Operating Manual

MSA Link™ Pro Software Application

GALAXY® GX2 Automated Test System

Order No.: 10145432/02

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Contents

1. Introduction

The MSA Link™ Pro Software Application is best-in-class user interface and data analysis toolset. This application is used in conjunction with the GALAXY® GX2 Automated Test System . It will allow your facility to extract and manage fleet data from the ALTAIR® family of gas detectors in an efficient, intuitive manner.

This manual details the features of the MSA Link Pro application:

- Remote control of distributed test stands throughout a facility
- State of the art fleet management,
- Powerful data analysis tools,
- One button ability to generate PDF or Excel reports,
- Filtering to isolate specific gas detector alarms or gas events,
- Visual and email notifications of overdue instrument tests and other alarm conditions,
- At-a-glance dashboard indicators of the automated test system, and
- Automatic download of gas detector datalogs (if configured)
- Configuration of ALTAIR-family gas detectors.

For instructions about features and use of the ALTAIR family of gas detectors or the GALAXY GX2 Automated Test System, refer to those operating manuals.

2. Scope of delivery

2.1. MSA Link Pro Software Application

The software application can be used to network the test stand(s) to a PC through an Ethernet cable. There are three major components that will be installed:

- GX2 CONNECT – A background program that will run as a Windows service to allow connections between multiple test stands and the database. This component will start automatically each time Windows is started.
- Microsoft SQL Express – The database application that stores all test stand and gas detector information.
- MSA Link Pro – Software that provides the user interface for command, viewing and retrieval of data.
- GX2 Email Service - A background program that runs as a Windows service to send automated datalog emails.

2.2. MSA Link Pro USB Key

The software application is supplied on one MSA Link Pro USB Key to unlock its functionality. The software may be installed on any number of computers, but each running instance of the software application must have its own key.

If the USB key is removed from the PC while the software application is running, the application will log out after 30 seconds.

3. Preparation and Requirements

3.1. System Requirements

The following are the system requirements to install the software application.

Supported operating systems:

- Windows® Vista SP1 or later (x86 / x64)
- Windows® 7 SP1 or later (x86 / x64)
- Windows® 8 / 8.1
- Windows® Server 2003
- Windows® Server 2008 Server and 2008 R2
- Windows® Server 2008 Server 2012 R2

Minimum system requirements:

- 2GHz or faster CPU
- 2 GB RAM or greater
- Resources hosting the database, GX2 Connect and MSA Link Pro Email Services must remain powered on continuously.
- Free Disk Space: 10GB or greater
- If using an existing SQL database, ensure it is Microsoft® SQL 2008 R2 or later.

Additional software provided with the MSA Link Pro software application:

- Microsoft® .Net Framework 4
- Windows® Installer 4.5

Additional networking hardware to be provided by the user.

If using an existing SQL database, please see chapter called Custom Installation.

3.2. Installation Requirements

Please see your IT department for assistance during installation if the following requirements are unfamiliar to you:

- User must be a local administrator on the computer where GX2 CONNECT and SQL Express 2008 R2 will be installed.
- User must have SeDebugPrivilege, SeBackupPrivilege, SeSecurityPrivilege enabled
- The svchost registry key (HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\ Svchost) must have read/write privileges enabled by the systems administrator or the facility's IT department.
- For Custom Installations, FILESTREAM must be enabled on the SQL instance.

For customers who purchase a new commercial-off-the-shelf (COTS) PC, it will most likely come with the above security privileges already configured with the settings described below. If you are unsure please consult your IT department.

Operational Requirements

The following requirements must be met for full system connectivity and operation:

- TCP ports 5555 and 4530 must be open, these ports are the default ports and can be alternately configured during a custom install (see chapter 4.3.2 Custom Installation). Anti-virus and firewall applications may have these ports closed by default and may need to be configured to permanently open these ports.
- The PC that is hosting the GX2 CONNECT service must have a Static IP address in order to guarantee sustained connectivity to the database.
- Ethernet connectivity must be established between the test stand bank(s) and the PC hosting the software application and GX2 CONNECT Windows service. A "bank" is defined as between 1-10 automated test stands connected together and communicating to the MSA Link Pro application via the Master test stand (see Figure 1). For a single test stand bank, this could be as simple as a cross-over cable between the bank and the PC, where the bank and PC both have static IP addresses. For a multi-bank installation, the Ethernet connectivity would be through your existing network infrastructure.
- An Ethernet cable and all networking equipment is the responsibility of the MSA Link Pro user.

3.3. Anti-Virus and Firewall Configuration

Anti-Virus software must be configured to recognize MSA Link Pro, MSA Link Pro Email and the GX2 CONNECT service as valid and safe executables.

For proper operation, the system requires read / write access to three TCP ports: one for communication from the software application to GX2 CONNECT, and another from the test stand to GX2 CONNECT, and the third to the SQL database.

The defaults are:

- software application -> GX2 CONNECT: 4530
- test stand -> GX2 CONNECT: 5555
- SQL database -> software application and GX2 CONNECT: 1433

These ports may be configured during a custom install (see chapter 4.3.2 Custom Installation). If your firewall is not configured to permit communications on these ports (or ports selected during custom installation), the test stand(s) will not properly function.

3.4. Ethernet Connectivity

To establish the connection between a Master Test Stand and the GX2 CONNECT service, use a wired router. Connect the Ethernet port on the left side of the rear of the Test Stand to a non-Internet port on the router with a CAT5 ethernet cable. Then connect another port of the router to the GX2 CONNECT computer Ethernet port. Using a wired router will automatically assign an IP address to the Master Test Stand.

If this installation will be inside of an existing corporate network infrastructure, please consult your IT department for assistance during installation. It is imperative that the requirements in Sections 3.2 and 3.3 are met for the system to operate correctly. The software will support both static and dynamic IP address assignment but your network infrastructure must be configured correctly for either case.

See section “Network Setup” in the GALAXY GX2 Automated Test System manual for additional information on the Test Stand configuration.

3.5. Installation Components

MSA Link Pro Software Application

The software application allows the user to interact with the test stand(s) on the network and work with any collected data via a filtering and reporting mechanism. The application can be loaded on multiple computers, but each installation can only be operated with use of the MSA Link Pro USB Key.

Microsoft® SQL Server 2008 R2

To ensure completion of the Microsoft SQL Server Express 2008 R2 install, **the user is required to be part of the administrators group on that PC**. If you are not the administrator, see your IT administrator to obtain those privileges.

Microsoft SQL Server Express 2008 R2 is the default database that comes with the MSA Link Pro installation package. It stores all the calibration, periodic, and session data retrieved from the instrument. It also stores the configuration information and history for each of the test stands on the network.

Users may integrate an existing Microsoft SQL database using the custom install (see chapter 4.3.2 Custom Installation), if they choose not to use the provided SQL Express 2008 R2 package.

GX2 CONNECT

GX2 CONNECT is the Windows Service that communicates with the test stands via Ethernet. It facilitates data exchange between the test stands, the SQL Server database and the software application.

- To install this Windows Service, the user must be a member of the administrators group.
- The GX2 CONNECT is a Windows Service that starts automatically as soon as the PC boots up. A user does not have to be logged in for it to start.
- The GX2 CONNECT Windows Service must be continuously active for the software application to be used. If for any reason the GX2 CONNECT service is stopped all active software applications will be closed down and an error message will be displayed.

To verify that the GX2 CONNECT service is running, go to:

- Control Panel
- Administrative Tools
- Services

The GX2 Connect should be listed as a service with a status of Started. The Startup Type should be listed as Automatic.

MSA Link Pro Email

This service handles all email notifications between the GALAXY GX2 test stand, the GX2 CONNECT service and the email server. Verify that the MSA Link Pro Email service is Started or no emails will be communicated.

4. Software Installation

To install and use the software application, the user must ensure the minimal PC system requirements and correct installation components as listed below.

4.1. Types of Installs

There are four different options to install the software application, depending on the needs of the facility.

Any open applications should be closed prior to starting the installation process as the installer may restart the computer.

Express Full Install

The Express Full Install is intended for customers who plan on installing all three components locally on the same PC:

- MSA Link Pro Software Application,
- Microsoft SQL Server 2008 R2 or later, and
- GX2 CONNECT.

The database installs from a default configuration file and uses default values for usernames and passwords.

The Express Full Install is the recommended installation method for users that want to use the included SQL Express database.

Custom Install

Custom installation provides the ultimate flexibility to install components at the user's discretion, however, this method is only recommended for knowledgeable IT personnel. It allows the user to:

- Select different default directories for MSA Link Pro or GX2 CONNECT
- Configure and use an existing SQL database instance to store their system data.

Note: The user cannot install a database instance in the Custom mode but can only point to an existing database instance.

Upgrade Installation

The installer will automatically detect if a previous version of MSA Link Pro is installed and only offer an Upgrade option. This option will save a copy of the existing SQL database and update all MSA Link Pro components.

MSA Link Pro Only

Installs the software application and assumes the user has the IP address of a GX2 CONNECT Windows Service to access the network of calibration stands. See Figure 1 for a pictorial representation of which computers would use this type of installation.

4.2. Multiple PC Application

Only **one** database is permitted for a single GX2 CONNECT installation, however, several copies of the MSA Link Pro software application can access this single database as shown in the figure below.

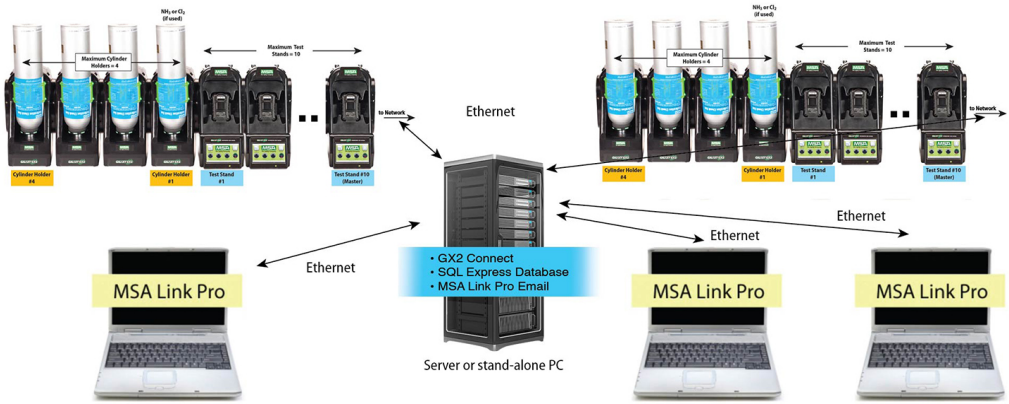


Fig. 1 Overview of communication

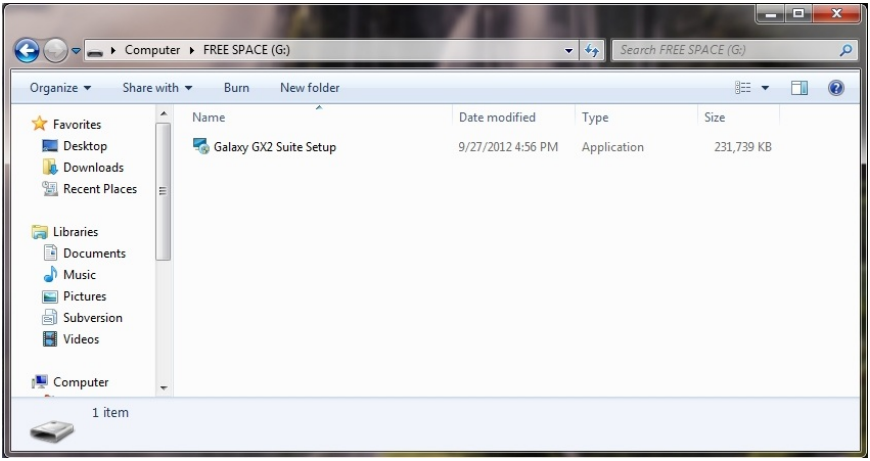
If the PC hosting the GX2 CONNECT software is shutdown, communications to the test stands and database (DB) will not be available to other PCs running the software application. Therefore, the GX2 CONNECT host PC must **always** remain **ON** and connected to the Ethernet. The PC that is hosting the GX2 CONNECT service must have a Static IP address in order to guarantee sustained connectivity to the database. Since GX2 CONNECT is a Windows Service, it does not need a user to be logged in to run. As soon as the PC is started and the OS is running, GX2 CONNECT will start.

4.3. Software Installation Instruction

(1) Install the MSA Link Pro USB Key into a free port on the computer that will host the database and GX2 CONNECT application. This computer must be powered on at all times in order to accept data from the test stands.

(2) Navigate to the USB directory and select the **Galaxy GX2 Suite Setup** file.

The software will begin installation.



(3) Select the desired type of installation:

- Express Full Install (see Section 4.3.1)
- MSA Link Pro Only, or
- Custom Install (see Section 4.3.2)

(4) Follow the prompts in the software.

(5) Select **Install**.

If installation errors occur, refer to chapter 9.1 Troubleshooting-Permissions of this manual.

4.3.1 Express Full Install

To complete a full express installation:

Installer Introduction

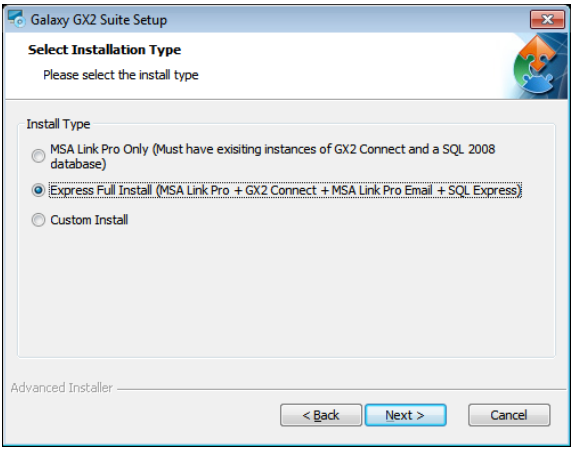
The introduction screen displays after selecting the **Setup.exe** file.
Select **Next**.

End-User License Agreement

Select the **I accept the terms in the License Agreement** radio button and then select **Next**.

Installer Selection

Select the **Express Full Install** radio button and then select **Next**.

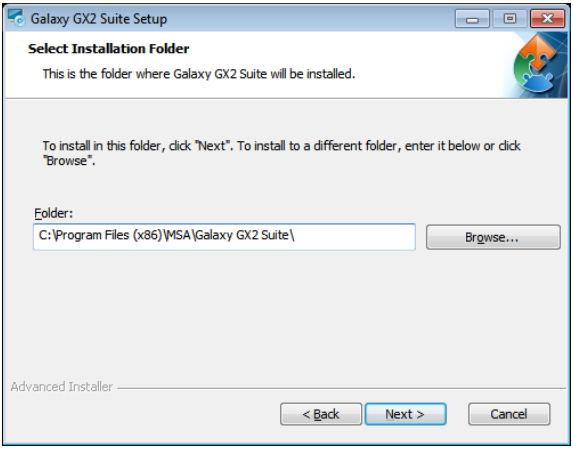


Express Folder Selection

(1) Select **Browse**.

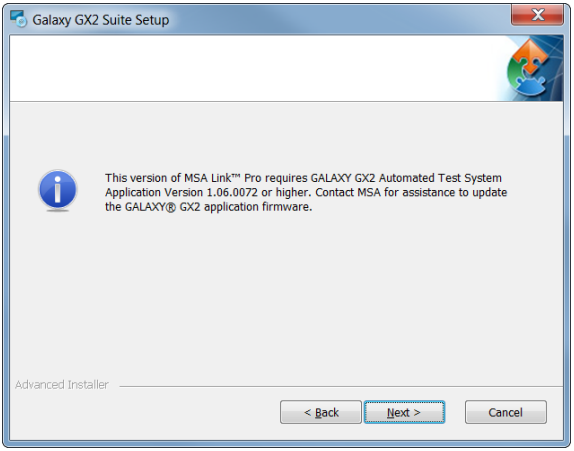
(2) Select the PC directory for installation. Using the default folder is recommended.

(3) Select **Next**.



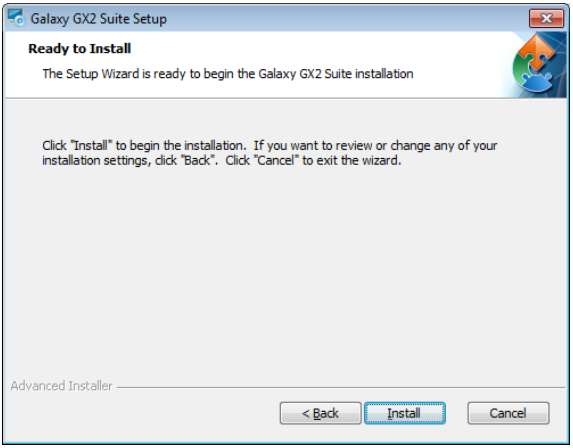
GALAXY GX2 Firmware Reminder

Ensure the GALAXY GX2 firmware is updated. Select **Next**.



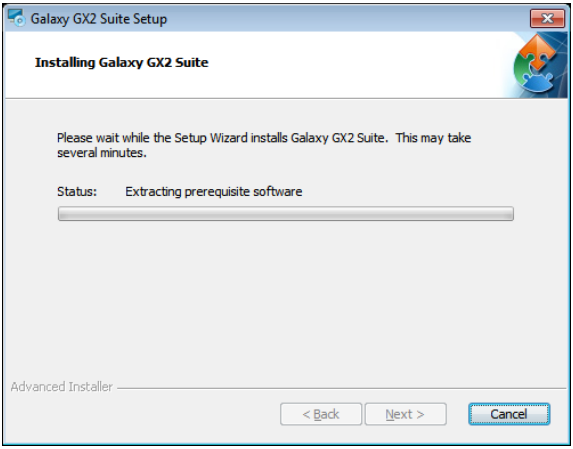
Ready to Install

Select **Install** to begin software installation.



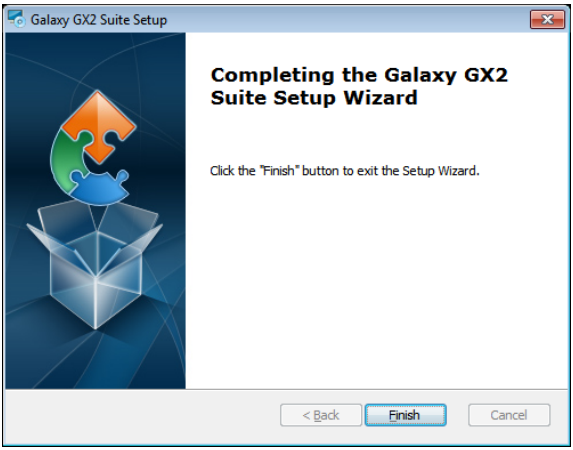
Installing Galaxy GX2 Suite

Once completed, select **Next**.



Installer Finished

The software application completes installation.
Select **Finish** to exit the installer and return to the desktop.



After selecting Finish, the GX2 CONNECT service will automatically start and an MSA Link Pro icon will appear on your desktop:

4.3.2 Custom Installation

To complete a custom installation:

Installer Introduction

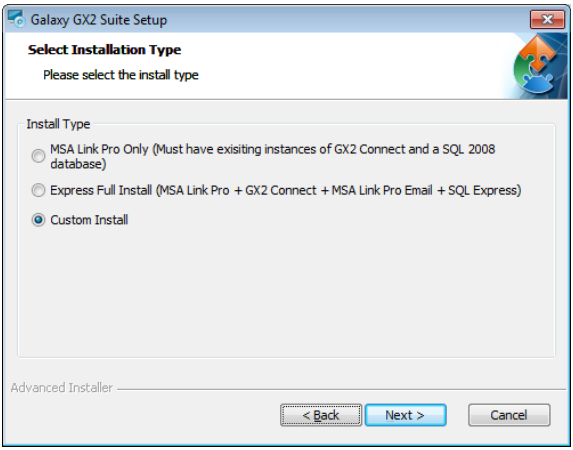
The introduction screen displays after selecting the **Setup.exe** file.
Select **Next**.

End-User License Agreement

Select the **I accept the terms in the License Agreement** radio button and then select **Next**.

Installer Selection

Select the **Custom Install** radio button and then select **Next**.



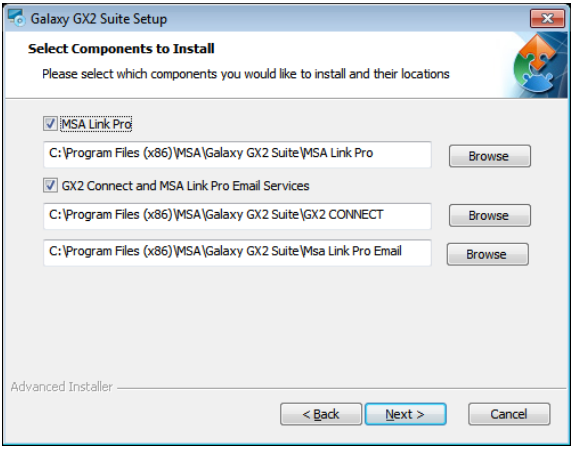
Component Selection

Select one or both of the installation options.

(1) Select **Browse**.

(2) Select the PC directory for installation. Using the default folder is recommended.

(3) Select **Next**.



An existing database instance must be installed prior to starting the GALAXY GX2 Suite Setup.

GX2 CONNECT Configuration

The user can configure the ports and timeouts for communication between the user interface, GX2 CONNECT, and the GALAXY GX2 Automated Test System if the default port assignments shown below are not acceptable.

Enter the field information for: GX2 Listener TCP Port, Client Listener TCP Port, and Message Timeout.

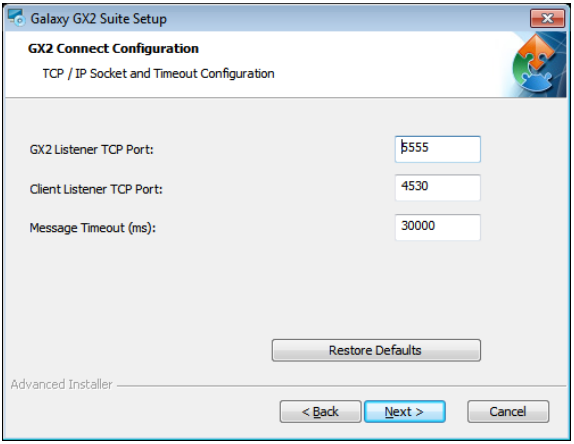
If unsure of the specific information, select **Restore Defaults**.

Changing the default port assignments should only be performed by a knowledgeable IT professional.

The GALAXY GX2 Automated Test Stand could become inoperable if incorrect port assignments are chosen.

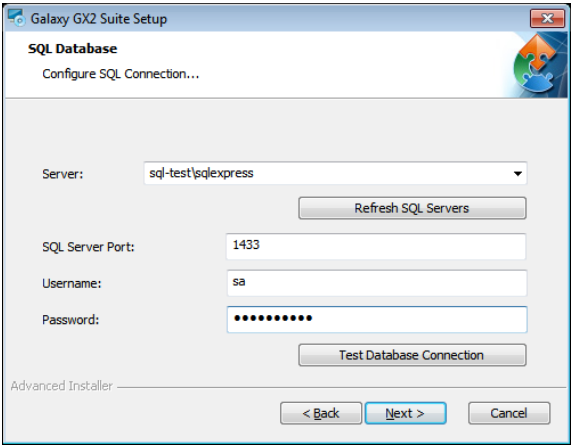
Select **Next**.

Select **Yes** to proceed with the custom installation.



Custom SQL Connection

Enter the SQL server credentials on the screen when displayed. This screen is only displayed if the GX2 Connect option is selected for installation.



(1) Select the Server pull down menu and then select the database.

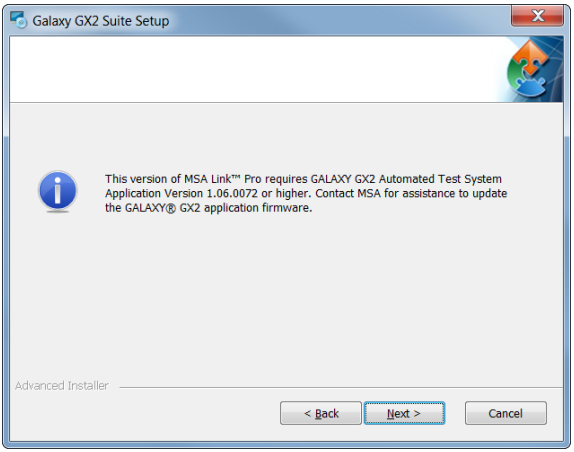
(2) Enter a **Username** and **Password**.

MSA recommends that users perform a test using the **Test Database Connection** button. If there is no error, a message box will appear that says, “Testing Database Connection” then disappear with no other indication that it succeeded. If it fails, an error message will be displayed stating that the ODBC connection could not be opened.

(3) If the database connection is set, select **Next**.

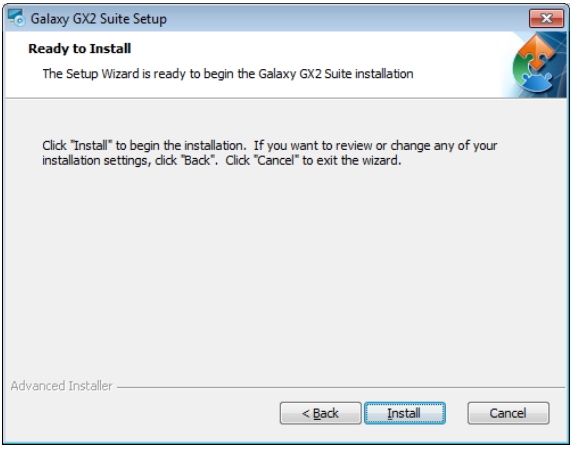
GALAXY GX2 Firmware Reminder

Ensure the GALAXY GX2 firmware is updated. Select **Next**.



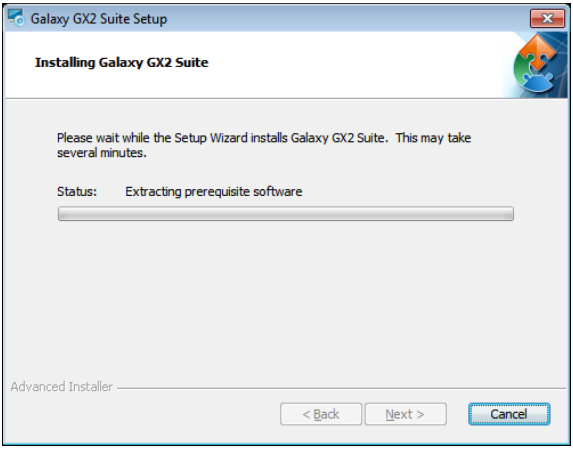
Ready to Install

Select **Install** to begin software installation.



Installing Galaxy GX2 Suite

Once completed, select **Next**.



Installer Finished

The software application completes installation.

Select **Finish** to exit the installer and return to the desktop.

After selecting **Finish**, the GX2 CONNECT service will automatically start and an MSA Link Pro icon will appear on your desktop:

4.3.3 Upgrade Installation

To complete an upgrade installation:

Installer Introduction

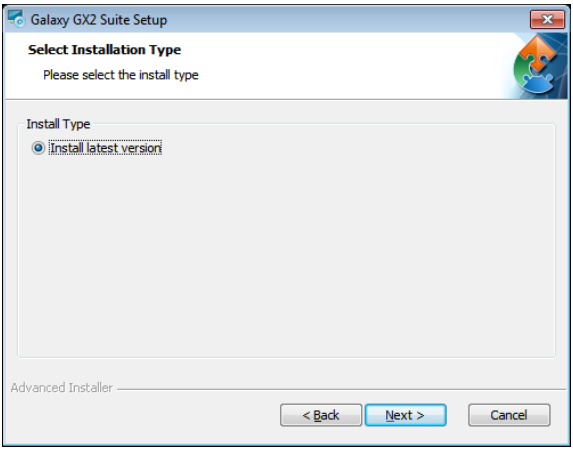
The introduction screen displays after selecting the **Setup.exe** file.
Select **Next**.

End-User License Agreement

Select the **I accept the terms in the License Agreement** radio button and then select **Next**.

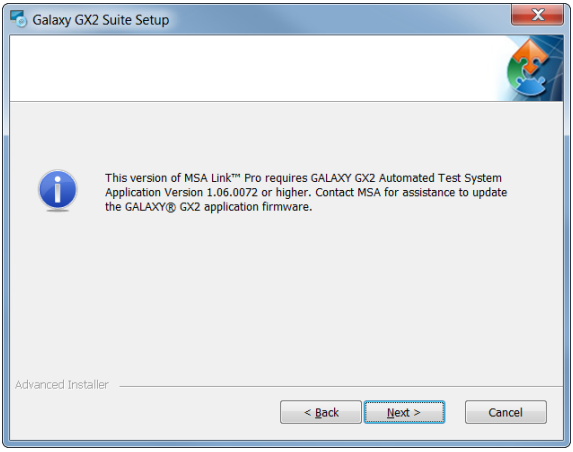
Install Latest

Select the **Install latest version** radio button and then select **Next**.



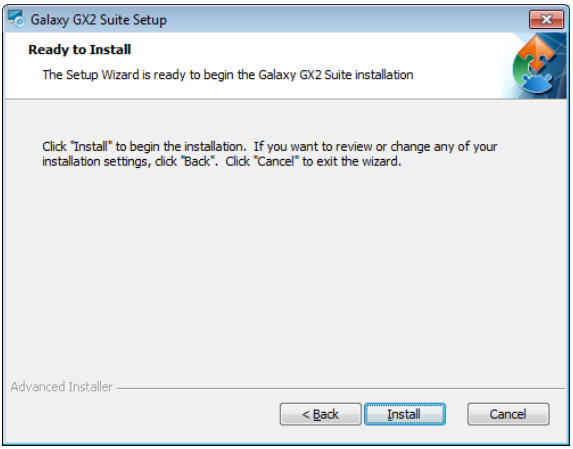
GALAXY GX2 Firmware Reminder

Ensure the GALAXY GX2 firmware is updated. Select **Next**.



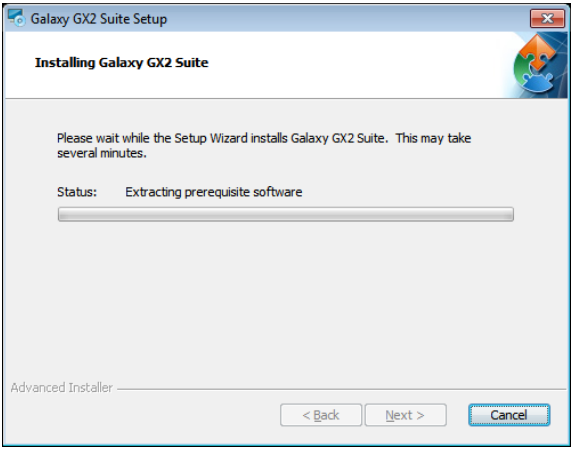
Ready to Install

Select **Install** to begin software installation.



Installing Galaxy GX2 Suite

Once completed, select **Next**.



Installer Finished

The software application completes installation.

Select **Finish** to exit the installer and return to the desktop.

After selecting **Finish**, the GX2 CONNECT service will automatically start and an MSA Link Pro icon will appear on your desktop:

4.3.4 MSA Link Pro Only Install

To complete the installation:

Installer Introduction

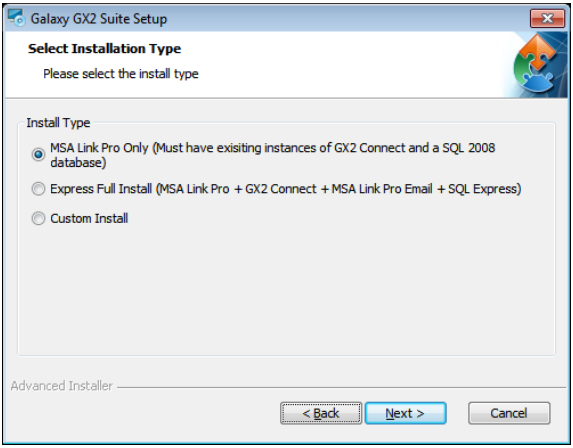
The introduction screen displays after selecting the **Setup.exe** file.
Select **Next**.

End-User License Agreement

Select the **I accept the terms in the License Agreement** radio button and then select **Next**.

Installer Selection

Select the **MSA Link Pro Only** radio button and then select **Next**.

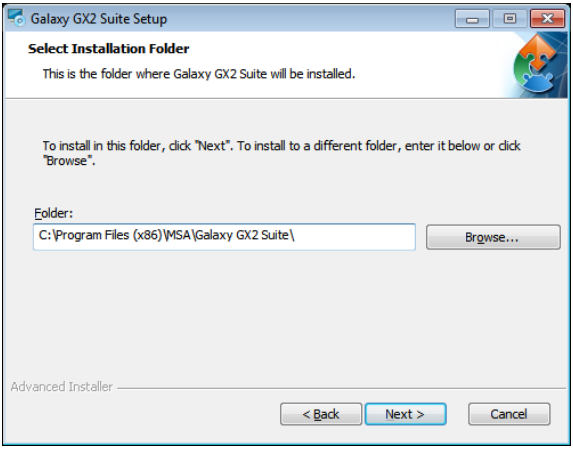


Express Folder Selection

(1) Select **Browse**.

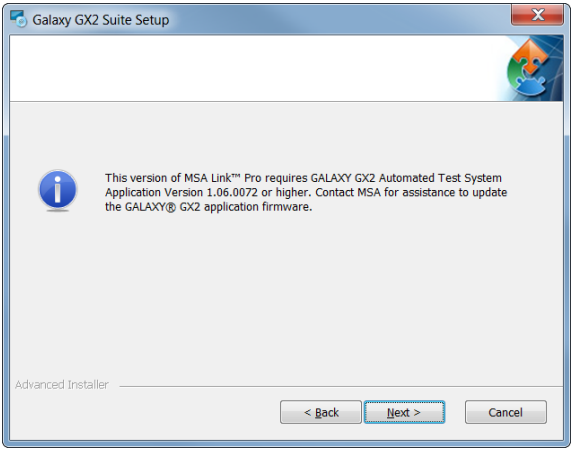
(2) Select the PC directory for installation. Using the default folder is recommended.

(3) Select **Next**.



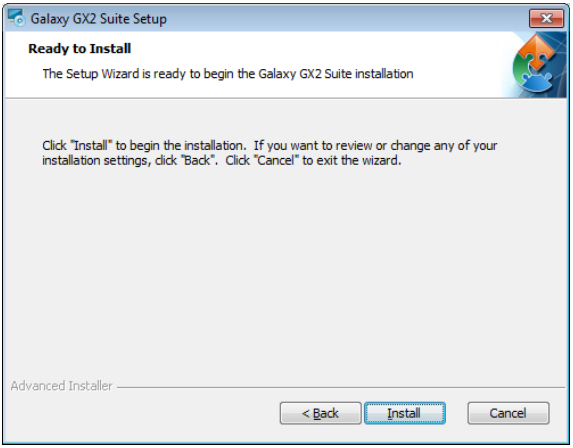
GALAXY GX2 Firmware Reminder

Ensure the GALAXY GX2 firmware is updated. Select **Next**.



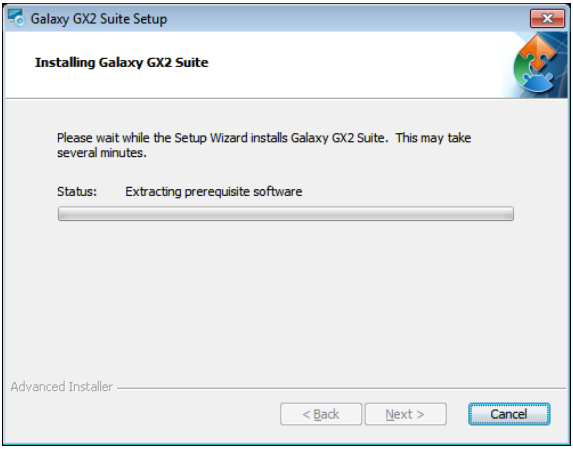
Ready to Install

Select **Install** to begin software installation.



Installing Galaxy GX2 Suite

Once completed, select **Next**.



Installer Finished

The software application completes installation.
Select **Finish** to exit the installer and return to the desktop.

After selecting Finish, the GX2 CONNECT service will automatically start and an MSA Link Pro icon will appear on your desktop:

5. MSA Link Pro Functionality

The software application monitors the test stand through five main operations screens. All five options are available on every screen within the application.

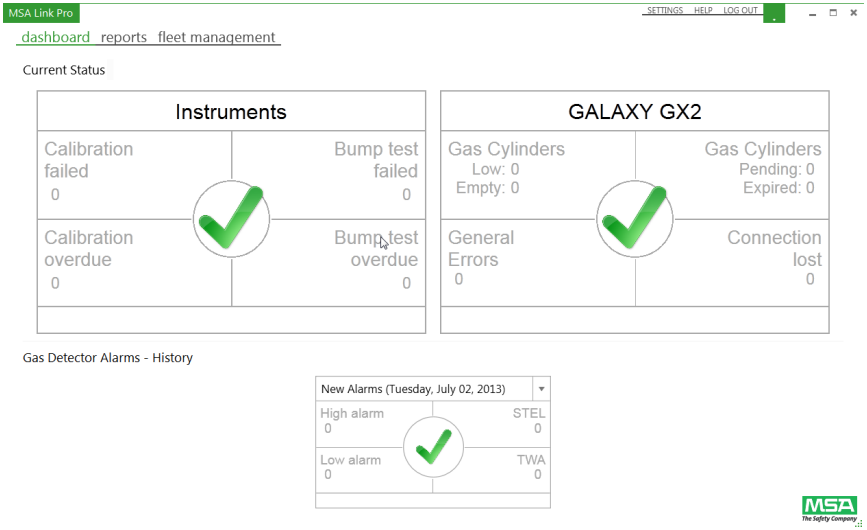
- **Dashboard:** Provides the user a real-time system status of active test stands and historical instrument summary from gas detector datalogs.
- **Reports:** Allows the user to search gas detector and test stand records to create reports.
- **Fleet Management:** The user can configure the test stands and associated gas detectors, and review gas detector inventory history.
- **Settings:** The administrator can define network connections for the test stands, set up user permissions, and configure email notifications.
- **Help:** Contains this software manual.

5.1. Dashboard (Home Screen)

The dashboard is the main screen for the software application, used to quickly identify issues associated with the test stand. The screen is divided in two sections:

- Real time data from all connected test stands, and
- Historical data from gas detector datalogs.

The dashboard is automatically displayed when the application is opened or can be selected from the top menu bar. The dashboard screen displays:



For a detailed description of the dashboard screen and its uses, refer to chapter 7.1 Dashboard.

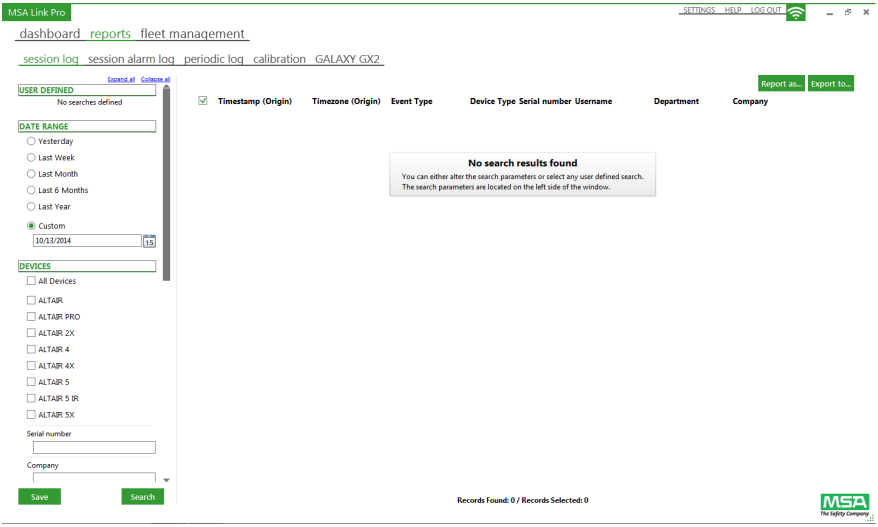
5.2. Reports

The reports page is selected from the main menu bar on any screen. The reports screen contains four report categories associated with the application, the test stand, and the gas detectors.

The five report categories are:

- Instrument Session Log,
- Instrument Session Alarm Log,
- Instrument Periodic Log, and
- Calibration
- GALAXY GX2

Selecting one of these reports displays a screen that allows the user to enter the specific search criteria.



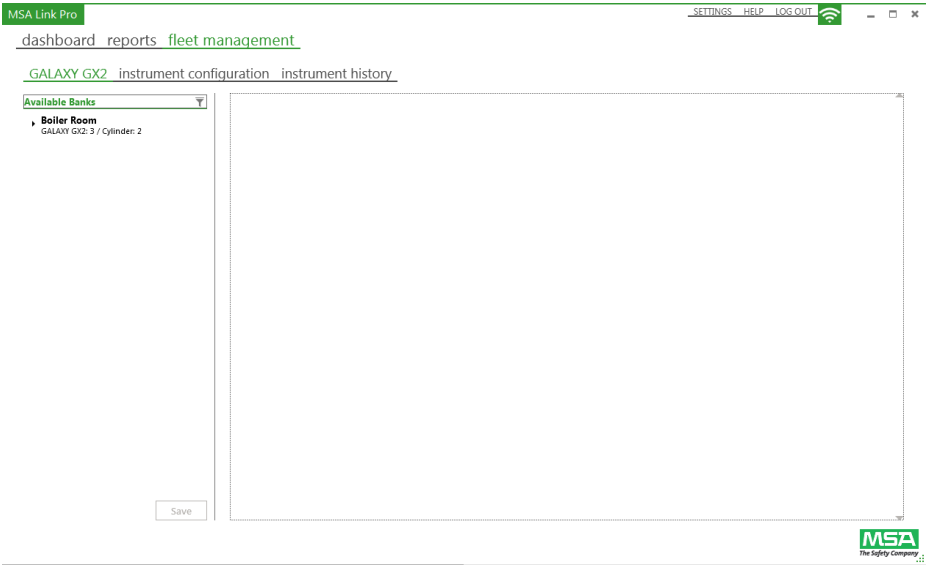
For a detailed description of the reports screen and its uses, refer to chapter 7.2 Reports.

Fleet Management

The fleet management page is selected from the main menu bar on any screen. The fleet management screens allow the user to make changes to individual or multiple test banks through a simple user interface. The screens contain three categories:

- GALAXY GX2,
- Instrument configuration, and
- Instrument history.

To open, select **fleet management**. The GALAXY GX2 screen displays:



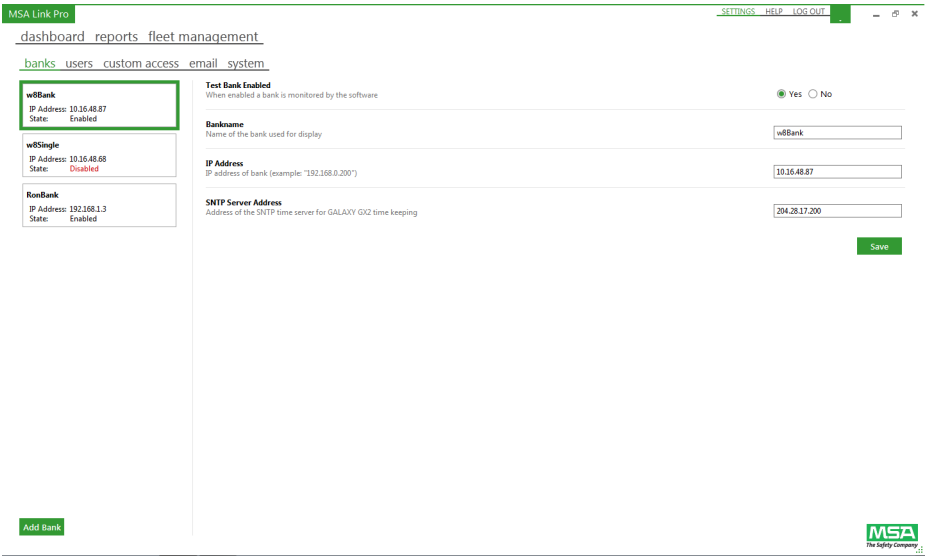
For a detailed description of the fleet management screen and its uses, refer to chapter 7.3 Fleet Management.

5.3. Settings

The settings screens contain four sections available only to users with administrator privileges:

- Banks
- Users
- Custom Access
- E-mail
- System

To access the settings screen, select **SETTINGS** in the top right of the screen.



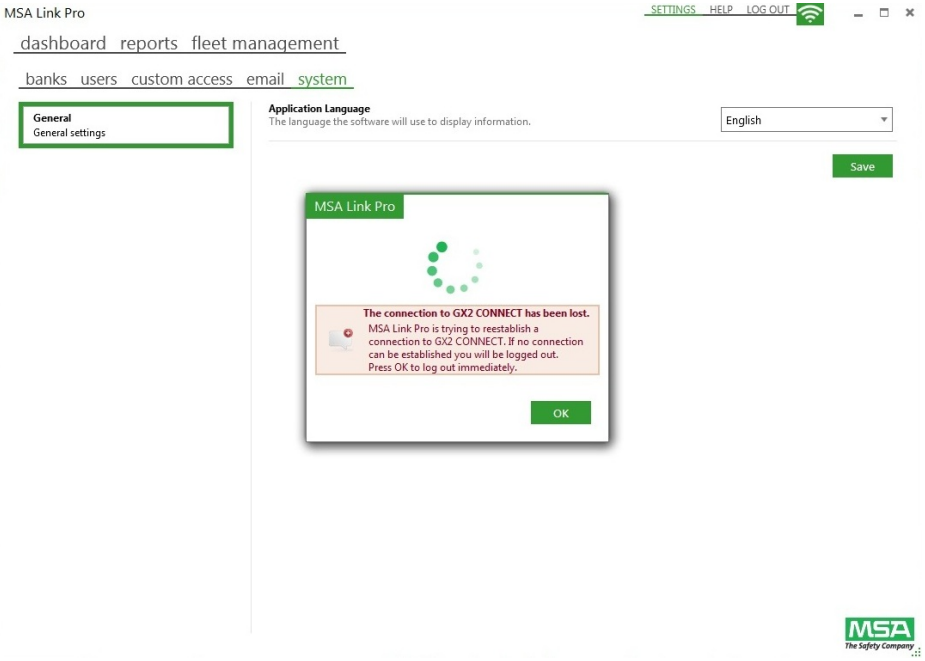
For a detailed description of the settings screens and their uses, refer to chapter 6.

5.4. GX2 CONNECT Status

The green and white connectivity icon in the top right corner of the screen displays the active communications status between the software application and GX2 CONNECT. When this icon flashes it indicates that the GX2 CONNECT service and the MSA Link Pro application are communicating.

Fig. 2 CONNECTivity Icon (green and white)

If the connection to the GX2 CONNECT background service is lost the MSA Link Pro application will attempt to reestablish communications. The user can either log off immediately or wait for MSA Link Pro to finish the retry attempts.



6. Initial Setup with the GALAXY GX2 Automated Test System

A user with administrator privileges must perform the initial setup of the software application. The bank name and IP address of the test stand(s) are required to initiate network communications.

Each test stand requires a unique IP address to properly communicate on the network. The IP address may be manually entered by the user at the test stand or assigned by a DHCP server if “DHCP Enable” is selected on the test stand.

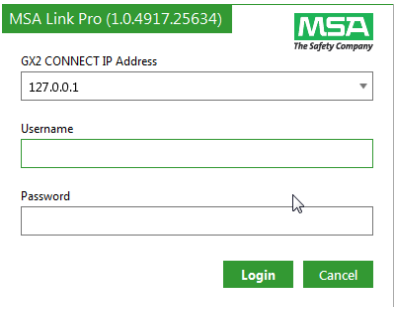
Refer to the GALAXY GX2 Automated Test System operating manual for instructions on setting up the IP address.

To start the software application:

(1) Insert the MSA Link Pro USB Key into an open USB port on the computer.

(2) Select the **MSA Link Pro** icon from your desktop or start menu.

The login screen displays after a few seconds:



(3) Enter the **IP address** of the GX2 CONNECT host computer. To display the IP address, go to the Start menu and select **Run…**, then type **cmd** in the command line. At the prompt line in the command window type: **ipconfig**. This will display the IP address of the computer (169.254.29.26 in the example below).

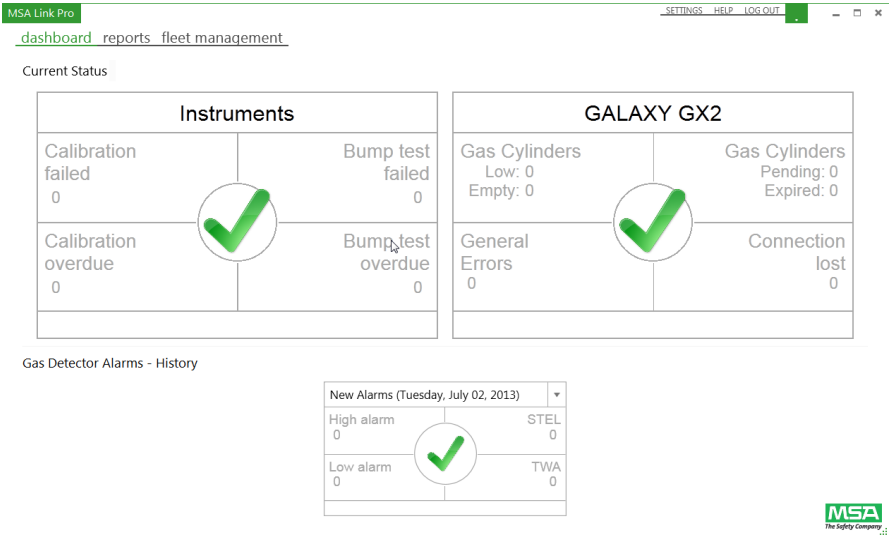
```
Ethernet adapter Local Area Connection:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::c506:c743:20ee:1d1a%11
   Autoconfiguration IPv4 Address. . : 169.254.29.26
   Subnet Mask . . . . . . . . . . . : 255.255.0.0
   Default Gateway . . . . . . . . . : 192.168.0.1
```

If the GX2 CONNECT application resides on the same computer as the software application, the default IP address can be used: 127.0.0.1.

(4) Enter **admin** as both the Username and Password. Other user names and passwords can be set from the admin account. See chapter 6.2 Setting up Initial Users.

The admin user should change the admin password to protect the account.

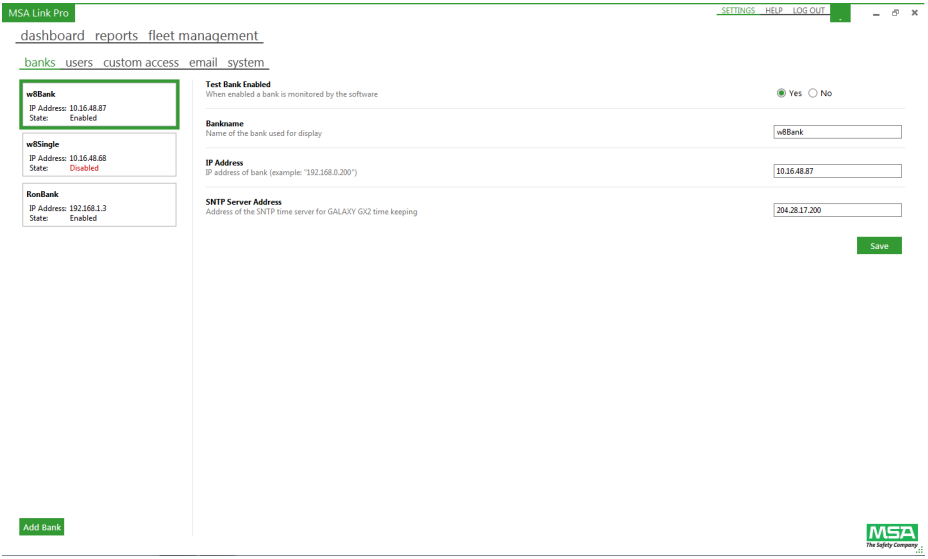
(5) Select **Login**. The main dashboard will display.



6.1. Bank Settings

On the settings screens, the user can configure communications with a bank of up to 10 interconnected test stands and as many as four cylinder holders. A facility may configure multiple banks for use with the software application.

(1) On the **settings screen**, select **banks** for that screen to display.



(2) Select **Add bank**.

(3) Ensure the **Test Bank Enabled** radio button is toggled to **Yes** or the application will not monitor the bank.

(4) Enter a **Bank Name** for the test stand.

(5) Enter the unique **IP Address** (XXX.XXX.XXX.XXX) of the master test stand in the bank. This can be found by:

- (a) At the master test stand, select **GX2 Configuration** on the Home screen of the touch screen display.
- (b) Select **GX2 Configuration** on the Administrator screen.
- (c) Select **Network Setup** on the GX2 Configuration screen.
- (d) Select **Network Setup** again.
- (e) Note the **IP Address** in the upper right column of the Network Setup screen.
- (f) Enter the **IP Address** on the Settings page of MSA Link Pro.

(6) The SNTP Address is the address of the network time server that the GALAXY GX2 Automated Test Stands will synchronize time to. By default, the test stands are pre-programmed with public NTP time server addresses. However, your network infrastructure must allow incoming UDP packets for this to function properly. Contact your IT representative to determine whether to use the pre-programmed addresses or to use the company time server if applicable. The pre-programmed addresses are:

- 206.246.122.250
- utcnist.colorado.edu
- 0.pool.ntp.org

The SNTP Server Address can be left blank if no alternate address is available.

The test stands should be verified periodically for the correct time and adjusted if necessary. This is essential for accurate record timekeeping and retrieval.

(7) Select **Save** to store bank information or it will be lost when the user logs out of the software application. The new bank displays on the left side bank list and its properties appear on the bank details panel on the right.

(8) Repeat this process for all of the test banks on the system.

A bank should only be enabled for one database at any given time. If more than one GX2 CONNECT/database has access to the test bank, its periodic data, session data, and calibration reports will be spread across multiple databases and accessing the data from any single system will not show the instrument's complete picture.

If the physical bank of test stands and cylinder holders is changed or removed from the scope of the GX2 CONNECT service, the administrator must reconfigure or disable the bank.

Toggle the **Test Bank Enabled** radio button to **No** to prevent the software application from monitoring that bank.

6.2. Setting up Initial Users

Once the software application is installed, the Admin (administrator) is the only listed user. The administrator can create additional users as required by the facility. The Admin password should be changed for the security of the application.

Three levels of users can be defined during set up of the software application:

- Basic
- Expert
- Administrator

Login Permission

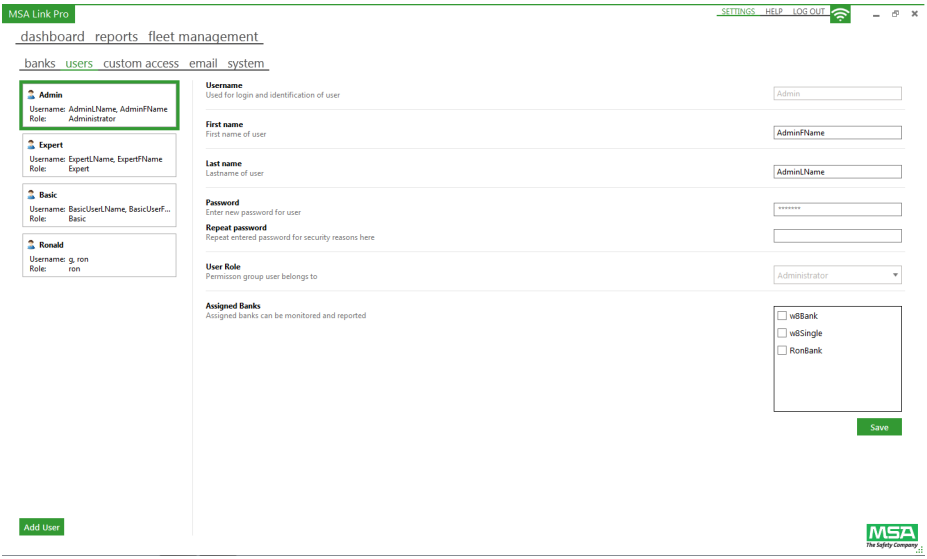
The three default levels of user accounts in the application and their permissions are listed in the following chart:

	Basic	Expert	Administrator
DASHBOARD			
Real-time status	x	x	x
Historical alarm status	x	x	x
REPORTING			
Filter on session events	x	x	x
Filter on periodic data	x	x	x
Filter on GX2 events	x	x	x
Filter on calibration status	x	x	x
Print or Export report	x	x	x
Open saved filter	x	x	x
Save custom filters		x	x
FLEET MANAGEMENT			
View GX2 fleet settings	x	x	x
Modify GX2 fleet properties		x	x
View Instrument settings	x	x	x
Create new instrument template		x	x
Save instrument template		x	x
View periodic data by date		x	x
View session data by date		x	x
Read SD card data	x	x	x
SETTINGS			
Banks			x
Users			x
Custom Access			x
Email			x
System			x

The Administrator can configure other permission types through the Custom Access feature. This allows tailored permissions to meet individual needs. To configure a custom access user role, refer to section 6.3 Custom Access.

To create a new user:

(1) On the settings screen, select **users** for that screen to display.



(2) Select **Add user**.

(3) Enter user information into the following fields:

- User Name,
- First Name, and
- Last Name.

(4) Select the **User Role** from the pull down menu:

- **Administrator**,
- **Basic User**, or
- **Expert**.

(5) Enter a **Password** and then repeat in the next field.

(6) Select the **Assigned banks** for the Basic user or Expert user. By default, Administrators have access to all banks.

(7) Select **Save**.

The new user appears in the user list on the left (automatically selected).

To delete a user:

(1) Place the mouse over the user for deletion until a red X displays on the right of the box.

(2) Select the **X**.

A dialog displays to confirm the deletion.

(3) Select **Yes**.

To reset a username or password, the administrator must log in to the software application and change the necessary user settings.

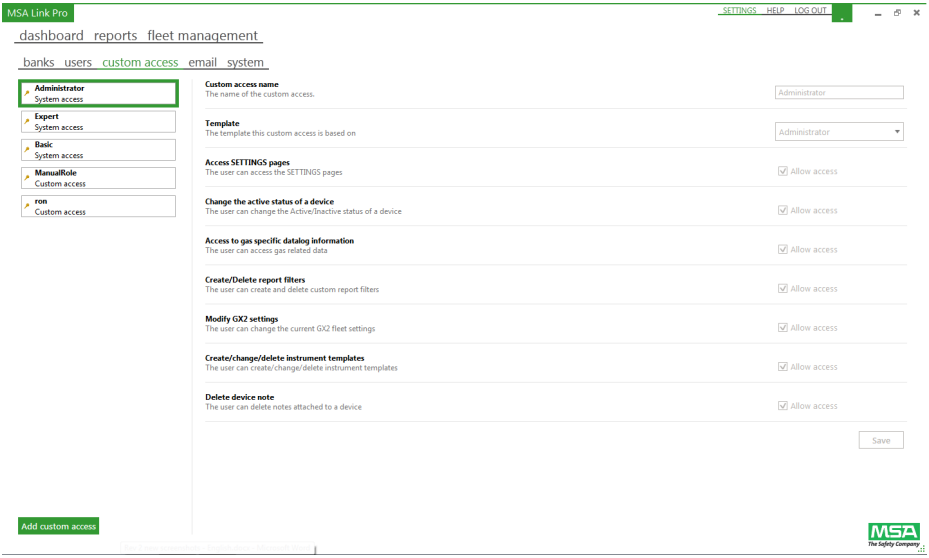
Username is not case sensitive. The password is case sensitive and must be entered on the login screen exactly as specified in the Settings page.

6.3. Custom Access

An Administrative user can configure customized user roles with specific permissions that vary from the standard Basic, Expert, and Admin templates. Individual users can then be assigned to each new custom access role.

To create a new custom access role:

(1) On the settings screen, select **custom access**.



(2) Select **Add custom access**.

(3) Name the new custom role.

(4) Select **Allow access** for each permission assigned to the role.

(5) Select **Save**.

The new custom access role appears in the template list on the left. The role may be selected when assigning permissions to a user or creating a new user.

6.4. Email Configuration

The software application uses email to send users with administrator privileges status alerts about the test stands and gas detectors on a regular basis. There are two sources of emails in the system:

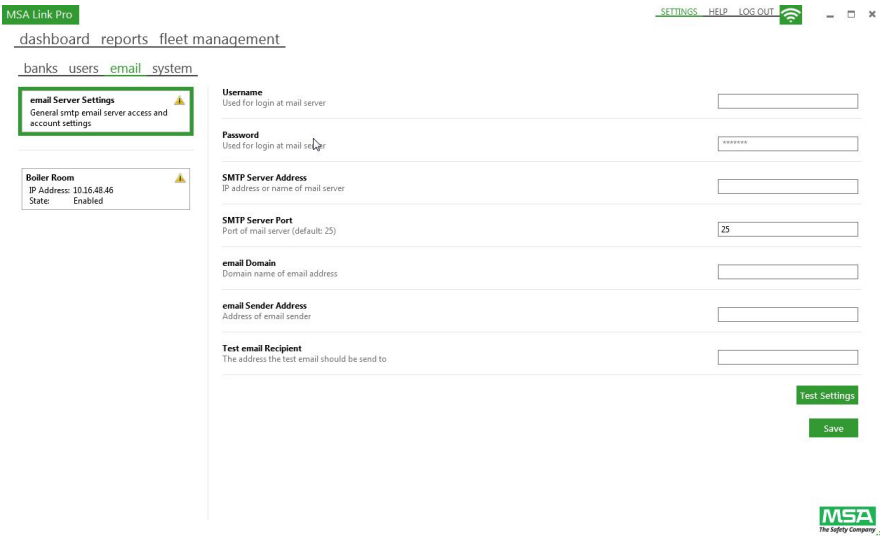
- From the test stand(s).
  (Refer to the GALAXY GX2 Automated Test System operating manual)
- From the GX2 CONNECT application.
  (see chapter 7 Using the MSA Link Pro Software Application)

Emails generated from gas detector datalog information are sent on a user-configured schedule, and include the day(s) of the week and time of day for outgoing email messages. The test stand must be configured to download gas detector datalogs for this information to be obtained and sent to the database.

To configure email settings:

(1) Select **Settings**.

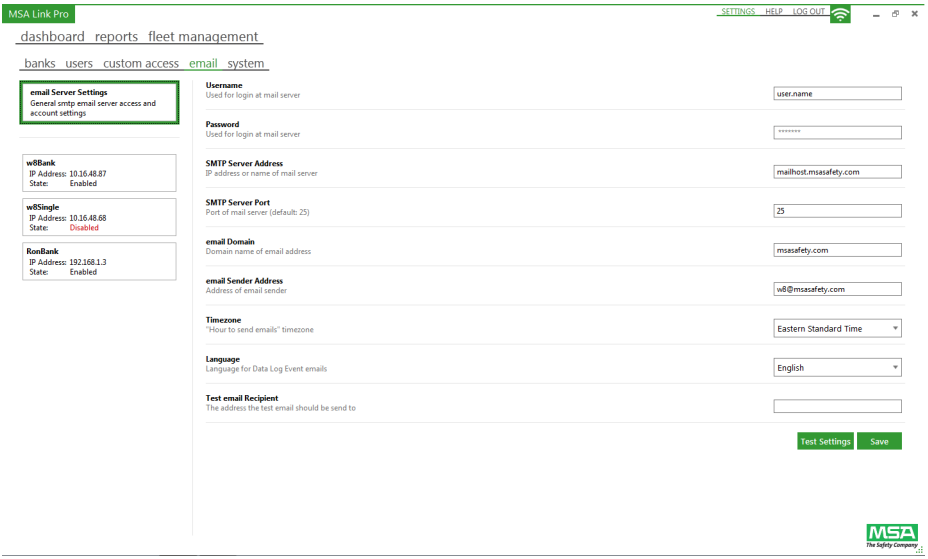
(2) Select **email**. The general email settings screen displays.



To configure the email server:

(1) Enter the **User name** and associated **Password** of the account for the SMTP Server. This may require assistance from your systems administrator.

(2) Enter the name or **SMTP Server Address** (IP) in the available field.



(3) Enter the **SMTP Server Port** in the available field.

(4) Enter the **Email Sender Address** in the available field. It is recommended that a unique email address be created. This email address will be the source for all emails sent from both the Test Stands and the GX2 CONNECT service. Your IT department may need to be consulted for setting these email parameters. Ensure that any spam filters allow this email address.

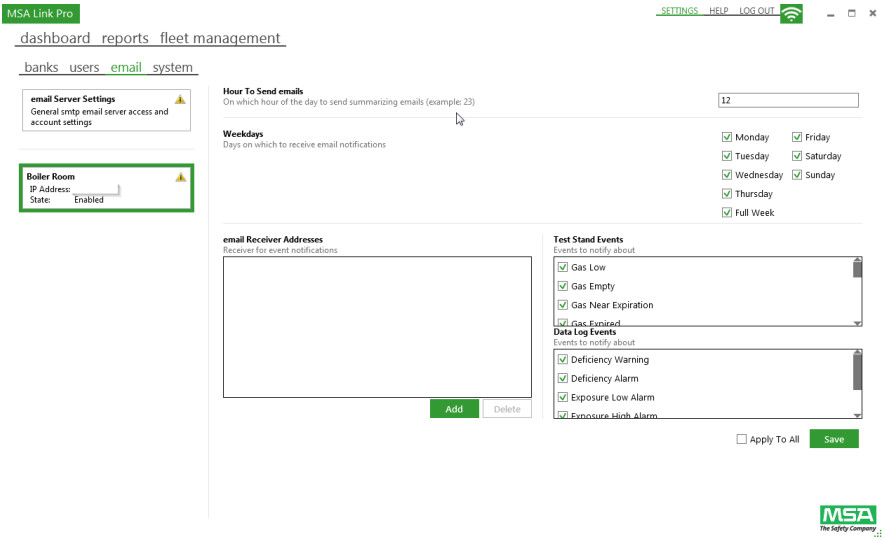
(5) Select the **Time zone** for the hour to send email.

(6) Select the **Language** for datalog event emails.

Once these general email settings are entered, the administrator user can select one of the previously assigned bank(s) from the list in the left pane of the screen and assign/configure the bank email settings.

To assign bank email:

(1) Select a **bank** from the list in the left pane of the screen.



(2) Select **Add** under the email Receiver Addresses field.

(3) A dialog displays. Enter a recipient's **email Address** to receive notifications.

(4) Select **OK**.

(5) Enter the **Hour To Send E-Mails** (0 – 23 hours).

(6) Select the Weekdays to send email.

(7) Select the **Events** to generate emails from the list in the right pane of the screen.

(8) Select **Save**.

Selecting the **Apply to All** checkbox under **Events** will apply the email configuration to all of the banks in the left hand list.

Email Initiation from the PC

Email alerts generated from the MSA Link Pro application are shown below. Each type of email will be sent once per day.

GX2 CONNECT Generated Messages	
Reason for Email	**Emails Sent**
Exposure Low Alarm	Per User Configuration
Exposure High Alarm	Per User Configuration
STEL Alarm	Per User Configuration
TWA Alarm	Per User Configuration
Deficiency Warning	Per User Configuration
Deficiency Alarm	Per User Configuration
Exposure Peak	Per User Configuration

The user is responsible for configuring the email settings as described in the previous section. GX2 CONNECT initiates emails but will not report on their delivery status. Emails sent from the software application will have the subject line “MSA Link Pro Alert”.

If undeliverable, the application will not attempt to resend previous emails.

Users should initiate an email event (for example, insert an instrument with a known alarm and download datalogs) to test the connection once the mail server parameters are entered.

Email Initiation from the GALAXY GX2 Test Stands

The test stands initiate a different set of email messages based on events as they occur. Refer to the GALAXY GX2 Automated Test System operating manual for a detailed description of the test stand events. These test stand emails can only be configured via the email tab of the settings screen as described above. Emails sent from the test stand will have the subject line “GALAXY GX2 Alert”.

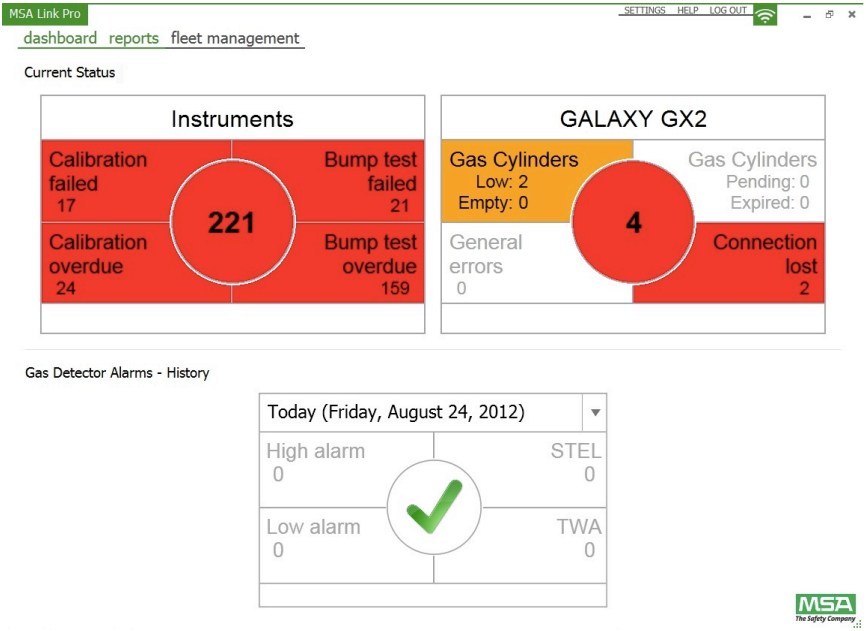
The test stand will only send Bump Overdue or Calibration Overdue emails if there is an SD card in the Master test stand.

7. Using the MSA Link Pro Software Application

The software application is easy to use and requires little configuration after initial setup. The user can maintain instrument records, manage a fleet of test stand(s) and associated gas detector instruments, and maintain the records for those instruments.

7.1. Dashboard

The dashboard contains color tiles to provide the user with clear visual indication of the GALAXY GX2 test bank status.



- White = No issues.
- Red = Failure.
- Yellow = Gas cylinder is low or nearing expiration.
- Green checkmark = All systems are operating within parameters.

Error indicators in the **Current Status** portion of the dashboard (upper portion) can be selected to view the next level of detailed information. Current problems with the test system are reported on this screen, live as they occur in the following categories:

- Instruments
- GALAXY GX2 Automated Test System(s)

As gas detectors are docked in the test stand and download their datalogs (if configured) the lower portion of the dashboard will update to show alarm conditions from the datalogs over a user-specified period of time.

Additional description of the data shown on both the upper and lower portions of the dashboard is given below.

Instruments Indicators on the Dashboard

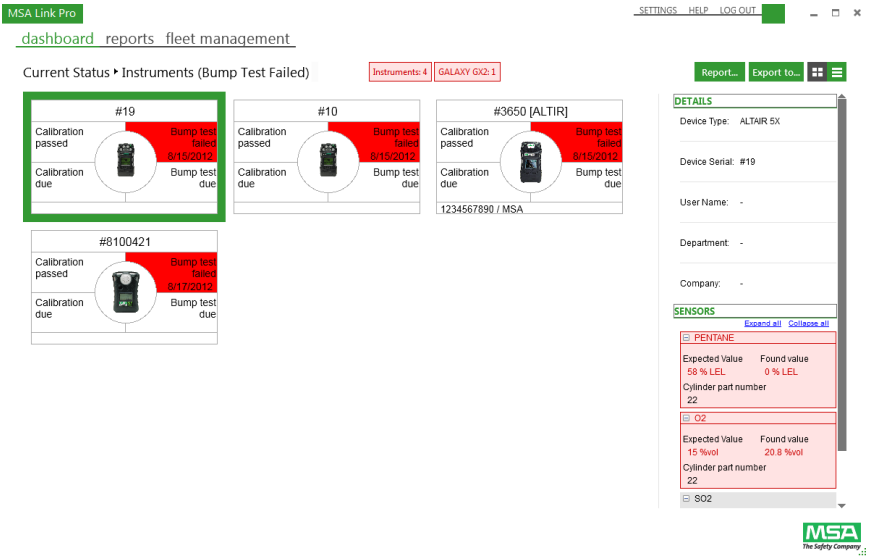
The following gas detector events are displayed as they occur in the Instruments window.

- Calibration or bump test failed
  The instrument(s) failed the requested test.
  (Refer to the troubleshooting section of GALAXY GX2 Automated Test System operating manual for next steps.)
- Calibration or bump test overdue.
  Indicates instruments are overdue for calibration or bump, per the test interval set up on the test stand or within the software application.

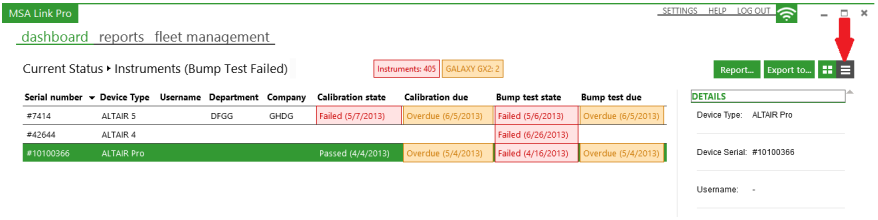
If both Calibration and Bump tests are Overdue on the same instrument, both indicators are set to red on the dashboard.

If any of these indicators display red:

(1) Select that indicator to navigate to the next level screen. All instruments that have an error condition are displayed.



(2) The user can view the instruments and associated issues in a list (see red arrow below) or icon overview by selecting the listing options icon in the top right of the screen.



(3) Select an instrument. The DETAILS bar in the right pane of the screen populates with the instrument information, its last test, and associated errors (calibration or bump). Use this information to troubleshoot the cause of the failed test. Once a gas detector successfully passes its test, the instrument is removed from the dashboard view.

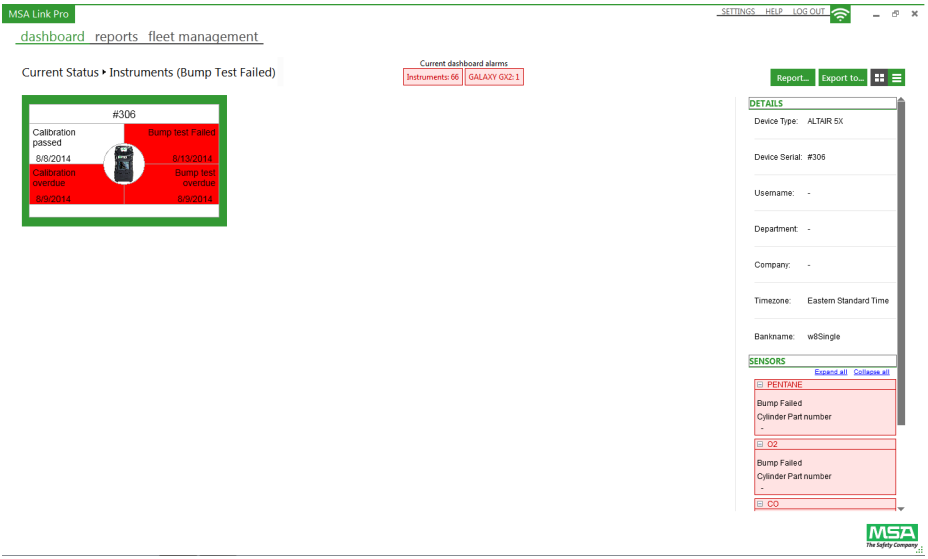
(4) Instruments listed as overdue for testing will be cleared from the dashboard, once the instrument is inserted into a test stand. If an overdue instrument fails a test, it is listed in the Failed tile and removed from the Overdue tile.

While on this subcategory page, if another issue arises, the counter within the red boxes will increment depending on whether the new alarm is an instrument alarm or a GALAXY GX2 alarm.

Selecting the number in the middle of the circle will display the total number of errors shown in the Instruments window.

The user must navigate to the dashboard and select that specific issue to view the details.

The data that is displayed in either the list or icon overview format can also be exported into a number of file formats.



To export data:

(1) Select **Export to…** in the top right corner of the Dashboard subcategory page.

(2) Select a desired **file type**.

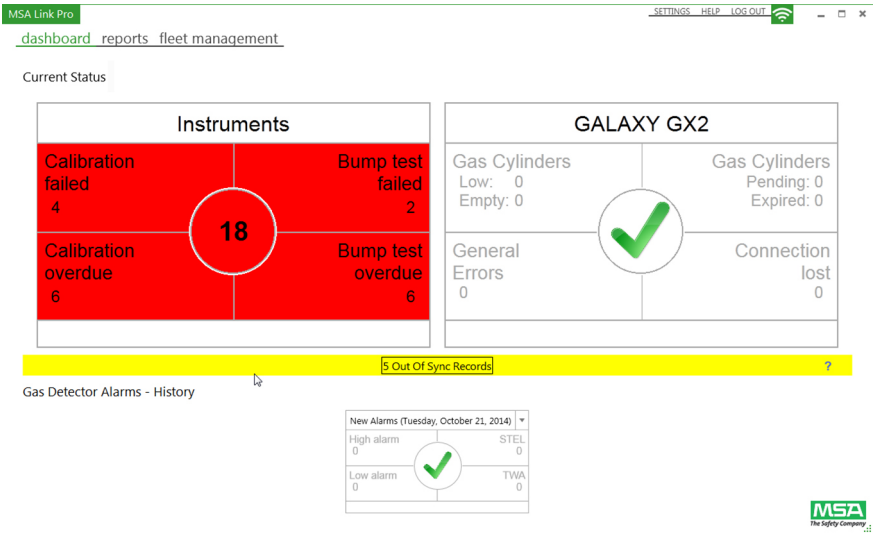
(3) Enter a **file name**.

(4) Select **Save**.

A pre-formatted report can also be created by using the **Report…** button. This report can then be exported to several formats including PDF or Excel.

GALAXY GX2 Indicators on the Dashboard

The following are indicators for test gas cylinders, general errors, and network connection status:



- Gas Cylinders (pressure)
- Gas Cylinders (expiration)
- General errors
- Connection lost

The gas cylinder pressure data is populated **only if an electronic cylinder holder is used** with the GALAXY GX2 Automated Test System. If using a non-electronic cylinder holder, the dashboard indicators will show zero errors since no electronic data is available.

The gas cylinder expiration data is populated **only if RFID-tagged MSA gas cylinders are used** with the electronic cylinder holder.

If any of these indicators display red:

(1) Select the indicator. The GALAXY GX2 screen displays.

(2) The user can view an overview of all test banks and the associated issues in red text.

(3) By selecting a bank, the DETAILS bar in the right pane of the screen populates with the overall test stand information.

While on this subcategory page, if another issue arises, the counter within the red boxes will increment depending on whether the new alarm is an instrument alarm or a GALAXY GX2 alarm.

Selecting the number in the middle of the circle will display the total number of errors shown in the GALAXY GX2 window.

Gas Cylinders

The following are indicators for test gas cylinder(s) equipped with RFID tags, used in electronic cylinder holders on the test stand.

- **Low:** Gas pressure is low (approximately 99 psi or less) and replacement test gas should be ordered.
- **Empty:** Replace test gas cylinder.
  Gas testing is prohibited by the test stand with an empty gas cylinder.
- **Pending:** The gas cylinder is nearing its expiration date. The number of weeks prior to the actual expiration date is set by the user via the test stand Expiration Setup screen.
  (Refer to the GALAXY GX2 Automated Test System operating manual)
- **Expired:** The test gas cylinder is expired.
  Gas testing is prohibited by the test stand with an expired gas cylinder.

Connection Lost

The software application lost communications from one of its networked test stand banks. If Ethernet communications are passed through a network router, your IT department may need to troubleshoot this issue.

Common issues to check:

- Verify that the master test stand is powered on and has an IP address.
- Check that the Ethernet cable to the master test stand is connected and functional.
- Ensure that the Test Stand IP address is the same as the IP address listed on the Settings - Banks page in MSA Link Pro.

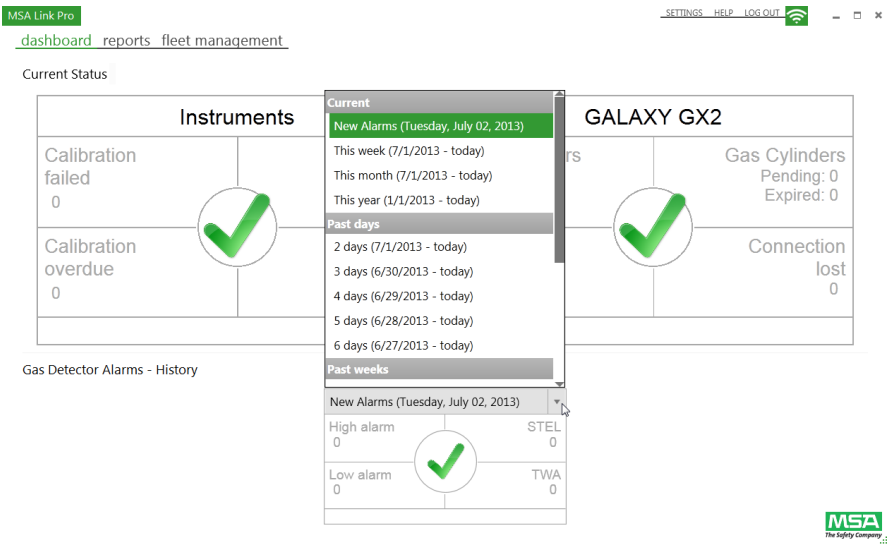
General Errors

Indicates errors on the test stand(s). Select this section of the dashboard to obtain additional information about the specific error condition. The user can also view the GX2 Status screen on the test stand with a non-green status LED to obtain detailed information about the error. See the Troubleshooting section of the GALAXY GX2 Automated Test System manual for help with these errors.

Gas Detector Alarm History Indicators on the Dashboard

The gas detector alarm history, located at the bottom of the dashboard, allows the user to view past alarm intervals, such as one week, one month, three months, etc. The time period is selected via the pull-down menu on the date bar. The default time period is Today, which will show all gas alarms **downloaded today**. All other time periods show those alarms which occurred within the requested time range.

When viewing the Alarm History with the default Today time interval, the alarms displayed could have occurred at any time in the past. Select the alarms of interest to display the detailed information from the Session datalog.



Alarm history information is gathered from the gas detector datalogs (if enabled). The user can enable datalogs to download via the test stand interface or through the fleet management screen of the software application.

Gas detector alarms history:

- **High alarm:** A warning alarm that indicates the instrument is exposed to a gas level above the second alarm level. For an oxygen sensor, this alarm level can also be less than 20.8% Vol.
- **Low alarm:** A warning alarm that indicates the instrument is exposed to a gas level above the first alarm level. For an oxygen sensor, this alarm level can also be less than 20.8% Vol.
- **STEL:** The Short Term Exposure Limit warning alarm that indicates the instrument is exposed to a higher than acceptable average gas threshold for 15 minutes.
- **TWA:** The Time Waited Average that projects the current gas readings over an 8-hour period. The warning alarm indicates if projections reach a higher than acceptable threshold.

To view gas detector alarm history:

(1) Select the date range to display (default is “Today”).

(2) Select the specific alarm of interest (High alarm, Low alarm, STEL or TWA).

(3) The session alarm log screen displays. The search criteria in the left pane of the screen are automatically chosen and the list of all alarms in the datalog for the gas detector is listed to the right.

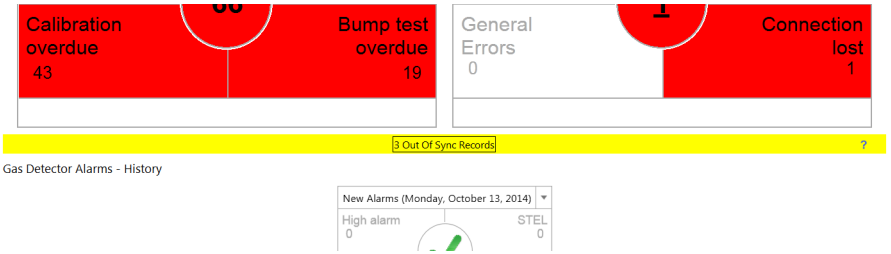
(4) The alarm list details include: timestamp, device type, serial number, event type, gas, alarm value, department, and company.

The user may run a report or export the listing to a file, by selecting **Report as**... or **Export to**... in the top right of the screen

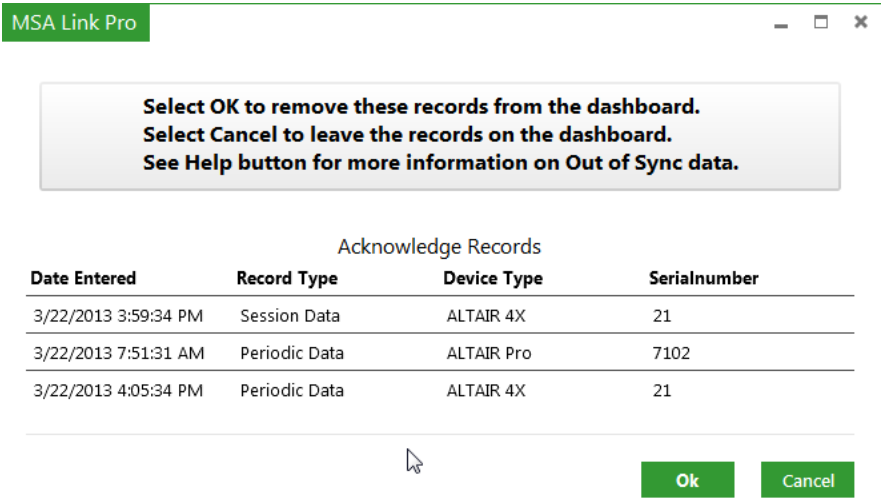
Out of Sync Data Indicator on the Dashboard

If a gas detector has periodic or session data that is out of time sequence order or is in advance of the current system time, this data will be considered “Out of Sync (Synchronization)” and will not be written to the database. This is to avoid corrupted data from being entered and used.

If a datalog is detected with Out of Sync data, the following information will appear on the dashboard:



Selecting the **Out of Sync Records** banner will bring up additional details to describe which instruments have data that fell into this category:



Out of Sync data is not available for searching with MSA Link Pro since it is potentially corrupt data.

To analyse this data, use an IR dongle and the MSA Link application available free on www.msasafety.com to download the periodic and session datalogs and determine where the time change occurred. **Store this data if required then delete the datalogs using MSA Link.**

Selecting the OK button **will clear the dashboard** of the Out of Sync Records, the Cancel button will retain the entries. Do not select the OK button until the Out of Sync data has been evaluated. See the Help button for more information about Out of Sync data.

7.2. Reports

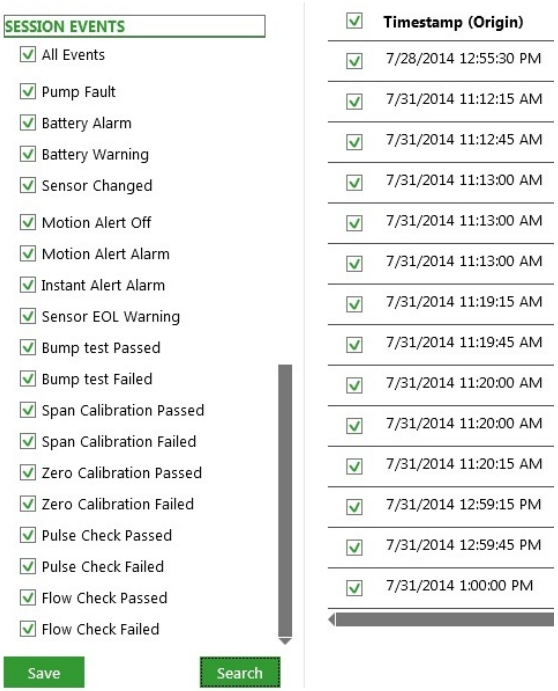
The reports function of the software application provides a powerful tool to analyze and format data about your entire fleet of ALTAIR gas detectors and GALAXY GX2 Automated Test System(s). The simple to use filtering options can be used to generate custom reports that can be saved and recalled at the touch of a button.

There are five categories of data that can be searched:

- Session log,
- Session alarm log,
- Periodic log
- Calibration, and
- GALAXY GX2

The first three categories are based on data obtained from the gas detector datalogs downloaded via the test stand, if enabled. The calibration records and GALAXY data are obtained from the PC database.

In each of the categories, the user can initiate a search by selecting the desired filter parameters and then selecting **Search**. A listing of events displays in the right pane of the screen.



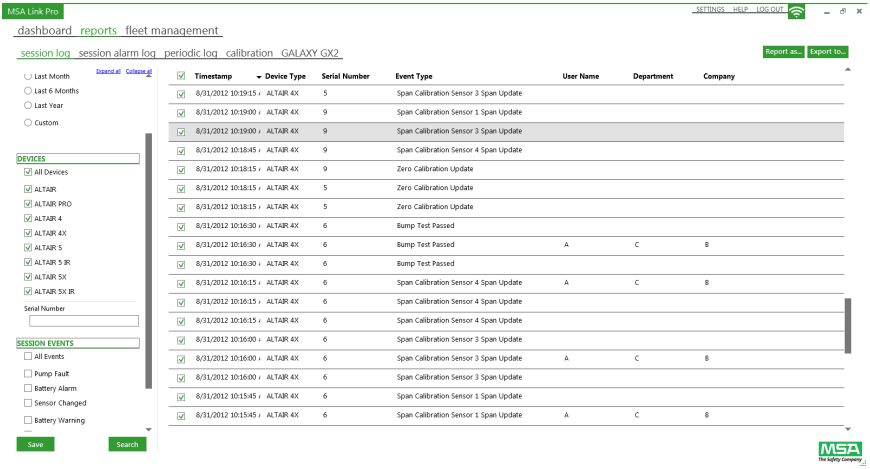
Entries in the results pane can be sorted alphabetical or numeric, by selecting the title of the column.

Any individual event displayed in the results window can be selected to generate a report in a variety of formats including PDF, XLS, XLSX, HTML or CSV. Each tab within the Reports screen is described below.

Session Log

Retrieves specific events from the session log on the gas detector. Examples of alarms in the session log include:

- Battery Alarm,
- Motion Alert Off,
- Sensor EOL (End of Life) Warning, and
- Others.



The following are the filter options:

- **Date Range:** Alarms can be entered or selected by the radio buttons.
- **Devices:** Choose the gas detector from the list of the check boxes or enter a specific instrument serial number. All Devices is the default value if no specific device type is chosen.
- **User Name**; **Company Name** or **Department**: Enter any text in these fields. The search will return results that are not case-sensitive.
- **Session Events:** Select any combination of session events from the list. All Events is the default value if no specific event is chosen.

Select **Search** to initiate with the selected filters. The results display in the right side pane.

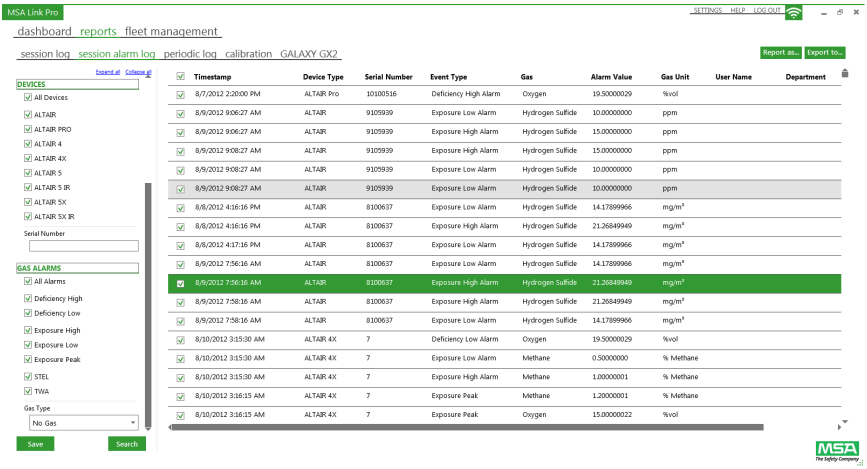
The **Report as…** button will create a formatted file of the results of this page. This file can then be saved in a variety of formats. The checkbox next to the Timestamp column can be used to select all displayed events or to only select specific events for which to generate the report. Save the document in the desired format and folder location.

The **Export to…** button will copy the filter results to the selected file type.

Session Alarm Log

Retrieves gas specific alarms from the session log on the gas detector. Examples of these alarms include:

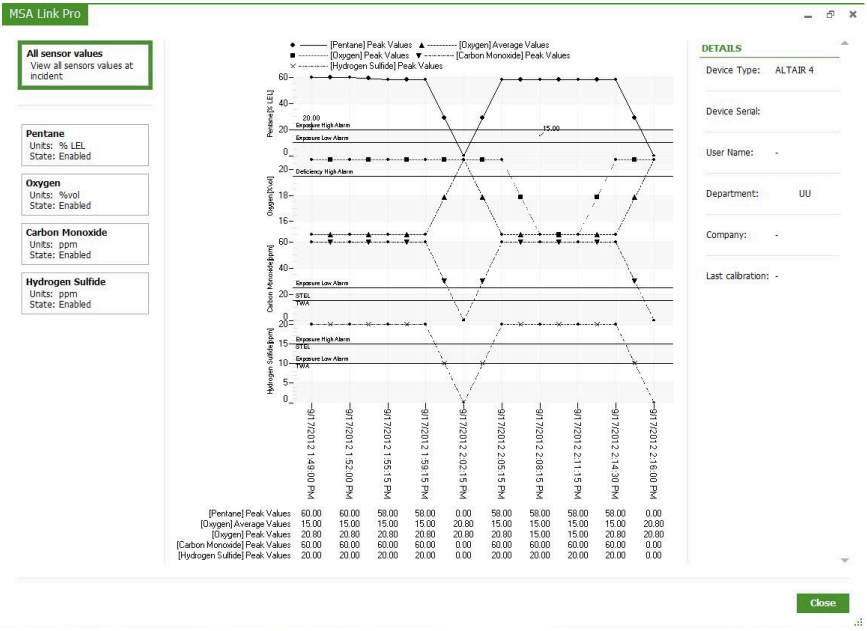
- Deficiency alarms (High and Low) – these alarms are related to the oxygen sensor.
- Exposure alarms (High and Low)
- STEL
- TWA



The following are the filter options:

- **Date range:** Alarms can be entered or selected by the radio buttons.
- **Devices:** Choose the gas detector from the list of the check boxes or enter a specific instrument serial number. All Devices is the default value if no specific device type is chosen.
- **User Name**; **Company Name** or **Department**: Enter any text in these fields. The search will return results that are not case-sensitive.
- **Gas alarms:** Chosen to retrieve those specific alarm reports.
- **Gas type:** Any gas alarms for a specific gas can be chosen from the pull down list filter. The option, No Gas will return the other selected filter parameters regardless of gas type.

Select **Search** to initiate with the selected filters. The results display in the right side pane. Double-clicking on an individual result will display periodic log data of approximately 15 minutes before and after the event (see figure). The user will be notified if no periodic log data is available.



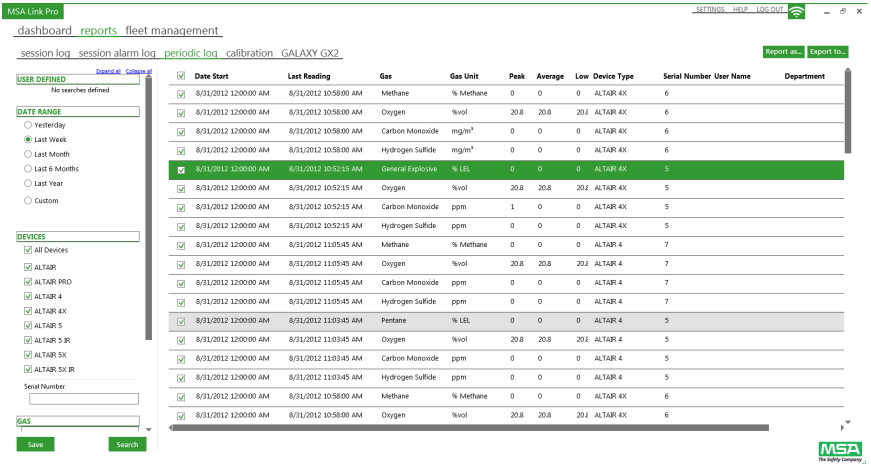
The **Report as…** button offers two different report formats:

- **Incident Report** – This will provide detailed information about the event(s) selected in the filter results. Depending on the number of filtered results selected with the checkmark, this file could take several minutes to complete. Save the document in the desired format and folder location.
- **Alarms Overview Report** – This will provide a tabular presentation of the filtered results. Save the document in the desired format and folder location.

The **Export to…** button will copy the filter results to the selected file type.

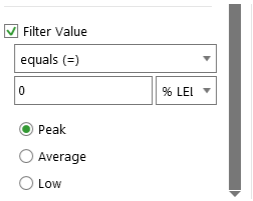
Periodic Log

The periodic log records the gas values at the user-selectable interval (default is every 3 minutes on the instrument). This interval can be set via the Test Stand interface. The reports page retrieves gas specific data from the periodic log on the gas detector as stored in the PC database.



The following are the filter options:

- **Date range:** Alarms can be entered or selected by the radio buttons.
- **Devices:** Choose the gas detector from the list of the check boxes or enter a specific instrument serial number. All Devices is the default value if no specific device type is chosen.
- **User Name**; **Company Name** or **Department**: Enter any text in these fields. The search will return results that are not case-sensitive.
- **Gas:** Any gas alarms for specific gas can be chosen from the pull down list filter. The option No Gas returns the other selected filter parameters of all gas types.
- **Filter value:** Chosen to retrieve gas specific results based on the filter selection. Select the box **Filter Value** to enable the comparator.



Select **Search** to initiate with the selected filters. The results display in the right side pane.

The **Report as…** button offers two different report formats:

- **Periodic Detail Report** – This will provide detailed information about the event(s) selected in the filter results. Depending on the number of filtered results selected with the checkmark, this file could take several minutes to complete. Save the document in the desired format and folder location.
- **Periodic Table Report** – This will provide a tabular presentation of the filtered results. Save the document in the desired format and folder location.

The **Export to…** button will copy the filter results to the selected file type.

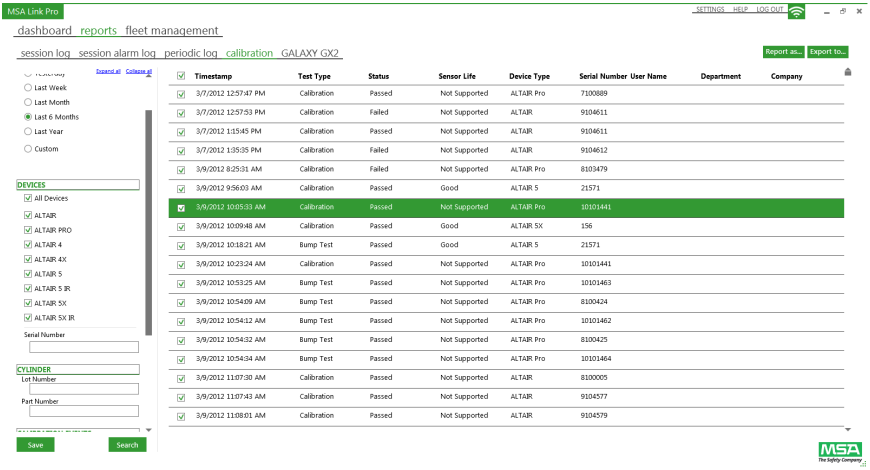
Calibration

The calibration screen allows the user to search across the fleet of instruments to filter results for calibration and bump testing, and select sensor errors.

The specific parameters are:

- **Bump tests:** Passed, Failed or Overdue.
- **Calibration tests:** Passed, Failed or Overdue.
- **Sensor End of Life messages:** Warning or Alarm

The Sensor End of Life messages are returned only for ALTAIR 2X, ALTAIR 4X and ALTAIR 5X units. Refer to the respective operating manual(s) for alarm descriptions.



The following are filter options:

- **Date range:** Alarms can be entered or selected by the radio buttons.
- **Devices:** Choose the gas detector from the list of the check boxes or enter a specific instrument serial number. All Devices is the default value if no specific device type is chosen.
- **User Name**; **Company Name** or **Department**: Enter any text in these fields. The search will return results that are not case-sensitive.
- **Cylinder:** The lot number and part number can be entered. This filter allows the user to generate reports identifying which instruments were tested on a specific gas cylinder.
- **Bankname:** Enter the specific name for a bank of test stands.
- **Calibration events:** These can be chosen to retrieve the specific test conditions shown. All events is the default value if no specific event is chosen.

Select **Search** to initiate with the selected filters. The results display in the right side pane. The **Expiration Date (Origin)** column provides the expiration date of an instrument's bump or calibration (in the test stand's time zone). The **Overdue Status** column provides historical information showing whether the instrument subsequently went beyond it's Due Date.

The No Overdue Status is a result of a test that didn't pass or didn't pass on all sensors. Examples include a failed test or a partially tested instrument.

The **Report as…** button offers two different report formats:

- **Periodic Table Report** – This will provide a tabular presentation of the filtered results. Save the document in the desired format and folder location.
- **Periodic Detail Report** – This will provide detailed information about the event(s) selected in the filter results. Depending on the number of filtered results selected with the checkmark, this file could take several minutes to complete. Save the document in the desired format and folder location.

The **Export to…** button will copy the filter results to the selected file type.

GALAXY GX2

This report allows the user to search across the banks of GALAXY GX2 test stands to obtain the following information:

- Instances of gas cylinders going low or empty
- Instances of gas cylinders with pending expiration dates or expired dates

The following are filter options:

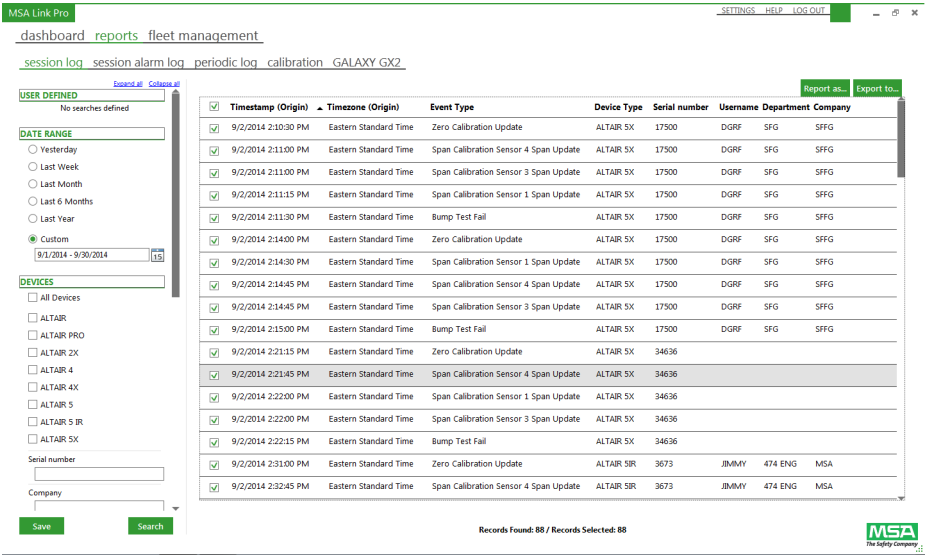
- **Date range**: Alarms can be entered or selected by the radio buttons.
- **Cylinder part number**
- **Gas Events**: Choose one of 4 gas cylinder states or the default is All Events.

User defined Reports (Template)

For frequently used reports, the user can save the report template for one-click retrieval. Saved report templates appear on the screen, under USER DEFINED in the top left corner of the filtering pane.

To create a report:

(1) Select the **reports** screen.



(2) Select the subcategory:
- session log,
- session alarm log,
- periodic log, or
- calibration,

(3) Select the desired **filter parameters**.

(4) Select **Search**. The chosen report displays.

(5) Select **Save** at the bottom left of the filtering pane to save this filter.

(6) A dialog displays. Enter a **name** for the search and associated description.

(7) Select **OK**. The search is stored on the user defined list at the top of the left pane on the screen.

A single mouse click will apply the settings to the search parameters. Double clicking the mouse will apply the search settings and execute the search.

To delete a user defined search:

(1) Hover the mouse over the user defined search until a red X displays on the right of the box.

(2) Select the **X**.

(3) A dialog displays to confirm the deletion. Select **Yes**.

When hovering the mouse over the user defined search setting, a tooltip will display under the arrow with a description of the saved search.

7.3. Fleet Management

Fleet management consists of three categories:

- GALAXY GX2
- Instrument configuration
- Instrument history

The GALAXY GX2 selection under fleet management allows for changes to be made to individual test stands or across all distributed test banks remotely, removing the need for operators to visit each test stand individually to make changes.

Configuration changes made by either the software application or at the local test stand are treated equally. The application will reflect the current status of your fleet, regardless of where changes were initiated.

The instrument configuration function under fleet management provides gas detector configuration to be established at the PC, written to the MSA Link Pro USB key, and then taken to the test stands where it can be selected and uploaded to gas detectors as they are inserted for testing. This process provides an efficient update of gas detector parameters, such as alarm limits.

The instrument history function under fleet management provides the complete historical overview of all data collected by any instrument(s), once a calibration, bump test or instrument datalogs are downloaded.

For additional information about the MSA Link Pro USB Key, refer to the GALAXY GX2 Automated Test System operating manual.

GALAXY GX2 Test Stand Configurations: Global / Individual

The software application can set test stand configurations either at a bank level or individually from the Fleet Management screens. The table below shows those settings that can be changed either for an individual test stand or for the entire bank.

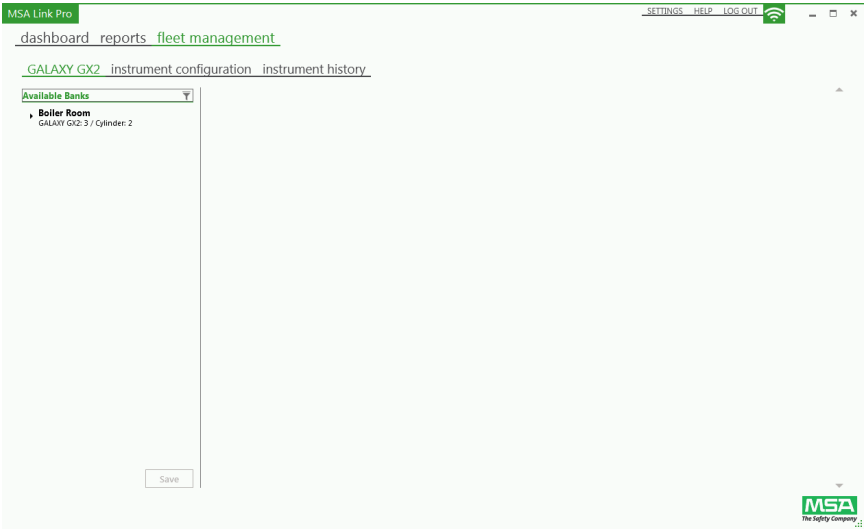
Global or Individual Test Stand Configurations		
Task	**Individual**	**Bank**
Email Collection	NO	YES
Bank Name	NO	YES
Time Zone	NO	YES
Daylight Savings	NO	YES
24 Hour Time Select	NO	YES
Time of Day	YES	YES
Test Mode	YES	YES
Cal Interval (Days)	YES	YES
PSI or BAR Selection	NO	YES
Bump Interval (Days)	YES	YES
Classic Mode	YES	YES
Download Periodic	YES	YES
Download Session	YES	YES
Erase Datalog After Download	YES	YES
Printer Enable Sticker	NO	YES
Printer Enable Receipt	NO	YES
Language	YES	YES
Alternate LEL Setup	NO	YES

GALAXY GX2 Tab

The screen allows the user to remotely configure the GALAXY GX2 test banks connected to this installed version of the software application.

To configure a GALAXY GX2 bank:

(1) Select **fleet management**. The GALAXY GX2 screen displays.



The connected banks are listed in the left pane of the screen.

(2) Select the **bank**.

Individual test stands and cylinder holders can be displayed by expanding the selection with the arrow button (►).

(3) Select the **bank name**.

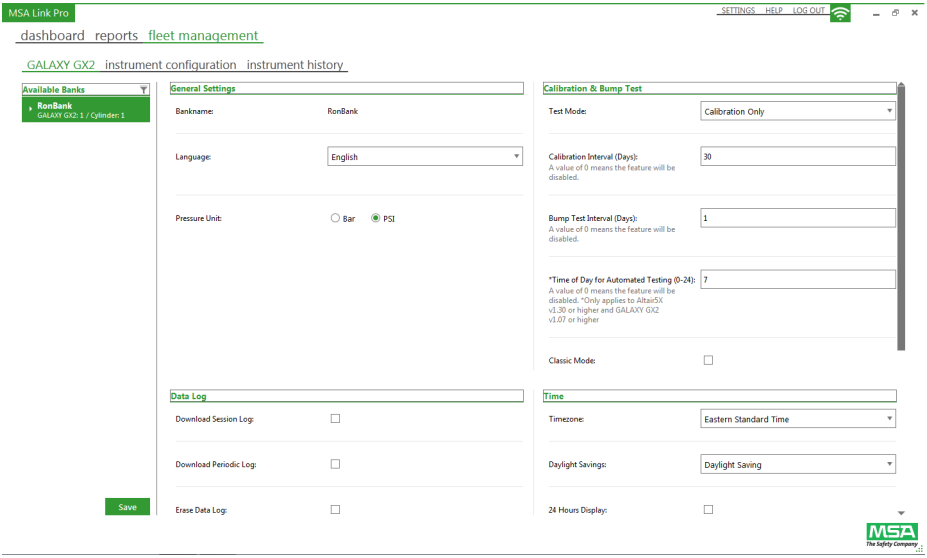
The bank configuration information appears in the right pane of the screen. Changes to any of these parameters are sent to every test stand in the selected bank.

The user can access and configure the following options:

- **General Settings:** Language and Pressure Unit.
- **Calibration & Bump Test:** Testmode, Calibration Interval (Days), Bump Test Interval (Days), Time of Day for Automated Testing, and Classic Mode (checkbox).
- **Data Log:** Download Session Log (checkbox), Download Periodic Log (checkbox), and Erase Datalog (checkbox).
- **Time:** Time Zone, Daylight Savings, and 24 Hour Display (checkbox).
- **Alternate LEL Setup:** Gases listed for Alternate LEL (checkbox) and Allow Simulant (checkbox). Alternate LEL allows you to choose one of the two International standards for 100%LEL combustible gas value depending on your local requirements. The Allow Simulant checkbox permits the test stand to accept Pentane simulant gas instead of target gas. This allows the use of many standard MSA 4-gas cylinders with Methane as a Pentane simulant.

Alternately, the user can select an individual test stand:

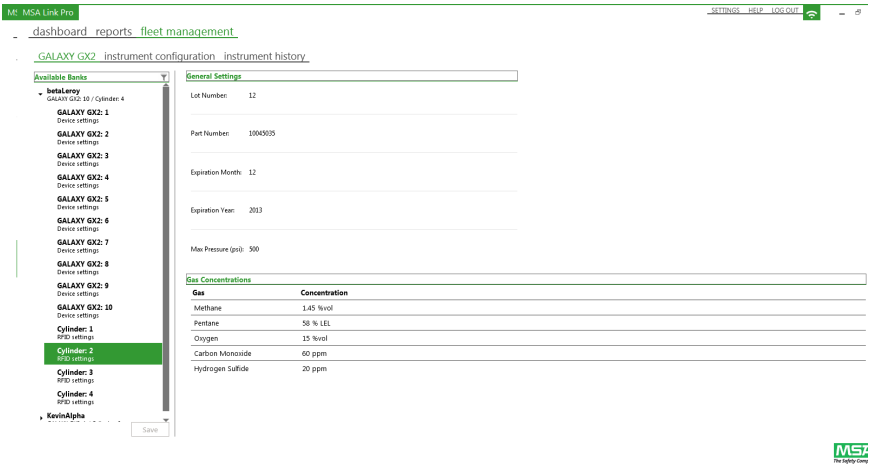
(1) Select a test stand. The GALAXY GX2 configuration screen displays to the right.



(2) The user can change General Settings, Calibration & Bump Tests, and Data Log options.

To access test gas cylinder information:

Select the cylinder number under the associated bank. The Cylinder RFID Information displays in the right pane of the screen.



The user cannot change any of the cylinder holder information, but if the cylinder number is selected, the user can view the cylinder data **General Settings**:

- Lot Number,
- Part Number,
- Expiration Month,
- Expiration Year,
- Max Pressure (psi), and
- Gas Concentrations.

An RFID-tagged MSA gas cylinder is required for the Lot number, part number and expiration fields to be populated. An electronic cylinder holder is required to display the cylinder pressure.

Any changes in fleet management must be saved to update the GALAXY GX2 Automated Test System(s).

Instrument Configuration Tab

The user can select a gas detector type (ALTAIR, ALTAIR 2X, ALTAIR Pro, ALTAIR 4 or 4X, ALTAIR 5 or 5X) and configure templates that establish specific detector settings. The user can then apply configuration templates to other instruments of the same device type, without having to manually change the settings.

Data generated from a Galaxy GX2 Automated Test System with firmware prior to version 1.06.72 is not compatible with MSA Link Pro version 1.06.74 or higher.

- A template must first be established from a gas detector inserted into the test stand. With an MSA Secure Digital USB key inserted, navigate to the Instrument Configuration page on the test stand and select Save Settings. Enter a file name of up to 24 characters then select Save. Remove the MSA Secure Digital USB key from the test stand and insert into an open port on the PC.

To Import a gas detector configuration previously saved on the MSA Digital Secure USB key:

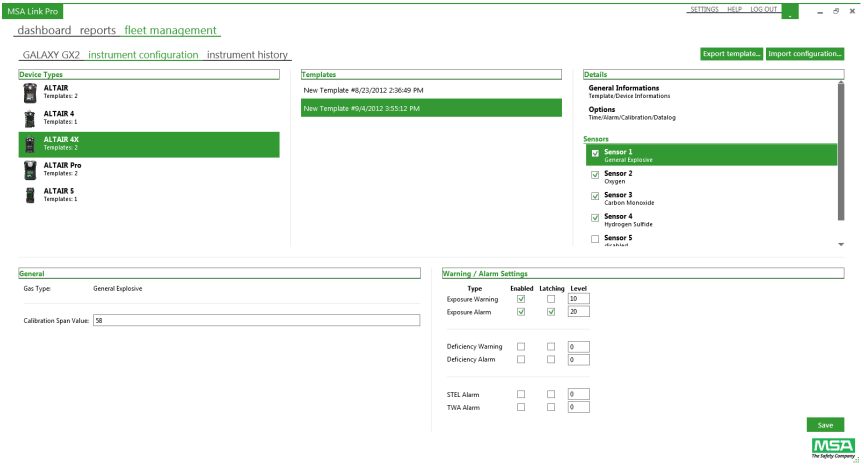
(1) Select **Import Configuration** located on the **fleet management – instrument configuration** page. A dialog displays.

(2) Select the MSA Digital Secure USB key **directory**.

(3) Select a **file** for import.

(4) Select **Import**.

To edit a template:



(1) Select the **template**.

(2) Select **General Information**, **Options or Sensors** in the right pane of the screen to change the following settings:

Setting	Selection	Expected Range
TWA Alarm Level	Sensors	Per Sensor Channel/Gas Detector
STEL Alarm Level	Sensors	Per Sensor Channel/Gas Detector
Deficiency Warning Level	Sensors	Per Sensor Channel/Gas Detector
Deficiency Alarm Level	Sensors	Per Sensor Channel/Gas Detector
Exposure Warning Level	Sensors	Per Sensor Channel/Gas Detector
Exposure Alarm Level	Sensors	Per Sensor Channel/Gas Detector
Calibration Span Value	Sensors	Per Sensor Channel/Gas Detector
Alarm Latching	Sensors	ON/OFF
Alarm Enabled	Sensors	ON/OFF
Calibration Span Set-Point	Sensors	Per Sensor Channel/Gas Detector
Vibration Alarm	Options	ON/OFF
Horn Alarm	Options	ON/OFF
LED Alarm	Options	ON/OFF
Enable Calibration Due	Options	ON/OFF
Calibration Due Interval	Options	[0..255]Days
Periodic Datalog Average Reading	Options	ON/OFF
Periodic Datalog Peak Reading	Options	ON/OFF
24 Hour Time Display	Options	ON/OFF
Instrument Company Name	Gen Info.	10 Ascii Characters (CAPITAL LETTERS ONLY)
Instrument Department Name	Gen Info.	10 Ascii Characters (CAPITAL LETTERS ONLY)

(3) Enter allowable values as specified by the applicable gas detector end user manual.

(4) Select **Save**.

If the user does not select Save, all changes to the template will be lost.

To export a template:

(1) Select **Export Template**. A Save As dialog displays.

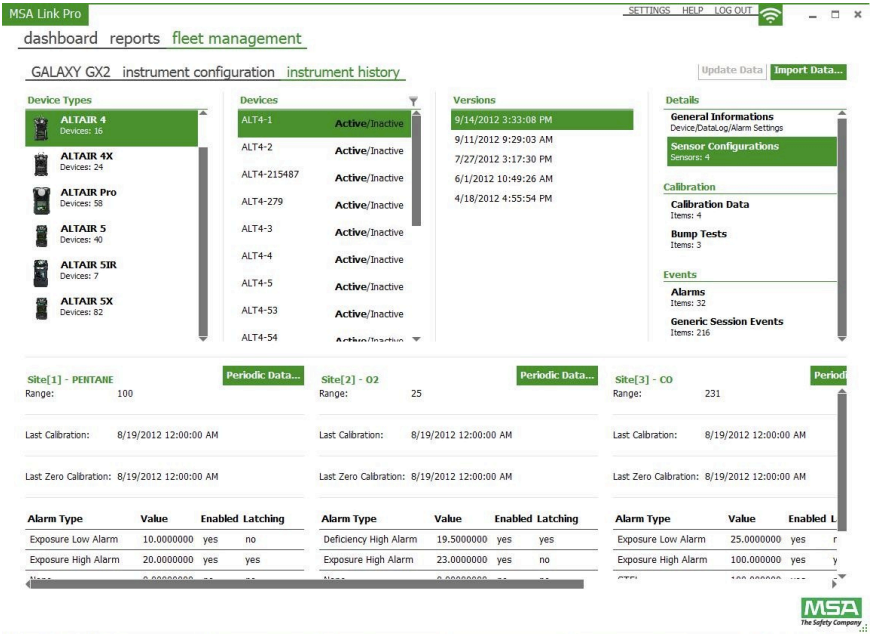
(2) Enter a **name** for the export file and save to the Free Space partition on the Digital Secure USB key.

(3) Select **Save**.

(4) Take the USB key to the master test stand of the bank on which you wish to load this template. Refer to the Load/Delete Settings section of GALAXY GX2 Automated Test System operating manual.

Instrument History

The user can select the instrument history tab to access the instrument configuration information. This information includes calibration and bump test history, alarm history, Company, Department, and Username. Calibration and bump test records can be imported from a test stand memory card, using the instrument history tab. See the Import Data from SD Card section below for instructions on how to import records.



Instrument history and configuration information can be viewed in the following lists:

- **Device Types:** Lists the types of gas detectors in the MSA Link Pro database.
- **Devices:** Lists every serial number of that type of gas detector found in the database.

The Active / Inactive field under the heading **Devices** is used to remove a gas detector from tracking by the software application.

The user should set any gas detector to Inactivate that is removed from service for maintenance or retirement. This will prevent the application from generating spurious "Bump Overdue" or "Calibration Overdue" emails on units that are not in service.

Once an Inactive gas detector is inserted in the Test Stand, it's status is automatically changed to Active.

- **Versions:** Every time a user modifies a value of an instrument configuration, a new version is recorded to the list. This would include changing X-Cell sensors, alarm settings, or span values. If non X-Cell sensors are changed this information is not recorded as a version change.
- **Details:** General information of the instrument is listed and Sensor Configuration, which lists the settings from the instrument. Both of these fields can be selected to pull detailed information about the unit from the database.
- **Calibration:** Select either Calibration Data or Bump Tests to display all the instances when the instrument was calibrated or bumped, if it passed or failed, and status of its sensor life. (Applicable for X-Cell sensors only.)
- **Events:** The alarms field lists the recorded alarms for the instrument. The Generic Session Events field lists all other events.

Instrument Notes

Users can now maintain a record of notes associated with each instrument within MSA Link Pro. Instrument Notes provide a space to record any text data that may be important for historical purposes.

To create a note:

(1) Select **Instrument History** on the **Fleet Management** page.

(2) Select the **device** you wish to add a note.

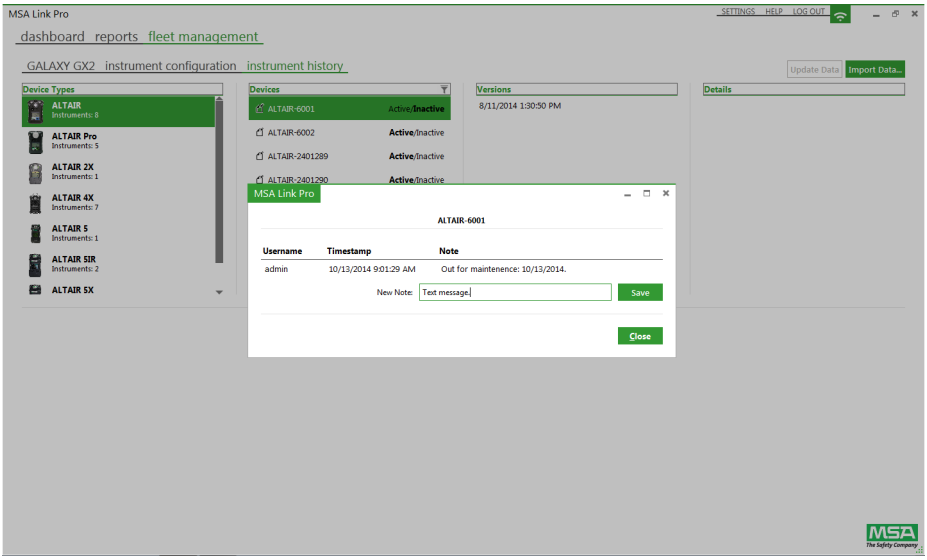
(3) Under the Devices column, select the Note icon ( ) to the left of a specific instrument.

(4) Enter a **note** in the **New Note** field.

(5) Select **Save**.

(6) Select **Close**.

Notes can be deleted by highlighting the specific note and selecting the red X at the end of the highlighted row.

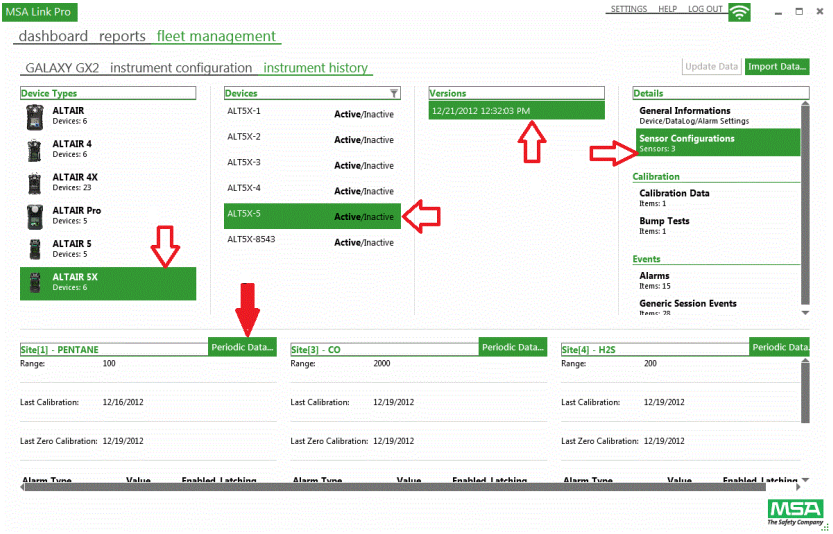


Periodic Data

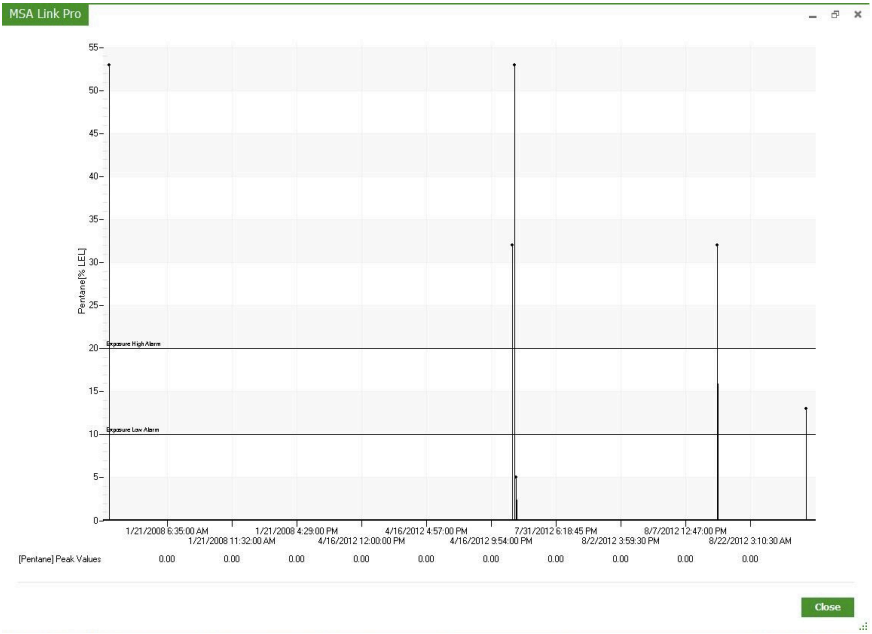
The Periodic Data shows a gas detector's exposure to gas concentrations over its history and ending at the last datalog download.

To view periodic data:

(1) Select **Alarms** from the Events list in the right pane to show periodic data associated with a selected gas detector.
The arrows in the screenshot below show the selections that must be made for the periodic data to be displayed (indicated by the solid red arrow)."



The periodic data graph displays.

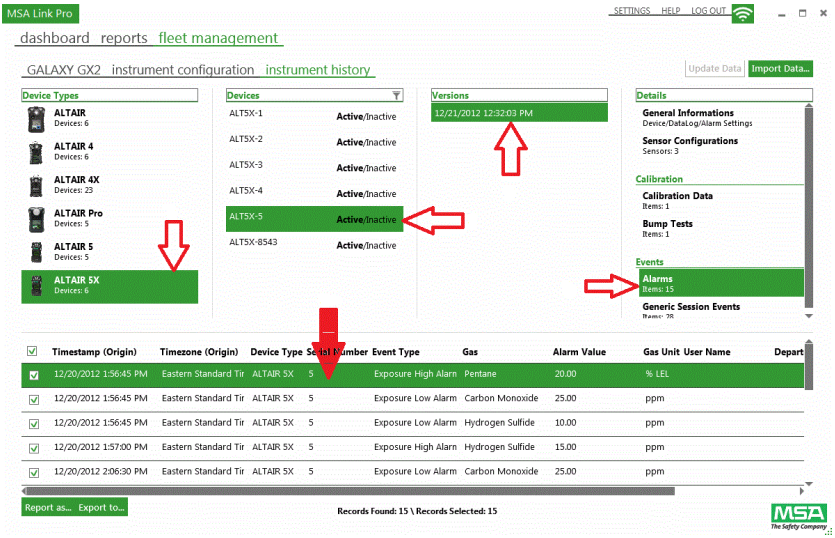


(2) Drag your cursor across any time frame of interest and the plot will resize to provide greater resolution.

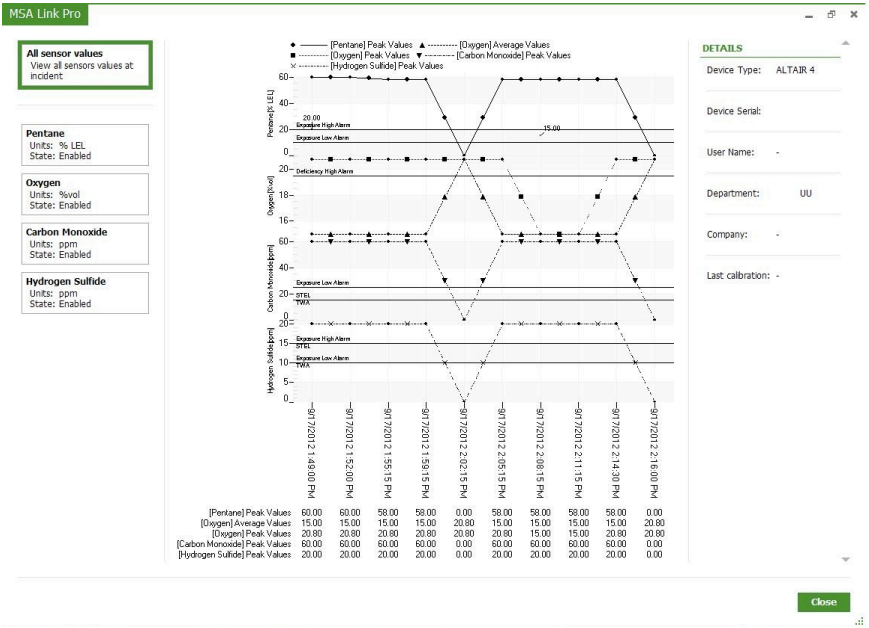
(3) Select **Close** to return to the instrument history screen.

To view periodic data:

(1) Select **Alarms** from the Events list in the right pane.



(2) Double click the **selected alarm**. A 30-minute interval graph displays.

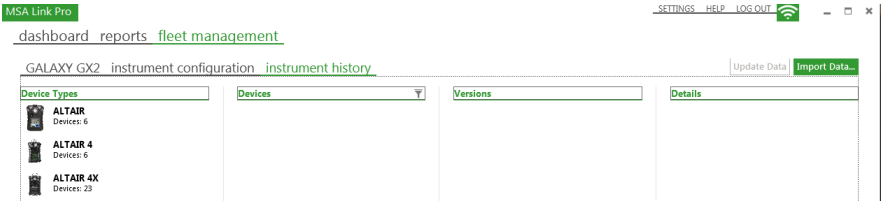


The user can select to view the 30-minute interval for all instrument gas sensor values or individual sensors from the list in the left pane.

(3) Select **Close** to return to the instrument history screen.

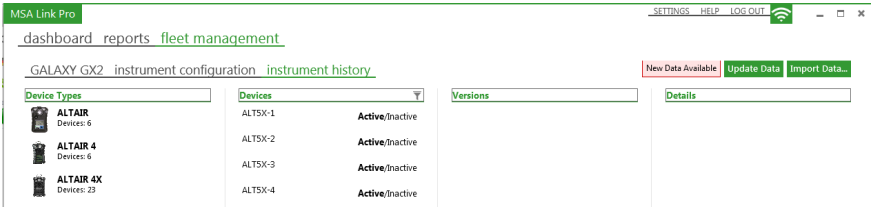
Import Data from SD Card

The Import Data button in the top right of the screen allows the user to import instrument history data from the SD memory card in the master test stand to the MSA Link Pro database. To import data from the SD memory card, insert the card in the computer and select Import Data. The data from the SD memory card will be stored in the database and available for subsequent reports. Instrument history can also be exported from the test stand to the Digital Secure USB key.



Update Data

The Update Data button illuminates when the software application recognizes that new data is available to update the instrument history.



Data generated from a Galaxy GX2 Automated Test System with firmware prior to version 1.06.72 is not compatible with MSA Link Pro version 1.06.74 or higher. Contact MSA Customer Service for a conversion program to allow older record imports.

8. Updates

8.1. Software Updates

Software updates are available for download from the MSA website, but the MSA Link Pro Software USB Key is necessary for running the application.

Users can download new versions of the MSA Link Pro Software Application from the MSA website **www.msasafety.com** as they are released, free of charge.

8.2. Update Installation

- If the software application is not installing on the user's PC, ensure System Requirements (chapter 3.1) are met in the Software Installation (chapter 4).
- If the install fails, a log will be generated. It should be sent to **GX2_MSALinkPro_Support@msasafety.com** for examination and support along with additional information about your system setup.
- If a user alters the GX2 CONNECT configuration files, issues may arise during a custom installation. In that scenario, select **Restore Defaults** from the GX2 CONNECT configuration screen during the initial installation.
- If it's determined the application must be reinstalled, the software must first be completely uninstalled.

To uninstall the application:

(1) Double click the **.exe file**.

(2) Select **Remove.**

(3) Select **OK**.

Alternative uninstall procedure:

(1) Navigate into the Windows® **Add/Remove** menu.

(2) Select **GALAXY GX2 Suite** for removal.

Either of these procedures will completely uninstall the application.

To reinstall:

(1) Double click the **.exe file**.

(2) The installation screen displays. Select **Custom Install**.

(3) Ensure port values are correct.

(4) Proceed with the installation.

9. Troubleshooting

The MSA Pro Link software application is a user friendly package that monitors the activity of the GALAXY GX2 Automated Test System(s). There are a limited number of troubleshooting issues that can arise, but if your facility experiences issues that are not represented on the following list, please call MSA Customer Service.

9.1. Permissions

- If permissions problems arise and installation fails, consult the installation log generated at the end of the installation process from the dialog that displays.
- The summary log has five or six values. Zero is considered good. If the value is not zero, the installation log can tell you what registry key does not have permissions.
- Consult your systems administrator to identify what registry key is needed.

9.2. Networking

The application dashboard will show a connection lost error in the event of a failed network connection.

(1) Verify a Static IP address on the **Network Settings** screen at the test stand.

(2) Ensure the network cable is plugged in the back of the master test stand.

  (a) If the network cable is not plugged in, reinsert and wait 30-seconds.

  (b) Exit the static IP address screen and then select it again to refresh.

  (c) Ensure the IP Address is present.

(3) If the Static IP address is still blank, **restart** the test stand.

(4) Navigate to the **Network Settings** screen and verify the IP address.

If it is still blank, contact your systems administrator. If an IP address is present, return to the software application.

(5) Select the **Settings** screen.

(6) Verify the **Network Address** matches the **Static IP Address** on the master test stand.

(7) Ensure the **Test Bank Enabled** is set to **Yes**.

(8) Verify your **network firewall** is not blocking communications between the test stand bank and software application. TCP ports 5555 and 4530 must be open and can be alternately configured during a Custom Install.

If problem persists, restart GX2 CONNECT. If that doesn't correct the issue, contact MSA Customer Service.

9.3. Software Application Fails to Open

If the software application fails to open after installation, ensure the digital USB key is inserted in the PC.

9.4. Using the Software Application

When accessing the SQL database, if the application screen turns gray, this is expected behavior during data retrieval. The screen will return to normal, once the data is gathered.

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