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DSX
DOCKING STATION

Start-up Guide

DSX-L Local Server Mode

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**INDUSTRIAL
SCIENTIFIC**

Industrial Scientific Corporation.

Pittsburgh, PA USA

Shanghai, China

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Revision 13

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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 $\pm 0.5\%$.

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 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](#).



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About This Manual

Chapter

1

1.1. Document Overview

This documentation is designed to assist with the start-up of the DSX-L Local Server Mode. For day-to-day operation and detailed information about using the features of the docking station, please see the manual included on the CD provided with the DSX-L.

This start-up guide contains the following main sections:

- Chapter 2: Introduction - Begin with this section to learn about the main components and an overview of the 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.
- Chapter 4: 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, gas cylinder configuration, and connections using iGas.
- Chapter 5: 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 6: Event Scheduling – This section provides an overview of global and special events, and explains how they are used in the docking station system.

For information about installing the DSX-L, please see *Administrator's Guide*, DSX-L Local Server Mode.

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

#

Introduction

Chapter

2

2.1. Overview

DSX-L 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

^aIncludes 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 refers to 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 datalog data downloads globally for all IDSs, or on an instrument-specific basis.
- Multilingual user interface (English, French, Spanish, or German) 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
- 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 or 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.

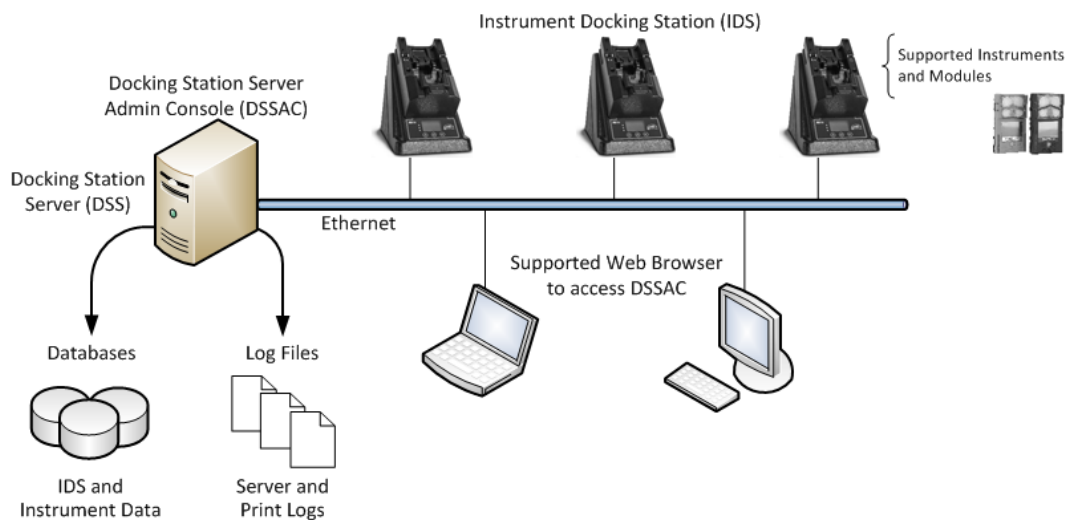


Figure 2-1. Sample Docking Station Network

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 docked, an instrument is ready for automatic calibrations, bump tests, diagnostic

tests, and datalog 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.

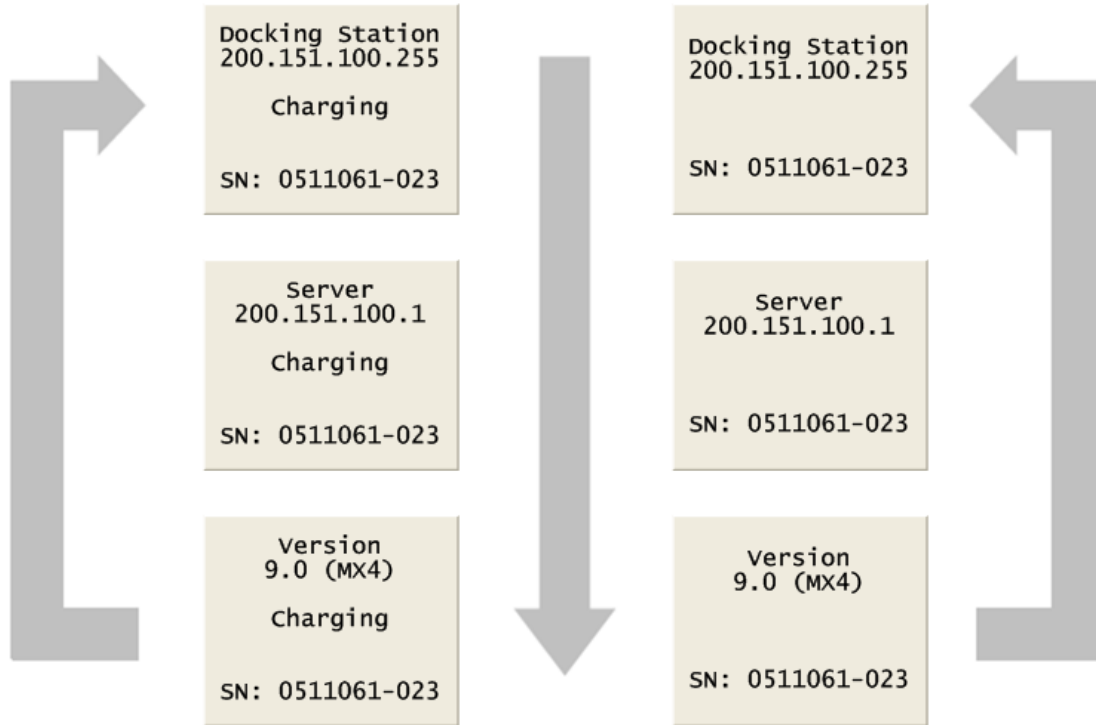


Figure 2-2. Sample LCD Panel Idle Displays (While and While Not Charging)

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

- Chapter 4: Configuring the Docking Station
- Chapter 5: Basic Operation

2.4. Required Network Connections

Below is a summary of the required network connections needed for the DSX-L to function.

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

Table 2-1. Required Network Connections

Connection	Requirements
Browser to DSSAC web application	<p>Open the web browser. Supported web browsers include:</p> <ul style="list-style-type: none"> • Internet Explorer 10 (or above) • Google Chrome (latest) • Mozilla Firefox (latest) • Apple Safari (latest)
	<p>Navigate to the following URL:</p> <p style="text-align: center;">http://<server_name_or_ip_address>/dssws or https://<server_name_or_ip_address>/dssws</p>
Server to SQL Server	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 SQL Server.
	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.
	<p>The IDS posts XML to an ASP.NET page running under IIS. The ASP.NET page used by the IDSs is shown below.</p> <p style="text-align: center;">http://<server_ip_address>/DSSWS/Server.aspx or https://<server_ip_address>/DSSWS/Server.aspx</p>
	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).

Connection	Requirements
	<p>The IDS can have either a dynamic or static IP address.</p> <p>If a static IP address is used, you must set the address on the IDS using HyperTerminal and a serial cable.</p> <p>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.</p>
Broadcaster to Network	<p>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.</p> <p>The broadcasts take place from the server via UDP on port 55555.</p>

2.5. Before Getting Started

Before getting started, please note the following:

1. The DSSAC windows client has been replaced with a web interface starting with v9.6.
2. The DSSAC web interface does not need to be installed separately; it is part of the DSS installation.
3. DSSAC v9.5 windows client or earlier users can log in to the DSSAC web interface with their existing DSSAC credentials. However, on first login into DSSAC web, DSSAC web forces users to update their password. **Once a user’s password has been updated, that user will no longer be able to login with the DSSAC windows client.**
4. If users are running DSSAC v9.5 or earlier to connect to DSS v9.6 or above, they cannot create, update, or delete user accounts in the system.

Below is a list of features that are currently supported in DSSAC v9.5 or below, and have been discontinued starting with DSSAC v9.6:

- Adding instruments manually to the system is no longer supported.
- Adding or removing bump and calibration records manually is no longer supported.
- Adding or removing components on legacy instruments is no longer supported.

#

Getting Started

Chapter

3

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 to administer your DSX-L system.

This chapter is divided into the following topics:

- Requirements for software installation
- Installing Microsoft Internet Information Services (IIS)
- Installing Microsoft 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 your PC and Server meet the following minimum requirements.

3.2.1. Server Requirements

- Processor: 1.4 GHz (or higher)
- Memory: 4 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 Server 2019 Express SP1 Edition) database must be configured to use a Collation type within the Windows Latin codepage of 1252. (NOTE: If the DSX-L database has any other collation type, it prevents the DSS 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 DSX-L database. Database administrators also have the ability to change a database’s collation type. Changing the collation type of the DSX-L database to anything other than a Latin collation type is not supported.
- Internet Information Services (IIS) must be installed to the operating system if not already present.
- Message Queuing (MSMQ) must be installed to operating system.

NOTE: Server software is supported on English, French, German, Spanish, Czech, Polish, or 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.

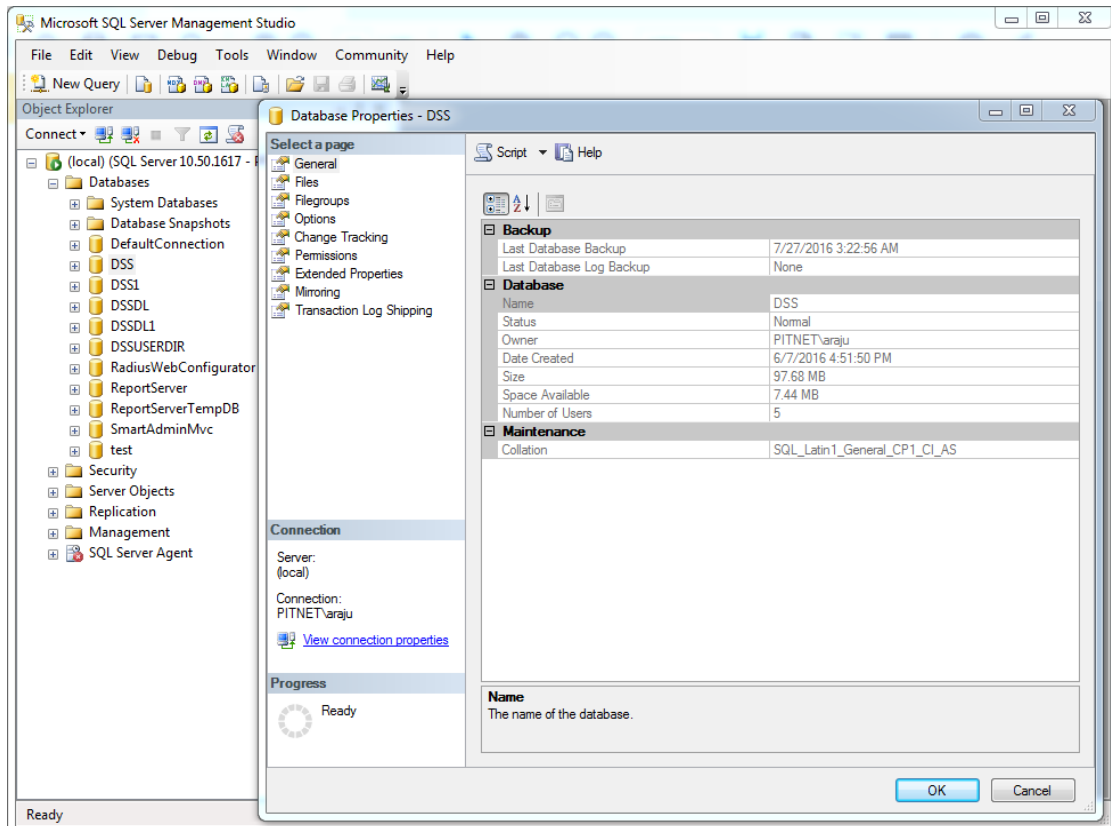


Figure 3-1. Determining the Collation Type of a Database

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.

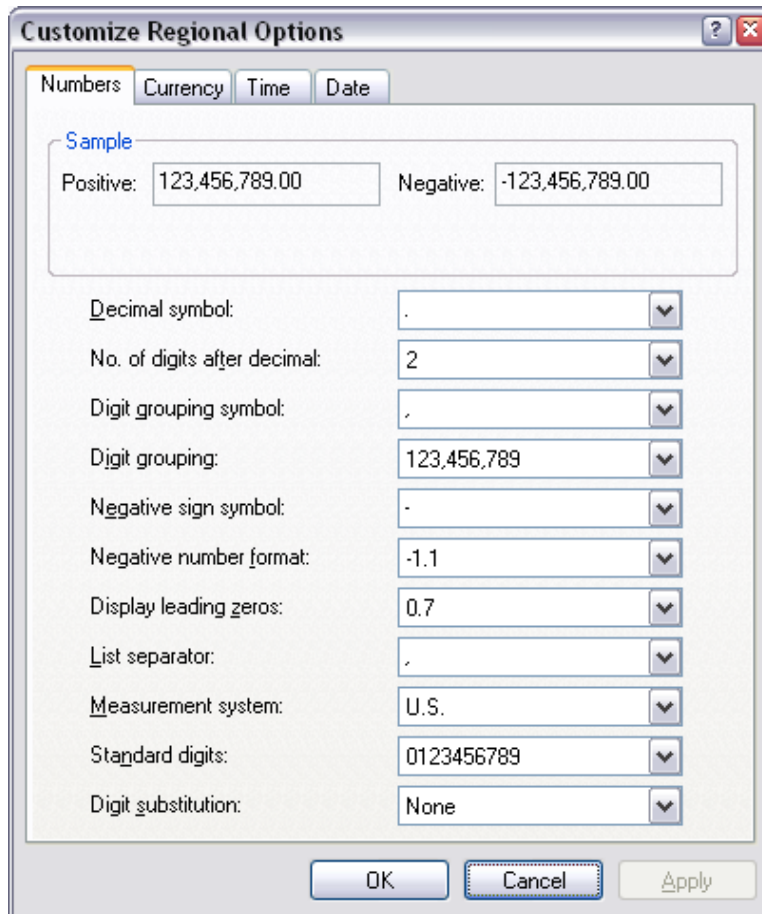


Figure 3-2. Default English-US Regional Options for “Numbers”

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: 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 a DSX-L or 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 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


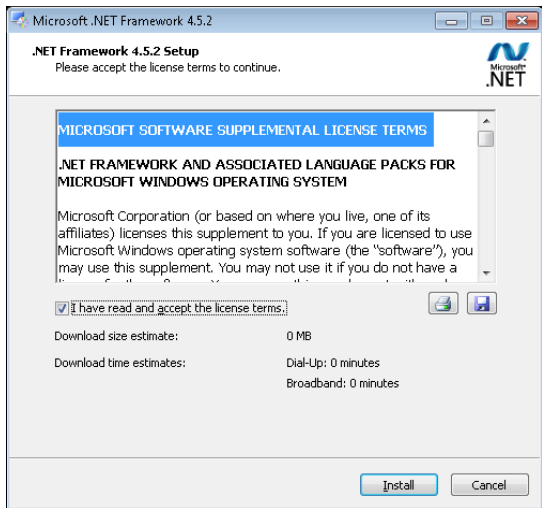
The procedures that follow are intended for the operating systems listed in section 3.2.1 Server Requirements.

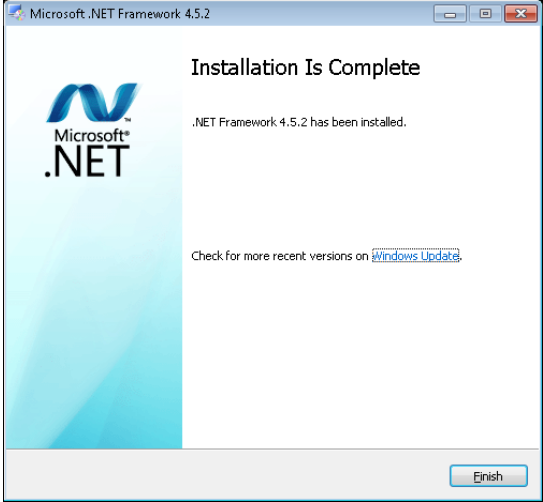
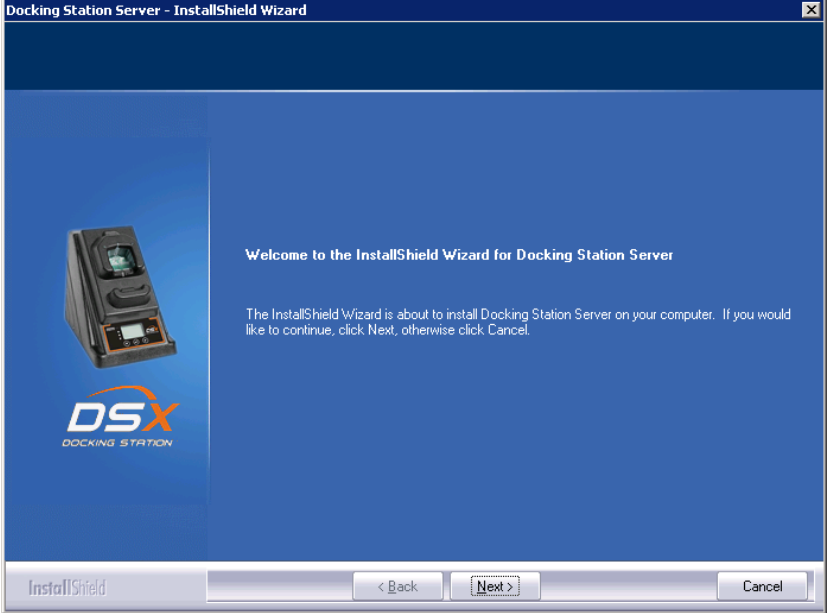
The DSS software is installed in segments. These segments are outlined in the sections that follow.

3.5. Loading the Installer Software

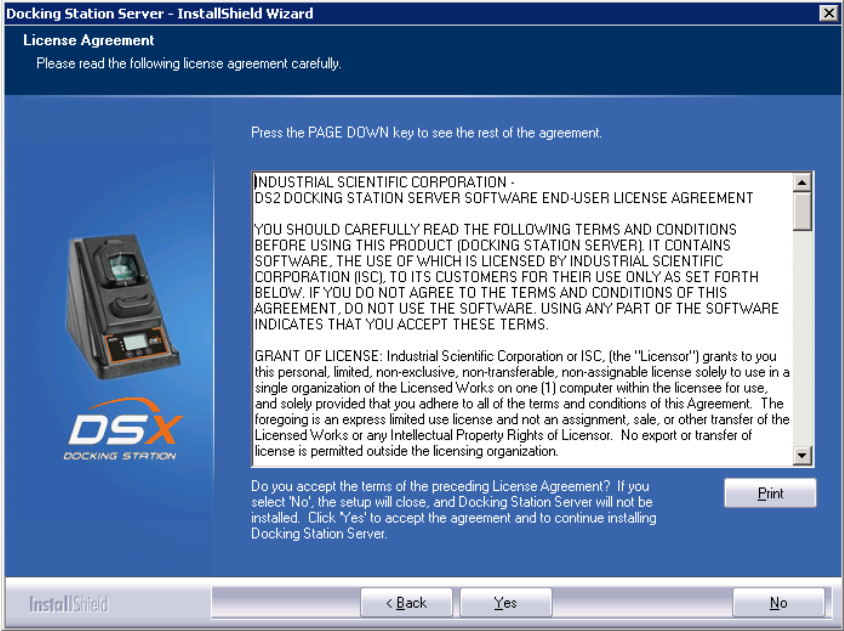
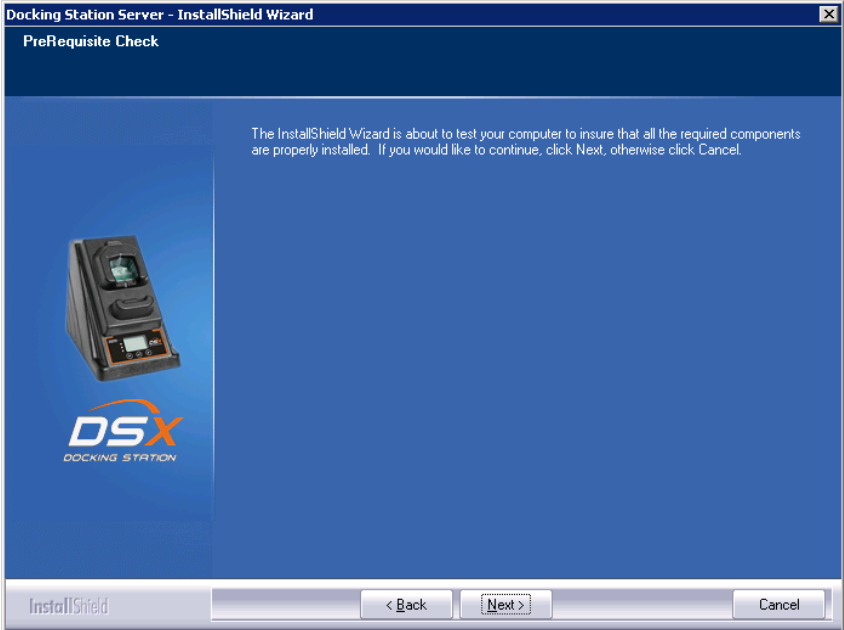
To load the installer software, follow the instructions below.


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

Step	Instruction
2.	<p>The USB drive will automatically launch the following window.</p>  <p>Figure 3-3. The Installer Software Start-up Window</p> <p>The launcher displays seven language options on the screen. Click a language to re-display the Launcher in the chosen language.</p>
3.	<p>Click on “Install Docking Station Server.” This will automatically launch the DSS installer. The first window that appears is the License Agreement.</p>
4.	<p>This message will not be displayed in newer Windows operating systems, or if .NET Framework v4.5.2 has been installed previously. Review the license agreement, choose “I agree,” and then click Install.</p>  <p>Figure 3-4. The License Agreement Window</p>

Step	Instruction	
5.	<p>The Installer will automatically install the .NET framework (if it currently is not installed). When this installation is complete, the following window will appear. Choose OK to continue the installation.</p>	 <p>Figure 3-5. The .NET Framework Installation Complete Message Box</p>
6.	<p>The DSS software is now ready to install. Choose Next to continue.</p>  <p>Figure 3-6. The DSS Installation Wizard Window</p>	

3.6. Installation Wizard for DSS

Step	Instruction
1.	<p>Click YES to accept the license agreement.</p>  <p style="text-align: center;">Figure 3-7. The Software License Agreement Window</p>
2.	<p>At this point the installation will check to make sure all prerequisites are already installed.</p>  <p style="text-align: center;">Figure 3-8. The Prerequisite Check Window</p>
3.	Choose Next.

Step	Instruction
4.	<p>If installing the DSS software onto Windows 7, Windows 8, or Windows 10 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 20.</p>  <p>Figure 3-9. The Max Docking Station Information Window</p>

5.	Click OK.
----	-----------

6.	<p>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 Installing Microsoft Internet Information Services (IIS) and Microsoft Message Queuing (MSMQ)</p> <p>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:</p>
----	--

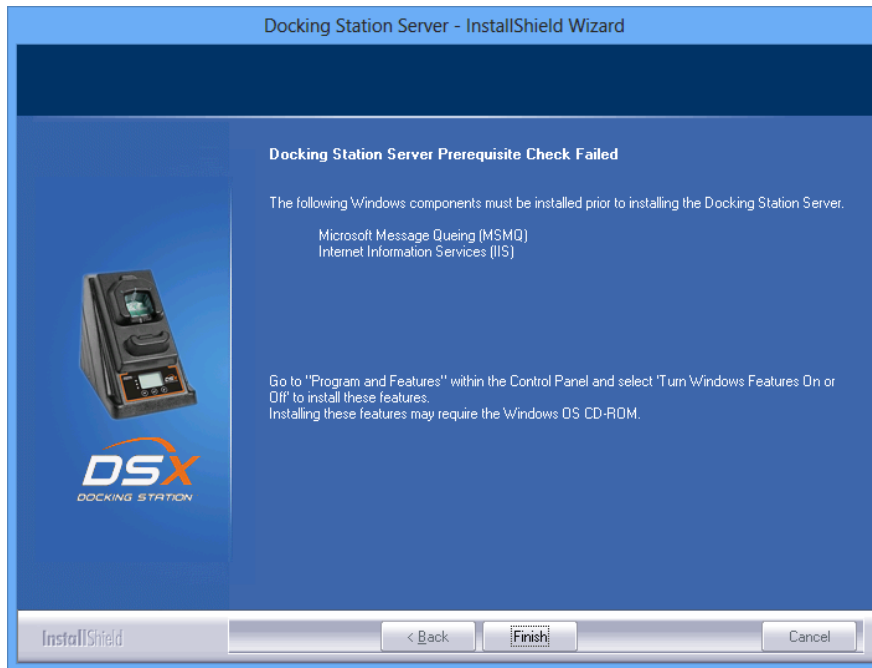


Figure 3-10. The Prerequisite Check Failed Window

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

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: DS2 iNet Connector, DS2 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.

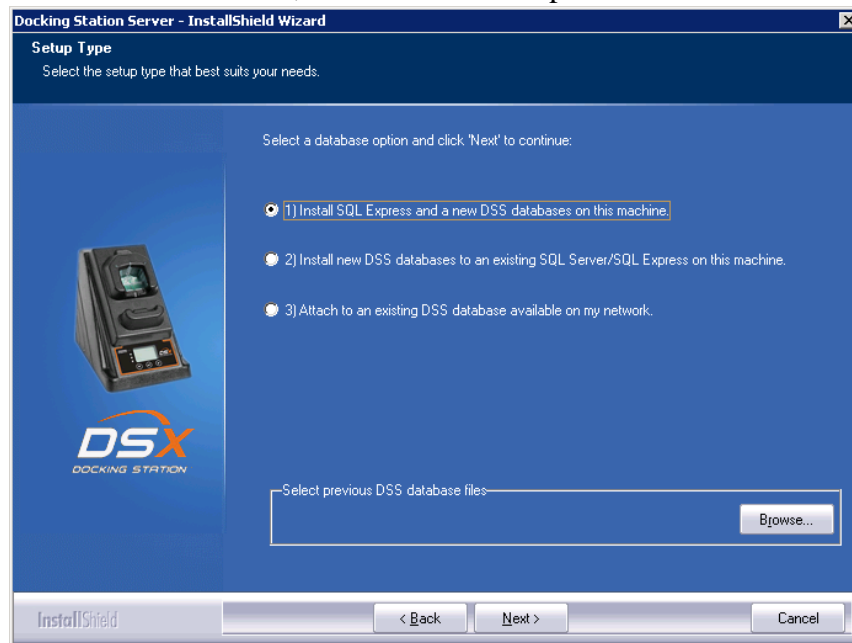


Figure 3-11. The Setup Type Window

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 **DS2user** will be used for all three.

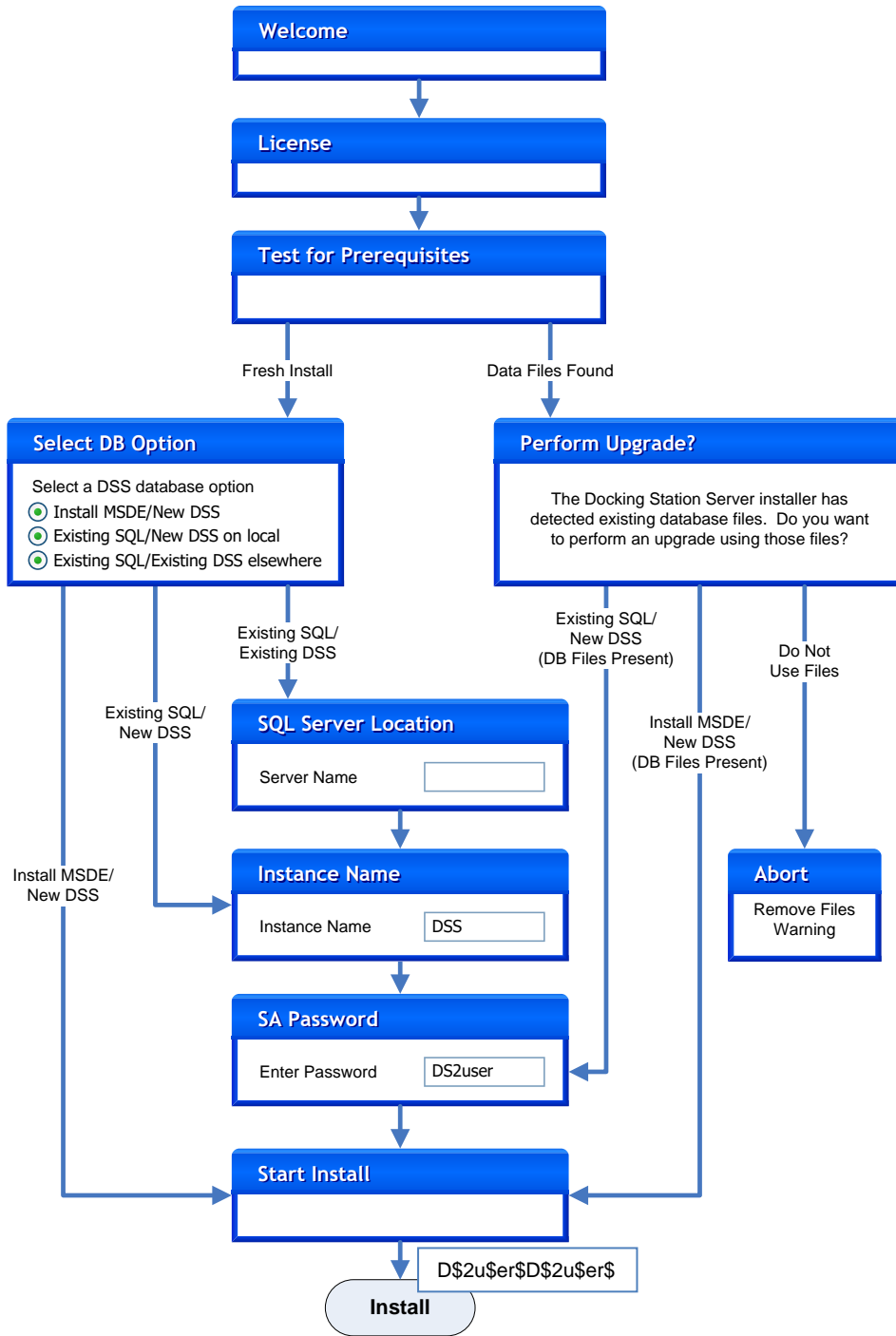
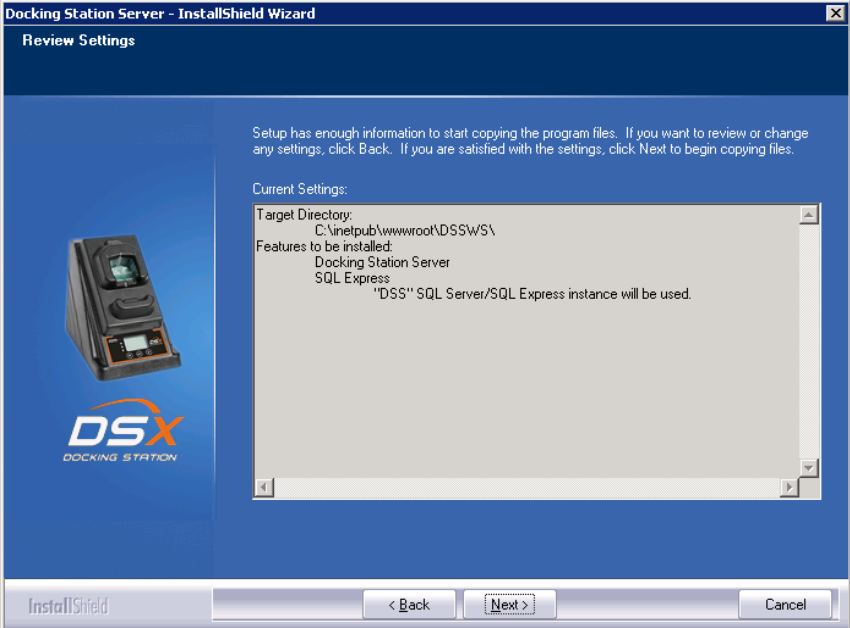


Figure 3-12. Simplified DSS Installation Flowchart

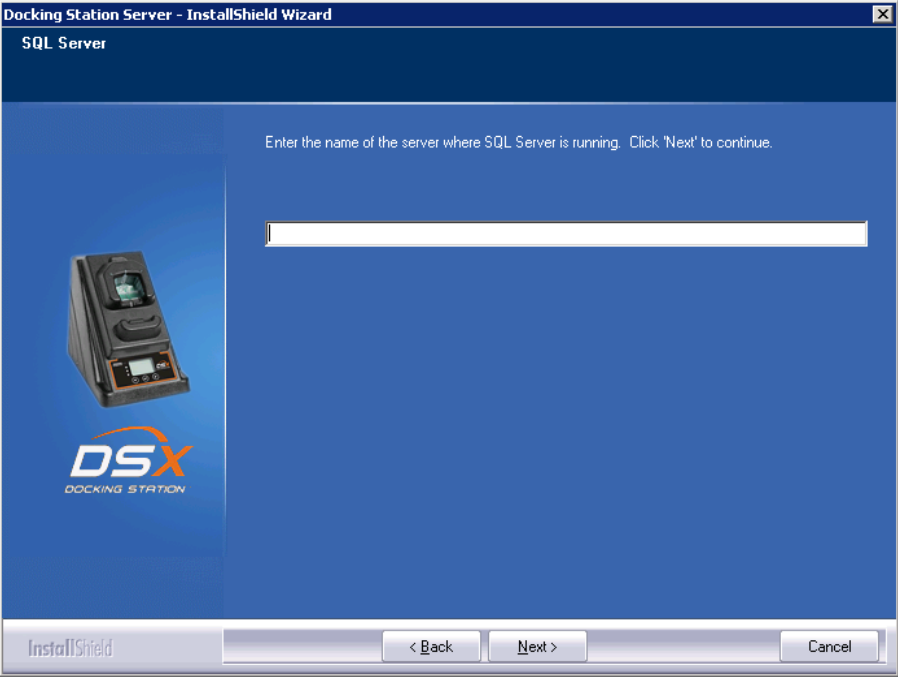
3.7.2a. Install SQL Server/SQL Server Express Instance and a New DSS Database on This Machine

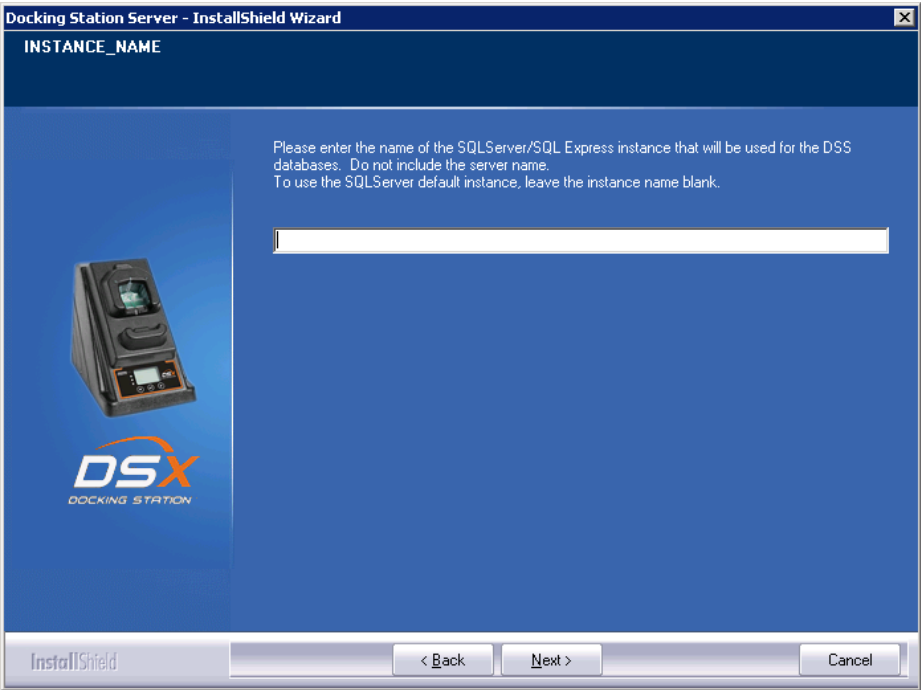
Step	Instruction
1.	Start installation.
	

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

<u>Account</u>	<u>User</u>	<u>Password</u>
SA Password	SA	D\$2u\$er\$D\$2u\$er\$
DS2 DB User Login	DS2	D\$2u\$er\$D\$2u\$er\$
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.	<p data-bbox="337 254 1055 289">Enter the name of the server that SQL Server is running.</p>  <p data-bbox="570 989 1182 1024">Figure 3-15. Entering the SQL Server Name</p>

2.	<p data-bbox="337 1045 987 1081">Enter the database Instance name and choose Next.</p>  <p data-bbox="524 1793 1227 1829">Figure 3-16. Entering the Database Instance Name</p>
----	---

Step	Instruction
3.	Enter a Login Name and Password and choose Next. <div data-bbox="430 294 1323 966" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> </div> <p style="text-align: center;">Figure 3-17. Entering the DSS SQL Login information</p>
4.	Start installation.

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

The following window will appear if you have uninstalled a version prior to v3.0 or you already have SQL Server/SQL Server Express installed on the current PC and it has the DSS database tables already attached.

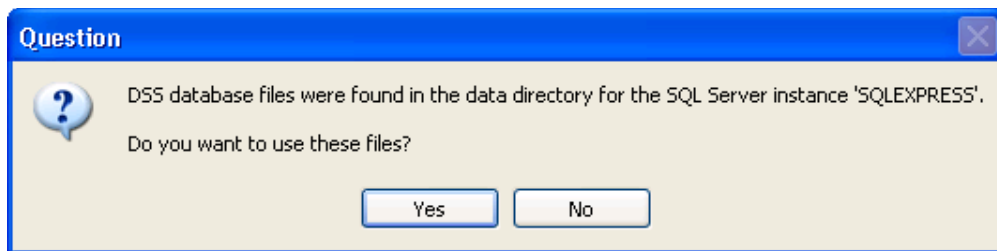
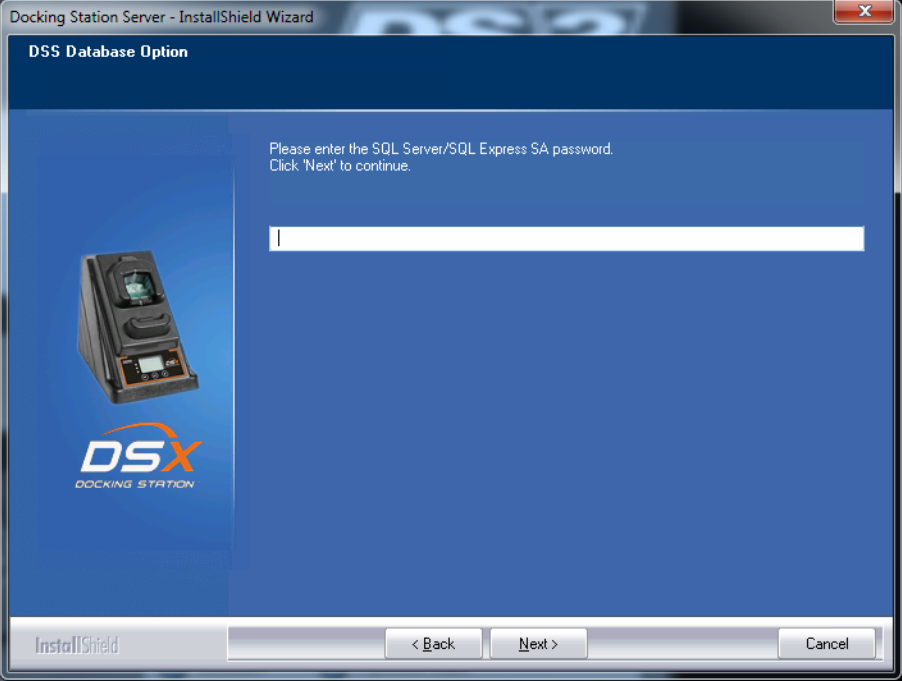


Figure 3-18. Existing DSS BD Files Popup

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.	<p>Enter a Login Name and Password and choose Next.</p>  <p>Figure 3-19. Selecting the System Administrator Password</p>

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

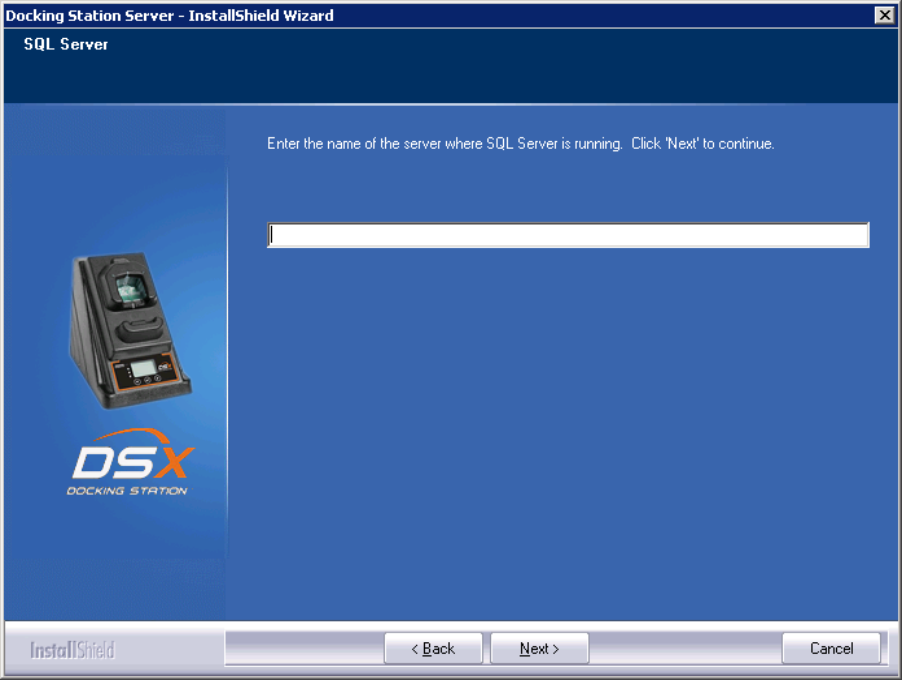
Step	Instruction
1.	<p data-bbox="332 306 1055 342">Enter the name of the server that SQL Server is running.</p> 

Figure 3-20. Entering the SQL Server Name

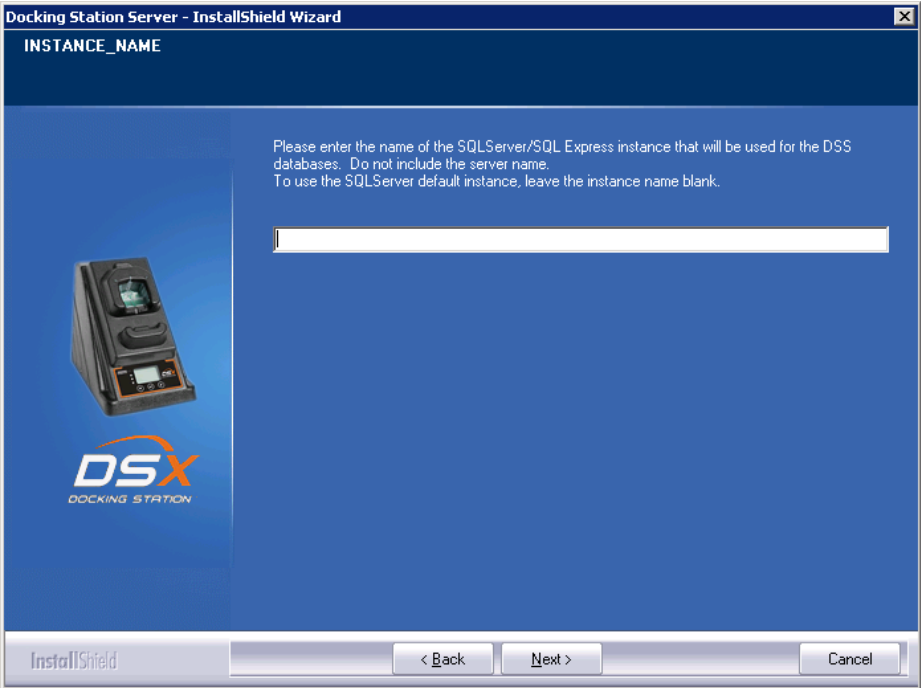
2.	<p data-bbox="332 1098 987 1134">Enter the database Instance name and choose Next.</p> 
----	---

Figure 3-21. 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.

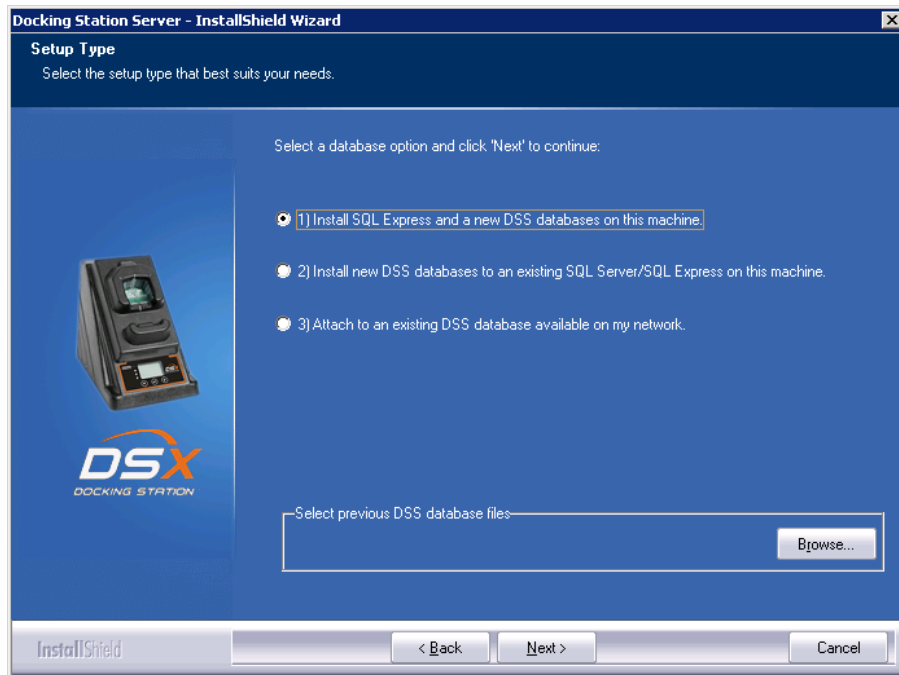
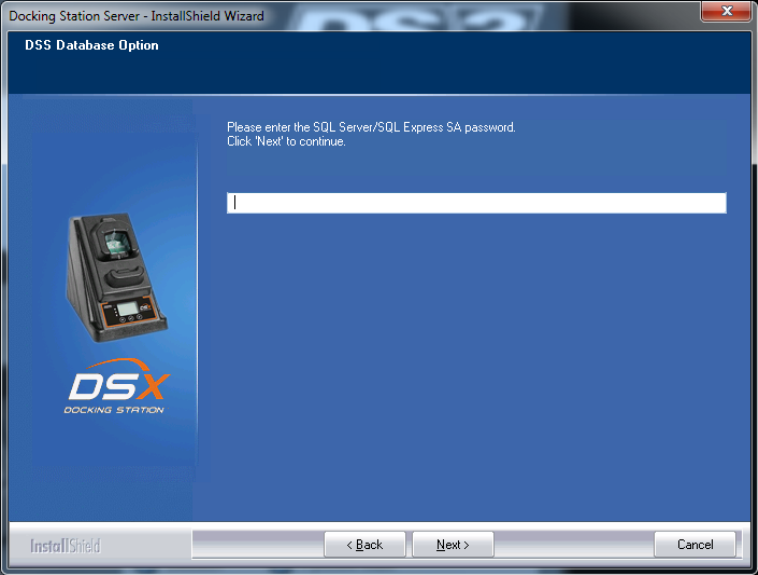
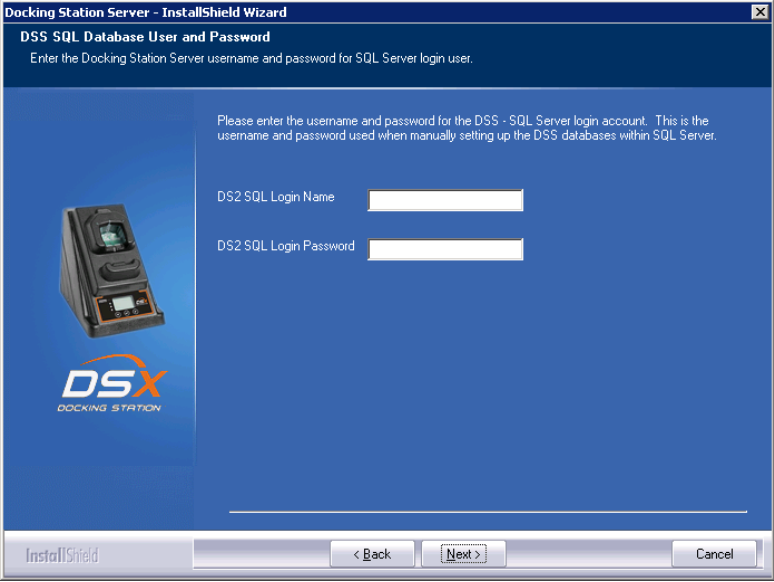


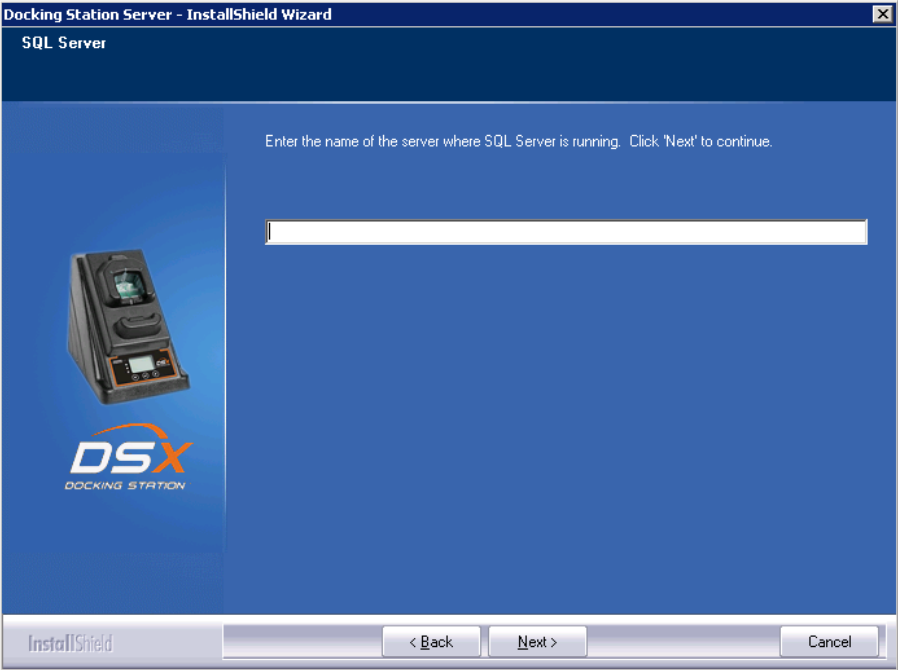
Figure 3-22. Selecting the Appropriate Database Option

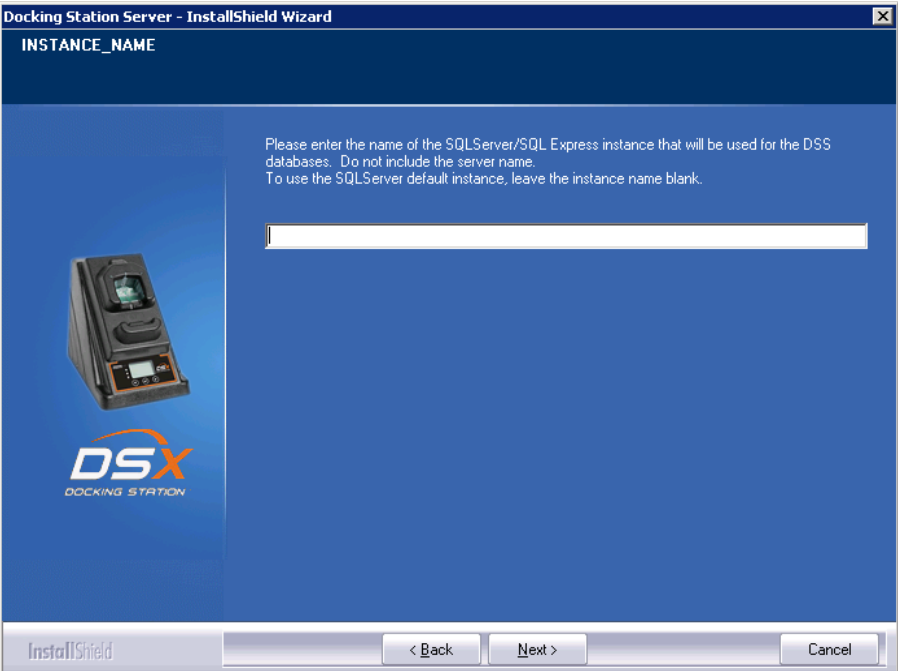
3.9.1a. Install SQL Server Express on This Machine and Use Existing DSS Database

Step	Instruction
1.	<p>Select a System Administrator Password and choose Next.</p>  <p>Figure 3-23. Selecting the System Administrator Password</p>

2.	<p>Select a default user password and choose Next.</p>  <p>Figure 3-24. Selecting the Default User Password</p>
----	--

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

Step	Instruction
1.	<p data-bbox="337 254 1055 289">Enter the name of the server that SQL Server is running.</p>  <p data-bbox="568 982 1182 1018">Figure 3-25. Entering the SQL Server Name</p>

2.	<p data-bbox="337 1041 987 1077">Enter the database Instance name and choose Next.</p>  <p data-bbox="527 1780 1226 1816">Figure 3-26. Entering the Database Instance Name</p>
----	---

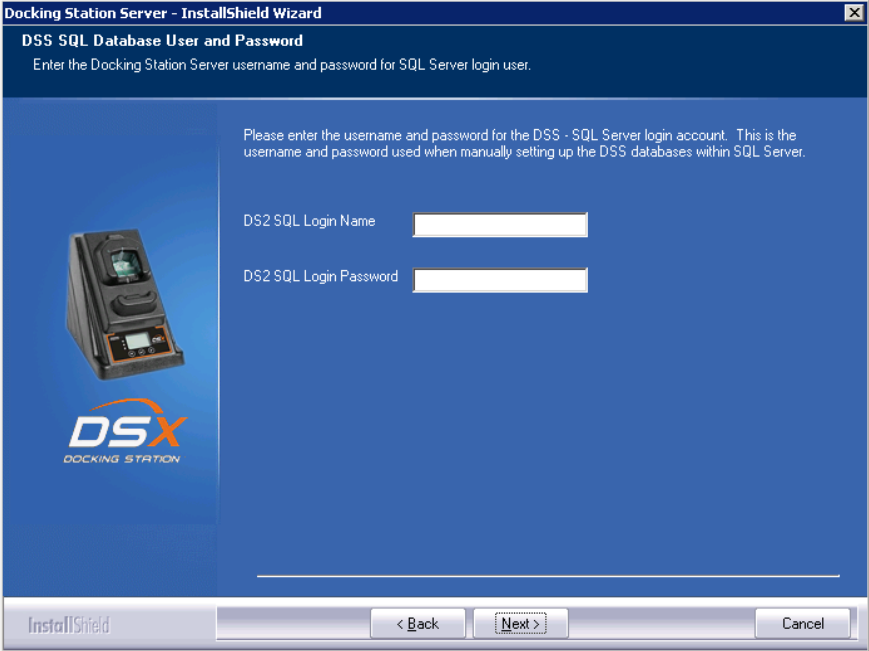
Step	Instruction
3.	<p>Select a default user password and choose Next.</p> 

Figure 3-27. Entering the Default User Password

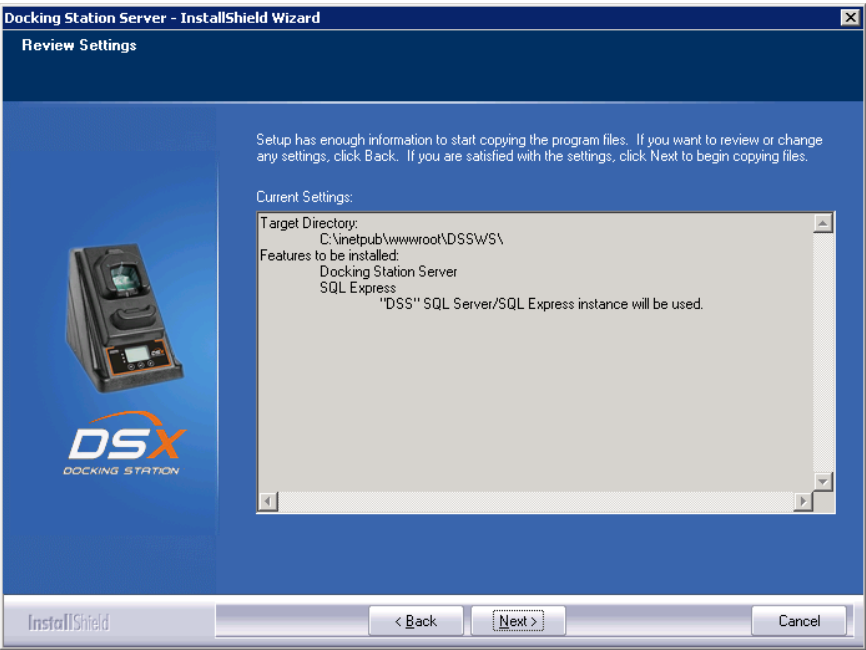
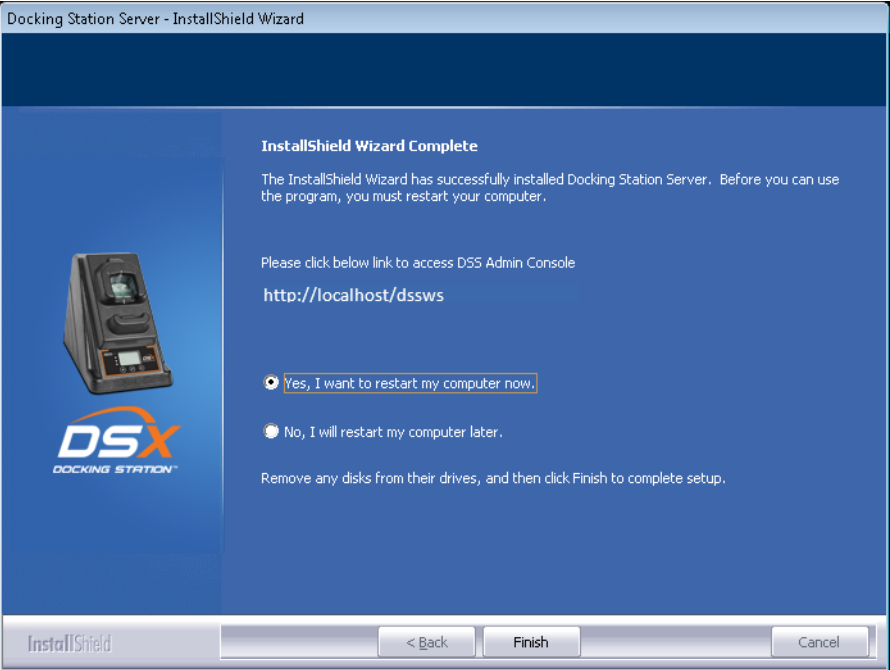
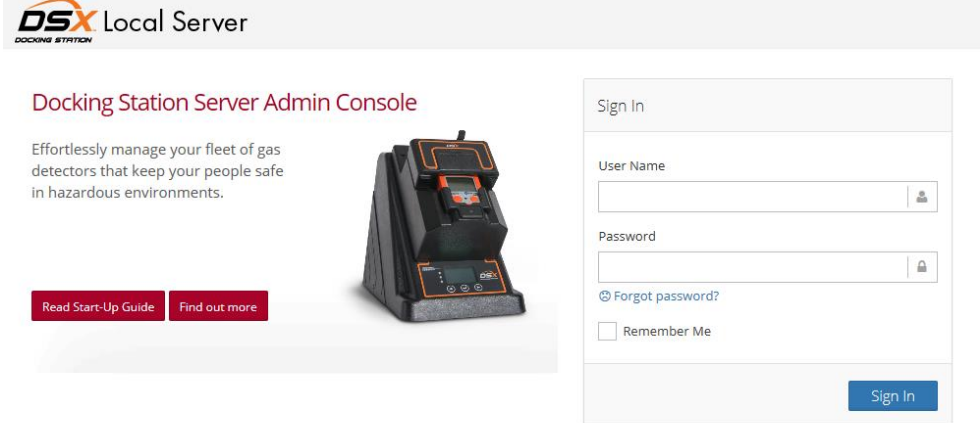
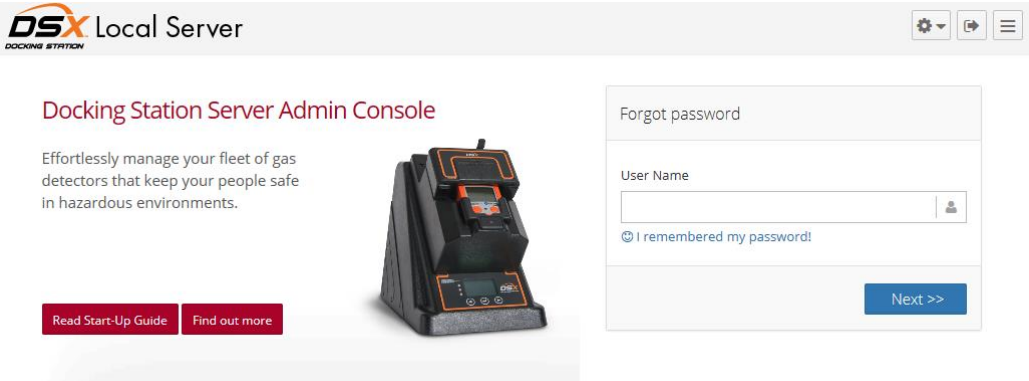
4.	<p>Before the installation is finished, the settings will be reviewed.</p> 
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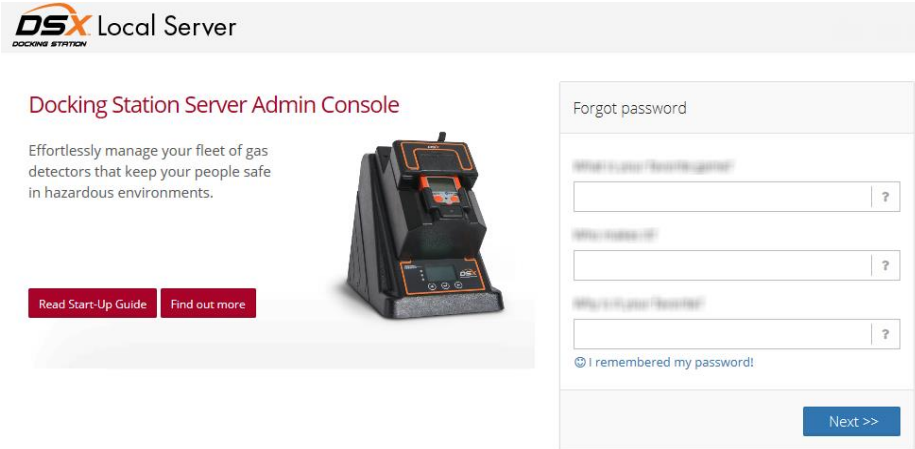
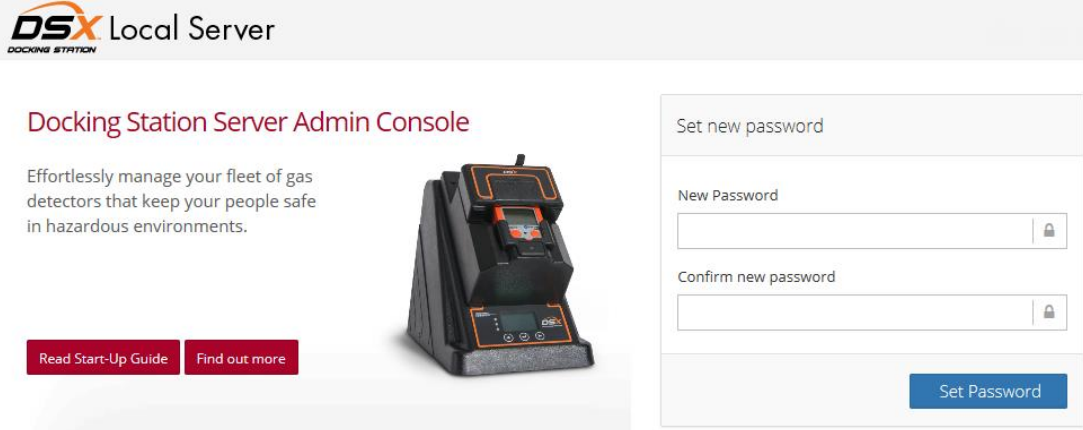
Figure 3-28. Review Settings Window

Step	Instruction
5.	<p>Finally, the installation is now complete. Select the desired restart method and choose Finish.</p>  <p style="text-align: center;">Figure 3-29. Installation Complete Window</p>
6.	<p>Installation of the DSS will also install and start the DS2 Broadcaster. 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 IDSs 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.</p>
7.	<p>If the DS2 Broadcaster is disabled, the IDSs will need to know the IP address of the server running the DSS. This is accomplished through using the DS2 Configurator Software. See section 3.12 on how to manually send out the IP address of the computer running the DSS.</p>

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

NOTE: This 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 <code>http://<server_name_or_ip_address>/dssws</code> or <code>https://<server_name_or_ip_address>/dssws</code> to get to the login screen, and enter your user name and password.
3.	<p>If you forgot your password, click “Forgot password?” on the login screen (this is only applicable to dssuser).</p> 
4.	<p>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.</p> 

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

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 computer or server 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.	<p>The USB drive will automatically launch the following window.</p> 
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.

Figure 3-30. Docking Station Installation Window

3.11.2. Running the Docking Station Configurator Software

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

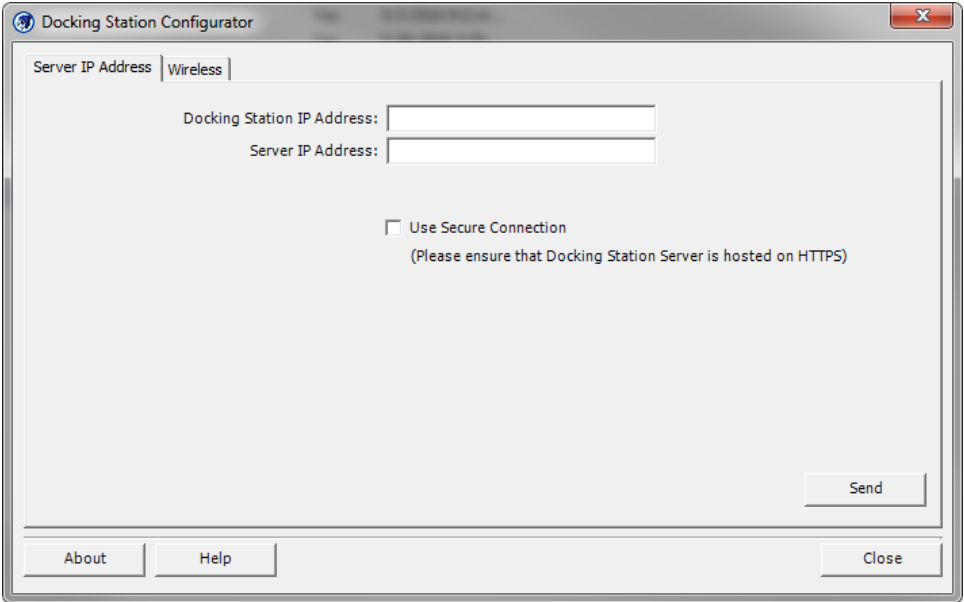
Step	Instruction
1.	<p>Choose START / PROGRAMS / INDUSTRIAL SCIENTIFIC / DS2 CONFIGURATOR. The Docking Station Configurator screen is displayed. To tell the docking station what the IP address of the server is, select the Server IP Address tab, and then type in:</p> <ul style="list-style-type: none">• the IP address of the server• the IP address of the docking station <p>and choose Send.</p> 
2.	At this point, the docking station will automatically reboot.

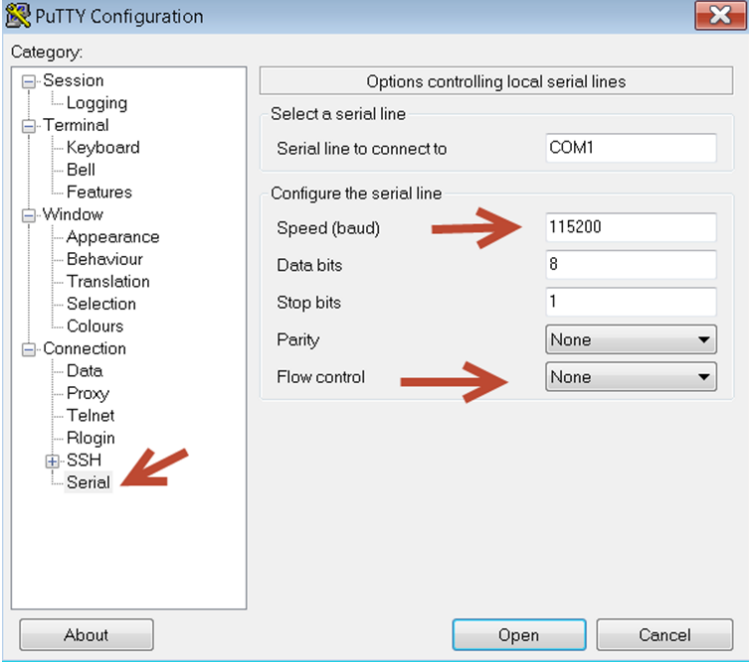
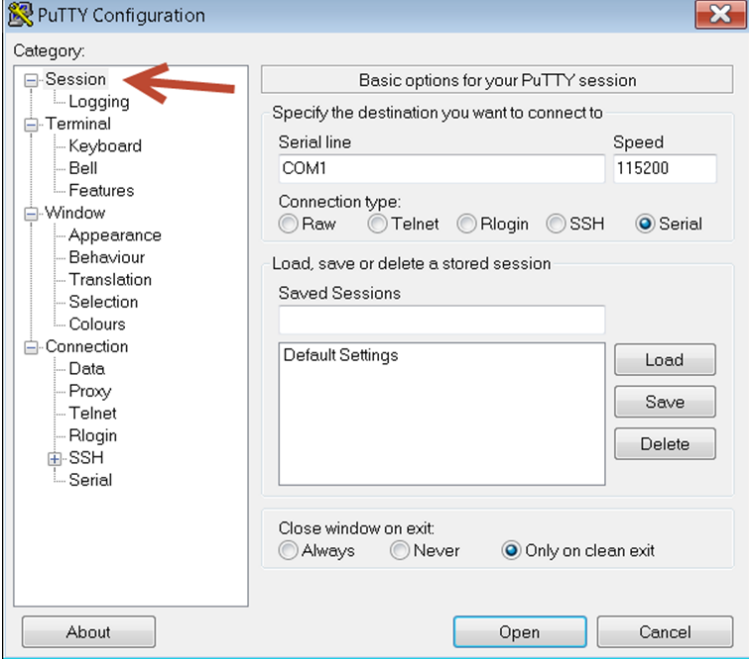
Figure 3-31. Docking Station Configurator Screen

3.12. Assigning a Static IP Address to a Sever 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.	<p>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.</p>
2.	<p>From your computer, click on the executable to run PuTTY.</p> <p>In the left column click “Serial”.</p> <p>In the dialog box, ensure the parameters are set as they are shown here.</p> <p><i>Note:</i> your COM port may be something other than COM1; check the device manager on your PC to be sure.</p> 
3.	<p>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.</p> <p>Click on Open.</p> <p>Reconnect the power cable to the back of the docking station. Tap the space bar on your keyboard.</p> 

Step	Instruction
	<p>At the blinking prompt, type the number 4 and press enter. The menu will refresh and the DHCP will change from Enabled to Disabled.</p> <p>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.</p> <p>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.</p> <p>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</p>
4.	<p>Once you have confirmed the values are correct, type S and press enter to save the configuration.</p> <p>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.</p>

```

Ethernet Boot Loader Configuration :
0) MAC address ..... (00:0B:D8:99:BE:F0)
1) IP address ..... (169.254.10.10)
2) Subnet mask ..... (255.255.0.0)
3) Gateway address ..... (169.254.10.1)
4) DHCP ..... (Enabled)
5) Boot delay (seconds).. (1)
6) Frequency settings
7) Download device..... (Ethernet)
a) Debug device..... (Ethernet (EMACB))
b) Download image to..... (Flash)
c) Launch existing flash resident image at startup

l) Launch flash resident image now
d) Download from Ethernet now
s) Save configuration now
r) Restore default configuration and save now
n) Image flash menu
t) Test NAND menu
o) OS Image Slot menu
u) Update image ..... (Disabled)
>
>
Enter new IP address:

```

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.

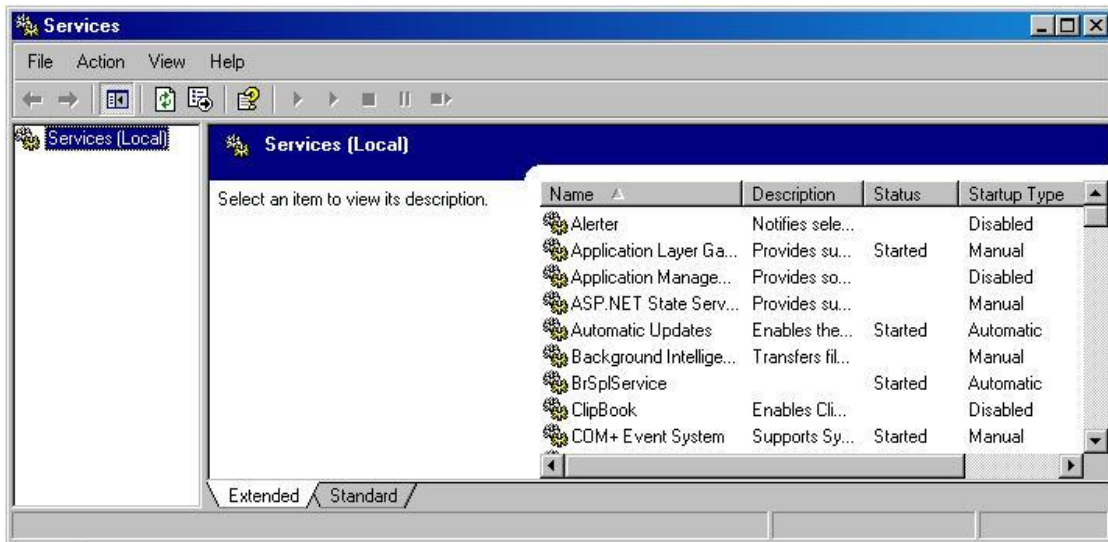
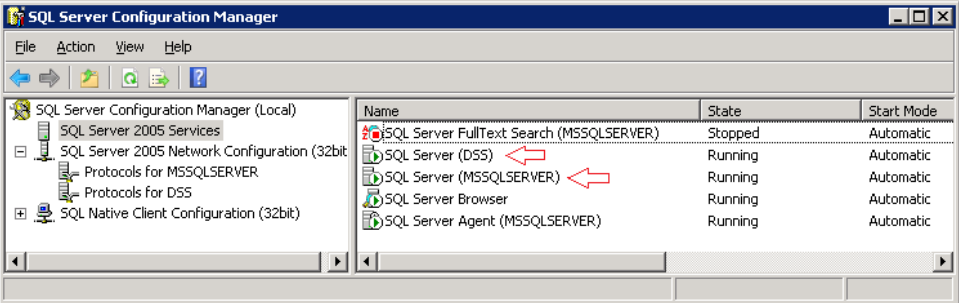


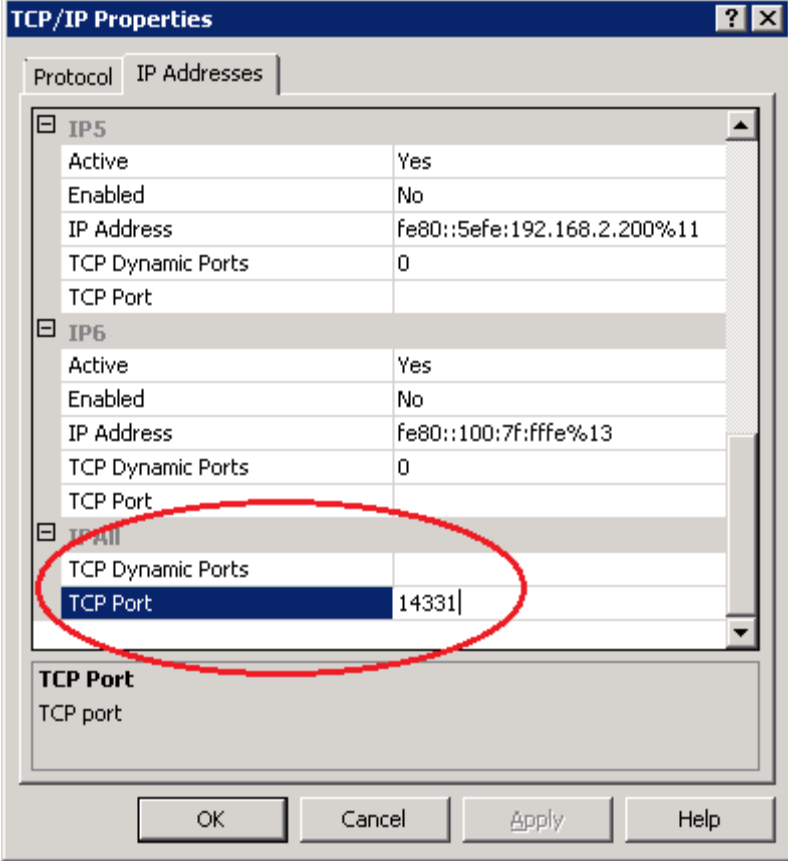
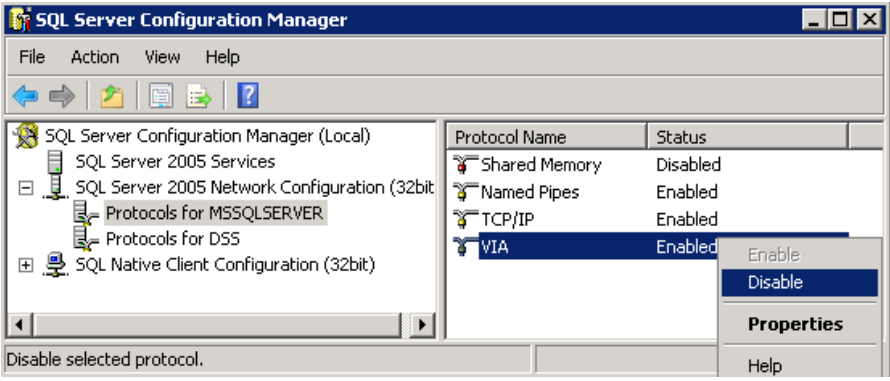
Figure 3-32. Sample Services Window

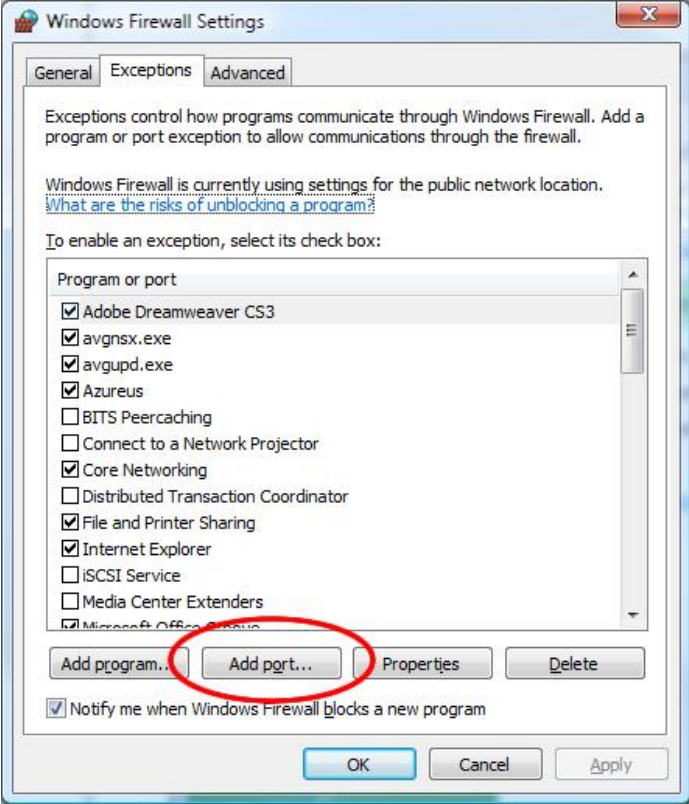
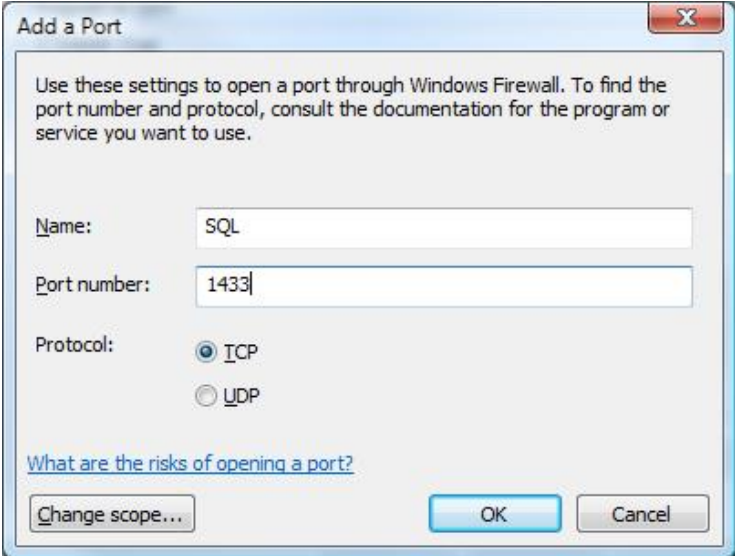
4.	Locate and right click on DS2 Broadcaster.
5.	Choose Properties.
6.	In the Start-up type dropdown box, select Manual.
7.	If the service is currently running, click the STOP button.
8.	Click OK.

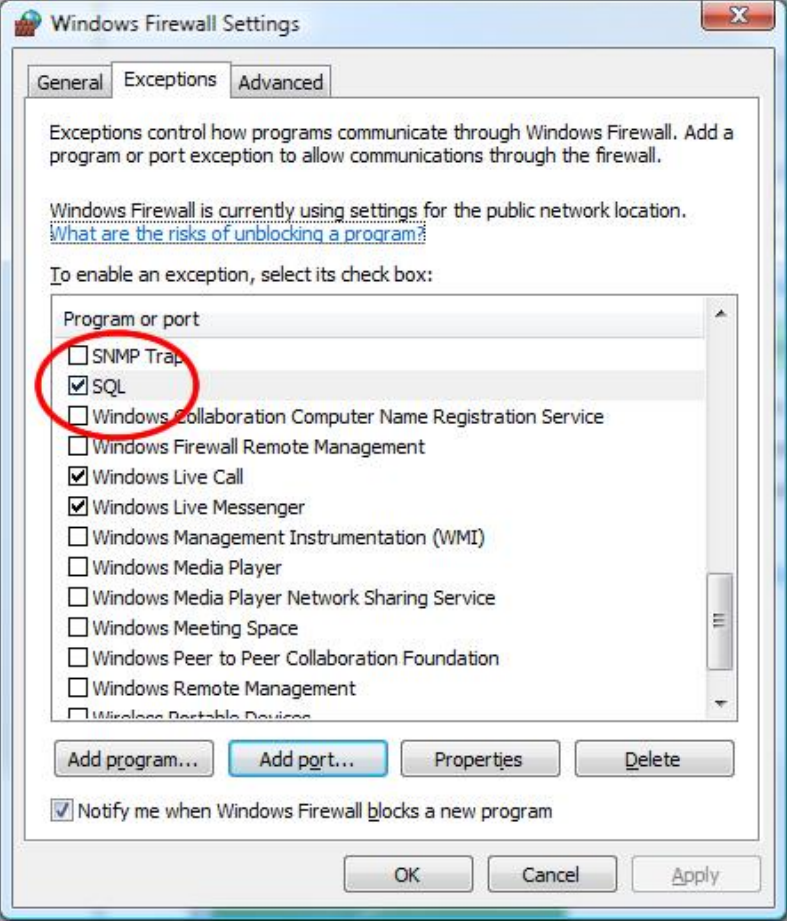
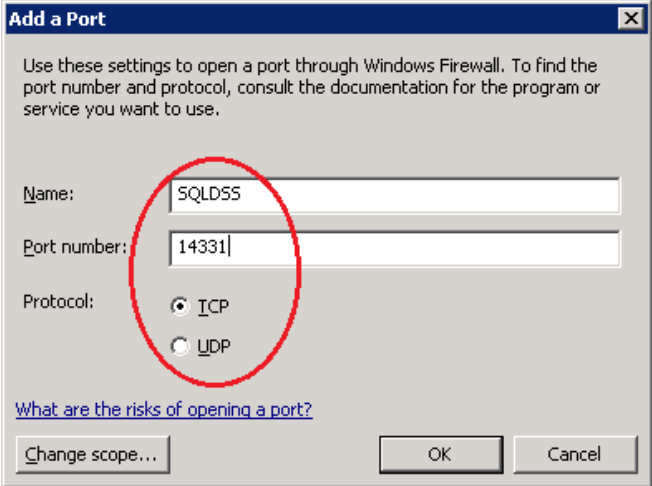
3.14. Configuring the Firewall

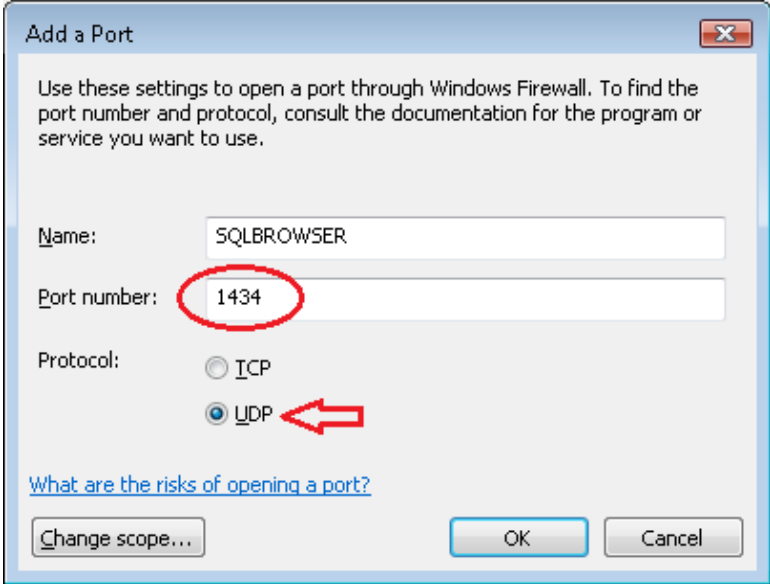
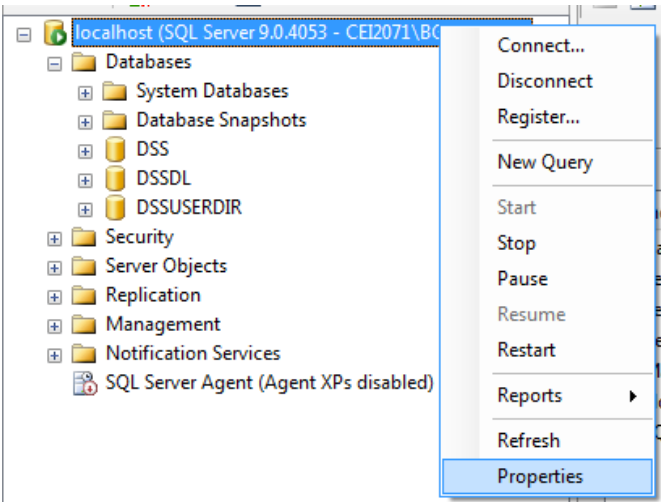
3.14.1. Windows Firewall Settings for SQL Server

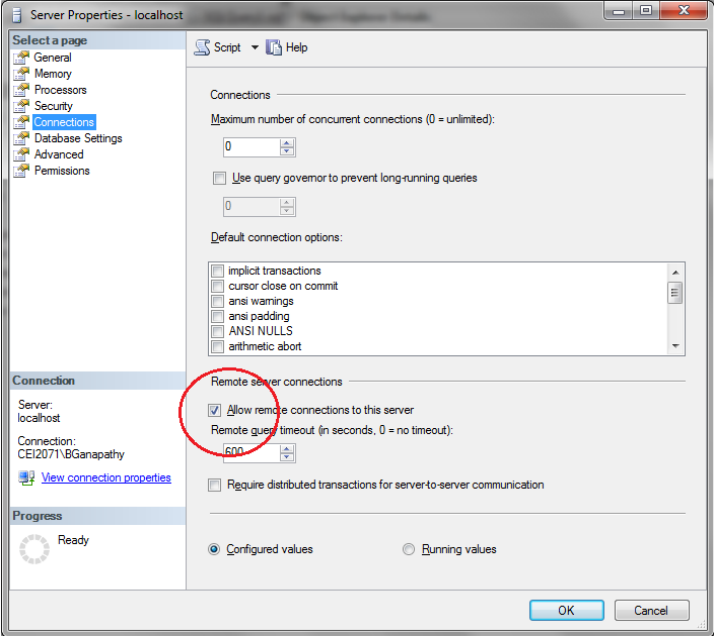
Step	Instruction																		
	<p>NOTE: the user should be logged-on as an Administrator to perform the following tasks.</p>																		
1.	<p>Make sure that “IIS_IUSRS” group has been provided the full access permissions for “C:\Windows\Temp” directory.</p> <ul style="list-style-type: none"> • 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.	<p>Enable Windows Firewall if it was disabled earlier.</p>																		
3.	<p>Go to All Programs >> Microsoft SQL Server {Version} >> Configuration Tools >> SQL Server Configuration Manager.</p>																		
4.	<p>Choose SQL Server Services and check that SQL Server (<<instance name>>) is running.</p>  <table border="1" data-bbox="711 1241 1295 1373"> <thead> <tr> <th>Name</th> <th>State</th> <th>Start Mode</th> </tr> </thead> <tbody> <tr> <td>SQL Server FullText Search (MSSQLSERVER)</td> <td>Stopped</td> <td>Automatic</td> </tr> <tr> <td>SQL Server (DSS)</td> <td>Running</td> <td>Automatic</td> </tr> <tr> <td>SQL Server (MSSQLSERVER)</td> <td>Running</td> <td>Automatic</td> </tr> <tr> <td>SQL Server Browser</td> <td>Running</td> <td>Automatic</td> </tr> <tr> <td>SQL Server Agent (MSSQLSERVER)</td> <td>Running</td> <td>Automatic</td> </tr> </tbody> </table>	Name	State	Start Mode	SQL Server FullText Search (MSSQLSERVER)	Stopped	Automatic	SQL Server (DSS)	Running	Automatic	SQL Server (MSSQLSERVER)	Running	Automatic	SQL Server Browser	Running	Automatic	SQL Server Agent (MSSQLSERVER)	Running	Automatic
Name	State	Start Mode																	
SQL Server FullText Search (MSSQLSERVER)	Stopped	Automatic																	
SQL Server (DSS)	Running	Automatic																	
SQL Server (MSSQLSERVER)	Running	Automatic																	
SQL Server Browser	Running	Automatic																	
SQL Server Agent (MSSQLSERVER)	Running	Automatic																	
5.	<p>Navigate to SQL Server Network Configuration >> Protocols for MSSQLSERVER and Enable TCP/IP if it is disabled.</p>																		
6.	<p>Navigate to SQL Server Network Configuration >> Protocols for DSS (if available) and Enable TCP/IP if it is disabled.</p>																		
7.	<p>Right-click on TCP/IP and choose Properties.</p> <p>Scroll to the bottom and clear TCP Dynamic Ports and add TCP Port as “14331” (<i>note: Port can be any number but it should not be conflict with any other port</i>).</p>																		

Step	Instruction
	 <p>The screenshot shows the 'TCP/IP Properties' dialog box with the 'IP Addresses' tab selected. Under the 'IP4' section, the 'TCP Port' field is highlighted with a red circle and contains the value '14331'. Other fields include 'Active' (Yes), 'Enabled' (No), and 'IP Address' (fe80::5efe:192.168.2.200%11).</p>
8.	<p>Navigate to SQL Server Network Configuration >> Protocols for MSSQLSERVER.</p>  <p>The screenshot shows the 'SQL Server Configuration Manager' window. The 'Protocols for MSSQLSERVER' folder is expanded, showing a list of protocols: Shared Memory (Disabled), Named Pipes (Enabled), TCP/IP (Enabled), and VIA (Enabled). The 'VIA' protocol is selected, and a context menu is open with the 'Disable' option highlighted.</p>
9.	<p>Disable “VIA” protocol Name, if it is enabled. (<i>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.</i>)</p>
10.	<p>Repeat steps 7 and 8 for Protocols for DSS, if available.</p>

Step	Instruction
11.	<p>Go to Control Panel >> Windows Firewall >> Change Settings >> Exceptions >> Add Port.</p>  <p>The screenshot shows the 'Windows Firewall Settings' dialog box with the 'Exceptions' tab selected. A list of programs and services is shown with checkboxes. The 'Add port...' button at the bottom is circled in red.</p>
12.	<p>Make the following entries in the pop-up “Add a Port” and click OK.</p>  <p>The screenshot shows the 'Add a Port' dialog box. The 'Name' field contains 'SQL', the 'Port number' field contains '1433', and the 'Protocol' radio buttons have 'TCP' selected.</p>

Step	Instruction
13.	<p>Verify “SQL” has been added to the Exceptions list and click OK.</p>  <p>The screenshot shows the 'Windows Firewall Settings' dialog box with the 'Exceptions' tab selected. A list of programs and services is shown with checkboxes. The 'SQL' checkbox is checked and circled in red. Other checked items include 'Windows Live Call' and 'Windows Live Messenger'. Buttons at the bottom include 'Add program...', 'Add port...', 'Properties', 'Delete', 'OK', 'Cancel', and 'Apply'.</p>
14.	<p>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.</p>  <p>The screenshot shows the 'Add a Port' dialog box. The 'Name' field contains 'SQLDSS', the 'Port number' field contains '14331', and the 'Protocol' is set to 'TCP'. These fields are circled in red. Buttons at the bottom include 'Change scope...', 'OK', and 'Cancel'.</p>

Step	Instruction
15.	Verify “SQLDSS” has been added to the Exceptions list and click OK.
16.	<p>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.</p> 
17.	Verify “SQLBROWSER” has been added to the Exceptions list and click OK.
18.	<p>Log on to SQL Server using SA log-in or Windows Authentication. Right-click on the server node and choose Properties</p> 

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

Configuring the Docking Station

Chapter

4

4.1. 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.

4.2. 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.

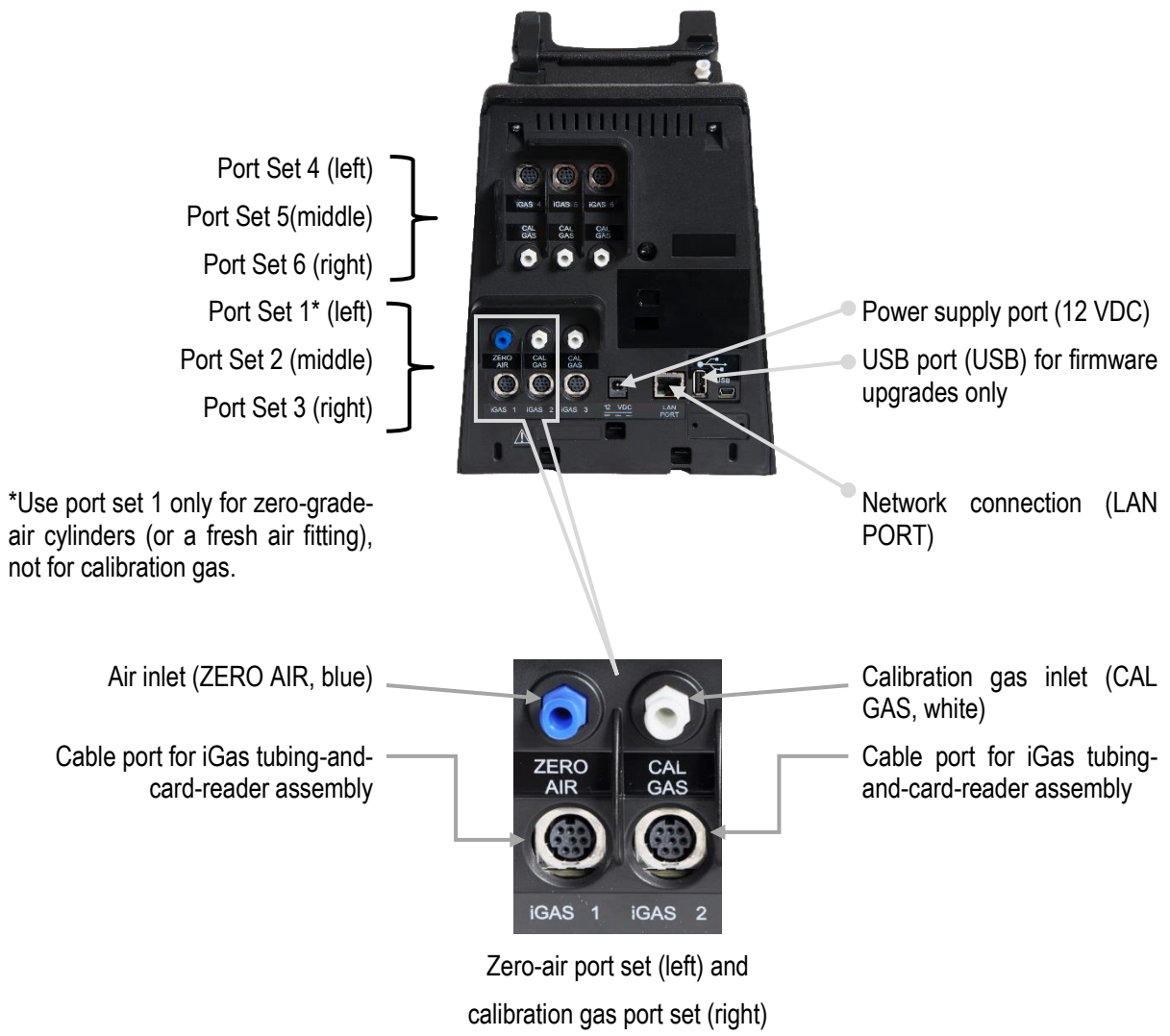


Figure 4-1. DSX-L Back Panel (6-PORT UNIT SHOWN)

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 4-1. Connections on the Back of an IDS

Connection	Description
ZERO AIR; CAL GAS	Connects the IDS to calibration cylinders using gas tubing.
iGas 1 – 6 (or 3 for a 3-port unit)	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.
USB Port	A port used to accept USB drives. USB drives are used only to upload firmware updates to the Docking Station.
Network Port	A standard Ethernet port to connect the IDS to a 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.

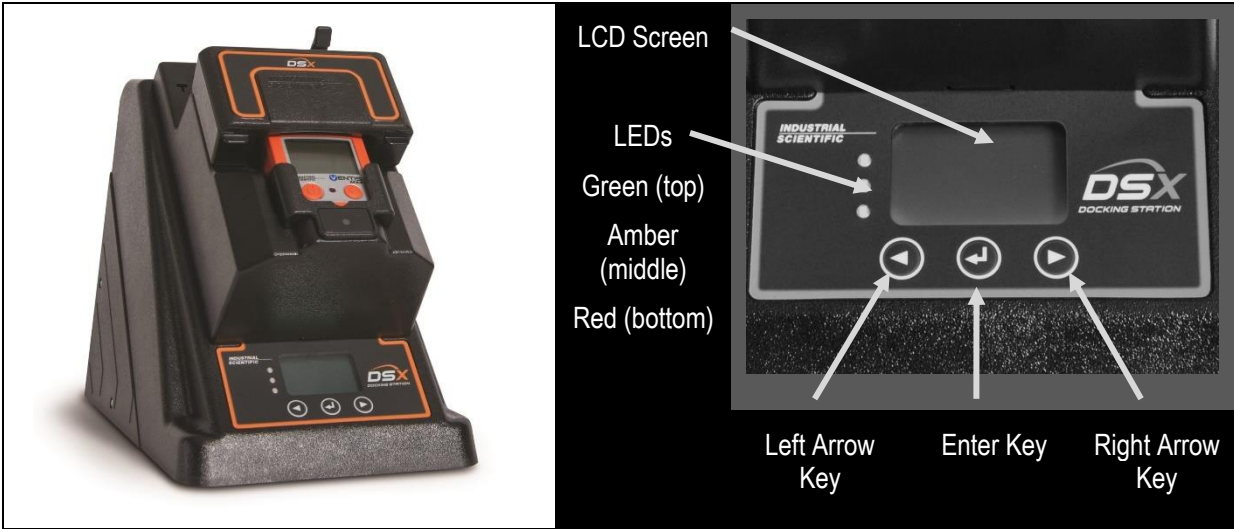


Figure 4-2. Front Panel of a DSX-L

4.3. 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 Docking Station Server 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.

4.4. Instrument Docking Station Status and Properties

When an IDS has been connected to the network and powered on for the first time, the Docking Station Server 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 web 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.

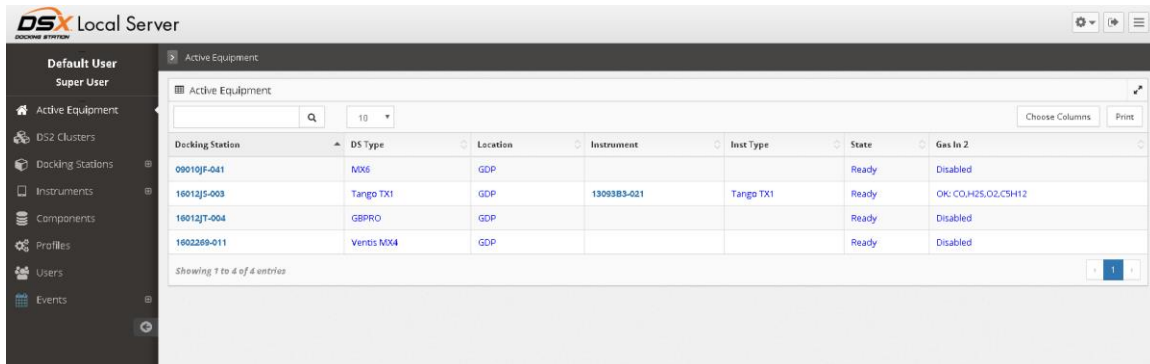
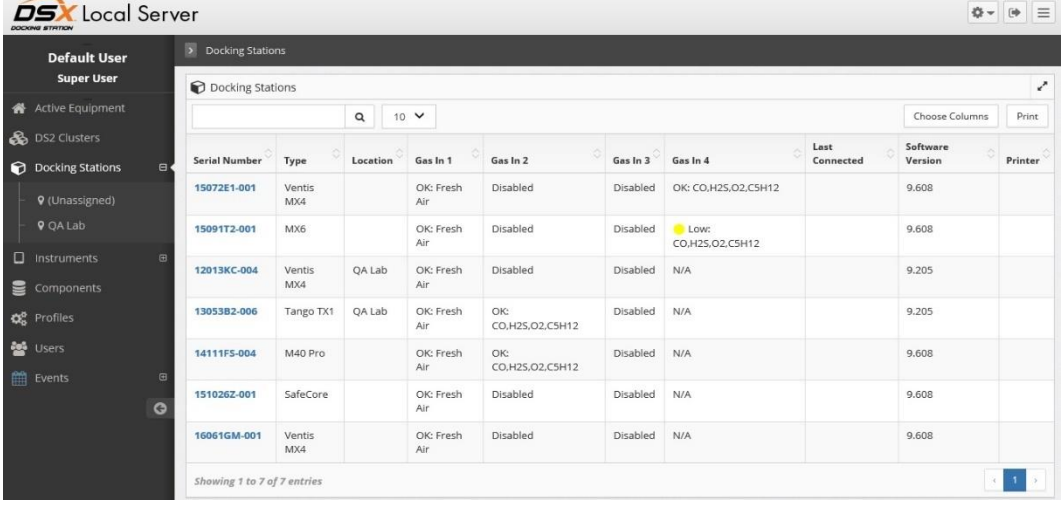


Figure 4-3. Active Equipment Page Showing IDSs and Current Status

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 Station page.

Step	Instruction																
1.	Click the Docking Stations option in the navigation page.																
2.	<p>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.</p>  <p style="text-align: center;">Figure 4-5. Sample Docking Stations Page</p> <table border="1" data-bbox="316 955 1404 1690"> <thead> <tr> <th data-bbox="316 955 560 997">Column Title</th> <th data-bbox="560 955 1404 997">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="316 997 560 1092">Serial Number</td> <td data-bbox="560 997 1404 1092">Serial number of the docking station as well as an icon to indicate a docking station type.</td> </tr> <tr> <td data-bbox="316 1092 560 1218">Type</td> <td data-bbox="560 1092 1404 1218">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.</td> </tr> <tr> <td data-bbox="316 1218 560 1375">Gas In <x></td> <td data-bbox="560 1218 1404 1375">Indicates the type of gas, if any, currently assigned to port <i>x</i> and its current status. The status of a Gas In connection can be “OK”, “Low”, “Empty”, “Due to Expire”, “Expired”, “Disabled” or “N/A”.</td> </tr> <tr> <td data-bbox="316 1375 560 1459">Last Connected</td> <td data-bbox="560 1375 1404 1459">The Date/Time stamp for the last time the docking station talked to the Docking Station Server.</td> </tr> <tr> <td data-bbox="316 1459 560 1522">Location</td> <td data-bbox="560 1459 1404 1522">Current location assigned to the Docking Station.</td> </tr> <tr> <td data-bbox="316 1522 560 1606">Software Version</td> <td data-bbox="560 1522 1404 1606">The version of the Docking Station software that the docking station is currently running.</td> </tr> <tr> <td data-bbox="316 1606 560 1690">Printer</td> <td data-bbox="560 1606 1404 1690">The printer that the docking station will automatically print calibration reports to.</td> </tr> </tbody> </table>	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 <i>x</i> 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.
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 <i>x</i> 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.																
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.																

Step	Instruction
5.	<p>The IDS's properties page contains a Quick Links box with four options.</p> <p>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.</p> <p>Gas Inlets - This option is used to configure the Gas In connections on the IDS. See section 4.6 Configuring Gas Cylinders for information about using the Gas Inlets section.</p> <p>Manage Events - This option displays the journal events for the chosen Docking Station.</p> <p>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.</p> <p>NOTE: The optional iGas feature can automatically configure your gas cylinders in the DSSAC for you. See section 4.11 Using iGas for more information about iGas.</p>

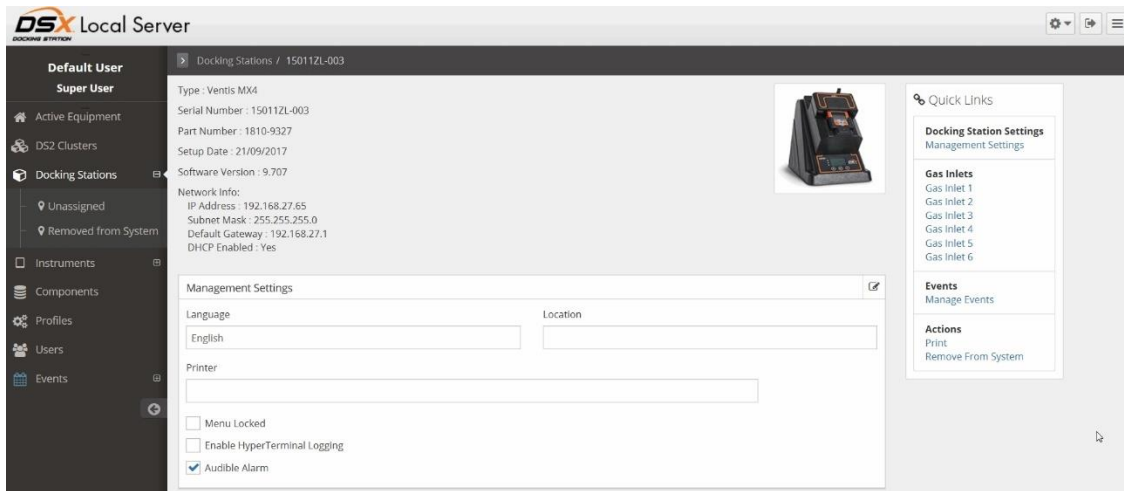


Figure 4-6. Docking Station Properties Page


Step	Instruction
6.	<p>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.</p>

Table 4-2. 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. Options are GasBadge Pro, MX6 iBrid, SafeCore Module, Tango TX1, Tango TX2, Ventis LS, Ventis MX4, Ventis Pro4, or Ventis Pro5.
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, French, Spanish, German, 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	<p>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.</p> <p>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.</p>
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 <i>only</i> when directed by Industrial Scientific technical support. This option is viewable in V9.7 or higher and only in administrator view.

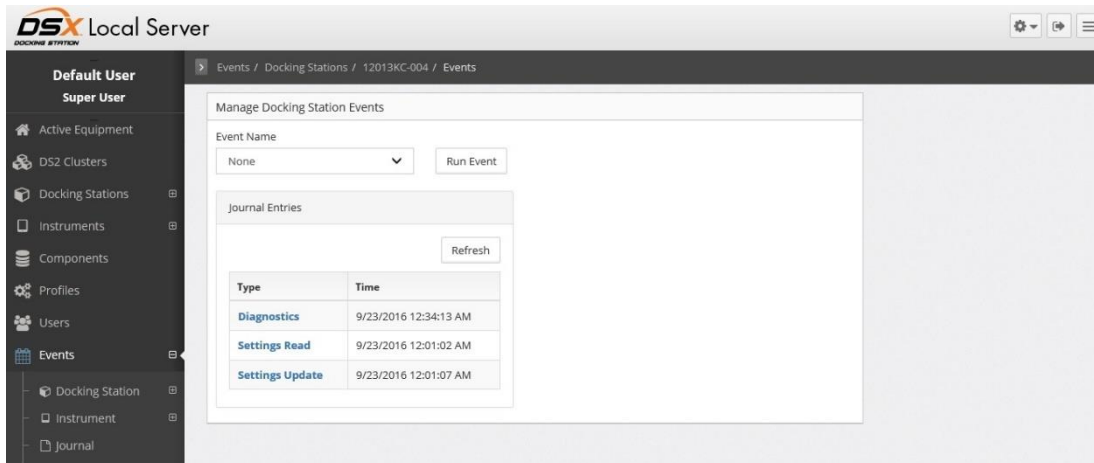


Figure 4-7. Manage Docking Station Events Page

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

Table 4-3. Fields on the Manage Docking Station Events Page

Field	Description
Event Name Drop-down	The <i>Event Name</i> selection drop-down box 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 <i>Run Event</i> button is disabled while “None” is the current selection of the <i>Event Name</i> drop-down box. Selecting an <i>Event Name</i> other than “None” enables the button. Pressing the <i>Run Event</i> button after an event code is selected removes the selected event from the <i>Journal Entry</i> listview and <i>Event Name</i> dropdown and then sets the currently selected <i>Event Name</i> 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: <ul style="list-style-type: none"> - “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 <i>Journal Entries</i> 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 <i>Refresh</i> button forces the DSSAC to re-query the journal entries for the current Docking Station and updates the <i>Journal Entry</i> list view.

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

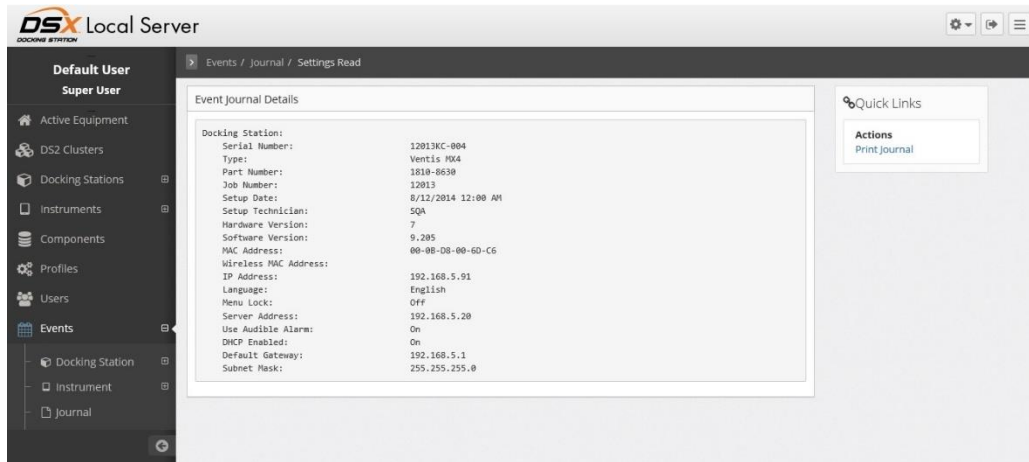


Figure 4-8. Event Journal Details Page

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).

4.5. 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.

4.6. Configuring Gas Cylinders

In order to perform calibrations and bump tests using DSX, 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 4.11 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.

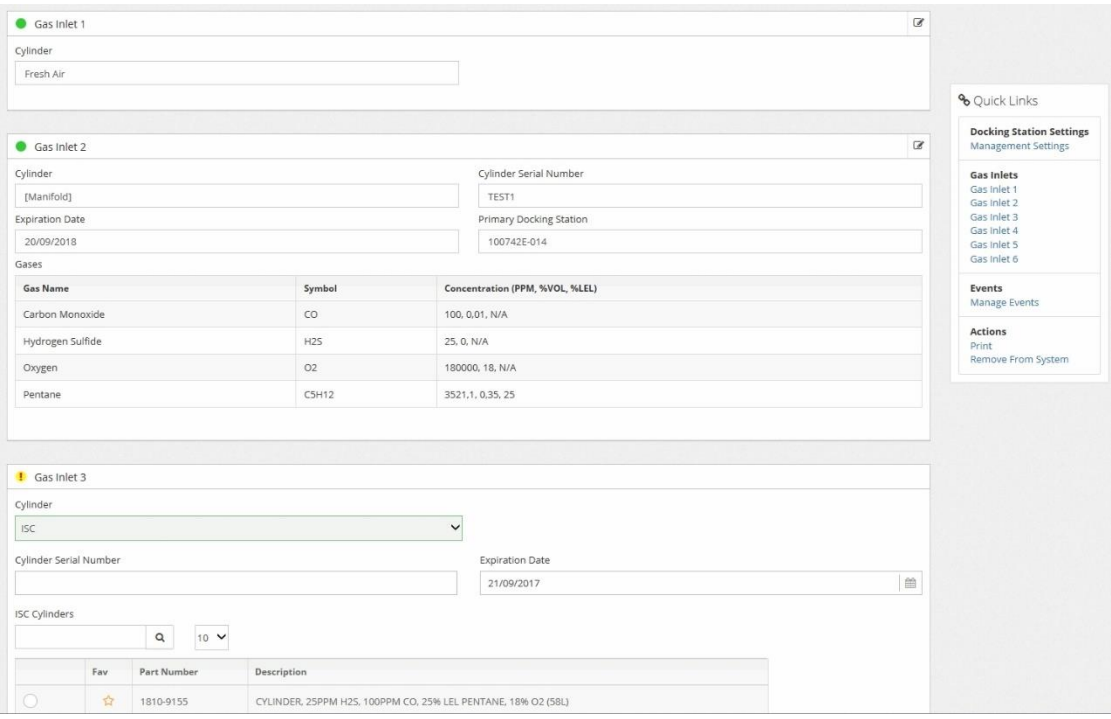
NOTE: For Chlorine (Cl₂), Ammonia (NH₃) and Hydrogen Chloride (HCl) gases, the gas tube length should not exceed three (3) feet.

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 the Table 4-4 for a description of each of the icons.

Step	Instruction
6.	<p>Scroll to the Gas Inlet option that corresponds to the Gas Inlet connection to which you have connected the gas cylinder.</p>  <p>The screenshot shows the 'Gas Inlets' configuration interface. It features three sections for Gas Inlet 1, Gas Inlet 2, and Gas Inlet 3. Gas Inlet 1 is currently set to 'Fresh Air'. Gas Inlet 2 is configured with a manifold, cylinder serial number 'TEST1', expiration date '20/09/2018', and primary docking station '100742E-014'. Gas Inlet 3 is set to an 'ISC' cylinder with serial number '1810-9155' and expiration date '21/09/2017'. A table of gases is displayed below Gas Inlet 2, listing Carbon Monoxide, Hydrogen Sulfide, Oxygen, and Pentane with their respective symbols and concentrations. A 'Quick Links' sidebar on the right contains 'Docking Station Settings', 'Gas Inlets', 'Events', and 'Actions'.</p>
7.	<p>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.</p> <ul style="list-style-type: none"> • 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.

Step	Instruction
	<ul style="list-style-type: none"> • 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. <p>Manifold – Allows up to five docking stations to use one gas cylinder with the <u>Five Port Gas Manifold Clamp</u>.</p>
8.	The settings you have chosen appear in 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.

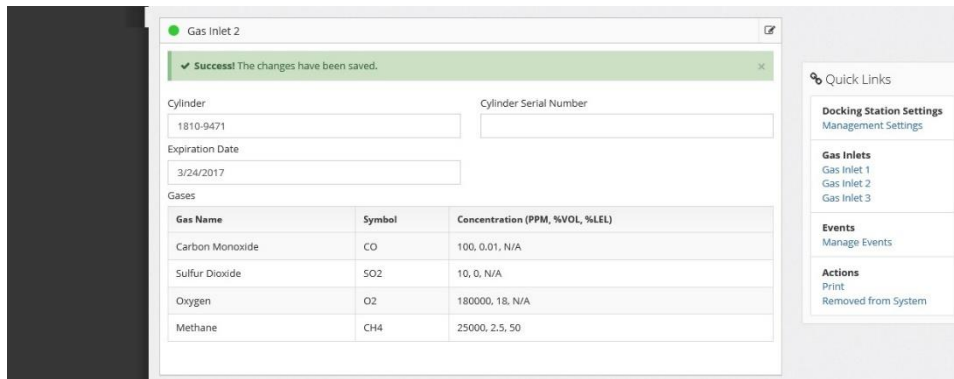








Figure 4-10. A Configured Gas Inlet

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 4-4. 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 Red 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.

4.7. 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.
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 DSX-L database, but is NOT sent to iNet.
7.	Click the Save button to save your changes to the gas inlet.

Gas Inlet 2

Cylinder: ISC

Cylinder Serial Number: _____ Expiration Date: 03/24/2017

ISC Cylinders

	Fav	Part Number	Concentration
<input type="radio"/>	<input type="checkbox"/>	1810-9470	H2S (25, 0, N/A), O2 (180000, 18, N/A), C5H12 (3521.1, 0.35, 25)
<input checked="" type="radio"/>	<input type="checkbox"/>	1810-9471	CO (100, 0.01, N/A), SO2 (10, 0, N/A), O2 (180000, 18, N/A), CH4 (25000, 2.5, 50)
<input type="radio"/>	<input type="checkbox"/>	1810-9505	H2S (25, 0, N/A), O2 (180000, 18, N/A)
<input type="radio"/>	<input type="checkbox"/>	7810-2241	CO2 (1000, 0.1, N/A)
<input type="radio"/>	<input type="checkbox"/>	7810-2258	PH3 (0.5, 0, N/A)
<input type="radio"/>	<input type="checkbox"/>	7810-3866	NH3 (50, 0, N/A)
<input type="radio"/>	<input type="checkbox"/>	7810-4049	NH3 (70, 0.01, N/A)
<input type="radio"/>	<input type="checkbox"/>	7810-4262	NH3 (70, 0.01, N/A)

Save Cancel

Quick Links

Docking Station Settings
Management Settings

Gas Inlets
Gas Inlet 1
Gas Inlet 2
Gas Inlet 3

Events
Manage Events

Actions
Print
Removed from System

Figure 4-11. Adding Gas from Industrial Scientific

4.8. 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 menu, and enter a value for PPM, % VOL or %LEL (if applicable).

The screenshot displays the configuration interface for 'Gas Inlet 2'. The 'Cylinder' dropdown is set to 'Non-ISC'. The 'Expiration Date' is set to '30/08/2017'. Under the 'Gases' section, a table lists the gas configuration:

Gas Name	Symbol	Concentration (PPM, %VOL, %LEL)
Gas		
Carbon Monoxide - CO		

Below the table, there are input fields for 'PPM' and '%VOL'. A '+ Add' button is located at the bottom left of the gas configuration area. At the bottom right, there are 'Save' and 'Cancel' buttons. On the right side of the interface, a 'Quick Links' sidebar is visible, containing sections for 'Docking Station Settings Management Settings', 'Gas Inlets' (listing Gas Inlet 1 through 6), 'Events Manage Events', and 'Actions' (listing Print and Remove From System).

Figure 4-12. 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 4-13. 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.

4.9. 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 4.11 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 4.6 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.

4.10. Supported Sensors

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

Table 4-5. Supported Sensors

Sensor	GasBadge Pro	MX6 iBrid	SafeCore Module	Tango TX1 and Tango TX2	Ventis LS	Ventis MX4	Ventis Pro4	Ventis Pro5
Ammonia (NH ₃)	•	•	•	•				•
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/H ₂ 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 ₂ S)	•	•	•	•	•	•	•	•
LEL (Methane)		•	•		•	•	•	•
LEL (Pentane)		•	•		•	•	•	•
Methane 5% vol.		•			•	•	•	•
Methane (IR) (CH ₄)		•	•				•	•
Nitrogen Dioxide (NO ₂)	•	•	•	•	•	•	•	•
Nitric Oxide (NO)		•	•					
Oxygen (O ₂)	•	•	•		•	•	•	•
Oxygen, Long-life (O ₂)							•	•
Phosphine (PH ₃)	•	•	•					•
Phosphine (PH ₃), High Range		•						
PID (10.6 eV 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.

4.11. 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 DSX-L 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.
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 4-3. 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 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.

4.12 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 4-6. Manifold correlations with DSSAC

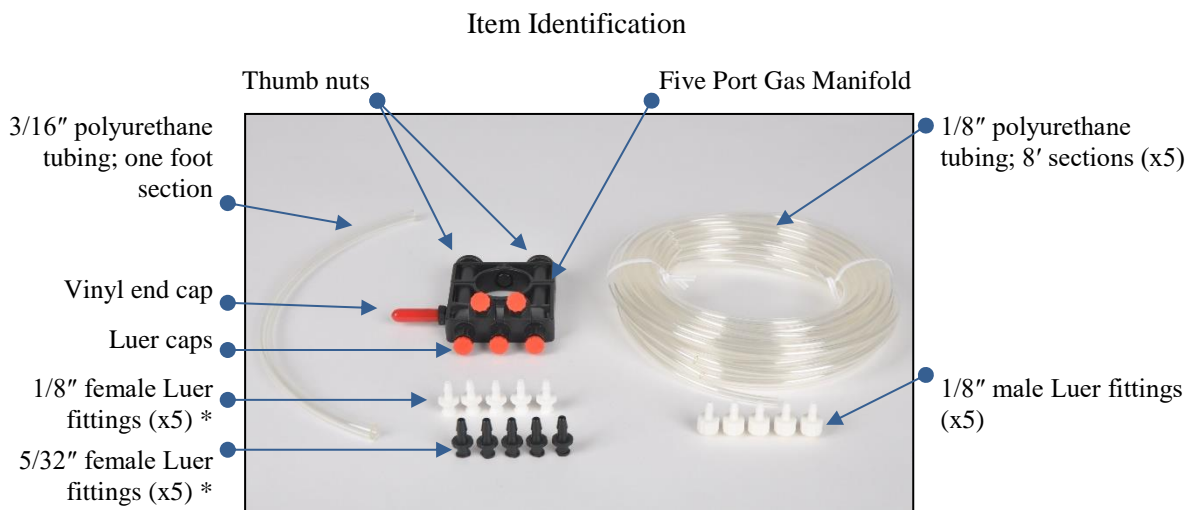
Condition	Action	Result
<i>Primary docking station</i>	<i>DSSAC Settings</i>	<i>Manifolded docking stations</i>
The gas cylinder is replaced with the same type of gas and cylinder.	No action required	The replaced cylinder is available for use
The gas cylinder is replaced with a different type of gas 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 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.

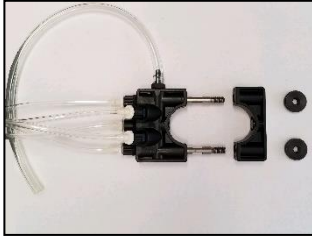
Hardware overview



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

Note: Tubing measurement is Internal Diameter (ID).

Table 4-7. 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.



Connect the 3/16 " tubing from the manifold inlet port to the regulator nipple.

Slide the remaining section of the manifold over the bolts of the first. Tighten the thumb nuts.




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.

● Gas Inlet 3

Cylinder

Primary Docking Station
 Retrieve

Gas End Points

	Gas Inlet	Cylinder	Concentration (PPM, %VOL, %LEL)
<input checked="" type="radio"/>	2	1810-1246	Carbon Monoxide (100, 0,01, N/A), Oxygen (190000, 19, N/A), Methane (25000, 2,5, 50)
<input type="radio"/>	3	1810-2242	Carbon Monoxide (100, 0,01, N/A), Hydrogen Sulfide (25, 0, N/A), Oxygen (190000, 19, N/A), Methane (25000, 2,5, 50)
<input type="radio"/>	4	[Non-ISC Cylinder]	Nitrogen Dioxide (100, 0,01, N/A), Hydrogen Cyanide (25, 0, N/A), Ammonia (50, 0, N/A)
<input type="radio"/>	5	1810-3671	Carbon Monoxide (100, 0,01, N/A), Carbon Dioxide (25000, 2,5, N/A), Oxygen (190000, 19, N/A), Pentane (3521,1, 0,35, 25)
<input type="radio"/>	6	1810-5122	Carbon Monoxide (50, 0, N/A), Oxygen (180000, 18, N/A), Propane (10638,3, 1,06, 50)

Save
Cancel

Figure 4-4. 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.

#

Basic Operation

Chapter

5

5.1. 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.

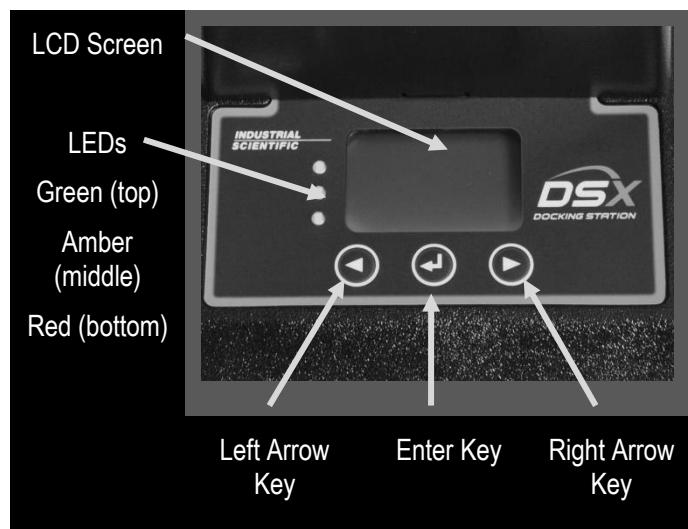


Figure 5-1. Front Panel Components of the DSX-L docking station

5.2. Menu Options

The menu on an IDS is used to request actions from the IDS, 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** dialog box. See section 4.4 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.

Step	Instruction																			
1.	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.)																			
2.	Press any of the keys on the IDS keypad. The main menu appears.																			
3.	Use the ARROW keys on the keypad to navigate the menu. Use the ENTER key to select an option.																			
4.	<p>The menu options are listed below.</p> <table border="1" data-bbox="331 751 1401 1625"> <thead> <tr> <th data-bbox="331 751 526 802">Item</th> <th data-bbox="526 751 1401 802">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="331 802 526 1726" rowspan="6">Instrument</td> <td data-bbox="526 802 1401 877">If you select this option, the following submenu appears:</td> </tr> <tr> <td data-bbox="526 877 1401 928"> <table border="1" data-bbox="539 877 1388 928"> <thead> <tr> <th data-bbox="539 877 701 928">Item</th> <th data-bbox="701 877 1388 928">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="539 928 701 1096">Bump Test</td> <td data-bbox="701 928 1388 1096">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 data-bbox="539 1096 701 1264">Calibrate</td> <td data-bbox="701 1096 1388 1264">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 data-bbox="539 1264 701 1432">Download Data</td> <td data-bbox="701 1264 1388 1432">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 data-bbox="539 1432 701 1600">Clear Datalog</td> <td data-bbox="701 1432 1388 1600">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 data-bbox="539 1600 701 1625">Previous</td> <td data-bbox="701 1600 1388 1625">Returns to the main menu.</td> </tr> </tbody> </table> </td> </tr> <tr> <td colspan="2" data-bbox="526 1625 1401 1726"> <p>NOTE: The Instrument menu is only available when an instrument is docked on the IDS.</p> </td> </tr> </tbody> </table>	Item	Description	Instrument	If you select this option, the following submenu appears:	<table border="1" data-bbox="539 877 1388 928"> <thead> <tr> <th data-bbox="539 877 701 928">Item</th> <th data-bbox="701 877 1388 928">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="539 928 701 1096">Bump Test</td> <td data-bbox="701 928 1388 1096">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 data-bbox="539 1096 701 1264">Calibrate</td> <td data-bbox="701 1096 1388 1264">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 data-bbox="539 1264 701 1432">Download Data</td> <td data-bbox="701 1264 1388 1432">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 data-bbox="539 1432 701 1600">Clear Datalog</td> <td data-bbox="701 1432 1388 1600">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 data-bbox="539 1600 701 1625">Previous</td> <td data-bbox="701 1600 1388 1625">Returns to the main menu.</td> </tr> </tbody> </table>	Item	Description	Bump Test	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.	Calibrate	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.	Download Data	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.	Clear Datalog	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.	Previous	Returns to the main menu.	<p>NOTE: The Instrument menu is only available when an instrument is docked on the IDS.</p>	
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Previous	Returns to the main menu.																			
<p>NOTE: The Instrument menu is only available when an instrument is docked on the IDS.</p>																				

Step	Instruction	
	Docking Station	If you select this option, the following submenu appears:
Item		Description
Set Language		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.
Diagnose		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.
Information		Provides information about the IDS, such as serial number, software version and the IP address of the DSS.
Previous	Returns to the main menu.	

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.

5.3. 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 5-1. 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 Docking Station Server.

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

Table 5-2. 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.

LCD Display	LED	Alarm	Description
Registering Instrument	Yellow	Off	The instrument is being registered in the docking station system.
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.
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.

LCD Display	LED	Alarm	Description
Unavailable Instrument	Red	On	There is an unidentified problem with the instrument.
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.

5.4. 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.

NOTE: If the instrument fails the bump test, the IDS will perform a calibration, unless the failed sensor is Oxygen; see [5.5.2. 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.

5.5. Calibration

5.5.1. 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 4.6 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.

Step	Instruction
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.

5.5.2. 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.

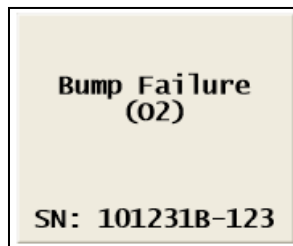


Figure 5-2. DSX-L Error Screen after O2 Sensor Failure

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.

5.6. 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.

5.6.1. 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, DSX-L 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.

5.6.2. 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.
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.

5.7. IDS Diagnostics

You can manually run a pressure diagnostics test for an IDS using the menu on the IDS LCD display as described 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.

5.8. 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.

5.8.1. General

An 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.

Install or locate this device only in accordance with the provided installation instructions found in *Administrator's Guide, DSX-L Local Server Mode*.





- 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. Operating temperature should be between 0 ° C (32 ° F) and 50 ° C (122 ° 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.
- 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 network adapter 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 network adapter 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).

5.8.2. 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.

5.8.3 Explanation of Symbols Used on Unit

<u>Symbol</u>	<u>Description</u>
	Direct Current
	Alternating Current
	Protective Conductor Terminal
	Caution (refer to accompanying documents)

5.8.4 Specifications

CAUTION: Equipment is rated for indoor use only. Use only indoors at altitudes below 2000 meters (6000 ft.)

Physical Specifications

Instruments supported	GasBadge Pro, MX6 iBrid, SafeCore Module, Tango TX1, Tango TX2, Ventis LS, Ventis MX4, Ventis Pro4, and 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 <i>Note:</i> 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 Calibration Station 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 °C (32–122 °F)
Operating humidity range	0–80% relative humidity (RH) up to 30 °C (86 °F), decreasing linearly to 50% RH at 50 °C (122 °F)
External power supply ratings	Supply voltage: 100–240 VAC/12 VDC Frequency range: 50–60 Hz Current rating: 5A

5.8.5. 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.

5.8.6. Wiring Requirements

Voltage used must be the same as specified on this device 100–240 VAC/12 VDC. 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.

#

Event Scheduling

Chapter

6

6.1. Introduction

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

NOTE: Only users assigned to the Systems Administrator role can edit and add events. Users assigned to the Technician role may view events, but not change them.

The types of events that you can schedule at particular dates and/or times in the DSX-L 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** – Used to download manually-performed operations results from an instrument.

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 DSS 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, DSX-L 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.

6.2. 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.

6.2.1. 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 in the contents page.

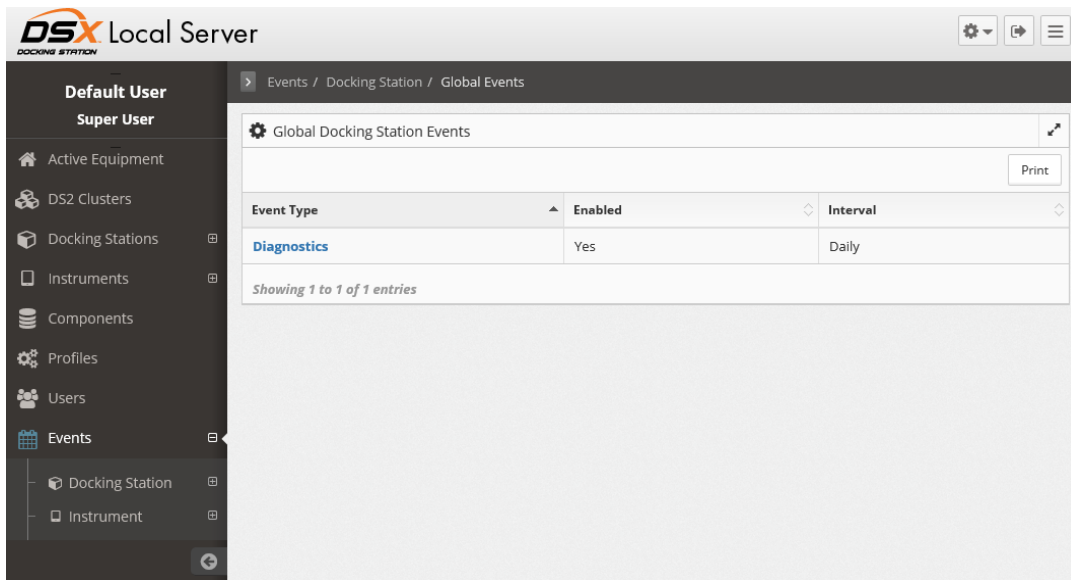


Figure 6-1. Docking Station Global Events List Page

Step	Instruction
5.	Click on the Diagnostics event.

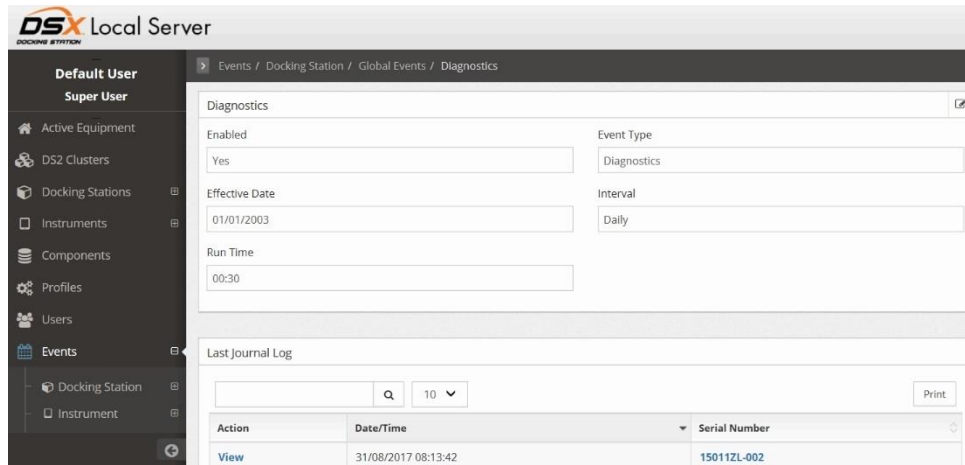



Figure 6-2. Docking Station Global Events Page

Step	Instruction
6.	<p>The Diagnostics Events Page appears. It contains two sections:</p> <ul style="list-style-type: none"> • 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.	<p>Click the Edit () button, on the top right of the Diagnostics section, and select an interval from the Interval dropdown menu. The choices are:</p> <ul style="list-style-type: none"> • 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, . . . , or 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.

6.2.2. 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 6-1 for the default settings for each of these events.

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

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 in the contents page. The contents page displays the Event Type, whether or not it is disabled, and the current scheduled Interval.

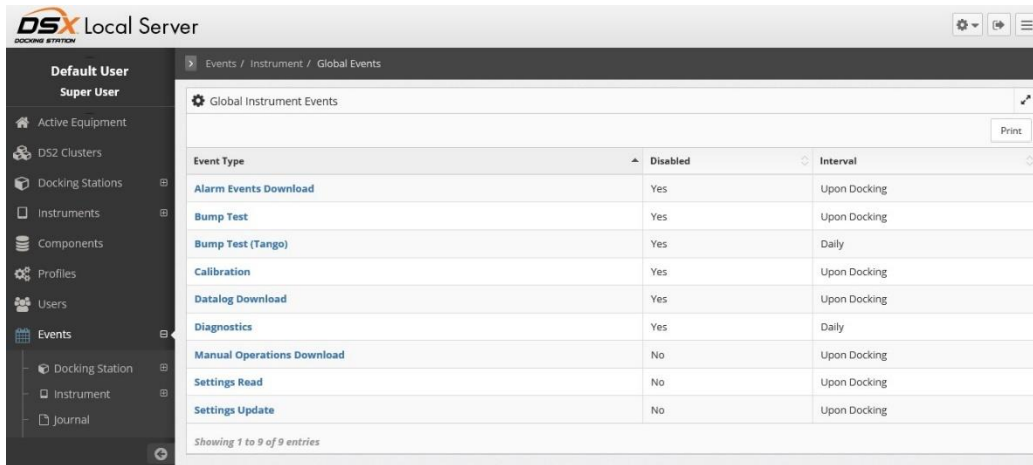


Figure 6-3. Instrument Global Events List Page

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. <ul style="list-style-type: none"> • 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.

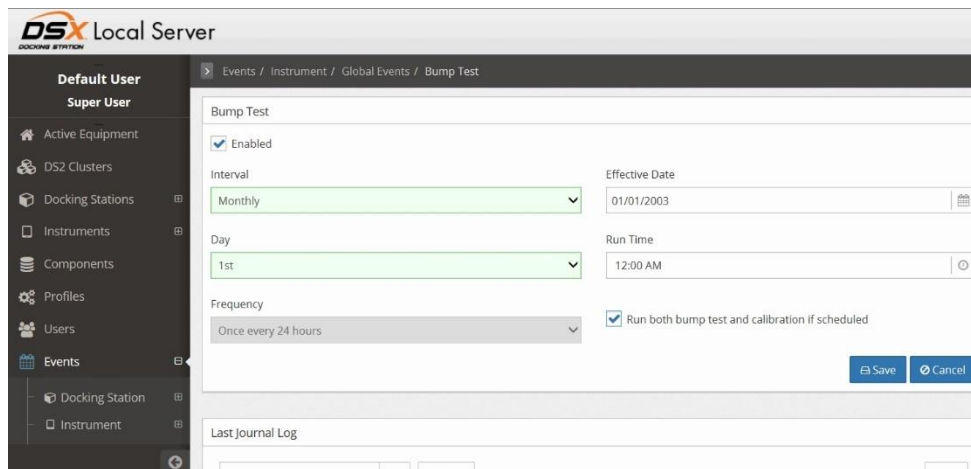



Figure 6-4. Instrument Global Events Page

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

Step	Instruction
7.	<p>Click the Edit () button on the top right of the chosen Event Type dialog box, and choose an interval from the Interval dropdown menu. The choices are:</p> <ul style="list-style-type: none"> • 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. • 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, . . . , or 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 6-1. Default Settings for Global Instrument Events

Event	Default Settings
Bump Test	Interval: Daily Effective Date: 1/1/03 Run Time: 12:00 AM
Bump Test (Tango TX1 only)*	Interval: Daily, 24 hours Effective Date: 4/10/13 Run Time: 12:00 AM
Diagnostics	Interval: Daily Effective Date: 1/1/03 Run Time: 12:00 AM

Calibration	Interval: Monthly Day: 1 st Effective Date: 1/1/03 Run Time: 12:00 AM
Download Datalog	Interval: Upon Docking Effective Date: 1/1/03
Alarms	Interval: Upon Docking Run Time: After Download Datalog Effective Date: 1/1/03
Download Manual Operations	Interval: Upon Docking Run Time: 12:00 AM Effective Date: 1/1/03

*Setting is disabled by default.

6.3. 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 weekly 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.

Step	Instruction
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.

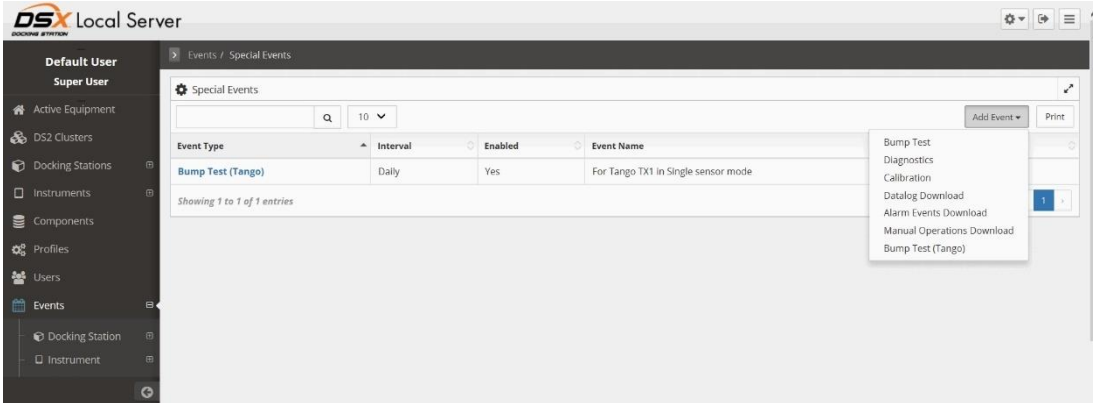
Step	Instruction
6.	A dropdown list of Special Events appears.
7.	<p>Click on the Event Type you wish to add.</p>  <p>The screenshot shows the 'DSX Local Server' interface. On the left is a navigation pane with 'Events' expanded. The main area is titled 'Special Events' and contains a table with one entry: 'Bump Test (Tango)' with a 'Daily' interval and 'Yes' for 'Enabled'. An 'Add Event' dropdown menu is open, showing options: 'Bump Test', 'Diagnostics', 'Calibration', 'Datalog Download', 'Alarm Events Download', 'Manual Operations Download', and 'Bump Test (Tango)'.</p>

Figure 6-5. Types of Special Events

Step	Instruction
8.	<p>The Add Special Instrument Event page appears. From there select an interval from the Interval dropdown menu. The choices are:</p> <ul style="list-style-type: none"> • <u>Upon Docking</u> - 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. • <u>Daily</u> - 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. • <u>Weekly</u> - 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. • <u>Monthly</u> - If you select “Monthly,” you must also select a Day (e.g., 1st, 2nd, 3rd, . . . , or 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. • <u>Quarterly</u> - 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.

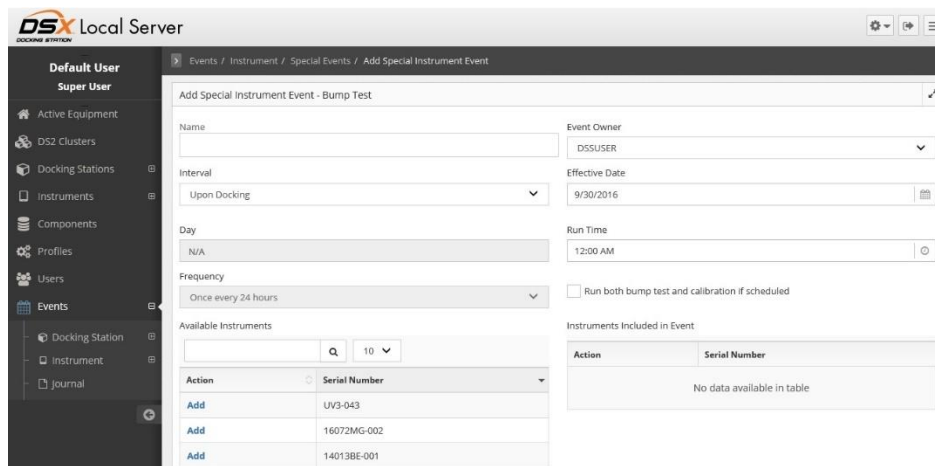


Figure 6-6. Add Instrument Special Event Page

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.

Step	Instruction
10.	From the Available Instruments field, select the instrument to which the event should apply, and click Add. 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 in 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.

6.4. 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 6-2. 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	1:00am	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

#

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