



FMPlus® User Manual

12/05/2022

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Trademark Acknowledgements

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Document Version History

Date	Version	Changes
05/04/2020	3.0	<p>Updated Software Version to 5.22.3.0.</p> <p>Updated copyright information.</p> <p>Reformatted.</p> <p>Applied navigation and hyperlinking throughout.</p> <p>Updated Recommended PC or Server Requirements.</p> <p>Updated Minimum PC Requirements.</p> <p>Updated Communication Options. This change is because an old mainboard has a “card” and the new mainboard has an on-board connection.</p> <p>Under Select System Type added the ability to “enter a UNC path to the Shared folder”.</p> <p>Replaced screenshot to show that Redial checkbox option has been renamed to <i>Reconnect on Failure</i> on the Configuration > Hardware Tab.</p> <p>Replaced screenshot to show that Encoder Port options have been removed from the Configuration > Encoder tab.</p> <p>Replaced screenshot to show options for AIM Firmware images to be selected for upload on Configuration > Firmware tab.</p>

		<p>Replaced screenshot to show addition of Retrieve OBD Logs during online session checkbox on the Configuration > AIM tab.</p> <p>Replaced screenshot to show updated view of Pre-Programmed Products List.</p> <p>Replaced screenshots to show updated view of Creating/Editing a Product.</p> <p>Replaced screenshots to show updated view of Site information and Connection type.</p> <p>Replaced Appendix D – Dash Odometer for Light Duty CAN Vehicles with Appendix D Dash Odometer for AIM2.4® & AIM Titanium™.</p> <p>Added Appendix F – Managing FMU Settings.</p> <p>Added Appendix G - MPDS Online Client Permissions</p> <p>Replaced screenshots to show updated view of Phone Connection.</p> <p>Replaced screenshots to show MAC Address is not supported at this time on the LAN Connection Config Dialog.</p> <p>Replaced screenshot to show updated view of Vehicle Record > General tab.</p> <p>Updated screenshots throughout to match current OS.</p> <p>Updated glossary listing for Transaction Code, switching “digit” to “character” as alphanumeric characters are allowed.</p> <p>Added a note to AIM Programming that AIM Programmer Keys may only be used at the FMU with the Plus with AIM Prog FMU type. The regular Plus with AIM type is not authorized for AIM programming.</p> <p>Added a note to Vehicle and User Prokee Option Defaults for Global Configuration that transactions will be copied to ExportTrans. this takes up disk space, so enable it only if you intend to export.</p>
3/11/2022	3.1	<p>Updated to include</p> <ul style="list-style-type: none"> • Recommended PC or Server Requirements • Supported OSes • Minimum PC Requirements

11/09/2022	4.0	<p>Updated Software Version to 5.29.3.0.</p> <p>Added AIM Bulk Installation section .</p> <p>Updated Database Manager section to include updated Browse button functionality.</p> <p>Updated Archive Records section</p> <p>Added Restore Records section</p> <p>Added System Diagnostics section</p>
12/5/2022	5.0	<p>Updated Minimum PC Requirements</p> <p>Updated Notes throughout</p> <p>Added section for Backup and Restore Archive</p>

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Related documentation


The following Syntech documentation contains information to which you may need to refer:

- *FuelMaster Installation Guide SW 5.23.3.0*
- *Site Operations Manual*
- *AIM Installation and Site Operations Manuals*

Conventions used in this guide

A [Glossary](#) of terms and acronyms are also included.

To help you find important information, this guide uses the following conventions:

This convention	Indicates
Bold text	The names of elements of the user interface, such as menus, buttons, and options
<i>Italic text</i>	Code, file name, directory paths, and on-screen computer output.
NOTE	Notes that contain additional explanation.
	Information related to when you should call the Syntech Customer Satisfaction Center (CSC).

About the User Manual

This manual provides information and instructions for the FMPlus application that is used to create, configure, and view system generated data.

Audience

The FMPlus User Manual is directed at those personnel that are granted system access for the purpose of performing system functions.

Certifications

Certifications have been awarded by the following organizations.

- US and Canadian equipment certifications through the following:
 - FCC (Federal Communications Commission),
 - Intertek (ETL, cETL),
 - CAN/CSA (Canadian Standards Association),
 - National Conference on Weights and Measures (National Type Evaluation Program: NTEP),
 - Payment Card Industry (PCI) Security Standards Council (PA-DSS compliance),
- European equipment certification through the following:
 - TUV SUD, FM Approvals
 - ATEC Certification
- Microsoft Gold Partner

Recommended PC or Server Requirements

- Intel Core i3 Processor or greater
- 4GB of RAM
- DVD-ROM
- 12GB free Hard Drive space – Additional space required if running full MS SQL Server for large databases.
- 56K Baud Analog Modem
- 1024x768 Screen Resolution
- Network Connection
- USB for Key Encoding, if needed
- Solid State Drive (SSD)

Supported OSes

- Windows 10 64-bit
- Windows Server 2008/R2 64-bit
- Windows Server 2016 64-bit

Microsoft versions above these listed will also be supported.

Minimum PC Requirements

- 3.0 GHz Pentium 4 Processor 64-bit
- 2GB of RAM for 64-bit
- 12x CD-ROM
- 6 GB free Hard Drive space
- 33.6K Baud Analog Modem or Network Internet Connection
- 1024x768 Screen Resolution
- USB for Key Encoding, if needed
- Windows 10 64-bit

NOTE

FMPlus is not compatible with Microsoft HOME editions or Windows 10 or 11 running in S-mode..

Chapter 1 Introduction

About FuelMaster Plus (FMPlus)

FMPlus is a fuel management system comprised of a software application and subsystems, which cooperate for data entry, collection, display, and reporting of system generated fueling/inventory transactions and vehicle telematics.

FMPlus software collects data produced by the following:

- Fuel Management Units (FMUs)
- Remote Data Collection Units (RDCUs)
- Automotive Information Modules (AIMs)
- Tank Monitoring Units (TMUs)

System generated data is captured and stored in the software, providing users with system status, a view of fuel inventories, transactions and vehicle telematics.

System Components

Central Controller

The term Central Controller denotes two things in this manual. First, the Central Controller can refer to an individual who manages FMPlus and equipment. Second, the term can be used for any computer that executes FMPlus.

FMU

The Fuel Management Unit (FMU) is the FuelMaster system that controls fueling at the fuel island dispenser(s). The FMU controls access to the fuel records. This data is then downloaded by the Central Controller software where it is used for accounting or fleet management purposes.

TMU

A Tank Monitor Unit (TMU) is used to record the status of fuel tanks. The FMU can interact with the TMU for generating Tank Reports; the FMU can only read information from the TMU. TMUs are third party devices that FuelMaster can interact with for report generation only. Examples are Veeder-Root, Pneumercator, Ronan, and Red Jacket.

Access Devices

FuelMaster has several types of devices that allow the user to gain access to the fuel via the FMU.

Prokee

The Prokee is a proprietary, electronic, programmable chip embedded in a hard-plastic casing.

Smart Card

The Smart Card is the size of a credit card with a smart chip embedded on the back. It works essentially the same as a Prokee but uses different readers on the FMU and Central Controller.

AIM

The Automotive Information Module (AIM) is used to authorize fueling without requiring user interaction with the FMU (passive fueling) and interfaces with the OBD II port on the vehicle accessing readable information from the vehicle's computer. This allows information to be recorded by the FMU from the vehicle such as vehicle ID, odometer, current mileage, date, time, fuel quantity, fuel type, engine hours, PTO hours and much more.

Credit Card

Retail customers can provide credit card processing capability at the FMU. Multiple credit card networks are supported; for a full list of credit card networks and to determine which best fits your needs, contact your sales representative directly or sales/marketing through corporate headquarters at (800) 888-9136.

Proximity Card

HID Thinline II Proximity Reader can be interfaced with the FMU. Wiegand format Proximity Cards cannot be purchased from FuelMaster but can interface with the system to acknowledge input as a User ID. The proximity card is only compatible with VMN and Keyless Systems.

Communication Options

There are two methods of communication to use for daily operations; analog modem and network card or on-board LAN.

Analog Modem

The analog phone method requires a dedicated analog phone line wired to the FMU and a modem for the Central Controller. Serial USRobotics® external modems, or MultiTech® external modems, are recommended for use with FuelMaster Systems. There are a variety of ways to implement this feature including wireless phone line extenders and phone line simulators.

Network Connection

The network option uses existing network infrastructure for communication between the Central Controller and FMU. This option requires that CAT-5 cable be run to the FMU no longer than 150 ft. from the nearest switch/router for best connectivity. The Central Controller also needs to be on the same network infrastructure.

System Types

Verified Miscellaneous Number (VMN)

VMN systems have a Prokee or Smart Card encoded with a Vehicle ID to access fueling and require verified User ID keypad entry prior to authorization.

Verified Vehicle ID (VVI)

VVI systems encode the User ID on the Prokee or Smart Card and require a verified Vehicle ID keypad entry prior to authorization.

Commercial Vehicle Key Only (VKO)

VKO systems require an encoded Vehicle Key followed by User ID keypad entry. The difference between this and VMN is that the User ID is not verified and can be alphanumeric.

Commercial User Key Only (UKO)

UKO systems require an encoded User Key followed by Vehicle ID keypad entry. The difference between this and VVI is that the Vehicle ID is not verified and can be alphanumeric.

Commercial Either Key (EK)

EK system allows for the encoding and use of either Vehicle or User keys depending on fueler needs. The system prompts for a User ID if a Vehicle key is inserted and a Vehicle ID if a User key is inserted. Neither IDs entered at the keypad are verified and can therefore be alphanumeric.

Commercial Both Key (2K)

2K systems behave like the VMN/VVI systems with one exception; the fueler is not prompted for a User or Vehicle ID and must use a second key before authorization will take place. The fueler uses this system by inserting their Vehicle key and then inserting a User key, or vice versa. Both are required for authorization.

Keyless (Keyless)

Keyless does not require keys and supports alphanumeric values for IDs. The Vehicle and User IDs are prompted and entered on the keypad. The Keyless system can be setup multiple ways and needs to be configured by a Syntech Field Service Representative, Syntech CSC Technician, or a Syntech Authorized Service Representative.

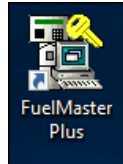
Over the Road (OTR)

OTR systems allow for the recording of fuel for refrigerated trailers. OTR is based on the VMN system but has the option for a reefer identifier to be recorded while only using one Vehicle key. The fueler enters the key, is prompted to enter a User ID, then prompted "ARE YOU FUELING A REEFER" (Y/N). If the user enters 'Yes', they are prompted for the Reefer ID. The transaction is recorded for the trailer, not the Vehicle, and the reefer ID is verified. If the user enters 'No', the Vehicle transaction progresses normally. The Reefer IDs are created and stored in the Vehicle List.

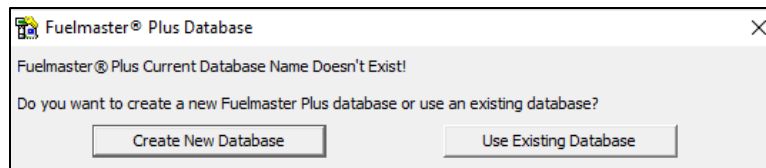
Chapter 2 Getting Started

Initial Startup

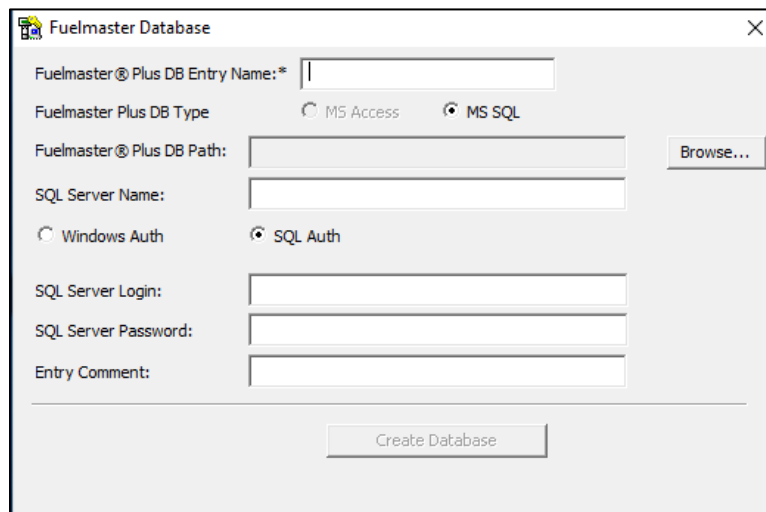
Before starting up FMPlus, determine your System Type; see [Systems Types](#) in Chapter 1. To begin the software launch, double click the FMPlus icon located on the desktop.



If no database exists, click on **Create New Database**. The database screen will open.

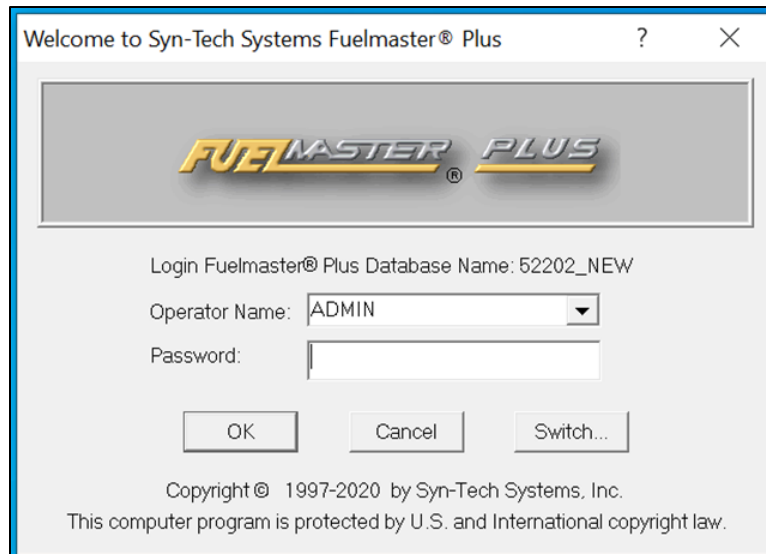


A MS SQL database can be created with SQL Auth (recommended) or Windows Auth. Click on **Create Database**.



See **Creating a New or Using an Existing SQL Database for FuelMaster** in the *FuelMaster Installation Guide* for further instructions.

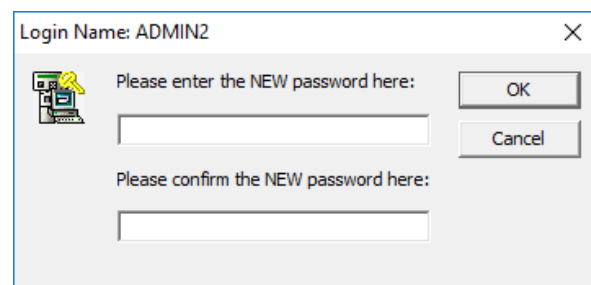
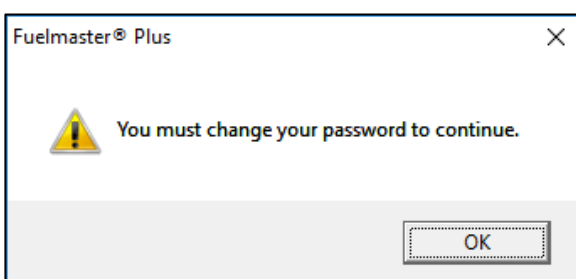
At the end of the database creation, the logon screen launches with the default **Admin** user. Click **OK**. The software prompts the user to set a password for the Admin account.



Logging into FMPlus for the first time

When logging into the application for the first time and/or after a password reset/expiration, create a new password; click **OK**. When the password change screen appears, enter and confirm the new password; click **OK**.

NOTE Remember the password as it will be needed each time for logging into FMPlus.

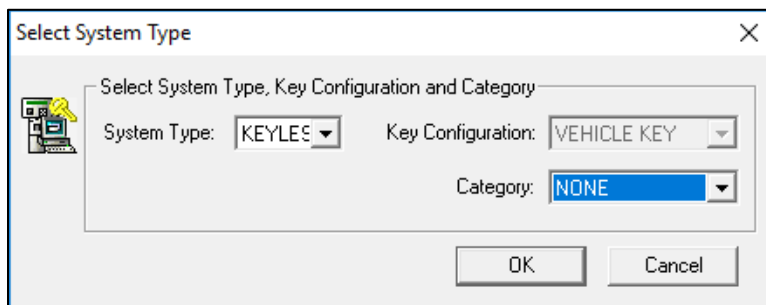


Creating a Password

- Password requirements and restrictions are defined in [Security Configuration](#). See Chapter 13.
- The following special characters are not allowed in passwords: < > ' : ;

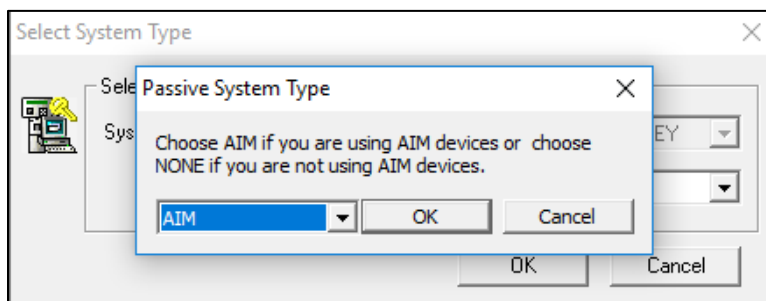
Select System Type

Select the **System Type**. See [System Types](#) in Chapter 1.



The **Category** option allows aviation sites to have Vehicle verbiage replaced with Aircraft verbiage.

After completing the System Type, choose a **Passive System Type**, if applicable. The Passive System types are NONE or AIM. If AIMs are not being used, select NONE; click **OK**.

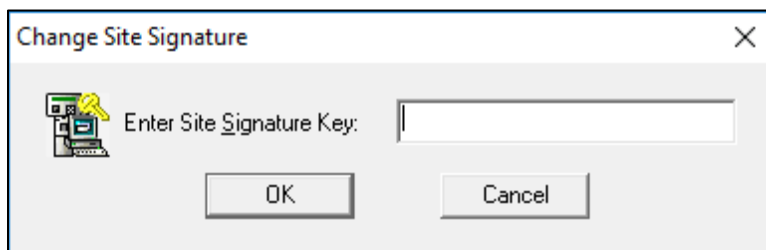


NOTE

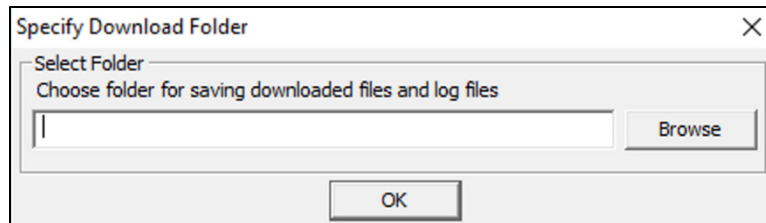
You may change the Passive System Type option later from the **System > Configuration > System** tab.

Next, enter the **Site Signature**, a key that uniquely identifies and distinguishes one FuelMaster customer from another. The **Site Signature Key** is a twelve-digit string that can be found on the packing slip.

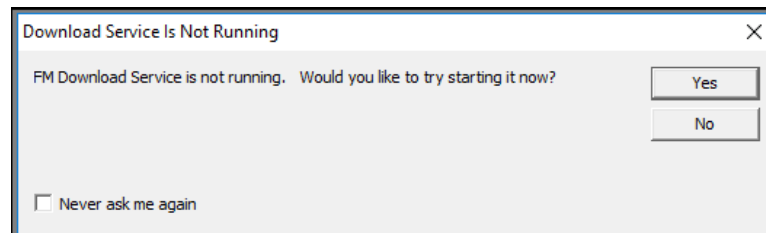
Enter the key into the field, including hyphens or dashes; click **OK**.



Select a folder for saving downloads and log files. Any users running the Central Controller and the user Download Service “runs as” must have access to the location selected. **Browse** to a network location, and select a Shared folder, or enter a UNC path to the Shared folder. Click **OK**.



The last screen before the software window is the **Download Service**. If the Central Controller will run an FM Download Service, select **Yes**.



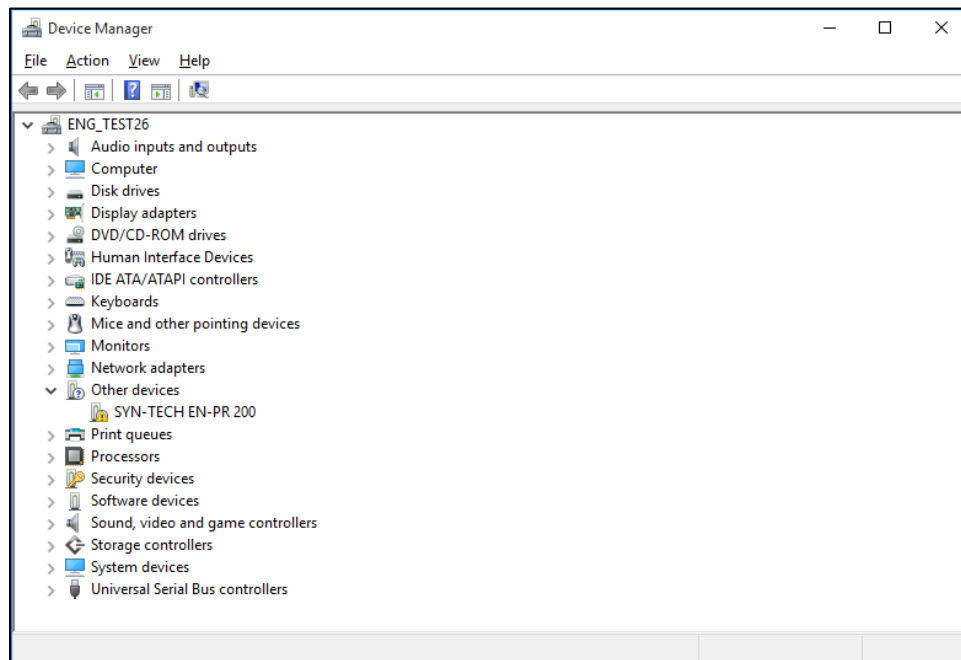
Report Configuration

The Crystal Reports in FMPlus require ODBC connectivity to SQL Server. To run the Crystal Reports provided with FMPlus, an ODBC Data Source Name (DSN) configured to connect to the FMPlus database must be created on each machine running FMPlus. The DSN must also be set correctly for each corresponding entry in FMPlus > **System** > **Database Manager**. See [ODBC Connections for Reports](#).

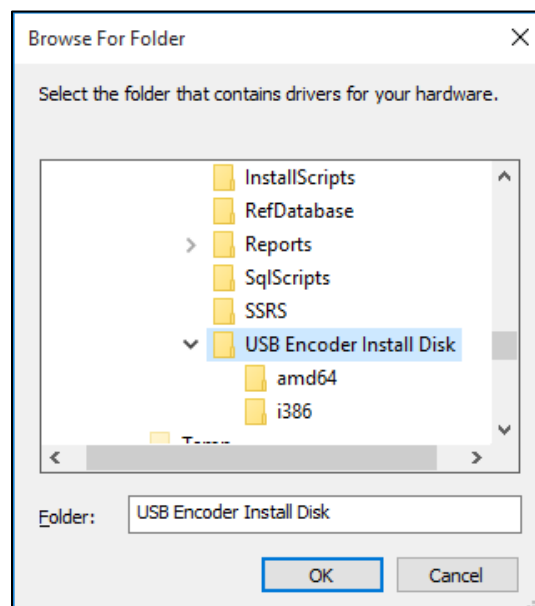
Encoder Driver Installation

Prokeys and Smart Cards require the encoder drivers be installed on the Central Controller machines. The drivers are included in \\Program Files (x86)\\Syntech\\FuelMaster\\USB Encoder Install Disk.

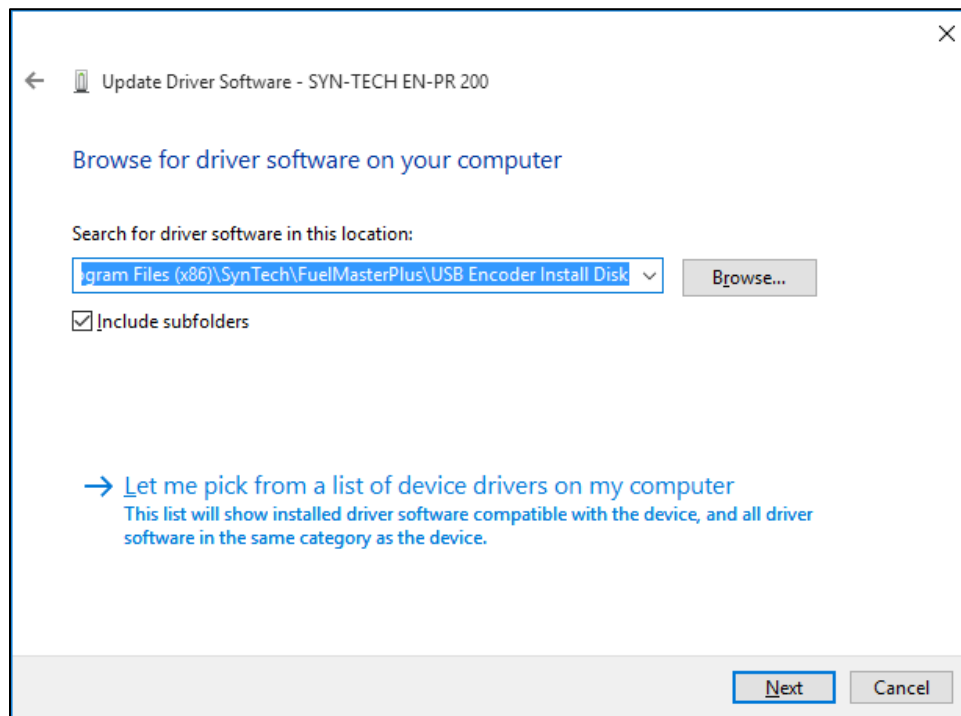
Insert the USB connector from the ARM7 USB Prokee Encoder into a USB port on the Central Controller. Open Device Manager and locate **SYNTECH EN-PR 200**.



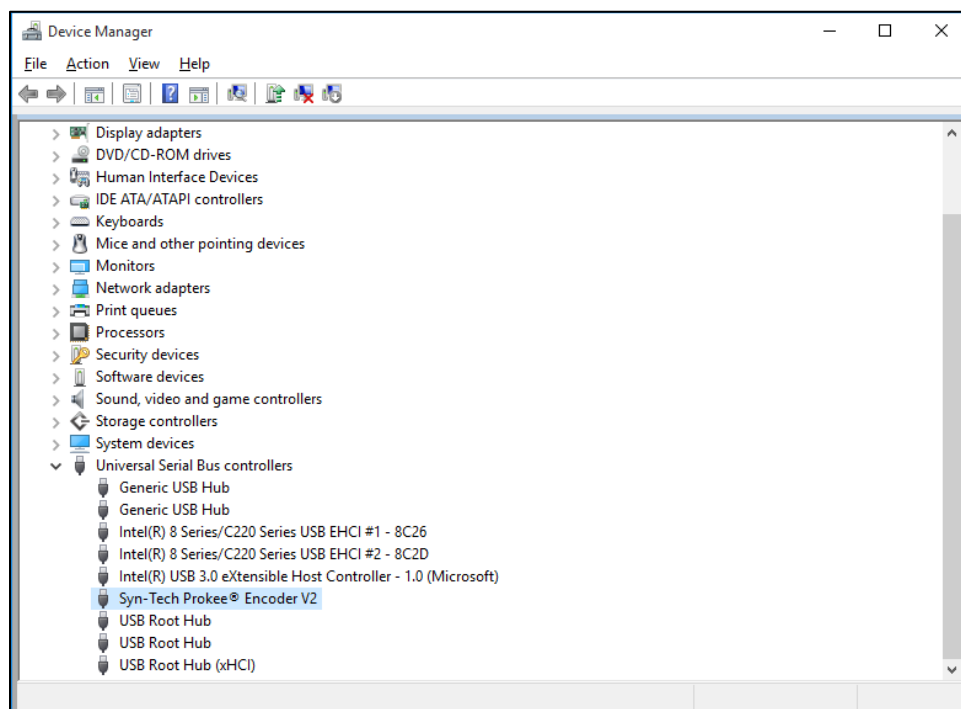
Double-click to open the device Properties. Select update drivers; then select **Browse my computer for driver software**. **Browse** to the FuelMaster directory and highlight **USB Encoder Install Disk**.



With **Include subfolders** checked, click **Next**.



Click **Install** to trust software from Syntech Systems, Inc. When the drivers are successfully installed, they appear in Device Manager under **Universal Serial Bus Controllers**.

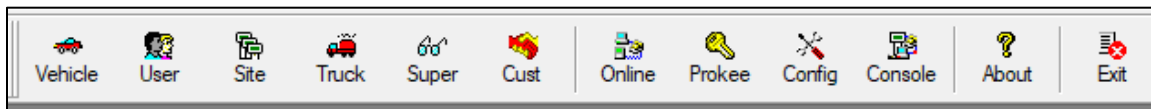


Chapter 3 System Configuration

FuelMaster is designed to meet a large range of end user requirements and configuration possibilities. These options are all based upon a foundation of options and configuration settings that need to be established before proceeding. Some of the options can be easily changed later; others will require you to contact the Syntech Systems, Inc.'s CSC for further assistance.

System Configuration

Access the System Configuration option by selecting **Config** on the toolbar. This option can also be found under **System > Configuration** or by the hot key combination CTRL + G.



Info Tab

The first tab of the **Configuration** window is the Central Controller information. Enter information about your company. This information is included in reports and invoices and appears as contact information.

A screenshot of the 'Configuration' window in the FuelMaster software. The window has a title bar with 'Configuration' and standard Windows window controls. Below the title bar is a tabbed interface with tabs for 'Info', 'System', 'Hardware', 'Encoder', 'DL Service', 'Firmware', and 'AIM'. The 'Info' tab is selected. Under the 'Info' tab, there is a section titled 'Company info' containing four text input fields: 'Name:', 'Address1:', 'Address2:', and 'City, State, Zip:'. To the right of these fields are 'OK' and 'Cancel' buttons.

System Tab

The **System** tab is used to configure various system options.

The screenshot shows the 'Configuration' window with the 'System' tab selected. The window has several tabs: Info, System, Hardware, Encoder, DL Service, Firmware, and AIM. The 'System' tab contains the following fields and options:

- Misc Fields:** Five text input fields labeled Misc 1 through Misc 5.
- Vehicle Prokee Options Defaults:** A group box containing four checkboxes: Odometer (unchecked), PIN (unchecked), User ID (checked), and Receipt (unchecked).
- User Prokee Options Defaults:** A group box containing four checkboxes: Odometer (unchecked), PIN (unchecked), Vehicle ID (unchecked), and Receipt (unchecked).
- System Key Information:** A dropdown menu set to 'VEHICLE KEY'.
- System Type:** A dropdown menu set to 'KEYLESS'.
- 7 Digit Odometer:** A checkbox labeled 'Enabled' which is unchecked.
- Passive Sys Type:** A dropdown menu set to 'AIM'.
- Allow transaction export:** A checked checkbox.
- Require Customer ID:** A checked checkbox.
- Enable Site Specific Local Authorization:** An unchecked checkbox.
- Patch List Timeout:** A text box with '90' and '(10-1000) Sec.' to its right.
- Added Comm timeout:** A text box with '0' and '(0-6) Sec.' to its right.
- Allow TMU Deliveries:** An unchecked checkbox.
- Allow TMU Quantities:** A checked checkbox.
- Retry Transaction Files:** A text box with '5' and '(1-10) Times.' to its right.

Buttons for 'OK' and 'Cancel' are located on the right side of the window.

Misc Fields 1-5

The miscellaneous fields are used to provide extra levels of reporting for Prokee/Smart Card or AIM fueling (e.g., to track the vehicles that fuel by VIN#, set miscellaneous 1 field as VIN# and enter each individual VIN# in the Vehicle Record; you may then run reports based on those VIN#'s).

System Key Information & System Type

The System Key Information and System Type display the options selected when you first setup FMPlus. To read about system types, see [System Types](#) in Chapter 1. The example in Chapter 3 shows a Keyless system where the System Key Information is Vehicle Key. This setting controls whether Vehicle Option Defaults or User Option Defaults are active.

Vehicle and User Prokee Option Defaults for Global Configuration

Options checked here will prepopulate the vehicle or user record options when adding new ones.

- **Odometer** requires an odometer reading keypad entry upon fueling.
- **PIN** (Prokee Internal Number) option requires PIN keypad entry upon fueling. The Prokee Internal Number cannot be modified; this number is hard coded on each key.
- **Receipt** prompts the user/customer if they would like a receipt at the FMU.
- **Vehicle/User ID** requires a Vehicle/User ID keypad entry before fueling; this option may be modified depending on the System Type.

7 Digit Odometer

Requires user/customer to enter 7-digit odometers at the FMU. This option is not reversible, so choose with care.

Passive System Type

If you are using AIM units for fueling, select **AIM** in the dropdown list. If not, select **NONE**.

Patch List Timeout

Configures the amount of time the software waits for the FMU to apply a patch or list. Time is entered in seconds and defaults to 90. If the customer has small lists, downloads can be sped up potentially with a smaller value. For large lists, the timeout can be increased to give the FMU enough time to finish (*should only be done with a CSC tech helping*).

Added Comm Timeout

Configures the amount of time the software adds for SW and FMU communications. This feature supports Satellite Cellular Modems, most often used with Passive Mobile Units, but impacts all communication timeouts. See [Communication Timeout](#).

Allow transaction export

Determines whether the system allows transaction exports.

NOTE

Transactions will be copied to ExportTrans. this takes up disk space, so enable it only if you intend to export.

Require Customer ID

Prompts users/customers for their Customer ID. It also ties Customer ID to the Vehicle/User records.

Allow TMU Deliveries

If checked and the FMU is connected to your TMU, the FMU updates the inventory maintained by FMPlus when a delivery is made or stick reading reveals inventory is required.

Allow TMU Quantities

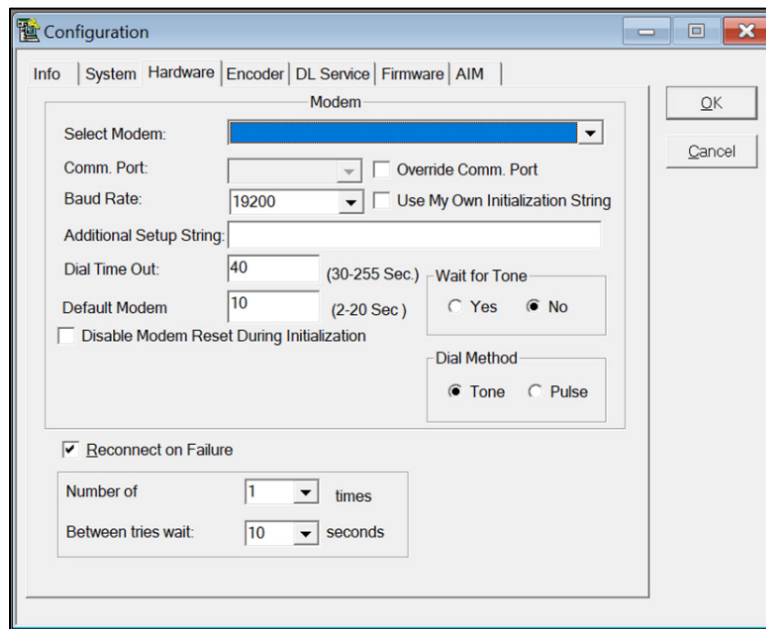
If checked and the FMU is connected to your TMU, the FMU adds TMU quantities to the inventory maintained by FMPlus.

Retry Transaction Files

When enabled, the Central Controller can retry downloading transaction files from the FMU multiple times in the same online session.

Hardware Tab

To access the hardware configuration options for your modem, select the **Hardware** tab from the configuration interface. If your system uses a Network option for communicating with the FMU, please skip to [Reconnect on Failure option](#). These settings are global for all sites created in your software. To restrict baud rate per site, call the Syntech Systems, Inc.'s CSC at 1-800-888-9136 ext. 2.



Modem Options

Syntech recommends US Robotics® external full duplex modems for all FuelMaster systems.

The FM Download Service reads the configuration settings before every connection, not just at startup. When the modem field is populated, the SW dynamically finds the COM port before each connection. When Override Comm. Port is checked, the modem field is blanked and greyed out and FMPlus exclusively uses the Comm Port as set.

Set up Modem

1. Select your modem from the dropdown unless using the Override.
2. Ensure CSC sets the **Baud Rate**; they will typically start at 19200 and change to a lower baud rate if connection problems occur.
3. Unless directed by the Syntech Systems, Inc.'s CSC, leave the **Additional Setup String** blank, and the **Use My Own Initialization String** check box to the right unchecked.
4. Set the **Dial Timeout** to the appropriate length (it will need to be longer if dialing through a switch or accessing an outside line.)

5. Set the **Default Modem Timeout** to the appropriate length.

Wait for Tone Option

Select whether you want the modem to wait on tone to dial. The most common setting is **Yes**.

Dial Method Options

If your phone system is pulse, select **Pulse**. Otherwise leave it as **Tone**.

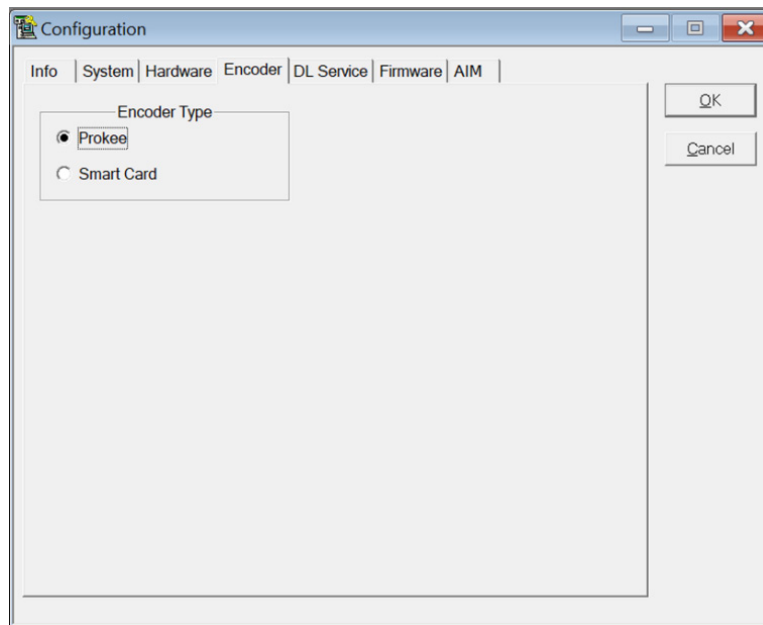
Reconnect on Failure Options

Set the number of times you want the system to redial and the amount of time to wait between each attempt.

Encoder Tab

Select **Prokee** or **Smart Cards** in **Encoder Type**.

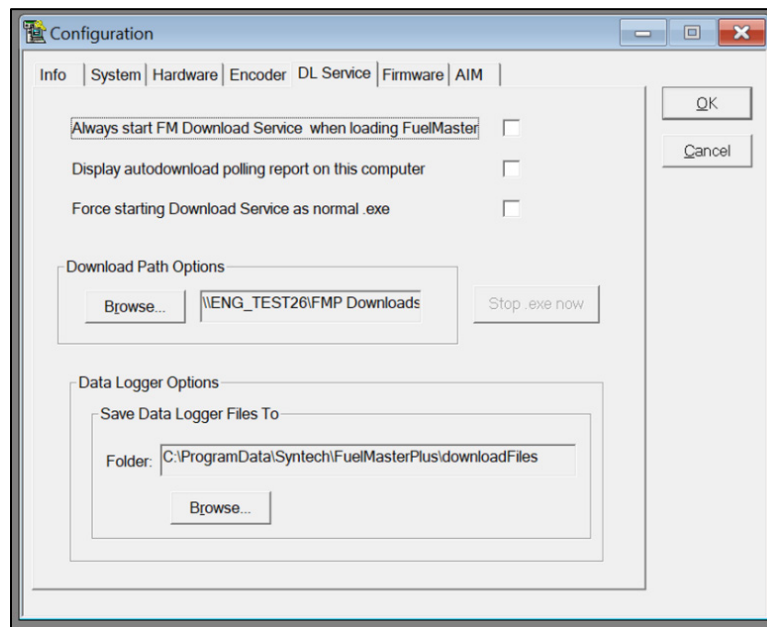
If the encoder drivers have not been installed, see [Chapter 2 Getting Started](#).



DL Service Tab

The FM Download Services have several configuration options. This tab also allows the Download path to be reset and defines the location to save the Data Logger files.

NOTE Stop the Download Service before changing the Download Path. Download Path Options may also be reset from the **System > Reset Download Path** menu.



Always start FM Download Service when loading FuelMaster

If not running, start the FM Download Service when launching FMPlus.

Display autodownloaded polling report on this computer

Check this option to display the Polling Report on this Central Controller for Auto Downloads.

Force starting Download Service as a normal.exe

If selected, this option runs the FM Download Service as an executable. In most circumstances, it should run as a service. Only select this option if advised to do so by Syntech Systems, Inc.'s CSC.

Start .exe now / Stop .exe now

These buttons are only enabled when the FM Download Service is running as an executable. Click to start or stop the Download Service.

Download Path Options

When resetting the Download Path, the FM Download Service must be stopped. **Browse** to select the new location. Restart the FM Download Service when set.

Data Logger Options

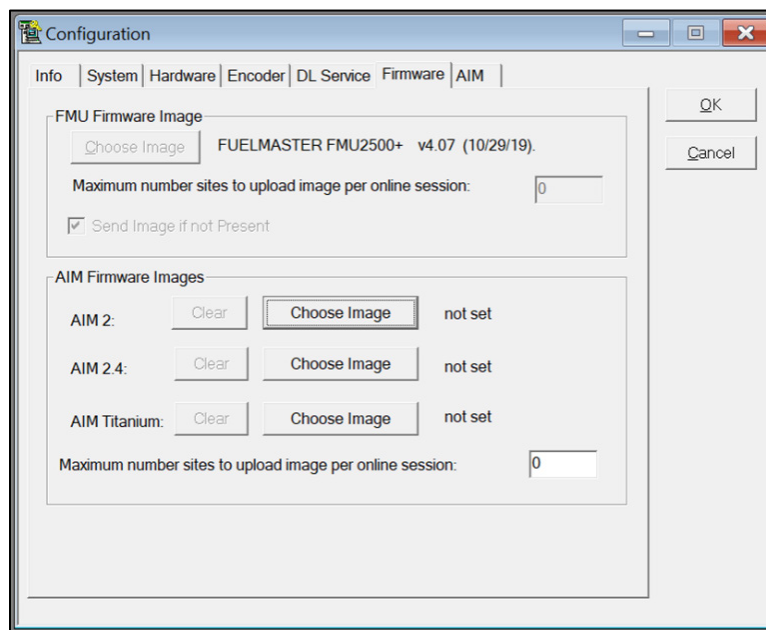
Browse to specify the location to save Data Logger files.

Firmware Tab

In support of automated FMU upgrades, the Firmware version can be selected and set on the **Firmware** tab.

Once set, the FMU FW image name displays by the **Choose Image** button. Having the image on the FMU when the automatic upgrade begins decreases the total upgrade time. Contact Syntech Systems, Inc.'s CSC for more information or to request an automatic upgrade.

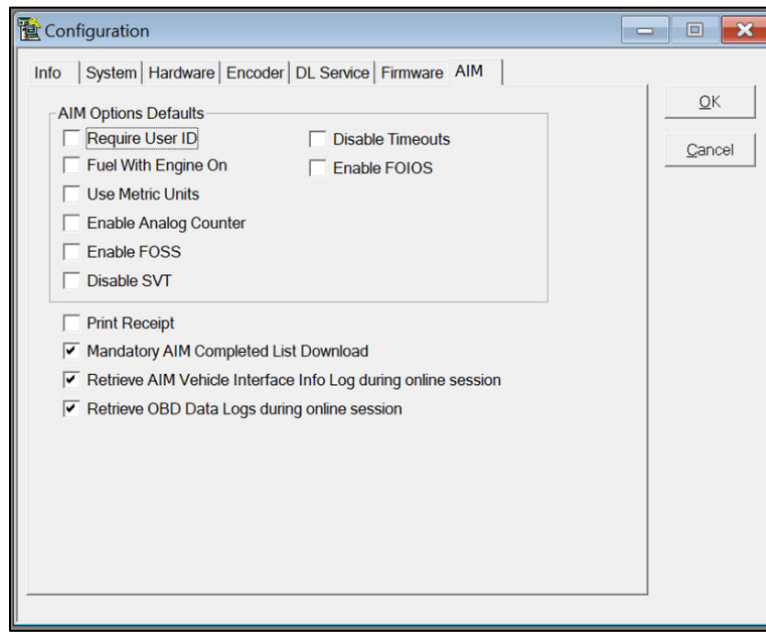
AIM Firmware images may also be selected for upload.



Enter the number of sites to update in each online session for FMU FW and AIM FW as applicable.

AIM Tab

AIM Option Defaults are set in FMPlus and sent via the AIM Programming List to update the AIMs. Select the options desired. [See Appendix C – SW Configuration for AIM Options.](#)



Mandatory AIM Completed List Download

Downloads the AIM Completed List for every online session. This option should always be selected.

Retrieve AIM Vehicle Interface Info Log during online session

Downloads the AIM Vehicle Interface Info Log for every online session even when Download OBD Data Logs is not selected in the Online Client.

Retrieve OBD Logs during online session

Downloads the OBD logs for every online session. Uncheck if OBD logs are not desired.

Chapter 4 Products and Pricing

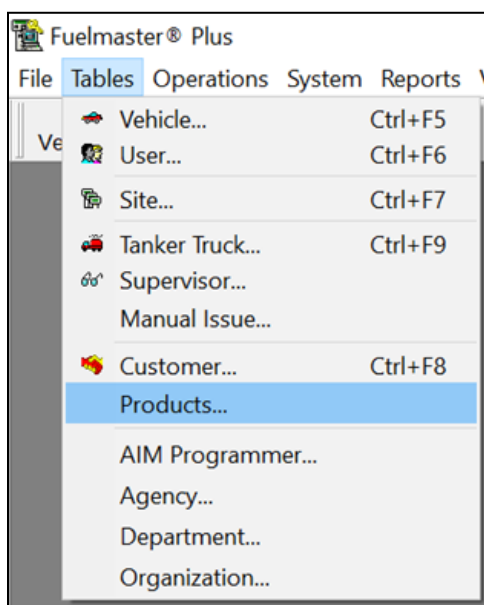
Products and pricing are central to the function of the FuelMaster system. Prokees/Smart Cards are only allowed to get products they are authorized to dispense. This configuration is especially critical for credit card systems since pricing is finalized when the transaction completes.

Products

To access the Products List, select the **Products** option from the **Tables** menu.

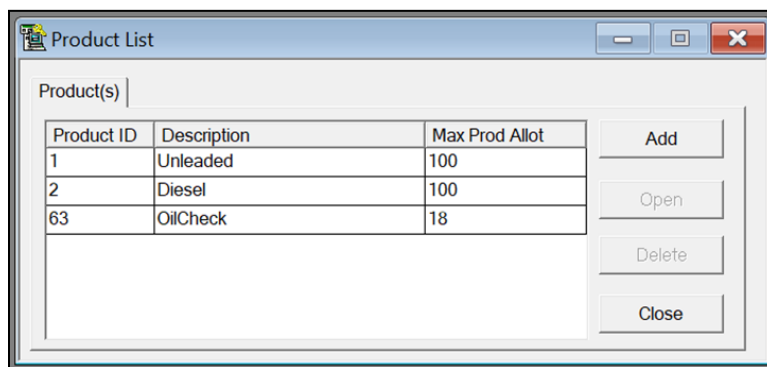
Use this feature to setup products and modify pricing as needed. This is also where pricing adjustments are applied.

NOTE All prices must be uploaded to the FMU before they will have any effect on transaction pricing.



Pre-Programmed Products

The FMPlus database comes preprogrammed with three products: **Unleaded**, **Diesel**, and **OilCheck**.



If you have these products, double click on the product, or highlight a product and click **Open**, to modify as desired. If not, you may highlight the product and click the **Delete** button to remove it from the Products List.

NOTE

Product 63, OilCheck, is used with FMU oil check transactions and, as such, should not be deleted.

Creating/Editing a Product

To create a new product, click the **Add** button from the Product List. This displays the product configuration interface. To edit, double click the Product or highlight it and choose **Open**.

For a new product the Product field is defaulted to one number higher than the highest existing Product ID.

Price Level		
	Adjustment	Total
Level 1	0	\$0.0
Level 2	0	
Level 3	0	
Level 4	0	
Level 5	0	
Level 6	0	
Level 7	0	
Level 8	0	

Description

Used in the Product List and will be listed in the Tank ID Product dropdown when setting up your Site(s).

Maximum Product Allotment

Sets the global amount for Vehicle/User/Tanker Truck authorized Products. An exception appears on the Polling Report if the product is dispensed over the daily allotment. This does not lock users out from fueling over the daily limit; it is for monitoring and reporting purposes only.

Price Level		
	Adjustment	Total
Level 1	.10	\$3.1900
Level 2	-.10	\$2.9900
Level 3	10%	\$3.3990
Level 4	-10%	\$2.7810
Level 5	0	\$3.0900
Level 6	0	\$3.0900
Level 7	0	\$3.0900
Level 8	0	\$3.0900

Base Cost

Purchase price of the fuel per gallon, before any adjustments.

Transaction Limit

Set this limit to the maximum capacity of the largest tank in your fleet for this product. When you add a new vehicle record, the Transaction Limit in that record cannot exceed this amount.

Map To

Used for credit card customers only and is used to correlate the FuelMaster's product code to the code that needs to be sent to the credit card network for processing. As shown above, your company may view the product as Dyed Diesel, but the credit card network views the product as Off-Road Diesel.

Price Level

There are eight levels of pricing that can be applied for discounts/markups. These levels adjust the total unit costs using a calculation from the Base Cost and Adjustment fields.

NOTE

Prices are calculated and attached to Prokee/Smart Card transactions after the transactions are downloaded from the FMU into FMPlus.

Adjustments

The Adjustment field is a factor in the Total price per gallon. The field can contain a 0 if no modification to the Total price per gallon is required, and can use positive/negative currency or a positive/negative percentage. For example, a retailer wanting a \$0.10 markup would enter .10 as shown above; this will ensure that all Level 1 users will pay 10 cents per unit above cost. Any combination of the base cost and adjustments can be used to meet your needs. All prices must be sent to the FMU before they can be used.

Chapter 5 Site Configuration

At the core of the FuelMaster system is the FuelMaster FMU, located on the fueling island and used to control and provide access to fuel. Each master FMU can control up to eight satellite FMU's. Each instance of a master FMU and its satellites (if any) is referred to as a **Site**.

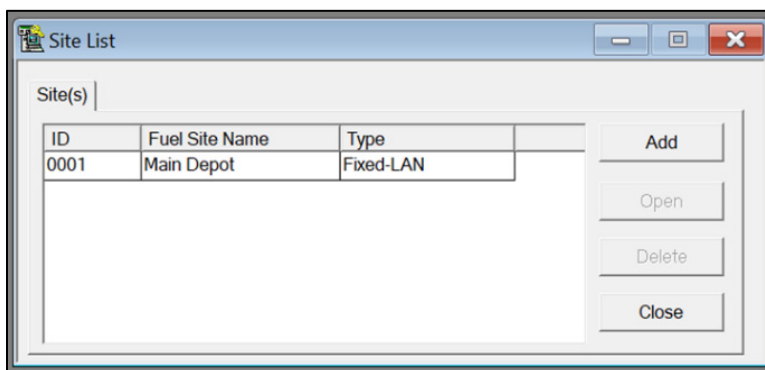
Sites using credit card networks must have a dedicated line (phone or network) per FMU and can only use master FMUs.

Each Site is correlated to a set of configuration data in FMPlus and is managed as one group.

Access the **Site List** by clicking on the **Site** icon on the FMPlus toolbar, from the **Tables > Site** menu, or hot keys CTRL + F7.

The **Site List** displays the Site(s) ID, Name and Type. Each site can be accessed by double-clicking the Site name or by highlighting and clicking **Open**.

To create a new site, click **Add**.



Site Configuration

Site information

Contains Site ID, Name and contact information for the physical site location. Site ID and FMU type are required before proceeding to the next section. A Site ID can contain up to 4 alphanumeric characters; if fewer, it will be padded with leading zeroes.

Site ID 0001

Site ID: 0001 Contact:

Site Name: Main Depot Phone No:

Address1: Fax No:

Address2: E-Mail:

City: Last Download: 3/19/2020 2:42:34 PM

State: Zip Code:

Location Code / Comment:

Tank(s)

T...	Product	Quantity	Reorder Limit	Capacity	Type
1	Unleaded	49000.00 GL	5000.00 GL	50000.00 GL	pure
2	OilCheck	2500.00 QT	500.00 QT	5000.00 QT	pure

Add Open Delete

FMU(s)

F...	FMU Name	Version
0	MD1	FUELMASTER FMU2500...

Add Open Delete Online

Connection Type: LAN Configure

Tank Monitor: NO TANK MONITOR UNIT Configure

Type: F - Fixed

FMU: FMU 2500 Plus AIM II Prog

Local Authorization Options

☒ Lock-in List

☐ Lock-out List

Time Synchronization

☒ Synchronize Time

Offset: 0

Advanced OK Apply Cancel

Tank Listing

Displays the Tank(s) configured for the site. See [Tank Configuration](#) for more information.

FMU Listing

Displays the FMU(s) configured for this site. See [FMU Configuration](#) for more information.

Site Configuration options

Connection type

There are two types of connections supported by FuelMaster: Phone, and LAN. Select the appropriate connection type from the dropdown box and click 'Configure'.

Site ID: * 0001

Site Name: Main Depot

Address1:

Address2:

City:

State:

Zip Code:

Contact:

Phone No:

Fax No:

E-Mail:

Last Download: 3/19/2020 2:42:34 PM

Location Code / Comment:

Tank(s)

T...	Product	Quantity	Reorder Limit	Capacity	Type
1	Unleaded	49000.00 GL	5000.00 GL	50000.00 GL	pure
2	OilCheck	2500.00 QT	500.00 QT	5000.00 QT	pure

FMU(s)

F...	FMU Name	Version
0	MD1	FUELMASTER FMU2500...

Connection Type: LAN

Tank Monitor: NO TANK MONITOR UNIT

Type: F - Fixed

FMU: FMU 2500 Plus AIM II Prog

Local Authorization Options:

☒ Lock-in List

☐ Lock-out List

Time Synchronization:

☒ Synchronize Time

Offset: 0

Buttons: Add, Open, Delete, Online, Configure, Advanced, OK, Apply, Cancel

Tank Monitor

The FMU can communicate directly with your TMU and bring back a wide variety of details. TMUs communicate serially with the FMU and are queried for information, which is returned to the software upon download.

Type

The **Type** option refers to the type of unit the site represents. Fixed units are FMU's installed at the fueling island. Select **F - Fixed**. Mobile units are mounted on fueling trucks. Select **P - Passive Mobile**.

FMU

Set the type of FMU installed at your fueling island or Mobile vehicle: Classic, Plus, Plus with AIM units, or Plus with AIM Prog FMU type.

Local Authorization Options

Controls whether the site receives a lock-in or lock-out list for authorizing Local Authorization Credit Cards. A lock-in list holds **all** credit cards that are authorized to receive fuel; any card **not** listed will **not** be authorized for fuel. A lock-out list authorizes **all** cards unless a card is listed as unauthorized for fuel.

Time Synchronization – with offset

Utilized to synch the FMU time with the PC time; can be set per site. Offsets can be 0 to 23 (used for time zone differences). If checked, every time the software goes online with the FMU, synchronizes the time at the FMU to the PC time (plus or minus the offset).

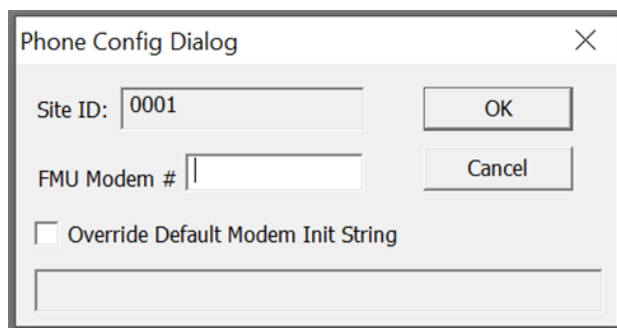
Advanced – FMU Settings

Enable FMU Settings to manage the FMU configuration. See [Managing FMU Settings](#).

Connection Configuration

Phone Connection

FuelMaster customers can use an analog phone line to communicate with their FMU. There are also options available for remote sites to utilize cell phone modems and/or phone line extenders. Enter the FMU phone number and click **OK**.

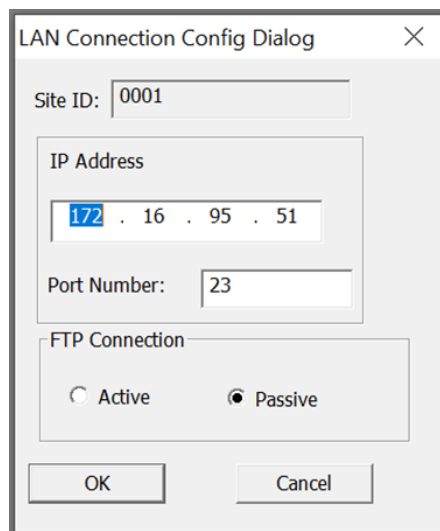
A screenshot of a 'Phone Config Dialog' window. The window has a title bar with a close button (X). Inside, there are two text input fields: 'Site ID:' with the value '0001' and 'FMU Modem #' which is empty. To the right of these fields are 'OK' and 'Cancel' buttons. Below the input fields is a checkbox labeled 'Override Default Modem Init String' which is currently unchecked. At the bottom of the dialog is a larger empty text area.

LAN Connection

Uses your existing network to communicate with the FMU via TCP/IP. Enter the static IP address assigned to the FMU by your IT Dept. (A static address is a fixed address dedicated for the FMU to minimize errors in communications.)

Passive and Active FTP Toggle

When a LAN connection is used to communicate with FMUs, the software can be configured to use either Active or Passive FTP on a per site basis.

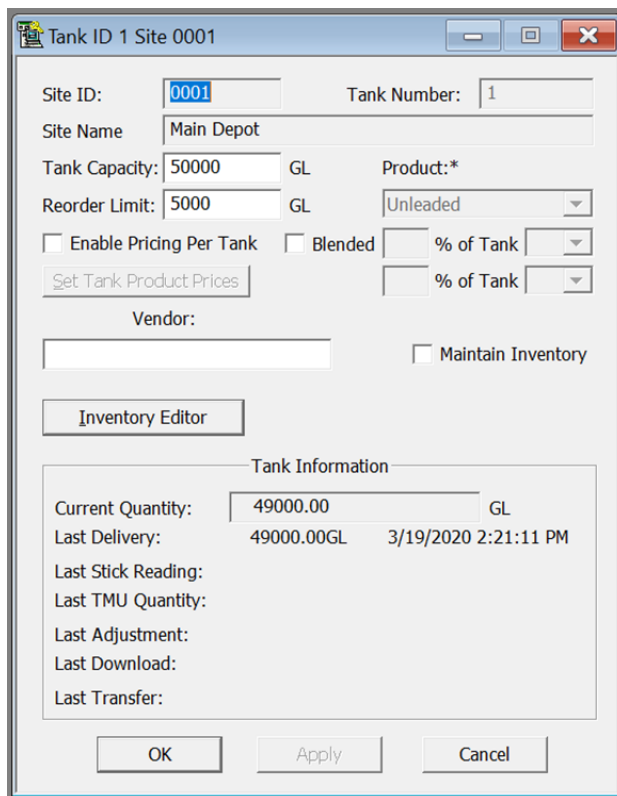


The LAN Connection Config Dialog is a window with a title bar containing a close button. It contains the following fields and controls:

- Site ID: 0001
- IP Address: 172 . 16 . 95 . 51
- Port Number: 23
- FTP Connection: ☐ Active ☒ Passive
- Buttons: OK, Cancel

Tank Configuration

Tanks provide product for FMU's to dispense. The configuration items and options are described below.



The Tank ID 1 Site 0001 window is a configuration dialog for a specific tank. It contains the following fields and controls:

- Site ID: 0001
- Tank Number: 1
- Site Name: Main Depot
- Tank Capacity: 50000 GL
- Reorder Limit: 5000 GL
- Product: * Unleaded
- ☐ Enable Pricing Per Tank
- ☐ Blended
- ☐ % of Tank
- ☐ % of Tank
- Set Tank Product Prices
- Vendor:
- ☐ Maintain Inventory
- Inventory Editor
- Tank Information
 - Current Quantity: 49000.00 GL
 - Last Delivery: 49000.00GL 3/19/2020 2:21:11 PM
 - Last Stick Reading:
 - Last TMU Quantity:
 - Last Adjustment:
 - Last Download:
 - Last Transfer:
- Buttons: OK, Apply, Cancel

Tank Capacity

The maximum fuel capacity of the tank.

Reorder Limit

This triggers the FMU to notify the user when the tank has reached or fallen below the reorder limit. A message displays on the Polling Report notifying the Central Controller to order more fuel after a download has taken place.

Product

Select the product to associate with this tank.

Blended

A blended tank represents a mixture of two tanks that are combined at fueling. Before creating a blended tank, configure two non-blended tanks. This is only available if using electronic dispensers at the FMU.

Maintain Inventory

If checked, maintains a running calculation of tank inventory based on deliveries, adjustments, transfers, stick readings, TMU readings, and fueling transactions.

Enable Pricing Per Tank

Check this flag to set site/tank specific pricing versus system-wide pricing. Pricing configuration is handled like the [Product Pricing](#) described in Chapter 4.

Vendor

This represents the company that provides fuel for this tank. It is used for reporting purposes.

Tank Information

Displays the latest of each type of inventory transaction: delivery, adjustment, transfer, stick reading, and TMU reading, as well as the current quantity read at the last download.

Inventory Editor

Deliveries, Adjustments, Transfers, and Stick Reads are all handled through the inventory editor interface which allows you to enter/edit inventory related records.

The Inventory Editor is used to enter, edit, or delete inventory transaction records. Check the box to **Show Running Balances**. To add or edit a record, select the Site and Tank desired, and choose the transaction type. Click **Add** to create a new entry. Highlight the desired record and click **Edit** to change an existing record. This opens several different inventory adjustment dialogs that vary slightly for each transaction type.

Use the Inventory Adjustment dialogs to enter the date/time and quantity of each inventory transaction. Some, like the **Edit Delivery Dialog**, have fields specific to that delivery type. You can also enter the unit price paid for the delivery. This, in turn, is used in the Fuel Costing report to track fuel cost versus what it is sold for. Enter in all pertinent information and click **OK** to save.

FMU Configuration

The FMU Configuration window allows you to establish FMU settings, timers, and hose configuration.

Unit ID 0 Site 0001

Site Name:

FMU: FMU Name:

Hose(s)

P...	H...	Type	Tank	Prod	NPT	PHL	PFT	UI	Div/Ratio
A	1	MECHANICAL	1	1	30	none	10	GL	10 : 1
B	2	MECHANICAL	2	63	30	none	10	QT	10 : 1

Modem Hours
Begin: End:

Totalizer digits: Decimal Digits for Onsite

Valid Key Timeout: Zero Quantity Shutdown

Creepage: Message Duration: Julian Date Rollover Hour:

FMU Name

Enter the FMU Name.

Modem Hours

Represents the hours during which the FMU modem answers incoming calls from the software.

Totalizer Digits

Sets the number of digits that can be used to represent totalizer readings: the left edit field shows number of digits to the left of the decimal and the right edit field shows number of digits to the right of the decimal.

Valid Key Timeout

Length of time in seconds the user/customer must complete the transaction authorization after inserting a key in the FMU.

Message Duration

Length of time in seconds a message prompt is displayed on the FMU's LCD before timing out and returning to the previous prompt.

Decimal Digits for Onsite

Specifies the number of digits printed on the onsite printer for transaction quantity information.

Zero Quantity Shutdown

The number of zero quantity transactions a hose can execute consecutively before the hose is shut down. This prevents fuel being dispensed when no quantity is recorded, perhaps because the pulser in the dispenser is failing, or has failed, and needs to be replaced.

Julian Date Rollover Hour

Specifies the time at which the day end/begins for accounting purposes. Example: Download takes place every day at 8:00 am and the Julian Date Rollover is set to 8. This setting will change the date and time of the transactions by 8 hours using 8:00 am as midnight to start a new day of transactions. If someone fuels at 7:30 am and then a download takes place at 8:00 am with the current setting 8, the 7:30 am transaction will have a date/time as 11:30 pm the previous day.

Each FMU at your Site(s) needs to be configured separately under the Site Configuration. This includes the master FMU and any satellite FMUs.

Online

When an FMU configuration is complete, click **Online > Upload** to send the information to the FMU.

If the FMU has already been configured or to [activate Site FMU Settings](#), click **Online > Download** to send configuration information to FMPlus.

Hose Configuration

Hoses are tied to pump positions in the FMU pedestal. Each FMU can control up to eight physical pump positions and can therefore have eight hoses.

Hose 1 Site 0001

Site: Main Depot
Unit: MD1
Pump: A
Hose: 1
Type: ☐ MPD ☒ Mech Configure
PHL: none PIE: 0 UI: GL
Div Ratio: 10 :1 NPT: 30 PFT: 10
Grade Position(s)

Num	Tank	Product
1	1	Unleaded

OK Apply Cancel

Multi-Product Dispensers (MPD) can be interfaced with the FMU using an Omega Jr./PIE box. The PIE box is essentially a translator that allows the FMU to issue commands to the Electronic Dispensers' computer modules. In this scenario, fuel control is not handled mechanically, but instead done electronically.

Hose Types:

Mech - Mechanical Hoses

Configure one hose at a time for mechanical dispensers and mechanically controlled electronic dispensers.

MPD/Electronic Hoses

MPD's and Electronic Dispensers using PIE boxes use all the Mechanical settings but also use the PIE setting. This is the electronic address that correlates to the fueling position being controlled. For MPD the hose position is one side of the dispenser or fueling position. Each FMU can control up to eight fueling positions.

PHL (Pump Handle Sensing)

Pump Handle Sensing can be used for starting and/or ending transactions. This MUST be set to how the position is wired in the dispenser.

Div Ratio

Divide Ratio correlates to the pulser divide rate - the number of pulses generated for each integral unit of issue dispensed. Common settings are 100:1 or 10:1.

NPT (No Pulse Timeout)

Amount of time allowed from the transaction authorization until the transaction is stopped because dispensing did not occur.

PFT (Pump Finish Timeout)

Amount of time after pulses cease before the FMU completes the transaction.

Type - Configure

For a "Mech" hose, **Configure** opens the Mechanical Grade Positions dialog box. For an "MPD" hose, **Configure** opens the MPD Grade Positions dialog box.

Mechanical Grade Positions

For Mechanical Hoses, there can only be one grade per hose position. To configure the grade, select the appropriate tank from the dropdown box.

Verify that the Product automatically displayed when the tank is selected is the correct one or correct any issue in the tank configuration interface. Click **OK**.

Pos	Tank	Product	PIE	ANID
1	1	Unleaded		0
2				0
3				0
4				0
5				0
6				0
7				0
8				0

MPD Grade Positions

For MPDs, you can configure up to eight grade positions for each individual hose or fueling position. To clarify, the hose position is the side of the dispenser you wish to control, and the grade positions represent the different products available through that dispenser.

Pos	Tank	Product	PIE	ANID
1	1	Unleaded	1	27
2			2	0
3				0
4				0
5				0
6				0
7				0
8				0

To configure the grade positions, select the tank for each position and then configure the PIE addresses for each. When a position is filled, the next position becomes available. The PIE addresses are established by the dispenser and are usually sequential from 1 to 8. Verify the Product box is correct when selecting tanks.

NOTE

The AIM Nozzle ID (ANID) identifies the fueling hose tag for the AIM module.

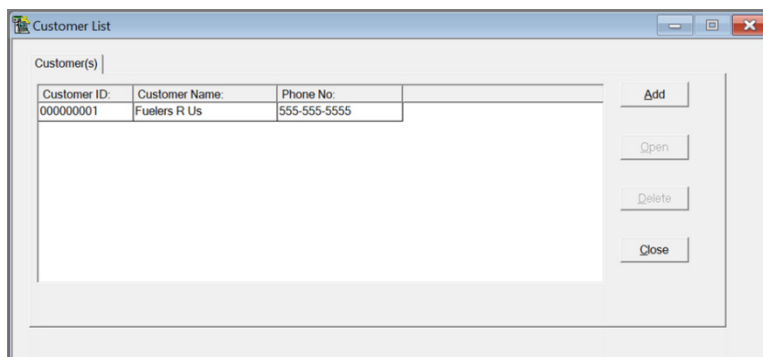
Chapter 6 Customers, Vehicles, & Users

FMPlus has three primary ways to gain access to fueling data for billing purposes: by Customer, Vehicle, or User. Of these, Vehicles and Users can be encoded on keys or cards and used to access the FMU.

There are several more layers of authorization and billing ability in FMPlus, such as Agency, Department and Usage. Customizable fields (Miscellaneous fields covered in [Chapter 3](#)) can also be used to break out accounting data in even more detail.

Customers

Access the Customer list by clicking the **Cust** icon on the FMPlus toolbar, by selecting **Tables > Customer**, or by hot keys CTRL + F8.



Customer records are the top billing level of the FuelMaster package. The **Customer List** displays the Customer ID, Name, and Phone number.

Customer information can be accessed by double-clicking or by highlighting and clicking the **Open** button.

Click **Add** to add a new customer and its detailed information.

Customer ID

The **Customer ID** window is used to enter all information pertinent to a customer.

The screenshot shows a Windows-style dialog box titled "Customer ID - [NEW]". It features a standard Windows title bar with minimize, maximize, and close buttons. The main area contains several input fields: "Customer ID:*" (a text box), "Customer Name:" (a text box), "Address1:" (a text box), "Address2:" (a text box), "City:" (a text box), "State:" (a text box), "Zip Code:" (a text box), "Phone No:" (a text box), "Fax No:" (a text box), "E-Mail:" (a text box), "Contact:" (a text box), "Price Level:" (a dropdown menu showing "1"), and "Comment:" (a text box). To the right of these fields are three buttons: "OK", "Apply", and "Cancel". Below the input fields is a section titled "Authorization(s)" containing four checkboxes, all of which are checked: "Vehicle Prokee", "Utility Prokee", "AIM", and "User".

Customer ID

The **Customer ID** contains up to 9 alphanumeric characters and will be automatically padded with zeroes (to the left). This field identifies which Vehicles and Users correspond to a specific customer. If you do not wish to use this option, you can turn off the **Require Customer ID** setting as shown in [Chapter 3, System Tab](#).

Customer Information

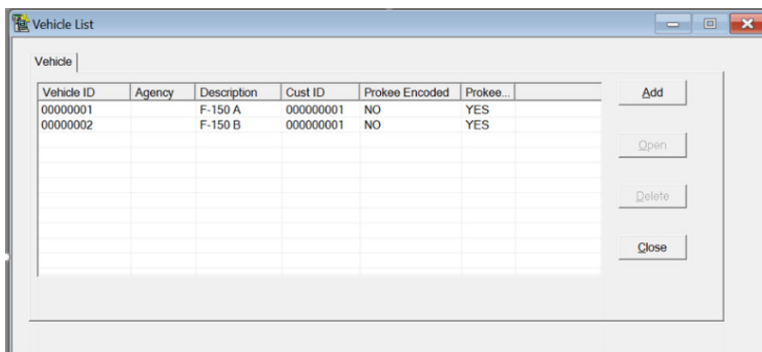
The **Customer ID** is a unique 9-character identifier for the customer in FMPlus. Use the Customer Name field to more completely identify the customer for users of the system.

Price Level

The Price Level can be set for each customer for their vehicles/users. This is a global setting for each customer but can still be adjusted per vehicle/user if needed. For more info on Price Levels, see [Chapter 4](#).

Vehicles

The list of Vehicles can be accessed by clicking the **Vehicle** icon on the FMPlus (Fig 3.1) toolbar, by selecting **Tables > Vehicle**, or by hot keys CTRL + F5.

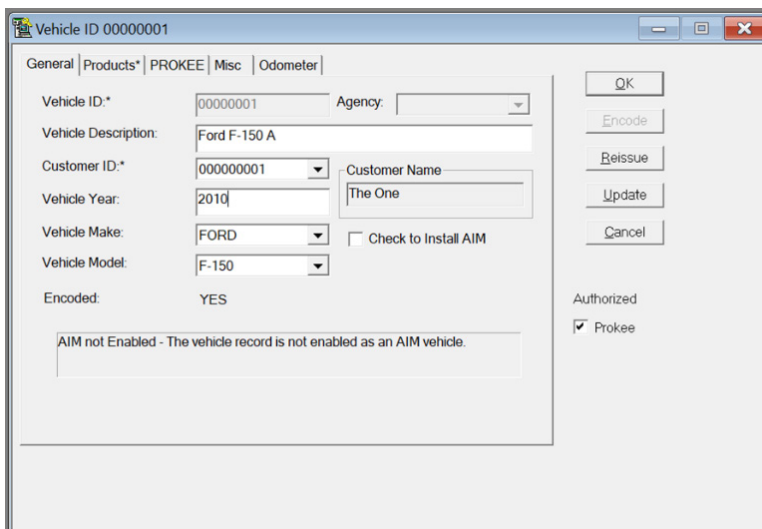


Once Customer records have been created, or the option turned off, Vehicle records can be created. The Vehicle record contains information about the vehicle, the Customer, and products authorized for the vehicle. Each vehicle can be accessed by double-clicking or by highlighting and clicking the **Open** button. New Vehicles can be added by clicking **Add**.

Vehicle Record

The Vehicle Record contains five tabs unless the system is configured as a Passive System (AIM). Passive Systems are covered in [Chapter 9](#).

If the system is VVI or UKO, the Vehicle tabs will not have Products or Prokee/Smart Card tabs and you will not be able to encode Prokees or Smart Cards here.



Vehicle General Tab

Various fields are available for billing, maintenance, and description.

Vehicle ID

The Vehicle ID is encoded onto the Prokee/Smart Card to identify the vehicle upon fueling. The ID can be numeric only or alphanumeric depending on the [System Type](#) described in [Chapter 1](#).

Vehicle Description

Describes the vehicle and is primarily used for reporting.

Agency

The Agency field is provided by FuelMaster as a standard accounting category. This field is encoded on the key, can be up to 5 alphanumeric characters and can also be prompted for during a fueling transaction.

NOTE

The prompt option can only be enabled by a Syntech Certified Technician or CSC Technician who can be contacted via phone 1-800-888-9136 ext. 2.

Also ties the vehicle to an agency for group authorization purposes.

Encoded

Status of whether this record has been encoded onto a Prokee or Smart Card.

Customer ID

Ties the Vehicle ID to a Customer for billing or reporting purposes.

Customer Name

Automatically filled when a Customer ID is selected from the dropdown list.

Vehicle Information Fields

Use the Vehicle Year, Vehicle Make, and Vehicle Model field to provide additional information about the vehicle.

Passive Status Box

This box only appears if this is an AIM selected vehicle. It shows the programmed status of the vehicle record to the AIM. When appropriate, the record also has a box that denotes the vehicle is not enabled as an AIM vehicle.

Authorized:

- **Prokee** - if checked and sent to the FMU this vehicle record's corresponding Prokee is authorized; if unchecked and sent to FMU the Prokee is unauthorized at the FMU.

- **AIM** – Only shows if AIM is enabled. If checked and sent to the FMU this vehicle record's corresponding AIM is authorized; if unchecked and sent to FMU the AIM is unauthorized at the FMU.
- **Keypad** – Only shows if the system type is Keyless. If checked, the ID is authorized to start Keyless transactions at the keypad.

NOTE

Removing authorization by unchecking the Prokee or AIM box preserves reporting ability on vehicle transactions. Deleting, and potentially reusing the Vehicle ID, can lead to problems and inaccurate information in the database.

Vehicle Products Tab

One of the benefits of having a FuelMaster System is to make sure vehicles only dispense the products assigned to the vehicle to protect the vehicle from damage and the vender from theft.

Product	Product Description	Allotted	Limit	Level	Price level	Match Cust.	Delete
A. 2	Diesel	100	50	1	1	1	Delete
B. 63	OilCheck	18	6	1	1	1	Delete
C. 0	NA	0	0	1	1	1	Delete
D. 0	NA	0	0	1	1	1	Delete
E. 0	NA	0	0	1	1	1	Delete
F. 0	NA	0	0	1	1	1	Delete
G. 0	NA	0	0	1	1	1	Delete
H. 0	NA	0	0	1	1	1	Delete

Authorized
☒ Prokee

Product

Select one, or up to eight, Products from the Product dropdown lists to be assigned to the vehicle.

Product Description

Displays the description of the selected product and is automatically filled when a product is selected.

Daily Product Allotted

Track a vehicle's normally expected one day usage. This can be set to twice the transaction limit if, for example, the vehicle might fuel twice in one day. The option to cutoff the user from overage can be enabled at the FMU; otherwise, an overage is tracked using an exception message in the Polling Report.

Transaction Limit

Maximum amount of fuel allowed per fueling transaction. Typically set to the vehicle's fuel tank capacity. The transaction ends at the specified amount per vehicle per transaction.

Price Level

Level at which the vehicle fuel is billed; set from the dropdown list. The Price Level is applied to the quantity upon a download from the FMU to arrive at the total price.

Match Customer Price Level

If checked, this record will be linked to its corresponding Customers Price Level.

Delete

Allows the operator to click **Delete** to remove a product from the vehicle record.

Vehicle Prokee/Smart Card Tab

Configures the Prokee/Smart Card options at the FMU when a key is used, and shows the most recent status and encoding information for the vehicle.

The screenshot shows a software window titled "Vehicle ID 00003337" with a tabbed interface. The "PROKEE" tab is selected. Inside this tab, there are checkboxes for "Odometer", "PIN", "User ID", and "Receipt". The "User ID" checkbox is checked. Below these checkboxes, a list of fields displays the following information: Key Type: Vehicle, Reissue Count: 0, Date Reissued: 2/5/2012 1:55:58 PM, Encoded: No, Date Encoded: 2/5/2012 1:55:58 PM, Authorized: Yes, Date Authorized: 8/13/2012 7:44:22 PM, Internal Key Number: (blank), and PIN Number: NA. On the right side of the window, there is a vertical toolbar with buttons for "OK", "Encode", "Reissue", "Update", and "Cancel". At the bottom right, there is an "Authorized" section with a checked checkbox for "Prokee".

Odometer

When checked, the Prokee/Smart Card prompts for an odometer reading at the FMU keypad to complete fueling.

PIN

When checked, the Prokee/Smart Card prompts for a PIN at the FMU keypad. The PIN is the last four digits of the Prokee Internal Number. You may use the Read Prokee button on the toolbar to see the Prokee Internal Number. The Prokee tab also shows the Prokee Internal Number for a Vehicle or User if available.

User ID

When checked, the Prokee/Smart Card prompts for a User ID. For some system types, like the VMN system, this is automatically required and cannot be disabled.

Receipt

Like the other Prokee/Smart Card options when checked, the user is asked if they would like a receipt of the transaction. Credit card transactions provide a receipt regardless of this setting.

Status Fields

- Key Type – Vehicle, User, Tanker Truck, Supervisor, Manual Issue
- Reissue Count – Number of times the record has been issued to a new key
- Date Reissued – Date key was last re-encoded
- Encoded – Status of record being encoded or not
- Date Encoded – Date key was initially encoded
- Authorized – Vehicle Key/Smart Card is authorized or unauthorized
- Date Authorized – Date the key/Smart Card was last authorized

PIN & Internal Key Number

The internal key number is assigned when the key is encoded. The last four digits of the internal key number are the PIN. It cannot be chosen by the Central Controller as it is automatically assigned when the Prokee is encoded.

Vehicle Misc Tab

Define the labels for the miscellaneous fields in **Configuration > System**. These fields can be used in reporting and Custom Exports.

The screenshot shows a software window titled "Vehicle ID 0000000A". The window has a tabbed interface with the following tabs: "General", "Products*", "PROKEE", "Misc" (which is the active tab), and "Odometer". The "Misc" tab contains several input fields: "Organization:" (a dropdown menu), "Usage:" (a text field), "Date Service Began:" (a date picker showing "8/ 2/2016"), "Misc 1" through "Misc 5" (five text fields), and "Comment:" (a larger text area). To the right of these fields is a vertical column of buttons: "OK", "Encode", "Reissue", "Update", and "Cancel". Below these buttons is a section labeled "Authorized" with a checked checkbox labeled "Prokee".

Organization

This accounting field is not encoded on the key; can be three alphanumeric characters.

Usage

Also not encoded on the key; can be six alphanumeric characters.

Date Service Began

Displays the date the key record was created.

Miscellaneous Fields

The five potential miscellaneous fields can be used for additional accounting information. These fields can be up to 20 alphanumeric characters.

Vehicle Odometer Tab

Information regarding the Odometer and PM Maintenance are created and stored in this tab.

The screenshot shows a software window titled "Vehicle ID 00003337" with several tabs: "General", "Products*", "PROKEE", "Misc", and "Odometer". The "Odometer" tab is selected. It contains the following fields and controls:

- Current Odometer:** A text box containing the value "0".
- Date Odometer Read:** A text box containing the value "2/5/2012 1:55:58 PM".
- Fuel Range:** A text box containing the value "350".
- Expected Efficiency:** A text box containing the value "50".
- Preventive Maintenance:** A section with a checkbox that is currently unchecked. Inside this section are:
 - PM Range:** A text box containing the value "3000".
 - PM Notification:** A text box containing the value "250".
 - Next PM Reading:** A text box containing the value "0".

On the right side of the window, there is a vertical stack of buttons: "OK", "Encode", "Reissue", "Update", and "Cancel". Below these buttons, there is a label "Authorized" and a checked checkbox labeled "Prokee".

Current Odometer

Displays the current mileage of the vehicle if entered while fueling.

Date Odometer Read

The date of the last odometer reading if entered when fueling.

Fuel Range

Distance the vehicle can travel on one full tank. An exception displays on the Polling Report if the vehicle goes outside the range. The message is also invoked if the vehicle has fueled offsite causing the odometer to be out of range. If a vehicle is

often transient, setting this range higher is suggested since offsite fueling will be taking place.

Expected Efficiency

Expected miles per gallon (MPG) for the vehicle.

Preventative Maintenance

Checking this box allows you to track Preventative Maintenance for this vehicle or equipment.

PM Range

Number of miles the vehicle can go between preventative maintenance servicing such as oil changes.

PM Notification

Sets the number of miles prior to reaching the PM Range for notification.

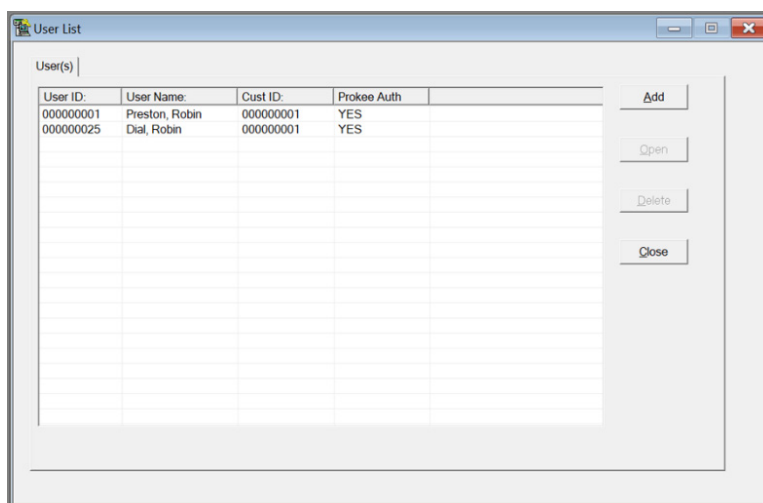
Reports > Preventative Maintenance > PM Over Due or **PM Over Notice** shows when vehicles are due for preventative maintenance and need to be serviced.

Next PM Reading

Set when the record is created to flag for servicing; also reset when the vehicle has completed servicing.

Users

The list of Users can be accessed by clicking the **User** icon on the FMPlus toolbar, by selecting **Tables > User**, or by hot keys CTRL + F6.



The User List operates similarly to the Vehicle List, showing Users who are authorized to fuel vehicles and general information on each user.

User ID

The User dialog in this example contains one tab as the system type is VMN. Other System Types may display additional tabs that operate similarly to the tabs in the Vehicle ID section.

The screenshot shows a 'User ID [NEW]' dialog box with a 'General' tab. The fields are organized as follows:

- User ID*: [Text Field]
- Last Name: [Text Field] | First Name: [Text Field]
- Misc: [Text Field] | Middle Initial: [Text Field]
- Agency: [Dropdown]
- Department: [Dropdown] | Customer Name: [Text Field]
- Customer ID*: [Dropdown]
- Employee No: [Text Field]
- Phone No: [Text Field]
- FAX No: [Text Field]
- E-Mail: [Text Field]
- Comment: [Text Field]
- Date Authorized: 4/2/2020 3:01:30 PM

On the right side of the dialog, there are buttons: OK, Encode, Reissue, Update, and Cancel. Below these buttons, there is a section labeled 'Authorized' with a checked checkbox and the text 'USER'.

Users General Tab

Basic information fields describe the Users information.

User ID

The User ID is either a manual entry at the FMU or can be encoded onto a Prokee/Smart Card or Proximity card. This depends on the [System Types](#) as described in [Chapter 1](#).

Last, First, MISC, Middle Initial

Used to describe the User; used for reporting.

Agency & Department

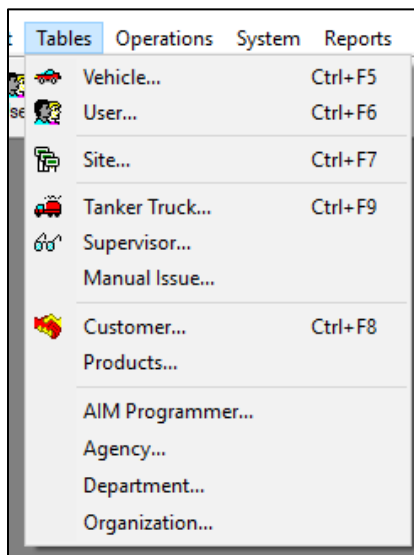
Associate an Agency or Department to the User for group authorization purposes.

Customer ID & Customer Name

When you select Customer ID from the dropdown box, the Customer Name auto-fills. This must be selected before entering other fields.

Agencies, Departments, and Organization

Vehicles, Users, and Utility Keys can be grouped for authorization and billing by Agency, Department, and Organization, as well as by Customer.



Agency, Department, and Organization can be accessed through the **Tables** menu.

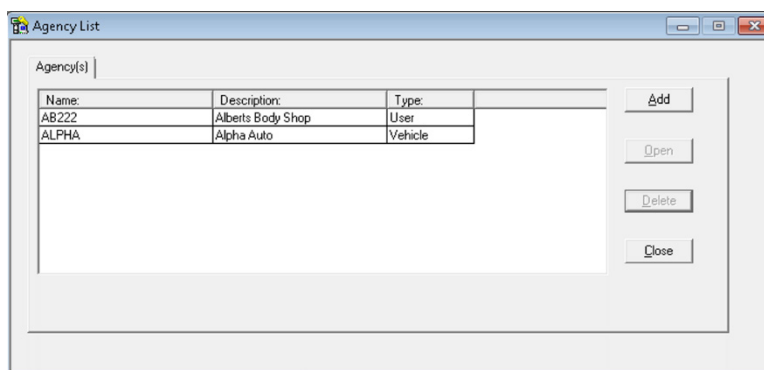
Agencies

Agency List

Select **Tables > Agency...** from the menu to access the Agency List.

Use the list to **Add, Delete, or Open** Agency records.

Access Agency information by double-clicking on a record or highlighting it and clicking **Open**.



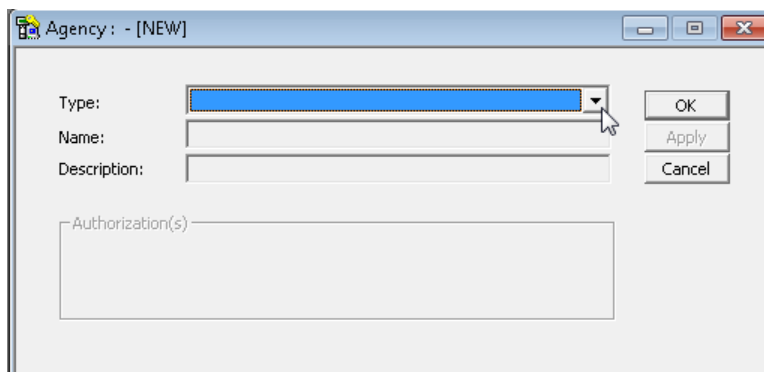
NOTE

An Agency cannot be deleted from the system if it is associated with any vehicle or user.

Agency New

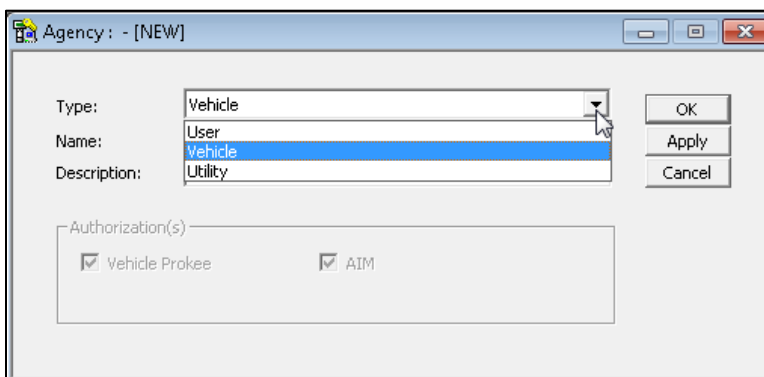
Each agency must have an agency **Type** and **Name**. **Description** is optional.

The name field supports up to 5 characters.

The screenshot shows a Windows-style dialog box titled "Agency: - [NEW]". It has three input fields: "Type:" which is a dropdown menu, "Name:" which is a text box, and "Description:" which is a text box. Below these fields is a larger text area labeled "Authorization(s)". To the right of the input fields are three buttons: "OK", "Apply", and "Cancel".

Agency Types

Each Agency value must be unique and can only be associated with one record type; User, Vehicle, or Utility.

This screenshot shows the same "Agency: - [NEW]" dialog box, but with the "Type:" dropdown menu open. The dropdown list contains four items: "Vehicle", "User", "Vehicle" (which is highlighted in blue), and "Utility". In the "Authorization(s)" text area, there are two checkboxes: "Vehicle Prokee" and "AIM", both of which are checked with a checkmark.

Different Authorization checkboxes display depending on the System Type and Agency Type selected.

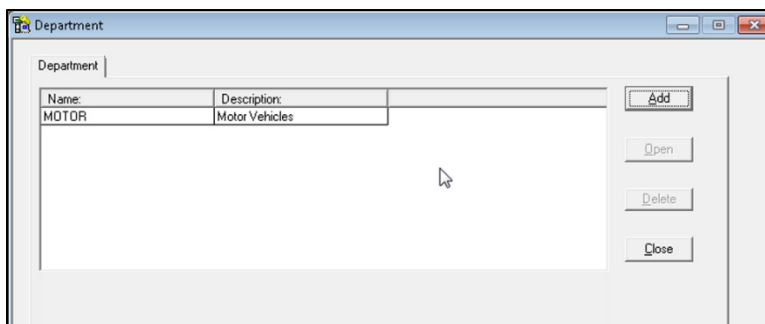
Once added, Agencies are available via a dropdown box for Vehicles, Users, and Utility Keys.

Departments

Department List

Select **Tables > Department...** from the menu to access the Department List.

Use the list to **Add**, **Delete**, or **Open** Department records.



Access Department information by double-clicking on a record, or highlighting it and clicking **Open**.

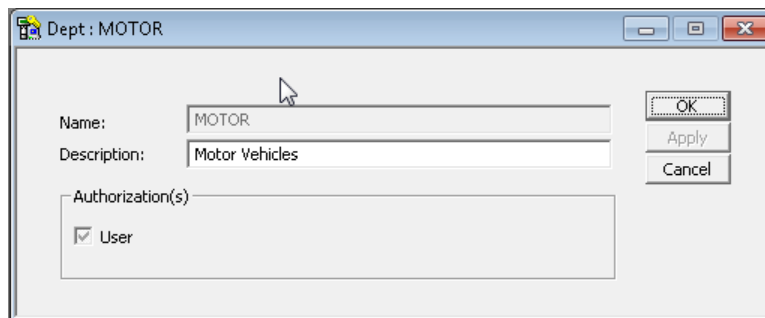
NOTE

A Department cannot be deleted from the system if it is associated with any user.

Department Entry

Each department must have a **Name**, up to 6 characters. **Description** is optional.

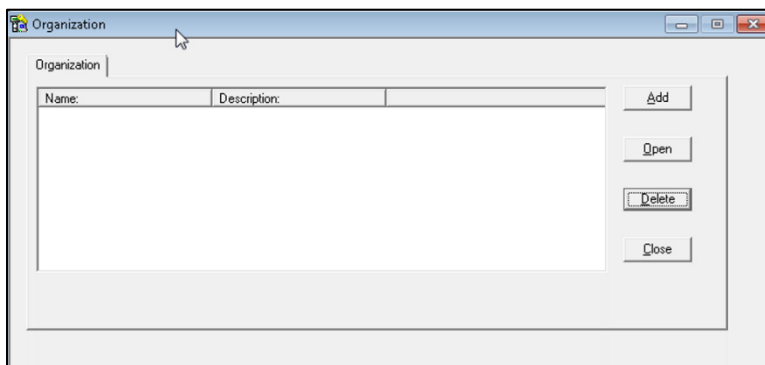
Different **Authorization** checkboxes display depending on the System Type.



Organizations

Organization List

Select **Tables > Organization...** from the menu to access the Organization list.



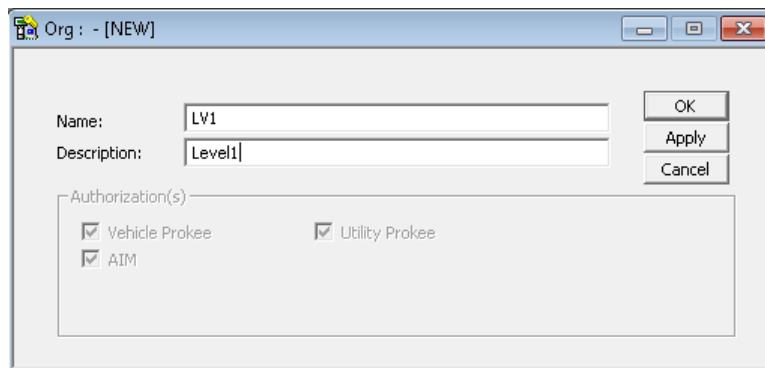
Use the list to **Add**, **Delete**, or **Open** Organization records.

Access Organization information by double-clicking on a record or highlighting it and clicking **Open**.

NOTE An Organization cannot be deleted from the system if it is associated with any vehicle.

Organization

Each Organization must have a **Name**, up to 3 characters. **Description** is optional.



Different **Authorization** checkboxes will be displayed depending on the System Type.

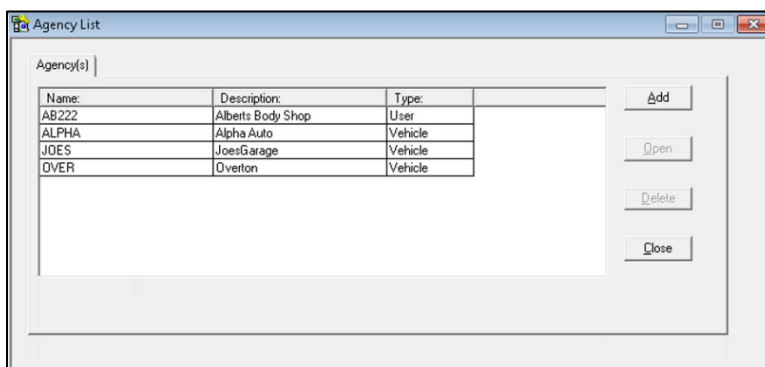
Authorization by Group

Vehicle, Users, Utility Keys, and AIM vehicles can be authorized or de-authorized in groups by Customer, Agency, Department or Organization.

Regardless of the group type, group authorization is accomplished in the same way.

Setup associations

For example, to authorize Vehicles by Agency, first create Agency records. To associate an Agency with Vehicles, set the Agency type to “Vehicle”.



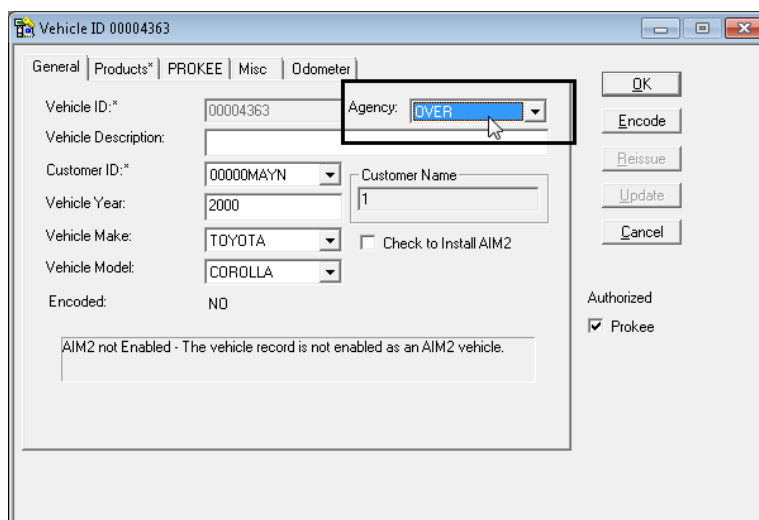
The Agency List window displays a table with the following data:

Name:	Description:	Type:
AB222	Alberts Body Shop	User
ALPHA	Alpha Auto	Vehicle
JOES	JoestGarage	Vehicle
OVER	Overton	Vehicle

Buttons on the right: Add, Open, Delete, Close.

Next, associate vehicles with agencies by setting the **Agency** value within the Vehicle record.

NOTE The Agency has been set to OVER, and the vehicle is authorized.



The Vehicle ID 00004363 window shows the following details:

- Vehicle ID: 00004363
- Vehicle Description:
- Customer ID: 0000MAYN
- Vehicle Year: 2000
- Vehicle Make: TOYOTA
- Vehicle Model: COROLLA
- Encoded: NO
- Agency: OVER (highlighted with a red box)
- Customer Name: 1
- Check to Install AIM2: ☐
- Authorized: ☒ Prokee

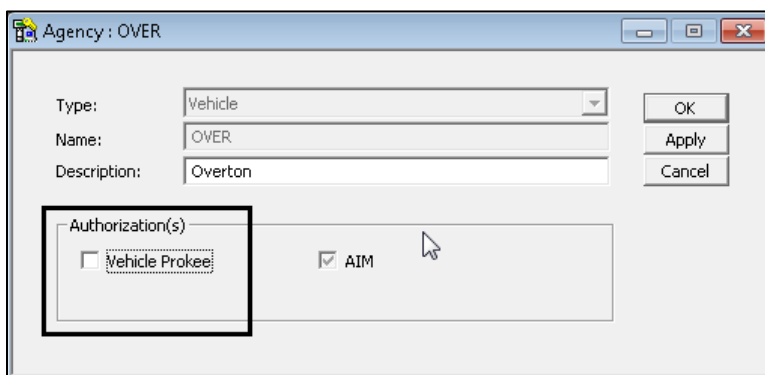
Buttons on the right: OK, Encode, Reissue, Update, Cancel.

Message at the bottom: AIM2 not Enabled - The vehicle record is not enabled as an AIM2 vehicle.

Authorize/De-authorize

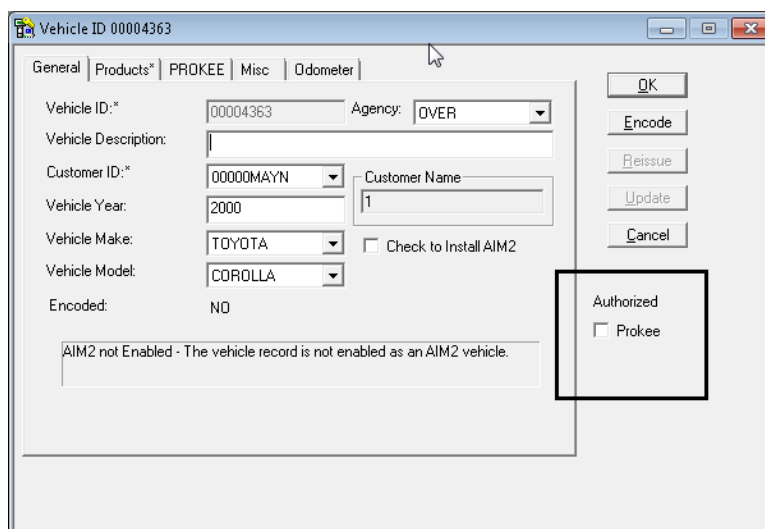
You may authorize or de-authorize an entire group of records by unchecking the appropriate box within the group record.

In this example, all vehicles associated with the agency, Overton, will be de-authorized.



To authorize/de-authorize a group of records, click the appropriate checkbox and click **OK**.

Once the change has been applied, you can see the effect by viewing any record with the associated group type. In this case, the record with the agency OVER has been de-authorized.



Multiple Associations

It is possible for a record to have multiple associations. For example, in a VMN system, a vehicle record may have an associated Agency, Customer, and Organization.

The last change to an authorization will take precedence over any previous change, regardless of the group associations.

The screenshot shows a software window titled "Vehicle ID 00004363" with tabs for General, Products*, PROKEE, Misc, and Odometer. The General tab is active. It contains several input fields: Vehicle ID (00004363), Agency (OVER), Vehicle Description (empty), Customer ID (00000MAYN), Customer Name (1), Vehicle Year (2000), Vehicle Make (TOYOTA), Vehicle Model (COROLLA), and Encoded (NO). There are buttons for OK, Encode, Reissue, Update, and Cancel. A checkbox labeled "Check to Install AIM2" is present. A message box at the bottom states "AIM2 not Enabled - The vehicle record is not enabled as an AIM2 vehicle." Arrows point from the Agency, Customer ID, and Vehicle Year fields to the message box, indicating their association with the AIM2 status.

For example, all vehicles within an Agency group will be authorized (or de-authorized) if the associated Agency was the last to be changed, even if some or all vehicle records are also associated with Customers.

Allowed Associations - Groups

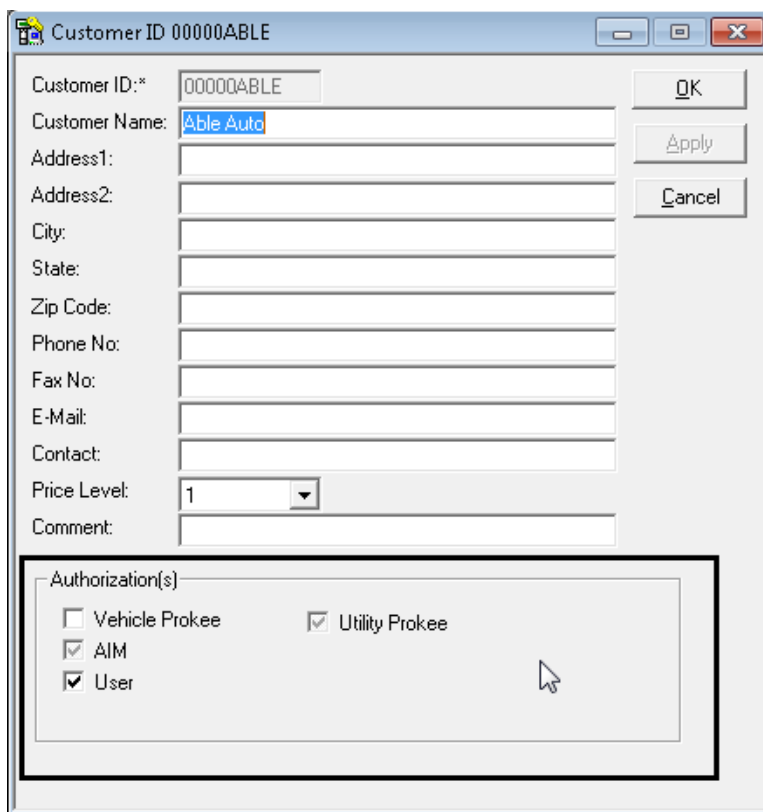
Not all groups are available for all record types. The specific options available depend on the System Type setting, and for Agencies, the Agency Type setting.

This is a list of available group types by record type.

	Vehicle +AIM Programmer	AIM Vehicle	User	Utility (Tankers, Supervisors, Manual Issue)
Agency	X	X	X	X
Customer	X	X	X	X
Department			X	
Organization	X	X		X

Authorization Summary

In addition to being used to authorize or de-authorize groups of records, the authorization checkboxes for each group type provide a quick summary of authorization statuses.



The screenshot shows a Windows-style dialog box titled "CustomerID 00000ABLE". It contains several input fields for customer information: Customer ID (00000ABLE), Customer Name (Able Auto), Address1, Address2, City, State, Zip Code, Phone No, Fax No, E-Mail, Contact, Price Level (set to 1), and Comment. On the right side, there are three buttons: OK, Apply, and Cancel. At the bottom, there is a section titled "Authorization(s)" which contains a list of checkboxes: "Vehicle Prokee" (unchecked), "Utility Prokee" (checked), "AIM" (checked), and "User" (checked). A mouse cursor is pointing at the "User" checkbox.

The three statuses are:

- **Checked** – All associated records are authorized.
- **Grayed/Checked** – Some of the records are authorized, or no associations exist. This is the default status.
- **Unchecked** – All associated records are unauthorized.

Chapter 7 Prepaid and Discount Cards

FMPlus provides the option to offer various discounts for preferred customers based on either individually encoded prepaid cards or Prokees, or by discounting specific credit cards.

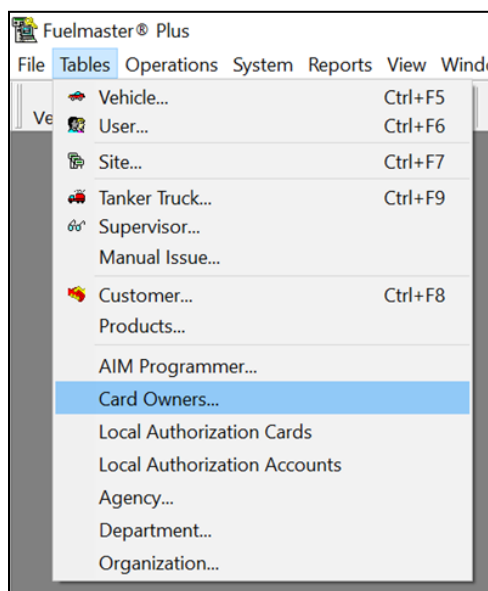
The Prepaid option is used primarily for those customers who want to pay for fuel ahead of time instead of being billed afterwards or do not want to use credit cards.

The Discount Card is designed to allow retail sites to reward their most frequent and high-volume customers by providing a discount with the same high level of convenience they expect from their credit card. Both transaction types are billed at the FMU when fueling occurs, so updating the FMU's pricing is important.

NOTE This option requires customization. Call the Syntech Systems, Inc.'s CSC Helpdesk at 1-800-888-9136 ext. 2 to enable these options in your software.

Card Owners

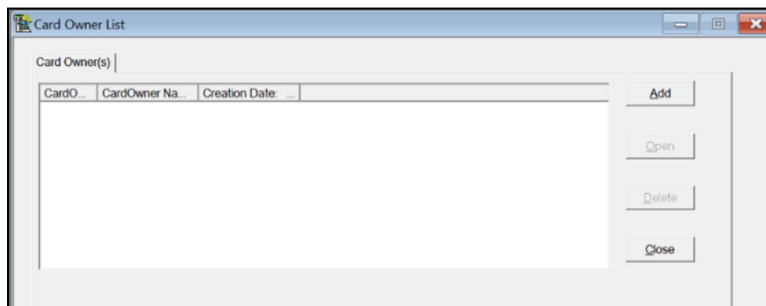
To access Card Owners, select **Tables > Card Owners** from the menu.



Prepaid and Discount Credit Cards are grouped together under **Card Owners** so the two record types can be managed at a higher level. For example: a company has 3 pilots with credit cards whom receive a discount and has 2 standby part time pilots whom use prepaid keys. The discount cards and prepaid cards can be tracked under the company account and individually.

Card Owner List

The list displays card owners, card owner names, and the date each account was created.



Card Owner Info

Card Owner ID information window is used to enter contact information regarding the account.

There are two card type tabs: **Discount Cards** and **Prepaid Cards**.

A screenshot of a software window titled "Card Owner ID [NEW]". It contains several input fields for personal information: Owner, Name, Address1, Address2, City, State, Zip Code, Phone No 1, Phone No 2, Fax No, Email, and Contact. There is also a "Comment:" field. Below these fields are two tabs: "Discount Card(s)" and "Prepaid Prokee(s)". The "Discount Card(s)" tab is active, showing a table with columns: "Discount ...", "Partial ID", "Price ...", and "Comment". To the right of the table are three buttons: "Add", "Open", and "Delete". At the bottom of the window are "OK" and "Cancel" buttons.

The information in these records may hold sensitive data, such as credit card numbers. Even though credit card numbers are encrypted in FuelMaster, restrict access to this feature to employees who need access.

Card Owners can have multiple discount cards and prepaid keys in any combination required.

NOTE

Discounts by credit card types, also known as branded discounting, are not handled through the software. This option must be enabled directly in the FMU by a FuelMaster Certified Technician or CSC. It is only available for certain card types and certain credit card networks. Call Syntech Systems, Inc.'s CSC at 1-800-888-9136 ext. 2 to enable the option if you have purchased the customization.

Discount Cards

Enter the credit card information.

The screenshot shows a Windows-style dialog box titled "Discount Card - Owner 00000001 [NEW]". It has a "Properties" section with "Owner ID" set to "00000001" and "Beginning Date" set to "4/7/2020 12:57:05 PM". Below this is a section titled "Please enter DECRYPTED card ID." containing "Card ID" and "Partial ID" text boxes. The "CC Exp Date" is a dropdown menu showing "04/20". There is a checked checkbox labeled "Apply Discount". Below these are a "Comment" text box, a "Price Level" dropdown menu showing "1", and a "Brand" dropdown menu showing "Unknown/Other". "OK" and "Cancel" buttons are located on the right side of the dialog.

Owner ID

Associates the card to a card owner for accounting purposes.

Beginning Date

Date the record was created.

Already Encrypted

Select **No** if the card number being entered has not been hashed by FMPlus. Select **Yes** when entering data from a FuelMaster onsite printer or database, which displays and stores credit card numbers in an encrypted format.

Card ID

Enter the credit card number in this field. If the number is already encrypted then it will not change, otherwise it will be masked immediately upon entry.

CC Expiration Date

This is used for identification purposes only; this information is not required at the FMU nor sent to the FMU by the software.

Partial ID

Shows the last four digits of the card number which display on reports and receipts. This is useful to match receipts from customers with the card record.

Apply Discount

Check to apply a discount to this card.

Price Level

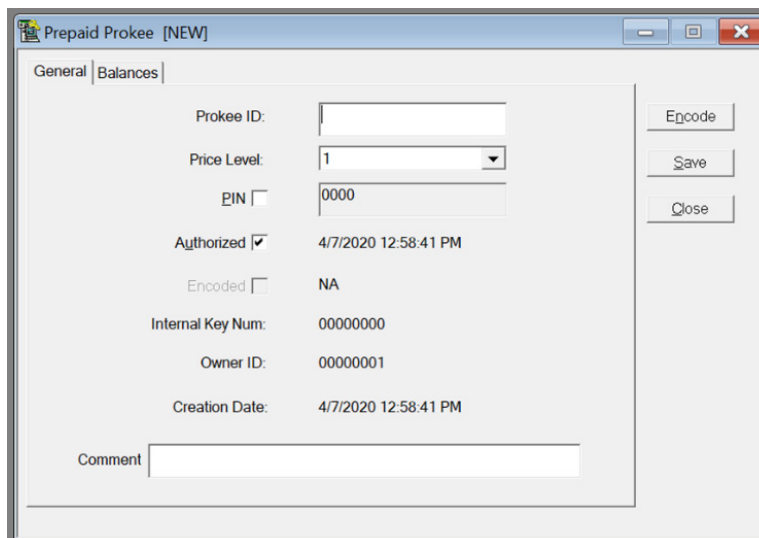
Set price level to the discount you would like to give the card user.

Brand

Lists available card types that can be assigned to the card; select Unknown/Other if your card is not in the list.

Prepaid Keys

The General tab displays the information about the prepaid key.



The screenshot shows a software window titled "Prepaid Prokee [NEW]" with two tabs: "General" and "Balances". The "General" tab is active. It contains several input fields and checkboxes. On the right side of the window, there are three buttons: "Encode", "Save", and "Close".

Field	Value
Prokee ID:	
Price Level:	1
PIN <input type="checkbox"/>	0000
Authorized <input checked="" type="checkbox"/>	4/7/2020 12:58:41 PM
Encoded <input type="checkbox"/>	NA
Internal Key Num:	00000000
Owner ID:	00000001
Creation Date:	4/7/2020 12:58:41 PM
Comment	

Create Prepaid Key

1. Create the record.
2. Authorize it.
3. Apply Balance.
4. Encode Key.
5. Send list to FMU.

Prokee ID

The ID can be 8 alphanumeric characters and is used to identify the key at the FMU when the list is uploaded.

Price Level

Set the price level to be applied when the key is used.

PIN

If checked, the four-digit PIN number, generated when the Prokee is encoded, will be prompted for and verified by the FMU.

Authorized

Check/uncheck to authorize/de-authorize the prepaid record for fueling; stamps the date the key was authorized/de-authorized.

Encoded

Checked when a Prepaid Prokee has been encoded. The date/time the key was encoded or reissued displays next to the checkbox.

Internal Key Number

Generated when the key is encoded to identify the key at the FMU.

Owner ID

Associates the key to a card owner for accounting purposes.

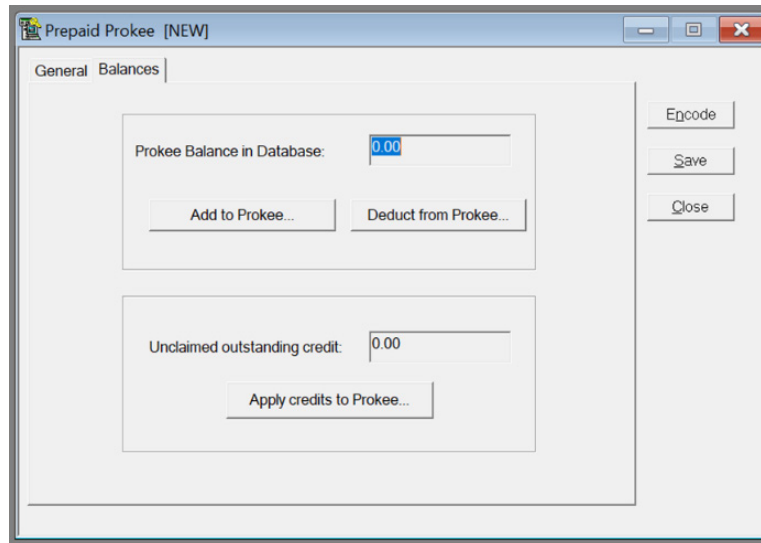
Creation Date

Date the record was created.

Balances Tab

Prokee Balance in Database

Displays the current balance in the database; you can also add and deduct monies from the Prokee.



The screenshot shows a software window titled "Prepaid Prokee [NEW]" with a "Balances" tab selected. The window contains two main sections. The first section, labeled "Prokee Balance in Database:", has a text input field showing "0.00". Below this field are two buttons: "Add to Prokee..." and "Deduct from Prokee...". The second section, labeled "Unclaimed outstanding credit:", has a text input field showing "0.00". Below this field is a button labeled "Apply credits to Prokee...". On the right side of the window, there are three buttons: "Encode", "Save", and "Close".

Unclaimed outstanding credit

A balance left after a fueling transaction. For example, a user preauthorizes \$30 of fuel but pumps \$29.50; the outstanding balance of \$0.50 displays in this field after the transaction downloads. If an outstanding credit resides in the FMU, the credit can be applied back to the key when the user pumps more fuel. Once the credit has been downloaded, it can only be credited back to the key through the software.

Chapter 8 Utility Keys

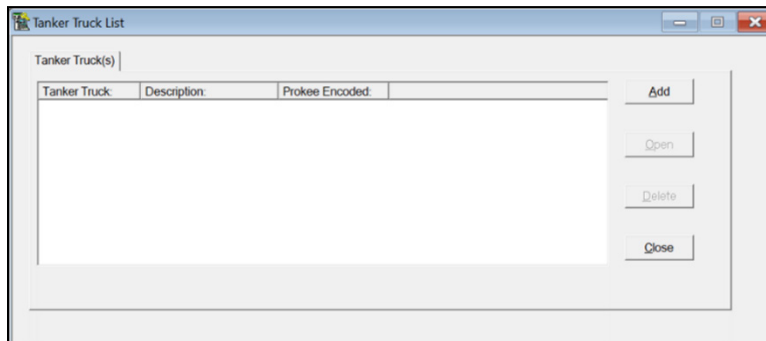
There are three types of Utility Keys in FMPlus: Tanker Truck, Supervisor, and Manual Issue. They are referred to as Utility keys because they serve more of a maintenance function than normal keys. They also share the same list within the software and FMU to conserve space. Because they are managed in the same list, they cannot have the same ID as any other Utility Keys in the list.

Tanker Truck Keys

Access the Tanker Truck List by clicking **Truck** on the FMPlus toolbar, by selecting **Tables > Tanker Truck** from the menu, or by hot keys CTRL + F9.

A Tanker Truck key has two purposes: first, to upload transactions to an FMU from a Mobile Unit for download and to upload lists from the FMU to the Mobile Unit. Secondly, it is used to transfer fuel from an FMU at a fixed fuel island to the Tanker Truck's storage tank.

Tanker Keys should not be used to fuel the tanker truck vehicle itself. A vehicle key should be issued for fueling the Tanker Truck.

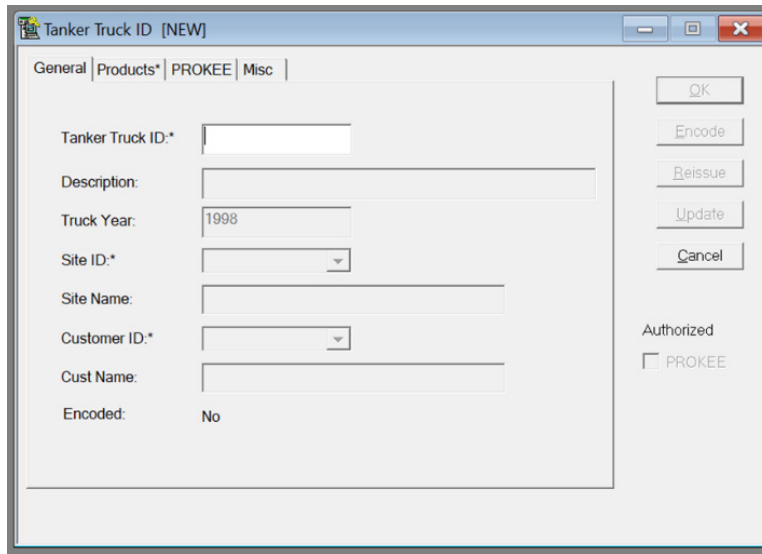


Tanker Truck List

Displays the current keys in the database and whether the record has been encoded to a key.

General Tab

Various fields are provided to identify the Tanker. Before a Tanker Truck key can be created a Passive Mobile Site must be created.



The screenshot shows a Windows-style dialog box titled "Tanker Truck ID [NEW]". It has four tabs: "General", "Products*", "PROKEE", and "Misc". The "General" tab is selected. Inside the dialog, there are several input fields: "Tanker Truck ID:*" (a text box), "Description:" (a text box), "Truck Year:" (a text box containing "1998"), "Site ID:*" (a dropdown menu), "Site Name:" (a text box), "Customer ID:*" (a dropdown menu), "Cust Name:" (a text box), and "Encoded:" (a text box containing "No"). On the right side of the dialog, there are five buttons: "OK", "Encode", "Reissue", "Update", and "Cancel". Below these buttons, there is a section labeled "Authorized" with a checkbox and the text "PROKEE".

Tanker Truck ID

Identifies the Tanker record; can be 8 alphanumeric characters.

Description

Describes the Tanker and is primarily used for reporting.

Truck Year

Year the truck was manufactured.

Site ID

Ties the Tanker to the Passive Mobile Site that was created for transferring fuel.

Site Name

Automatically fills when the Site ID is selected to identify the Mobile Site.

Customer ID

Assigns the Tanker Truck to a Customer for accounting purposes.

Customer Name

Automatically fills when Customer ID is selected.

Encoded

Displays whether the Tanker key has been encoded.

Authorized

Authorizes or de-authorizes the tanker key for transferring fuel. This area will be grayed out until the key has been initially encoded.

Tanker Products Tab

One of the benefits of a FuelMaster System is to ensure a Tanker only gets the products intended for the Tanker. This protects the Tanker from damage to itself, damage to other vehicles receiving fuel from the Tanker, and the purchaser from theft.

	Product	Product Description	Allotted	Limit	Price Level	Match	Cust. Price level
A.	0	NA	0	0	1	<input type="checkbox"/>	Delete
B.	0	NA	0	0	1	<input type="checkbox"/>	Delete
C.	0	NA	0	0	1	<input type="checkbox"/>	Delete
D.	0	NA	0	0	1	<input type="checkbox"/>	Delete
E.	0	NA	0	0	1	<input type="checkbox"/>	Delete
F.	0	NA	0	0	1	<input type="checkbox"/>	Delete
G.	0	NA	0	0	1	<input type="checkbox"/>	Delete
H.	0	NA	0	0	1	<input type="checkbox"/>	Delete

Authorized ☐ PROKEE

Product

Select a Product from the dropdown list to assign to the Tanker.

Product Description

Displays the description of the selected product and automatically fills when a product is selected.

Daily Product Allotted

Tracks when a Tanker exceeds expected distributions in a day's time. This is usually set to twice the transaction limit. An option to cut off the user from overage can be enabled; otherwise, the overage causes an exception message in the Polling Report.

Transaction Limit

Maximum amount of fuel allowed per fueling transaction. Typically set to the tanker capacity.

Price Level

Select the Level at which the Tanker is billed from the dropdown list. The Price Level is applied to the quantity upon a download from the FMU to arrive at the total price.

Match Customer Price Level

If checked, this overrides the Product's Price Level with the Customer's Price Level.

Tanker Prokee/Smart Card Tab

Configures the Prokee/Smart Card options the user receives at the FMU when the key is used. Shows status and encoding information for that record.

Tanker Truck ID [NEW]

General | Products* | **PROKEE** | Misc

Prokee Options

☐ User ID ☐ PIN ☐ Receipt

Prokee Type	Tanker Truck
Reissue Count:	0
Date Reissued:	NA
Encoded:	No
Date Encoded:	NA
Authorized:	No
Date Authorized:	NA
Internal Key Number:	
PIN Number:	None

OK
Encode
Reissue
Update
Cancel

Authorized
☐ PROKEE

User ID

If checked, prompts for a User ID. Depending on the System Type, like VMN, this may be automatically required and cannot be disabled.

PIN

Sets the Prokee/Smart Card to require the user to enter a PIN number at the FMU. The PIN number is the last four digits of the Prokee Internal Key Number.

Receipt

When checked, prompts user/customer to print a receipt of the transaction.

Status Fields

- **Prokee Type** – Vehicle, User, Tanker Truck, Supervisor, Manual Issue
- **Date Reissued** – Date key was re-encoded
- **Encoded** – Status of record - encoded or not encoded
- **Date Encoded** – Date key was first initially encoded
- **Authorized** – Status of record - authorized or unauthorized
- **Date Authorized** – Date the key was last authorized

Reissue Count

Records the number of times the record is issued a new key. If a key is reissued, the new key has a new Internal Key Number; the unavailable key's Internal Key Number is placed on

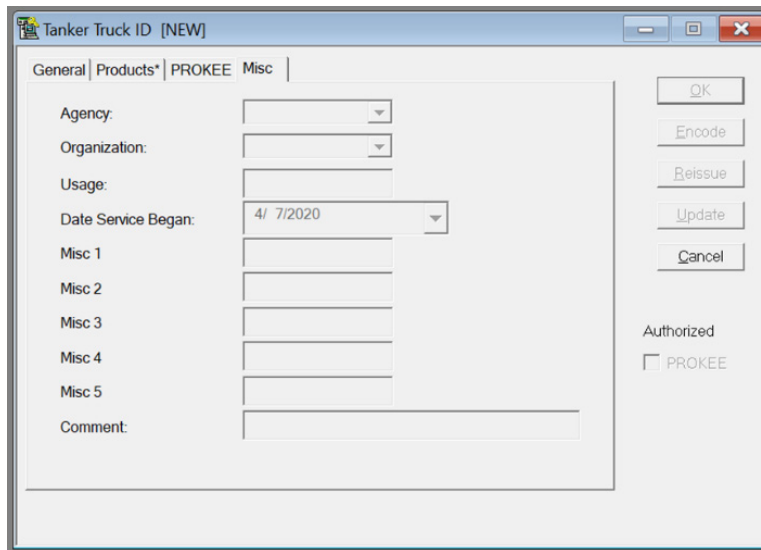
the unauthorized list. If found or stolen, the original key will not be authorized to receive fuel.

PIN Number & Internal Key Number

The internal key number is assigned when the key is encoded. The last four digits of the internal key number are the PIN.

Tanker Misc Tab

These fields can be used in accounting and reporting for Tanker fueling. The miscellaneous fields can be defined in **Configuration > System**.



Agency

The Agency field is encoded on the key, can be up to 5 alphanumeric characters, and can also be prompted during a fueling transaction.

NOTE

The prompt option can only be enabled by a FuelMaster Certified Technician or CSC whom can be contacted via phone 1-800-888-9136 ext. 2.

Organization

This accounting field is not encoded on the key; can be 3 alphanumeric characters.

Usage

An accounting field not encoded on the key; can be 6 alphanumeric characters.

Date Service Began

Displays the date the key record was created.

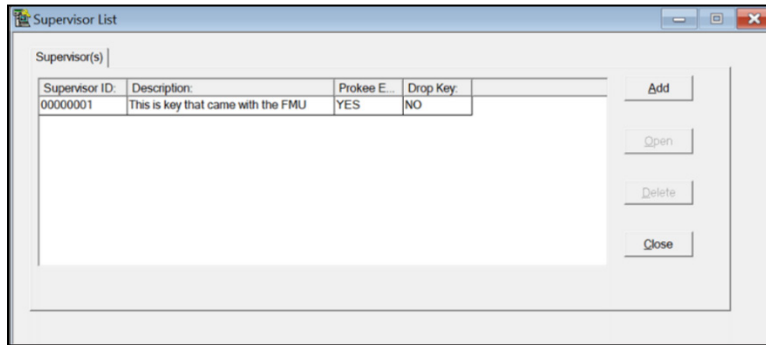
Miscellaneous Fields

The five miscellaneous fields can be used for added accounting. These fields can be 15 alphanumeric characters.

Supervisor Keys

Access the Supervisor List by clicking the **Super** icon on the FMPlus toolbar or by selecting **Tables > Supervisor** from the menu.

Displays the keys currently encoded. FMPlus ships an encoded Supervisor Key with the FMU, so the FuelMaster Certified Technician can initially configure the FMU.

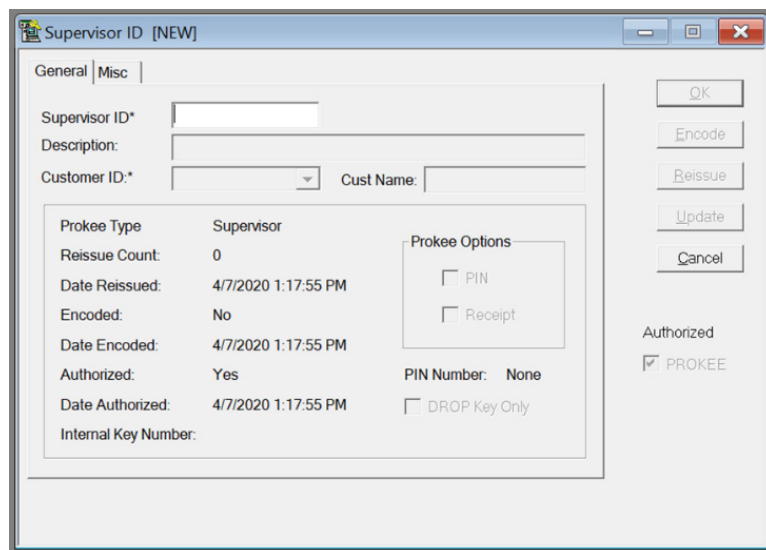


The Supervisor key is used to configure and troubleshoot at the FMU via the Supervisor menu.

Supervisor General Tab

Supervisor ID

Enter an ID for the Supervisor; can be 8 alphanumeric characters.



Customer ID

Assigns the Supervisor key to a Customer for accounting reports.

Prokee Options

PIN and Receipt can be prompted for by the FMU.

Status Fields

- **Key Type** – Vehicle, User, Tanker Truck, Supervisor, Manual Issue
- **Date Reissued** – Date key was re-encoded
- **Encoded** – Status of record being encoded or not
- **Date Encoded** – Date key was initially encoded
- **Authorized** – Vehicle Key/Smart Card is authorized or unauthorized
- **Date Authorized** – Date the key/Smart Card was last authorized

Authorized

This check box is available after the key is encoded; removing the check mark de-authorizes the key.

Supervisor Misc Tab

Used to configure miscellaneous settings that can be used to account for Supervisor Access. The miscellaneous fields can be defined in **Configuration > System**. Each field listed below can be used in reports and Custom Exports.

The screenshot shows a dialog box titled "Supervisor ID [NEW]" with two tabs: "General" and "Misc". The "Misc" tab is selected. It contains the following fields: "Agency:" (dropdown), "Organization:" (dropdown), "Usage:" (text input), "Date Service Began:" (calendar icon showing 4/7/2020), "Misc 1" through "Misc 5" (text inputs), and "Comment:" (text area). On the right side, there are buttons for "OK", "Encode", "Reissue", "Update", and "Cancel". Below these buttons is a checkbox labeled "Authorized" which is checked, and the text "PROKEE" is displayed next to it.

Agency

This field is encoded on the key; can be up to 5 alphanumeric characters, and can also be prompted during a fueling transaction.

NOTE The prompt option can only be enabled by a FuelMaster Certified Technician or CSC whom can be contacted via phone 1-800-888-9136 ext. 2.

Organization

An accounting field not encoded on the key; can be 3 alphanumeric characters.

Usage

An accounting field not encoded on the key; can be 6 alphanumeric characters.

Date Service Began

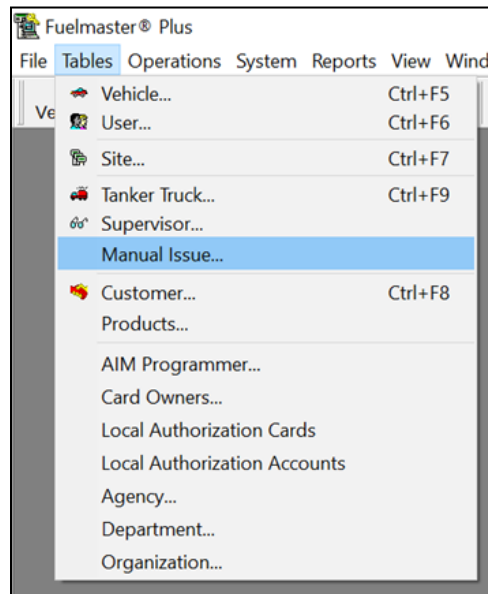
Displays the date the key record was created.

Miscellaneous Fields

The five miscellaneous fields can be used for added reporting. These fields can be 20 alphanumeric characters.

Manual Issue Keys

Select **Tables > Manual Issue** from the menu.



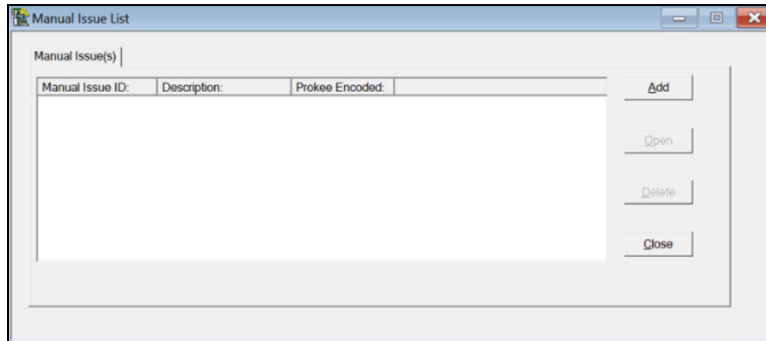
Manual Issue Keys are used in a variety of scenarios where normal fueling operations are not possible or too time restrictive. This key allows onsite personnel to authorize a transaction without entering any specific accounting information (although the option to do so is available).

Manual Issue Keys are typically used when a driver key is unavailable, and it does not make sense to encode another key. Another example is in an emergency where out of area vehicles, such as Ambulances or Fire Trucks, can be fueled and the amount of fuel dispensed can still be tracked.

When a transaction is authorized using a Manual Issue Key, the user is prompted to enter their User ID and/or Vehicle ID depending on the system type and the option settings in the FMU. For more information on the way the Manual Issue Key behaves at the FMU, see the *Site Operations Manual*.

Manual Issue List

Displays Manual Issue Keys currently encoded.



Manual Issue General Tab

Manual Issue ID

Enter an ID for the Manual Issue Key; can be 8 alphanumeric characters.

A screenshot of the 'Manual Issue ID [NEW]' window. It has two tabs: 'General' and 'Misc'. The 'General' tab is active, showing fields for 'Manual Issue ID*', 'Description:', 'Customer ID.*' (with a dropdown arrow), and 'Cust Name:'. Below these is a table with the following data:

Prokee Type	Manual Issue
Reissue Count:	0
Date Reissued:	4/7/2020 1:25:03 PM
Encoded:	No
Date Encoded:	4/7/2020 1:25:03 PM
Authorized:	Yes
Date Authorized:	4/7/2020 1:25:03 PM
Internal Key Number:	

To the right of the table is a 'Prokee Options' section with two checkboxes: 'PIN' and 'Receipt'. Below this is a 'PIN Number: None' label. On the far right are buttons for 'OK', 'Encode', 'Reissue', 'Update', and 'Cancel'. At the bottom right, there is an 'Authorized' section with a checked checkbox labeled 'PROKEE'.

Customer ID

Ties the Manual Issue Key to a Customer for accounting reports.

Prokee Options

PIN and Receipt can be prompted for by the FMU.

Status Fields

- **Key Type** – Vehicle, User, Tanker Truck, Supervisor, Manual Issue
- **Date Reissued** – Date key was re-encoded
- **Encoded** – Status of record being encoded or not
- **Date Encoded** – Date key was initially encoded
- **Authorized** – Vehicle Key/Smart Card is authorized or unauthorized

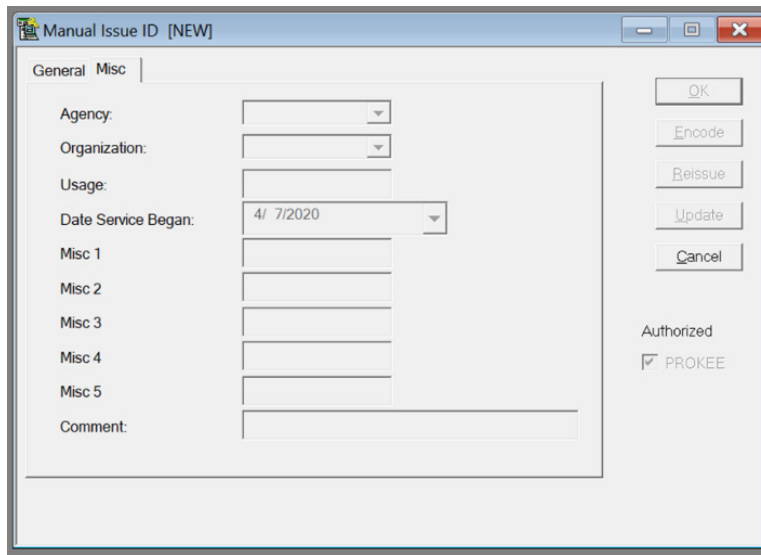
- **Date Authorized** – Date the key/Smart Card was last authorized

Authorized

This check box is available after the key is encoded; removing the check mark de-authorizes the key.

Manual Issue Misc Tab

Used to configure miscellaneous settings to account for Manual Issue Key fueling. The miscellaneous fields can be defined in **Configuration > System**. Each field listed below, can be used in reports and Custom Exports.



Agency This field is encoded on the key; can be up to 5 numeric characters; and can also be prompted during a fueling transaction.

NOTE

The prompt option can be enabled by a FuelMaster Certified Technician or CSC who can be contacted via phone 1-800-888-9136 ext. 2.

Organization

An accounting field not encoded on the key; can be 3 alphanumeric characters.

Usage

An accounting field not encoded on the key; can be 6 alphanumeric characters.

Date Service Began

Displays the date the key record was created.

Miscellaneous Fields

These five miscellaneous fields can be used for added accounting; can be 15 alphanumeric characters.

Chapter 9 AIM Software Operations

The Automotive Interface Module (AIM) system controls access to fuel with RFID technology that communicates between fuel nozzle and filler neck for a specific vehicle.

AIM also provides data directly from the vehicle's On-Board Diagnostic (OBD) computer, accurate odometer and hour meter readings.

NOTE







This chapter covers the software portions of our AIM passive fueling system. Installation and site operations instructions can be referenced in the *AIM Installation and Site Operations Manuals*.

AIM Programming

AIM Programmer List

Access the AIM Programmer list from **Tables > AIM Programmer**.

The AIM Programmer key allows programming AIM modules at the FMU and should only be issued to operators allowed to change AIM record data and installations.

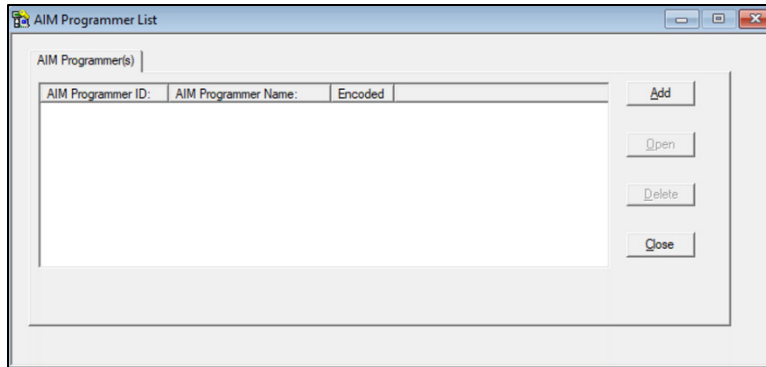
Tables	Operations	System	Reports
	Vehicle...		Ctrl+F5
	User...		Ctrl+F6
	Site...		Ctrl+F7
	Tanker Truck...		Ctrl+F9
	Supervisor...		
	Manual Issue...		
	Customer...		Ctrl+F8
	Products...		
	AIM Programmer...		
	Agency...		
	Department...		
	Organization...		

NOTE

AIM Programmer Keys may only be used at the FMU when the Plus with AIM Prog FMU type is set for the Site.

The AIM Programmer List displays the **Programmer ID, Name**, and if the key has been Encoded.

Each record can be accessed by double clicking the desired record or by highlighting the record and clicking **Open**.



This key is also used when AIM modules change vehicles and need to be programmed with a new Vehicle record.

AIM Programmer General Tab

Displays information to identify the operator issued the key.

The screenshot shows a window titled "AIM Programmer ID [NEW]". It has two tabs: "General" and "PROKEE". The "General" tab is active. It contains several input fields: "AIM Prog. ID:*" (text box), "Last Name:" (text box), "First Name:" (text box), "Middle Initial:" (text box), "Agency:" (dropdown menu), "Organization:" (dropdown menu), "Phone No:" (text box), "FAX No:" (text box), "E-Mail:" (text box), "Comment:" (text box), and "Encoded:" (text box with "NO" entered). On the right side, there are buttons for "OK", "Encode", "Reissue", and "Cancel". Below these buttons, there is a section labeled "Authorized" with a checked checkbox and the text "PROKEE".

If **Authorized Prokee** is checked, the key is authorized. If the check is removed, the key is unauthorized once the Authorization List is sent to the FMU Sites.

AIM Programmer PROKEE Tab

Displays the key information such as the **Prokee Type**, **Reissue count** (number of times the key has been replaced), and **date of last reissue**, date the key was initially Encoded. If the key is currently Authorized, the date the key was **Authorized**, **Internal Key Number**, and **PIN Number** will appear (used if the PIN checkbox is checked).

The screenshot shows the 'AIM Programmer ID [NEW]' dialog box with the 'PROKEE' tab selected. The 'General' sub-tab is active, displaying the following fields: Prokee Type (AIM Programmer), Reissue Count (0), Date Reissued (NA), Encoded (No), Date Encoded (NA), Authorized (Yes), Date Authorized (2/8/2018 10:45:42 AM), Internal Key Number, and PIN Number (NA). A 'Prokee Options' section contains a 'PIN' checkbox. On the right, there are buttons for 'OK', 'Encode', 'Reissue', and 'Cancel'. Below these buttons, the 'Authorized' status is shown as 'Authorized' with a checked 'PROKEE' checkbox.

AIM Vehicle Record

To add AIM features with additional options to a vehicle record, enable the **AIM checkbox**.

The screenshot shows the 'Vehicle ID 0000A001' dialog box with the 'PROKEE' tab selected. The 'General' sub-tab is active, displaying the following fields: Vehicle ID (0000A001), Agency (dropdown), Vehicle Description (A - Ford F-150), Customer ID (000000001), Customer Name (The One), Vehicle Year (2000), Vehicle Make (FORD), Vehicle Model (F-150), Encoded (NO), and Passive Status. A 'Passive Status' section contains a message: 'AIM Program Pending - The AIM vehicle record is enabled and ready to be programmed.' On the right, there are buttons for 'OK', 'Encode', 'Reissue', 'Update', and 'Cancel'. Below these buttons, the 'Authorized' status is shown as 'Authorized' with checked checkboxes for 'Prokee', 'AIM', and 'KEYPAD'.

A Passive Status dialog on the Vehicle General tab shows the status of the AIM module.

AIM Tab

Contains Info, Options, Notes, and Status information for the AIM module.

Selected Options are sent through FMPlus to the AIMs.

Vehicle ID 0000A001

Chrono 2 | Chrono 3 | OBD Trouble Codes | OBD Statistics | Interface
General | Products* | PROKEE | Misc | Odometer | AIM | Chrono 1

Info
AIM ID: FW Version: ☐ Print Receipt
Authorized: Yes Date Authorized: 12/7/2017 11:10:04 AM

Options
☒ Require User ID ☐ Fuel With Engine On ☐ Use Metric Units
☐ Enable Analog Counter ☐ Disable Timeouts ☐ Enable FOIOS
☐ Disable SVT ☐ Enable FOSS

Notes
1 - Pending verification (AIM FW version not recieved) 2 - Option not supported

Status
AIM Program Pending - The AIM vehicle record is enabled and ready to be programmed.

Authorized
☒ Prokee
☒ AIM
☒ KEYPAD

Buttons: OK, Encode, Reissue, Update, Cancel

The Status of the module is displayed in the bottom section of the tab. There are three different AIM status descriptions:

- **AIM not Enabled** – the vehicle record is not enabled as an AIM vehicle. This message displays if the **Check to install AIM** box on the General tab of the vehicle record is not checked. Check box and click **OK** to save; then reselect the record.
- **AIM Program Pending** – The AIM vehicle record is enabled and ready to be programmed but is pending programming of the AIM module on the desired vehicle at the fuel site. The record will not exist at the site until the AIM Programming List has been sent to the sites.
- **AIM Program up to date** – The AIM is installed and programmed. No new programming is pending. The AIM module has been programmed in the specified vehicle.

AIM Chronometers Tabs

Use the Chronometers tabs to track **Engine Idle Time**, **Engine Run Time** and **PTO Time**.

Vehicle ID 0000A001

Chrono 2 | Chrono 3 | OBD Trouble Codes | OBD Statistics | Interface | Chrono 1

General | Products* | PROKEE | Misc | Odometer | AIM | Chrono 1

☐ Chronometer 1

Type: ☐ Analog Channel:

Current Reading:

Fuel Range: Expected Efficiency

☐ Preventive Maintenance

PM Range: PM Notice

Next PM Reading:

Comment:

Authorized

☒ Prokee
☒ AIM
☒ KEYPAD

Up to three Chronometers can be configured per AIM in each vehicle record. The Chronometer interface may be analog and/or OBD. The AIM does not go to sleep when any configured chronometer is active; and the AIM awakens when any configured chronometer becomes active. A **Preventative Maintenance (PM)** option can be configured for each chronometer. When the PM option is checked, set the **PM Range**, the **PM Notice**, and next **PM Reading**.

AIM OBD Trouble Codes Tab

OBD trouble codes are read when the vehicle stops in range of an FMU if the engine has been running at least one hour since the last trouble code report was sent.

Vehicle ID 0000A001

General | Products* | PROKEE | Misc | Odometer | AIM | Chrono 1 | Chrono 2 | Chrono 3 | OBD Trouble Codes | OBD Statistics | Interface | Chrono 1

Index	Serviced	Status	Description

< >

Authorized

☒ Prokee
☒ AIM
☒ KEYPAD

Run **Reports > OBD Data > Active Trouble Codes** to track vehicle trouble codes.

AIM OBD Statistics Tab

This section covers a wide range of different readings from the OBDII port to show the statistics of the vehicle.

These fields provide information on how well the vehicle is being maintained.

The screenshot shows the 'OBD Statistics' tab for Vehicle ID 0000A001. The interface includes a tabbed menu at the top with options: General, Products*, PROKEE, Misc, Odometer, AIM, Chrono 1, Chrono 2, Chrono 3, OBD Trouble Codes, OBD Statistics (selected), and Interface. The main area is divided into several sections: 'Maximum Speeds' (Engine: N/A, Vehicle: N/A), 'Maximum Temperatures' (Coolant: N/A, Oil: N/A), 'Minimum Pressures' (Engine Oil: N/A, Transmission: N/A, Fluid: N/A), 'Other' (Ignition Start Count: N/A, Hard Braking Count: 0, Rapid Acceleration: 0, Engine Oil Life Remaining: 0%, AUX Pulses: N/A), 'Battery Voltage' (Max: N/A, Min: N/A), and 'Current Fluid Levels' (Engine Oil: N/A, Transmission: N/A, Coolant: N/A, Washer: N/A, Pre-fueling Level: N/A). On the right side, there are buttons for OK, Encode, Reissue, Update, and Cancel, along with an 'Authorized' section containing checkboxes for Prokee (checked), AIM (checked), and KEYPAD (checked).

AIM Interface Tab

Records the AIM configuration as reported from the AIM back to FMPlus.

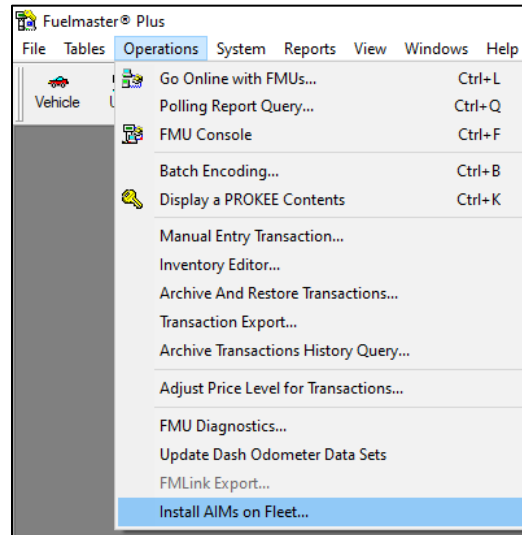
The screenshot shows the 'Interface' tab for Vehicle ID 0000A001. The interface includes a tabbed menu at the top with options: General, Products*, PROKEE, Misc, Odometer, AIM, Chrono 1, Chrono 2, Chrono 3, OBD Trouble Codes, OBD Statistics, and Interface (selected). The main area is divided into two columns. The left column contains fields for Misc, Interface, Protocol, Odometer Method, Slope, Intercept, Raw Odometer Data, Calib.Point 1 Vehicle Data, Calib.Point 2 Vehicle Data, Calib.Point 1 User Data, and Calib.Point 2 User Data. The right column contains fields for FW Version, Data Format, Odometer Source, and Date/Time. Below these fields are buttons for Previous, Next, and Export. On the right side, there are buttons for OK, Encode, Reissue, Update, and Cancel, along with an 'Authorized' section containing checkboxes for Prokee (checked), AIM (checked), and KEYPAD (checked).

AIM supports a premium feature that detects and automatically captures the vehicle odometer directly for light duty CAN vehicles. When implemented, this feature collects and reports the vehicle odometer to FMPlus where it is shown in the Vehicle Record and various reports. The Dash Odometer feature requires purchase of a customization to FMPlus. See [Dash Odometer for AIM2.4 & AIM Titanium](#) for details.

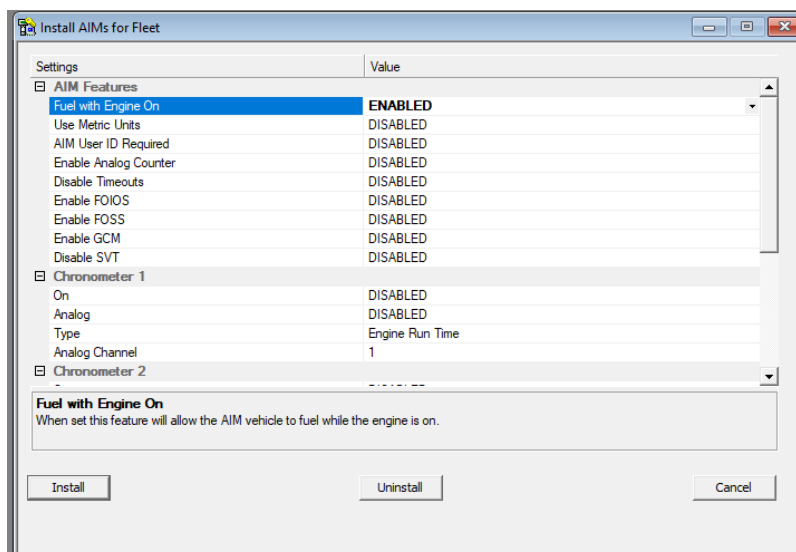
AIM Bulk Installation

Install AIMs on Fleet Modal

Access the Install AIMs for Fleet modal from **Operations > Install AIMs on Fleet**.



The Install AIMs for Fleet modal allows installation and uninstallation of AIMs on the entire fleet of vehicles. This feature is ideal for situations when installing AIMs one by one via the Vehicle General tab would be time consuming. AIM Feature and Chronometer Settings may be toggled prior to install to create a uniform configuration for the Fleet.



Chapter 10 Communication with the FMU

FMPlus primarily interacts with the FMUs by uploading site configurations, prices and authorization lists to said units and downloading transactions from them. In addition, interaction is required for Prepaid operations, Discount Credit card operations, AIM programming, TMU interfacing, Credit Card batch reports, and Local Authorization lists. When any of these items are configured in FMPlus, they must be sent to the FMU before the options are active at the fuel island.

Most online communications are handled through the FM Download Service(s). Each FMPlus instance can run a FM Download Service. The Service allocates tasks between Services to increase efficiency and reduce overall download times. It does not include communication with the FMU via the FMU Console. For more information, see:

- [MultiPoint Download Service \(MPDS\)](#)
- [MPDS Online Client Permissions](#)

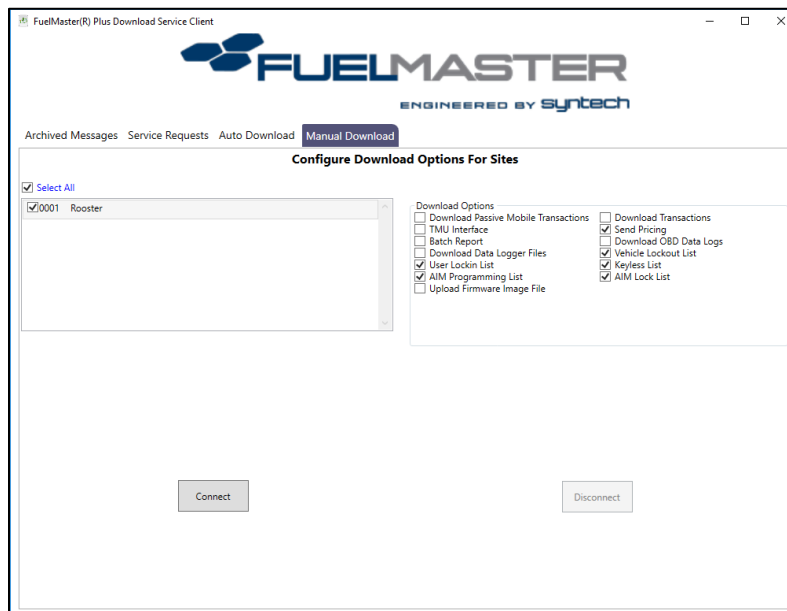
Online Communications

To access communications, click **Online** on the FMPlus toolbar, by **Operations > Go Online with FMU's**, or by hot keys CTRL + L.

Online Client

The Online client opens on the Manual Download tab.

Select Sites in the list box. Select Download Options. Click **Connect** to begin an online session.



Disconnect is active during an online session and can be clicked to interrupt the session. Allow 60 seconds for the disconnection to complete before closing any windows.

The Download Options vary by System Type.

Auto Download

Auto Download is used to begin communication with the FMU at predefined times using the options selected on the Auto Download tab. The frequency of the Auto Download can be done daily, weekly, once, or in periodic time intervals.

To enable an Auto Download, set the schedule options and click **Schedule**.

Stop will interrupt the online session.

Remove Schedule deletes an Auto Download.

FuelMaster(R) Plus Download Service Client

FUELMASTER
ENGINEERED BY Syntech

Archived Messages Service Requests **Auto Download** Manual Download

Configure Download Options For Sites

☐ Select All

☐ 0001 Rooster

Download Options

<input type="checkbox"/> Download Passive Mobile Transactions	<input type="checkbox"/> Download Transactions
<input type="checkbox"/> TMU Interface	<input type="checkbox"/> Send Pricing
<input type="checkbox"/> Batch Report	<input type="checkbox"/> Download OBD Data Logs
<input type="checkbox"/> Download Data Logger Files	<input type="checkbox"/> Vehicle Lockout List
<input type="checkbox"/> User Lockin List	<input type="checkbox"/> Keyless List
<input type="checkbox"/> AIM Programming List	<input type="checkbox"/> AIM Lock List
<input type="checkbox"/> Upload Firmware Image File	

Schedule Auto Download

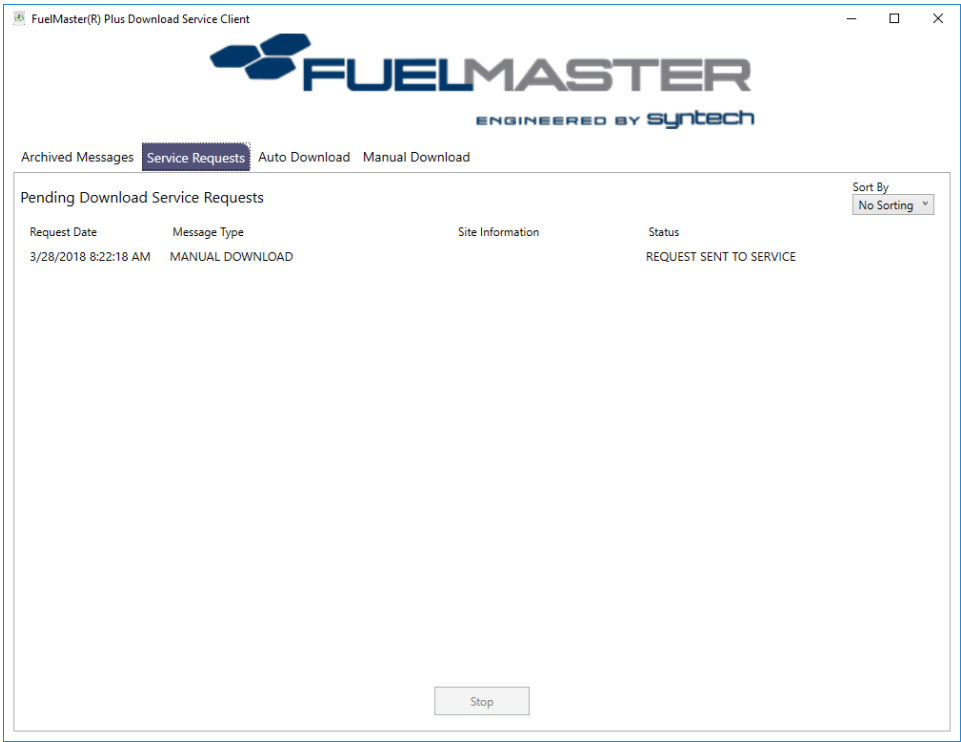
Frequency: One Time Start Date: 2/8/2018 Start Time: 2:01 PM

Schedule not set

Schedule Stop Remove Schedule

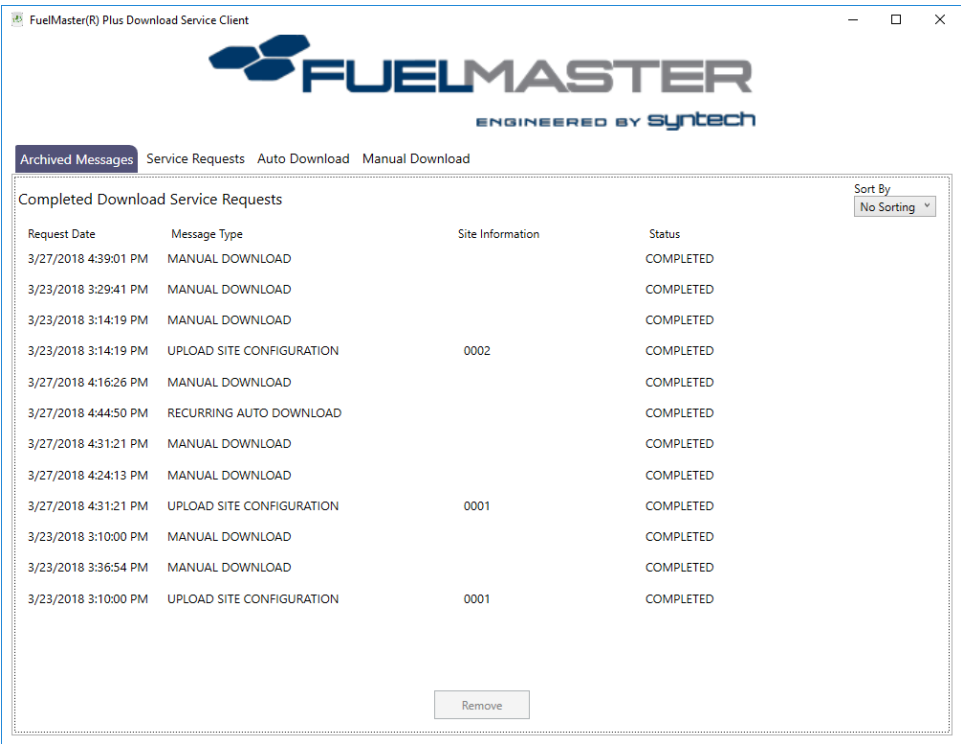
Service Requests

Service Requests shows pending online sessions.



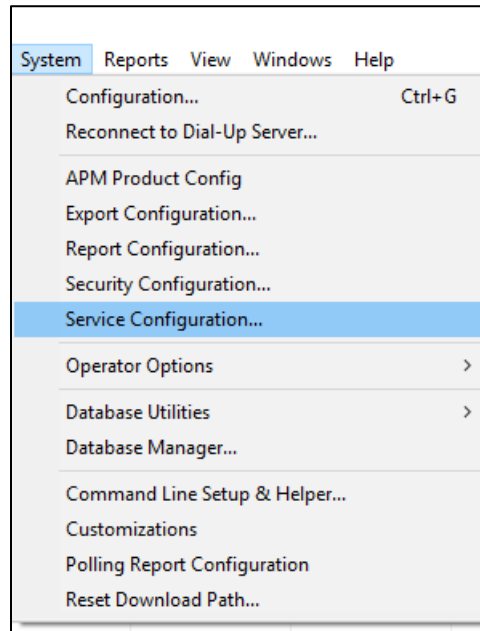
Archived Messages

Once online sessions have completed, they are shown on the Archived Messages tab.

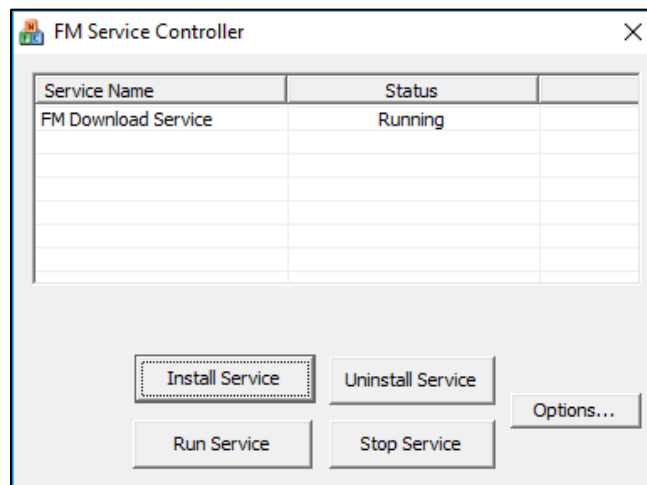


Service Configuration for Download Service

To stop or start the Download Service on the Central Controller, click **System > Service Configuration**.

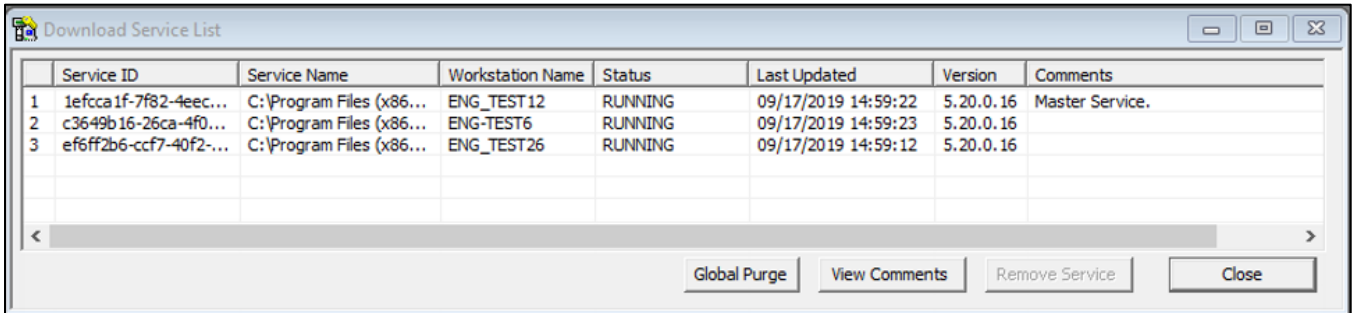


Highlight the FM Download Service, then click **Run Service** to start or **Stop Service** to stop the Download Service running on the Central Controller. You will need to do this on each machine running MultiPoint Download Services (MPDS).



Only use **Install Service** or **Uninstall Service** as advised by FuelMaster Customer Satisfaction Center. The Options on this dialog do not apply to the Download Service.

To see the current status of all Download Services, click **View > List Download Services**. This displays information about the Download Services. For more information, see [MultiPoint Download Service](#).

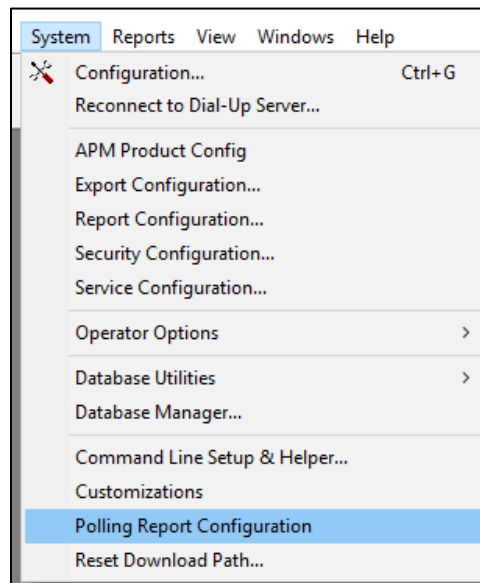


	Service ID	Service Name	Workstation Name	Status	Last Updated	Version	Comments
1	1efcca1f-7f82-4eec...	C:\Program Files (x86...	ENG_TEST12	RUNNING	09/17/2019 14:59:22	5.20.0.16	Master Service.
2	c3649b16-26ca-4f0...	C:\Program Files (x86...	ENG-TEST6	RUNNING	09/17/2019 14:59:23	5.20.0.16	
3	ef6ff2b6-ccf7-40f2...	C:\Program Files (x86...	ENG_TEST26	RUNNING	09/17/2019 14:59:12	5.20.0.16	

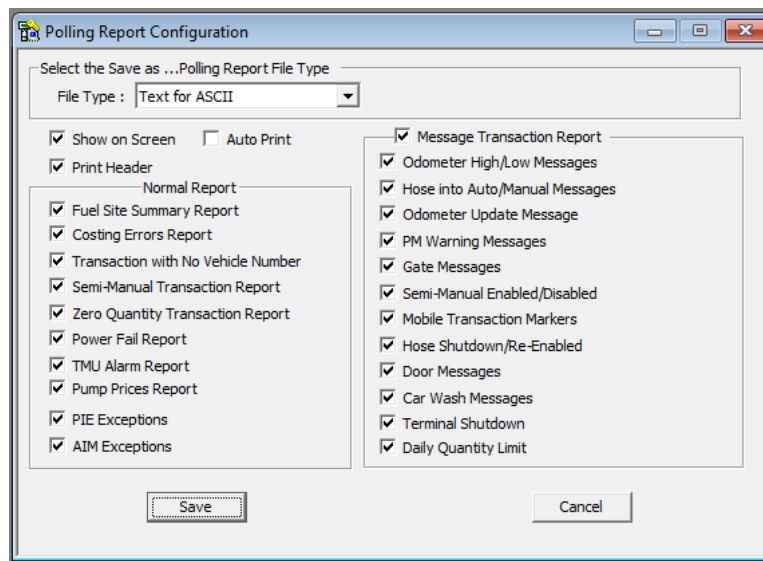
Buttons: Global Purge, View Comments, Remove Service, Close

Polling Reports

When a manual download occurs, FMPlus displays a Polling Report showing the results of the online session. To set the options for the Polling Report, select **System > Polling Report Configuration**.



The Polling Report can be set to auto print or be auto-saved in a variety of file types. When the Polling Report is setup not to display on screen, it is still available from **Operations > Polling Report Query**.



The Polling Report is comprised of a series of smaller reports that can be turned on or off based on user privileges. The Polling Report Configuration has two sub-report areas: normal and messages.

Pump Prices Report

This report is used to ensure that the prices stored and used in the FMU are the same as the current prices set in the software. This makes it an excellent tool to detect incorrect transactions.

NOTE This only works for the last download.

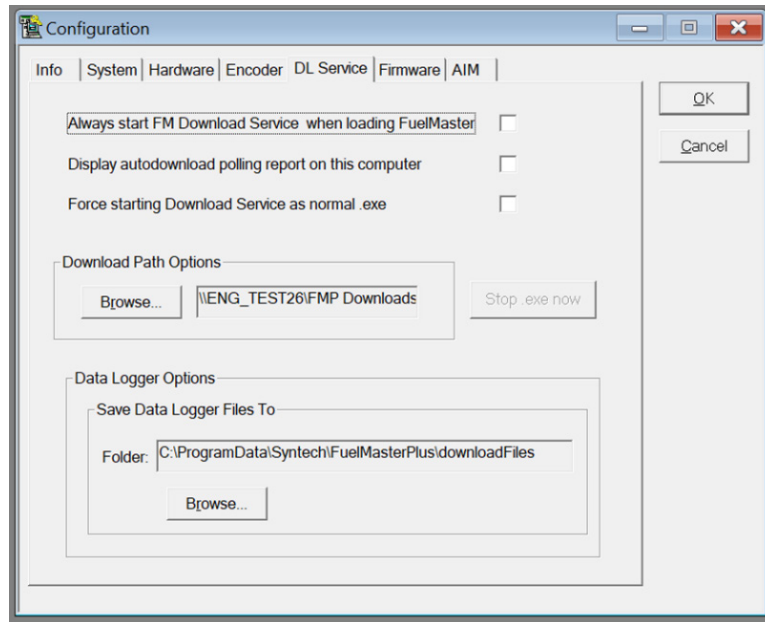
Message Reports

Message Reports are used to display events that occur at the FMU. One of the most useful Message Reports is the PM Warning Report which shows when a Vehicle has passed its mileage for Preventative Maintenance.

Polling Reports for Auto Downloads

To generate Polling Reports for Auto Download sessions, open **Config > DL Service**, and check the box to **Display autodownloaded polling report on this computer**.

The Polling Report Configuration must also be set to **Show on Screen** in the **Polling Report Configuration**.



Chapter 11 FuelMaster Reports

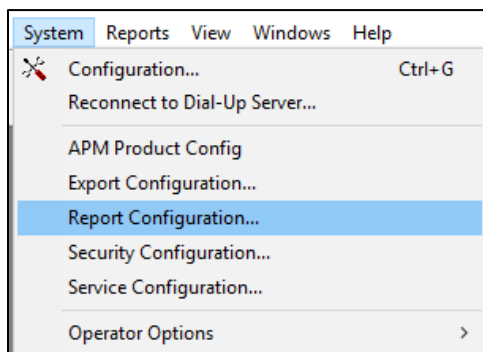
FMPlus has the capability to provide a large amount of information on the status and activity of FMU units at the fuel island. It also brings back a large amount of data pertinent to the maintenance and status of vehicles fueling. This information is stored in the database and is made available using the FMPlus reports package. These reports are generated using a Crystal Reports engine and have many different sorting and grouping abilities.

To enable and run Crystal Reports in FMPlus, an ODBC Data Source Name (DSN) must be configured to connect to the FMPlus database and be set in **System > Database Manager**. For detailed information, see [ODBC Connections for Reports](#).

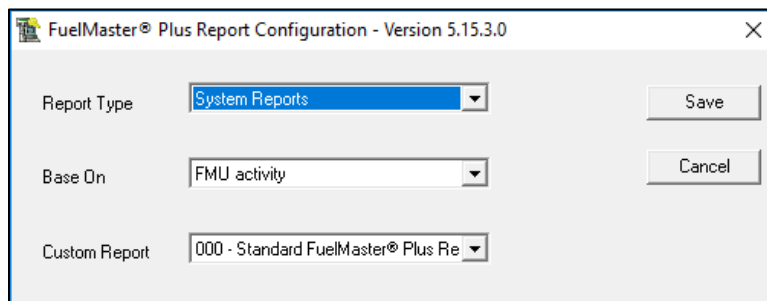
Report Configuration

FMPlus' standard report package is supplemented by the ability to do custom reports for our customers. If you have a custom report, or are advised someone else's custom report will work for you, configure it using the report configuration option.

From the **System** menu select **Report Configuration**.



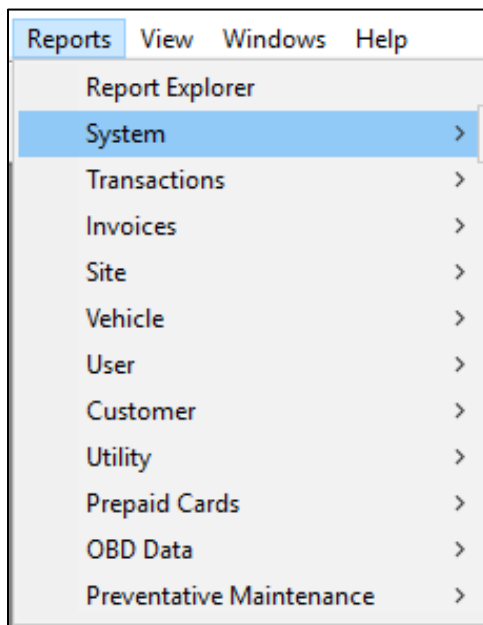
From the Report Configuration interface, select the Report Type, the report it is based on, and the custom report that meets your needs. If you need advice or assistance, please call CSC at 1-800-888-9136 ext. 2.



FMPlus Standard Reports

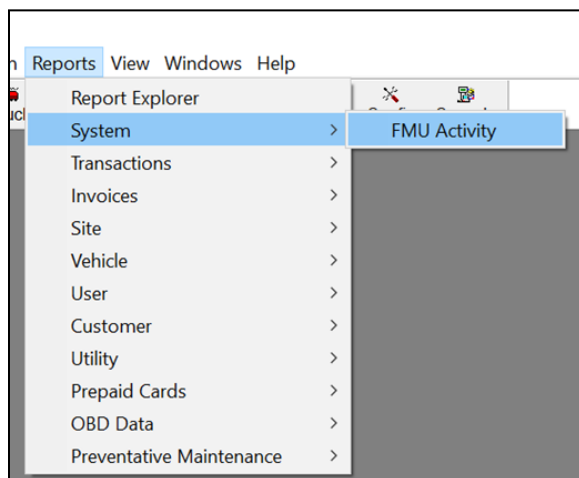
FMPlus has a wide variety of standard reports. A general overview is provided for each report type.

Standard reports can be accessed using the **Reports** menu.



FMU Activity Report

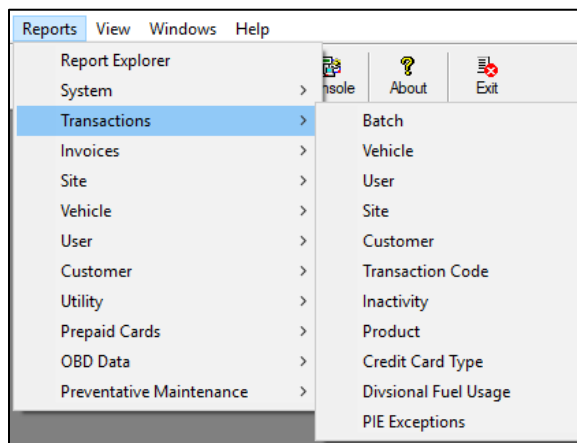
The FMU Activity report displays a month to date and year to date summary of fuel transactions of each hose per site. It also displays a summary of Tank adjustments for the site.



Transaction Reports

Each transaction report category may have sub-categories. Reports can run from any of the sub-categories.

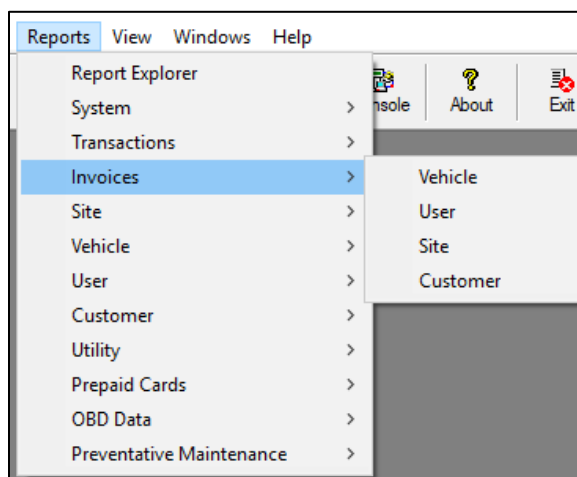
These reports can help you find transactions to review. For example, the Credit Card Type Report can help locate a Credit Card transaction via the brand of the card, i.e. Visa, MasterCard, WEX, etc.



Invoice Reports

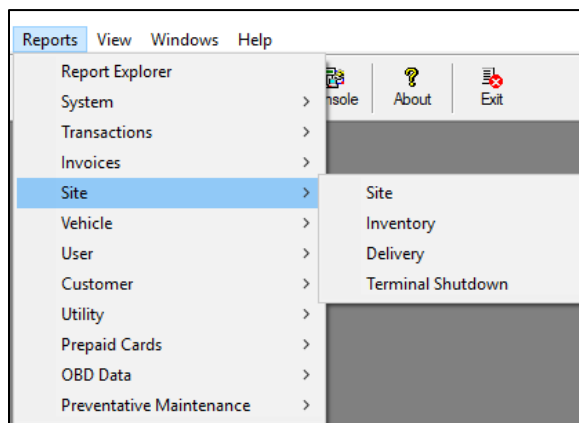
Invoice customers for fuel they receive.

The report can display individual transaction details as well as total number of transactions, total quantity, and total cost in a specified date and time range.



Site Reports

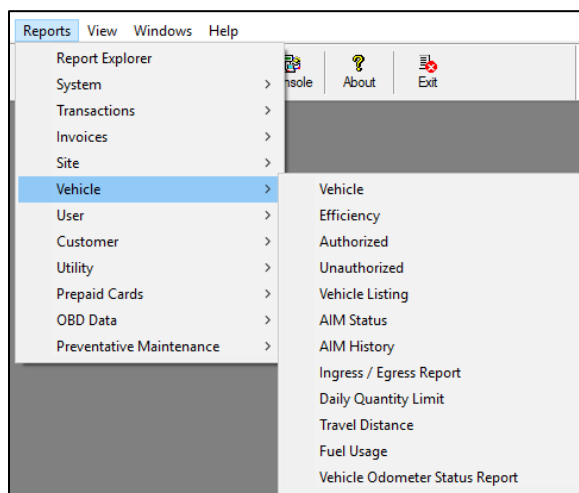
Displays information regarding the site location and inventory status of the tanks. Inventory and Delivery reports provide a variety of options for inventory management data retrieval. For example, the Inventory Report displays current tank inventory at the specified site, such as Last Delivery and Last Stick Reading.



Vehicle Reports

Displays the status and general information for all vehicle records stored in the database. This includes all data stored on Prokee/Smart Cards for each vehicle.

For example, the Efficiency Report shows gallons fueled and odometer readings to give approximate MPG readings. AIM Status and History Reports show the current state of AIM records, historical programming, installing, updating, and other non-transaction data.

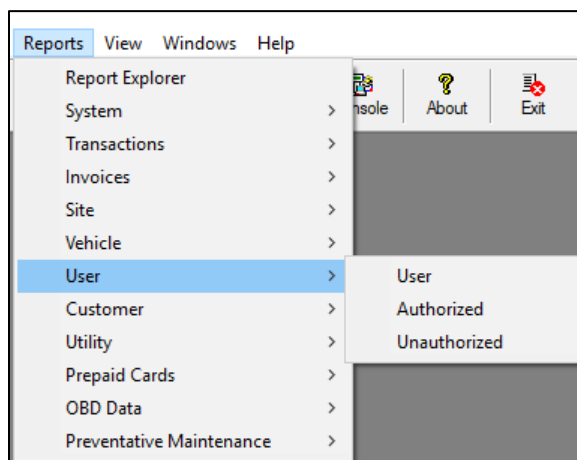


Vehicle Odometer Report

The Vehicle Odometer Report is only available if the Dash Odometer customization has been implemented. See [Appendix D Dash Odometer for AIM2.4 & AIM Titanium](#).

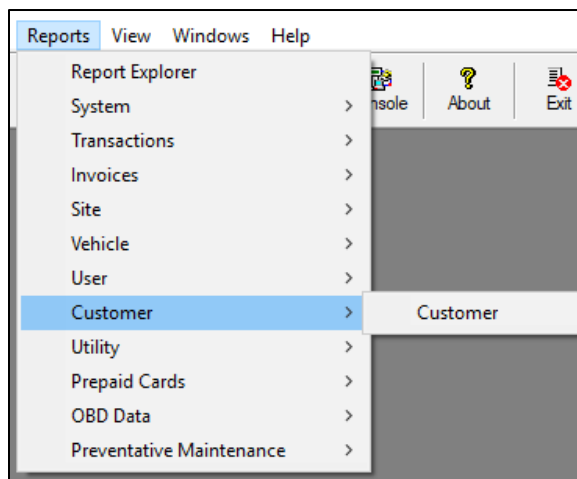
User Reports

Displays information on the selected Users, including whether the record key has been encoded, authorized, or unauthorized.



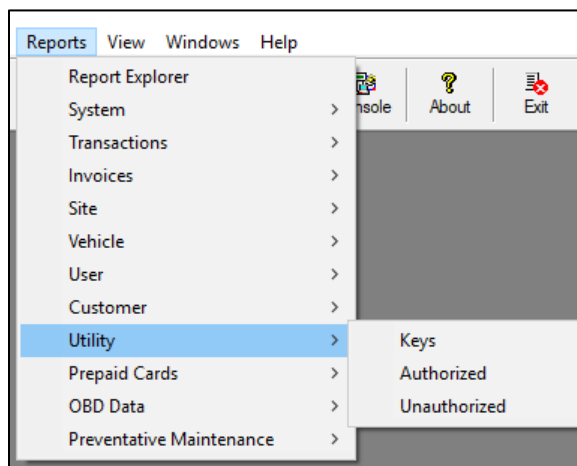
Customer Reports

Displays Customer information, Point of Contact, the Vehicles and Users assigned to the Customer.



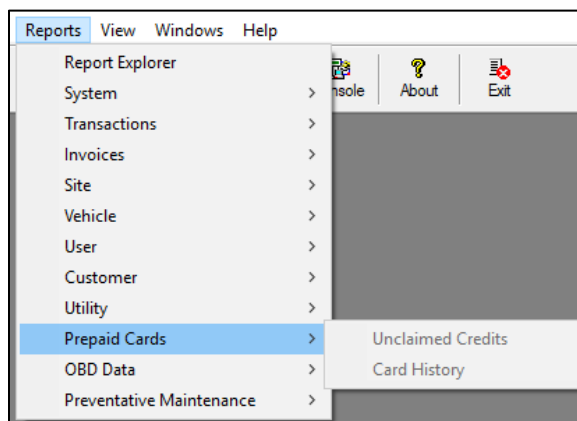
Utility Key Reports

Generates a listing of the Supervisor, Tanker Truck and Manual Issue keys. The **description, Customer ID, Key Type**, etc. identify the key and options.



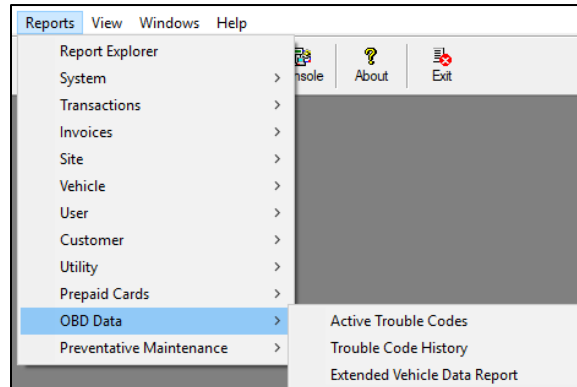
Prepaid Cards

If you have purchased this option these reports provide Unclaimed Credits listing the Prepaid keys, Owner ID, Amount of outstanding Credit, and the Balance on the Card. Card History displays all card information, such as date the record was created, date card was encoded, and any credits or deductions.



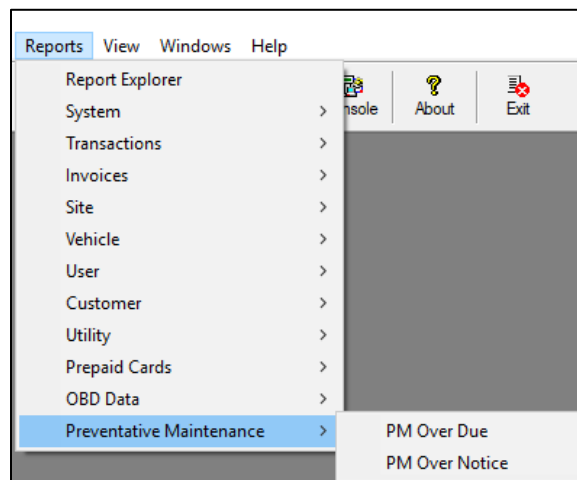
OBD Data (AIM Only)

Generates vehicle information gathered from the on-board computer from active AIMs.



Preventative Maintenance

Retrieves a list of vehicles that are either overdue or over notice based on the current odometer reading of the vehicle.



Chapter 12 Exporting Options

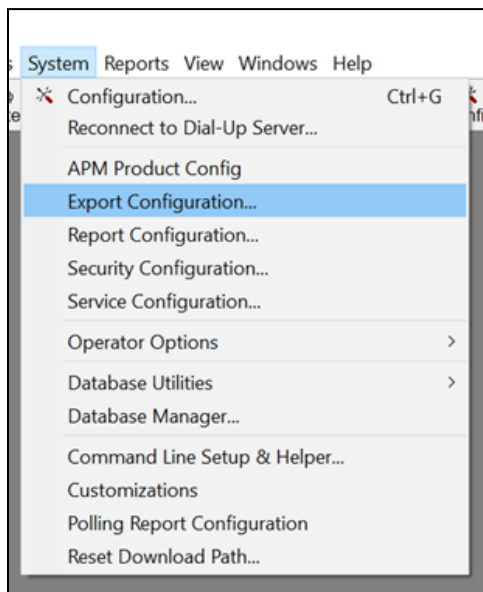
FuelMaster offers the ability to export data from FMPlus to a file that can be imported into other software. The format and data contained in the export differs depending on your needs. The standard set of exports are requested by customers on a regular basis and may meet your needs.

FuelMaster can customize an export if you need something to change or new data to be added. To request a customization, contact your salesperson.

Export Configuration

Select **Export Configuration** from the **System** Menu.

Exports in FMPlus are flat ASCII text files with varying field orders, delimiters, and data sets. There are common exports used by our customers provided free of charge with FMPlus. The format of these exports can be obtained via CSC, 1-800-888-9136 ext. 2. If none of these formats meet your needs, contact your salesperson about a custom export order.

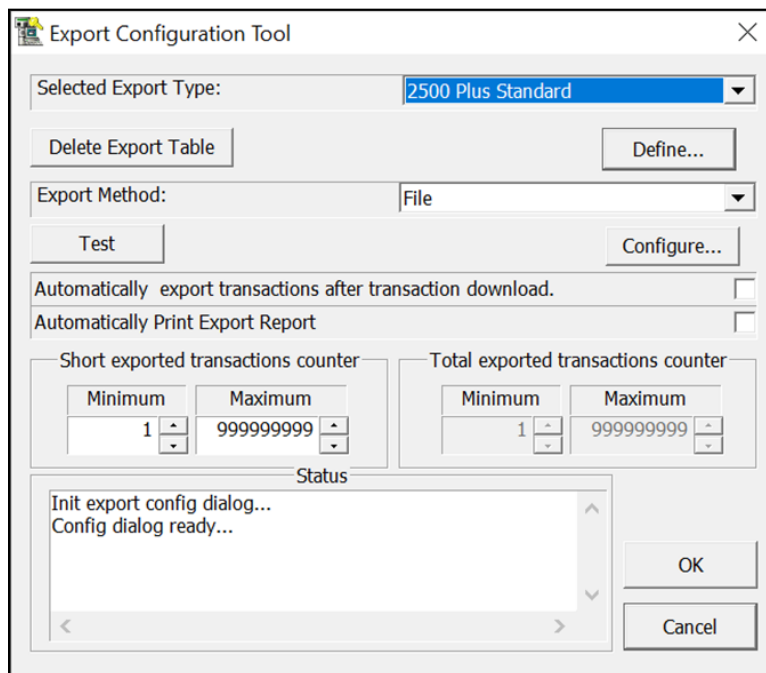


Export Configuration Tool

Select the export type; then specify the location and name of the export file to generate. The location and file name can be left as the default or changed.

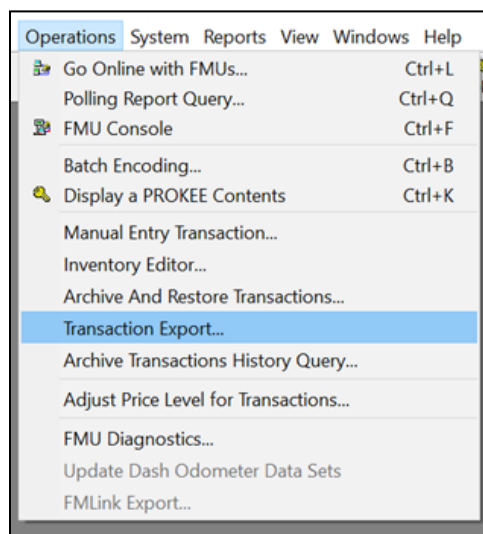
The Auto Export option generates an export immediately upon download completion.

For exports using transaction counters, specify the counter minimums and maximums.



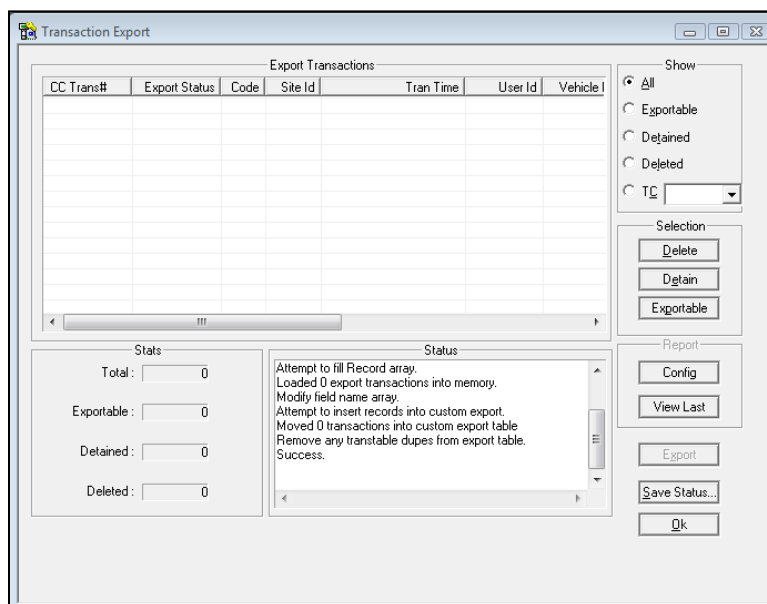
Transaction Export

To export transactions manually, select **Transaction Export** under the **Operations** menu.



Transaction Export Interface

The Export Interface allows you to view and manage transactions that will be written to the export file. The list shows transactions that meet the criteria selected from the **Show** options. **Exportable** transactions are those that will be written to the file. **Detain** transactions to review for possible later export and not include in the file. **Delete** to mark transactions deleted and to discard after the export is complete.



A report is generated at the time of export to provide a summary of the export.

This report can be configured, and the list can be viewed. When all options have been configured, click **Export** to write the file.

<u>Fuelmaster Detailed Export Report</u>							
Print Time: 08/18/08 10:32:53 PM						Page 1 of 1	
<u>Trans Time</u>	<u>Tank Number</u>	<u>Hose</u>	<u>Product Code</u>	<u>Vehicle->Org</u>	<u>UnitCost</u>	<u>Quantity</u>	<u>TotalCost</u>
<u>Site-> Name: WEST Fueling Station</u>							
<u>Product-> Desc: Diesel</u>							
<u>Summary for Product-> Desc: Diesel</u>				Total for 1 Transactions		32.56	0.00
<u>Summary for Site-> Name: WEST Fueling Sta</u>				Total for 1 Transactions		32.56	0.00
<u>Grand Totals</u>						<u>Quantity</u>	<u>TotalCost</u>
<u>Total for 1 Transactions</u>						32.56	0.00

Filter by Transaction Code (TC) in Export View

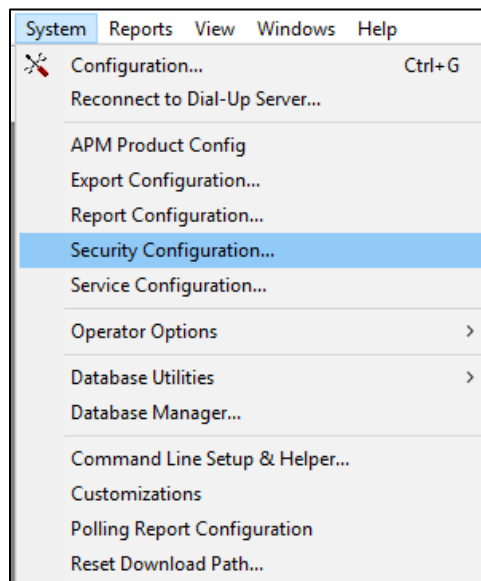
If the transaction code (TC) is being exported, users can filter records by TC as well as by Exportable, Detain, Delete, and All. Clicking on the radio button causes the view to display only transactions with the TC chosen in the combo box. These controls are hidden if TC is not part of the export definition.

Chapter 13 Administration

FMPlus security features allow the administrator to control who has access to what parts of the software and how that access is managed. FMPlus has data and operations that are sensitive in nature. Security options allow or restrict access to a wide range of program functions. In addition, the Security Configuration feature lets you define security record requirements and management settings, like expiration dates, number of incorrect login attempts allowed, etc.

Security Configuration

The **Security Configuration** for FMPlus can be accessed via the **System** menu.



These settings can be made to be as secure or as open as each customer's circumstances require. Understand, however, that tight security can be both a benefit and, in some cases, an inconvenience. Choose a reasonable security configuration for your installation and the users of the software.

Security Settings Tab

The screenshot shows the 'Security Configuration' dialog box with the 'Security Settings' tab selected. The 'Log Events' sub-tab is also visible. The 'Login Name' section has a dropdown for 'Operator Login Minimum Length' set to 1. The 'Password Exclude Words' and 'Password Exclude Substrings' sections each have an 'Add' button and a list box. The 'Restrict Password Reverse' checkbox is unchecked. The right side of the dialog contains several dropdown menus: 'Restricted Password Shift Characters' (0), 'Password Fail LockOut' (0), 'Minimum Length' (1), 'Minimum Numeric characters' (0), 'Minimum Alpha characters' (0), 'Minimum Upper Case Alpha characters' (0), 'Minimum Special characters' (0), 'Characters NEW password differs from OLD password' (0), 'Days Until Password Expires' (Never), 'Expiration Warning Days' (0), 'Passwords Until able to Repeat' (0), and 'Days Until Password able to Repeat' (0). At the bottom are buttons for 'Reset ALL Passwords', 'Save', and 'Cancel'.

Login Name

Establishes the minimum length of the Login Name.

Exclude Words

Sets words that cannot be used for passwords such as company name, location or admin.

Exclude Substring

Restricts the use of substrings from passwords such as 12345.

Restrict Password Reverse

Keeps users from establishing a new password by reversing their current password.

Restricted Password Shift Characters

Number of characters the password must differ by each time the password changes.

Password Fail Lockout

Number of times you can enter the password incorrectly before the login is locked out until an administrator unlocks the user login.

Minimum Length

Setting that declares the minimum length of the password.

Minimum Numeric Character

Password requires at least this many numeric characters.

Minimum Alpha Character

Password requires at least this many alpha characters.

Minimum Special Character

Password requires at least this many special characters. Examples: [!@#\$%^]
special characters that may **not** be used in passwords include: < > “ : and ;

Characters New Password Differs from Old Password

Distinguishes how many characters must be different from the old password.

Days Until Password Expires

A password change can be set to prompt the user. They will need to establish a new password before the days expire.

Expiration Warning Days

Warns a user they need to change their password before it expires.

Passwords until able to Repeat

Number of stored historical passwords that rotate until a previous password can be reused.

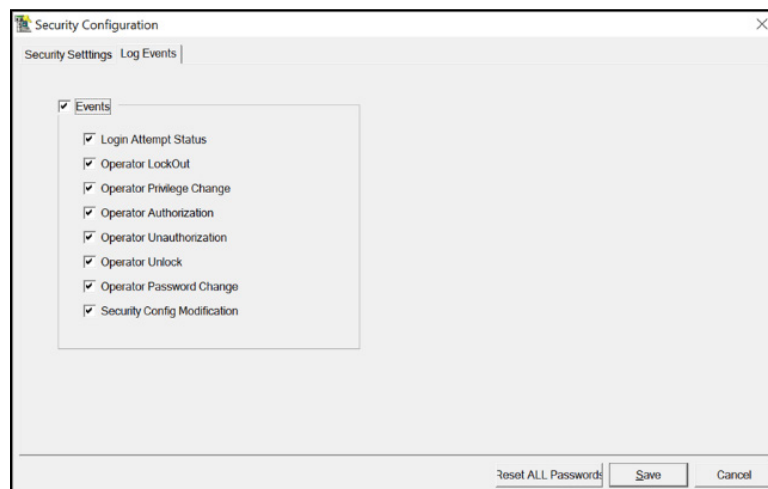
Days until Password able to Repeat

Limits number of days before a password can be repeated.

Log Events

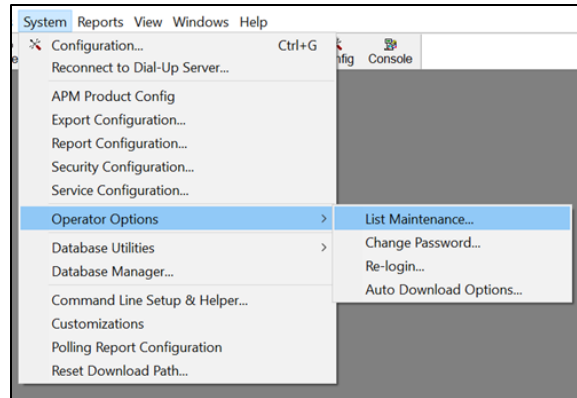
Set the events that will be recorded in the database as an audit trail for security operations, changes, errors, etc.

Select the log events you desire using the **Events** check boxes. Click **Save**.



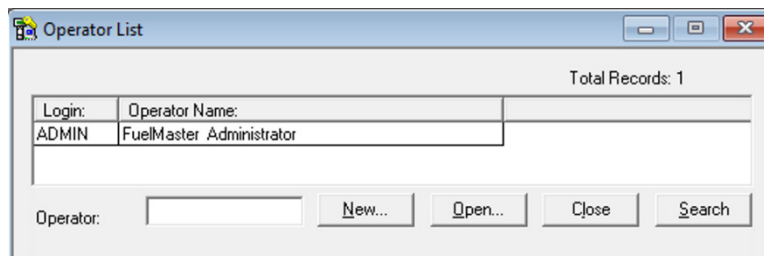
Operator Options

Individuals who are allowed access into FMPlus enter a username and password. Operators can be assigned specific permissions for software operations using the **List Maintenance** menu, which raises the **Operator List** dialog box.



Operator List

Displays current operators with access to the software. The ADMIN operator is set by FMPlus. Add an operator by entering the name in the Operator field and clicking **New**. Enter information about the Operator.

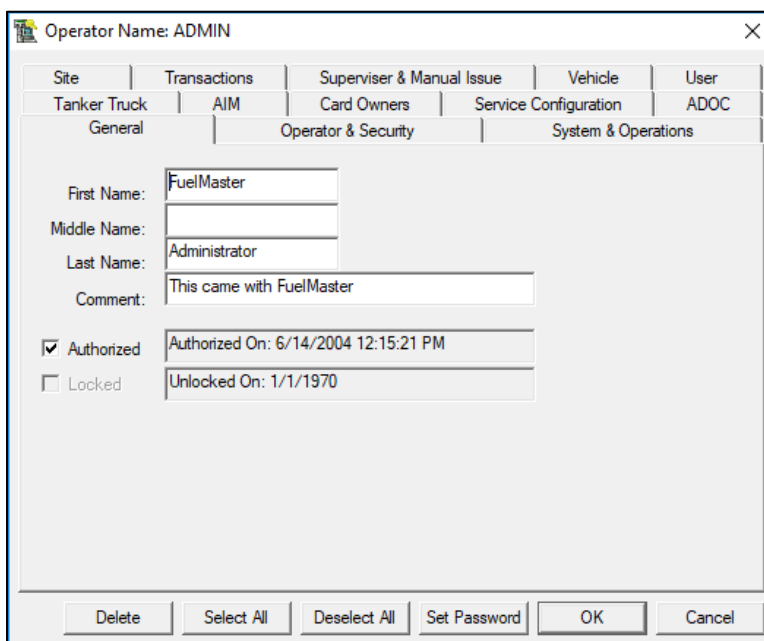


The Login column refers to the operator name used to login to FMPlus. Once an operator name has been established, a dialog displays with a series of tabs to authorize access to specific parts of the program for each operator.

To create an admin with all privileges, or to remove all privileges from an existing operator, use the **Select All** or **Deselect All** buttons on the bottom of the interface. Most tabs contain checkboxes for 'Add', 'Edit', and 'Delete'. These control whether an operator can create, modify, or delete the type of record for that field. For example, an operator with only 'Edit' permissions on the Vehicle Tab could not create or delete a vehicle record, but could open and modify a vehicle record.

General Tab

Identifies basic operator login information.

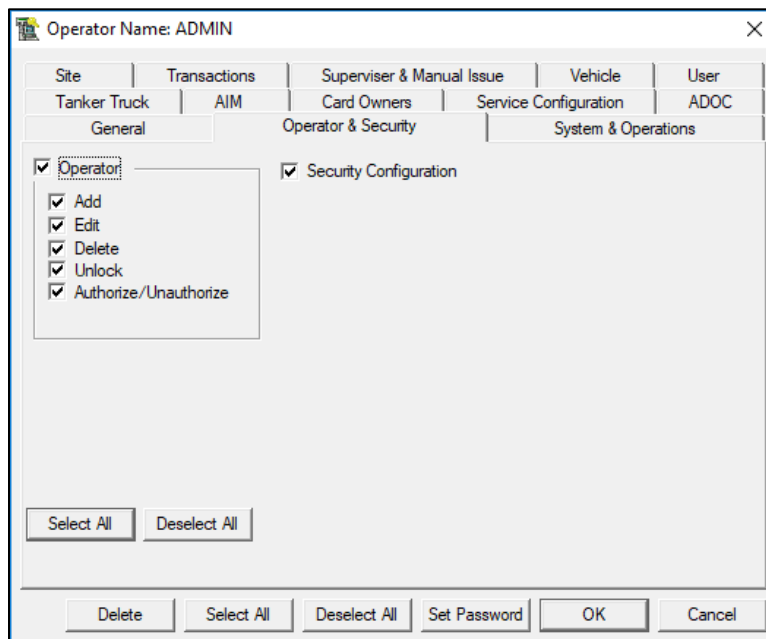


The '**Authorized**' checkbox controls the access of the operator login. A date/time denotes when the operator was authorized or unauthorized.

The '**Locked**' check box is used when an operator has entered his/her login sequence incorrectly too many times. An operator with sufficient privileges can use this checkbox to re-enable the operator login by removing the check from the box.

Operator & Security Tab

These permissions control who has access to setup other operators and change their operator permissions.



Security Configuration controls the menu option **Security Configuration** (first section in this chapter).

System & Operations Tab

These permissions control the creation, editing, and deleting of system configurations, products, and customizations. The list of functions in the lower left provide additional flexibility.

The screenshot shows a window titled "Operator Name: ADMIN" with a close button (X) in the top right corner. The window has a tabbed interface with the following tabs: Vehicle, User, Tanker Truck, AIM, Card Owners, Service Configuration, ADOC, General, Operator & Security, System & Operations (selected), Site, Transactions, and Supervisor & Manual Issue. The "System & Operations" tab is active, displaying three main sections of permissions: "Configuration", "Online", and "Products". Each section contains a list of functions with checkboxes. The "Configuration" section has 15 items, all checked. The "Online" section has 12 items, all checked. The "Products" section has 5 items, all checked. At the bottom of the main content area are "Select All" and "Deselect All" buttons. At the very bottom of the window are "Delete", "Select All", "Deselect All", "Set Password", "OK", and "Cancel" buttons.

Configuration	Online	Products
<input checked="" type="checkbox"/> System	<input checked="" type="checkbox"/> Normal Download	<input checked="" type="checkbox"/> Add
<input checked="" type="checkbox"/> Modem	<input checked="" type="checkbox"/> Auto Download	<input checked="" type="checkbox"/> Delete
<input checked="" type="checkbox"/> Encoder	<input checked="" type="checkbox"/> Send Pricing	<input checked="" type="checkbox"/> Edit
<input checked="" type="checkbox"/> AIM	<input checked="" type="checkbox"/> Send Authorization	<input checked="" type="checkbox"/> Edit Pricing
<input checked="" type="checkbox"/> Export	<input checked="" type="checkbox"/> Credit Card Batch Report	<input checked="" type="checkbox"/> Add Features
<input checked="" type="checkbox"/> Auto Export	<input checked="" type="checkbox"/> Send Discount List	<input checked="" type="checkbox"/> Delete Features
<input checked="" type="checkbox"/> Report	<input checked="" type="checkbox"/> Send Prepaid List	
<input checked="" type="checkbox"/> Polling Report	<input checked="" type="checkbox"/> TMU Interface	
<input checked="" type="checkbox"/> Read Keys	<input checked="" type="checkbox"/> Session Status Options	
<input checked="" type="checkbox"/> FMU Console	<input type="checkbox"/> Download Data Logger	
<input checked="" type="checkbox"/> Polling Report Query	<input type="checkbox"/> Edit Communication Queue	
<input checked="" type="checkbox"/> Reports	<input type="checkbox"/> Send Firmware	
<input checked="" type="checkbox"/> Command Line Setup & Helper		
<input checked="" type="checkbox"/> Import Data		
<input type="checkbox"/> Import Card Definitions		

The Online permissions authorize operators to perform functions that require interaction with the FMU. For example, you may authorize an operator to download transactions from a site, but might not want them to send pricing or price sensitive lists.

Site Tab

Contains permissions pertaining to the creation of Sites and their sub-elements, Tanks and Units.

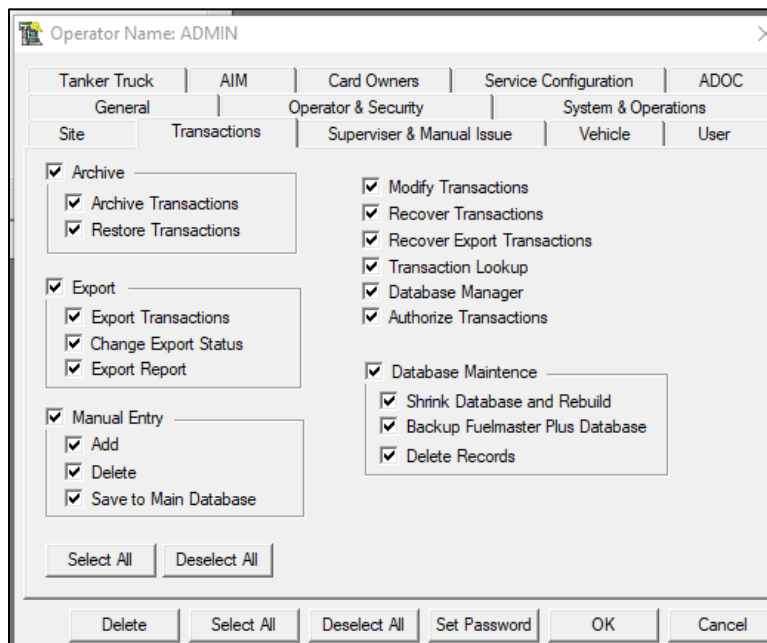
The screenshot shows a window titled "Operator Name: ADMIN" with a close button (X) in the top right corner. The window has a tabbed interface with the following tabs: Vehicle, User, Tanker Truck, AIM, Card Owners, Service Configuration, ADOC, General, Operator & Security, System & Operations, Site (selected), Transactions, and Supervisor & Manual Issue. The "Site" tab is active, displaying three main sections of permissions: "Site", "Tank", and "Unit". Each section contains a list of functions with checkboxes. The "Site" section has 5 items, all checked. The "Tank" section has 8 items, all checked. The "Unit" section has 4 items, all checked. At the bottom of the main content area are "Select All" and "Deselect All" buttons. At the very bottom of the window are "Delete", "Select All", "Deselect All", "Set Password", "OK", and "Cancel" buttons.

Site	Tank	Unit
<input checked="" type="checkbox"/> Add	<input checked="" type="checkbox"/> Add	<input checked="" type="checkbox"/> Add
<input checked="" type="checkbox"/> Delete	<input checked="" type="checkbox"/> Delete	<input checked="" type="checkbox"/> Delete
<input checked="" type="checkbox"/> Edit	<input checked="" type="checkbox"/> Delivery	<input checked="" type="checkbox"/> Edit
<input checked="" type="checkbox"/> TMU	<input checked="" type="checkbox"/> Adjustment	<input checked="" type="checkbox"/> Upload/Download Config
<input type="checkbox"/> Manage FMU FW	<input checked="" type="checkbox"/> Inventory Transfer	
	<input checked="" type="checkbox"/> Stick Reading	
	<input checked="" type="checkbox"/> Set Closeout	
	<input checked="" type="checkbox"/> Enable Pricing Per Tank	

Transactions Tab

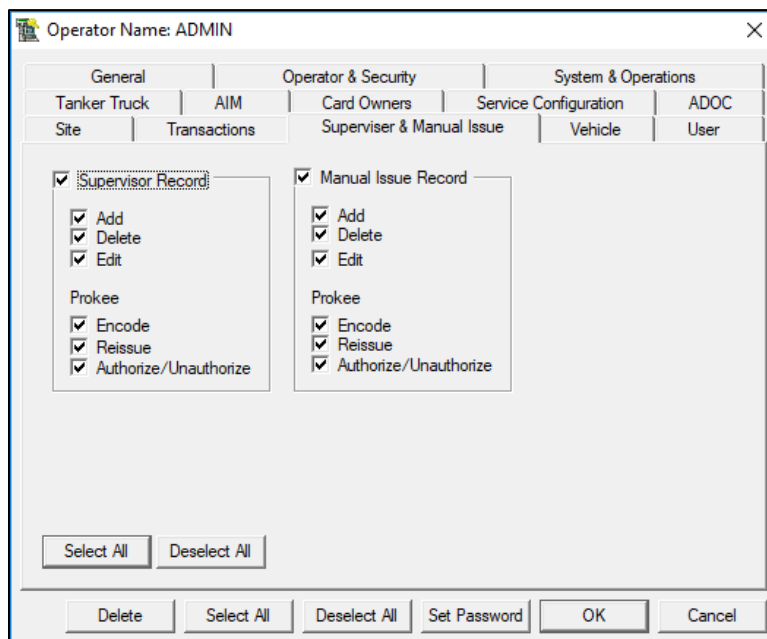
Includes permissions for control of archiving, exporting, modifying, recovering, and updating transactions records.

Also controls permissions for Manual Entry and Database Maintenance.



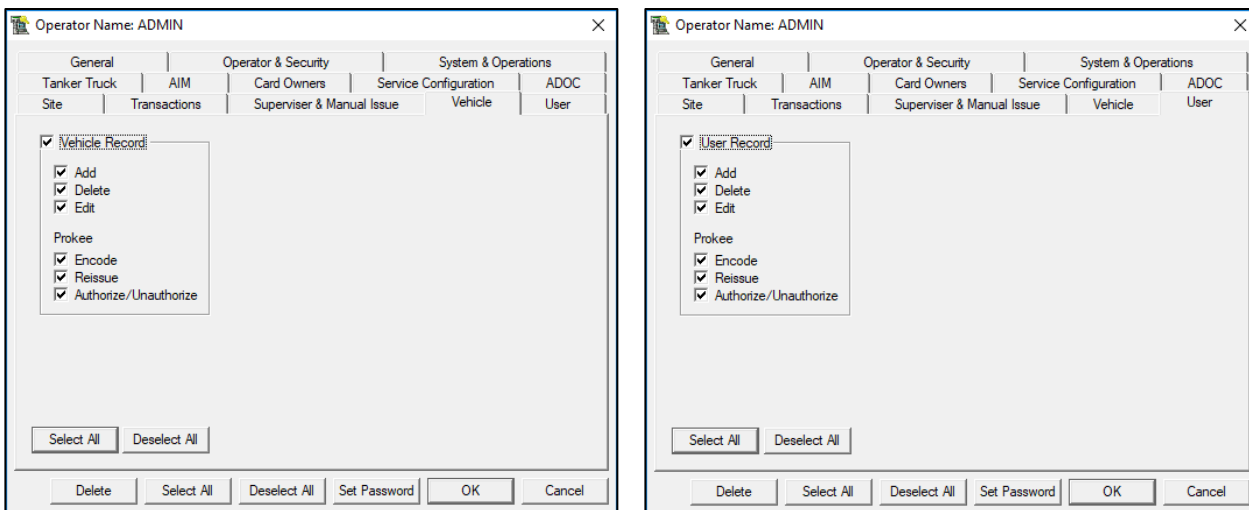
Supervisor and Manual Issue Tab

Sets permissions for the Supervisor and Manual Issue key records.



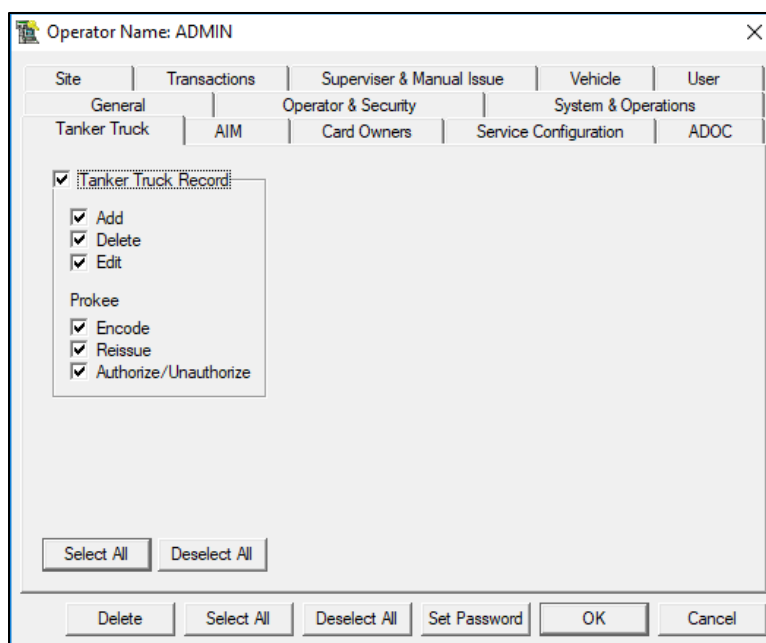
Vehicle and User Tabs

The Vehicle and User permissions authorize operators to create, modify, or delete Vehicle/User records. You can also set permissions for the operator to encode, reissue and authorize or de-authorize the Prokee/Smart Cards or AIMs.



Tanker Truck Tab

Authorize operators to manage Tanker Truck records and Prokee/Smart Cards.



AIM Tab

Set permissions to manage the AIM Programmer section including Prokee/Smart Cards. AIM Installation controls installing AIM modules in Vehicle records. Also controls the ability to send and receive the AIM Programming List to the FMU(s).

Operator Name: ADMIN

Site	Transactions	Supervisor & Manual Issue	Vehicle	User
General	Operator & Security	System & Operations		
Tanker Truck	AIM	Card Owners	Service Configuration	ADOC

☒ AIM Programmer

- ☒ Add
- ☒ Delete
- ☒ Edit

Prokee

- ☒ Encode
- ☒ Reissue
- ☒ Authorize/Unauthorize

☒ AIM Installation

☒ Send/Receive Programming and Update List

Select All Deselect All

Delete Select All Deselect All Set Password OK Cancel

Card Owners Tab

If you have purchased the Local Authorization or Discount and Prepaid Card features, you may set permissions for Card Owners, Discount CC, Prepaid, and Local Authorization. For Prepaid keys you can also restrict the ability for the operator to encode a Prokee /Smart Card.

Operator Name: ADMIN

Site	Transactions	Supervisor & Manual Issue	Vehicle	User
General	Operator & Security	System & Operations		
Tanker Truck	AIM	Card Owners	Service Configuration	ADOC

☒ Card Owners

- ☒ Add
- ☒ Delete
- ☒ Edit

☒ Discount CC

- ☒ Add
- ☒ Delete
- ☒ Edit

☒ Prepaid

- ☒ Add
- ☒ Delete
- ☒ Edit
- ☒ Encode

☒ Local Authorization

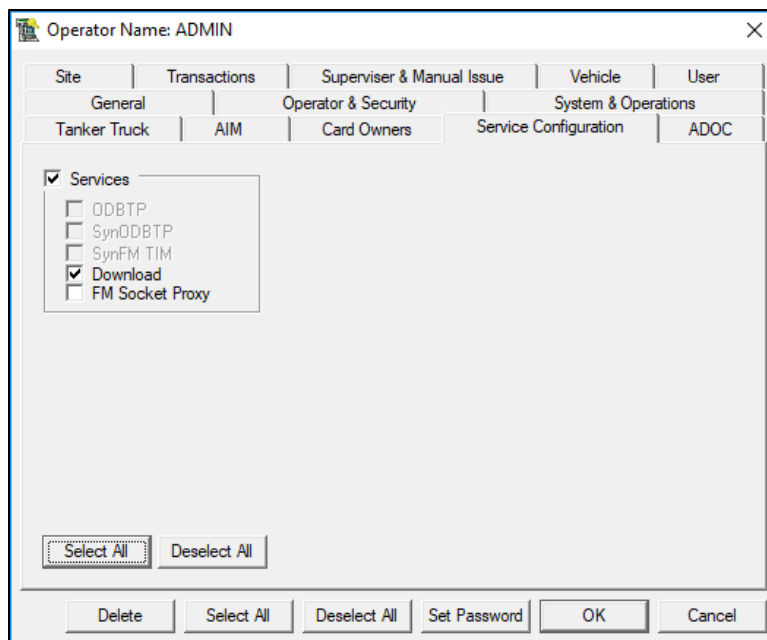
- ☒ Add Account
- ☒ Edit Account
- ☒ Delete Account
- ☒ Add Lock List Entry
- ☒ Edit Lock List Entry
- ☒ Delete Lock List Entry

Select All Deselect All

Delete Select All Deselect All Set Password OK Cancel

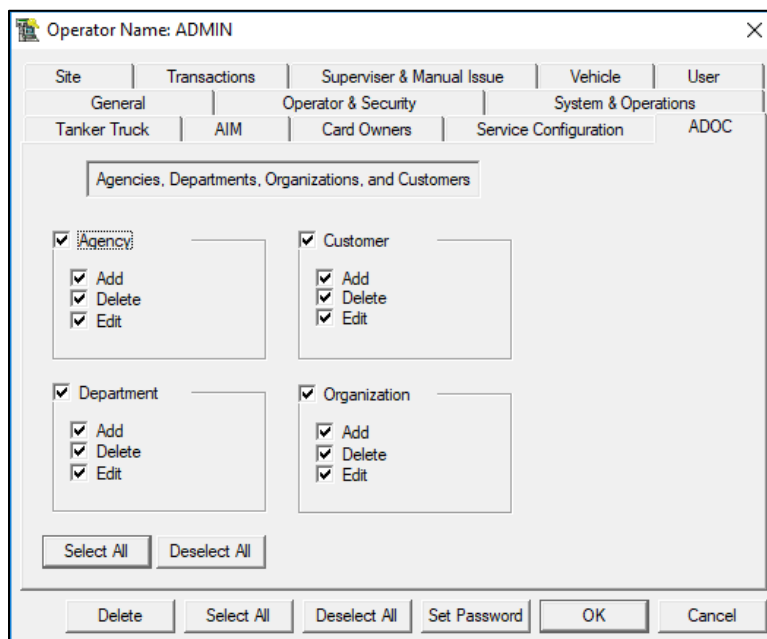
Service Configuration Tab

Provides the ability to authorize interaction with various Services through the **Service Configuration** tab. The FM Download Service requires the **Download** permission.



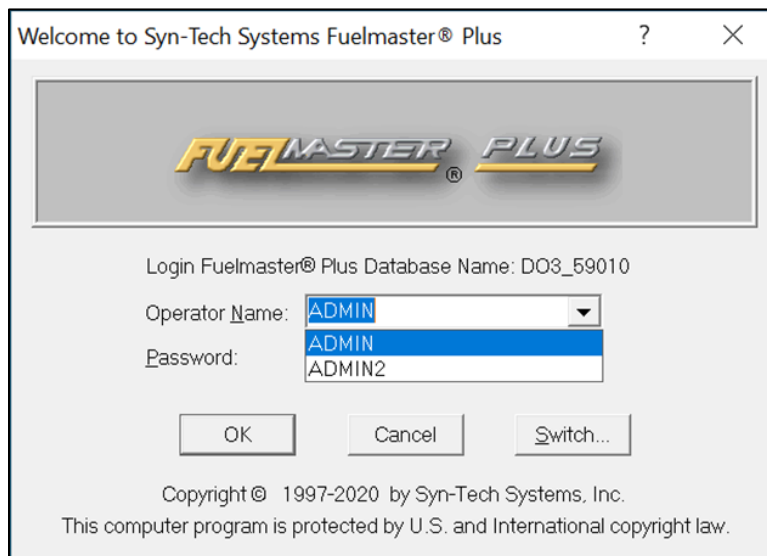
ADOC Tab

Set permissions to Add, Delete, and Edit **Agency**, **Department**, **Organization**, and **Customer** data.



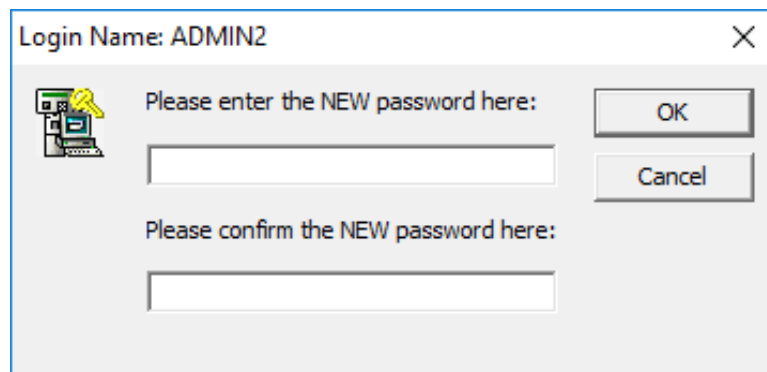
New Operator Login

New operators can be selected from the **Operator Name** dropdown list.



The screenshot shows a login window titled "Welcome to Syn-Tech Systems Fuelmaster® Plus". It features the "FUELMASTER PLUS" logo at the top. Below the logo, it displays "Login Fuelmaster® Plus Database Name: DO3_59010". There are two input fields: "Operator Name" with a dropdown menu showing "ADMIN" selected, and "Password" with a text box containing "ADMIN2". At the bottom, there are three buttons: "OK", "Cancel", and "Switch...". A copyright notice at the very bottom reads: "Copyright © 1997-2020 by Syn-Tech Systems, Inc. This computer program is protected by U.S. and International copyright law."

A password is not entered for a first-time login. Prompts guide the operator to set the password, which is then used to login.



The screenshot shows a dialog box titled "Login Name: ADMIN2". It contains two prompts: "Please enter the NEW password here:" followed by an empty text box, and "Please confirm the NEW password here:" followed by another empty text box. To the right of the first prompt are "OK" and "Cancel" buttons. A small icon of a computer with a key is visible on the left side of the dialog.

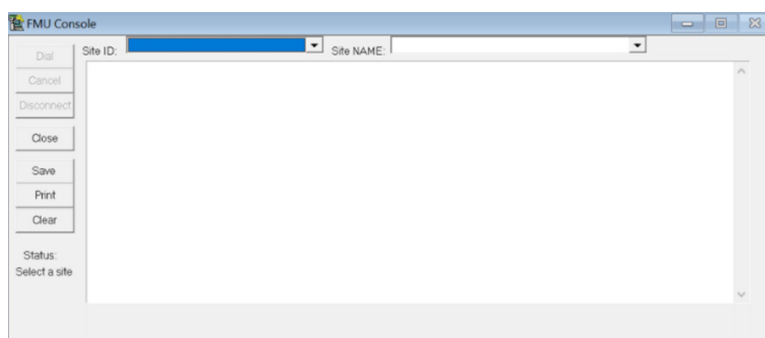
Chapter 14 FuelMaster Tools

FMPlus includes a set of tools to assist in managing your database and handling abnormal situations. There are options for manual entry of transactions and inventory data, database backup and recovery options, transaction importing, and exported transaction recovery. These tools are provided to help fix any issues that may occur, but FuelMaster also provides easy access to the CSC, where a technician can help quickly resolve any issue you encounter.

FMU Console

The FMU Console allows the Central Controller to communicate directly with the FMU to perform a limited series of diagnostic and configuration commands. The console communicates with the FMU in the same manner as the other online FMU functions (via network or phone line).

To access this feature, use the **Console** icon found on the FMPlus Toolbar.



NOTE

The Download Service does not have to be stopped prior to running the FMU Console Interface. However, there should be no active upload or download sessions while logged on to the Console.

This feature can shut down or re-enable a specific hose position, authorize a transaction, or configure the header and footer for your receipts.

From the FMU Console, select the **Site ID** or the **Site Name** from the dropdown boxes and click **Dial** (even if you are using a network interface).

Once you have connected to the FMU, a menu appears in the main part of the FMU console interface. Each option provided is accessed by entering the number of the commands and pressing 'Enter'.

You can view the commands shown below and send commands via pass-through to a Satellite.

```
=====
REMOTE COMMAND MENU - (MASTER FMU)

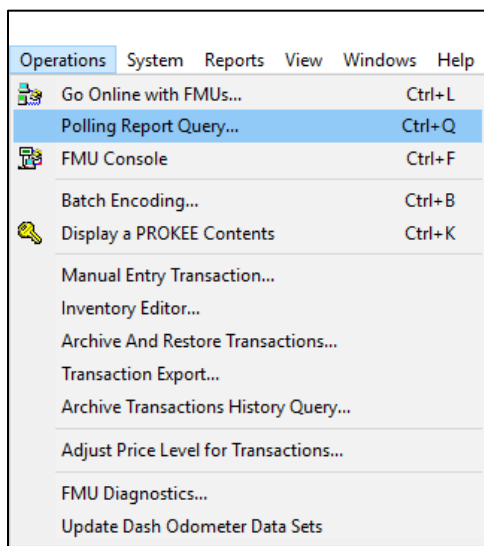
1. Show Pump Status
2. Reenable a Pump
3. Shutdown a Pump
4. Start a Transaction
5. Set Time (Master)
6. Set Date (Master)
7. Receipt Header/Footer Menu
8. Display Accepted Products
9. N/A (Credit Card Menu not available for this build)

98. Connect to a Satellite

Enter the command to run (ESC exits):
```

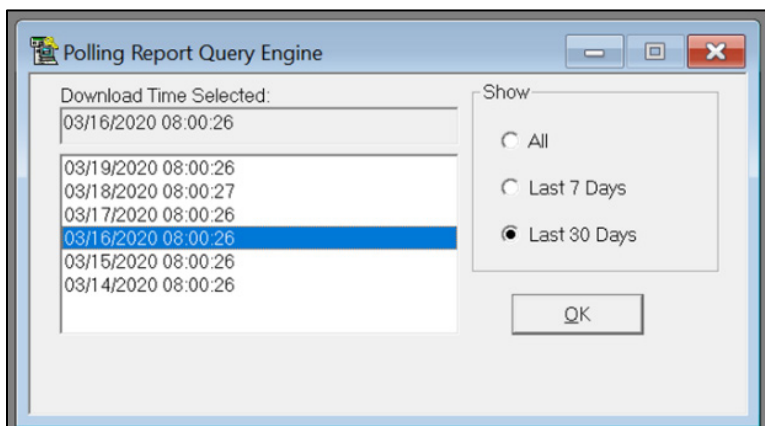
Polling Report Query

Check on the results of any historical download process by regenerating the Polling Report. This tool is accessed through the **Operations** menu.



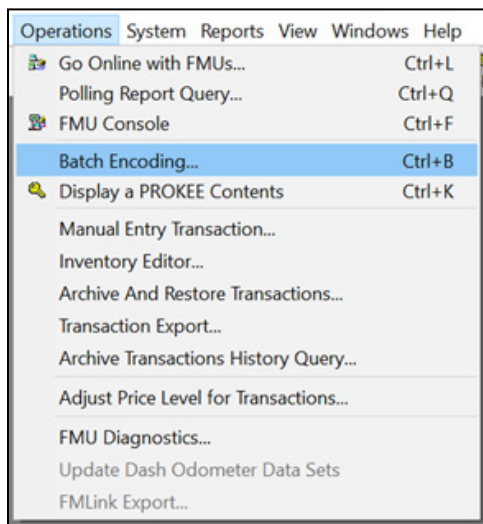
Polling Report Query Engine

Use the engine to select the criteria for the polling report you would like regenerated. Select 7 Days or 30 Days to narrow your search.



Batch Encoding

Encodes many keys in one sitting without having to open each Vehicle record individually.

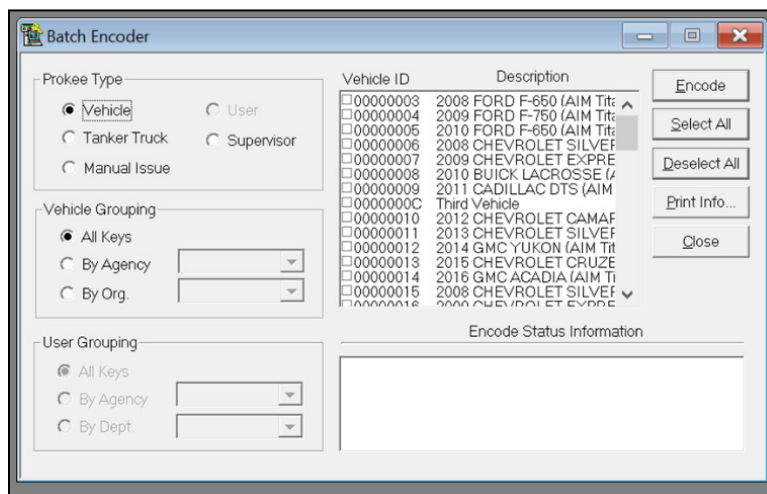


For example, if importing Vehicle or User data from another spreadsheet or database to FMPlus, use Batch Encoding to create the large number of keys.

Access the Batch Encoding Tool from **Batch Encoding** under the **Operations** menu.

Batch Encoding Tool

Includes four sections: Prokee/Smart Card Type, Vehicle or User Grouping, Records List, and Encode Status Information.

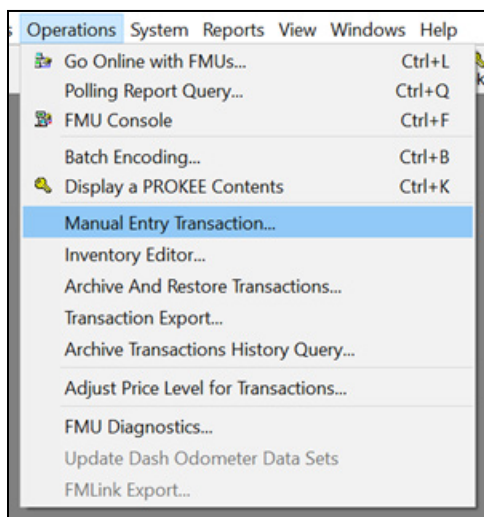


Select the type of keys to create and the groupings to encode. The list of records that match your criteria displays in the list.

Once the matching records display, select the individual records by checking the box next to the desired record. As records are encoded, the status information changes. When **Encode** has been clicked, you have 30 seconds to insert the Prokee/Smart Card. Once the first key has encoded successfully, the encode process will automatically start again after you click **OK** to confirm the encoding of the previous key.

Manual Entry Transactions

Transactions run in Manual Mode due to dispenser, FuelMaster issues, or possibly emergency situations, can be entered in FMPlus.

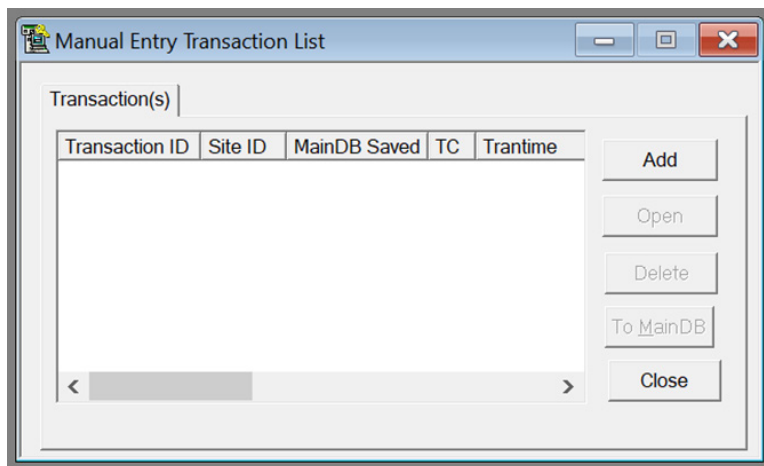


Manual Entry transactions contain the same information as a transaction recorded by the FMU. However, this option cannot be used for Credit Card transactions.

Access this option via **Manual Entry Transaction** from the **Operations** menu.

Manual Entry Transaction List

Manage transactions that have not been recorded by an FMU.



Click **To MainDB** to move the entered transactions into the database. Once completed, the transactions can be exported and viewed in reports. Manual Entry transactions are only used for Sale transactions.

Manual Entry

The interface contains all the fields required for a manual entry transaction. It is important to understand that the **OK** button saves the transaction in a temporary location.

To move it to the database, you must use **Save to MainDB** or **To MainDB** from the Transactions List.

A screenshot of the 'Manual Entry Transaction ID: '00001' [NEW]' window. The window has a title bar with a minus, maximize, and close button. The form is divided into several sections. On the left, there are fields for 'Trans. ID:' (00001), 'Trans. Code:*' (dropdown), 'Vehicle ID:*' (dropdown), 'Vehicle Desc.:', 'TailNumber:', 'Agency:', 'Odometer:' (0), 'Job Number:', 'User ID:*' (dropdown), 'User Name:', 'Quantity:' (0), 'Unit Cost:' (\$ 0), and 'Total Cost:' (\$ 0.00). On the right, there is a 'Site Information' section with fields for 'Site ID:*' (dropdown), 'Site Name:', 'Hose:' (dropdown), 'Grade Pos:' (dropdown), 'Product:' (0), 'Tank No:' (0), 'Prod. Desc.:', and 'Customer ID:' (dropdown). At the bottom right, there are buttons for 'OK', 'Save to MainDB', and 'Cancel'. A checkbox labeled 'Update Inventory' is also present.

Trans. ID

A unique number that identifies this transaction while in temporary storage.

Trans. Code

Defines the type of transaction.

Vehicle ID

Select an existing record in the Vehicle List from a dropdown list.

Vehicle Desc. and Agency

Populated from the selected vehicle record.

Odometer

Current odometer reading of the vehicle that was fueled.

User ID

Can be selected to identify the user who fueled the vehicle.

Site Information

Used to identify site, hose, product and tank from which the fuel was dispensed.

Customer ID

Can be selected to identify the customer.

Update Inventory

Check to set this transaction as one to be deducted from the tank's inventory. This feature must be used with caution when using TMUs since it can lead to multiple deductions of the same fuel.

Quantity

Amount of fuel dispensed in the transaction.

Unit Cost

This field is automatically filled when the site and hose fields are selected. It can be changed if the price has changed since the transaction has taken place.

Total Cost

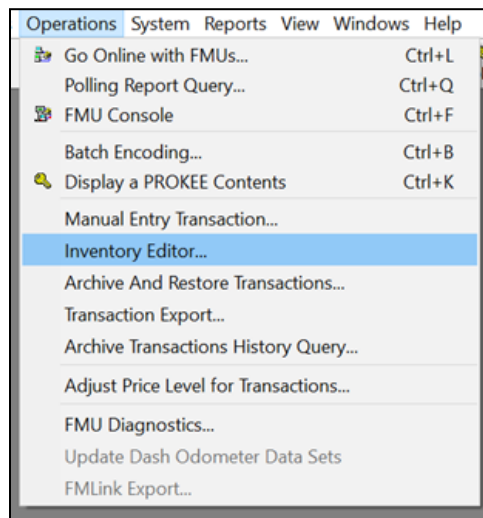
Calculation is generated automatically based on the Quantity and Unit Cost.

Trans Date & Date

Date/Time the transaction occurred.

Inventory Editor

Allows for the entry and correction of Adjustments, Deliveries, and other tank inventory data. This is useful for entry of inventory records that occurred in the past where other inventory transactions have occurred since. This ability is key to the proper operation of the Fuel Costing and History Ledger reports.

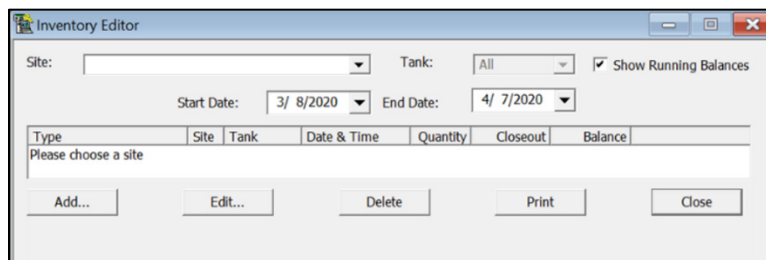


The **Inventory Editor** is accessed via the **Operations** menu. This feature is explained in detail in the [Tank Configuration](#) section of [Chapter 5](#).

Inventory Editor Interface

Select the Site and Tank to edit.

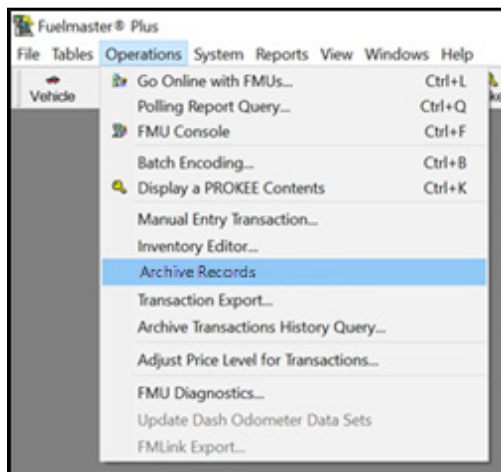
To add a delivery or adjustment, refer to [Chapter 5, Inventory Editor](#) Section.



Archive Records

Customers with large quantities of transactions can improve the performance of FMPlus by archiving historical transaction information. Archived records are written to a backup database and are no longer available for reports or exporting.

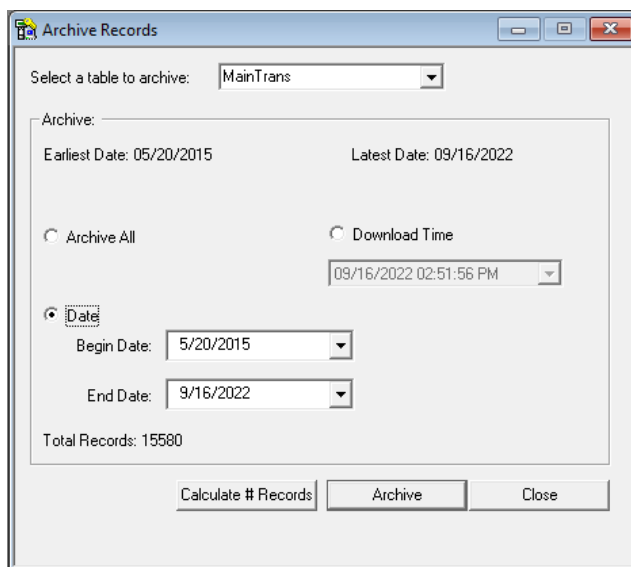
Only archive records no longer needed for reporting or accounting. FuelMaster recommends records be archived on a yearly basis.



Archive Records Tool

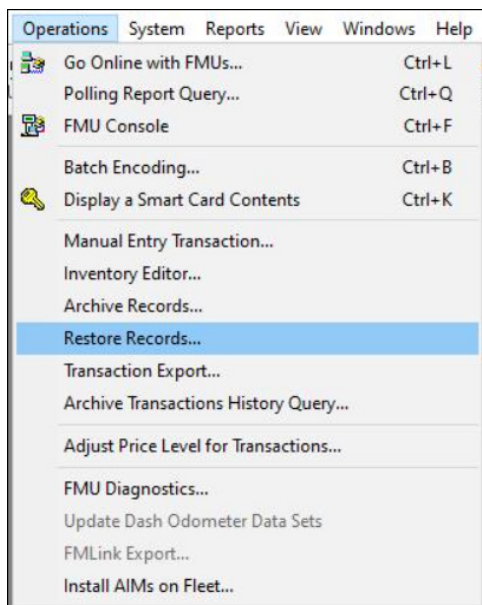
Select the table of transactions to be archived out of the main database from the dropdown menu.

Using the options below, select criteria to archive by selecting Archive All, Download Time, or Date and then Archive.



Restore Records

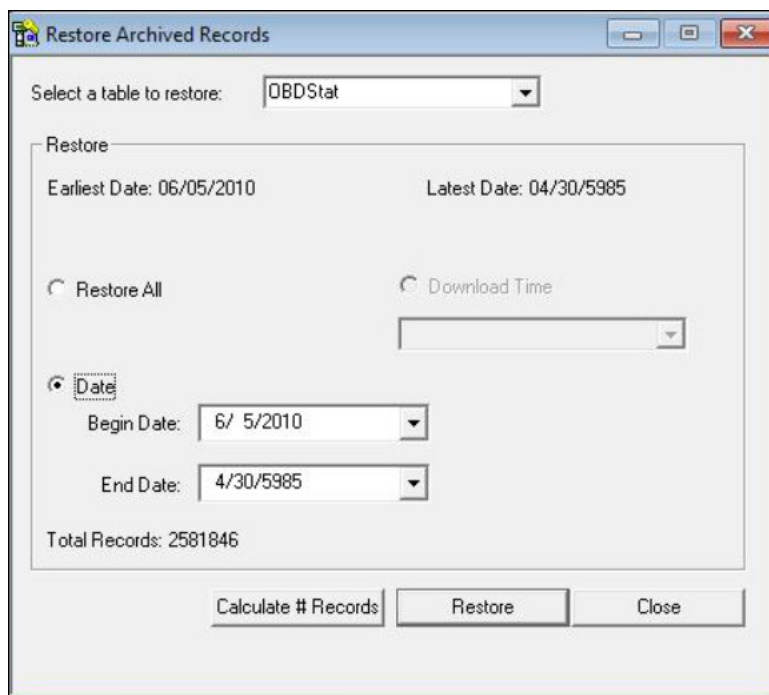
Records may be restored to the main database from an archive database using the Restore Records Tool.



Restore Records Tool

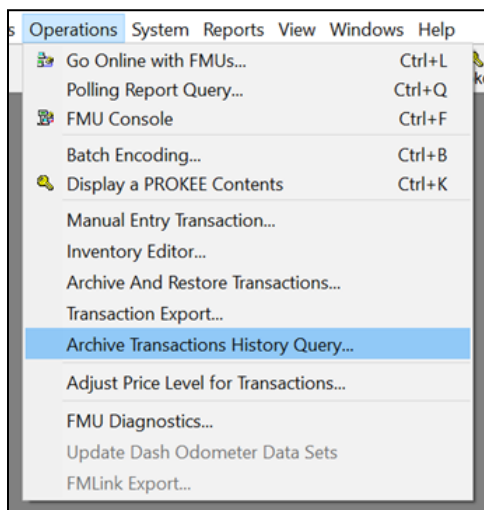
Select the table of records to be restored to the main database from the dropdown menu.

Using the options below, select criteria to restore by selecting Restore All, Download Time, or Date and then Restore.



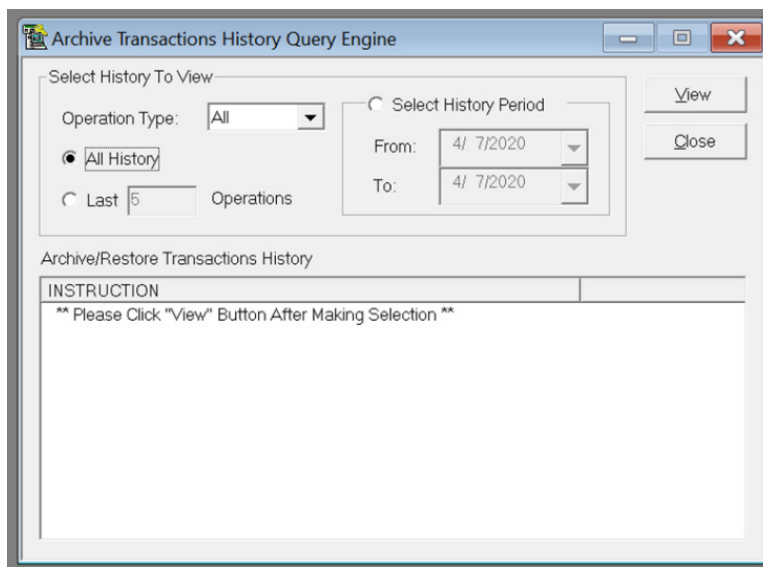
Archive Transactions History Query

Shows the status of previous transaction archiving activities. Access **Archive Transaction History Query** from the **Operations** Menu.



Archive Transaction Query Engine

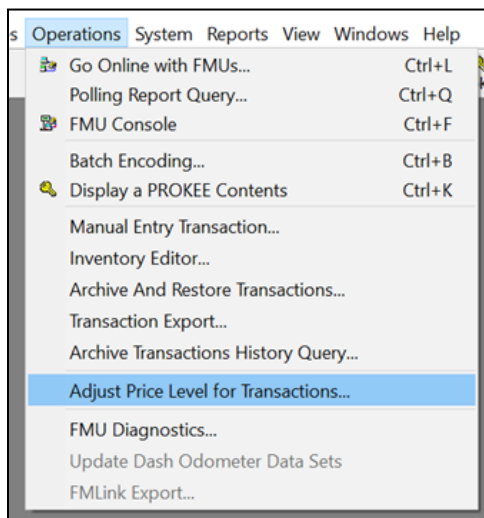
Select the **Operation Type** and choose **All History** or **Last # Operations**, or use **Select History Period** to specify a range. After clicking **View**, the history information appears in the Archive/Restore Transaction History window.



Adjust Price Level for Transactions

Pricing on a particular transaction can change if, for example, an operator forgets to update the pricing when a delivery has been received or there is an incorrect price level.

Access **Adjust Price Level for Transactions** from the **Operations** Menu.



Adjust Transaction Price

Select the **Transaction Code** from the dropdown box. Set the date range of the transaction. Choose Tank or Product for Transaction Type. Click **View Selected Transaction**. Highlight the desired transactions and click **Modify**.

The screenshot shows the 'Adjust Transaction Price' dialog box. It contains the following fields and controls:

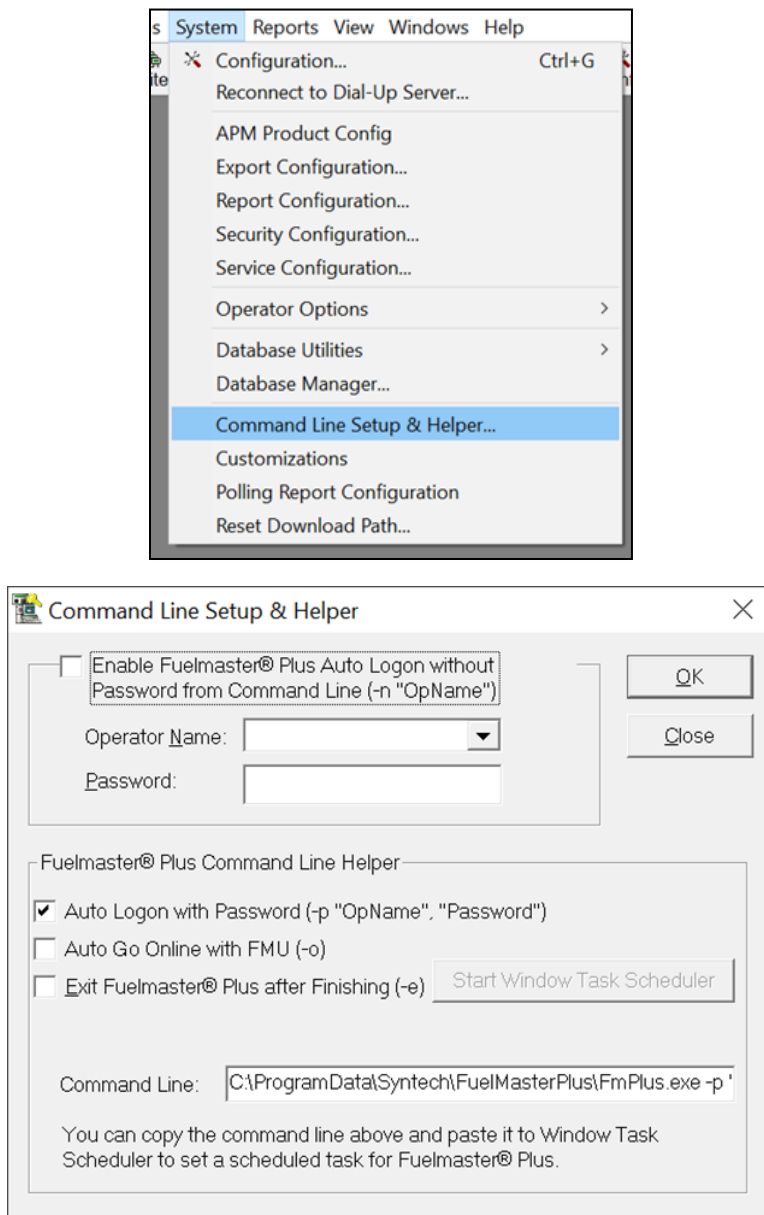
- Transaction Code:** A dropdown menu with '00-Vehicle Fuel' selected.
- Transaction Date:** Two date pickers for 'From' (4/ 1/2020) and 'To' (4/ 7/2020).
- Transaction Type:** Two radio buttons, 'Tank' (selected) and 'Product'.
- Table:** A table with columns: SiteID, Site Name, Tank, Pr..., Descript, BaseCost. It contains five rows of data.

SiteID	Site Name	Tank	Pr...	Descript	BaseCost
0001	Main Fuel Depot	1	1	Unleaded	1.000
0001	Main Fuel Depot	2	2	Diesel	2.000
0001	Main Fuel Depot	3	63	OilCheck	1.000
0003	PIE Depot	1	1	Unleaded	1.000
0003	PIE Depot	2	2	Diesel	2.000
- View Selected Transactions:** A button located below the table.
- INSTRUCTION:** A text area containing the instruction: '** Please Click "View Selected Transactions" Button After Making Selection **'.
- Update Export:** A group box containing three radio buttons: 'None', 'All', and 'Only pending' (selected).
- Buttons:** 'Select All', 'Modify', and 'Close' buttons are located at the bottom right of the dialog.

Command Line Setup & Helper

One of the FMPlus legacy systems was a DOS-based application that had the ability to open FMPlus and perform program operations via scripting in DOS. This option allows customers who had that system maintain their historical operational structure.

Access **Command Line Setup & Helper** from the **System** menu.



Command Line Setup Options

Command Line Setup & Helper offers options you can use in Windows Task Scheduler. Options in the **Command Line Helper** configure the operations that the command line will execute.

Auto Logon with Password is used to logon with a specific operator name and password.

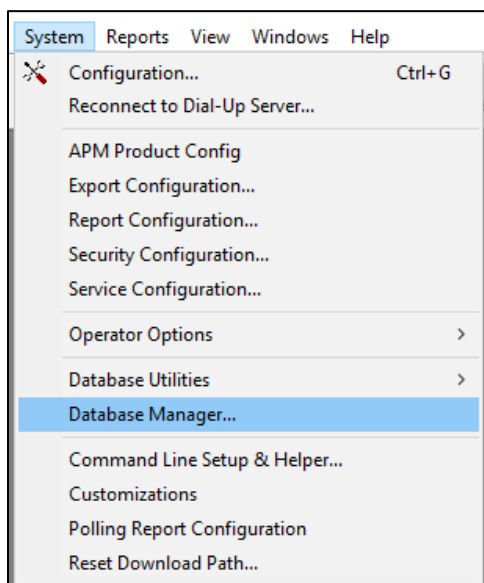
Auto Go Online automatically downloads the FMU based on the options configured and saved in the software.

Database Manager

FMPlus uses Microsoft SQL Server to store all transaction and configuration data. A database can be located on the local PC, a shared PC, or on a server. FMPlus can be configured to point to one database from multiple PCs.

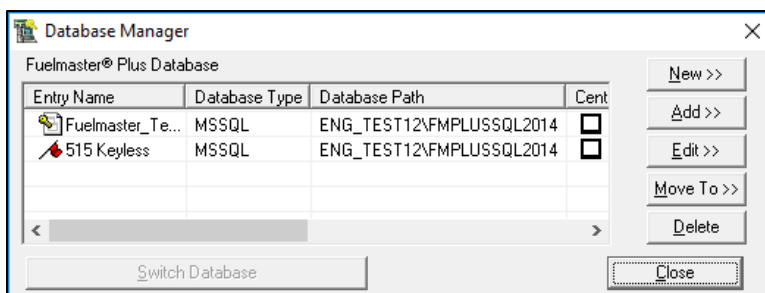
MS Access is only supported for the purpose of conversion to MS SQL Server.

Access **Database Manager** from the **System** menu.



Database Manager Interface

Contains a list of configured databases, their database type, and database path. The flag icon denotes the current database.



Creating a new or editing an existing database will expand the current window to show the database configuration options. For instructions on creating, editing, and adding a database, see the *FuelMaster Installation Guide*.

The screenshot shows the 'Database Manager' window. At the top, there's a title bar and a close button. Below it, a section titled 'Fuelmaster® Plus Database' contains a table with columns: 'Entry Name', 'Database Type', 'Database Path', and 'Cent'. The table lists two entries: 'Fuelmaster_Te...' and '515 Keyless'. The '515 Keyless' entry is selected. To the right of the table are buttons: 'New >>', 'Add >>', 'Edit >>', 'Move To >>', 'Delete', and 'Close'. Below the table is a 'Switch Database To 515 Keyless' button. The bottom section is for configuration. It includes a 'Fuelmaster® Plus DB Entry Name' field with '515 Keyless' and a 'Change Path' checkbox. Below that is 'Fuelmaster Plus DB Type' with radio buttons for 'MS Access' and 'MS SQL'. The 'Fuelmaster® Plus DB Path' field has a 'Browse...' button. There are radio buttons for 'Windows Auth' and 'SQL Auth'. The 'SQL Auth' section has fields for 'SQL Server Login' (FM_Owner), 'Password' (masked), 'SQL Server Name' (ENG_TEST12\FMPLUSSQL2014), and 'ODBC DSN' (515_Keyless_ODBC). There are also fields for 'Entry Comment' and 'Operator Password'. At the bottom right are 'Cancel Edit <<' and 'Save Edit <<' buttons.

Entry Name	Database Type	Database Path	Cent
Fuelmaster_Te...	MSSQL	ENG_TEST12\FMPLUSSQL2014	<input type="checkbox"/>
515 Keyless	MSSQL	ENG_TEST12\FMPLUSSQL2014	<input type="checkbox"/>

Fuelmaster® Plus DB Entry Name: 515 Keyless ☐ Change Path

Fuelmaster Plus DB Type: ☐ MS Access ☒ MS SQL

Fuelmaster® Plus DB Path: Browse...

☐ Windows Auth ☒ SQL Auth

SQL Server Login: FM_Owner Password:

SQL Server Name: ENG_TEST12\FMPLUSSQL2014 ODBC DSN: 515_Keyless_ODBC

Entry Comment: Operator Password:

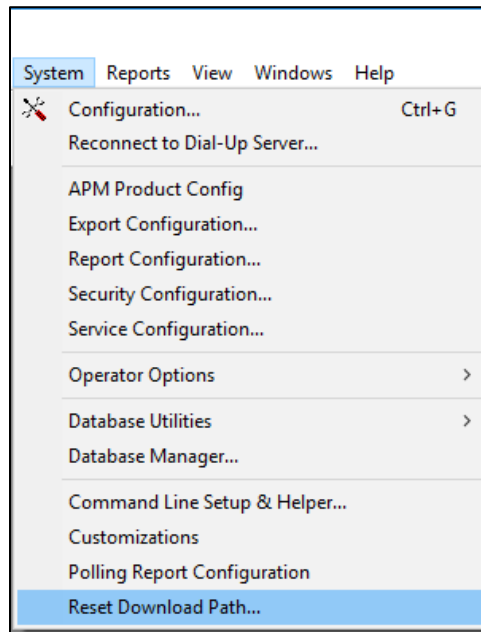
☐ Central Go Online Online Operator:

Cancel Edit << Save Edit <<

Browse allows you to select from all available SQL Servers and databases.

Reset Download Path

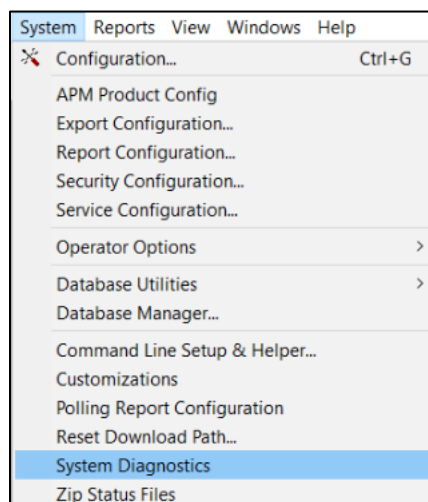
The Download Path is typically set up when the database is initially configured. But it can be changed from this menu or from **System > Configuration > DL Service**. Stop the Download Service(s) before changing the Download Path.



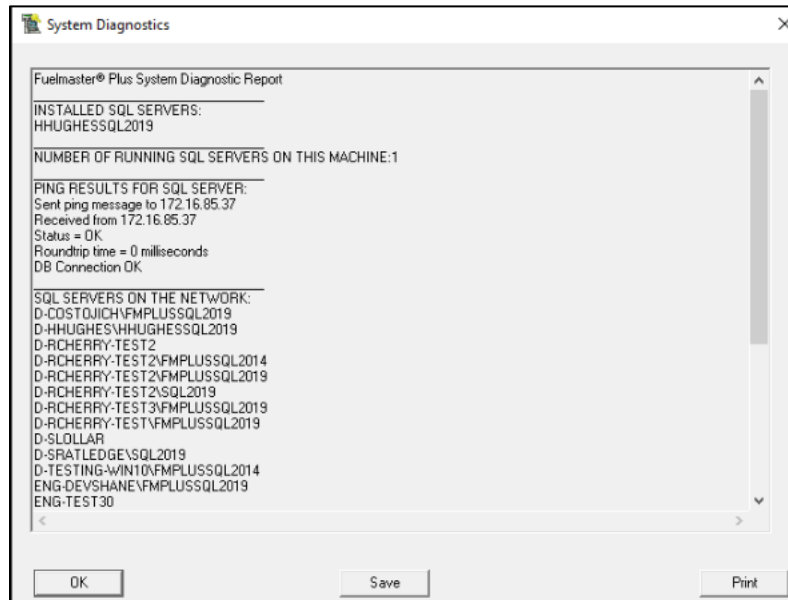
The Download Path should be a shared network location accessible to all Download Services.

System Diagnostics

The System Diagnostics utility detects whether your network is properly configured for Syntech's products.



Among the items checked are servers, IP addresses, UNC paths, and necessary ports. If desired, running the utility and sharing the results with CSC may help to troubleshoot certain issues.

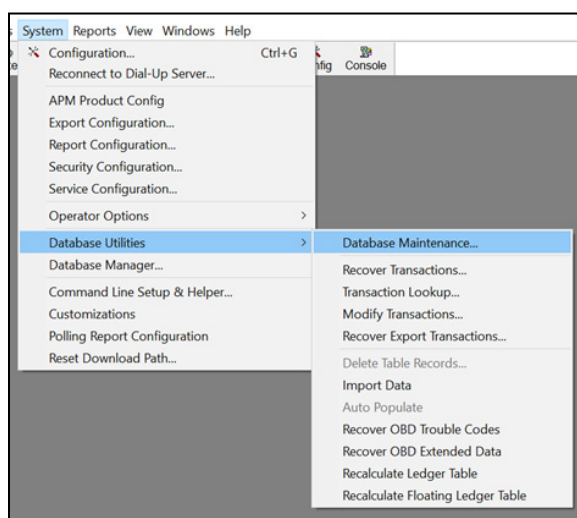


Chapter 15 Database Utilities

FMPlus provides a set of tools to help manage your database size, performance, record sets, and backups. These tools are collectively known as Database Utilities and cover a large range of operations and needs. The goal is to make sure the software performs at the best possible level, while at the same time protecting current and historical data loss or corruption.

Database Maintenance

Access **Database Maintenance** from the **System > Database Utilities** menu.



The following actions can only be performed on the database the software is currently pointed to in **Database Manager**. The process box at the bottom of each dialog displays current progress and messages.

Delete Records

Some database records have a limited shelf life. For example, a message transaction from two years ago may not be much use today. Some databases may have performance issues due to large amounts of data.

Once records are deleted, they cannot be recovered. Deleting is not recommended without consultation with CSC. Complete record deletion before shrinking the database.

Database Maintenance

Delete Records | Shrink Database | Backup and Restore | Backup and Restore Archive

Select Records to Delete

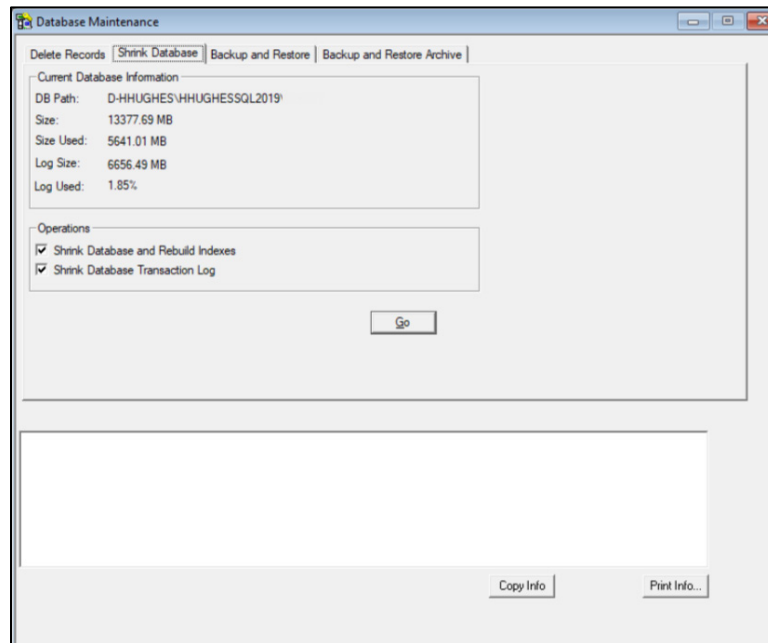
Manual	Record Count	Oldest Record	Newest Record	Retain Last:	Days
<input type="checkbox"/> Message Table:	174	12/15/2021	11/3/2022 14:33:40	1095	Days
<input type="checkbox"/> Zero Trans Table:	1	10/3/2022 15:57:41	10/3/2022 15:57:41	1095	Days
<input checked="" type="checkbox"/> Site Polling Table:	2377	2/10/2022 13:53:08	11/10/2022	1095	Days
<input type="checkbox"/> Inventory Table:	318175	10/15/2019	11/10/2022	1095	Days
<input type="checkbox"/> TMU Alarms Table:	0	No Record	No Record	1095	Days
<input checked="" type="checkbox"/> Online History Tables:	2098	2/10/2022 15:57:16	11/10/2022	1095	Days

Go

Copy Info | Print Info...

Shrink Database

After deleting records, database performance may be improved by shrinking the database and rebuilding indexes. Verify the database to shrink and re-index shows in the **Current Database Information** box. Select the checkbox and click **Go**.



Backup and Restore

Verify the database to be backed up or restored shows in the **Current Database Information** box. Select the radio button for the appropriate option and enter a backup file name. Including the type (full, differential) and date in the backup file name helps select the correct file for restore. Click **Go**.

The screenshot shows the 'Database Maintenance' window with the 'Backup and Restore' tab selected. The window is divided into several sections:

- Delete Records | Shrink Database | Backup and Restore | Backup and Restore Archive** (Tabs)
- Current Database Information**:
 - Server Name: D-HUGHES\HHUGHESSQL2019
 - DB Size: 13377.69 MB
 - Database Name:
 - Type: UNKNOWN
 - Last Full Backup:
 - Last Backup:
- Configuration**:
 - ☐ Remote Server
 - ☐ Delete Original
 - Remote Location:
 - ☐ Copy to Default Directory
 - ☐ Overwrite If Exists
- Backup/Restore**:
 - ☒ Full Backup
 - ☐ Differential Backup
 - ☐ Differential Restore
 - ☐ Full Restore
 - Backup File Name:
 - Previous Backups:
 - ☐ Full Only
 -
 -
 -
- Copy Info** and **Print Info...** buttons at the bottom right.

Backup and Restore Archive

Complete the form to restore the archive database. See [Backup and Restore](#) for more information.

The screenshot shows the 'Database Maintenance' application window with the 'Backup and Restore Archive' tab selected. The window is divided into several sections:

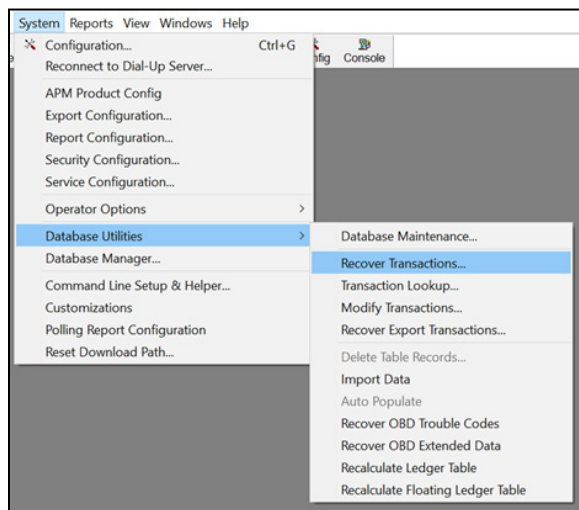
- Current Database Information:** Displays 'Server Name: D-HUGHES\HHUGHESSQL2019', 'DB Size: 531.82 MB', 'Database Name:', 'Type: UNKNOWN', 'Last Full Backup:', and 'Last Backup:'.
- Configuration:** Includes checkboxes for 'Remote Server', 'Delete Original', 'Copy to Default Directory', and 'Overwrite If Exists'. There is also a 'Remote Location:' field with a 'Browse...' button.
- Backup/Restore:** Contains radio buttons for 'Full Backup' (selected), 'Differential Backup', 'Differential Restore', and 'Full Restore'. Below these are fields for 'Backup File Name:', 'Previous Backups:', and a 'Full Only' checkbox. There are 'Open Path' and 'Delete' buttons.
- Buttons:** A 'Go' button is located below the 'Backup/Restore' section. At the bottom right, there are 'Copy Info' and 'Print Info...' buttons.

Customers with large databases should consider scheduling **Shrink Database** and **Backup** maintenance quarterly.

Recover Transactions

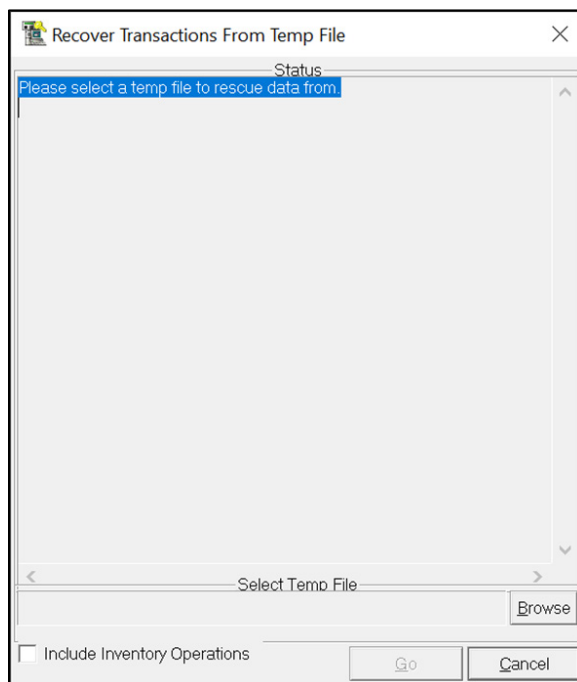
When transactions are downloaded from the FMU, they are copied into a transaction file before being written to the database. If transactions cannot be found in the database, they can be recovered from these transaction files.

Access **Recover Transactions** from the **Database Utilities** menu.



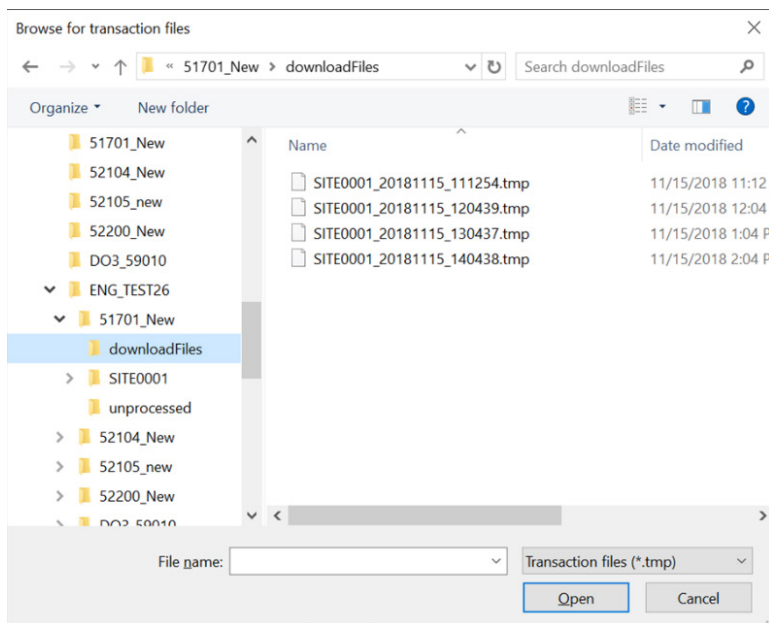
Recover Transaction

Recover Transaction from Temp File is used to select the file and display the status. Check **Include Inventory Operations** to include inventory updates.



The Temp files are stored in a subfolder in the FMPlus download path directory. Select files using the **Browse** button.

Once you have selected the appropriate files, click **Open** to begin. The status window will display the progress of the operation and any problems encountered.



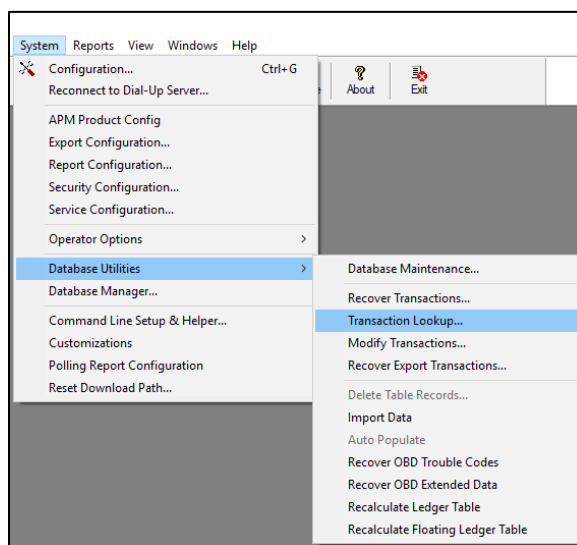
TMP filenames include date/time, so you can choose files based on the timeframe desired. This will recover all transactions from a given online session, so if you are

only missing one transaction out of a download, you may get duplicates. Duplicates can be cleaned up using several of the tools discussed in the previous chapter.

Transaction Lookup

Transaction Lookup allows you to search for specific manual entry transaction data that you think is missing.

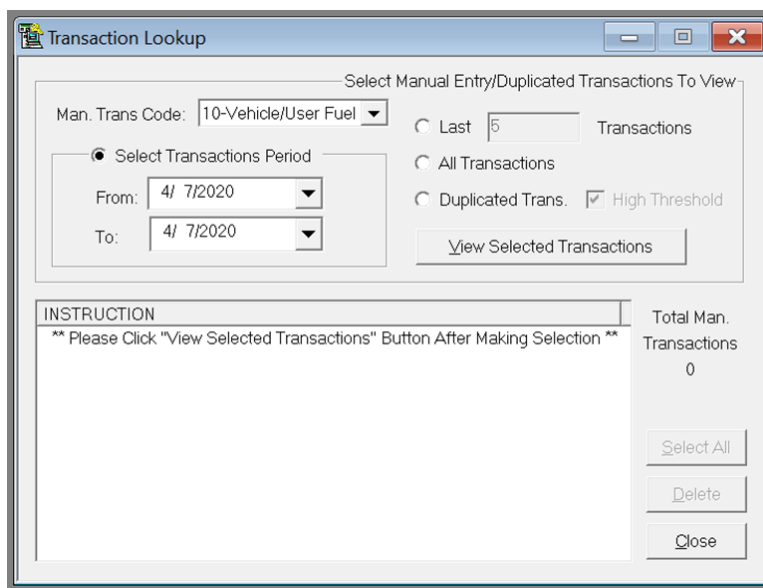
Access **Transaction Lookup** from the **Database Utilities** sub menu.



Transaction Lookup Tool

Transactions can be searched by a variety of criteria: Trans Code type, Transaction Period, last X number of transactions, all transactions, or duplicates only. For duplicates, you can check the **High Threshold** box to make requirements more easily met.

Click **View Selected Transactions** to populate the list box with records matching the search criteria.

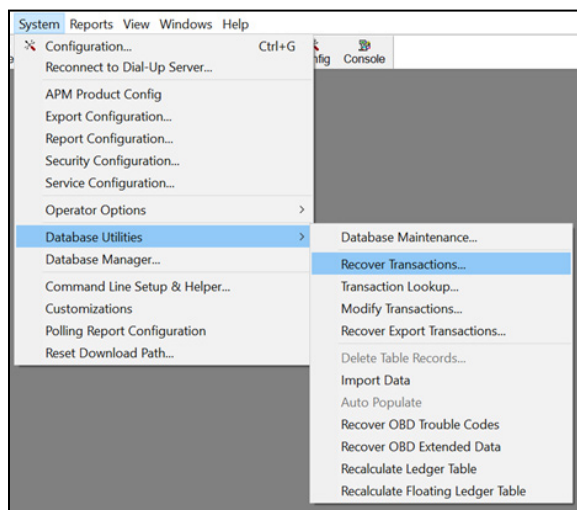


The **Transaction Lookup** dialog box is used to search for transactions. It features a title bar with standard window controls. Below the title bar is a section titled "Select Manual Entry/Duplicated Transactions To View". This section contains a dropdown menu for "Man. Trans Code:" set to "10-Vehicle/User Fuel". To the right are radio buttons for "Last" (with a value of 5) and "All Transactions", and a checkbox for "Duplicated Trans." which is checked, with a "High Threshold" checkbox also checked. A "View Selected Transactions" button is located at the bottom right of this section. Below this is a "Select Transactions Period" section with "From:" and "To:" date pickers, both set to "4/ 7/2020". At the bottom of the dialog is an "INSTRUCTION" box with the text: "** Please Click 'View Selected Transactions' Button After Making Selection **". To the right of the instruction box is a "Total Man. Transactions" label showing "0". At the bottom right are three buttons: "Select All", "Delete", and "Close".

Transactions in the list box can be selected and deleted using **Select All** and **Delete**.

Modify Transactions

Sometimes transaction records can contain incorrect data. The feature is accessed using the **Modify Transactions** option under the **Database Utilities** sub menu.



NOTE

You can only modify Fleet Only transactions. Credit Card or Prepaid records are final once they run at the FMU, and cannot be modified using FMPlus.

Modify Transaction Engine

To modify a transaction, define the selection criteria using the **Modify Transaction Engine**. Once the list is populated with matching transactions, click **Modify** to open the record for editing.

Be very careful using this feature.

Modify Transaction Engine

Transaction Code: 00 - Vehicle Fuel

Select Transactions To View:

☒ Select Transactions Period

From: 4/ 1/2020

To: 4/ 1/2020

☐ Last 5 Transactions

☐ All Modified Transactions

☐ All Transactions

[View Selected Transactions](#)

Total Transactions: 0

[Modify](#) [Close](#)

INSTRUCTION

** Please Click "View Selected Transactions" Button After Making Selection **

Modify Transaction

Once a transaction has been chosen for modification, it can be edited using the modification tool.

Record Status shows whether it has been modified or not. The **Modify Critical Fields** and **Add/Update to Export Table** checkboxes control what can be changed and where to save the changes when done.

Modify Transaction

Trans. Code: 00-Vehicle Fuel
Vehicle ID: 00000001
Vehicle Desc.: 2005 FORD F-150 (A/M)
Tail Number:
Agency:
Odometer: 0
Job Number:
User ID: 000000025
User Name: Robin Dial
Quantity: 2.8 GL
Unit Cost: \$ 1.40000009536743
Total Cost: \$ 3.92

Site Information
Site ID: 0005
Site Name: Rooster
Hose: 1 Tank No: 1
Product: 1
Prod. Desc: Unleaded

Customer: 000000001

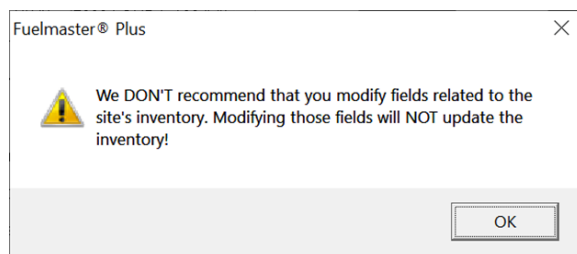
Tran. Date: 10/ 3/2016
Trans. Time: 7:44:36 AM
Download Date: 10/ 3/2016
Download Time: 8:00:32 AM

Record Status: Unmodified

☐ Modify Critical Fields ☒ Add/Update to Export Table

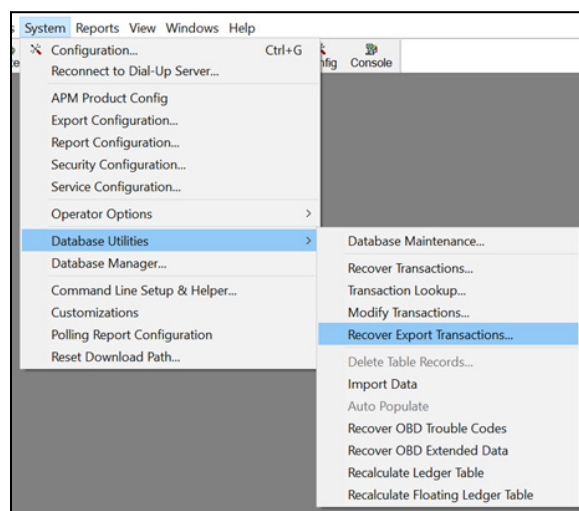
OK Cancel

Certain fields are not normally allowed to be modified for inventory maintenance reasons. If you decide you would like to edit these fields then you will need to check the **Modify Critical Fields** checkbox. However, when modifying these extra fields, the inventory will **not be** updated. This allows editing all the information of the transaction such as the Date/Time, Site ID, and Hose.



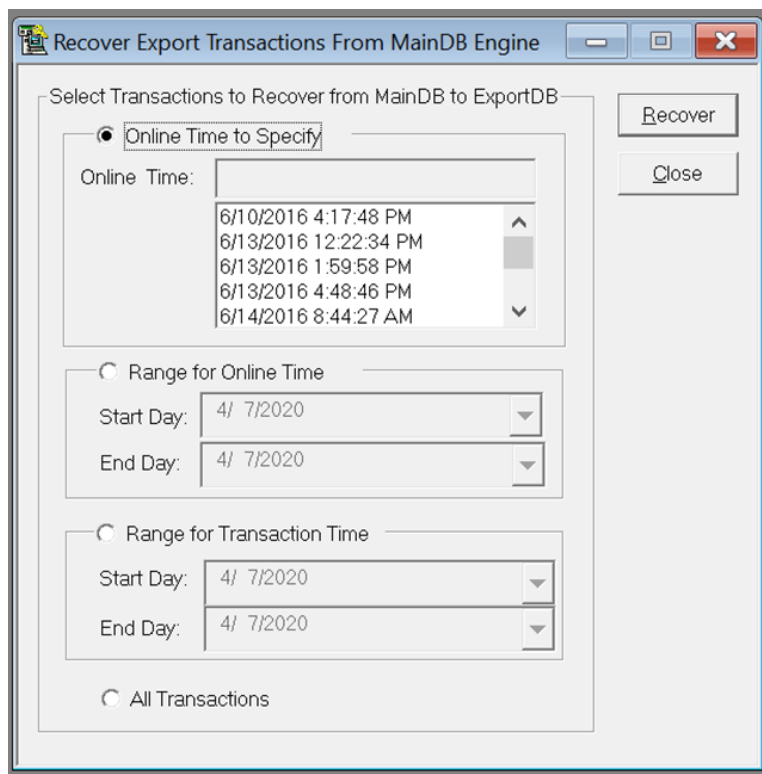
Recover Export Transactions

If transactions are misplaced between export from FMPlus and import to another program, you can recover them from the main transaction table. This re-populates the export table from the main transaction table. The transactions can then be manually exported as discussed in [Chapter 12](#).



Access **Recover Export Transaction** from the **Database Utilities** sub menu.

Recover Export Transactions Engine



Recover Export Transactions identifies the transactions to be recovered by selecting one option:

- **Online Time** Click the radio button and select an online time by double-clicking the date and time.
- **Range for Online Time** Click the radio button and set the beginning and ending dates.
- **Range for Transaction Time** Click the radio button and set the beginning and ending dates.
- **All Transactions** Click the radio button.

Click **Recover** to perform the recovery.

Appendix A ODBC Connections for Reports

Overview

Due to Microsoft's depreciation of older security protocols, including those used in database drivers to connect Crystal Reports to SQL Server, the reports now use ODBC connectivity. This allows the Crystal Reports used in FuelMaster Plus (FMPlus) to utilize a driver that supports Transport Layer Security (TLS) 1.2, the currently shipping version, and future iterations.

To run the Crystal Reports provided with FMPlus, an ODBC Data Source Name (DSN) configured to connect to the FMPlus database must be created on each machine running FMPlus. The DSN must also be set correctly for each corresponding entry in FMPlus > **System** > **Database Manager**.

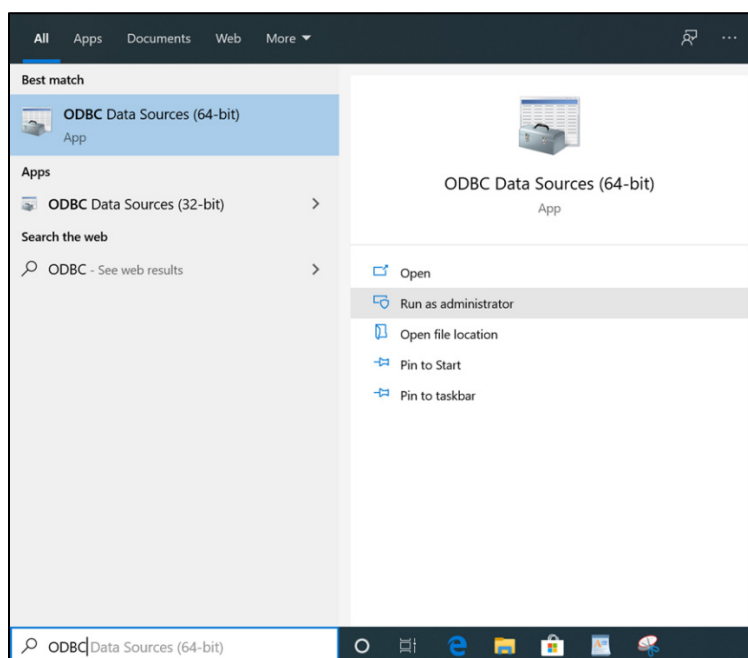
Compatibility

This change occurs in SW 5.15.3.0 and greater. It is required for all client platforms.

Configuration

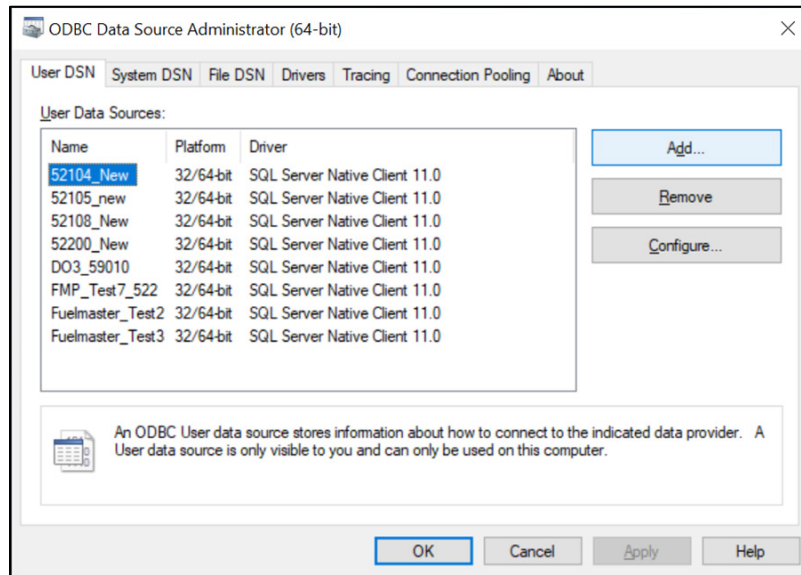
Creating an ODBC DSN for FMPlus on a SQL Server

After installing or upgrading to FMPlus v5.15.3.0, or greater, create an ODBC DSN using the ODBC Data Source Administrator utility. To locate, type "ODBC" in the operating system search field:

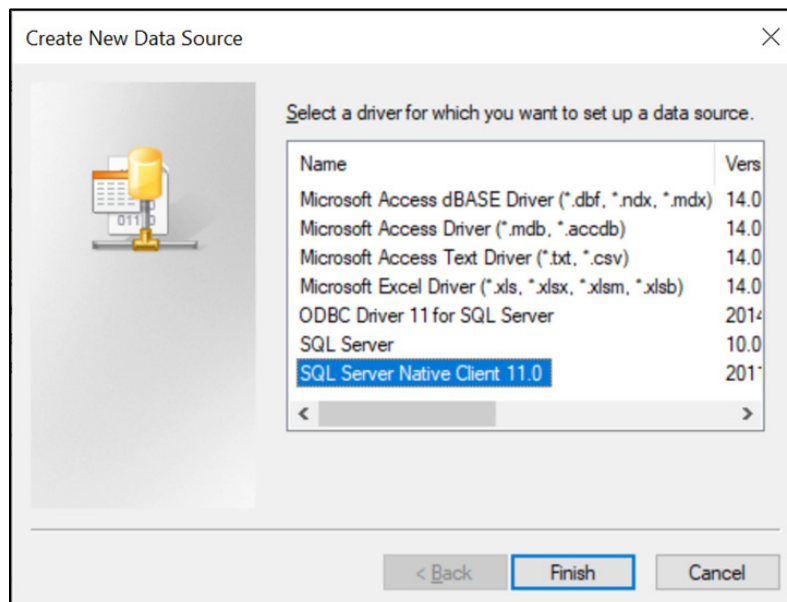


Select the Data Sources (ODBC) program, and **Run as administrator**.

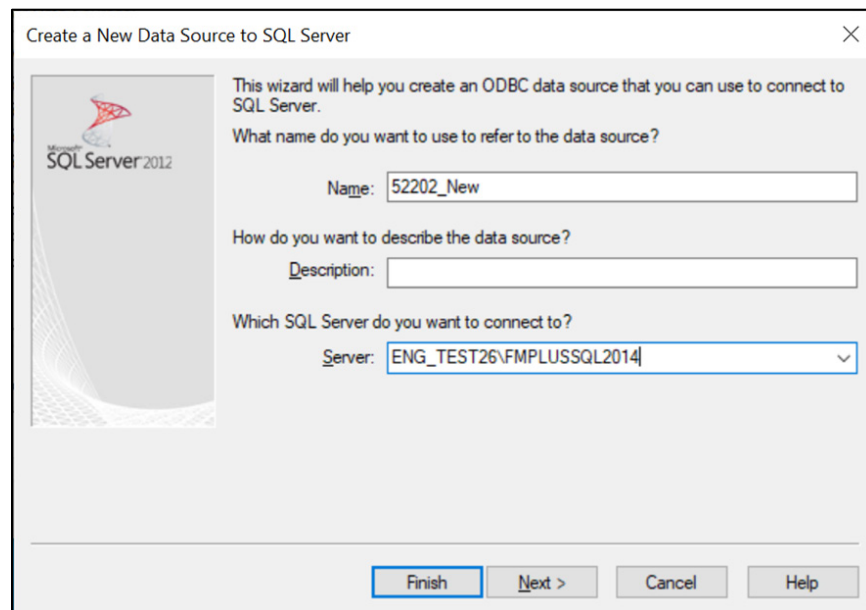
Click **Add...**



On the Create New Data Source dialog, select **SQL Server Native Client 11.0**.
Click **Finish**.

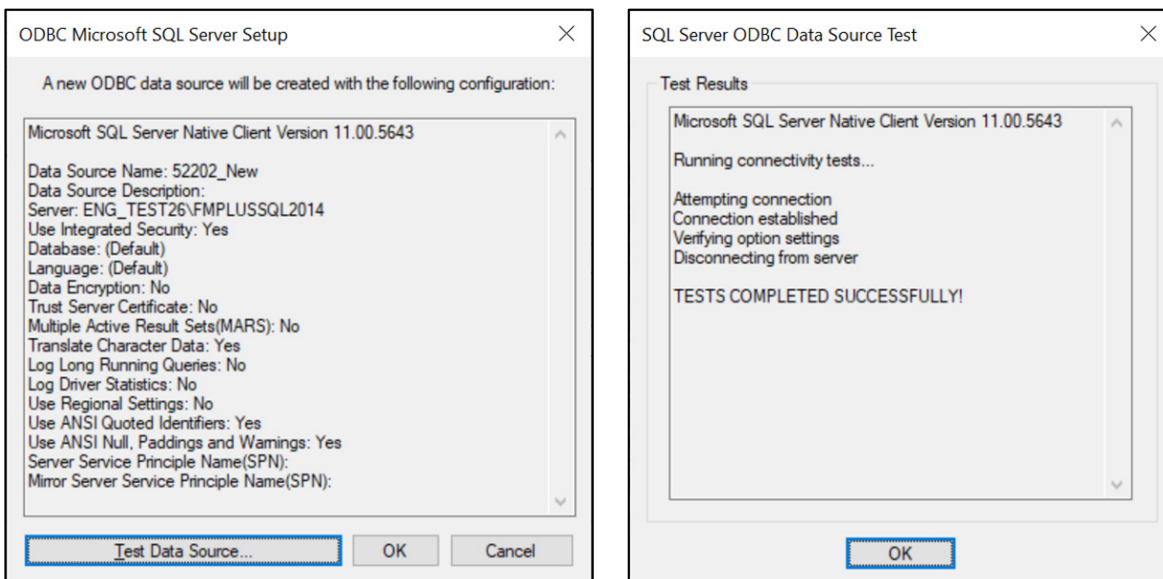


On the Create a New Data Source to SQL Server dialog, enter the name for your ODBC DSN, enter Description if desired, and specify the SQL Server by machine name\SQL instance:



NOTE The ODBC DSN can be any name, but if there are multiple databases on a machine, it may be helpful to give the ODBC DSN the same name as the database.

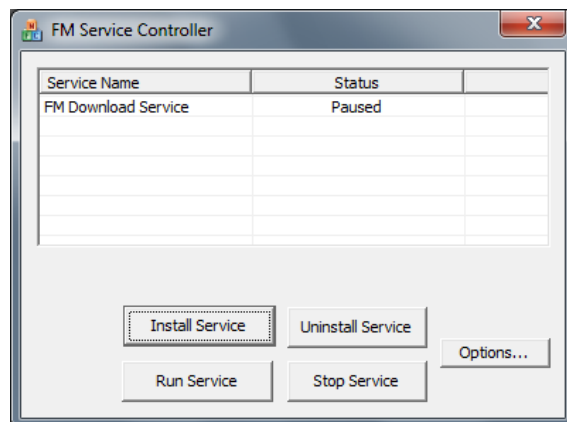
Use the ODBC Microsoft SQL Server Setup to test the new connection by clicking **Test Data Source....**



If the tests fail, check your SQL server machine and instance names. Correct as needed, and retry connection.

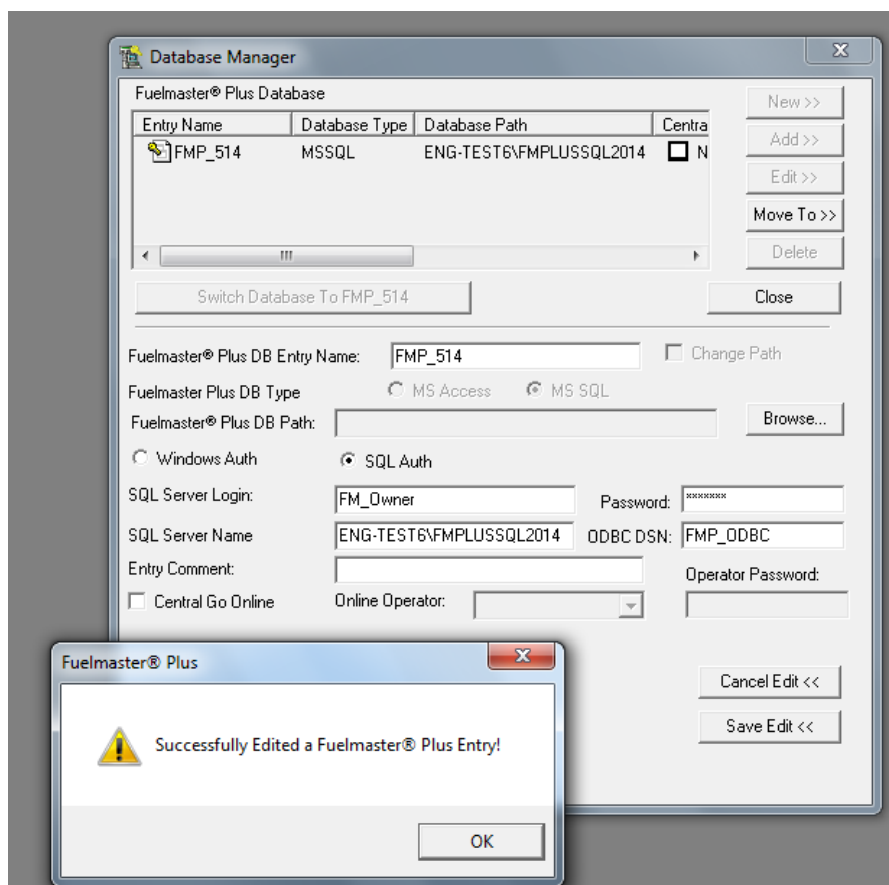
Setting the ODBC DSN in FMPlus

Before launching Database Manager, if running, stop the Download Service.



Launch Database Manager via **System > Database Manager**. Select the database, and click **Edit>>**. On the Edit dialog, enter the ODBC DSN. The dialog **Successfully Edited a FuelMaster Plus Entry!** appears when the edits are saved.

Restart the FMPlus client. Reports may now be run successfully.



Creating an ODBC DSN for FMPlus Remote from SQL Server

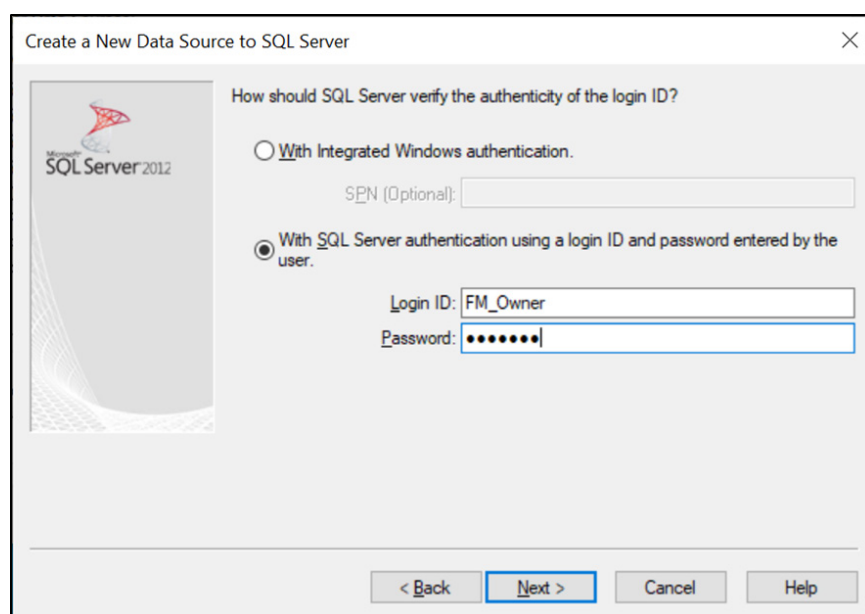
When the Client is on a machine remote from the SQL server, there are several additional steps in the ODBC Data Source utility.

The following steps for creating an ODBC data source are the same as above:

- Launch ODBC Data Source Administrator > Click **Add...**
- Select SQL Server Native Client 11.0 > Click **Finish**
- Enter the Data Source Name and Server > Click **Next**

Additional steps:

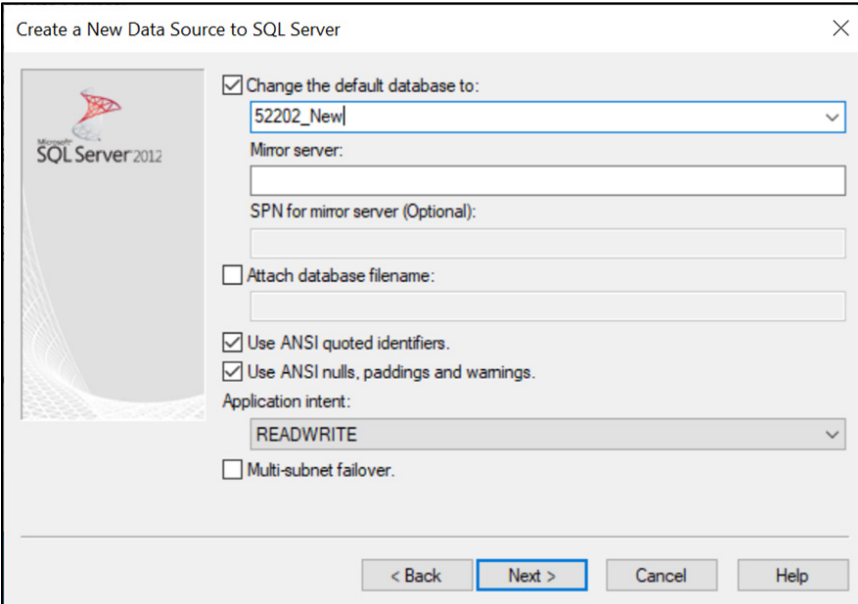
Select the authentication type to verify authenticity of the login ID:



If using Windows Authentication, the computers must be in the same NT domain.

If using SQL Server authentication, enter the same **Login ID** and **Password** as specified in Database Manager for the database.

In the dropdown for **Change the default database to**, select your database name.
Leave other options as defaulted.



Microsoft SQL Server 2012

☒ Change the default database to:
52202_New

Mirror server:
SPN for mirror server (Optional):

☐ Attach database filename:

☒ Use ANSI quoted identifiers.
☒ Use ANSI nulls, paddings and warnings.

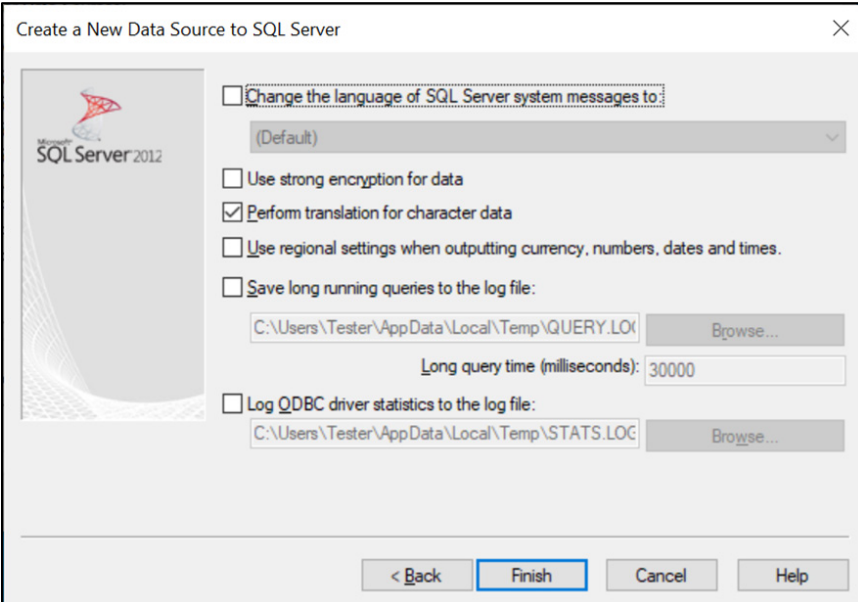
Application intent:
READWRITE

☐ Multi-subnet failover.

< Back Next > Cancel Help

Click **Next**.

Accept the defaults on the next screen, and click **Finish**.



Microsoft SQL Server 2012

☐ Change the language of SQL Server system messages to:
(Default)

☐ Use strong encryption for data

☒ Perform translation for character data

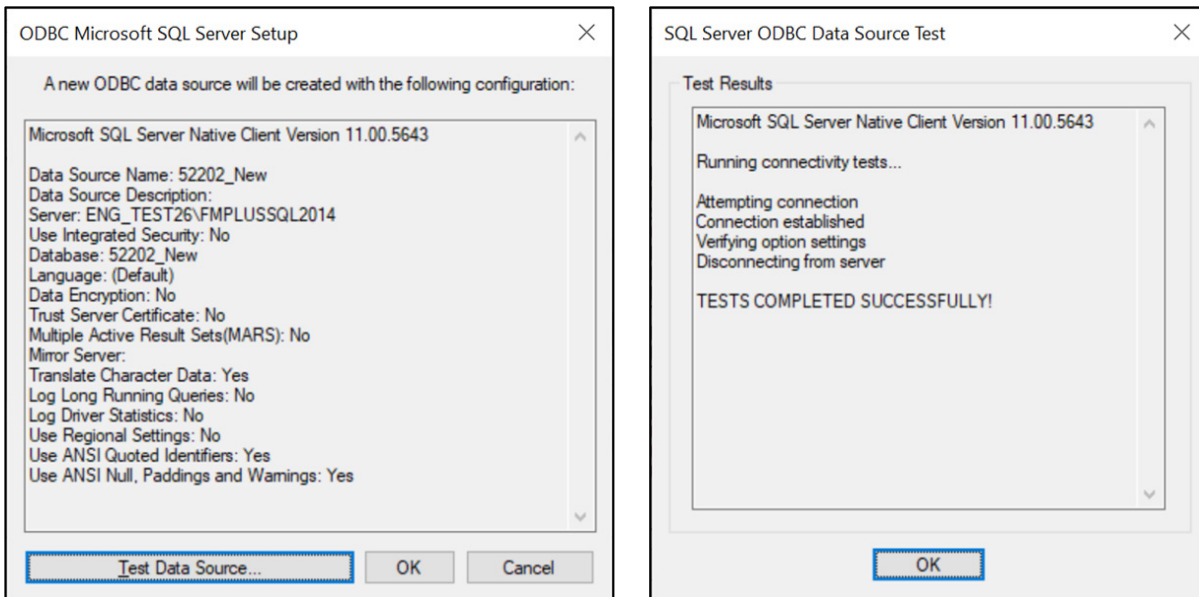
☐ Use regional settings when outputting currency, numbers, dates and times.

☐ Save long running queries to the log file:
C:\Users\Tester\AppData\Local\Temp\QUERY.LOG Browse...
Long query time (milliseconds): 30000

☐ Log ODBC driver statistics to the log file:
C:\Users\Tester\AppData\Local\Temp\STATS.LOG Browse...

< Back Finish Cancel Help

At this point, the additional steps are complete, and the ODBC Microsoft SQL Server Setup dialog presents the summary with the **Test Data Source** button.



If the tests fail, check your SQL server machine and instance names. Correct as needed and retry connection.

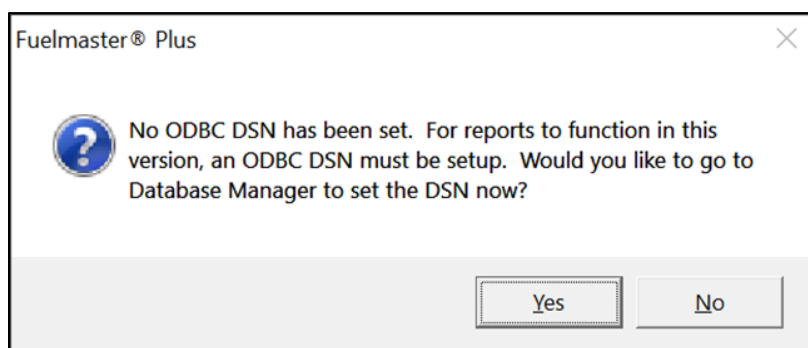
Resume with the steps above to set the ODBC DNS in Database Manager:

- If running, stop the Download Service
- Launch **System > Database Manager**
- Highlight the database > click **Edit>>**
- Enter the ODBC DSN > click **Save Edit<<** > click **OK** on success dialog
- Restart FMPlus > Run Reports

Additional information

Several checks and reminder messages have been provided.

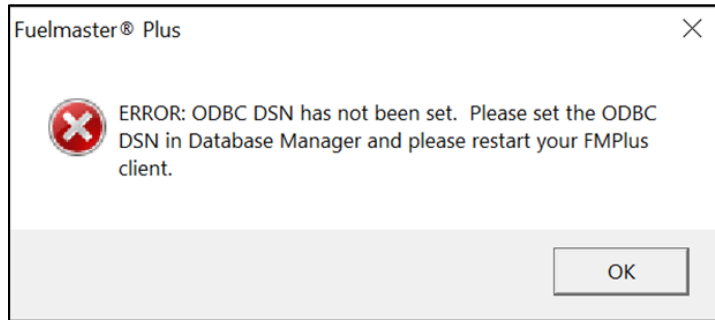
If you launch FMPlus after installing or upgrading but before adding the ODBC DSN to Database Manager, this dialog displays:



Clicking **Yes** will launch Database Manager. The ODBC DSN must be created in the ODBC Data Source Administrator before the Reports will work.

Clicking **No** will allow normal client functions except for running Reports. This message will appear each time you launch FMPlus until the ODBC DSN is set.

This dialog is displayed if the ODBC DSN has not been set and you attempt to launch a Report:



Appendix B Communication Timeouts

Overview

FMPlus supports configuration of communication timeouts. This feature was added to support Satellite Cellular Modems, most often used with Passive Mobile Units, but impacts all communication timeouts. The software has default timeouts for communication between the SW and the FMU that typically range from 2 to 4 seconds. These default timeouts may be extended up to 6 seconds using the **Configuration > System > Add Comm Timeouts** feature.

Compatibility

Communication Timeout configuration requires FuelMaster Plus SW 5.11.3.2 or greater. For best performance and reliability, FMU FW 3.85a or greater is recommended.

Configuration

Communication Timeout Configuration

Access the Timeout Configuration via:

- Menus – **System > Configuration > System** tab, or
- Config Icon – **Config > System**

The screenshot shows the 'Configuration' dialog box with the 'System' tab selected. The dialog has several sections: 'Misc' (five input fields), 'Vehicle Prokee Options Defaults' (Odometer, PIN, User ID, Receipt checkboxes), 'User Prokee Options Defaults' (Odometer, PIN, Vehicle ID, Receipt checkboxes), 'System Key Information' (Vehicle KEY dropdown, System Type: VMN), '7 Digit Odometer' (Enabled checkbox), 'Passive Sys Type' (AIM dropdown), 'Allow transaction export' (checked), 'Require Customer ID' (checked), 'Patch List Timeout' (90, (10-1000) Sec.), 'Added Comm timeout' (6, (0-6) Sec.), 'Enable Site Specific Local Authorization' (unchecked), 'Allow TMU Deliveries' (checked), 'Allow TMU Quantities' (checked), 'Retry Transaction Files' (5, (1-10) Times.), and 'OK' and 'Cancel' buttons.

A value of "0" indicates that the SW default timings are sufficient, and no additional timeout extension is needed.

Values from “1” to “6” extend the communication timeout up to the specified number of seconds. A timeout extension of 2 or greater is recommended for Satellite Cellular Modem communications.

The communication timeout value is applied by clicking **OK**.

Appendix C SW Configuration of AIM Options

Overview

All AIM Options are configured through the software instead of on individual AIMs.

AIM Options

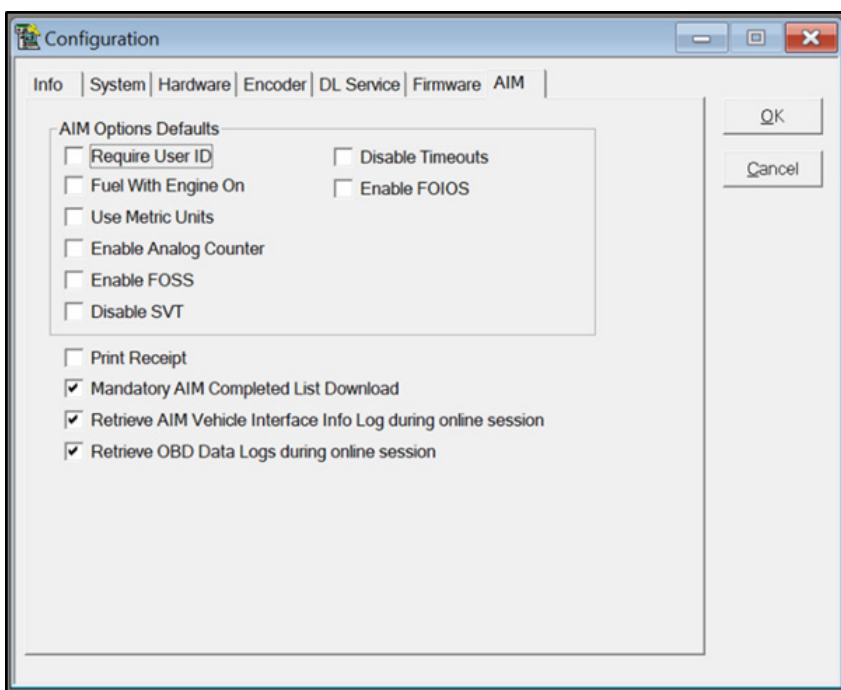
Require User ID	When the Enable user ID option is active on the FMU, and Require User ID is enabled on the AIM, user must enter a user ID at the FMU (either at the keypad or with a user Prokee) before a transaction can start.
Fuel with Engine On	When set, AIM can detect that a fueling tag or programming hose tag (PHT) is inserted when the engine is running.
Use Metric Units	When set, the odometer value is sent to the Central Controller in kilometers.
Enable Analog Counter	When set, counts the low to high transitions on Analog Channel 1.
Enable FOSS	Force OBD Sleep Silence. When set, the AIM does not send any OBD requests to the vehicle when the AIM is asleep.
Disable SVT	Switch Vehicle Test. When ticked, the switch vehicle test will not be performed. <div>NOTE This feature is only supported in AIM2.4s. For more information see <i>Addendum DEV01166_DEV01169_Switch Vehicle.PDF</i>.</div>
Disable Timeouts	When set, sleep timeouts are disabled. The AIM never goes to sleep.
Enable FOIOS	Force OBD Ignition Off Silence. When set, this prevents the AIM from sending any OBD requests to the vehicle when the wakeup wire input is low.

Enable GCM	Gateway Compatibility Mode. Set to enable compatibility with certain Intermotive third party devices. This option cannot be defaulted and is only available via Vehicle Record. GCM must be set up and configured by Syntech Systems, Inc.'s CSC.
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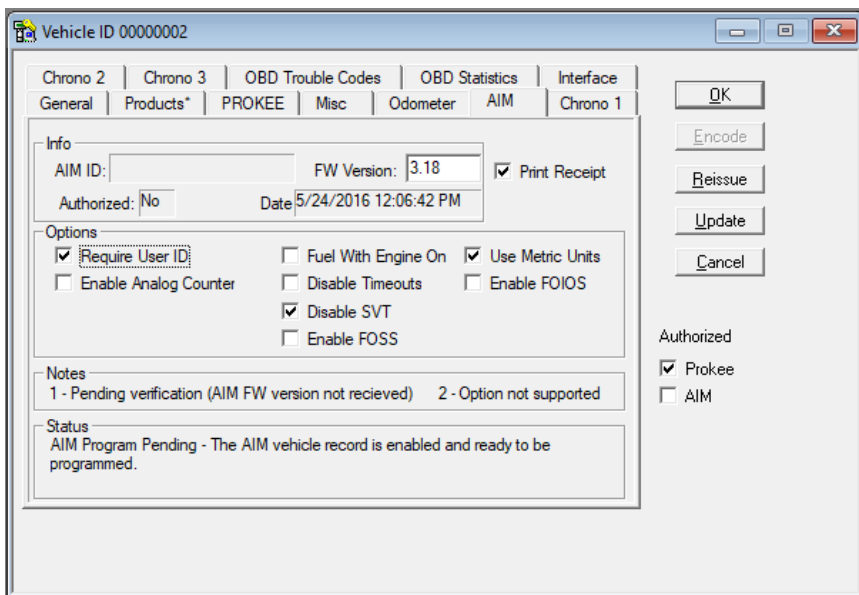
Configuration

In the software, the AIM Options configurations may be set in two places:

Configuration > AIM > AIM Options Defaults. Settings in Configuration are applied when new Vehicle records are created with the option automatically selected on the Vehicle > AIM tab. This Configuration setting does not affect any existing vehicles.



Vehicle List > Vehicle > AIM > Options. The settings in the Vehicle record are sent via the AIM Programming List to the FMU. When changed in the Vehicle Record, after the AIM Programming List is resent, Vehicles enumerating at the FMU have updates to the configuration applied through auto record update.



Additional information

Changes to the AIM's Advanced Options (AOPT) Command

AOPT options are: Force OBD Sleep Silence (FOSS) and Gateway Compatibility Mode (GCM). The Allow Firmware Update AOPT option is now permanently enabled and always allows firmware update even if it was disabled in a previous version.

AOPT command options are now software-configurable only.

Any options set in AOPT prior to AIM2.4 v2.19 and AIM Titanium v3.21 can no longer be disabled through the AOPT command, but the AIM can be cleaned to clear these.

The AIM will grandfather in any already-enabled AOPT options. For example, if GCM is enabled on a v2.10 AIM2.4 and is then updated to v2.19, the GCM functionality will be preserved because even though it's not enabled in the software, it's still enabled in the AOPT command. Since GCM cannot be disabled in AOPT, the AIM must be cleaned to clear the option.

Appendix D Dash Odometer for AIM2.4® & AIM Titanium™

SW v5.19.3.0 / FMU FW v4.04 / AIM2.4 FW v2.18 & AIM Titanium FW v3.19

Overview

Dash Odometer support began in AIM2.4 FW v2.13 & AIM Titanium FW v3.16, with FMU FW v3.93 and FuelMaster Plus SW v5.9.3.0 for light duty CAN vehicles. This premium feature detects and automatically captures Dash Odometer for supported Ford, Chrysler, and GM vehicles in model years 2008 to 2016.

Data Set updates provided with FMU FW v3.98 and FuelMaster Plus SW v5.13.3.0, add supported vehicles for model year 2017. Some 2018 vehicles will be supported using model year 2017 data. Future Data Sets will be provided to add newly supported vehicles and as needed for new model years.

FMU FW v4.04 adds the ability to automatically apply new Data Sets without having to manually retry at the FMU front panel.

When a vehicle is not supported, standard steps for Derived Odometer calibration must still be implemented. The Supervisor has the ability on a vehicle by vehicle basis at the FMU to:

- Reject the Dash Odometer captured and manually calibrate the Derived Odometer or
- Retry the Dash Odometer detection on a vehicle that is using Derived Odometer.

The FuelMaster Plus SW shows the Dash Odometer status and odometer method in the Vehicle record and generates reports on the odometer information.

Compatibility

Dash Odometer requires a minimum of AIM2.4 FW v2.13 or AIM Titanium FW v3.16 with FMU FW v3.93 or greater and FuelMaster Plus SW v5.9.3.0 or greater.

Application of updated Data Set files requires FMU FW v3.98 or greater and FuelMaster Plus SW v5.13.3.0 or greater.

Automatic retry to apply new Data Sets requires FMU FW v4.04 or greater. Recommended SW version for FMU FW v4.04 is SW v5.19.3.0.

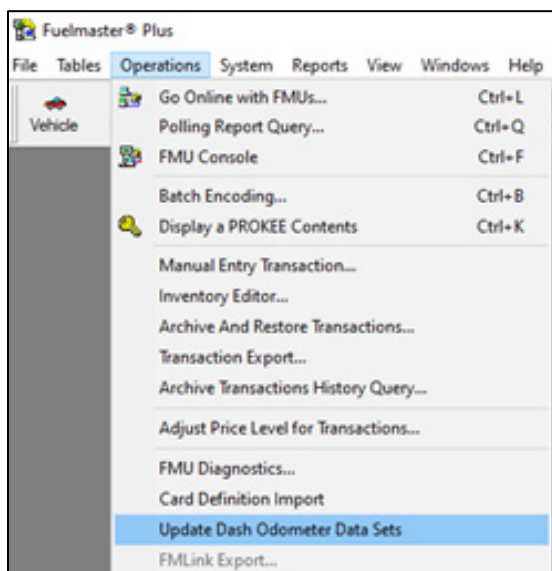
Configuration

Installation

Install the software on all Central Controllers. Customers request the Dash Odometer license key and Dash Odometer Data Set files from Syntech Systems, Inc., before updating FMUs. The license is generated with KeyGen 5.9.0.3 or greater.

Upon receipt of the Dash Odometer license, copy the license to a location accessible from FuelMaster Plus, such as the [\\Program Files \(x86\)\Syntech\FuelMasterPlus](#) directory.

Copy the Dash Odometer files to a location accessible from FuelMaster Plus. You will be asked to browse to the data set file location when the license is applied in **System > Customizations** in FMPlus or when data set updates are applied via **Operations > Update Dash Odometer Data Sets**.



Dash Odometer Set Up

The FMU uses the Vehicle VIN to determine whether the Vehicle supports Dash Odometer. If the VIN indicates Dash Odometer is supported, the vehicle's dash odometer capture is attempted. At any time, from the FMU front panel, the Supervisor can reject Dash Odometer and use Derived Odometer. Odometer information is passed through the AIM to the FMU which passes the information to the SW.

If the Dash Odometer capture is unsuccessful, the Vehicle uses Derived Odometer and requires manual calibration. If Dash Odometer is supported for this vehicle in the future, using the Supervisor Key at the FMU front panel, the Dash Odometer detection can be run again.

After FMUs are updated, update AIM2.4s and AIM Titaniums. Automatic FW Updates are supported.

Software Support for Dash Odometer

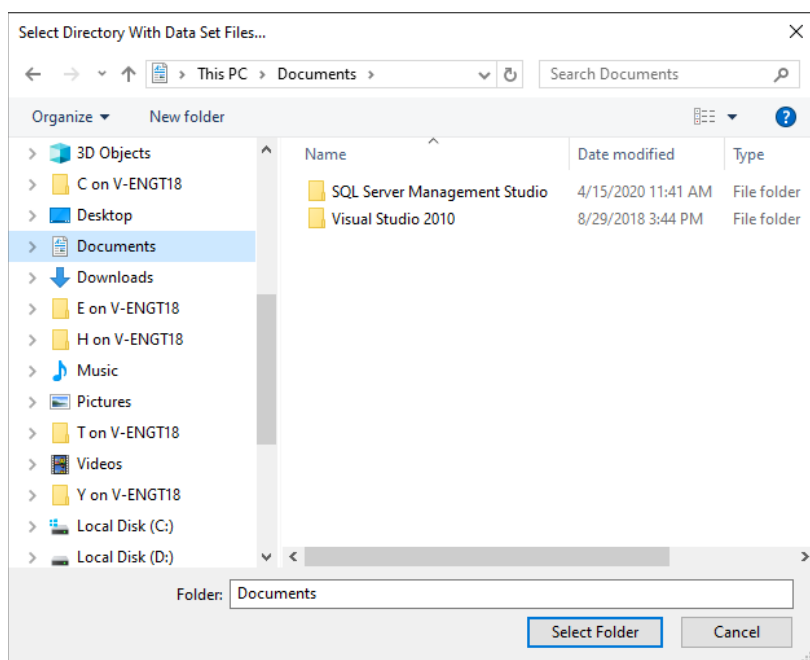
The FuelMaster Plus SW manages the Data Sets for Dash Odometer, tracking when to send or update them to the FMUs. The Vehicle Record > Odometer tab displays the Dash Odometer status and odometer method. The SW also supports generating reports to show vehicle odometer Information.

Data Set File Management

The Data Set files provide information to determine if the VIN is supported for Dash Odometer and are provided to the customer with the Dash Odometer license and when Data Set updates occur.

Initial Implementation

On initial implementation, when the license is added in **System > Customizations**, the Data Set files may be sent automatically to each FMU in the system. Click **Add File...**, browse to the location where the Dash Odometer Data Set files were saved, and click **Select Folder**.

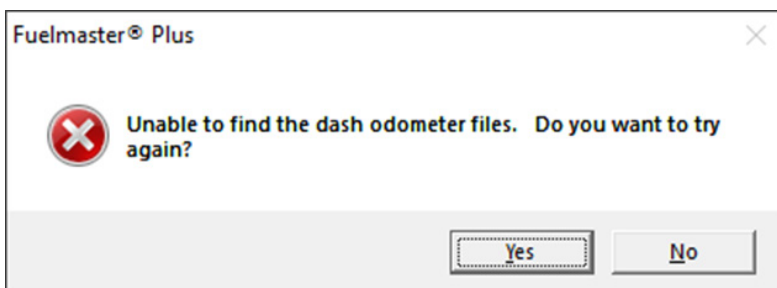


NOTE

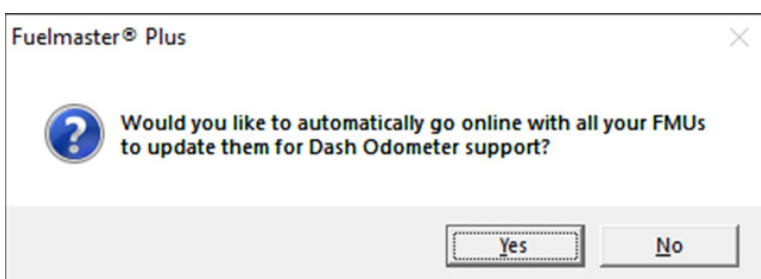
Always browse to the location where the Data Set files were saved by the customer, even if the “dataset” folder in the download path already exists. Pointing to the “dataset” folder in the download path results in an error and does not provide the ability to automatically send the Dash Odometer data set files to the FMUs.

A dialog opens to select the location of the Dash Odometer Data Set files.

If the selected location does not contain the files, a dialog allows a second try.



When the Dash Odometer Data Set files are found, SW copies them to the Download Path in a folder named “datasets”. The next dialog offers to go online and update all FMUs.



If **Yes** is selected, an Online session is initiated and the three Dash Odometer Data Set files are transferred to each FMU and placed on the compact flash card in the “aim_dash_odom” folder.

If **No** is selected, focus returns to the Customizations dialog and shows the Dash Odometer license. Site Configuration updates and Online sessions verify the Dash Odometer Data Set files existence and version and, when necessary, transfer appropriate Dash Odometer Data Set files to the FMUs.

The SW verifies the Dash Odometer Data Set files exist and are the correct version:

- When a Site Configuration is uploaded
- When a Manual Download is initiated and
- When an Auto Download is run.

Polling Report Summary Site details and Status Logs indicate when Dash Odometer Data Set files are current or have been uploaded successfully and verified.

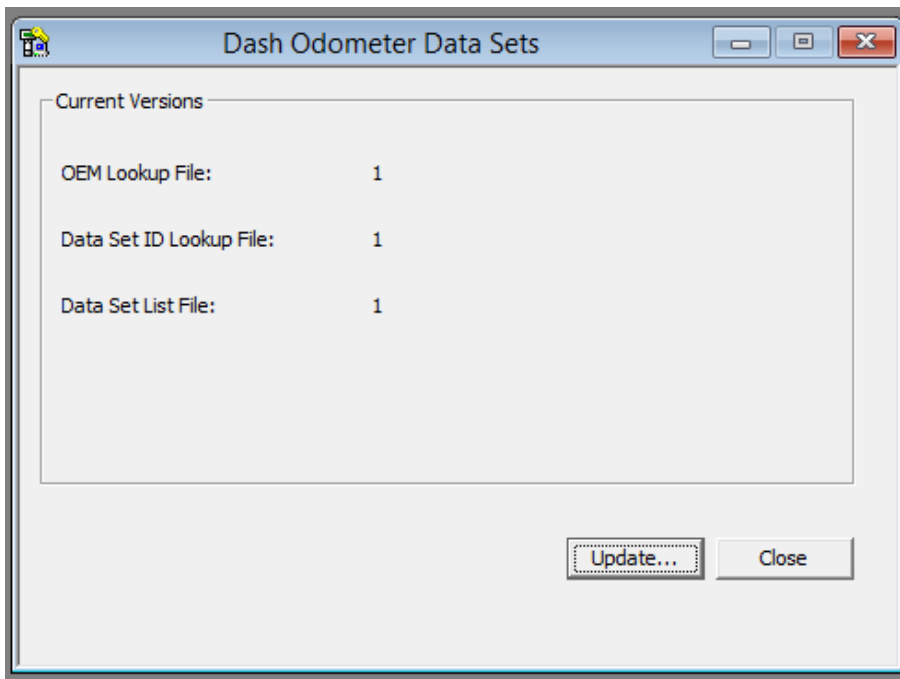
When Dash Odometer Data Set files exist on the FMU, but Dash Odometer customization is not enabled for the database, SW removes the Data Set files from the FMU.

Data Set Updates

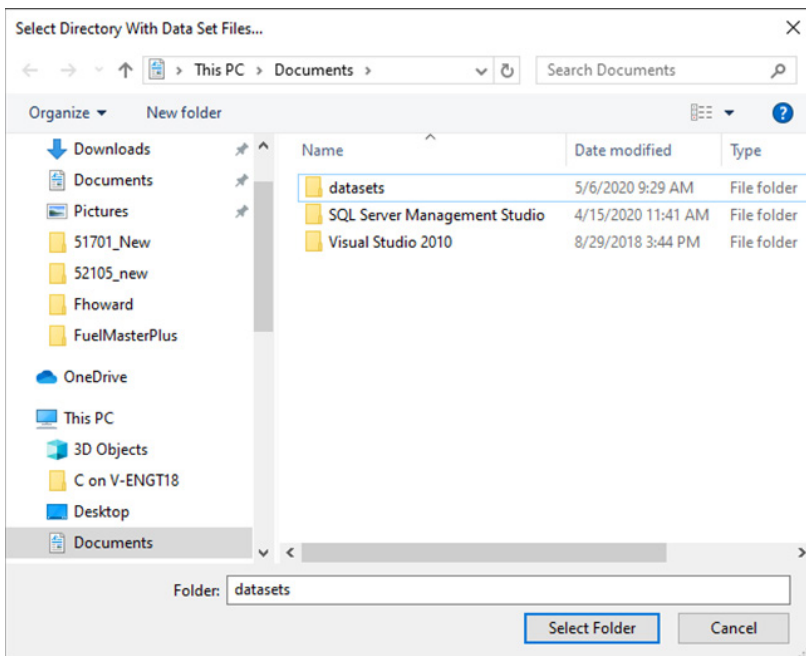
When updated data sets are provided, copy the files to a location accessible from FuelMaster Plus; for example, the PC's Documents folder.

To access Operations > Update Dash Odometer Data Sets, the Dash Odometer customization must be enabled, and the operator must have the permission for "Send/Receive Programming and Update List" under System > Operator Options > List Management > [User] > AIM.

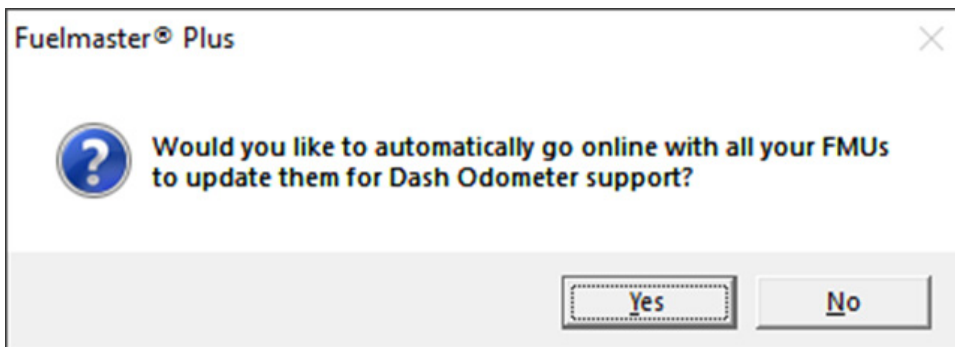
When selected, the **Dash Odometer Data Sets** dialog displays showing the three Data Set files and their package version.



Click **Update** to browse to the folder where the Data Set files reside.



If the selected location does not contain the files, a dialog allows a second try. When the Dash Odometer Data Set files are found, SW updates the files in the Download Path folder named “datasets”. The next dialog offers to go online and update all FMUs.



If **No** is selected, focus returns to the Dash Odometer Data Set dialog. Site Configuration updates and Online sessions verify the Dash Odometer Data Set files existence and version and, when necessary, transfer appropriate Dash Odometer Data Set files to the FMUs.

Dash Odometer Status in the Vehicle Record

For AIM vehicles, the Dash Odometer latest status and odometer method displays on the **Vehicle > Odometer** tab.

The screenshot shows the 'Vehicle ID 00000669' window with the 'Odometer' tab selected. The interface includes tabs for Chrono 2, Chrono 3, OBD Trouble Codes, OBD Statistics, Interface, General, Products*, PROKEE, Misc, Odometer, AIM, and Chrono 1. The 'Odometer' tab displays the following information:

- Current Odometer: 0
- Date Odometer Read: 5/20/2019 11:54:53 AM
- Fuel Range: 350 Expected Efficiency: 50
- Dash Odometer: Dash odometer currently being captured
- Odometer Method: Absolute
- Preventive Maintenance section with fields for PM Range (3000), PM Notification (250), and Next PM Reading (0).
- Buttons: OK, Encode, Reissue, Update, Cancel.
- Authorized section with checkboxes for Prokee (checked) and AIM (checked).

Dash Odometer Reports

Reports > Vehicle > Vehicle report has been extended to show the history of Dash Odometer status when the **AIM info** box is checked on the report dialog.

The screenshot shows the 'Vehicle Reports by Vehicle Information' dialog box. It features a list of vehicle IDs (00000001 to 00000007) and a 'Select All' checkbox. The 'View Report', 'Print Report', 'Save As...', and 'Close' buttons are visible. The 'Start Date' is set to 2/8/2019, and the 'End Date' is set to 2/8/2019. The 'Start Time' is 12:00:00 AM and the 'End Time' is 9:40:01 AM. The 'Page Breaks' section includes checkboxes for 'AIM Info.' (checked), 'Product Summary', 'Hose Summary', 'Cost Information' (checked), and 'Display Credit Card Info'. The 'Subgroup' section includes checkboxes for 'Vehicle' (checked), 'User', 'Subtotals', 'Product/ Hose Summary', and 'Summary per Vehicle'. A red box highlights the 'Vehicle' checkbox in the 'Subgroup' section.

Select vehicles individually or check the Select All box to View Report, Print Report or Save the report.

The report may also be run by Agency, Organization, or Usage using the appropriate report tabs.

Fuel Depot Canton, NC 28716															
<u>Fuelmaster Vehicle Report by Vehicle ID</u>															
Page 1 of 2 Date: 6/22/2016 Time: 8:12:25AM															
Vehicle ID: 00000054 <table style="width: 100%;"> <tr> <td style="width: 20%;">Vehicle ID:</td> <td>00000054</td> </tr> <tr> <td>Description</td> <td>2013 JEEP CHEROKEE (AIM 2.4) Upgrade</td> </tr> <tr> <td>Customer ID</td> <td>000000001 Testers R Us</td> </tr> <tr> <td>Agency</td> <td></td> </tr> <tr> <td>Organization</td> <td></td> </tr> <tr> <td>Usage</td> <td></td> </tr> <tr> <td>Vehicle Year</td> <td>2013</td> </tr> </table> <div style="text-align: right; padding-top: 10px;"> Encoded False Authorized True Key Option </div>		Vehicle ID:	00000054	Description	2013 JEEP CHEROKEE (AIM 2.4) Upgrade	Customer ID	000000001 Testers R Us	Agency		Organization		Usage		Vehicle Year	2013
Vehicle ID:	00000054														
Description	2013 JEEP CHEROKEE (AIM 2.4) Upgrade														
Customer ID	000000001 Testers R Us														
Agency															
Organization															
Usage															
Vehicle Year	2013														

Reports > Vehicle > Vehicle Odometer Status Report categorizes vehicles by Dash Odometer status.

Fuel Depot Canton, NC 28716																															
<u>Fuelmaster Vehicle Odometer Status Report</u>																															
Page 1 of 2 Date: 6/22/2016 Time: 8:17:00AM																															
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Vehicle ID: Description</th> <th style="text-align: left;">Status Date</th> <th style="text-align: left;">Odom</th> <th style="text-align: left;">Year</th> <th style="text-align: left;">Make</th> <th style="text-align: left;">Model</th> </tr> </thead> <tbody> <tr> <td colspan="6">Dash odometer currently being captured</td> </tr> <tr> <td>00000066 2016 JEEP PATRIOT /</td> <td>6/13/2016 9:24:25AM</td> <td>18,227</td> <td>2016</td> <td>JEEP</td> <td>PATRIOT</td> </tr> <tr> <td>00000067 2016 JEEP PATRIOT 1</td> <td>6/16/2016 8:19:07AM</td> <td>19,571</td> <td>2016</td> <td>JEEP</td> <td>PATRIOT</td> </tr> <tr> <td colspan="4">Total Vehicles with Dash odometer currently being captured</td> <td>2</td> <td></td> </tr> </tbody> </table>		Vehicle ID: Description	Status Date	Odom	Year	Make	Model	Dash odometer currently being captured						00000066 2016 JEEP PATRIOT /	6/13/2016 9:24:25AM	18,227	2016	JEEP	PATRIOT	00000067 2016 JEEP PATRIOT 1	6/16/2016 8:19:07AM	19,571	2016	JEEP	PATRIOT	Total Vehicles with Dash odometer currently being captured				2	
Vehicle ID: Description	Status Date	Odom	Year	Make	Model																										
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00000066 2016 JEEP PATRIOT /	6/13/2016 9:24:25AM	18,227	2016	JEEP	PATRIOT																										
00000067 2016 JEEP PATRIOT 1	6/16/2016 8:19:07AM	19,571	2016	JEEP	PATRIOT																										
Total Vehicles with Dash odometer currently being captured				2																											

This report covers all Dash Odometer statuses:

- Dash odometer currently being captured
- Couldn't find dash odometer using specified data
- Couldn't find dash odometer on new model year vehicle
- No dash odometer data set for vehicle
- Dash odometer capture not tried yet
- User Rejected dash odometer

Dash Odometer Status	
<u>Status</u>	<u>TRANTIME</u>
Dash odometer currently being captured	6/6/2016 10:23:12AM
Dash odometer currently being captured	6/8/2016 9:01:45AM
Dash odometer currently being captured	6/8/2016 11:18:24AM
Dash odometer currently being captured	6/8/2016 2:33:34PM

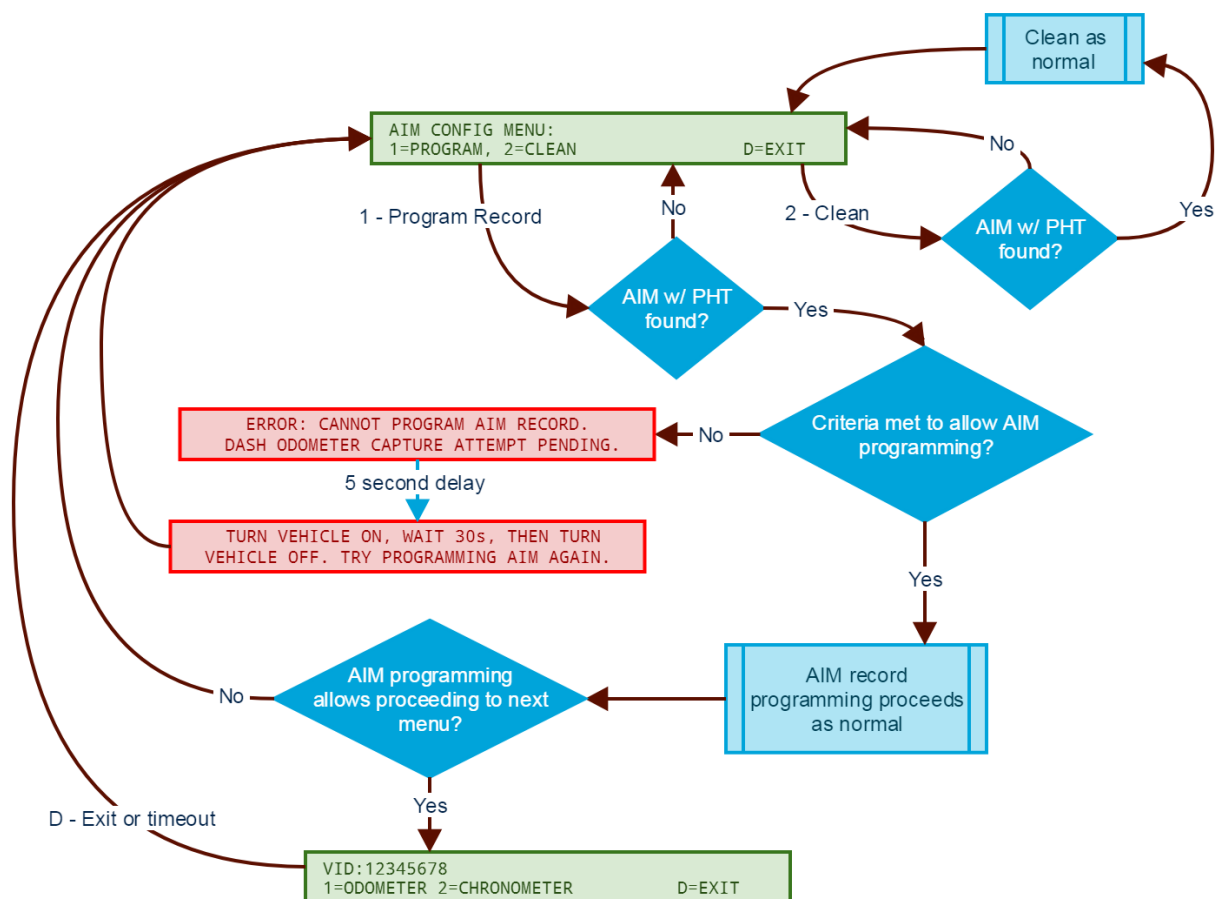
Select vehicles individually or check the **Select All** box to View Report, Print Report or Save the report.

The report may also be run by Agency, Organization, or Usage using the appropriate report tabs.

FMU Operations for Dash Odometer

AIM Record Programming with Supported VINs

The FMU allows record programming of the AIM unless a Dash Odometer attempt is pending.



If a Dash Odometer supported VIN fails to meet the programming criteria, the FMU notifies the Supervisor that the AIM record cannot be programmed because a Dash Odometer capture attempt is pending. After 5 seconds, the FMU prompts the Supervisor to turn the vehicle on, wait 30 seconds, turn the vehicle off, and then try programming the AIM again.

Accepting Dash Odometer

Dash Odometer functionality is found on the Vehicle Record screen. To get to this screen, insert the Supervisor Prokee at the FMU, navigate to the AIM Configuration Menu, and select PROGRAM. Enter a new Vehicle ID or confirm that the Vehicle ID is correct and currently assigned to the AIM. Once an AIM with a Dash Odometer supported VIN is programmed successfully, the FMU displays the Vehicle Record screen, as seen below:


```
VID:12345678
1=ODOMETER 2=CHRONOMETER      D=EXIT
```

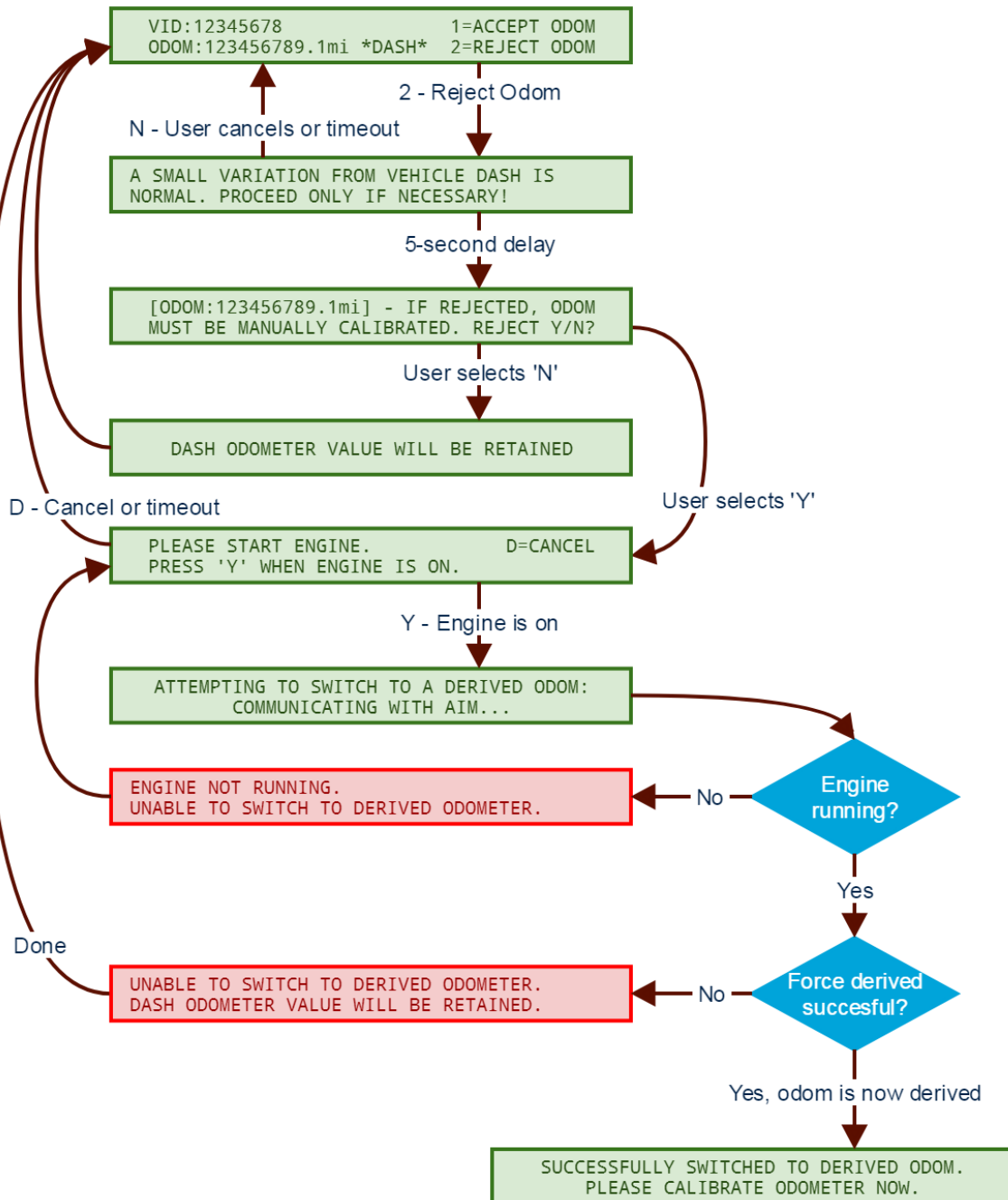
The Vehicle Record screen for a Dash Odometer supported VIN shows the standard options: 1=ODOMETER, 2=CHRONOMETER, and D=EXIT. Selecting the ODOMETER option shows the Vehicle ID and an Odometer number in miles labeled as *DASH* (denoting the odometer is a Dash Odometer) with the options to 1=ACCEPT ODOM or 2=REJECT ODOM as seen below:

```
VID:12345678      1=ACCEPT ODOM
ODOM:123456789.1mi *DASH* 2=REJECT ODOM
```

If ACCEPT ODOM is selected, the vehicle is configured for Dash Odometer and the FMU returns to the Vehicle Record screen.

Rejecting Dash Odometer

If the Supervisor selects REJECT ODOM, the Reject Dash Odometer workflow commences:



In the REJECT ODOM workflow, the Supervisor confirms the intention to revert back to Derived Odometer by pressing Y or continues with Dash Odometer by pressing N. Next, the Supervisor is asked to start the engine and press Y when it is on. Once the FMU is aware that the engine is on, it communicates with the AIM

and attempts to switch to a Derived Odometer. If the engine is not running during the attempt to switch to Derived Odometer, the Supervisor is prompted to start the engine and notify the FMU by pressing Y. If the attempt to switch to Derived Odometer is unsuccessful, the Dash Odometer method and value remain unchanged on the AIM. Once the attempt to switch to Derived Odometer is successful, the Supervisor is notified by the FMU and asked to calibrate the odometer. At this point, the Supervisor follows the normal odometer calibration process. After the odometer is calibrated, the FMU returns to the Vehicle Record screen.

Manual Option to Retry Dash Odometer

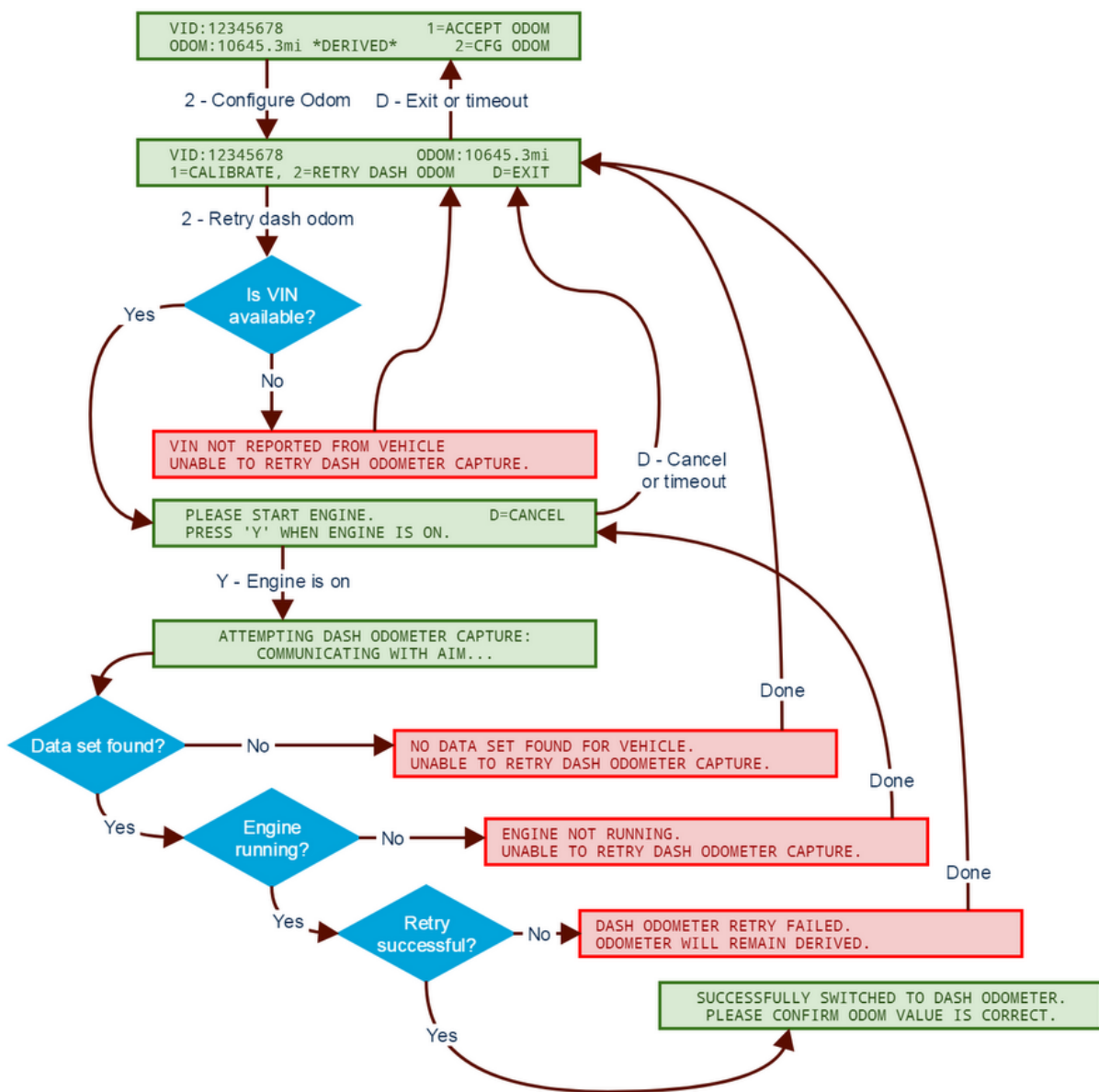
For AIMS on light duty OBD CAN vehicles currently using Derived Odometer, the Supervisor has the option to retry capturing the Dash Odometer. Navigate to the Derived Odom screen by selecting ODOMETER on the Vehicle Record screen. The FMU shows a Derived Odometer screen as seen below:

VID:12345678	1=ACCEPT ODOM
ODOM:10645.3mi *DERIVED*	2=CFG ODOM

On the Derived Odometer screen, the Supervisor can select ACCEPT ODOM to accept the current odometer number and return to the Vehicle Record screen. To retry Dash Odometer, the Supervisor selects the CFG ODOM option to go to the Configure Odom screen as seen below:

VID:12345678	ODOM:10645.3mi
1=CALIBRATE, 2=RETRY DASH ODOM	D=EXIT

If the Supervisor selects RETRY DASH ODOM, the manual Retry Dash Odometer workflow commences as seen below:



In the manual Retry Dash Odom workflow, the FMU confirms the availability of the VIN. If the VIN is not available, the FMU notifies the Supervisor that the dash odometer cannot be captured and returns to the Configure Odom screen. Once the availability of the VIN is confirmed by the FMU, the Supervisor is prompted to start the engine and press Y to confirm when the engine is on. When the Supervisor confirms that the engine is running, the FMU communicates with the AIM and attempts to capture the Dash Odometer. If the engine is not running during the attempt to switch to Dash Odometer, the Supervisor is prompted to start the engine and notify the FMU by pressing Y. If the data set for the vehicle is not found, the FMU notifies the Supervisor and returns to the Configure Odom screen. If the Dash Odometer retry fails, the FMU notifies the Supervisor that the

Dash Odometer retry failed, retains the current derived odometer value, and returns to the Configure Odom screen. When the Dash Odometer retry is successful, the FMU notifies the Supervisor that the Derived Odometer has switched to Dash Odometer and that the odometer value should be confirmed. After a few seconds, the FMU returns to the Vehicle Record screen.

Automatic Option to Retry Dash Odometer

Beginning with FMU FW v4.04, the FMU can automatically retry implementation of Dash Odometer. The following conditions must be met:

- The Dash Odometer Status indicates the FMU previously did a VIN lookup for Dash Odometer, but the vehicle is using derived
- The AIM's dash odometer package version is lower than the FMU's package version
- The updated data set must be different from the previous data set that was rejected

NOTE	If Dash Odometer was rejected in a previous FMU version, automatic retry will not occur.
-------------	--

If the above conditions are met, the FMU performs a VIN lookup and attempts to retrieve a data set. If the data set is found, and is different from the data set already tried on the AIM, the FMU sends the new data set files to the AIM. The next time the vehicle engine starts the AIM attempts the retry. Results of the retry are reported the next time the AIM enumerates. If a data set is not found, the AIM's dash odometer package version is updated, and the odometer will remain derived.

Appendix E MultiPoint Download Service

Overview

The Multipoint Download Service (MPDS) runs as an application and supports multiple services on different machines. Only one service can be installed per Central Controller. With MPDS, a regular user can start manual and automatic downloads as part of the FMPlus software application.

The date and timestamp on servers and clients must be synchronized to prevent issues with launching scheduled downloads, Archived Messages, and Polling Reports.

Compatibility

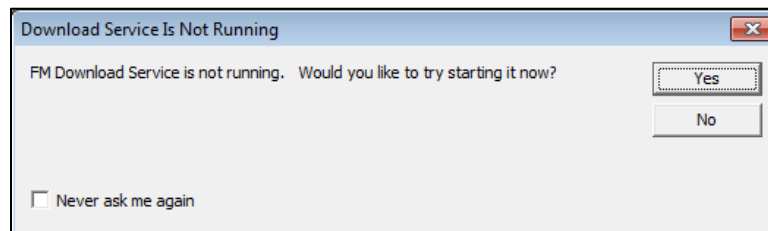
- SQL Server 2008 R2 and greater, including Windows 10 workstations

Installation

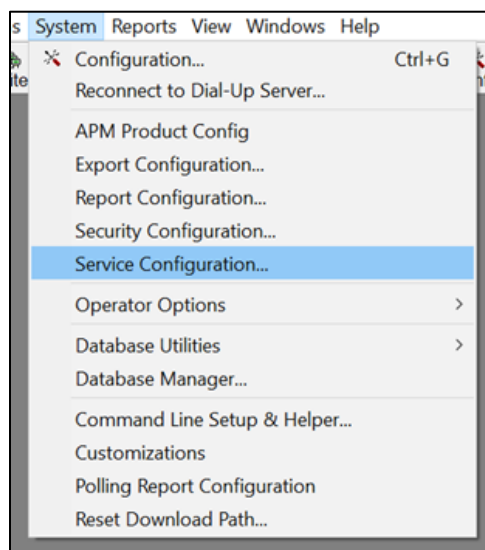
MPDS Installation

After the software and database are installed, FMPlus prompts the user to start the Download Service. Select **Yes** to install and start the download service.

If the user selects **No**, the **Download Service Is Not Running** dialog shows at every start-up, unless the **Never ask me again** box is checked.

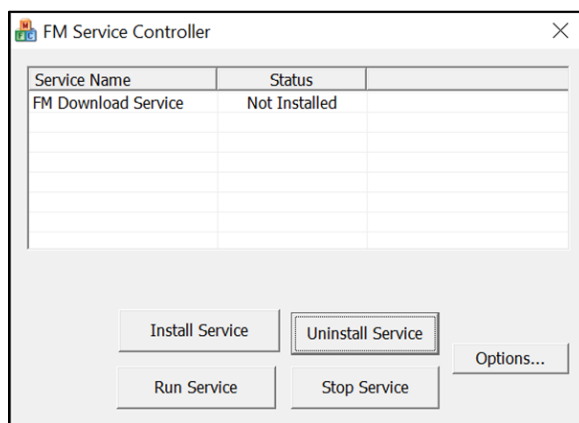


At any point in the program, the user can start the FM Download Service by selecting **Service Configuration** from the **System** menu.



FM Service Controller has multiple Service Controls:

- Install Service
- Uninstall Service
- Run Service
- Stop Service



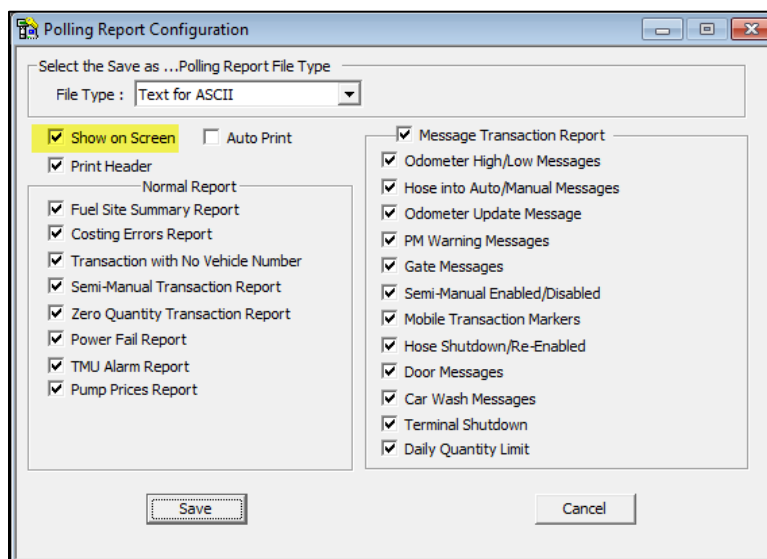
NOTE The **Options** button does not affect the Download Service functions.

Configuration

The **System > Configuration > DL Service** tab provides the following options:

- **Always start FM Download Service when loading FuelMaster** –Starts the download service automatically on each login to FMPlus.
- **Display autodownload polling report on this computer** – Displays the Polling Report after each auto-download if the report is set to launch automatically in the **Polling Report Configuration**.

To verify the Show on Screen setting, select Polling Report Configuration from the System menu.



NOTE

If **Show on Screen** is unchecked, the Polling Report does not launch automatically even if **Display auto download polling report on this computer** is checked. Selecting the **Show on Screen** for periodic downloads with a high frequency is not recommended as this will consume system resources.

- **Force starting Download Service as normal.exe** – Runs the FM Download Service as an executable. When checked, the ‘Start.exe now’ and ‘Stop .exe now’ controls become active. This mode should only be used if recommended by Syntech Systems, Inc.’s CSC.
- **Data Logger Options** – Location a user selects to store the Data Logger files after download.

NOTE

If the data logger files have not been downloaded in quite a while, the card may contain too much data for the system to download. It may be necessary to power down the FMU and replace the SD card.

Operations

MPDS Operations

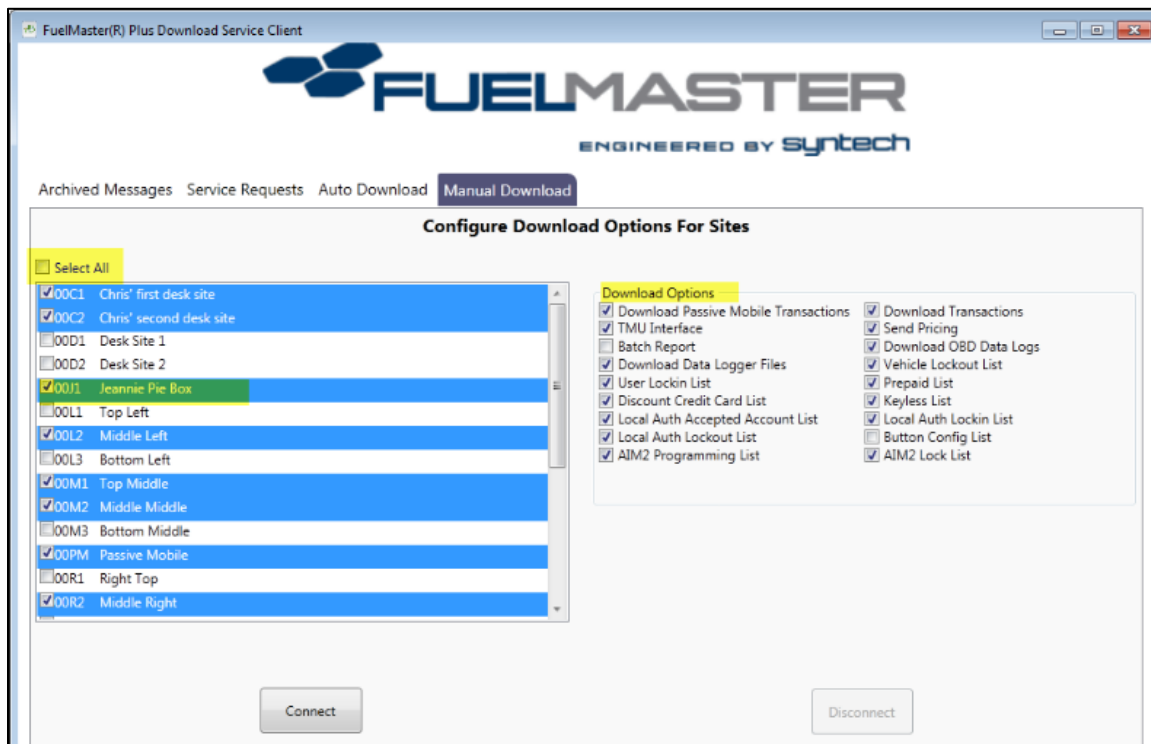
Launch the Online client by clicking the **Online** icon on the FMPlus toolbar, or select **Go Online with FMUs** from the **Operations** menu.

There are four tabs on the FuelMaster® Plus Download Service Client:

- Archived Messages

- Service Requests
- Auto Download
- Manual Download

Manual Download - select different sites by checking the box next to the site or select all sites by checking the **Select All** box. Each manual download request is shown on the **Service Requests** tab.



Review and set the download options. Click **Connect**.

Cancel a Manual Download by clicking **Disconnect** or by clicking **Stop** on the **Service Requests** tab.

Auto Download – Schedule a download for a future date and time by setting the Schedule Auto Download options.

Frequency

- **One time** – Select start date and time for single download.
- **Daily** – Select start time for downloads.
- **Weekly** – Select start time and days of the week for downloads to occur.
- **Periodically** - Select start time and frequency for recurring downloads.

NOTE

The frequency of periodic download determines when a download occurs in relation to the start of the previous download. If the first download is scheduled for 1:00 and the frequency is set to 1 hour, the next download will be scheduled for 2:00. If the duration of a single download exceeds the download frequency, the next download still begins immediately.

Click the **Schedule** button.

The Auto Download screen stays read-only until the download schedule is completed. The **Remove Schedule** option completely removes the current auto download schedule.

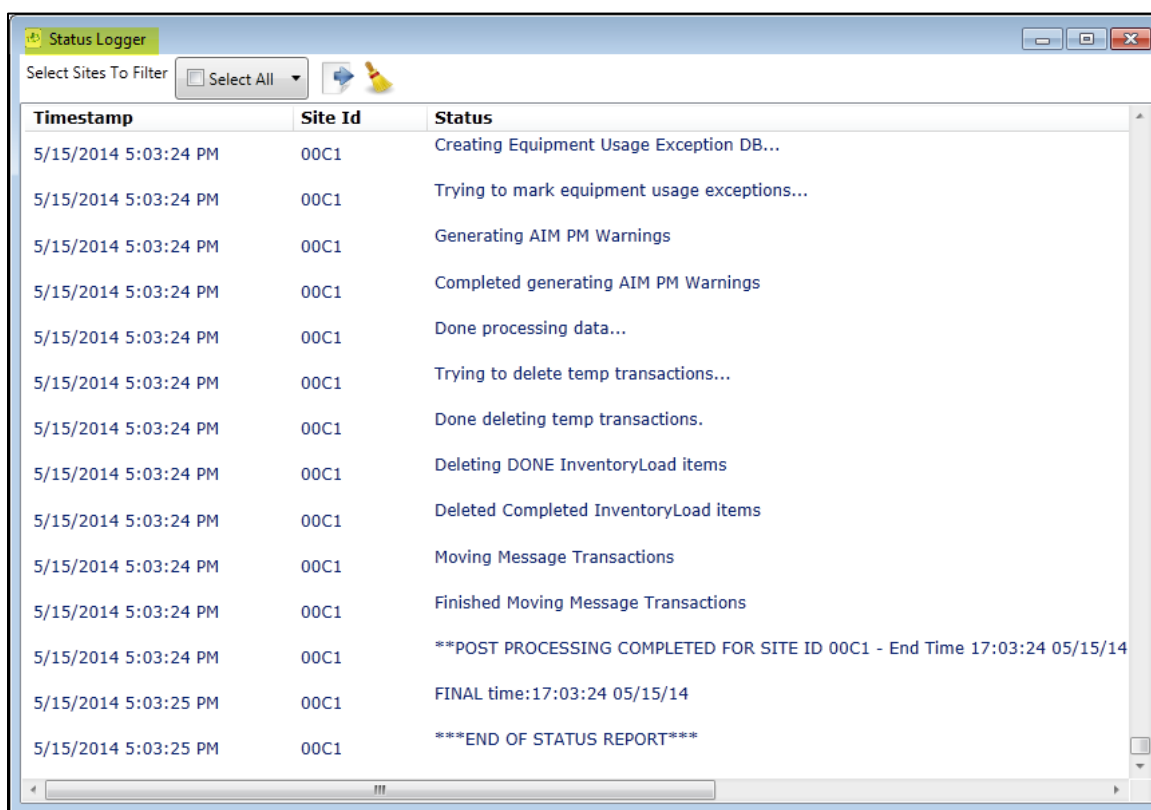
NOTE

Daily, Weekly and Periodic Downloads continue until the scheduled download is removed.

Selecting **Disconnect** or **Remove Schedule** may not immediately halt the download. The download service needs to perform post processing on each site that was being processed and this may take more than a few moments depending on the current stage of the download.

The **STOP** button is not available for recurring Auto Downloads, i.e., Daily, Weekly, and Periodically. It works for Manual and One Time Downloads.

Review the download in progress with the **Status Logger**. The Status Logger reflects downloads processing for the Manual and Auto Downloads. To open the **Status Logger**, from the **View** menu, select **Show Log DB Data**. The **Status Logger** automatically launches when a Manual Download starts.



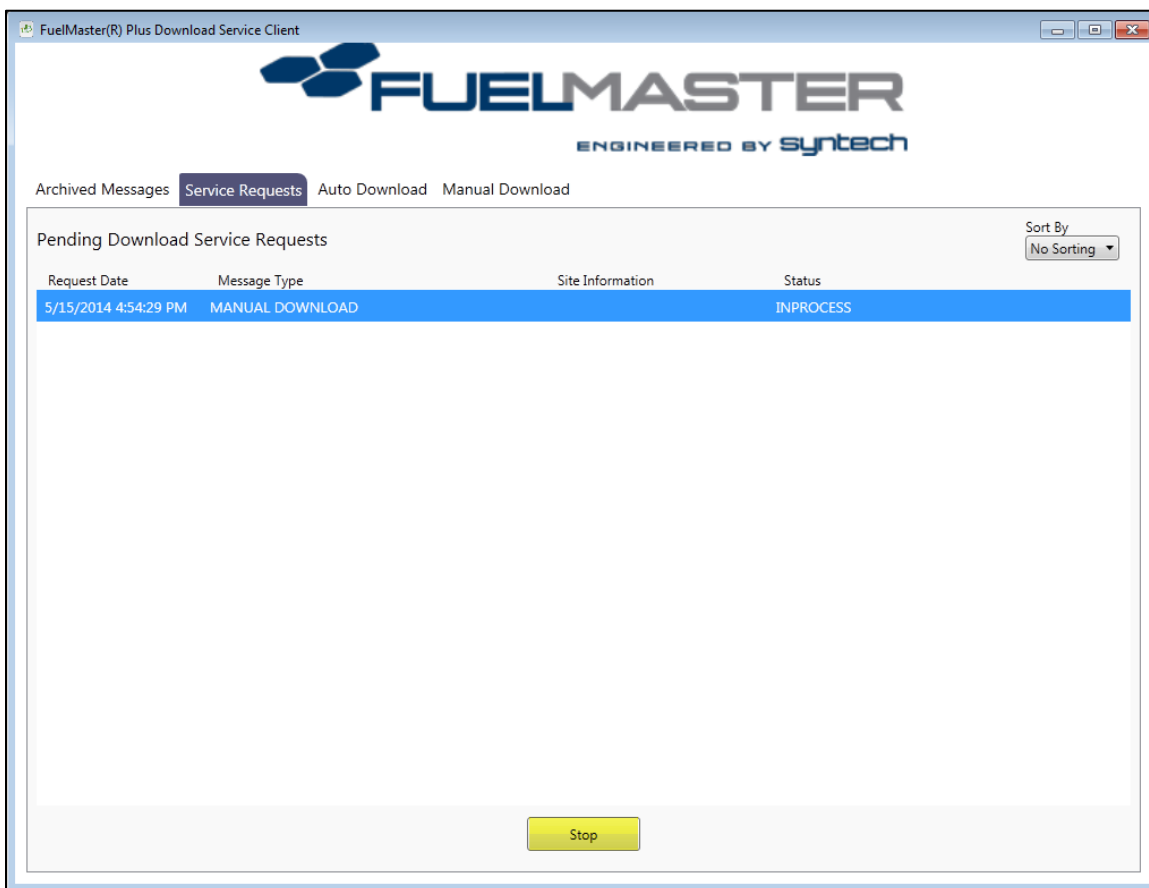
The screenshot shows the 'Status Logger' window with a title bar and standard window controls. Below the title bar is a filter section with 'Select Sites To Filter' and a 'Select All' button. The main area is a table with three columns: 'Timestamp', 'Site Id', and 'Status'. The table contains 15 rows of log entries for Site ID 00C1 on 5/15/2014. The entries describe the process of creating equipment usage exceptions, generating AIM PM warnings, deleting temporary transactions, and moving message transactions. The log ends with a summary line: '***POST PROCESSING COMPLETED FOR SITE ID 00C1 - End Time 17:03:24 05/15/14' and '***END OF STATUS REPORT***'.

Timestamp	Site Id	Status
5/15/2014 5:03:24 PM	00C1	Creating Equipment Usage Exception DB...
5/15/2014 5:03:24 PM	00C1	Trying to mark equipment usage exceptions...
5/15/2014 5:03:24 PM	00C1	Generating AIM PM Warnings
5/15/2014 5:03:24 PM	00C1	Completed generating AIM PM Warnings
5/15/2014 5:03:24 PM	00C1	Done processing data...
5/15/2014 5:03:24 PM	00C1	Trying to delete temp transactions...
5/15/2014 5:03:24 PM	00C1	Done deleting temp transactions.
5/15/2014 5:03:24 PM	00C1	Deleting DONE InventoryLoad items
5/15/2014 5:03:24 PM	00C1	Deleted Completed InventoryLoad items
5/15/2014 5:03:24 PM	00C1	Moving Message Transactions
5/15/2014 5:03:24 PM	00C1	Finished Moving Message Transactions
5/15/2014 5:03:24 PM	00C1	***POST PROCESSING COMPLETED FOR SITE ID 00C1 - End Time 17:03:24 05/15/14
5/15/2014 5:03:25 PM	00C1	FINAL time:17:03:24 05/15/14
5/15/2014 5:03:25 PM	00C1	***END OF STATUS REPORT***

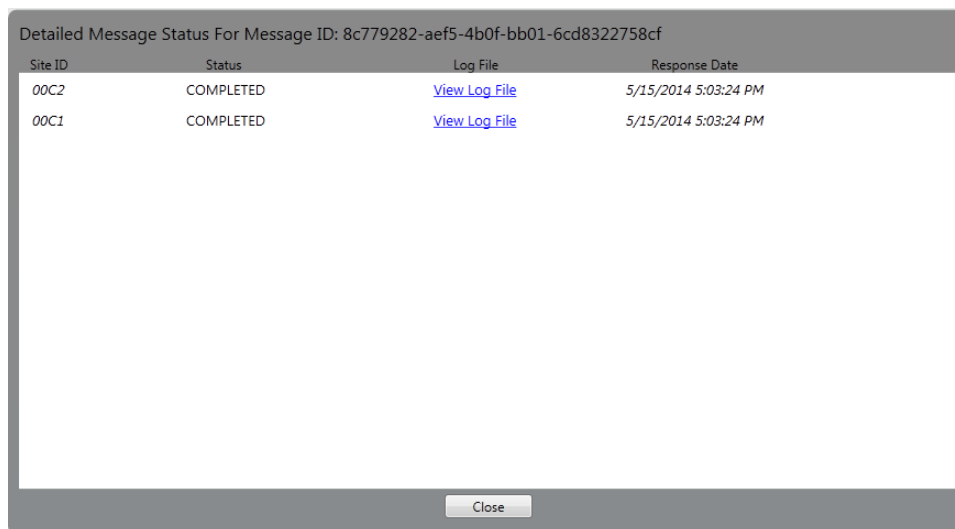
The top bar of the Status Logger provides a filter for sites to display, as well as, the ability to export the content of the logger to a file or clear the screen.

The **Status Log DB Data** logs all messages from every download and should not be left open unless it is being actively monitored.

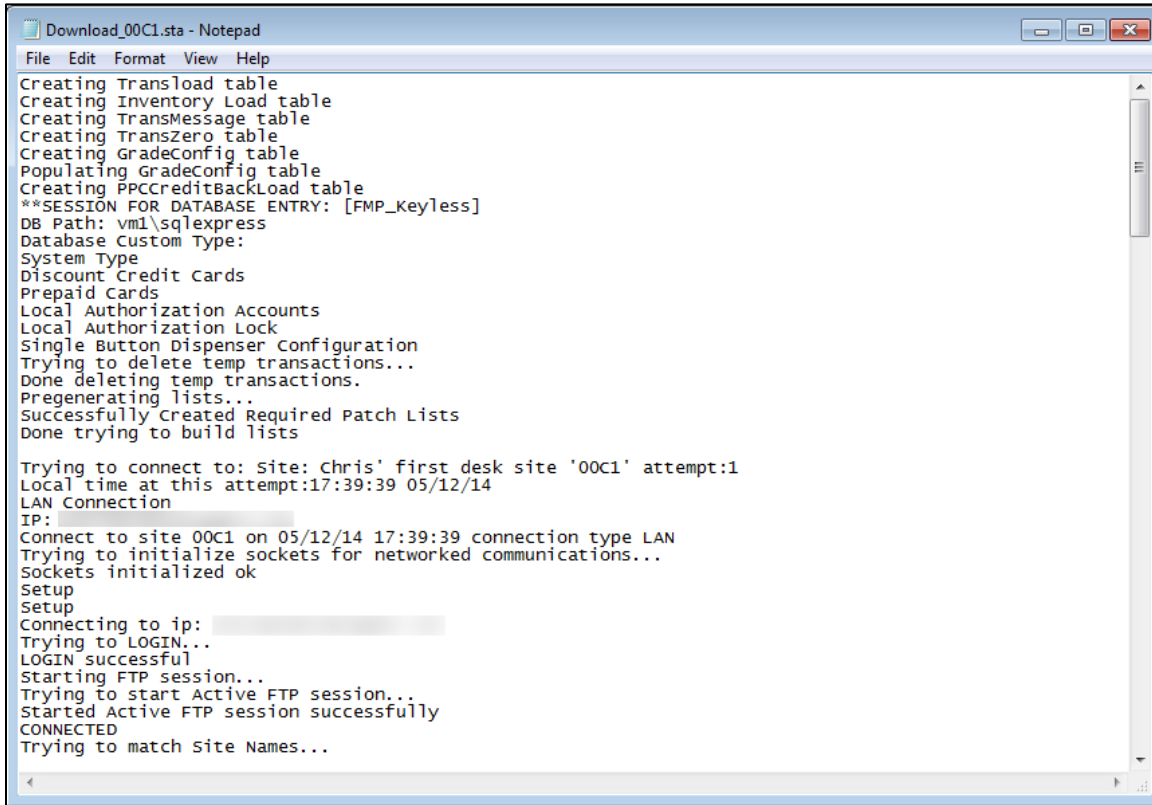
Service Requests – This option reflects the pending download information.



Archived Messages – the Archived Message tab reflects the status of the Service Requests.



Double-clicking on a Download Service Request will launch the **Detailed Message Status for Message** for the selected request.



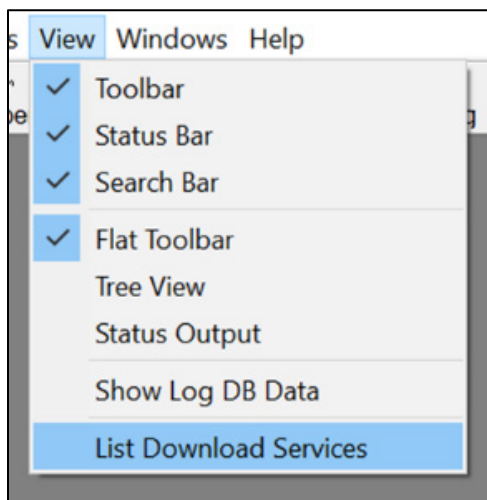
```
Download_00C1.sta - Notepad
File Edit Format View Help
Creating Transload table
Creating Inventory Load table
Creating TransMessage table
Creating TransZero table
Creating GradeConfig table
Populating GradeConfig table
Creating PCCreditBackLoad table
**SESSION FOR DATABASE ENTRY: [FMP_Keyless]
DB Path: vm1\sqlexpress
Database Custom Type:
System Type
Discount Credit Cards
Prepaid Cards
Local Authorization Accounts
Local Authorization Lock
Single Button Dispenser Configuration
Trying to delete temp transactions...
Done deleting temp transactions.
Pregenerating lists...
Successfully Created Required Patch Lists
Done trying to build lists

Trying to connect to: Site: Chris' first desk site '00C1' attempt:1
Local time at this attempt:17:39:39 05/12/14
LAN Connection
IP:
Connect to site 00C1 on 05/12/14 17:39:39 connection type LAN
Trying to initialize sockets for networked communications...
Sockets initialized ok
Setup
Setup
Connecting to ip:
Trying to LOGIN...
LOGIN successful
Starting FTP session...
Trying to start Active FTP session...
Started Active FTP session successfully
CONNECTED
Trying to match Site Names...
```

To view the status log files for the selected download, click the **View Log Files**. This opens in a text file that contains the download information for the selected site.

Download Service Status

To view the Download Service status, click **View > List Download Services**.



This displays the download services registered with the database and their current status. The **Master Service** is noted in the **Comments** column.

The **Status** column displays if a service is **RUNNING** or **STOPPED**.

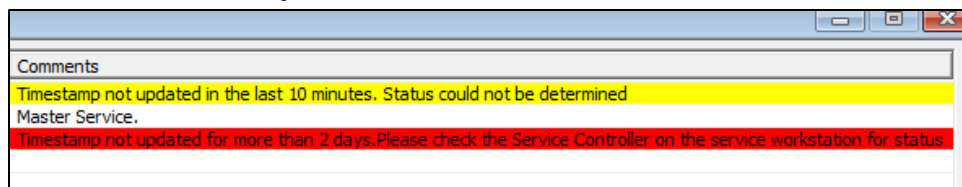
A screenshot of the 'Download Service List' window. It contains a table with the following data:

	Service ID	Service Name	Workstation Name	Status	Last Updated	Version	Comments
1	1efcca1f-7f82-4eec...	C:\Program Files (x86...	ENG_TEST12	RUNNING	09/17/2019 14:59:22	5.20.0.16	Master Service.
2	c3649b16-26ca-4f0...	C:\Program Files (x86...	ENG-TEST6	RUNNING	09/17/2019 14:59:23	5.20.0.16	
3	ef6ff2b6-ccf7-40f2...	C:\Program Files (x86...	ENG_TEST26	RUNNING	09/17/2019 14:59:12	5.20.0.16	

At the bottom of the window, there are four buttons: 'Global Purge', 'View Comments', 'Remove Service', and 'Close'.

If the Status is listed as **RUNNING**, but has not responded for 10 minutes it will be highlighted in **yellow**; the Status will change to **INDETERMINATE** and turn **red**.

- **Yellow** - means the service was not shut down properly or is not communicating with the database.
- **Red** - means the service has not been communicating with the database for more than 2 days.



If any of the above occurs, you should:

- Check to see if the workstation crashed or rebooted.
- Go to **System > Service Configuration** and check the status of the service.

- If the service is **RUNNING**, check to see if the workstation has network access and is communicating with the database.
- If the service is not **RUNNING**, restart the Service from the Service Configuration dialog.
- A system reboot might be necessary if the service does not restart.

The **Last Updated** column displays the last time the service registered with the database.

The **Remove Service** button (bottom right of screen) can be used to remove the service from the **Download Service List**, unless the service is running.

NOTE **Remove Service** does not uninstall the selected service; it removes the listing. If the service restarts or reconnects, it displays in the Download Service List.

Global Purge requires the operator permission **Edit Communication Queue**. Use this function when both the Connect and Disconnect buttons are grayed out on the Manual Download tab.

Troubleshooting

Connection Lost:

- If FMPlus losses connection with the database at any point during the download, the Download Service Client and Status Logger should be restarted after the database connection is restored. If not, the download may appear to be in progress or stalled even after it has continued or completed processing.
- If the services appear to be running slowly or not at all, check the following:
 - Make sure that the SQL Service is running on the server.
 - Make sure the Download Path is accessible or that it is not full.
- Check FMPlus, under **View > List Download Service**:
 - If a Download Service Status is **RUNNING** and the timestamp is within the last minute, the service is still active and available for processing.
 - If a Download Service Status is **STOPPED**, then the service has been correctly stopped from its workstation. This occurs if the service was stopped through the FMPlus **Service Configuration**, Windows Services, or if the machine has been properly shut down. You can start the Download Service from the appropriate workstation.
 - If a Download Service Status is **INDETERMINATE**, that service's status is unknown. It means the service was not shut down properly or is not communicating with the database. This may be due to:

- The workstation unexpectedly crashing
 - A loss of network communication
- If the service is listed as **RUNNING** in FMPlus **System > Service Configuration**, check whether the workstation has network access and can communicate with the database. If the service is not **RUNNING**, restart it from **Service Configuration**.
- A system reboot may be necessary if the service does not restart.

Appendix F Managing FMU Settings

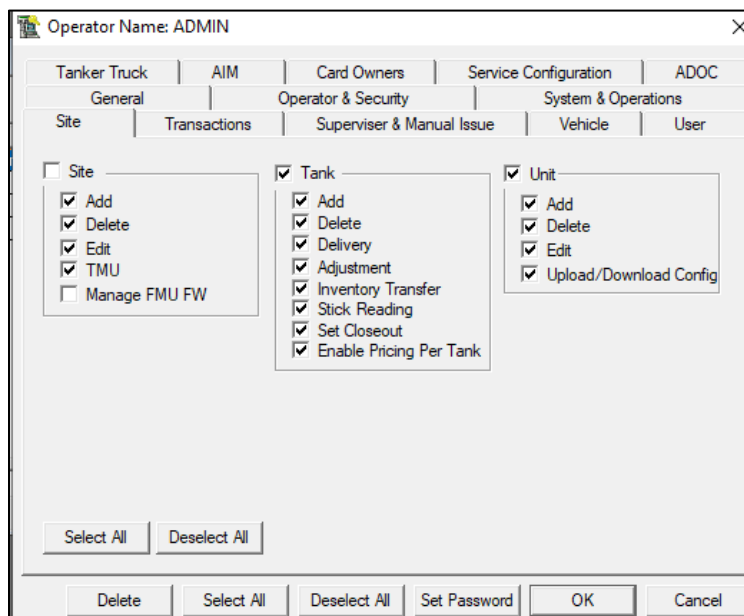
Overview

FuelMaster Plus® software (FMPlus) now supports managing many of the FMU Settings via the Site Configuration uploads and downloads. The feature is accessed on the Site dialog. Granting Site permissions to “Manage FMU FW” activates the Advanced button. The FMU Settings dialog shows tabs for the Master FMU and each of its Satellites. Settings may be reviewed and changed on these tabs. Once the site configuration is uploaded to the FMU, these settings are applied each time the FMU reboots.

Compatibility

Managing FMU Settings via SW requires FMPlus SW v5.21.3.0 and FMU FW 3.95 or greater.

FMPlus SW v5.21.3.0 and FMU FW v3.98 or greater are recommended for automated FMPlus updates, which may be used in conjunction with this feature. Contact Syntech Systems, Inc.’s CSC for information on automated upgrades.



Configuration

Installation

The Managing FMU Settings feature installs with FMPlus. Upgrade the SW on all Central Controllers.

Permissions

The Advanced button on the Site dialog is grayed out until an operator is granted “Manage FMU FW” permission in **System > List Maintenance > Operator List > [select operator] > Site**. This permission is not defaulted for any user.

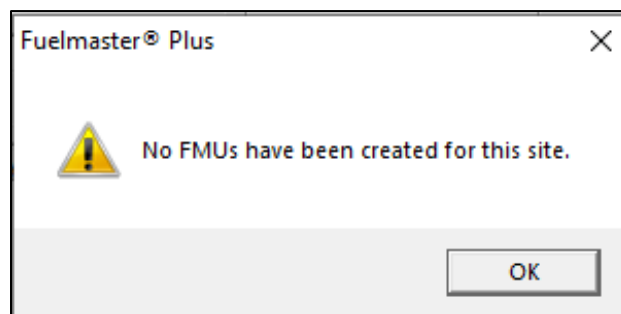
NOTE Do not enable the Advanced button until all FMU’s have at least FMU FW v3.95.

Managing FMU Settings Via SW

Once the permission is applied, on the Site dialog, click the **Advanced** button to launch the FMU Settings dialog.

Populating FMU Settings

If FMU Settings is opened before FMUs have been added to the site, a message says “No FMUs have been created for this site.” Create the site before returning to **FMU Settings**.

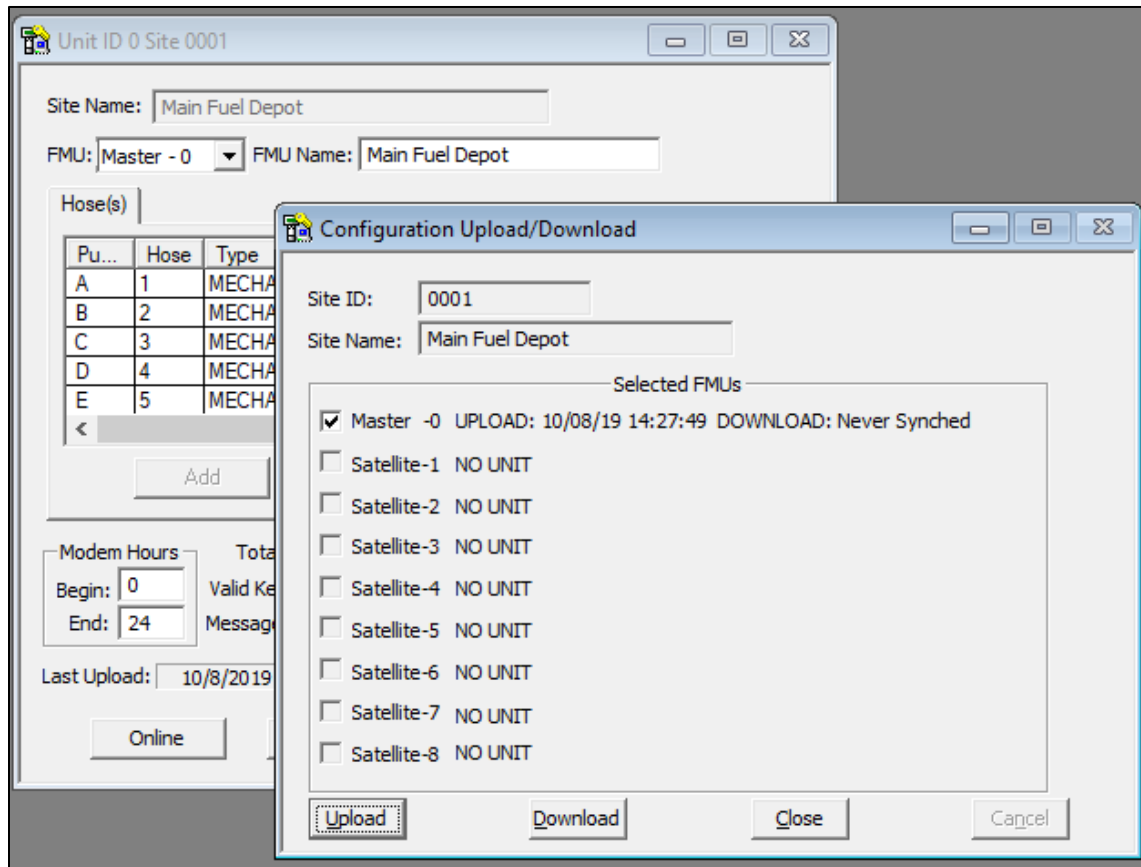


For existing units, a Configuration download is required to retrieve current FMU settings. If the feature has not been activated, the first tab says, “You must download the FMU Configuration before editing Firmware settings.”

If the Master FMU has Satellites, there will also be a tab for each satellite. Each tab will show this message until the configuration is download for the Master and each Satellite.

NOTE When CSC has done automatic upgrading, the FMU Settings are populated and the initial site configuration download is not needed. The dialog will open ready to use.

All FMU Settings upload with the site configuration which takes effect on the next FMU reboot.



Editing FMU Settings

After permissions have been set and FMU Settings have been downloaded, click the **Advanced** button to open the dialog:

FMU Settings: SITE: 0001

Settings	Value
<input checked="" type="checkbox"/> [22_main_prompt_message]	
line1	** FuelMaster FUELS ACCOUNTING SYSTEM **
line2	** INSERT KEY, HOLD 1 SECOND TO BEGIN **
<input checked="" type="checkbox"/> [38_site_signature]	
SITE SIGNATURE	FFFE
<input checked="" type="checkbox"/> [42_misc_id_prompt]	
MISC ID PROMPT	ENTER USER ID -->
<input checked="" type="checkbox"/> [44_receipt_header_message]	
line1	FUELMASTER
line2	
line3	
line4	
<input checked="" type="checkbox"/> [46_receipt_footer_message]	
line1	THANK YOU! HAVE A NICE DAY!
line2	
line3	
line4	
<input checked="" type="checkbox"/> [48_vehicle_id_prompt]	
VEHICLE ID PROMPT	ENTER VEHICLE ID -->

line1
Main Prompt Line 1 (Max 40 characters)

Once uploaded to the FMU, these settings will be applied each time the FMU reboots.

OK Cancel

Values are changed in a variety of ways: prompts may be edited, dropdowns provide ENABLED/DISABLED or other valid selections for many values, and some values are not available until the associated feature is enabled. The description box at the bottom of the settings list gives additional information about the highlighted setting.

Some settings, like System Type and Site Signature, are restricted and cannot be enabled or changed. Some settings are only enabled for certain system types.

When a setting changes, it is bolded to make it easy to find changes during the current session. However, if you leave the dialog and don't send the changes, changes for those values are retained but not bolded when the FMU Setting dialog reopens.

FMU Settings: SITE: 0001

Settings	Value
<input type="checkbox"/> [22_main_prompt_message]	
line1	** FuelMaster FUELS ACCOUNTING SYSTEM **
line2	** INSERT KEY, HOLD 1 SECOND TO BEGIN **
<input type="checkbox"/> [38_site_signature]	
SITE SIGNATURE	FFFE
<input type="checkbox"/> [42_misc_id_prompt]	
MISC ID PROMPT	ENTER DRIVER ID
<input type="checkbox"/> [44_receipt_header_message]	
line1	FUELMASTER
line2	
line3	
line4	
<input type="checkbox"/> [46_receipt_footer_message]	
line1	THANK YOU! HAVE A NICE DAY!
line2	
line3	
line4	
<input type="checkbox"/> [48_vehicle_id_prompt]	
VEHICLE ID PROMPT	ENTER BUS ID

line3
Receipt Header Line 3 (Max 27 characters)

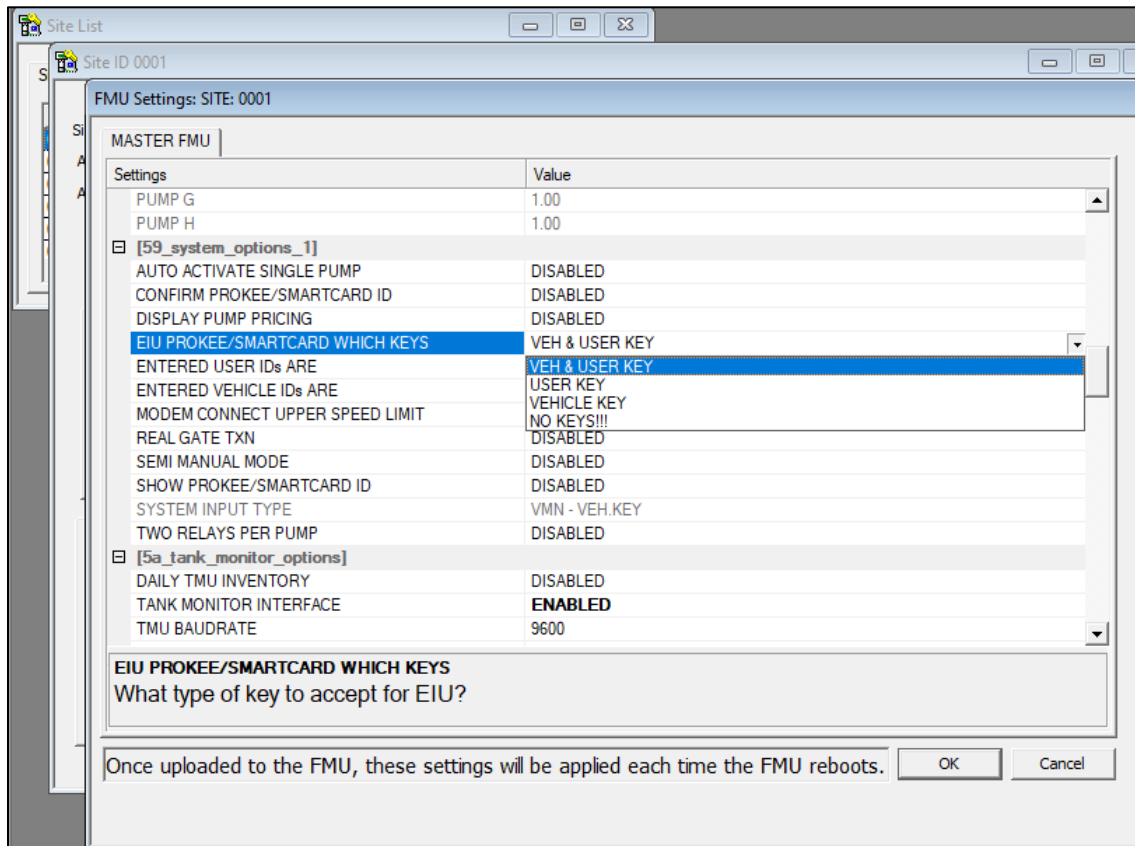
Once uploaded to the FMU, these settings will be applied each time the FMU reboots.

OK Cancel

NOTE

Section 54, pump mode and status, have values for each pump but unused pump locations are empty (blank). When changing a pump location from a valid value to empty, there is no visible indication of the change.

If a value has a dropdown, it must be used to set the value. Some drop-downs have multiple choices.



Other sections, like Tank Monitor, must be enabled before related values can be set.

FMU Settings: SITE: 0001

MASTER FMU

Settings	Value
EIU PROKEE/SMARTCARD WHICH KEYS	VEH & USER KEY
ENTERED USER IDs ARE	NUMERIC
ENTERED VEHICLE IDs ARE	NUMERIC
MODEM CONNECT UPPER SPEED LIMIT	MAXIMUM
REAL GATE TXN	DISABLED
SEMI MANUAL MODE	DISABLED
SHOW PROKEE/SMARTCARD ID	DISABLED
SYSTEM INPUT TYPE	VMN - VEH.KEY
TWO RELAYS PER PUMP	DISABLED
[5a_tank_monitor_options]	
DAILY TMU INVENTORY	DISABLED
TANK MONITOR INTERFACE	ENABLED
TMU BAUDRATE	9600
TMU DATA FORMAT	7,E,1
TMU MANUFACTURER	VR TLS-300
[5b_receipt_printer_options]	
ALLOW \$0.00 FOR FLEET PRICING	DISABLED
PEDESTAL RCPT PAPER CUT	FULL
PRINT DOLLAR FOR FLEET RECEIPTS	DISABLED

TANK MONITOR INTERFACE
Enable Tank Monitor

Once uploaded to the FMU, these settings will be applied each time the FMU reboots. OK Cancel

Sending FMU Settings

When all settings have been adjusted, select **Site > Site List > [select Site] > FMU > Online > [select Master and Satellites] > Upload**.

The uploaded settings take effect on FMUs reboots.

Appendix G MPDS Online Client Permissions

Overview

The Multipoint Download Service (MPDS) Online client supports role-based rights for Auto Downloads beginning with FMPlus SW v5.20.3.0. Manual Download functions are controlled by the individual operator's permissions. This expands FMPlus' permission capabilities. For example, it allows giving operators the ability to upload lists when they don't have permissions to download transactions.

Compatibility

This feature is supported in FMPlus SW v5.20.3.0 and greater. It was tested with FMU FW v4.05 and v4.06 but does not have firmware dependencies.

Configuration

Installation

Install SW v5.20.3.0 or greater on all FMPlus Central Controllers.

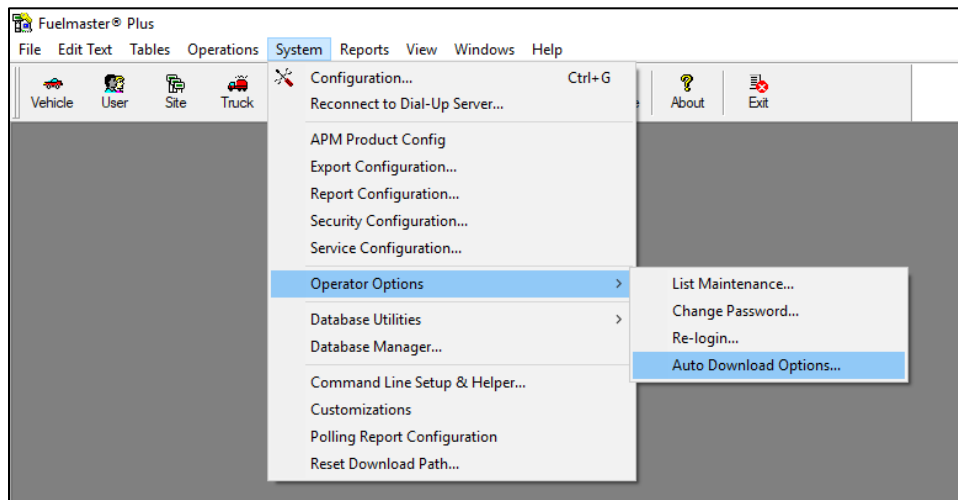
Permissions and Location

Operators with **System > Operator Options > List Maintenance > select *Operator* > Operator & Security > Edit** rights can modify permissions for the Auto Download role and set permissions for Manual Download by individual operator.

Site	Transactions	Supervisor & Manual Issue	Vehicle	User
Tanker Truck	AIM	Card Owners	Service Configuration	ADOC
General				
Operator & Security		System & Operations		

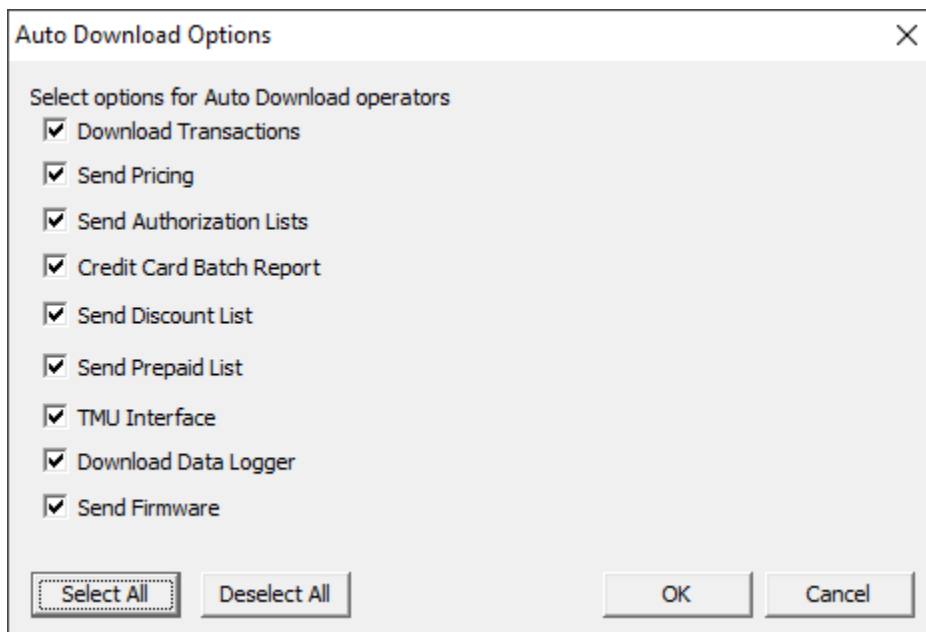
Operator	Security Configuration
<input type="checkbox"/> Add	<input type="checkbox"/>
<input checked="" type="checkbox"/> Edit	<input type="checkbox"/>
<input type="checkbox"/> Delete	<input type="checkbox"/>
<input type="checkbox"/> Unlock	<input type="checkbox"/>
<input type="checkbox"/> Authorize/Unauthorize	<input type="checkbox"/>

With Edit rights, click System > Operator Options > Auto Download Options.



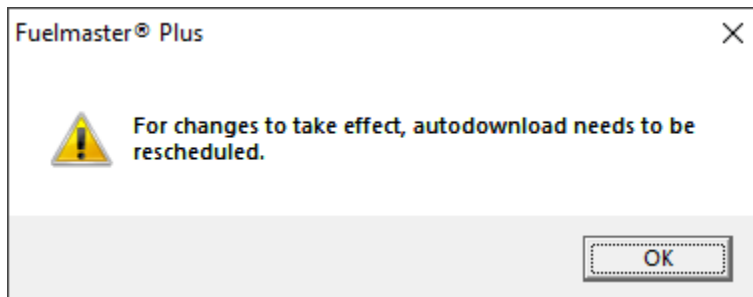
Auto Download Roles

Launch **Auto Download Options** to set Auto Download roles for all Operators.

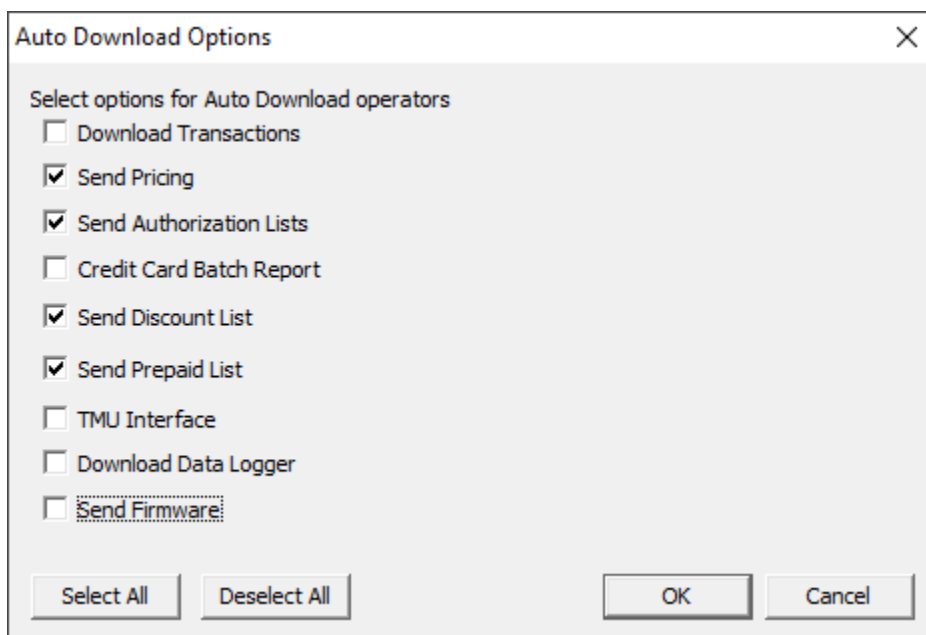


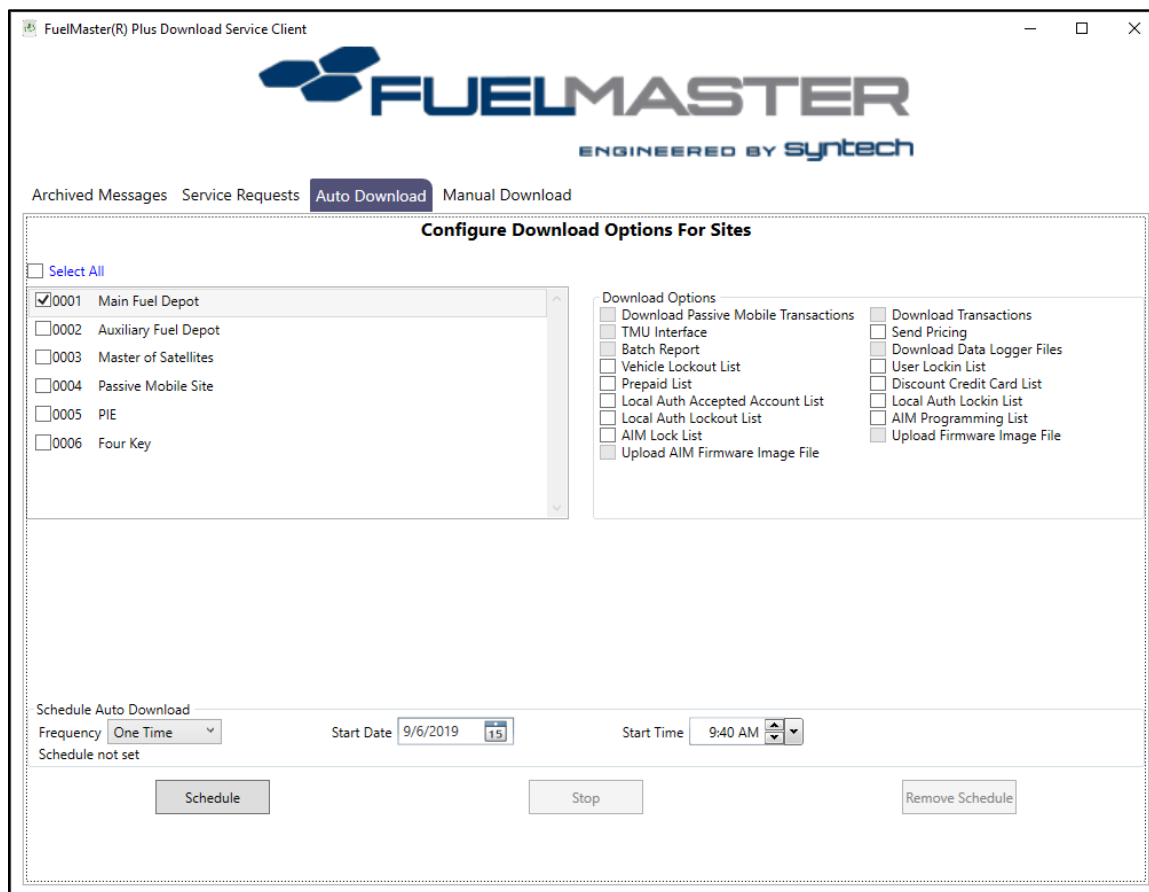
These permissions supersede those set for individual operators and apply to all automatic downloads.

Every time you leave the Auto Download Options dialog, you are reminded that Auto Download needs to be rescheduled for changes to take effect.



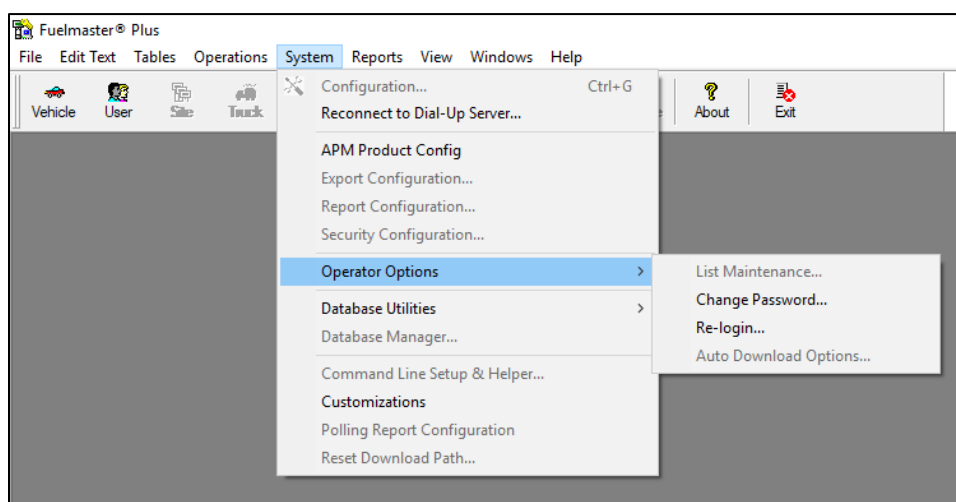
When a role is unchecked, even when previously selected, the option on the Online client is unchecked and grayed out.





These changes take effect on the next online session.

Operators without **Edit** rights see the menu option grayed out.



These operators can launch the Online client and see the Auto Download tab. All functions are grayed out, but the Site list can be scrolled to see selected Sites.

The screenshot displays the 'FuelMaster(R) Plus Download Service Client' window. At the top, the 'FUELMASTER' logo is prominent, with 'ENGINEERED BY Syntech' below it. The interface features a tabbed menu with 'Archived Messages', 'Service Requests', 'Auto Download' (the active tab), and 'Manual Download'. The main content area is titled 'Configure Download Options For Sites'. It includes a 'Select All' button and a list of sites with checkboxes: 0001 Main Fuel Depot (checked), 0002 Auxiliary Fuel Depot, 0003 Master of Satellites, 0004 Passive Mobile Site, 0005 PIE, 0006 Four Key, 0007 Park Avenue, 0008 Cumberland Pass, 0009 Imaginary Way, 0010 Four Points Way, 0011 Sisowtobell Lane, and 0012 Long & Winding Road. To the right, 'Download Options' are listed in two columns, with checkboxes for 'Download Passive Mobile Transactions' (checked), 'Download Transactions' (checked), 'TMU Interface', 'Batch Report', 'Vehicle Lockout List', 'Prepaid List', 'Local Auth Accepted Account List', 'Local Auth Lockout List', 'AIM Lock List', 'Upload AIM Firmware Image File', 'Send Pricing', 'Download Data Logger Files', 'User Lockin List', 'Discount Credit Card List', 'Local Auth Lockin List', 'AIM Programming List', and 'Upload Firmware Image File'. At the bottom, the 'Schedule Auto Download' section shows 'Frequency' set to 'Weekly', 'Start Time' at '11:10 AM', and 'Recurring Download scheduled' with days 'Monday' through 'Friday' selected. 'Saturday' and 'Sunday' are unselected. Three buttons at the bottom are 'Schedule', 'Stop', and 'Remove Schedule'.

Manual Download Operations

Operators with **Operator > Edit** rights can modify the permissions for individual operators.

Operator Name: TESTER

Site	Transactions	Supervisor & Manual Issue	Vehicle	User
Tanker Truck	AIM	Card Owners	Service Configuration	ADOC

General | Operator & Security | System & Operations

☐ Configuration

- ☐ System
- ☐ Modem
- ☐ Encoder
- ☐ AIM
- ☐ Export
- ☐ Auto Export
- ☐ Report
- ☐ Polling Report
- ☐ Read Keys
- ☐ FMU Console
- ☐ Polling Report Query
- ☐ Reports
- ☐ Command Line Setup & Helper
- ☐ Import Data
- ☐ Import Card Definitions

☒ Online

- ☐ Save Online Settings
- ☐ Normal Download
- ☐ Auto Download
- ☒ Send Pricing
- ☒ Send Authorization
- ☐ Credit Card Batch Report
- ☒ Send Discount List
- ☒ Send Prepaid List
- ☐ TMU Interface
- ☐ Session Status Options
- ☐ Download Data Logger
- ☐ Edit Communication Queue
- ☐ Send Firmware

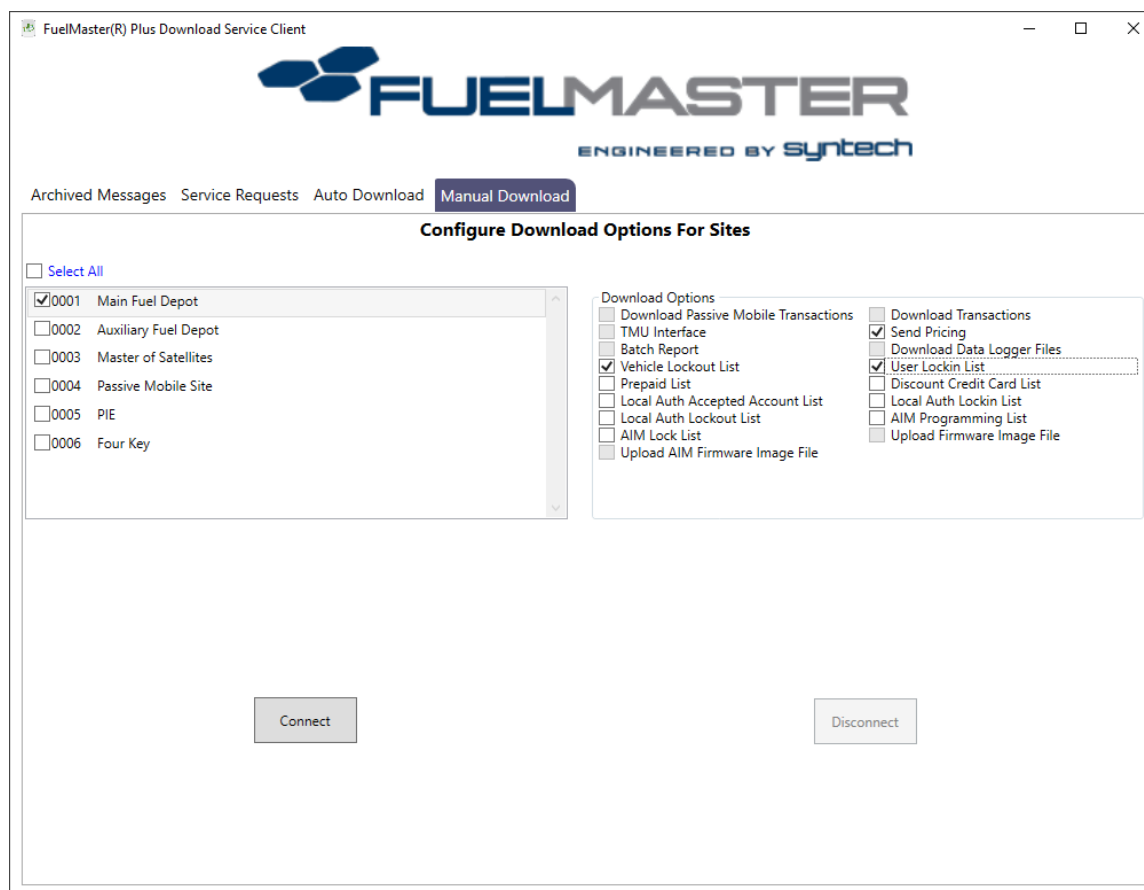
☐ Products

- ☐ Add
- ☐ Delete
- ☐ Edit
- ☒ Edit Pricing
- ☐ Add Features
- ☐ Delete Features

Select All Deselect All

Delete Select All Deselect All Set Password OK Cancel

When permissions are removed, the permission box is unchecked and grayed out.



Changes take effect on the next online session.

Prior to SW v5.20.3.0, download options were handled globally based on system type. Now, except for modified permissions, each operator's Online client selections are maintained separately and are selected when that operator logs on and accesses the Online client.

Appendix I Glossary of Terms, Abbreviations & Acronyms

The following are definitions for the terms and acronyms used in FMPlus. This list is meant to provide explanation for the most common terms referenced and referred to in this manual.

Administrator: Computer network profile with full permissions/rights; needed to install or uninstall the FMPlus software.

Agency (User Record): Code identifying the agency the user belongs to. Can be up to seven alphanumeric characters (lower level than Department).

Agency (Vehicle Record): Code identifying the agency the vehicle belongs to. Can be up to five alphanumeric characters (higher level than Organization).

Automotive Mode: FMU operational mode that requires an authorized Prokee /Smart Card and/or verifiable ID, or AIM for dispensing fuel.

Automotive Information Module (AIM): The FMPlus 3000 System component mounted in a vehicle. It contains vehicle specific information, captures vehicle odometer information; integrated dispenser-nozzle mounted RF/ID Tags. Transmits this information to an FMU.

Batch Report: Downloads a report containing credit card end of day settlement information.

Blended Tanks: Virtual tank created in FMPlus database by withdrawing specified percentage from two real tanks.

Central Controller: A Windows-compatible PC set-up for operation of FMPlus. Also references the main operator of the software.

Com Port: Serial port on PC used for connecting peripheral devices such as modems.

Customer ID: Up to nine alphanumeric characters entered to identify a specific customer.

Deauthorize: Removes vehicle/user/customer authorization to access dispenser with Prokee, but maintains vehicle/user/customer record in database (see also Delete).

Delete (vehicle/user/customer/site): Deletes vehicle/user/customer/site record from database (see also Deauthorize). Not recommended as all record history is lost.

Delivery: Fuel drop into a designated tank recorded in FMPlus database.

Department (User Record): Code identifying the department the user belongs to. Can be up to six alphanumeric characters (higher level than Agency).

Discount Card: Credit card that receives a specific discounted price level.

Dispenser: Fuel or oil dispensing unit located on a service island and possessing one or more dispensing hoses.

Div/Ratio: Setting (1:1 - 9999:1) programmed into the FMU that determines the number of pulses required to count one product unit (i.e., 10:1 pulser produces 10 pulses for every unit).

Dynamic IP address: Utilizing the Dynamic Host Configuration Protocol (DHCP) IP addresses are assigned by the computer. Dynamic IP addresses can be different each time you log onto the network and can even change while logged on. FuelMaster recommends utilizing Static IP's.

Either Key: Describes an operation requiring use of either a Vehicle Key, user key or both keys to access an FMU. Part of the COM system key type.

Electronic Dispenser: Dispenser controlled by an electronic computer as opposed to a mechanical dispenser which has no on-board processor.

Encoding: Process by which information is transferred to memory in a Prokee/Smart Card.

Encryption: Process whereby data, such as credit card numbers, are translated into a secure format. Encryption key is needed to translate data back into the original data format.

Equipment Interface Unit (EIU): FMPlus equipment used with a Master FMU for remote access to gates, car washes and doors.

Export: Procedure for transferring transaction database data to an ASCII file. Exported transaction data is removed from transaction database.

Fixed site: Site with one or more ground-mounted FMUs.

Fuel Island: Location where FMUs and dispensers are positioned for easy access by a vehicle. See Service Island.

FuelMaster® Plus (FMPlus): Registered name of the Syntech Systems, Inc., Fuel Management System.

Fuel Management Unit (FMU): System component located on the service or fuel island that receives key inputs and activates dispensers. Performs other functions dependent upon whether FMU is a Master or a Satellite (See MFMU and SFMU).

Grade Position: Electronic dispenser setting per pump for grade positions.

Internal Key Number: Sequential number assigned to each encoded Prokee/Smart Card.

IP Address (Internet Protocol): 32-bit numeric address of a computer on a TCP/IP network. Used for routing data packets on a network.

Inventory: Quantity of product in a storage tank at any given time.

Julian Date Rollover Hour: Hour of day (0-24) programmed into the FMU that determines when the next accounting day begins.

Key: Prokee or Smart Card.

Manual Mode: FMU Operational mode that bypasses FMU control. Used to test the operational status of the dispenser independently of the FMU. When the FMU is in this mode, no fueling or accounting data is recorded.

Manual Issue Key: Utility Prokee used to issue products to non-key holders. Key contains no restrictions on product types, and has a default transaction limit of 250 gallons.

Master Fuel Management Unit (MFMU): System component located on service island that receives key inputs, activates dispensers, and communicates with Satellite FMUs. Sends Master and Satellite data to the Central Controller.

Max Prod Allot: Maximum product allowed to be dispensed in a 24-hour period. Exceeding this amount can be reported on the Polling Report as an exception.

Mechanical Dispenser: Dispenser with a mechanical meter reset.

Message Duration Time Out: Time limit (1-10 seconds) sets length of time messages display on the LCD. Does not apply to all messages/displays.

Mobile Automated Site (M site): Mobile Tanker Trucks equipped with FMU for recording transaction data; can download transaction data to a fixed FMU.

Mobile Non-Automated Site (L site): Mobile Tanker Trucks not equipped with an FMU. Transaction data must be manually recorded for later manual entry.

MPD: Multi-Product Dispenser, an electronic dispenser capable of dispensing more than one product type from a single hose.

NIC: Network Interface Controller

No-Pulse Timeout Setting (NPT): (5-255 seconds) programmed into the FMU to determine when a transaction terminates if a product is not dispensed after a dispenser hose is activated.

OBD: On Board Diagnostic computer installed in most automobiles and trucks since 1996. The AIM is able to interface to the OBD computer via the OBD port on almost all vehicle types outfitted with an OBD computer. Most on-board computers use one of several communications protocols which can be read by the AIM.

Onsite printer: Serial communication printer that is hardwired into the FMU and prints FMU transactions and activity.

Organization (Vehicle Record): Code identifying the organization the vehicle belongs to. Can be up to three alphanumeric characters (lower level than Agency).

PHL: Pump handle setting

PIN: Last four digits of Prokee Internal Number

PIE Address: Fuel pump number designated in the dispenser, FMU and FMPlus database for use with electronic dispenser operation.

PIE Box: Equipment used for data communication between the FMU and electronic dispenser.

PM: Preventive maintenance

Polling Report: Configurable report that shows status of downloaded transactions.

Port number: Logical endpoint to a connection in a computer network for client/server communication.

Prepaid Card: Encoded Prokee\Smart Card with a Prepaid amount that is recalculated each time it is used at the FMU.

Price Level: Level of pricing per unit or product. Set by customer, tank or product.

Prokee: Registered name for access keys to the FMU, which come in six types: AIM Programmer, Vehicle, User, Truck, Manual Issue and Supervisor.

PTO: Power Take Off - the ability of certain vehicles to power auxiliary devices from the vehicle's engine, often used with the vehicle not in motion.

Pulser: Dispenser device that transmits cost and volume of product dispensed to FMU.

Pump: Dispenser.

Pump Finish Time Out (PFT): Time period (5-800 seconds) programmed into the FMU that determines when a dispenser hose is automatically turned off after product is dispensed. Timer begins once FMU stops registering pulses.

Pump Handle: Switch located on dispenser; also referred to as Pump Reset Switch. Setting in FMU configuration, which tells FMU when to look for pulses; if Start or Start/End is selected, pump handle switch must be activated before FMU looks for pulses.

Receipt printer: Optional device added to FMU that prints a receipt after dispensing transactions.

Re-Encode: Procedure for encoding a re-issued key.

Re-Issue: Procedure for re-authorizing a key record that was previously de-authorized. Permits a key to be encoded with the same key record information.

RF: Radio Frequency - the ability to communicate without wires using radio waves of various frequencies.

Restore: Procedure for returning archived data to a database.

Satellite Fuel Management Unit (SFMU): System component located on service island that receives key inputs, activates dispensers, and relays transaction data through the MFMU(s).

Server computer: A machine that runs a service available on the network.

Service Island: Location where FMUs and dispensers are positioned for easy access by a vehicle.

Servicing Site: Term to describe the location of the service island(s) and station house.

Site Signature: Computer generated security number that is unique to an organization's FMU, database and all associated Prokee/Smart Cards and/or AIMs.

Smart Card: Access card for fueling at an FMU which uses a smart chip programmed with customer specific information. May be used instead of Prokees.

Static IP Address: Fixed IP addresses assigned by the network administrator.

STS: Abbreviation for Syntech Systems, Inc.

Supervisor Key: Utility Prokee used to configure FMUs, perform servicing site troubleshooting and system diagnostic tests, to issue products to non-key holders, to update product quantity in FMU memory, and to extract on-site reports.

Syntech: Syntech Systems, Inc.

System Key Type: FMPlus and FMU mode of operation. Each type explained in detail in Chapter 1.

Tanker Truck Key: Utility Prokee used by a mobile Tanker Truck driver to fill a Tanker Truck from an FMU-controlled dispenser.

Tanker Truck: Truck with fuel storage tank for taking fuel to remote fueling locations; may be automated with attached FMU, or non-automated which requires manual entry of each transaction.

TMU: Tank Monitor Unit.

Transaction: Action that updates FMU memory either as the result of product dispensing or through manual entry of information.

Transaction Limit: Amount of fuel that is allowable per transaction. Cannot exceed this limit.

Transaction Code (TC): 2-character code used to distinguish types of transactions.

Two Key: Describes operation-requiring use of both a Vehicle Key and user key to access an FMU.

Unit of Issue (UI): Unit of measure for products; designated by two letters (i.e., GL for gallons, QT for quarts, etc.).

Update (Prokee): Requires key to perform update. Changes information contained on the key; not necessary to upload information to FMU after update.

USB Port: Universal Serial Bus port on the computer.

User ID: Up to 9 alphanumeric characters entered to identify a specific user.

User Key: Prokee assigned to a User.

Utility Key: A Supervisor, a Manual Issue, or a Tanker Truck key.

Valid Key Time Out: Time limit (5-255 seconds). Time allowed before terminating a transaction if no dispenser hose is selected after Prokee insertion.

Vehicle Key: Prokee assigned to a vehicle and used to fuel through an FMU.

Vehicle ID: Up to 8 alphanumeric characters entered to identify a specific vehicle.

Zero Quantity Shutdown No: Setting (1-50) determines the number of zero-quantity transactions that may be recorded before shutting down a dispenser. Prevents continued use of system if FMU is not recording transaction information (i.e., defective pulser or other issues).