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DSX™
DOCKING STATION

Administrator's Guide

DSX-L Local Server Mode

Hardware
Software
Installation
Operation
Troubleshooting

Part Number: 17156006
March 28, 2024
Edition: 14

INDUSTRIAL SCIENTIFIC

Industrial Scientific Corporation.
Pittsburgh, PA USA
Shanghai, China
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Revision 16

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Although every effort is made to ensure accuracy, the specifications of this product and the content herein are subject to change without notice.

Warnings and Cautionary Statements

WARNING: Failure to perform certain procedures or note certain conditions may impair the performance of this product. For maximum safety and optimal performance, please read and follow the procedures and conditions listed below.

- Use of this product in areas where it may be subject to large amounts of electromagnetic interference may affect the reliable operation of this device and should be avoided.
- Sources of large amounts of interference could be and are not limited to:
    - Operation near high radio frequency fields (near 2-way radio transmission antennas where the RF fields may greatly exceed 10 V/M, etc.).
    - AC Power Mains that may have excessive power surges / spikes / transients (from large AC motors operating heavy loads which may induce voltage sags and, etc.).

NOTE: This product has been tested to, and passes all EMC requirements to EN 61326:1998 Electrical Equipment for Measurement, Control and Laboratory Use for Type 2 (Industrial) Apparatus, as well as FCC Part 15, Class A emissions levels when installed to the requirements outlined within this manual. Mandatory compliance to these standards help to ensure controlled, reliable operation of this device when exposed to typical levels of electromagnetic interference as well as ensuring that this device is not source of emissions that might interfere with other equipment installed nearby.

NOTE: Per 30 CFR 75.320(b), the DSX™ Docking Station tests for oxygen deficiency of MSHA approved oxygen detectors compatible with the DSX that can detect 19.5% oxygen with an accuracy of ± 0.5%.

NOTE: Per 30 CFR 22.7(d)(2)(i), the acceptable limit during calibration and bump testing with 2.5% methane must be 10% for MSHA approved instruments using Industrial Scientific certified calibration gas.

NOTE: The DSX Docking Station has an internal pump that controls the flow of gas being delivered to the system. As a result of the internal pump, a demand flow regulator must be used in conjunction with this calibration and bump test station.

Caution: Follow local, regional, and country regulations for recycling when an instrument or component (such as sensors or batteries) reach End of Life. Do not place in landfill.

NOTICE: The software associated with this product contains open source components. To obtain licensing and related information about these components, click here.

Table of Contents

# # #

Chapter 1

About This Manual

1.1. Document Overview

This documentation is designed to assist with the installation and use of the DSX-L Local Server Mode. This user guide contains the following main sections:

- Chapter 2: Introduction - Begin with this section to learn the system components and an overview of functionality.
- Chapter 3: Getting Started - This section provides an introduction to the Docking Station Server Admin Console (DSSAC), the web-based user interface through which administrative tasks are performed by the safety team. It also provides minimum server and browser requirements for proper installation and operation of the DSS and DSSAC software. An overview of the Broadcaster is also provided, as well as how to enable and disable this feature. Finally, an overview of the DSSAC application is provided.
- Chapter 4: Setting Up Users – This section explains how to set up user accounts.
- Chapter 5: Configuring Instruments – This section provides thorough explanations of instrument configuration processes including instrument options, DSSAC configuration, calibrations, graphing of data, bump tests, and data log data.
- Chapter 6: Configuring the Docking Station – This section explains how to setup the Docking Station for operation. It includes explanations of status, properties, setup and removal, manifold instruction, and gas cylinder configuration and connections.
- Chapter 7: Basic Operation – This section explains the basic operation of the docking station. It includes topics such as user interface menu options, LED and alarm signals, forced bump tests, forced calibrations, downloading and clearing datalog data, IDS diagnostics, and operating guidelines.
- Chapter 8: Event Scheduling – This section provides an overview of global and special events, and explains how they are used in the docking station system.
- Chapter 9: The Journal Feature – This section provides an overview of the journal feature and how to view journal entries.
- Chapter 10: Default Settings – This section explains how to monitor and modify default settings such as alarm settings and calibration gases.

- Chapter 11: Printing – This section provides information on various printing functions available on the docking station system. This includes how to print lists, IDS and instrument details, calibration data, bump test certificates, and data log data.
- Chapter 12: Language Features – This section explains the language feature and settings.
- Chapter 13: Troubleshooting – Refer to this section if you are experiencing any problems with docking station. It contains information about common problems and their solutions.
- Chapter 14: Warranty – Refer to this section for warranty and liability information.
- Chapter 15: iNet Configuration – This section provides an overview of iNet and explains how to configure iNet settings on the docking station.
- Appendices – Various appendices provide quick access to reference material such as acronyms and frequently used terms.

NOTE: Throughout this document, the term server—when used alone—refers to either a PC or server running the DSS software.

# # #

Chapter 2

Introduction

2.1. Overview

DSX provides the capabilities for fleet management and the scheduling and automatic performance of testing, calibration, and battery charging for the following Industrial Scientific instruments:

- GasBadge® Pro Single-Gas Monitor
- MX6 iBrid® Multi-Gas Monitor
- SafeCore® Module
- Tango® TX1 Single-Gas Monitor
- Tango® TX2 Two-Gas Monitor
- Ventis® MX4 Multi-Gas Monitor
- Ventis® LS Multi-Gas Monitor
- Ventis® Pro Series[a] Multi-Gas Monitors

[a]Includes Ventis Pro4 and Ventis Pro5 instruments.

DSX-L and its software are installed to function as a system where data reside on a company's internal computer network (or PC). The remainder of this guide describes this type of installation.

2.2. Features

Features of the docking station system include the following.

- Ability to operate from a server or stand-alone PC.
- Ability to handle up to 100 Instrument Docking Stations (IDS) with one docking station.
- One fresh air input and two or five gas inputs.
- Built-in smart charger on each IDS for rechargeable instruments.
- Simplified feedback on the IDS via 3 LEDs (red, yellow, and green), and an audible alarm.
- A graphical user interface tool (DSSAC) that allows an administrator to view operations on each IDS from a network computer.
- Ability to schedule calibrations, bump tests, diagnostic tests and data log data downloads globally for all IDSs, or on an instrument-specific basis.
- Multilingual user interface (Czech, English, French, German, Polish, Russian, or Spanish) on the IDS display as well as in the DSSAC application.
- Storage of instrument data in a central database.
- Option to use the Industrial Scientific supplied run-time database or the customer's own existing Microsoft® SQL Server.
- Option to implement Industrial Scientific Corporation's iNet solution, gas detection as a service.
- Optional iGas configuration for automatic configuration of gas cylinders on an IDS.

2.3. Components of the Docking Station Network

The DSX-L network consists of at least three (3) components:

- a Docking Station Server (DSS)
- the Docking Station Server Admin Console (DSSAC) application and user interface
- multiple Instrument Docking Stations (IDSs).

Refer to Figure 2-1. An introduction to each of these components can be found in the next three sections.

2.3.1. Docking Station Server (DSS) Overview

The Docking Station Server (DSS) is a computer (server of PC) that controls the entire docking station network. The DSS sends information to—and retrieves information from—IDSs and the instruments docked in them. IDS and instrument data, such as calibration and bump test results, are stored in databases that are controlled by the DSS. Refer to Figure 2-1.

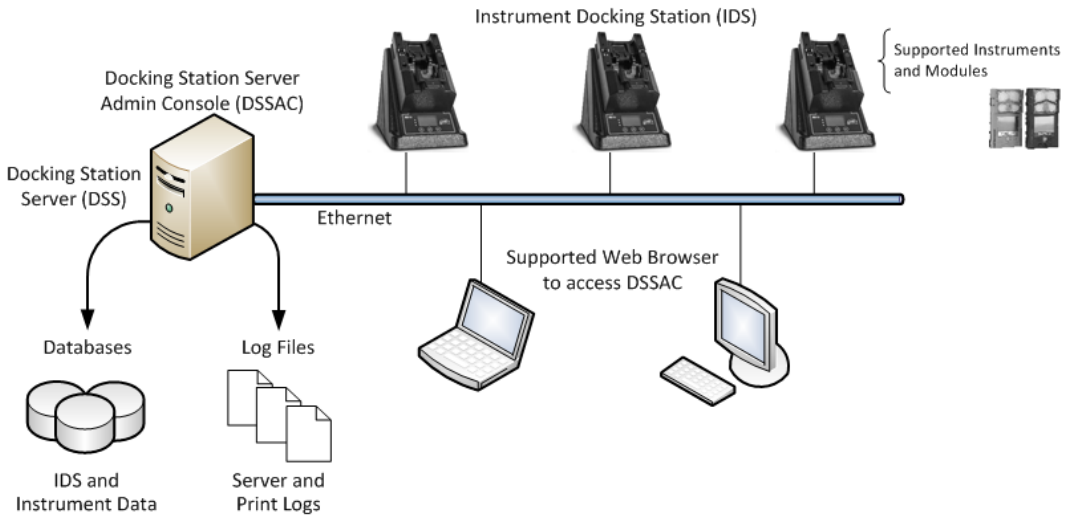


Figure 2-1. Sample Docking Station Network

2.3.2. Docking Station Server Admin Console (DSSAC) Overview

The DSS is administered using the Docking Station Server Admin Console (DSSAC) web application. DSSAC is used by the safety team to manage instrument data, view IDS status, and manage DSS configurations.

Before using the DSSAC for the first time, read Chapter 3 Getting Started for an overview of the application's user interface. Chapter 4 contains information about setting up and using IDSs.

2.3.3. Instrument Docking Station (IDS) Overview

An Instrument Docking Station (IDS) is the device into which an instrument is placed for use in the DSS. When placed in an IDS, an instrument is ready for automatic calibrations, bump tests,

diagnostic tests, and data log data downloads, all of which are controlled by the DSS. An IDS also serves as a battery charger for instruments with rechargeable batteries.

An IDS contains an LCD panel that displays a menu used to perform tasks on an instrument or on the IDS itself. The menu is controlled using a keypad on the IDS. When the menu is not in use, the LCD panel shows the current activity of the IDS. The IDS also contains LED lights and an audible alarm to provide you with additional feedback about current activity and status of the IDS.

When idle, the IDS cycles through three screens of information, as shown below. Each screen is shown for 10 seconds.

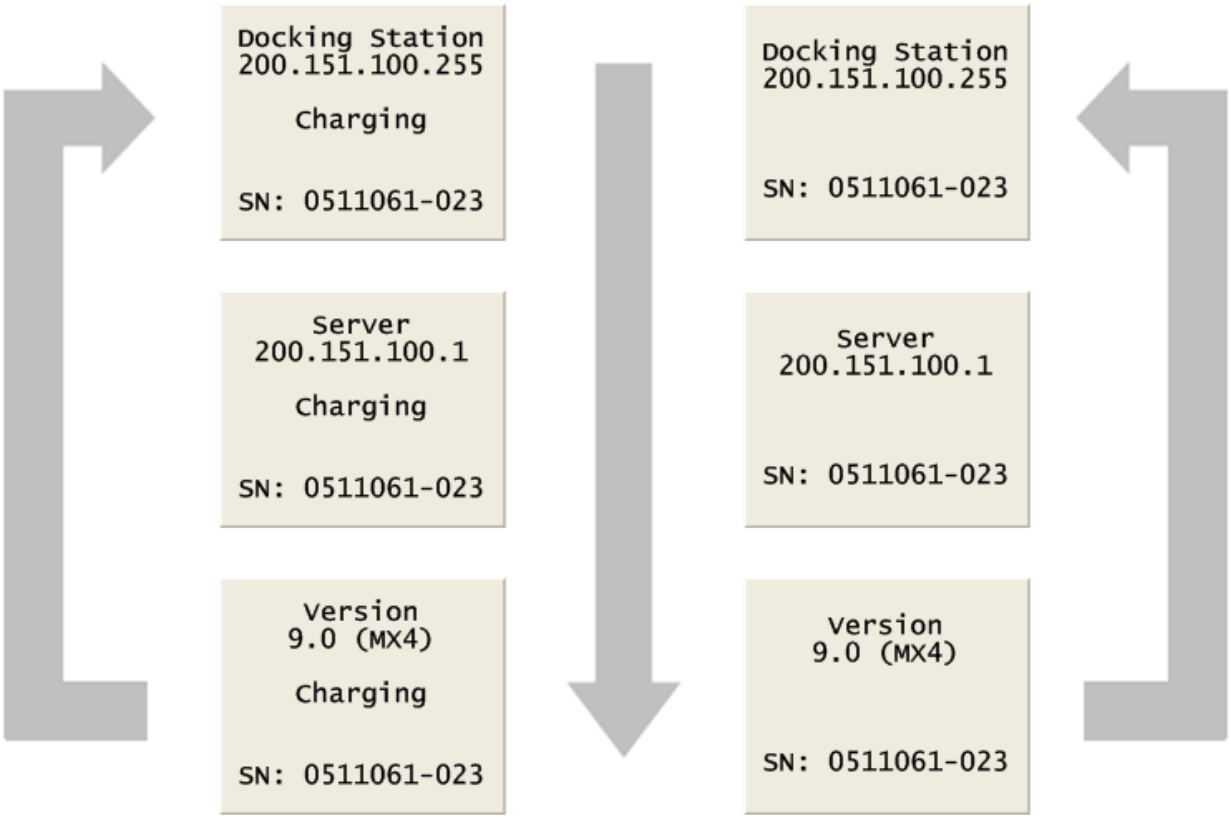


Figure 2-2. Sample LCD Panel Idle Displays (While and While Not Charging)

Additional details about how to use the features of an IDS are covered in the following sections:

- Chapter 6: Configuring the Docking Station
- Chapter 7: Basic Operation

2.4. Functionality and User Roles

This section provides an overview of the functionality that is available in the Docking Station Server Admin Console (DSSAC) and on an Instrument Docking Station (IDS). The availability of functions in the DSSAC is determined by your user role. There are three user roles in the DSSAC. The functionality of each is explained in the three sections that follow.

- Systems Administrator - Can perform all functions in the DSSAC.

- Technician - Can perform all functions except: managing users, editing iNet configuration information, editing events, editing default alarm settings, and editing default calibration gases.
- Guest - Can log in and view information in the DSSAC. This is a read-only role.

NOTE: Your current role is displayed in the title bar of the DSSAC application after you have logged in. An example is shown below.

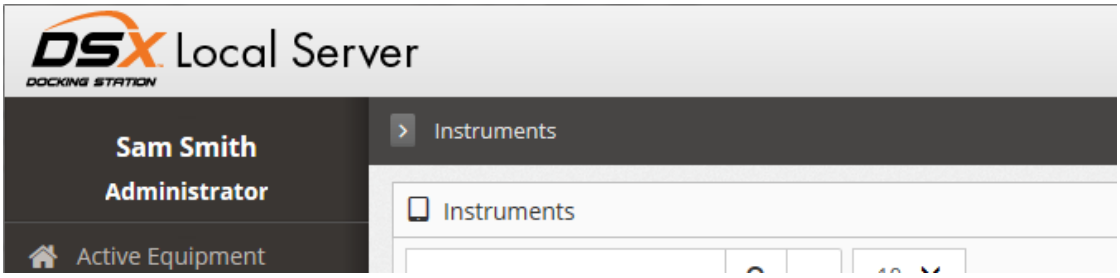


Figure 2-3. Sample Title Bar of the DSSAC Application Showing Administrator Role

NOTE: If you are assigned to the Technician role or Guest role in DSSAC, you will not see all of the functions for DSSAC described in this user guide.

Technician and Administrator users can perform functions on the IDS, provided the IDS menu is not locked. These functions are listed below.

- Performing on-demand calibrations, bump tests, and data log downloads.
- Clearing the data log data stored on an instrument.
- Changing language settings on the IDS.

NOTE: It is possible to lock the menu on an IDS so that no one can access it. See section 6.4 Instrument Docking Station Status and Properties (on page 129) for more information about locking the IDS menu.

In addition to the tasks in the DSSAC and on the IDS, a Technician or Administrator user may also be responsible for the physical configuration of IDSs, such as changing gas cylinders.

After logging in to the DSSAC using the "Guest" account, functionality is limited to read-only access through-out the program.

NOTE: The functionality of the DSSAC is based on the highest assigned role for any particular user (i.e., if a user is defined as both an Administrator and Technician, DSSAC will consider them an Administrator).

2.4.1. Overview for Systems Administrators

As a Systems Administrator in the DSSAC, you are able to perform all functions in the application. These functions include the following.

- User management - Add, edit and delete users of the DSSAC.
- DSSAC configuration - Manage language settings and iNet configuration options.
- Manage default settings - Configure default alarm settings and default calibration gas types for GasBadge Pro, MX6 iBrid, SafeCore Module, Tango TX1, Tango TX2, Ventis LS, Ventis MX4, Ventis Pro4, and Ventis Pro5 instruments.
- View IDS status - Track the status of IDSs in the system.
- IDS management - Manage IDS data and configure gas cylinders.
- Instrument management - Manage instrument data, run reports on calibration and bump test results, and add legacy instrument information to the docking station system.
- Manage events - Schedule events for calibration, bump tests, datalog downloads, and diagnostic tests; and create special events that apply to specific instruments.
- View the Journal - View the dates and times of specific events on each instrument and IDS.

A Systems Administrator may also be responsible for troubleshooting any issues related to the docking stations. As a part of troubleshooting and general maintenance, a systems administrator will also typically be responsible for reviewing the Event Viewer for potential errors and messages. All error information (for the DSS and the IDSs) is written to the event log on the DSS computer.

See the Troubleshooting section (Chapter 13) for more information about possible issues and how to access the Event Viewer.

2.4.2. Overview for Technicians

If you are set up in the DSSAC as a Technician, you can perform the following functions in the DSSAC.

- DSSAC configuration - Manage language settings for the DSSAC application on your workstation.
- View IDS status - Track the status of IDSs in the system.
- IDS management - Manage IDS data and configure gas cylinders.
- Instrument management - Manage instrument data and run reports on calibration and bump test results.
- View events - View Global and Special events for calibration, bump tests, data log downloads, and diagnostic tests.
- View the Journal - View the dates and times of certain events on each instrument and IDS.

2.4.3. Overview for Guests

If you are set up in the DSSAC as a Guest, you can perform the following functions in the DSSAC.

- View IDS Status - Track the status of IDSs in the system.

- View Events - View Global and Special events for calibration, bump tests, data log downloads, and diagnostic tests.
- View the Journal - View the dates and times of certain events on each instrument and IDS.

2.4.4. Context Summary Based on Roles

The table below defines the context (right-click) menus for the DSSAC and what is displayed when a particular role is logged in. In this table, "A", "T", and "G" refer to Administrator role, Technician role, and Guest role, respectively.

Table 2-1. Context Summary Based on Roles

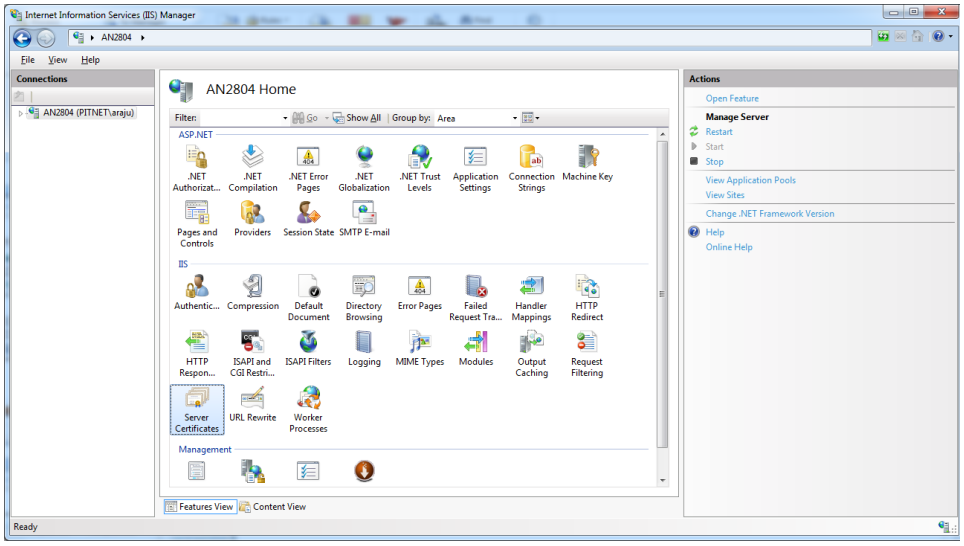
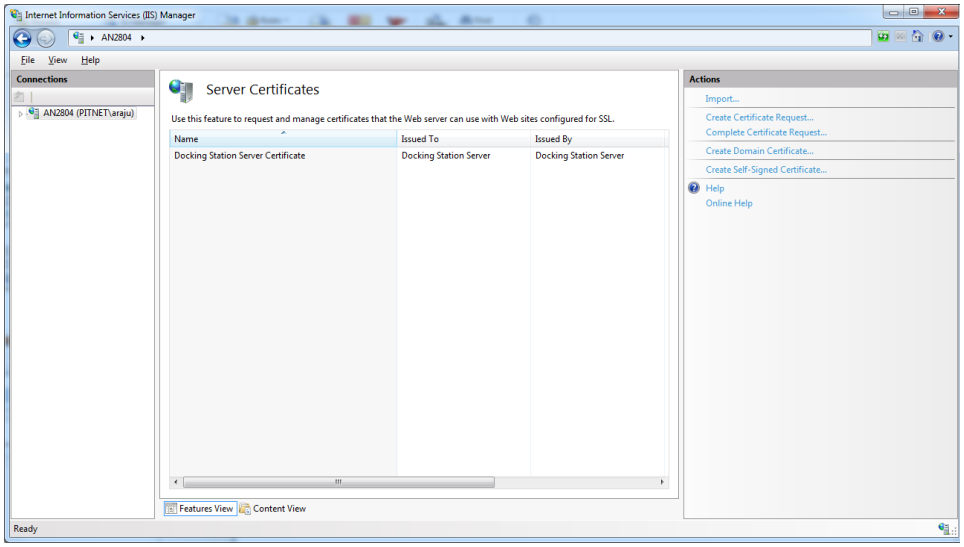
	Left Panel (Tree View)					Right Panel (List View)		
	Add	**Refresh**	**Print**	**Find**	**Apply Profiles**	**Properties**	**Remove**	**Print**
DSS		A T G						
D.S.		A T G	A T G			A T G	A	A T G
Instr	A	A T G	A T G	A T G	A	A T G	A	A T G
Comp		A T G	A T G			A T G		
Profiles	A	A T G	A T G		A	A T G	A	
Users	A	A	A T G			A	A	
DS Global		A T G	A T G			A		
Instr Global		A T G	A T G			A		
Instr Special	A	A T G	A T G			A	A	
Journal		A T G	A T G					

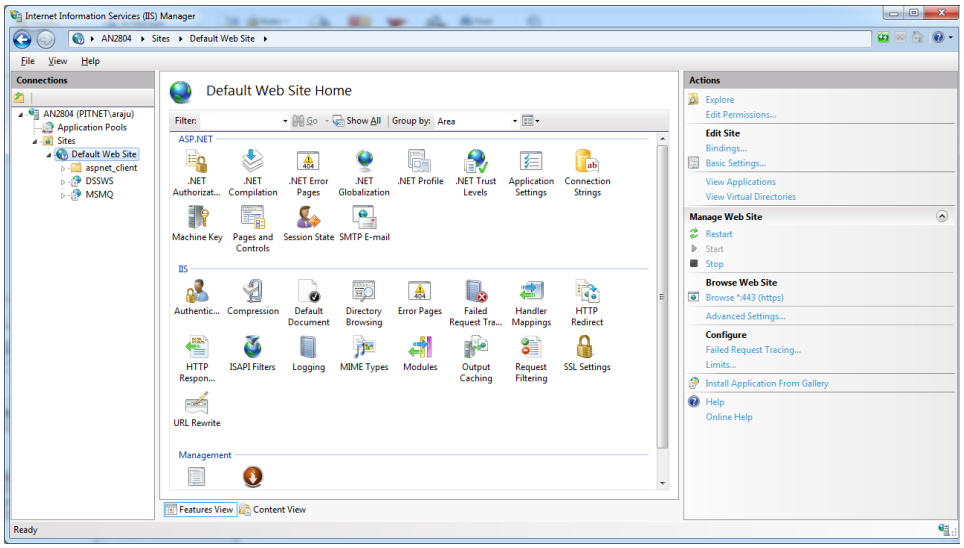
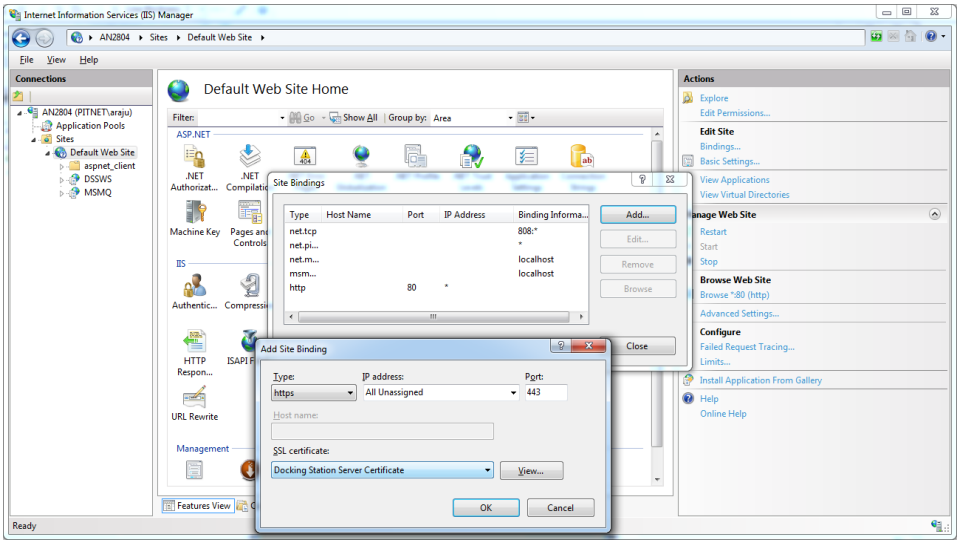
2.5. Required Network Connections

Once DSS has been installed, an SSL certificate can be used to secure network traffic. A primary reason to encrypt the network traffic would be to protect DSSAC user login credentials.

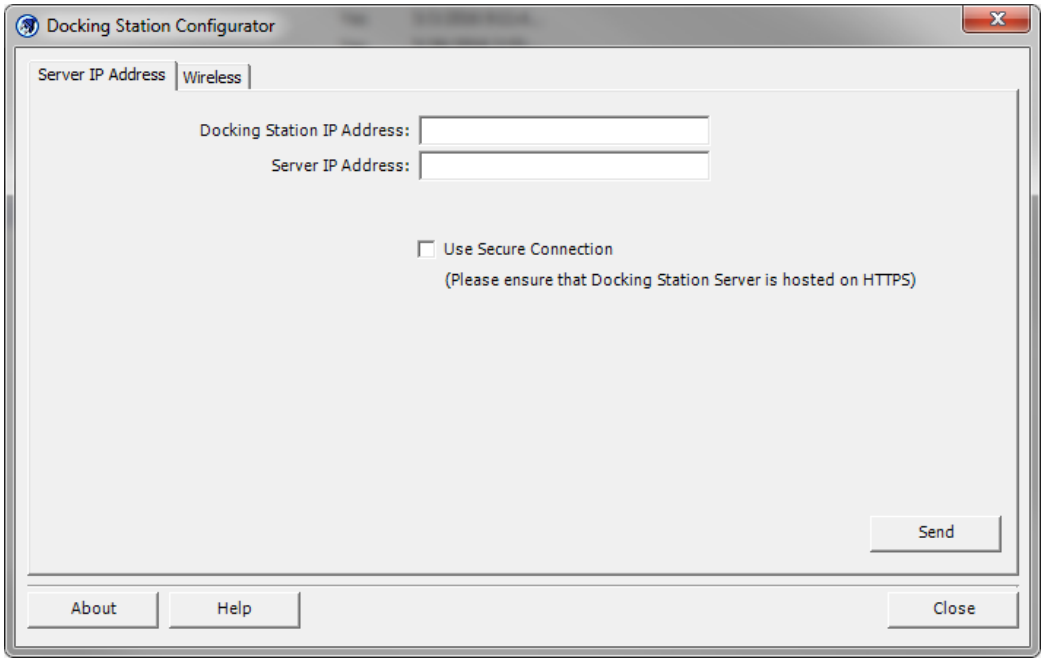
NOTE: An SSL self-signed certificate from Industrial Scientific will automatically be installed in IIS when the DSS is installed.

To add HTTPS binding, follow the steps below.

Step	Instruction
1.	Click on the server in the Connections pane on IIS.
2.	Under Features View tab in the IIS section, click on the Server Certificates icon. 
3.	A certificate named “Docking Station Server Certificate” should be listed. 
4.	Select the Default Web Site under the Sites folder in the Connections pane.

Step	Instruction
5.	On the Actions pane, click no the “Bindings…” link. 
6.	A Site Bindings window will appear. Click the “Add…” button in the top right corner.
7.	An Add Site Binding window will appear. Select “https” for the Type dropdown. Also select Docking Station Server Certificate for the SSL certificate dropdown. 
8.	Click the “OK” button, and then the “Close” button on the prior window.
9.	It is recommended that the server be restarted after the bindings are changed.

Setup DSX Docking Station v9.6 or above to use the secure connection

Step	Instruction
1.	Open Docking Station Configurator v9.6 (or above). See section 3.10.1 on how to install this software if needed.
2.	Enter the IP address of the DSX docking station.
3.	Ensure the "Use Secure Connection" checkbox is checked. 
4.	Click the "Send" button. Then click the "OK" button on the confirmation window that appears.
5.	The DSX docking station should reset and start using a secure connection only.

To remove HTTP binding, follow the steps below.

NOTE: The http binding is required for DSX docking stations below v9.6 as well as all DS2 docking stations.

Step	Instruction
1.	Click on the server in the Connections pane on IIS.
2.	Select the Default Web Site under the Sites folder in the Connections pane.
3.	On the Actions pane, click on the "Bindings…" link.
4.	A Site Bindings window will appear. Select the row for the http binding.
5.	Click the "Remove" button on the right side of the window. Click the "Yes" button on the confirmation prompt.

Step	Instruction
6.	Click the “Close” button.
7.	It is recommended that the server be restarted after the bindings are changed.

Below is a summary of the required network connections needed for the docking station system to function.

NOTE: Throughout this document, the term server−when used alone—refers to either a PC or server running the DSS software.

Table 2-2. Required Network Connections

Connection	Requirements
Browser to DSSAC web application	Open the web browser. Supported web browsers include: • Internet Explorer 10 (or above) • Google Chrome (latest) • Mozilla Firefox (latest) • Apple Safari (latest)
	Navigate to the following URL: http://<server_name_or_ip_address>/dssws or https://<server_name_or_ip_address>/dssws
Server to SQLServer	The DSS server uses ODBC to access the SQL Server databases it uses.
	This ODBC connection is established using the server names, users, and passwords in the web.config file.
	There are a total of 3 databases the DSS needs access to: DSS, DSSDL, and DSSUSERDIR.
	These databases can be local or remote.
	The database can use SQL Server 2014 Express SP1 Edition or SQLServer.
	To verify that the server machine can reach the database, try establishing an ODBC connection using the user, password, and server name from the web.config file.
	Each IDS must be able to reach the server, and the server must be able to reach the IDS(s).
To IDS(s)	This communication is XML over http, using TCP/IP.
	This takes place on port 80.

Connection	Requirements
	The IDS posts XML to an ASP.NET page running under IIS. The ASP.NET page used by the IDSs is shown below. http://<server_ip_address>/DSSWS/Server.aspx or https://<server_ip_address>/DSSWS/Server.aspx
	Each IDS contacts the server once each minute, unless the IDS is in the middle of a long operation, in which case it contacts the server after the operation is over.
	The IDS learns the server IP address either by listening for the broadcaster (if you are using it), or by being programmed with the server IP using DS.Config.
	The Server learns of the IDS IP when the IDS contacts the server (the server merely replies).
	The IDS can have either a dynamic or static IP address.
	If a static IP address is used, you must set the address on the IDS using HyperTerminal and a serial cable.
	To verify the IDS is reaching the server, turn on the tracelog and look for messages from the IDS in question. If there are any, it is reaching the server.
Broadcaster to Network	The "DS2 Broadcaster" is a service that runs on the DSS server, broadcasting the IP address of the DSS server, to be received by any IDS and/or DSSAC running on the network.
	The broadcasts take place from the server via UDP on port 55555.

# # #

Chapter 3

Getting Started

3.1. Introduction

This chapter explains how to install the DSS Software package onto a computer system to be used on either a server-based operating system or a PC-based system. It also explains how to begin using the DSSAC application.

This chapter is divided into the following topics:

- Requirements for software installation
- Microsoft Internet Information Services (IIS) and Message queuing (MSMQ)
- Installing the Docking Station Server (DSS) software
- Loading the installer software
- Installation wizard for DSS
- Database preparation options for first time installations
- Selecting the database option
- Accessing the Docking Station Server Admin Console (DSSAC)
- Installing and running the Docking Station Configurator software
- Assigning a static IP address to a sever or PC
- Disabling the DS2 Broadcaster
- Configuring Windows firewall
- Specifying the DSS IP address

Each of these topics is explained in the sections that follow.

3.2. Requirements for Software Installation

Before installing the software make sure that the host system (server or PC) meets the following minimum requirements.

3.2.1. Server Requirements

- Processor: 1.4 GHz (or higher)
- Memory: 2 GB RAM (or higher)
- Hard disk: 20 GB free disk space
- Supported operating systems:
    - Windows 10
    - Windows 11

- Windows Server 2012
- Windows Server 2012 R2
- Windows Server 2016
- Windows Server 2019
- Windows Server 2022

**Note:* If opening DSSAC in a web browser results in a "Server Error" page, navigate to: *Support > Windows Server 2008>Hotfix KB980368* and install the Hotfix.

- Supported operating system languages (for installation and running):
  - English
  - French
  - German
  - Spanish
  - Czech
  - Polish
  - Russian
  - Other Western Europe Latin-based languages (i.e., "Latin-1" languages per Windows) should also work, but have not been specifically tested. These include: Afrikaans, Basque, Catalan, Danish, Dutch, Faeroese, Finnish, Galician (Spain), Icelandic, Indonesian, Italian, Malay, Norwegian, Portuguese, Swahili, and Swedish.
  - The SQL Server (or SQL Server2019 Express SP1 Edition) database must be configured to use a Collation type within the Windows Latin codepage of 1252. (NOTE: If the DS2 Database has any other collation type, it prevents the DSX Server software from functioning properly.) The SQL Server (or SQL Server 2019 Express SP1 Edition) will automatically default to "collation type" within the proper codepage of 1252 if installed under the Latin-based languages listed above. Installing SQL Server under a non-Latin-based operating system may result in a non-Latin collation type for the DS2 Database. Database administrators also have the ability to change a database's collation type. Changing the collation type of the DS2 Database to anything other than a Latin collation type is not be supported.
- Internet Information Services (IIS) must be installed to the operating system if not already present.
- Message Queuing (MSMQ) must be installed to the operating system.

NOTE: Server software is supported on English, French, German, Spanish, Czech, Polish, and Russian operating systems. Other Latin-based language operating systems may work, but they have not been fully tested.

The collation type of the database can be seen using SQL Server Enterprise manager and examining the Properties of a database as in the screenshot below.

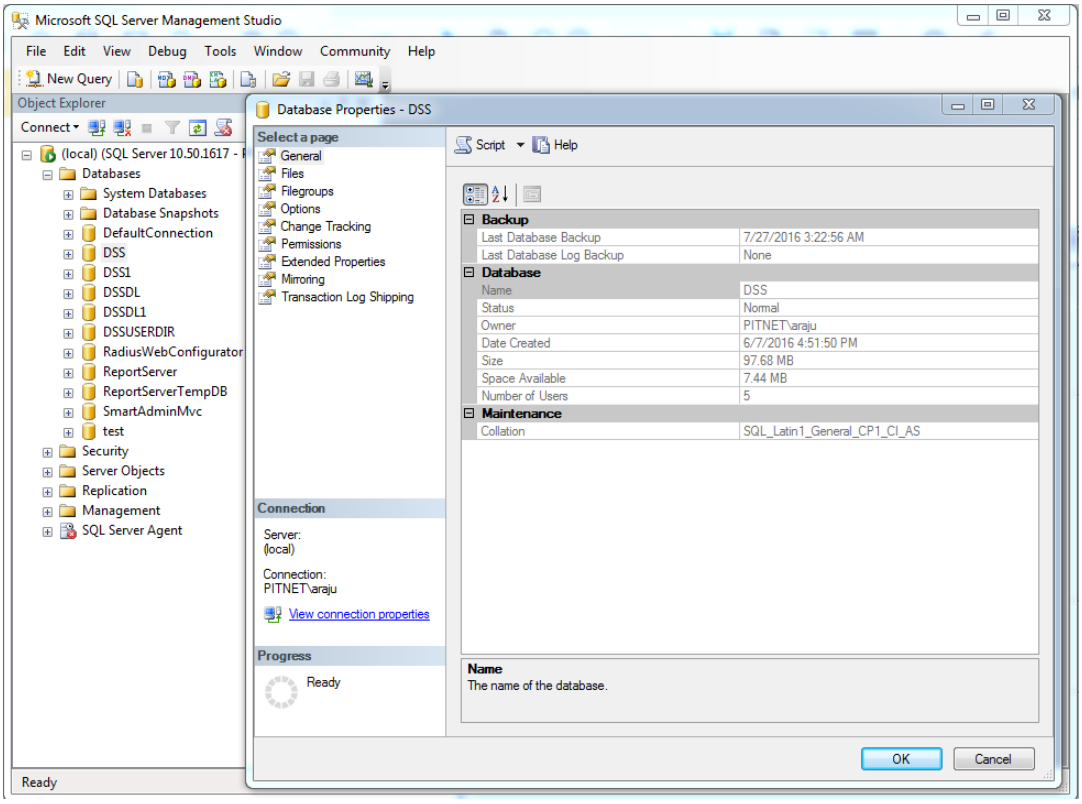


Figure 3-1. Determining the Collation Type of a Database

Although the DSS may run under non-English operating systems as described above, for it to successfully communicate data back and forth between docking stations necessitates that the English-US regional settings for Number formatting remain in their default state. That is, even if the DSS is running under a non-English-US language, it is necessary that the settings for English-US remain at their defaults. The default Number settings are shown below. If any of these defaults are modified, then the DSS may be unable to properly communicate data with docking stations.

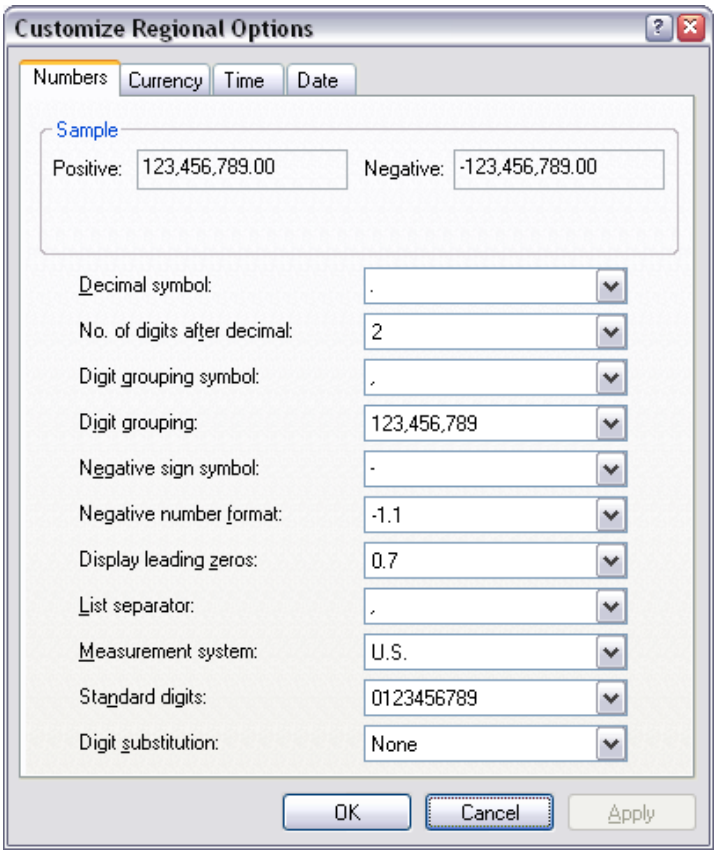


Figure 3-2. Default English-US Regional Options for "Numbers"

3.2.2. Browser Requirements

The DSSAC application is best viewed with the following browsers:

- Internet Explorer (10 or above)
    - Requires ActiveX scripting to be enabled
- Google Chrome (latest version)
- Mozilla Firefox (latest version)
- Apple Safari (latest version)

3.2.3. SQL Server Requirements

- Installation Type 1 "Install new SQL Express and a new DSS Database on this machine": SQL server 2019 SP1 will be installed as a part of DSX-L software installation. No prior database is needed.
- Installation Type 2 "Install new DSS to an existing SQL/ Server/SQL Express on this machine": SQL server 2008 R2 and above is required.
- Installation Type 3 "Attach to an existing DSS database available on my network": SQL server 2008 R2 and above is required.

- Upgrades, where SQL server is already running with Databases attached: SQL 2005 and above is required.

3.2.4. Additional Requirements and Warnings

WARNING: PCs or laptops having two network adapters will not allow the DSS to properly function. Do not install to a laptop that has both a built in LAN adapter and a built in Wireless adapter. If the laptop has a removable wireless card, remove the wireless card and place laptop on a LAN via Ethernet cable while doing the install.

WARNING: When connecting a single IDS to either a server or PC, an Ethernet cross over cable must be used. If you are connecting multiple IDSs to a network, standard Ethernet cables must be used.

WARNING: If you are installing the DSS software on a server or PC, any network device must be connected to the PC via an Ethernet Cable, for the software to install. Simply connecting the docking station on any other network device such as a hub or router to the server or PC will be adequate. If no devices are connected to the computer, the DSS will not install.

NOTE: Throughout this document, Internet Information Services will be referred to as IIS, and Message Queuing will be referred to as MSMQ.

Prior to installing the DSS software, IIS must be installed to the Operating System if it is not already present.

The DSS installer will check for "prerequisite" programs during DSS installation. If prerequisite programs are not found in the machine, DSS installer will display the message below:

For Windows versions starting from v6.1 (Windows 7)

At this time, the user can go back and install the IIS using the information outlined on the following pages.

3.3. Microsoft Internet Information Services (IIS) and Microsoft Message Queuing (MSMQ)

3.3.1. Requirements

DSX software installation requires certain roles and features first be enabled on your operating system (OS). If you do not make or miss some of these OS settings, the DSX installation process will prompt you with a list of any remaining requirements.

Here is some general direction to help you access the required OS features and roles:

- Feature and role names, as well as groupings, may differ somewhat among operating systems.
- Most requirements will be accessible from and along this OS path: Server Manager >> Dashboard >> Manage >> Add Roles and Features.
- The OS generally uses a check mark to indicate a feature or role is enabled.
- The DSX installation type is "Role-based or Feature-based".
- As you work, follow the onscreen prompts

Server Roles

Web Server (IIS)	—

Features

Message Queuing	HTTP Support

Web Server Role (IIS) >> Role Services

Group	Required Feature or Role
Common HTTP Features	Default Document
	Directory Browsing
	HTTP Error
	Static Content
	HTTP Redirection
Health and Diagnostics	HTTP Logging
	Logging Tools
	Request Monitor
	Tracing
Performance	Static Content Compression
Security	Request Filtering
	Basic Authentication
	Digest Authentication

	IP and Domain Restrictions
	URL Authorization
	Windows Authentication
Application Development	.NET Extensibility (4.7 if available)
	ASP
	ASP.NET (4.7 if available)
	ISAPI Extensions
	ISAPI Filters
Management Tools	IIS Management Console
	IIS 6 Management Compatibility IIS 6 Metabase Compatibility
	IIS Management Scripts and Tools
	Management Services

3.4. Installing the Docking Station Server (DSS) Software

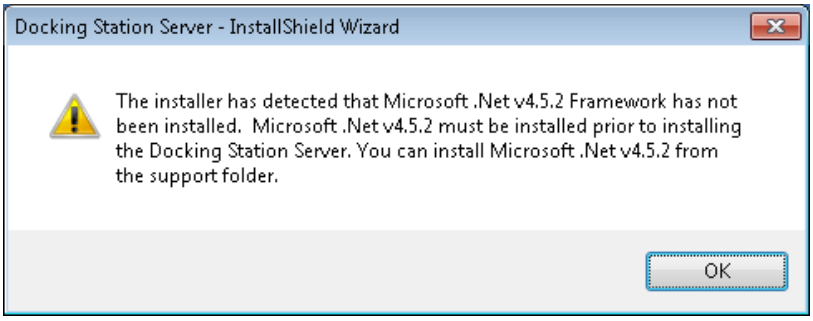
The procedures that follow are intended for the operating systems listed in section 3.2.1 Server Requirements.

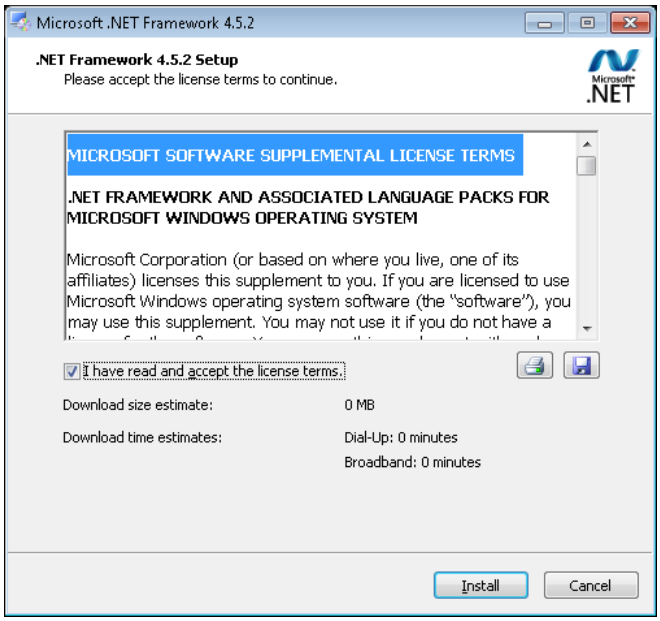
The DSS software is installed in segments. These segments are outlined in the sections that follow.

3.5. Loading the Installer Software

To load the installer software, follow the instructions below.

Step	Instruction
1.	Insert the DSX Operating system USB drive into your computer.

Step	Instruction
2.	The USB drive will automatically launch the following window.  **Figure 3-3. The Installer Software Startup Window** The launcher displays seven language options on the screen. Click a language to re-display the Launcher in the chosen language.
3.	Click on "Install Docking Station Server." This will automatically launch the DSS installer. The first window that appears is the License Agreement.
4.	If the Microsoft .Net Framework v4.5.2 is not currently installed, the following screen will appear. Click "OK". 

Step	Instruction	
5.	Click the Next button at the Welcome screen.	 **Figure 3-4. The Welcome Window**
6.	Review the license agreement, choose "I agree," and then click Install.	 **Figure 3-5. The License Agreement Window**

Step	Instruction
7.	The Installer will automatically install the .NET framework v4.5.2 (if it currently is not installed). When this installation is complete, the following window will appear. Choose Finish to continue with the installation.

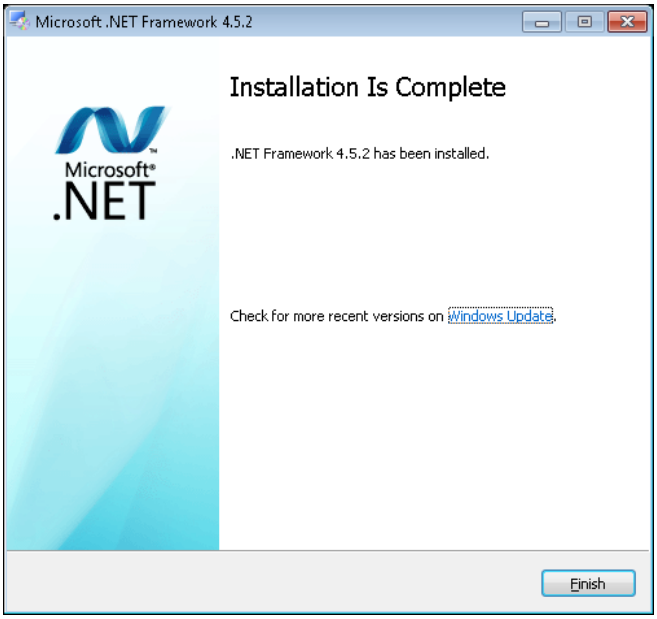


Figure 3-6. The .NET Framework Installation Complete Message Box

8. The DSS software is now ready to install. Choose Next to continue.

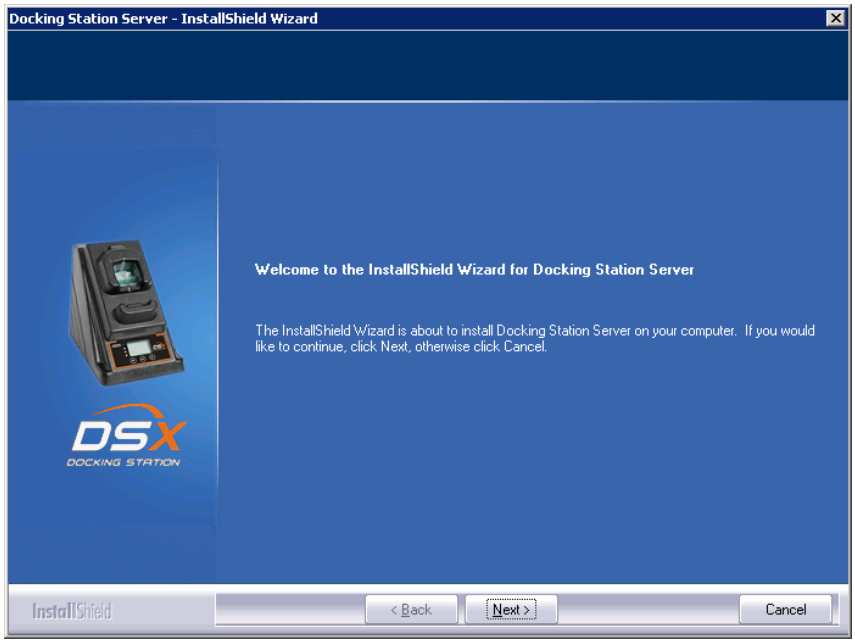
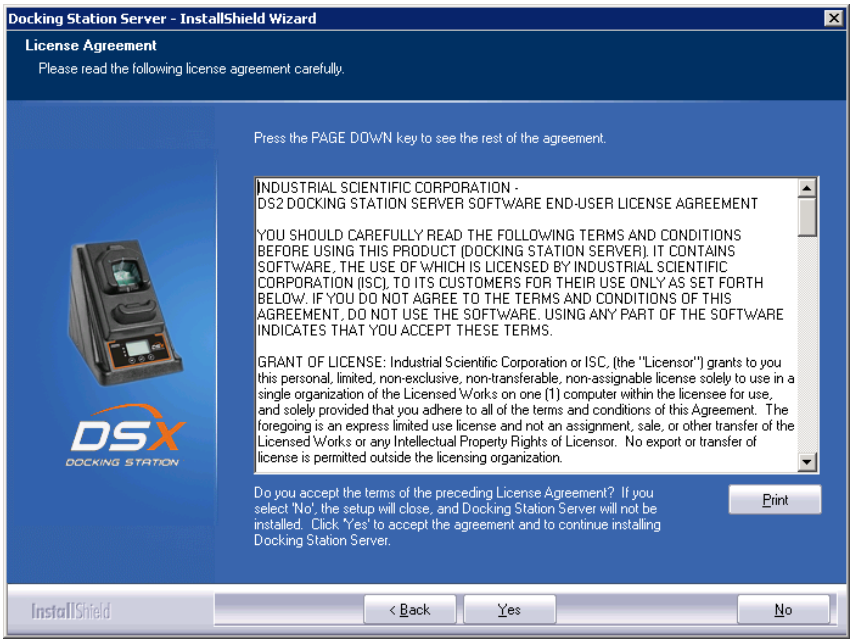
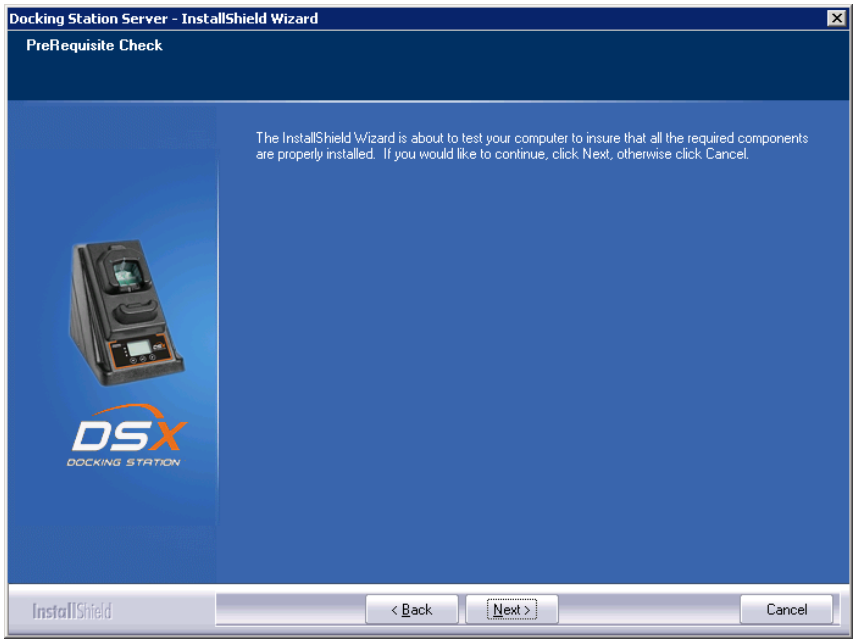
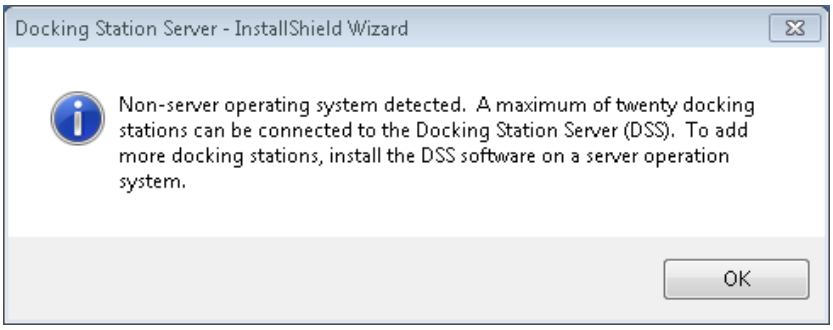


Figure 3-7. The DSS Installation Wizard Window

3.6. Installation Wizard for DSS

Step	Instruction
1.	Click YES to accept the license agreement.  **Figure 3-8. The Software License Agreement Window**
2.	At this point the installation will check to make sure all prerequisites are already installed.  **Figure 3-9. The Prerequisite Check Window**
3.	Choose Next.

Step	Instruction
4.	If installing the DSS software onto Windows 10 or higher operating systems, the following message will be displayed. This message is a reminder that the maximum number of IDSs that can be connected to a PC is limited to 20.  **Figure 3-10. The Max Docking Station Information Window**
5.	Choose OK.
6.	If the installer does not detect IIS and/or MSMQ, the installation will be halted, and the following warning will appear. To install IIS or MSMQ onto either a server or PC, refer to section 3.3 Microsoft Internet Information Services (IIS) and Microsoft Message Queuing (MSMQ).  **Figure 3-11. The Prerequisite Check Failed Window**

3.7. Database Preparation Options for First Time Installations

3.7.1. Overview

This step in the installation is to select the database option that you are going to use. The following window will appear if this is a new installation. For new installations, choose one of the following three options:

(a) Install SQL Server 2014 Express SP1 Edition and a New DSS database on this machine.

(b) Install new DSS database to an existing SQL Server/SQL Server Express Instance on this machine (when installing a new database on a new SQL Server instance, the minimum supported SQL Server version is SQL Server 2008 R2).

(c) Attach to an existing DSS database available on my network.

Each of these options is explained in the following sections (marked as a, b, and c). After you select your option, choose Next.

NOTE: Regardless of the database location, the following apply:

- File attributes of .MDF files are set to "writable" mode (disables read-only). Since the base structure of databases are copied from CD, the file attribute is set to read-only by default; the change to a writable setting allows the application to use the database.
- The following services are started through registry: INet Uploader, DSX Printing, and DS2 Broadcaster (during uninstall, these registry entries are removed).
- In SQL Server, the following steps are completed during DSS Install:
    - "DSSUSERROLE" user role will be created.
    - "DS2" login will be created. This is the login used by the DSS server.
    - "DS2" login will be given access to DSS, DSSDL and DSSUSERDIR databases with DSSUSERROLE, and DB_OWNER permissions.

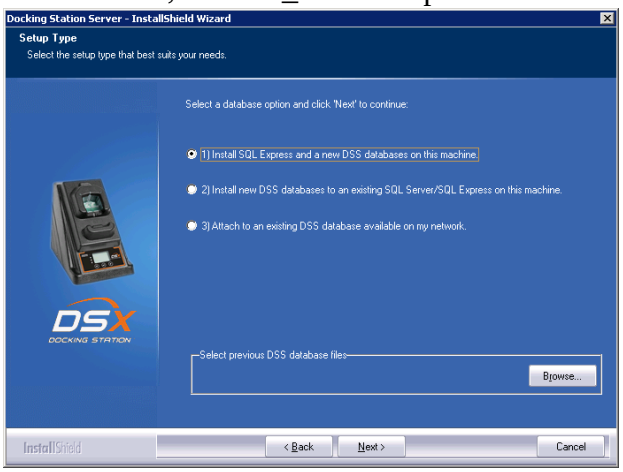


Figure 3-12. The Setup Type Window

NOTE: When performing a fresh install of DSS that includes SQL Server 2014 Express SP1 Edition, newer versions of the installer no longer ask for passwords for the SA, SQL DSSUSER

and DSSAC DSSUSER accounts. The default value of **D$2u$er$D$2uer** will be used for all three.

Simplified Flow Diagram for DSS/SQL Express Installation

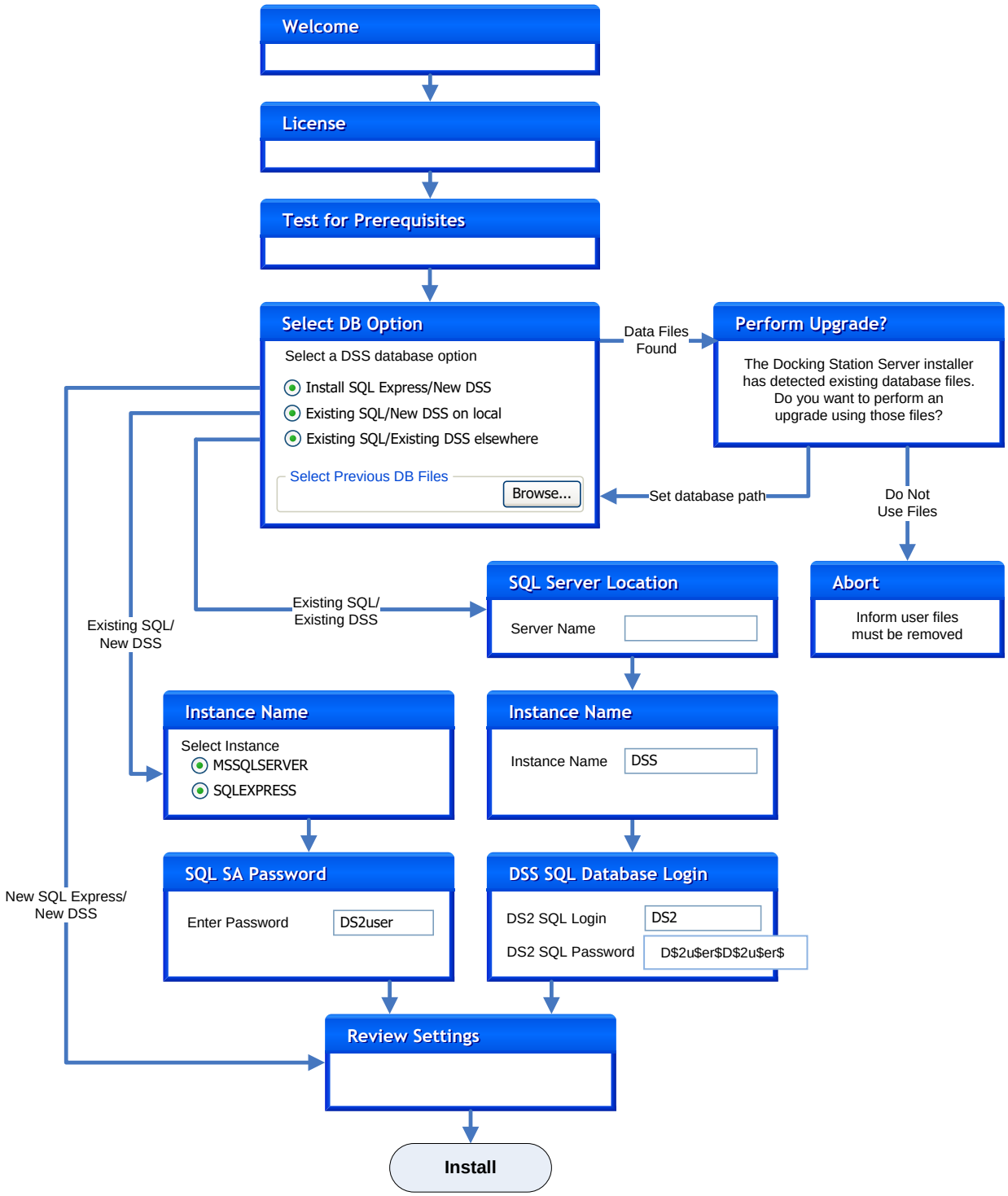


Figure 3-13. Simplified DSS Installation Flowchart

3.7.2a. Install SQL Server/SQL Server Express Instance and a New DSS Database on This Machine

Step	Instruction
1.	Start installation.

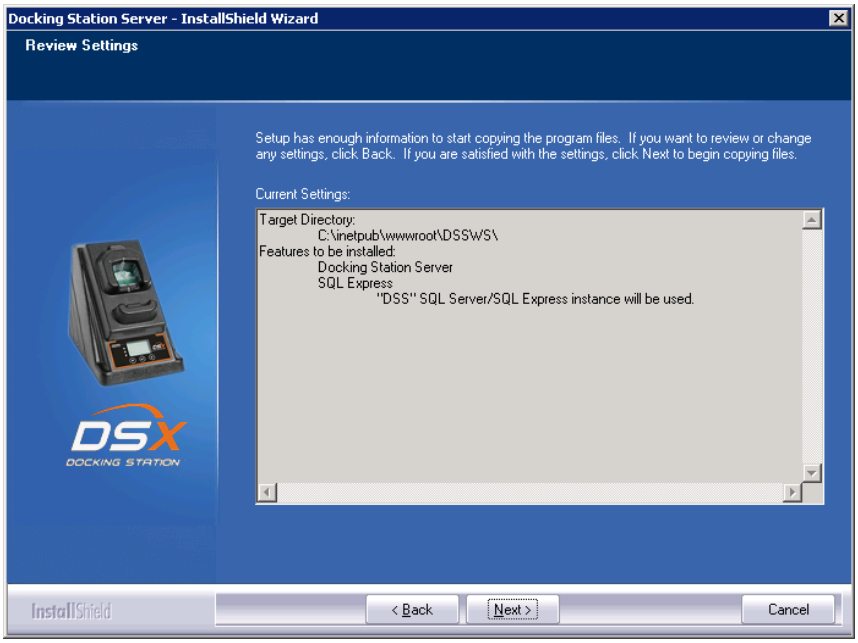
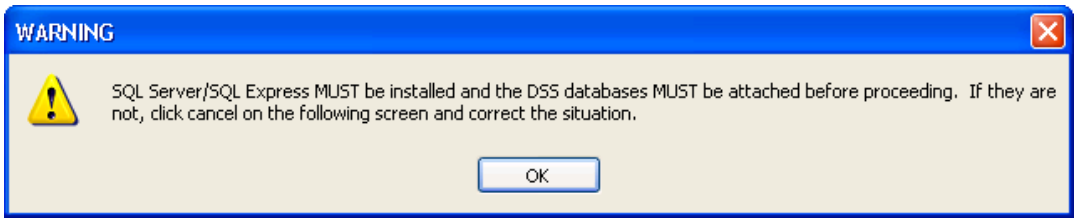
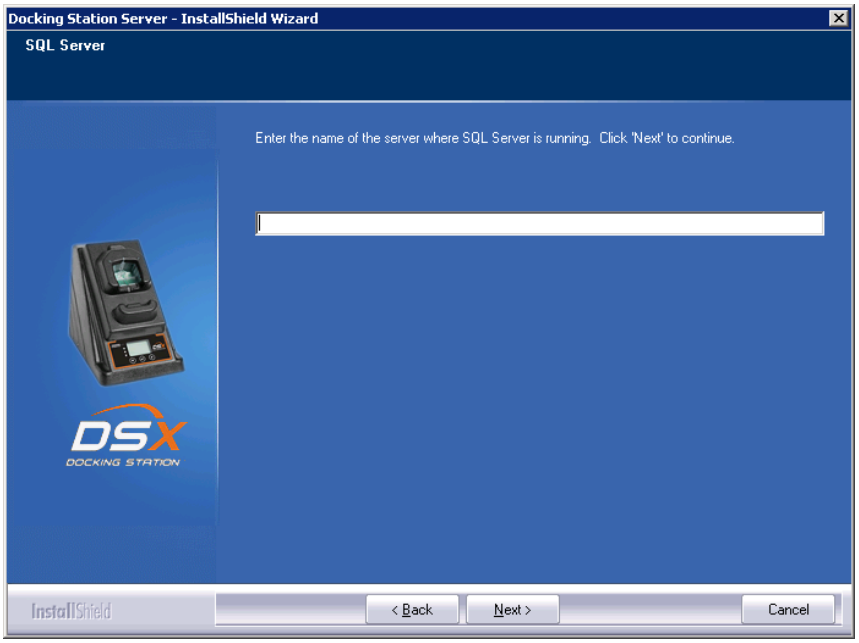


Figure 3-14. Review Settings and Begin Installation

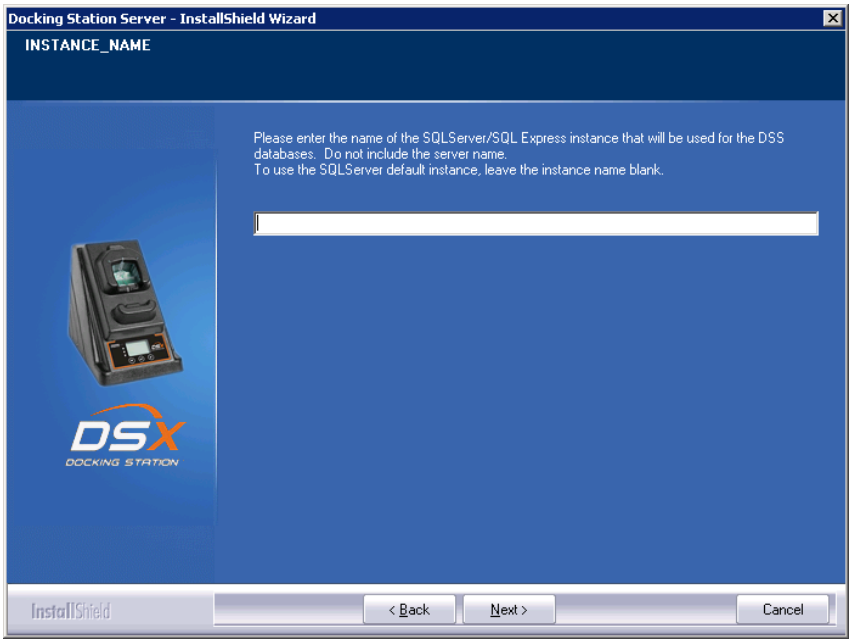
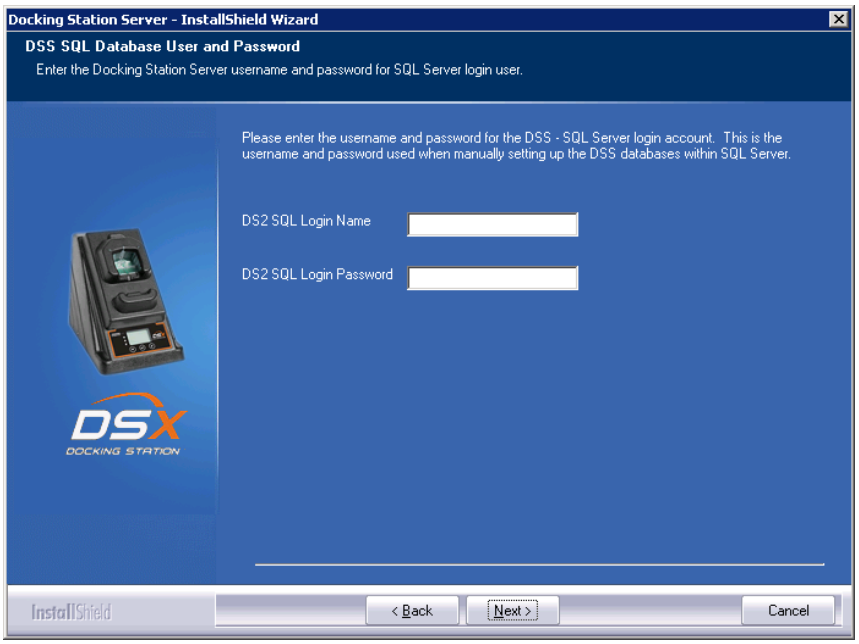
NOTE: A new SQL Server database installed with a fresh DSS installation will use the following default account information:

Account	User	Password
SA Password	SA	D$2u$er$D$2uer
DS2 DB User Login	DS2	D$2u$er$D$2uer
DSSAC Default Admin User Login	DSSUSER	DS2user
DSSAC Read-only User Login	GUEST	guest

3.7.2b. Attach to an Existing DSS Database Available on My Network

Step	Instruction
1.	When choosing this option, the installer will display the following warning that, before proceeding, SQL Server must already be installed on the target PC and the DSS database files must be attached.  **Figure 3-19. Entering the SQL Server Name**
2.	Enter the name of the server that SQL Server is running.  **Figure 3-20. Entering the SQL Server Name**

3.7.2b. Attach to an Existing DSS Database Available on My Network

Step	Instruction
3.	Enter the database Instance name and choose Next.  **Figure 3-20. Entering the Database Instance Name**
4.	Enter the login Name and Password for the **DSX Server** – SQL Server account and choose Next.  **Figure 3-21. Entering the DSS SQL Login information**

3.7.2b. Attach to an Existing DSS Database Available on My Network

Step	Instruction
5.	Start installation.

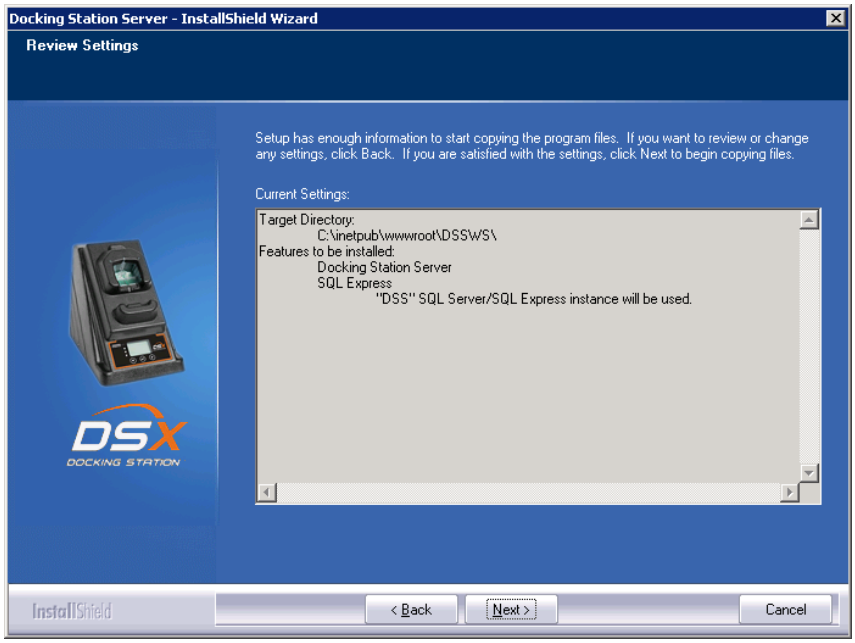


Figure 3-22. Review Settings and Begin Installation

3.8. Continuing Installation (or Installation after Uninstalling a Previous Version)

The following window will appear if you have uninstalled a previous version or you already have SQL Server/SQL Server Express installed on the current PC and it has the DSS database tables already attached.

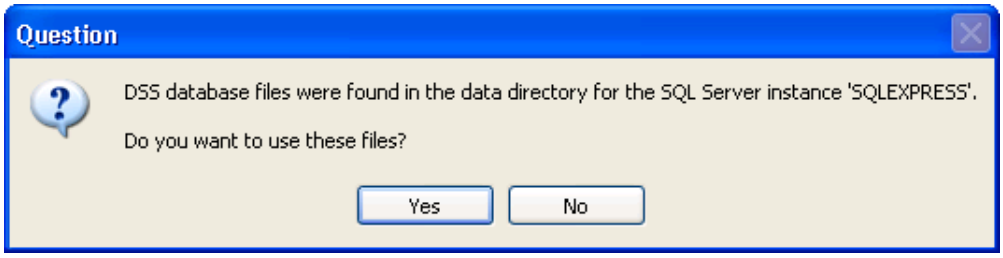
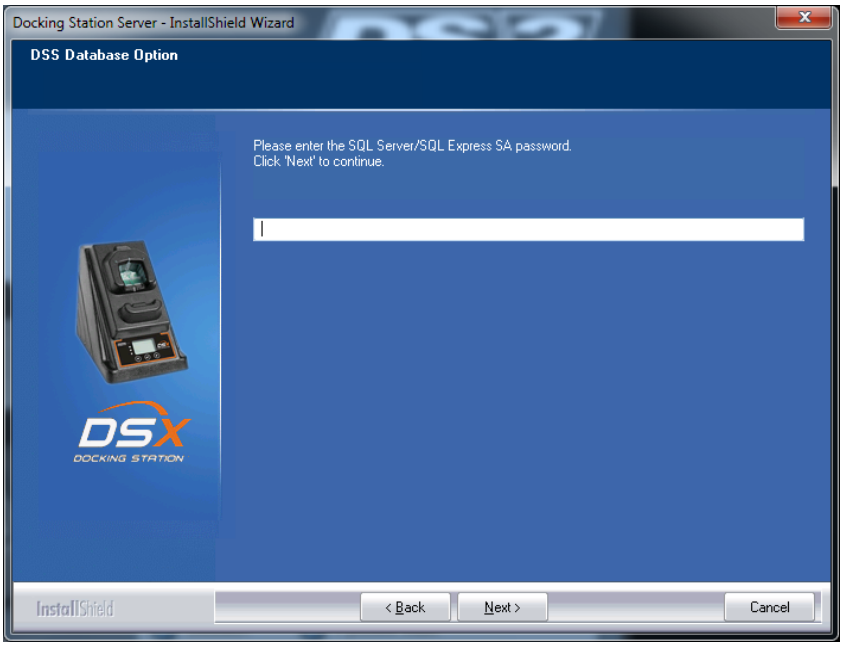


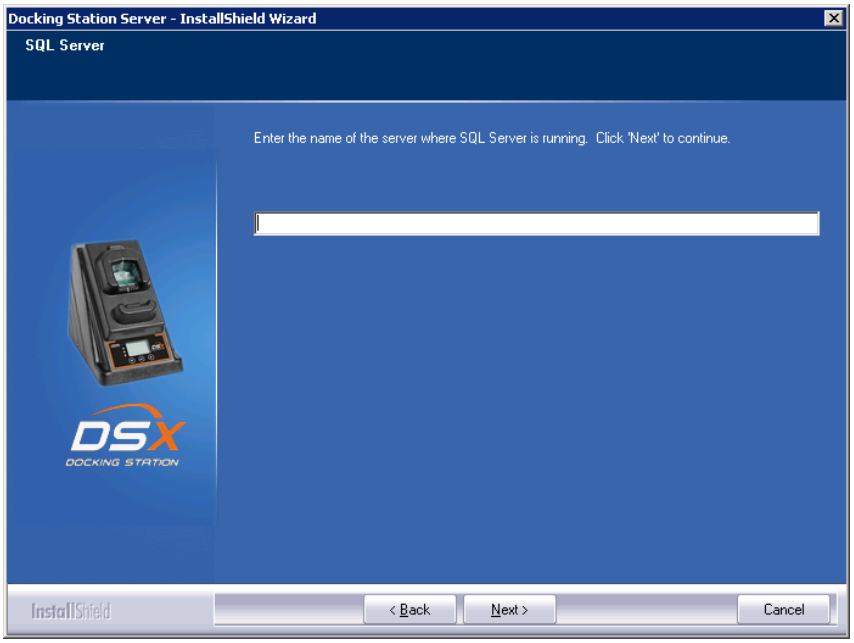
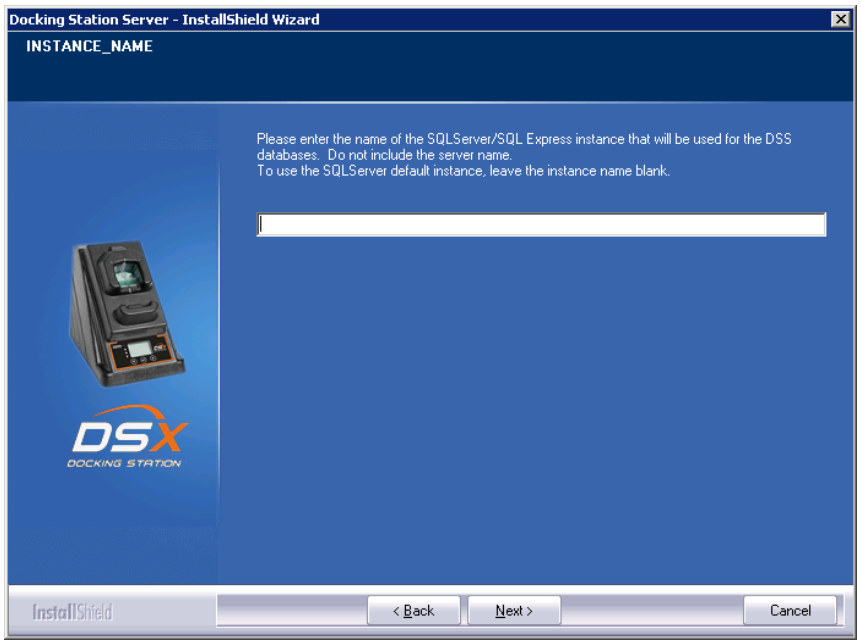
Figure 3-23. Existing DSS BD Files Popup

The installer will recognize the existence of the previous databases and give you the following option. If you want to use the existing databases choose Yes. If you want to start with fresh databases, choose No. If you do choose No, the installer will inform you that you must remove the databases and re-run the installer. It will then quit, allowing you to remove the database files.

3.8.1a. Use SQL Server/SQL Server Express on this Machine and Connect to the Existing DSS Database

Step	Instruction
1.	Enter a Login Name and Password and choose Next.  **Figure 3-24. Selecting the System Administrator Password**

3.8.1b. Attach to an Existing DSS Database Available on My Network

Step	Instruction
1.	Enter the name of the server that SQL Server is running.  **Figure 3-25. Entering the SQL Server Name**
2.	Enter the database instance name and choose Next.  **Figure 3-26. Entering the Database Instance Name**

3.9. Selecting the Database Option

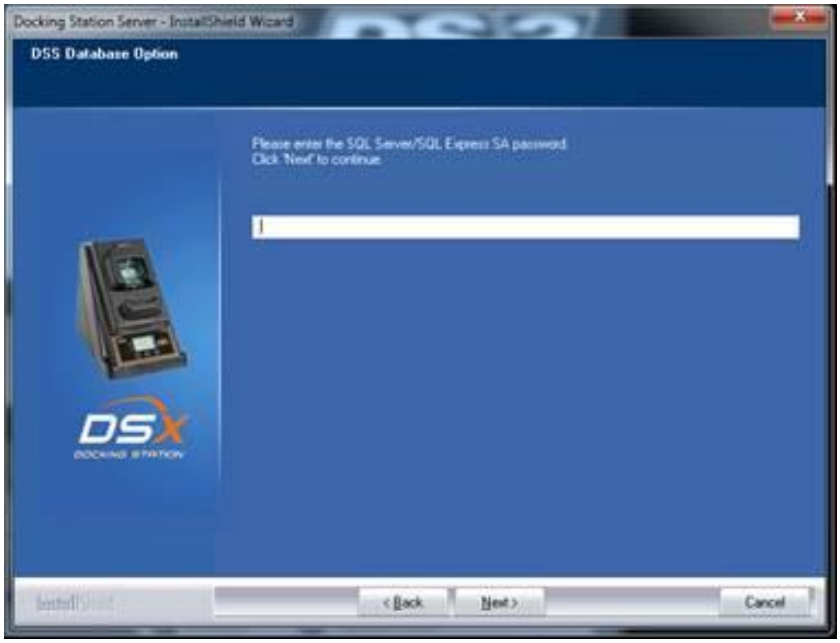
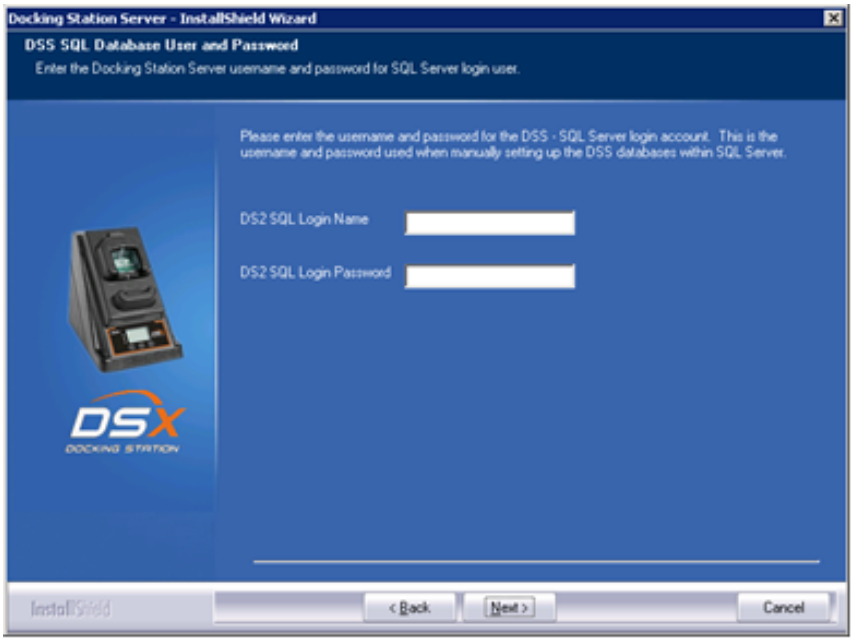
The following window will appear if SQL Server/SQL Server Express is not currently installed on the PC, but the installer has found existing database files. The two options are numbered 1 and 3 in this window are:

- Install SQL Server Express on this machine and use the existing DSS database
- Attach to an existing DSS database available on my network.

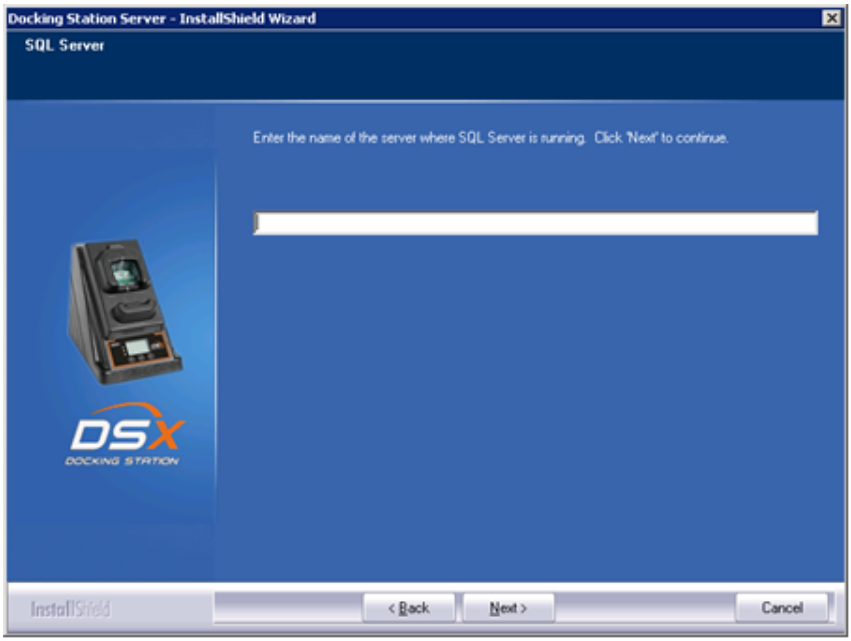
If you want to use the database files on the current machine and install SQL Server Express, select the first option. If you want to attach to an existing DSS database somewhere else on the computer network, select the third option. The procedures for each of these options are listed in sections “a” and “b” below. After you select your option, choose Next, and proceed to the appropriate section.

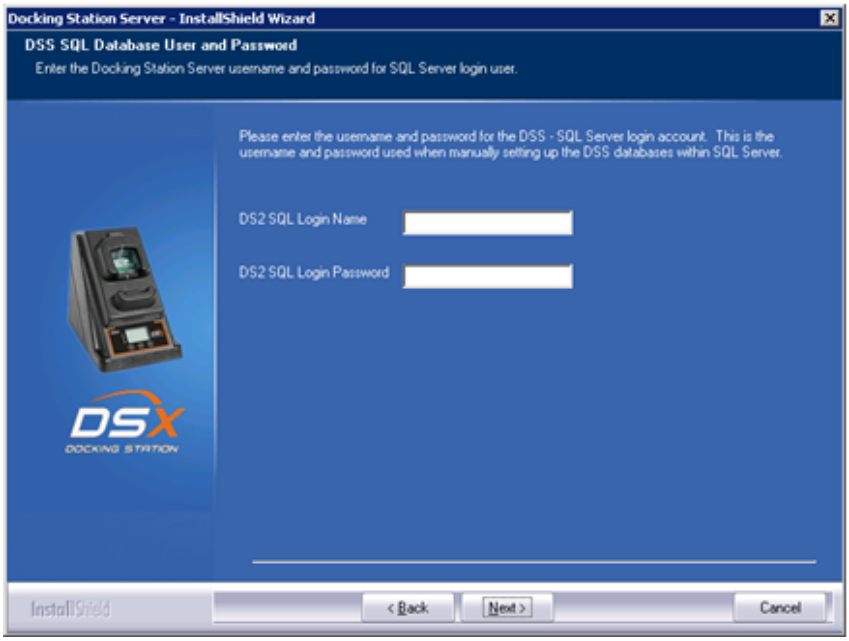
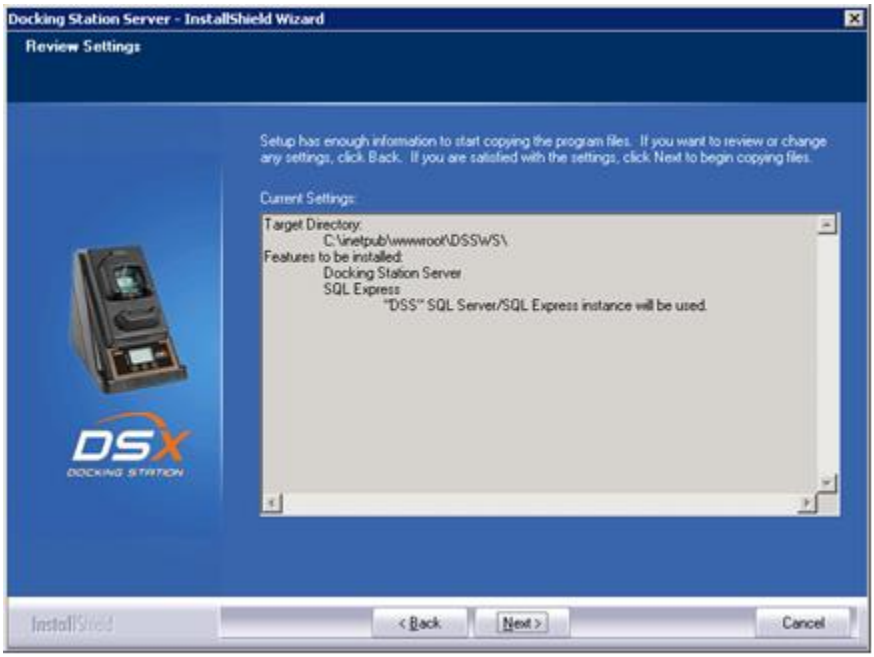
Figure 3-27. Selecting the Appropriate Database Option

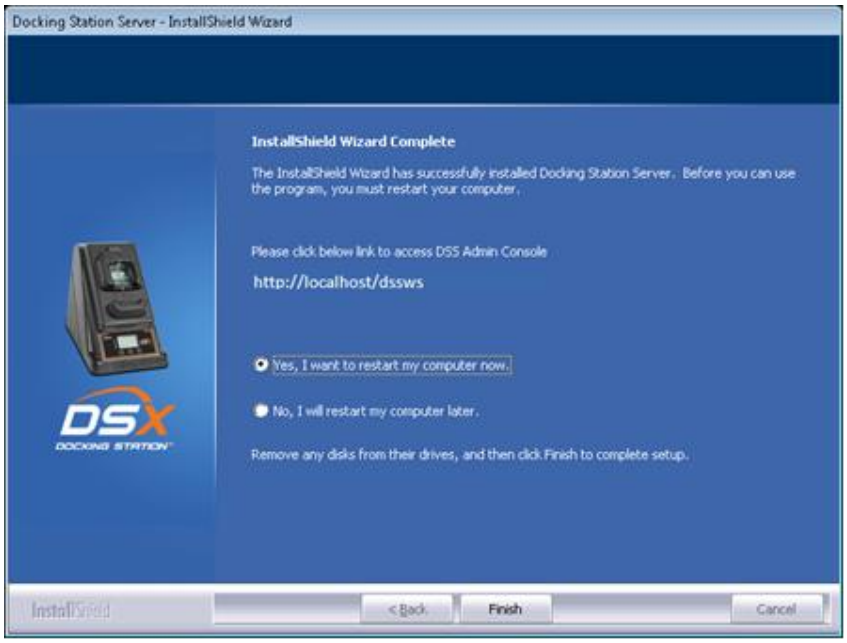
3.9.1a. Install SQL Server Express on This Machine and Use Existing DSS Database

Step	Instruction
1.	Select a System Administrator Password and choose Next.  **Figure 3-28. Selecting the System Administrator Password**
2.	Select a default user password and choose Next.  **Figure 3-29. Selecting the Default User Password**

3.9.1b. Attach to an Existing DSS Database Available on My Network

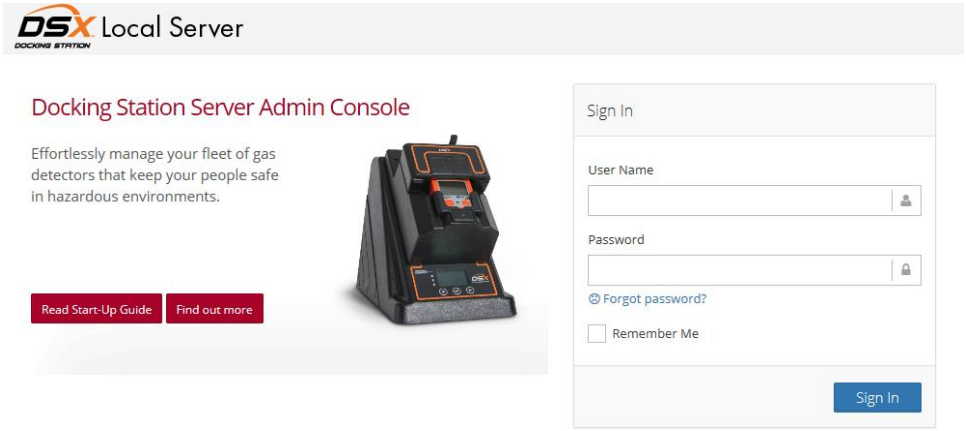
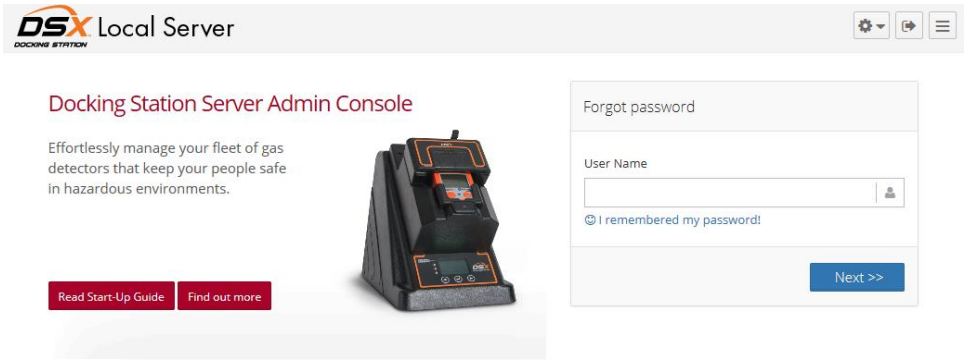
Step	Instruction
1.	Enter the name of the server that SQL Server is running.  **Figure 3-30. Entering the SQL Server Name**
2.	Enter the database Instance name and choose Next.  **Figure 3-31. Entering the Database Instance Name**

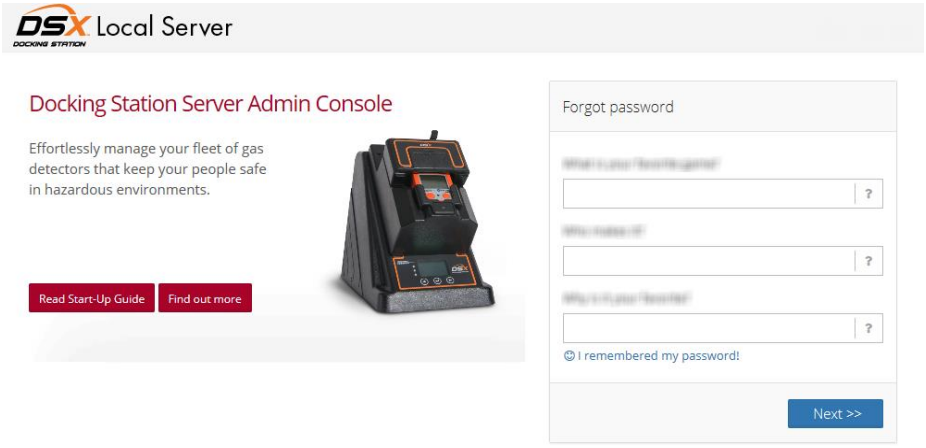
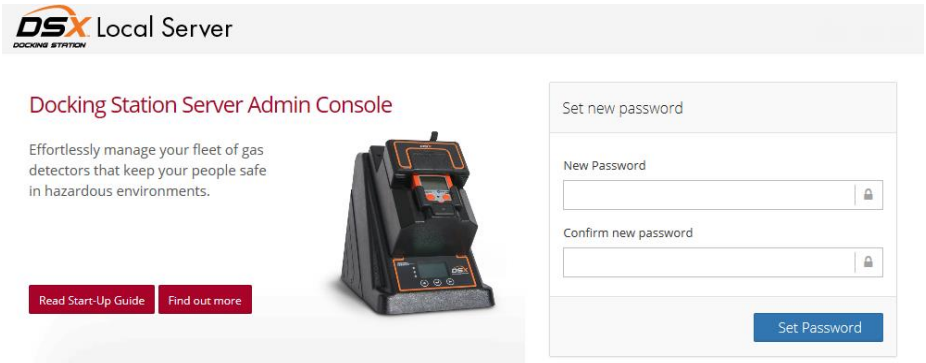
Step	Instruction
3.	Select a default user password and choose Next.  **Figure 3-32. Entering the Default User Password**
4.	Before the installation is finished, the settings will be reviewed.  **Figure 3-33. Review Settings Window**

Step	Instruction
5.	The installation is now complete. Select the desired restart method and choose Finish.  **Figure 3-34. Installation Complete Window**
6.	Installation of the DSS will also install the DS2 Broadcaster and start it upon a reboot of the PC. The DS2 Broadcaster is a UDP broadcaster that will broadcast out the IP address of the PC or server running the DSS such that all docking station units on the network will know which computer to communicate with. Industrial Scientific does not recommend turning off your DS2 Broadcaster unless you are running multiple DSSs on your network. It is the policy of some IT professionals not to have the DS2 Broadcaster running on a network. Therefore, the Broadcaster can be turned off.
7.	If the DS2 Broadcaster is disabled, the docking station units will need to know the IP address of the server running the DSS. This is accomplished through using the DSX Configurator Software. See section 3.12 on how to manually send out the IP address of the computer running the DSS.

3.10. Accessing the Docking Station Server Admin Console (DSSAC) through a Browser

The web application can best be viewed by the browsers listed in section 3.2.2 Browser Requirements.

Step	Instruction
1.	Open the web browser on your PC.
2.	Navigate to the following URL http://<server_name_or_ip_address>/dssws or https://<server_name_or_ip_address>/dssws to get to the login screen, and enter your username and password.
3.	If you forgot your password, click “Forgot password?” on the login screen (this is only applicable to dssuser). 
4.	 Enter user name when prompted and click the “Next>>” button. At this point the system will identify whether the user is authorized to change the password online. If yes, the user will be directed to answer security questions. Otherwise the user will be directed to contact their administrator.

Step	Instruction
5.	Answer the three user supplied questions. At least two must be answered exactly to be able to reset the password. Click the “Next >>” button. 
6.	If the questions were answered correctly, the user will be able to change their password. 
7.	After the password is changed, re-enter it to gain access to the system.

3.11. The Docking Station Configurator

3.11.1. Installing the Docking Station Configurator Software

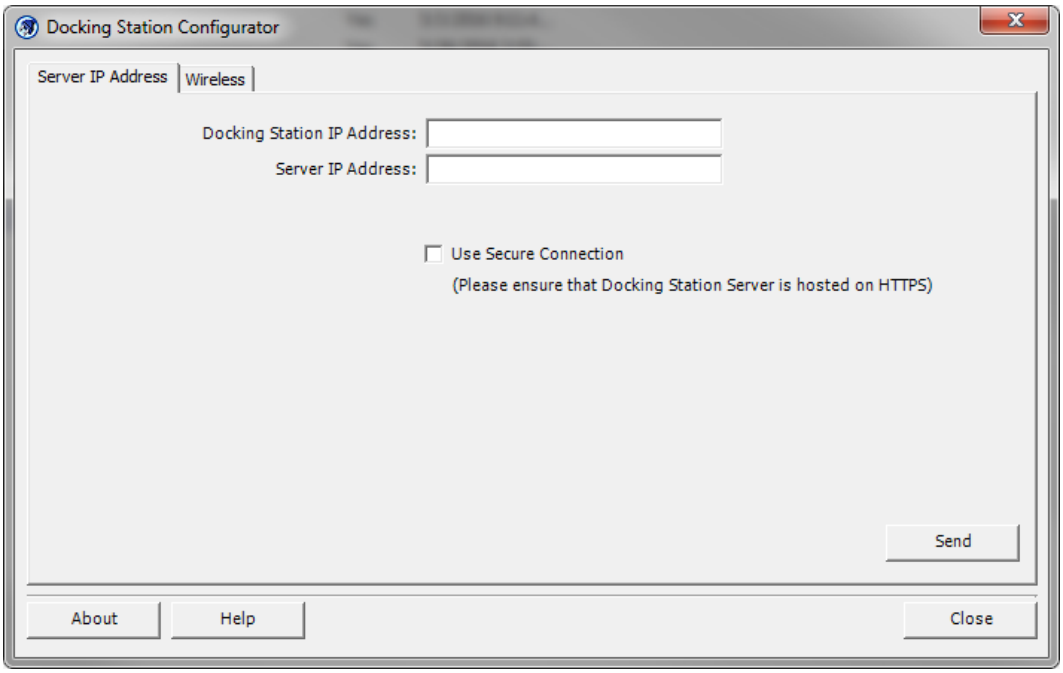
The Docking Station Configurator Software is a tool that can be used to send the IP address of the server (or PC) that is running the Docking Station Server Software (DSS) to a known IDS. If the DS2 Broadcaster service is turned off, or if an IDS is located on a different subnet than the computer or server running the DSS, then this software package must be used.

NOTE: The following procedure is for operating systems listed in section 3.2.1 Server Requirements.

Step	Instruction
1.	Insert the **DSX-L** Operating system USB drive into your computer.
2.	The USB drive will automatically launch the following window.  **Figure 3-35. Docking Station Installation Window**
3.	Click on "Install Docking Station Configurator." This will automatically launch the Configurator installer. The configurator software can be installed on any computer on the network as well as the server or PC running the DSS software.

3.11.2. Running the Docking Station Configurator Software

To run the Docking Station Configurator Software, follow the instructions below.

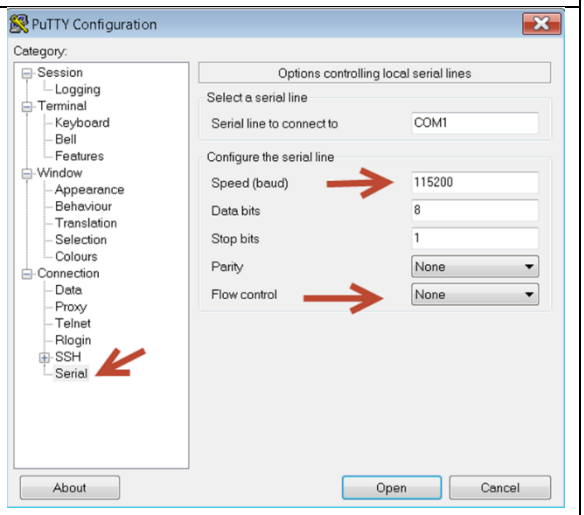
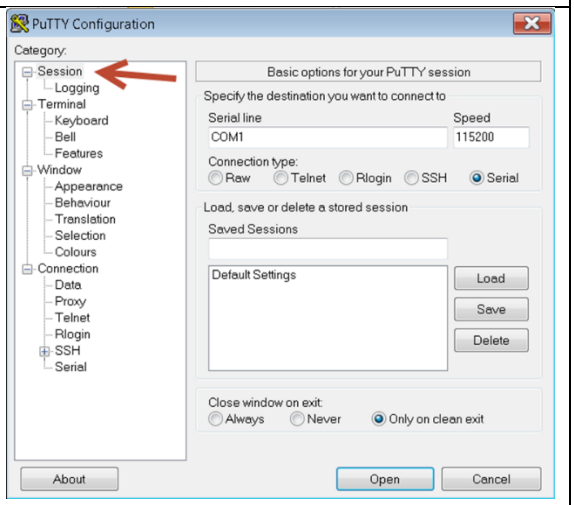
Step	Instruction
1.	Choose START / PROGRAMS / INDUSTRIAL SCIENTIFIC / DS2 CONFIGURATOR. The Docking Station Configurator screen is displayed. To tell the docking station what the IP address of the server is, select the Server IP Address tab, and then type in: • the IP address of the **docking station** • the IP address of the server and choose Send.  **Figure 3-36. Docking Station Configurator Screen**
2.	At this point, the IDS will automatically reboot.

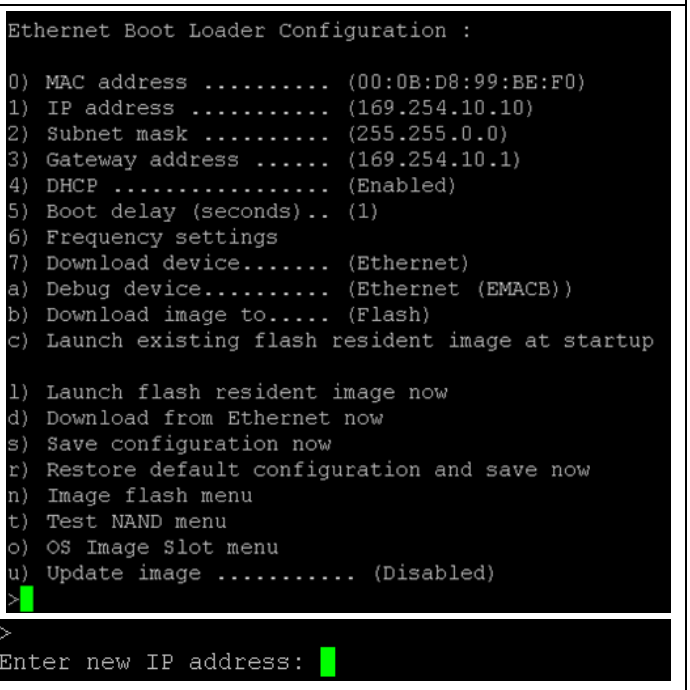
3.12. Assigning a Static IP Address to a Server or PC

To assign a static IP address, you will need the desired IP address and the values for Subnet mask and Gateway address. If these values are unknown to you, contact your IT administrator.

The following instructions tell you how to use PuTTy, a free and open-source terminal emulator, to assign a static IP address for the DSX-L.

PuTTy can be obtained at putty.org. From their download page, select putty.exe.

Step	Instruction
1.	**Power off the docking station**: remove the power cord from the back of the unit. Ensure the docking station is connected to your computer with a serial cable, either a Male to Female DB-9 serial cable or a USB to DB-9 serial adapter.
2.	From your computer, click on the executable to run PuTTy. In the left column click “Serial”. In the dialog box, ensure the parameters are set as they are shown here. Note: your COM port may be something other than COM1; check the device manager on your PC to be sure. 
3.	Click on Session in the left column. In the dialog box, ensure Serial is selected for Connection type and that the proper COM port is selected. Click on Open. Reconnect the power cable to the back of the docking station. Tap the space bar on your keyboard. 

Step	Instruction
	At the blinking prompt, type the number 4 and press enter. The menu will refresh and the DHCP will change from Enabled to Disabled. At the next blinking prompt, type the number 1 and press enter. When prompted, type in the desired IP address, then press enter. The menu will refresh and will show the new IP address. Note: There is no ability to backspace when typing. To correct any typographical errors, simply repeat the task to enter the correct value. In the same manner, type in the number 2 to enter the Subnet mask. Then, type in the number 3 to enter the Gateway address. The menu will refresh after you complete each entry and will show the new values.  Confirm that all values are correct and that the DHCP is still showing as Disabled. If needed, repeat any of the above tasks to correct a value
4.	Once you have confirmed the values are correct, type S and press enter to save the configuration. If the docking station is to be relocated to another area, disconnect the power cord. When the station is relocated, plug its power cord into a suitable outlet.

3.13. Disabling the DS2 Broadcaster

NOTE: This portion of the installation process is only to be done if the policy of your Information Technology (IT) Department prohibits the broadcaster to be turned on.

The DS2 Broadcaster needs to be disabled if using the DSS on a LAN with other DSS installs. This step is not necessary for a production install of a DSS. This procedure is to accommodate users wishing to install DSS as a demo tool.

To disable the DS2 Broadcaster, follow the instructions below.

Step	Instruction
1.	Navigate to Control Panel (Start / Settings / Control Panel).
2.	Choose Administrative Tools.
3.	Choose Services. The Services window is displayed.

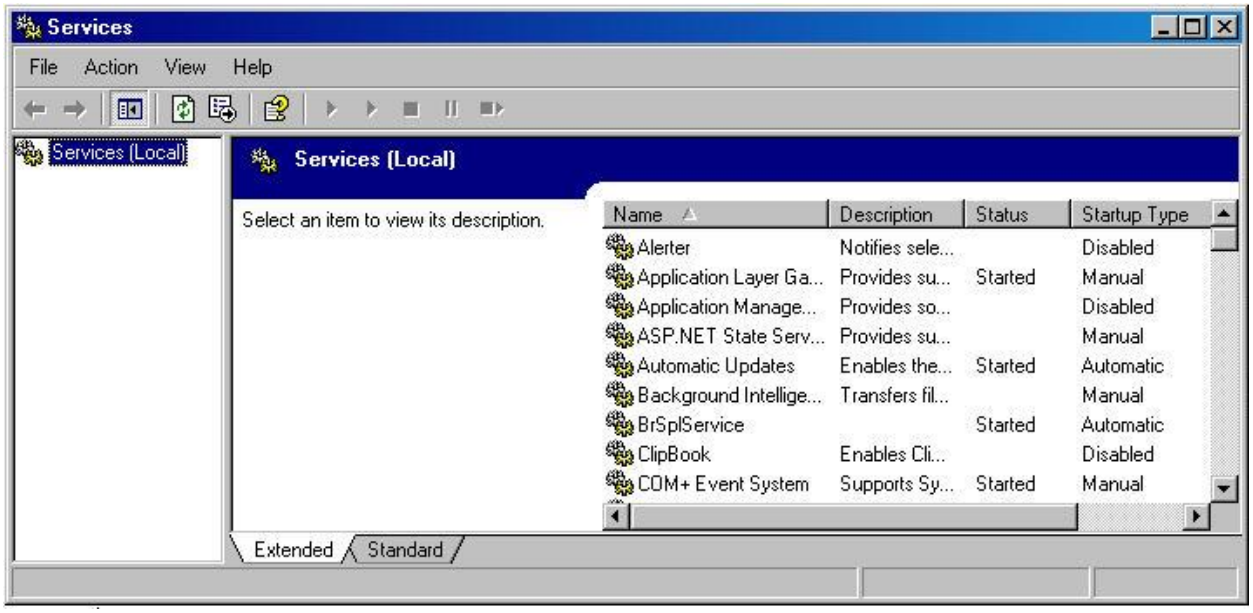
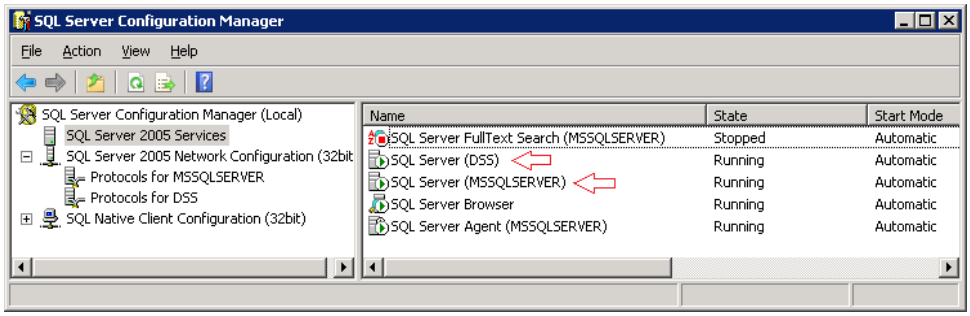


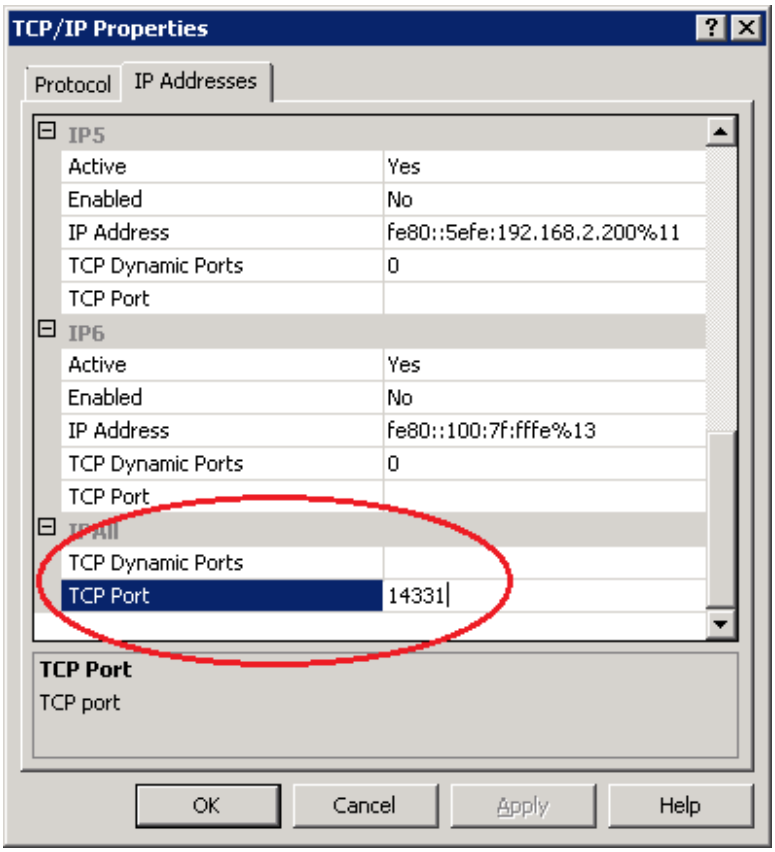
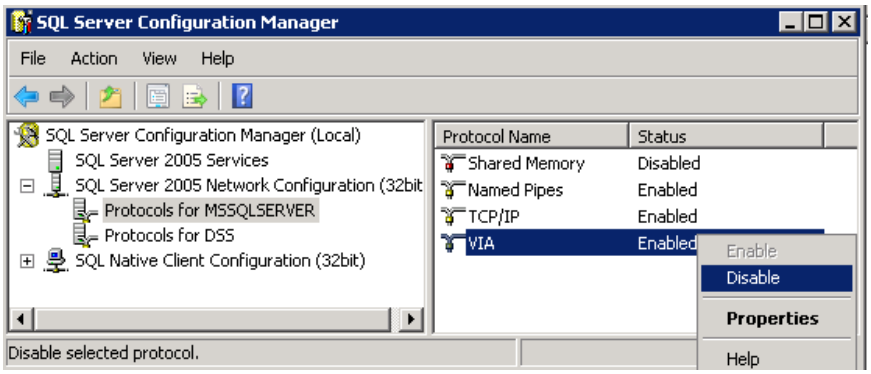
Figure 3-37. Sample Services Window

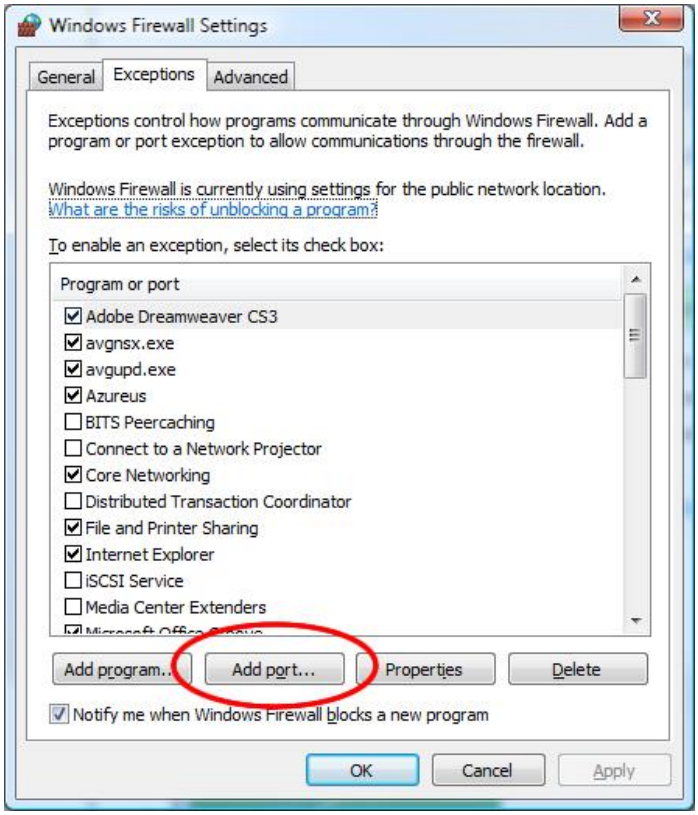
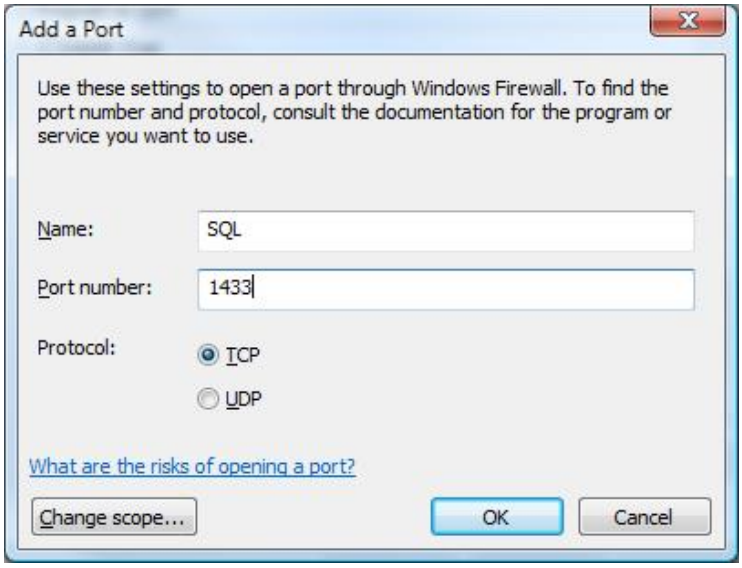
4.	Locate and right click on DS2 Broadcaster.
5.	Choose Properties.
6.	In the Startup type dropdown box, select Manual.
7.	If the service is currently running, click the STOP button.
8.	Click OK.

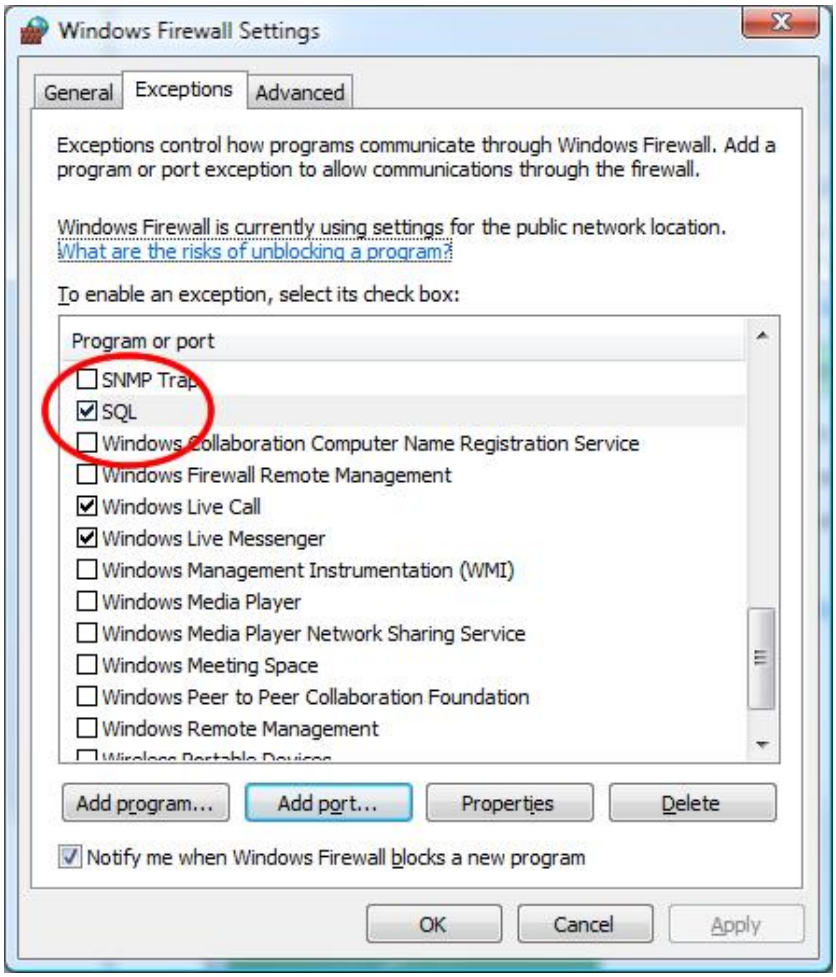
3.14. Configuring the Firewall

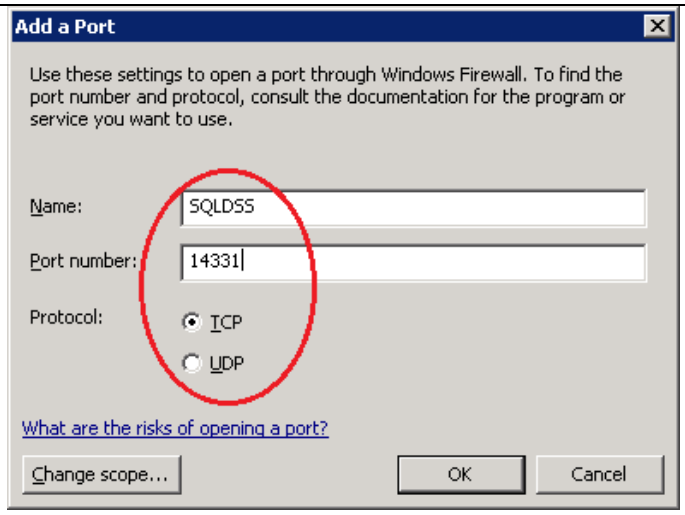
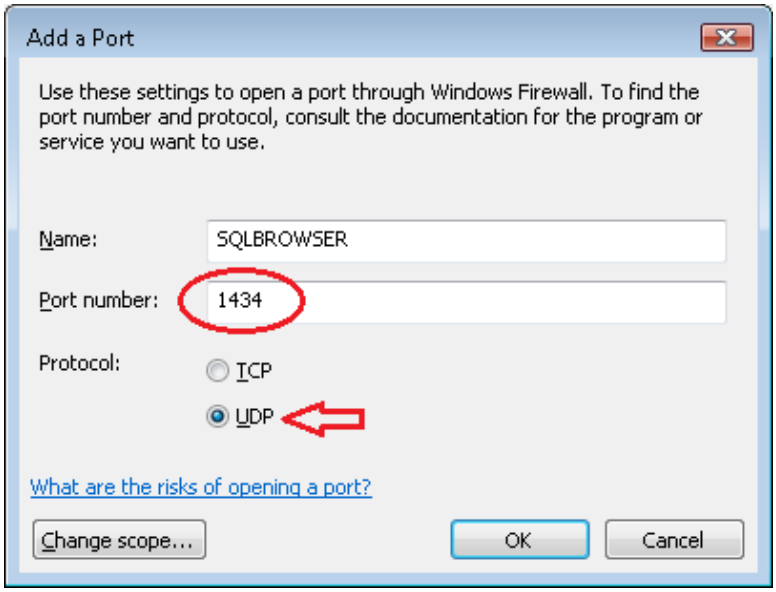
3.14.1. Windows Firewall for SQL Server

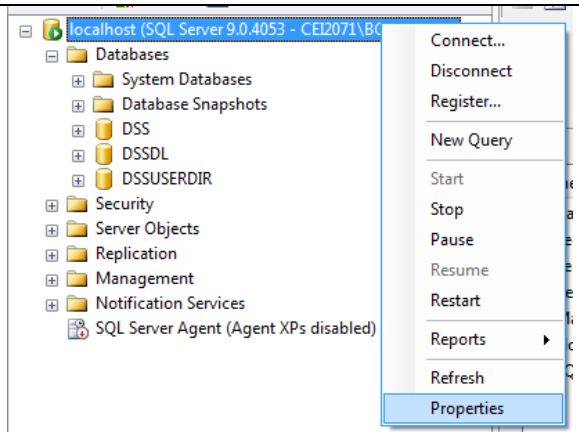
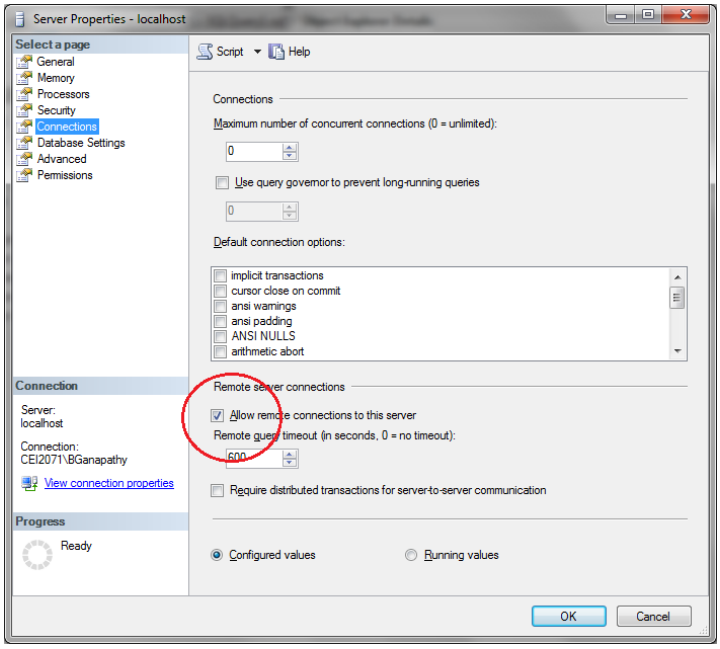
Step	Instruction
	NOTE: the user should be logged-on as an Administrator to perform the following tasks.
1.	Make sure that "IIS_IUSRS" group has been provided the full access permissions for "C:\Windows\Temp" directory. • Navigate to C:\Windows. • Right-click on "Temp" directory and choose Properties. • In Security tab, make sure that IIS_IUSRS group has been listed. If not listed, click the "Modify" or "Edit" button; click the "Add" button and add "IIS_IUSRS"; and click the Resolve button on the right-hand side. Mark "Full Control" and click Apply and OK. It will give one warning message; click OK.
2.	Enable Windows Firewall if it was disabled earlier.
3.	Go to All Programs >> Microsoft SQL Server {Version} >> Configuration Tools >> SQL Server Configuration Manager.
4.	Choose SQL Server Services and check that SQL Server (<<instance name>>) is running. 
5.	Navigate to SQL Server Network Configuration >> Protocols for MSSQLSERVER and Enable TCP/IP if it is disabled.
6.	Navigate to SQL Server Network Configuration >> Protocols for DSS (if available) and Enable TCP/IP if it is disabled.
7.	Right-click on TCP/IP and choose Properties.

Step	Instruction
	Scroll to the bottom and clear TCP Dynamic Ports and add TCP Port as “14331” (**note**: Port can be any number but it should not be conflict with any other port). 
8.	Navigate to SQL Server Network Configuration >> Protocols for MSSQLSERVER. 
9.	Disable “VIA” protocol Name, if it is enabled. (**Note**: The VIA protocol only works with VIA hardware that has the VIA driver installed. If you enable the VIA protocol on a computer that does not support the VIA protocol, the SQL Server service will not start.)
10.	Repeat steps 7 and 8 for Protocols for DSS, if available.

Step	Instruction
11.	Go to Control Panel >> Windows Firewall >> Change Settings >> Exceptions >> Add Port. 
12.	Make the following entries in the pop-up “Add a Port” and click OK. 

Step	Instruction
13.	Verify “SQL” has been added to the Exceptions list and click OK. 
14.	Click “Add Port” again and make the following entries in the pop-up and click OK. **Make sure that port number given in Step 6 is given here.**

Step	Instruction
	
15.	Verify "SQLDSS" has been added to the Exceptions list and click OK.
16.	Click "Add Port" again, and make the following entries in the pop-up and click OK. **Make sure that UDP Protocol is selected and Port number is 1434**. Name it as you wish. 
17.	Verify "SQLBROWSER" has been added to the Exceptions list and click OK.
18.	Log on to SQL Server using SA log-in or Windows Authentication. Right-click on the server node and choose Properties

Step	Instruction
	
19.	Go to Left Tab of Connections and verify “Allow remote connections to this server” is enabled. 
20.	Restart IIS where DSS is installed.

3.15. Overview of the DSSAC Application

This section contains an overview of the DSSAC user interface.

3.15.1. Starting the DSSAC Application

To start the DSSAC application, see Section 3.10. Accessing the Docking Station Server Admin Console (DSSAC) through a Browser.

3.15.2. Resetting the DSSUSER Password

This section explains how to reset the DSSUSER password.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Settings ( ) icon in the top right of your browser window, then click on Account Settings. The Account Settings page appears.
3.	Scroll down to the Change Password Section, and: • Enter your current password. • Enter your new password. • Confirm your new password.  **Figure 3-38. Change Password Section**
4.	If you choose to save your new password, click Save. Otherwise, click Cancel.

3.15.3. The DSSAC Page

Once logged in to the DSSAC application, you will automatically land on the Active Equipment page.

NOTE: The name of the authenticated user and their role (e.g., Super User, Administrator, Technician) will be shown in the top left corner of each DSSAC page.

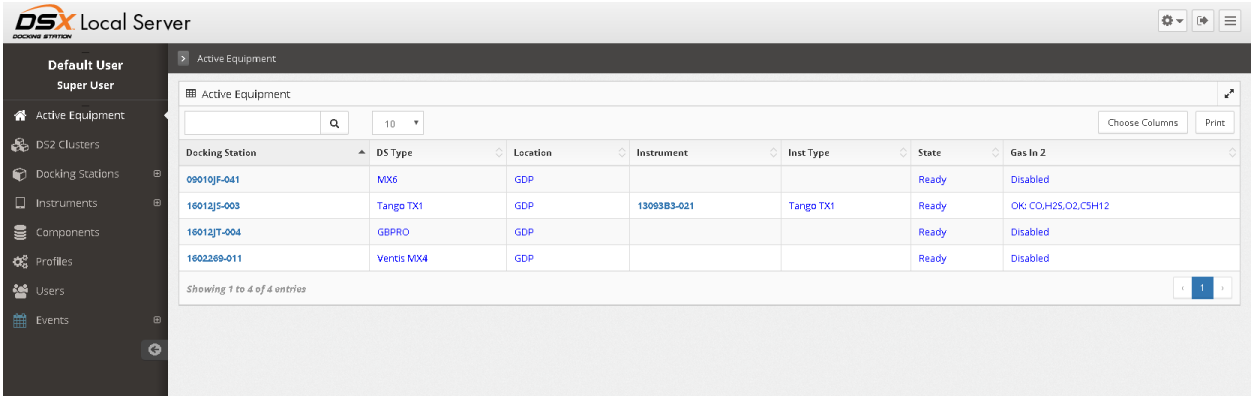


Figure 3-39. DSSAC

From any page in DSSAC you can navigate to almost any other page within the DSSAC application by using the navigation pane on the left side of your browser window. In addition to the links on the navigation pane (Active Equipment, DS2 Clusters, Docking Stations, Instruments, Components, Profiles, Users, and Events), all of which are further explained throughout this document, there are three menu buttons on the top right of your browser window: Settings ( ), Sign Out ( ), Collapse Menu ( ).

Note: The DSX-L docking station does not support clustering.

Table 3-1. DSSAC Menu Buttons

Menu Button		Description
Settings	Account Settings	From the Account Settings page you have the ability to select your preferred language, show removed equipment, and change your password.
	Default Alarm Settings	From the Default Alarm Settings page you have the ability to choose between Factory settings or Company settings for each individual sensor type.
	Default Calibration Gases	From the Default Calibration Gases page you have the ability to choose between Factory or Company gas type and gas concentration settings, for each individual sensor type.
	DSS Configuration	On the DSS Configuration page you have the ability to edit iNet Configuration options, DSS Logging settings, Instrument Registration options, Certificate options, and General Options.
	Application Settings	On the Application Settings page you have the ability to determine specific password requirements, including expiration date, minimum password length, and character set.
Sign Out	When you click the Sign Out button you will be logged out of your current session, and return to the login page.	
Collapse Menu	When you click the Collapse Menu button, the navigation pane on the left side of your browser window is minimized and your active screen is maximized. Click on the Collapse Menu button again to restore the prior layout.	

3.15.4. Using the Navigation Pane

The navigation pane contains a tree-like structure showing the contents of a docking station network. When you click an option in the navigation pane, a list of related items appears on the contents page on the right. For example, if you click on Instruments in the navigation pane, a listing of instruments in the system will appear on the contents page.

At the top of the tree is an option for Active Equipment. If you click on Active Equipment, you can see the status of IDSs that are currently connected to the DSS.

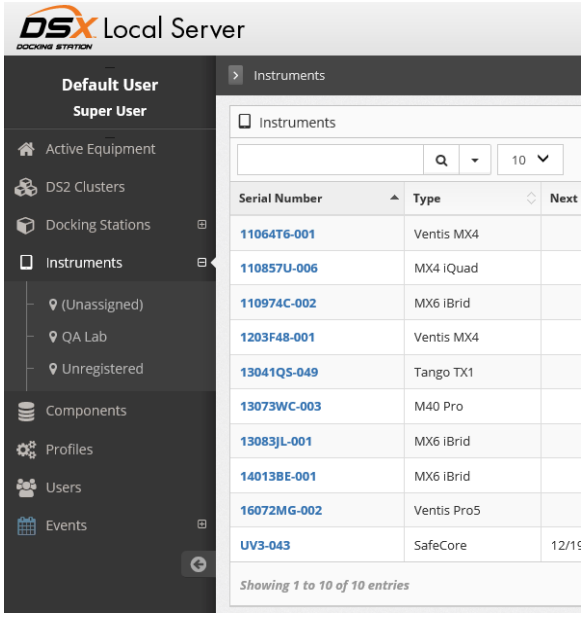


Figure 3-40. Navigation Pane

NOTE: The **Docking Stations, Instruments** and **Events** options in the navigation pane can be collapsed and expanded, similar to file folders in Windows® Explorer. If you see a minus sign (-) next to the option, then it is expanded. If you see a plus sign (+) next to the option, then it is collapsed. You can collapse or expand the entry by clicking on the minus or plus sign or by clicking on the entry.

Table 3-2. Options on the Navigation Pane

Option	Description
DS2 Clusters	Displays a list of Docking Station clusters that are configured in your docking station network.
Docking Stations	Displays a list of Instrument Docking Stations that are configured in your docking station network. These can be sorted by serial number, type, location, or gas in, and can be designated as "Out of Service". See Chapter 6 for information about setting up IDSs.
Instruments	Displays a list of instruments in your docking station network. See Chapter 5 for information about setting up instruments.
Components	Displays a list of all of the components in the DSS database, whether or not they are currently installed in an instrument. The component list for each instrument includes sensors and for some instrument types, their battery.
Profiles	Displays the profile name and instrument type for any profiles that have been created.

Option	Description	
Users	Displays the user accounts created to use the DSSAC. Only Systems Administrators can see the Users option. See Chapter 4 for more information about user accounts.	
Events	Contains options for scheduling global and special events for IDSs and instruments. See Chapter 8 for more information. The Events options are:	
	Docking Station:	Global - Displays Global events that are configured for IDSs.
	Instrument:	Global - Displays Global events that are configured for instruments. Special - Displays Special events that are configured for instruments.

3.15.5. Using the Contents Page

The specific information that you see in the contents page varies depending on the option selected in the navigation pane. The contents page displays a list of information that can be sorted in various ways. If more than one item is displayed in the contents page, the column headings can be used to re-sort the information that you are viewing.

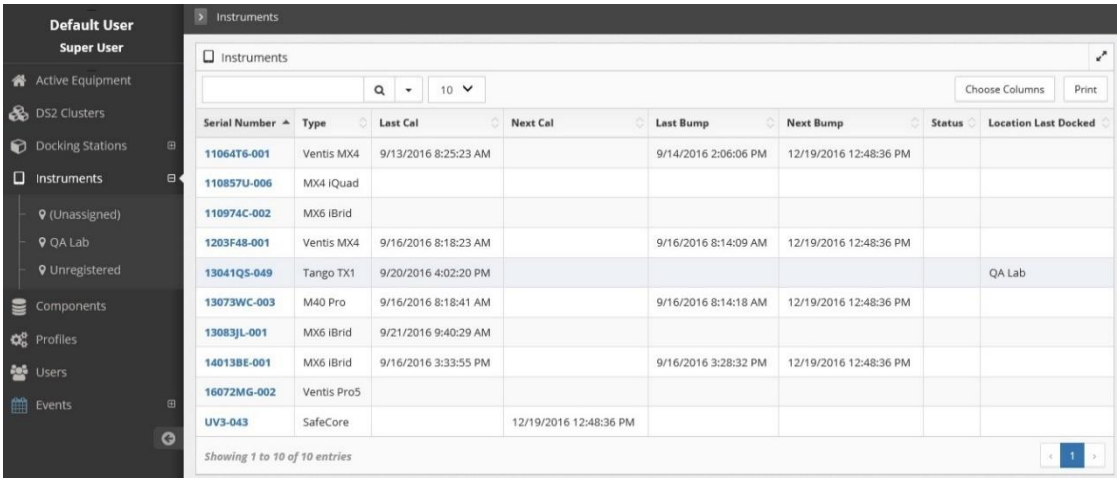


Figure 3-41. Sample Contents Page Showing Column Headings for Sorting

For example, when viewing the list of instruments as in the picture above, the contents page contains five column headings: **Serial Number, Type, Last Cal, Next Cal, Last Bump, Next Bump, Status** and **Location Last Docked**. If you click the **Type** heading, the list sorts by instrument type. If you click on **Serial Number**, the list sorts by Serial Number of the instrument. Likewise, if you click on **Status**, the list of instruments sorts by status.

NOTE: All column headings in the contents page can be used to sort the data that you are viewing.

3.15.6. Viewing and Re-instating Removed Instruments

The DSSAC navigation pane contains a “Removed from System” sub-node for Docking Stations and Instruments that have been removed. However, the “Removed from System” node is only displayed if the user enabled this option under their account settings.

To enable this node, click on the Settings (⚙) button, then click on Account Settings. Under the Preferences section click on the box next to “Display “Removed from System” Node. Click on the box again, to disable the node.

Selecting the “Removed from System” sub-node will cause the right-panel to display all Docking Stations (or instruments) which have been removed from service.

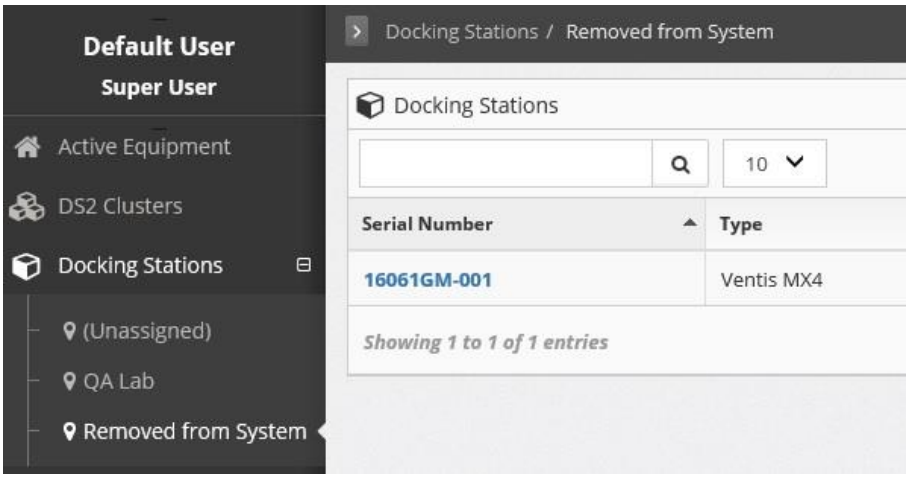


Figure 3-42. Navigation Pane View Showing Removed Instruments

3.15.7. The Profiles Node in the Navigation Pane

The Profiles option is a node on the navigation pane used to apply profiles to selected instruments of matching instrument type. When you click on the Profiles node, the Profiles page displays all available profiles currently saved within the DSS database.

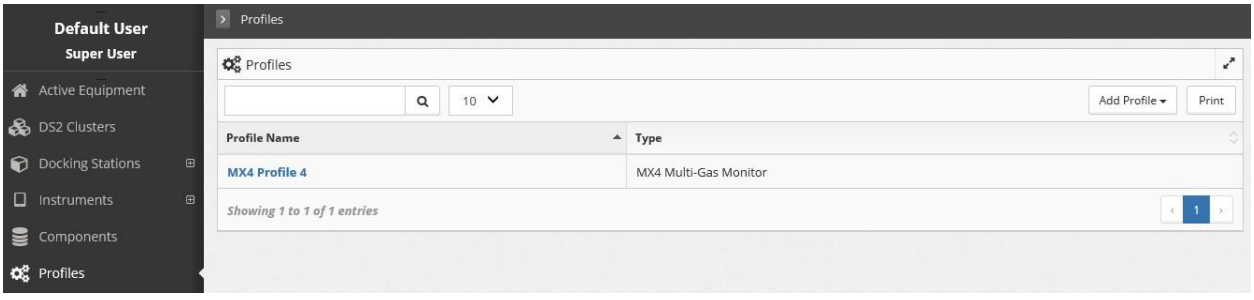


Figure 3-43. The Profiles Page

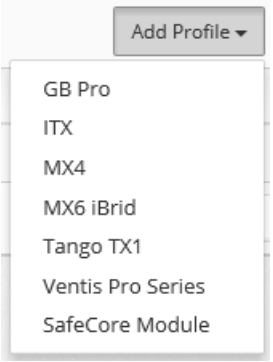
The Profiles page displays information about the current profiles.

- Type - This column will display the type of instrument the profile has been created for. If the user clicks any column header in the right pane list, the list shall be sorted by that

column. By default, the list view will be sorted alphabetically first on the Type column and then the Profile Name column.

- Profile Name - This column will display the name for each available profile.

Creating profiles (default settings) can be done for all supported instrument types. To add profiles, click on the "Add Profile" dropdown towards the top right of the page.



NOTE: The MX6 instrument is the only instrument that can store profiles to be applied later by the user of the instrument. This functionality, however, is located on the instrument page of an MX6 instrument.

Clicking on the instrument for which you would like to add a profile, will take you to the "Add Profile" page.

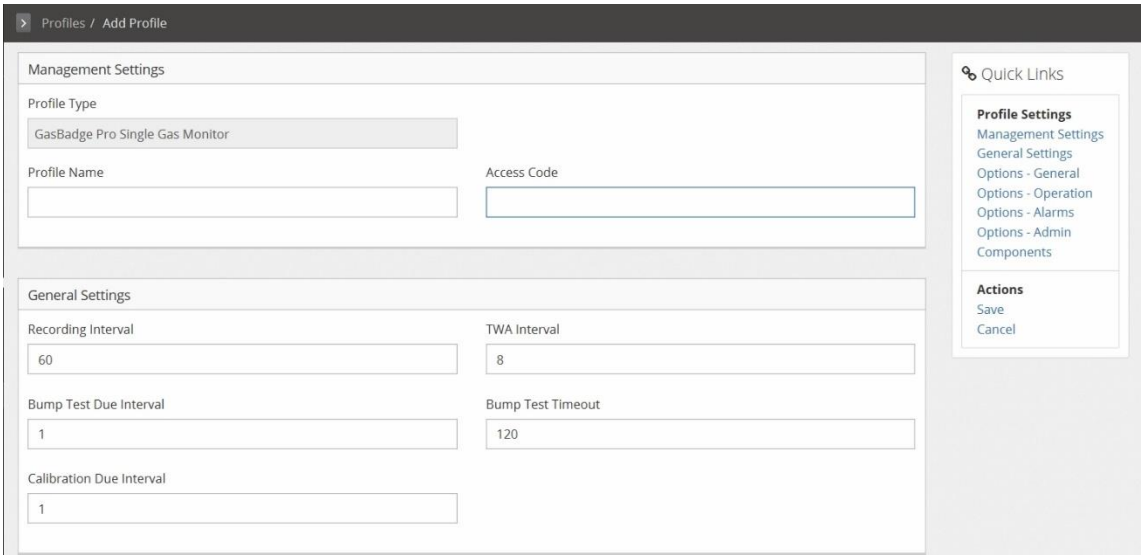


Figure 3-44. The Add Profile Page

Once you have made all selections on the Add Profile page, click on the Save link in the Quick Links section on the right side of your browser window. This will take you back to the Profiles page where the instrument for which you just added a new profile, will appear on the list.

3.15.8. Applying Profiles

Apply Profile is used to apply profiles to selected instruments of matching instrument type. To apply an existing profile to instruments of the same type, click on the profile name you wish to apply to the other instruments. On the View Profile page, click on Apply Profile in the Quick Links section on the right side of your browser window to open the Apply Profile page.

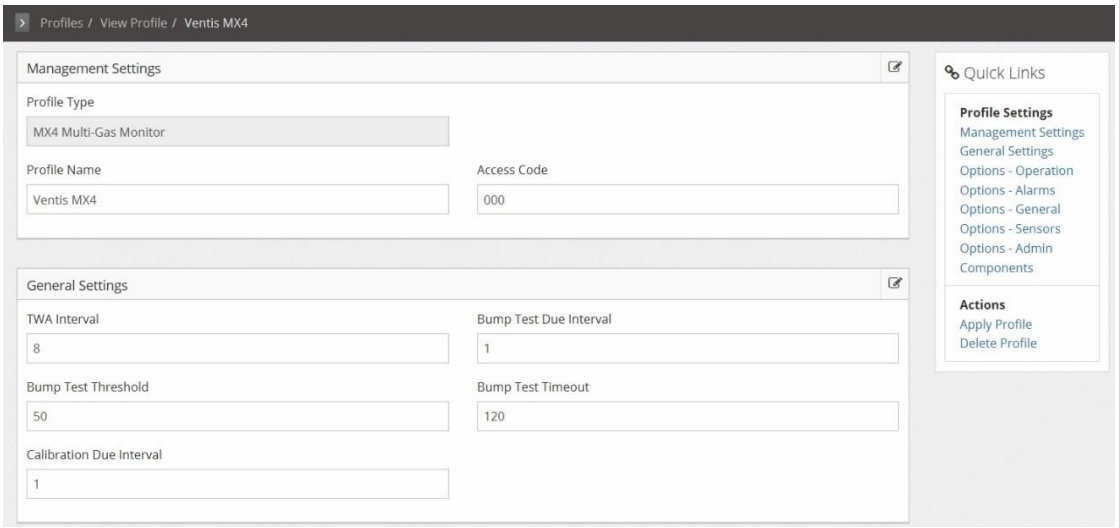


Figure 3-45. The View Profile Page

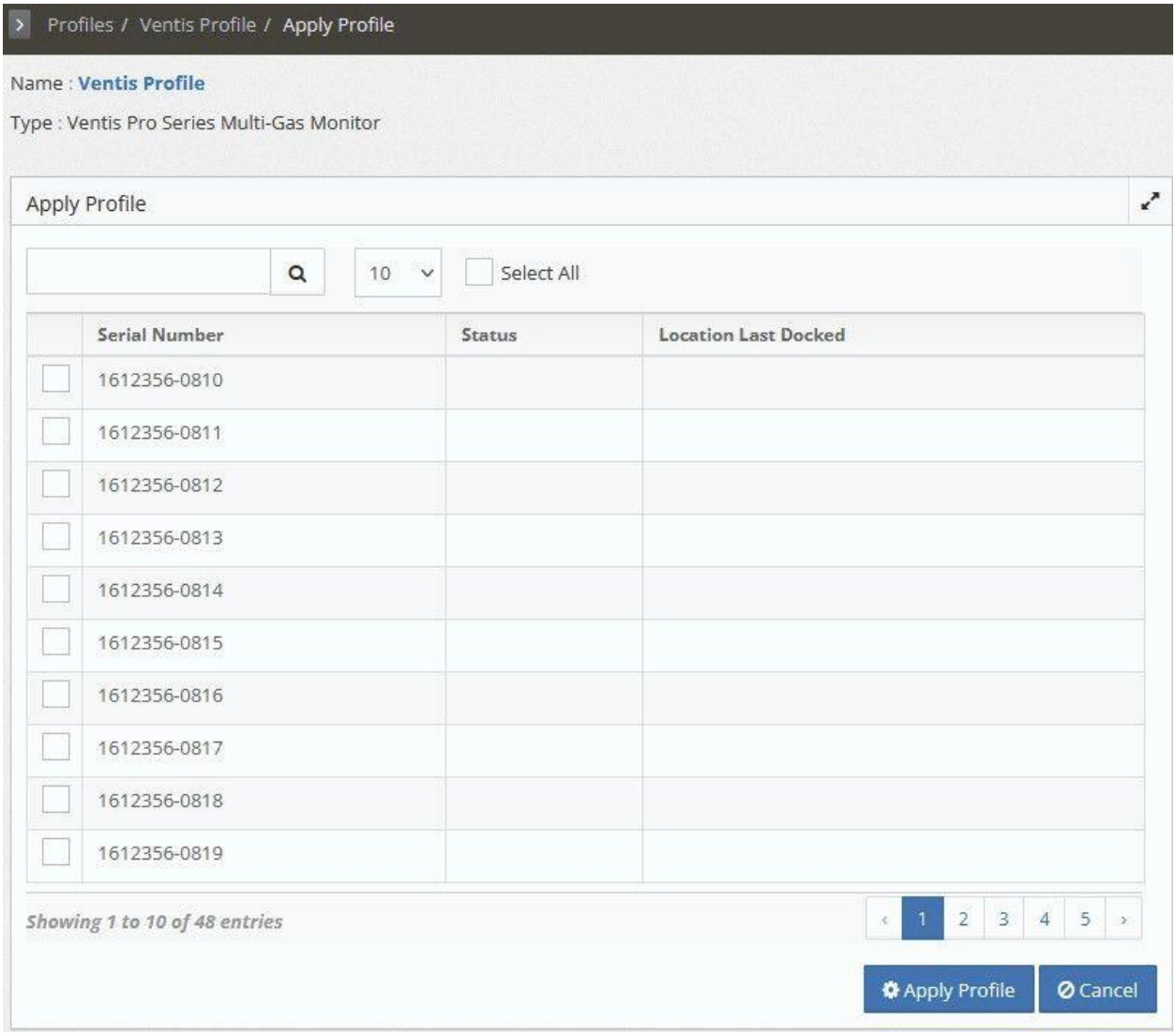


Figure 3-46. The Apply Profiles Page

In the example above, there are 48 items (devices) to which the profile can be applied. The item list spans five pages; if desired, use the drop-down option to change the number of items displayed on each page.

The box next to an item's serial number toggles between empty and a check mark. A check mark means the item is selected.

You can individually select and deselect items or use the "select all" option. When you "select all", a checkmark will appear next to each item listed on *all* pages. You can then deselect individual items by removing their check marks, and reselect in the same manner.

When you have completed your item selections, click on Apply Profile.

3.15.9. Editing Profiles

To edit an existing profile, click on Profiles in the navigation pane. Click on the Profile Name that you would like to edit. This will take you to the View Profile page for that particular instrument.

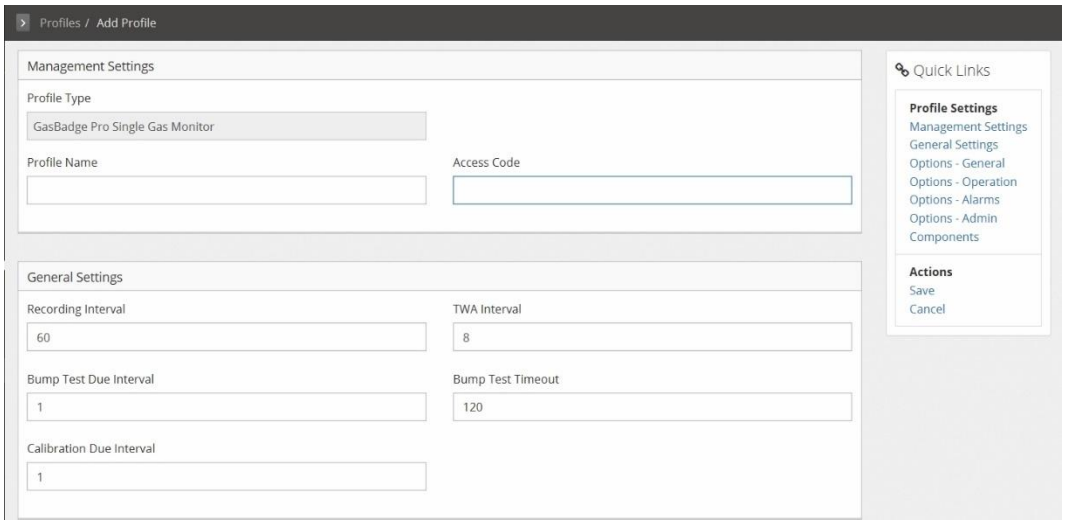


Figure 3-47. The View Profile Page

Click on the Edit ( ) button of the section to which you would like to make changes. Click Save to save the changes you made. Otherwise, click Cancel.

Table 3-3. Edit Profile Page - Components of the Management Settings Section

Component	Description
Profile Type	This field is a pre-populated drop-down list of dockable instruments. It determines which instrument types the selected profile may be applied to. This field is enabled during adding a new profile and is disabled when editing an existing profile. Changing this field removes existing options and components and re-configures the tabs to match the newly selected profile type.
Profile Name	This is the user-defined name for the profile. A name MUST be specified, but can be no longer than 24 characters.
Access Code	This field is used to specify an optional security code to the instrument profile. The Access Code maximum length is three numeric characters.
Profile Password (MX6 only)	This field is used to specify an optional password needed to apply the profile when using the instrument. Password maximum length is 10 characters.

Note: Only users with Administrative role can edit a profile.

Options sections within the Edit Profile page allow you to define which options will be set within the profile. The individual group options are available depending on the instrument type.

The Options sections of the View Profile include:

- Operation
- Alarms

- General
- Sensors
- Admin

The following options will only be available for the instruments that use them:

- Startup
- iAssign
- Bluetooth
- Wireless
- Wireless Module

The following table indicates when the controls are enabled for the supported instruments.

Table 3-4. Controls Available in the Options Sections Based on Instrument

('X' indicates the absence of controls for specific instrument type)

Option	GasBadge Pro	MX6 iBrid	SafeCore Module	Tango TX1 and TX2	Ventis MX4	Ventis Pro
Bump Test Overdue Warning		v3.5 and above				
Calibration Date on Start up	X			X	X	
Calibration Display mode	X	v3.5 and above			v3.7 and above	
Bump Interval	v2.0 and above					
Confidence Indicator Type						
Bump timeout						

The Users and Sites sections of the Edit Profile page are shown below. They display the users and sites assigned within the profile. They display all the users and sites currently available, the users and sites which are currently assigned to the profile, and the active user and site to be set within the profile.

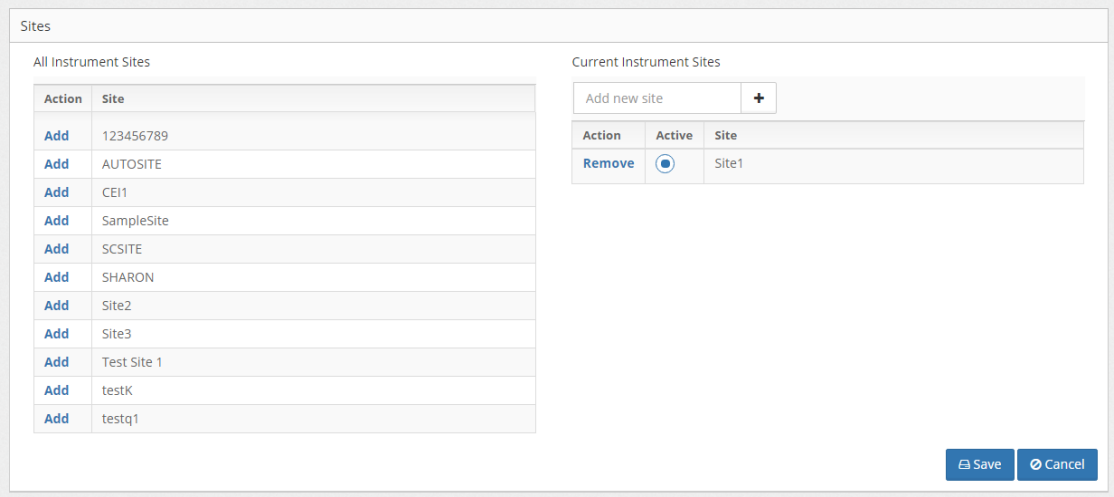


Figure 3-48. Edit Profile Page - Users and Sites

Table 3-5. Edit Profile Page - Components of the Users and Sites Sections

Component	Description
All Instrument Users	This list box displays all of the users which are available within the system and may be used in being assigned to a profile. The list comes from all of the users currently assigned to an instrument within the system. Clicking on a user within the All Instrument Users list makes it the current Active User.
Active User	This text box displays/sets the currently selected Active User for the selected profile. The maximum length allowed entered is 16 characters.
All Instrument Sites	This list box displays all of the sites which are available within the system and may be used in being assigned to a profile. The list comes from all of the sites currently assigned to an instrument within the system. Clicking on a site within the All Instrument Sites list will make it the current Active Site.
Active Site	This text box displays/sets the currently selected Active Site for the selected profile. The maximum length is 16 characters.
Add Button	The Add Button is used to indicate which user or site should be the active user/site within the instrument when the profile is applied. This button is disabled by default, but becomes enabled when a single user/site is selected from the All Instrument Users/Sites list.
Remove Button	The Remove button is used to remove an Active User/Site text box.

The Components section of the Edit Profile page is shown below. This section displays the profile component information. It contains a list of the component types assigned to the profile.

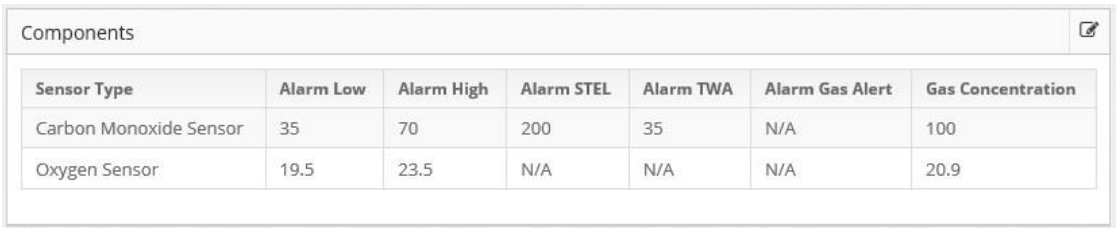


Figure 3-49. Edit Profile Page - Components

Table 3-6. Components of the Components Section

Component	Description
Component List View	The Component list view displays the component types assigned to the profile as well as the information about each one. The columns listed are Sensor Type, Alarm Low, Alarm High, Alarm STEL, Alarm TWA, Alarm Gas Alert, and Gas Concentration. When no component types are currently assigned to the profile, a single column is displayed with the heading "There are no components installed for this profile". When one or more component types have been assigned, the data is displayed in the above mentioned columns.

The Edit Component section is used to assign a component to a profile. In addition, it assigns the Sensor type, alarms, and (if it is an MX6 instrument type) whether the sensor should be enabled or not.

Figure 3-50. Edit Component Section

To add a component, click on the plus sign (+) button next to a component that is "Not Specified". Click on the Gas dropdown and select the sensor you wish to add. Click Save to save your changes. Otherwise click Cancel.

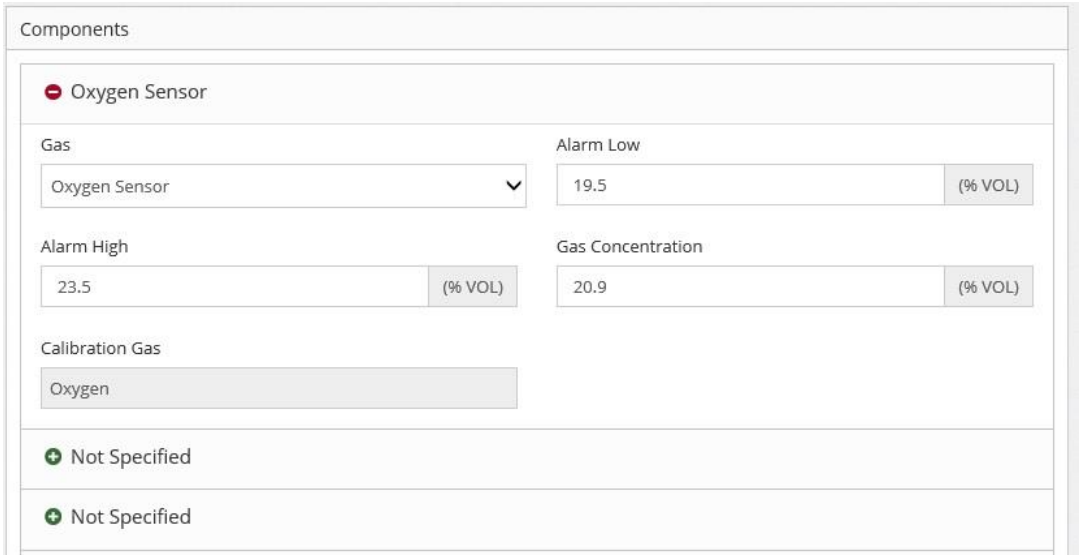


Figure 3-51. Add Profile Component Section – Example 1 (O2 Sensor)

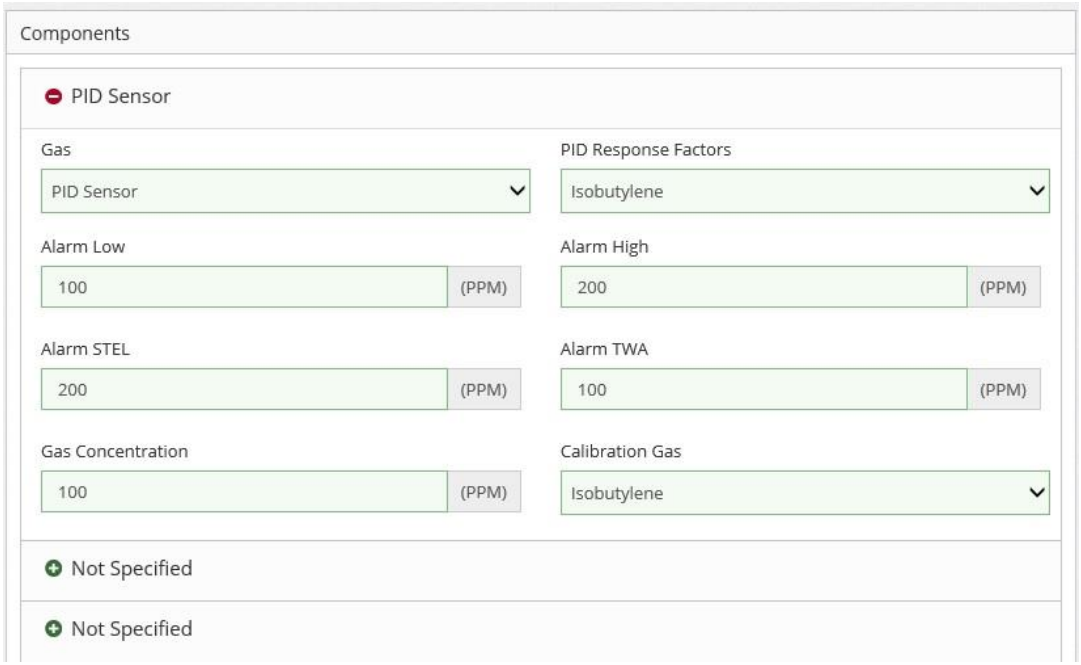


Figure 3-52. Add Profile Component Section – Example 2 (PID Sensor)

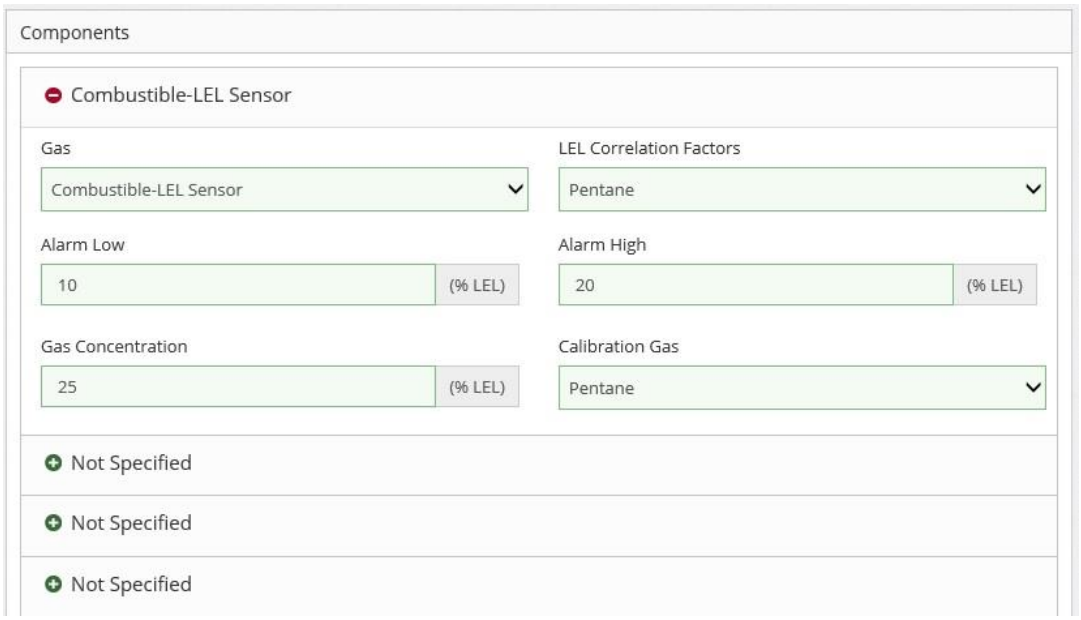


Figure 3-53. Add Profile Component Section – Example 3 (Combustible LEL Sensor)

NOTE: Not all screen components are shown for every sensor type. For example, for non-PID and non-LEL sensors, no Response Factor or Correlation Factor field are shown.

Table 3-7. Components of the Add Profile Components Sections

Component	Description
Gas	This drop down list will be populated with the appropriate sensor types for the profile instrument type. Changing the sensor type will enable or disable the STEL and TWA text boxes depending on the selected sensor type.
Gas Response	Dropdown field is disabled for non-LEL and non-PID sensors. • For PID sensors, shows a list of all Response Factors, plus any Custom Response Factors that the user has created in the profile. • User must select an entry from the dropdown. • Default is “Isobutylene”.
Gas Response	• For LEL sensors, shows a list of all Correlation Factors. • User must select an entry from the dropdown. • Default is “Pentane”.
PID Response Factor	This dropdown field will only appear for PID sensors. From this drop down, the user must select either a custom response factor or a ‘built-in’ response factor from the list to specify what type of gas the sensor should be configured to sense. Custom response factors will be sorted alphabetically within the list of built-in response factors.

Component	Description
LEL Correlation Factor	From this drop down, the user must select one of the provided correlation factors to specify what type of gas the sensor should be configured to sense.
Alarm Low	This field will hold the low alarm value to be applied to the sensor type. The value in this text box cannot be empty nor zero or less. It also cannot have a decimal resolution of more than two.
Alarm High	This field will hold the high alarm value to be applied to the senor type. The value in this text box cannot be empty nor zero or less. It also cannot have a decimal resolution of more than two.
Alarm STEL	This field will hold the STEL alarm value to be applied to the senor type. The value in this text box cannot be empty nor zero or less. It also cannot have a decimal resolution of more than two. This text box will be disabled for O2 and Combustible sensor types.
Alarm TWA	This field will hold the TWA alarm value to be applied to the senor type. The value in this text box cannot be empty nor zero or less. It also cannot have a decimal resolution of more than two. This text box will be disabled for O2 and Combustible sensor types.
Cal Gas Concentration	This field will hold the Gas Concentration value to be applied to the sensor type. The value in this text box cannot be empty nor zero or less.
Save Button	Clicking the Save button will save the changes made. If you do not want to save your changes, click Cancel. The message “Success, the changes have been saved”, will appear.
Apply Profile	Click Apply Profile in the Quick Links section on the right side of your browser window, to apply the profile changes.

The Response Factors section of the Edit Profiles page is used to display the profile Response Factor information. It contains a list of the possible Response Factors, and a list of custom response factors for the instrument.

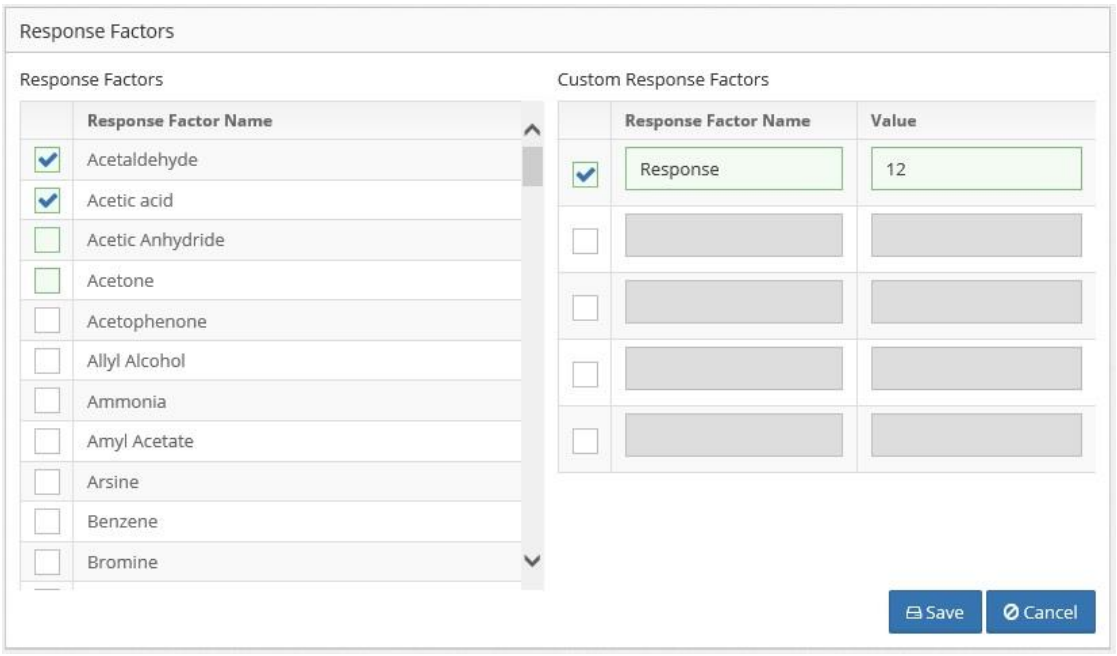


Figure 3-54. Edit Profile Page – Response Factors

Table 3-8. Components of the Response Factors Section of the Edit Profiles Page

Element	Description
Response Factors list	The Response Factors list displays all response factors available for the selected profile instrument type. Each item in the list has a checkbox. Clicking in the checkbox toggles the check on and off. Clicking on an item in the list also toggles the check on and off. "Checking" a response factor adds it to the Favorite Response Factor list. "Un-checking" a response factor removes it from the Favorite Response Factor list.
Custom Response Factors list	The Custom Response Factor list displays all of the custom response factors currently available within the selected profile as well as their response factor value. Each item in the list has a checkbox. Clicking in the checkbox toggles the check on and off. Clicking on an item in the list also toggles the check on and off. Checking" a custom response factor adds it to the Favorite Response Factor list. "Un-checking" a custom response factor removes it from the Favorite Response Factor list
Response Factor Name column	This is a customizable name for the custom response factor.
Response Value column	This is the response value for the custom response factor.

3.16. Changing Your Password

You can change the DSSAC password that was assigned to you. You can change your password at any time. To change your password, follow the instructions listed below.

Step	Instruction
1.	Click the Settings ( ) button on the top right of your browser window. Then click on Account Settings.
2.	The Change Password section appears.  **Figure 3-55. Change Current Password Section**
3.	Enter your Current Password, your New Password, and your New Password Again for confirmation. Click the Save button. NOTE: Your password must be between 6 – 30 characters in length.
4.	Your password has been changed.

# # #

Chapter 4

Setting Up Users

4.1. Introduction

This chapter explains how to create, change, and remove users in the DSSAC. Only Systems Administrators can use this feature.

4.2. Understanding Roles

Before setting up users, you should have an understanding of the three roles that can be assigned to users. The roles determine the functions that a user is permitted to perform.

The roles in the DSSAC are:

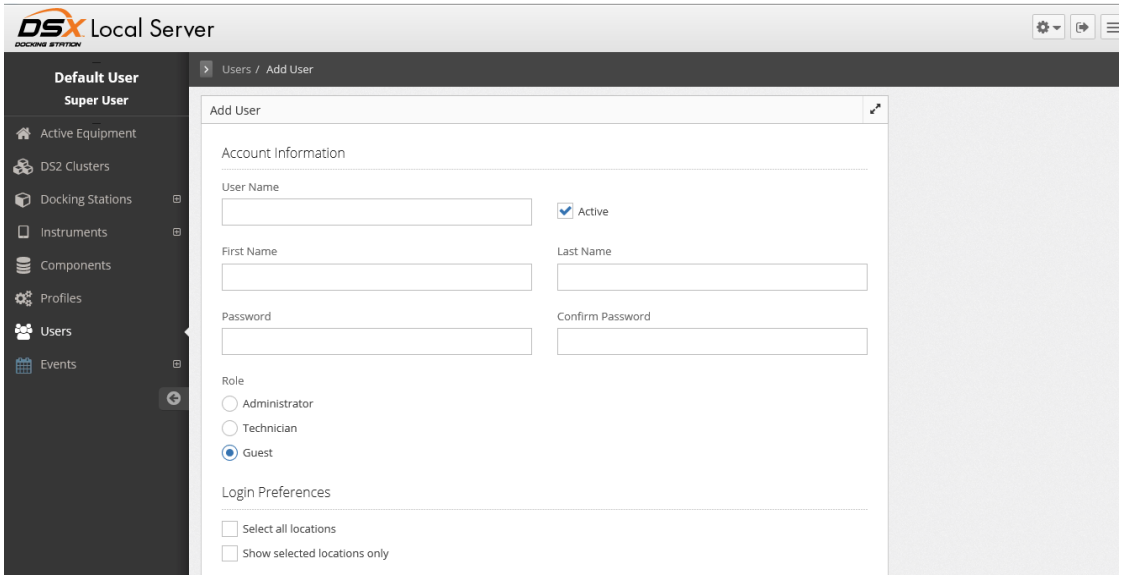
- Technician - Can perform functions related to configuration of instruments and IDSs, as well as change language settings and his/her own password. They cannot perform user management tasks, modify default alarm settings, modify default calibration gases, or configure iNet options.
- Guest - Can log in and view information in the DSSAC. This is a read-only role.

Typically, the Systems Administrator role should be given out to only select individuals. Most users can perform their functions adequately with the Technician role.

4.3. Adding Users

In order to use the DSSAC, a user must have a user account set up for him or her. To add a user to the DSSAC, follow the instructions below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click the Users option in the navigation pane of the DSSAC. A list of users appears in the contents page.

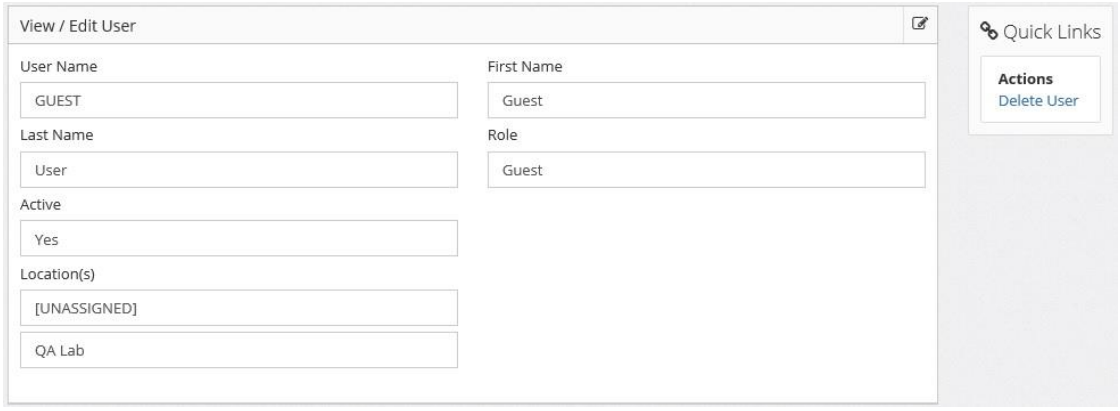
3.	Click on Add User at the top right of the Users page.
4.	The Add User section appears.
5.	Enter the user‘s information. Be sure to enter a unique user name for the person in the User Name field, and enter a password in both the Password and Password fields.  **Figure 4-1. Add User Page** NOTE: The user is “Active” by default when it is first created.
6.	To select roles, click next to the role you wish to assign to the user. You must assign at least one role to the user.
7.	Select a Login Preference, by clicking in the checkbox next to the login location(s) from which you wish the user to be able to see the information.
8.	Click the Save button when complete. The user appears on the Users contents page.

4.4. Changing User Properties

Once a user is created, you may need to update his/her personal information. For example, you may need to reset a password if the user forgets his/her current password or you may want to limit the information that the user can see to information only regarding his or her location.

To change user properties, follow the instructions listed below.

Step	Instruction
1.	Click the Users option in the navigation pane of the DSSAC. A list of users appears on the contents page.

2.	Click on the user whose information you would like to change.
3.	The View/Edit User section appears.  **Figure 4-2. View/Edit User Section**
4.	Click on the Edit ( ) button at the top right of the View/Edit User section.
5.	Change the data that needs to be updated. NOTE: You cannot change the User Name. NOTE: If you change the password, remember to enter it twice; once in the Password field and a second time in the Confirm Password field. NOTE: You cannot change the roles assigned to the account with which you are currently logged into the DSSAC. Also, the Active check box is not visible and may not be edited for the current user.
6.	If you wish to inactivate the account, de-select the checkmark next to the Active option. This prevents the user from logging into the DSSAC. To re-activate an account, click the Active option so that a checkmark appears.
7.	Click the Save button to save your changes and return to the user list. If you click the Cancel button, your changes are not saved.
8.	If you wish to limit the locations from which the user can see information, click in the appropriate box under Login Preferences. All available locations or registered instruments and docking stations will be shown according to the Location column of the instrument or docking station listing.
8.	Check the boxes under Locations of the locations that user should be able to view information for. Checking the Show selected locations only box will limit the list for that user to those locations selected. If the selection has been previously limited, checking the Select all locations box will place all locations back in the user list.
9.	Click the Save button to save your changes and return to the user list. If you click the Cancel button, your changes are not saved.

4.5. Removing Users

You may wish to remove a user account completely from the system. Only do this when you are sure that the user account is no longer going to be used. To remove a user account, follow the instructions below.

Step	Instruction
1.	Click the Users option in the navigation pane of the DSSAC. A list of users appears in the contents page.
2.	Click on the user that you wish to remove.
3.	Click on Delete User in the Quick Links section on the right side of your browser window.
4.	A confirmation prompt appears. Click Yes to confirm that you wish to remove the user(s). Otherwise, click No to cancel the action.
5.	The selected users are deleted from the system.

NOTE: You cannot delete the account with which you are currently logged in to the DSSAC. Also, you cannot delete the default DSS User account.

# # #

Chapter 5 Configuring Instruments

5.1. Introduction

The DSX docking station was designed for use with several Industrial Scientific instruments. When these instruments are docked in the appropriate IDS, the docking station system automatically detects them. While docked, the instruments can take full advantage of automatic calibrations and bump tests, as well as datalog data management that docking station provides.

5.2. Instrument Compatibility

The IDS only accepts the instrument types it was designed for:

- GasBadge® Pro Single-Gas Monitor
- MX6 iBrid Multi-Gas Monitor
- SafeCore® Module (the aspirated module is compatible with IDS only when used with adapter tubing, part number 17156572)
- Tango® TX1 Single-Gas Monitor
- Tango® TX2 Two-Gas Monitor
- Ventis® LS Multi-Gas Monitor
- Ventis® MX4 Multi-Gas Monitor
- Ventis ® Pro4 Multi-Gas Monitor
- Ventis ® Pro5 Multi-Gas Monitor

Be sure that you are using the correct IDS for the instrument you are setting up.

5.3. Setting up an Instrument

The IDS contains a cradle that is designed to hold one of the compatible instruments (GasBadge Pro, MX6 iBrid, SafeCore Module, Tango TX1, Tango TX2, Ventis LS, Ventis MX4, Ventis Pro4, or Ventis Pro5). The first time that an instrument is docked, the Docking Station Server detects it and adds its information into the system.

The IDS only accepts the type of instrument it was designed for. Be sure that you are using the correct IDS for the instrument you are setting up.

To set up an instrument, follow the instructions listed below.

Step	Instruction
1.	Place the instrument securely into the IDS cradle.
2.	Be sure that the IDS is powered on and is connected to the network. (See Chapter 6 for information about setting up and configuring the IDS.)
3.	The Docking Station Server detects the instrument and registers it in the system. The LCD screen on the IDS displays "Discovering." The yellow LED is illuminated.

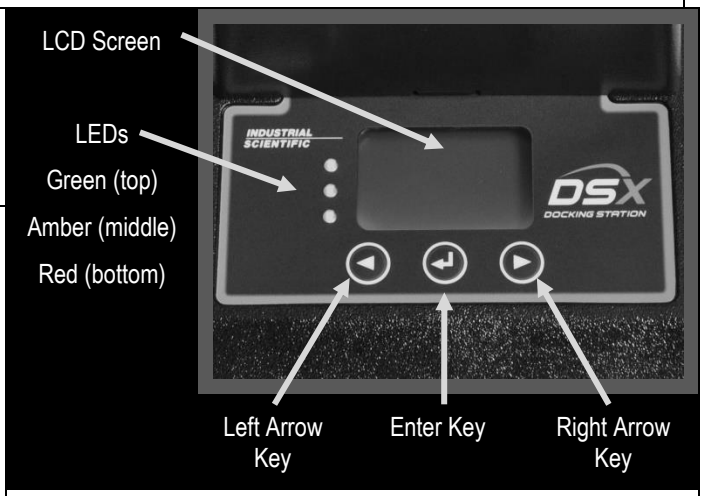


Figure 5-1. Front Panel of a DSX-L

NOTE: When docking an instrument that has already been registered, the LCD on the IDS also displays "Discovering" while it determines which instrument has just been docked.

Step	Instruction
4.	When the LCD displays and the green LED is illuminated, the instrument has been registered and is now ready to be used in the docking station system.

If any events are scheduled for the instrument, they automatically occur after the instrument is docked. In order to successfully complete the calibrations and bump tests, ensure that the proper gas cylinders are connected and configured for use on the IDS. See section 6.6: Configuring Gas Cylinders for information about setting up an IDS to use gas cylinders.

NOTE: For information of adding legacy instruments, removing instruments, and using the find instrument feature, refer to section 5.17.

5.4. Instrument Properties

Once the Docking Station Server has detected the instrument, and added the instrument's information into the system, the instrument's properties can be viewed in the DSSAC. The DSSAC can also be used to:

- update instrument options and alarms
- review calibration and bump test results
- view datalog data.

To view an instrument's properties, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments link in the navigation pane. The contents page displays a list of instruments. To display instruments based on certain criteria, such as instruments overdue for calibration, refer to section 5.17.3 Using the Advanced Instrument Find Feature. NOTE: Any instrument that is currently docked appears in blue.
3.	Click on the serial number of the instrument whose properties you wish to view.

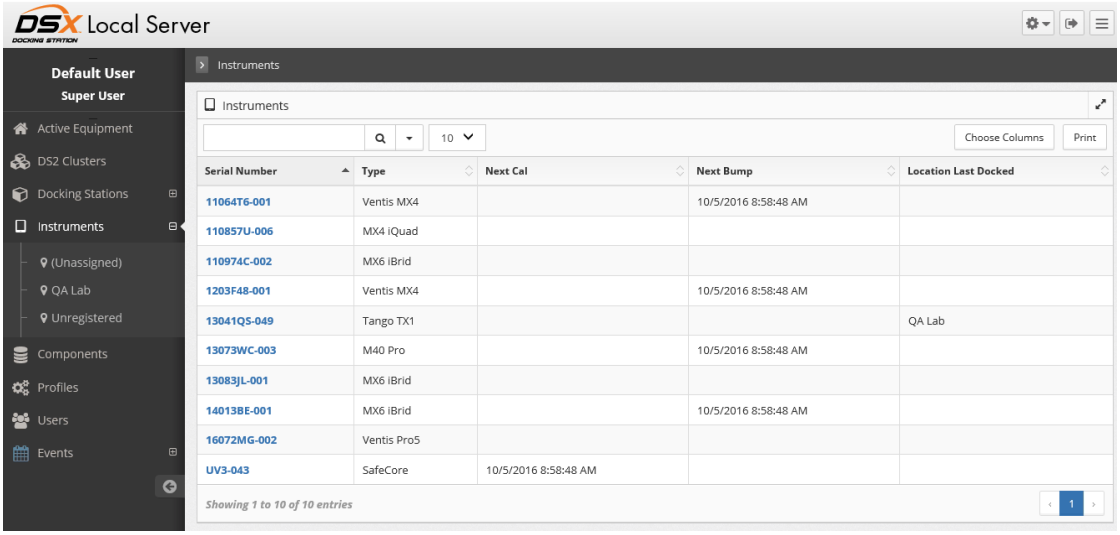


Figure 5-2. Instruments List Page

Step	Instruction
4.	The Edit Instrument section appears on the Instrument page (refer to Figure 5-3). You will see a number of sections, including Management Settings and General Settings. As you scroll down the page you will see additional sections for which information can be edited. NOTE: You will also see links to instrument information and settings in the Quick Links section on the right side of the page. Each option is explained in the sections that follow.
5.	Click on the Edit ( ) button on the top right of the section in which you wish to make changes.
6.	If you made any changes that you would like to save, click the Save button. Otherwise, click the Cancel button.

NOTE: Certain reserved characters may not be used in fields. Unacceptable characters include the following.

>	greater than
<	less than
&	ampersand
%	percent

If the user types any of these keys, an error notice will appear when clicking the Save button.

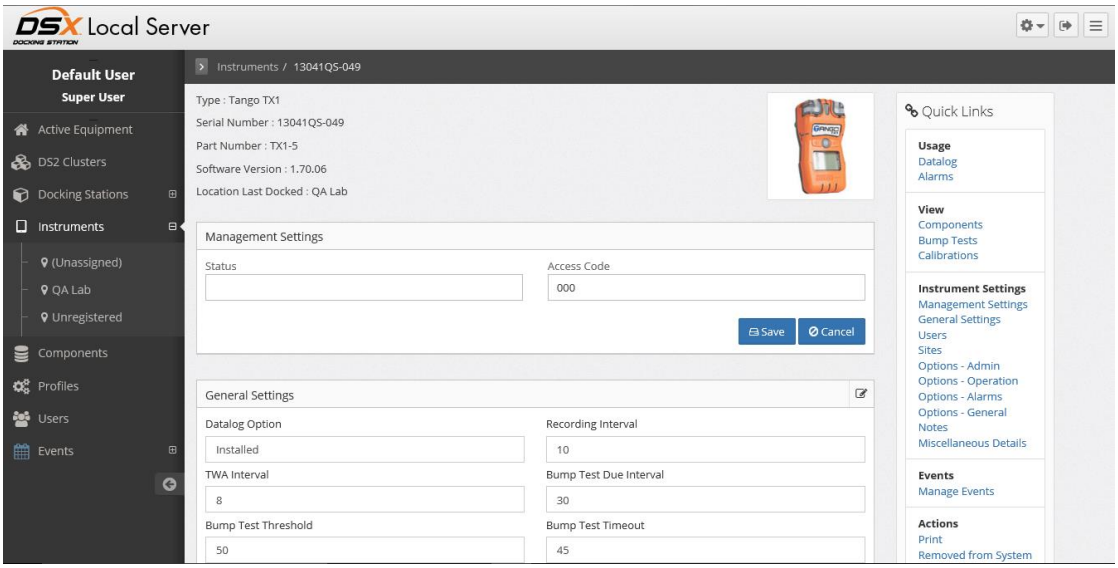


Figure 5-3. Instrument Page

Table 5-3. Instrument - Description Information

Field	Description
Type	Displays the instrument type. For example: • GasBadge Pro Single-Gas Monitor • MX6 iBrid Multi-Gas Monitor • SafeCore Module • Tango TX1 Single-Gas Monitor • Tango TX2 Two-Gas Monitor • Ventis LS Multi-Gas Monitor • Ventis MX4 Multi-Gas Monitor • Ventis Pro4 Multi-Gas Monitor • Ventis Pro5 Multi-Gas Monitor
Serial Number	Displays the serial number of the instrument.

Field	Description
Part Number	Displays the Industrial Scientific part number for the instrument.
Software Version	Displays the current version of the software installed in the instrument.
Location Last Docked	A read-only text box that displays the "Location" value of the docking station upon which it was last docked.

5.5. Instrument – Management Settings and General Settings

The contents of the Management Settings and General Settings sections are explained in the table below.

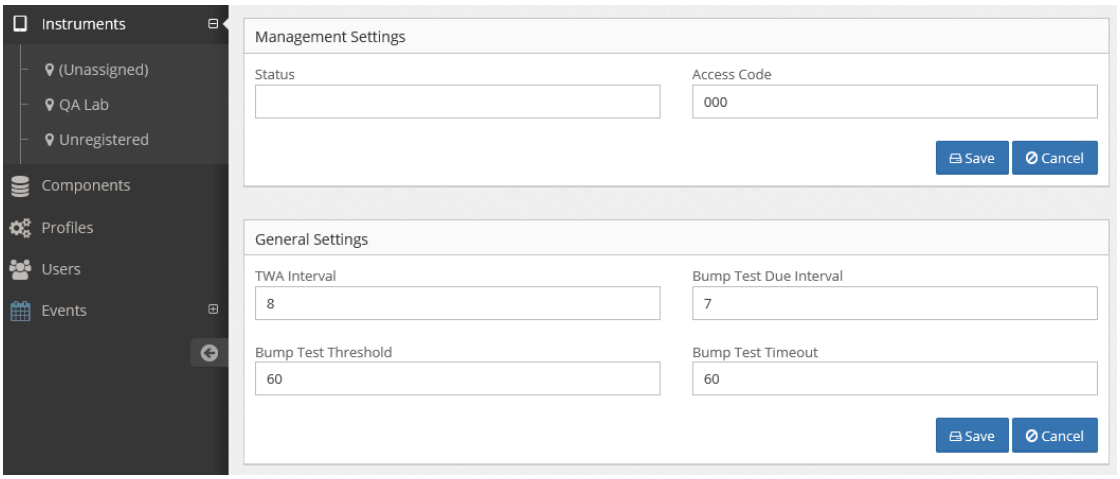


Figure 5-4. Instrument – Edit Management Settings and Edit General Settings

NOTE: Properties shown under General Settings differ based on the instrument.

Table 5-3. Fields in Management Settings and General Settings

Field	Description
Status	Displays a text field that can be used to identify the status of the instrument. The status displays on the instrument's contents page in the DSSAC.
Access Code	The password required to use certain features of the instrument. Only users assigned to the Systems Administrator role can see the contents of the Access Code field.
TWA Interval	Displays the current TWA Time Base for the instrument. This field must be an integer between 0 and 40. Default value: 8.
Bump Test Threshold	The percentage concentration of gas (from 50% to 99%) that must be seen in order for a bump test to pass. The default value for this field is 50%.

Field	Description
Bump Test Due Interval	Displays the current Bump Test Due interval in intervals of 0.5 days.
Bump Test Timeout	The maximum amount of time (from 30 to 300 seconds, given in 5-second increments) after a bump test is initiated that a docking station will wait to complete/pass the test, before ultimately aborting and failing the bump test. The default value for this field is 120 seconds.
Backlight	Determines the instrument's backlight behavior. Options include: Off (always off), Automatic (turns on when a button is pressed and the instrument senses low-light conditions), Continuous (always on).
Backlight Timeout	When the backlight is set for automatic operation, the interval setting determines how long the light remains on (between 5 and 60 seconds).
Datalog Option	The interval (in seconds) at which the instrument's readings will be saved to the data log.
Recording Interval	Displays the current recording interval for the datalogger. This must be between 1 and 300 seconds in increments of 1 second. Default value: 60 seconds.
Calibration Due Interval	The amount of time before the next Calibration is due.
Sync Interval	The amount of time before the next synchronization is due. Dock the instrument to synchronize instrument settings with the current values from iNet, DSSAC, or Accessory Software.
Custom Start-up Message	Provide instrument operators with customized on-screen messages. The options include a message that displays during the start-up sequence and those that display during gas events.
Company Name	Company name to which the instrument is assigned.
Man-down Warning Delay	The amount of time that will lapse between the man-down warning and its alarm.

5.6. Instrument – Options

Instrument options can be set in two ways:

- on the instrument itself
- by using the DSSAC application.

The options in the DSSAC will always take precedence over the settings on the instrument. If settings are changed on the instrument, they are overridden by the DSX-L docking station system when the instrument is next docked. If settings are changed using the DSSAC, they are transferred to the instrument when the instrument is next docked.

5.6.1. Setting Instrument Options from the Instrument Itself

For information about the specific options for an instrument and their purposes, please refer to your Instruction Manual for the instrument. The Instruction Manual also describes how to change the settings on the instrument. This user guide only covers how to change instrument settings using the DSSAC.

5.6.2. Setting Instrument Options from the DSSAC Application

To change instrument settings using the DSSAC, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments link in the navigation pane. The contents page displays a list of instruments.
3.	Click on the instrument whose options click on the serial number of the instrument whose properties you wish to change.
4.	From the Instruments page you can access and edit information for the following option groups: • Operation • Wireless • Wireless Module • Startup • General • Sensors • Admin Click on the Edit ( ) button of the options group to which you wish to make the changes. A checkmark is displayed next to any setting that is enabled. NOTE: Available Option groups differ based on the instrument type.
5.	To change a setting, click in the checkbox next to a setting or edit the appropriate fields.
6.	If you made any changes that you would like to save, click the Save button. Otherwise, click the Cancel button.

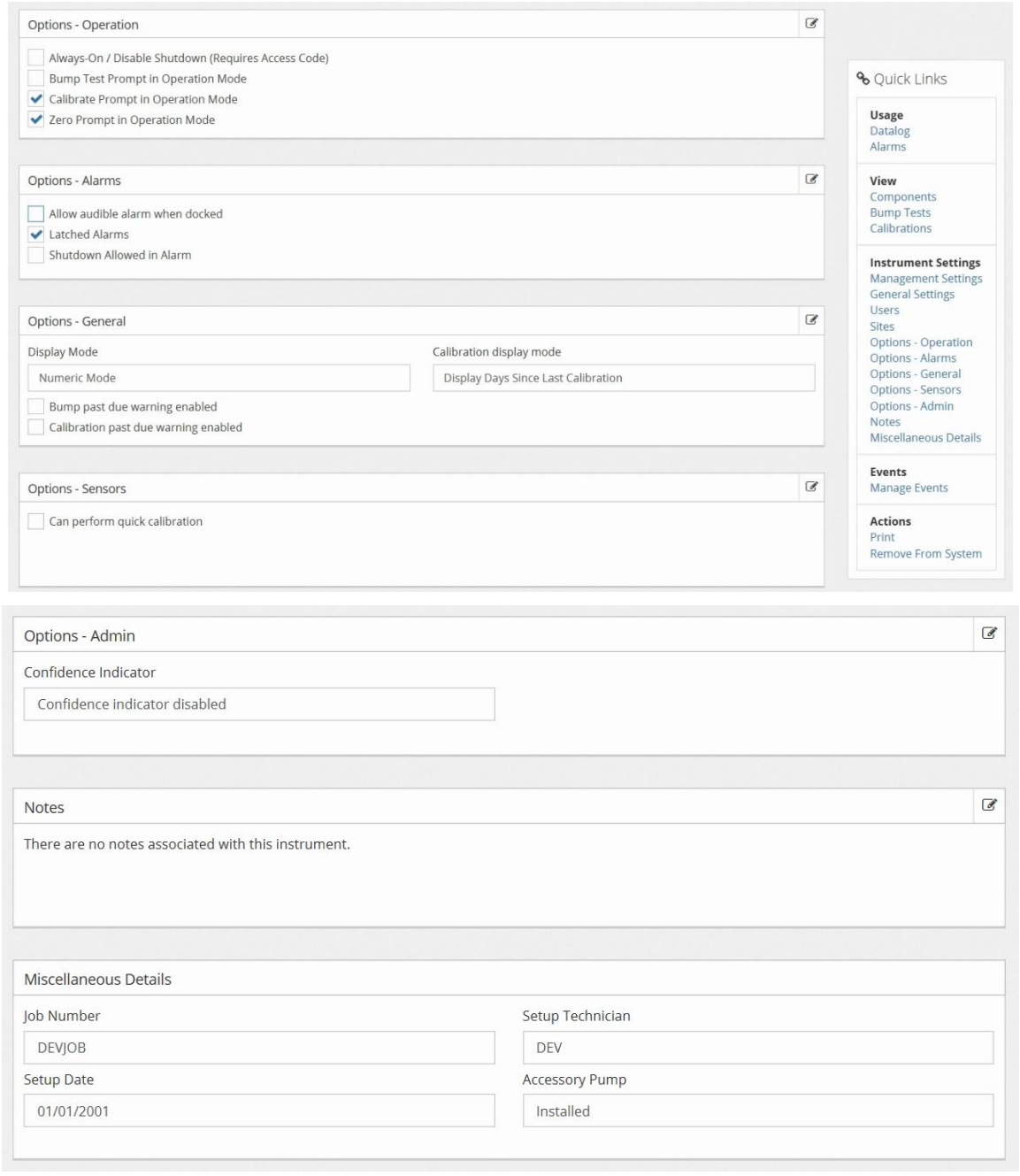


Figure 5-5. Instrument Options

Key fields on this page are shown in the table that follows.

NOTE: The settings update occurs after the instrument is docked. If you change settings while an instrument is docked, you must undock and then re-dock the instrument for the changes to take effect.

Table 5-4. Instrument-Options

Field	Description
Confidence Indicator	Displays the current confidence indication type.
Display Mode	Displays the current Display Mode. Possible values are “Text”, “Numeric” and “Graphical”.
Clock/Temp Display Mode	Indicates whether the instrument will display the “Clock”, “Temperature” or both.
PID/LEL Display Mode	Indicates whether the instrument will display the “PID Response Factor”, the “LEL Correlation Factor” or both.
Datalog Option	Displays “Installed”. Dropdown is grayed out.
Datalog Mode	Display whether the datalog mode is “Enabled”, “Snapshot” or “Event Logging”.
TWA Time Base	Displays the current TWA Time Base for the instrument. This field must be an integer between 0 and 40. Default value: 8.
Calibration Due Warning	Displays the current Calibration Overdue Warning indication.
Bump Test Due Warning	Displays the current Bump test Overdue Warning indication.
Calibration Date on Startup	Displays the last/next Calibration date of display on instrument start up.
Calibration Display Mode	Displays the Calibration date display mode on instrument.
Magnetic field Duration	Displays the current magnetic field duration in seconds for TX1 instruments only.
Confidence Indicator type	Displays the current confidence indication type.
Dock overdue warning	Displays the dock overdue warning indication (Ventis Pro instruments and SafeCore Module only).
Date format	Displays the Date Format display on instrument (Ventis Pro instruments and SafeCore Module only).
Toxic display units	Displays the toxic measurement unit type on the instrument (Ventis Pro instruments only).
Temperature units	Displays the Celsius-Fahrenheit mode of temperature display on the instrument (Ventis Pro only).

5.7. Instrument –Users and Sites

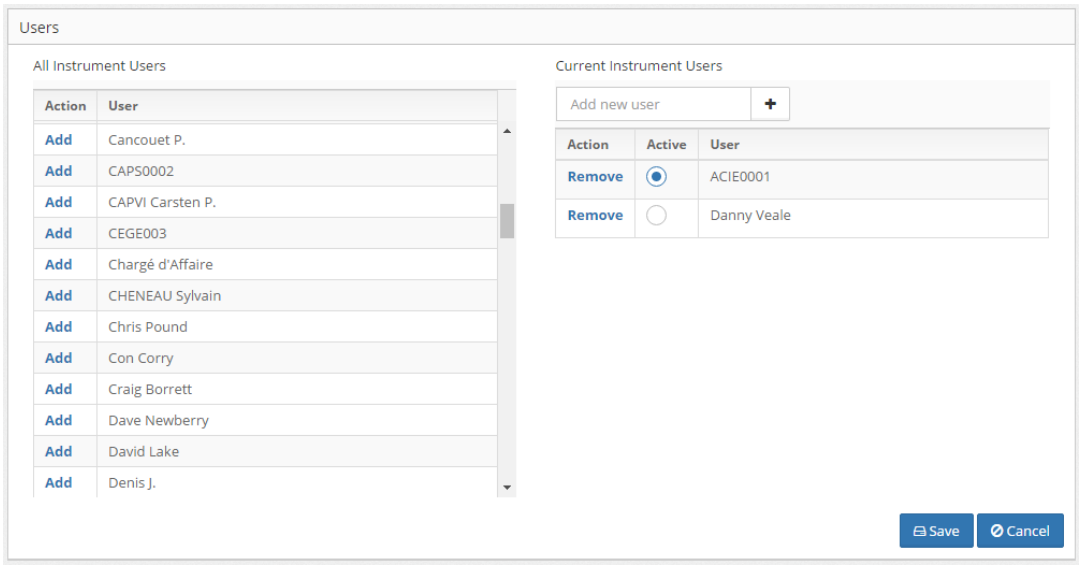
Some instruments have the ability to record user and site information with the datalog feature. This information can then be downloaded with the datalog data.

User and Site information can be maintained using the DSSAC, and then transferred to the instrument the next time it is docked.

To manage User and Site data, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments option in the navigation pane. The contents page displays a list of instruments.
3.	Click on the instrument whose Users and Sites information you wish to view or change.
4.	On the Instrument page you will see a User's section and a Sites section. You can also access either section from the Quick Links section located on the right side of your browser window.
5.	Click on the Edit ( ) button on the top right of the Users section or the Sites section. The instructions that follow can be applied to both the User section and the Site section.
6.	The Users / Sites section contains two lists. The list on the left (All Instrument Users / All Instrument Sites) displays the user or site names available in the system. The list on the right (Current Instrument Users / Current Instrument Sites) contains the users / sites stored in the current instrument.

NOTE: These sections will only be visible for instrument types that support them.



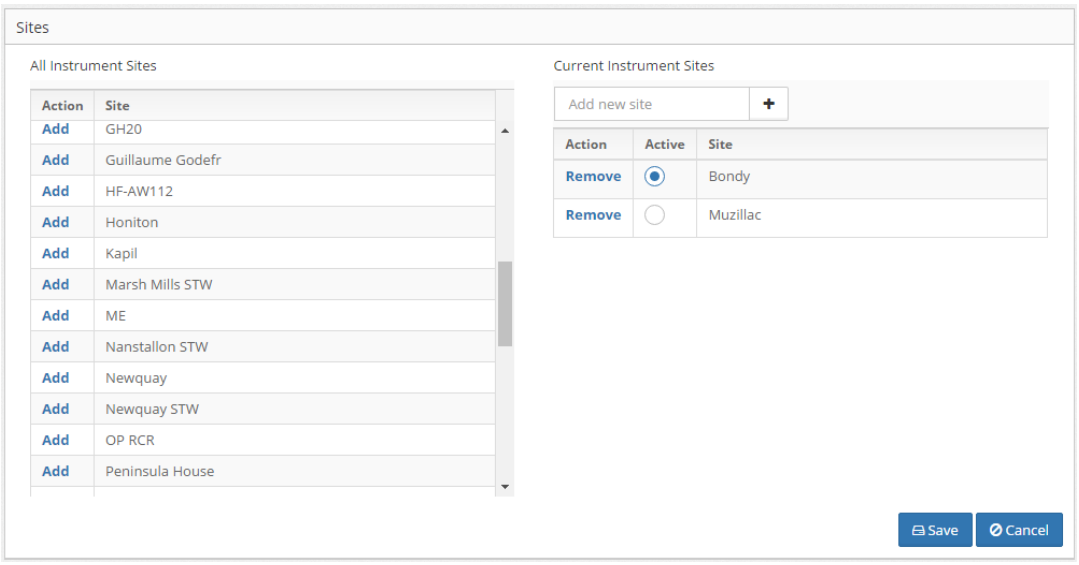


Figure 5-6. The Users and Sites Sections

Step	Instruction
7.	To add a new User or Site, type the name in the text box under the Current Instrument Users or Current Instrument Sites field, and then click plus sign (+) button. The name is added to the Current Instrument Users / Current Instrument Sites list. Once saved, the name can also be used on the Users and Sites section for other instruments.
8.	To add a user or site from the existing names in the system, select the name in the All Instrument Users / All Instrument Sites list and click the Add button.
9.	To remove a user or site from the instrument, select the name you wish to remove from the Current Instrument Users / Current Instrument Sites list, and click the Remove button. The name is removed from the list.
10.	If you made any changes that you would like to save, click the Save button. Otherwise, click the Cancel button.

5.8. Instrument –Components

5.8.1. Overview

Instrument components are accessory parts of an instrument, such as batteries and sensors. Component information is maintained using the DSSAC. For compatible instruments, information about these components is automatically detected and stored in the DSX docking station system.

To view component information, follow the instructions listed below.

<table>
<tr><th>Step</th><th>Instruction</th></tr>
<tr><td>1.</td><td>Log in to the DSSAC application.</td></tr>
<tr><td>2.</td><td>Click on the Instruments option in the navigation pane. The contents page displays a list of instruments.</td></tr>
<tr><td>3.</td><td>Click on the instrument whose components you wish to view or change.</td></tr>
<tr><td>4.</td><td>Click on the Components link in the Quick Links section on the right side of the browser window. A page containing a list of components appears. Installed components are shown in blue. The Uninstall Date column contains the date the component was uninstalled. If the component is currently installed, then this field is blank. The Components section contains the following columns.
<table>
<tr><th>Field</th><th>Description</th></tr>
<tr><td>Component Serial Number</td><td>Displays the serial number of the component.</td></tr>
<tr><td>Instrument Serial Number</td><td>Displays the serial number of the instrument.</td></tr>
<tr><td>Type</td><td>Displays the type of device (i.e., battery pack, sensor, etc.).</td></tr>
<tr><td>Position</td><td>For MX6 instruments, this is the position of the sensor. Battery packs are shown as “N/A”.</td></tr>
<tr><td>Part Number</td><td>Displays the part number of the component.</td></tr>
<tr><td>Install Date</td><td>Shows the date and time when the component was installed.</td></tr>
<tr><td>Uninstall Date</td><td>Shows the date and time when the component was uninstalled.</td></tr>
<tr><td>Enabled</td><td>This column indicates the status of the listed components. Only currently installed components will have a value in this column. Batteries will always show “N/A”. Sensors will either show “Yes” for enabled or “No” for not. For all instrument except the MX6, this column will display “Yes” for all installed sensors. For the MX6 and SafeCore, the column will reflect the actual state of the sensor.</td></tr>
</table>
</td></tr>
</table>

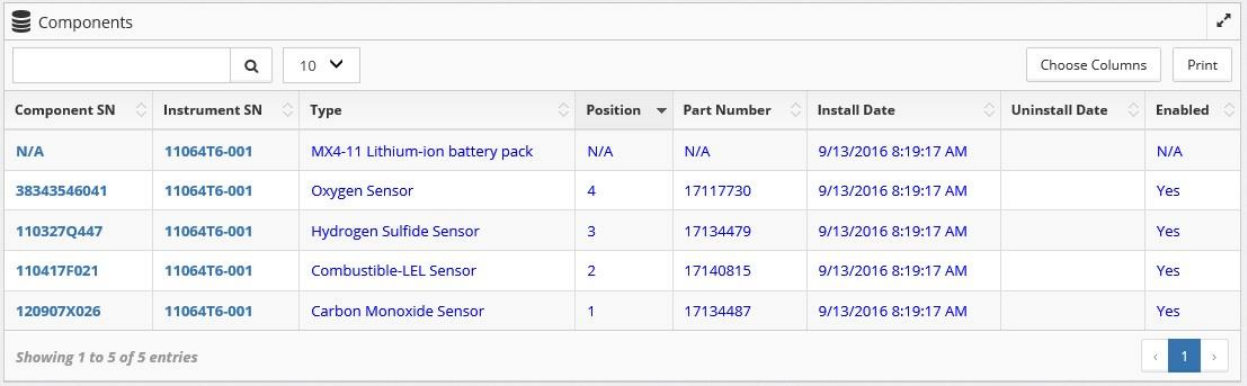


Figure 5-7. Components List Page

Step	Instruction
5.	To view a component, click on its serial number in the list.
6.	If you selected a battery, the properties for the battery will be shown. See the table below for an explanation of the fields.

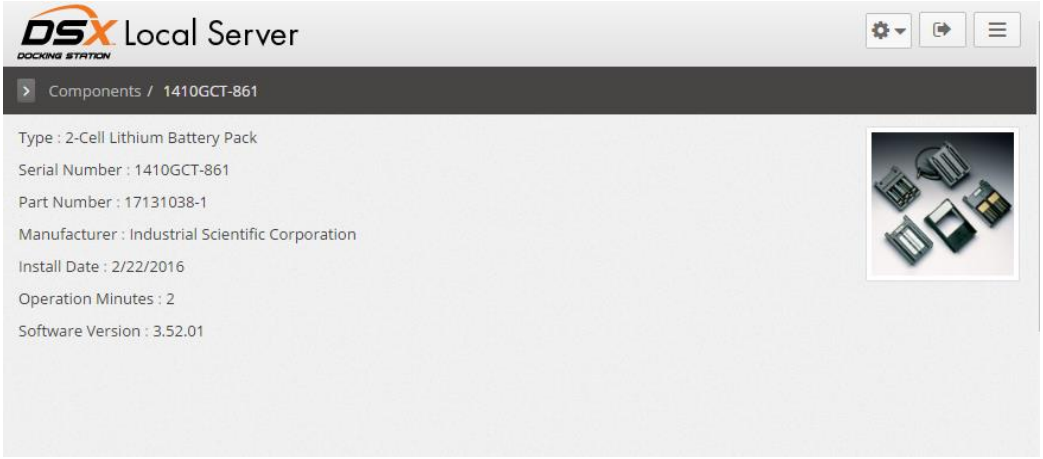


Figure 5-8. Battery Page

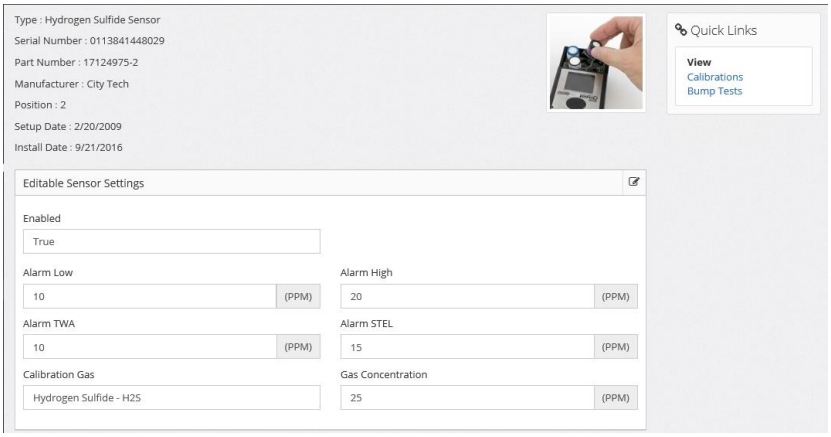
Step	Instruction
7.	If you selected a sensor, the properties for the sensor will be shown.  **Figure 5-9. The Sensor Page**
8.	From the Sensor page you are able to edit some of the sensor settings. NOTE: To access prior calibrations or bump tests, click on the appropriate link in the Quick Links box on the right side of your browser window.
9.	Click on the Edit ( ) button at the top right of the section to which you wish to make changes.
10.	If you made any changes that you would like to save, click the Save button. Otherwise, click the Cancel button.

Table 5-5. Fields in the Edit Battery Section

Field	Description
Serial Number	The serial number of the battery.
Type	The battery type.
Part Number	The part number for the battery.
Manufacturer	The manufacturer of the battery, e.g., Industrial Scientific Corporation.
Install Date	The date that the battery was first installed in the instrument. For docking station compatible instruments, this is the date that the DSS first detected the battery. For legacy instruments, it is the date that the battery was added using the DSSAC application.
Operation Minutes	The number of minutes that the battery has been in use.
Software Version	The software version of the battery (if available).

Table 5-6. Fields on the Sensor Page

Field	Description
Serial Number	The serial number of the sensor.
Type	The sensor type, e.g., Chlorine Sensor, Carbon Monoxide Sensor.
Part Number	The part number for the sensor.
Manufacturer	The manufacturer of the sensor, e.g., Industrial Scientific Corporation.
Install Date	The date on which the sensor was first installed in the instrument. For Docking station compatible instruments, this is the date that the DSS first detected the sensor. For legacy instruments, it is the date that the sensor was added using the DSSAC application.
Position	The position of the sensor in the instrument.
Setup Date	The date on which the sensor was manufactured.
Enabled checkbox	This checkbox determines if the sensor type should be enabled or disabled within the instrument. This control will only be enabled for MX6 and SafeCore instrument types. For all other instruments, this control is "Checked" and Disabled. The default value is "True".
PID Response Factor	This dropdown field will only appear for PID sensors. From this drop down, the user must select either a custom response factor or a 'built-in' response factor from the list to specify what type of gas the sensor should be configured to sense. Custom response factors will be sorted alphabetically within the list of built-in response factors.
LEL Correlation Factor	This dropdown field will only appear for LEL sensors. From this drop down, the user must select one of the provided correlation factors to specify what type of gas the sensor should be configured to sense. NOTE: For non-PID and non-LEL sensors, no Response Factor or Correlation Factor field will be shown.
Calibration Gas	The type of calibration gas to use to calibrate the sensor.
Gas Concentration	The concentration of gas to use to calibrate the sensor.
Alarm High	The gas reading that triggers a high alarm.
Alarm Low	The gas reading that triggers a low alarm.
Alarm STEL	The threshold that a Short Term Exposure Limit (STEL) reading must cross to trigger an alarm.
Alarm TWA	The threshold that a Time Weighted Average (TWA) reading must cross to trigger an alarm.
Gas Alert	The gas reading that triggers a warning, which indicates the level of gas present may be approaching alarm levels. For O2 sensors, setting is supposed to be between low and high alarm. *Note:* The Gas Alert range should be equal to, or less than the low alarm setpoint.

5.9. Instrument – Response Factors

The Response Factor section of the Instrument page displays the instrument Response Factor information. It contains a list of the possible Response factors, and a list of custom response factors for the instrument.

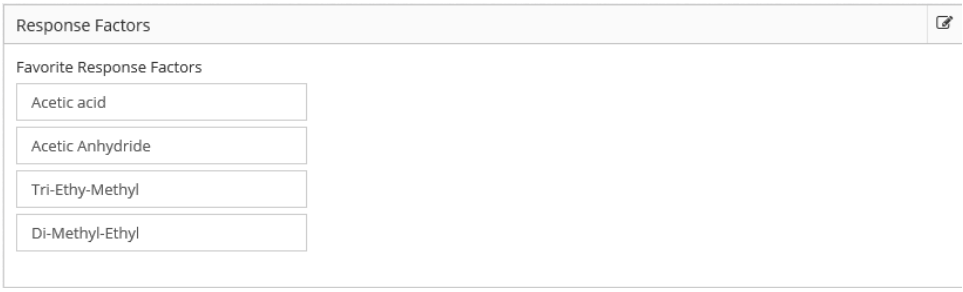


Figure 5-11. The Response Factors Section on the Instrument Page

To edit Response Factors information, click on the Edit ( ) button at the top right of the Response Factors section.

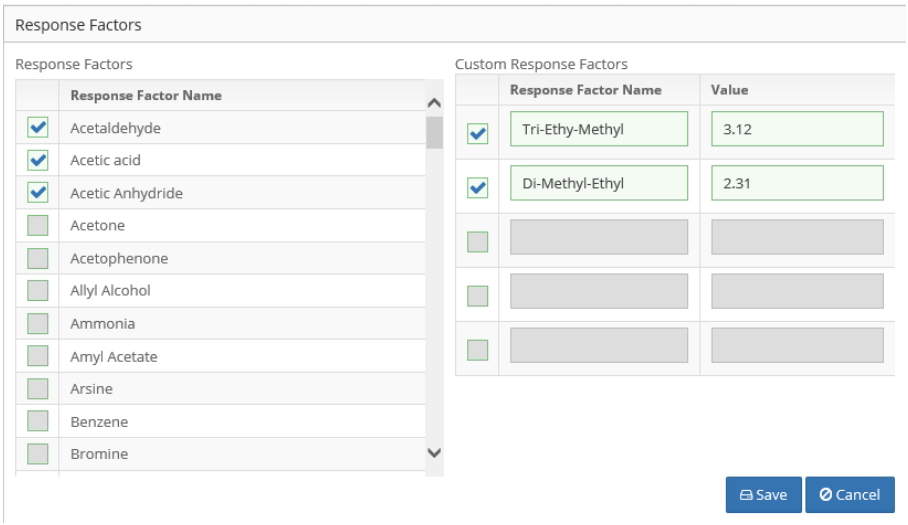


Figure 5-11. Response Factors

Table 5-7. Fields in Response Factors Section

Fields	Description
Response Factors list	The Response Factor list displays all response factors available for the selected instrument type. Each item in the list has a checkbox.

Fields	Description
	Clicking in the checkbox toggles the check on and off. "Checking" a response factor and clicking on Save will add it to the Favorite Response Factor list. "Un-checking" a response factor removes it from the Favorite Response Factor list.
Custom Response Factors list	The Custom Response Factor list displays all of the custom response factors currently available within the selected instrument as well as its response factor value. Each item in the list has a checkbox. Clicking in the checkbox toggles the check on and off. "Checking" a custom response factor adds it to the Favorite Response Factor list. "Un-checking" a custom response factor removes it from the Favorite Response Factor list. **Response Factor Name** - This is a customizable name for the custom response factor. The maximum length allowed entered is 16 characters. **Response Value** - This is the response value for the custom response factor. Each item in the list has a checkbox. Clicking in the checkbox toggles the check on and off. This can be a number from 0 to 99.99 inclusive. "Checking" a custom response factor adds it to the Favorite Response Factor list. "Un-checking" a custom response factor removes it from the Favorite Response Factor list.
Favorite Response Factors list	The Favorite Response Factor list displays the selected response factors, standard or custom, which have been deemed a favorite. A maximum of 5 responses, in any combination of standard or custom, may be selected. The order in which the favorite responses are selected is the order in which they are saved to the instrument

5.10. Instrument – Profiles

The Profiles section within the Instrument page is present only for MX6 instruments. The Profiles section allows an Admin User to assign up to five profiles to the current MX6 instrument.

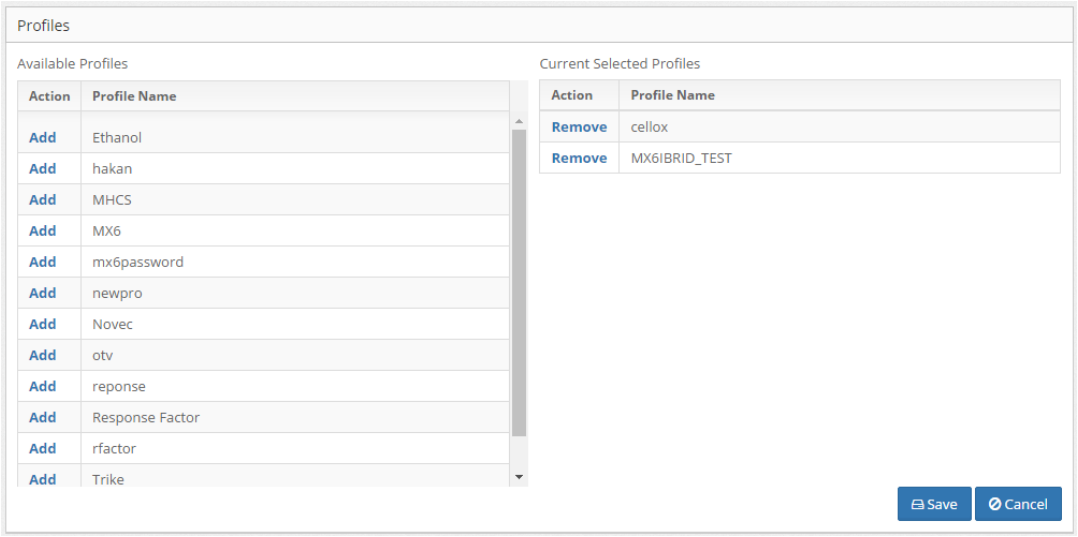
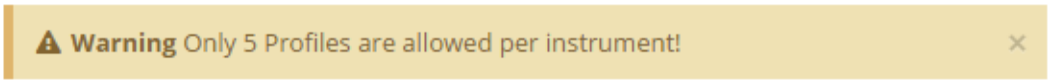


Figure 5-12. The Profiles Section of the Instrument Page

Table 5-8. Fields in the Profiles Sections

Fields	Description
Available Profiles	The Available Profiles list box displays all profiles currently available for the current instrument based on the instrument type. Clicking the "Add" link next to a Profile in the Available Profiles list box removes that Profile from the list and adds it to the Current Instrument Profiles list box.
Current Instrument Profiles list box	The Current Instrument Profiles list box displays the possible five profiles assigned to the current instrument. The Current Instrument Profiles list box shows 0 to 5 profiles, depending on how many are currently assigned the instrument. Clicking the "Remove" link next to a Profile in the Current Instrument Profiles list box removes that Profile from the list and adds it to the Available Profiles list box. Adding a Profile from the Available Profiles list box while there are already five Profiles listed in the Current Instrument Profiles list box, displays the following message and the profile is not moved.  **Figure 5-13. Validation Error**

5.11. Instrument –Notes

5.11.1. Overview

Instrument Notes are comments about an instrument that you can store in the system. You can also remove notes that no longer apply to the instrument. To maintain instrument notes, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments option in the navigation pane. The contents page displays a list of instruments.
3.	Click on the serial number of the instrument whose notes you wish to view or change.
4.	Click on the Notes link in the Quick Links section on the right side of your browser window, or scroll down on the Instrument's page until you reach the Notes section.
5.	The notes appear in the Notes section by the date and time they were entered.
6.	To add a note, click the Edit ( ) button at the top right of the Notes section.
7.	Enter your note and then click the Save button. The Note has been saved. NOTE: You may not change a note once it has been saved.
8.	To remove a note, click the delete ( ) button to the right of the note you want to delete.

Figure 5-14. The Notes Section

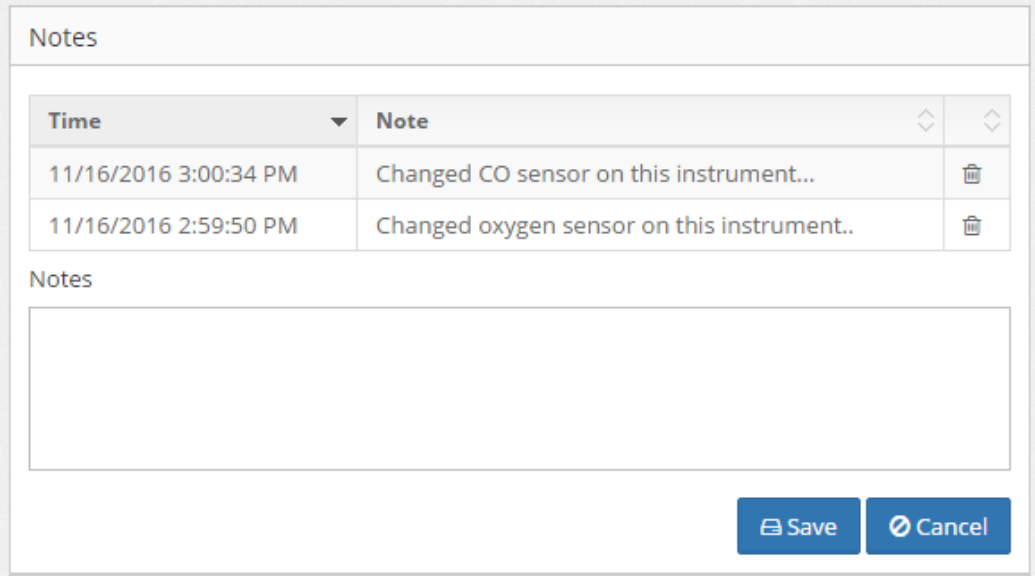


Figure 5-15. Edit Notes Section

5.11.2. Sample Application Using Notes Field – iNet Exchange Instruments

In order to indicate that an instrument is a replacement for another instrument, the following must apply.

- The replacement instrument must be new to the DS2 Database in question. If the replacement instrument is already in the database (even if "removed"), it will not be recognized by the DSX.
- The serial number of the instrument being replaced should be entered into both the Active User and Active Site field of the replacement instrument before it is docked for the first time on the target system.
- For those dockable instruments in which DSX does not support Active User and Active Site, a list containing a single user and a list containing a single site should be entered, with both the user and the site being the serial number of the instrument to be replaced.

  Note: This would normally be done by ISC personnel before the instrument is sent to the customer. The customer system would be considered the target system.

  The replacement serial number can be entered into the user & site field either by DataLink or by manually using the keypad, if the instrument supports keypad entry.

  The replacement serial number should not be added to the user and site fields using DSSAC. Although this may work, it is not a recommended practice because the DSX may at that time trigger the replacement logic.

  For instruments with a list of users and sites, the list must contain only this 1 entry, which is the serial number of the instrument being replaced.

  The serial number must be exactly the same as the number programmed into the replacement instrument, including any dashes or lack of dashes.

The serial number must be exactly the same in both the user and site field.

If all the above conditions are met, the DSX will trigger a replacement algorithm when the replacement instrument is docked for the first time. The new instrument will be given all the settings of the old instrument. The old instrument will be "removed" automatically. The old instrument will then act like any other "removed" instrument. The old instrument will be given a "Note" visible through DSSAC indicating when it was replaced and which instrument replaced it.

Figure 5-16. Sample Note for Exchanging Instruments

The following settings will be copied from the old instrument to the new one:

- Access code
- Backlight setting
- Language
- Location
- Recording interval
- Status
- TWA timebase
- All options
- All users
- All sites.

Copying of sensor settings occurs according to the following rules.

- When the replacement instrument has a sensor of the same sensor type in the same position as the original, the sensor settings will be copied.
- If the replacement instrument is missing 1 or more sensors that were present in the original instrument, the settings will still be copied for the sensors that are present.
- If the replacement instrument has a sensor of a type which was not present in the original instrument, the settings of that sensor will not be changed.
- If the replacement instrument has 1 sensor which is the same type as the original, but it is in a different position, the settings for that sensor will still be copied.
- If the replacement instrument has 2 sensors of same type, 1 in the same position as the original instrument, and 1 in a different position, only the sensor in the correct position will be modified.
- If original instrument has sensor of type A in positions 1 and 2, and replacement instrument has sensor of type A in position 1 only, then only the settings from position 1 should be copied to the replacement instrument.

- The sensor settings that will be copied are as follows:
    - Alarms settings
    - Calibration gas
    - Calibration gas concentration
    - Gas detected
    - Response Factor.

5.12. Instrument –Calibrations

5.12.1. Overview

A calibration is a test that is used to detect inaccuracies in an instrument's sensors and make minor adjustments if necessary. When a calibration is performed on an IDS, the results are sent from the IDS to the docking station system.

Calibration results can be viewed in the DSSAC for an instrument, or for an individual sensor.

To view calibration results for an instrument, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments option in the navigation pane. The contents page displays a list of instruments.
3.	Click on the serial number of the instrument whose calibration information you wish to view.
4.	Click on the Calibrations link in the Quick Links section on the right side of your browser window.
5.	Do one of the following: • Click in the Show Last checkbox and click the Search button to show the results of the last calibration for each of the sensors in the instrument. • Select a Start Date and an End Date, and then click the Search button to show calibration results for a specific date range.
6.	The calibration results appear in the list.

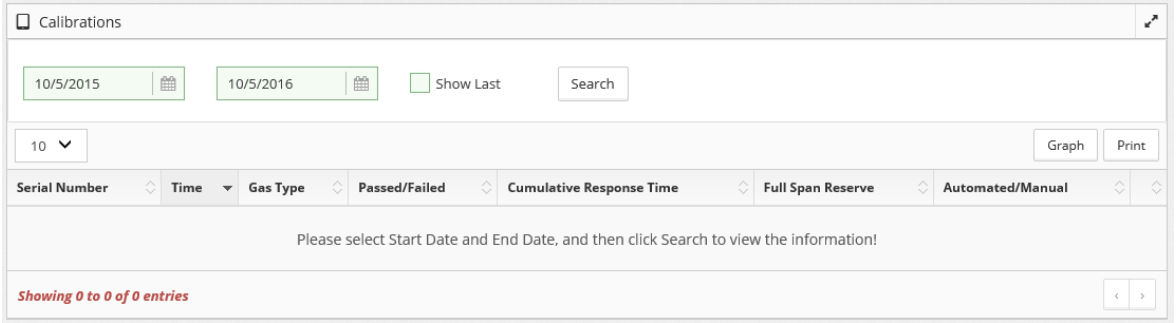


Figure 5-17. Calibrations List Page

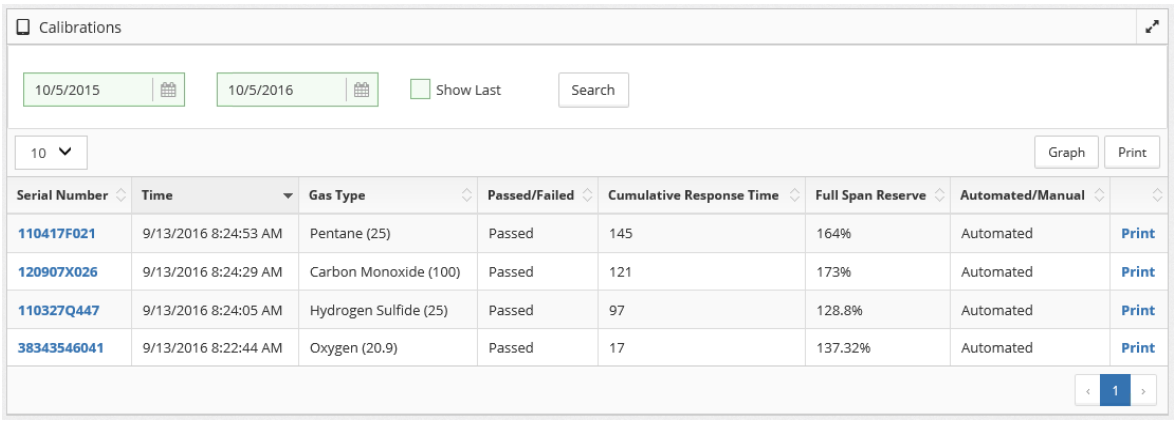


Figure 5-18. Displaying Instrument Calibration Information

The following information is displayed for each calibration:

- **Serial Number -**The serial number of the sensor
- **Time -**The date and time on which the calibration was performed
- **Gas Type -** The type of gas that was used for the calibration
- **Passed/Failed -**Whether or not the sensor passed the calibration. (Failed entries also display in red.) Options are "Passed", "Span failed" (if the instrument times out before the IDS does), and "Failed" (if the IDS times out before the instrument does), although the user should only ever see "Passed" or "Span failed."
- **Cumulative Response Time -** The time that has elapsed from the start of the instrument calibration until the current sensor completes its calibration.
- **Full Span Reserve -** The Full Span Reserve measurement of the sensor at the time of the calibration.
- **Automated/Manual** – Whether the calibration was performed automatically on the docking station, or manually by the user.

To view the details of a calibration, follow the instructions listed below.

Step	Instruction
1.	To view the details of a calibration, click on the serial number of the sensor.
2.	The View Gas Response page appears. See the table below for an explanation of the fields on the View Gas Response page.
3.	Click the browser's back button to return to the Edit Instrument dialog box.

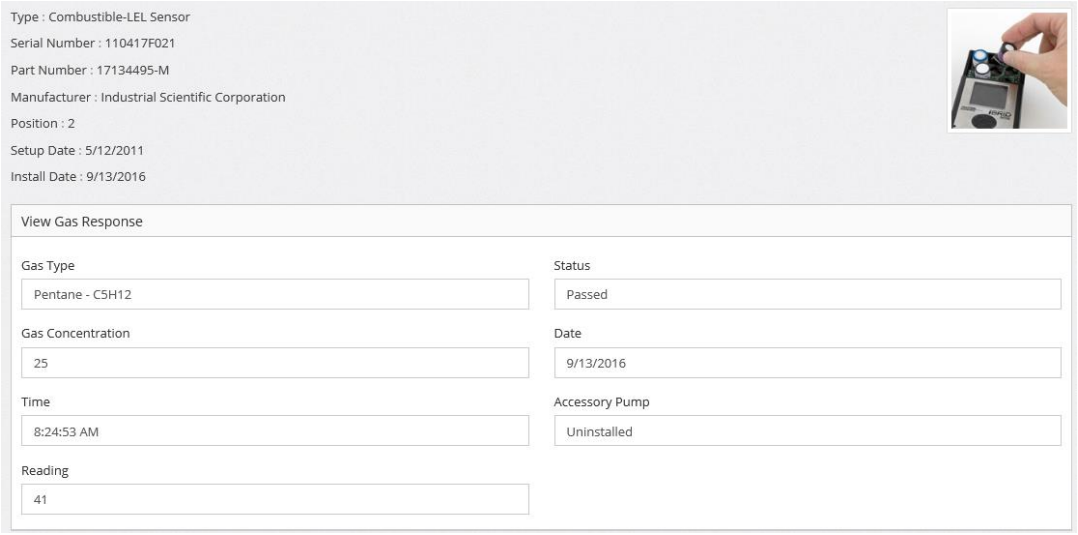


Figure 5-19. The View Gas Response Page (Calibration)

Table 5-9. Fields in the View Gas Response Page

Field	Description
Gas Type	The type of gas that is used to perform the calibration
Status	The status of the calibration. Values can be Passed or Failed, Zero Passed, Zero Failed, or Span Failed.
Gas Concentration	The concentration of gas in the gas cylinder.
Reading	The concentration reading that the instrument took during the calibration.
Date	The date on which the calibration was performed.
Time	The time at which the calibration was performed.
Accessory Pump	Whether or not the instrument has an accessory pump.

You can also view calibration results for each individual sensor in an instrument that contains multiple sensors.

To view calibration results for an individual sensor, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments option in the navigation pane. The contents page displays a list of instruments.
3.	Click on the serial number of the instrument whose calibration information you wish to view.
4.	Click on the Components link in the Quick Links section on the right side of your browser window.
5.	Click on the serial number of the sensor whose calibration results you wish to view.
6.	The View Component page is shown. Click on the Calibrations link in the Quick Links section on the right side of your browser window.
7.	Do one of the following: • Click in the Show Last checkbox, and then click the Search button to show the results of the last calibration. • Select a Start Date and an End Date, and then click the Search button to show calibration results for a specific date range.
8.	The calibration results appear in the list. You can sort the calibration results by clicking on the column heading by which you would like to sort.
9.	To view the details of a calibration, click on the serial number of the sensor in the same row as the time you wish to view.
10.	The View Gas Response page appears. See the table above for an explanation of the fields on the View Gas Response page.

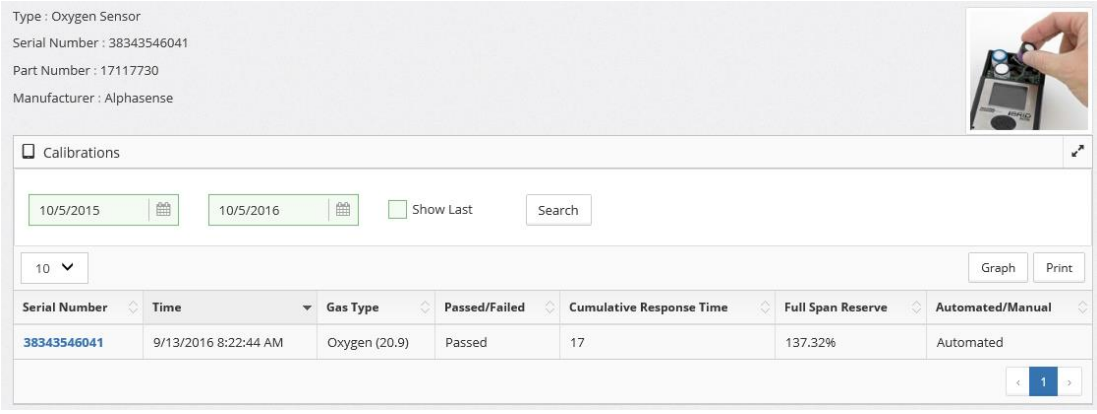


Figure 5-20. Displaying Sensor Calibration Information

5.12.2. Graphing Calibration Data

You can display a graph that shows the results of calibrations over a period of time. The graph can be used to view the trend of sensor degradation over a period of time.

To view a calibration data as a graph, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments option in the navigation pane. The contents page displays a list of instruments.
3.	Click on the serial number of the instrument whose calibration information you wish to view.
4.	Click on the Calibrations link in the Quick Links section on the right side of your browser window.
5.	Select a Start Date and an End Date. You may optionally click the Search button to view the data that you are about to graph.

NOTE: The Graph feature does not necessarily graph the data that is displayed in the list of calibration results on the Calibrations page. It will graph the data that is between the dates selected in the **Start Date** and **End Date** fields.

Step	Instruction
6.	Click the Graph button and select to include or exclude uninstalled sensors.
7.	A graph of the calibration results that were in the selected date range appears in the sensor gas response chart. The graph shows the span reserve values of the sensor(s) over the selected time range.

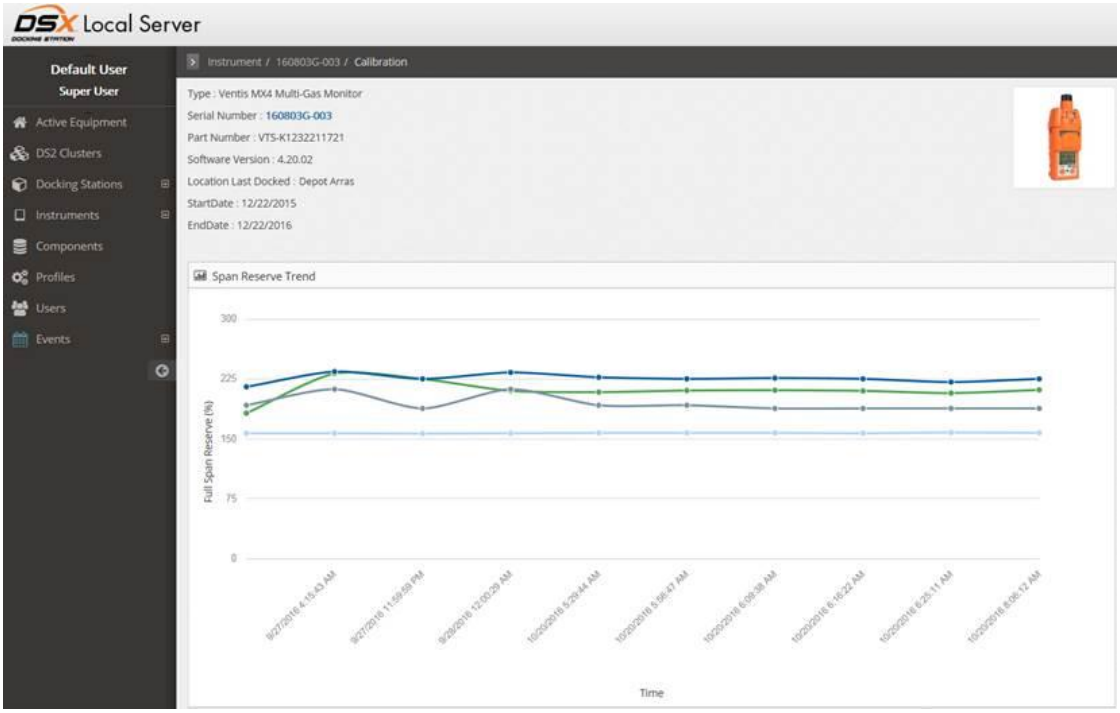


Figure 5-22. Sensor Gas Response Chart

Step	Instruction
8.	Click the serial number of the instrument to return to the instrument page.

5.13. Edit Instrument – Bump Tests

5.13.1. Overview

A bump test, also known as a functional test, is a procedure that verifies that an instrument is able to detect gas. In a bump test, an instrument is exposed to a concentration of gas that is above the lowest alarm setting to verify that the alarm is functioning properly. Results of bump tests performed on an instrument while docked are downloaded to the docking station system, and can be viewed in the DSSAC.

Bump test results can be viewed in the DSSAC for an instrument, or for an individual sensor.

To view bump test results for an instrument, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments option in the navigation pane. The contents page displays a list of instruments.
3.	Click on the serial number of the instrument whose bump test information you wish to view.
4.	Click on the Bump Tests link in the Quick Links section on the right side of your browser window.
5.	Do one of the following: • Click the Show Last checkbox and click the Search button to show the results of the last bump test. • Select a Start Date and an End Date, and then click the Search button to show bump test results for a specific date range.
6.	The bump test results appear in the list.

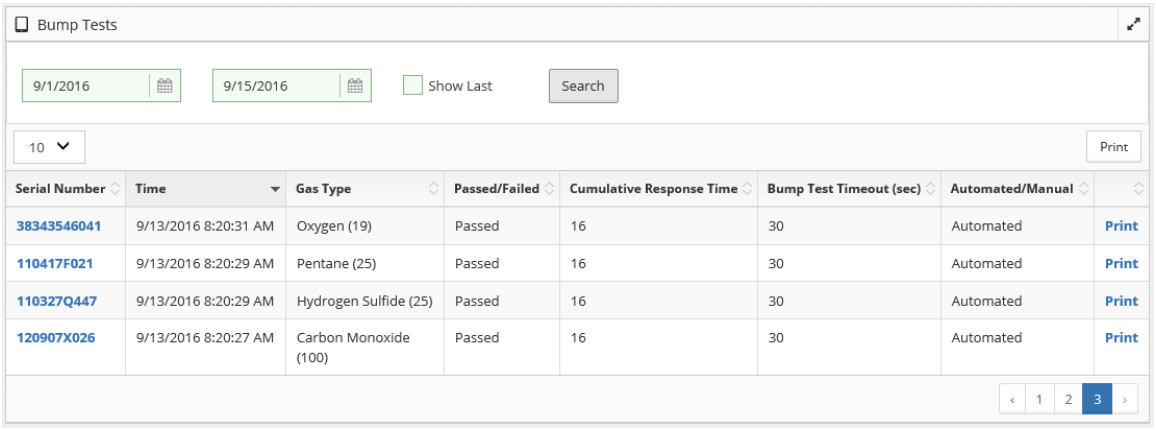


Figure 5-23. Displaying Instrument Bump Test Information

Step	Instruction
7.	You can sort the bump test results by clicking on the column heading by which you would like to sort.

<table>
<tr><th>Step</th><th>Instruction</th></tr>
<tr><td>8.</td><td>The following information is displayed for each sensor bump test.
<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Serial Number</td><td>The serial number of the sensor</td></tr>
<tr><td>Time</td><td>The date and time when the bump test was performed</td></tr>
<tr><td>Gas Type</td><td>The type of gas that was used for the bump test</td></tr>
<tr><td>Passed/Failed</td><td>Whether or not the sensor passed the bump test. (Failed entries also display in red.)</td></tr>
<tr><td>Cumulative Response Time</td><td>The time that has elapsed from the start of the instrument bump test until the current sensor completes its bump test.</td></tr>
<tr><td>Bump Test Timeout</td><td>The bump timeout for the bump record. If no value has been recorded (pre-5.0 docking stations), the column will display “N/A”, since some older docking stations bump with a timeout of two minutes, and others at 90 seconds.</td></tr>
<tr><td>Automated/Manual</td><td>Whether the calibration was performed automatically on the docking station or manually by the user.</td></tr>
</table></td></tr>
<tr><td>9.</td><td>To view the details of a bump test, click on the serial number of the sensor in the list.</td></tr>
<tr><td>10.</td><td>The View Gas Response page appears. See the table below for an explanation of the fields in the Gas Responses page.</td></tr>
</table>

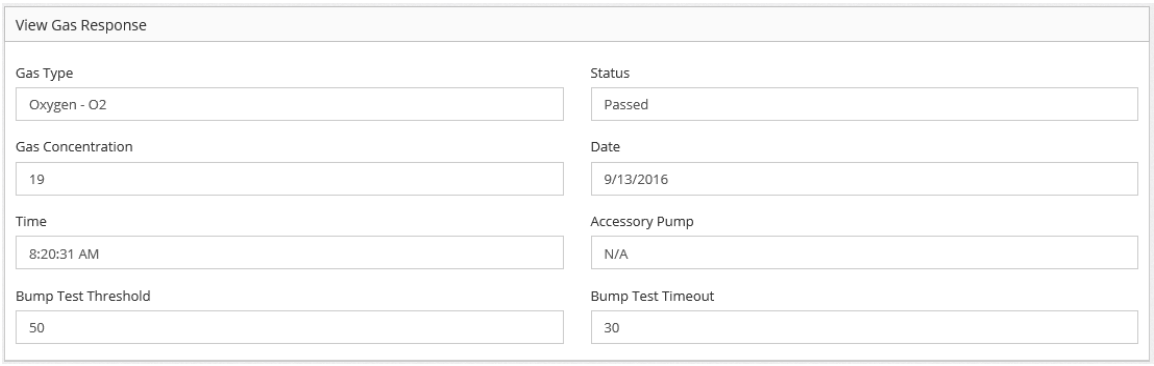


Figure 5-24. The View Gas Response Page (Bump Test)

Table 5-10. Fields in the View Gas Response Page

Field	Description
Gas Type	The type of gas that is used to perform the bump test.
Status	The status of the bump test. Values can be Passed. Failed, Failed Low, or Failed High.
Gas Concentration	The concentration of gas in the gas cylinder.
Date	The date on which the bump test was performed.
Time	The time at which the bump test was performed.
Accessory Pump	Whether or not the instrument has an accessory pump.
Bump Test Threshold	Bump threshold of instrument.
Bump Test Timeout	Bump timeout of instrument.

You can also view bump test results for each individual sensor in an instrument that contains multiple sensors. To view bump test results for an individual sensor, follow the steps listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments option in the navigation pane. The contents page displays a list of instruments.
3.	Click on the serial number of the instrument whose bump test information you wish to view.
4.	Click on the Components link in the Quick Links section on the right side of your browser window.
5.	Click on the serial number of the sensor whose bump test results you wish to view.
6.	The View Component page is shown. Click on the Bump Tests link in the Quick Links section on the right side of your browser window.
7.	Do one of the following: • Click the Show Last checkbox and click the Search button to show the results of the last bump test. • Select a Start Date and an End Date, and then click the Search button to show bump test results for a specific date range.
8.	The bump test results appear in the list. You can sort the bump test results by clicking on the column heading by which you would like to sort.
9.	To view the details of a bump test, click on the serial number of the sensor in the same row as the time you wish to view.

Step	Instruction
10.	The View Gas Response page appears. See the table above for an explanation of the fields on the View Gas Response page.

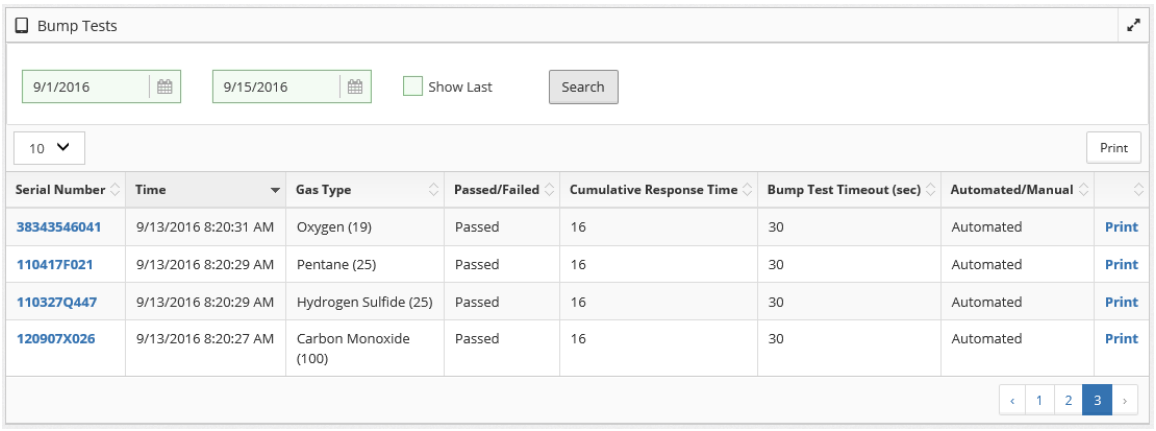


Figure 5-25. Sample Bump Test Data

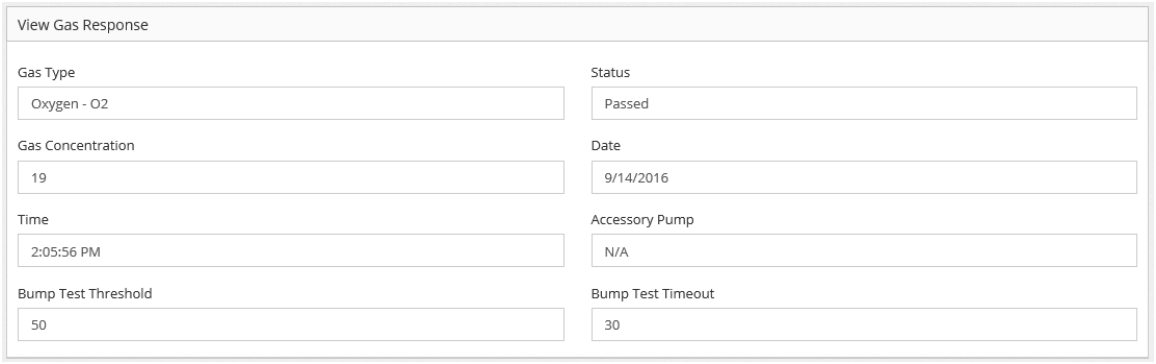


Figure 5-26. View Gas Response Page

NOTE: In the event of a failed sensor (CL2, HCL, or NH3), the docking station ignores any large reading that are above the sensor's maximum reading. In addition, the docking station ignores any negative readings whose absolute value is larger than the sensor's maximum reading.

5.14. Instrument –Datalog

5.14.1. Overview

Datalog data is information that is recorded during an instrument's normal operation. This data are used to compute the STEL and TWA values over a period of time. For compatible instruments, datalog data are downloaded into the docking station system and can be viewed using the DSSAC.

To view datalog session information, follow the steps listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments option in the navigation pane. The contents page displays a list of instruments.
3.	Click on the serial number of the instrument whose datalog information you wish to view.
4.	Click on the Datalog link in the Quick Links section on the right side of your browser window.
5.	The Datalog page appears. See Table 5-10 for Fields of the Datalog Page.
6.	Select a Start Date and an End Date, and then click the Search button to show datalog information for a specific date range.
7.	The datalog session results appear in the list.
8.	To view the details of a datalog session, click on the session date and time field in the list.
10.	The Datalog Session page appears. See Table 5-10 for an explanation of the fields on the Datalog Session page.

NOTE: Datalog session numbers are uploaded to iNet as part of datalog uploads. Refer to the iNet section for more information.

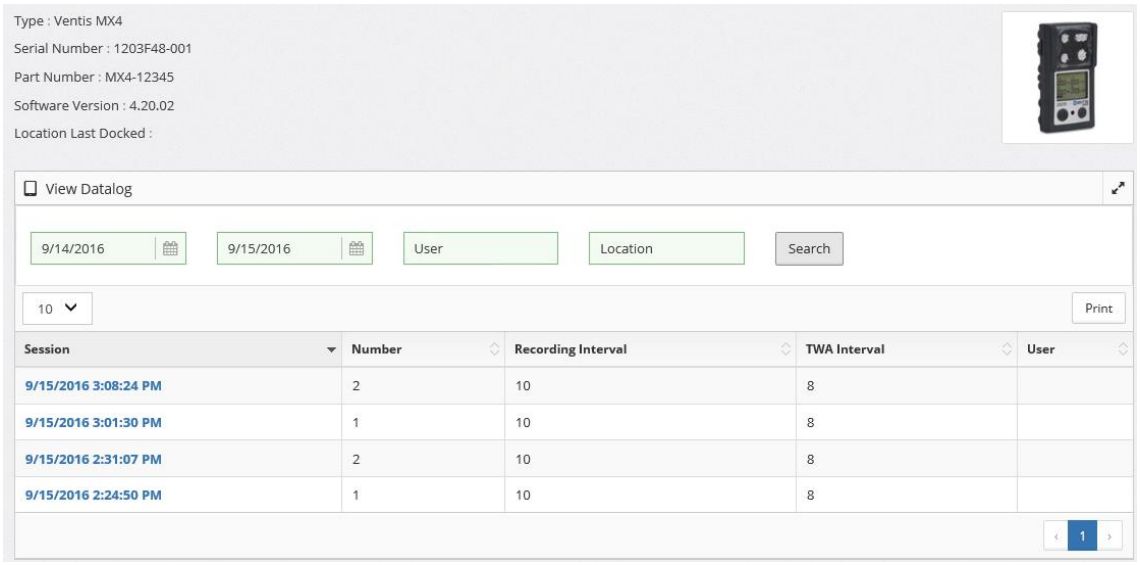


Figure 5-28. Datalog Page

Table 5-10. Fields of the Datalog Page

Field	Description
Start Date and End Date	These fields define selection criteria for session data. Select a **Start Date** and an **End Date**, and then click the **Search** button to show datalog data sessions for the specified date range in the **Session Column**.
User and Location	These fields are used to filter session data by user and location. Entering nothing in the User and Location fields and pressing the Search button will result in a search by Start Date and End Date only.
Session	The start date and time of the datalog session.
Number	The number of the datalog session.
Recording Interval	The recording interval set on the instrument at the time the datalog session was recorded.
TWA Interval	The TWA interval set on the instrument at the time the datalog session was recorded.
User	The active user set on the instrument at the time the datalog session was recorded.

NOTE: Search filtering does implicit wildcarding on the entered user and location fields. For example, if the user types in “smith”, the filtering will show both “Joe Smith” and “Smithers” records.

NOTE: If both a user and location are specified, the search will logically “AND” these fields. That is, it will find all matches that have both the specified user and the specified location.

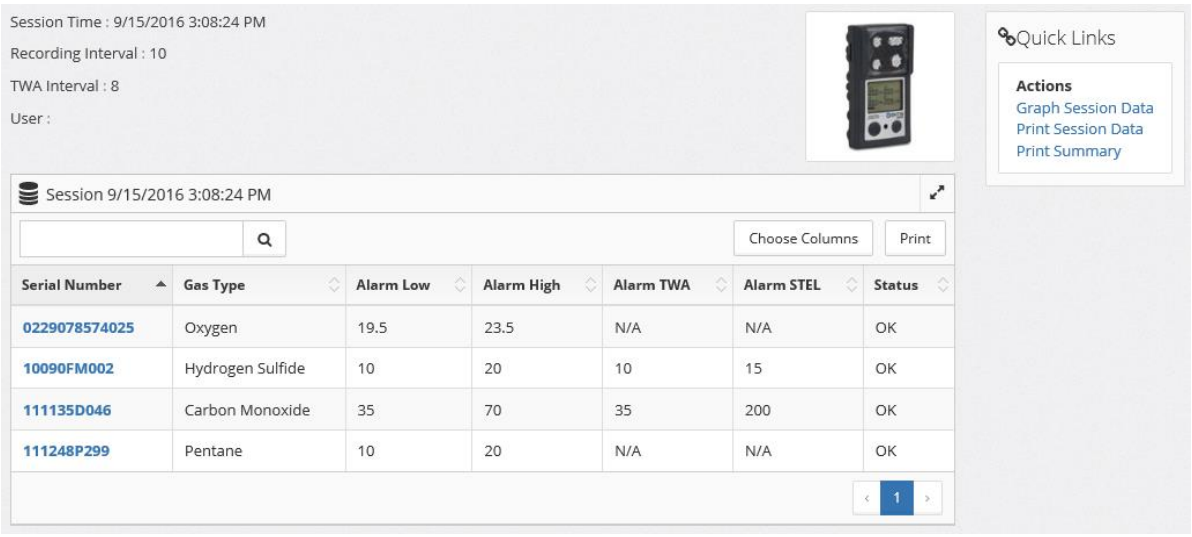


Figure 5-29. Datalog Session Page

Table 5-11. Fields of the Datalog Session Page

Field	Description
Serial Number	This column lists the serial number of the sensor.
Gas Type	This column lists the type of gas that the sensor was detecting. It is not the type of sensor. For example, if a PID sensor is configured to use a "Hexane" response factor, then a gas type name of "Hexane" will appear in this column.
Alarm Low	The gas reading that triggers a low alarm.
Alarm High	The gas reading that triggers a high alarm.
Alarm TWA	The threshold that a Time Weighted Average (TWA) reading must cross to trigger an alarm.
Alarm STEL	The threshold that a Short Term Exposure Limit (STEL) reading must cross to trigger an alarm.
Status	This column lists the state of the sensor when the session was recorded. • States are any combination of the following: "**Disabled**", "**Zero failed**", "**Bump failed**" or "**Calibration failed**". The sensor will have no readings associated with it in the session if it has any of these three states. A sensor may have more than one state, separated by commas; e.g. "**Disabled, Zero failed**".
Comments	The Comments window displays any comments related to the session you are currently viewing. To edit, add, or delete comments click the Edit ( ) button. Once you are finished with the comment, you have the option to Save or Cancel.

Field	Description
Actions	Available Actions within an instrument's Datalog Session include "Graph Session Data", "Print Session Data", and "Print Summary". You can access each Action by clicking on the link in the Quick Links box on the right side of your browser window.

NOTE: If a sensor was Disabled, or was in Cal Failure or Zero Failure mode during recording of the session, then the sensor information appears in red in the session window.

NOTE: If session contains a PID sensor that was using a Custom Response Factor (CRF) at the time of datalog recording, then that CRF is displayed in the DSSAC. The CRFs name and value are displayed in the column that normally displays the gas type for the sensor. For example, instead of "02 – Oxygen", the column would contain something like "My Custom RF – 1.01".

NOTE: Users are able to select multiple sensors on the Datalog Session page.

NOTE: If two sensors are installed in the Tango TX1 when the data are logged, the docking station system will download data for three sensors. Data from the installed sensors are logged and downloaded as sensor 1 and sensor 2 data. Data that are logged and downloaded as sensor 3 (or VIRTUAL) are algorithm-calculated values that are based on sensor 1 and sensor 2 data. DSSAC displays only the VIRTUAL data.

If only one sensor is installed or working when the data are logged, the downloaded and DSSAC-displayed data will contain only information for that sensor.

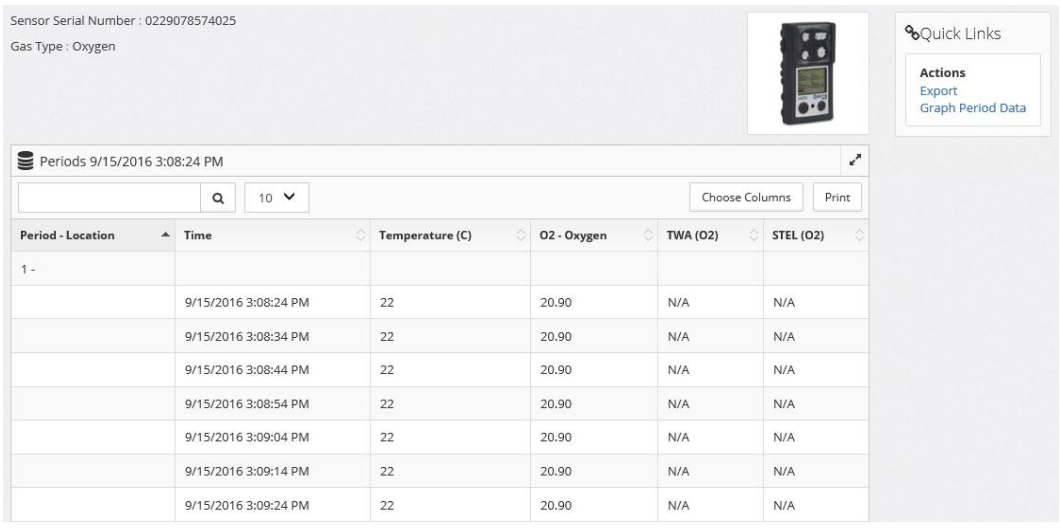


Figure 5-30. Datalog Periods Page

Table 5-12. Fields of the Datalog Periods Page

Field	Description
Period – Location	**The period and site, if any, for which the readings were taken.**
Time	The time of the reading.
Temperature (C)	The temperature (in Celsius) at the time of the reading.
(Gas)	The actual gas reading that was taken by the instrument.
TWA	The Time Weighted Average (TWA) value at the time of the reading.
STEL	The Short Term Exposure Limit (STEL) value at the time of the reading.
Actions	Available Actions within an instrument's Datalog Period page include "Export" and "Graph Period Data". You can access each Action by clicking on the link in the Quick Links section on the right side of your browser window.

Table 5-13. Elements of the Actions Context Menu

Item	Description
Show Selected Components	Causes the sessions window to change to the session details window. If the datalog data has a session number, this number appears above the session date as shown in **Error! Reference source not found.**5. Selecting one or more sensors will enable this option on the context menu. Selecting this option or clicking on any single selection will display the Session/Data page.
Find User/Location	Presents the user with the Find form which is used to filter session data by user, location, and date. For additional information, refer to the Find User/Location section that follows.
View/Edit Comments	Displays a form in which comments for the selected session can be viewed, entered and/or edited. It is disabled until a session is selected.
Graph Session Data	Presents a graph of the selected session's data. The graph displays data from all of the sensors in the session.
Graph Period Data	Presents a graph of the selected period's data. The graph displays data from all of the periods in the session.
Print Data	Prints a Detail Report of the selected session data. This option is disabled until a session is selected.
Print Summary	Prints a Datalog Summary Report of the selected session data. This option is disabled until a session is selected.
Export	The Export option exports all data for the selected sensors. This option is disabled until one or more sensors are selected.

5.14.2. Graph Session Data

You can display a graph that shows datalog data over a period of time. There are two ways to graph datalog data: you can display a graph of an entire datalog session (**Graph Session Data**), or you can graph each period within the session for a particular sensor (**Graph Period Data**).

The **Graph Session Data** link under Quick Links on the Datalog Session page displays the Datalog graph shown below. In the header of the graph, the datalog graph contains the instrument serial number, and the session date. The legend of the graph contains the gas types.

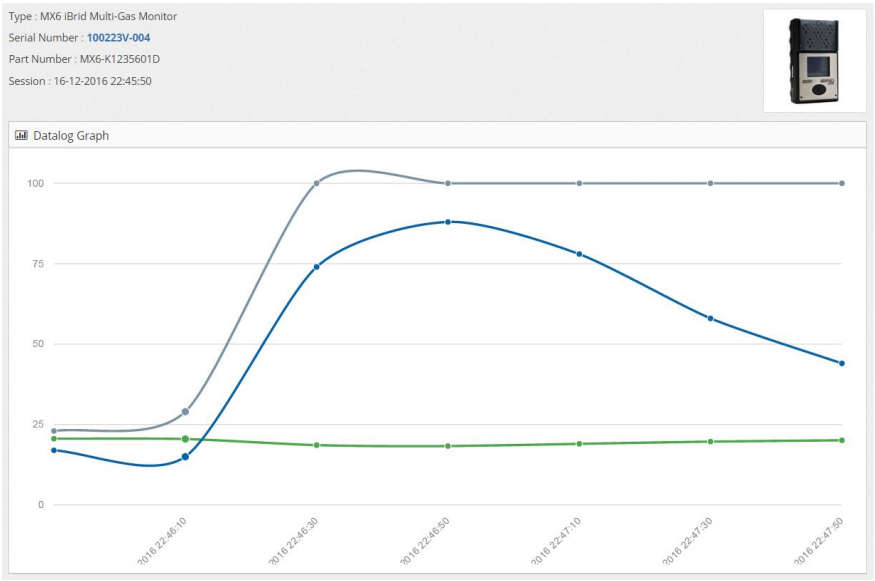


Figure 5-31. Sample Datalog Session Graph (No User Name Associated)

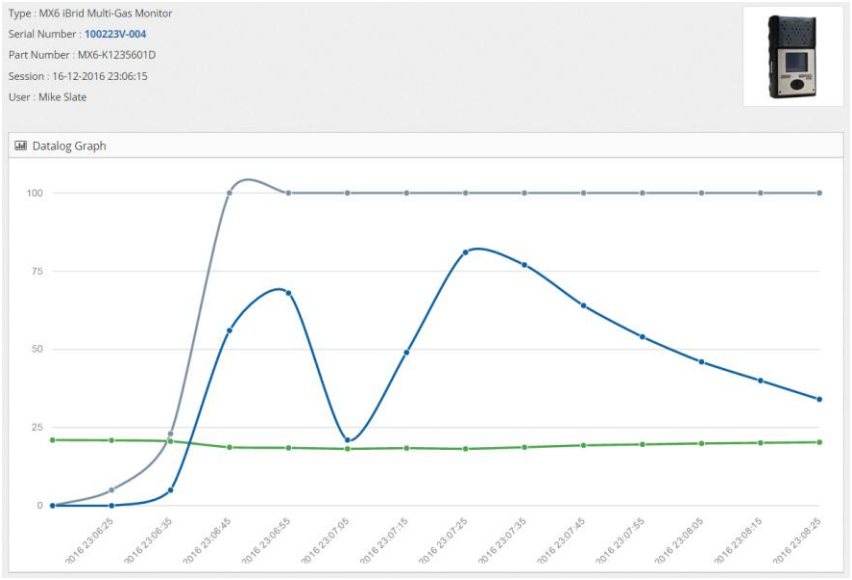
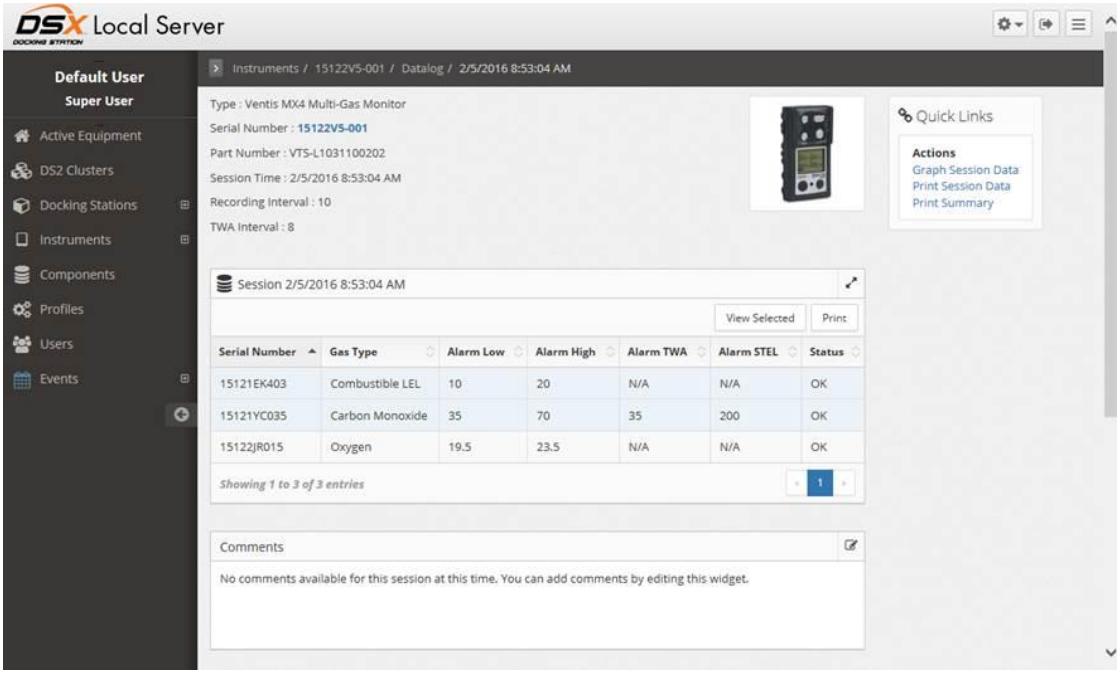


Figure 5-32. Sample Datalog Period Graph (With an Associated User Name)

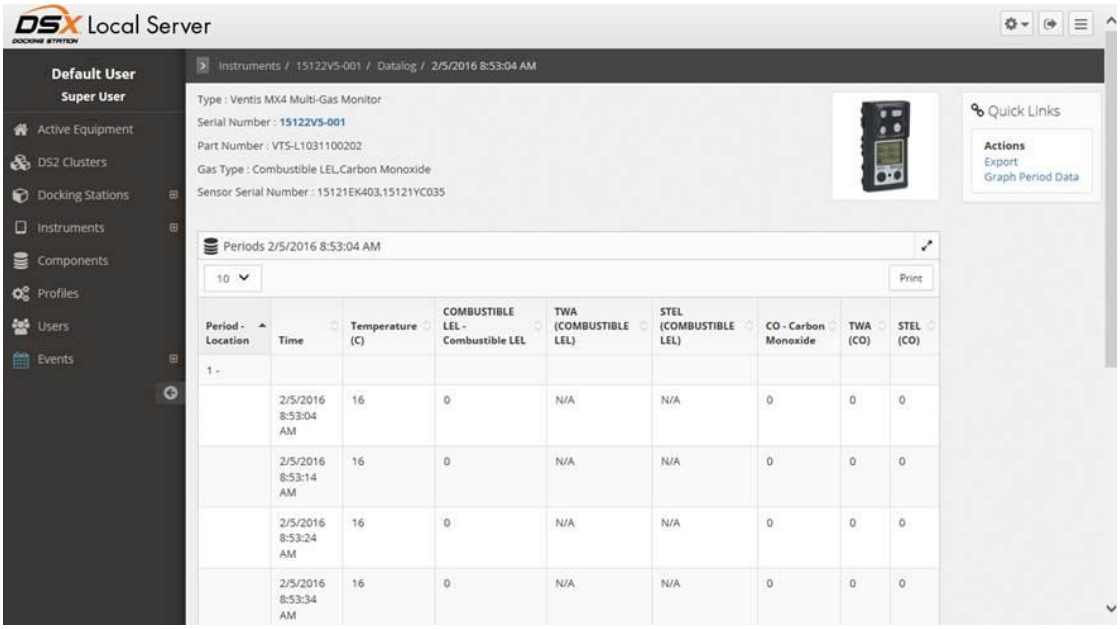
5.14.3. Graph Period Data

You can display a graph that shows datalog data over a period of time. There are two ways to graph datalog data: you can display a graph of an entire datalog session (**Graph Session Data**), or you can graph each period within the session for a particular sensor (**Graph Period Data**).

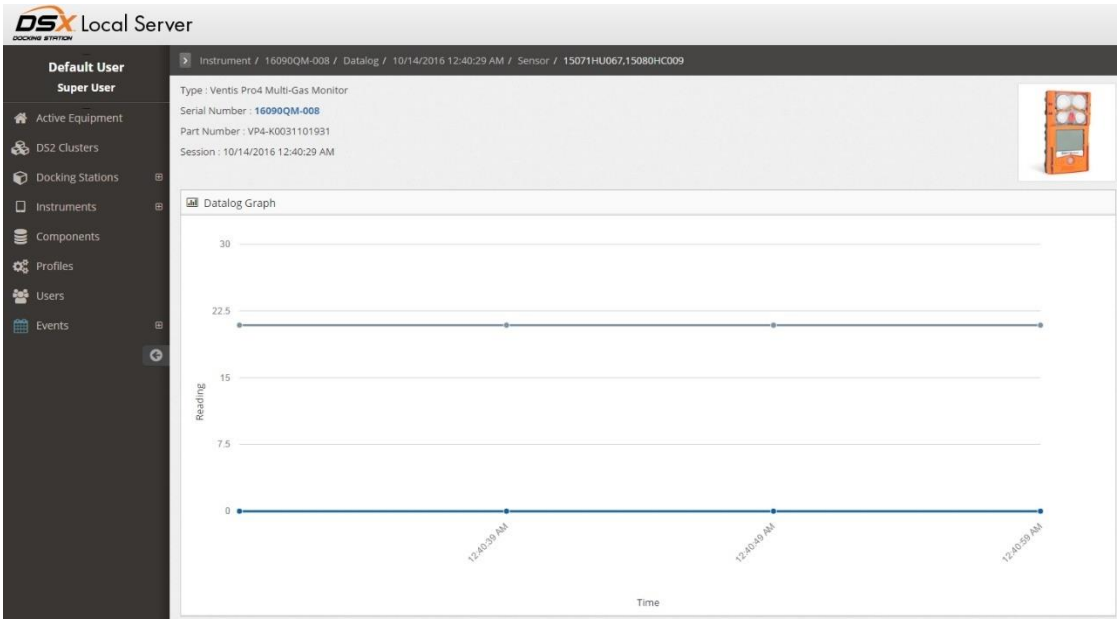
The **Graph Period Data** link Quick Links on the Datalog Period page displays the TWA/STEL graph. You can select multiple sensor session(s) on the Datalog Session Screen by clicking on the rows you would like to graph. The rows you have selected will be highlighted blue. Clicking the row again will toggle the selection and the row will no longer be blue, to indicate that it is no longer selected.



Then click on the “View Selected” button above the grid.



Then click on the "Graph Period Data" link under the Quick Links section and all sensors selected on the previous screen will be graphed.



Information recorded for each sensor is displayed. To return to the previous page, use the back button. The following information is displayed for each sensor.

Table 5-13. Descriptions of Displayed Sensor Information

Item	Description
Serial Number	The serial number of the sensor
Gas Type	The type of gas that was being monitored.
Alarm Low	The Low Alarm setting on the sensor for the session.
Alarm High	The High Alarm setting on the sensor for the session.
Alarm TWA	The TWA Alarm setting on the sensor for the session.
Alarm STEL	The STEL Alarm setting on the sensor for the session.
Status	Used to identify the status of the instrument.

NOTE: Selecting the sensor session row(s) of the grid and then clicking the "View Selected" button displays the Datalog Period Data page.

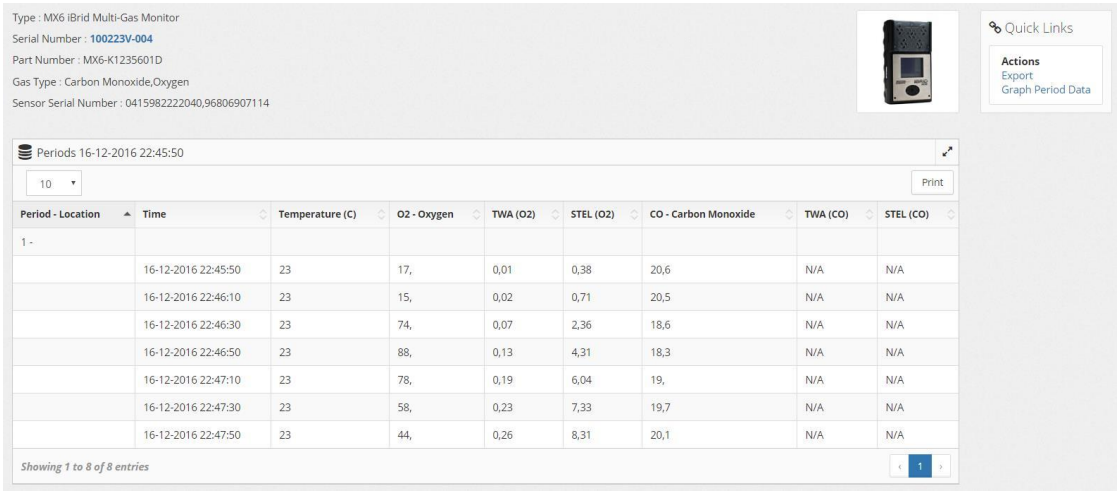


Figure 5-45. Period Data and Sensor List

The following period information is displayed.

Table 5-14. Descriptions of Displayed Period Information

Item	Description
Period-Location	The period and site, if any, for which the readings were taken.
Time	The time of the reading.
Temperature (C)	The temperature (in Celsius) at the time of the reading.
Reading	The actual reading that was taken by the instrument.
TWA	The Time Weighed Average (TWA) value at the time of the reading.
STEL	The Short Term Exposure Limit (STEL) value at the time of the reading.

Clicking the "Graph Period Data" link from the Quick links section on the right side of your browser window displays a graph for the selected period. To select a single period, click anywhere in any row belonging to that period. If no period is selected, then all periods in the current session will be graphed for all the sensors displayed on the current screen.

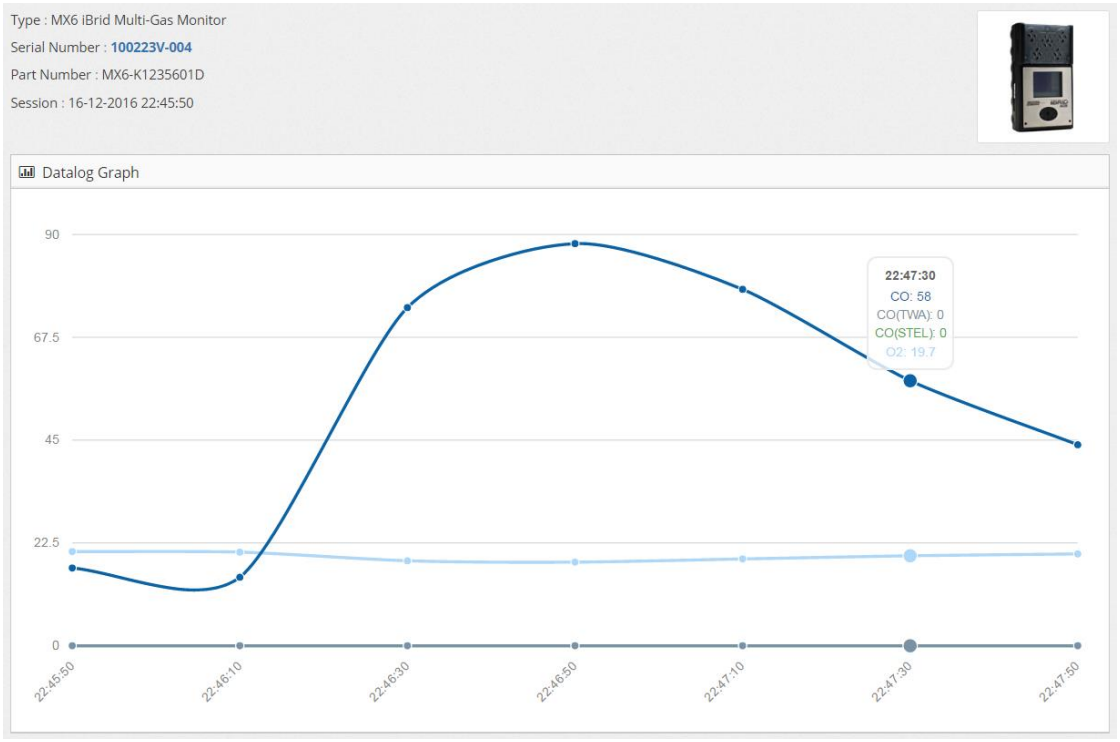
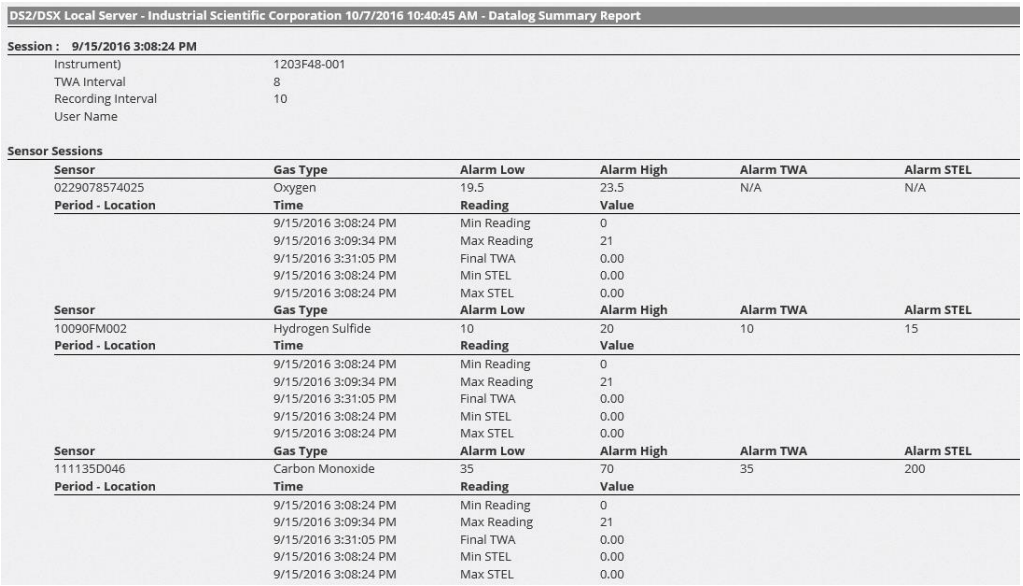


Figure 5-36. TWA/STEL Graph

5.14.4. Print Summary

The Print Summary link under Quick Links on the Datalog Session page prints the Datalog report illustrated below.



DS2/DSX Local Server - Industrial Scientific Corporation 10/7/2016 10:40:45 AM - Datalog Summary Report

Session : 9/15/2016 3:08:24 PM

Instrument)	1203F48-001
TWA Interval	8
Recording Interval	10
User Name	

Sensor Sessions

Sensor	Gas Type	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
0229078574025	Oxygen	19.5	23.5	N/A	N/A
Period - Location	**Time**	**Reading**	**Value**		
	9/15/2016 3:08:24 PM	Min Reading	0		
	9/15/2016 3:09:34 PM	Max Reading	21		
	9/15/2016 3:31:05 PM	Final TWA	0.00		
	9/15/2016 3:08:24 PM	Min STEL	0.00		
	9/15/2016 3:08:24 PM	Max STEL	0.00		
Sensor	**Gas Type**	**Alarm Low**	**Alarm High**	**Alarm TWA**	**Alarm STEL**
10090FM002	Hydrogen Sulfide	10	20	10	15
Period - Location	**Time**	**Reading**	**Value**		
	9/15/2016 3:08:24 PM	Min Reading	0		
	9/15/2016 3:09:34 PM	Max Reading	21		
	9/15/2016 3:31:05 PM	Final TWA	0.00		
	9/15/2016 3:08:24 PM	Min STEL	0.00		
	9/15/2016 3:08:24 PM	Max STEL	0.00		
Sensor	**Gas Type**	**Alarm Low**	**Alarm High**	**Alarm TWA**	**Alarm STEL**
111135D046	Carbon Monoxide	35	70	35	200
Period - Location	**Time**	**Reading**	**Value**		
	9/15/2016 3:08:24 PM	Min Reading	0		
	9/15/2016 3:09:34 PM	Max Reading	21		
	9/15/2016 3:31:05 PM	Final TWA	0.00		
	9/15/2016 3:08:24 PM	Min STEL	0.00		
	9/15/2016 3:08:24 PM	Max STEL	0.00		

Figure 5-37. Sample Datalog Summary Report

5.14.5. Export

The Export link under Quick Links on the Datalog Period page is used to send sensor datalog information to an external file in comma separated value (CSV) format.

5.15. Instrument – Alarm Events

The Alarms page displays alarm events that were downloaded from the instrument during an Alarm Events Download event.

To view Latest Alarm Events, follow the steps listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments option in the navigation pane. The contents page displays a list of instruments.
3.	Click on the serial number of the instrument whose Alarm Events information you wish to view.
4.	Click on the Alarms link in the Quick Links section on the right side of your browser window.
5.	The Alarms page appears. See Table 5-16 for Fields of the Latest Alarm Events page.

Step	Instruction
6.	To view the alarm history for a particular sensor, click on “History” link in the row of the sensor for which you wish to see the information.
7.	The Alarm History page appears. See Table 5-17 for an explanation of the fields on the Alarm History page.

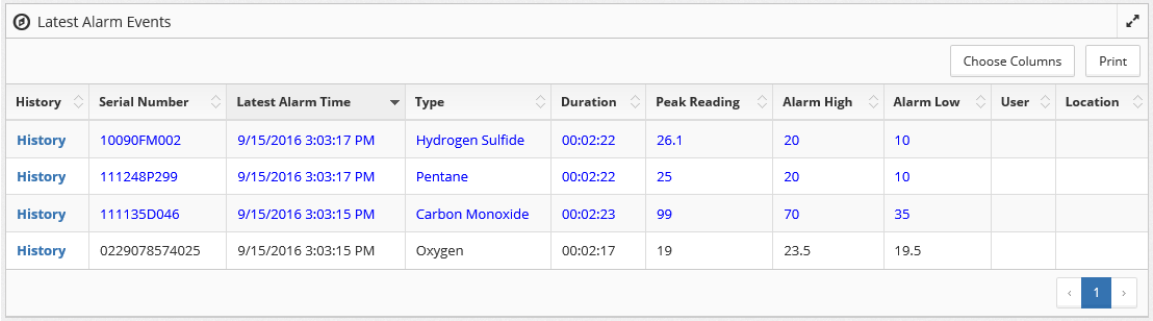


Figure 5-39. Instruments – Latest Alarm Events

The contents of the Latest Alarm Events page are explained below.

Table 5-15. Fields of the Latest Alarm Events Page

Field	Description
History	When you click on the “History” link, it takes you to the Alarm History page. See Table 5-17 for an explanation of the fields on the Alarm History page.
Serial Number	Serial number of the sensor for which Alarm Events are shown.
Latest Alarm Time	Date and time of the last alarm recorded.
Type	Displays the sensor type.
Duration	Displays the duration of the particular alarm event you are viewing.
Peak Reading	
Alarm High	The gas reading that triggers a high alarm.
Alarm Low	The gas reading that triggers a low alarm.
User	The active user set on the instrument at the time the alarm event was recorded.
Location	Location of the instrument during the alarm event.

Field	Description
Actions	Available Actions within an instrument's Datalog Period page include "Export" and "Graph Period Data". You can access each Action by clicking on the link in the Quick Links section on the right side of your browser window.

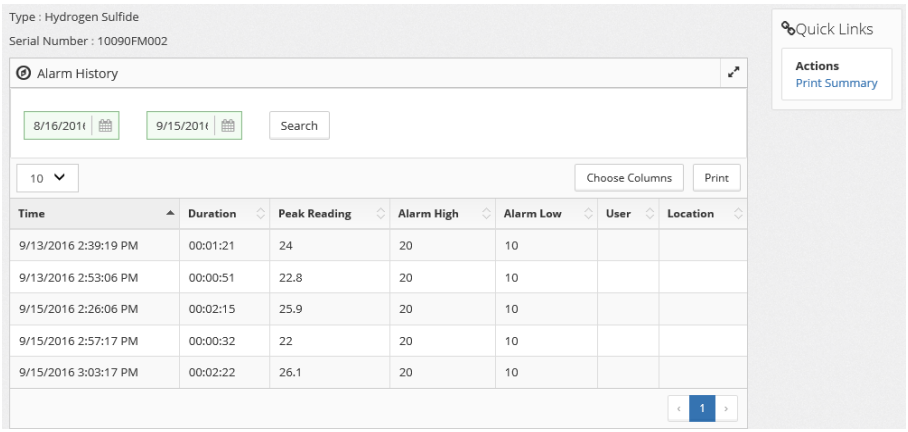


Figure 5-40. Alarm History Page

Table 5-17. Fields of the Alarm History Page

Fields	Description
Start Date and End Date	These fields define selection criteria for alarms. Select a Start Date and an End Date, and then click the Search button to show alarm information for the specified date range.
Alarm History Window	Columns of the Alarm History List include the time the alarm event was reported, the duration of the alarm event, peak, high, and low alarm values, and user and location of instrument (if applicable).
Action	The available Action within an instrument's Alarm History page is "Print Summary". You can access this Action by clicking on the link in the Quick Links section on the right side of your browser window.

NOTE: If two sensors are installed in the Tango TX1 when the data are logged, the docking station system will download data for three sensors. Data from the installed sensors are logged and downloaded as sensor 1 and sensor 2. Data that are logged and downloaded as sensor 3 (or VIRTUAL) are algorithm-calculated values that are based on sensor 1 and sensor 2 data. DSSAC displays only the VIRTUAL data.

If only one sensor is installed or working when the data are logged, the downloaded and DSSAC-displayed data will contain only information for that sensor.

5.15.1. Fields of the Alarm Action Messages Section

For Ventis Pro4, Ventis Pro5, and SafeCore Module, alarms can have alarm action messages. Alarm action messages can be assigned for each sensor type and for each event type (gas alert warning, gas low alarm, gas high alarm, TWA alarm, and STEL alarm).

To access the Alarm Action Messages section, follow the steps listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments option in the navigation pane. The contents page displays a list of instruments.
3.	Click on the serial number of the instrument whose Alarm Action messages information you wish to view. (Please remember that Alarm Action messages only apply to Ventis Pro Series and SafeCore Module.)
4.	Click on the Alarm Action Messages link in the Quick Links section on the right side of your browser window.
5.	To add or change messages, click on the Edit ( ) button
6.	If you made any changes that you would like to save, click the Save button. Otherwise, click the Cancel button.

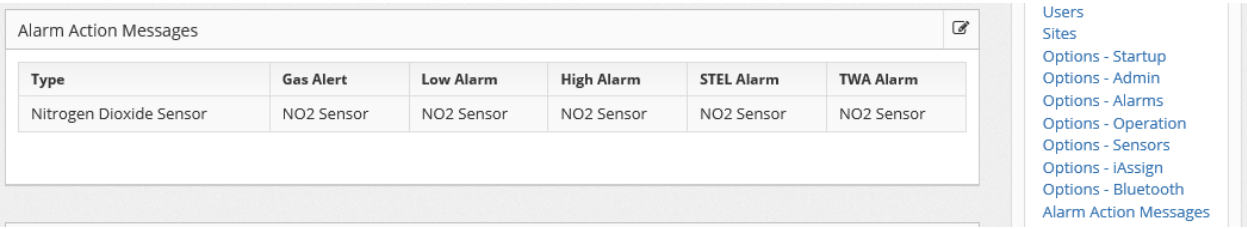


Figure 5-39.1. Instruments – Alarm Action Messages

5.16. Instrument – Manage Events

The Manage Events page displays the journal events for the current instrument.

To access the Manage Events page, follow the steps listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments option in the navigation pane. The contents page displays a list of instruments.
3.	Click on the serial number of the instrument whose Manage Events section you wish to access.
4.	Click on the Manage Events link in the Quick Links section on the right side of your browser window.

Step	Instruction
5.	To add or change messages, click on the Edit ( ) button
6.	If you made any changes that you would like to save, click the Save button. Otherwise, click the Cancel button.

The Manage Events page has a Journal Entries list and a Run Event button. The contents of this page are explained below.

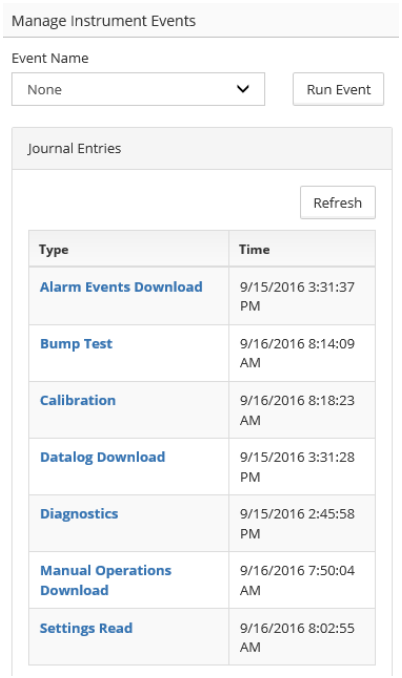


Figure 5-40. Instruments – Manage Events Page

Table 5-16. Fields of the Manage (Instrument) Events Page

Field	Description
Event Name	The Event Name drop-down lists the available events for that instrument. It also includes “None”, which is selected by default.

Field	Description
Run Event	The Run Event button is disabled while "None" is the current selection of the Event Name drop-down. Selecting an Event Name other than "None" enables the button. Pressing the Run Event button after an event name is selected removes the selected event from the Journal Entry list view and Event Name dropdown and then sets the currently selected Event Name to "None". If the user attempts to force an event under one of the conditions listed below, the corresponding error message will display, and the forced event will not take place: - "Instrument failed its last calibration" • "Docking Station unavailable due to leak detected" • "Instrument currently not docked" Forced events also will not occur if the matching Global Event is currently disabled.
Refresh List	The Refresh button forces the DSSAC to re-query the journal entries for the current instrument and updates the Journal Entries list.
Journal Entries	The Journal Entries list displays the journal Type and Time for all journal entries for the current instrument. The list is sorted alphabetically by journal type. Clicking on the type of any journal entry opens the Event Journal Details page.  Event Journal Details Docking Station: Serial Number: 15072E1-001 Type: Ventis MX4 Part Number: 1810-9327 Gas Ports: 6 Job Number: 15072 Setup Date: 10/23/2015 12:00 AM Setup Technician: SQA Hardware Version: Software Version: 9.608 MAC Address: 00:0B:D8:00:D1:76 IP Address: 192.168.5.79 Language: English Menu Lock: Off Server Address: 192.168.5.20 Use Audible Alarm: On DHCP Enabled: On Default Gateway: 192.168.5.1 Subnet Mask: 255.255.255.0 MAC Address: 00:0B:D8:00:D1:76 Instrument: Serial Number: 1203F48-001 Type: Ventis MX4 Multi-Gas Monitor Part Number: MX4-12345 Software Version: 4.20.02 Hardware Version: 1 Language: English Quick Links Actions Print Journal **Figure 5-41. Event Journal Details Page**

NOTE: The docking station system will download bump test data for Tango TX1 physical sensors only. There will be no data logged or DSSAC-displayed for sensor 3 (VIRTUAL).

5.17. Special Features

5.17.1. Removing an Instrument

You can remove an instrument from the system using the DSSAC. However, if you remove a docking station compatible instrument, the system will detect it the next time it is docked, and re-add it to the system.

To remove an instrument, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments option in the navigation pane. The contents page displays a list of instruments.
3.	Click on the serial number of the instrument you would like to remove.
4.	Click on "Remove From System" in the Quick Links section on the right side of your browser window.
5.	A confirmation prompt appears. Select "Yes" to remove the instrument. If you select "No", the instrument is not removed.

5.17.2. Manual Instrument Registration

Instruments typically are registered into the docking station system automatically. However, in some cases system administrators wish to prevent instruments from coming into the system automatically. This may be the case for example, when an instrument user from outside the system wishes to use the docking station to calibrate his instrument. The Manual Registration feature is designed to handle this case.

To use the Manual Registration feature, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Settings ( ) icon in the top right of your browser window. Click on the View option in the main tool bar. Select Configuration from the context menu.
3.	Click on the DSS Configuration link. This is not accessible to all users.
4.	Click on "Registration" in the Quick Links section on the right side of your browser window, then click on the Edit ( ) button of the Registration section.
5.	Select the Enforce Manual Registration radio button, then click Save • Once the manual registration option is selected, users will be informed on the docking station display that their instrument is unregistered and should contact the system administrator. **Unregistered Instrument Contact Administrator** **SN: XXXXXXX-XXX**
6.	When the Enforce Manual Registration feature is selected and Unregistered instruments list will now appear under the Instruments heading in the navigation pane. Right clicking on one or more of the options in the "Unregistered" list on the contents page will provide the option to register previously unwanted instruments into the system.

Figure 5-43. Instrument Registration

5.17.2. Using the Advanced Instrument Find Feature

The Find Instrument feature allows you to display instruments that meet certain criteria, such as those instruments that are overdue for calibration, are due for calibration by a particular date, or failed their last calibration. You can also view the instruments meeting the search criteria in a printer friendly format.

To use the Advanced Instrument Find feature, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments option in the navigation pane.
3.	Click the (▾) button to the right of the search box.
4.	Select one of the options below. • Due for Calibration by – If you select this option, you must also provide a date. This option displays instruments that are due for a calibration by the specified date. • Marginal Calibration – Select this option to view all instruments for which the last calibration was marginal. • Failed Last Calibration – Select this option to view all instruments for which the last calibration failed. • Overdue for bump test – Select this option to view all instruments for which the bump test is overdue based on today's date.

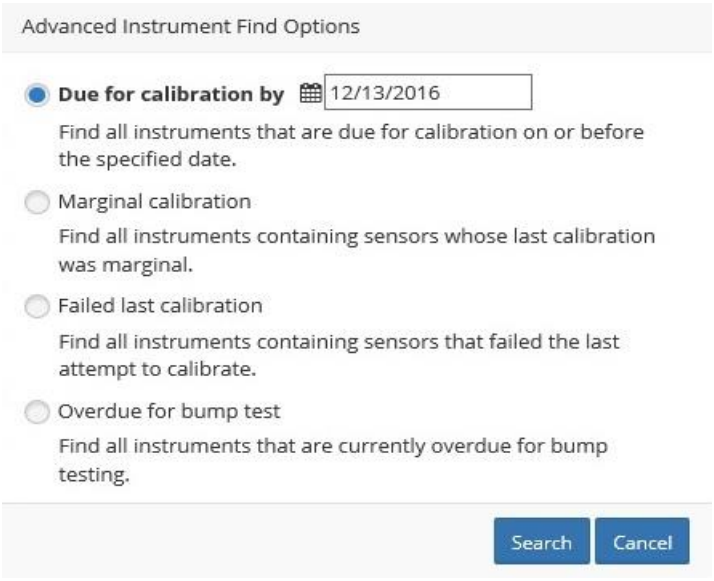


Figure 5-44. Advanced Instrument Find Options

Step	Instruction
5.	Click Search to view only instruments that meet the selected criteria. This option works as a filter, displaying only instruments that match, and hiding those that do not. After you are done viewing the instruments, you must turn off the filter to view all instruments. To turn the filter off, clear any text from the search box and click the magnifying glass (🔍) button.

# # #

Chapter

6

Configuring the Docking Station

6.1. Introduction

This chapter explains information about how to set up an Instrument Docking Station (IDS), from plugging it in, to configuring it to use gas cylinders for calibrations and bump tests, to viewing its status in the DSSAC.

Before you set up an IDS, be sure that the Docking Station Server (DSS) is running on your network, since the IDS requires the DSS in order to function. Each IDS also requires an Ethernet connection to your network as well as a power outlet.

6.2. Instrument Docking Station Hardware Overview

Below is a diagram that shows all of the connections on the back of an IDS. The details about how to use these connections are explained later in this chapter.

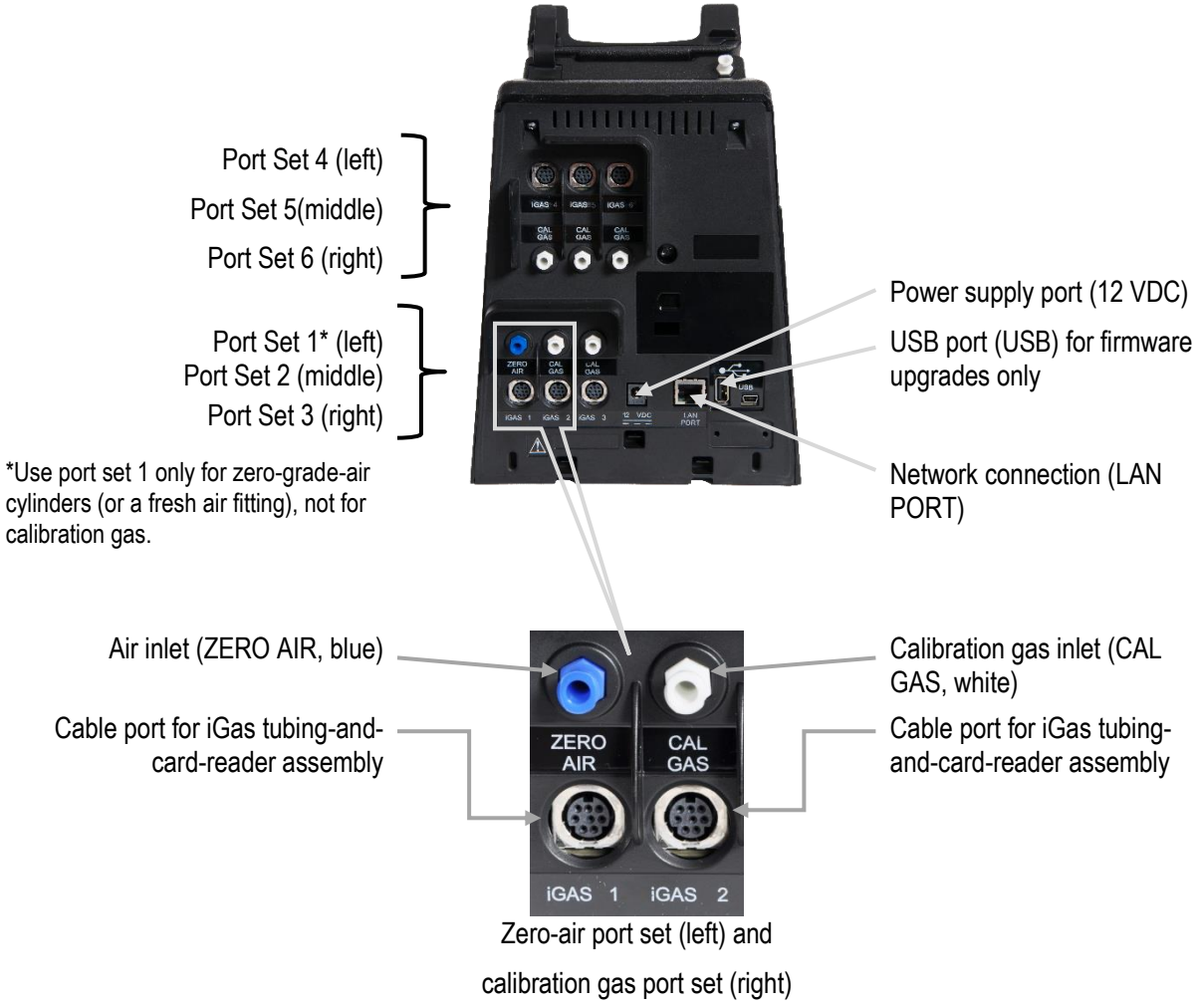


Figure 6-1. DSX-L Back Panel (6-PORT UNIT SHOWN)

Note: The port sets 1, 2, and 3 are positioned in the same location on the 3-port unit.

The table below briefly describes the connections on the back of an IDS.

Table 6-1. Connections on the Back of an IDS

Connection	Description
ZERO AIR and CAL GAS	Connects the IDS to cylinders using gas tubing.
iGas 1, 2, and 3 (or up to 6 for a 6-port IDS)	If you are using iGas, these ports are used to connect the Smart Card reader to the IDS.
Service Port	A serial port that is used by Industrial Scientific technicians to service the IDS.
DC (12-volt) Power Inlet	Connects the IDS to a 12-volt power source.
AC Power Inlet	Connects the IDS to an AC power source.
USB Port	A port used to accept USB drives. USB drives are used to connect a compatible printer or to upload future software updates to the Docking Station.
Network Port	A standard Ethernet port to connect the IDS to your network.

NOTE: Industrial Scientific recommends that gas tubing should be ester-based polyurethane type 85A. The maximum length for tubing is 3.05 m (10’); however, for Chlorine (Cl2), Ammonia (NH3) and Hydrogen Chloride (HCl) gases, the gas tube length should not exceed .91 m (3').

The front of the IDS contains the cradle into which an instrument is docked. It also contains an LCD screen, a series of LED lights, and a keypad.

The LCD screen contains information about the activity of the IDS. The IDS contains three LED lights: red, yellow, and green. In general, if the red LED is illuminated, there is a problem with the IDS or the instrument that is currently docked. The yellow LED indicates that the IDS is busy performing a task, such as calibrating an instrument or downloading data. The green LED lights when the IDS is ready to receive instructions, either from the Docking Station Server, or from the IDS menu.

NOTE: Do not either dock or undock an instrument on the IDS when the yellow LED is illuminated, except when the instrument battery is charging.

Please refer to the LED and Alarm Signals section for more detail about the meanings of LED indicators, LCD messages, and alarm signals.

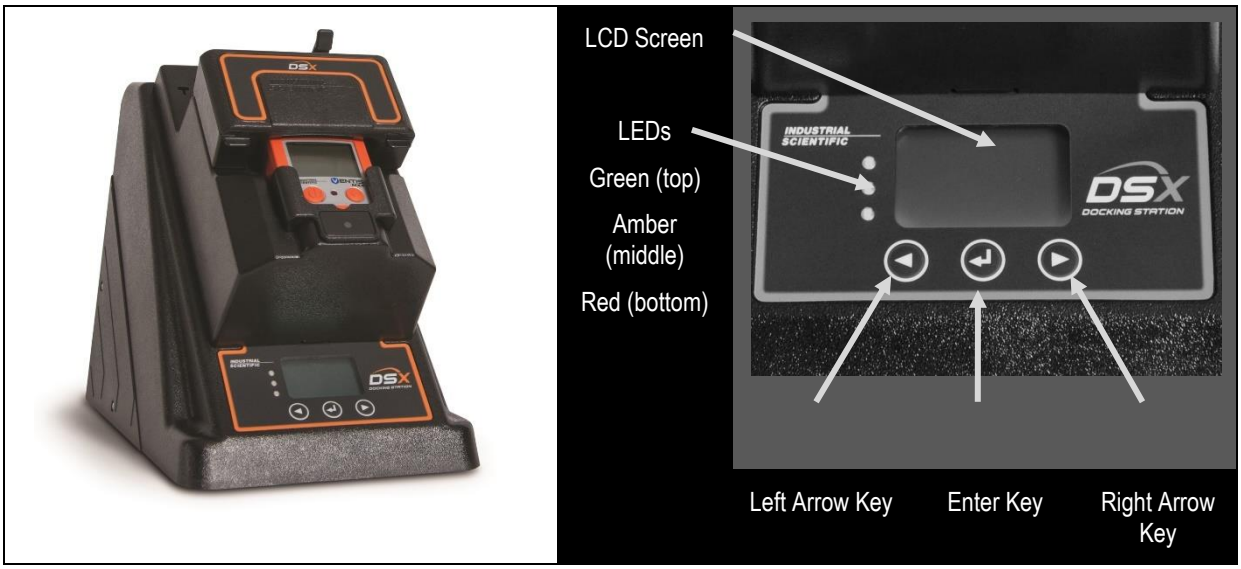


Figure 6-2. . Front Panel of a DSX-L

6.3. Setting Up an Instrument Docking Station

To prepare the IDS hardware for operation, follow the instructions listed below.

Step	Instruction
1.	Be sure that the DSS is running on your network, and that you have a connection to the network for the IDS.
2.	Connect the network cable into a network connection. Plug the other end of the cable to the LAN Port located on the back of the IDS.
3.	Remove the power supply's cover: press the lever and slide the cover in the direction indicated. The adapter plug (or dedicated power cord, if ordered) replaces the cover.
4.	Plug the power cord into a suitable outlet. The IDS automatically turns on when you plug it in.

NOTE: When the IDS is first plugged in, the three LEDs simultaneously flash. There is then a 40-second delay while the IDS boots. During the boot-up phase, the yellow LED is illuminated. When the IDS has completed booting, the backlight on the LCD panel turns on and the IDS emits a short beep.

Step	Instruction
5.	After the IDS has finished booting, the DSS automatically detects the IDS on the network. The LCD on the IDS displays "Discovering." The yellow LED illuminates.

Step	Instruction
6.	When the LCD on the IDS displays the current date and time and the green LED is illuminated, the IDS has been configured in DSSAC and is now set up and ready for further configuration.

6.4. Instrument Docking Station Status and Properties

When an IDS has been connected to the network and powered on for the first time, the DSS detects it and gathers its information to store in the system.

To view the current status of the IDS in the DSSAC, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Active Equipment option in the navigation pane.
3.	The Active Equipment page displays a list of IDSs and their current status. It also displays the serial number of the instrument that is currently docked, if any. To view additional information, such as date and time of last connection, click on Choose Columns at the top right of the Docking Stations page.

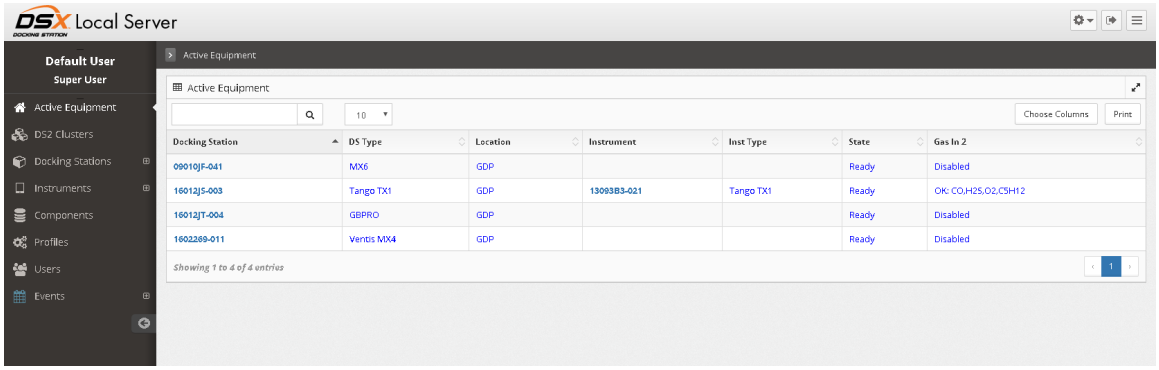


Figure 6-3. Active Equipment Page Showing IDSs and Current Status

NOTE: This page will automatically update with the most recent information every 60 seconds.

Step	Instruction
4.	Click on the docking station serial number to view the docking station properties. If an instrument is docked, click on the instrument serial number to view the instrument properties.

You can also view properties of the IDS on the Docking Stations page.

Step	Instruction
1.	Click the Docking Stations option in the navigation pane.
2.	The Docking Stations page displays a list of IDSs that have been configured in the system. Any IDS that is currently active appears in blue.

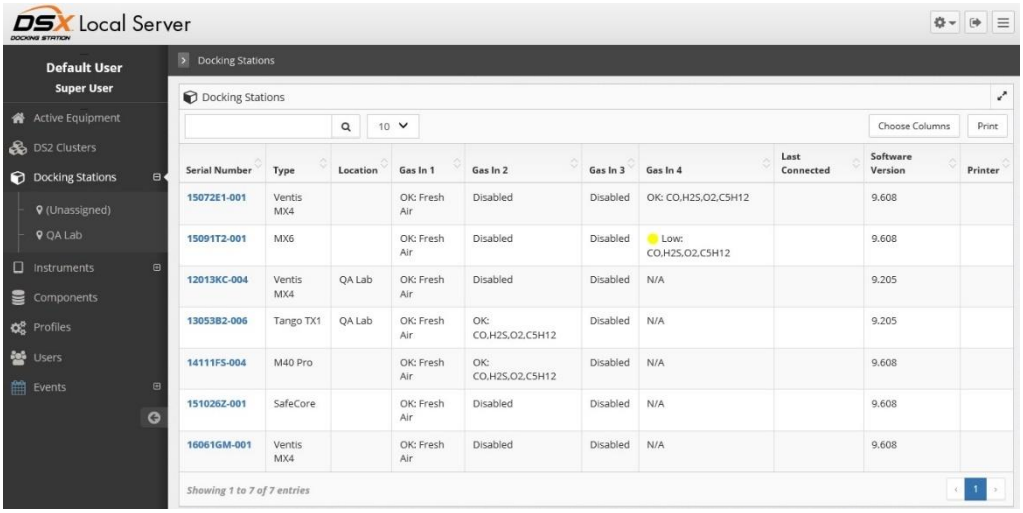


Figure 6-4. Sample Docking Stations Page

Column Title	Description
Serial Number	Serial number of the docking station as well as an icon to indicate a docking station type.
Type	Indicates the instrument type for the docking station: GasBadge Pro, MX6 iBrid, SafeCore Module, Tango TX1, Tango TX2, Ventis LS, Ventis MX4, Ventis Pro4, or Ventis Pro5.
Gas In <x>	Indicates the type of gas, if any, currently assigned to port x and its current status. The status of a Gas In connection can be "OK", "Low", "Empty", "Due to Expire", "Expired", "Disabled" or "N/A".
Last Connected	The Date/Time stamp for the last time the docking station talked to the Docking Station Server.
Location	Current location assigned to the Docking Station.
Software Version	The version of the Docking Station software that the docking station is currently running.
Printer	The printer that the docking station will automatically print calibration reports to.

3.	Click on the serial number of the IDS whose properties you wish to view.

Step	Instruction
4.	You land on the selected Docking Station page. This page displays a summary of the IDS's Serial Number, Type, Part Number, Setup Date, Software Version, and Network Information.
5.	The IDS's properties page contains a Quick Links box with four options. Docking Station Settings - Under this option is a quick link to Management Settings. Since IDSs are automatically configured by the Docking Station Server, many of the fields cannot be changed. You can, however, change the Language Setting, Location, Menu Locked, IDS Printer fields, and Audible Alarm option. See the table below for an explanation of each field under Management Settings. Gas Inlets - This option is used to configure the Gas In connections on the IDS. See section 6.6 Configuring Gas Cylinders for information about using the Gas Inlets section. Manage Events - This option displays the journal events for the chosen Docking Station. Actions - The "Print" option is used to view a printer friendly details page for the IDS. The "Remove from System" is used to remove the IDS from the list of active docking stations, and "Restore in System" is shown for hidden docking stations. NOTE: The optional iGas feature can automatically configure your gas cylinders in the DSSAC for you. See section 6.11 Using iGas for more information about iGas.

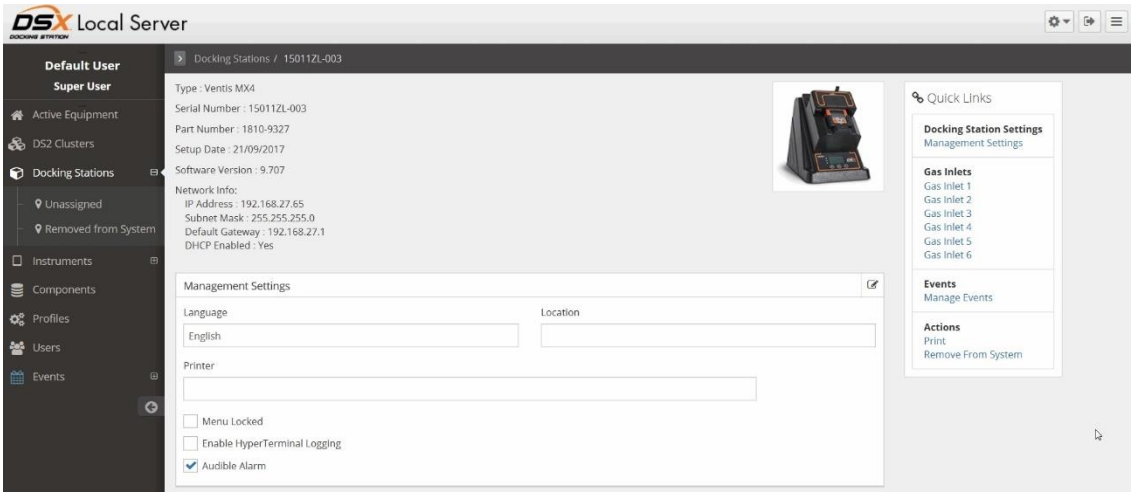


Figure 6-4. Docking Station Properties Page

Step	Instruction
6.	To edit any of the options listed in Step 5, click on the Edit ( ) button in the top right corner of the section to be modified. If you make any changes, click the Save button to save your changes. Otherwise, click the Cancel button to return to the list of IDSs without making any changes.

Table 6-2. Fields on the Docking Station Properties Page

Field	Description
Serial Number	The serial number of the IDS.
Type	The type of instrument that the IDS supports. Possible options are GasBadge Pro, MX6 iBrid, SafeCore Module, Tango TX1, Ventis LS, or Ventis MX4.
Part Number	The Industrial Scientific part number for the IDS.
Setup Date	The manufactured date of the IDS.
Software Version	The version of the IDS software that is running on the IDS.
Network Info	The IP address, Subnet Mask, and Default Gateway, and whether or not the DHCP (Dynamic Host Configuration Protocol) is enabled.
Language Setting	The language that is used on the IDS menu. Options are: "English," "Français," "Espanol" "Deutsch," "Czech," "Polish," or "Russian."
Location	Use this field to identify the physical location of the IDS.
Menu Locked	Indicates if the menu can be used on the IDS. If "No" is selected, then the IDS menu can be used. If "Yes" is selected, then the IDS menu cannot be used.
IDS Printer	A non-editable dropdown list of all printers configured on the DSS server machine. A blank selection (the default) means "none" (i.e., no printer selected). Whenever a calibration takes place on the IDS, a calibration certificate is printed automatically to the selected printer, if a printer has been chosen. Whenever a bump test takes place on the IDS, a bump certificate will be printed automatically to the selected printer, if a printer has been chosen. If no printer has been chosen, the certificates will not print automatically. NOTE: In DSSAC, if the "Print" button for calibration or bump certificates is pressed, the user will be presented with his/her web browser with the certificate rendered within. The user chooses the printer to print to, and prints, using the browser's print/print setup functions.
Network Info	A label displaying the network information of the docking station.
Audible Alarm	Enables or disables the docking station buzzer.
Enable HyperTerminal Logging	Enables serial port HyperTerminal logging view. This feature will be enabled *only* when directed by Industrial Scientific technical support. This option is viewable in V9.7 or higher and only in administrator view.

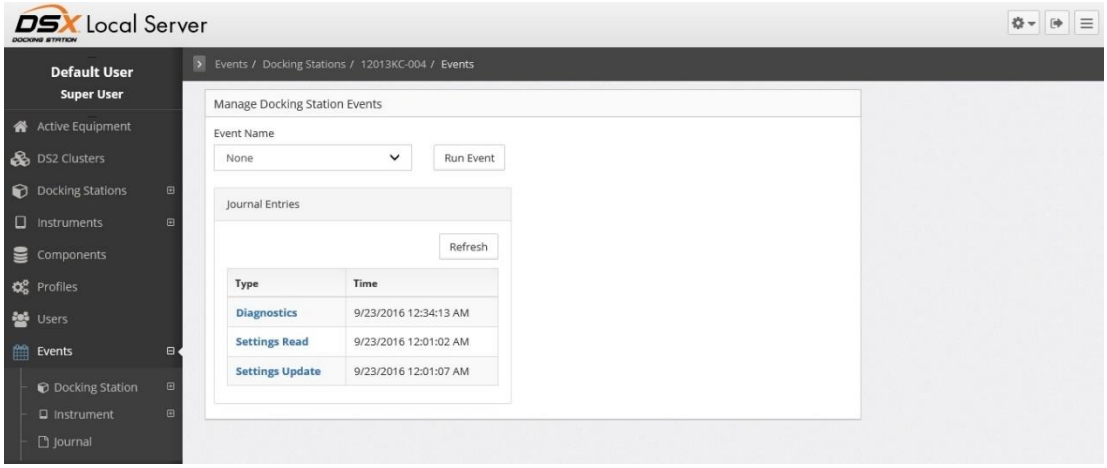


Figure 6-5. Manage Docking Station Events Page

The Manage Docking Station Events page has Journal Entries and a Run Event button.

Table 6-3. Fields on the Manage Docking Station Events Page

Field	Description
Event Name Drop-down	The Event Name selection drop-down lists the available events for that Docking Station. It also includes a "None" as the first entry. The "None" entry is the default.
Run Event button	The Run Event button is disabled while "None" is the current selection of the Event Name drop-down. Selecting an Event Name other than "None" enables the button. Pressing the Run Event button after an event name is selected removes the selected event from the Journal Entries list view and Event Name dropdown and then sets the currently selected Event Name to "None". If the user attempts to force an event under the condition below, the corresponding error message will display, and the forced event will not take place: • "Docking Station unavailable due to leak detected" Forced events also will not occur if the matching Global Event is currently disabled.
Journal Entries frame	Inside the Journal Entries frame is a list view which displays all journal entries for the current docking station. Click on the Journal Entry Type to display the Event Journal Details.
Refresh Button	The Refresh button forces the DSSAC to re-query the journal entries for the current docking station and updates the Journal Entry list view.

Field	Description
Journal Entry list view	The Journal Entry list view displays the Journal Type and Time for all journal entries for the current Docking Station. The list is sorted alphabetically by journal type. Clicking on any journal entry opens the Event Journal Details page (same functionality as the original Journal node)

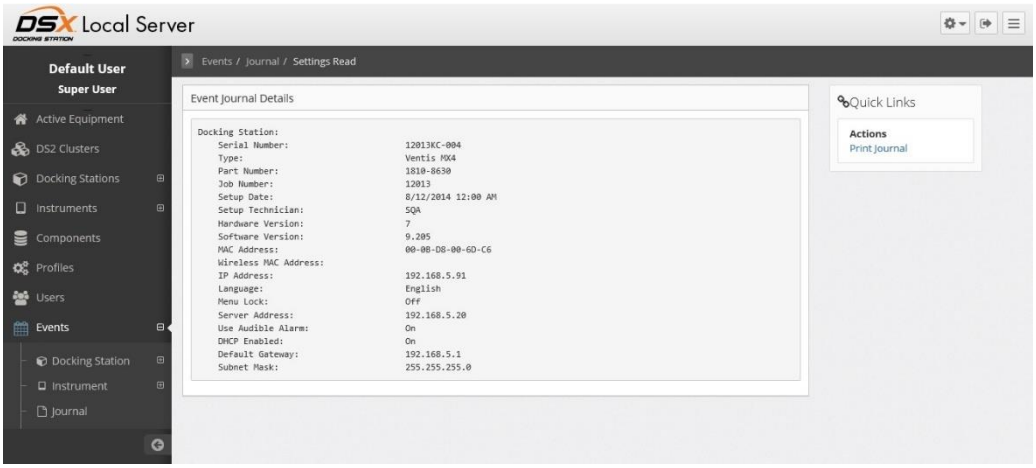


Figure 6-6. Event Journal Details Page

NOTE: DSX-L will download bump test date for physical sensors only. There will be no data logged or DSSAC-displayed for a DualSense sensor (or VIRTUAL).

6.5. Removing an Instrument Docking Station

You can remove an IDS from the DSSAC. However, the next time that the IDS is connected to the network, the Docking Station Server detects it and adds it back into the list of IDSs in the DSSAC.

You may need to remove an IDS if it is no longer in use or it is being moved to another docking station network.

To remove an IDS, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click the Docking Stations option in the navigation pane.
3.	Select the IDS that you wish to remove.
4.	Go to the Actions option in the Quick Links box and click on “Remove from System”.
5.	A confirmation prompt appears. Click Yes to remove the IDS(s). Click No to cancel the removal.

6.6. Configuring Gas Cylinders

In order to perform calibrations and bump tests, the IDS gas connections must be configured to use gas cylinders. Configuring gas cylinders involves two steps: (1) setting up the physical hardware, i.e., the IDS and cylinders, and (2) configuring the Gas In connection in the DSSAC.

Each IDS has three or six port sets. Port set 1 is used to connect a fresh air fitting or a zero-grade-air cylinder. Port sets 2 – 6 are used to connect to gas cylinders.

The DSX docking station requires that a demand flow regulator be used on calibration gas cylinders that are connected to an IDS.

NOTE: If you are using iGas, you do not need to follow the instructions below. Please refer to section 6.11 Using iGas.

CAUTION: Compressed gas cylinders and their contents may present specific hazards to the user. Use only in a well-ventilated area. Use only in accordance with the instructions and warnings marked on the cylinder and the appropriate Material Safety Data Sheets.

To configure an IDS Gas In connection to use calibration gas, follow the instructions below.

Step	Instruction
1.	Connect the demand flow regulator to the gas cylinder. With the gauge facing away from you, place the regulator on top of the cylinder and turn the cylinder until it is connected tightly.
2.	Connect the open end of polyurethane gas tubing to the fitting on the demand flow regulator. Connect the other end of the tubing to the CAL GAS (or ZERO AIR) port on the back of the station; turn the leur clockwise to tighten.

NOTE: For Chlorine (Cl2), Ammonia (NH3) and Hydrogen Chloride (HCl) gases, the gas tube length should not exceed three (3) feet.

NOTE: Industrial Scientific recommends that gas tubing should be ester-based polyurethane type 85A. The maximum length for tubing is 3.05 m (10’); however, for Chlorine (Cl2), Ammonia (NH3) and Hydrogen Chloride (HCl) gases, the gas tube length should not exceed .91 m (3').

Step	Instruction
3.	Log in to the DSSAC application. Click the Active Equipment or Docking Stations option in the navigation pane.
4.	Click on the serial number of the IDS for which you wish to configure Gas Inlet connections.

Step	Instruction
5.	The Docking Station Properties page appears. Click on the Gas Inlets option you wish to configure. The Gas Inlets option in the Quick Links box will have either three (3) or six (6) links (one for each Gas In connection on the IDS) depending on the number of gas ports available on the docking station.

NOTE: Each Gas In section contains an icon to identify the status of the connection. See Table 6-4 for a description of each of the icons.

Step	Instruction
6.	Scroll to the Gas Inlet option that corresponds to the Gas Inlet connection to which you have connected the gas cylinder.

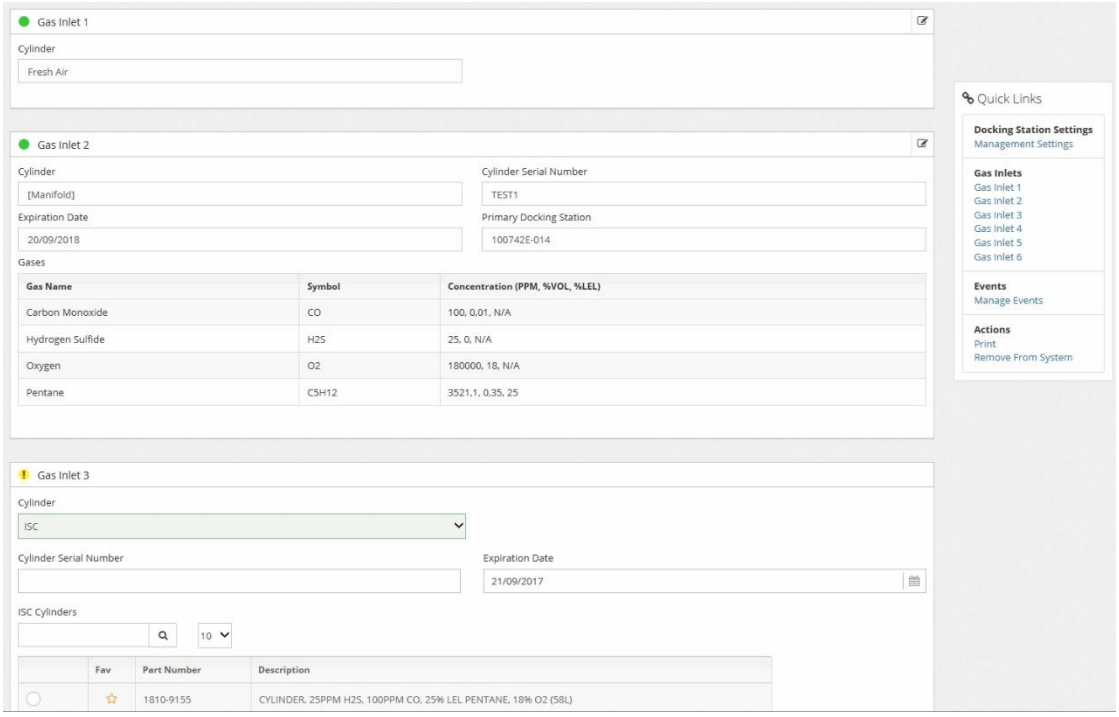


Figure 6-7. Gas Inlets Options

Step	Instruction
7.	Click the Edit ( )button in the top right corner of the Gas Inlet section you wish to configure. A menu of options appears. Choose from the options below. • Disabled – Configures the Gas In connection to be disabled, i.e., not using either a gas cylinder or fresh air. • Fresh Air – Configures the Gas In connection to use fresh ambient air, or for a Zero Air cylinder. • ISC – Configures the Gas In connection to use an Industrial Scientific gas cylinder. See the Using ISC gas section for specific procedures for adding ISC gas. • Non-ISC – Configures the Gas In connection to use a gas cylinder that was not purchased from Industrial Scientific. See the Using non-ISC gas for the specific procedures for adding non-ISC gas. • Manifold – Allows up to five docking stations to use one gas cylinder with the Five Port Gas Manifold Clamp.
8.	The settings you have chosen appear in the the Gas Inlet section that you selected. If the Gas Inlet connection is configured with gas, then the Gas Name, Concentration and Gas Symbol displays on the page. The expiration date of the gas cylinder appears above the list of gases.

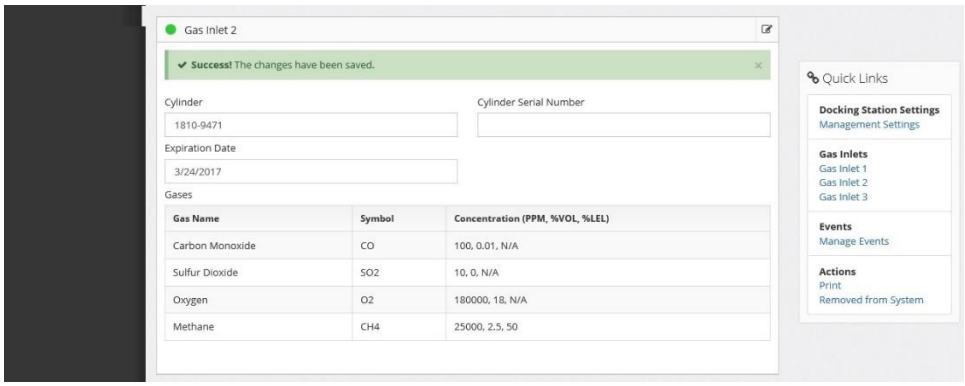


Figure 6-8. A Configured Gas Inlet

Step	Instruction
9.	Click the Save button at the bottom right of the Gas Inlet section to save your changes.
10.	The gas cylinder is now ready to be used.

CAUTION: When configuring Gas Inlet connections, be careful that you have configured the correct gas type in the DSSAC that matches the gas type in the cylinder connected to the Gas In connection on the IDS. If this setup is incorrect, your calibrations may be run with the incorrect gas, rendering the results inaccurate.

Table 6-4. Gas Inlets Status Icons

Icon	Description	Explanation
	Solid Green Circle	The cylinder is ok or is using fresh air.
	Solid Yellow Circle	The cylinder is low.
	Solid Red Circle	The cylinder is empty.
	Yellow Circle with a Rex X	The cylinder will expire within 30 days.
	Red Circle with a White X	The cylinder is expired.
	Yellow Circle with an exclamation point	The Gas In connection is disabled.

NOTE: If you hover your mouse pointer over the status icon on a Gas Inlet section, a tooltip will appear that shows the meaning of the icon.

6.7. Adding Gas from Industrial Scientific

To add an ISC gas, follow the instructions below.

Step	Instruction
1.	From the Docking Station Properties page, click on the Gas Inlet link under the Quick Links section for the gas inlet you need to configure.
2.	Click the Edit ( ) button at the top right corner of that Gas Inlet section, and then select “ISC” from the Cylinder dropdown.
3.	The cylinder configuration section appears.
4.	Select an Expiration Date for the gas. NOTE: You cannot enter an Expiration Date that is earlier than today’s date.
5.	Click the radio button in the row matching the part number of the cylinder you are connecting to this gas inlet. If the cylinder part number you need to select is not immediately visible, you can search for it using the search box above.

Step	Instruction
6.	Optionally enter a cylinder serial number. (This field may be left blank.) This field is editable when the user is manually adding a cylinder (both for ISC and NON-ISC cylinders). NOTE: Valid characters include any combination of alphanumeric characters, dashes, and period, up to 30 characters in length. Invalid characters include "%", "&", "<", and ">". Leading or trailing spaces will be trimmed from the data entered in this field. Data entered in this field is saved to the Cylinder table in the DS2 database, but is NOT sent to iNet.
7.	Click the Save button to save your changes to the gas inlet.

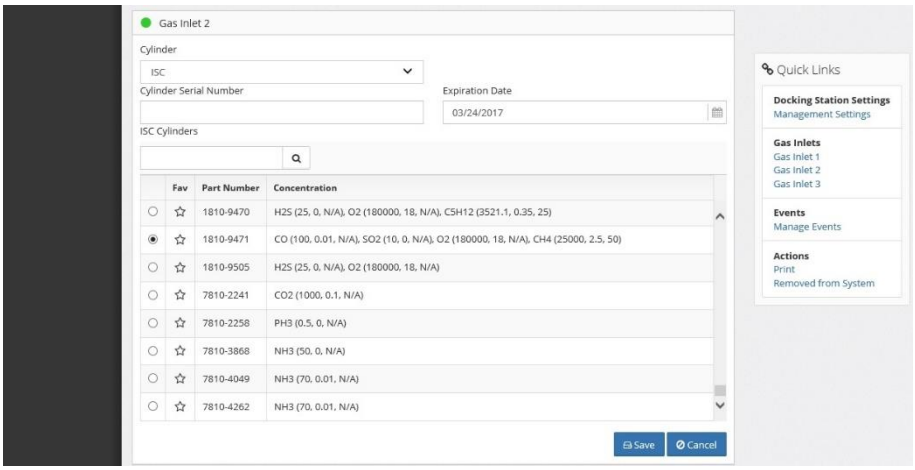


Figure 6-9. Adding Gas from Industrial Scientific

6.8. Adding Gas from a Third Party

To add a gas from a company other than Industrial Scientific, follow the instructions below.

Step	Instruction
1.	From the Docking Station Properties page, click on the Gas Inlet link under the Quick Links section for the gas inlet you need to configure.
2.	Click the Edit ( )button and select "non-ISC" from the Cylinder dropdown.
3.	The cylinder configuration section appears.
4.	Select an Expiration Date for the gas. NOTE: You cannot enter an Expiration Date that is earlier than today's date.
5.	Select a Gas from the dropdown, and enter a value for PPM, %VOL or %LEL (if applicable).

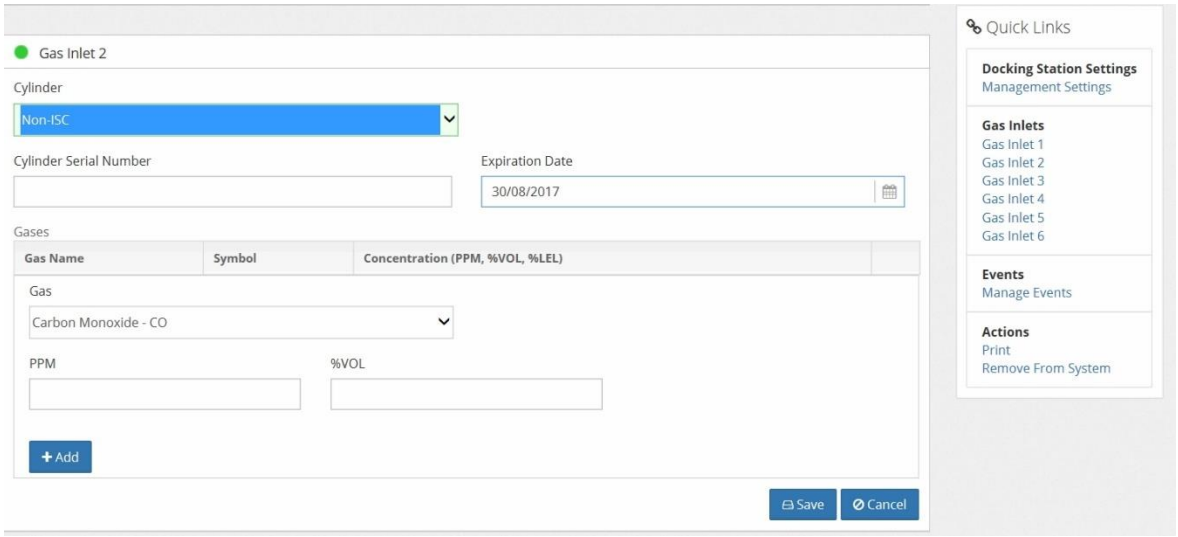


Figure 6-10. Adding Non-ISC Gas

NOTE: When you enter a PPM value, the %VOL value will automatically compute. Similarly, if you enter a value for %VOL, the PPM value will automatically compute. This feature also applies to gases that use a %LEL value. When you enter a value for one of the fields, the other two compute automatically.

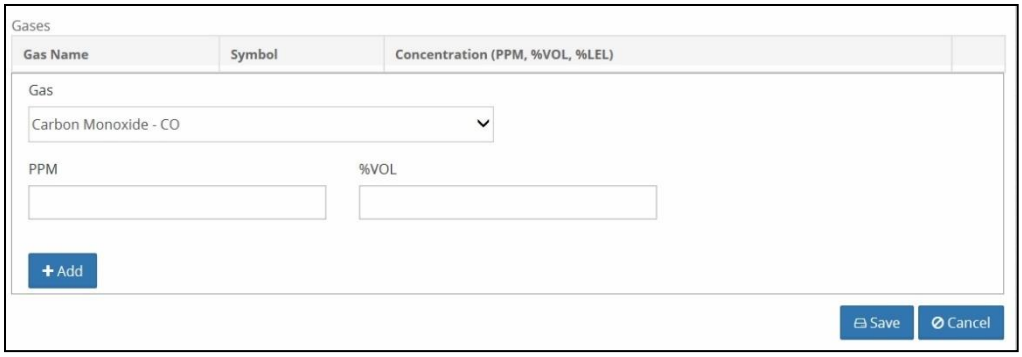


Figure 6-11. Gas Concentration

NOTE: You cannot enter a value that would compute a %VOL greater than 100%.

Step	Instruction
6.	Click the Add button to add the current gas concentration to a working list of cylinder gases.
7.	Repeat steps 5 and 6 for each gas concentration in your cylinder. If you want to remove a gas from the list, click the trash can icon to the right of the gas information.
8.	Click the Save button to save your changes to the gas inlet.

6.9. Changing Gas Cylinders

When you change a gas cylinder on IDS, there is a specific set of steps that must be followed in a certain order. First, you should disable the Gas In connection in the DSSAC. Then, disconnect the gas cylinder from the IDS, and reconnect the new bottle. Finally, open the DSSAC application and configure the Gas In connection to use the new gas.

The order of operations is important to prevent any calibration errors. For example, if a Gas In connection is not disabled before disconnecting a gas cylinder, there is a chance that the system might attempt a calibration while there is no gas connected. Disabling the Gas In connection prevents this from occurring.

NOTE: If you are using iGas, cylinder changes are automatically detected when you change Smart Cards. Please refer to section 6.11 Using iGas for additional information about configuring gas cylinders using iGas.

To change gas cylinders on an IDS, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application. Click the Active Equipment or Docking Stations option in the navigation pane.
2.	Click on the serial number of the IDS for which you are changing gas cylinders.

Step	Instruction
3.	Click on the Gas Inlet option on the Quick Links menu that corresponds to the Gas In connection for which you are changing gas cylinders.
4.	Click the Edit ( ) button, and select Disabled from the Cylinder dropdown menu. This disables the Gas In connection.
5.	Click Save.
6.	Disconnect the old gas bottle from the IDS. Remove the gas tubing from the fitting on the demand flow regulator. With the gauge facing away from you, unscrew the gas cylinder bottle until it detaches from the regulator.
7.	Connect the new gas bottle to the IDS. See section 6.6 Configuring Gas Cylinders for detailed instructions on connecting gas cylinders.
8.	Return to the DSSAC application. Click the Docking Stations option in the navigation pane.
9.	Click the serial number of the IDS for which you are changing gas cylinders.
10.	Click on the Gas Inlets option.
11.	Click on the Gas Inlet option on the Quick Links menu that corresponds to the Gas In connection for which you are changing gas cylinders.
12.	Click the Edit ( ) button. See the previous sections on using ISC gas or using non-ISC gas for specific procedures for adding ISC or non-ISC cylinders.
13.	Click Save.
14.	The Gas In connection is now configured to use the new gas cylinder.

6.10. Supported Sensors

Below are lists of the supported sensor types for each instrument that is compatible with the Docking Station.

Table 6-5. Supported Sensors

Sensor	GasBadge Pro	MX6 iBrid	SafeCore Module	Tango TX1 and Tango TX2	Ventis LS	Ventis MX4	Ventis Pro4	Ventis Pro5
Ammonia (NH3)	●	●	●	●				●
Carbon Dioxide (IR) (CO_2)		●	●				●	●
Carbon Dioxide/Hydrocarbons (CO_2/HC)								●
Carbon Dioxide/Methane (CO_2/CH_4)								●
Carbon Monoxide (CO)	●	●	●	●	●	●	●	●
Carbon Monoxide (CO High)		●	●					●
Carbon Monoxide (CO/H2 Low)	●	●	●	●		●	●	●
Carbon Monoxide and Hydrogen Sulfide (COSH)			●					●
Chlorine (Cl_2)	●	●	●					●
Chlorine Dioxide (ClO_2)*	●	●	●					
Hydrocarbon (IR)		●	●				●	●
Hydrogen (H_2)	●	●	●					●
Hydrogen Chloride (HCl)		●	●					
Hydrogen Cyanide (HCN)	●	●	●	●			●	●
Hydrogen Sulfide (H_2S)	●	●	●	●	●	●	●	●
LEL (Methane)		●	●		●	●	●	●
LEL (Pentane)		●	●		●	●	●	●
Methane 5% vol.		●			●	●	●	●
Methane (IR) (CH4)		●	●				●	●
Nitrogen Dioxide (NO_2)	●	●	●	●	●	●	●	●
Nitric Oxide (NO)		●	●					
Oxygen (O_2)	●	●	●		●	●	●	●
Oxygen, Long-life (O2)							●	●
Phosphine (PH_3)	●	●	●					●
Phosphine (PH_3), High Range		●						
PID (photoionization)		●	●					●
Sulfur Dioxide (SO_2)	●	●	●	●	●	●	●	●

***NOTE:** The DS cannot calibrate or bump test a chlorine dioxide sensor. It can charge an instrument with a Chlorine Dioxide sensor and can download the sensor's data.

6.11. Using iGas

iGas is an optional feature that uses a Smart Card to automatically configure gas cylinders. This feature can save time that you would spend manually disabling and then reconfiguring a Gas In connection in the DSSAC each time you change a gas cylinder.

If you are an iGas customer, an iGas Smart Card will be attached, via a plastic ring, to the neck of each of your calibration gas cylinders. The iGas Smart Card contains information about the gas cylinder. When the card is connected to the card reader, the system reads the information about the gas and automatically configures the Gas In connection in the docking station system.

iGas can also be used with an optional pressure switch which detects when the gas pressure in the cylinder is low. iGas sends this information to the Docking Station Server so it is visible in the DSSAC. If you are an iNet customer, this data is also sent to the iNet Network Operations Center so that Industrial Scientific can proactively send new gas cylinders to you.

NOTE: The pressure switch option is standard when you use iGas with iNet.

To connect a cylinder using iGas, follow the instructions listed below.

Step	Instruction
1.	Connect the demand flow regulator to the gas cylinder. With the gauge facing away from you, place the regulator on top of the cylinder and turn the cylinder until it is connected tightly.
2.	Connect one end of the polyurethane gas tubing bundled with the iGas reader cable to the fitting on the demand flow regulator. NOTE: Industrial Scientific recommends that gas tubing should be ester-based polyurethane type 85A. The maximum length for tubing is 3.05 m (10’); however, for Chlorine (Cl2), Ammonia (NH3) and Hydrogen Chloride (HCl) gases, the gas tube length should not exceed .91 m (3').
3.	Disconnect the supplied Luer fitting from the Gas In connection you wish to use.
4.	Connect the Luer fitting to the other end of the tubing, and then attach the fitting to the Gas In connection in the back of the IDS.
5.	Connect the Smart Card reader cable to the iGas Port directly below the Gas In connection to which you connected the gas tubing.
6.	If necessary, connect the Smart Card reader cable to the Smart Card reader.
7.	If you are using the Pressure Switch option, connect the wires from the pressure switch to the pressure switch connection on the right side of the Smart Card reader.
8.	Slide the iGas Smart Card that is attached to the calibration cylinder into the Smart Card reader.

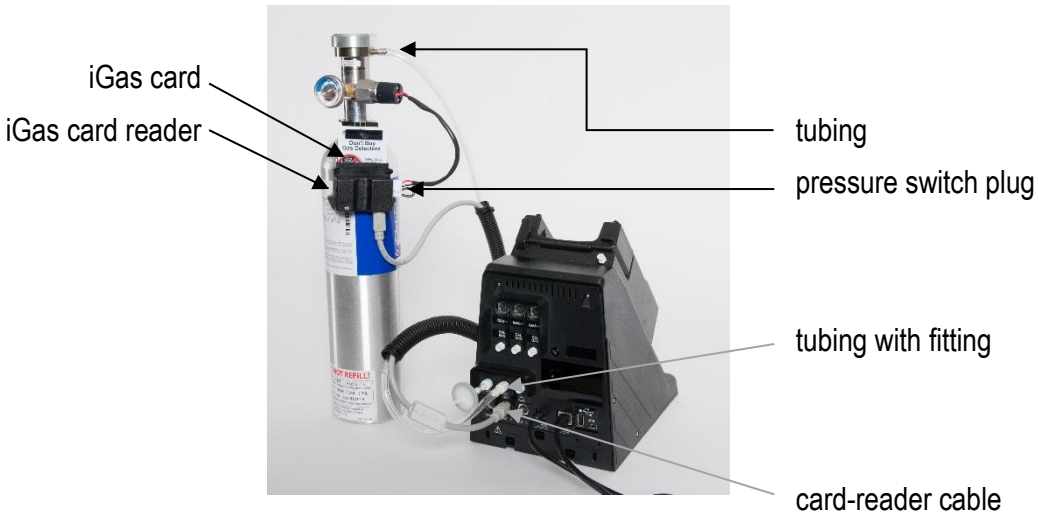


Figure 6-12. iGas Cylinder connected to DSX-L

NOTE: It is important that the gas line is connected before the iGas card so that the system is ready to draw gas after it reads the card.

NOTE: Be sure that the Smart Card is connected to the correct iGas Port. For example, if you have connected the gas line to Gas In # 2, then the Smart Card must be connected to iGas Port #2. If the correct port is not used, the system could use the wrong type of gas for a calibration or bump test, rendering the results inaccurate.

Step	Instruction
9.	The system reads the information about the gas cylinder from the iGas Smart Card and automatically configures the Gas In connection in the DSSAC.
10.	The gas cylinder is ready to use.

NOTE: If you are using iGas, do not edit the cylinder configuration in DSSAC. Doing so could temporarily override the settings configured by iGas, possibly causing the docking station system to use inaccurate information for calibrations or bump tests. If the settings do get overwritten, simply reinsert the iGas Smart Card to reconfigure the gas cylinder.

6.12 Manifold Instructions

Up to five docking stations can be connected to one gas cylinder using the Demand Flow Regulator, the Five Port Regulator Manifold Clamp, and the DSSAC web application.

Through the DSSAC web application, the primary docking station settings are used by all of the docking stations in the manifold.

DSSAC is used to control how the manifolded docking stations are affected by the conditions of the primary docking station. Table 6-6 shows some examples of these conditions, actions and results.

Table 6-6. Manifold correlations with DSSAC

Condition	Action	Result
Primary docking station	*DSSAC Settings*	*Manifolded docking stations*
The gas cylinder is replaced with the same type of gas and cylinder.	No action required	The replaced cylinder is available for use
The gas cylinder is replaced with a different type of gas and cylinder.	Update gas and cylinder type settings	The different gas cylinder is available for use
Disconnected	Update to “Disabled”	Disabled
Removed from service	Remove from DSSAC system	The manifold gas cylinder and primary docking station are not available.

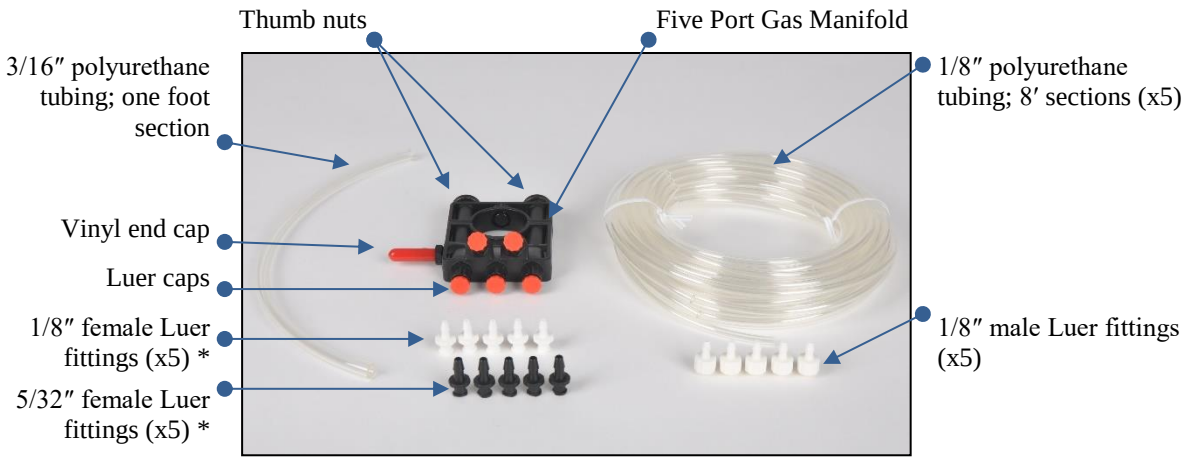
Note: Manifolded docking stations can be connected to one or more primary docking stations.

The Manifold Kit

The Demand Flow Regulator is required for use with the Calibration Manifold Kit. Each kit item, listed and shown below, should be accounted for during the unpacking process. If any item is missing or appears to have been damaged, contact Industrial Scientific or a local distributor of Industrial Scientific products.

Hardware overview

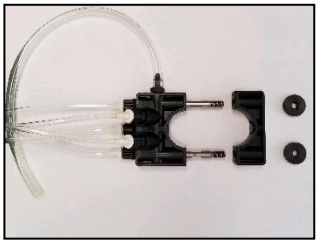
Item Identification



*The two female Luer sizes are provided to support varied tubing diameters.

Note: Tubing measurement is Internal Diameter (ID).

Table 6-7. Manifold connections

		
Loosen and remove the two thumb nuts on the manifold. Separate the sections.	Notice the manifold section with the threaded bolts protruding. Place it around the neck of the regulator. Slide the remaining section of the manifold over the bolts of the first. Tighten the thumb nuts.	Connect the 3/16 ″ tubing from the manifold inlet port to the regulator nipple.
		
Connect each 1/8 ″ tubing from the manifold, to a docking station gas inlet port.		

Note: Unused ports on the manifold should be fitted with the Luer caps, included with the kit, to prevent leaking and contamination.

DSSAC Manifold settings

The DSS server (DSSAC) software allows for the designation of the primary docking station, and all of the docking stations in the manifold. Finish the manifold assembly by completing the settings listed below.

- Log in to the DSSAC web application and select “Docking Stations” from the left side navigation menu.
- Select a docking station serial number that is part of the manifold connections.
- From its properties page, select the edit button for the gas inlet to which the manifold tubing is connected. (See below)
- Enter the primary docking station information for this setup.

- Complete the Gas Inlet information for each non-primary docking station in the manifold as shown below.

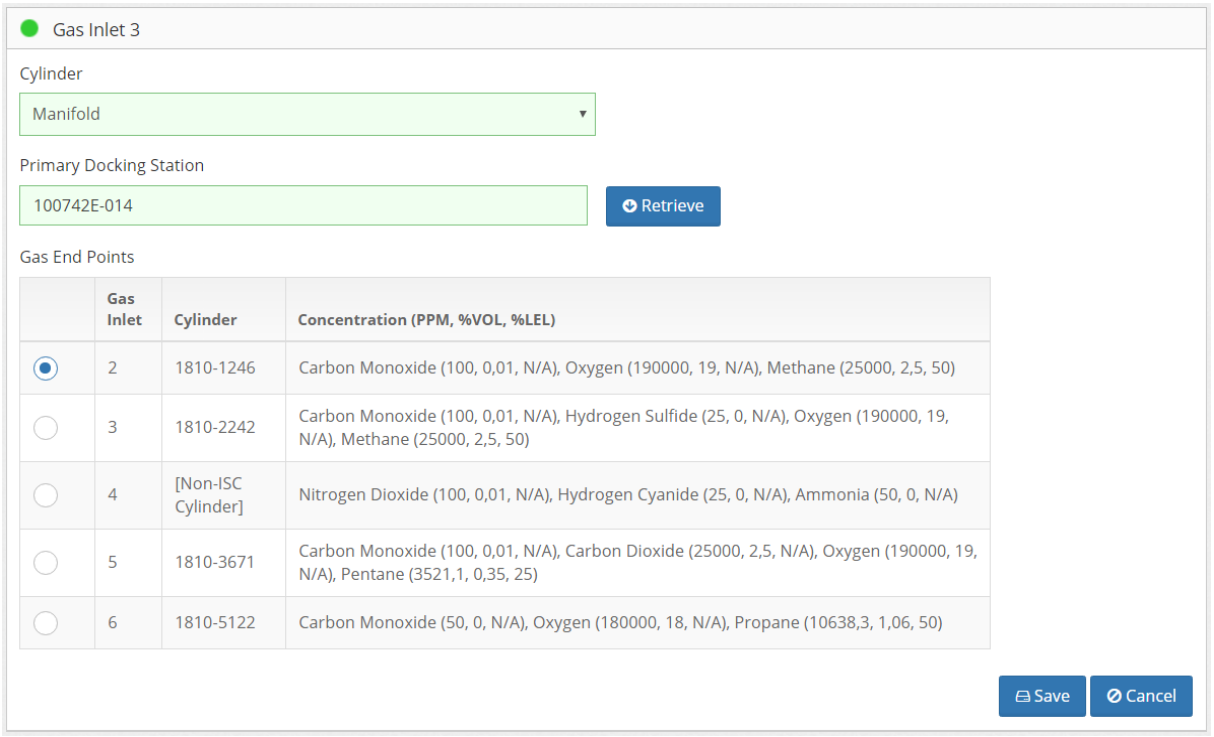


Figure 6-13. Gas Inlet Editing

Option	Instruction
Cylinder	Select “Manifold” from the Cylinder drop down menu.
Primary Docking Station	Choose the primary docking station and enter its serial number.
Retrieve	View the primary control docking stations Gas Inlet connections.
Gas End Points	Select the gas inlet number connected to the manifold.
Save	Save the settings.

# # #

Chapter 7

Basic Operation

7.1. Introduction

This section describes the features of the Instrument Docking Station (IDS), such as menu options, the LED and alarm signals, and how to force the docking station to perform immediate calibrations and bump tests from the IDS menu. The diagram below shows the front panel of an IDS. This panel contains the LCD screen, the LED lights and the keypad with which you access the menu on the IDS.

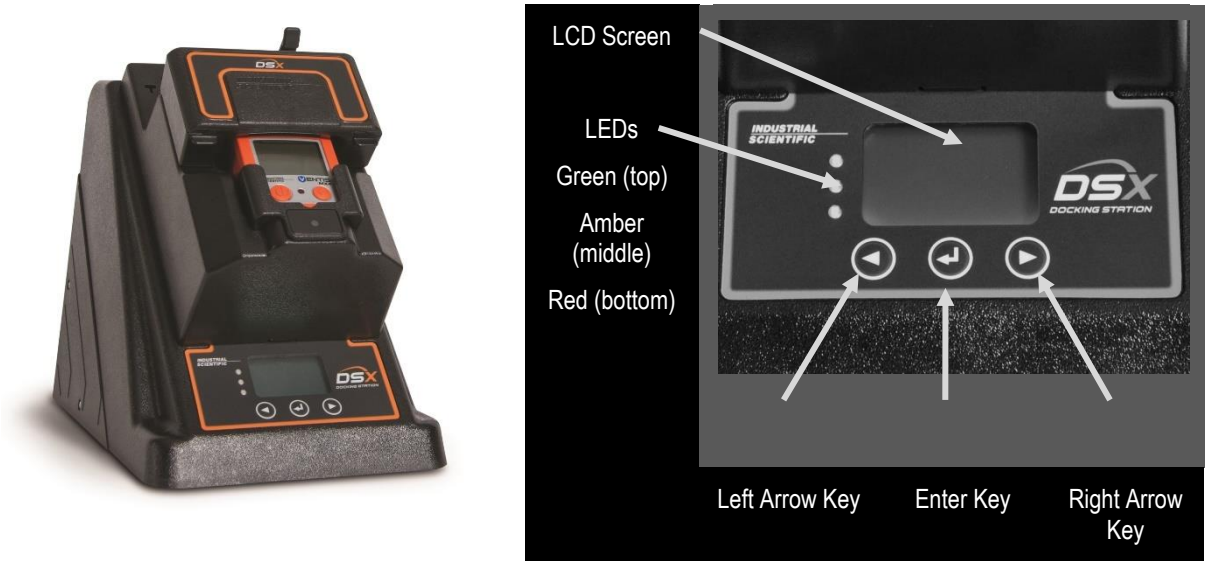


Figure 7-1. Front Panel Components of the DSX-L Docking Station

7.2. Menu Options

The menu on an IDS is used to request actions such as on-demand calibrations or bump tests.

NOTE: The menu cannot be used when the IDS is performing a task (the yellow LED is illuminated), except for when it is charging an instrument's battery.

NOTE: The menu cannot be used if the **Menu Locked** setting for the IDS in DSSAC is set to "Yes." This option can be set in the DSSAC in the **Edit Docking Station** section. See section 6.4 Instrument Docking Station Status and Properties for more information about the Menu Locked setting.

To access the menu on an IDS, follow the instructions listed below.

<table>
<tr><th>Step</th><th>Instruction</th></tr>
<tr><td>1.</td><td>Be sure that the IDS is not performing a task. (The green LED is illuminated, and the LCD panel displays the current date and time.)</td></tr>
<tr><td>2.</td><td>Press any of the keys on the IDS keypad. The main menu appears.</td></tr>
<tr><td>3.</td><td>Use the ARROW keys on the keypad to navigate the menu. Use the ENTER key to select an option.</td></tr>
<tr><td>4.</td><td>The menu options are listed below.
<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Instrument</td><td>If you select this option, the following submenu appears:
<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Bump Test</td><td>Used to force the IDS to perform a bump test. See the Forced Bump Tests section later in this chapter for more information about using the Bump Test menu option.</td></tr>
<tr><td>Calibrate</td><td>Used to force the IDS to perform a calibration. See the Forced Calibration section later in this chapter for more information about using the Calibrate menu option.</td></tr>
<tr><td>Download Data</td><td>Used to download datalog data to the Docking Station Server. See the Downloading and Clearing Datalog Data section later in this chapter for more information about the Download Data menu option.</td></tr>
<tr><td>Clear Datalog</td><td>Used to clear datalog data from the instrument. See the Downloading and Clearing Datalog Data section later in this chapter for more information about the Clear Datalog menu option.</td></tr>
<tr><td>Previous</td><td>Returns to the main menu.</td></tr>
</table>
NOTE: The Instrument menu is only available when an instrument is docked on the IDS.</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Step</th><th>Instruction</th></tr>
<tr><td></td><td>
<table>
<tr><td>Docking Station</td><td>If you select this option, the following submenu appears:
<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Set Language</td><td>Changes the language used on the LCD display on the IDS. See the Changing Language Settings section later in this chapter for more information about the Set Language menu option.</td></tr>
<tr><td>Diagnose</td><td>Used to run the pressure diagnostic test on the IDS. See the IDS Diagnostics section later in this chapter for more information about the Diagnose menu option.</td></tr>
<tr><td>Information</td><td>Provides information about the IDS, such as serial number, software version and the IP address of the DSS.</td></tr>
<tr><td>Previous</td><td>Returns to the main menu.</td></tr>
</table>
</td></tr>
</table>
</td></tr>
</table>

NOTE: The IDS menu will exit if no key on the keypad is pressed after 10 seconds. If this occurs, and you wish to re-access the menu, simply press any of the keys on the keypad, provided that the IDS is not actively performing a task (the yellow LED is illuminated), except for when the instrument's battery is charging.

7.3. LED and Alarm Signals

The IDS contains LED lights and an alarm to provide you with feedback about the activities on the IDS. The LEDs (green, yellow, and red) will light alone or in combination depending on the status of the IDS. The status of lit LEDs is explained below.

- Green LED only - Indicates that the IDS is fully charged and available for use.
- Yellow LED only - Indicates that the IDS is busy.
- Green and yellow LEDs - Indicate that the IDS is currently charging.
- Red LED only - Indicates that the IDS is unavailable due to an error or a problem.

NOTE: Never dock or undock an instrument while the yellow LED is illuminated (IDS is busy), except when the instrument battery is charging (both yellow and green LEDs are lit).

The alarm is used to indicate a problem with the IDS. For example, if an instrument is removed from the IDS before a calibration is complete, an alarm will sound.

The LEDs and alarm work in combination with the LCD display to indicate the status of the IDS.

Below is a series of tables that show possible LCD display, LED and alarm combinations when the IDS is in various states.

The following table displays possible feedback when the IDS is on, but no instrument is docked.

Table 7-1. System Feedback (No Instrument Docked)

LCD Display	LED	Alarm	Description
Starting <type of instrument>	Yellow	Off	IDS is booting up.
Discovering	Yellow	Off	IDS has just finished booting up and is identifying itself to the Docking Station Server.
Diagnosing	Yellow	Off	Running diagnostics on the IDS
Updating Data	Yellow	Off	Updating the system with new IDS settings
Unavailable	Red	Off	IDS is not functioning properly. Check the DSS error log.
Unavailable Server	Red	Off	IDS cannot connect to the server.

The following table displays possible feedback when the IDS is on, and an instrument is docked.

Table 7-2. System Feedback (Instrument Docked)

LCD Display	LED	Alarm	Description
Calibrating (Zeroing)	Yellow	Off	Zeroing the instrument.
Calibrating (Purging)	Yellow	Off	Purging the docking station tubing.
Calibrating (sensor symbols)	Yellow	Off	The instrument sensors are being calibrated.
Clear Manual Operations	Yellow	Off	Clears all manual operations once downloaded to DSS.
Clearing Datalog	Yellow	Off	Clearing datalog data from the instrument.
Current Date and Time Charging	Yellow	Off	Instrument's battery is being charged.
Diagnosing Instrument	Yellow	Off	Running diagnostic tests on the instrument.
Discovering	Yellow	Off	IDS is detecting the instrument that was just docked.
Download Manual Operations	Yellow	Off	Downloads manual calibration and bump test operations performed by user.
Downloading Alarm Events	Yellow	Off	Downloading alarm events from the instrument.
Downloading Datalog	Yellow	Off	Downloading datalog data to the DSS.
Registering Instrument	Yellow	Off	The instrument is being registered in the docking station system.

LCD Display	LED	Alarm	Description
Testing Instrument (Purging)	Yellow	Off	Purging the docking station tubing.
Testing Instrument (sensor type)	Yellow	Off	Performing a bump test on the instrument.
Updating Instrument	Yellow	Off	Updating settings on the instrument.
Bump Failure (sensor type)	Red	On	The instrument failed bump test.
Calibration Failure (sensor type)	Red	On	The instrument failed calibration.
Communication Error	Red	On	There is a communication error with the instrument.
Connect Zero Air Cylinder	Red	On	The docking station requires a Zero Air cylinder connection to purge or zero an instrument with a CO2 sensor.
Current Date and Time Battery Error	Red	Off	There is a problem with the battery in the docked instrument.
Cylinder Expired (gas symbol)	Red	On	The Non-ISC gas cylinder has expired.
Cylinder is Expired 1810-XXXX	Red	On	The ISC gas cylinder has expired.
Instrument Error	Red	On	Instrument System Alarm
Instrument Not Ready	Red	On	Sensor is biasing, not ready for gas application.
Replace Cylinder (gas symbol)	Red	On	The Non-ISC gas cylinder is empty.
Replace Cylinder 1810-XXXX	Red	On	The ISC gas cylinder is empty.
Sensor Error (Position X)	Red	On	The sensor located in position X is in error.
User Unsigned	Red		
Service Instrument Soon	Red and Green	Off	Instrument needs service by Industrial Scientific. Applies to Tango TX1 instrument only.
Unavailable Gas	Red	On	The IDS could not locate required gas for a bump test or a calibration.
Unavailable Instrument	Red	On	There is an unidentified problem with the instrument.

LCD Display	LED	Alarm	Description
Undocked Instrument	Red	On	An instrument was undocked from the IDS during an event.
Unsupported Software Version	Red	On	The docked instrument's software is not supported for use with the docking station.

7.4. Forced Bump Tests

You can force an IDS to run a bump test on an instrument by using the IDS menu. You may wish to do this when you want to run a bump test before the next automatic bump test scheduled for the instrument.

To force a bump test, follow the instructions listed below.

Step	Instruction
1.	Make sure that the IDS is on and that the proper gas cylinder is connected to the docking station and that it is correctly configured in the DSSAC. See the Configuring Gas Cylinders section for more information about configuring gas cylinders.
2.	Dock the instrument in the IDS.
3.	Press any of the keys on the IDS keypad to access the main menu.

NOTE: The menu cannot be used when the IDS is performing an instrument action.

NOTE: The menu cannot be used if the **Menu Locked** setting for the IDS in DSSAC is set to "Yes."

Step	Instruction
4.	Use the ARROW keys on the keypad until Instrument is highlighted.
5.	Press the ENTER key. The Instrument menu appears.
6.	Use the ARROW keys on the keypad to select Bump Test. Press the ENTER key.
7.	The LCD displays a confirmation prompt: "Are you sure?" Use the ARROW keys on the keypad to highlight Yes and then press the ENTER key. If you select No, the LCD returns to the main menu.
8.	The IDS begins performing the bump test. The LCD displays "Testing Instrument." The yellow LED is illuminated.
9.	When the bump test is complete, the LCD returns to the main menu, and the green LED is illuminated.

NOTE: In the event of a failed sensor (CL2, HCL, or NH3), the docking station ignores any large reading that are above the sensor's maximum reading. In addition, the docking station ignores any negative readings whose absolute value is larger than the sensor's maximum reading.

If the instrument fails the bump test, the IDS will perform a calibration, unless the failed sensor is Oxygen; see 7.5.2 *O2 Sensor Failures*. If the calibration or bump test fails, the red LED illuminates, the IDS sounds an alarm, and the docking station will display the appropriate "Bump Failure" or "Calibration Failure" message. The failed sensor type will be displayed in parenthesis under the failure message.

7.5. Calibration

7.5.1. Forced Calibrations

You can force an IDS to calibrate an instrument by using the IDS menu. You may wish to do this when you want to perform a calibration prior to the next calibration scheduled for the instrument.

To force a calibration, follow the instructions listed below.

Step	Instruction
1.	Make sure that the IDS is on and that the proper gas cylinder is connected to the IDS and that it is correctly configured in the DSSAC. See section 6.6 Configuring Gas Cylinders for more information about configuring gas cylinders.
2.	Dock the instrument in the IDS.
3.	Press any of the keys on the IDS keypad to access the main menu.

NOTE: The menu cannot be used when the IDS is performing an instrument action.

NOTE: The menu cannot be used if the **Menu Locked** setting for the IDS in DSSAC is set to "Yes."

Step	Instruction
4.	Use the ARROW keys on the keypad until Instrument is highlighted.
5.	Press the ENTER key. The Instrument menu appears.
6.	Use the ARROW keys on the keypad to highlight Calibrate. Press the ENTER key.
7.	The LCD displays a confirmation prompt: "Are you sure?" Use the ARROW keys on the keypad to highlight Yes, and then press the ENTER key. If you select No, the LCD returns to the main menu.
8.	The IDS begins performing the calibration. The LCD displays "Calibrating." The yellow LED is illuminated.
9.	When the calibration is complete, the LCD returns to the main menu and the green LED is illuminated.

NOTE: If the instrument fails the calibration, the red LED illuminates and the docking station sounds an alarm.

7.5.2. O2 Sensor Failures

If an O2 sensor fails a DSX bump test with any docked instrument, the IDS will display the red light with a “Bump Failure” message and will beep. “(O2)” will be displayed underneath the failure message as shown below.

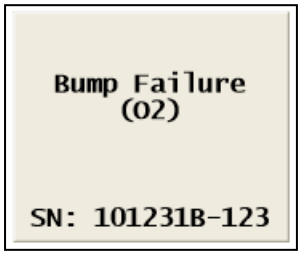


Figure 7-2. DSX-L Error Screen after O2 Sensor Failure

NOTE: Forced events are usually not permitted and will result in a failure message. This prevents the user from forcing a calibration, clearing the error, and thinking all is well.

7.6. Download and Clearing Datalog Data

You can force an IDS to download datalog data from an instrument to the Docking Station Server. When you download datalog data from an instrument, **the instrument’s datalog memory is also cleared**.

You can also choose to clear datalog data on an instrument without downloading it to the system.

7.6.1. Forced Datalog Download

To download datalog data, follow the instructions listed below.

Step	Instruction
1.	Make sure that the IDS is on.
2.	Dock the instrument in the IDS.
3.	Press any of the keys on the IDS keypad to access the main menu.

NOTE: The menu cannot be used when the IDS is performing an instrument action.

NOTE: The menu cannot be used if the **Menu Locked** setting for the IDS in DSSAC is set to “Yes.”

NOTE: If two sensors are installed in the Tango TX1 when the data are logged, DS2 will download data for three sensors. Data from the installed sensors are logged and downloaded as sensor 1 and sensor 2 data. Data that are logged and downloaded as sensor 3 (or VIRTUAL) are algorithm-calculated values that are based on sensor 1 and sensor 2 data. DSSAC displays only the VIRTUAL data.

If only one sensor is installed or working when the data are logged, the downloaded and DSSAC-displayed data will contain only information for that sensor.

Step	Instruction
4.	Use the ARROW keys on the keypad until Instrument is highlighted.
5.	Press the ENTER key. The Instrument menu appears.
6.	Use the ARROW keys on the keypad to select Download Datalog. Press the ENTER key.
7.	The LCD displays a confirmation prompt: "Are you sure?" Use the ARROW keys on the keypad to highlight Yes, and then press the ENTER key. If you select No, the LCD returns to the main menu.
8.	The IDS begins downloading the datalog data. The LCD displays "Downloading Datalog." The yellow LED is illuminated. NOTE: The instrument's datalog memory is also cleared. The LCD displays "Clearing Datalog" when the datalog data is being cleared.
9.	When the datalog download is complete, the LCD returns to the main menu and the green LED is illuminated.

7.6.2. Clearing Datalog Data

To clear datalog data from an instrument's memory without downloading it to the system, follow the instructions listed below.

Step	Instruction
1.	Make sure that the IDS is on.
2.	Dock the instrument in the IDS.
3.	Press any of the keys on the IDS keypad to access the main menu.

NOTE: The menu cannot be used when the IDS is performing an instrument action.

NOTE: The menu cannot be used if the **Menu Locked** setting for the IDS in DSSAC is set to "Yes."

Step	Instruction
4.	Use the ARROW keys on the keypad until Instrument is highlighted.
5.	Press the ENTER key. The Instrument menu appears.
6.	Use the ARROW keys on the keypad to select Clear Datalog. Press the ENTER key.
7.	The LCD displays a confirmation prompt: "Are you sure?" Use the ARROW keys on the keypad to highlight Yes, and then press the ENTER key. If you select No, the LCD returns to the main menu.

Step	Instruction
8.	The IDS clears the datalog data from the instrument's memory. The LCD displays "Clearing Datalog." The yellow LED is illuminated.
9.	When the datalog data has been cleared, the LCD returns to the main menu, and the green LED is illuminated.

7.7. IDS Diagnostics

You can manually run a pressure diagnostics test for an IDS using the menu on the IDS LCD display. This feature can be used to reset the IDS to an available state after a leak has been fixed.

For example, if a fitting is not physically connected, the system-automated pressure diagnostics test will detect a leak. After the test fails, the LCD on the IDS will display "Unavailable Leaking." Once the problem has been corrected, you can manually run the pressure diagnostics test to remove the error state, and allow the IDS to be used.

To run IDS Diagnostics, follow the instructions listed below.

Step	Instruction
1.	Press any of the keys on the IDS keypad to access the main menu.

NOTE: The menu cannot be used if the **Menu Locked** setting for the IDS in DSSAC is set to "Yes."

Step	Instruction
2.	Use the ARROW keys on the keypad until Docking Station is highlighted.
3.	Press the ENTER key. The Docking Station menu appears.
4.	Use the ARROW keys on the keypad to select Diagnose. Press the ENTER key.
5.	The LCD displays a confirmation prompt: "Are you sure?" Select Yes, and press the ENTER key.
6.	The LCD screen displays "Diagnosing." If the leak issue has been corrected, the LCD screen displays the current date and time. The green LED is illuminated.
7.	If the diagnostic test fails again, contact Industrial Scientific Corporation for service. See section 13.7 Industrial Scientific Support Services for contact information.

7.8. Instrument Docking Station Operating Guidelines

Use the following safety guidelines to help to ensure your own personal safety and to help protect your Instrument Docking Station and working environment from potential damage.

CAUTION: Compressed gas cylinders and their contents may present specific hazards to the user. Use only in a well-ventilated area. Use only in accordance with the instructions and warnings as marked on the cylinder and the appropriate Material Safety Data Sheet.

7.8.1. General

A Instrument Docking Station (IDS) is a sensitive piece of equipment that should be treated with care. It should be handled in the same way you would handle a laptop computer. General guidelines are listed below.

- To reduce the risk of fire or electric shock, do not expose the IDS to rain or moisture.
- Do not operate an IDS with any cover(s) removed.
- Avoid extremes in temperature. Typical operating temperature should be between -5º C (23º F) and 40º C (122º F).
- Do not drop the unit.
- The IDS should be serviced only by qualified service personnel. Contact Industrial Scientific Corporation for examination, repair, or adjustment.
- To help prevent electric shock, plug the IDS power cable into properly grounded electrical outlets. These cables are equipped with 3-prong plugs to help to ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable. If you must use an extension cable, use a 3-wire cable with properly grounded plugs.
- Do not use corrosive chemicals or vapors near the IDS.
- Do not immerse the cord or plug in water.
- To avoid the potential hazard of electric shock, do not use a IDS during an electrical storm without proper protection.
- To avoid the potential hazard of electric shock, do not connect or disconnect any cables to or from the IDS during an electrical storm.
- To avoid possible damage to the system board, wait 5 seconds after turning off the IDS before restarting.
- To avoid shorting out an IDS when disconnecting a network cable, first unplug the cable from the LAN Port on the back of the IDS, and then from the network jack. When reconnecting a network cable to a IDS, first plug the cable into the network jack, and then into the LAN Port on the back of the IDS.
- To help protect an IDS from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).
- Be sure nothing rests on an IDS's cables and that the cables are not located where they can be stepped on, cut, or tripped over.
- Do not push any objects into the openings of an IDS. Doing so can cause fire or electric shock by shorting out interior components.
- Keep IDSs away from radiators and heat sources. Do not block cooling vents. Avoid placing loose papers underneath an IDS; do not place an IDS in a closed-in wall unit, or on a bed, sofa, or rug.
- An IDS is equipped with a fixed-voltage power supply. The IDS will operate at only one voltage (see the regulatory label on the outside of the IDS for its operating voltage).

7.8.2. Cleaning

Before you clean your IDS, disconnect the power cord from the electrical outlet. Clean your IDS with a soft cloth dampened with water. Do not use liquid or aerosol cleaners, which may contain flammable substances. Do not spray water directly onto the unit.

7.8.3 Explanation of Symbols Used on Unit

Symbol	Description
	Direct Current
	Alternating Current
	Protective Conductor Terminal
	Caution (refer to accompanying documents)

7.8.4 Specifications

Physical Specifications

Instruments supported	GasBadge Pro, MX6 iBrid, SafeCore Module, Tango TX1, Tango TX2, Ventis LS, Ventis MX4, Ventis Pro4, or Ventis Pro5.
Dimensions	GasBadge Pro, Tango TX1, Tango TX2: H: 22.66 cm (8.92 "); W: 16.89 cm (6.65 "); D: 27.31 cm (10.75 ") Ventis Pro4, Ventis Pro5, Ventis MX4, Ventis LS: H: 24.97 cm (9.83 "); W: 16.89 cm (6.65 "); D: 27.31 cm (10.75 ") MX6 iBrid: H: 25.3 cm (9.96 "); W: 16.89 cm (6.65 "); D: 27.31 cm (10.75 ") SafeCore Module: H: 27.3 cm (10.75"); W: 16.89 cm (6.65"); D 29.21 cm (11.5")
Gas and fresh-air intake ports	3-port configuration: two gas; one fresh-air 6-port configuration: five gas; one fresh-air Note: For SafeCore compatible docking stations, use the aspirated module with adapter tubing, part number 17156572 only.
Pump flow rate	1.2 SCFH (550 mL/min)
Communication	10/100 Ethernet support, RJ45 Cat5 connection (or greater); for longer cables, 14−110 m [46–360 ‘] use a solid conductor shielded twisted pair cable. USB port for data storage device or printer (for use with DSX Standalone Mode only).
Display	128 x 64 dot matrix LCD Language options: English, French, German, Portuguese (Brazil), and Spanish

Performance Specifications

Operating temperature range	0–50 ºC (32–122 ºF)
Operating humidity range	0–80% relative humidity (RH) up to 30 ºC (86 ºF), decreasing linearly to 50% RH at 50 ºC (122 ºF)
External power supply ratings	Supply voltage: 100–240 VAC/12 VDC Frequency range: 50–60 Hz Current rating: 5A

7.8.5. Regulatory Notices

Electromagnetic Interference (EMI) is any signal or emission, radiated in free space or conducted along power or signal leads, that endangers the functioning of radio navigation or other safety service or seriously degrades, obstructs, or repeatedly interrupts a licensed radio communications service. Radio communications services include but are not limited to AM/FM commercial broadcast, television, cellular services, radar, air-traffic control, pager, and Personal Communication Services (PCS). These licensed services, along with unintentional radiators such as digital devices, including computer systems, contribute to the electromagnetic environment.

7.8.6. Wiring Requirements

Voltage used must be the same as specified on this device (100/240 VAC) or 12VDC. Using a higher voltage is dangerous and may result in a fire or other accident causing device damage. Using a lower voltage will cause unexpected results. Industrial Scientific is NOT responsible for damage resulting from improper use of an IDS.

# # #

Chapter

8

Event Scheduling

8.1. Introduction

An event is an activity that automatically occurs in the docking station. You determine when these events run by scheduling them in the DSSAC.

The types of events that you can schedule at particular dates and/or times are:

- **Calibration -** Used to automatically calibrate an instrument.
- **Alarm Events Download -** Used to automatically downloading alarm events from an instrument
- **Bump Test -** Used to automatically perform bump tests on an instrument.
- **Bump Test (Tango TX1 only) –** Applies only to Tango TX1 instruments. "Bump Test (Tango TX1 only)" and "Bump Test" global events have no effect on each other.
- **Datalog Download -** Used to download datalog data from an instrument.
- **Diagnostics -** Used to run diagnostic tests on an instrument or IDS. The results of these tests are sent to the iNet Network Operations Center for analysis.
- **Manual Operations Download -** Downloads manual calibration and bump test operations performed by user.

NOTE: There are also two events that occur automatically in the system. These events are **Settings Update** and **Settings Read**. "Settings Update" controls the transfer of option information from the server to instruments and IDSs. "Settings Read" handles registration of new Docking Stations, instruments, and components. These events occur daily for IDSs, and upon docking for instruments.

NOTE: If two sensors are installed in the Tango TX1 when the data are logged, DS2 will download data for three sensors. Data from the installed sensors are logged and downloaded as sensor 1 and sensor 2. Data that are logged and downloaded as sensor 3 (or VIRTUAL) are algorithm-calculated values that are based on sensor 1 and sensor 2 data. DSSAC displays only the VIRTUAL data.

If only one sensor is installed or working when the data are logged, the downloaded and DSSAC-displayed data will contain only information for that sensor.

There are two types of events.

- **Global -**These events are built into the system, and apply to all IDSs or instruments that are configured in your docking station network. There are Global events for both IDSs and instruments.
- **Special -**These events are created by an administrator, and apply only to the instruments designated to use them. Special events override Global events. For example, if an instrument is configured to use a Special calibration event, it calibrates according to the schedule set in the Special event, and not the Global calibration event. The Global calibration event is ignored for that instrument.

Events can be run at the following intervals.

- **Upon Docking -**The event will run each time that an instrument is placed on the IDS. This interval only applies to instrument events.
- **Daily -**The event runs each day at a specified time, or whenever the IDS or instrument is available that day.
- **Weekly -** The event runs on the specified day of the week at a specified time, or whenever the IDS or instrument is available on the specified day or thereafter.
- **Monthly -**The event runs on the specified day of the month at a specified time, or whenever the IDS or instrument is available on the specified day or thereafter.
- **Quarterly -** The event runs once each 90 days, or whenever the IDS or instrument is available on the specified day or thereafter.

NOTE: If an IDS or instrument is not available at the scheduled time, the event will run for that IDS or instrument the next time it is available. For example, if an instrument event is set up to run weekly on Tuesdays, and an instrument is not docked until Wednesday, the event will run on Wednesday for that instrument.

8.2. Global Events

Global events apply to all IDSs or instruments in your docking station network. You cannot add or remove global events. However, you can schedule global events to run at a time that you specify.

8.2.1. Global Instrument Docking Station Events

There is one global Instrument Docking Station event built-in to the system:

- Diagnostics.

By default, the Diagnostics IDS event is set to run Daily at midnight.

NOTE: You cannot disable the IDS global event.

To view or edit the global IDS event, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Expand the Events option in the navigation pane, if necessary.
3.	Expand the Docking Station option that is underneath Events, if necessary.
4.	Click on Global. The IDS global event appears on the contents page.

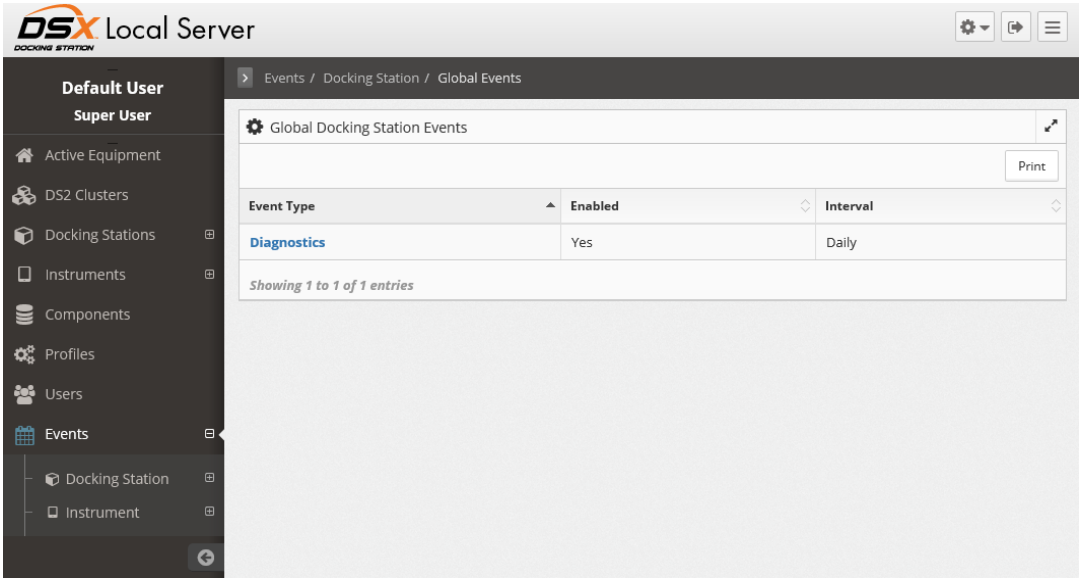


Figure 8-1. Docking Station Global Event List Page

Step	Instruction
5.	Click on the Diagnostics event.

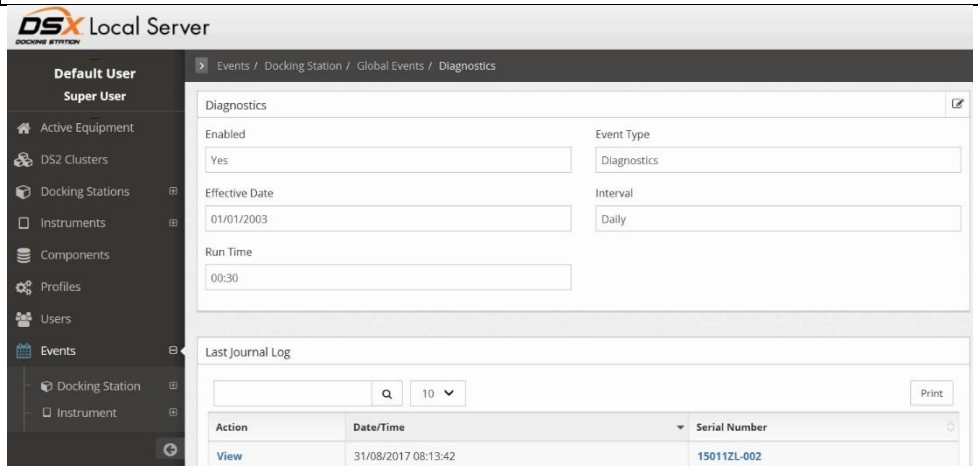


Figure 8-2. Docking Station Global Events Page

Step	Instruction
6.	The Diagnostics Event page appears. It contains two sections: • Diagnostics - Contains information about the event and when it is scheduled to run. • Last Journal Log - Contains records of the last time that the event ran for various IDSs.

NOTE: Only the dssuser can edit events, but any user with the administrator role can view this page.

NOTE: Global IDS events cannot be disabled.

Step	Instruction
7.	Click the Edit ( ) button on the top right of the Diagnostics section, and select an interval from the Interval dropdown menu. The choices are: • Daily - If you select "Daily," you must also specify an Effective Date to indicate when the event should start running. • Weekly - If you select "Weekly," you must also select a Day (e.g., Sunday, Monday, etc.) to indicate the day of the week on which the event should run, and specify an Effective Date to indicate when the event should start running. • Monthly - If you select "Monthly," you must also select a Day (e.g., 1st, 2nd, 3rd, 31st) to indicate the day of the month on which the event should run, and specify an Effective Date to indicate when the event should start running.

NOTE: If you select the 30th or 31st as the Day, the event runs on the last day of the month for months that do not have 30 or 31 days, e.g., the event would run on February 28th.

Step	Instruction
8.	Click Save to save the changes to the Event.

8.2.2. Global Instrument Events

The global instrument events that are built-in to the system are:

- Alarm Events Download
- Bump Test
- Bump Test (Tango TX1 only)
- Calibration
- Datalog Download
- Diagnostics
- Manual Operations Download

See Table 8-1 for the default settings for each of these events.

NOTE: You can disable global instrument events that you do not want to run.

NOTE: The Bump Test (Tango TX1 only) global event applies only to Tango TX1 instruments. "Bump Test (Tango TX1 only)" and "Bump Test" global events have no effect on each other.

To view or edit a global Instrument Event, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Expand the Events option in the navigation pane, if necessary.
3.	Expand the Instrument option that is underneath Events, if necessary.
4.	Click on Global. The instrument global events appear on the contents page. The contents page displays the Event Type, whether or not it is disabled, and the current scheduled Interval.

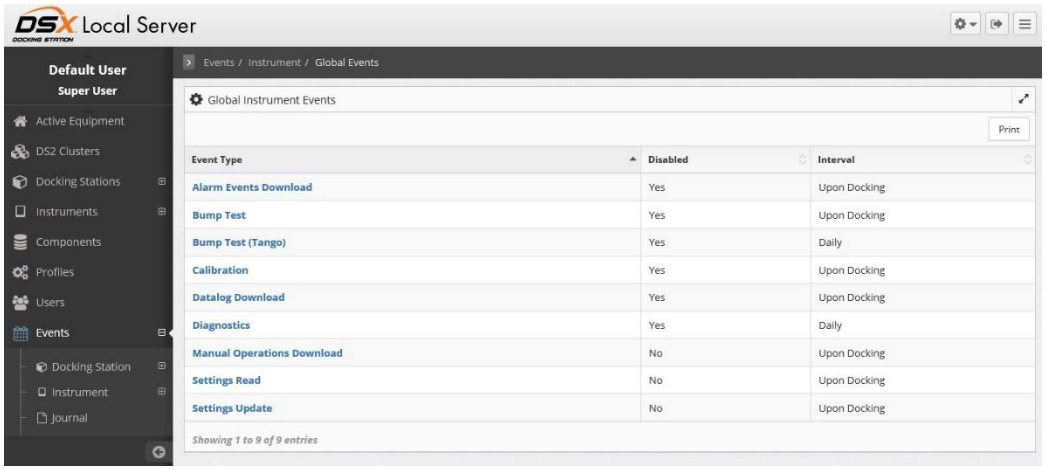


Figure 8-3. Instrument Global Events List Page

Step	Instruction
5.	Click on the Event Type for which you would like to view or edit settings.
6.	The chosen Event Type page appears. It contains two sections. • The chosen Event Type - Contains information about the event and when it is scheduled to run. • Last Journal Log - Contains records of the last time that the event ran for various instruments. See Chapter 9 for more information about the Journal.

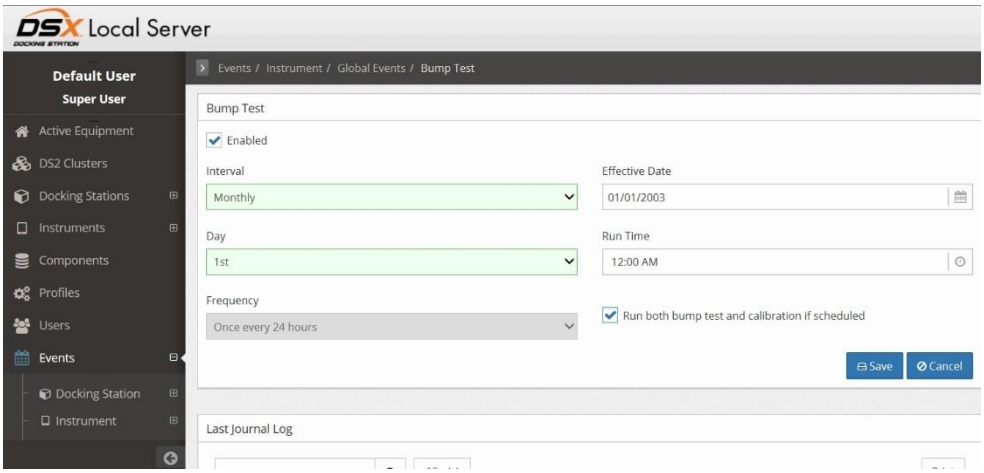


Figure 8-4. Instrument Global Events Page

NOTE: Only the dssuser user can edit events, but any user with the administrator role can view this page.

Step	Instruction
7.	Click the Edit ( ) button on the top right of the chosen Event Type section box, and choose an interval from the Interval dropdown menu. The choices are: • Upon Docking - If you select "Upon Docking," you must also specify an Effective Date when the event should start running. The event runs each time that an instrument is docked in the IDS. • Daily - If you select "Daily," you must also specify an Effective Date to indicate when the event should start running and a Run Time to indicate the time at which the event should run. Daily calibration and bump test events may be set to run up to 4-times per day at intervals of 6 hours, 8 hours, 12 hours and 24 hours. • Weekly - If you select "Weekly," you must also select a Day (e.g., Sunday, Monday, etc.) to indicate the day of the week on which the event should run, and specify an Effective Date to indicate when the event should start running and a Run Time to indicate the time at which the event should run. • Monthly - If you select "Monthly," you must also select a Day (e.g., 1st, 2nd, 3rd, 31st) to indicate the day of the month on which the event should run, and specify an Effective Date to indicate when the event should start running and a Run Time to indicate the time at which the event should run.

NOTE: If you select the 30th or 31st as the **Day**, the event runs on the last day of the month for months that do not have 30 or 31 days, e.g., the event would run on February 28th.

Step	Instruction
8.	If you do not want the event to run, click in the checkbox next to the Disabled option. If the Event is already disabled, you can also enable the event by deselecting the checkbox next to the Disabled option.
9.	Click Save to save the changes to the Event.

Table 8-1. Default Settings for Global Instrument Events

Event	Default Settings	
Bump Test	Interval:	Daily, 24 hours
	Effective Date:	1/1/03
	Run Time:	12:00 AM
Bump Test (Tango TX1 only)	Interval:	Daily, 24 hours
	Effective Date:	4/10/33
	Run Time:	12:00 AM
Diagnostics	Interval:	Daily, 24 hours
	Effective Date:	1/1/03
	Run Time:	12:00 AM
Calibration	Interval:	Monthly
	Day:	1st
	Effective Date:	1/1/03
	Run Time:	12:00 AM
Datalog Download	Interval:	Upon Docking
	Effective Date:	1/1/03
Alarms	Interval:	Upon Docking
	Run Time:	After Download Datalog
	Effective Date:	1/1/03
Manual Operations Download	Interval:	Upon Docking
	Run Time:	12:00 AM
	Effective Date:	1/1/03

8.3. Special Events

Special Events are custom events that you can assign to specific instruments. If an instrument is assigned to a Special Event, the Global Event no longer applies to that instrument. You may wish to setup special events to handle groups of instruments that have special maintenance requirements. For example, you may have a group of heavily used instruments that you wish to calibrate w eekly instead of monthly, as specified in the global event.

You can add the following types of Special Events:

- Bump Test
- Bump Test (Tango TX1 only)
- Diagnostics
- Calibration
- Alarms
- Datalog Download
- Manual Operations Download

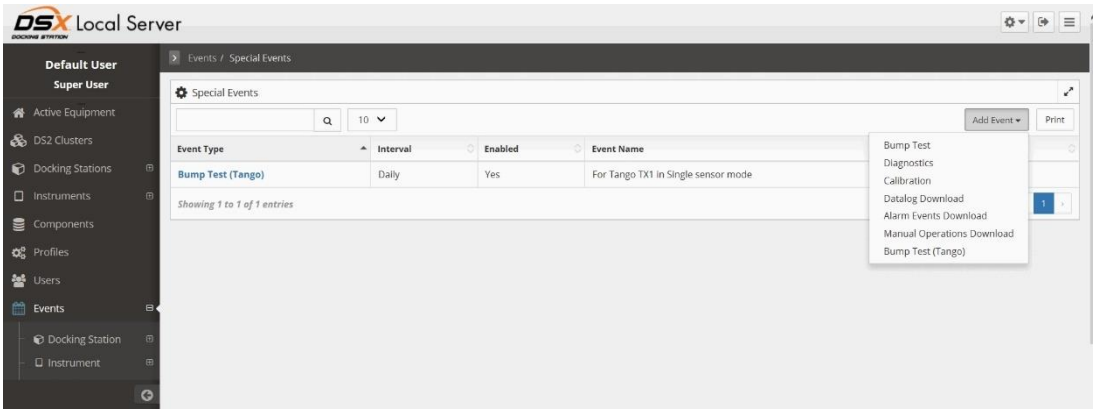
NOTE: The "Bump Test (Tango TX1 only)" special event is system created. It applies to any Tango TX1 instrument that is in single-sensor mode or has two installed sensors and one is in calibration fail. When any Tango TX1 instrument is in either state, DSS will override any other bump test event for the unit.

To add a Special Event for an instrument, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Expand the Events option in the navigation pane, if necessary.
3.	Expand the Instrument option that is underneath Events, if necessary.
4.	Click on Special. Any instrument Special Events that have been previously added appear in the contents page. The contents page displays the Event Type , the current scheduled Interval, whether or not it is disabled, the Event Name, and the Event Owner.
5.	Click on the Add Event dropdown menu button at the top right of the Special Events List page.

NOTE: Only the dssuser user can edit special events. However, if the dssuser assigns another user (requires administrator role) as the owner of the special event, they too can edit. Any administrator can view the special event.

Step	Instruction
6.	A dropdown list of Special Events appears.

Step	Instruction
7.	Click on the Event Type you wish to add.  **Figure 8-5. Types of Special Events.**
8.	The Add Special Instrument Event page appears. From there select an interval from the Interval dropdown menu. The choices are: • Upon Docking - If you select "Upon Docking," you must also specify and Effective Date when the event should start running. The event runs each time that an instrument is docked in the IDS. • Daily - If you select "Daily," you must also specify an Effective Date to indicate when the event should start running and a Run Time to indicate the time at which the event should run. Daily calibration and bump test events may be set to run up to 4-times per day on intervals of every 6 hours, 8 hours, 12 hours or 24 hours. • Weekly - If you select "Weekly," you must also select a Day (e.g., Sunday, Monday, etc.) to indicate the day of the week on which the event should run, and specify an Effective Date to indicate when the event should start running and a Run Time to indicate the time at which the event should run. • Monthly - If you select "Monthly," you must also select a Day (e.g., 1st, 2nd, 3rd, …, 31st) to indicate the day of the month on which the event should run, and specify an Effective Date to indicate when the event should start running and a Run Time to indicate the time at which the event should run. • Quarterly - The event runs once each 90 days, or whenever the IDS or instrument is available on the specified day or thereafter. Note: This is only an option for the instrument calibration event.

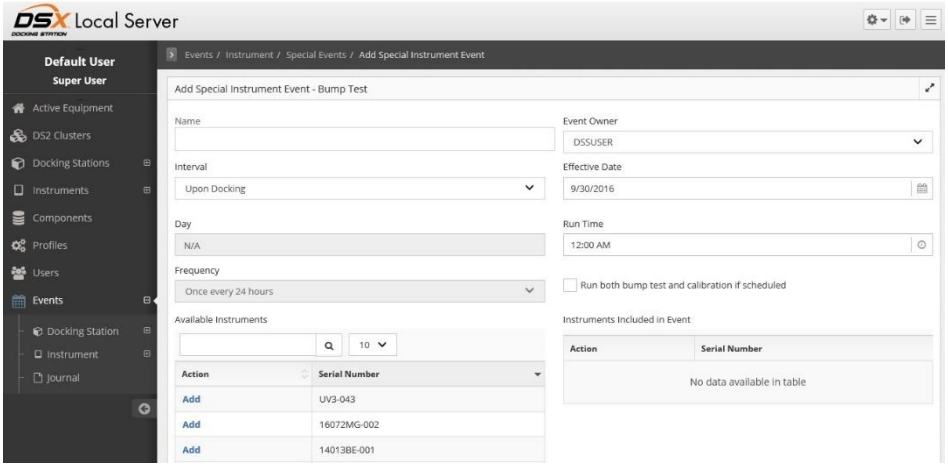


Figure 8-6. Add Instrument Special Event Page

NOTE: If you select the 30th or 31st as the **Day**, the event runs on the last day of the month for months that do not have 30 or 31 days, e.g., the event would run on February 28th.

Step	Instruction
9.	Enter a name for the event in the Name field.
10.	From the Available Instruments field, select the instrument to which the event should apply. You can select multiple instruments by clicking on Add next to each available instrument you wish to add.
11.	The instruments are added to the Instruments Included in Event box. To remove an instrument from a special event, click on Remove next to each instrument you wish to remove.
12.	Click Save to save the event. The event is added to the list of Special Events on the contents page.

NOTE: The next time that you view the special event, the Last Journal Log section will be visible. The Last Journal Log contains records of the last time that the event ran for various instruments. See Chapter 9 for more information about the Journal.

8.4. DSX-L Defaults for Scheduled Events

For new DSS installs, the table below shall be the default schedules for all events. For upgrades to previous versions of DSS, the default schedule is not altered by the installer. For upgrades, all current event schedules remain unmodified by the installer. See the table below.

Table 8-2. DSX-L Defaults for Scheduled Events

Event	Priority	Schedule	Time	Enabled
IDS Settings Read	1	Daily	12:00am	Yes
IDS Settings Update	2	Daily	12:00am	Yes
IDS Diagnostics	3	Daily	12:30am	Yes
Instrument Settings Read	4	Upon Docking	1:00am	Yes
Instrument Settings Update	5	Upon Docking	1:00am	Yes
Instrument Diagnostics	6	Upon Docking	1:30am	Yes
Manual Operations Download	7	Upon Docking	1:00 am	Yes
Bump Test	8	Daily	2:00am	Yes
Calibration	9	Monthly	2:00am	Yes
Datalog Download	10	Upon Docking	2:30am	Yes
Alarm Events Download	11	Upon Docking	3:00am	Yes

# # #

Chapter 9

The Journal Feature

9.1. Introduction

The Journal provides a history of when the Global and Special events ran in your docking station network. The Journal records events that ran successfully and unsuccessfully.

The Journal tracks only the last occurrence of each event for each IDS or instrument. When an event occurs again for an instrument or IDS, the old entry is overwritten. For example, if Instrument X was last calibrated on 8/01/14, the Journal contains this data. When the next calibration occurs on 9/01/14, the journal entry for 8/01/14 is replaced with the new entry for 9/01/14.

Journal entries are overwritten based upon the event's ID. It is possible to see multiple journal entries for the same type of event for an instrument if it occurred as a result of different events. For example, if an instrument calibrates under the global event, and then it is assigned to a special calibration event, journal entries will exist for both the global event and the special event.

9.2. Viewing Journal Entries

You can view Journal entries for an individual piece of equipment or an individual event across your docking station network. Journal entries are created for all of the global and special events, and the two system events, "Settings Update" and "Settings Read." To view all Journal entries, follow the instructions listed below.

NOTE: The journal details display in the language that is set for the DSSAC.

NOTE: Journal details having entries greater than 8K bytes are truncated.

An IDS uploads its IP Address to the DSS. The DSS uploads the following network-related information to iNet for each IDS, if it has the information for the IDS.

1. Docking station's IP Address.
2. MAC address of docking station's wired Ethernet port.
3. MAC address of wireless card (only if there is one).

4. Docking station's server IP Address (or host name if IDS is configured with a specific server host name instead of server IP address; e.g., "AN1632").

To view Journal entries for an individual event, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Expand the Events option in the navigation pane, if necessary.
3.	Expand the docking station or instrument options that are underneath Events, if necessary, depending on the type of event you wish to view.
4.	For docking stations, click on Global. For instruments, click on either Global or Special.
5.	The list of configured events appears on the contents page.
6.	Click the event whose journal you wish to view.
7.	For each journal entry you can view the Date/Time at which the event occurred, and the Serial Number of the instrument or IDS for which the event was run.

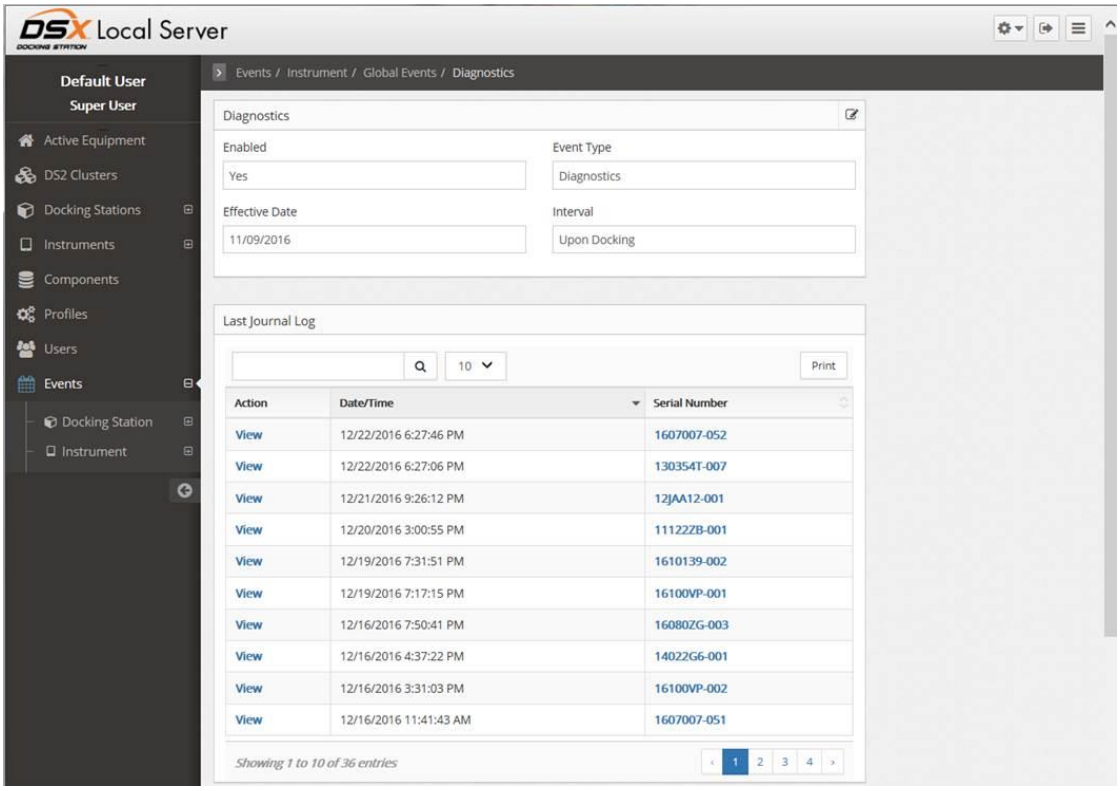


Figure 9-1. Viewing Journal Entries for an Individual Event

# # #

Chapter 10

Default Settings

10.1. Introduction

This section describes how to maintain the default settings for alarms and calibration gases in the DSSAC. These functions are only available to users who are assigned to the Systems Administrator role. However, a user assigned to the Technician role can view the settings, but not change them.

10.2. Default Alarm Settings

When first installed, DSX contains a series of default alarm settings for each of the compatible instruments and each of the sensor types that can be used with them. These settings are the recommended thresholds for the following alarms:

- **Alarm Low -**The gas concentration threshold that triggers the low alarm. The alarm sounds when the instrument detects that the gas concentration has reached or exceeds this level. The exception to this rule is for Oxygen (O_2) where the alarm sounds when the concentration of oxygen reaches or falls below this level.
- **Alarm High -**The gas concentration threshold that triggers the high alarm.
- **TWA -**The gas concentration threshold for Time Weighed Average (TWA) readings that triggers an alarm.
- **STEL -**The gas concentration threshold for Short Term Exposure Limit (STEL) readings that triggers an alarm.

Default Alarm Settings apply only to instruments when they are docked for the first time, or to new sensors whose information is not in the database. Therefore, you should set up your default settings before docking any instruments that are registered in the database. Changing the Default Alarm Settings after an instrument has been registered will not update the instrument sensor's settings, unless a new sensor is installed in the instrument. You can, however, change an individual sensor's settings to different alarm values, if desired, using the DSSAC. See section 5.8 Instrument - Components for information about sensor-specific alarm settings.

NOTE: Only users assigned to the Systems Administrator role may configure Default Alarm Settings in the DSSAC.

10.3. Modifying Default Alarm Settings

To modify Default Alarm settings, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Settings ( ) button on the top right of your browser window and select Default Alarm Settings.
3.	The Default Alarm Settings section appears.
4.	From the Instrument Type dropdown menu, select the instrument for which you want to change alarm settings. For each instrument you will see a list of sensor types that can be used with the instrument.
5.	To edit an alarm setting for a sensor type, Click on its entry in the list.

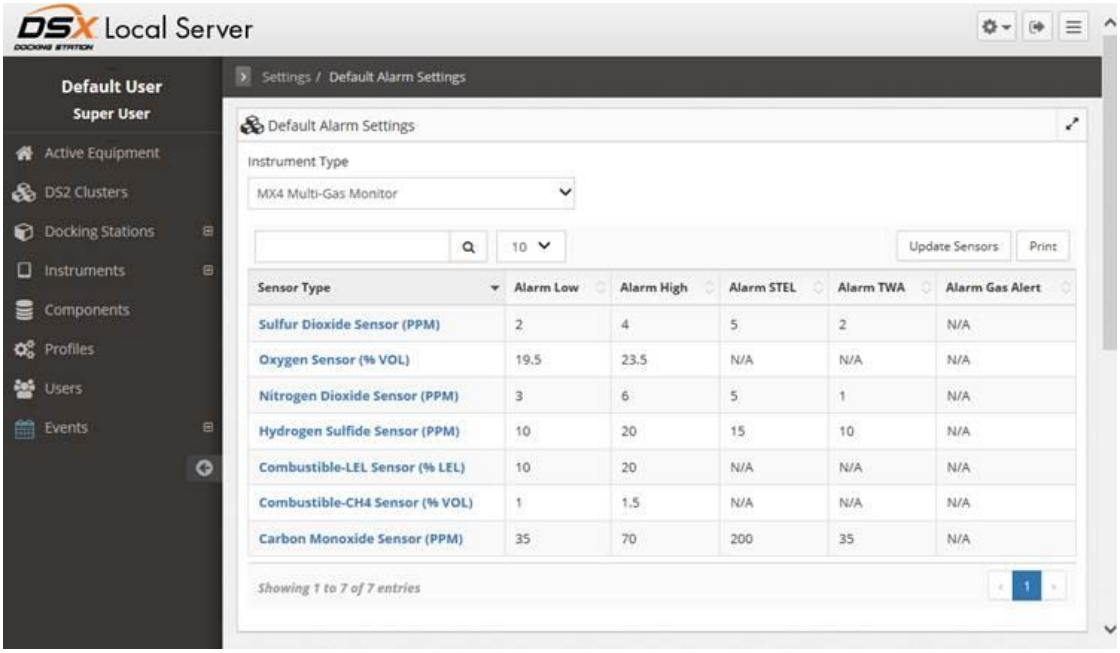


Figure 10-1. Default Alarm Settings

Step	Instruction
6.	The Alarm Settings section appears (for Administrators only). By default, the Factory setting is selected. You can override this setting by selecting Company.

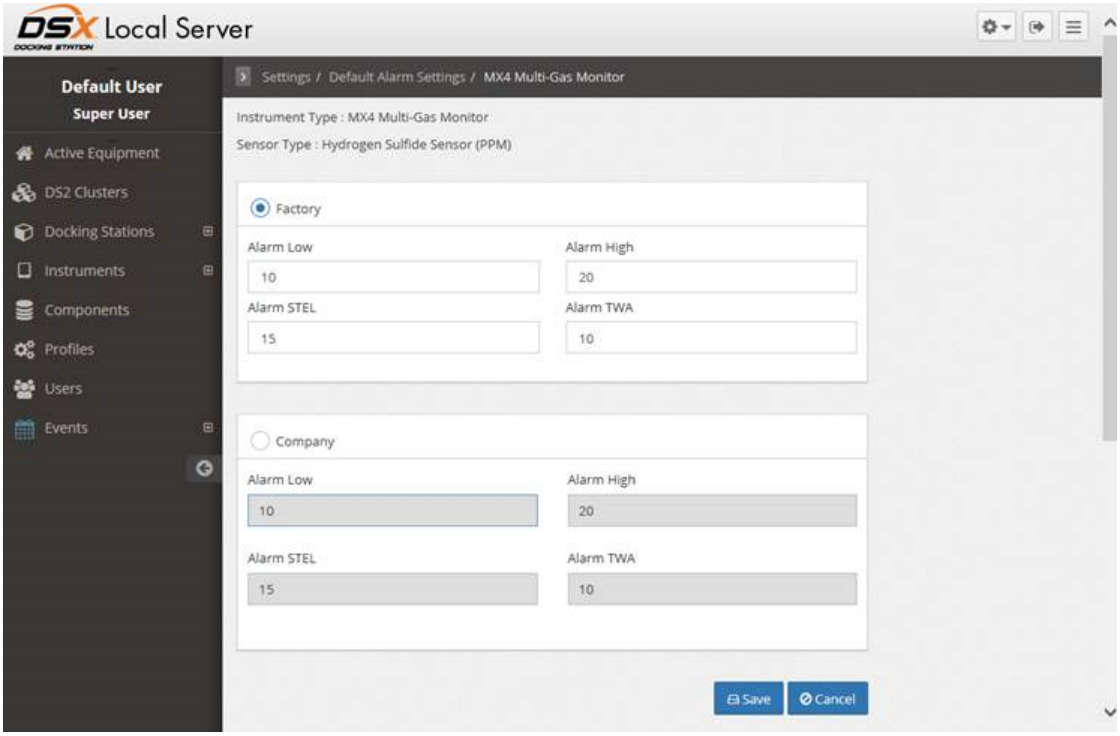


Figure 10-2. Alarm Settings

NOTE: You can return to the factory settings by editing the Alarm Setting and selecting **Factory.**

Step	Instruction
7.	You can now edit the values for Alarm Low, Alarm High, Alarm TWA and Alarm STEL. Click Save to confirm your changes. NOTE: Look at the Sensor Type to determine the type of value that should be entered for the alarm values (e.g., PPM, %VOL, or %LEL).
8.	The sensor type appears in the list in bold type, which indicates that custom settings have been entered, but are not yet saved.
9.	In the Default Alarm Settings section, click on Update Sensors to save the changes.
10.	The changes you made are applied to instruments and sensors when they are first registered in the database.

10.4. Default Calibration Gases

The docking station system allows you to define the concentration of calibration gas that you typically use to calibrate certain sensor types. You can define calibration gases for each of the compatible instrument types.

Default Calibration Gases apply only to instruments when they are docked for the first time, or to new sensors whose information is not in the database. Therefore, you should set up your default settings before docking any instruments that are registered in the database. Changing the Default Calibration Gas settings after an instrument has been registered will not update the instrument sensor's settings, unless a new sensor is installed in the instrument.

10.5. Modifying Default Calibration Gas Settings

To modify Default Calibration Gas settings, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Settings ( ) button on the top right of your browser window and select Default Calibration Gases.
3.	The Default Calibration Gases section appears. The Default Calibration Gases dialog an Instrument Type dropdown menu for each compatible instrument type. Select the instrument for which you want to change calibration gas settings. For each instrument you will see a list of sensor types that can be used with the instrument.

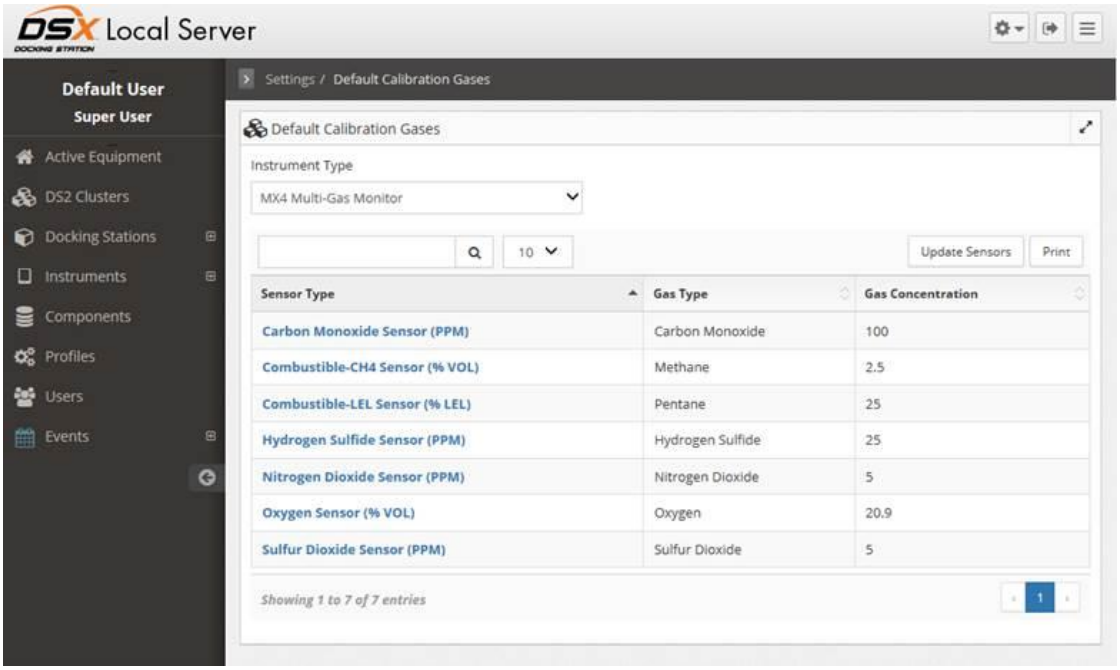


Figure 10-3. Default Calibration Gases

NOTE: VX500 Photo Ionization Detector contains one entry for the PID Sensor.

Step	Instruction
4.	To edit a calibration gas setting for a sensor click on its entry in the list.
5.	The Default Calibration Gas section appears. By default, the Factory setting is selected. You can override this setting by selecting Company.

NOTE: You can return to the factory settings by editing the Gas Calibration setting and selecting **Factory**.

Step	Instruction
6.	Enter the Concentration of the calibration gas that you wish to use for the sensor type. Click Save to confirm your changes. NOTE: Look at the Sensor Type to determine the type of value that should be entered for the concentration value (e.g., PPM, %VOL, or %LEL).
7.	The sensor type appears in the list in bold type, which indicates that custom settings have been confirmed, but are not yet saved.
8.	In the Default Calibration Gases section, click on Update Sensors to save the changes.

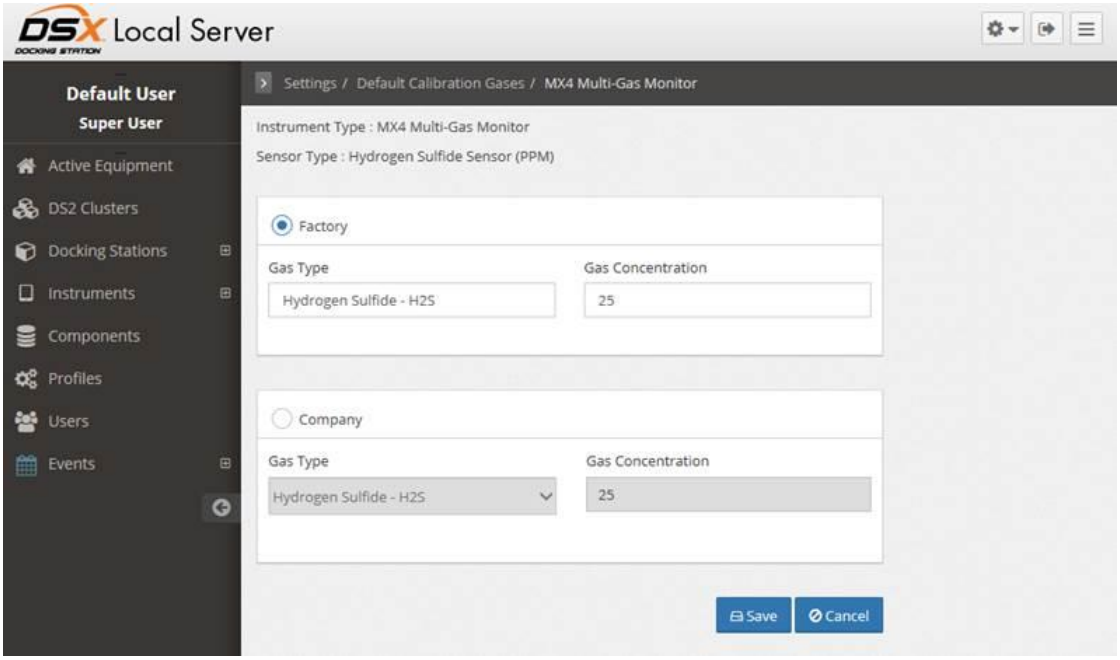


Figure 10-4. Gas Calibration

NOTE: If the user is an administrator, selecting any sensor type enables the properties button. If the user is a technician, selecting any sensor type does not enable the properties button. Clicking the Properties button or selecting the Properties menu opens the Gas Calibration page.

NOTE: If the user is an administrator, right-clicking on any sensor type displays a pop-up menu with Properties as a menu option. If the user is a technician, right-clicking on any sensor type does nothing. If the user is an administrator, clicking on any sensor type opens the Gas Calibration page. If the user is a technician, clicking on any sensor type does nothing.

# # #

Chapter 11

Printing

11.1. Introduction

You can print information that appears in the contents page of DSSAC for the following options:

- Users
- Docking Stations
- Events
- Instruments
- Journal

You can also print the details of individual IDSs and instruments. For instruments, you can print calibration and bump test certificates, as well as datalog data. In addition, you can print calibration and datalog graphs using the Graph Toolbar.

11.2. Printing a List from the Contents Page

To print the contents page, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the option in the navigation pane that represents the type of information you would like to print. For example, if you would like to print a list of Instruments, click on the Instruments option.
3.	If necessary, click on a column heading to sort the list the way you would like it to appear for the print out.
4.	On the top right of the page you wish to print, click on the Print button.
5.	The Print section appears. Select the printer to which you would like to print, and the number of copies that you would like to print.
6.	Click OK. The information is sent to the printer you selected.
7.	The output is a formatted report of the data that appears in the contents page for the option that you had selected.

11.3. Printing IDS or Instrument Detail

To print the details of an instrument or IDS, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments or Docking Stations option in the navigation pane.
3.	Click on the serial number of the instrument or IDS whose details you would like to print.
4.	Click on the Print link in the Quick Links section on the right side of your browser window.
5.	Select the printer to which you would like to print, and the number of copies that you would like to print.
6.	Click OK. The information is sent to the printer you selected. If you printed an IDS, the output contains the information on the General tab and each of the Gas In tabs. If you printed an instrument, the output contains the information on the General, Options (if available), Components, Users and Sites (if available), and Notes tabs. Alternative: You can also select the instrument or IDS, and click the File menu and choose Print.

NOTE: The **Access Code** field will not be included on an instrument print out.

You can also print the details of an instrument or IDS from within the **Edit Instrument** or **Edit Docking Station** section. Follow the instructions listed below.

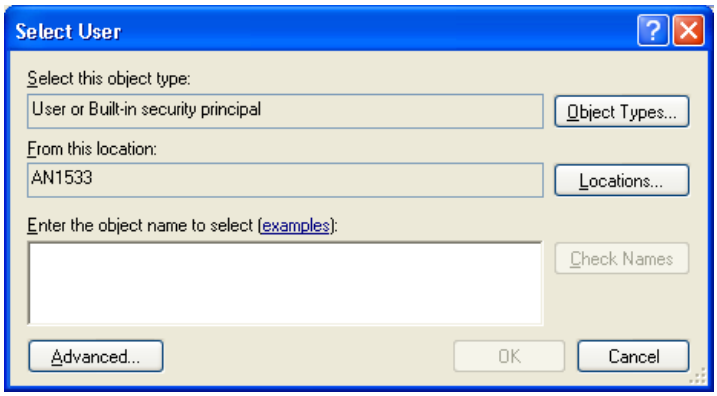
Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments or Docking Stations option in the navigation pane.
3.	Click on the serial number of the instrument or IDS whose details you would like to print.
4.	Click on the Print link in the Quick Links section on the right side of your browser window.

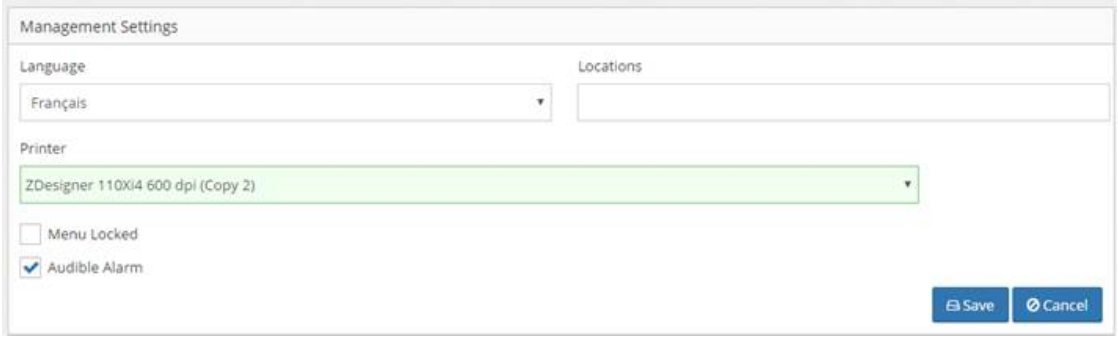
11.4. Configuring the Auto-Print Feature (Versions 3.0 and Higher)

After the docking station system is completely operational, the follow feature may be enabled to allow calibration and bump test reports to be automatically printed to a specified printer after the event has occurred.

Before setting up the software for the auto-print feature make sure that the user that is logged onto the machine has administrative privileges to change the printer.

The user will be required to properly configure the printers on the server or PC before they will become available for use in this feature. The steps to configure a printer are listed below.

Step	Instruction
1.	Create or choose a user account on the server or PC machine which will be used by the printing service. This user account must be password protected. The user MUST have administrator rights.
2.	Log in to the server or PC machine using the user account created in the previous step.
3.	Through Windows, add any printers desired by selecting START / SETTINGS / PRINTERS AND FAXES / ADD PRINTER.
4.	Log back in as an Administrator.
5.	Access the services running on the server by START / SETTINGS / CONTROL PANEL / ADMINISTRATIVE TOOLS / SERVICES.
6.	Locate the service named "**DS2 Printing**".
7.	Right-click on this service and select "Properties".
8.	Select the "log-on" tab.
9.	Select "This account" instead of the default.
10.	Click "Browse".
11.	**The following window will appear.**  **Figure 11-1. The Select User Window**

Step	Instruction
12.	Enter the name of the user that was selected previously into the textbox.
13.	Click “Check names” and verify that the name is recognized.
14.	Select ok.
15.	Enter the users password into the password box and confirm box.
16.	Right click the service and select “Stop.”
17.	Right click the service and select “Start.”
18.	The service should now have access to all printers configured for that user.
19.	When using DSSAC and a selected unit is chosen from the Docking Station lists, the Management Settings section for the docking station will look like the following. When in edit mode, a drop down list of printers is available. (Printers will appear in this list if the service was set up properly).  **Figure 11-2. Docking Station Management Settings Section**
20.	When a printer is selected from the IDS Printer list, Calibration and Bump Test Certificates will automatically print to the chosen printer each time one of these events occurs. A sample of each of the reports is shown below.

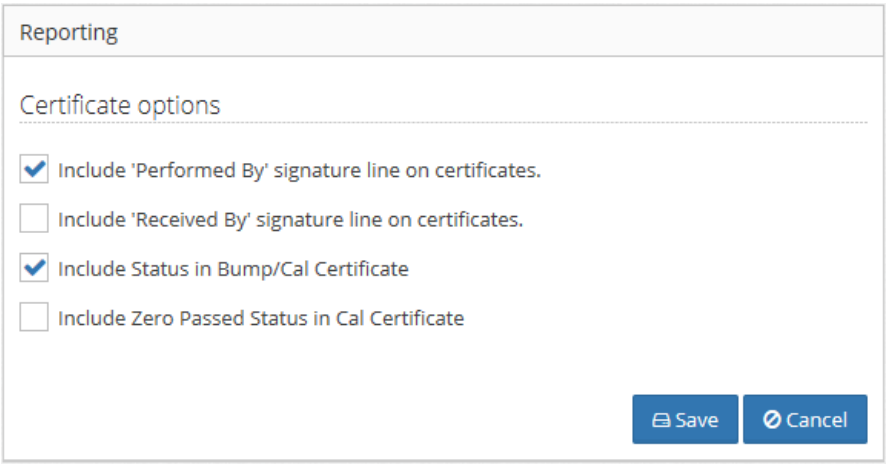
NOTE: If DSS’s tracelog service is enabled, then the DSX Server AutoPrint service will write debug messages to the file called “ds2_printing_log.txt” in the same directory that the server’s tracelog file is configured to write to. For example, if tracelog is configured to be **D:\logs\ds2_server_log.txt**, then the AutoPrint service will log its messages to **D:\logs\ds2_printing_log.txt**.

The AutoPrint service reads configuration settings on startup to determine if and where it should write its log file. It will reread the configuration file once every minute to see if trace log settings have changed and, if so, then the AutoPrint service will change on the fly to use the new log settings.

The AutoPrint service uses the maximum size specified tracelog file to also control the maximum size of the printing log. That is, if tracelog is configured to restart at 1MB, then the AutoPrint service will also restart the printing log once it exceeds 1MB. Each time the AutoPrint server logs a message, it checks the size of the log file. If the file is less than tracelog max size, it appends the message. If the file is greater than this max size, it clears the file and then writes the message.

11.5. Printing Calibration and Bump Test Certificates

To print calibration or bump test certificates, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments option in the navigation pane. The contents page displays a list of instruments.
3.	Click on the instrument that has the calibration or bump test data for which you would like to print a certificate.
4.	Click on Calibrations or Bump Tests.
5.	Do one of the following: • Select a Start Date and an End Date, and then click the Search button to show data for a specific date range. • Click the on Show Last and then the Search button to display the results of the last calibration or bump test.
6.	Select the entry that you would like to print.
7.	Calibration and bump test certificates may optionally have signature lines printed to include a Performed By and/or a Received By signature. They can also include the selected instruments' Status information. To add the signature lines and/or include instrument status on the Cal or Bump certificates • Click the Settings (Settings Button) menu in the top right of your browser window to expand it, then click on "DSS Configuration". • Click on the "Reporting" link under the Quick Links section on the right side of your browser window, then click on the Edit () button for that section. • Check one or both boxes for the desired signature line, and/or check the box "Include Status in Bump/Cal Certificate". • Click the "Save" button to save your changes. 

Step	Instruction
8.	Click the Print Certificate button. Alternative: You can also right-click on the entry, and select Print Certificate from the context menu.
9.	The Print section appears. Select the printer to which you would like to print, and the number of copies that you would like to print.
10.	Click OK. The information is sent to the printer you selected.
11.	The output displays the serial number of the instrument, the serial number of the sensor, the gas type, the status of the instrument, and whether or not the test passed or failed. For calibrations, the Full Span Reserve calculation is also printed.

NOTE: Any user-selected calibration or bump certificate can be printed.

NOTE: For a multi-gas instrument, selecting one sensor and then clicking the PRINT button prints the instrument's calibration certificate for all of the installed sensors at that time.

A "Cylinder ID" column (represented by "CYL") contains the Serial number of the cylinder, if the cylinder is iGas. This serial number is read from the iGas card. It consists of the Lot number and the cylinder number

If the cylinder is not iGas, the cylinder ID column contains the Cylinder ID number entered manually by the user through DSSAC. If the user has not entered an ID, this column is blank.

A "Cylinder Expiration" column (represented by "Exp") contains the expiration date read from the iGas card. If the cylinder is non-iGas, this column contains the expiration date entered manually by the user through DSSAC.

Calibration Certificate

Tango TX1 Single Gas Monitor

Instrument SN	13014S2-062	**Calibration Date**	7/17/2013
Part Number	ZX6-1	**Job Number**	DEVJOB
Setup Date	4/5/2013	**Options**	N/A
Setup Technician	GANA	**Battery**	N/A
Created By	DSSUSER	**Status**	Working

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
12113Q5250	Carbon Monoxide Sensor	Carbon Monoxide	100	191%	Passed	35	70	35	400
12105VJ061	Carbon Monoxide Sensor	Carbon Monoxide	100	195%	Passed	35	70	70	35

Sensor SN	Sensor Type		Cal Date/Time		Cylinder ID	Cylinder Exp
12113Q5250	Carbon Monoxide Sensor		7/17/2013 5:44:46 PM		N/A	3/21/2018
12105VJ061	Carbon Monoxide Sensor		7/17/2013 5:45:00 PM		N/A	3/21/2018

13014S2-062

Figure 11-3. Sample Tango TX1 Calibration Certificate

Bump Certificate

Tango TX1 Single Gas Monitor

Instrument SN	13014S2-062	**Bump Date**	7/11/2013
Part Number	ZX6-1	**Job Number**	DEVJOB
Setup Date	4/5/2013	**Options**	N/A
Setup Technician	GANA	**Battery**	N/A
Created By	DSSUSER	**Bump Timeout**	120
Status	Working		

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
12113Q5250	Carbon Monoxide Sensor	Carbon Monoxide	100	81	Passed	35	70	35	400
12105VJ061	Carbon Monoxide Sensor	Carbon Monoxide	100	95	Passed	35	70	70	35

Sensor SN	Sensor Type		Bump Date/Time		Cylinder ID	Cylinder Exp
12113Q5250	Carbon Monoxide Sensor		7/11/2013 7:05:44 PM		N/A	3/21/2018
12105VJ061	Carbon Monoxide Sensor		7/11/2013 7:05:49 PM		N/A	3/21/2018

13014S2-062

Figure 11-4. Sample Tango TX1 Bump Certificate

11.6. Printing Datalog Data

To print datalog data, follow the instructions listed below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click on the Instruments option in the navigation pane. The contents page displays a list of instruments.

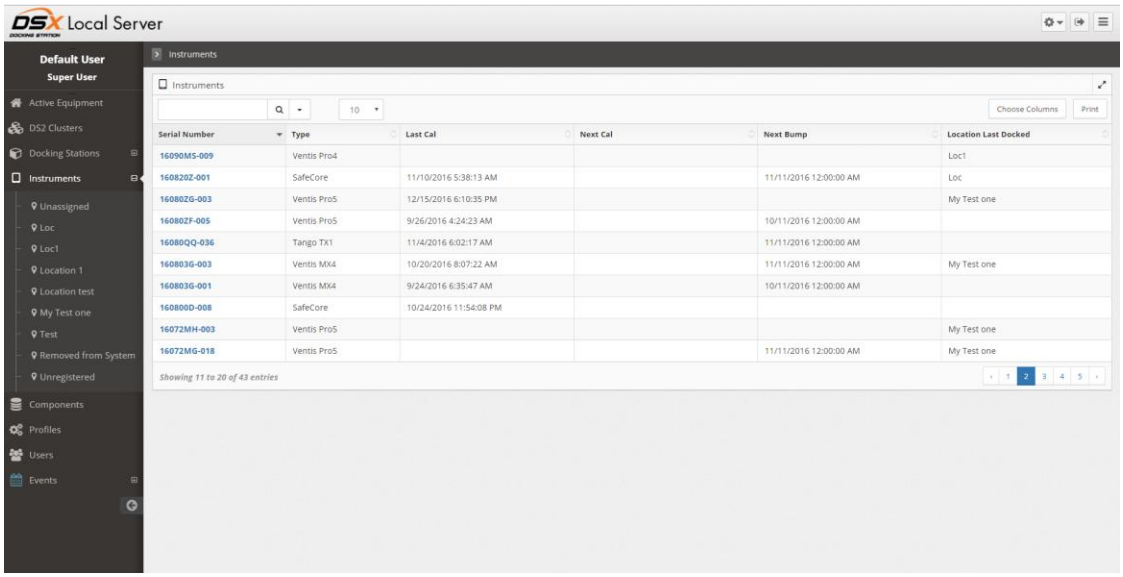


Figure 11-5. The Instruments Option in Navigation Pane

Step	Instruction
3.	Click on the instrument that has the datalog data that you wish to print.
4.	Click on the Datalog tab.
5.	Select a Start Date and an End Date, and then click the Display button to show data for a specific date range.
6.	Select the session whose information you would like to print.
7.	Click the Actions button.
8.	Selecting the Print Data option prints a Datalog Detail Report. It is disabled until a session is selected. Selecting the Print Summary option prints a Datalog Summary Report. It is disabled until a session is selected. Note that this option is disabled by default or whenever no session is currently selected.
9.	The information is sent to the printer you selected.

Step	Instruction
10.	The output displays each reading taken during the session, as well as the TWA and STEL calculations at the time of each reading. The list is categorized by period and site information.

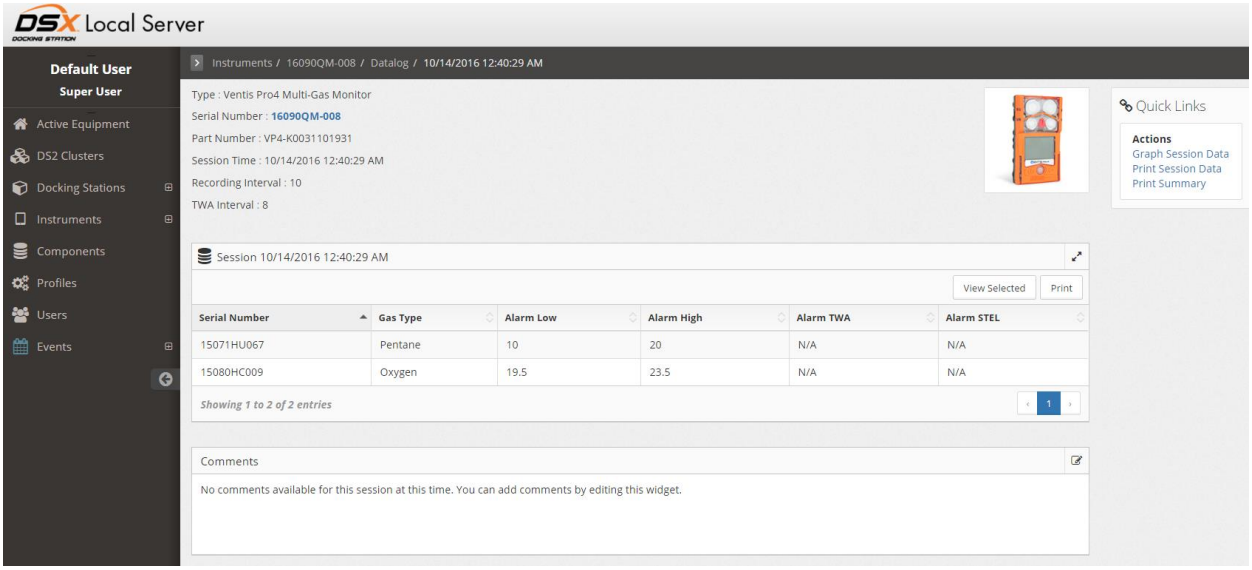


Figure 11-6. The Datalog Session Screen

DS2/DSX Local Server - Industrial Scientific Corporation (12/24/2016 12:33:11 AM) - Datalog Summary Report

Session 10/14/2016 12:40:29 AM

Instrument	16090QM-008
TWA Interval	8
Recording Interval	10

Sensor Sessions

Sensor	Gas Type	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
15071HU067	Pentane	10	20	N/A	N/A
1 -	**Time**	**Reading**	**Value**		
	10/14/2016 12:40:29 AM	Min Reading	0		
	10/14/2016 12:40:29 AM	Max Reading	0		
	10/14/2016 12:40:29 AM	Final TWA	N/A		
	10/14/2016 12:40:29 AM	Min STEL	N/A		
	10/14/2016 12:40:29 AM	Max STEL	N/A		
2 -	**Time**	**Reading**	**Value**		
	10/14/2016 12:40:39 AM	Min Reading	0		
	10/14/2016 12:40:39 AM	Max Reading	0		
	10/14/2016 12:40:59 AM	Final TWA	N/A		
	10/14/2016 12:40:59 AM	Min STEL	N/A		
	10/14/2016 12:40:59 AM	Max STEL	N/A		
Sensor	**Gas Type**	**Alarm Low**	**Alarm High**	**Alarm TWA**	**Alarm STEL**
15080HC009	Oxygen	19.5	23.5	N/A	N/A
1 -	**Time**	**Reading**	**Value**		
	10/14/2016 12:40:29 AM	Min Reading	20.9		
	10/14/2016 12:40:29 AM	Max Reading	20.9		
	10/14/2016 12:40:29 AM	Final TWA	N/A		
	10/14/2016 12:40:29 AM	Min STEL	N/A		
	10/14/2016 12:40:29 AM	Max STEL	N/A		
2 -	**Time**	**Reading**	**Value**		
	10/14/2016 12:40:39 AM	Min Reading	20.9		
	10/14/2016 12:40:39 AM	Max Reading	20.9		
	10/14/2016 12:40:59 AM	Final TWA	N/A		
	10/14/2016 12:40:59 AM	Min STEL	N/A		
	10/14/2016 12:40:59 AM	Max STEL	N/A		

Figure 11-7. Sample Datalog Summary Report

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Chapter 12

Language Features

12.1. Introduction

The DSX-L supports seven languages for the user interface on the IDS LCD display and in the DSSAC application: English, French, Spanish, German, Czech, Polish, and Russian. When the DSS installation software is launched, the Software Startup Window displays the language choices. Click on the desired language. The Launcher page will reload in the chosen language.

Figure 12-1. Installer Software Startup Window

12.2. Changing Language Settings

This section describes how to change your language settings for both the IDS and the DSSAC.

12.2.1. Instrument Docking Station Language Settings

The language setting for an IDS can be changed by either of the following ways:

- Using the **Edit Docking Station section** in the DSSAC
- Using the IDS menu.

To change IDS language settings using the DSSAC, follow the instructions below.

Step	Instruction
1.	Log in to the DSSAC application.
2.	Click the Docking Stations option in the navigation pane.
3.	The contents page displays a list of IDSs that have been configured in the system.
4.	Click on the IDS whose language settings you wish to change.
5.	The Edit Docking Station section appears.
6.	On the General tab, select a language in the Language Setting field.
7.	Click the OK button to save your changes. The change will take effect the next day, when the system runs the Settings Update event for the IDS.

To change IDS language settings using the IDS menu, follow the instructions listed below.

Step	Instruction
1.	Press any of the keys on the IDS keypad to access the main menu.

NOTE: The menu cannot be used when the IDS is performing an instrument action.

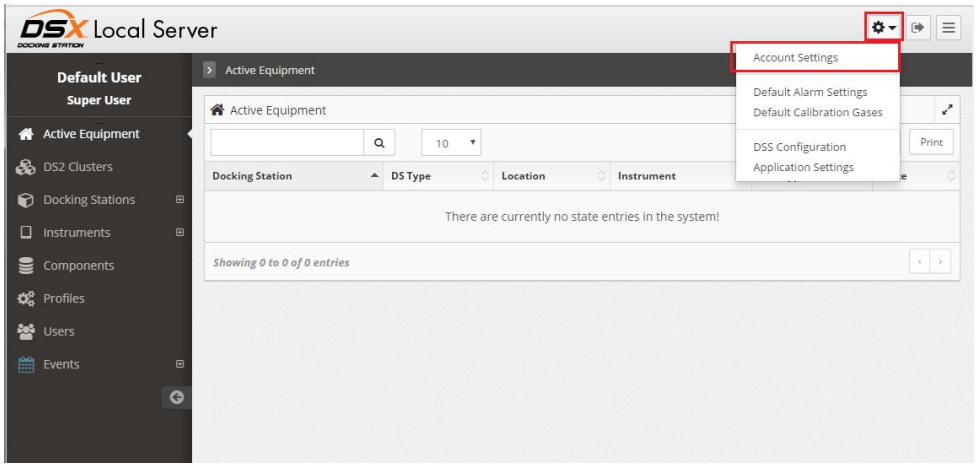
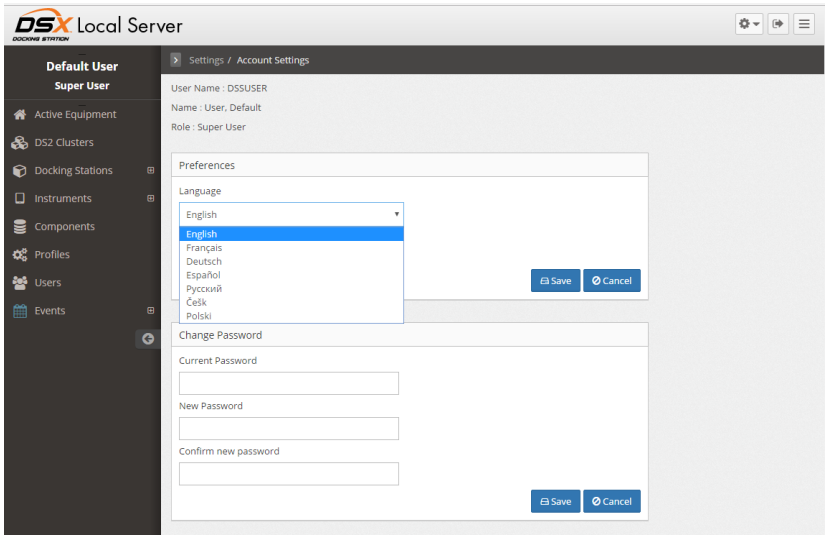
NOTE: The menu cannot be used if the **Menu Locked** setting for the IDS in DSSAC is set to "Yes."

Step	Instruction
2.	Use the ARROW keys on the keypad until Docking Station is highlighted.
3.	Press the ENTER key. The Docking Station menu appears.
4.	Use the ARROW keys on the keypad to select Set Language. Press the ENTER key.
5.	A list of languages appears. Use the ARROW keys on the keypad to navigate to the language that you would like to use. Press the ENTER key to select the language.
6.	The LCD displays a confirmation prompt: "Are you sure?" Select Yes, and press the ENTER key.
7.	The LCD screen returns to the main menu. The language setting on the Docking Station has been changed.

NOTE: If the language is not changed in DSSAC, the language set in DSSAC will override the setting made on the IDS menu the next time the system runs the Settings Update event for the IDS.

12.2.2. DSSAC Language Settings

To change the language used in the DSSAC application, follow the instructions below.

Step	Instructions
1	Log into the Docking Station Server Admin Console.
2	Click on the settings menu on top-right side of the application page and select “Account Settings. The Account settings screen appears. 
3	Click on “Language” dropdown list under “Preferences” (group) to update the DSSAC display language. 
5	Select a language from the drop-down list in the “Language” field, and click Save.

6	DSSAC refreshes and applies the selected language to DSSAC display information.

# # #

Chapter 13 Troubleshooting

13.1. Introduction

This section provides information about troubleshooting problems in the docking station system. The issues are categorized into three main areas:

- DSSAC Issues
- DSS Issues
- Instrument Docking Station Issues.

13.2. Using the Event Log

If you experience a problem with the Docking Station Server (DSS) or the DSSAC, many error messages can be viewed in the operating system‘s Event Log. In addition, information about events that did not run successfully is recorded in the Event Log.

For DSSAC workstations, you can view the event log from the computer on which DSSAC is running. For the DSS computer, you can view the event log in the same way only if you have physical access to the server. You can also access the event log of the DSS remotely, provided you have administrative rights on the server. The DSS messages will be written to the DSX Docking Station Log in the Event Log.

To access the Event Log on the current computer, follow the instructions listed below.

Step	Instruction
1.	Click on the Start button.
2.	Select Control Panel. The Control Panel window opens.
3.	Click on the Administrative Tools icon to open the Administrative Tools window.
4.	Click on Event Viewer. The Event Viewer utility opens. The docking station records errors to the Application log.
5.	If you need to access the DSS Event Log, you can use the Computer Manager icon instead of the Event Viewer icon. When the Computer Manager opens, click on the Action menu and choose Connect to another computer. Select the server that is running the DSS software.

To access the Event Log on another computer, follow the instructions that are listed below.

Step	Instruction
1.	Click on the Start button
2.	Select Control Panel. The Control Panel window opens.
3.	Click on the Administrative Tools icon. The Administrative Tools window opens.
4.	Click on the Computer Manager icon. The Computer Manager utility opens.
5.	Click on the Action menu and choose Connect to another computer. Select the server whose Event Log you wish to view.
6.	Once you have connected to remote computer, click on Event Viewer in the left pane of the window. Please refer to your operating system‘s user guide for detailed information about using the Event Viewer.

Table 13-1. Sample Event Log Messages

Error Condition	Event Viewer Message
Required gas is not connected (no iGas connected and no gas manually configured through DSSAC)	******* EVENT VIEWER MESSAGE: Warning 0 Event type: InstrumentCalibrationForcedEvent Docking Station: 0403525-075 Docked Instrument: 0211350084 Description: Resources for event on 0403525-075 were unavailable.Could not find cylinder needed for sensor: 001714522082#S0001 Error Text: *******END EVENT VIEWER MESSAGE*******
Required gas is connected, but expired	******* EVENT VIEWER MESSAGE: Warning 0 Event type: InstrumentCalibrationForcedEvent Docking Station: 0403525-075 Docked Instrument: 0211350084 Description: Resources for event on 0403525-075 were unavailable.Cylinder has expired. Cylinder id =83075A-104 Port number: 2 Could not find cylinder needed for sensor: 001714522082#S0001 Error Text: *******END EVENT VIEWER MESSAGE*******

Error Condition	Event Viewer Message
Required gas is connected, but empty	******* EVENT VIEWER MESSAGE: Warning 0 Event type: Instrument Heartbeat Docking Station: 0403525-075 Docked Instrument: 0211350084 Description: Resources for event on 0403525-075 were unavailable.Cylinder is empty. Cylinder id =82041-89 Port number: 2 Could not find cylinder needed for sensor: 001714522082#S0001 Error Text: *******END EVENT VIEWER MESSAGE*******
Fresh air is not configured manually through DSSAC	******* EVENT VIEWER MESSAGE: Warning 0 Event type: InstrumentCalibrationForcedEvent Docking Station: 0403525-075 Docked Instrument: 0211350084 Description: Resources for event on 0403525-075 were unavailable.Fresh air not found. Error Text: *******END EVENT VIEWER MESSAGE*******

13.3. DSSAC Issues

Situation	Explanation/Solution
You cannot log on to the DSSAC (Invalid User Name or Password. Please reenter to log in.)	• Make sure that you user name and password are typed correctly. Passwords are case-sensitive. Check to see if the CAPS LOCK is turned on your keyboard.
You receive a network error when launching the DSSAC application	• The DSS is down, or the computer is not connected to the network. Contact your network administrator or docking station systems administrator.
Data entered in DSSAC is not saved	• Connection to the network has been interrupted. Contact your network administrator.

You receive a network error while in the DSSAC	• Connection to the network has been interrupted. Contact your network administrator. • The DSS may be down. Contact your network administrator or docking station systems administrator. • Your user account has been removed or modified (e.g., role changed, password changed, account disabled) by a Systems Administrator.
You cannot see the User option or the Default Alarm Settings, or the iNet tabs in the Configuration dialog	• Your role is set to "Technician." An administrator needs to change your role to "Systems Administrator" in order to for you to use these functions.
You cannot see all of the instruments in the system when you click on the instruments option in the navigation pane	• A filter is in effect. Right click on the Instruments option in the navigation pane, and select Cancel.

13.4. DSS Issues

Situation	Explanation/Solution
Upload to iNet fails	• Internet connection failure. Contact your network administrator. • Verify that the correct Company Password and URL have been configured in the DSSAC.
DSSAC clients and IDS cannot connect to the DSS	• Verify that the server is running and is connected to the network. • For DSSAC clients, ensure that the correct server IP address is specified in the Login section. • For IDSs, verify that the correct server IP address is configured by checking the Information screen from the IDS menu. DSS does not communicate with IDSs • Verify that the DSS has a fixed IP address, and that DHCP is running to assign IP addresses to the IDSs.
Bump and/or Calibration certificates are blank when printed using the Auto Print feature	• Verify the version of Internet Explorer that is being used. The docking station system requires version 6.0 or later. Earlier versions may print blank bump and calibration certificates.

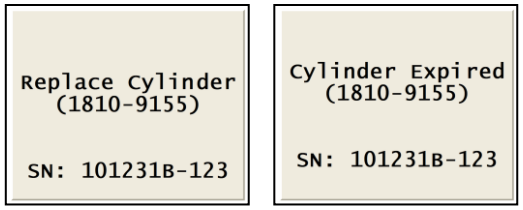
13.5. Instrument Docking Station Issues

Situation	Explanation/Solution
Instrument did not calibrate	• Gas cylinder is expired. • Gas cylinder is empty. • Gas requested for calibration was not available. • Gas tubing that supplies the gas is blocked or disconnected. • The Gas In connections are configured incorrectly in DSSAC.
Unexpected calibration failure	• Gas is not connected to the appropriate Gas In connection; thus, the instrument was calibrated using fresh air. • Gas configured for the Gas In tab in the DSSAC does not match actual gas in the cylinder.
Changes to settings were not properly applied to a IDS or instrument	• IDS was unplugged during the event. • Network connection possibly interrupted. • Instrument was not properly docked in the IDS.
Cannot perform a forced calibration	• Instrument is not properly docked in the IDS.
When a datalog download is attempted, the IDS displays "Unavailable"	• The instrument's datalog data is probably corrupt. Manually clear the datalog from the instrument.
Cannot use the menu on the IDS	• The IDS is actively performing a task. • The Menu Locked option has been set for the IDS in the DSSAC.
IDS green LED is on, but the IDS is not displayed in blue text in the DSSAC	• Network connection from the IDS may be down or unplugged.
"Discovering" message displays on the IDS for an extended period of time	• Network connection from the IDS may be down or unplugged.
IDS does not display the correct time	• Verify that the server has the correct time for your time zone. The IDSs use the time available from the server.
An instrument shows a failed sensor on its display, but the IDS displays the instrument as available	• The instrument was probably calibrated in the field. The docking station is not aware of the failed calibration. Force a calibration on the IDS.

IDS display reads "Unavailable"	• An error occurred with the IDS. Review the DSS event log, and look for errors related to the IDS serial number.
IDS display reads "Unavailable Instrument"	• An error occurred with the instrument and could not be resolved. Check the docked instrument's properties in DSSAC.
IDS display reads "Unavailable Server"	• IDS cannot contact the server. The IDS display shoes its own IP address and also the IP address of the server it is currently configured to connect to.
"Diagnostic Vacuum" error	• Diagnostic test fails if vacuum <= 130 or vacuum >= 325
"Diagnostic Solenoid No Vacuum" error	• Diagnostic test fails if vacuum >= 325.

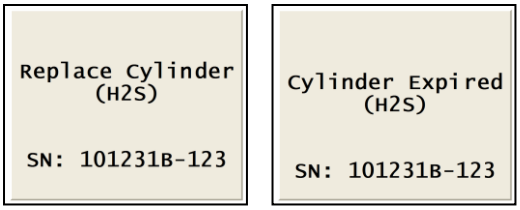
DSS Gas Cylinders

ISC Gas Cylinder



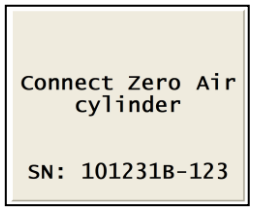
When ISC gas cylinders are used, the part number will be in parenthesis.

Non-ISC Gas Cylinder



When Non-ISC gas cylinders are used, the corresponding gas symbol will be in parenthesis.

Zero Air

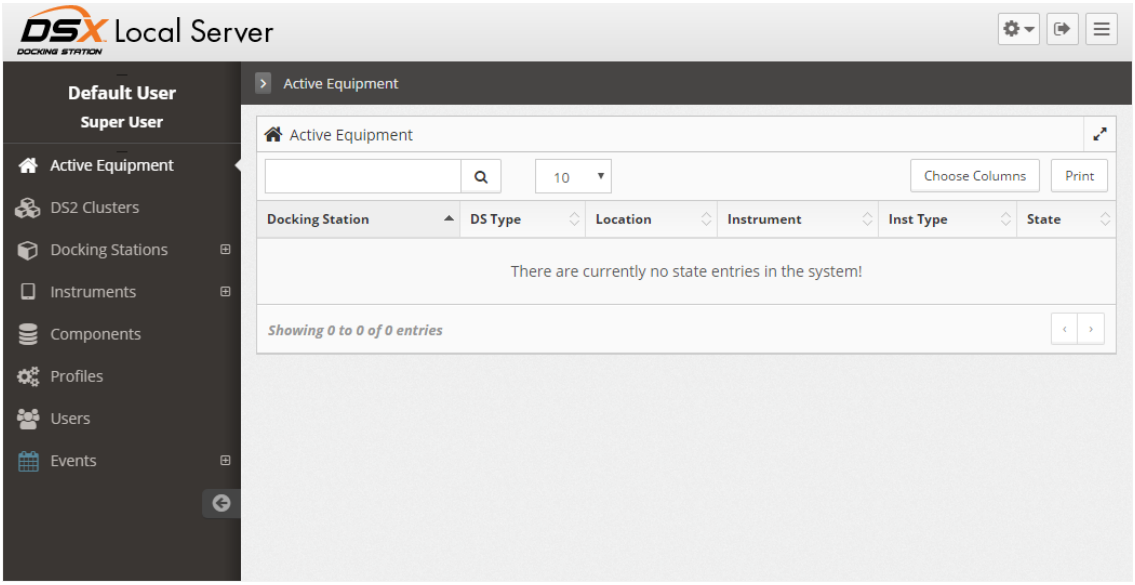
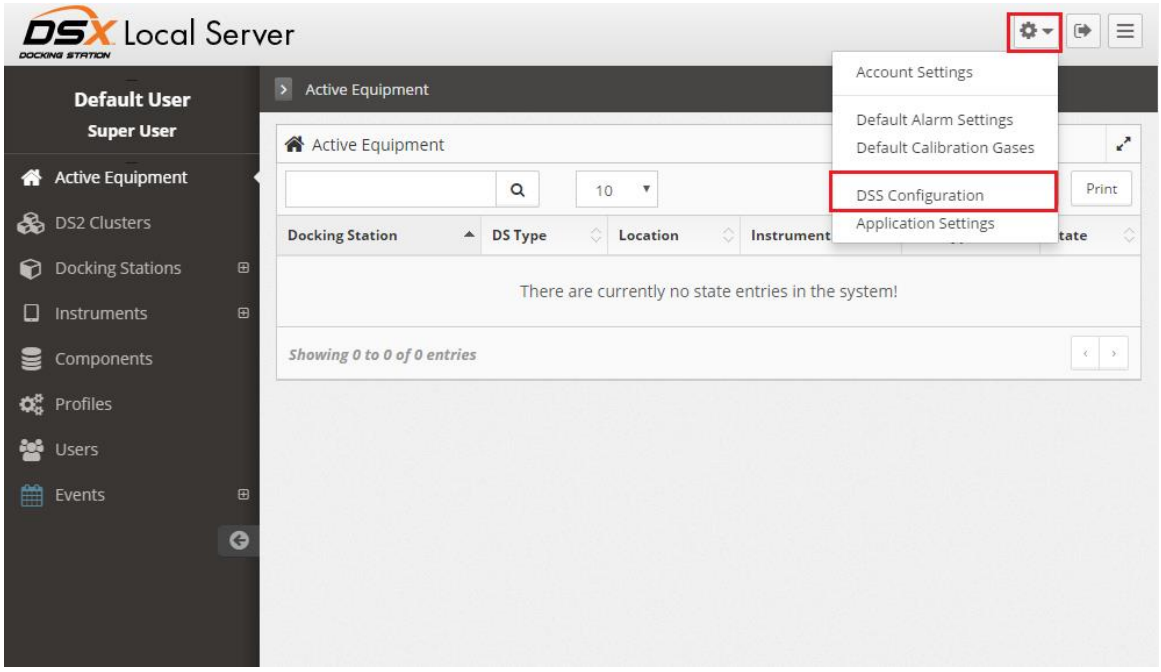


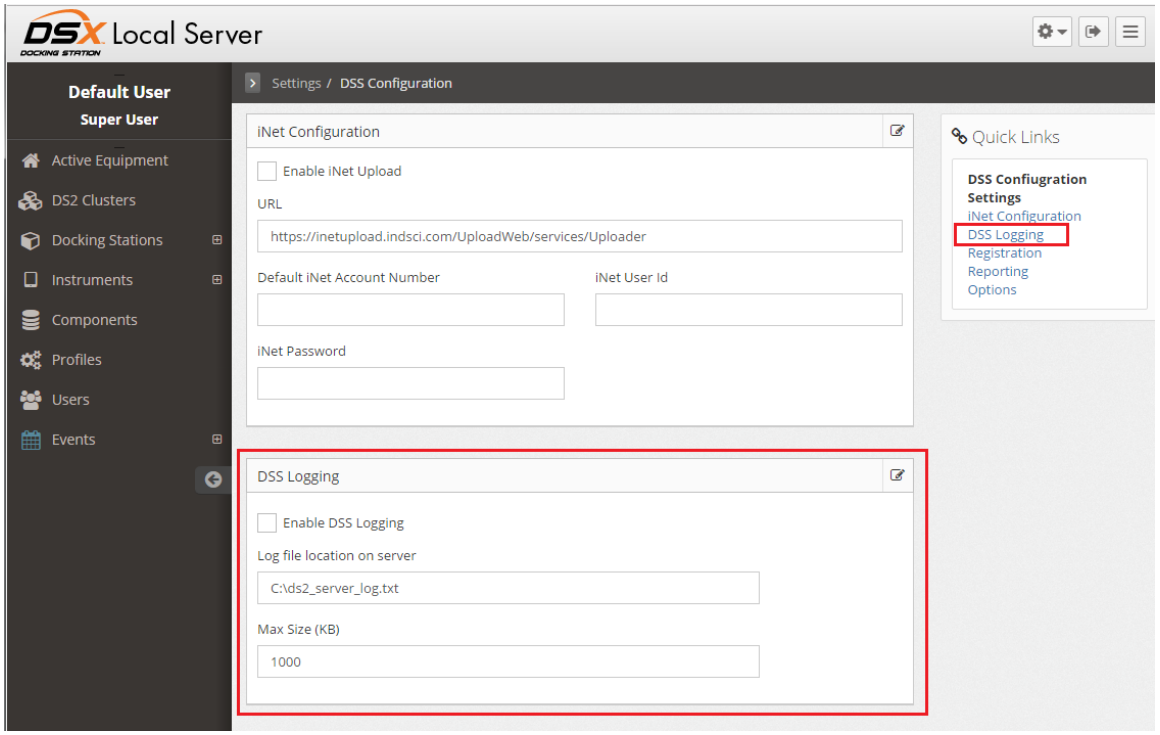
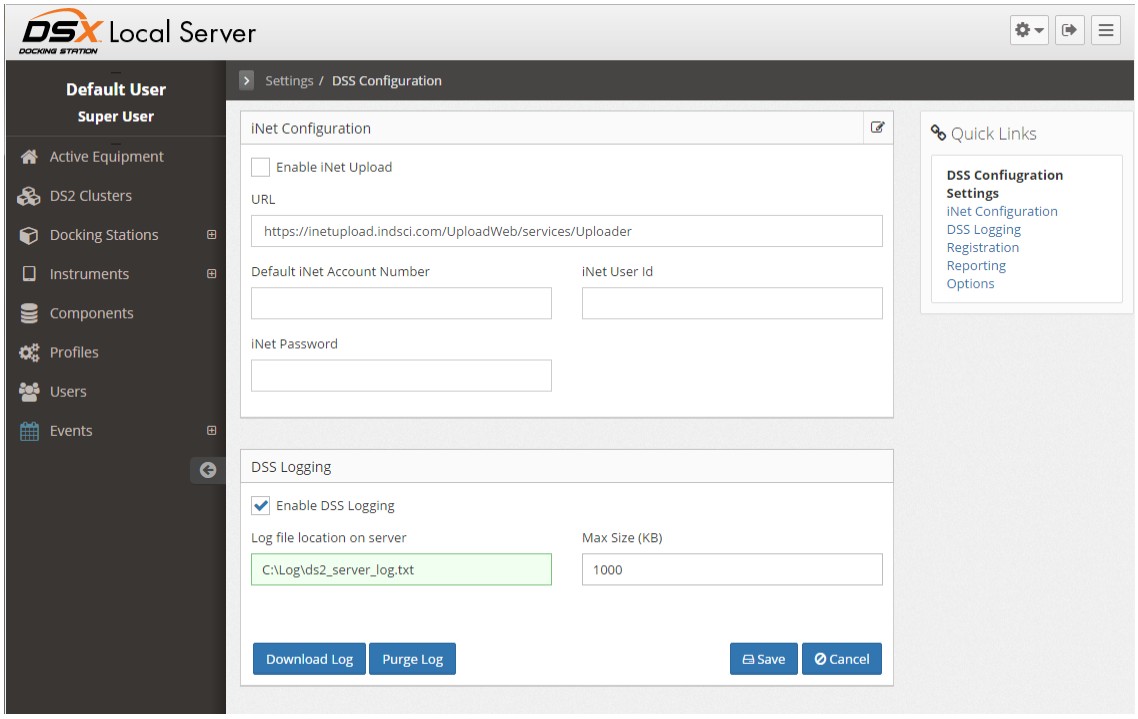
When the docking station requires a Zero Air cylinder connection, to purge or zero an instrument with a CO2 sensor.

Figure 13-1. Examples of Gas Cylinder related displays

13.6. Enabling the Tracelog

To enable the tracelog feature in the Docking Station Server Admin Console, follow the procedure listed below.

Step	Instructions
1	Log into the Docking Station Server Admin Console. A sample display is shown below.  **Figure 13-1. Sample Display of Docking Station Server Admin Console**
2	Click on the settings menu on top-right side of the application page and select “DSS Configuration”. The DSS Configuration screen appears.  **Figure 13-2. Configuration Option of the View Menu**

3	Click on “Edit” button to edit DSS Logging Details on “Logging” (group).  **Figure 13-3. The Logging Tab**
4	Click the “DS2 Server Logging Enabled” check box.  **Figure 13-4. Verify Log File Parameters**

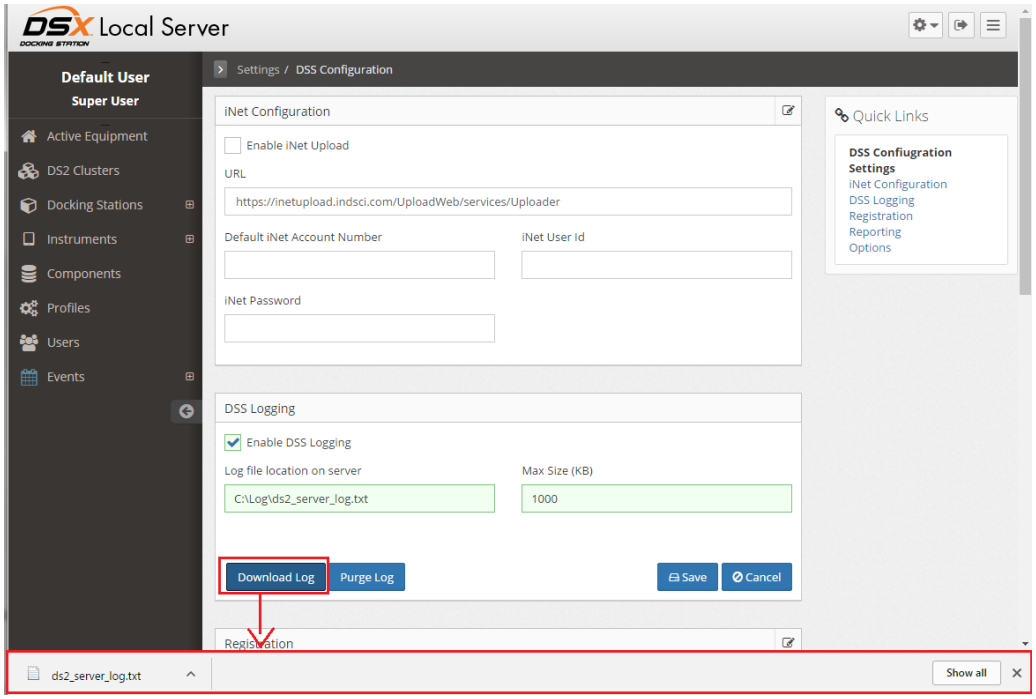
5	Ensure that the log file “c:\<FolderName>\ds2_server_log.txt” is entered into the “Log File” field.
6	Ensure that “1000” is entered into the "Max Size (KB)" field.
7	The “View Log” button can be used to view the log file. The “Purge Log” button can be used to purge the log file. Refer to Figure 13-5 to view a sample log file.
8	Click Save to save your changes or cancel to exit.
	

Figure 13-5. Viewing a Sample Log File Using the Download Log Button

NOTE: The log file grows in small increments as the logged data is added to the file. The log file is stored as “c:\ds2_server_log.txt.”

13.7. Industrial Scientific Support Services

Contact the Industrial Scientific Customer Service Department 24 hours a day by phone, fax or e-mail. Phone lines are handled by friendly, knowledgeable professionals 24 hours a day from 8 PM Eastern Standard Time (EST) Sunday evening through 6 PM (EST) Friday evening. Your call will be answered by a real person, not an answering machine or an automated attendant with complicated menu selections.

Phone: 412-788-4353
Toll Free: 1-800-DETECTS (338-3287)
Fax: 412-788-8353
Service: 1-888-788-4353
Web: www.indsci.com

# # #

Chapter 14

Warranty

14.1. Warranty

Industrial Scientific Corporation's DSX™ Docking Stations are warranted to be free from defects in material and workmanship under normal and proper use and service for two years from the initial date of shipment by Industrial Scientific Corporation.

14.2. Limitation of Liability

THE WARRANTY SET FORTH ABOVE IS STRICTLY LIMITED TO ITS TERMS AND IS IN LIEU OF ALL OTHER WARRANTIES, GUARANTEES, EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW, COURSE OF DEALING, USAGE OF TRADE OR OTHERWISE. INDUSTRIAL SCIENTIFIC MAKES NO OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

SHOULD THE PRODUCT FAIL TO CONFORM TO THE ABOVE WARRANTY, BUYER'S ONLY REMEDY AND INDUSTRIAL SCIENTIFIC'S ONLY OBLIGATION SHALL BE, AT INDUSTRIAL SCIENTIFIC'S SOLE OPTION, REPLACEMENT OR REPAIR OF SUCH NON-CONFORMING GOODS OR REFUND OF THE ORIGINAL PURCHASE PRICE OF THE NONCONFORMING GOODS.

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It shall be an express condition to Industrial Scientific's warranty that all products be carefully inspected for damage by Buyer upon receipt, be properly calibrated for Buyer's particular use, and be used, repaired, and maintained in strict accordance with the instructions set forth in Industrial Scientific's

product literature. Repair or maintenance by non-qualified personnel will invalidate the warranty, as will the use of non-approved consumables or spare parts. As with any other sophisticated product, it is essential and a condition of Industrial Scientific's warranty that all personnel using the products be fully acquainted with their use, capabilities and limitations as set forth in the applicable product literature.

Buyer acknowledges that it alone has determined the intended purpose and suitability of the goods purchased. It is expressly agreed by the parties that any technical or other advice given by Industrial Scientific with respect to the use of the goods or services is given without charge and at Buyer's risk; therefore, Industrial Scientific assumes no obligations or liability for the advice given or results obtained.

# # #

iNet Configuration

Chapter 15

15.1. What is iNet?

This section provides a brief overview of iNet and how to configure the DSX docking station for use with iNet.

iNet is a subscription-based gas detection program giving you peace of mind that their your equipment is properly maintained; that you are able to provide required records on demand; and that your workers are kept safe from hazardous gases.

With iNet, each time your instrument is docked on the DSX, maintenance tasks such as bump tests, calibrations, or firmware upgrades are performed based on user-defined schedules. If an issue such as a failed sensor is detected within the instrument, a replacement monitor is proactively sent to you.

iNet Control – a cloud-based dashboard accessible from any PC browser – provides a comprehensive view of your gas detection program. You'll see that someone from your team turned off an instrument that went into alarm while working; you'll see what gas hazards your team is exposed to and at what levels; and more. In addition, all of your program's data is stored in one place making it easy to produce accurate records and reports on demand.

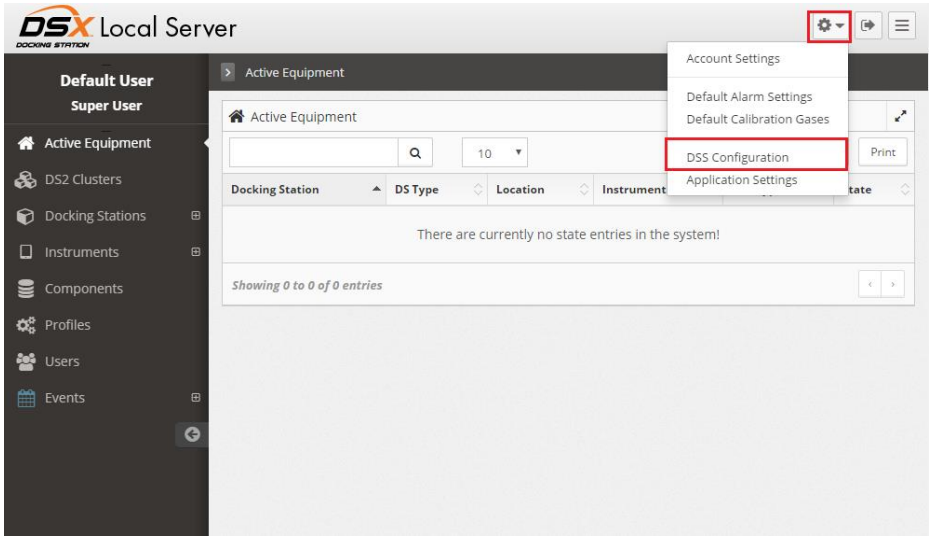
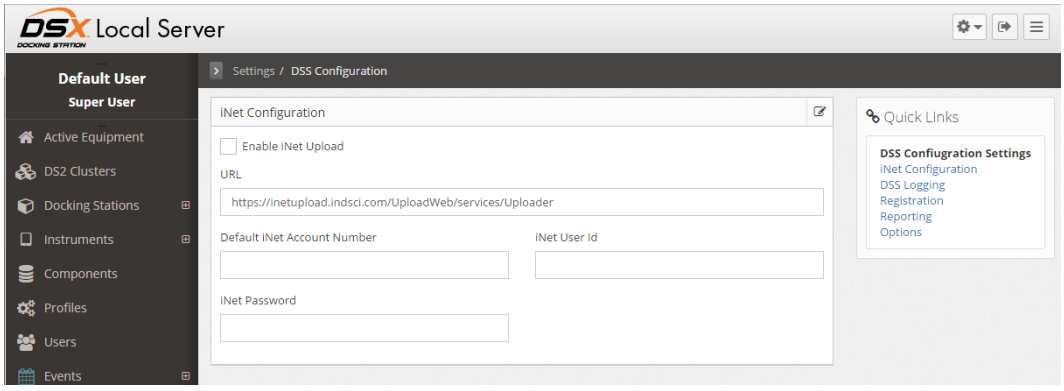
For more information about iNet, visit www.indsci.com/inet or contact the Industrial Scientific Customer Service Department.

Phone:	(800) DETECTS (800-338-3287) or (412) 788-4353
Fax:	(800) 788-8383 or (412) 788-8353
e-mail:	info@indsci.com

15.2. Configuring iNet Settings

When you subscribe to the iNet service, Industrial Scientific supplies you with a Company Password and a URL that is used to access the iNet Network Operations Center. This information is entered into the DSSAC for the server to use when it connects to iNet. Only users assigned to the Systems Administrator role can configure iNet settings.

To configure iNet settings, follow the instructions listed below.

Step	Instructions
1	Log in to the DSSAC application.
2	Click on the settings menu on top-right side of the application page and select “DSS Configuration”. The DSS Configuration screen appears. 
3	Click on “Edit” button to edit iNet upload details on iNet Configuration (group).
4	Click on the Enabled checkbox to enable iNet.
5	Enter the URL provided to you in the URL field.
6	Enter the iNet User Id provided to you in the iNet User Id field.
7	Enter the iNet Password provided to you in the iNet Password field.
8	Enter your iNet account number as the Default iNet Account Number.
9	Click Save to save your changes. DSX Docking Station is now ready to use iNet.
	 **Figure 15-1. iNet Configuration**

15.3. iNet and Proxy Settings

The iNet connector behaves as follows with regard to proxy settings.

1. If the configuration.xml file contains proxy settings, it uses them.
2. If the configuration.xml file does not contain proxy settings, it defaults to the proxy address programmed into Internet Explorer for the user account under which the DS2 iNet connector service is running.
3. The proxy settings in the configuration.xml file must appear as follows in order to be valid and used.

```
<iNet cdbid="mycdbid"
url="https://inetupload.indsci.com/UploadWeb/services/Uploader"
enabled="T" proxyaddress="http://proxyserver/" proxyuser="userid"
proxypassword="password" uploadUser="userid" uploadPasswd="password"
/>
```

Figure 15-2. Proxy Setting Syntax in File configuration.xml

4. The iNet connector will output the following lines to tracelog when there is data to upload.

```
5/16/2005 4:43:13 PM 2   INET: IE Proxy address=<IE proxy address here>
5/16/2005 4:43:45 PM 2   INET: Found proxy settings in
                         Configuration.xml file, overriding IE
                         settings:
5/16/2005 4:43:47 PM 2   INET: proxy ip=<address from config file>
5/16/2005 4:43:48 PM 2   INET: proxy user=<user from config file>
5/16/2005 4:43:48 PM  2  INET: proxy passwd=<passwd from config file>
```

Figure 15-3. Sample Tracelog Output

# # #

Appendix A

Acronyms and Abbreviations

This appendix contains acronyms and abbreviations that are used within this document.

Table A-1. Acronyms and Abbreviations

Abbr	Definition
A	Ampere
AAW	toxic
ABS	acrylonitrile butadiene styrene
ASCII	American Standard Code for Information Interchange
BBIR	broad band infrared
bit	binary digit
bps	bits per second
C	centigrade
CALI	calibration
CAT	catalytic
Ch	channel
CH_4	methane
chem	chemical
Cl_2	chlorine
ClO_2	chlorine dioxide
CO	carbon monoxide
CSV	comma separated variables
DC	direct current
DCS	distributed control system
DHCP	dynamic host configuration protocol
DISP	display
DSN	docking station network
DSS	Docking Station Server

Abbr	Definition
DSSAC	Docking Station Server Admin Console
F	Fahrenheit
FAQ	frequently asked questions
FAUL	fault
FIFO	first-in-first-out
GND	ground
H_2	hydrogen
H_2S	hydrogen sulfide
HCl	hydrogen chloride
HCN	hydrogen cyanide
IDS	instrument docking station
iNet	instrument network
ISC	Industrial Scientific Corporation
IT	Information Technology
LAT	latch mode
LED	light emitting diode
LEL	lower explosive limit (combustible gases)
LSB	least significant bit
mA	milliampere
MINU	minute
mm	millimeter
MON	month
MSMQ	Microsoft Message Queuing
NC	normally closed
NEMA	National Electrical Manufacturers Association
NH_3	ammonia
NO	normally open, Nitric Oxide
NO_2	nitrogen dioxide
NOR	normal mode
O_2	oxygen
OXY	oxygen
PH_3	phosphene
PID	Photo ionization detector

Abbr	Definition
PLC	programmable logic controller
ppm	parts per million
R.HI	high alarm relay
R.FAU	fault relay
R.LOW	low alarm relay
REST	restart
RTC	real time clock
RTU	remote terminal unit
SN	serial number
SO_2	sulfur dioxide
SPST	single-pole, single-throw
STEL	short term exposure limit
TOX	toxic
TWA	time weighted average
UDP	user datagram protocol
V	Volts
VAC	Volts Alternating Current
VOL	volume
WDAY	weekday

# # #

Appendix B

Glossary of Terms

This appendix contains a glossary of terms that are used within this document.

Table B-1. Glossary of Terms

Item	Definition
Bump Test	Also known as "Functional test," a procedure that verifies that an instrument is able to detect gas. A brief exposure of the monitor to a known concentration of gas(es) for the purpose of verifying sensor and alarm operation. It is not intended to be a measure of the accuracy of the instrument.
Bump Test Event	An event in the DSX Docking Station that will automatically perform a bump test on a docked instrument.
Calibration	A test that is used to adjust an instrument to correct for inaccuracies. A known gas concentration is used as a calibration standard to verify and adjust the output of the instrument.
Calibration Event	An event in the DSX Docking Station that will automatically perform a calibration on a docked instrument.
Compact Flash	Removable storage cards that are efficient in terms of weight, size, and durability. Often used in digital cameras, printers, and handheld computers, and can be used for wireless access.
Contents Page	The right frame of the DSSAC application that displays the details of an option that was selected in the navigation pane. For example, the instruments contents page displays a list of instruments that have been configured in the docking station network.
Diagnostic Test	A test to determine if a particular function on an instrument or IDS is operating properly. Diagnostic tests are run on instruments as a part of the iNet service to proactively determine if a malfunction exists.
Diagnostics Event	An event in the DSX Docking Station that will automatically perform diagnostic tests on a docked instrument or on an IDS. The results of these tests are sent to iNet for analysis.

Item	Definition
Docking Station Network	Also referred to as DSN, the network on which all components of DSX Docking Station reside. A docking station network consists of one (1) Docking Station Server, multiple Instrument Docking Stations (IDS), and multiple Docking Station Server Admin Console (DSSAC) workstations.
Docking Station Server Admin Console	Also referred to as DSSAC, the Windows® application that is used to administer the components of a Docking Station Network.
Docking Station Server	Also referred to as DSS, server software that controls a Docking Station Network. The DSS handles all functions of the IDSs and DSSAC clients. DSS runs on a Microsoft Windows® 2000 or Windows® 2003 server.
Full Span Reserve	The difference between a reading on an instrument and the actual known gas concentration in a calibration gas cylinder, displayed as a percentage, used to measure the accuracy of a sensor. A Full Span Reserve value is computed by dividing a sensor's reading by the actual concentration in the gas cylinder. For example, if a sensor's reading was 70 ppm, and the concentration in the cylinder was 100 ppm, the Full Span Reserve value would be 70%.
Functional Test	See "Bump Test."
Datalog data	Information about the levels of exposure to gases over a period of time. This information is recorded on an instrument during its operation.
Datalog Download Event	An event in the DSX Docking Station that automatically downloads datalog data from a docked instrument and stores it in the DSX Docking Station system.
iGas	A feature of DSX Docking Station that utilizes Smart Card technology to automatically configure gas cylinders for your IDSs.
iNet	Also known as the Instrument Network, a service provided by Industrial Scientific Corporation that monitors a customer's instrument data to ensure that equipment is in optimum working condition. If a service need is detected, appropriate action is taken depending on the iNet program in which the customer participates. Typical service options are an on-site service visit, replacement product, or a new part.
Instrument	Any device that is used to detect gases or Volatile Organic Compounds (VOCs). For purposes of DSX Docking Station, these devices are within Industrial Scientific Corporation's Portable Instruments product line.
Instrument Docking Station	The physical hardware into which an instrument is placed for calibration, bump tests, diagnostic tests, and datalog downloads to the Docking Station Server.

Item	Definition
LEL (Lower Explosive Limit)	The minimum concentration at which a gas will explode, displayed as a percentage (%LEL). The term "LEL" is also used to describe a type of sensor that detects combustible gases.
Navigation pane	The left frame of the DSSAC application that contains a tree-like structure used to navigate to different items in the docking station network.
Network Administrator	Typically the person or persons assigned to configure an organization's network and troubleshoot connectivity issues. communications protocols used to connect hosts on the Internet.
PID (Photo Ionization Detector)	An instrument that utilizes ultra-violet light energy to ionize and detect the presence of an unknown gas or vapor.
PPM (Parts per Million)	A unit of measurement used for small proportions of concentrations. In gas analysis, it expresses the volume of a gas present in terms of its relationship to a whole of 1 million parts of air. Examples: 1% of volume = 10,000 ppm; 100% of volume = 1,000,000 ppm.
Settings Read Event	An event in the DSX Docking Station where the current settings on an instrument or IDS are read to see if they have changed. This event runs daily for IDSs, and upon docking for instruments, in conjunction with the Settings Update Event. This event cannot be configured by an end-user.
Settings Update Event	An event in the DSX Docking Station in which Instrument or IDS settings that were updated in the DSSAC are uploaded to the docked instrument or to the IDS. This event runs daily for IDSs, and upon docking for instruments. This event cannot be configured by an end-user.
Smart Card	A plastic card, about the size of a credit card, with an embedded microchip that contains data. DSX Docking Station uses Smart Cards for the iGas component.
Span	See "Full Span Reserve"
Span Reserve	See "Full Span Reserve"
STEL (Short Term Exposure Limit)	The average amount of gas (in PPM) a worker can be exposed to in a 15-minute period with no long term health effects. This may occur 4 times a shift with one hour between 15-minute exposures.
TWA (Time Weighted Average)	The average amount of gas (in PPM) a worker can be exposed to over a certain time period. This time is defined as 8 hours to represent a normal workday.
%VOL	The percent of volume, assuming a whole of 100%, typically used to describe the amount of a particular gas in a gas/air mixture.

# #

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