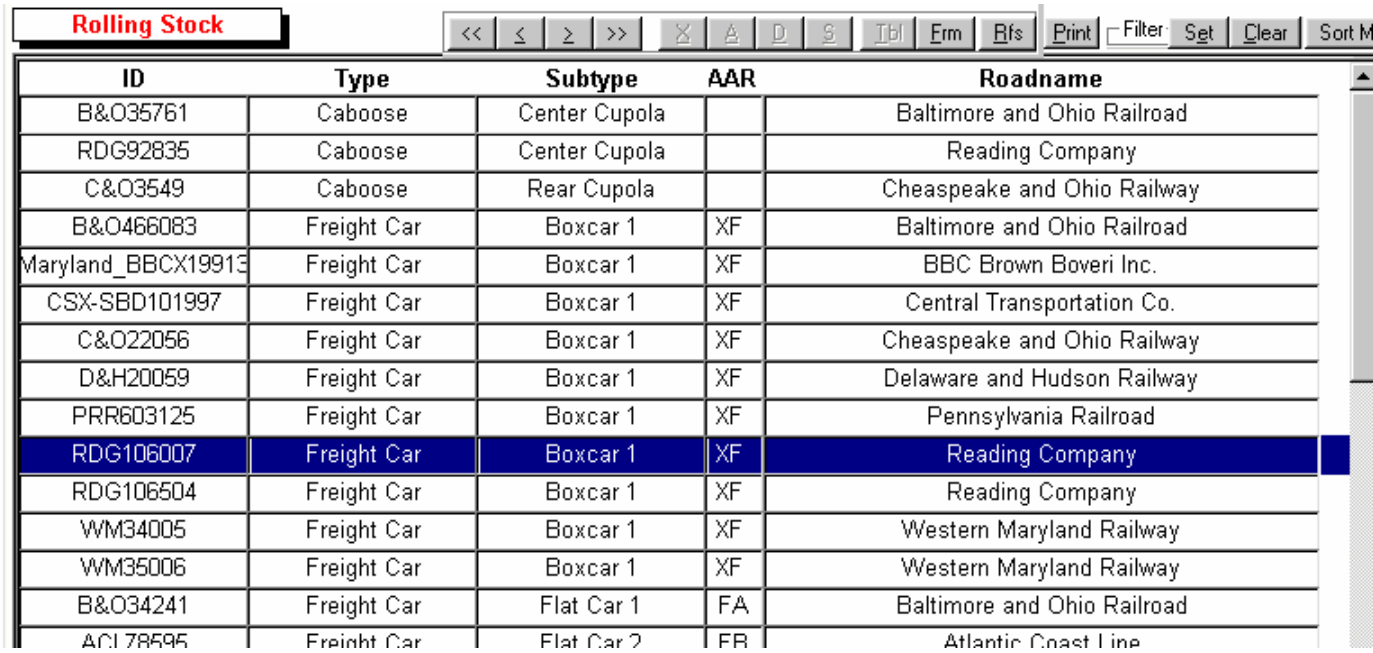
AAR reporting marks for many railroads and freight and passenger car codes for many car types are pre-loaded into the MRRM database provided with this product.

Entry of Rolling Stock Data

To enter descriptive information about each of your rolling stock (Freight Cars, Passenger Cars, Locomotives, Cabooses, Other) into MRRM, the 'Rolling Stock on Layout' tab is opened.

Click the 'Inventory: Railroad Rolling Stock…' item on the Menu

Click on 'Rolling Stock on Layout' tab if not already selected.



ID	Type	Subtype	AAR	Roadname
B&O35761	Caboose	Center Cupola		Baltimore and Ohio Railroad
RDG92835	Caboose	Center Cupola		Reading Company
C&O3549	Caboose	Rear Cupola		Cheaspeake and Ohio Railway
B&O466083	Freight Car	Boxcar 1	XF	Baltimore and Ohio Railroad
Maryland_BBCX19913	Freight Car	Boxcar 1	XF	BBC Brown Boveri Inc.
CSX-SBD101997	Freight Car	Boxcar 1	XF	Central Transportation Co.
C&O22056	Freight Car	Boxcar 1	XF	Cheaspeake and Ohio Railway
D&H20059	Freight Car	Boxcar 1	XF	Delaware and Hudson Railway
PRR603125	Freight Car	Boxcar 1	XF	Pennsylvania Railroad
RDG106007	Freight Car	Boxcar 1	XF	Reading Company
RDG106504	Freight Car	Boxcar 1	XF	Reading Company
WM34005	Freight Car	Boxcar 1	XF	Western Maryland Railway
WM35006	Freight Car	Boxcar 1	XF	Western Maryland Railway
B&O34241	Freight Car	Flat Car 1	FA	Baltimore and Ohio Railroad
ACL78595	Freight Car	Flat Car 2	FB	Atlantic Coast Line

To add a new rolling stock item:

Click anywhere in the pane, Rolling Stock

Click on the Frm command button on the top of the tabpage or type alt-F. The form will open onto the screen.

Click on the A command button on the top of the tabpage to add a new record.

Complete the form by typing in entries. A Rolling Stock Identifier (ID) must be unique and is required! I typically join the Reporting Marks and Number as the ID. Note that the 'ID.' label is in a Bold font. All fields adjacent to Bold font labels are **required** whenever filling in a MRRM form.

Click on the Tbl command button to return to the original tab page screen

Click on OK in the Save Changes message box

Click on the Refresh command button to bring new updates into the sorted listing you are viewing.

The only required field is the ID. We suggest completing as many as possible of the fields that pertain to how you operate your railroad or manage your inventory for which you have information. To make it simpler to locate the appropriate fields, they are grouped in the following categories:

Primary Rolling Stock information includes Type (Locomotive, Freight Car, Passenger Car, Caboose, Other) , Subtype (AAR Type such as Boxcar, Gondola,…), AAR Code (XF, HFA, …), Roadname (Operator/Leasee of a Railroad), Reporting Marks, and Number. Many of these fields are supported with pre-loaded drop down lists to ease use.

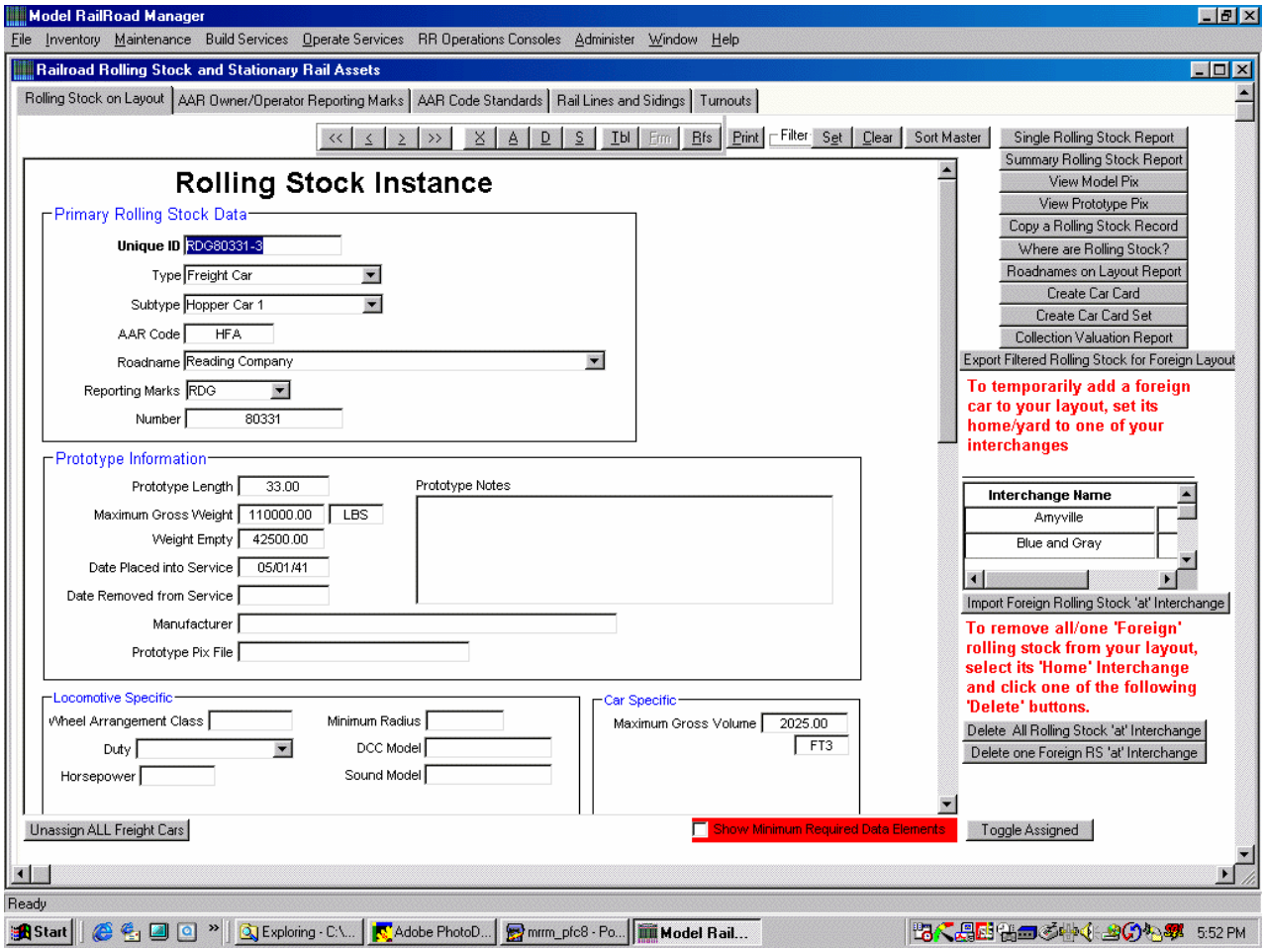
Operating Configuration Variables (not required for Inventory) include: Home/Yard, Current Stop, Next Stop, Picture Filename, Less than Car Load (LCL) capable and In-Use flags, and Full/Empty status.

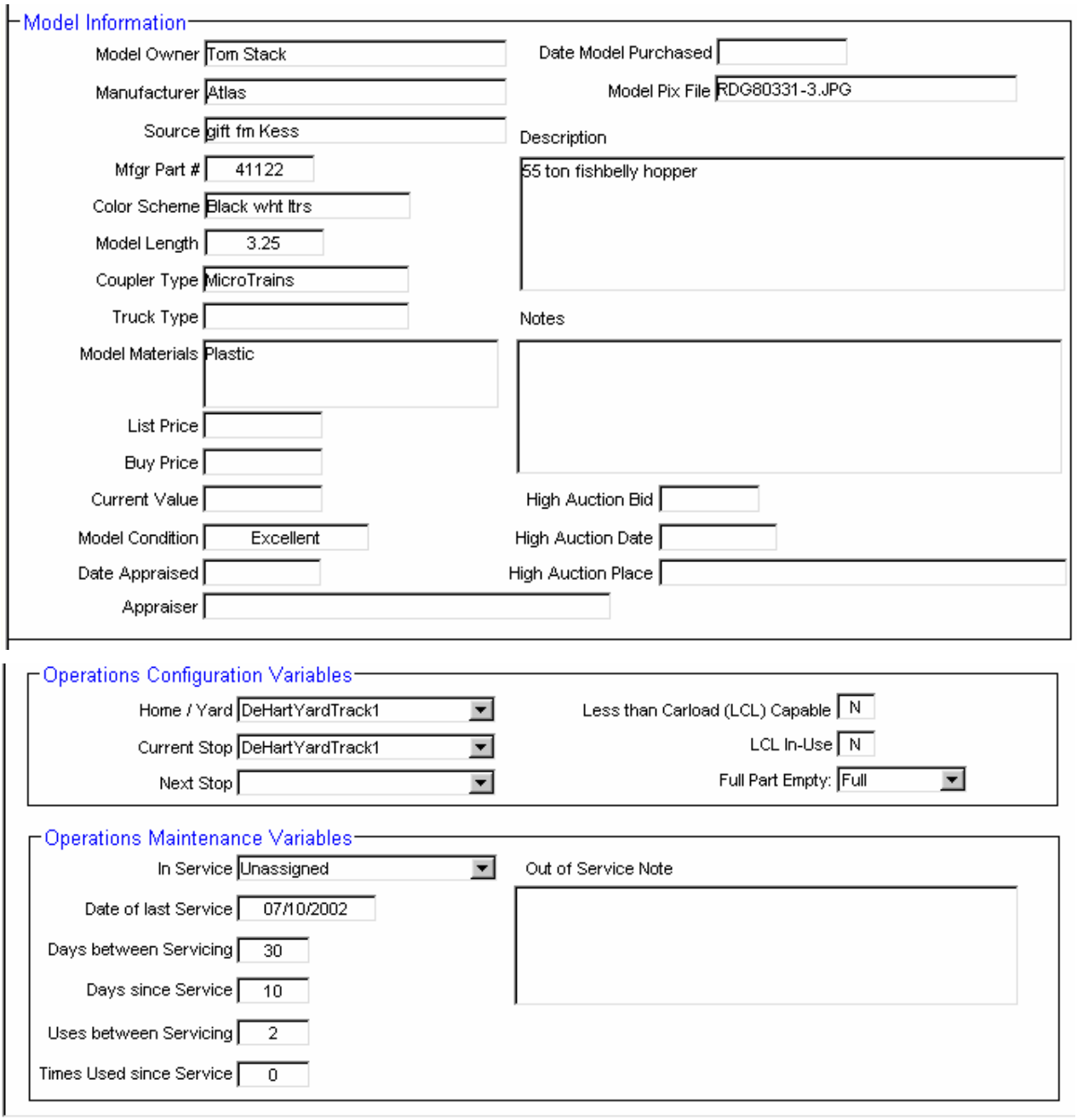
Operations Maintenance Variables include: In-Service flag, Out-of-Service Note, Date of last service, Days between servicing, days since service, Uses between servicing, and Times used since service.

Model information includes: Owner, Manufacturer, Source, Description, Part Number, Color Scheme, Length, Coupler Type, Truck Type, Materials, List Price, Buy Price, Current Value, Model Notes.

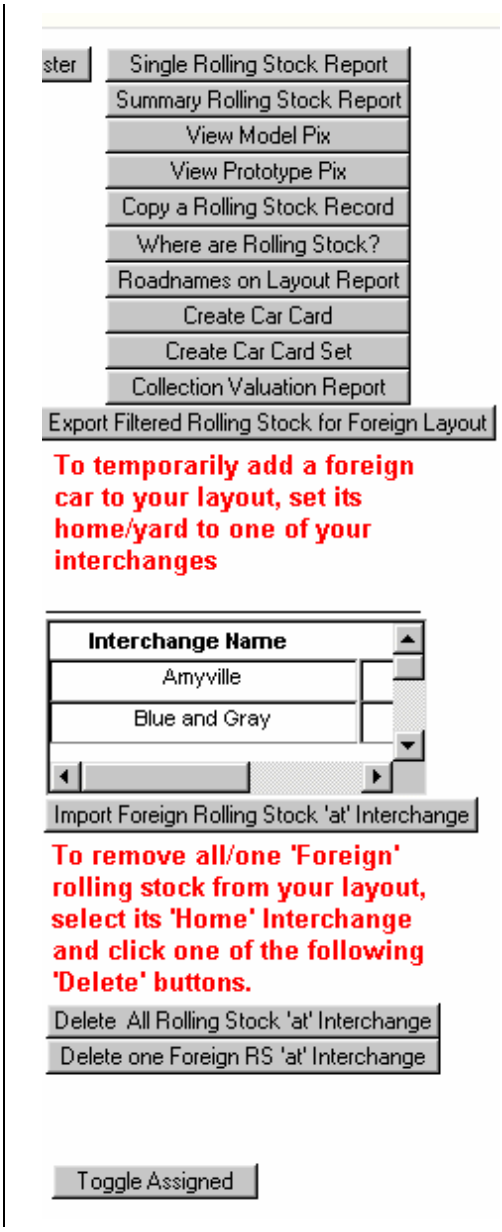
Prototype information includes Maximum Gross Weight, Weight Empty, Maximum Volume, Length, Manufacturer, Class, Duty, Date came into Service, Date went out of Service, Picture file of the prototype, and notes on the Prototype. There are subsections of prototype data for locomotives (such as horsepower) and cars (such as volume).

Do not be overwhelmed - only use those items of interest to you!


Model RailRoad Manager
File Inventory Maintenance Build Services Operate Services RR Operations Consoles Administer Window Help
Railroad Rolling Stock and Stationary Rail Assets
Rolling Stock on Layout
AAR Owner/Operator Reporting Marks
AAR Code Standards
Rail Lines and Sidings
Turnouts
Print
Filter
Set
Clear
Sort Master
Rolling Stock Instance
Primary Rolling Stock Data
Unique ID RDG80331-3
Type Freight Car
Subtype Hopper Car 1
AAR Code HFA
Roadname Reading Company
Reporting Marks RDG
Number 80331
Prototype Information
Prototype Length 33.00
Maximum Gross Weight 110000.00 LBS
Weight Empty 42500.00
Date Placed into Service 05/01/41
Date Removed from Service
Manufacturer
Prototype Pix File
Prototype Notes
Locomotive Specific
Wheel Arrangement Class
Duty
Horsepower
Minimum Radius
DCC Model
Sound Model
Car Specific
Maximum Gross Volume 2025.00
FT3
Unassign ALL Freight Cars
Show Minimum Required Data Elements
Toggle Assigned
Single Rolling Stock Report
Summary Rolling Stock Report
View Model Pix
View Prototype Pix
Copy a Rolling Stock Record
Where are Rolling Stock?
Roadnames on Layout Report
Create Car Card
Create Car Card Set
Collection Valuation Report
Export Filtered Rolling Stock for Foreign Layout
To temporarily add a foreign car to your layout, set its home/yard to one of your interchanges
Interchange Name
Amyville
Blue and Gray
Import Foreign Rolling Stock 'at' Interchange
To remove all/one 'Foreign' rolling stock from your layout, select its 'Home' Interchange and click one of the following 'Delete' buttons.
Delete All Rolling Stock 'at' Interchange
Delete one Foreign RS 'at' Interchange
Ready
Start
Exploring - C:\...
Adobe PhotoD...
mrrm_pfc8 - Po...
Model Rail...
5:52 PM



Rolling Stock Command Buttons



On the right side of the window, there is a collection of command buttons.

Single Rolling Stock Report - creates a report on the one piece of rolling stock currently selected in the pane.

Summary Rolling Stock Report - creates a report of all the rolling stock in your database. Before you print the report you can filter out parts of your collection using the Filter features on the report screen. You may also sort the data in the report prior to printing it.

View Model Pix - displays the graphic file of the model you have assigned to the selected piece of rolling stock on your designated graphic viewer program. The default viewer is the Microsoft Paintbrush program. Edit your copy of the MRRM.ini file to change your default graphic viewer.

View Prototype Pix - displays a picture of the prototype of the rolling stock item selected, if you have assigned a picture file.

Copy a Rolling Stock Record - duplicates all the data assigned to a given piece of rolling stock to another piece of rolling stock but with a different ID that you are prompted to supply.

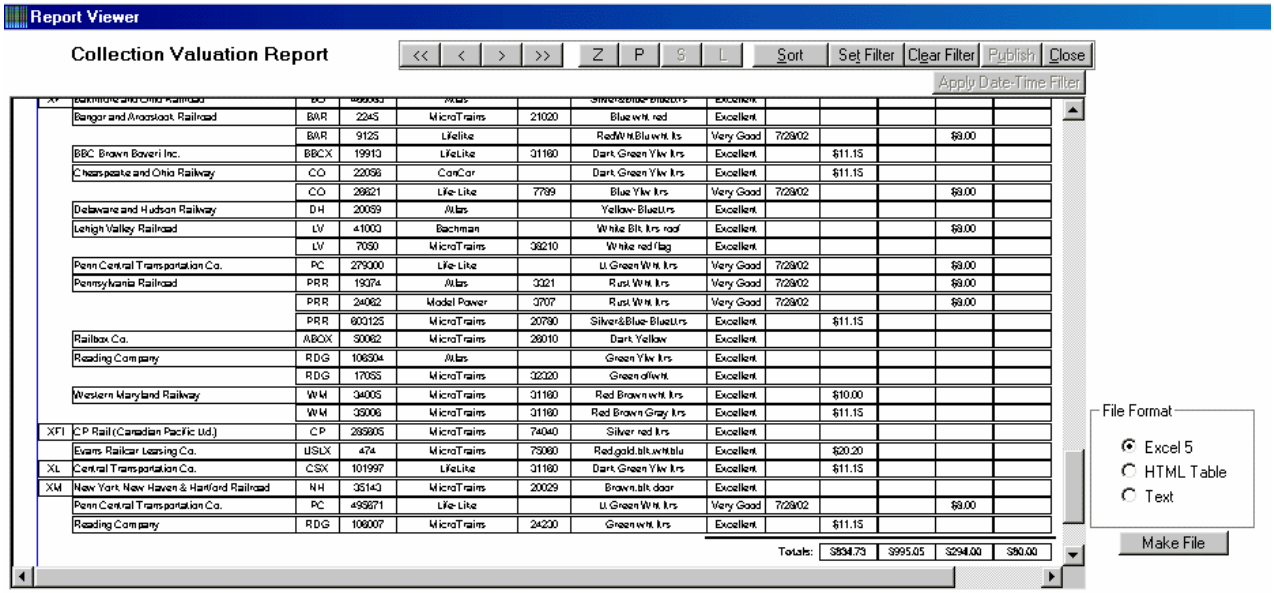
Where are Rolling Stock? - creates a report of the current location of each piece of rolling stock if you are using MRRM to manage this information.

Roadnames on Layout Report - creates a report of all the roadnames of all the rolling stock on your layout including temporary rolling stock brought by visitors to your layout. Use to help create industry traffic preferences.

Create Car Card - If you use our Car Card and Waybill feature, use this button to create a single Car Card of the currently selected rolling stock item. You may print the Car Card on any paper that your printer supports. The format is designed for use with a low cost, widely available card stock sold by Staples and other business supply stores. Our Car Cards are designed for use with Avery Hanging Name Badges (part CS-4C) and are 3 inches by 4 inches. These are the badges commonly used by conventions through the world. Again you do not have to buy the Avery product to use our Car Card system. You can use your own pocket design for our 3 by 4 inch cards. (See Build Services section to create Waybills for your operations.)

Create Car Card Set - Use the pane filter capability to display only those rolling stock for which a car card is wanted then click this button and three car cards will be printed per page compatible with the Avery CS-4C product.

Collection Valuation Report - Create a report of rolling stock values and selected descriptive data. An example of an MRRM report is shown below. This report, like all MRRM reports. can be zoomed in/out as desired, printed, sent to the PDA folder as a Microsoft Excel 5 spreadsheet for input into your Palm Pilot, and otherwise manipulated.



Export Rolling Stock File for Foreign Layout - If two or more layouts use MRRM, owners may easily run their rolling stock in full operations capability on another MRRM managed layout. Filter the rolling stock you intend to use on the foreign/other layout then click this button. You will be asked to identify the path where the file is to be placed. The name of the file is fixed by MRRM (rolling_stock.txt). You may then copy this file on a floppy disk and take it with your rolling stock items when you visit the foreign layout.

Import Foreign Rolling Stock 'at' Interchange - If you want to host foreign rolling stock on your layout without complications when later extricating this rolling stock, use this feature of MRRM. MRRM uses Railroad Interchanges for bringing on foreign rolling stock (somewhat prototypical!) Select the Interchange that you want to be the temporary home yard of the foreign rolling stock. Then, click the command button. You will be prompted for the path to the file where your visitor has placed the 'rolling_stock.txt file that was created by MRRM copy used to manage the visitor's layout. That's it!. The rolling stock records will be imported into your copy of MRRM and can be used for waybill assignments on your layout.

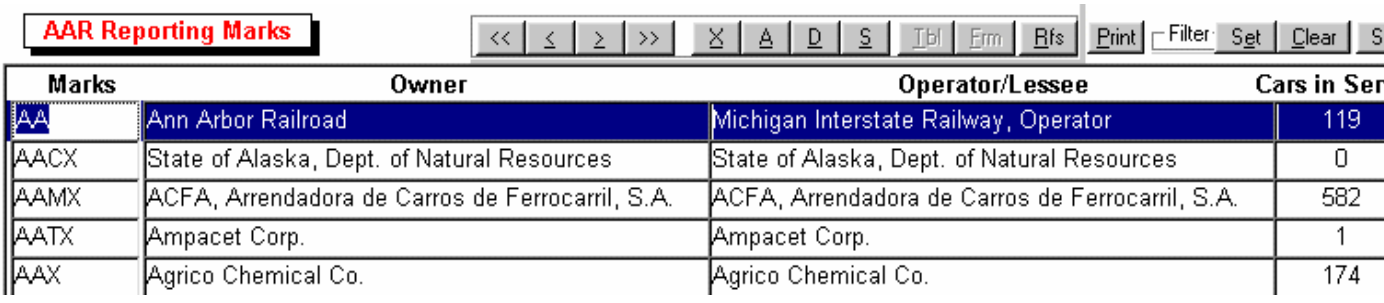
Delete All Rolling Stock 'at' Interchange - Select an Interchange then click this command button to remove all foreign rolling stock homed at this Interchange from your layout. These rolling stock will no longer be assignable to new car cards or waybills.

Delete One Foreign RS 'at' Interchange - Select a specific piece of rolling stock that is foreign to your layout. Next, select the Interchange that is temporary home for the rolling stock. Then, click this button to remove this item of rolling stock from your layout.

Toggle Assigned - When using MRRM for operations, Rolling Stock is Assigned to Waybills. At time, an unassigned car is sought. If the normal unassign method (when the shipment to which the car is assigned completes) is not done for any reason, this command button provides a quick correcting method.

AAR Owner/Operator Reporting Marks

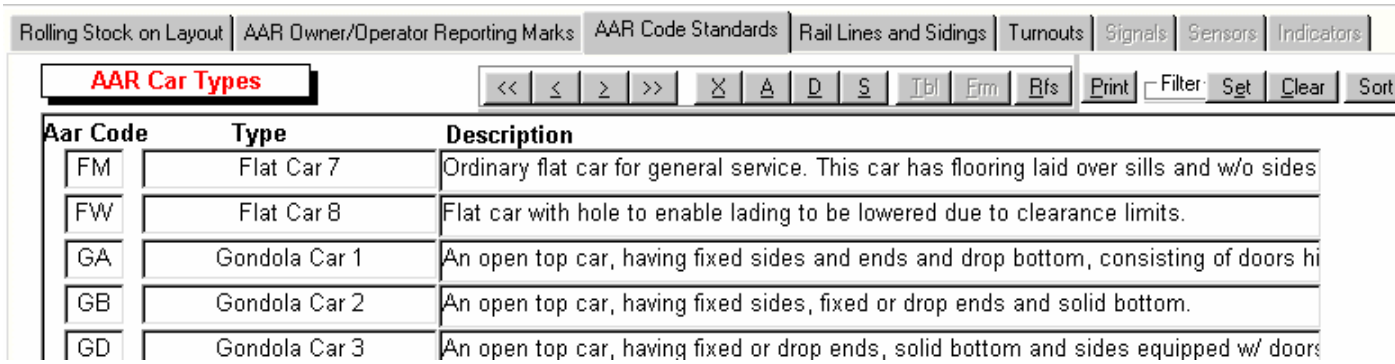
MRRM comes pre-loaded with a good amount of AAR Owner/Operator Reporting Marks. But, If you have you cannot find one or you make your own, fell free to edit this list. The Reporting Marks column must be unique or your entry will not be accepted by MRRM when you try to save it!



Marks	Owner	Operator/Lessee	Cars in Ser
AA	Ann Arbor Railroad	Michigan Interstate Railway, Operator	119
AACX	State of Alaska, Dept. of Natural Resources	State of Alaska, Dept. of Natural Resources	0
AAMX	ACFA, Arrendadora de Carros de Ferrocarril, S.A.	ACFA, Arrendadora de Carros de Ferrocarril, S.A.	582
AATX	Ampacet Corp.	Ampacet Corp.	1
AAX	Agrico Chemical Co.	Agrico Chemical Co.	174

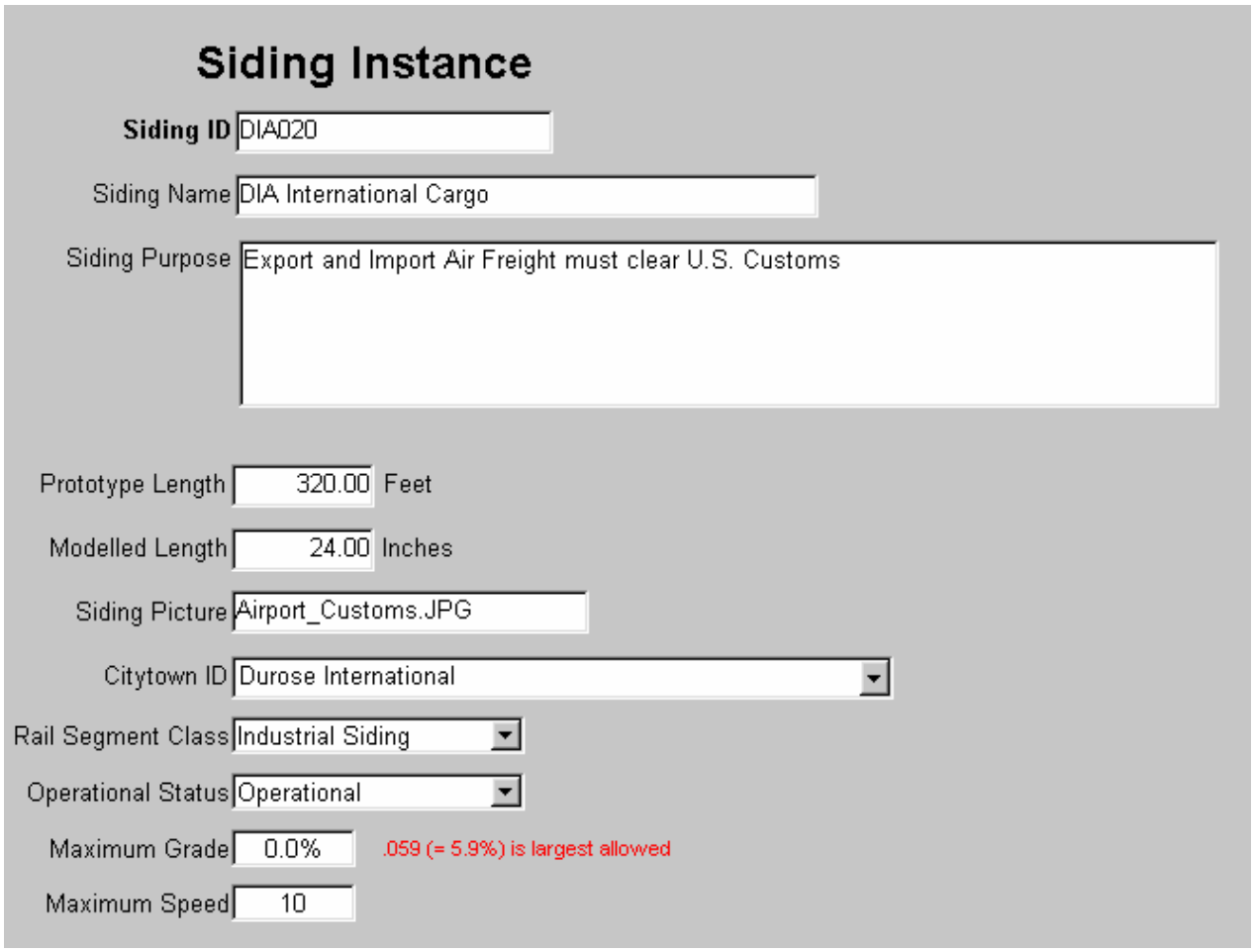
AAR Code Standards

MRRM comes preloaded with a good amount of AAR Code Standards. Freight and Passenger car AAR code data is preloaded. But, If you cannot find one or you make your own, fell free to edit this list. The AAR Code column must be unique or your entry will not be accepted by MRRM when you try to save it!



Inventory your Sidings

Your railroad comprises as many sidings as you desire. You do not need to enter ‘off railroad sidings. To use the shipments/waybills/manifest mechanisms of MRRM, you need to define the siding and stop of the shipper and consignee for a direct shipment. If you ship via a yard, then the siding(s) comprising the yard and their default stop points are required.



Entry of Turnouts

For future advanced operations, turnout information will be required. An example of the turnout list is provided below.

Turnouts

<< < > >> X A D S Tbl Frm Rfs Print Filter Set Clear Sort Maste

Turnout ID	Frog #	Description	Point Track	Main Track	Alternate Track
AMT_TO_001	8	SOJS-AMYS Main and DRY Reverse Main	SOJS_AMYS_001	SOJS_AMYS_001	DRY003
AMT_TO_002	8	SOJS-AMYS Main and AMY Bypass	SOJS_AMYS_001	SOJS_AMYS_001	AMY002
AMT_TO_003	8	AMY Bypass and AMY Interchange	AMY002	AMY002	AMY010
AMT_TO_004	8	AMY Interchange and PMY Branch	AMY010	AMY010	PMY010
AMT_TO_005	8	AMY Bypass and West Side Siding	AMY002	AMY002	AMY020
AMT_TO_006	8	AMY Bypass and DRYN-SOJS Main	AMY002	AMY002	DRYN_SOJS_001
AMT_TO_007	8	Reverse and Local Branch	DRY003	DRY003	AMY009
AMT_TO_008	8	Local and Inner	AMYS_AMYS_001	AMYS_AMYS_001	AMY030
AMT_TO_009	8	Local and Diesel Works 1	AMYS_AMYS_001	AMYS_AMYS_001	AMY040
AMT_TO_010	8	Diesel Works 1 and Downtown 1	AMY040	AMY040	AMY060

MRRM_Inventory2

Other Inventory Items

Your railroad can support an unlimited number of divisions . Each division can support an unlimited number of cities or towns. Each city many host an arbitrary number of Industries. Each citytown is served by a single home yard. You can have as many yards per division as you desire. Local trains from home yards serve the Industries in CityTowns server by the yard. Way freights move cars between yards in a division. Manifest or fast freight trains move cars between yards in different divisions.

For each siding in each city/town, you may have an unlimited number of stops (sometimes called 'spots'). A siding may also be used as an Interchange with other, off-layout railroads or as an Intermodal transfer facility.

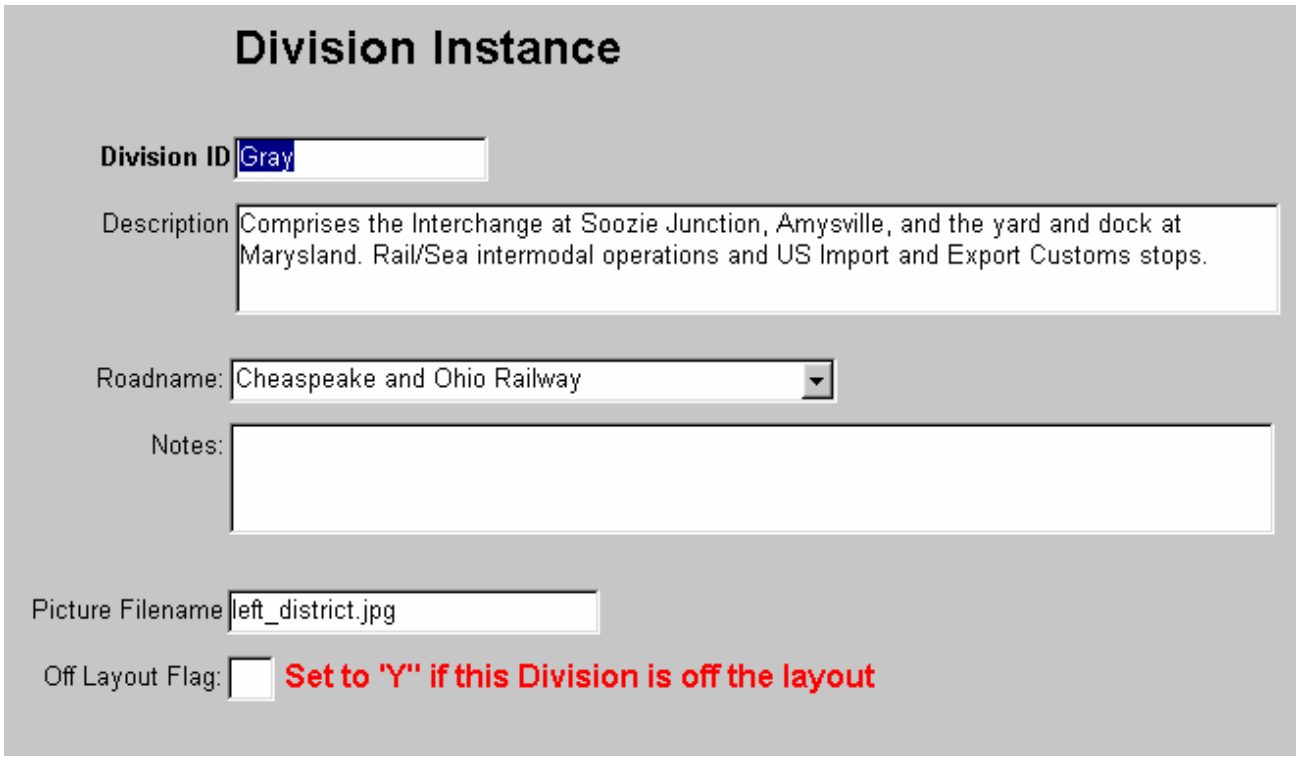
MRRM automatically creates displays showing City/Towns per Division , Sidings per City/Town, Stops per City/Town, Stops per Siding. And Homeyard Service Area.

Each Industry on your layout can 'own' an unlimited number of buildings or facilities. Each Building can have an unlimited number of stops, where rolling stock can be set out or picked up, on an unlimited number of adjacent sidings. The length of siding you construct is the only limit you create on cars that can be parked.

Other layout accessories , such as platforms, lighting, electronic assemblies, etcetera, can also be inventoried.

Entry of Divisions in your World

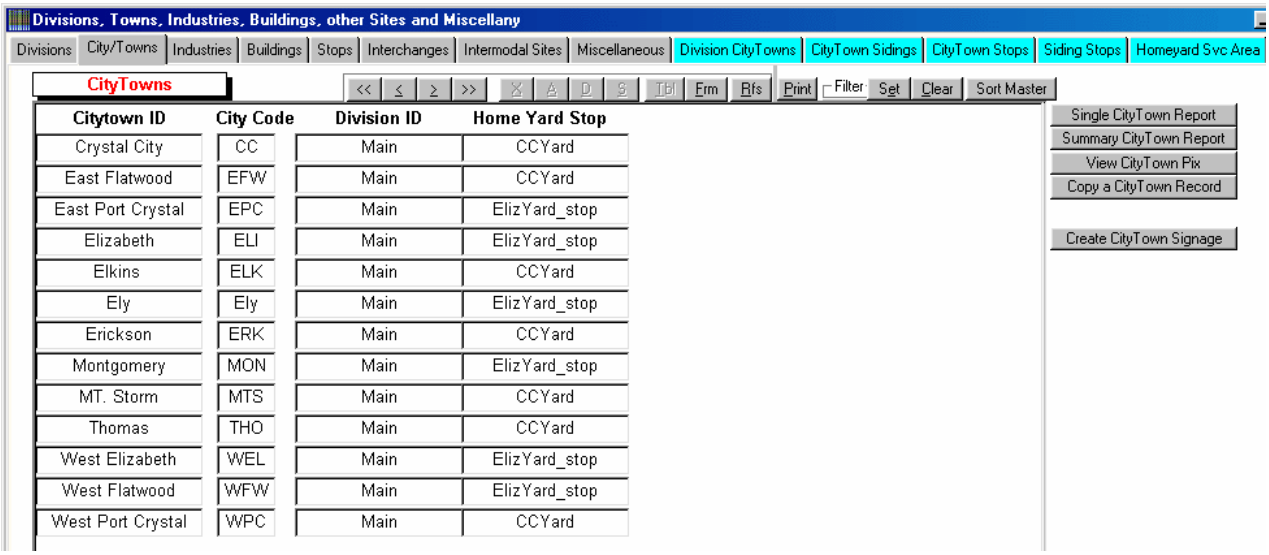
Your railroad always comprises at least one Division operated by some Roadname. Your may have any number of Divisions on your railroad with MRRM. Further, you may define an arbitrary number of Divisions ''off'' your railroad but with whom you share exactly one Interchange.



Entry of City/Towns in your World

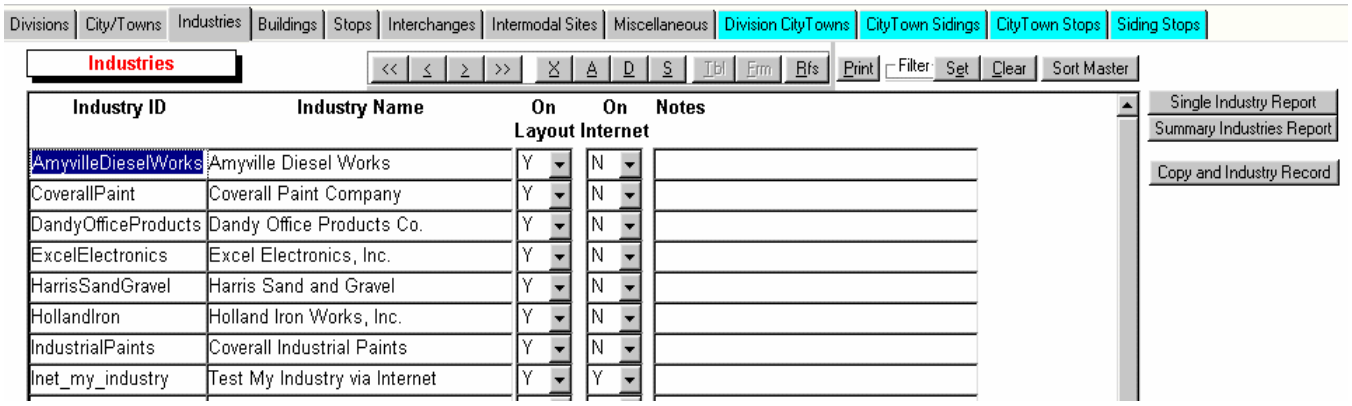
Your railroad always comprises at least one CityTown (we don't care how big the 'place' is!). Your may have as many CityTowns on your railroad as you desire.

While a CityTown Code is not required, we find it helpful to use a three character acronym for naming sidings and other track segments when creating yard or siding switchlists. This is because you can readily filter out unrelated sidings and cars departing or arriving at sidings.



Industries

Industries that do business with your railroad, including Industries that are not located on your layout are defined here. An Industry may be a buyer or a seller of multiple commodities. If the Industry buys a commodity, that Industry is consider a Consignee for that type of Lading. Similarly, if the Industry sells a commodity, the Industry is a Shipper of that type of Lading.

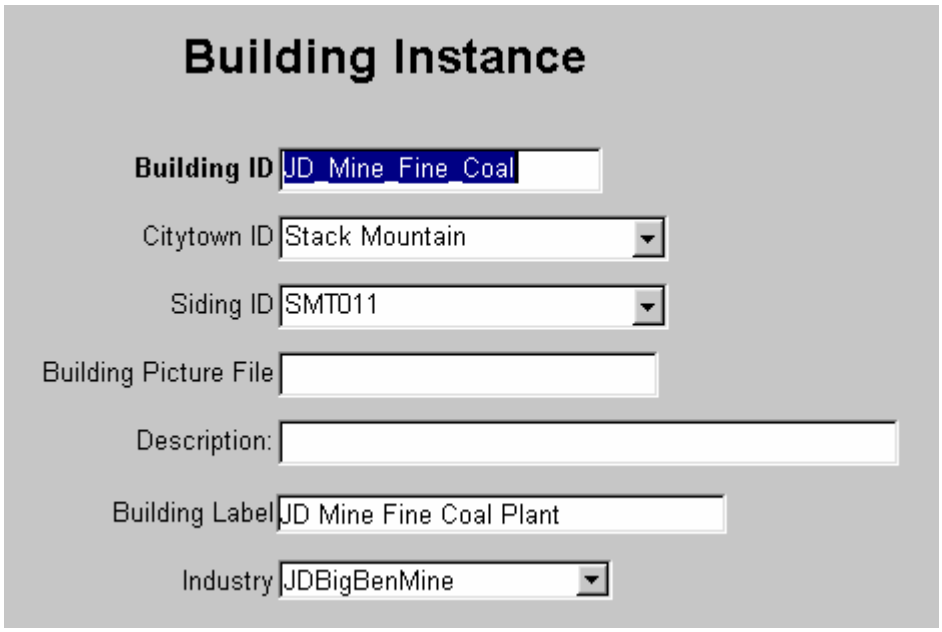


If an Industry is on your layout, select the Yes value for the On Layout column. If you intend to list one of your Industries on our (planned) Web site for other MRRM users to do business with or you intend to use an Industry off your layout but our (planned) Web site, select the Yes value for the On Internet column.

Entry of Buildings in your World

This table manages the building inventory on your railroad. If the Building has one or more sidings adjacent to it, select one of those sidings. If the Building is not involved with shipping activity, leave this field blank. If the Building is associated with an Industry, select that Industry.

If you have more than one siding adjacent to a building, you may want to create complex Switchlists to move the cars currently there plus those being setout or picked up. We suggest that the siding be named similarly and uniquely, say with a shared prefix for their name. If your railroad has lots of sidings and rolling stock, the prefix can be used to filter out rolling stock and waybill activity only relevant to this set of tracks thereby simplifying your Switchlist construction.



Entry of Stops in your World

Your railroad comprises at many stops as you desire. A Stop may be on the Main Line or any other Rail Line Segment of your railroad. A Siding entry is not required. If a stop is 'off' railroad, pick the appropriate Interchange stop that will take the train or car to the appropriate City Stop and if appropriate, Siding. Each Siding may have an arbitrary number of unique Stops (assuming Siding is long enough to squeeze in all the Buildings!).

Note that there a command button on the sidings tab page to create a default stop point name for the siding. The stop name is a concatenation of the siding name with a suffix of _stop. The length of the stop name is limited to 20 characters and is truncated to 20 characters if necessary.

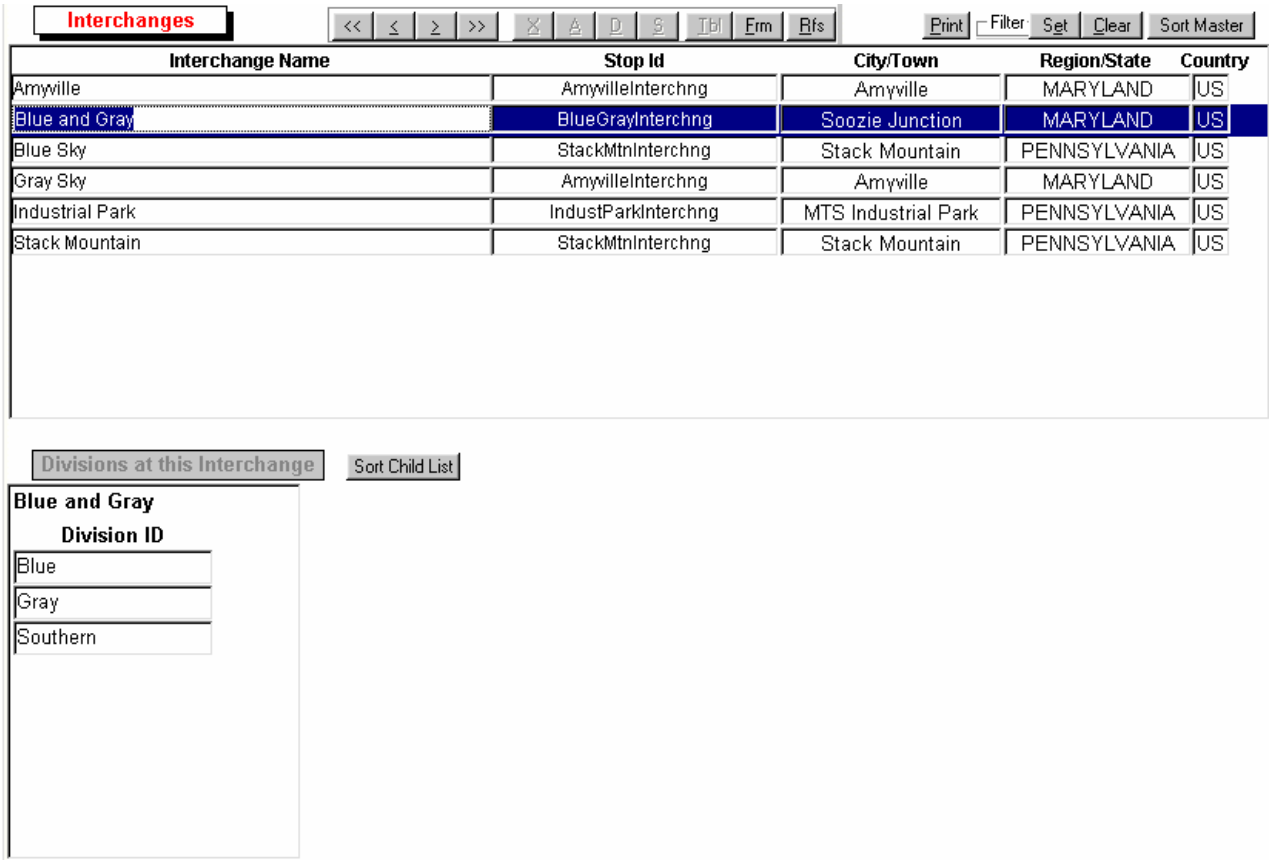
Stops

<< < > >> X A D S Tbl Frm Rfs Print Filter Set Clear Sort Ma

Stop ID	Site Name	Siding ID	Citytown ID	Division ID
BlueGrayInterchng	Blue and Gray Railroad Interchange	SOJ040	Soozie Junction	Gray
BlueSkyInterchange	Blue Sky Internet Interchange			
ChemicalPlant	Dewer Chemical Corporation	SMT030	Stack Mountain	Blue
Coal_Mine	John Durose Coal Mine	SMT010	Stack Mountain	Blue
CoverPaintsRcve	Coverall Paint Company	MIP020	MTS Industrial Park	Blue
CoverPaintsShip	Coverall Paint Company	MIP020	MTS Industrial Park	Blue
Dandy_Office_Rcve	Dandy Office Products Co. Receiving	MIP030	MTS Industrial Park	Blue
Dandy_Office_Ship	Dandy Office Products Co. Shipping	MIP030	MTS Industrial Park	Blue
DeHartStation	DeHart Railroad Station	DRYN_AMYN_001	DeHart Rail Yard	Gray

Entry of Interchanges in your World

Your railroad should comprise at least one Interchange for operating excitement. Your may have as many Interchanges on your railroad as you desire. Each Interchange may have as many 'off railroad' Roadnames supported as you desire. (Don't forget the Transfer stamps for those waybill releases!) The Roadnames of Divisions on your railroad can visit any Interchange on your railroad to pickup or setout cars. Your trains may leave or enter the 'off world' through any Interchange on your railroad.

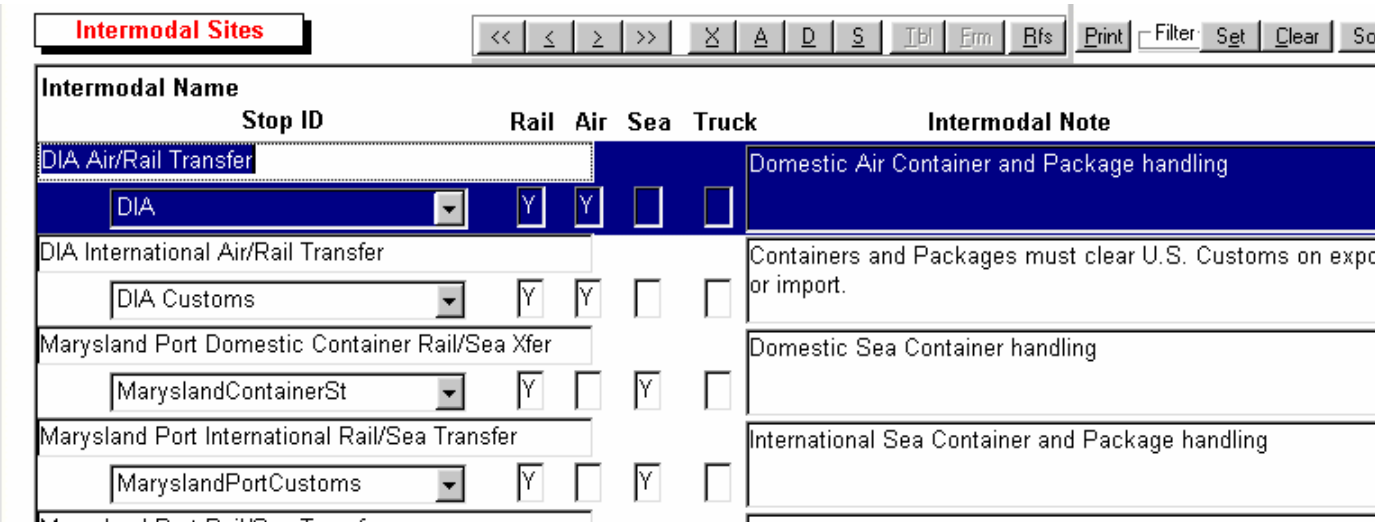


The Region/State, Country, Latitude and Longitude fields are optional and are reserved for future use.

Entry of Intermodal Sites in your World

Your railroad may support Intermodal traffic. This occurs when a rail customer ships commodities to a consignee that is not reachable by contiguous rail. For example, the railroad's customer may have goods loaded onto a tractor trailer which brings the goods (possibly containerized) to a railhead which move the goods to a ship yard which moves the goods to a railhead which delivers the goods to the consignee. This can get complicated. But, it is real world for some sellers and buyers. The goods may

even leave home country of the seller and have to travel through Government Customs. MRRM can support these scenarios. Have Fun!

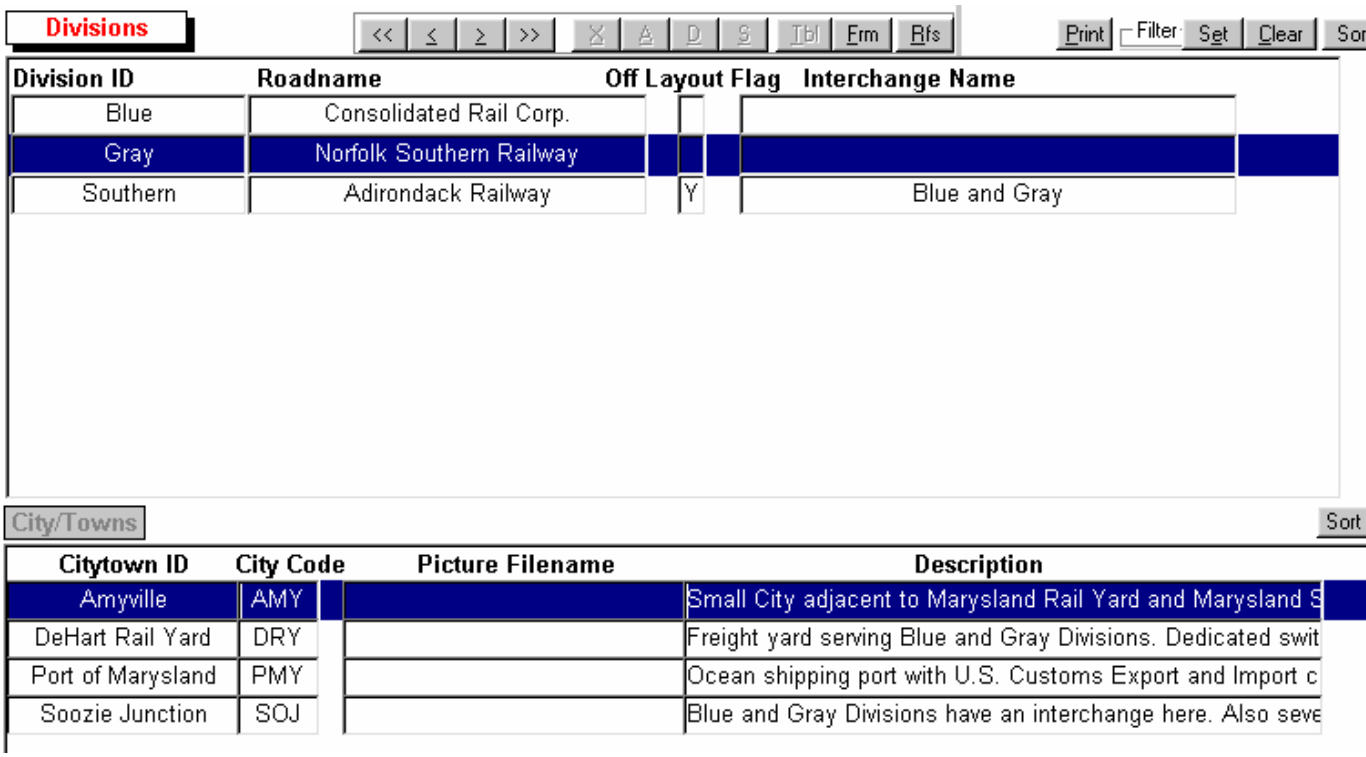


Entry of Miscellaneous Items in your World

This table manages the all other items comprising the inventory on your railroad. This could include vehicles, platforms, wiring, lighting, or other items of value that make your railroad come to life. This and the aforementioned inventory information can facilitate maintenance actions that must of us experience.

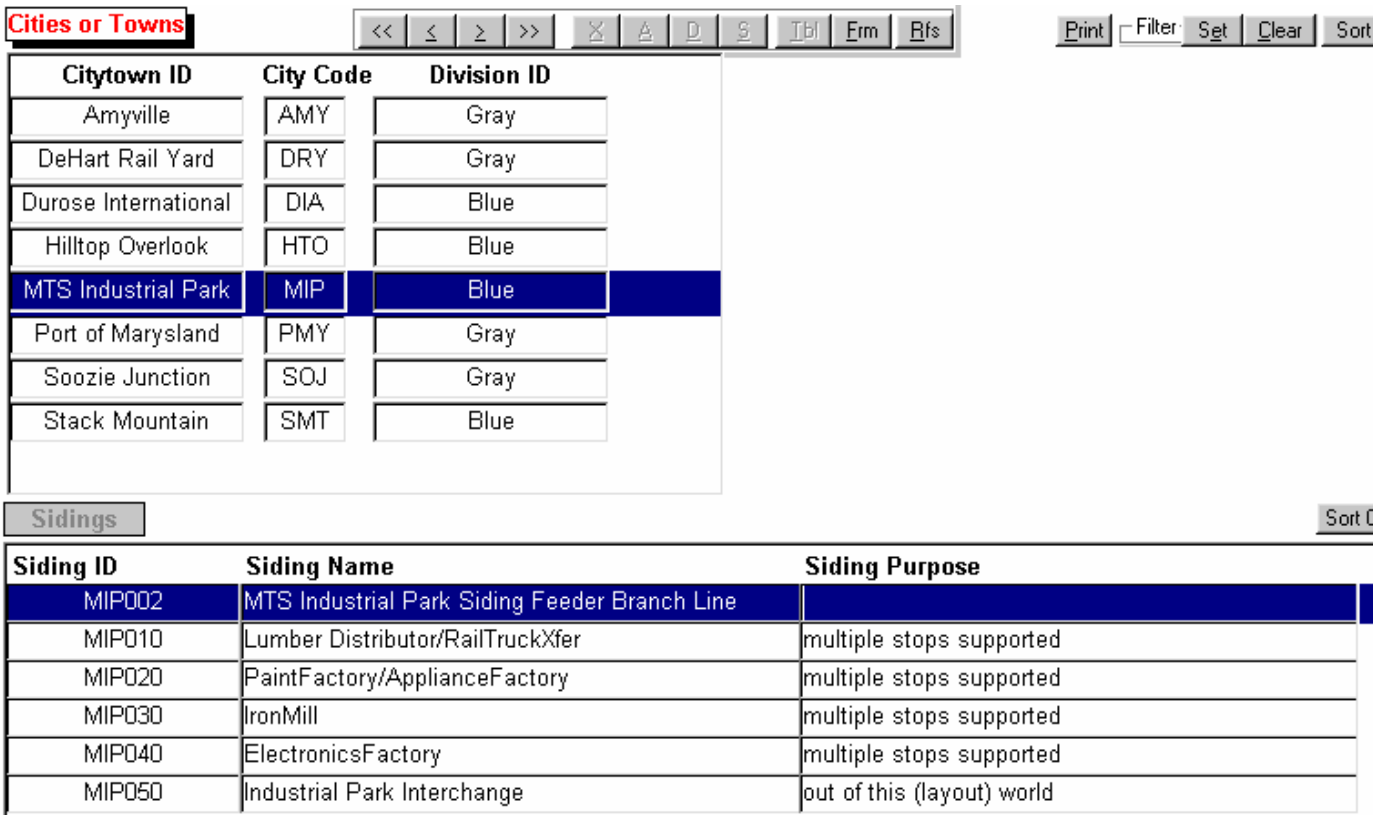
Assigning CityTowns to Division

You may assign as many CityTowns to each Division as you desire. Just don't assign the same CityTown to more than one Division. Duh! This is a non-editable, information display.



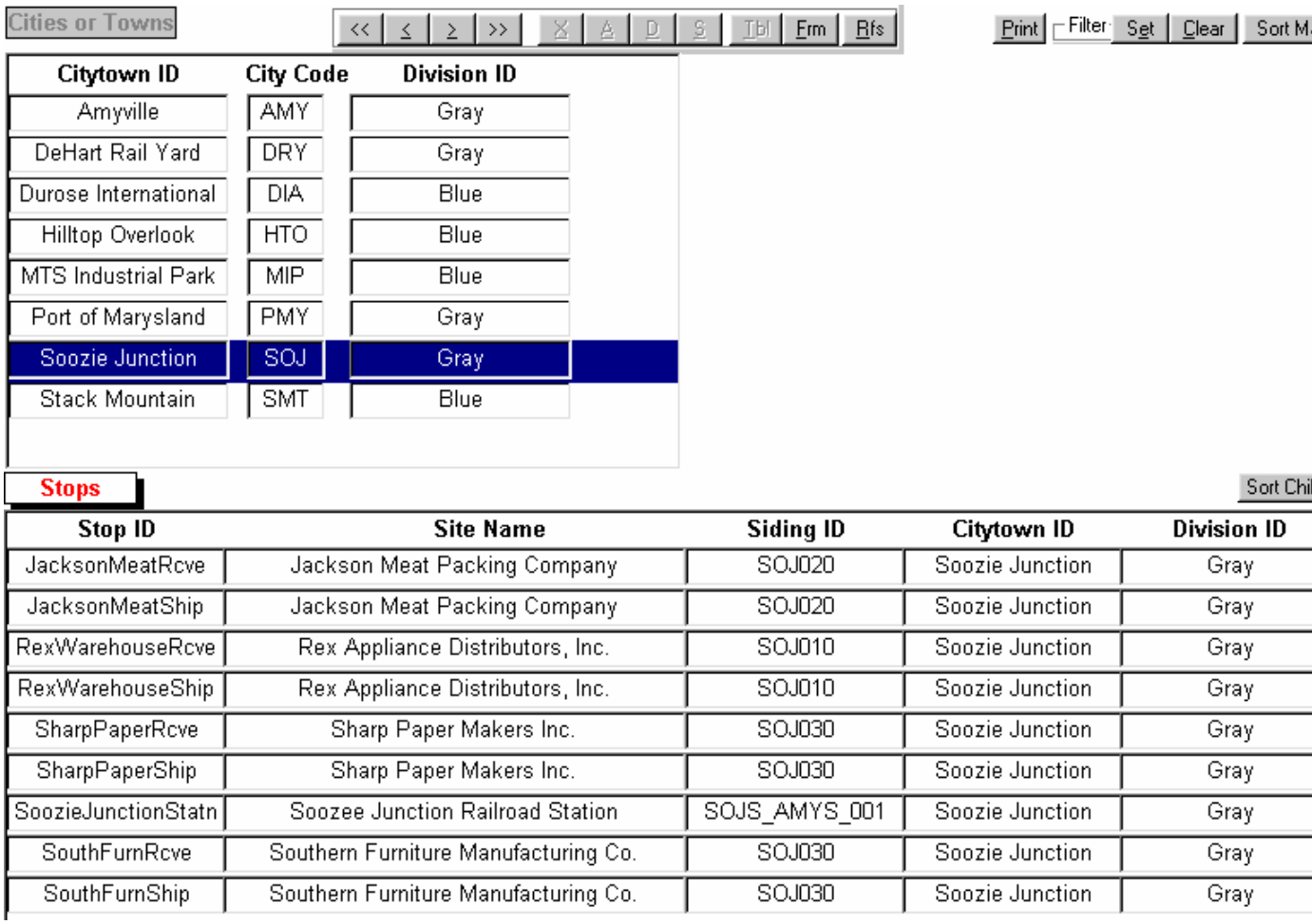
Assigning Sidings to CityTowns

You may assign as many Sidings to each CityTown as you desire. Just don't assign the same Siding to more than one CityTown. This is a non-editable, information display.



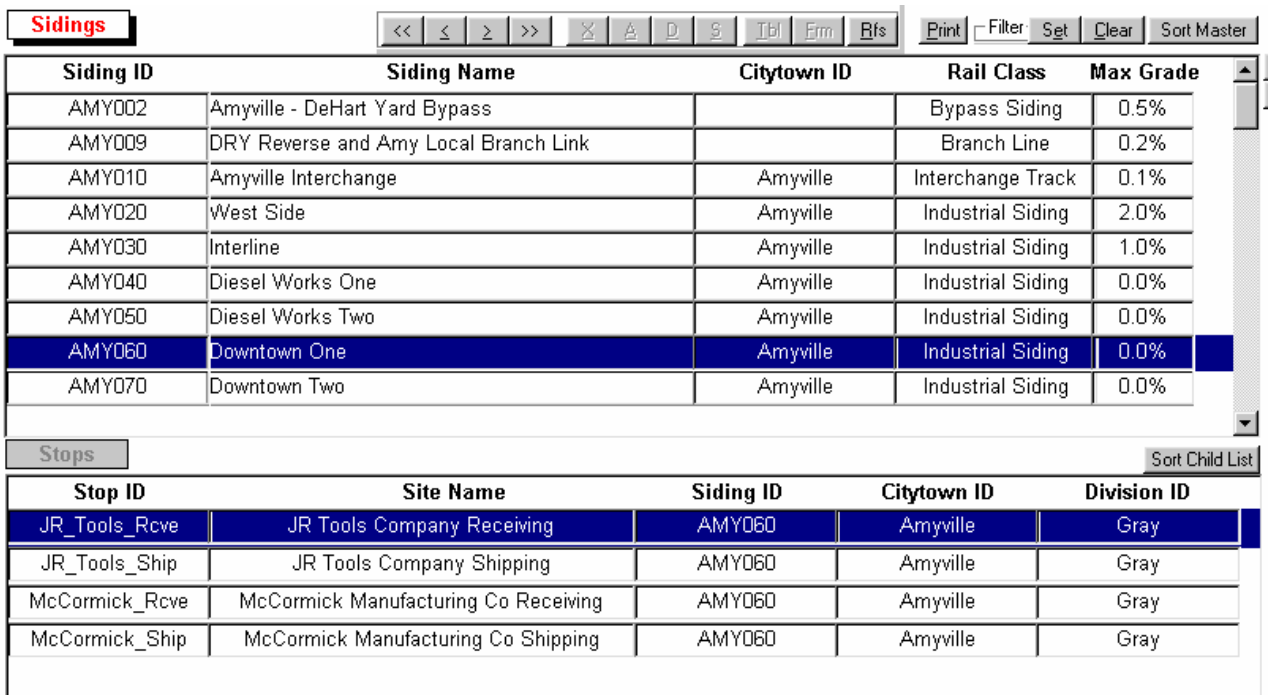
Assigning Stops to CityTowns

You may assign as many Stops to each CityTown as you desire. Just don't assign the same Stop to more than one CityTown. This is a non-editable, information display.



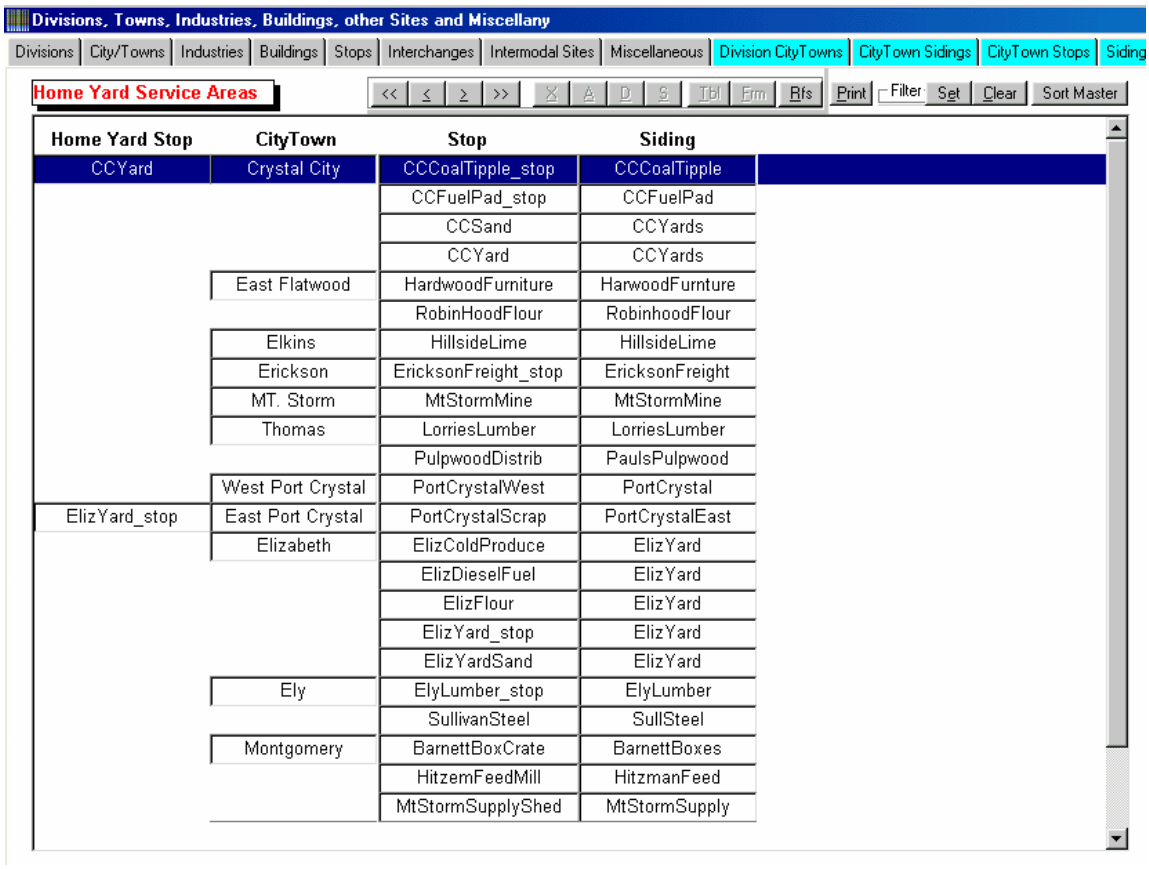
Stops per Siding

This tab page shows every stop for every siding on your railroad. This is a non-editable, information display.



Homeyard Citytowns Sidings and Stops

This non-editable display shows the CityTowns, Sidings and Stops served by each of your Yards



MRRM_Maintenance

Maintenance

Once you have entered some (or all) of your inventory information, you can begin to log maintenance actions on your railroad. This chapter shows you how to enter and track maintenance activity. MRRM come pre-configured with several maintenance types to support automatic drop-down list configurations of key information.

Types of Maintenance

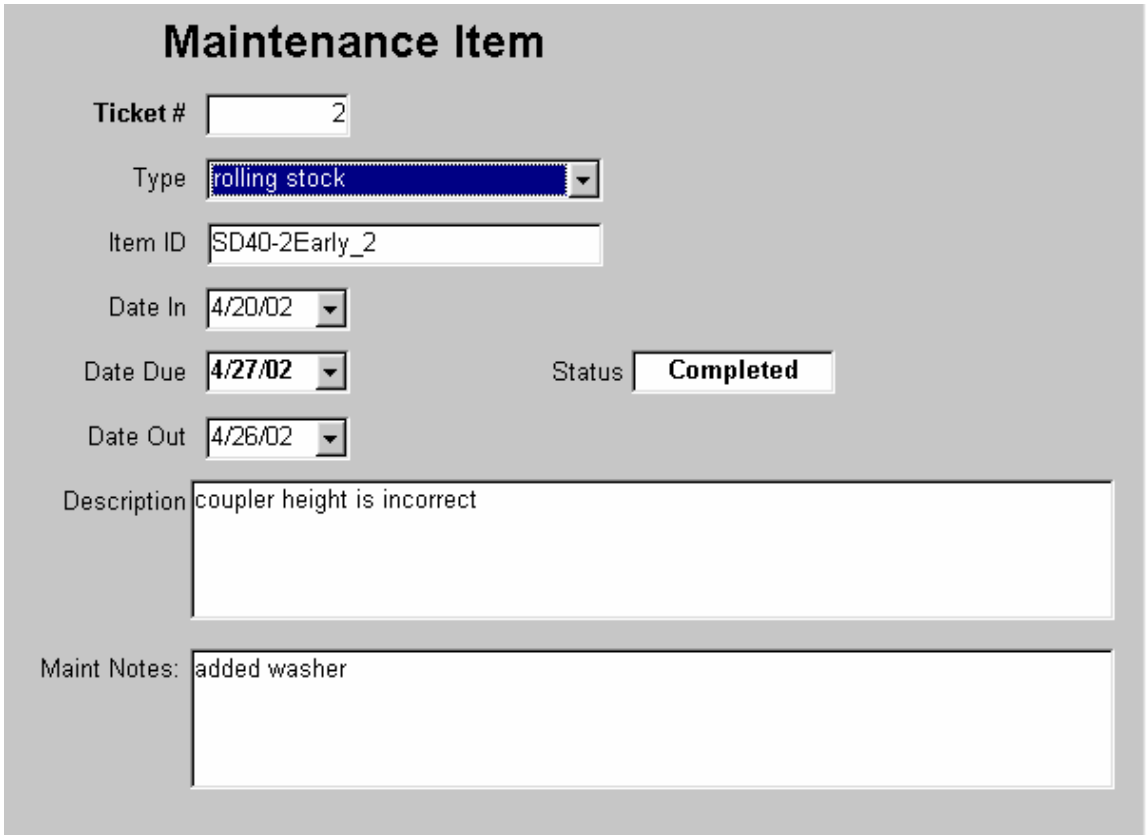
MRRM comes preloaded with several categories of maintenance that you can track.

Preloaded maintenance categories are: building, indicator, layout-miscellaneous, line-segment, rolling stock, sensor, signal, and turnout.

Maintenance Actions

For each item requiring maintenance, when you click ‘Add’, a ticket # is assigned. Next you pick the type (from the above mentioned list). A list of items from your inventory of that type are listed. Pick one! Enter ‘date in’ and the ‘date due’ for completion of the maintenance action. Describe the maintenance to be performed on the item picked. Notes can be added as desired. When the maintenance is completed, enter the ‘date out’.

Individual and summary reports can be created at any time by clicking the appropriate button.



Maintenance Log

Every time you create or update a Maintenance ‘ticket’, a log entry is located.

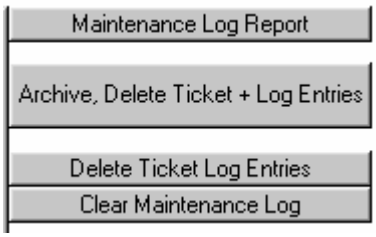
Maintenance Log

<< < > >> | Print | Filter | Set | Clear | Sort Master | Maintenance Log Report

Ticket #	Type	Item	Log ID	Date In	Date Due	Date Out	Status	Maintenance Description	Maintenance Notes
1			1/1/01 12:00:00						
	building		7/5/02 12:23:04	1/1/01	1/1/01	1/1/01		porch is falling off!	test4
		AmyvilleStation	7/5/02 12:40:01	7/1/02	7/12/02	1/1/01		porch is falling off!	test
			7/5/02 12:40:54	7/1/02	7/12/02	1/1/01		porch is falling off!	test2
2	rolling stock	SD40-2Early_2	7/5/02 12:40:34	4/20/02	4/27/02	1/1/01		coupler height is incorrect	test

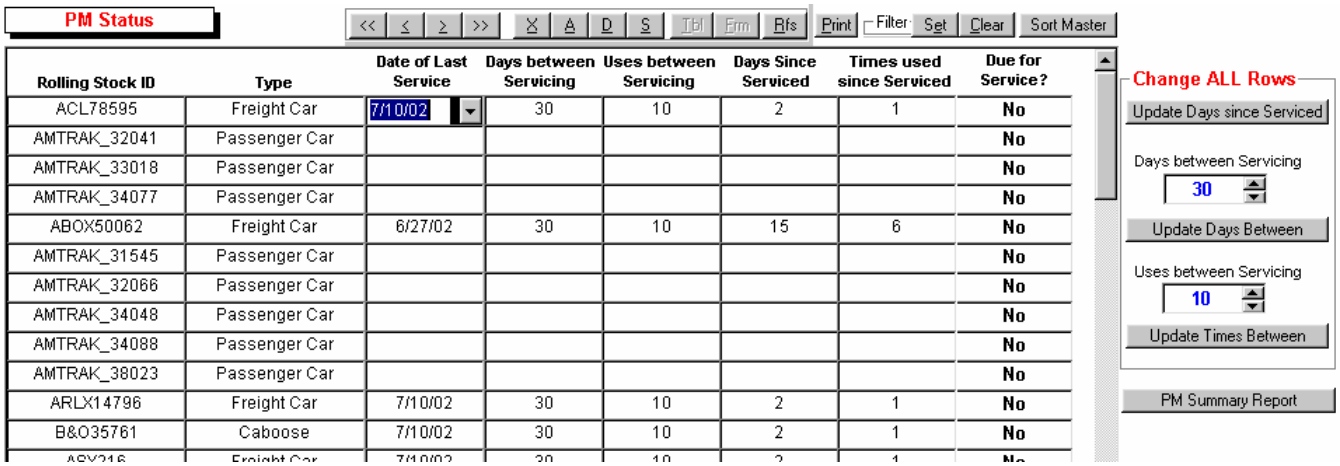
When you complete maintenance on an item you may delete the associated entries

or archive them to an external file and delete them Once archived, the data may be manipulated with a spreadsheet or other perogram to determine trends in maintenance over time.



Preventative Maintenance

For each piece of rolling stock, a Preventative Maintenance status is managed. Every time you operate your rolling stock with MRRM, a usage counter is incremented when the respective train completes its run. The data for each item is maintained in the Rolling Stock Inventory record and summarized on the following tab page.



MRRM_Industry

Industry

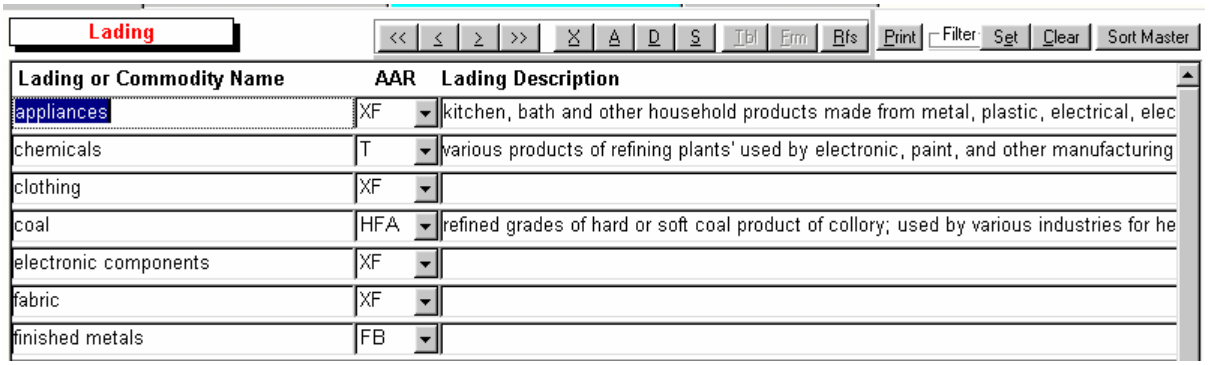
This chapter, for Users having Intermediate or Advanced skills, covers the commodities (Lading!) that your railroad transports. For each Industry on your railroad (and on foreign railroads that you intend to have interchange operations) define the commodities that each Industry buys (is a Consignee) and sells (is a Shipper). Importantly, this chapter covers creating shipments between Industries that live on (or off!) your railroad and supports multiple leg shipments where each leg

involves rail or another mode of transportation (truck,air,sea). MRRM automatically pairs up prospective buyers and sellers and lets you choose those pairs to convert into shipment actions.

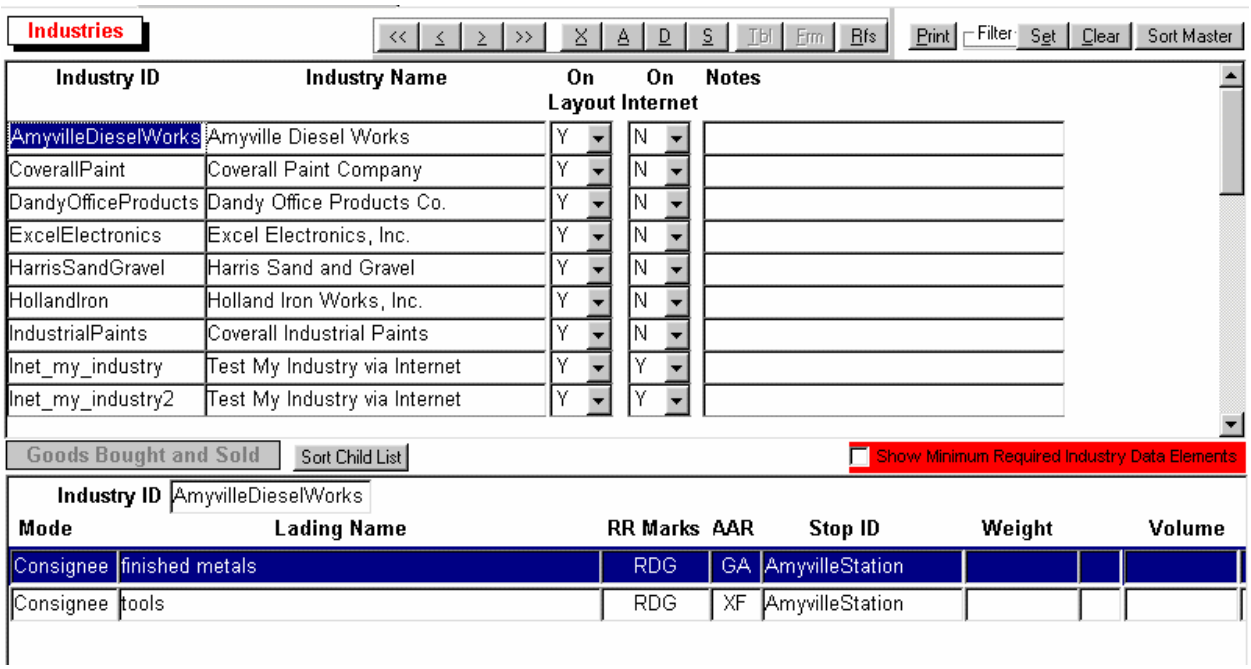
Ignore this chapter if you only serve passenger traffic

Lading Carriaged

For each commodity that your railroad will carry, enter its name and description. Select the primary rolling stock AAR code that is used to carry this lading over your railroad. When assigning rolling stock to waybills on manifests, MRRM uses this AAR code to find an empty, available rolling stock to be 'moved' to a requesting industry.



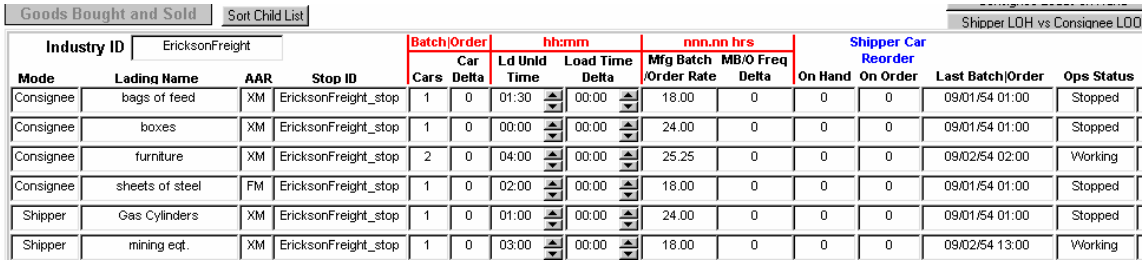
Industry Goods Bought and Sold



This table lists the Industries that live on your railroad or in the model world that you interconnect to your railroad. Primarily, we use this list to define the shippers and consignees.

Identify each Industry uniquely. A formal Industry name is suggested for reporting purposes. Indicate whether the Industry is on your layout or not on your layout. If you are using the MRRM Internet Forwarding system and this Industry is participating in this system, set the Internet flag (this is an advanced user feature so ignore it unless you are a participant.)

For each Industry you need to create a record of each commodity the Industry will buy from another Industry or sell to another Industry.



Enter the number of carloads that the Shipper manufactures per batch and the duration of the batch period. For example if the industry manufactures 2 carloads of goods every 12 hours, enter 2 under cars and 12 under Batch. If production quantities or periods vary, enter the delta variation - this is not recommended until you become familiar with the program. The load time is the hours and minutes it takes to load the cars in the batch. If the Industry to begin operations immediately, set the status to Working. Otherwise set it to Stopped. You may change an Industry activity from Stopped to Working and vice Versa at any time.

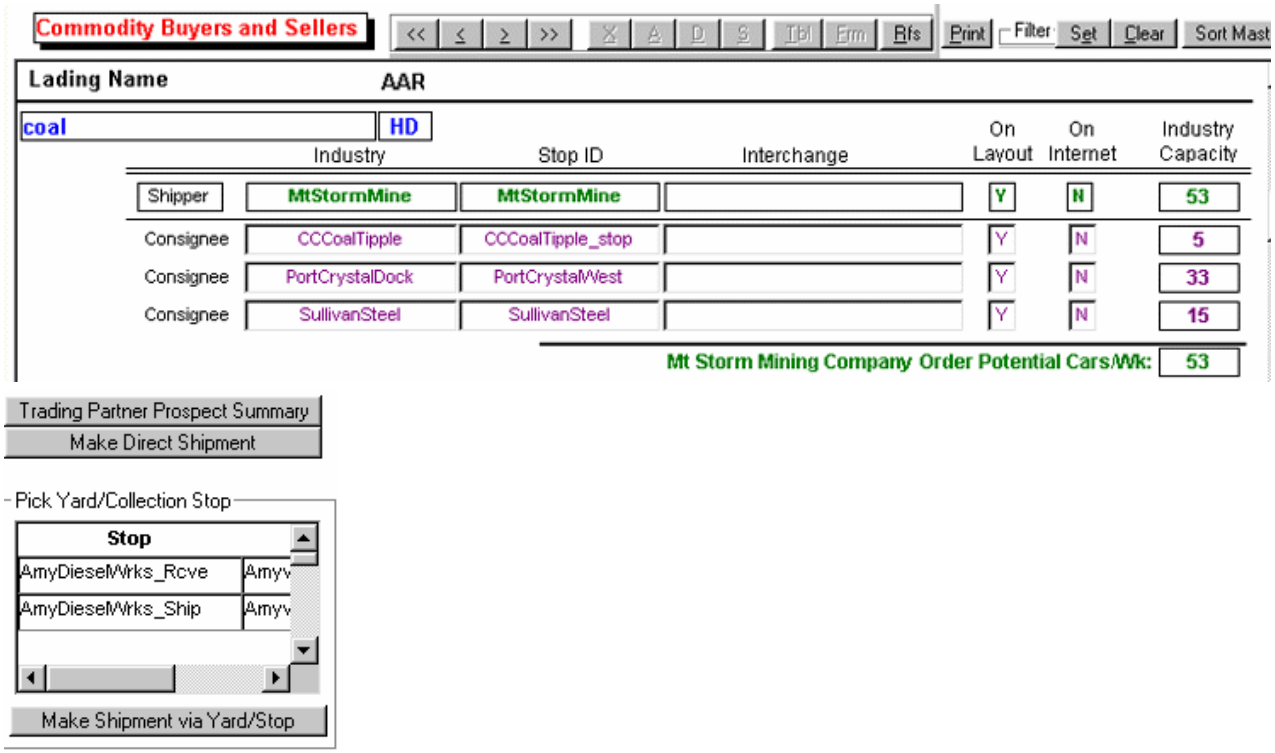
Date entry is similar for consignee or buying activities of the industry. Car loads ordered and frequency of reordering and unloading time are entered.

Uniquely for shippers, you may enter the ‘Shipper Car Reorder’ quantity. This is the number of cars that the software will attempt to keep at the shipper as loads leave the industry for yards and consignees.

The Stop ID is the point where the train will go to pickup or setout the cars. The weight per car specifies the Net Weight per car that is shipped by a shipper.

Make Shipments from Industry Partners

MRRM will automatically pair up prospective buyers and sellers using the Industry data that you created.



Weight, Volume and Cars measures comes from the Shipper's Industry data. Presumeably amounts reflect Consignee's Order quantities.

This table will list the prospective buyers and sellers and provide a command button that you can click to automatically create a simple (single leg) shipment from the seller (Shipper) to the buyer (Consignee).

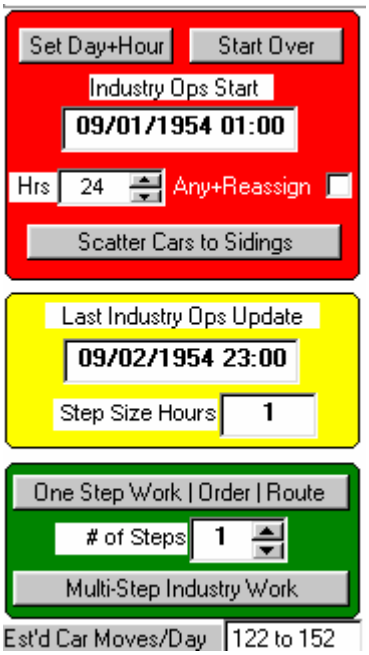
If you pickup cars from the shipper and bring them to a yard (or somewhere else)

with one train and move them from this intermediate stop to the Consignee with another train (could be the same locomotive!), select the intermediate stop point from the supplied list of stops. Then click the command button labeled Make Shipment via Yard/Stop

In this version of MRRM, the weight of the commodity specified by the Shipper is used when creating the shipment. This assumes that the Buyer/Consignee ordered this quantity from the Seller/Shipper. Once the Shipment is created, you can edit these values, however.

An advanced feature of MRRM, is the automatic generation of Industry activity followed by automatic order generation. This feature is used by serious train operations people who want to follow prototypical methods. The first step is to balance the productivity of shippers/sellers with the demands of consignees/buyers. In the screenshot above, notice that there is one shipper of coal and three buyers of coal. The quantity on the right column is the average number of carloads produced per 120 hour week by a shipper or order in the same period by a consignee of the same commodity. Your challenge is to make sure that you buy what you sell and sell what you buy. As the sample shows, the shipper produces 53 car loads of coal in a 120 hour week and the combined orders from consignees is also 53 car loads a week!

Once you get your industries balanced, you have a chance to keep you railroad running continuously from then on.



Set the date and time for the start of your Industry operations. Smell that rising smoke!

Then click the Start Over button. Previously generated shipments, waybills, manifests, schedules and switchlists will be deleted. Manually created data should

not be deleted if shipment numbers are not in the range 900000000 to 999999999.

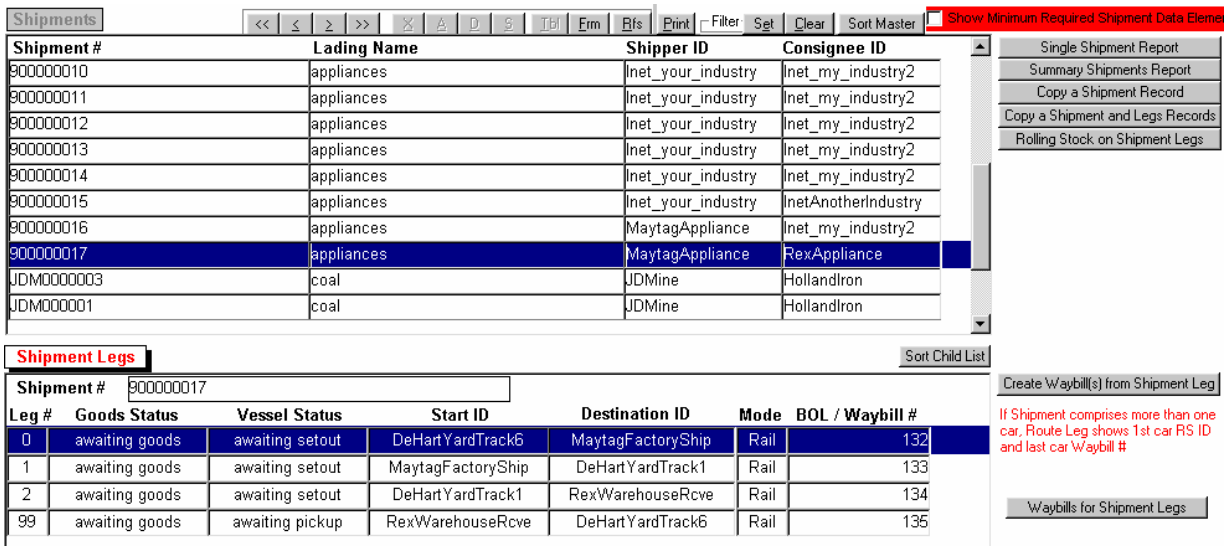
Click the scatter cars to sidings button. This will place randomly selected cars of the proper AAR type at the sidings of shippers. This step is not needed since otherwise the empties would be moved to the shippers on the first move. But some folks like to start with cars setting about the railroad and that's OK!

Now we start the motors of Industry. You can step time in increments of one hour or select a number of steps and advance time by that number of hours.

Depending on the timing of production shipper batches, consignee re-orders and cars produced or demanded, Orders will be automatically placed between buying and selling Industries.

Shipments to Consignees

Shipments are defined using two panes.



The upper pane is the Shipment summary information. The lower pane contain one record for each shipment leg that your shipment must traverse to get from the shipper's dock 'shipping dock' to the consignee's 'receiving dock'.

The selected shipment has four route legs. They are numbered 0, 1, 2, and 99.

Legs 1 and 2 were create with the make shipment using partner data discussed above. The shipment was set to go from the Shipper (Maytag) to the Consignee (Rex Warehouse) via a Yard (Dehart).

When leg 1 is highlighted and the Create Waybill(s) from Shipment Leg is clicked, the user was told that no car(s) are assigned to this shipment yet and would you like them to be found and assigned. I answered yes. This caused the special reserved leg number zero to be created and assigned one car to this shipment which is to be moved from wherever the car is currently located to the Shipper's dock as specified by the Shipper's Stop record. Two Waybills were also created by the Railroad Back Office for a future train manifests. One waybill is to move the empty, assigned car

from wherever it is to the Shipper's Stop and one waybill to move the full car (when it is full!) from the Shipper to the Yard.

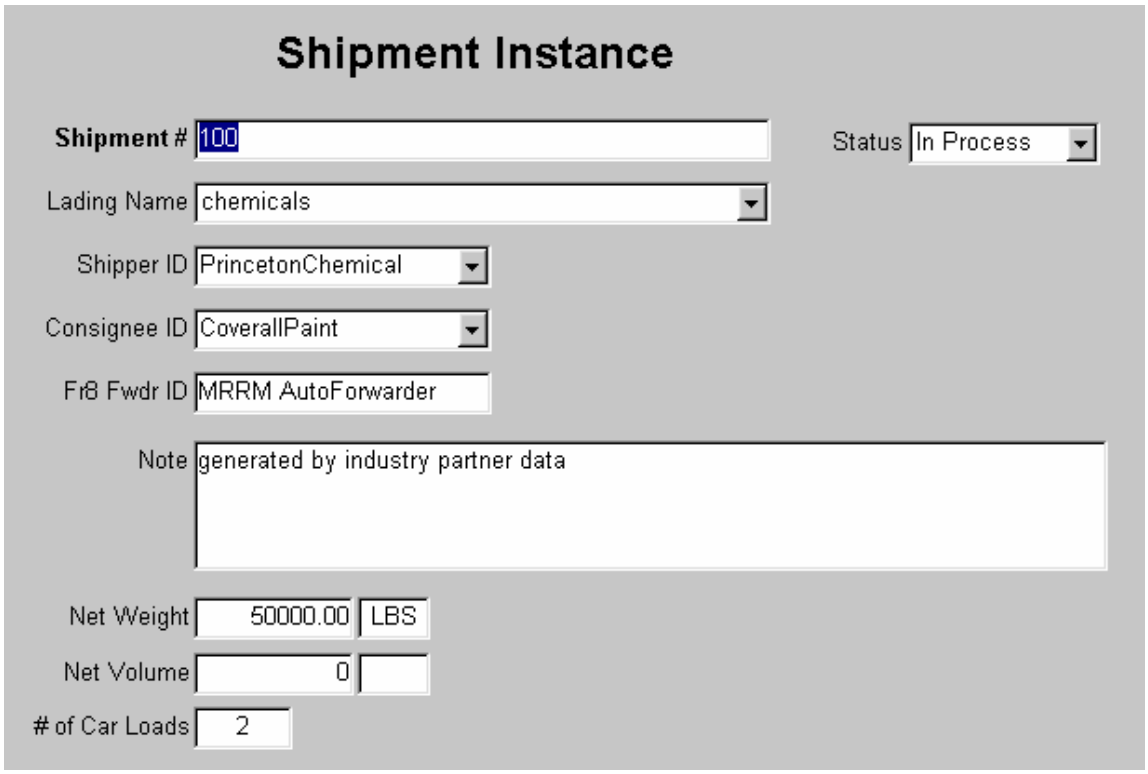
Next, copy the assigned car ID to leg 2. Then select leg 2 and click the command button again. This time you are asked if you want the car to be picked up from the Consignee stop when it is emptied and return it to its home yard. I answered yes and leg 99 was created to return the empty. A Waybill was created to move the full car from the yard to the Consignee and another Waybill was created to move the empty from the Consignee to its home yard.

If the shipment specifies that more than one car is required for a shipment, the program will assign the number of cars required if they are available. Lets say you need five cars and they are available. Then five waybills will be created to move the empty, assigned cars from their respective current locations to the Shipper. Five more waybills will be created to move the assigned cars from the Shipper to the Yard.

If the cars needed are not available, then the waybills will not be created. You can determine how many cars are available then copy the shipment and divide the needed cars and associated weight between the 2 or more shipments (like the prototype!)

In the current version of MRRM, the program will create the five waybills to move a cars from the Yard to the Consignee but the car assignment is not automatically placed in the Yard to Consignee Waybills. They must be created manually. Also manual waybills must be created to move the empties to their home yard or stop. This will be fixed in a future release.

Shipment Summary Data



The shipment number must be unique and is alphanumeric. As a suggestion, you might want to preface each shipment number with an abbreviation of the shipping company. Shipments created by the partner matching tool reserve shipment numbers beginning with 900,000,000 so please do not confuse MRRM.

Pick the lading name from your previously created lading list. Note that the lading list need not be limited to commodities bought or sold by industries on your layout produce.

Pick the shipper from the drop-down list. Similarly pick the consignee. The freight forwarder is optional for this version of MRRM.

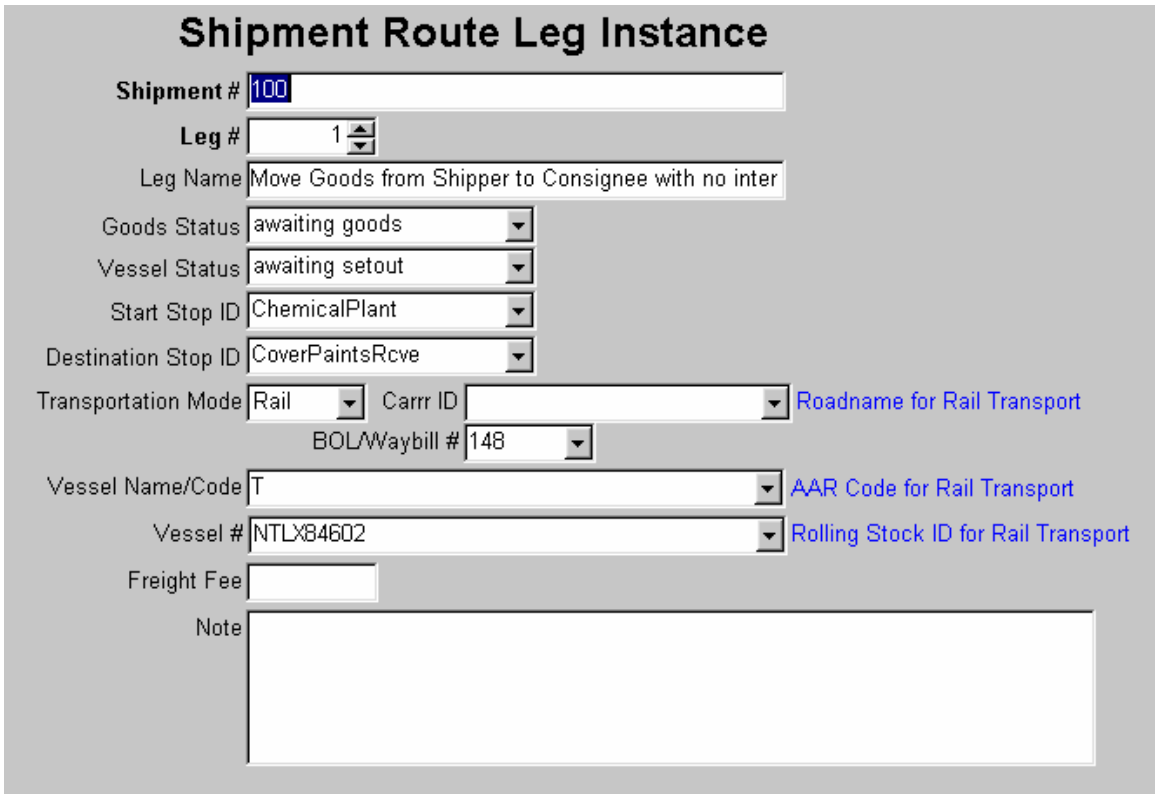
Notes are optional.

The net weight is for the entire shipment and this lading. If more than one car is specified, this weight will be divided among the cars. Only pounds (LBS) are supported in the current version.

Net volume and its measure qualifier (e.g. GAL) are not used in this version

Enter the number of cars requested for the shipment. MRRM does not use car capacity figures to determine the number of cars. When waybills are assigned to manifests, MRRM tools can tell you if you are overloading a car. MRRM will let you overload cars (like the prototype) but it may generate run time faults in the future such as an alert of a broken axle!

Shipment Leg Data



To add a shipment leg, doubleclick anywhere in the lower pane then click the Add button.

The leg is an integer. The first leg must have a value of one (1). If you create a multiple leg shipment, the leg numbers should be continuous (i.e. 1, 2, 3, 4,…)

The leg name is used to improve readability of reports.

Goods status is manually set to: ‘awaiting goods’, ‘goods on hand’, or ‘goods shipped’. Goods status value is optional in this release.

Vessel status is manually set to: ‘awaiting setout’, ‘carriage at dock’, ‘awaiting pickup’, or ‘carriage picked up’. Vessel status value is optional in this release.

Select the Stop ID for the starting point from the drop-down list. These are the stops that you defined in your inventory.

Select the Stop ID for the destination point from the drop-down list.

Pick the transportation mode from: Rail, Truck, Air, or Sea. If you are not concerned with intermodal operations, just pick ‘Rail’ for each leg.

If you want to simulate interchange operations, define a shipment which originated in one District and terminates in another District. Enter a leg that carries the commodity from its pickup stop ID to the rail head of the Interchange with the next District’s Roadname. Then add another leg that carries the commodity from the Interchange to the destination stop. (use your imagination and you can create complex real world movement activity that starts, stops, or passes through your railroad!

Pick the designated carrier for each leg based on the mode of transportation. (A trucking company if mode is truck!)

Vessel name/code and Vessel # are optional.

If transportation mode is rail, Vessel name/code is the AAR code for the rolling stock needed. If not specified, the lading will determine the AAR code for you. So, vessel name/code is optional

If transportation mode is rail, Vessel # is Rolling Stock ID assigned to a shipment.

If more than one car is needed for a shipment, Vessel name/code and Vessel # are not relevant or directly used

Freight fees are optional.

Notes are optional

If you are using the automated traffic generation features, all orders generated by your Industries will be converted by the railroad back office or freight forwarding agent to shipments. These shipments will have numbers in the range 900000000 to 99999999. They will also each be preset to a status of Pending. Also if you inspect the shipment form you will see that the Freight Forwarder for these shipments is MRRMTrafficGenerator. The next step is for your railroad back office to assign cars and associared waybills to each of these shipments.

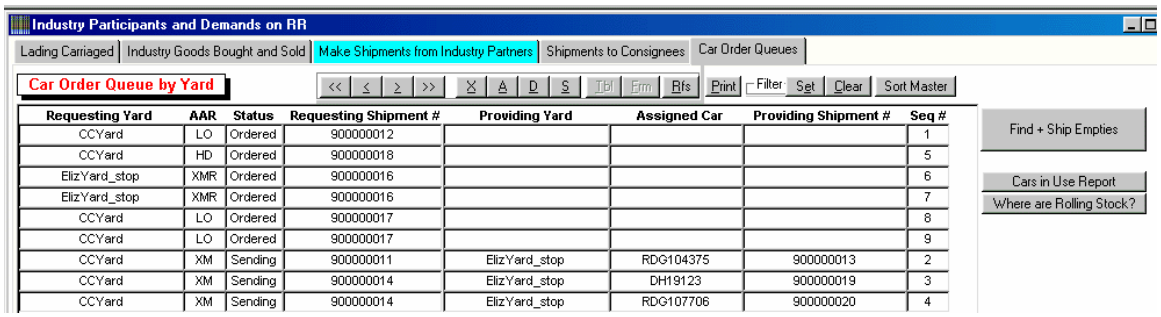
If the cars are available you will notice that MRRM added leg 0 and leg 99 to each of the shipments and changed the status to 'In Process'. Leg 0 moves the assigned cars from their current location, typically the homeyard but not necessarily so, to the shipper. Leg 99 specifies that when the consignee empties the cars that they will be picked up and brought to the nearest yard.

The MRRM Traffic Generator follows prototypical operations. Empties are provided to shippers. Full cars are picked up at the shipper and brought to the homeyard. The Full cars are assigned to a train which will take the cars to the consignees with a local train if the consignee is served by the same homeyard as the shipper. Otherwise a way freight or a manifest/fast freight will have to move the full cars to the homeyard of the consignee.

If only some of the cars needed are available, then the back office will split the shipment into 2 shipments. The first will be processed as above for the cars that are available. The remaining cars will be placed on a car order queue which other yards may fill. Shipments involving car orders have a status of ''CarOrdered.

Car Order Queue

When cars are not readily available to service a shipment, they are entered into a queue which requests cars be loaned between yards. Prototypically, we look at cars available from other yards in the same division before going outside the division for cars.



Requesting Yard	AAR	Status	Requesting Shipment #	Providing Yard	Assigned Car	Providing Shipment #	Seq #
CCYard	LO	Ordered	900000012				1
CCYard	HD	Ordered	900000018				5
ElizYard_stop	XMR	Ordered	900000016				6
ElizYard_stop	XMR	Ordered	900000016				7
CCYard	LO	Ordered	900000017				8
CCYard	LO	Ordered	900000017				9
CCYard	XM	Sending	900000011	ElizYard_stop	RDG104375	900000013	2
CCYard	XM	Sending	900000014	ElizYard_stop	DH19123	900000019	3
CCYard	XM	Sending	900000014	ElizYard_stop	RDG107706	900000020	4

When you click the Find and Ship Empties button, MRRM does exactly that. If it finds a car it creates a special shipment from the 'MRRM CarOrderReply' forwarder to move the car to the requesting yard. These shipments are handled similarly to the other shipments but when they complete, the Car Order Reply Forwarder immediately assings the cars to the requesting shipment and changes its status from 'CarOrdered' to 'In Process' and life goes on.

Yes, when empties are returned to the nearest homeyard, there is an MRRM Empty Manager forwarder which creates shipments to route the cars back to their homeyards.

Further there is a MRRM Shipper Empties forwarder that keepsd an eye on the empties levels a t all the shippers and as needed creates shipments to move new empties to the shipper.

We have not talked about Interchanges yet but you can imagine can't you?

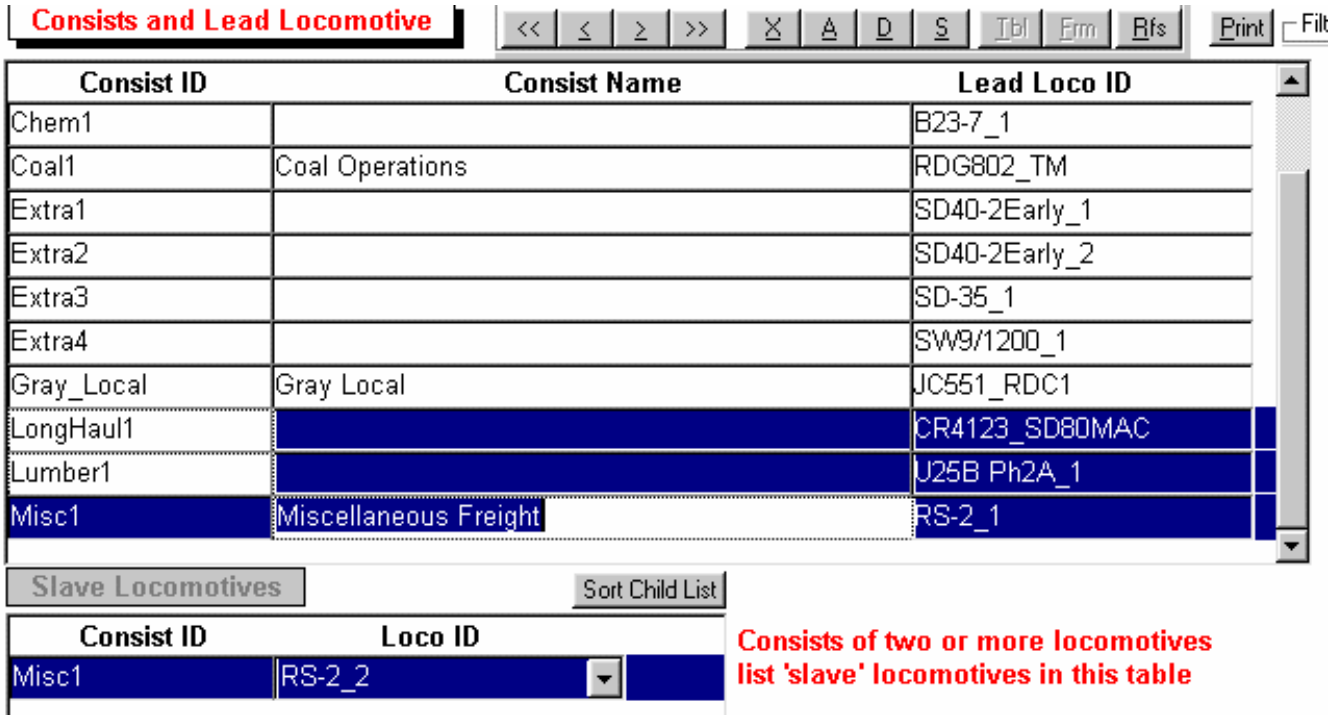
MRRM_Train_Services

Train Service Plan

For Users having Intermediate or Advanced skills, the Train Service Plan is a key to fun and games. Train categories , Scheduled and Extra Trains, Consist Locomotive Power, Stop to Stop Metrics, Schedules , Railroad Jobs and Train Crews are defined or assembled into an overall plan for your railroad. New with this version is Power on Grades under various scenarios, typically weather based or emergency based scenarios.

Locomotive Consists

A train is pulled or pushed by one or more locomotives. In MRRM, motive power is assigned by creating a consist comprising the lead locomotive ID and none, one, or more slave locomotive ID.



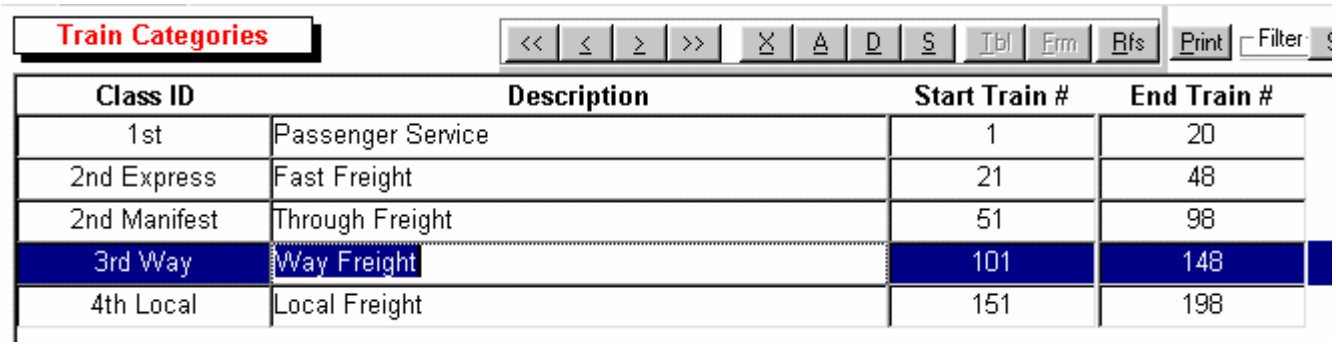
In the upper pane, create a consist ID and name. Then pick a lead locomotive from the drop-down list of locomotives in your inventory.

If your consist comprises a total of two or more locomotives, enter a record for each slave locomotive in the lower pane using the drop-down list.

To assign motive power to a train, you assign the desired consist ID to the train number.

Train Categories

These are your rules for the train classes you will run on your railroad. MRRM comes preloaded with my Classes: 1st, 2nd Express, 2nd Manifest, 3rd Way, and 4th Local.

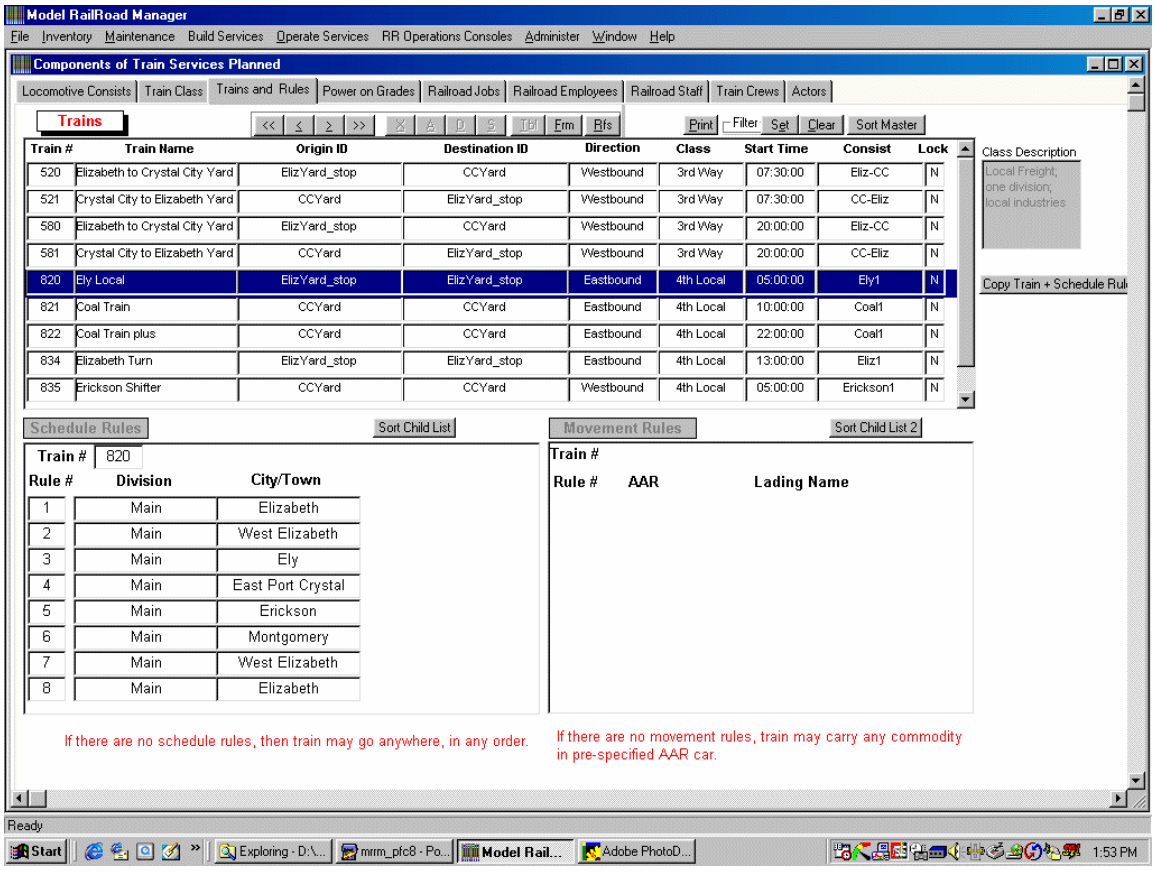


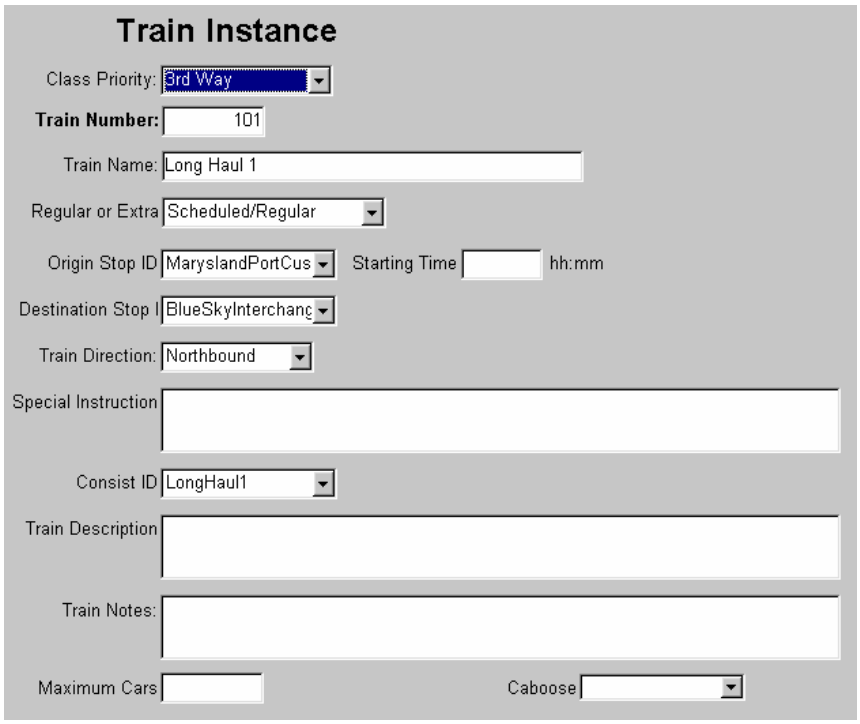
First class is reserved for Passenger Service only. 2nd Express is a fast freight. 2nd Manifest is a through freight. 3rd Way is a way freight. 4th Local is a local freight. Don't get hung up here. This will become a convenience later in your operations activities.

Trains are numbered (integers). These are NOT the numbers on the locomotives but are arbitrary numbers assigned by the railroad. For example, train number 3 is a passenger train that runs from NYC to Washington DC.

For each class, assign a number range.

Trains





Specify the train's Class from the train categories using the drop-down list.

Trains are identified by their train number. An integer, which should be assigned in accordance with your train categories. You will be warned if you violate your rules on train numbers versus type/

Give your numbered train a name such as Sunrise Special. Train numbers and names appear on schedules and other reports created with MRRM.

Again, consistent with your train categories, select whether the train is scheduled (i.e. Regular) or Extra. Extra trains are ad hoc trains that runs over your railroad. If you let inexperienced visitors to operate your railroad, defining a limited scope Extra train for them to manage may be helpful.

Define the origin and destination stop ID's for the train. A train may loop back to its starting point or not. You decide!

Special instructions are optional.

Assign motive power to this train by picking the consist ID using the drop-down list. Finally you're getting the locomotive engaged!

Train description and notes are optional.

The maximum cars value is used in this version to limit the number of cars that can be assigned to the train's manifest.

Regular/Schedule trains used with the advanced automation features of the program should not be locked. Locked means that the train can not be disassembled after it is run. Use the Lock feature for trains that you just want to run not switch.

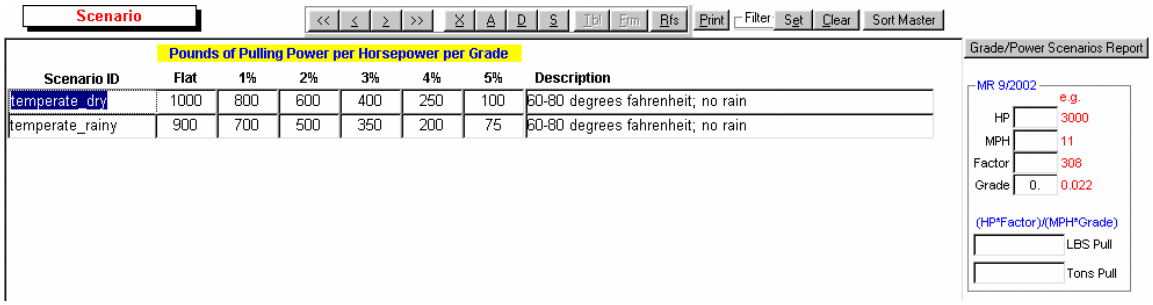
The lower left pane contains the route for a train. Currently only local trains have

routes. The route specifies that Citytowns that the train serves and the sequence of service. A typical local train would service all Citytowns in the homeyard service area and would provide for potential stops at the Citytowns on the return trip. The route should not be confused with the schedule. The route specifies the sequence of Citytowns, each with multiple Industries, that a train MAY visit. The schedule is the specific stops that a train will make based on its cargo. The schedule is constrained by the route but the schedule may not visit every Citytown every time the train runs - only when the train has business to do in the Citytown.

Remember to specify the Starting Time for your regular trains. This can be changed on the manifest if condition require but this start time is the nominal time that this train runs every day. Now you have a plan of trains you can run.

Power on Grades

With this release, we introduce weather (or other conditions e.g. accidents), grade, weight and horsepower relationships to be considered before running a train. To use this feature, simply name the scenario (e.g. normal, dry) and the pulled pounds (LBS) per horsepower for flat, 1%,2%, 3%, 4%, and 5% grades. We include the calculator shown in the September 2002 issue of Model Railroader for your convenience. Please note that this equation becomes less accurate at the grade approaches flat or 0%.



Railroad Jobs

MRRM comes pre-loaded with railroad job categories such as engineer, conductor, dispatcher, yardmaster, and so on. Add more if you want Use a few as you need to enjoy operations.

Railroad Jobs

<< < > >> X A D S Tbl Frm Rfs Print Filter

Rr Job Id	Job Description
Block Operators	control trackage without interlockings at stations in steam era
Brakeman	assists the conductor. member of crew and yard drill teams
Conductor	in charge of train. member of crew and yard drill teams
Dispatcher	controls mainline train movement. readies turnouts ahead of train. resets turnouts to n
Engineer	train driver. member of crew and yard drill teams
Fireman	stokes steam engine with coal. member of crew and yard drill teams
Flagman	a.k.a. rear brakeman. rides in caboose. member of crew and yard drill teams
Freight Agent	yardmaster role as well as freight manager
Gen-Superintendent	General Superintendent is in charge of a large railroad
Head Brakeman	rides in locomotive. member of crew and yard drill teams
Hostler	operate and prepare locomotive between engine facility and yard
Power Desk	a.k.a. roundhouse foreman. ensures apppropriate locomotives are available, ready, an
Rules Examiner	instructs all on the operating rules of the railroad
Superintendent	in charge of a railroad division
Switchman	assists yardmaster in large yards
Towerman	controls interlockings in steam era.
Trainmaster	supervises dispatchers, yardmasters, and train crews in an area within a district
Yardmaster	directs the yard drill teams

Train Crews

For each Train Number that you create, you should assign a crew.

Train Crew

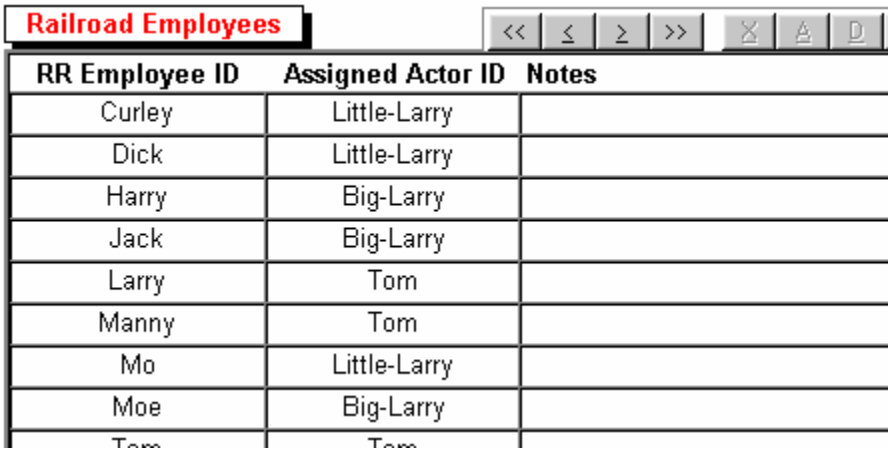
<< < > >> X A D S Tbl Frm Rf

Train #	Crew #	Job	Employee
3	1	Conductor	Curley
3	2	Engineer	Moe
3	3	Brakeman	Larry
51	1	Conductor	Harry
51	2	Engineer	Tom
51	3	Brakeman	Dick
52	1	Conductor	Jack
52	2	Engineer	Larry
52	3	Brakeman	Manny
53	1	Conductor	Jack

The crew is defined by a list of job categories as defined above and the assignment of Railroad Employees (defined earlier) to each job. The same employee may perform more than one job!

Railroad Employees and Actors

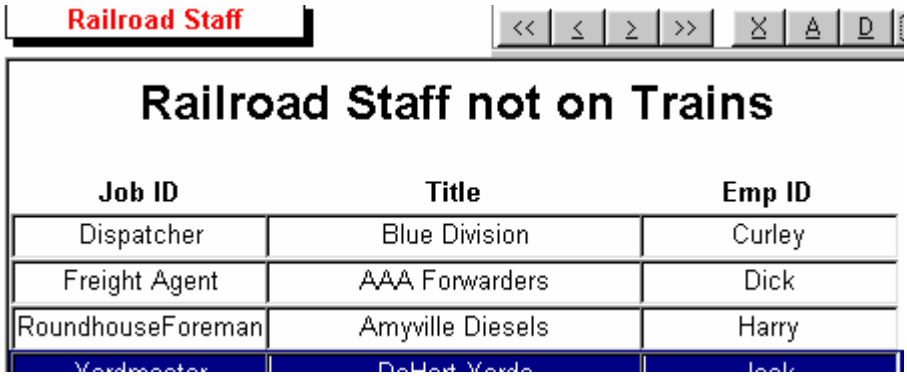
This is where you assign your Users, Club Rosters, and Visitors to act as railroad employees. The railroad employees are assigned to various railroad jobs when you build your services. These employees are fictional! The Users who act in these capacities are dependent upon who is available when you decide to operate trains on your layout.



RR Employee ID	Assigned Actor ID	Notes
Curley	Little-Larry	
Dick	Little-Larry	
Harry	Big-Larry	
Jack	Big-Larry	
Larry	Tom	
Manny	Tom	
Mo	Little-Larry	
Moe	Big-Larry	

Railroad Staff

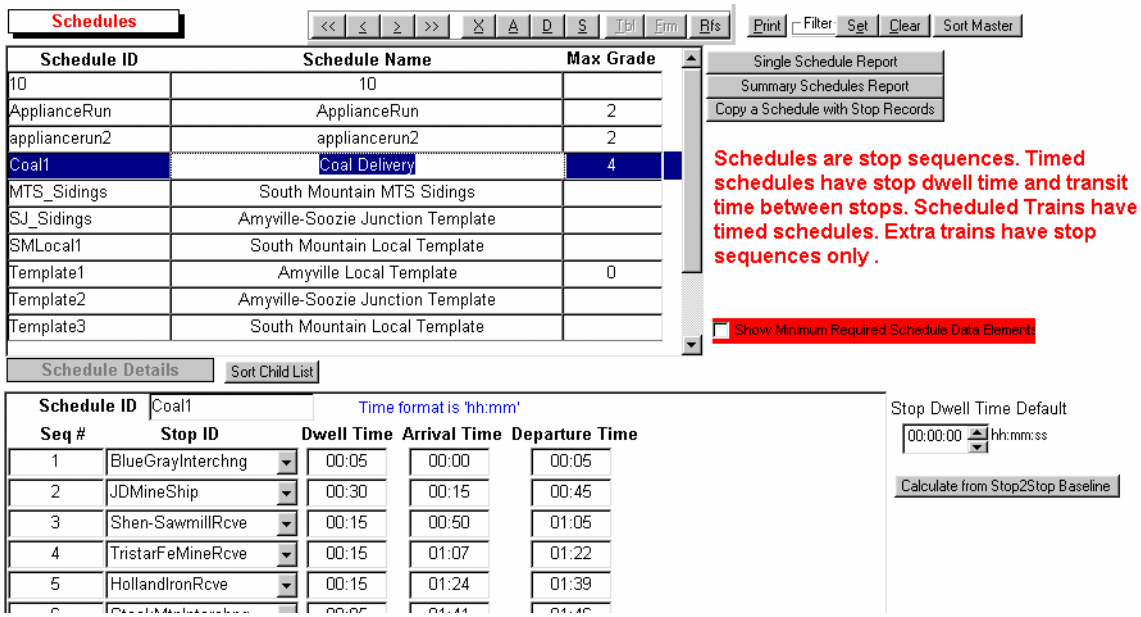
The Railroad Staff are all the other people that make your railroad run such as Dispatchers, Station Masters, Yard Masters, Roundhouse Foremen, Freight Agents and Back Office Staff that sell the carriage actions via Waybills, schedule trains and finalize the manifests for trains before they begin their run.



Job ID	Title	Emp ID
Dispatcher	Blue Division	Curley
Freight Agent	AAA Forwarders	Dick
RoundhouseForeman	Amyville Diesels	Harry

Schedules

Schedules are stop sequences. Timed schedules have stop dwell time and transit time between stops. Scheduled Trains have timed schedules. Extra trains have stop sequences only unless you want to enforce a timeline on one.



To add a schedule to your railroad plan. Click in the upper pane and click Add.

Enter a unique ID (e.g. SMLocal1) for the schedule and give it a comprehensible name (e.g. South Mountain Local). Save the entry and click in the lower pane then click Add.

The next higher sequence number is created. If this is the first stop of the schedule the sequence number is set to one. The schedule ID is automatically entered for you.

Pick a Stop ID from the drop-down list. That's it if your want schedule stop that is not on a time basis. Otherwise enter the dwell time for this stop. Dwell time is the amount of time that a train will stay at this stop before moving on to the next stop.

Set the arrival time and departure time.

Now this is a lot of work. But you can do it if you want.

Alternately you can use our automation features. Set the average dwell default and it will be used for each stop. (Stop dwell time for any stop can be changed later if desired!). Then click the 'Calculate from Stop2Stop Baseline' to compute arrival and departure times.

That's it! Your plan now contains the schedules that you will use to run your railroad.

Stop to Stop Baseline Matrix

To create realistic schedules for your trains, you must know the distance between

stops along your railroad as well as the speed that the train should average between these stops.

Stop to Stop Metrics

<< < > >> X A D S Tbl Frm Rfs Print Filte

Stop1 ID	Stop2 ID	Actual Feet	SMPH	Smiles	Fastclock	Stopwatch
AmyvilleStation	MaryslandPortStation	5.25	15.00	0.16	00:00:38	00:00:06
DIAStation	SouthMtn_Station	12.50	50.00	0.38	00:00:27	00:00:04
HilltopStation	DIAStation	21.00	50.00	0.64	00:00:45	00:00:07
JDMineShip	Shen-SawmillRcve	12.00	5.00	0.36	00:04:21	00:00:43
MaryslandPortStation	SoozieJunctionStatn	21.50	50.00	0.65	00:00:46	00:00:07

The stop to stop baseline matrix defines the rules that you impose on your railroad. You define the stops. You must measure the distance between these stops. Your define the average speed a train should maintain between these stops. (Note: you can override these speed assignments when you create your schedules using this matrix).

Stop to Stop Baseline Instance

Stop1 ID: MaryslandPortStation

Stop2 ID: SoozieJunctionStatn

Actual Feet: 21.50

Smiles: 0.65

Ave Speed Smph: 50.00

Transit Wallclock: 00:00:46 hours:minutes:seconds read on a fastclock

Transit Fasttime: 00:00:07 hours:minutes:seconds read on a normal stop watch

To add an entry pick two stops using the drop-down lists and enter (in feet) the actual distance between the stops on your railroad. Smiles will be calculated for you.

Enter the average speed in SMPH and the transit wall clock and fast clock (using the one your picked in Administration)will be computed.

Hint: You do not have to pick every possible pair of stops, just the pairs of ADJACENT stops you want to use in your scheduling. (If you have 10 stops defined on your railroad, there are (10*9)/2=45 possible pairs. On the other (more realistic) hand, you may need as few as 9 pairs for your use.)

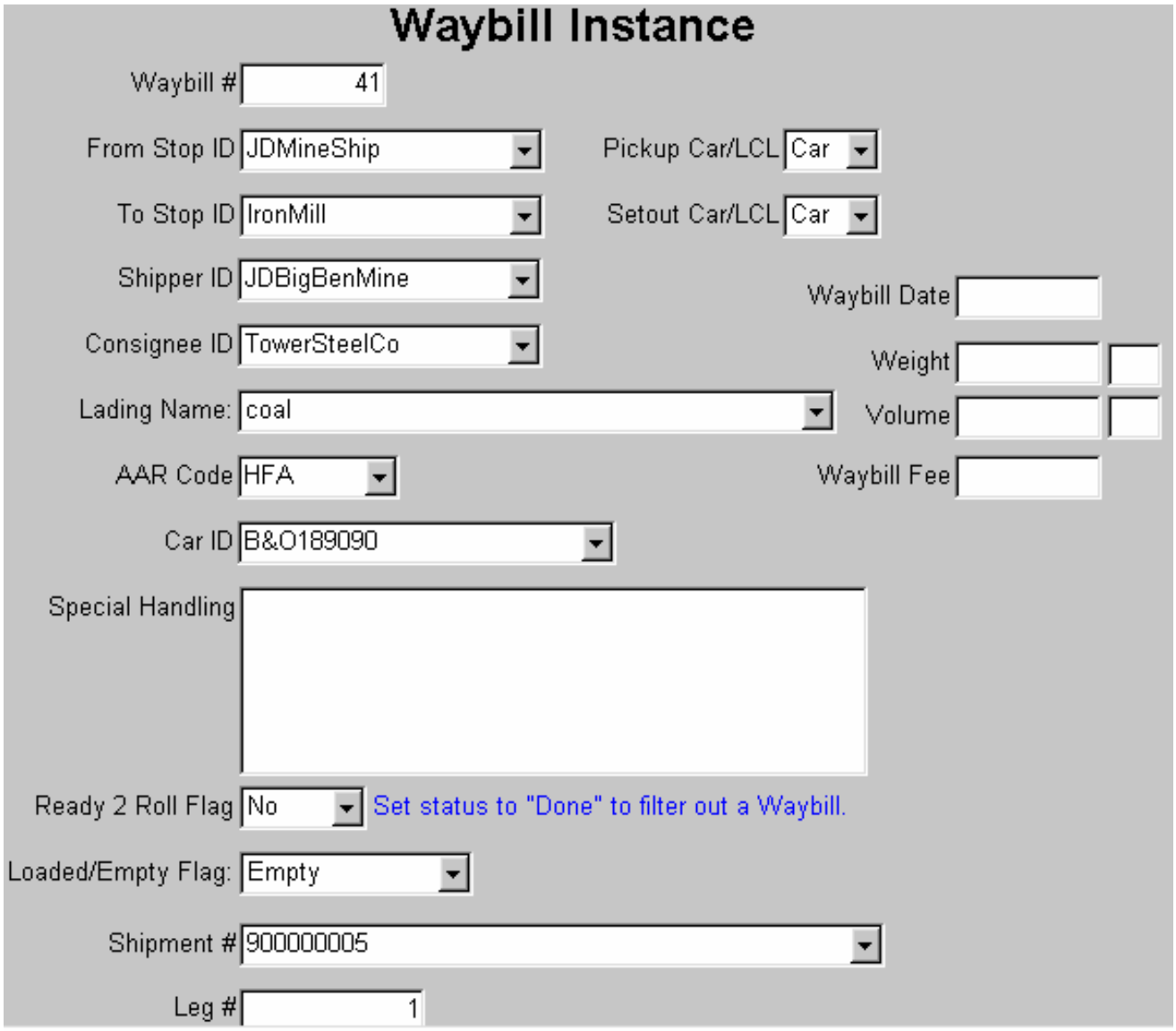
MRRM_Build_Services

Build Services

Once you have a Train Service Plan, a User having Intermediate or Advanced skills, can generate Waybills to move loaded cars (including LCL shared cars) from shippers to consignees throughout the world (via off layout and intermodal support) and empty cars to and from an industry user. Train manifests can be created for freight trains. Switchlists can be generated in a variety of easy to use schemes from truly realistic to ‘just for fun’ operations. Specific trains can be assigned to schedules in the Train Service Plan or created ad hoc!

Waybills

A waybill is a bill for moving a carriage from one place to another. Carriage may be by rail, truck, air or sea. The bill may be direct charges to customers or indirect charges to customers.



You can create waybills manually by entering the required data or automatically by using the provided buttons. First we'll explain how to create a manual waybill. Then we'll show you how to automate the process.

Add a new Waybill to the list by clicking the Add button. The next highest integer for a Waybill is automatically inserted for you.

Select the from and To stops from the provided drop-downs. Pickup and Setout Car/LCL features are not used in this release. (LCL means less than carload or less than container load).

Pick the Shipper and Consignee using the drop-downs.

Pick the Lading using its drop-down list.

Pick the AAR code for the type of rolling stock to be used.

Assign the specific rolling stock ID to be used for this Waybill. This entry can be delayed until you are ready to close the manifest and create the switchlist for the

train that the manifest is assigned.

Special handling is optional.

Set the Ready2Roll flag to: Yes, No, or Done - for now set to ‘N’.

Set the Loaded/Empty Flag to Full, Empty, Partially Filled - for now set to ‘E’.

Enter the shipment number and shipment leg number associated with this waybill. If you don’t have shipments yet, then ignore these fields.

Date, weight, volume, and fee data is optional and not used in this release.

That’s it! A lot of work I agree. But it is prototypical.

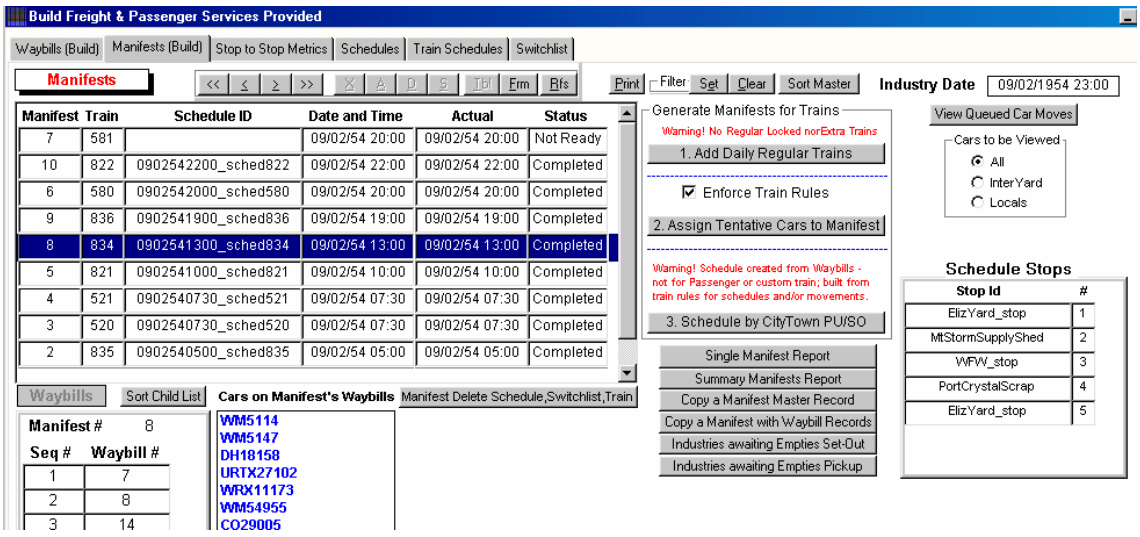
We offer some automation for you, however, if you previously created shipments with legs using rail transport.

Waybill Automation - Click the button entitled ‘Create from Shipment Leg’ after selecting the shipment leg that you want to use to create the Waybill. Car Order waybills to setout an empty car to the starting point and to pickup the empty car at the destination point can be automatically created also.

If you generated automated shipments from industry activity, then waybill are automatically created for you. No data entry is needed.

Manifests

A manifest is the list of waybills that a specific train must perform in accordance with a specific schedule. One manifest might move the empties from the yard and setout the cars at the Shipping Customer’s stop. Another train’s manifest might specify that the full car(s) be moved from the Shipper to a staging yard stop. A third manifest for yet another train might specify that the yard assembled train be run and setout the full car(s) at the Consignee’s stop.



To create a Manifest, click in the upper pane and then click the Add button. The next higher manifest integer will be automatically inserted.

Pick a train number from the drop-down list of trains that you created earlier. Pick a

schedule from the drop-down list of schedules that you created earlier or wait until you know the waybills you will be performing with this train to optimize a schedule to follow. Save this master record. The schedule is displayed for your convenience while assigning waybills/cars to the train's manifest.

Click in the lower pane then click the Add button to attach a waybill to this manifest. The manifest number and the sequence number will be automatically inserted. Use the waybill drop-down list to pick the waybill that you want to add to the manifest. A list of cars currently assigned to the manifest regardless of where/when they are picked up or set out is provided for your convenience.

Continue adding waybills until you have completed the manifest of waybills to be used. (Hint: you can reuse Waybills without constraint in this release.)

Alternately you can use the list of waybill on the lower right to select waybills them click the 'Assign a Waybill to a Manifest' button.

Unless you took care to order the waybill sequence numbers to match the stop sequence you want to use, you may have to renumber the waybill sequence to match the schedule. If you have selected a schedule you can renumber the waybills to match this schedule by clicking the 'Renumber Sequence #'s by Schedule' button. Note that if a schedule does not contain a stop that a waybill requires, that waybill will be dropped from the manifest.

To create a schedule based on the stops in your waybills as numbered, click the 'Create Schedule Stops from Manifest' button.

Warning! Schedule created from Waybills is not necessarily optimized for your layout. So after creating Schedule, you should re-sequence stops to meet your layout requirements.

If you generated automated shipments from Industry activity, use the buttons labeled 1,2 and 3 to created your manifest.

If industry time has run for 24 hours or more, you can load daily prototype manifests for each of the regular, not locked, trains that you defined earlier. The prototypes are inserted into the manifest table in reverse chronological order with the earliest manifest at the bottom of the list.

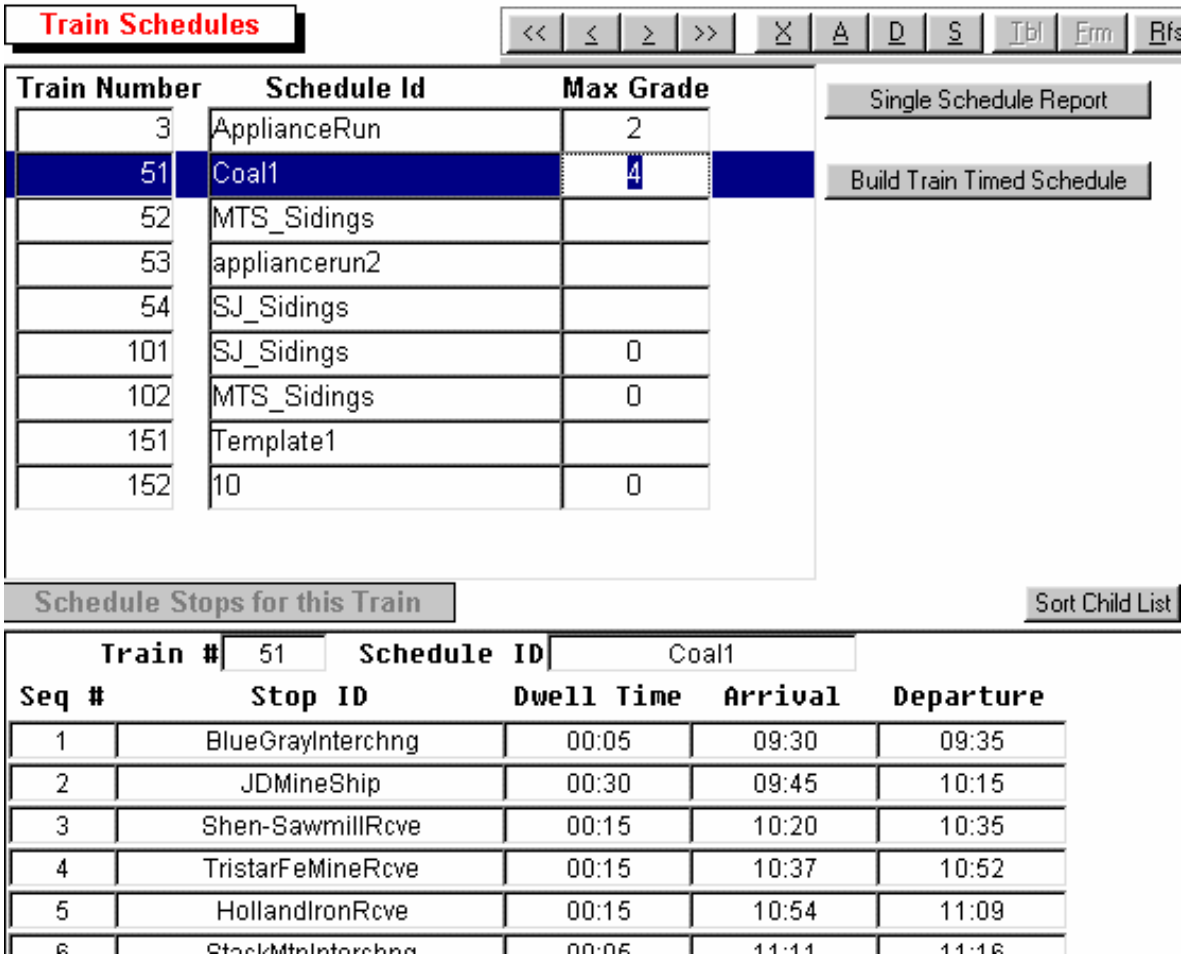
Select the earliest train on the list. If its start time is earlier than the current Industry time shown in the upper right corner of the tabpage, click button 2. All waybills which are eligible for a manifest and which begin and end at stops along the train's route will be automatically appended to the waybill list in the lower left corner of the tabpage.

Next click button 3 and the schedule of stops will be created consistent with both the train route and the waybills assigned to the manifest.

Train Schedules

A train schedule simply associates a train number (previously defined in the plan) with a schedule (previously defined in the plan). The starting time set for the train is

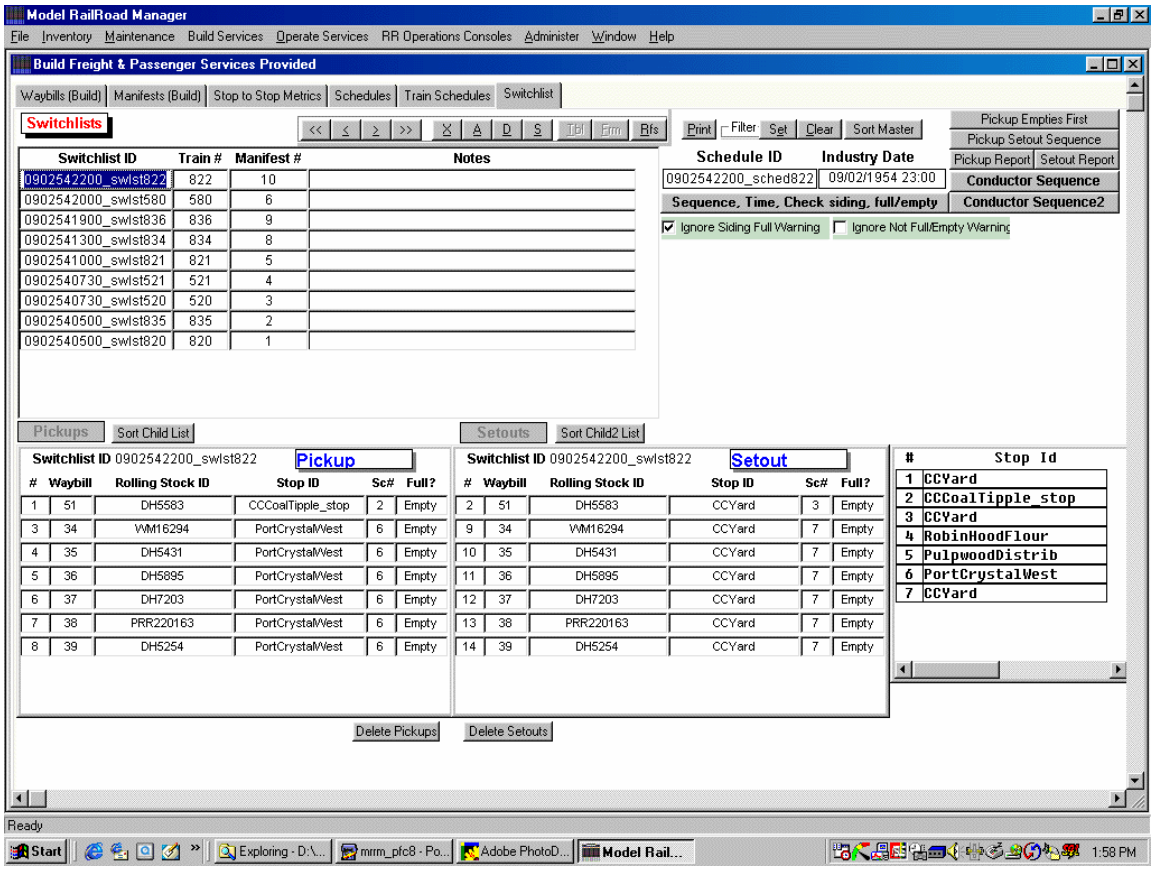
used to develop the schedule times. When you assign a train and a schedule to a manifest, a train schedule is automatically defined. This tab page allows you to refine the timing of the stops defined for the schedule prototype previously selected.



If you created the basic and the train schedules using buttons 1,2 and 3 on the manifest tabpage, then the schedule master data already exists. You just need to finalize the dwell time and, if desired the distance traveled time. The default is just use the default dwell time and click the 'Reset Schedule Times' on the Baseline Schedule tabpage. Then go to the Train Schedule tabpage and click the 'Build Train Timed Schedule' button for the schedule.

Switchlists for Trains

A Switchlist is more than the list of rolling stock to move about. A Switchlist identifies the train that is to do work by train number, type, class, origin, final destination, direction, and consist. The crew to do the work. And, the work required as specified by the waybills to be performed.



With MRRM you can manually create a Switchlist or use one of our automation assists.

To manually create a Switchlist, click in the upper pane and then click the Add button. Select a Train # from the drop-down list.

If you are using Manifests you may choose to manually enter it now or wait and enter it automatically using the feature described below.

Notes are optional.

To manually add a Switchlist detail row, click in the lower pane then click on the Add button. The Switchlist ID and the next sequence number are automatically inserted for you. If you have waybills, pick one from the drop down list. If not pick a rolling stock from its drop-down list and then pick a From and a To stop ID using the drop-down lists.

If you use the automated assists, do not proceed to entering rows into the lower pane. Instead move the ‘Radio’ button on the right to the type of automation you choose to use.

The automated Switchlist assists are: from Manifest, from Waybill-Cars Arriving, from Waybill Cars departing, from Random Waybills, and from Random Cars. You may use any combination.

Switchlist from Manifest is the most realistic in a prototypical sense. The manifest, if properly constructed has a logical schedule, possible with a timetable, of Waybills to perform. If you select this option(via the ‘radio’ button, a list of manifest will appear in

the lower right pane on the tabpage. Pick the manifest you want to use then click the ‘Create Switchlist from selected row’ button. The Switchlist will be immediately created.

As a shortcut, you can pick the manifest number from the drop down list in the upper pane. This results in all the waybill actions assigned to the manifest to be entered into their respective positions on the Switchlist.

Switchlists from Waybill-Cars arriving or departing are similar. There is a wildcard filter built into these two mode. (% is the wildcard character) If you use the same prefix, for example, on the sidings where you want a Switchlist, like in a Yard, use that prefix with the wildcard (e.g. DRY%) . In this example only the cars on waybills arriving or departing any of the Dehart Yard will be listed for your picking.

Switchlist from Random Waybills is not realistic but is pragmatic. When the associated ‘radio’ button is clicked, a list of waybills appears in a pane in the lower right corner of the tabpage. You can select multiple waybills from this list and they will added to the Switchlist.

Switchlist from Random Cars is unrealistic but is easy and fun. When you click thi associated ‘radio’ button, a list of Rolling Stock appears in the pane in the lower right of the tabpage. You may select multiple rows and have them added to the Switchlist. Note that no Waybills need exist to use this feature.

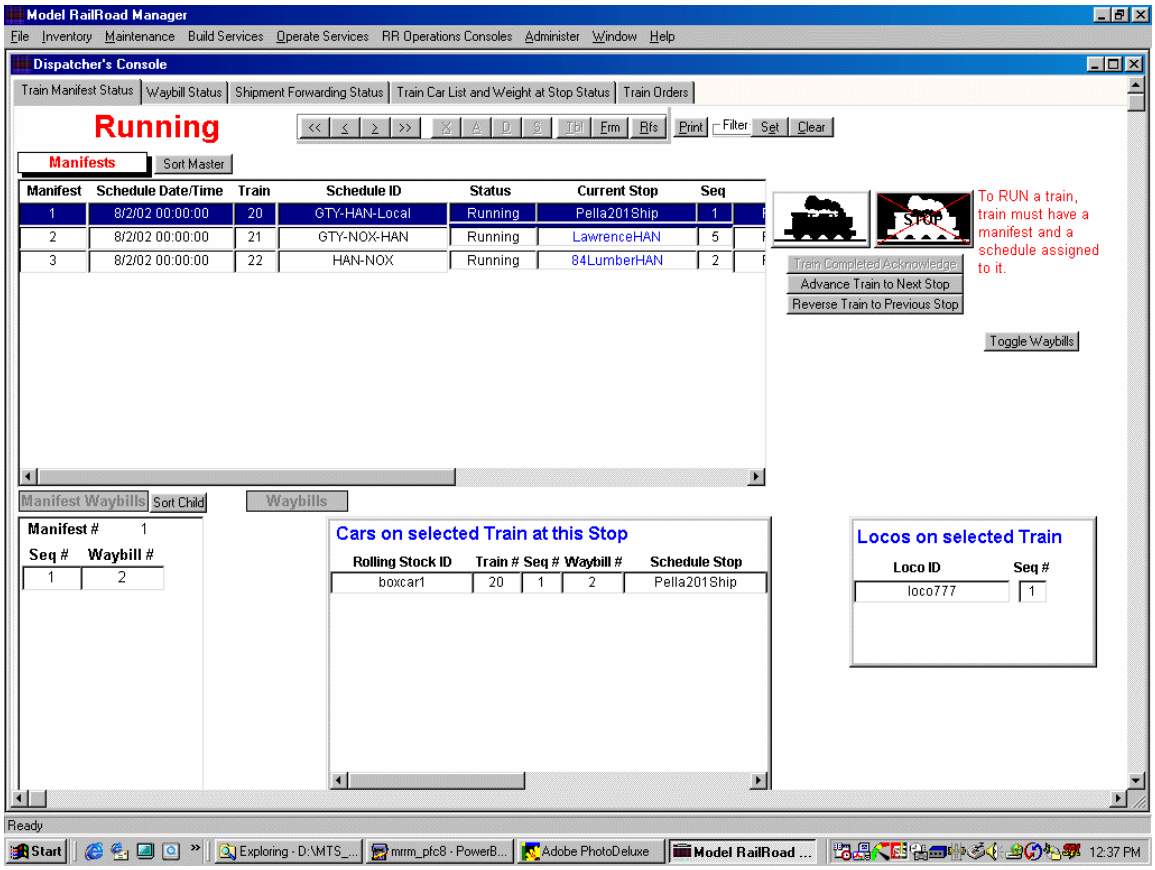
If you generated shipments from Industry activity amd created a manifest and schedule, then a switchlist prototype was automatically generated for you. Simply pick the manifest for the switchlist from the drop down list. Then, click the ‘Sequence, Time, Check siding, full.empty’ button to finalize the switchlist.

MRRM_Operate_Trains

Operate Introduction

MRRM can improve your train operations by concurrently tracking the projected and current status of all trains, their schedules, manifests, waybills, weight/horsepower, weather/grade, siding space, and cars at stop status. You can manage trains now running or about to be run.

Train Manifest Status



You can run trains as long as they have a schedule of stops and a manifest - even if there are no waybills/cars assigned. You can run as many trains at a time as you want. Trains will be ready2roll if all waybills on the associated manifest are ready2roll. If a train's status is ready2roll, click the command button with the icon of a locomotive and the train status will change to 'running'. Click the 'Advance Train to next stop' command button to move the train to its first stop (the Starting point 'stop'). The locomotives comprising the consist will be listed. If there are any cars on the train at the first stop, they will be listed. The name of the first stop will appear. Text color will be green at the first stop.

Click the 'Advance Train to next stop' command button to move the train to its next stop. Cars setout at his stop will be dropped from the list. Cars picked up at this stop will be added to the list. If this is not the last stop on the schedule, the stop name text color will be blue. If train is at the last stop. Text color of the stop name will be red. Also, at the last stop, the 'Train Completed Acknowledge' command button will be enabled. If the button is clicked, the train's manifest status will change to complete and the locomotive will be unassigned. Preventative maintenance usage counts for locomotives, and cars on waybills of a completed manifest will be incremented.

Waybill Status

If last minute changes to a Waybill are needed, you can make the changes here. Changes will be logged for each waybill. You can review the history of changes to

each waybill, by clicking the ‘View Waybill Action Log ’ command button.

Waybill Status Editor

<< < > >> X A D S Tbl Frm Rfs Print Filter Set Clear Sort Master

Waybill #	Rolling Stock ID	From Stop ID	To Stop ID	Ready2Roll Flag	LoadedEmpty Flag	Waybill Date	Lading
1	boxcar1	RyanHANrcve	Pella201Ship	Yes	Empty		building supplies
2	boxcar1	Pella201Ship	RyanHANrcve	Yes	Full		building supplies
3	boxcar1	RyanHANrcve	Pella201Ship	No	Empty		building supplies
4	lumber303	84LumberHAN	84LumberHAN	No	Empty		lumber
5	lumber303	84LumberHAN	RyanHANrcve	Yes	Empty		lumber
6	lumber303	RyanHANrcve	Pella201Ship	Yes	Empty		lumber
7	boxcar4	84LumberNox	LawrenceHAN	No	Empty		clothing
8	boxcar3	84LumberNox	LawrenceHAN	No	Empty		clothing

Shipment Forwarding Status

A customer wants to know the current status of a shipment. When will the empties be delivered to the Shipper’s stop? When will the full cars be picked up from the Shipper’s dock? Are the full cars still in the yard? The Consignee has emptied the cars, what train will be assigned the job of picking up the empties from the Consignee’s dock and returning each of them to their proper next stop or home stop?

Your railroad should be able to answer any of these and other questions at any time just as we expect from the prototype! The Shipment Forwarding Status keeps track of the status of each leg of a multiple-leg shipment - which typically involve many trains each run in sequence possibly over several ‘days’ of railroading.

Shipment by Status

<< < > >> X A D S Tbl Frm Rfs Print Filter Set Clear Sort Master

Shipment #	Status	Shipper ID	Consignee ID	Lading Name
900000001	In Process	PellaWindows	Ryan Builders	building supplies
900000002	In Process	84LumberNOX	Ryan Builders	lumber
900000003	Pending	84LumberHan	Ryan Builders	building supplies
test	Pending	PellaWindows	Ryan Builders	clothing

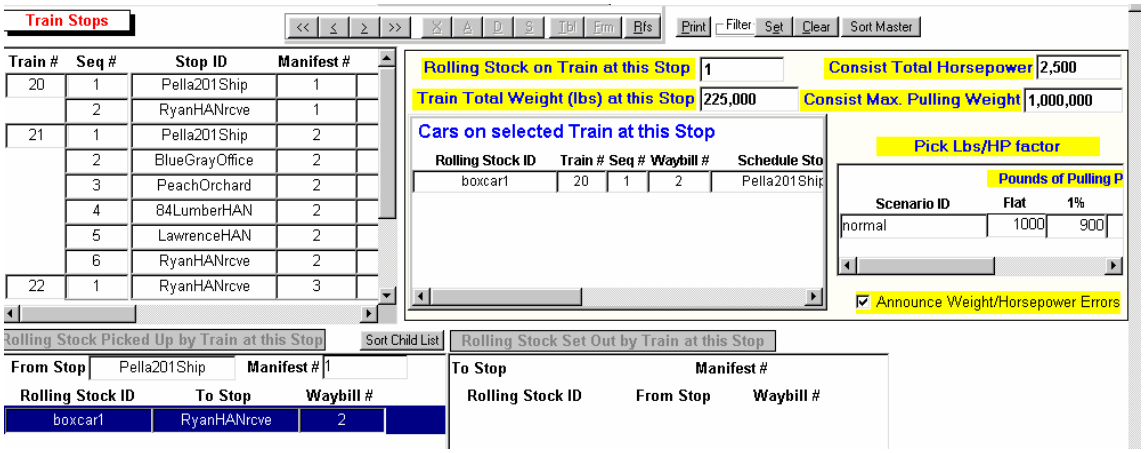
Movement Sequence and Status — Sort Child List

Shipment # 900000001

#	Waybill #	Rolling Stock ID	From Stop ID	To Stop ID	Ready2Roll Flag	LoadedEmpty Flag	Waybill Date	Waybill Fee
0	1	boxcar1	RyanHANrcve	Pella201Ship	Done	Empty	8/9/02	
1	2	boxcar1	Pella201Ship	RyanHANrcve	Yes	Full		
99	3	boxcar1	RyanHANrcve	Pella201Ship	No	Empty		

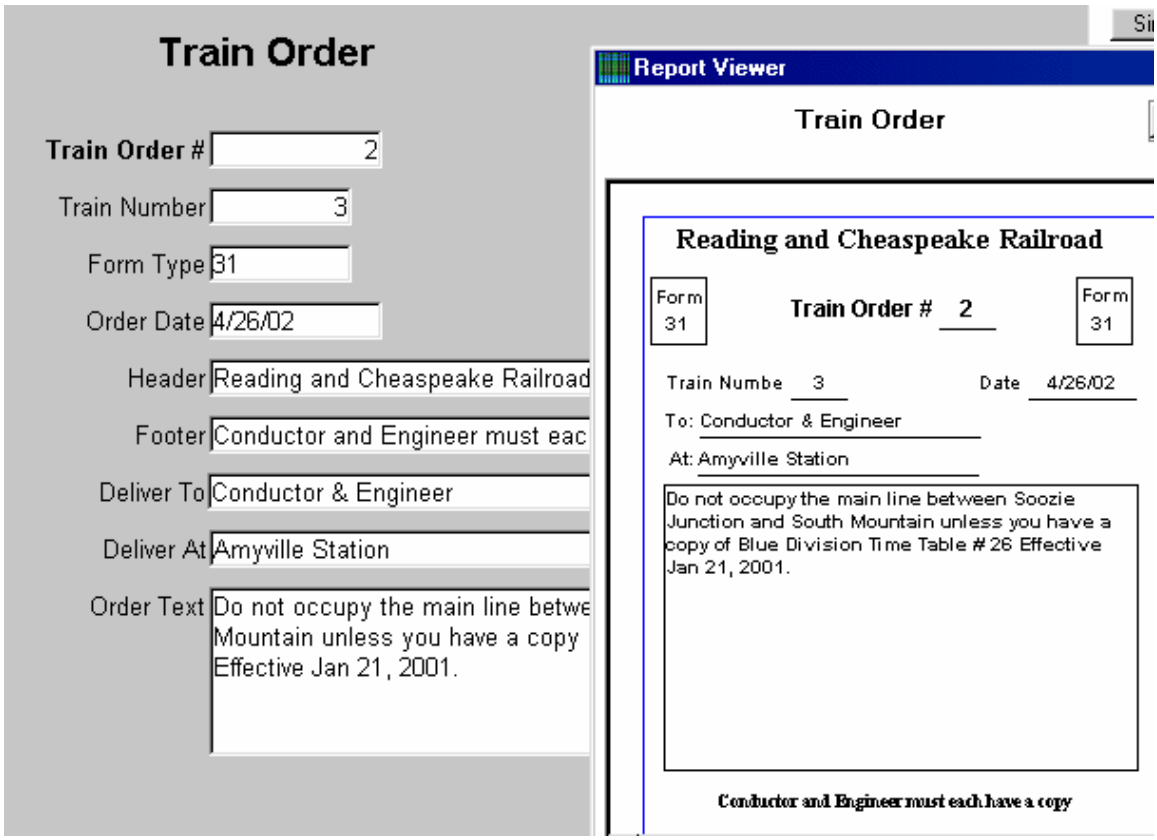
Train Car List and Weight at Stop Status

Before a train is run, the dispatcher, conductor, roundhouse foreman and yard master may want to ‘dry run ’ the train. This tab page allows you to step the train through its schedule and manifest. The dynamically changing weight of the total train can be observed. The horsepower of a multiple engine consist versus the weather/grade/ condition scenario can be observed to see if adequate horsepower is available.



Train Order

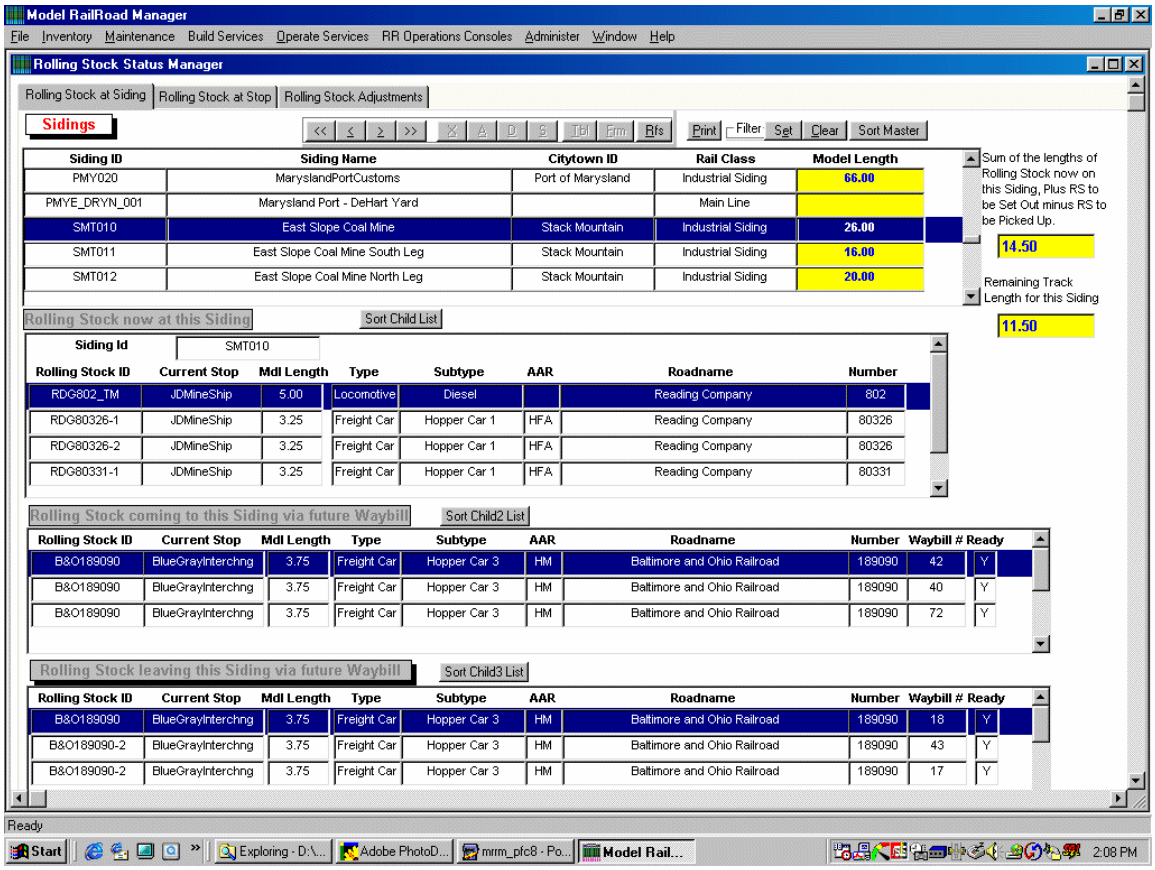
Train Orders can be issued by the Dispatcher to a Train Conductor, Engineer or others at any time during operations.



MRRM_Operate_Rolling_Stock

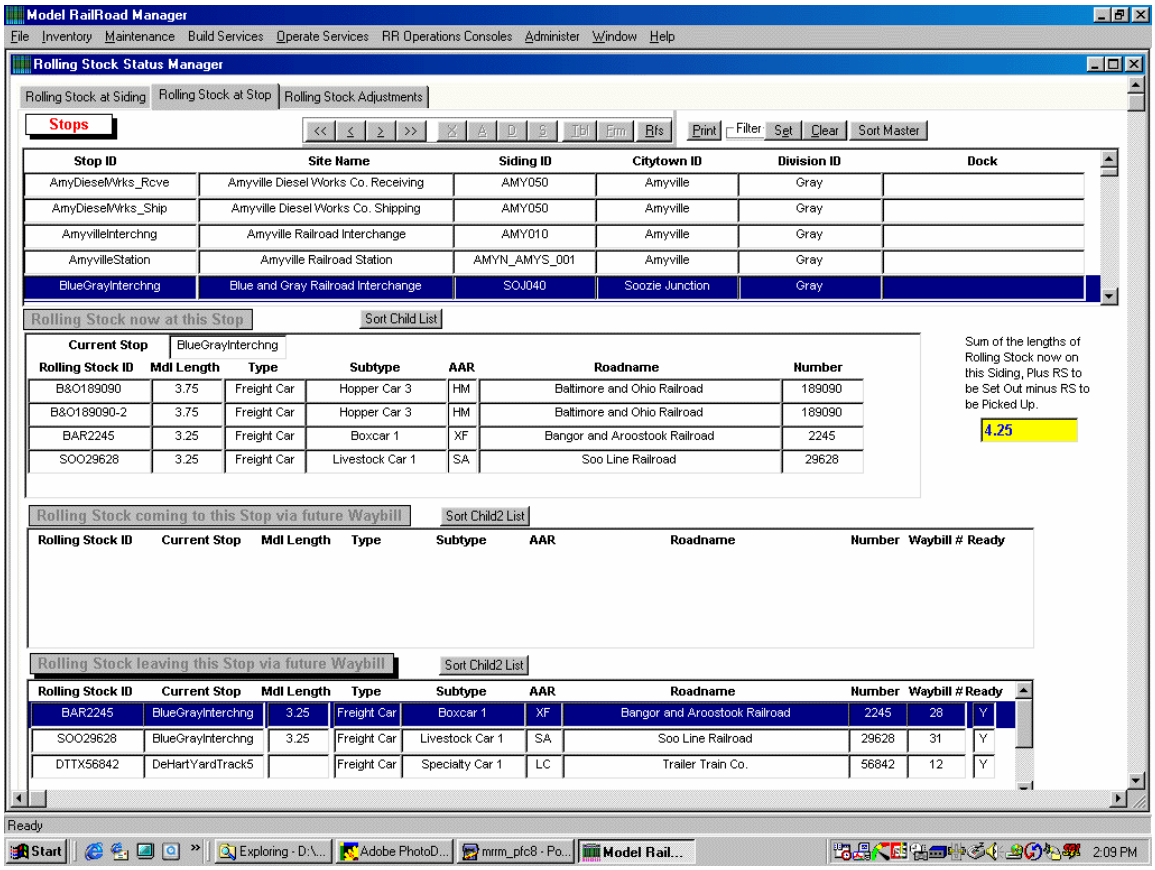
Rolling Stock at Sidings

During train operations, before running another train, you may want to evaluate the amount of siding space available at each stop where a train will setout one or more cars. If the train is scheduled to pick up a car, you may want to see if the car is there now or if another train is scheduled to setout that car. In the later case further review of the other train may be warranted. This tab page helps you to plan siding activity carefully.



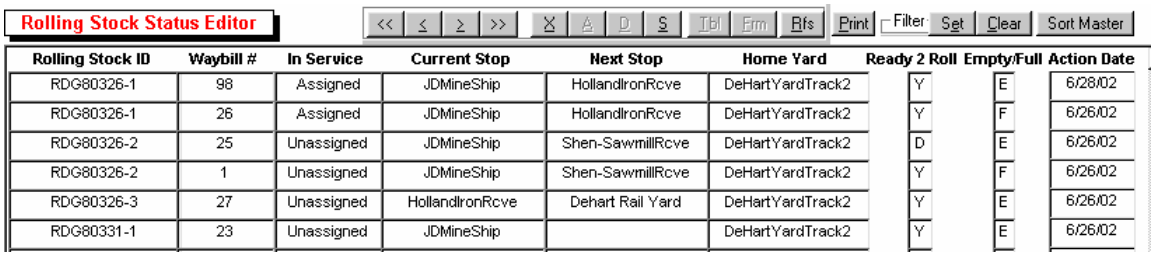
Rolling Stock at Stops

Even if the siding has space for the car(s) to be setout or if the pickups are available, there may be complications at the siding and a good conductor and dispatcher will want to know about it before the train gets there. Since a siding can have multiple stops along its length, there may be many other cars that will have to be moved to get to the stop or car. This tab page helps you analyze these types of issue.



Rolling Stock Adjustments

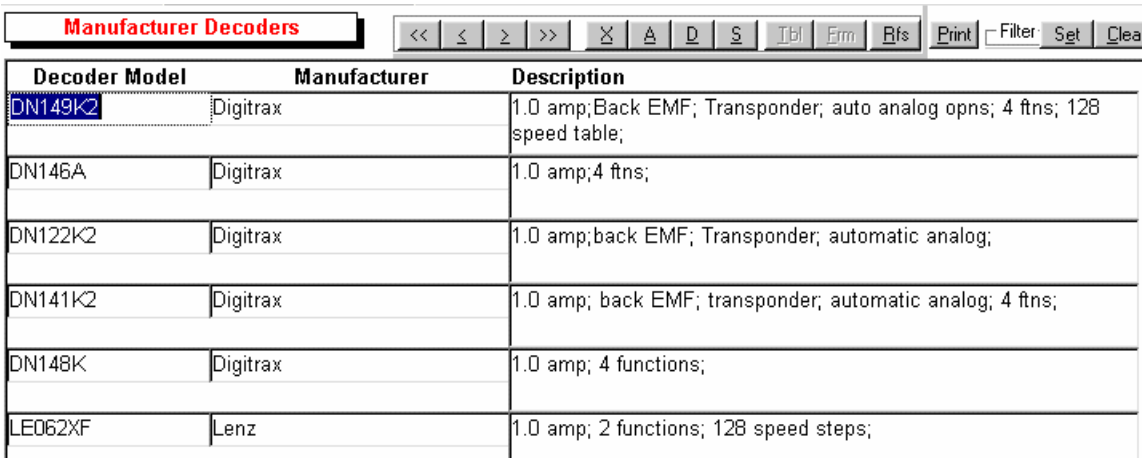
In the event that some rolling stock problems persist after the train is set to run or while running, this tab page lets you make ‘adjustments’ for a successful run.



MRRM_Operate_DCC

Decoder Manufacturer Models

The list of Digital Command Control decoder manufacturers is managed with this tab page.



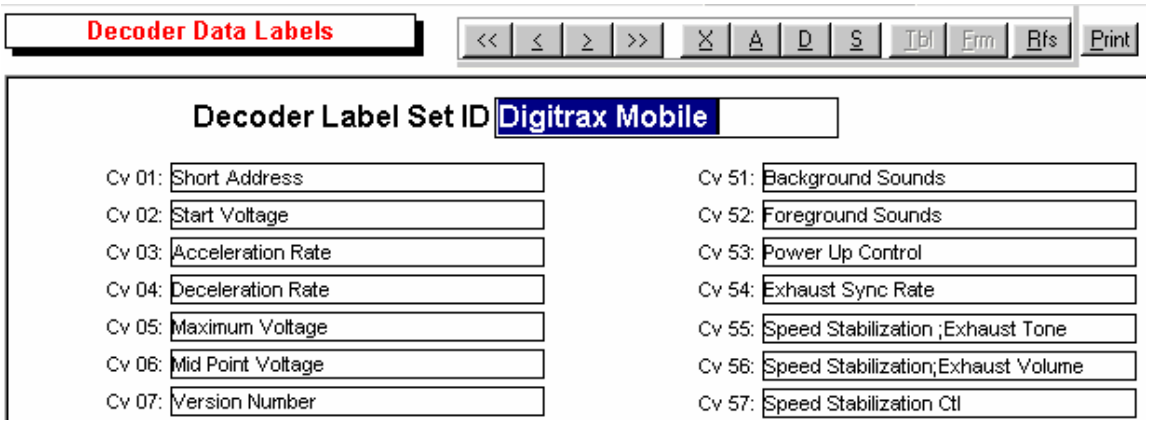
Manufacturer Decoders

<< < > >> X A D S Tbl Frm Rfs Print Filter Set Clea

Decoder Model	Manufacturer	Description
DN149K2	Digitrax	1.0 amp;Back EMF; Transponder; auto analog opns; 4 ftns; 128 speed table;
DN146A	Digitrax	1.0 amp;4 ftns;
DN122K2	Digitrax	1.0 amp;back EMF; Transponder; automatic analog;
DN141K2	Digitrax	1.0 amp; back EMF; transponder; automatic analog; 4 ftns;
DN148K	Digitrax	1.0 amp; 4 functions;
LE062XF	Lenz	1.0 amp; 2 functions; 128 speed steps;

Decoder Data Labels

Each decoder data set identifies the data label set to be used. This tab page is used to manage the decoder data label sets for up to 100 CV's.



Decoder Data Labels

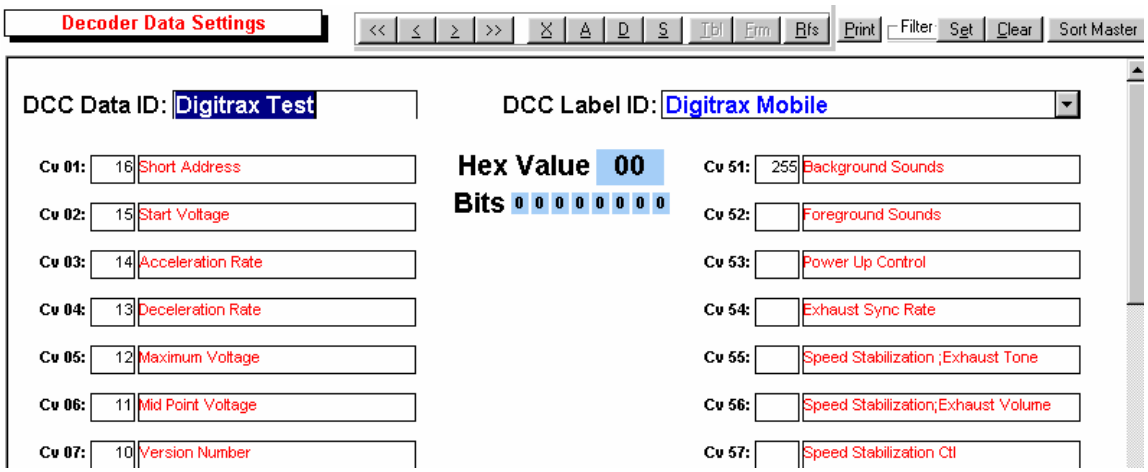
<< < > >> X A D S Tbl Frm Rfs Print

Decoder Label Set ID: Digitrax Mobile

Cv 01:	Short Address	Cv 51:	Background Sounds
Cv 02:	Start Voltage	Cv 52:	Foreground Sounds
Cv 03:	Acceleration Rate	Cv 53:	Power Up Control
Cv 04:	Deceleration Rate	Cv 54:	Exhaust Sync Rate
Cv 05:	Maximum Voltage	Cv 55:	Speed Stabilization ;Exhaust Tone
Cv 06:	Mid Point Voltage	Cv 56:	Speed Stabilization;Exhaust Volume
Cv 07:	Version Number	Cv 57:	Speed Stabilization Ctl

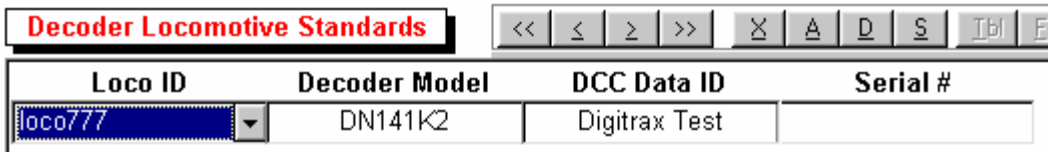
Decoder Data Settings

Up to 100 Configuration Variables per decoder can be managed with MRRM. The label associated with the data can be managed separately in the decoder data labels table. This allows differing intended usage of a given CV by two or more manufacturers where standards permit.



DCC Locomotive Standards

Each locomotive, having a decoder, identifies its data set and manufacturer.

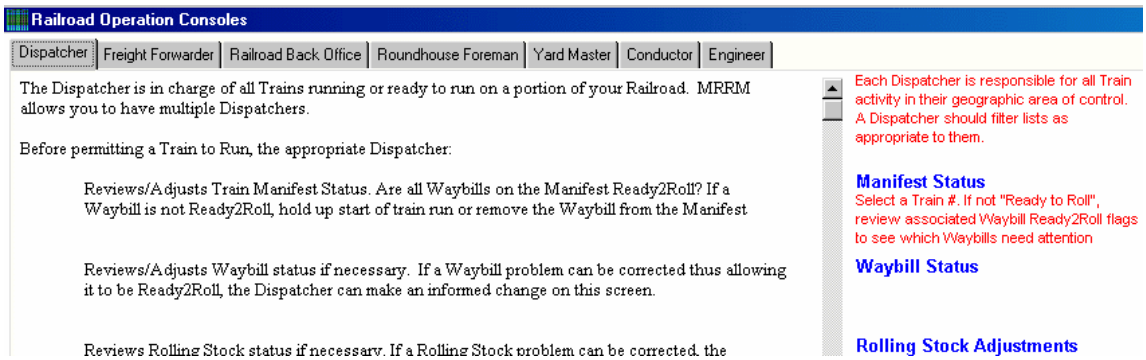


MRRM_Consoles

Introduction to Consoles

MRRM is designed to be used by one person at one computer or by a team at multiple consoles using a shared database.

The Personal Edition of MRRM provides access to multiple console controls using a workflow metaphor. In Advanced User mode the Consoles menu is active. Through this menu you can access functions performed by any of the persons participating in railroad operations. In addition to the Dispatcher, arguably the central role, MRRM supports Freight Forwarders or Freight Agents, Railroad Back Office Staff, Yard Masters, Roundhouse Foremen or Power Desks, Conductors and Engineers. MRRM allows you to have multiple persons perform the same function within distinct trains or geographic regions across your railroad. For example, you can have as many concurrent Conductors active at any given point in time, each assigned to a different train number. Or as many Yard Masters as you have yards.



The text in Blue on the right side of each console or workflow tab page (e.g. **Manifest Status**) is actually a hot link into the program. Click the blue text and the associated tab page will open in another window for you to use.

Freight Forwarder

A Freight Forwarder arranges the movement of a Seller's Shipment from the Shipper's dock to the Consignee's dock. Freight Forwarders are like travel agents for goods. The goods may travel by rail from dock to dock or they may be moved initially and finally by truck with intermediate moves made by rail, air or sea. You can have as many Freight Forwarders, Shippers and Consignees as you want.

When a Buyer submits an Order to a Seller, the Seller creates a Shipment. The documentation required to move the shipment from shipper to consignee, is often prepared by the Freight Forwarder who contacts the various carriers to arrange transport. Carriers provide a Bill of Lading as a contract to move the goods between two points.

In MRRM we use a modified version of this process. For each pair of adjacent stops en route from Shipper to Consignee, the Freight Forwarder appends a route leg to the shipment document. Each route leg is used to generate a Waybill (or route hop) used by the carrier. Prototypically, a single Bill of Lading may involve multiple Waybills by rail, however.

A Freight Forwarder, as an Agent of the Buyer/Consignee Industry, can Order commodities from a Seller/Shipper Industry using the automated shipment features of the Buyer/Seller matching capability.

Alternately, the Shipment may be created manually. When creating the shipment, or modifying a shipment, emulate the dialog that the Freight Forwarder (travel agent!) would have with the carrier (your Railroad). As the physical routing a defined, enter the appropriate route legs.

When the shipment is completed, assign the Industry's rolling stock to the shipment or get the rolling stock assigned by the railroad and update the shipment. (Provide

for movement of empty to shipper's shipping dock as required.)

Begin the actual shipment process by creating a set of waybills corresponding to the set of shipment route legs.

The Freight Forwarder can view the Shipment Status screen to track the movement of each shipment initiated.

Railroad Back Office

The Railroad Back Office (RBO) team bids on and is awarded transportation contracts with Shippers, Consignees, or Freight Forwarders. The RBO sells a reservation for and assigns a Waybill number to each route leg of each shipment. The RBO manages general railroad planning and operations such as:

Defining the Train Classes

Establishing Regular and Extra trains

Defining Railroad Jobs

Assigning Train Crews

Assigning other Railroad Staff

Hiring Railroad Employees

Setting train Schedules

Establishing baseline stop to stop timelines and speed limits

Creating Waybills

Creating Manifests for Trains

Roundhouse Foreman

The Roundhouse Foreman is responsible for all Locomotives assigned to the Roundhouse. MRRM support as many Roundhouse Foremen as you have

distributed Roundhouses. For each Scheduled or Extra Train created by the Railroad Back Office, the appropriate Roundhouse Foreman

Reviews the Manifest to determine the maximum weight that the train will be pulling,

Reviews the maximum grade that the train will incur.

Possibly reviewing the track route for changes (for example, if a segment is out of service) which could affect the grade that the train will incur.

Reviews the weather to adjust the effective horsepower pulling capacity of a Consist

Determines the Horsepower required for the train and its operating conditions

Reviews the available locomotives to decide optimal selection for this train and other to be run soon.

Creates a Consist of one or more locomotives that meet the needed horsepower

Assigns a lead locomotive for the consist and assigns the consist to the train

Yard Master

The Yard Master is in charge of a railroad yard where cars are stored, received when full and to be delivered, received when emptied to be cleaned and/or reassigned, and stage in trains per the train manifest. MRRM allows you to have as many Yards and Yard Masters as you want.

With MRRM, a Yard Master can review the rolling stock currently in the yard

Review rolling stock en route to the yard from running or planned trains

For each Train, create a Switchlist consistent with the Manifest using rolling stock in the yard

Review the Consist assigned to each Train by the Roundhouse Master

Approve each Train's staging in the Yard including the Consist, the Rolling Stock assembled with the associated Switchlist, and optionally, the Caboose to be used with each Train.

Dispatcher

The Dispatcher is in charge of all Trains running or ready to run on a portion of your Railroad. MRRM allows you to have multiple Dispatchers.

Before permitting a Train to Run, the appropriate Dispatcher:

Reviews/Adjusts Train Manifest Status. Are all Waybills on the Manifest Ready2Roll? If a Waybill is not Ready2Roll, hold up start of train run or remove the Waybill from the Manifest

Reviews/Adjusts Waybill status if necessary. If a Waybill problem can be corrected thus allowing it to be Ready2Roll, the Dispatcher can make an informed change on this screen.

Reviews Rolling Stock status if necessary. If a Rolling Stock problem can be corrected, the Dispatcher can fix it now.

Review Siding space constraints. If there is not now or will not sufficient space for the setouts planned for a siding, the Dispatcher can hold up running of the train.

Review Stop space constraints. If there are two or more stops on a siding, is there enough space at the planned stop for a planned setout?

Approves Train movement to begin, stop, continue

If a Train is Ready2Roll and its scheduled start time is now, the Dispatcher should commence Train running. During its run, the Dispatcher will ascertain the trains' progress from stop to stop in a number of ways. Forced stops could be initiated. Continuation permissions could be granted.

Tracks movements of all Trains in the Division/Region. Using the main train manifest screen, the Dispatcher can track the movement of all trains under his authority.

Issue Train Orders as required. If problems occur, the Dispatcher can issue Train Orders to a Train's Conductor and Engineer at any time.

Conductor

A Conductor is in charge of each Train. MRRM supports multiple Conductors, each Conductor may be assigned, by the Railroad Back Office, to one or more non-concurrent Trains. The Conductor:

Reviews the Manifest for the Train. See what cars are on the train at the start and are setout and picked up at each train stop

Reviews the Caboose assigned to the Train, if any

Reviews the Consist assigned to the Train. See what locomotive is leading this train. See what slave locomotive, if any are assigned

Coordinates Train movements with the Dispatcher. As the train executes its assignment, the Conductor informs the Dispatcher of the progress.

Receives Train Orders from the Dispatcher

Manages all Pickups and Setouts at each Stop. Directs turnout changes, car movements and track usage at stop.

Engineer

An Engineer drives a Train. The Engineer reports to the Conductor who is responsible for all train activity. Each Engineer may be assigned to one or more non_concurrent Trains. MRRM allows you to have more than one Engineer each one running a Train at the same time.

Before starting work, each Engineer should check their Train assignment.

The Engineer manages the Consist of one or more locomotives and reviews its performance characteristics (DCC tables)

The Engineer receives copies of all Train Orders issued by the Dispatcher.

The Engineer operates the Train (DCC Controller)

MRRM_Workflows

Workflow Introduction

Workflows provide activity templates to guide your use of Model RailRoad Manager until you become comfortable with it. The Initial load workflow guide (see Workflows under the Help menu) provides a step by step approach to initialize your copy of the Model RailRoad Manager. The Inventory workflow not only helps you to set up MRRM for your railroad, it introduces you to many of the techniques used throughout MRRM. We have provided workflow assistants for

- Total Layout Inventory
- Simple Car Cards and Waybills,
- Switchlists - Quickly or Prototypically
- Industry Activity
- Train Planning
- Train Workloads and Timetables

Inventory Setup

The program comprises several windows each with several tabpages. A Tabpage provide the lists and forms (or templates) used to add, change or delete information used

The typical sequence of initializing the data for this program is provided on this workflow tabpage.

The sequence is:

AAR Reporting Marks - the program's database comes preinstalled with a large number of Association of American Railroads (AAR) Reporting Marks. However, it is possible that one or more that you require are not preloaded. Also, non U.S. countries have comparable but often different coding schemes for reporting marks and will have to be added. It is suggested that you review your locomotives and other rolling stock to see if you need to add reporting marks. Click the link on the right to open the AAR Reporting Marks tabpage.

AAR Codes are provided for most types of U.S. freight and passenger car. Please review against your requirements to determine whether additions are required. Click the tabpage link to go to the AAR Code edit screen.

Rolling Stock is entered next. Rolling Stock comprises freight cars, passenger cars, locomotives, cabooses, and other railroad rolling equipment. Oftentimes this is where you begin to enter information about your railroad. A group of data fields are used for 'Operations' purposes only and should be ignored during the initial loading process. *If you are not interested in managing other inventory items or operations, no more information is required!*

Divisions that comprise your railroad or that your railroad directly interchanges with should be defined.

Cities and Towns in each Division are defined.

Sidings are track segments that make up your railroad. They may be blocks of main or branch lines, industrial sidings, interchanges, or other track segments. For each siding indicate the City or Town closest to the Siding.

Define the Industries that operate on your Railroad. They may be Industries that reside on your railroad or that visit customers on your railroad or are just passing through your railroad from one interchange to another.

Buildings are the physical structures scattered throughout your railroad. A Building may be associated with an Industry. A Building may be adjacent to one or more Stops. Industries may have one or more Buildings.

Stops are point along a Siding where a train would stop to pickup or setout goods or passengers. Multiple Stops may be associated with a Siding. For example, and industrial park siding may have many stops.

Interchanges are connection points between two or more railroads.

Intermodal stops are points where commodities are transferred between two different modes of transportation such as rail/sea, rail/air or rail/trucking. Effectively interchanges where the mode of transportation changes.

Miscellaneous entries are for any other components comprising your railroad such as cars, trucks, airplanes, ships, and other modelled items or wiring, platform, lighting and other infrastructure items.

Turnouts are added when computer control features are used.

Simple Car Cards and Waybills

To simply use the Car Card and Waybill feature of this software, selectively enter the following information in the following recommended sequence.

Input your inventory of rolling stock. Only eleven data elements per car are required: the first eight plus home yard, current stop and next stop. Ignore the other railroad (such as tracks and turnouts) and non-railroad inventory data (such as Buildings)

Review the provided Commodities and default AAR car codes. If they do not meet your needs (they should be sufficient for most Users), add or modify the choices available to meet your industry needs. Only two data elements are required: Lading ID and AAR Choice 1.

Optionally, define your Divisions for ancillary report purposes if you want. It won't hurt anything if you do not include Divisions.

Cities and Towns are also optional.

Sidings are optional for Car Card and Waybill usage also.

Enter the Stops you want to include on any of your Waybills. Only one element of information is required: Stop ID. Ignore the Division, City/Town and Siding entries if you want to. No harm will occur if you leave them as blanks.

Enter the Shippers and Consignees for optimal Waybill completeness. No harm will occur if you choose not to name your Industry Shippers and Consignees

Optionally you can create Shipments and generate your Waybills from the Shipment Route. This is the prototypical way to generate Waybills but it is not mandatory.

Generate the Waybills manually or automatically via Shipment routes

Switchlists - Quickly or Prototypically

A Switchlist is a list of car pickups and setouts for a train to perform. The Switchlist may involve activity at a single location, such as a Yard or at each stop on a Train's schedule.

There are four methods to create a Switchlist in Model RailRoad Manager - from prototypical to just have some fun without a lot of preparations.

1. based on manifests
2. based on waybills not necessarily assigned to a manifest
3. based on cars with preassigned current and next stops; not necessarily assigned to a waybill
4. based on you choices of cars, stops, load

A minimum of eleven (11) data elements must be entered for each piece of Rolling Stock that you want to use with either method 3 or 4. These are the eleven data elements needed for using car cards and waybills.

Stops need to be defiend. However, only the actual Stop ID is required. The other Stop information is not needed. Division, City/Town, Siding, Interchanges, Intermodal Stops, and Trackage are NOT REQUIRED.

To use method 3, waybills are needed. But, only seven (7) data elements must be entered for each Waybill that you want to use. The 14 other Waybill data elements are nice but not required to create effective Switchlists.

To use method 4, the waybills required for method 3 are assigned to manifests that are assigned to the switchlist.

Trains and Consists are nice but not necessary to have MRRM build the switchlists for you.

Currently, there are two Switchlist formats:

- Empties First
- Pickups before Setouts

Industry Activity

If you intend to Operate your Railroad, and want prototypical operation not simple Car Card and Waybill type operation, you should define your industries and generate shipments between them.

First, define the Industries that Buy (Consignees) and the Industries that Sell (Shippers) - or both buy and sell.

Next review the Commodities (lading) predefined in the program. Add new ones or modify the current ones to suit your specific industry needs and your rolling stock that can carry the commodities..

For each of your Industries, define the commodities that they buy and sell.

When a Buyer orders the a Commodity from an appropriate Seller, create Shipments from Shippers to Consignees

If you have a lot of Industries, each of which buys and sell lots of commodities, use can use the automated buyer/seller matching feature.

Train Planning

Before Operations commence, you need to define a train service plan. This plan identifies the various trains that you will run.

The first step is to define your train classes and their respective train number ranges

Assign one or more locomotive to a Consist which be used to power your train. The lead loco and each slave loco should be identified.

For each train that you want to operate, assign it a train number from its appropriate train class

For each horsepower any locomotive generates, define the number of pounds that can be pulled on a level grade, 1%, 2%, 3%, 4%, and 5% grade. You can use the default values for various conditions or modify them to meet your preferences.

Many standard railroad job title come predefined in the program. Modify this list to meet your preferences.

For each train you will run, assign a crew of railroad jobs.

Assign Dispatchers, Yard Masters, Roundhouse Foremen, Freight Forwarders, and Railroad Back Office positions to manage your Railroad assets.

Before you begin operations, be sure to assign a real person, we call them Actors, to each railroad crew job. An Actor can often perform more than one job on a train.

Next create the schedule that you will assign to a train. A schedule is a sequence of stops in the order that you want the train to proceed. The distance and speed between stops is up to you and your railroad preferences and actual dimensions.

To establish the speed and distance information between adjacent stops, create records in the stop to stop baseline. The StopClock program found in the Help menu can assist you in establishing preferred speed limits between stops.

Train Workloads and Timetables

Now that you have established your industries and their business relationships as wellas your train service plan, you can generate the traffic that will drive your railroad.

Finalize the Train Schedule by defining a start time to a schedule that you assign to a train.

Create Waybills that will move empties to shipper industries, loaded cars from shippers to consignees, possibly through intermediate stops known as interchanges or intermodal stops, and empties from consignee industries to home yards or other stops. Waybills can be generated automatically from shipments or can be created manually.

For each train that you want to run, create a manifest. Assign one or more waybills to each manifest. The waybills should be chosen consistent with the stops you plan for each train.

Create a switchlist using the manifest and the train stop sequence.

Maintenance Workflow

Model RailRoad Manager (MRRM) supports Maintenance item tracking and Preventative Maintenance scheduling.

Preventative Maintenance (PM) scheduling can be driven by calendar time or by item usage. For all items you can set a default number of days between maintenance and/or a number of times the item is used between maintenance. Those items demanding more atention can have their own time or usages between maintenance. If you are using MRRM for Inventory and Maintenance purposes but not Operations, calendar based PM is a good strategy. Whenever you use a piece of rolling stock on a waybill and complete the waybill, the usage count is incremented. Whenever a locomotive and any slaves on a consist are used on a train manifest and the manifest is completed, the locomotive usage is incremented. PM is indicated by **Yes** in the 'Due for Service' column.

MRRM organizes maintenance tracking into eight types: rolling stock, buldings, line or track segments, turnouts, indicators, sensors, signals and miscellaneous.

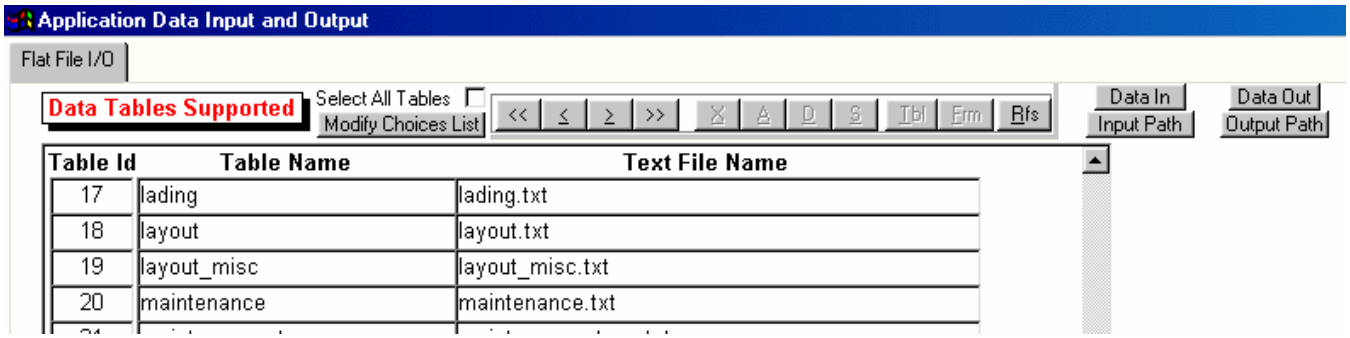
When you have an item requiring maintenance, you create a ticket. Every time you create or update a ticket, a log entry is made.

When you review the maintenance log, the due date, date out and status fields are flagged in red.

MRRM_Utilities

Input/Output

This chapter guides you through database data inputs and outputs through ‘flat files’. A flat file is simply a text file where each database record is placed on a single line and columns of that record are separated by tabs. These files can be created or edited with a spreadsheet program like Microsoft Excel or even the Microsoft Notepad program that comes with Windows.



Each of the rows in the list refers to a single table in the database. For example Waybills refers to all of the waybills that you have in your database at this time.

Each table can be written out to a text file with tabs between columns. This file will be stored in the current directory where the MRRM program is installed unless redefined by using the button labeled ‘Output Path’ at the top of the tabpage.

Similarly, if you want to over-write the contents of one of the tables in your database, you can read in a text file names in the selected row from the directory where MRRM is installed; or, from the directory specified using the Input Path button at the top of the tabpage.

Data Output

Select the row containing the table you want to write to the text file. Click the ‘Data Out’ button. Archive this file somewhere safely. If you wany to use, say MS Excel, to add your information to this baseline or parts thereof, copy the text file that was output and read it into Excel then massage it as you desire. Save it with the SAME TEXT FILE NAME as that created by MRRM before you try to input the new data into MRRM.

Data Input

Select the row containing the table you want to over-write from the text file. Click the ‘data In’ button.

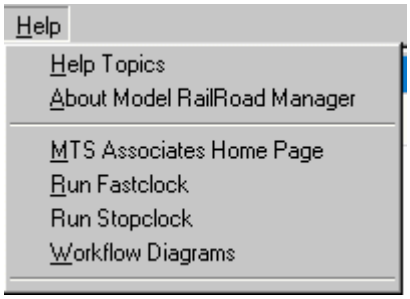
The current data will be ERASED. Then the new data will be imported into the table. So be careful to backup (via Data Out button and archiving the file safely somewhere before using the Data In button!)

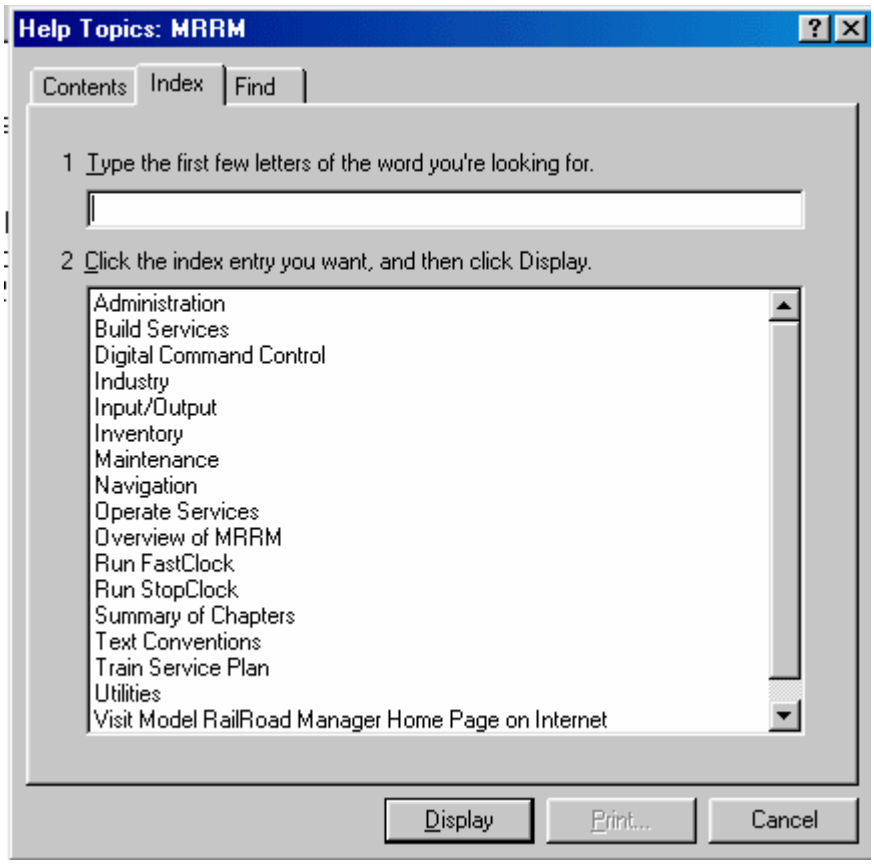
Update Data Table Support

From time to time, MRRM may add new tables to the database. When we do, you will receive instructions for moving your data from the old database format to the new database format or provide a utility program to do it for you. The Input/Output Utility will need to ‘update data table support’ when such tables are added. If the database change requires such an update, we will provide a special text file which you use the ‘Modify Choices List’ button to complete. In general do not click this button nor the Delete button in the upper right unless asked to do so.

Utilities

Utilities are accessed through a list under the ‘Help’ menu item.



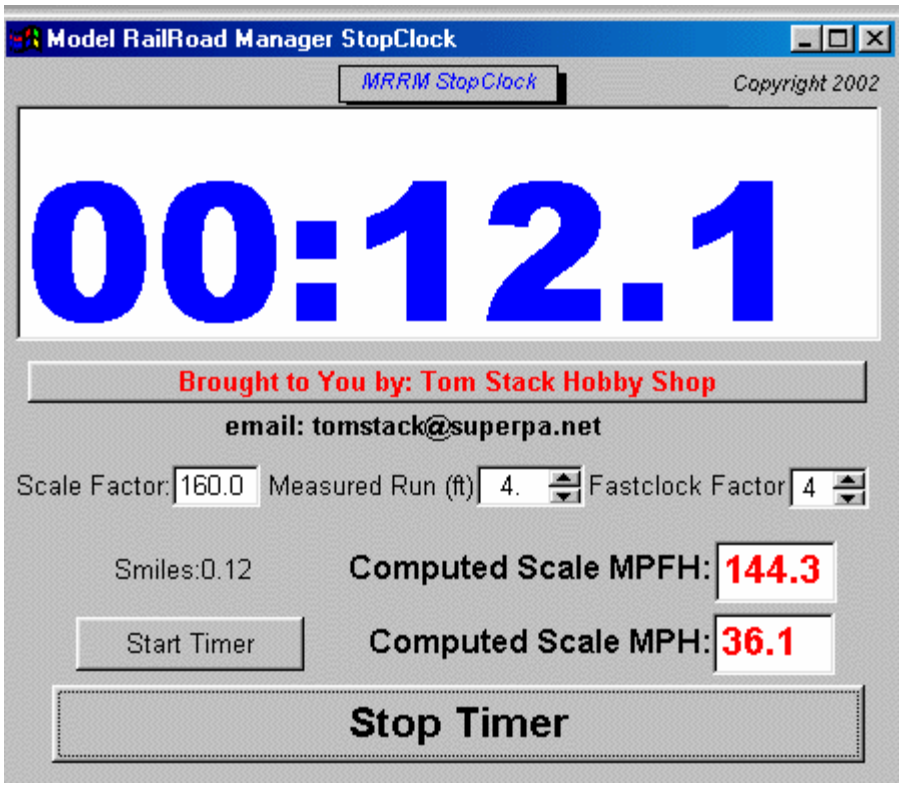


Run FastClock

If you or your crew are working on your railroad to a ‘Schedule’, a FastClock helps you to overcome derailment time and other delays by letting you play with time as clocked to your model world. Select his item from the Help menu to start up the MRRM-FastClock.

Run StopClock

The MRRM StopClock allows you to calibrate the MPH of any of your trains passing between two selected points on your railroad - like a radar trap! Select his item from the Help menu to start up the MRRM-StopClock.



Visit Model RailRoad Manager Home Page on Internet

Select this item under the Help menu to connect to the MRRM home page if you have an Internet connection.

This version of MRRM contains two utility programs to help you to have more fun while operating your railroad: MRRM FastClock and MRRM StopClock.

Index