TLS-450PLUS/TLS4

Operator's Manual

VEEDER-ROOT

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Introduction

This manual contains instructions for using the Workflow Wizard Setup Application in the TLS450PLUS and TLS4/8601 Series consoles. Workflow Wizard guides the user through the Veeder-Root recommended setup screens during the console's initial commissioning.

This manual assumes all devices are connected the console and that a site diagram of all probes, sensors and tanks is at hand to assist in determining the correct console addresses for these devices. The procedures herein are intended to be followed using the console's touch screen. Other setup interface methods vary in feature and accessibility options.

Some of the screens are only visible if the applicable features/devices are installed in your console. Skip over programming instructions for any features/devices that are not installed in your console.

Contractor Certification Requirements

Veeder-Root requires the following minimum training certifications for contractors who will install and set up the equipment discussed in this manual:

Service Technician Certification (Previously known as Level 2/3): Contractors holding valid Technician Certifications are approved to perform installation checkout, startup, programming and operations training, system tests, troubleshooting and servicing for all Veeder-Root Series Tank Monitoring Systems, including Line Leak Detection. This certification includes TLS-3xx and TLS4xx certification training. In addition, Contractors with the following sub-certification designations are approved to perform installation checkout, startup, programming, system tests, troubleshooting, service techniques and operations training on the designated system.

- Wireless 2
- Tall Tank
- ISD/PMC

All service personal on site must comply with all recommended safety practices identified by OSHA and your employer.

Review and comply with all the safety warnings in this and any related documents, and any other Federal, State or Local requirements.

Warranty Registrations may only be submitted by selected Distributors.

Related Documents

577014-073	TLS450PLUS Site Prep Manual
577014-075	TLS-450PLUS Troubleshooting Guide
577014-022	TLS4 Site Prep Manual
577014-058	TLS4 Troubleshooting Manual
577013-465	Electronic Line Leak Detectors Application Guide
577013-770	Media-Isolated Mag Plus Probe LPG-ISO Kit Installation Guide
577013-773	Media-Isolated Mag Plus Probe Chem-ISO Kit Installation Guide
577014-056	Mag-FLEX Probe Low Level Water Float Kit Installation Guide

Console Touch Screen Overview

The following section console features, touch screen layout and how to access and navigate the setup procedure using the touch screen controls.

Console Home Screen

An example Tank Overview Screen (Default Home Screen) is shown below which has 2 Tanks Monitored and 1 active Warning

Date & Time

| T 1: DELIVERY NEEDED | 1 Warning(s) 0 Alarms(s) | 01/20/2022 06:01 PM |

Overview Tank Overview

< Share

Home

Favorites

Menu

Actions

⚠ TANK 1: reg

Fuel Volume	3655
Fuel Height	38.6
Ullage 100%	6345
Temperature	61.9
Water Height	3.0

ShareButton

See Example Status Bar Types Below

Bread Crumbs
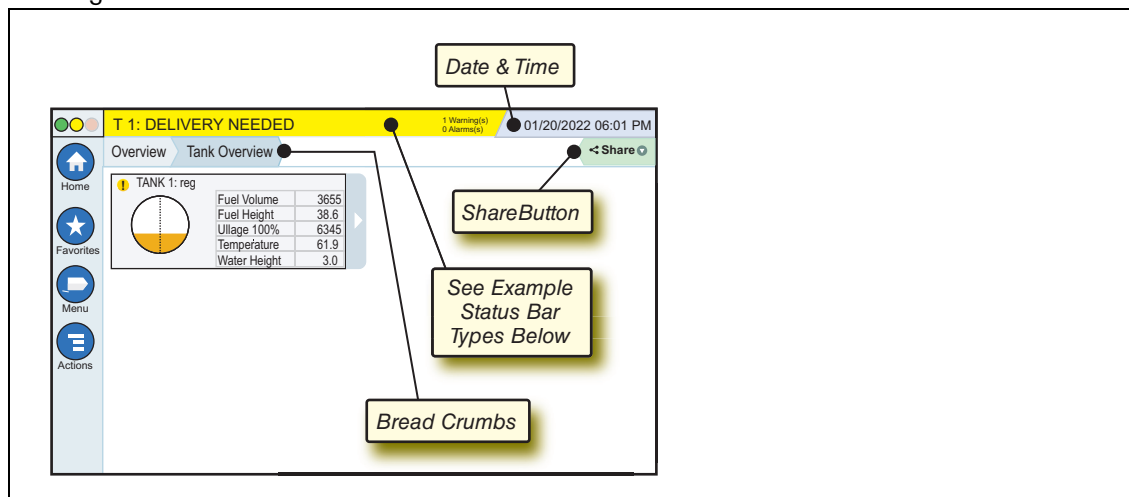
Front Panel Status Lights

Warning

Normal   **Alarm**

🟢 🟡 🔴

✓ ❗ ✕
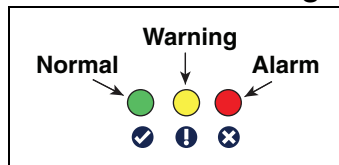
Example Touch Screen Status Bar Notifications

🟢 **SYSTEM STATUS** ⚡ 0 Warning(s) 0 Alarms(s)

Power On to console and no warnings or alarms from system.

🟢🟡 **T2: DELIVERY NEEDED** ⚡ 1 Warning(s) 0 Alarms(s)

Something needs to be reviewed and/or assessed. In this state, touching the status/warning bar brings you to the Reports > Alarms > Active screen so you can see the cause of the warning. While in that screen, touching the status/warning bar again acknowledges the warning and shuts off the beeper.

🟢🔴 **L 10: FUEL ALARM** ⚡ 0 Warning(s) 1 Alarms(s)

Something needs to be acted upon immediately. In this state, touching the status/warning bar brings you to the Reports > Alarms > Active screen so you can see the cause of the alarm. While in that screen, touching the status/warning bar again acknowledges the alarm and shuts off the beeper.

🟢 ↻ **SAVING** ⚡ 0 Warning(s) 0 Alarms(s)

System tasks message bar.

Touch Screen Icon Descriptions

Home Screen Icon - Touch to navigate to the home screen. Default is the Tank Overview screen (Home screen shown above).

Favorites Screen Icon - Touch to setup/access your favorite screens and designate which screen will be the home (default) screen.

Touch to add the current screen to your Favorites list. You can have up to six Favorites screens. If you want to delete a screen from your Favorites list, touch ⓧ next to that screen.

Touch to set the current screen as the home screen.

Menu Icon - Touch to access System Setup Menus, Reports, Diagnostics and other screens (Administrator assigned access). For initial setup of the console, touch Menu>Setup>Workflow Wizard which steps you through the console setup screens in the proper sequence. See Workflow Wizard setup

Actions Icon - Touch to access Help. Touch the Help icon ❓ to open On-Board Help. Also, if the Shifts feature is set up, touching the Actions icon will display the Close Shift icon ⊙ which can be touched to close a shift.

Unrelated to the choices above, when entering data in any screen, a Red Circle may appear on the Actions icon to indicate that additional tasks/menu choices for that screen.

Screen Dependent Icons - The number in the circle under the Actions icon indicates the device you are viewing or setting up. Touching the circled number displays all of the similar devices in a row along the bottom of the screen (other tanks, ports, probes, etc.) that you have set up. Touching the circled number again hides the device icon row. A highlighted icon indicates the device you are viewing or setting up. Some of the device icons you may see depending on system features installed in your console are shown below:

① **Device Number**	Tank	Ethernet Port	Probe	External Input	Relay	Temp Sensor
	Vapor Valve	Liquid Sensor	Vapor Pressure Sensor	Siphon Set	Serial Port	Air Flow Meter

Entering Changes On A Touch Screen

The screen example below describes entering data into the screen's field windows.

Touch down arrow in a menu breadcrumb to view all additional setup screens, select any in list to jump to that screen

White (empty) radio button indicates item is not selected. Touch radio button to select Disabled and deselect Enabled.

A grayed-in field cannot be changed. In this example, if there two or more printers, the field would be white and touching the down arrow would display the additional printers.

After making any change to a screen entry, touch the ✔ key to accept the change(s) or touch the ✕ key to cancel the change(s).

If page scroll is visible, touch the up/down arrows or slide bar with finger to scroll up or down to view additional entry fields.

Selected device. Touch to select additional devices to be programmed, in this case additional printers.

Touching in a white field displays a pop-up keyboard/keypad to enter or modify an entry.

An asterisk (*) next to a field indicates you changed an entry for that field before you have accepted or saved the change in a dialog window.

Console Comm Ports

When setting up comm ports, you should verify the connections to the console's comm ports prior to entering their setup parameters.

TLS4 Comm Ports - Menu>Setup>Communication

Your console's Comm Port configuration will depend on features ordered. Note: Ethernet ports 2 and 3 are programmed as the same Ethernet device.

Factory Installed, Optional Module Area

SWITCH ETH 2 & 3 - shown in Setup menu as Ethernet Port 2 (Optional)

USB port (1) upper
USB port (2) lower

EXPANSION

ETH 2
ETH 3

USB 1
USB 2
ETH 1

SERIAL 1

SERIAL 2

VR Bus port

Ethernet port (1)

RS-232 or RS-485 DB9 ports
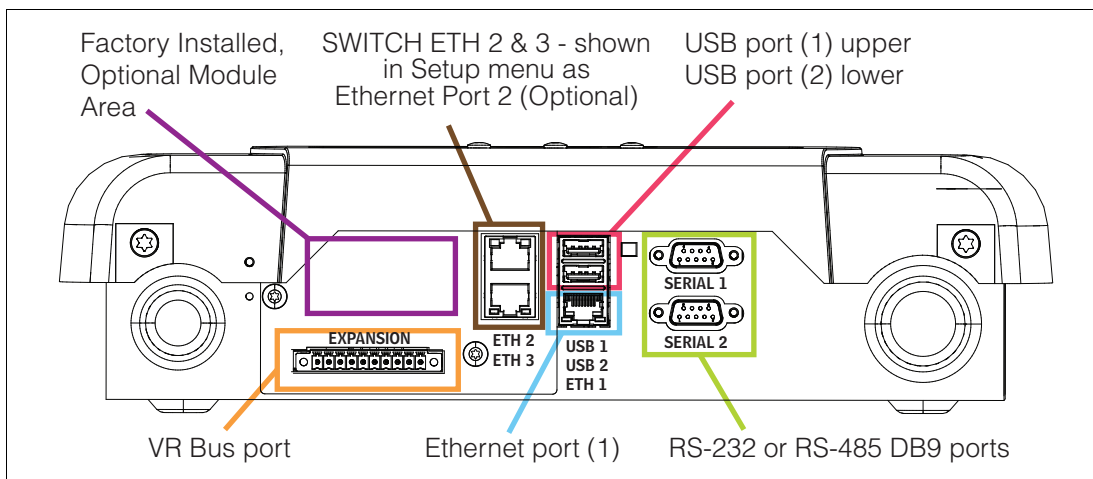
Figure 1.   TLS4 Comm Ports

TLS-450PLUS Comm Ports - Menu>Setup>Communication

Your console's available Comm Port configuration will depend on features ordered.
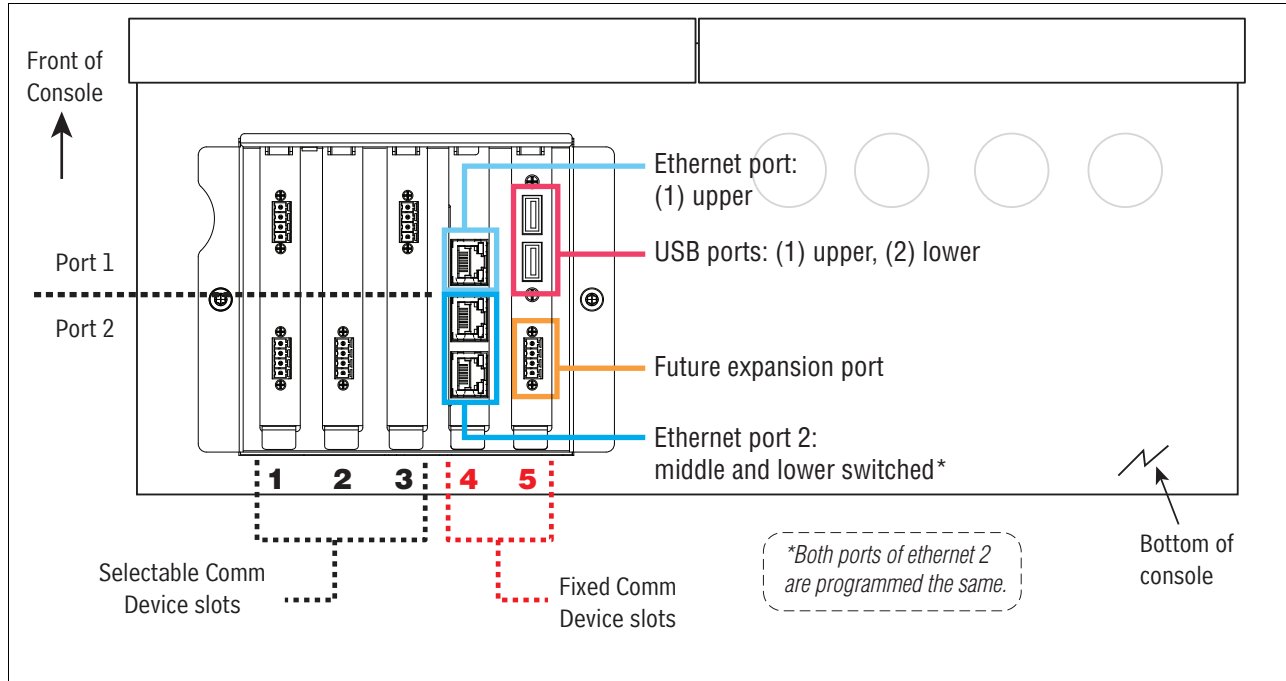
Figure 2. TLS-450PLUS Comm Ports

Alarm Limit Settings - Menu>Setup>Tank>Limits

The diagrams below show the relative position of tank alarm (Limit) settings. See "Setup>Tank>Limits" on page 27 for more information about tank alarm limits.
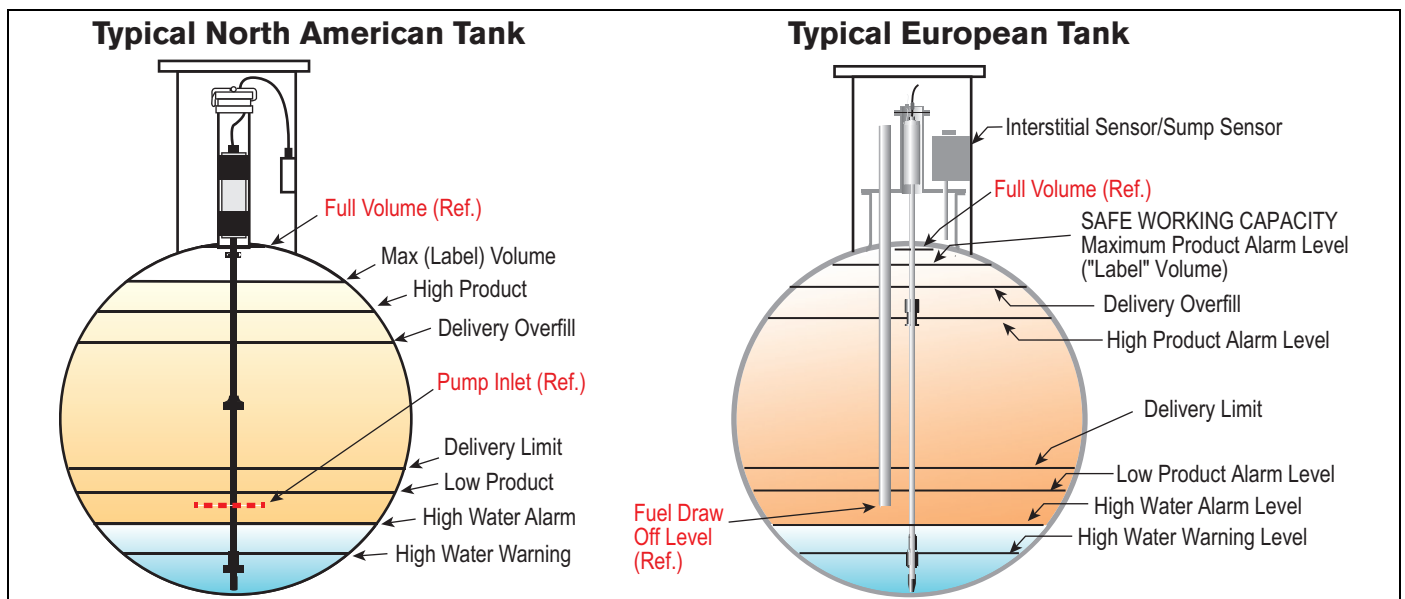
Security Login

If the console Security Feature is Enabled - Touch the Login button [Login] to open the login screen so you can login as a user:

Once the screen displays, log in to the system with your Username and Password. NOTE: If you do not log in, you are only permitted to view system status screens and to print out end-user reports.

Touch the Logout button [Logout] to log out of the console. NOTE: If the console is inactive for 15 minutes, the console will automatically log you out. You will need to log back in to access your user account.

Using On-Board Help - Actions>Help

Note: On-board help covers all console features, some of which may not be on visible/applicable if they were not ordered with your console.

To access On-Board Help touch the Actions icon then touch the Help icon .

Upon entering Help, the topic associated with the currently displayed screen will be visible. Repeatedly touch the side scroll bar up/down arrows to scroll through a topic. You can also drag and pan through a topic. Touch the 'X' in the right corner of the Help screen title bar to return to the TLS4/TLS-450PLUS screen you were viewing.

- To show or hide the help Table of Contents (TOC) pane on left side of screen - Tap the text (Show TOC or Hide TOC) with your finger.
- To expand ( ) or close ( ) a book - Touch the icon of the book once with your finger.
- To go to a topic ( ) within a book - Touch the book topic once with your finger.
- Touch the large scrollbar to the far right, and either move your finger up (to scroll down) or move your finger down (to scroll up).
- Repeatedly touch large scrollbar to the far right upper arrow to scroll up, or the down arrow to scroll down.

On-board Help Topics of Interest - Actions>Help>Show TOC
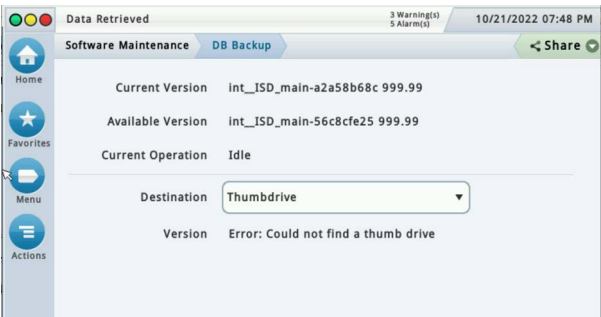
TOC Contents|
- Welcome
- Explanation of Screen Icons
- How to Use On-Screen Keyboard
- Using Touchscreen with Help
- Diagnostics
- Overview
- Reports
- Setup
- Software Maintenance
- System Administration
- Troubleshooting
- Configuration and Maintenance
- Reference Tables
- Understanding ATG

From the TOC you can find discussions on Screen Icons, using On-Screen Keyboard, and Touchscreen navigation. Additional support information can be found in the following TOC books:

- Configuration and Maintenance - This help book discusses Comm Ports, Initial Console Setup Sequence, and Periodic Maintenance recommendations.
- Reference Tables - This help book contains topics that cover a wide variety of useful information replaceable fuses, V-R acronyms, system device identifiers, tank tilt calculation information, DIM data, etc.
- Understanding ATG - This help book explains the fundamentals of automatic tank gauges (ATG) as implemented by Veeder-Root.

System Maintenance Screen Examples

Backup System Data - Menu>Software Maintenance>DB Backup

Insert your Fat 32 formatted thumb drive (minimum 4 GB) in a USB port and touch the down arrow in the Backup Destination field to select the thumb drive, then follow the on-screen instructions to backup console data.

You should perform a DB Backup weekly.
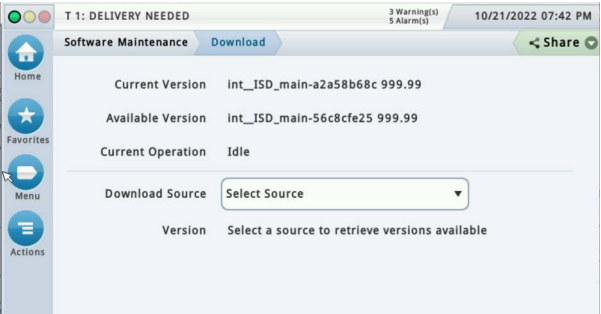
To View The Console's Software Version - Menu>Overview>About

This screen provides important information about your console's software version and installed features. If you should be experiencing problems with the console, please have the information on this screen available with you before contacting us.

The Veeder-Root Technical Support number is (800) 323-1799.

To Download Console Software - Menu>Software Maintenance>Download

Insert your valid upgrade thumb drive in a USB port and touch the down arrow in the Download Source field to select thumb drive, then follow the on-screen instructions to begin the download. Once the download process has completed, you must activate the software (see "Activate/Revert Screen (Menu＞Software Maintenance＞Activate/Revert)" on page 67).

Web-Enabled Console Access

Web-enabled Console Access allows users to use a Web browser to access many of the screens from a browser on your network. An example web-accessed home screen is shown below:
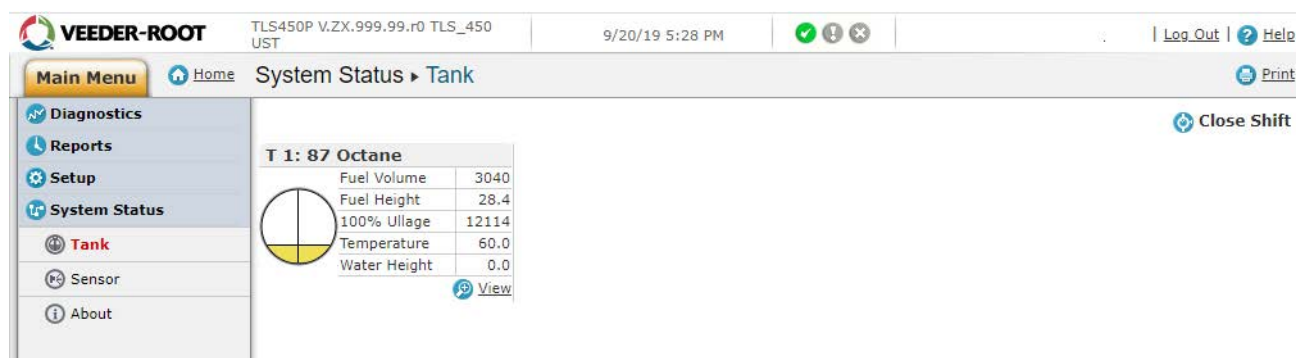
NOTICE **We advise that your IT department set up new users for Web access in System Administration > Users Admin with a username, password and appropriate role to access the screens.**

We also advise that your IT department enable Front Panel Security on the console in Setup > System > Security if you have not done so already.

1. Obtain the login information from your IT department. Generally, this is the IP address or machine name for the console, the port number used for HTTPS access, and the username and password used for Web-Enabled access.

2. Open a Web browser (i.e., Edge, Chrome, Fire Fox) that is on the same network as the console.In the address bar, type https:// and the address information given to you by your IT department. It will generally be in the format of https://y.y.y.y with "y.y.y.y" being the IP address for the console but may be https://y.y.y.y:z with "z" being the port number used for HTTPS Web access.

NOTICE **The port number may not be necessary, depending on your setup. If using any port other than the default of 443, you will need to specify the port as shown above.**

3. In most browsers, a warning screen will display. This warning screen is to alert you about the certificates associated with the console. In this case, because you know you will be connecting to a console on your network, you can proceed with the connection:

   • Chrome: Select Advanced, then select Proceed to y.y.y.y

   • Firefox: Select Advanced, then select Accept the Risk and Continue

   • Edge: Select More information, then select Go on to the webpage

4. Enter the username and password given to you by your IT department and click Sign In.

5. The Web-Enabled Home screen displays.

NOTICE **The web interface Touchscreen Calibration field (ref. Setup>Display>General screen) for TLS4 consoles produced prior to 2017 is now grayed out and no longer active.**

Web Access Troubleshooting

Cause	Action
Is access to the HTTPS Port enabled?	Contact your IT department to see if settings on Setup > System > Security for HTTP Port (Web Access) can be set to enabled.
Do you need additional information other than IP address?	Contact your IT department to see if you need different IP address, machine name or different port number instead of the IP address and/or port name you were given.
Can you "ping" the console from your device?	Use Ping from the command line prompt/Powershell to attempt to reach the console. If you can, contact your IT department to see if any settings can be adjusted for you to access the console.
Is there a communication breakdown from your device to the console?	Use Traceroute from the command line prompt/Powershell to locate the point where communication breaks. Contact your IT department with this information to allow them to troubleshoot the communication breakdown.
Is your software up to date?	Consider updating your console software to the latest version to take advantage of security updates.

Initial Setup Of The Console Using Workflow Wizard

After the console has been installed, the protective tab underneath the backup battery removed, power connected and all site monitored devices connected, apply power to the console and let it boot up.

Note that the this manual recommends you are accessing WW setup from the console GUI. Other setup interface methods vary in feature and accessibility options. Workflow Wizard steps through the TLS4/TLS-450PLUS setup screens in the V-R recommended sequence for initial setup of the console.

Touch Menu>Setup>Workflow Wizard>Setup Workflow (see Figure 3) to open the initial setup screen in Workflow Wizard shown in Figure 4.
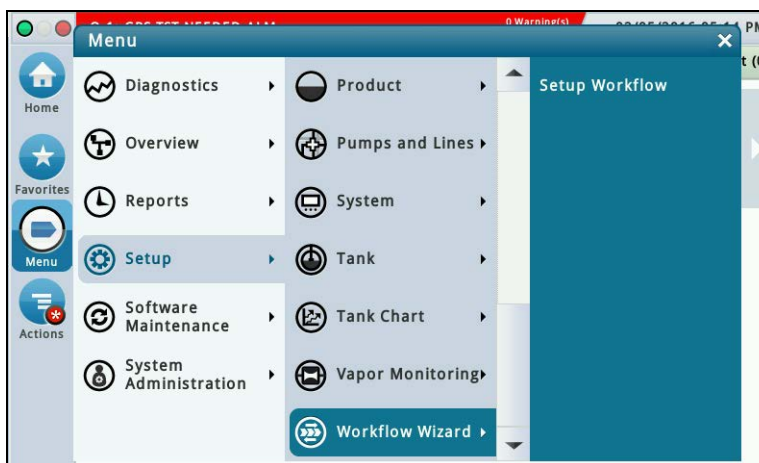
Figure 3.   Accessing Workflow Wizard Setup

Navigating Workflow Wizard is described in Figure 4. When you exit the Workflow Wizard app, or it times out, reentering the app always returns you to the initial screen. To return to the screen you were working on after exiting the app, touch the Next button repeatedly until the desired screen is displayed.

Once the console is setup and functioning and a screen needs modification, the user would likely use the standard quicker path (from the home screen) to the desired screen, e.g., Menu>Setup>etc>etc.

Setup>Display>Language/Units

Figure 4.   Language/Units Setup Screen

Setup>Date and Time

NOTICE **Prior to setting Date and Time on initial startup, you must remove the protective tab underneath the backup battery. This tab is yellow with an X printed on it. The battery can be found on the PC board inside the left front door of the console. Date and Time will not be entered correctly if this yellow tab is not removed.**

This screen lets you enter the current date and time for the console.

Current Date
Touch to enter current date.

Current Time
Touch each field to enter time.

Note: the default time format is 12 hour AM/PM (hh:mm AP). If 24 hour time is desired, enter the correct time on this screen then select hh:mm in the Time Format field in the next Workflow Wizard screen.

Note: Switching to and from Daylight Savings Time is automatic based upon your time zone entry below.

Time Zone
Touch and scroll to select local time zone.

NTP
Enables or disables the use of an NTP server to synchronize time on the console.

When the NTP Server is enabled to synchronize time, a clock icon [🕒] displays next to the Date and Time display on all screens.

NOTE: It may take a few minutes to reset the time when synchronizing the time to the NTP server, especially when the difference between the current time and the NTP time is large.

NTP Server
The address of the NTP server. This could be an IP address or a host name. Maximum 255 characters.

Status
The status of the NTP server from the current test

Time Synchronization
The fields below report information when NTP synchronization is active.

Stratum
A measure of the synchronization distance from the primary time source. For example, stratum 2 devices as synchronized with stratum 1 devices (primary time sources such as atomic and gps clocks). A higher number (approaching 16) may mean that the time source is less reliable.

Server
The server you are synchronized with. This may be different from the NTP Server field if you are using a "pool" of servers. This field indicates the server within the pool.

Offset
The difference between the local time and the NTP server time. A few seconds difference is normal.

Refresh
Allows you to refresh the Time Synchronization information (Stratum, Server, Offset) on this screen.

Testing the NTP Server

1. Enter an address in the NTP Server field.
2. Click the Test button.

A status message below this button indicates success or failure to connect to the NTP Server. If the test is not successful, try an alternate NTP Server address, check the connection on port 123*, and/or check the network connection to the server.

*The communication for the NTP server is on port 123. Be sure this port is not blocked by your router settings

Setup>Display>Date/Time Format

This screen lets you select the date and time format used in all screens and reports.

Date Format
Touch to enter desired date format.

Date Separator
Touch to enter desired date separator.

Time Format
Touch to select 24 hr time (hh:mm) or 12 hour AM/PM time (hh:mm AP).

Setup>Display>Number Format

This screen lets you select the numerical separators used in all screens and reports.

Decimal Separator
Touch to enter desired decimal separator.

Thousands Separator
Touch to enter desired thousands separator.

Setup>Headers

This screen lets you enter information to identify your site location, address, phone number, etc. This information appears on the top of most inventory and BIR reports. This screen also lets you enter a fax sender name and fax number when sending faxes.

Header 1 - 4
Touch to enter desired Site Name (1), Street (2), City and State (3) and Phone (4) - up to 20 characters each header.

Fax Sender Name
Touch to enter data printed at top of transmitted faxes from console - up to 30 alphanumeric characters.

Fax Phone Number
Touch to enter phone number to which the console will dial to send faxes - up to 40 digits.

Setup>System>Alarm Filtering

This screen lets you enable/disable Alarm Filtering which reduces the total number of alarms without compromising the reporting of critical alarms.

Site Shutdown Detect
[with Intelligent Pump Control]

Touch the appropriate radio button to Enable or Disable pump controller communication alarm filtering during site shutdown.

If enabled, pump controller communication alarms filtered so that when a site is shut down, only those communication alarms that were active prior to the shutdown remain active when the site is back up again. Communication alarms resulting only from the shutdown itself are filtered.

Alarm Filtering
When this feature is enabled, the console manipulates a combination of the detection time (the time before an alarm sounds) and the clear time (the time before an alarm is reset) for certain alarms that often go in and out of an alarm state in a short period of time. In addition, some alarm reports during the clear time are consolidated, reducing their number without eliminating the alarm reports.

Touch the appropriate radio button to Enable or Disable alarm filtering.

For a list of filtered alarms, open the Help Table of Contents and search for Alarm Filtering (in the 'Understanding ATG' Section).

Setup>Communication>System Hostname

This screen lets you specify and change the host name of this console (i.e., what the console is called on the customer's network, such as "MyTLSConsole").
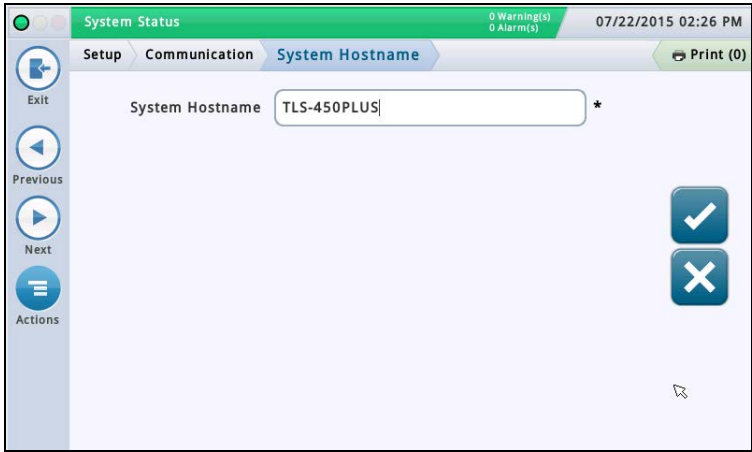
System Hostname

Touch to select the host name of the console as it appears on the customer's network, in this example TLS-450PLUS. The default host name can be changed to accommodate the customer's network needs.

A blank host name is not allowed. The host name may contain only ASCII letters 'a' through 'z' (case-insensitive), digits '0' through '9' and the hyphen '-' with no spaces or other characters allowed.

(Note: the console converts any uppercase letters in the host name to lower case when they are saved.)

Setup>Communication>Ethernet Port

This screen lets you configure the Ethernet port(s) which allows the console to access and be assessed on the local network. NOTE: Changes made in this screen may take 10 - 15 seconds before they take effect and then display on the screen. The fastest way to see changes is to accept the changes, go to the Home screen, then back to this screen. The default port selection is Ethernet Port 1. Note: Only configure the ports being used.

IP Address Type
Dynamic - An Ethernet comm device can have a different IP address every time it connects to the network. This address is usually administered by a network service such as DHCP (Dynamic Host Configuration Protocol).
Static [Default] - An Ethernet comm device will have a permanent IP address every time it connects to the network.

IP Address
[Field only available if IP Address Type is set to Static]
Enter an IP address that was provided by the customer's IT department .

IP Subnet Mask
[Field only available if IP Address Type is set to Static]
Default is 255.255.255.0 and is typical of console configurations. Do not change unless provided something different by the customer's IT department.

IP Gateway Address
[Field only available if IP Address Type is set to Static]
Enter a Gateway address that was provided by the customer's IT department.

IP Default Gateway
When set to Enabled, makes this Ethernet port the default pathway for outbound communications, such as email.

Primary DNS
[Field only available if 'IP Address Type' is set to Static]
Enter a Primary DNS address that was provided by the customer's IT department.

Secondary DNS
[Field only available if 'IP Address Type' is set to Static]
Enter a Secondary DNS address that was provided by the customer's IT department.

MAC Address
[Read-only field] Physical address of the Ethernet board and is automatically updated by the system (for example, 01:23:45:67:89:ab).

Serial Command Port
Address of serial port used for communications in the console (default port is 10001). If the customer is using port 10001 already for another device, you can select another port.
NOTES:
· Do not use ports 20001, 22, 80, or 443. These are used for other communication purposes within the console.
· Do not use ports 0 to 1029 which are reserved for security and other reasons.
· When the serial command port is disabled on the "Setup>System>Security" screen, the Serial Command Port field on this screen is not available.

SSH Port
A secure port that is required by the console to ensure protection on the communication side of the device. The default port is 22 and should not be changed unless advised by customer's IT department.
NOTE: Any changes to this field will affect the same field for the other Ethernet comm device (if one exists).

HTTPS port
A secure port used by the browser to ensure security on the browser's side of the device. The default port is 443 and should not be changed unless advised by customer's IT department.
NOTE: Any changes to this field will only affect the specific Ethernet port being programmed.
Changes to the HTTPS port will affect web enable access.

Serial Command Security
Enables or disables the requirement of entering a security code to make changes to the Ethernet comm ports.

Security Code
[Field available if Serial Command Security field is enabled]
Enter a security code (6 alphanumeric characters) that will be required to make any change to the Ethernet comm port(s).

ETX Characters Display
[Field enabled only if RSR 232 End of Message field is enabled]
End-Of-Text (ETX) character. ETX is programmable if enabled via the S53100f command. If it is disabled, the ETX is a fixed Control-C character (ASCII 03).

ETX Characters Computer
[Field enabled only if RSR 232 End of Message field is enabled]
End-Of-Text (ETX) character. ETX is programmable if enabled via the S53100f command. If it is disabled, the ETX is a fixed Control-C character (ASCII 03).

Setup>Communication>Internal Modem

This screen lets you configure the internal modem (TLS-450PLUS consoles only) which is used for data collection (Note: in the above example screen no internal modem is installed).

Configured

Determines if the internal modem is enabled or disabled.

Label

Name of the internal modem.

Baud Rate

Choices are: 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200. The default is 9600.

Byte Size/Data Bits

Choices are: 8 or 7

Parity

Choices are: Odd Parity, Even Parity, or None

Stop Bits

Choices are: 1 or 2

Use Handshaking

Choice is: No Handshaking

Modem Dial Type

Choices are: Tone or Pulse

Dial Tone Interval

Choose interval to wait if there is no dial tone: From 0001 to 9999 hours

Answer On

Choose answer on the number of rings selected: From 0 to 9

Dial In Config

Advanced setting. Leave blank unless directed by Support.

Dial Out Config

Advanced setting. Leave blank unless directed by Support.

Serial Command Security

Select Enable to require all incoming serial commands to have a security code.

Security Code

⌈Field available and required if Serial Command Security field is enabled⌉.

This the security code that all serial commands must have to be accepted by the console. Valid security codes must be exactly 6 digits (0 - 9) long.

RS232 End of Message

Enables or disables the End of Message RS232 protocol.

This protocol is used by third party devices that may want to interrogate the console for inventory or other related data. These devices require an End-Of-Text command that signals to the device when the communication string from the console ends.

Please refer to the customer's third party device for the type of code to enter in the ETX Characters Display and ETX Characters computer fields below.

ETX Characters Display

⌈Field enabled only if RSR 232 End of Message field is enabled⌉

End-Of-Text (ETX) character. ETX is programmable if enabled via the S53100f command. If it is disabled, the ETX is a fixed Control-C character (ASCII 03).

ETX Characters Computer

⌈Field enabled only if RSR 232 End of Message field is enabled⌉

End-Of-Text (ETX) character. ETX is programmable if enabled via the S53100f command. If it is disabled, the ETX is a fixed Control-C character (ASCII 03).

Setup>Communication>CDIM Port

DIM Protocol

This screen lets you configure the DIM protocol for the optional CDIM (Current Loop Dispenser Interface Module).This module is used by the system to collect dispenser transactions for the BIR feature.

Select a CDIM port from the icon list on the bottom of the screen that you want to configure.
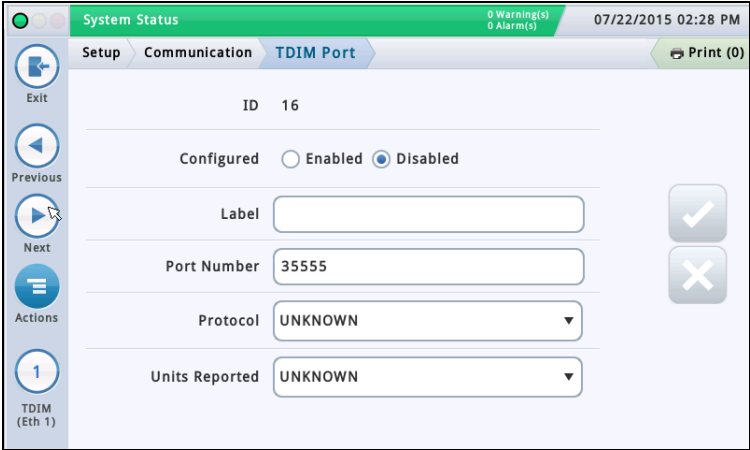
Touch to select a DIM Protocol. Choices are:
- Gilbarco CL
- Wayne CL
- Unknown

Setup>Communication>TDIM Port

This screen lets you configure the TCP/IP DIM (Dispenser Interface Module) port. This is used at sites where the console communicates to the dispensers via Ethernet (TCP/IP) instead of the typical serial communications pathway.

Select a TDIM port from the icon list on the bottom of the screen that you want to configure. Repeat the entry process for each TDIM Port.

Configured

Touch the radio button to enable or disable this port. NOTE: When the card is auto-detected, this field will be enabled but grayed out.

Label

Touch to enter a unique label (up to 20 alphanumeric characters) for the DIM device.

Port Number

Communications port number assigned to this device (default is 35555). Note: this port is known as the listening port.

Protocol

Touch to select applicable DIM protocol for your TDIM port. Choices are:

GilbarcoEDIM, VRProtocolDIM, or Unknown.

Units Reported

Touch to select units for this protocol. Choices are: U.S., Metric, or Imperial.

Setup>Communication>IFSF

This screen lets you configure communication based on International Forecourt Standards Forum (IFSF) standards for a TLS over TCP/IP or a LonWorks® card (LON Module). These international standards for petroleum retail facilitate the interoperability of service stations and equipment.

NOTE: A single console cannot support both TCP/IP and LON Module communications simultaneously, even though a site may have a mixed configuration on different consoles. The maximum number of tanks a site can support is 30.

Configured

Touch the radio button to enable or disable IFSF communication.

Device

The device used for communication. Choices are: LON Module (if installed) or Eth1 for Ethernet Port 1 (for TCP/IP), depending on your hardware configuration.

NOTE: On the TLS450PLUS, Ethernet Ports 2a and 2b are not available for IFSF configuration.

Protocol

The protocol used for IFSF. Standard is used when the LON Module is installed. IFSF-China1 is used in China. (Standard is the default).

Node Id

The ATG Node Identifier. Each IFSF tank gauge present on a network must have a unique node ID. The default is 01, but you can change it as required. This field is not available with the LON Module device option.

NOTE: With a LonWorks® card, the Node ID is set using the IFSF Node Address Dip Switch on the IFSF Interface Module during installation. Refer to the Console Troubleshooting section of the TLS-450PLUS Troubleshooting manual (P/N 577014-075) or the Troubleshooting section of the TLS4 / 8601 Series Consoles Troubleshooting manual (P/N 577014-058), as appropriate, for more information on IFSF module cable connector assembly and Node ID switch settings.

UDP Port

The port used for User Datagram Protocol (UDP) communication. The default is 3486, but this field can be edited if you need to use a different port (1024-65535). This field is not available with the LON Module device option.

TCP Port

The port used for Transmission Control Protocol (TCP) connection requests. The default is 9000, but this field can be edited if you need to use a different port (1024-65535). This field is not available with the LON Module device option.

Setup>Communication>Serial Port

This screen lets you configure the serial ports which may be used for data collection or diagnostics purposes. Select a serial port from the icon list on the bottom of the screen that you want to configure. Repeat the entry process for each Serial Port.

Configured

Touch to enable or disable the Serial Port.

Label

Touch to enter a name for this port.

Usage

Touch to select the type of communication card (board) in the console

Choices are: RS-232, RS485, EDIM, SATELLITE HJBOX, SATELLITE SSAT, VMCI, DIGICOM GSM, IPC COMMS

Protocol (only visible if EDIM is selected for Usage)

Touch to select applicable DIM protocol for your EDIM port.

Choices are: Unknown, GilbarcoEDIM, VRProtocolDIM, Sinopec EDIM, Tidel EDIM.

Baud Rate

Touch to select the communication data rate of this serial port. Choices are: 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200. The default is 9600.

Stop Bits

Choices are: 1 or 2

Byte Size/Data Bits

Choices are: 8 or 7

Parity

Choices are: Odd Parity, Even Parity, or None

Use Handshaking

Choice is: No Handshaking, RTSCTS or XON XOFF

Serial Command Security

Select Enable to require all incoming serial commands to have a security code.

Security Code

[Field available and required if Serial Command Security field is enabled].

This the security code that all serial commands must have to be accepted by the console. Valid security codes must be exactly 6 digits (0 - 9) long.

RS232 End of Message

Enables or disables the End of Message RS232 protocol.

This protocol is used by third party devices that may want to interrogate the console for inventory or other related data. These devices require an End-Of-Text command that signals to the device when the communication string from the console ends.

Please refer to the customer's third party device for the type of code to enter in the ETX Characters Display and ETX Characters computer fields below.

ETX Characters Display

[Field enabled only if RSR 232 End of Message field is enabled]

End-Of-Text (ETX) character. ETX is programmable if enabled via the S53100f command. If it is disabled, the ETX is a fixed Control-C character (ASCII 03).

ETX Characters Computer

[Field enabled only if RSR 232 End of Message field is enabled]

End-Of-Text (ETX) character. ETX is programmable if enabled via the S53100f command. If it is disabled, the ETX is a fixed Control-C character (ASCII 03).

Setup>Communication>SMTP Relay

The system supports Simple Mail Transfer Protocol (SMTP), an Internet standard for email transmission. This screen lets you configure this feature, which allows the console to act as a mail client, using SMTP to send messages to a mail server.

NOTES: Sender Email Address, System Hostname, SMTP Relay and SMPT Server Password must be provided by the ISP (Internet service provider).

Sender Name

Touch to enter the name that will display as the sender of the email. Maximum of 40 characters.

Sender Email Address

Touch to enter valid sender's email address (using the standard format, such as technical-support@veeder.com). Maximum of 254 characters.

This entry specifies the originating email address. It also appears in the 'From:' header field within the email message.

NOTE: If you leave this field blank, the email message is set to the Linux account on the console that is sending email, followed by @[hostname].[domainname](your hostname and domain name).

Use System Hostname

If enabled, the system hostname is used and is displayed below. If disabled, you can enter a valid hostname in the field below. The default is enabled.

Sender Hostname

Touch to enter the name that is sent to the SMTP server (used for SMTP tasks such as connecting remote mail servers). Some mail servers require a valid Internet hostname when other mail servers connect. Usually this the hostname that your IP address resolves to and would be included in the information from your ISP. It should never be the domain name or the relayhost name.

Email Relay Enabled

If enabled, SMTP is used for email and the following fields are available:
• Relayhost/Smarthost
• Relayhost/Smarthost Port
• Authentication Type
• Relayhost/Smarthost Server User NDame
• Relayhost/Smarthost Password
• Require Relay SSL
If disabled, the fields are not available.

Relayhost/Smarthost

Touch to enter the IP address or hostname of the SMTP server/relay host that the console is attempting to connect with. When this field is used, all mail is forwarded through this host and not sent directly to recipients. NOTE: a URL is not valid for this field.

SMTP uses this field to determine the appropriate Internet destination. Some ISPs block email traffic until it is sent through their mail server.

Relayhost/Smarthost Port

The port on the server where the email should be sent. This field is populated when the SMTP server is entered. The default port number is 25.

NOTE: if the 'Relay Requires SSL' field below is enabled, this port number should be 465 or 587.

Authentication Type

Touch to enter the type of SMTP authentication that is required by the remote server:
• **No Authentication** - no username and password is required.
• **CRAM MD5** - secure transmission of username and password.
• **Plain** - The username and password are sent as human-readable text to the server (without encryption).
• **Login** - The username and password are sent as human-readable text to the server (without encryption).
NOTE: you should select the most secure method allowed by your server. Check with your ISP if you have questions.

Relayhost/Smarthost Server User Name

Touch to enter the server name for authentication - maximum 60 characters.

Relayhost/Smarthost Password

Touch to enter the server password or 'shared secret' for the server - maximum 25 characters.

Relay Requires SSL

When enabled it forces the use of SSL encryption for the entire session when communicating with the server.

Generally this should not be enabled (checked) because the console will automatically use SSL encryption if the server supports it. It should be enabled only for older email servers where the entire communication must be wrapped in SSL.

This selection should not be enabled for modern servers that negotiate encryption after connecting or the connection will fail. If the Relayhost/Smarthost Port number is 25 (default), this selection should not be enabled.

Setup>Devices

The Setup>Device screens let you configure each of the monitored devices that is connected to the console (probes, sensors, relays, external inputs) and (LVDIM/MDIM modules - TLS-450PLUS only).
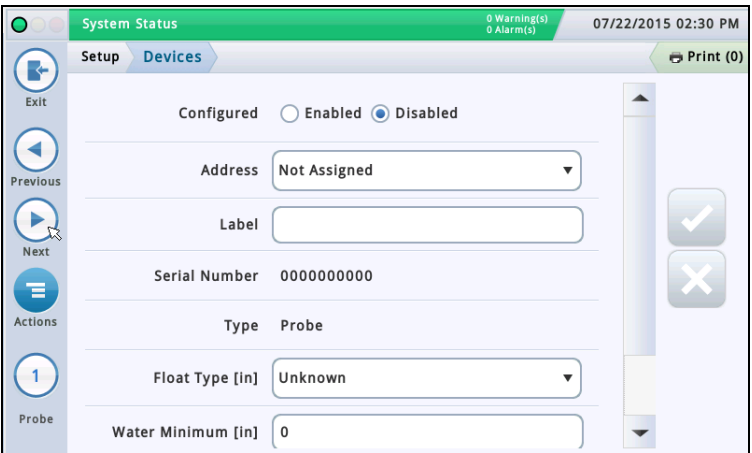
Selecting A Device Type

Initially the first device type to be displayed in Workflow Wizard setup is Probe 1. To select another probe, touch the probe 1 button on the lower left of the screen and select the desired probe from the icon list along the bottom of the probe device screen. To select another device type, use the touch sequence shown in the illustration below to view the device matrix, then touch the desired device type button to open that device's setup screen.
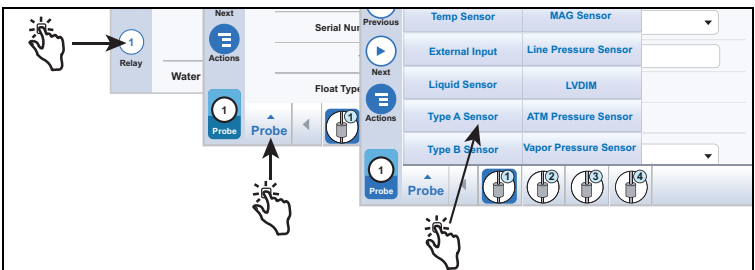
Selecting A Device Address

IMPORTANT! You must know to which console connector a device is wired to select the correct address for that device. Some general rules discussed below concern device addresses.

TLS4 Consoles

Probes/Sensors connected to the console will display the following address code in the Address Field: B1:S1:X, where x is the connector input to which the device is attached (from 1 to 16). NOTE: 3-wire sensors require three connector inputs (2 '+' channels and 1 '−' channel) so each 3-wire sensor takes up two of the available intrinsically safe ports and uses two addresses (see 2- and 3-wire connection examples below):
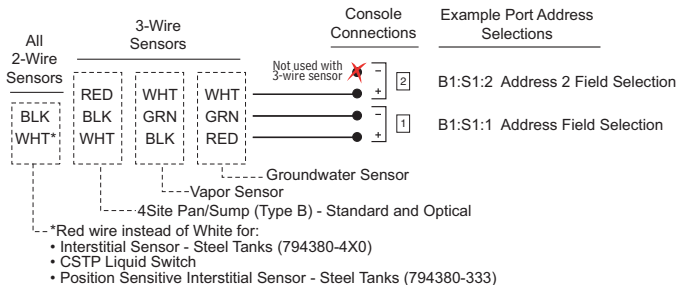
Relay will display the following possible address codes in the Address Field: B1:S1:X, where X = 14 (relay connector input 1) or 15 (relay connector input 2).

External Input will display the following possible address codes in the Address Field: B1:S1:X, where X = 12 (Ext. Input connector input 1) or 13 (Ext. Input connector input 2).

TLS-450PLUS Consoles

Probes/Sensors connected to the console will display the following possible address ports in the Address Field: Bx:Sx:X, where Sx is the slot in which the USM module is installed (from 1 to 4) and X is the connector input to which the device is attached (from 1 to 16). NOTE: 3-wire sensors require three connector inputs (2 '+' channels and 1 '−' channel) so each 3-wire sensor takes up two of the available intrinsically safe ports and has two addresses (**Address** field and **Address 2** field (see 3-Wire Sensor Addresses Example illustration above).

Relays connected to the I/O module will display the following possible address codes in the Address Field: Bx:Sx:X, where Sx is the slot in which the I/O module is installed (from 1 to 4) and X is the connector input to which the device is attached (from 5 to 9). Note: The relay address Bx:S7:1 refers to the single input Power Bay relay which, if used, would connect to the site's Overfill Alarm.

Relays connected to a 10 AMP Controller module will display the following possible address codes in the Address Field: Bx:S4x:X, where S4 is the only slot in which the 10 AMP Controller module is installed and X is the connector input to which the device is attached (from 1 to 6).

External Inputs connected to the I/O module will display the following possible address codes in the Address Field: Bx:Sx:X, where Sx is the slot in which the I/O module is installed (from 1 to 4) and X is the connector input to which the device is attached (from 1 to 4 and 10 to 14).

External inputs connected to a 10 AMP Controller module will display the following possible address codes in the Address Field: Bx:S4x:X, where S4 is the only slot in which the 10 AMP Controller module is installed and X is the connector input to which the device is attached (from 7 to 12).

LVDIM inputs connected to the console will display the following possible address codes in the Address Field: Bx:Sx:X, where Sx is the slot in which the LVDIM module is installed (from 1 to 4) and X is the connector input to which the device is attached (from 1 to 12).

MDIM inputs connected to the console will display the following possible address codes in the Address Field: Bx:Sx:X, where Sx is the slot in which the MDIM module is installed (from 1 to 4) and X is the connector input to which the device is attached (from 1 to 12).

Setup>Devices - Continued

PROBE SETUP

Set up each probe being monitored before selecting the next device type.

Configured

Touch the radio button to enable or disable configuration of the selected probe.

NOTES:

⚠

- **Do not enable probe configuration until its address is assigned!**
- Once enabled, do not disable a probe if it is assigned to a tank. (see Setup > Tank > General).

Address

Touch and select the address of this probe.

Label

Touch to enter a description of this probe (up to 20 alphanumeric characters) that will appear on the console screens and in reports.

Serial Number

[Read Only] Console auto-detected serial number of this device.

Type

[Read Only] Console auto-detected type of this device.

Float Type

Installed Mag probe float type (the console will display only the applicable float size options for this device). For example, depending on the probe installed the float sizes below could display in the drop down list:

• 4.0 in	• 4.0 in phase separation	• 3.0 in
• 2.0 in non-density water float	• 2.0 in standard - standard density water float (1.5 inch minimum water level)	• 2.0 in low water- low water density water float (1 inch minimum water level)
• Custom		

NOTES:

- If the probe is changed and the previous float is supported by the new probe, the float assignment will remain the same. Otherwise the default float will be assigned to the new probe.
- Only select **Custom** if the literature that was shipped with probe float kit specifically states that you must choose this Float Type. Currently only three mag probes use Custom Float Types: Chem-ISO mag probes, LPG-ISO mag probes and the Mag-FLEX probe with low level water floats.

  When **Custom** float type is selected, the Fuel Offset, Water Offset, Water Minimum and Invalid Fuel parameter fields below are enabled for edit. Refer to the appropriate installation kit manual for these entries (see "Related Documents" on page 1).

  Fuel Offset - Touch to enter the Fuel Offset value listed in the appropriate kit manual (577013-770, 577013-773 or 577014-056)(Custom Float Type only).

  Water Offset (Mag-FLEX probes with Low Level Water Float only) - Touch to enter the Water Offset value listed in the 577014-056 manual.

  Water Minimum (Mag-FLEX probes with Low Level Water Float only) - Touch to enter the Water Minimum value listed in the 577014-056 manual.

  Invalid Fuel - Touch to enter the Invalid Fuel value listed in the appropriate kit manual (577013-770, 577013-773 or 577014-056).

Density Code

This field stores specifications for a density probe. It must be exactly 14 characters, and is composed of four parts as described below:

The density code has the following format: FGGGGGGGMMMMMDDD, e.g., B7053686719512, and is impressed in the float body (see image below).

Where:

F = Fuel Type: A for gasoline and B for diesel.

Using the example density code above: B = Diesel, **G** = Gauss

The last two digits are the gauss readings for each magnet in the density float. The prefix is always 7 and is omitted from the density code.

Using the example density code above:

70 Gauss = 7<u>7.0</u> for top magnet in grams

53 Gauss = 7<u>5.3</u> for middle magnet in grams

68 Gauss = 7<u>6.8</u> for bottom magnet in grams

M = Mass

The last four digits of the mass of the float. The prefix is always 1 and is omitted from the density code.

Using the example density code above:

6719 = Mass of 1<u>6.719</u> grams

D = Density of the float

The prefix is dependent on the fuel type and is omitted from the density code. A = 7 (gasoline) and B = 8 (diesel).

Using the example density code above:

512 = density of 8<u>51.2</u> kg/m^3 for a fuel type of diesel.

NOTE: If you change the Density Code, the Density Offset History is cleared and current Density Offset is set to zero. See Diagnostics> Probe>Density Offset screen for details on console density values.

Density Float Serial Number

Touch this field to enter the density float's serial number.

NOTE: if you change the density float serial number, the Density Offset History is cleared and the current Density Offset is reset to zero.

The density float serial number has the following format - yywwxxxx, e.g., 13240161, and is impressed in the float body (see image below).

Where;

YY = the last two digits of the year it was manufactured'

WW = the number of the week it was manufactured,

XXXX = a unique integer for the density float

Example Serial Number
S/N: 13240161
B7053686719512
Example Density Code
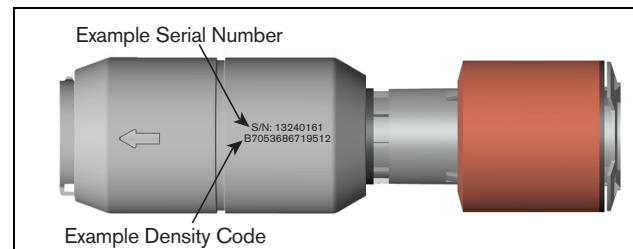
Setup>Devices - Continued

RELAY SETUP

Set up each relay being monitored before selecting the next device type.

Configured

Touch the radio button to enable or disable configuration of the selected relay.

Address

Touch and select the address of this relay.

Label

Touch to enter a description of this relay (up to 20 alphanumeric characters) that will appear on the console screens and in reports.

Relay Type

Touch to select relay type:

- **Standard** - On/Off state is determined by assigned alarms or warnings.
- **Momentary** - On/Off state is determined by the assigned alarms or warnings (relay returns to the inactive state after the alarm is acknowledged).
- **Pump Control Output** - Relay state is controlled by the console pump/line controller.
- **Pump Comm Control** - A relay that connects/breaks the communication with IQ Control Boxes. It is used during some PLLD tests. The IQ Control Box must be set to Manual PLLD mode.

    When there is pumping on the line in normal operation, the relay is closed, and the IQ Control Box can request the assistance from another pump (Helper Mode).

    The PLLD gross test (3.0 gph/11.3 lph) is a "pump-off test" so the relay is also closed during this test.

    However, when a PLLD precision test (0.2 gph/0.76 lph or 0.1 gph/0.38 lph test) begins, the relay is opened to prevent the IQ Control Box from requesting help from another pump while the test is running.

    This relay is assigned in Setup > Pumps and Lines > PLLD.

- **Vapor Processor** - Used for Vapor Management with a Vapor Processor (HIRT). The relay is used to switch the Vapor Processor On or Off.
- **Temperature Control** - Relay state is controlled with temperature sensor(s). If used for Temp Control, additional setup in Setup > Temp control is necessary.
- **HydrXTM** - HydrX relays are used to control the inlet and outlet valves of the HydrX System.
- When the HydrX relay type is selected, the orientation is set to Normally Open automatically, and cannot be modified.

Relay Orientation

Touch to select relay orientation:

- Normally Open
- Normally Closed

EXTERNAL INPUT SETUP

Set up each external input being monitored before selecting the next device type.

Configured

Touch the radio button to enable or disable configuration of the selected external input.

Address

Touch and select the address of this external input.

- **Label -** Touch to enter a description of this external input (up to 20 alphanumeric characters) that will appear on the console screens and in reports.

EXTERNAL INPUT SETUP (Continued)

- **Type -** Touch to select external input type:
- **Standard** - Generates an external input alarm when it is active.
- **Generator** - Generates the ON and OFF messages for CSLD on a generator.
- **Pump Sense** - Indicates the On/Off state and the state of hook signal for a dispenser and also is used to configure the PLLD and Recirculation features.
- **Acknowledge Alarm** - External Input is used as an ALARM/TEST key (for example, a remote push button) and also generates the external input alarm.
- **Vapor Processor** - Used for Vapor Management with a Vapor Processor (HIRT and ARID Permeator). Indicates a fault from the Vapor Processor.
- **Pump Relay Monitor** - Generates a pump relay alarm when the console suspects a relay is stuck closed or when the pump has been running continuously for a period exceeding the Max Run (set in Setup > Pumps and Lines > Pumps).
- **Vapor Processor 2** - Used for Vapor Management with a Vapor Processor (ARID Permeator). Indicates that a Vapor Processor is active.

Orientation

Touch to select External Input orientation:

- Normally Open
- Normally Closed

TEMPERATURE SENSOR SETUP

Set up each temperature sensor being monitored before selecting the next device type.

Configured

Enables or disables this device.

Address

Address of device (select from drop-down list of available addresses).

Label

Description of this device (up to 20 alphanumeric characters) that appears on console screens and reports.

Model

Sensor model. Select a model from the drop down list of compatible models.

LIQUID SENSOR SETUP

Set up each liquid sensor being monitored before selecting the next device type.

Configured

Touch the radio button to enable or disable configuration of the selected liquid sensor.

Address

Touch and select the address of this liquid sensor.

Label

Touch to enter a description of this liquid sensor (up to 20 alphanumeric characters) that will appear on the console screens and in reports.

Model

Touch and select the model of this liquid sensor:

- **Tri-State (Single Float)** - Single float, liquid sensor.
- **Normally Closed** - Liquid sensor whose normal state is closed, and activates an alarm when it is in an open state (NOT recommended).
- **Dual Point Hydrostatic** - Liquid sensor used in liquid-filled, double-wall tanks.

Setup>Devices - Continued

LIQUID SENSOR SETUP (Continued)

- **Dual Float Discriminating** - Liquid sensor with two floats, discriminates between water and fuel, generally used in containment sumps.
- **Dual Float High Vapor** - Liquid sensor with two floats. In High Vapor Mode, a Fuel alarm is posted only if a High liquid or a Liquid Warning condition also exists. Generally used in containment sumps.
- **Interceptor Sensor** - European type, liquid sensor.

Category

Touch to select liquid sensor category:

- Other • Annular Space • Dispenser Pan • Monitoring Well •STP Pump
- Piping Sump • Spill Bucket •Containment Pump •Vapor Bucket

TYPE A SENSOR (2-WIRE CL) SETUP

Set up each Type A sensor being monitored before selecting the next device type.

Configured

Touch the radio button to enable or disable configuration of the selected Type A sensor.

Address

Touch and select the address of this Type A sensor.

Label

Touch to enter a description of this Type A sensor (up to 20 alphanumeric characters) that will appear on the console screens and in reports.

Model

Touch and select the model of this Type A sensor:

- **Discriminating Interstitial** - Discriminating sensor used in dry, double-wall tanks.
- **Ultra 2** - Older version of discriminating sensor used in dry, double-wall tanks.

Category

Touch to select Type A sensor category:

- Other • Annular Space • Dispenser Pan • Monitoring Well •STP Pump
- Piping Sump • Spill Bucket •Containment Pump •Vapor Bucket

TYPE B SENSOR (3-WIRE CL) SETUP

Set up each Type B sensor being monitored before selecting the next device type.

Configured

Touch the radio button to enable or disable configuration of the selected Type B sensor.

Address

Touch and select address 1 of the 3-wire Type B sensor.

Label

Touch to enter a description of this Type B sensor (up to 20 alphanumeric characters) that will appear on the console screens and in reports.

Address 2

Touch and select the next sequential address for the third wire of the Type B sensor (e.g., if the **Address** field above is B1:S2:2, then this address should be B1:S2:3).

TYPE B SENSOR (3-WIRE CL) SETUP (Continued)

Model

Touch and select the model of this Type B sensor:

- **Ultra/Z-1** - 4Site Pan/Sump - Standard.
- **Ultra/Z-1 HV** - 4Site Pan/Sump - High Vapor.

Category

Touch to select Type B sensor category:

- Other • Annular Space • Dispenser Pan • Monitoring Well •STP Pump
- Piping Sump • Spill Bucket •Containment Pump •Vapor Bucket

MAG SENSOR SETUP

Set up each Mag sensor being monitored before selecting the next device type.

Configured

Touch the radio button to enable or disable configuration of the selected Mag sensor.

Address

Touch and select the address of this Mag sensor.

Label

Touch to enter a description of this Mag sensor (up to 20 alphanumeric characters) that will appear on the console screens and in reports.

Serial Number

［Read Only］Console auto-detected serial number of this Mag sensor.

Alarm Delay

Touch to enter the time in hours following the triggering of un-cleared warnings before they are upgraded to alarms.

Water Alarm

Touch to enter the height at which this Mag sensor will activate the water alarm.

Water Warning

Touch to enter the height at which this Mag sensor will activate the water warning.

GROUNDWATER SENSOR SETUP

Set up each groundwater sensor being monitored before selecting the next device type.

Configured

Touch the radio button to enable or disable configuration of the selected groundwater sensor.

Address

Touch and select address 1 of the 3-wire groundwater sensor.

Label

Touch to enter a description of this groundwater sensor (up to 20 alphanumeric characters) that will appear on the console screens and in reports.

Address 2

Touch and select the next sequential address for the third wire of the groundwater sensor (e.g., if the **Address** field above is B1:S2:4, then this address should be B1:S2:5).

Category

Touch to select this groundwater sensor category:

- Other • Annular Space • Dispenser Pan • Monitoring Well •STP Pump
- Piping Sump • Spill Bucket •Containment Pump •Vapor Bucket

Setup>Devices - Concluded

<table>
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VAPOR SENSOR SETUP

Set up each vapor sensor being monitored before selecting the next device type.

Configured

Touch the radio button to enable or disable configuration of the selected groundwater sensor.

Address

Touch and select address 1 of the 3-wire vapor sensor.

Label

Touch to enter a description of this vapor sensor (up to 20 alphanumeric characters) that will appear on the console screens and in reports.

Address 2

Touch and select the next sequential address for the third wire of the vapor sensor (e.g., if the Address field above is B1:S2:6, then this address should be B1:S2:7).

Threshold

Touch to enter the vapor level which identifies a leak or serious spillover and that triggers the vapor alarm. Thresholds are in ohms and must be calculated for each vapor sensor (see Vapor Sensor Threshold topic for determining value).

Category

Touch to select this vapor sensor category:
- Other • Annular Space • Dispenser Pan • Monitoring Well • STP Pump
- Piping Sump • Spill Bucket • Containment Pump • Vapor Bucket

LINE PRESSURE SENSOR SETUP

Set up each line pressure sensor being monitored before selecting the next device type.

Configured

Touch the radio button to enable or disable configuration of the selected line pressure sensor.

Address

Touch and select the address of this line pressure sensor.

Label

Touch to enter a description of this line pressure sensor (up to 20 alphanumeric characters) that will appear on the console screens and in reports.

Serial Number

［Read Only］Console auto-detected serial number of this line pressure sensor.

ATM PRESSURE SENSOR SETUP

Set up each ATM pressure sensor being monitored before selecting the next device type.

Configured

Touch the radio button to enable or disable configuration of the selected ATM pressure sensor.

Address

Touch and select the address of this ATM pressure sensor.

</td>
<td>

Label

Touch to enter a description of this ATM pressure sensor (up to 20 alphanumeric characters) that will appear on the console screens and in reports.

Serial Number

［Read Only］Console auto-detected serial number of this ATM pressure sensor.

VAPOR PRESSURE SENSOR SETUP

Set up each vapor pressure sensor being monitored before selecting the next device type.

Configured

Touch the radio button to enable or disable configuration of the selected vapor pressure sensor.

Address

Touch and select the address of this vapor pressure sensor.

Label

Touch to enter a description of this vapor pressure sensor (up to 20 alphanumeric characters) that will appear on the console screens and in reports.

Serial Number

［Read Only］Console auto-detected serial number of this vapor pressure sensor.

LVDIM/MDIM SETUP (TLS-450PLUS only)

Configured

Touch the radio button to enable or disable configuration of the selected LVDIM/MDIM input.

Address

Touch and select the address of this LVDIM/MDIM input.

Label

Touch to enter a description of this LVDIM/MDIM input (up to 20 alphanumeric characters) that will appear on the console screens and in reports.

Unit Conversion

Touch to select US, Imperial, or Metric units.

Pulse Conversion

Touch to select the number of pulses per unit volume.

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</table>

Setup>Vapor Monitor>General

This screen allows you to select the Assessment Time, a vapor pressure sensor, and settings for vapor management. This is applicable for ISD/PMC.	**Assessment Time** Specifies the time when the vapor assessment is scheduled to begin using the last 24 hours of data. The default is 11:59 p.m. **Communications Timeout** ［Available with a vapor monitor controller (VMC) and at least one VMCI process must be enabled and one VMC is configured.］ The number of hours that the VMC was not communicating with the console before a communications alarm is posted. The range is 0-99 hours and the default is 6.
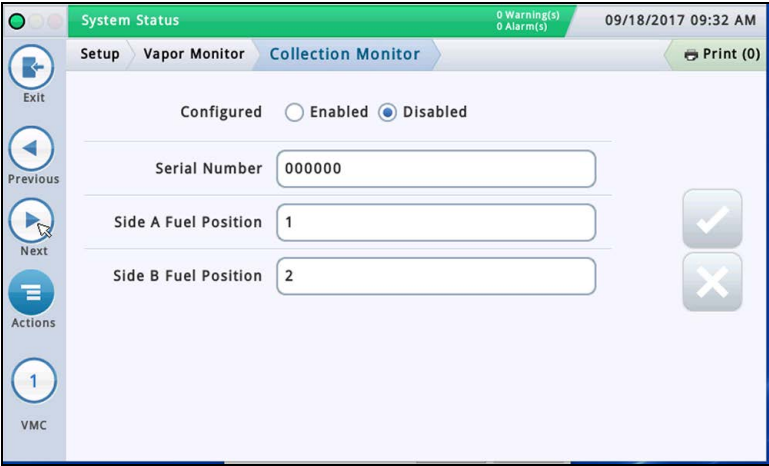
Setup>Vapor Monitor>Collection Monitor

［Available with Vapor Pressure Monitor］ This screen lets you configure the sensors used in the optional vapor monitor controller (VMC) that can be installed in each dispenser. Each VMC contains two sensors, 'A' for one side of the dispenser, and 'B' for the other side of the dispenser. These sensors monitor the vapor return from the vehicle's fuel tank (displaced by the fuel being dispensed into it) and calculate an air to liquid fuel (A/L) ratio. With this information, you can determine if a hose is blocked. **Selection Criteria** Select the VMC sensor from the icon list on the bottom of the screen that you want to configure.	**Configured** Enables/disables the sensor. **Serial Number** Serial number (six-digit) of the VMC (taken from label on VMC housing). If the serial number on the housing is less than six digits, add leading zeros to pad the number to exactly six digits when entering the number in this field (i.e., if the serial number is 1234, enter 001234.) **Side A Fuel Position** Fuel position on dispenser where Side A sensor is measuring. **Side B Fuel Position** Fuel position on dispenser where Side B sensor is measuring.

Setup>BIR>General

In this screen you set up reconciliation parameters for your inventory reports if the BIR function is enabled (ref. "Meter Data Present" on page 29).

Product Threshold Alarm

Touch to enable an alarm that is triggered when your periodic reconciliation data exceeds a preset product threshold value (see Setup > BIR > Threshold Alarms for details about this alarm).

Daily Close Time

Touch to enter a time when you want the system to store the data for the current day (default is 02:00 AM).

BIR needs approximately 2-5 minutes of quiet time to generate a report. Because 2:00 AM is normally the quietest time of the day, we recommend using that time (unless there is a business need to do it at another time).

Week Close Day

Touch to enter the Day of the week when you want the system to store the data for the current week (used in weekly reports).

Alarm Threshold Delivery Type

Touch to select how the BIR variance amount is calculated:

- **Standard** - does not use delivery receipts in the BIR variance amount calculation.
- **Ticketed Delivery** - uses delivery receipts in the BIR variance amount calculation. Select this if the ticketed delivery feature is enabled in the Setup>Delivery screen.

Temperature Compensation

Touch to enter the method for calculating BIR volumes:

- **Standard** - use when the meters are not temperature compensated (TC).
- **TC Volume** - use when meters are temperature compensated (TC).

Meter Calibration Offset %

If you have meters that require a calibration offset, use this field to enter a meter calibration % to compensate (applies to all dispenser meters and is used in the calculated dispensed amount). For most domestic (US) sites, the default of 0% is fine.

BIR Status Warning Enable

Touch the radio button to enable or disable the posting of this warning when conditions occur that may impact the reconciliation variance (such as meter map incomplete, meter map unstable, invalid fuel height, probe out, tank chart changed, DIM queue overrun).

BIR Daily Close Warning Enable

Touch the radio button to enable or disable the posting of this warning when the BIR daily close cannot occur at the scheduled time.

BIR Shift Close Warning Enable

Touch the radio button to enable or disable the posting of this warning when the BIR shift close cannot occur at the scheduled time (a BIR shift close could be delayed when a delivery is in progress, a dispense is in progress, the station is too busy, etc.).

Setup>BIR>Threshold Alarm

In this screen you can configure up to four reconciliation alarms per tank based on Through-put, Capacity, Deliveries and Fixed Values. You can also select a specific test method that will be used to post the selected threshold alarm. The choices in this screen are only allowed if the Product Threshold alarm is enabled in the "Setup>BIR>General" screen above.

Test Type
Touch to select a monitoring period option for the selected test protocol:

- **Disabled** - Test is disabled.
- **Monthly** - Threshold is compared against the monthly variance summation over a calen-dar month. This test is performed monthly and generates one report per monitoring period.
- **Rolling** - Threshold is compared to the variance summation over the defined number of days you enter in the Rolling Days field. The test is performed daily, but a single report is generated at the end of the monitoring period (i.,e., the Rolling Days entry).
- **Daily** - Daily variance is compared to the threshold.This test is performed daily and a report is generated daily.
- **Rolling Consecutive** - Rolling Consecutive monitors the variance during the period entered in the Rolling Days field. The first report is generated at the end of the monitored Rolling Days period. Thereafter, a report is generated each day for the monitored Rolling Days period. For example, you select Rolling Consecutive test type and enter 10 in Rolling Days field. The test starts March 1. On March 10 a report is generated for days March 1 - March 10. On March 11 the next report is generated for days March 2 - March 11 (the Roll-ing Days period), and so on, each report covering the last 10 days.

Rolling Days
[Only available when Rolling Consecutive is chosen above] Touch to enter the number of rolling days.

Throughput
Touch the radio button to enable or disable this threshold alarm.

% - Touch to enter the percentage amount of metered sales or throughput (typically 1%).

Volume Offset - Touch to enter the offset amount (e.g., 130 gallons or 492 liters) added to the % of throughput value above to trigger BIR variance threshold alarm.

Capacity
Touch the radio button to enable or disable this threshold alarm.

% - Touch to enter a percentage amount of tank capacity (typically 1%).

Volume Offset - Touch to enter the offset amount (e.g., 130 gallons or 492 liters) added to the % of tank capacity value above to trigger BIR variance threshold alarm.

Deliveries
Touch the radio button to enable or disable this threshold alarm.

% - Touch to enter a percentage amount of deliveries (typi-cally 1%).

Volume Offset - Touch to enter the offset amount (e.g., 130 gallons or 492 liters) added to the % of deliveries values above to trigger BIR variance threshold alarm.

Fixed Values
Touch the radio button to enable or disable this threshold alarm.

Value - Touch to enter a A fixed amount (e.g., 130 gallons or 492 liters) that triggers the BIR variance threshold alarm.

Setup>Tank>General

Configured

Touch the radio button to enable or disable the tank.

Label

Touch to enter a description for the tank (normally based on the name of the product in the tank and should be unique for each tank).

NOTE: This field is not the same as the label associated with the product, which is assigned in the **Setup > Product > Labels** screen.

Product Code

Touch to enter an alphanumeric code for a POS terminal used to identify the product for inventory control purposes. This typically defaults to the corresponding tank number, such as T1 and PC 1.

NOTE: There are instances when you may want to override the default value provided and enter a different code. For example, in BIR, you may have two tanks that have the same product type. In this case, you would want to program the same product code the for each tank. By manually entering in the correct code, you would ensure BIR is presenting the correct data for the product type.

Product Color

Touch and select a color that represents this product when displayed on screen.

Probe

Touch to enter an Identifier of the installed probe (as set up in "Setup>Devices"). A probe assignment to a tank is one to one:
- Probe 1 is assigned to tank 1
- Probe 2 is assigned to tank 2
- etc.

Probe Offset

The probe offset value is the distance the probe is off the bottom of the tank and helps to obtain an accurate measurement of fuel in the tank.

In console calculations, the probe offset value is always added to the product height value when product height is displayed (for example, in Overview>Tank Detail).

Touch to enter a value compensating for probes that are not resting on the bottom of the tank.

Full Volume (Capacity)

Touch to enter the full volume of the tank at 100% height (this volume is provided by the tank manufacturer).

Diameter

Touch to enter the inside diameter of the tank (look for this dimension on the tank chart provided by the manufacturer).

Note: For flat-end cylindrical tanks standing on end, or for rectangular tanks , instead of entering a diameter value, enter a height value in the diameter field.

Tank Tilt

Touch to enter the amount of offset (in inches [mm]) of the tank from a perfect horizontal. For an explanation of tank tilt and how to calculate this value, see Actions>Help>Reference Tables>Tank Tilt Calculation.

NOTES:
- If the probe is installed in the center of the tank, enter a value of 0.00.
- Tank Tilt may be a positive (+) or negative (-) value. If it is a negative value, make sure to change the value symbol to minus (-) when entering a negative tank tilt value.

Thermal Coefficient

Touch to enter a value representing the coefficient of thermal expansion for the fuel in the tank. This value provides the proper expansion and contraction rate for a particular product type. If this value is entered incorrectly, it impacts inventory and tank test results. For a list of thermal coefficients, see Actions>Help> Reference Tables>Thermal Coefficients.

⚠ NOTE: Make sure you enter the correct value. If you are off by one decimal point, it can substantially affect system calculations.

Meter Data Present

For the selected tank, touch the radio button to enable or disable BIR software* to collect dispenser transaction data from the meters. (Note: BIR monitors data only from tanks assigned to Mag probes 1 to 32).

NOTE: Do not enable unless the Veeder-Root electronic Dispenser Interface Module (DIM) or current loop Dispenser Interface Module (DIM) are connected properly to the console.

*BIR option required

⚠ NOTE: [For Business Inventory Reconciliation (BIR)] Tanks 33-64 cannot be configured for BIR. If you have tanks that will not be BIR-enabled (tall tanks, for example), it may be advantageous to configure BIR-enabled tanks with numbers 1 to 32 and non-BIR tanks with tank numbers with numbers 33 to 64. This gives you the flexibility to enable BIR on the maximum number of tanks.

Pump Threshold %

[Field enabled when using line manifolded tanks and the Dispense Mode field is set to 'Manifolded:Sequential' in "Setup>Pumps and Lines>Line"].

When the tank volume drops below the pump threshold percentage entered in this field, pumping will switch over immediately to the next available tank in the line-manifolded line. Pumping will continue from the current tank for another 10 seconds to avoid a disruption in any dispenser during the switch-over.

Setup>Tank>General - Concluded

Stick Height Offset	**Gross Test Fail**
［Field available only if Stick Height is enabled in S"Setup＞Tank＞All Tanks"］.	Touch to enable or disable the alarm that triggers when a Gross Test ［(3.0 gph (5.8 lph)］ leak test fails.
The value This value compensates for the difference between the stick (no tilt) and the gage. The difference is due to the stick and the probe measuring slightly different locations in a tilted tank since the riser used for the stick measurement is different than the riser used for the probe.	**Periodic Test Fail** Touch to enable or disable the alarm that triggers when a Period ［0.2 gph (0.76lph)］ leak test fails.
Offset values can be ＋144 to -144 inches (＋365.76 to -365.76 cm).	**Annual Test Fail**
The stick height equals the tank height (without the tilt), plus the stick height offset. However, if the calculated stick height is greater than the tank diameter, the stick height is set to the tank diameter. If the stick height is less than zero, it will be set to zero.	Touch to enable or disable the alarm that triggers when the Annual ［0.1 gph (0.38lph)］ leak test fails.
NOTE: All displays of height include tilt. When determining the stick offset, the tilt adder must be taken into account.	**GOST Volume Correction**
Stick height is not used for volume calculation; it is for display only.	Touch to enable or disable the GOST R 8.595 correction factor that adjusts the volume calculation of fuel in the tank. When you enable this field, the system automatically adjusts all volume calculations for this tank based on the temperature of the fuel (mainly used in Eastern Europe and Russia).
Delivery Delay	
Because the system has the ability to detect a delivery automatically, the time entered in this field represents the delay (in minutes, usually 5 - 10) after the actual delivery and before the console indicates that a delivery is complete. This delay provides extra time for the fuel level to stabilize, preventing false alarms and warnings and ensuring a more accurate delivery report.	

Setup>Tank>Limits

This screen lets you enter tank capacity and tank alarm set points. These tank limits provide the ability for the system to warn of conditions that may arise that need immediate addressing. When programming tank limits, refer to local regulations to determine these levels.

Max. Volume (Label Vol.)

This is usually set for 100% of the tank's volume capacity, typically a value higher than the high product limit.

The maximum volume or label volume alarms occur when the level of fluid in the tank exceeds the value in this field.
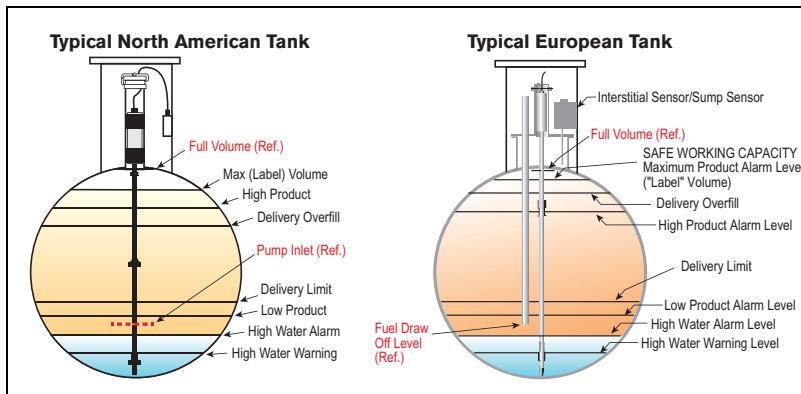
High Product (% of max. vol.)

High Product alarms occur when the volume of fluid in the tank exceeds the value you enter in this field, typically set to 95%.

In U.S. installations, this is especially useful in applications such as in used-oil holding tanks, where the rate of fill can be too gradual for the system to recognize the increase as a delivery and possibly fail to activate the Delivery Overfill Limit Alarm.

In International Sites this field is useful to warn of an impending over-fill (it can trigger the same alarm indications as Overfill Limit):
· Set this limit to 98% if the Maximum (Label) Volume value is greater than 25,000 liters.
· Set this limit to 96% if the Maximum (Label) Volume value is less than 25,000 liters.

Delivery Overfill (% of Max. Volume)

Delivery overfill alarms alert you to potential overfill conditions during a delivery. When the volume reaches this value, the console can activate an overfill alarm and can trigger a printout showing the tank number, date, time, and product.

Set this percentage no greater than 90% of the tank capacity. For International Sites, set this percentage to no greater than 99% of maximum (label) Volume.

Delivery Limit (% of Full Volume)

Delivery Needed alarms occur when the volume of product in the tank drops to a level at which you should request a delivery. This is referred to as the minimum operating capacity. Set this value at a volume higher than that of the Low Product Volume field.

Low Product

Low product is typically used to indicate that the inventory is at a critical point and the operator/owner should consider taking the tank out of service until a delivery is made. Normally, this is set around 5-10% of the tank's capacity. A Low Product alarms alert you when the volume in the tank drops to the low product level.

International Sites

Assuming no water is present in the tank, this limit should be set no lower than minimum volumes that can be measured by each probe type:
· The tank volume at 250mm for Mag probe type 8473
· The tank volume at 125mm for Mag probe type 8493

High Water Warning

When you have a Mag probe with water detection, you can set this threshold to provide a warning condition when water enters the tank. In the United States, there is a requirement to know when and how much water you have in the tank. Typical water warning setting is 2 inches and is lower than the high water alarm.

High Water Alarm

When you have a Mag probe with water detection, you can set this threshold to provide an alarm condition when water enters the tank. When water in the tank rises to the high water alarm value, the console triggers an alarm. Set this value at a level lower than the pickup for the submersible pump or suction line.

- Continued on next page

Setup>Tank>Limits - Concluded

Water Alarm Filter Level

The water alarm filter controls the high water alarm response time and false alarm filtering. The filter provides four levels of filtering: Off, Low, Medium, and High.

NOTE: If the tank is installed in an area that is prone to surface flooding, openings to the tank should be sealed to prevent rapid flow of water in the tank.

Low - The Low setting is the optimum setting for most applications. To reduce false alarms, the Low setting delays the reporting of the high water alarm by three minutes. It monitors the alarm when a delivery is in progress. This is the default.

Medium - If a tank is reporting false water alarms when the tank is receiving a delivery, it may be necessary to increase the water alarm level to Medium or High.

These settings disable the alarm when a delivery is in progress. Therefore, steps should be taken to see if the installation can be modified to reduce the effect of delivery turbulence. See below for additional steps to take to reduce false alarms during a delivery.

High - The High level setting has more filtering than the Medium setting and should only be used if the Medium setting is not effective. Like the Medium level, it disables the high water alarm when a delivery is in progress and the additional steps below to reduce false alarms should be taken.

A high flow of water into the tank could be mistakenly identified as a delivery and prevent the detection of the high water alarm. The High filter level should be avoided in areas prone to surface flooding.

Off -The Off setting is similar to the Low setting but it allows you to reduce the high alarm delay time. The delay time can be set at 30 to 180 seconds in 30-second intervals in the Water Alarm Filter Delay field below. The Off setting will monitor the High Water Alarm when a delivery is in progress.

Steps to take to reduce false alarms during a delivery:

• Increase the high water alarm threshold - Increasing the high water alarm threshold may move the threshold above the effect of delivery turbulence. Do NOT increase the alarm threshold higher than the pump inlet location.

• Move the probe to a location farther away from the delivery riser - If another riser is available, moving the probe farther away from the delivery turbulence may eliminate false alarms.

• Modify the delivery fill tube to direct flow away from the probe - Cut the bottom of the delivery fill tube at a 45° angle and positioning the angle so that it points away from the probe. This will direct the turbulence away from the probe and may eliminate false alarms.

Water Alarm Filter Delay

• This field is available if you set the Water Alarm Filter level to Off in the field above. It allows you to choose the reporting time of the Water Alarm for the Off level. You can choose 30 to 180 seconds in 30 second intervals. The default is 180 seconds.

Leak Alarm Limit

[Applies to SLD tests only]

During a leak test, the leak alarm limit alerts you when the cumulative temperature compensated (TC) product loss from a tank reaches the leak alarm limit value and helps identify large losses of product during a leak test.

To prevent false reports and alarms from being triggered, do not set the limit value to identify losses of 0.2 gph (0.76 lph) or less during the test period. The leak alarm limit should be set to identify losses of 1 gph (4 lph) or greater.

Leak Alarm Limit - continued

Consider both the leak rate you wish to identify, and the length of the test, when determining a value for leak alarm limit. For example, a value of 8 gallons (32 liters) will warn of:

• A 1 gph (4 lph) leak in 8 hours

• A 2 gph (8 lph) leak in 4 hours

Note: The console automatically interprets the limit you enter as a negative. It is not necessary to enter the minus (-) sign.

Sudden Loss Limit

[Applies to SLD and Timed Sudden Loss Detection (TSLD) tests only]

This value allows the system to look for significant losses during a quiet period to determine if the tank is leaking or fuel has left the tank (e.g., by bypassing the dispenser meters). It is not based on TC Volume and is intended to identify losses larger than the leak alarm limit. The default is 99 gallons (374.7 liters) but can be set to 1 to 999,999 gallons (3.78 to 3781.63 liters). Typically, you should set this limit to 25 gallons (100 liters) or higher. If you are getting too many false alarms, consider increasing this limit.

Note: Siphoned-manifolded tanks are monitored as a single tank. The Sudden Loss Limit threshold is the sum of the thresholds for each member of the manifolded set.

Density Low Limit

[Field only available if density probe is installed]

Triggers density warning (when greater than the value you enter here plus 1.00kg/m3 (0.062 lbs/ft3) and a density alarm.

Density High Limit

[Field only available if density probe is installed]

Triggers density warning (when greater than the value you enter here minus 1.00kg/m3 (0.062 lbs/ft3) and a density alarm.

Fuel Low Temperature Limit

The limit that triggers a low fuel temperature alarm. The default is -50 degrees Celsius (-58 degrees Fahrenheit). The alarm clears when the fuel in the tank returns to a temperature that is two degrees Celsius (3.6 degrees Fahrenheit) higher than this temperature.

Fuel High Temperature Limit

The limit that triggers a high fuel temperature alarm. The default is 60 degrees Celsius (140 degrees Fahrenheit). The alarm clears when the fuel in the tank returns to a temperature that is two degrees Celsius (3.6 degrees Fahrenheit) lower than this temperature.

Setup>Tank>Environmental Test

This screen provides a choice of selecting a tank test method (SLD, CSLD, or Disabled) for a selected tank. Once a tank test method has been chosen, the corresponding setup parameters for either SLD or CSLD are displayed, and you can enter settings by which the selected test will be conducted.
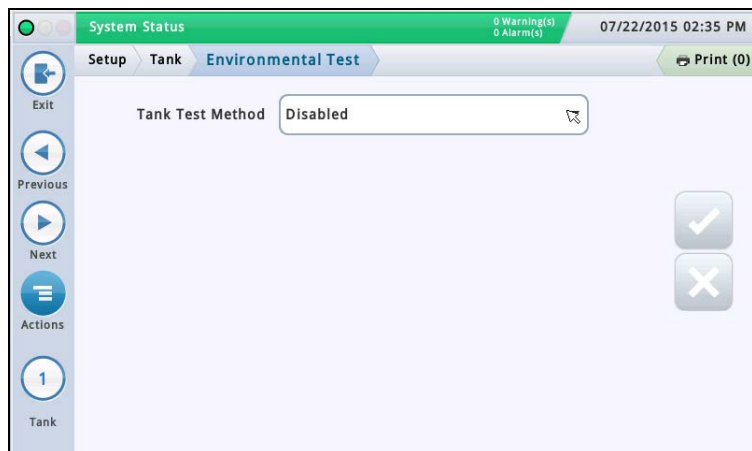
Tank Test Method
Select the method for testing your tanks:
- **SLD** (Static Leak Detection) - a single tank test (that runs on demand, at a programmed time, or by pump sense signal) where there must be no dispensing during the test.
- **CSLD** (Continuous Statistical Leak Detection) - leak tests that are run continuously during idle tank times.
- **Disabled** - no testing method has been enabled.

SLD

Leak Test Rate
Touch to select which leak rate test is performed:
- 0.2 gph (0.76 lph) Leak Test
- 0.1 gph (0.38 lph) Leak Test

NOTE: Both of the above tests, as well as the Gross Leak Test [(1.5 gph (5.8 lph)], are run when you start the SLD tank test. This field determines what the system prints out for the test results.

Periodic Test Type
Touch to select a periodic test type:
- Standard - System runs the periodic leak test for the entire test duration before posting a test result. The minimum wait time after delivery when a test can be run is 8 hours, and the minimum test duration is 2 hours.
- Quick - System runs the periodic leak test for the entire test duration before posting a test result. The minimum wait time after delivery when a test can be run is 5 hours, and the minimum test duration is 1 hour.

Test Frequency
Touch to select the frequency for SLD tests as described below. Most local agencies require a minimum monthly (30 days) test.

Field	Range, Min, Max	Default	Visible If:
Period	On Date, Annually by Day of Week, Monthly by Day of Week, Weekly, Daily, Annually by Day of Month, Monthly by Day of Month, Auto	On Date	Always
Set Date	Month: 1-12, Day: 1-31, Year: 1970 - 2038	Current Date	If Period choice is On Date
Month	January - December	January	If Period choice is Annually by Day of Week, Annually by Day of Month
Weekday	Sunday - Saturday	Sunday	If Period choice is Annually by Day of Week, Monthly by Day of Week, Weekly
Occurrence	1st, 2nd, 3rd, 4th, Last	1st	If Period choice is Annually by Day of Week, Monthly by Day of Week
Day of Month	1 - 31	1	If Period choice is Annually by Day of Month, Monthly by Day of Month
Time of Day	Time in Hours and Minutes, 12 Hr. sensitive	Current time + 2 minutes	If Period choice is On Date, Annually by Day of Week, Annually by Day of Month, Monthly by Day of Week, Monthly by Day of Month, Weekly, Daily

Gross Test Auto-Confirm
Touch to enable or disable the ability of the console to require two failed Gross Tests [(1.5 gph (5.8 lph)] before it considers the test a failure. NOTE: When enabled, this feature may reduce false alarms.

Duration
Touch to enter the amount of time (in hours, from 2 - 24) for the test to complete.

Leak Min. Periodic (% Full Volume)
Touch to enter a minimum tank volume required to record a valid periodic test (value reflects federal, state, and local requirements)

Setup>Tank>Environmental Test - Concluded

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<tr><td>

Leak Min. Annual (% Full Volume)

Touch to enter a minimum tank volume required to record a valid annual test (value reflects federal, state, and local requirements)

Early Stop

Touch to enable or disable Early Stop. When enabled, the following occurs:

Starting the Test - System checks for these unrecoverable conditions, and if it encounters any one of them, it reports an Invalid test result immediately and ends the test:

• Fuel level is less than the Leak Min. Periodic (% full Volume) value (0.2 gph test rate) or the Leak Min. Annual (0.1 gph test rate) value.

• Less than 8 hours has passed from the time of a delivery for a Standard test, or 5 hours from the delivery for a Quick test.

• The product temperature is less than 0°F (-17.6°C) or more than +100°F (+37.4°C).

• The fuel level is too low.

Running the Test - If the system does not encounter any unrecoverable conditions (as listed above), it begins the test and does the following:

• If the system has enough data to declare a Passed test result before the test duration ends, it reports it immediately and ends the test.

• If not, it runs the entire duration of the test before reporting a Failed or Invalid result.

Tank Test Notify

Touch to enable or disable Tank Test Notify. When enabled, a Tank Test Notify message is posted in the alarm indicator screen during a periodic test (used in conjunction with Tank Test Siphon Break field below)

Tank Test Siphon Break

To properly perform an in-tank leak test on siphon manifolded tanks, the following is required:

• A siphon break solenoid valve is installed between the two siphon manifolded tanks.

• Both the Tank Test Notify field (above) and the Tank Test Siphon Break field are enabled.

• A relay must be programmed to perform the siphon break. The Tank Notify condition is assigned to this relay (that controls the siphon break solenoid valve) in Setup>Automatic Events>Device Tasks.

</td><td>

CSLD

Gross Test Auto-Confirm

Enables or disables the ability of the console to require two failed Gross Tests [(1.5 gph (5.8 lph)] before it considers the test a failure.

NOTE: When enabled, this feature may reduce false alarms.

Probability of Detection

Touch to enter a probability of detection rate (95% or 99%). This value represents the detection percentage. Some locations require a 99% probability of detection (with a false alarm rate of 1%).

NOTE: If Custom appears in this field, the console is using a special value that should not be changed.

Climate Factor

Touch to enter a climate factor

• **Moderate** - for most situations

• **Extreme** - when a tank exhibits consistent, extreme vapor loss due to fuel evaporation.

⚠ **NOTE:** If this is set incorrectly, it may cause false Leak Alarms with normal CSLD leak detection.

CSLD Evap. Compensation

[Field available only if the Climate Factor field is set to Extreme]

Enables or disables the CSLD Evaporation Compensation feature which is used on tanks that exhibit evidence of consistent, extreme vapor loss due to fuel evaporation that can otherwise lead to false Leak Alarms with normal CSLD leak detection.

⚠ **NOTE:** This field should only be enabled after consulting a Veeder-Root field engineer or technical support representative.

Stage II Vapor Recovery

[Field available only if the Climate Factor field is set to Extreme and CSLD Evap. Compensation field is Enabled]

If the site incorporates the Stage II Vapor Recovery feature (which recovers vapors during the vehicle refueling process), this field should be set to **Enabled**.

</td></tr>
</table>

Setup>Tank>Profile

Charts define how the console calculates the volume of fuel in each tank. A point in a chart specifies a height value at a certain volume of fuel (chart data is stored for each monitored tank). This information is critical for proper operation. This screen lets you manually setup a tank chart using one of four tank profiles listed below.
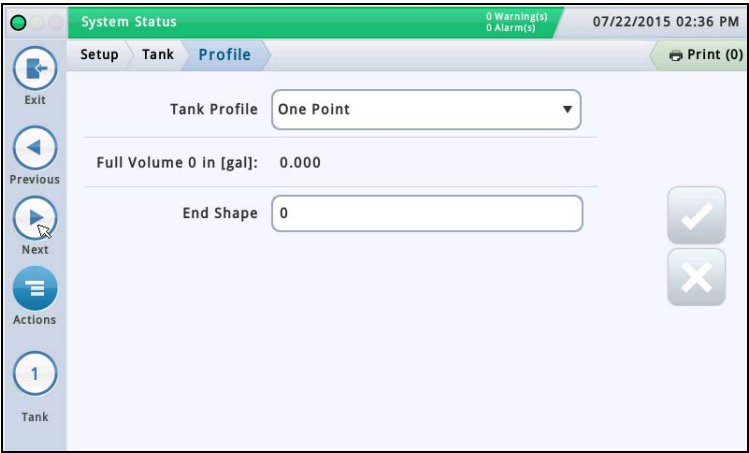
You must have entered the diameter and full volume before selecting a tank chart (see "Setup＞Tank＞General").

Select a tank from the icon list on the bottom of the screen to configure.

Tank Profile

Touch to select a tank profile option:

One Point - This option uses only the 100% (full) volume to profile a tank.

This selection can be used for horizontally installed, flat-end cylindrical tanks, and when AccuChart is available for this tank.

Four Point - This option requires 4 points to profile the tank. The requested volumes are at percentages of height (e.g., the 75% volume of a 96" diameter tank equals the volume at a height which is 75% of 96" or 72").

This selection can be used for all rounded- and dished-end tanks, and should be selected when AccuChart is available for these type tanks.

Twenty Point - This option uses 20 Points to profile a tank. The requested volumes are percentages of height (e.g., the 5% volume of a 96" diameter tank = the volume at a height which is 5% of 96" or 4.8").

This selection can be used for all rounded-end and dished-end tanks.

Linear - This option requires only the 100% (full) volume to profile a flat-end cylindrical tank standing on end, or for a rectangular tank.

Multi Point - This option is used for charts having more than 20 points. See **Setup > Tank > Multi Point** for more information.

Full Volume

［Read-only field］Total capacity and the diameter (full height) of the tank.

This information can be handy when you are entering chart information. The Full Volume value is entered in "Setup＞Tank＞General".

End Shape

［Field only available when you select **One Point** for Tank Profile field］

Enter a value from 0 to 1.0 in 0.1 increments (0.3 is the recommended value for dished-end tanks).

Setup>Tank Chart>Charts

This screen provides information on the active and inactive charts for a tank, and lets you select the chart you want to use for a tank (i.e., make a chart active for a tank).

Select a tank from the icon list on the bottom of the screen to view that tanks available charts.

#

Number assigned by the console

Name

Name of chart. NOTE: If the chart is created by the console (for example, via AccuChart), the name is automatically assigned

Date/Time

Date and time the chart was created.

Type

Chart type:
• One Point
• Four Point
• Twenty Point
• Multi Point
• Linear

See Setup > Tank > Profile for more information about chart types.

Source

How the chart was created:
• **Automatic** - Using AccuChart
• **User-Entered** - Using Setup >Tank Chart>Manual Calibration.
• **Meter Drop** - Using Setup>Tank Chart >Manual Calibration. (Uses meters to measure fuel volume; it does not require a full tank). Not available for siphon-manifolded tanks.
• **Meter Dispensed** - Using Setup > Tank Chart > Manual Calibration. (Uses meters to measure fuel volume; it does require a full tank). Not available for line-manifolded or siphon-manifolded tanks.

Status

Current status of the chart:
• Active
• Ready
• Incomplete
• Bad Point
• Calculating

Making a Chart Active for a Tank

Select a tank from the icon list on the bottom of the screen to view that tanks available chart(s).

Select a tank chart in the list by touching the check box next to the chart number, then touch the Actions icon, to display the Actions popup menu shown below.

Touch the Apply chart ⊘ icon then the ✔ key to save your entry.

Deleting a Chart

NOTE: You cannot delete the first (initial) chart for a tank.

Select a tank chart in the list by touching the check box next to the chart number, then touch the Actions icon, to display the Actions popup menu.

Touch the Delete Chart 🗑 icon then the ✔ key to save your entry.

Renaming A Chart

Select a tank chart in the list by touching the check box next to the chart number, then touch the Actions icon, to display the Actions popup menu.

Touch the Rename Chart ⊘ icon, enter a new name, then touch the ✔ key to save your entry

Setup>Tank>HRM Limits (International Option)

When running the BIR program, the system has the capability to run in HRM mode, which provides hourly reconciliation results. HRM is used in countries that use metric mode.

When a console is in HRM (Hourly Reconciliation Monitoring) mode, a tank Maximum Volume Limit threshold is imposed. This screen lets you view and set three HRM volume threshold alarms.

Warning Limit
An hourly limit in the variance in inventory, that when exceeded generates a warning.

The default warning limit is 3 litres. Min. value is 1 litre and max. value is 400 litres.

Alarm Limit
An hourly limit in the variance in inventory, that when exceeded generates an alarm. The default warning limit is 4 litres. Min. value is 1 litre and max. value is 400 litres.

Maximum Volume Limit
When the Accuchart calibrated full volume value is less than the programmed tank full volume, it may be necessary to decrease the max/label volume threshold from Setup > Tank > Limits. The minimum difference between the Accuchart full volume and the max/label volume threshold is the HRM maximum volume limit value entered in this field.

The allowed range is 1-999 liters. The default is 500 liters.

NOTE: If you are enabling Working Capacity as part of HRM, this value is used to detect if the Working Capacity is deemed too close to the Full Volume (Capacity) value (from Setup > Tank > General.) The system compares the Calculated Working Capacity (Capacity-Maximum Volume Limit) and Max (Label) Volume and if the Calculated Working Capacity volume is less than Maximum Volume Limit, the Working Capacity is adjusted. This is done to provide a buffer in the tank to assist in preventing an overfill and allows room for fuel expansion.

Other notes: The default 500 liter limit is programmed as 132 gallons. In metric mode this gets displayed as 499.674. Changing the US limit to 132.09 will display as 500 liters. There is no need to display resolution lower than 1 liter.

Setup>Tank>Siphon Sets

This screen lets you define siphon manifolded sets, which are two or more tanks connected by a manifold. Typically, with a 2" diameter manifold pipe and with the proper vacuum on the line, a system can keep product flowing from one tank to another.

An example siphon set diagram is shown below:
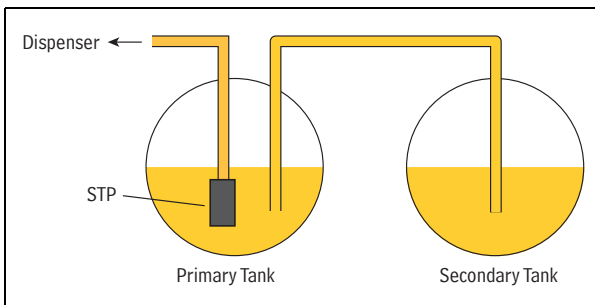
This setup allows roughly the same amount of product in both tanks. This application is typically used in large truck stops or high throughput tanks for unleaded fuel.

Available Tanks

Lists enabled ⊖ and disabled ⊗ tanks in your system.

Siphon Set

Tanks that make up the selected siphon set (if one is selected), separated by a semi-colon.

Viewing a Siphon Set

Select a siphon set from the icon list on the bottom of the screen. The tanks that make up that siphon set are displayed in the Siphon Set column.

Creating a Siphon Set

Once a siphon set is created, the manifolded set icon appears in tank displays like the Overview>Tank Overview screen.

NOTE: The maximum number of siphon sets that can be configured is the maximum number of tanks divided by 2, rounded down.

1. Select the siphon set icon (bottom left of screen) and then select a new siphon set number from the siphon set list that displays along the bottom of the screen.

2. In the Available Tanks column, select the first tank you want as part of this new siphon set and press ➡. This moves the tank to the Siphon Set column.

3. Repeat Step 2 for the next tank you need to add to your siphon set. Continue to do this until all of the tanks you need are moved into the Siphon Set column. If you need to move a tank out of the Siphon Set column, select ⬅ next to that tank. That tank returns into the Available Tanks column.

4. Touch ✔ to save your settings.

Deleting a Siphon Set

1. Select a siphon set (from bottom left of screen). The tanks that make up that siphon set are displayed in the Siphon Set column.

2. Select ⬅ next to each tank. This moves the tank out of the Siphon Set column and back into the Available Tanks column.

3. Once you have moved out all tanks, touch ✔ to save your settings.

Reporting When Using Siphon Sets

When using siphon manifold sets, the console will print multiple reports (one for each tank in the siphon set). To avoid multiple reports, configure the print task using an event-based trigger that references the first tank listed in the siphon set. See Actions>Help>Understanding Automatic Events for information about event-based triggers.

When you configure a print task using this method, the Last Delivery Report includes a summation for all tanks in the siphon set.

Setup>Tank>All Tanks

This screen lets you configure parameters that apply across all tanks in the system.

Ullage Display Mode

Determines how the Ullage field displays on Overview＞Tank Overview＞Detail and in the Current Inventory and Shift Inventory reports.

- Full Ullage - Only Full Ullage displays. Full Ullage is calculated by taking the Max Volume field in the Setup ＞Tank＞Limits screen and subtracting the volume of fuel currently in the tank. This result represents the total amount of empty space in the tank.
- Full Ullage and User Ullage - Both full Ullage and User Ullage can be displayed.
- User Ullage - Only User Ullage displays. This calculates ullage using a percentage of the User Ullage field. User Ullage can be used as a cross-check for deliveries to make sure you do not overfill a tank. The ullage is set to between 50 and 100% of the tank (see field below). By setting the ullage to a lower percentage, it adds an additional buffer so the tank will not be overfilled.

Full Ullage Label

Determines the label used for Full Ullage on the Overview＞Tank Overview and in the Current Inventory and Shift Inventory reports. Options are:

- Ullage
- 100% Ullage

User Ullage%

［Field available only if User Ullage is enabled in Ullage Display Mode］

Touch to enter a percent (from 50 to 100%) of ullage volume to display.

Print TC Volumes

Touch radio button to enable or disable the printing of temperature compensated (TC) volumes in screens or reports (inventory, delivery, etc.).

TC Reference

Temperature compensated (TC) reference temperature for all volume calculations, and is location-specific. Some common values:

- U.S. 60°F • Canada 15°C

NOTES:

- All leak test calculations are based on the TC reference value that you enter in this field.
- If you do not enable the Print TC Volumes field above, TC values will not appear in the screens or reports as stated above.
- If BIR is being used and the meters reporting the sales are temperature compensated, the value you enter must match the meters' reference temperature value. Also, in "Setup＞BIR＞General", the TC Reference field must be set to TC Volume.

CSLD Evaporation Reid Vapor Pressure Chart

This field, when enabled, lets you enter Reid Vapor Pressure (RVP) values used by CSLD. Enabling RVP allows you to enter evaporation compensation values for each month for unleaded tanks at the site.

This field is enabled if the following fields are set up in "Setup＞Tank＞Environmental Test": Tank Test Method is set to **CSLD,** Climate Factor is set to **Extreme** and CSLD Evap. Compensation is set to **Enabled.**

Entering Values for the CSLD Evaporation RVP Chart

Once enabled (see above) and you select inside the RVP field box, a popup window appears that lets you view or enter RVP entries for each month of the year. Enter values for each month field. touch ☑ to save your entries when done.

NOTE: CSLD evaporation compensation will use the RVP values from your entries for the applicable month. The console does not provide evaporation compensation during months having a RVP value of 0 (zero). The RVP monthly values for your geographical area can be obtained from your local Petroleum Distributor or is located on the delivery bill of lading.

Periodic Test Needed Warnings

Touch radio button to enable or disable the console to post a warning or an alarm after a specified number of days have passed (0 - 30 days) since the last 0.2 gph (0.76 lph) leak test was run or successfully passed. The subsequent two fields relate to this function:

Days Before Periodic Alarm

Post an alarm when the test did not successfully pass after a warning, or if the test was not conducted in a specified number of days.

Days Before Periodic Warning

Post a warning when the test did not successfully pass, or if the test was not conducted in a specified number of days.

Annual Test Needed Warnings

Touch radio button to enable or disable the console to post a warning or an alarm after a specified number of days have passed (0 - 365 days) since the last 0.1 gph (0.38 lph) leak test was run or successfully passed. The subsequent two fields relate to this function:

Days Before Annual Alarm

Post an alarm when the test did not successfully pass after a warning, or if the test was not conducted in a specified number of days.

Days Before Annual Warning

Post a warning when the test did not successfully pass, or if the test was not conducted in a specified number of days.

Setup>Tank>All Tanks (Concluded)

TC Density	**Leak Test Report Format**
Touch radio button to enable or disable TC density readings for inventory reports. **NOTE:** This should only be enabled if the site is equipped with a Mag Plus Probe with a density float system. **Stick Height** Enables or disables the Stick Height fields that compensate for any difference between a stick measurement and the probe measurement (no tilt). The difference is due to the stick and the probe measuring slightly different locations in a tilted tank since the riser used for the stick measurement is different than the riser used for the probe. The stick height offset is set in "Setup>Tank>General". When enabled, the calculated stick heights are visible in Tank Detail. Stick height is not used for volume calculation; it is for display only.	Touch the down arrow to select a report format: Standard: reports print in standard format (default setting). Enhanced: Future Enhancement. Enhanced with Leak Rate Label: enables an extended description of the Leak Test report type on the Combined Tank Test. **Leak Test Region** Determines the thresholds used in the leak test. Regions are: EPA - for the US or CEN for Spain. EPA is the default.

Setup>Vapor Monitor>Pressure Zones

［Available with Vapor Pressure Monitor if you have Vapor Pressure Sensors configured］

This screen lets you define the vapor/ullage spaces that are monitored with Vapor Pressure Monitor. This is done by selecting a set of tanks connected by vapor piping that correspond to a Vapor Pressure Sensor (VPS). The result is a vapor zone.

NOTE: for systems with probe-less tanks, the VPS Zone may be empty. In this case, the Sensor Test will not be able to use ullage to determine fuel movement.

You shut down zones by using a relay set up in Device Tasks in Automatic Events.

The states in the vapor zone are as follows:

Inactive: The VPS is enabled, but not configured for Vapor Pressure Monitor.

Active: The vapor zone is active and collecting pressure events.

Shutdown: The vapor zone has failed a test and all pumping is disabled in the zone. If a vapor zone is shut down, perform a Clear Test Failure to return zone to the Active state.

Override: The site was shut down, a user overrode the shutdown using Clear Test Failure and the site is temporarily operational. At the next assessment time (set in Setup > Vapor Monitor > General), it may be shut down again. A record of these events is found in PM Events History.

Selection Criteria

Select the Vapor Pressure Sensor to configure. The Vapor Pressure Sensor must be set up before configuring zones.

Only one VPS monitors each pressure zone. You can have vapor pressure sensors that are configured but are not assigned to a zone.

NOTE: Additional sensors are allowed per zone for testing purposes, but only one VPS is the monitor for each zone as Vapor Pressure Monitoring

Serial Number

The serial number for the selected Vapor Pressure Sensor set in Setup > Devices. If the VPS is disabled, '** VPS Disabled' displays in this field.

Label

The label for the selected Vapor Pressure Sensor set in Setup > Devices. If the VPS is disabled, this field is blank.

Configure Pressure Monitor

Enables/disables the selected vapor pressure sensor as a pressure zone for Vapor Pressure Monitor.

Available Tanks

Tanks available for setup within a Vapor Pressure Zone. Tanks that appear on the list have a vapor coefficient in the required range for Vapor Monitor which is greater than 0.00060 U.S. units and less than or equal to 0.00079 U.S units (0.00108 and 0.00126 metric units) and have not already been included in a zone.

VPS Zone

Tanks currently set up in the zone.

Setup>Tank>Timed Sudden Loss

Available with Timed Sudden Loss Detection (TSLD)］

This screen lets you enable the TSLD feature and set schedules for monitoring periods for your tanks. All tanks will be monitored during the time period.

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Schedule Type

Disables or sets the Timed Sudden Loss Detection schedule. Choices are:

None - The Timed Sudden Loss Detection feature is disabled.

Daily - Start and end times for the monitoring period can be set for the same time each day.

Individual - Start and end days and times for monitoring periods can be set for a maximum of seven (7) periods per week. Each period can be set as follows:

- Enabled/Disabled
- Start Day
- Start Time
- End Day
- End Time

Manual - The monitoring period is controlled by a shortcut accessed from the Overview > Tank Overview screen. You must manually start and stop each monitoring period.

Setup>Products>Labels

This screen lets you setup tank product labels which are used in all BIR reports.	**Product #** This column lists the console assigned product number. **Product Label** This column lists the product label for the product number. **Editing A Label** 1. Touch (highlight) a product number in the data view (a checkmark appears in the box next to the number). 2. Touch the Actions icon and then the Edit Label icon and enter a new label (up to 20 characters) for this product. 3. Touch to save your settings.

Setup>Product>Product Mapping

This screen lets you map a specific tank to a product. Depending on your site, you could have two or more tanks with the same product. By properly mapping your tanks to the products, you can group single and manifolded tanks into product-summarized BIR Reports. **Tank(s)** This column lists the configured tank short device identifier/number (for example, T1). NOTE: [For Business Inventory Reconciliation (BIR)] Tanks 33-64 cannot be configured for BIR. If you have tanks that will not be BIR-enabled (tall tanks, for example), it may be advantageous to configure BIR-enabled tanks with numbers 1 to 32 and non-BIR tanks with tank numbers with numbers 33 to 64. This gives you the flexibility to enable BIR on the maximum number of tanks.	**Product** This column lists the product number and the assigned product label (for example, "F1:Regular"). "Not Assigned" indicates the tank has not had a product mapped to it. **Editing Tank(s) Product Mapping** 1. Touch (highlight) a tank in the data view (a checkmark appears in the box next to the tank's device identifier/number). 2. Touch the Actions icon and then select Edit Tank(s) Product. 1. From the pull down menu select the product you want to map to this tank. 3. Touch to save your settings.

Setup>Tank Chart>AccuChart

This screen lets you setup the AccuChart automatic calibration feature for a tank.

Make sure the following is done before you start an AccuChart calibration:

- The tank has a chart created in Tank Profile which will be used in the AccuChart calibration.
- The dispenser meters are calibrated so the system has accurate dispense measurements to use in the AccuChart calibration process.

Select any tank from the icon list on the bottom of the screen to enter its AccuChart settings.

Update Schedule -

Describes how AccuChart calibration charts are updated and assigned to tanks Method:

Immediate - The active chart is updated every time AccuChart generates a chart. Because the chart immediately becomes active, the console calculation of product volume will also change based on the data in the newly active chart.

Charts may be created multiple times during the calibration period, so the calculated product volume may also change multiple times.

If you enable AccuChart warnings, the console will post warnings if charts have not been generated during the calibration period.

Periodic - Select up to four target dates on which the console will activate a generated chart. If a chart is available on one of the target dates, the console activates the chart. You can view available charts in "Setup > Tank Chart > Charts".

If there are multiple charts available, the console will activate the chart with the best data sufficiency. See the Actions > Help > Diagnostic > AccuChart > Data Sufficiency topic for more information.

If you enable AccuChart warnings, the console will post alarms if the console has not generated any charts during the calibration period. On the final target date the console will also post a warning if there are no new charts available for this tank.

Complete - The last chart generated by AccuChart at the end of the calibration period becomes the active chart. Data Sufficiency is not considered; only the date the chart was created.

If you enable AccuChart warnings, the console will post warnings if charts have not been generated during the calibration period.

Never - The console never automatically makes an AccuChart-generated chart the active chart for this tank.

Apply Date 1 - Date 4 Fields
[Field available only if the Update Schedule field is set to **Period**]
Touch to enter four target dates for periodic generation of an active chart by the console. The recommended periodic selection period is 14 days apart (for example, 14, 28, 42 and 56).

Calibration Period
Touch to enter the number of days to calibrate the tank (typically 30 - 120 days).

The calibration period depends on tank activity. A low-throughput tank (e.g., one that has a "high test" fuel) may require a longer calibration period than a quick-throughput tank (e.g., one that has "regular" fuel).

NOTE: If, at one day prior to the end of your calibration period selection, AccuChart has insufficient data to create a tank chart, it posts a warning (if the Enable AccuChart Warnings field below is set to Enabled), allowing you the opportunity to extend the calibration period.

Days Left to Calibration Completion
[Read-only field] The number of days remaining to complete the calibration (after you initiate a calibration using the Start button), including the start date of the calibration.

Exclude Days
Touch to remove specific days from the calibration period. For example, you may want to exclude the days the site had maintenance performed, such as when meter calibration occurs.

NOTE: If you need to exclude more than 25% of the calibration period, we recommend you stop the tank calibration. Delete any created charts and restart the calibration.

Enable AccuChart Warnings
Touch to enable or disable AccuChart warnings. When enabled, the system produces a warning when AccuChart has not completed a calibration because of insufficient data. See Diagnostic > AccuChart > Calibration Feedback for more information.

Min Operating Level%
Touch to enter the desired minimum operating height of the fuel (as percentage of tank diameter) for valid calibration results. It should be greater than or equal to 10%. The default is 10%.

Max Operating Level%
Touch to enter the desired maximum operating height of the fuel (as percentage of tank diameter) for valid calibration results. It should be less than or equal to 95%. The default is 95%.

NOTE: The difference between the Min Operating Level% and the Max Operating Level% should be at least 50% and should include the midpoint of the tank (50%). The 50% setting cannot be the endpoint of the range between the Min and Max Operating Level%. For example, you can enter a range of 25% to 85%, but you cannot enter a range of 5% to 50%.

Start
Touch Actions [icon] then the Start [icon] on the Actions popup menu. If you select at the prompt to start the calibration, a new AccuChart calibration is started and the following is done:

- Sets the Start of Calibration field to the current date.
- Sets the Days Left To Calibration Completion field to the number of days in the calibration period. This field displays in the Diagnostic > AccuChart > Data Sufficiency screen.
- Clears all AccuChart alarms and warnings.

Setup>Tank Chart>AccuChart - Concluded

Stop

Touch Actions [icon] then the Stop [icon] on the Actions popup menu. If you select at the prompt to stop the calibration, the AccuChart calibration stops.

Notes When Working with AccuChart:
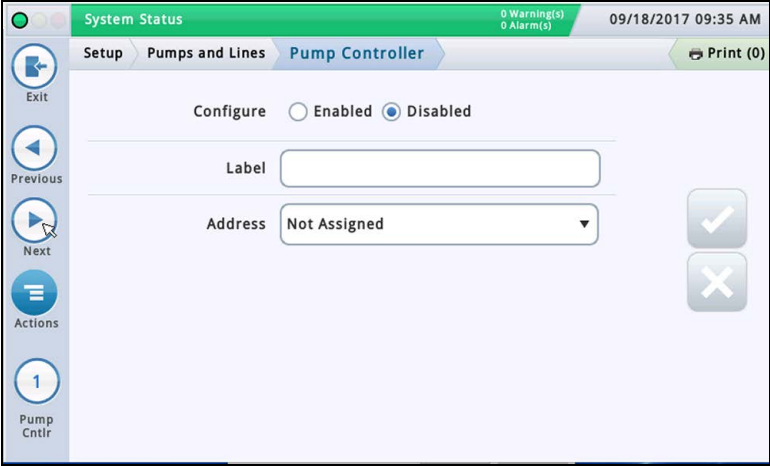
If the console is powered down during one of the Immediate or Periodic updates, or if a time/date change is made at this time, the update will be missed. If this occurs during the final Periodic update, or at the end of the calibration period for Immediate and Complete update selections, the calibration will be attempted at the next date change. The update will be done with this calibration, or the last generated calibration, or AccuChart will generate warnings.

- If you enter the Apply Date values in a random order, the system will rearrange them in increasing order (after screen is refreshed). Empty Apply Date 1 through 4 fields will be grouped at the bottom of the set. This may cause the entered values to move around.

- If the calibration is in progress and the console clock is set back before the start of calibration, the start of calibration will be moved back to the new time, and the 'Update Schedule' dates will all be adjusted appropriately (including Periodic).

Setup>Pumps and Lines>Pump Controller

[Available with Intelligent Pump Control]

This screen lets you configure pump controllers for Intelligent Pump Control. Pump controllers need to be defined so you can associate pumps and controllers in Setup>Pumps and Lines>Pumps. Select a pump controller to configure.

Configure

Touch the radio button to Enable or Disable the selected pump controller.

Label

Enter a name for the selected pump controller.

Address

The Address field will contain all of the available pump controller types connected to IPC Comms serial port. For example C1.3 SCI indicates:

- C1 is the IPC Comm Port from Setup>Communications>Serial Port (C1, C2, etc.)

- .3 is the address of the pump controller (1 - 31)

- SCI is the controller type (SCI, SCIII, Mag/ECO, Unknown, None, etc.)

- An exclamation point before the controller type indicates that the controller has a communication fault or that a controller with a type of 'None' has been enabled.

If the controller is not assigned, you can select an address/type combination from the list provided of all addresses for available pump controllers discovered by the system.

Setup>Pumps and Lines>Pumps

This screen lets you configure the site's pumps that will be monitored by the console.

Select a pump from the icon list on the bottom of the screen to configure.

Configured

Touch the radio button to enable or disable the selected pump.

NOTE: Set to Enabled only after completing all of the settings for this pump.

Pump Label

Touch to enter a description for this pump.

Mode

Touch to determine how the pump is controlled:

• **TLS Pump Control** - Pump is controlled by the console. This includes control by Intelligent Pump Control.

• **Pump Sense** - The console senses if the pump is active when a pump request signal is sent to turn on/off the pump (this signal also acts as a tank 'active' signal to the console).

• **External Pump Control** - Pump is controlled externally to the console and identifies tanks that are line manifolded together.

Tank

Touch to assign a tank to the selected pump. NOTE: There may be both configured and non-configured items on this field's drop-down list (non-configured items will be prefixed by a **"!**).

Pump Control

[Field only enabled when the **Mode** field is set to "**TLS Pump Control**"].

The device the TLS uses to activate the selected pump. (It does not respond directly to pump requests - the TLS interprets the pump request signal to determine which pump, if any, to control.)

These devices can be relays that have been configured and assigned as pump controlling devices in Setup＞Devices (Relays) or can be pump controllers enabled for the Intelligent Pump Control feature in Setup＞Pumps and Lines＞Pump Controller.

Pump Sense

[Field only enabled when the **Mode** field is set to "**TLS Pump Control**" or "**Pump Sense**"].

The external input that tells the console when the pump is on or off. Pump sense inputs are configured and assigned in Setup ＞ Devices ("EXTERNAL INPUT SETUP"). More than one pump may use the same pump sense input.

NOTE: There may be both configured and non-configured items on this field's drop-down list (non-configured items will be prefixed by a '!').

Line

[Read-only field]. The line identifier of the selected pump (shows "**Not Assigned**" if that is the case).

Pump Relay Monitor Device

[Available with PLLD]. The external input that generates a pump relay alarm when the console suspects a relay is stuck or when the pump has been running continuously for a period exceeding the Max Run. The device is configured and assigned in Setup＞Devices ("EXTERNAL INPUT SETUP").

Stuck Relay

[Available with PLLD]. The console suspects a pump relay is "stuck" when the pump relay signal is inactive but the pump monitor indicates the pump is powered. When a pump relay fault detected by the console has persisted beyond this delay, a Pump Relay Alarm is generated. Touch to enter a Stuck Relay delay time from 5 to 600 seconds. The default is 60 seconds.

Max Run Time

[Available with PLLD]. When the console detects that a pump has running continuously for longer than the time entered in this field. Touch to enter time from 1 to 24 hours.

Setup>Pumps and Lines>Line

This screen lets you configure individual lines monitored by the console. This includes leak monitoring, Intelligent Pump Control and line manifolded settings.

Select a line from the icon list on the bottom of the screen to configure.

Configured
Touch the radio button to enable or disable the selected line.

NOTE: Set to Enabled only after completing all of the settings for this line.

Line Label
Touch to enter a description for this line.

Leak Monitoring
Touch to enable or disable PLLD monitoring on this line.

Pressure Sensor
Touch to select the line pressure sensor assigned to this line, (see 'Setup＞Devices - "LINE PRESSURE SENSOR SETUP").

Line Active Relay
If you have intelligent Pump Control on this line and are using a SCIII pump controller, use this field to assign a standard relay to the line. This relay supplies power to the SCIII pump controller.

Select a relay from the list.

This relay cannot simultaneously be assigned to Intelligent Pump Control and Automatic Events. Only one line active relay is allowed per line.

Recirculation
Enables the line for Recirculation. Choices are:
• None - Recirculation is not enabled on this line. This is the default.
• Standard - Recirculation is enabled on this line.

NOTE: PLLD and Recirculation cannot be enabled on the same line. If the Leak Monitoring field is enabled above for PLLD (Monitoring PLLD), Recirculation cannot be also enabled (Standard Recirculation) and vice versa.

Manifolded
Touch Yes if line is manifolded, No if not.

Dispense Mode
[Only enabled if Manifolded field is set to "Yes"] - Touch to select the dispense mode for this line.
• **Standard** - Only one pump feeds the line.

• **Manifolded Alternate - Volume**[1,2]- For line manifolded tanks, the console chooses the tank with the greatest inventory volume and switches to an alternate tank based on the Active Switchover and Threshold settings below.
• **Manifolded Sequential**[1,2] - If there is more than one tank with a pump on the line, tanks are pumped one at a time until the volume drops below the Pump Threshold (%) value set in the Setup > Tank > General screen. At that point, pumping will commence on the next available tank in the line set in sequential order by tank number.
• **Manifolded: All Pumps**- All pumps on the line are run.
• **Manifolded: Pump Sense** - This is used for manifolded lines with pump sets that are controlled externally to the TLS (e.g., direct primary/secondary through pump controllers). Pump Sense input helps to evaluate busy periods for CSLD/SLD/Timed Sudden Loss.
• **Manifolded: Alternate-Height** - For line manifolded tanks, the console chooses the tank with the greatest height and switches to an alternate tank based on the Active Switchover and Threshold settings below.
• **Manifolded: Alternate-Pump** - Pump selection is based on pump number order. For each new hook signal, the next pump in the sequence (by pump number) is selected.
If a tank has a primary/secondary pump configuration, only the primary pumps are selected.
There is no tank selection in this mode. This mode is intended for multiple pumps in the same tank or siphon-manifolded tanks. Use in Tank Staging if you want to configure help for a pump.

Active Switchover

This field is active if either Alternate Volume or Alternate Height is selected in the Dispense Mode field above. Choices are:
• Yes - Enables the switchover to an alternate tank, based on which tank has the greatest volume/height, taking into account the threshold value below.
• No - Disables the switchover to an alternate tank when dispensing. This is the default.

Switchover Volume Threshold
The volume used to determine when to switch over to an alternate tank. The console switches to an alternate tank (without losing line pressure) when the difference is greater than this threshold. The field can be set to a value between 10 and 999 gallons (37.8 - 3781.6 litres). The default value is 200 gallons (757 litres).

Switchover Height Threshold
The height used to determine when to switch over to an alternate tank. The console switches to an alternate tank (without losing line pressure) when the difference is greater than this threshold. The field can be set to a value between 1 and 99 inches (25.4 - 2514.6 mm). The default value is 2 inches (50.8 mm).

Continued on next page

Setup>Pumps and Lines>Line (Concluded)

In-Tank Staging	Primary
(Intelligent Pump Control) Enables/disables additional pump capacity (staging) provided by pumps within the same tank on the line when feedback from active pump controllers indicate help is necessary. The additional pumps stop when the hook signal is dropped. If pumps have a primary/secondary configuration (see below), the secondary pumps must be in the same tank to be used for In-Tank Staging. For more information on how staging affects which pump runs in various scenarios, see Understanding Intelligent Pump Control in Online help. **Across-Tank Staging** (Intelligent Pump Control) Enables/disables additional pump capacity (staging) provided by pumps on the line, associated with other tanks. The additional pumps stop when the hook signal is dropped. For more information on how staging affects which pump runs in various scenarios, see Understanding Intelligent Pump Control in Online help. **Pumps** Select a pump to assign to the line. If the Line Manifolded field above is set to **Yes**, you can select multiple pumps for this line. With Intelligent Pump Control, the pump name (P1/T5 - primary) may also include the pump (P1), the tank (T5) if assigned, and how this pump is used (primary): • In applicable Dispense modes, when there is one pump in a tank (or siphon-manifolded tank group), it is marked "Stand-alone". It is the only pump available to run. • In applicable Dispense modes, when there are two or more pumps in a tank (or siphon-manifolded tank group) and none are marked as a primary pump, they are marked "Alternate". The alternate with each switch hook as determined by the Dispense Mode. • If there are two or more pumps in a tank (or siphon-manifolded tank group) and one is checked as a primary pump, all other pumps are marked as "secondary".	This checkbox indicates that this is a primary pump in a primary/secondary multiple pump configuration for staging purposes. Only one pump per tank can be selected as a primary. The primary pump is always employed before the secondary pump. If the primary pump is unusable, the lowest numbered secondary pump in the configuration becomes a temporary primary.

1. To prevent backfilling, the level of all tanks connected to the line will be monitored. If the level of any tank exceeds 95% of the Max or Label Volume limit (see "Setup>Tank>Limits" on page 31), the pump for that tank will also be turned on during dispensing. The state of the pump that was already ON will not be changed.

2. At locations with manifolded fuel lines that have a mechanical line leak detector installed for each pump, the TLS Console must be programmed for either Alternate or Sequential. Doing so ensures that each line meets the 3 GPH requirement.

Setup>Pumps and Lines>PLLD

This screen lets you setup parameters for individual lines when the leak monitoring mode for the line selected line is set PLLD. Also, if **Leak Monitoring** is not enabled (in "Setup>Pumps and Lines>Line") for at least one line, then none of the PLLD screens can be edited.

The maximum number of lines that can be configured for Leak Detection is equal to the maximum number of STPs as determined by your console. However, only those lines for which Leak Monitoring is set to PLLD (in "Setup>Pumps and Lines>Line") are shown.

Automatic dialing or sending of PLLD alarms is setup in Automatic Events setup (Setup> Automatic Events).

Select a line from the icon list on the bottom of the screen to configure.

Configured
Touch the radio button to enable or disable the PLLD feature for the selected line.

NOTE: In setup wizard, you should enable settings as you go.

Controlling Pump
Touch to enter pump controlling this tank. Note: Pump must be programmed to use Pump Control (see "Setup>Pumps and Lines>PLLD" on page 48).

Pipe Type
Touch to enter the pipe type for this line. Refer to the 'Supported Pipe Types and Line Lengths' table in the Veeder–Root Electronic Line Leak Detectors Application Guide (P/N 577013–465).

NOTE: The fields that display below are dependent on, and applicable to, the Pipe Type selected. For example, if you select 2/3 IN. FIBERGLASS, the applicable fields that display will allow you to enter lengths for the 2" diameter and the 3" diameter pipe. If you select "user defined" pipe type, fields for setting up the 1st and 2nd line diameters, line lengths, and bulk modulus will display.

Line Length
The length of the piping between the tank and the dispensers, including the length between the check valve and where it connects into the product line. Line lengths are whole numbers. Values are in foot or meter increments, depending on system units.

Allowable selections: Refer to the 'Supported Pipe Types and Line Lengths' table in the Veeder–Root Electronic Line Leak Detectors Application Guide (P/N 577013–465).

The default is 0 but leaving it at 0 after entering a line length will cause a Setup Data warning.

Line Diameter
Allowable selections: 0 to 3.00 in (0 to 76.20mm)

The default is 0 but leaving it at 0 after entering a line length will cause a Setup Data warning.

2nd Line Length
Allowable selections: Refer to the 'Supported Pipe Types and Line Lengths' table in the Veeder–Root Electronic Line Leak Detectors Application Guide (P/N 577013–465).

Default: 0

2nd Line Diameter
Allowable selections: 0 to 3.00 in (0 to 76.20mm)

The default is 0.

1st Line Bulk Modulus
[only available if the pipe type is user-defined]

The line's resistance to uniform compression.

Refer to the 'Supported Pipe Types and Line Lengths' table in the Veeder–Root Electronic Line Leak Detectors Application Guide (P/N 577013–465).

Allowable selections: 1000 to 200,000 psi (6892 to 1,378,359kPa).

The default is 0 but leaving it at 0 after entering a line length will cause a Setup Data warning.

2nd Line Bulk Modulus
[only available if the pipe type is user-defined]

The line's resistance to uniform compression.

Refer to the 'Supported Pipe Types and Line Lengths' table in the Veeder–Root Electronic Line Leak Detectors Application Guide (P/N 577013–465).

Allowable selections: 1000 to 200,000 psi (6892 to 1,378,359kPa)

The default is 0.

Thermal Coefficient
If the controlling pump assigned to the line has a tank assignment, this field is set to the thermal coefficient from that tank (see "Setup>Tank>General") and the field is read-only. If there is no tank assignment, you can edit this field. If the tank assignment is removed, the system will use the default thermal coefficient 0.00070 U.S. Units (0.00126 Metric Units).

Allowable selections: 0.0 to 0.0016 gal./gal./°F (0.0 to 0.00288 lit./lit./°C)

Setup>Pumps and Lines>PLLD

<table>
<tr>
<td>

0.2 gph (0.76lph) Line Leak Test

Touch to select the scheduling frequency of the 0.2 gph (0.76lph) periodic tests:

Disabled - No manual, repetitive, or monthly 0.2 gph (0.76lph) testing is allowed. This is the default.

Repetitive - After a dispense, a 3.0 gph (11.3lph) test is run, followed by a 0.2 gph (0.76lph) test. The test blockout period (the **Precision Test Delay** in "Setup>Pumps and Lines>All PLLD") is then observed. Following the test blockout period, the test sequence repeats after the next dispense.

NOTE: If the 0.1 gph (0.3 lph) test is set for **Repetitive**, this test must also be set to Repetitive. This selection also enables manual 0.2 gph (0.76lph) tests to run when manually started.

Monthly - The test is scheduled at the beginning of a new month and remains scheduled until a test is passed.

Manual - 0.2 gph (0.76lph) tests run only when manually started in Diagnostics>PLLD>Manual Tests

0.1 gph (0.38lph) Line Leak Test

Touch to select the scheduling frequency of the 0.1 gph (0.38lph) precision tests.

Disabled - No manual or automatic 0.1 gph (0.3 lph) testing is allowed. This is the default.

Repetitive - After a dispense, a 3.0 gph (11.3lph) test is run, a 0.2 gph (0.76lph) test is run, followed by the 0.1 gph (0.38lph) test. The test blockout period (the **Precision Test Delay** in "Setup>Pumps and Lines>All PLLD") is then observed. Following the test blockout period, the test sequence repeats after the next dispense. This selection also enables manual 0.1 gph (0.38lph) testing tests to run when manually started.

Auto - The 0.1 gph (0.38lph) test is automatically scheduled to run 6 months after the last passed 0.1 gph (0.38lph) test. This setting also gives you the option to run the Passive 0.1 gph (0.38lph) Line Leak Test.

Manual - 0.1 gph (0.38lph) test runs only when manually started in Diagnostics>PLLD>Manual Tests.

Passive 0.1 gph (0.38lph) Line Leak Test

⌈only available if the pipe type is user-defined and the 0.1 gph (0.38lph) Line Leak Test is set to **Auto**⌋.

Enables a 0.1 gph (0.38lph) test to run after a passed 0.2 gph (0.76lph) test without the 0.1 gph (0.38lph) test being actively scheduled. If the 0.1 gph (0.38lph) test also passes, you are notified in Diagnostics>PLLD> 0.1 GPH Tests. If it fails, there is no notification of the passive 0.1 gph (0.38lph) test.

Allowable selections: Yes, No (default is No).

Shutdown Rate

The line is shut down if a specified or less precise PLLD test fails. For example, if you set the shutdown rate for 0.2 gph (0.76lph), the line will shut down if it fails both the 3.0 gph (11.3lph) test and the 0.2 gph (0.76lph) test.

Allowable selections: 3.0 gph (11.3lph), 0.2 gph (0.76lph), 0.1gph (0.38lph), or None (default is 3.0 gph (11.3lph).

Low Pressure Shutoff

If a low pressure is detected during dispense, the Low Pressure Alarm is triggered. The dispenser also halts dispensing if this field is enabled and the pressure is less than the **Low Pressure Shutoff Value** field below.

Allowable selections: Disabled, Enabled (default is Disabled).

</td>
<td>

Low Pressure Shutoff Value

If a low pressure is detected during dispense, a low pressure alarm is triggered. The dispenser also halts dispensing if the pressure is lower than the value in this field.

Allowable selections: 0 to 25 psi (0 to 172kPa)

Default: 0.0

Continuous Handle Timeout

If the dispenser handle remains off the hook for the period of time entered in this field, the line is shut down by the console.

Allowable selections: 1 to 16 hours. Default: 16 hours

Fuel Out Limit

If the tank product level is below the limit entered in this field, the Fuel Out Alarm is triggered.

Allowable selections: 0.00 to 15.00 in (0.00 to 381.00mm). Default: 10.00 in (254mm).

Altitude Pressure Offset

Allows you to set an altitude pressure adjustment for the absolute pressure transducer of plus or minus 5psi.

Allowable selections: -5.0 to 5.0. Default: 0.0.

Pump Comm Control Relay

This relay turns connects/breaks the communication with IQ Control Boxes. It is used during some PLLD tests.

When there is pumping on the line in normal operation, the relay is closed and the IQ Control Box can request the assistance from another pump (Helper Mode).

The PLLD gross test (3.0 gph/11.3 lph) is a "pump-off test" so the relay is also closed during this test.

However, when a PLLD precision test (0.2 gph/0.76 lph or 0.1 gph/0.38 lph test) begins, the relay is opened to prevent the IQ Control Box from requesting help from another pump while the test is running.

The IQ Box must be set to Manual PLLD mode and the relay selected must be set in Setup > Devices (Relays) as a Pump Comm Control relay.

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</table>

Setup>Pumps and Lines>All Lines

This screen lets you setup a line lockout schedule to prevent PLLD testing when you know that the pump will be powered off. In some areas, regulations prohibit leaving power to submersible pumps switched on during hours when the site is unattended. You should lock out the lines during these hours.	**Line Lockout Schedule** Touch to select a schedule for lockout events: **Disabled** - No lockout events scheduled
	Daily - Allows for one lockout event per day
	Individual - Allows for up to seven lockout events per week
	Day of Week Touch to select the day of the week for the lockout event. Only available if the **individual** lockout schedule was selected above.
	Start Time Touch to select the start time for the lockout event.
	End Time Touch to select the end time for the lockout event.
Restart on Alarm Clear	
Determines the behavior after the TLS turns off the pump due to a shutdown (auto-events, PLLD shutdown, pump controller faults, setup changes that invalidate pump setup, etc.)	
Enabled - When the shutdown condition clears, the TLS turns the pump back on.	
Disabled - When the shutdown condition clears, the pump does not turn back on until the hook signal toggles off and then back on again. This is the default.	

Setup>Pumps and Lines>All PLLD

This screen lets you setup test parameters for all pressurized line leak detectors.

Line Re-Enable Method

Determines what conditions allow you to re-enable the line.

Allowable selections:
• Pass Line Test - The line must pass the test in order to be enabled.
• Alarm Acknowledge - The line can be enabled after the alarm is acknowledged.

Periodic Test Warnings

Touch to enable or disable the Periodic Test Needed Warning/Alarm which informs you that a line will soon be out of compliance because a Periodic test was not completed within the required time.

Days before Periodic Warning

The number of days before the Periodic Test Alarm Warning is triggered.

Allowable selection: 0 - 30 days (default is 25 days).

Days before Periodic Alarm

The number of days before the Periodic Test Needed Alarm is triggered.

Allowable selection: 0 - 30 days (default is 30 days).

Annual Test Needed Warnings

Touch to enable or disable the Annual Test Needed Warnings which informs you that a line will soon be out of compliance because an Annual test was not completed within the required time. This lets you stop dispensing from the line until an Annual test is completed.

Days before Annual Warning

The number of days before the Annual Test Needed Warning is triggered.

Allowable selection: 0 - 365 days (default is 355).

Days before Annual Alarm

The number of days before the Annual Test Needed Alarm is triggered.

Allowable selection: 0 - 365 days (default is 365)

Precision Test Delay (hours)

The number of hours between a passed periodic or annual test and running the next line test(s).

NOTE: In previous TLS consoles, this was referred to as Precision Test Duration.

Allowable selection: 12 to 744 hours

NOTE: When CSLD is enabled for the tank assigned to the line, a minimum value of 60 hours is used internally when the precision test delay value is less than 60.

0.1 gph (0.38 lph) Line Test Auto Confirm

Touch to enable or disable the ability of the console to evaluate several 0.1 gph (0.38 lph) line tests before a result is posted. Enabling Auto Confirm reduces the risk of false test results, but it extends the time that it may take to post results.

0.2 gph (0.76 lph) Line Test Auto Confirm

Touch to enable or disable the ability of the console to evaluate several 0.2 gph (0.76 lph) line tests before a result is posted. Enabling Auto Confirm reduces the risk of false test results, but it extends the time that it may take to post results.

See the Actions>Help>Understanding Regulatory Compliance In-Tank Leak Tests topic for more information.

Setup>Pumps and Lines>Recirculation - [Available with Recirculation]

This screen lets you configure temperature sensors on a line for the automatic mode of Recirculation.

Line Label
Description of the line set in Setup>Pumps and Lines>Line.

Configured
Enables the Recirculation functionality for the selected line. Disabling Recirculation does not disable the temperature sensors (seen below) that are associated with a line.

Freeze Warning Temp
When any of the temperature sensors on the line reach this temperature, a Freeze Warning is triggered. This alerts the operator that recirculation has failed to raise the temperature in the line to a level that is above freezing.

The default temperature is 17.0°F (-8°C). The range depends on the brand of temperature sensor but the upper limit is 40.0°F (4.4°C).

Low Temp Recirculation
Enables and disables the Low Temp Recirculation, allowing you to specify the temperature below.

Low Recirculation Temp
When any of the temperature sensors on the line reach this temperature, automatic recirculation starts and recirculation will try to bring the temperature back to the normal temperature level. The default temperature is 30.0°F (-1.1°C) and the range is 12.0°F to 40.0°F (-11.1°C to 4.4°C). The Low Recirculation temperature must be higher than the Freeze Warning Temperature set above.

High Temp Recirculation
Enables and disables High Temperature Recirculation, allowing you to specify the temperature below

High Recirculation Temp
When any of the temperature sensors on the line reach this temperature, the recirculation starts and recirculation will try to bring the temperature down to the normal temperature level. The default value is 85.0°F (29.4°C) and the range is 70.0°F to 120.0°F (21.1°C to 48.8°C).

Available Sensors
Displays available temperature sensors.

Selected Sensors
Displays the temperature sensors that are associated with this line.

Setup>Temp Control - [Available with Temp Control]

This screen lets you associate a relay with temperature sensors and set the temperatures at which the relay will turn on and off.

One way Temp Control can be used is with an auxiliary heating or cooling system to prevent freezing or heat degradation of the fluid in a line in conjunction with Recirculation.

At least one temperature sensor must be assigned to a temperature control relay. You may assign multiple sensors to a relay as well as assigning a sensor to multiple relays.

Relay Label
The label given to the relay in Setup>Devices.

Configured
Enables or disables this relay for Temp Control.

Operation Mode
Allows you to choose between heating mode and cooling mode, depending on how you want to use this relay.

Relay Control On Temp
When any of the sensors associated with the relay detect this temperature, the relay turns on and remains on until the Relay Control Off Temp is detected by all of the sensors associated with the relay.

The range of temperatures you can enter varies by sensor brand. The default is 19.0°F (-7.2°C).

For example, you can use the Relay Control Off Temp and Relay Control On Temp fields as follows:

- In heating mode, you can set up an auxiliary heating system so the relay turns it on when any of the associated temp sensors detect the low temperature, then off when all associated temp sensors detect the high temperature.

  If the "On" temperature is 19°F (-7.2°C) and the "Off" temperature is 24°F (-4.4°C), when the fluid temperature reaches 19°F (-7.2°C), the relay turns on the heating system to heat the fluid. When the temperature reaches 24.0°F (-4.4°C), the relay will turn off the heating system.
- In cooling mode, you can set up cooling so the relay turns it on when any of the associated sensors detect the high temperature, then off when all associated sensors detect the low temperature.

  If the "On" temperature is 85.0°F (29.4°C) and the "Off" temperature is 79.0°F (26.1°C), as the temperature rises to 85.0°F (29.4°C), the relay turns on the cooling system to cool the fluid. When the temperature reaches 79.0°F (26.1°C), the relay (and thus the cooling system) turns off.

Relay Control Off Temp
When all of the sensors associated with the relay detect this temperature, the relay turns off.

The range you can enter in this field varies by sensor brand. The default is 24.0°F (-4.4°C).

Low Temp Warning
Enables or disables the Low Temp warning given when an associated temperature sensor detects the Low Temperature set below. This is intended as a warning to the operator that the relay may not be working correctly.

Low Temperature
The temperature that triggers the Low Temp warning. The default is 17.0°F (-8.3°C). In heating mode, the temperature must be lower than the Relay Control On Temp above. In cooling mode, the temperature must be higher than the Relay Control Off Temp above.

High Temp Warning
Enables or disables the High Temp warning given when the temperature sensor detects the High Temperature set below. This is intended as a warning to the operator that the relay may not be working correctly.

High Temperature
The temperature that triggers the High Temp warning. The default is 75.0°F (23.8°C). In heating mode, the temperature must be higher than the Relay Control Off Temp above. In cooling mode, the temperature must be lower than the Relay Control On Temp.

Available Sensors
Sensors that are available to control this relay (any enabled temperature sensor).

Selected Sensors
Sensors that are associated with this relay.

Setup>Inventory>Report Times

This screen lets you set up how often Inventory History reports are generated.

Reporting Interval

Touch to select how often reports are generated (choices are):

Disabled, 5 minutes, 10 minutes, 15 minutes, 20 minutes, 30 minutes, 1 hour (default), 2 hours, 3 hours, 4 hours, 6 hours, 8 hours, 12 hours or 24 hours.

Storage Length

⌈Read only field⌉ This is the maximum number of records that can be stored by the system.

NOTE: When you the system reaches 721 records, the oldest records will start to drop off the report.

Log Start Time

⌈If reporting interval is set to two hours or more⌉

touch to select time to start logging.

Setup>Inventory>Shifts

This screen lets you setup the shift schedule and the shift close method. Shifts are used as planning time periods for activities like reconciliation and BIR reporting.

If shifts are enabled, a new shift inventory report will be created and will include the shift number. You can also access current or historical reports of shifts.

Shift Close Method

Timed
• The console will start and stop shifts automatically without any user action.
• You need to enter at least one shift time field (see Shift Times field below).
• When set to timed, a manual shift close will close the shift for ALL tanks, but the tank(s) must be idle before a shift can close. Once a timed shift has been closed, no other shift can be closed until the shift duration ends.

Manual
• You close a shift directly on the console by going to Actions > Close Shift. Each time you close a shift directly, the console considers the current shift over, and the next shift has started.

• You must wait a minimum of two hours between the close of each manual shift. If you try to close a shift sooner, a warning message displays.
• BIR manual shift close can be applied to all tanks or to an individual tank. The BIR tank will immediately close when the operator makes the request. There is no waiting or idle time. The remaining open tanks must be closed within the shift close timeout period (see Shift Close Timeout field below). Tanks opened after the shift close timeout period will be automatically closed.

Shift Close Timeout

⌈For "**Manual**" shift close method only⌉.

Touch to enter the shift Close Timeout period (30 to 60 minutes)

NOTES:
• When you close a shift, you can select an individual tank to close. The console will close the selected tank, but wait for the amount of time as specified in this field, and then close the shift for all remaining tanks.
• This feature makes it possible to complete a delivery for a tank before closing the shift.

Max. Number of Shift/Day

⌈For "**Manual**" shift close method only⌉

Touch to enter the maximum number of shifts per day, up to 8 (default is 3)

Shift Times (1 - 8)

⌈For "**Timed**" shift close method only⌉

Touch to enter the starting time for each shift.

Setup>Delivery

This screen lets you configure the delivery method.
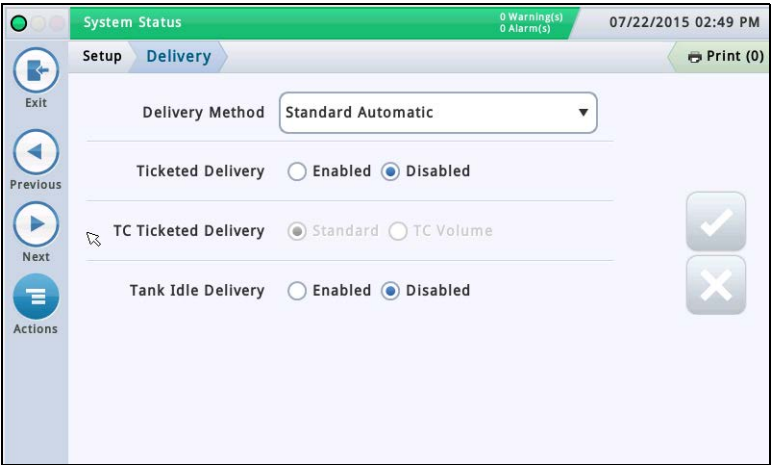
Delivery Method

Touch to select the type of delivery method for receiving inventory. Choices are:

Standard Automatic - The console detects that a delivery is taking place when there is an increase in fuel height as measured by the probe. A delivery is complete when the height no longer increases (default option that works in most applications).

Manual - You manually indicate that a delivery is taking place using the Start and Stop buttons. See the Reports>Delivery>Manual Delivery screen for information about how to perform a Manual Delivery.

Ticketed Delivery

If you enable ticketed delivery, you can manually enter ticketed volumes using the receipts from delivery trucks. Enabling this feature generates reports showing delivery variances between ticketed volume and gauged volume and book variance.

TC Ticketed Delivery

[Available only if you **Enabled** Ticketed Delivery]

Touch to select the type of ticketed delivery. Choices are: Standard, TC Volume

You can choose whether the values you enter are standard (gross) volumes or temperature-compensated (TC) volumes. This field must be enabled for TC volumes to be included on the Delivery Reports.

Tank Idle Delivery

Touch to enable or disable the tank idle delivery feature.

The Tank Idle Delivery feature is used in sites that manually stop dispensing 5 minutes prior to delivery, and do not restart dispensing until the delivery delay period has expired.

Setup>Automatic Events>Address Book

This screen provides a list of your contact names and their outbound connectivity details. It also lets you add or edit your contacts as necessary.

Screen Column Descriptions:

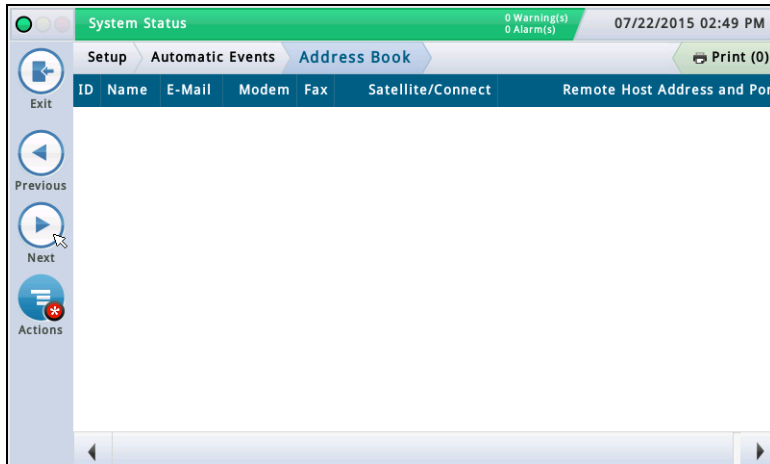ID - An automatically assigned identifier number

Name - Contact name

E-Mail - Email address of the contact entry

Modem - Computer modem phone number of the contact entry

Fax - Fax modem phone number of the contact entry

Satellite/Connect - Satellite connection string and satellite COM port of contact entry

Remote Host Address and Port - Remote host TCP/IP address and port of the contact entry

Adding/Editing a Contact

1. Do the following:
• If editing a contact, touch a record to modify (a checkmark appears next to the entry), then touch **Actions>Edit Contact**.
• If adding a contact, touch **Actions>Add Contact**.

2. Enter or edit information in the appropriate fields below:

Name - Label for this contact.

Email - Email address of contact

Modem

    Modem # (Computer) - Phone number of the modem

    Modem COM Port - Comm Port of the modem installed on the console

    Modem Dial-Out String - Add an alternate modem dial-out initialization string that overrides the one stored in the Comm Device Setup screen. Leave this field blank to use the modem dial-out initialization string stored on the Comm Device Setup screen.

    NOTE: The Comm Device Setup screen must be changed on the console directly.

    Modem Number of Retries - Number of times the console attempts to connect if the last connection attempt fails.

    Modem Retry Delay Time - Amount of time to wait between retry attempts.

FAX

    FAX # (Computer) - Phone number of the Fax machine.

    FAX COM Port - Comm Port of the Fax modem installed on the console.

    FAX Dial-Out String - Add an alternate modem dial-out initialization string that overrides the one stored in the Comm Device Setup screen. Leave this field blank to use the modem dial-out initialization string stored on the Comm Device Setup screen.

    NOTE: The Comm Device Setup screen must be changed on the console directly.

    FAX Number of Retries - Number of times the console attempts to connect if the last connection attempt fails.

    FAX Retry Delay Time - Amount of time to wait between retry attempts.

TCP/IP

    Remote TCP/IP Address - An IP address with the format XXX.XXX.XXX.XXX; where XXX is from 0 to 255 (you can also specify a server address such as myServer.bigg.com).

    Remote TCP/IP Port - TCP/IP port of the remote host.

    Local TCP/IP COM Port - Local TCP/IP assignment.

    TCP/IP Number of Retries - Number of times the console attempts to connect if the last connection attempt fails.

    TCP/IP Retry Delay Time - Amount of time to wait between retry attempts.

Satellite

    Satellite Conn. String - Satellite connection string.

   **Satellite COM Port** - Satellite assignment for the current contact

    Satellite Number of Retries - Number of times the console attempts to connect if the last connection attempt fails

    Satellite Retry Delay Time - Amount of time to wait between retry attempts.

Setup>Automatic Events>AutoXmit

This screen lets you set up messages that automatically transmit (AutoXmit) through an RS-232 communication port when alarms are posted by the console.

NOTE: To use this feature, you need to have an RS-232 module installed on your console. The Diagnostics>Module>Communication screen shows if this module is currently installed.
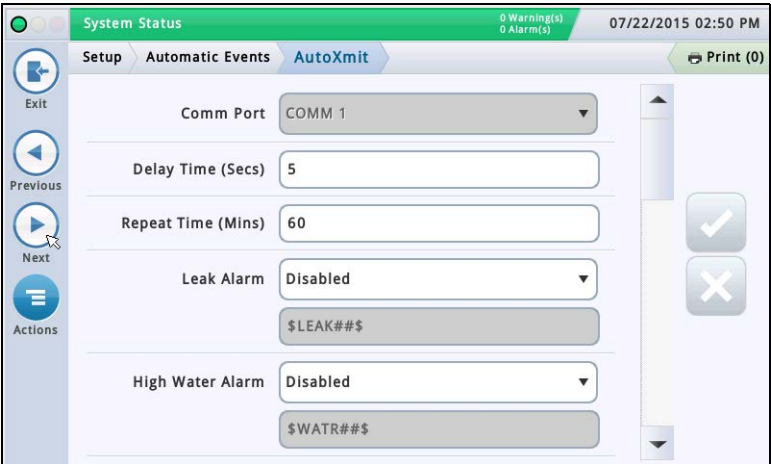
Comm Port

Touch to select a Comm port for serial communication (for example, "Comm.id1")

NOTE: Only Comm1 supports AutoXmit.

Delay Time (Secs)

Touch to enter an amount of time in seconds (up to 240) to wait after an alarm is posted by the console before the message is sent.

Repeat Time (Mins)

[Field applies If you select "**repeat**" for any alarm message (see below)]

Touch to enter an amount of time (up to 240 minutes) to wait before the console retransmits the message up until the alarm is cleared.

AutoXmit Alarm List
• Leak Alarm
• High Water Alarm
• Overfill Alarm
• Low Limit Alarm
• Theft Alarm
• Delivery Start Alarm
• Delivery Stop Alarm
• External Input On Alarm
• External Input Off Alarm
• Sensor Fuel Alarm
• Sensor Water Alarm
• Sensor Out Alarm

Selecting Alarms to Automatically transmit.

1. The default selection is **Disable** - Do not transmit a message.
2. To transmit a message for an alarm, in the field next to that alarm, touch the drop down arrow to select Transmit or Repeat:

    Transmit - Transmit one message when this alarm is posted.

    Repeat - Transmit a message continuously until the alarm is cleared. Between transmissions wait for the period of time specified in the **Repeat Time (mins.)** field above.
3. The second field below each alarm shows the string format that controls how the message appears. Veeder-Root recommends that you accept the default selection.

Setup>Automatic Events>Autoconnect Tasks

This screen lets you view, add, edit, or delete tasks that automatically transmit information. One task can involve many combinations of reports or actions, times, events, contacts, and connection modes. You can store up to 30 Autoconnect tasks.

Screen Column Descriptions

Ev ID - Identifier automatically assigned to an event by the console.

Time/Event - Time or event that triggers the device-related task (e.g., daily at 3:00 PM). May have more than one selected.

Report/Action - Reports to be issued (e.g., inventory report), or the auto connect action (e.g., outbound connection).

Contact - Organization/person to be contacted (e.g., "ABC Mgmt.") as defined in Setup > Automatic Events > Address Book.

Connection Mode - Device used (e.g., computer) and format of the data to be transmitted (e.g., TCP/IP, Modem, FAX, Satellite, Email).

Adding or Editing A Task

1. Do the following:
- If editing a task, select a task entry to modify (a checkmark appears next to the entry), then select **Actions>Edit Task**.
- If adding a task, select **Actions>Add Task**.

2. Touch the fields below to enter the appropriate information:

Connection Mode
- Modem - To use, a USB modem or Fax/Modem card or a USB must be installed in the console.
- Remote TCP/IP Address - for Inform software or Insite 360
- Satellite - To use, a satellite comm device must be installed in the console.
- Email - To use, an e-mail address must be programmed into the Address Book of the console.
- Fax - To use, either a USB or Fax/Modem card must be installed in the console.

Reports
[only available if you select a connection mode of Email or Fax]
One (or more) reports that will be sent with the trigger.

Contact
Name of an address book contact (as defined in Setup>Automatic Events>Address Book).

Trigger
Trigger for the automatic task:

On Time - Select the time and date for this autoconnect task.

On Event - Select the event and/or alarm for this autoconnect task. Navigate to the proper sub-items in the list to make your choice.
- Choices in capital letters (AUTO EVENT, CONTACT, COMM, PRODUCT, TANK) are alarms
- Choices in upper and lower case (Delivery Start, Delivery Complete, etc.) are events.

3. Touch ☑ to save your settings.

Deleting A Task

1. Select the task record entry that you want to delete (a checkmark appears next to the entry).

2. Touch **Actions** 🔲 then **Remove Task**.

3. Touch ☑ to save your settings.

Setup>Automatic Events>Device Tasks

This screen lists the device tasks currently configured for the console, and it also allows you to add, edit, or delete these tasks.
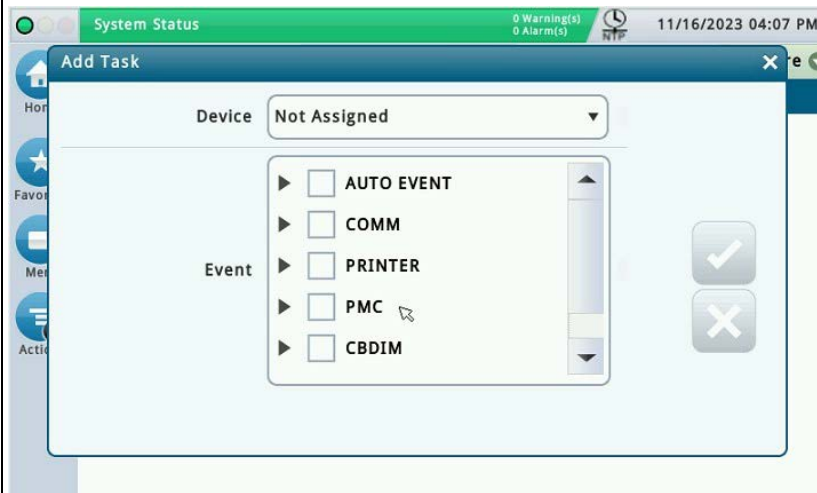
Screen Column Descriptions

<u>Ev ID</u> - Identifier automatically assigned to an event by the console.

<u>Time/Event</u> - Event that triggers the task (for example, "Overfill Alarm").

<u>Device/Connection Mode</u> - Label of the device that is involved in performing the function (usually this is a relay, such as "Relay 1").

Adding or Editing A Task

1. Do the following:
   - If editing a task, select a task record to modify (a checkmark appears next to the entry), then select **Actions>Edit Task**.
   - If adding a task, select **Actions>Add Task**.

2. Touch the fields below to enter or edit the appropriate information:
   - **Device** - Select the relay from the list of available relays on your console (you can also select other devices).
   - **Trigger** - Select a trigger from the list of available triggers (Events). The triggers that you see depend on your configuration. For example, a console alarm can be a trigger for a device task.

3. Touch ✔ to save your settings.

Deleting A Task

1. Select the task record entry that you want to delete (a checkmark appears next to the entry).

2. Touch **Actions** 🔴 then **Remove Task**.

3. Touch ✔ to save your settings.

Setup>Automatic Events>Print Tasks

This screen lists the printer-related automatic tasks currently configured for the console, and it also lets you add, edit, or delete these tasks.

Screen Column Descriptions

Ev ID - Console-automatically assigned identifier (1- 30) to an event

Time / Event - Time or event that triggers the task (e.g., Daily at 3:00 PM)

Report - Name of report to be printed

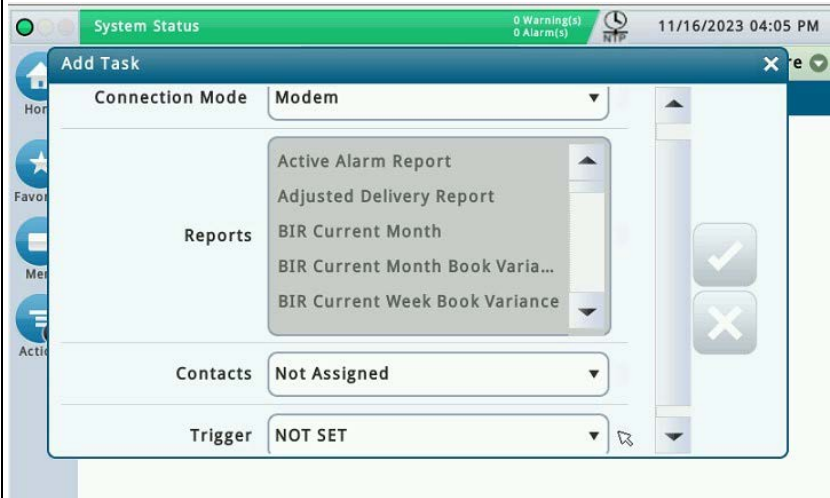Printer - Printer device label

Adding or Editing A Task

1. Do the following:
- If editing a task, select a task record to modify (a checkmark appears next to the entry), then select **Actions>Edit Task**.
- If adding a task, select **Actions>Add Task**.

2. Touch the fields below to enter or edit the appropriate information:
- **Event** - Select the Event that will trigger the task (depends on your configuration).
- **Printer** - Select the printer printing this task.
- **Report** - Select the report (or reports) to print.

3. Touch ☑ to save your settings.

Deleting A Task

1. Select the task record entry that you want to delete (a checkmark appears next to the entry).

2. Touch **Actions** ⬛ then **Remove Task**.

3. Touch ☑ to save your settings.

Setup>Automatic Events>All Tasks

This screen lists all saved tasks. One task can involve many combinations of reports or actions, times, events, contacts, and connection modes.

Screen Column Descriptions

Ev Id - Identifier automatically assigned to an event by the console.

Time / Event - Time or event that triggers the device-related task (e.g., "Leak Alarm: Disabled"); may have more than one listed.

Report / Action - Reports to be issued (e.g., "Inventory Report"), or the auto connect action (e.g., "AutoXmit").

Contact - Organization/person to be contacted (e.g., ABC Mgmt.) as defined in Setup > Automatic Events > Address Book.

Device / Connection Mode - Device used (e.g., "Co 1") and format of the data to be transmitted (e.g., "EMAIL", etc.).

System Administration>Roles Admin

This screen lets you set up roles (levels of security) and customize how each role should behave for a user who is assigned to that role.

Setting up a role involves specifying the screens that a user can view and/or edit/perform.
• The first user created must have the admin role.
• Only users with an Administrator role can add, edit, or delete roles.
• You cannot edit or delete the Predefined Roles of Administrator or Operator.
• For the user login feature to be activated, you need to **Enable** the **Front Panel Security** field in "Setup>System>Security" screen.
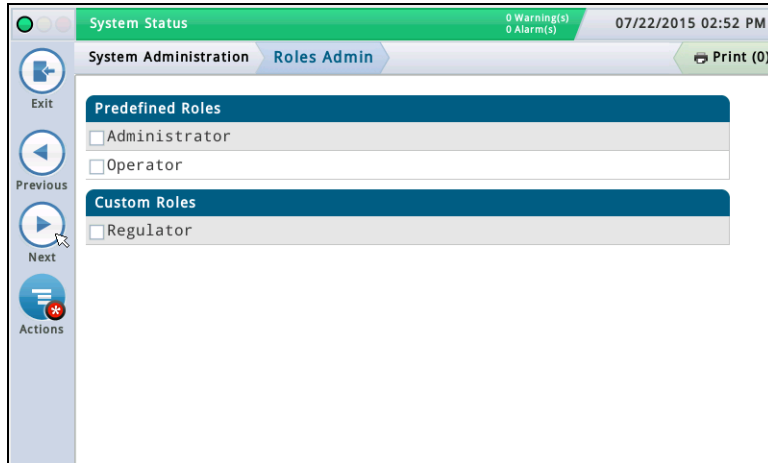
Predefined Roles Description
Administrator - Able to edit console configuration, perform software upgrades, generate reports, and start various diagnostic tests. Also able to create new roles and users.

Operator - Able to view and generate reports and perform certain manual functions, like a manual delivery.

**Service Provider** - [Available with Maintenance Tracker] - Able to access the screens associated with Maintenance Tracker, as well as other Operator functions.

Custom Roles Description
• Regulator - Can print and review the console reports.
• Any custom roles you have created - User- defined.

Viewing Role Permissions (available to an Administrator user only)
1. Touch **Actions>View Permissions**:
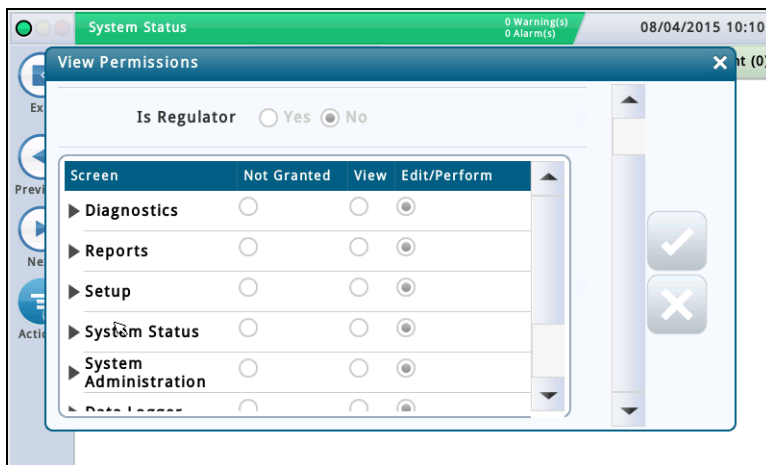
2. View the permissions by program section or by individual program as describe below:

Field	Description
Is Regulator	Lets you choose whether this role is regulator role or not (the regulator role can review the console reports)
Screen	Lets you view permissions by program section. Click on the down arrow by the section to view the permissions of individual programs within that section.
Not Granted	⊖ Designates that permissions to view or edit/perform have not been granted to this program or program section
View	◉Designates that this program or program section can be viewed by this role
Edit/Perform	◉Designates that this program or program section can be edited/performed by this role

3. Touch the **X** in the upper right corner of the screen to exit the screen.

Adding a Role (available to an Administrator user only)
1. Touch **Actions>Add Role**:
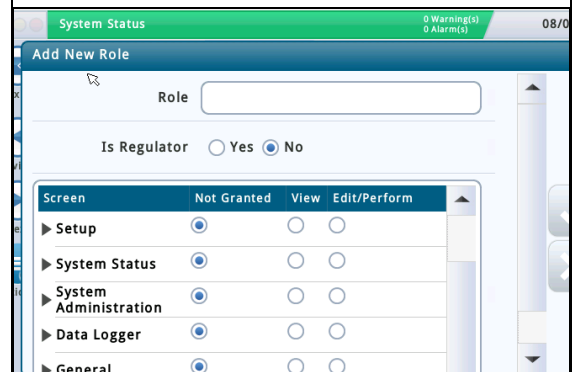
2. Enter information in the Add New Role fields as described below:

Field	Description
Role	Name of Role
Is Regulator	Lets you choose whether this role is regulator role or not (the regulator role can review the console reports)
Screen	Lets you view permissions by program section. Click on the down arrow by the section to set the permissions of individual programs within that section.
Not Granted	○Designates that permissions to view or edit/perform have not been granted to this program or program section
View	◉Designates that this program or program section can be viewed by this role
Edit/Perform	◉Designates that this program or program section can be edited/performed by this role

3. Touch ✔ to save your entry. Touch ✖ and touch the **X** in the upper right corner to exit without saving changes.

Continued on next page

System Administration>Roles Admin - **Concluded**

Cloning A Role (available to an Administrator user only)

Cloning a role lets you copy a role (and all of its permissions) to use as a starting point when creating a new role. This lets you save setup time when the new role is similar in nature to an existing role.

1. Select a role to clone (a checkmark appears next to the entry), then select **Actions>Clone Role**:

2. Enter information in the Clone Role fields as described below:

Field	Description
Role	Name of Role
Is Regulator	Lets you choose whether this role is regulator role or not (the regulator role can review the console reports).
Screen	Lets you set permissions by program section. Click on the down arrow by the section to set the permissions of individual programs within that section.
Not Granted	◯Designates that permissions to view or edit/perform have not been granted to this program or program section.
View	◉Designates that this program or program section can be viewed by this role.
Edit/Perform	◉Designates that this program or program section can be edited/performed by this role.

3. Touch ✔ to save your entry. Touch ✖ and touch the **X** in the upper right corner to exit without saving changes.
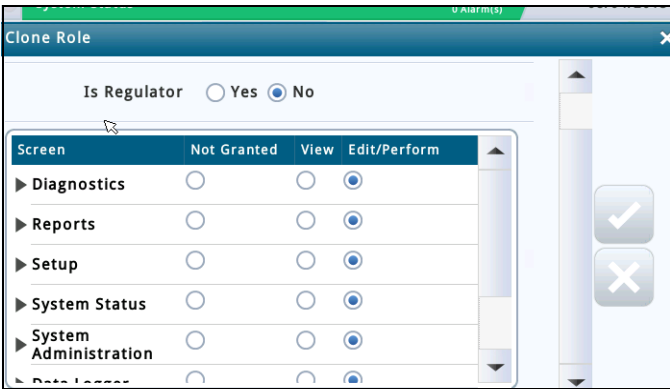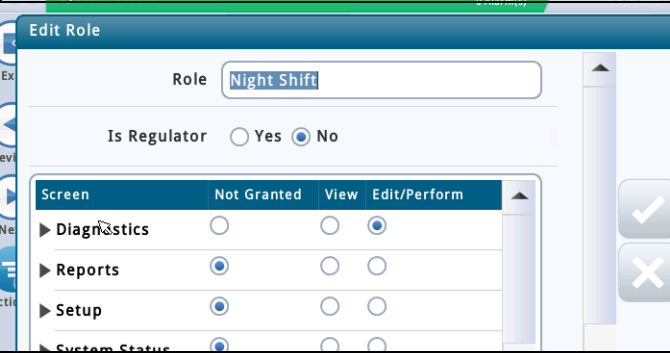
Editing A Role (available to an Administrator user only)

NOTE: You cannot edit the Operator or Administrator roles.

1. Select a role to modify (a checkmark appears next to the entry), then select **Actions>Edit Role:**

2. Enter information in the Edit Role fields as described below:

Field	Description
Role	Name of Role
Is Regulator	Lets you choose whether this role is regulator role or not.
Screen	Lets you set permissions by program section. Click on the down arrow by the section to set the permissions of individual programs within that section.
Not Granted	◯Designates that permissions to view or edit/perform have not been granted to this program or program section.
View	◉Designates that this program or program section can be viewed by this role.
Edit/Perform	◉Designates that this program or program section can be edited/performed by this role.

3. Touch ✔ to save your entry. Touch ✖ and touch the **X** in the upper right corner to exit without saving changes.

Deleting A Role (available to an Administrator user only)

NOTE: You can not delete the Operator or Administrator roles. Also, no user can be assigned to a role that you want to delete (the Delete option will be unavailable). In that situation, reassign users to another role, or delete users assigned to that role, before deleting that role.

1. Select a role to delete (a checkmark appears next to the entry), then select **Actions>Delete Role**:


2. Touch ✔ to delete selected role or ✖ to cancel deletion.

System Administration>Users Admin

This screen lets you set up users with different roles (levels of security) so you can control a user's access to specific screens on the console. This is necessary when you want to ensure untrained personal are not changing the programming and possibly disabling different aspects of your compliance reporting. NOTE: the first user created must have the admin role.
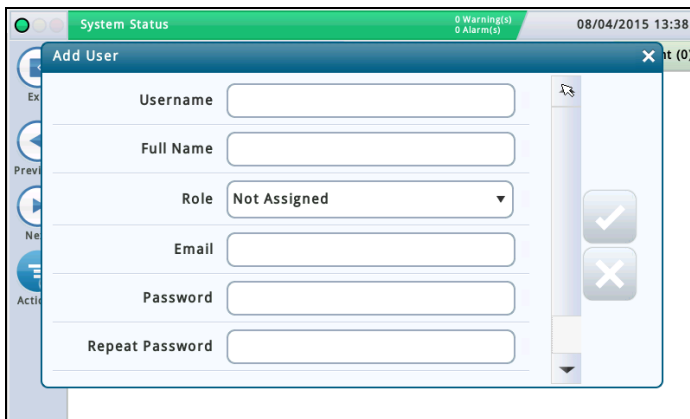
IMPORTANT
- If this is the first time you are entering users on the console, you have full access to add, modify, or delete users at any role (level). Once you setup users, however, only users with an Administrator role have the ability to add or delete users.
- After you add a user, make sure you enable the Front Panel Security field in "Setup>System>Security" screen for the user login feature to be activated.
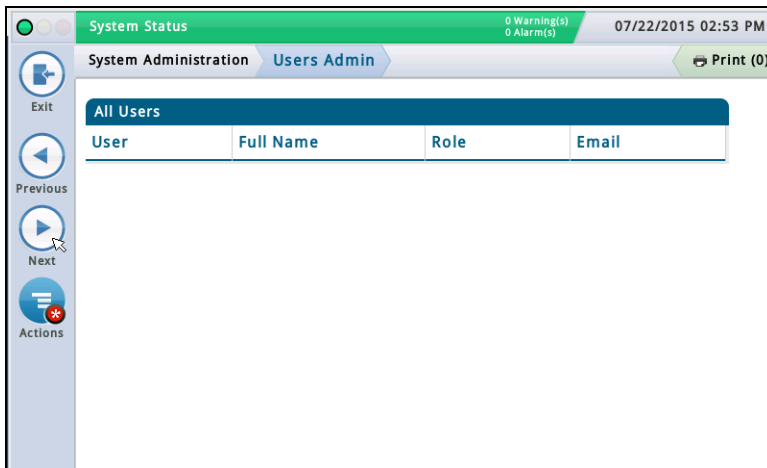
Adding a User (available to an Administrator user only)

1. Select **Actions>Add User**:

2. Enter information in the Add User fields as described below:

Field	Description
User	Login name of user (cannot have spaces).
Full Name	Full name of user.
Role	Level of security for that user - choices are: • Administrator • Operator • Regulator • Service Provider • Any custom roles that you have setup for (example, "Manager"). See Action>Help>System Administration> Roles Admin topic for more information.
Email	Email address of user.
Password	Password for user (minimum of 3; maximum of 123 alpha-numeric characters).
Repeat Password	Repeat entry of password to confirm.
Force Change Password [checkbox]	When checked, forces the user to enter a new password then next time the user logs on to the console.

3. Touch ✔ to save your entry. Touch ✘ and touch the **X** in the upper right corner to exit without saving changes.

Editing a User (available to that user and/or an Administrator user) - NOTE: there has to be at least one user with an Admin role.

You may need to edit a user if a person's responsibility has changed and you need to reassign their role.

1. Select a user to modify (a checkmark appears next to the entry), then select **Actions>Edit User**.
2. Change information in the following fields. NOTE: You cannot change the login name of a user. If you need to change the login name, delete the user, and then re-enter a new user with a login name you desire.

Field	Description
Full Name	Full name of user
Email	Email address of user
Role [field accessible by an Administrator user only]	Level of security for that user - choices are: • Administrator • Operator • Regulator • Any custom roles that you have setup for (example, "Manager"). See Action>Help>System Administration> Roles Admin topic for more information.
Change Password [checkbox]	When checked, let's a user change his/her password while in this screen
Password	Password for user (minimum of 3 alpha-numeric characters)
Repeat Password	Repeat entry of password to confirm
Force Change Password [checkbox] [field accessible by an Administrator user only]	When checked, forces the user to enter a new password then next time the user logs on to the console

Continued on next page

System Administration>Users Admin - Concluded

3. Touch ✅ to save your entry. Touch ❌ and touch the **X** in the upper right corner to exit without saving changes.

Deleting a User (available to an Administrator user only)

NOTE: You can not delete or reassign the role of the last Admin user - there has to be at least one user with an Admin role.

1. Select a user to delete (a checkmark appears next to the entry, and then select **Actions>Delete User**.

2. Touch ✅ to delete selected role or ❌ to cancel deletion.

Setup>System>Security

This screen lets you enable the front panel security feature which requires a password for a user to login to the console. With this feature disabled (i.e., no password required), all users can access all screens. When enabled, users must login with the appropriate password to gain access to the screens they are allowed to view (as set up in the "System Administration>Users Admin" screen). This is helpful when you want to limit access to sensitive areas of the system, such as the setup and diagnostic screens.

NOTES:
• This feature cannot be enabled until an Administrator account has been created (done in the System Administration>Users Admin screen).
• Once the Front Panel Security field is enabled, you must enter the correct password or you will remain in the logged-out mode. In the logged-out mode, you can only view a very limited number of screens (such as system status).
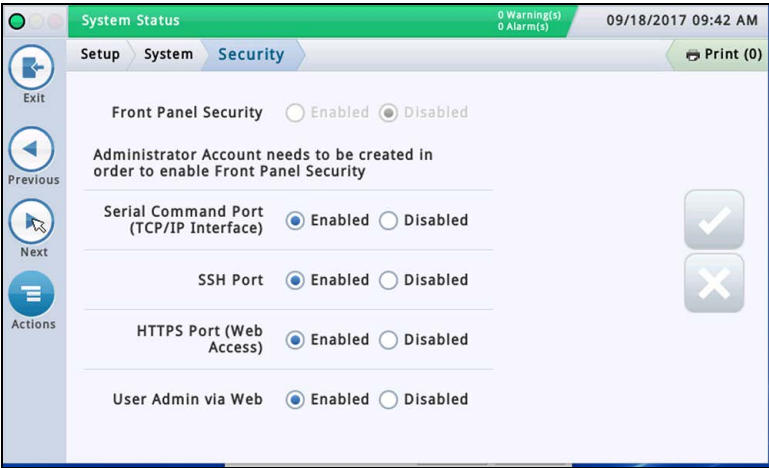
Front Panel Security
Enables or disables the front panel security feature. With this feature disabled, all users can access all screens with no password required. When enabled, users must login with the appropriate password to gain access to the screens they are allowed (as set up in the System Administration > Users Admin screen). This is helpful when you want to limit access to sensitive areas of the system, such as the setup and diagnostic screens.

Serial Command Port (TCP/IP Interface)

Default is enabled.

This will completely disable access to the serial command port via Ethernet. The port is defined under Setup > Communication > Ethernet Port Serial Command Port (default is 10001).

Serial commands should still continue to function via the physical RS232 interface (Serial COM Port 1 & 2).

SSH Port

Enables or disables the ability for the TLS to respond to SSH connections on the designated SSH port (configured in Setup > Communication > Ethernet Port.)

When this field is disabled, all SSH port traffic is disabled, including access from Veeder-Root Technical Support.

HTTPS Port (Web Access)

Enables or disables the use of the Web server (Apache) including Android/iPhone apps, Web services and user Web view access via the HTTPS Port (configured in Setup > Communication > Ethernet Port.) When disabled, all configuration of the TLS must be done via the GUI or serial commands. Other services such as SSH access and email continue to function. The default is enabled.

User Admin via Web

Enables or disables user admin management using the System Administration > Users Admin screen via the Web view. When disabled, access to the Users Admin screen would be available via the GUI interface only.

Generate Setup

[GUI only; Not available in Web view]

The Generate Setup screen lets you generate a record of the current setup on the console. You or a technician may want to print this record as a physical backup, use it to replicate the setup on other consoles, or use it to study how the console or site is setup.

You may generate "All Setup" or limit the record to what you specify in the Print Setup Group and Device Type Selection fields. If there is more than one printer defined on the console, you can chose the printer from a list that displays (those configured in Setup > Printers > Setup).

To minimize the size of the "All Setup" printed record by eliminating "empty" device entries, setup parameters are generated only for devices when at least one of the following is true:

• The device has been set to "Enabled",

> or

• The device has a label configured (the value changed from the default),

> or

• The device has an address assigned

You will only generate output from features installed on your console. For example, if you do not have the PLLD feature installed on the console, you will not see setup specific to PLLD.

Table 1. Generate Setup Screen Field Descriptions

Field	Description
Print Setup Group	Allows you to choose All Setup (the default) or limit the record to a group of settings from the Setup menu (i.e., Automatic Events, BIR Setup, Communication Setup, etc.)
Device Type Selection	Available when you select a Setup Group above that includes devices (All Setup or Devices), this setting allows you to further limit the record to All Devices (subject to the limitations defined above) or specific device groups. NOTE: Pumps and Lines are not included in device selection because there is a Print Setup Group for that. See the above field.
Destination	Currently, the generated record is sent to a printer.
Generate	Available when enough information is entered above, selecting this button generates the setup record. NOTE: This button may be unavailable when a setup record is already in the process of generating. Generation can take a minute and repeatedly pressing the Print or Generate button may result in duplicate reports.

Software Maintenance

This section contains information on TLS-450PLUS and TLS4 software maintenance screens. Veeder-Root recommends frequent database backups to ensure setup and report data archives are up to date.

Touch the Menu>Software Maintenance icons to view a list of the available Software Maintenance screens:
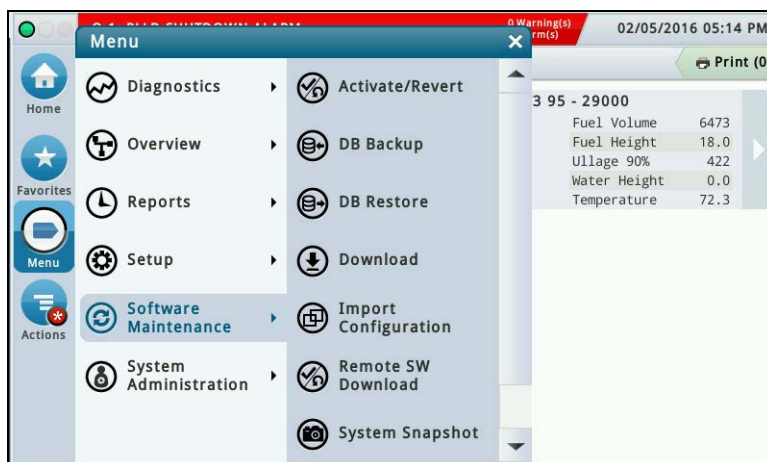
Figure 5.   Software Maintenance Screen

Activate/Revert Screen (Menu>Software Maintenance>Activate/Revert)
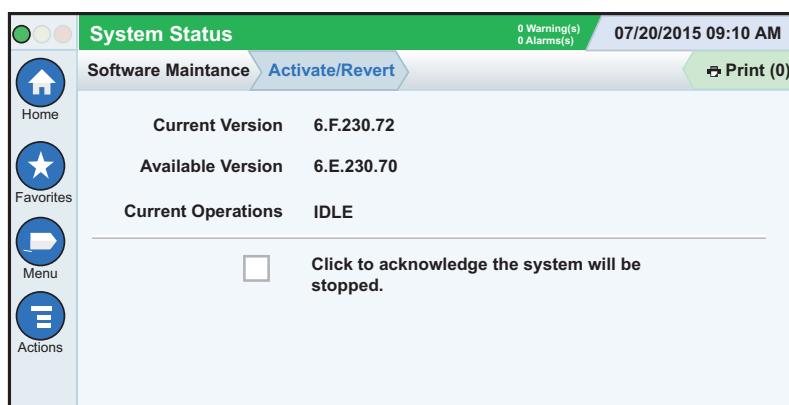
This screen lets you activate newly installed software or revert to a previously stored version of software. During the activation process, several dialog boxes will be displayed to inform you of key events.

IMPORTANT! Activation will reboot the console and could interrupt dispensing.

Notes On Reverting To A Previous Software Version

A copy of the previous (older) system software and databases is stored on the console SD card. If the current (newer) version of system software/features does not perform properly, the Revert operation gives you the ability to revert to the previous software version stored in the SD card. All records from the time of the upgrade will be lost.

! IMPORTANT! During feature activation, which only takes a few minutes, there will be no dispensing.

Table 2. Activate/Revert Screen Field Descriptions

Field	Description
Current Version	Current version of software (x.xx xxx.x) installed in the console
Available Version	Version of software that can be accessed by the console (Not Available will display if a version of software has not been stored).
Current Operation	Status of the console: • Idle (no software is being installed or reverted), or • Activating (a software install is in progress)
Connection Message	Not applicable to a revert or upgrade process.
Disclaimer	Lists any messages for the newly activated software.
Click to acknowledge the system will be stopped [check box]	Select this check box to agree to start a software install/reversion procedure.
Revert	Starts the actual Revert process. **Note:** When you click Revert, a confirmation prompt displays, letting you know that the system will restart (reboot) to do the revert. If the system is not in use, Touch the ✔ button to continue. The system reboots and the system is reverted.
Activate	Starts the actual Activate process. **Note:** When you click Activate, a confirmation prompt displays, letting you know that the system will restart (reboot) to do the revert. If the system is not in use, Touch the ✔ button to continue. The system reboots and the new system software is activated.

DB Backup (Menu>Software Maintenance>DB Backup)

This screen lets you backup the data file of the console. A FAT32 formatted USB thumb drive is required.

! NOTE: A thumb drive will only store 5 backups. On the 6th backup, the oldest backup record is deleted from the thumb drive.

NOTE: Keep the V-R code/feature and recovery USB thumb drives in a secure location.

Table 3. DB Backup Screen Field Descriptions

Field	Description
Current Version	Current version of software (x.xx xxx.x) installed in the console
Available Version	Not applicable to a backup.
Current Operation	Status of the console: • Idle (no backup procedure is executing), or • Discovering Backup Device (system is validating installed thumb drive) • Backup Operation has started (backup is in progress)
Connection Message	Lists any messages that may occur between the device and the console.
Backup destination	Backup destination (device) for your data files (the normal choice is "Thumb drive")
Version	USB drive name.
Backup	Starts the actual backup.
Backup Progress	Completion percentage of backup process.

Example Database Backup Procedure

NOTE: A valid backup thumb drive must be Windows FAT32 formatted and must have at least 4 GB of available memory.

1. Insert the backup thumb drive into one of the console's USB ports.
2. Navigate to the Menu>Software Maintenance>DB Backup screen.
3. Select thumb-drive as the backup destination. Notice the Version field displays thumb drive information.
4. Touch **Backup** button to begin the backup.
5. After completing the backup, the 'Backup Completed Successfully!' message appears.
6. Remove the thumb drive and put it in a secure location.

NOTE: To protect against possible loss of data and/or system crashes, run the DB Backup operation weekly.

DB Restore (Menu>Software Maintenance>DB Restore)

⚠ **IMPORTANT! During a DB Restore operation, there will be no dispensing.**

System Status	0 Warning(s) 0 Alarms(s)	07/20/2013 09:10 AM

Software Maintenance   DB Restore   🖶 Print (0)

🏠 Home
⭐ Favorites
▶ Menu
☰ Actions

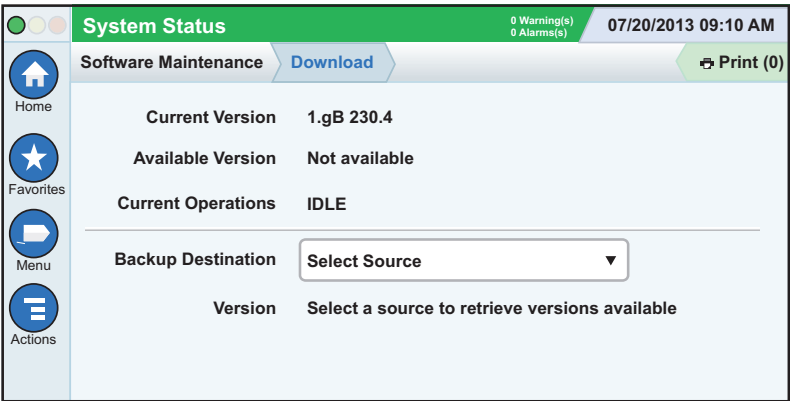| Current Version | 1.gB 230.4 |
Available Version	Not available
Current Operations	IDLE
Backup Destination	Select destination device ▼
Version	Select a source to retrieve versions available

This screen lets you restore the data files of the console. A valid USB recovery thumb drive (with previously backed up data from this console) is required.

⚠ **NOTE: Keep the V-R code/feature and recovery USB thumb drives in a secure location.**

Table 4. DB Restore Screen Field Descriptions

Field	Description
Current Version	Current version of software (x.xx xxx.x) installed in the console
Available Version	Version of software that can be accessed by the console (not applicable to a backup).
Current Operation	Status of the console: • Idle (no backup procedure is executing), or • Discovering Restore Device (system is validating installed thumb drive) • Restore Operation in Progress (restore is in progress)
Connection Message	Lists any messages that may occur between the device and the console.
Restore destination	Select the device containing the data files for the restore (the normal choice is "Thumbdrive").
Version	Date and software version of when the data archive was created.
Restore	Starts the actual restore. **Note:** When you click Restore, a confirmation prompt displays, letting you know that the system will restart (reboot) to do the restore. If the system is not in use, touch the ✅ button to continue. The system reboots and the database is restored.
Restore Progress	Completion percentage of restore process.

Download (Menu>Software Maintenance>Download)

● ○ ○	**System Status**	0 Warning(s) 0 Alarms(s)	07/20/2013 09:10 AM

Software Maintenance   **Download**   🖶 **Print (0)**

Home

Favorites

Menu

Actions

Current Version	1.gB 230.4
Available Version	Not available
Current Operations	IDLE
Backup Destination	Select Source ▼
Version	Select a source to retrieve versions available

This screen lets you do USB downloads from a valid USB thumb drive that is plugged into a USB port in the console.

⚠ **NOTE: Keep USB thumb drives in a secure location.**

Table 5. Download Screen Field Descriptions

Field	Description
Current Version	Current version of software (x.xx xxx.x) installed in the console
Available Version	Version of software that can be accessed on the USB drive.
Current Operation	Status of the console: • Idle (no backup procedure is executing) • Scanning Devices (system is validating installed thumb drive) • Reading Update List • Downloading
Connection Message	Lists any messages that may occur between the device and the console.
Download Source	Device where the files are coming from.
Version	Date and software version of when the data archive was created.
Download	Starts the actual download.
Download Progress	Completion percentage of download process.

Example Software Download Procedure

1. Insert the Software Maintenance thumb drive into one of the USB ports.

2. Navigate to the Menu>Software Maintenance>Download screen.

3. Touch the Download Source down arrow and select the thumb drive. Notice the Version field displays contained software version.

4. Touch the **Download** button to begin the software download.

5. After successful completion of the download (approximately 30 minutes), the 'Download Completed' message appears.

6. Navigate to the Menu>Software Maintenance>Activate/Revert screen. Notice the Current version and Available (downloaded) version are displayed.

7. Touch the box beside the message 'Click to acknowledge the system will be stopped.'

8. Touch the Activate button to overwrite the Current of software with the Available (just downloaded) version of software.

9. The Confirmation Needed dialog box displays. Touch the ✓ button to confirm and activate the new software, or touch the X button to cancel the activation.

Import Configuration (Menu>Software Maintenance>Import Configuration)

The Import Configuration screen lets system administrators duplicate system databases using files saved on a FAT32 USB thumb drive from a system backup.

🛈 **IMPORTANT: The SD card on the console that receives the imported configuration must be a "clean" factory default card with no configuration, especially any network configuration, done prior to the import.**

Further console setup is required after the configuration is imported.

All consoles must have the same platform (450PLUS, TLS4 etc.). The software version of the system to be upgraded must be the same or newer than the system backup used in the process. All configuration information is imported, even if the configuration does not match the actual hardware of the TLS being configured.

The entire system configuration must be verified after importing the configuration. Network setup must be done after the import is complete. Failure to verify the configuration against site-installed equipment may result in inaccurate test results.

Import Configuration uses a USB thumb drive created using the DB Backup screen. You can make duplicates of the thumb drive via Windows Explorer on a PC. (See "Duplicating The Thumb Drive" below).
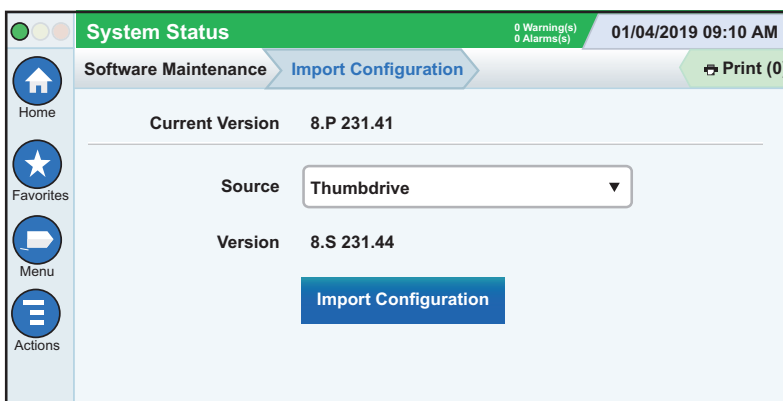
Table 6. Import Configuration Screen Field Descriptions

Field	Description
Current Version	Current version of software (x.x xxx.x) installed on the console.
Source	Device where the configuration files are coming from (the only choice is "Thumbdrive").
Version	Version of the configuration on the thumb drive.
Import Configuration	Button that starts the actual import.
Import Progress	Percentage complete of import process.
Message	Displays any messages that may occur in the process. These include: • Problems reading thumb drive • Not enough working space on the system to perform • Preparing to Import Configuration • Import in progress • Import complete • Error Messages

Loading The Thumb Drive With Configuration Files

Use DB Backup to create a thumb drive with the configuration files from a similar console.

1. Insert a blank thumb drive into the USB port of a configured console.
2. Go to Software Maintenance>DB Backup.
3. Select the Backup button to start the transfer of files.
4. When the transfer is complete, remove the thumb drive from the USB port.

Duplicating The Thumb Drive

If you want additional FAT32 thumb drives for multiple technicians, you can make copies using Windows Explorer (My Computer) on a PC.

1. Insert the thumb drive with the configuration files into a USB port on the PC.
2. Locate the files on the thumb drive using Windows Explorer (My Computer) and copy (or drag and drop) them to the a location on your PC. Keep the same file structure as they were on the thumb drive, with a top folder named "backup" (all lower case). You can remove the thumb drive at this point.
3. Insert a blank FAT32 thumb drive into a USB port.
4. Copy (or drag and drop) the "backup" folder onto the thumb drive. The "backup" folder must be the top folder of the thumb drive.
5. Remove the thumb drive from the USB port when the file transfer is complete. The thumb drive is ready to use.

Remote SW Download System Registration (Menu>Software Maintenance>Remote SW Download)

This screen sets up the ability for the TLS to check the Veeder-Root server for available software upgrades across the Internet. The TLS checks for an available download. If an available download is found, the Version Upgrade Alarm is triggered, alerting you to download and activate the upgrade.

Table 7. Remote SW Download Screen Field Descriptions

Field	Description
Registration Address	The server address, available from Veeder-Root Sales and Marketing.
RSD - Site ID	The ID of the TLS, available from Veeder-Root Sales and Marketing.
Verify	Use this button to confirm that the connection between the TLS and the server is active.
Status	Displays when you verify the connection. Indicates the status of the connection between the TLS and the server.

System Snapshot (Menu>Software Maintenance>System Snapshot)
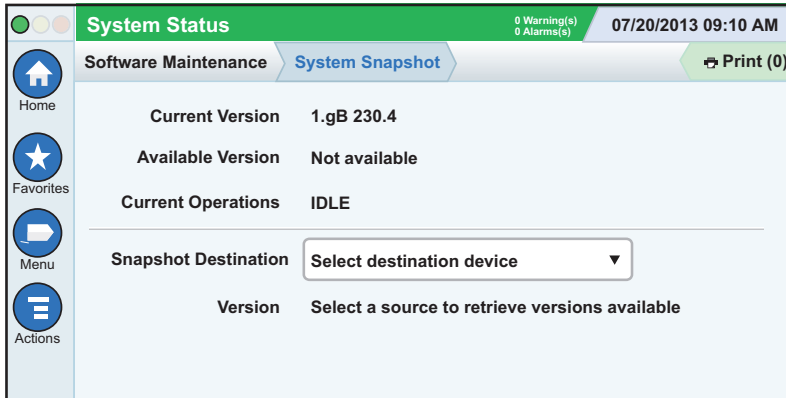
If a problem cannot be diagnosed over the phone with technical support, Tech Support may request a System Snapshot be taken and returned to V-R. The System Snapshot captures comprehensive system data to facilitate a thorough problem analysis. This screen lets you copy a System Snapshot to a USB thumb drive that is plugged into a USB port in the console.

Table 8. System Snapshot Screen Field Descriptions

Field	Description
Current Version	Current version of software (x.xx xxx.x) installed in the console
Available Version	Previous version of software or Not Available message.
Current Operation	Status of the console: • Idle • Activate Snapshot
Snapshot Destination	Select destination device
Version	Describes the destination device.

Example System Snapshot Procedure

1. Insert a USB thumb drive with at least 10 Mb of free space into one of the USB ports.

2. Navigate to the Menu>Software Maintenance>System Snapshot screen.

3. Touch the Snapshot Destination field down arrow and select the thumb drive. Notice the Version field displays information about the thumb drive.

4. Touch the **Take Snapshot** button to begin the procedure.

5. After successful completion of the snapshot (approximately 3 minutes), the 'Snapshot Completed' message appears and you can remove the thumb drive.

Upgrade Features (Menu>Software Maintenance>Upgrade Features)
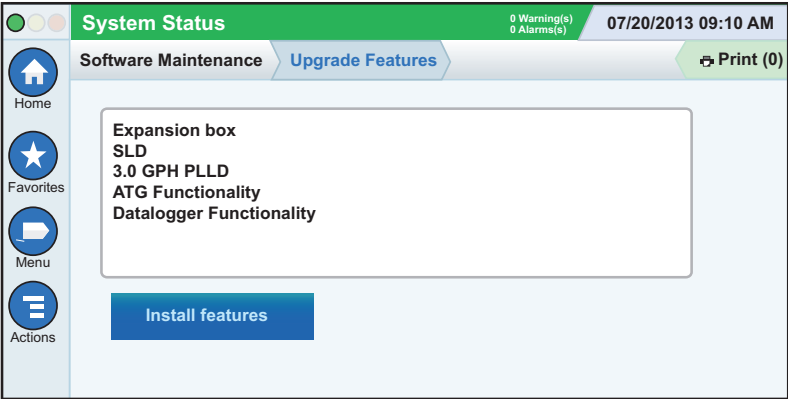
This screen lets you activate features to be installed on your console. During the activation process, several dialog boxes will be displayed to inform you of key events.

IMPORTANT! During feature activation, which only takes a few minutes, there will be no dispensing.

Following activation, the console converts the setup databases. Once new features are installed, setup(s) relevant to the new feature(s) will be required.

Table 9. Upgrade Features Screen Field Descriptions

Field	Description
Feature (box)	List features which are available to be activated. Multiple features may be activated concurrently. Select the boxes beside each of the desired items in this column. If you change your mind about a selection, select the box again to remove the check.
Install features button	Touch to start the installation process.
Status ⌈during installation⌉	Current status of each feature with one of the following messages: • Ready to Activate • Activation in Progress

VEEDER-ROOT