Operating Instructions

Hand-Held Configuration Devices Mobility DHH820-DMS

Mobility DHH820-DMS Device Management System Software





WARNING notices as used in this manual apply to hazards or unsafe practices which could result in personal injury or death.

CAUTION notices apply to hazards or unsafe practices which could result in property damage.

NOTES highlight procedures and contain information which assist the operator in understanding the information contained in this manual.

WARNING

POSSIBLE PROCESS UPSETS. Maintenance must be performed only by qualified personnel and only after securing equipment controlled by this product. Adjusting or removing this product while it is in the system may upset the process being controlled. Some process upsets may cause injury or damage.

NOTICE

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Health and Safety

To ensure that our products are safe and without risk to health, the following points must be noted:

- The relevant sections of these instructions must be read carefully before proceeding.
- Warning labels on containers and packages must be observed.
- Installation, operation, maintenance and servicing must only be carried out by suitably trained personnel and in accordance with the information given.
- Normal safety precautions must be taken to avoid the possibility of an accident occurring when operating in conditions of high pressure and/or temperature.
- Chemicals must be stored away from heat, protected from temperature extremes a
- nd powders kept dry. Normal safe handling procedures must be used.
- When disposing of chemicals ensure that no two chemicals are mixed.

Safety advice concerning the use of the equipment described in this manual or any relevant hazard data sheets (where applicable) may be obtained from the Company address on the back cover, together with servicing and spares information.

Read First

WARNING

INSTRUCTION MANUALS

Do not install, maintain or operate this equipment without reading, understanding and following the proper factory supplied instructions and manuals otherwise injury or damage may result.

RETURN OF EQUIPMENT

All equipment being returned to the factory for repair must be free of any hazardous materials (acids, alkalis, solvents, etc.). A Material Safety Data Sheet (MSDS) for all process liquids must accompany returned equipment. Contact the factory for authorization prior to returning equipment.

Read these instructions before starting installation; save these instructions for future reference.

Contacting ABB Instrumentation...

Should assistance be required with any of the company's products, contact the following:

Telephone:	24-Hour Call Center 1-800-HELP-365
E-Mail:	ins.techsupport@us.abb.com
Internet:	www.abb.com/instrumentation
	• Select your country and language from the Change Preferences drop-down menu at the top part of the page
	 Select the Customer Support link on the right-side of the page and complete the requested information.

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1.0 General Information

1.1 Introduction

The Device Management System (DMS) is a software application that uses Microsoft SQL Server as the database for field device calibration and configuration data management. Both HART Smart and conventional field devices can be managed with this application. DMS manages all aspects of devices, including associated documents and historical activity. All access to data is controlled through user defined access rights as part of the security feature set.

The DMS is user friendly with its Microsoft Outlook like interface including a Windows Explorer file structure. This includes a Shortcut bar, structure pane, a device listing, and a detailed preview for each device.

1.2 How to Use This Manual

This manual is structured to introduce feature sets as they will be encountered starting at the initial setup and configuration phases, to actual implementation of the software as a device management tool.

1.3 Features

DMS has the following major feature sets:

- Calibration Management
 - Calibration procedure creation, scheduling, calibration history, alerts, calibration equipment tracking
- Device Configuration Management
 - HART Device Configuration storage, editing, tracking
- DPC Interface
 - Upload/Download calibrations procedures and results
 - o Upload/Download HART Device Configuration Parameters
- Single Point Access
 - On-Line Access to a HART Device via HART Modem
- Data Security
 - o Creation of roles based on access rights for functions and data

1.4 Getting Started

Prior to installation, the System Administrator should plan and map out a file structure that best represents the primary aspects of the environment that this system will be used in. For instance:

- Device Data Organization From a Maintenance Perspective
- Security (Access Rights) to Device Data and Maintenance Functions

This will insure that that the device data structure is consistent with how maintenance will interact with it, and at the same time minimize data security violations and procedure violations.

2.0 DMS Installation and Setup

A general overview of installation configuration options is presented here, however the detailed installation instructions are found in a separate document. Please refer to the "DMS Installation Guidelines" document.

2.1 System Requirements

The system requirements below are the recommended minimum requirements required for the installation of DMS as a standalone application outside of integrated solutions such as ABB's System 800xA. Refer to System 800xA manuals for system requirements when installing DMS integrated within System 800xA.

2.1.1 Server

- Pentium IV +, 500Mhz or higher (recommended)
- 256MB Ram (512MB recommended)
- Microsoft Windows[®] XP Professional or Windows server 2003
- 500 MB free disk space

2.1.2 Client

- Pentium III+, 300Mhz or higher (recommended)
- 128MB Ram
- Microsoft Windows[®] XP Professional
- 100 MB free disk space

2.2 DMS SQL Data Server

DMS SQL Data Server is the "data engine" component that maintains and serves data queries from the Client Application. The DMS can be installed in different client/server configurations:

2.2.1 Client/Server Workstation

In this configuration the Client Application and the SQL server are installed on the same machine. If this configuration is installed on a laptop, the DMS is a mobile system. Additionally, the laptop can be utilized as the DMS server when it is connected to a network and shared with other network clients.

2.2.2 Single Server, Client Network

In this configuration, a dedicated workstation is established for the installation of the Server. The DMS Client application is then installed on one or several Client workstations throughout the network. Each client will be configured to "point" to the Server workstation.

For this configuration, it is recommended that the Server be installed on a dedicated computer that can be left up and running with a regularly scheduled back up.

2.2.3 Multi-Server, Client Network

Some systems may require a configuration with a dedicated DMS Server for each multi-user workgroup. With this configuration, a Client Application can be "pointed" to any DMS Server using the Server URL setting at the Log In prompt.

DMS has extensive Security (Access Rights) management tools that enable the overall DMS system administrator to manage what Clients have access to what Servers and the access rights that a client has to a given Server.

The DMS version for the DMS Server and Client must always be synchronized for proper operation and performance. Additionally, the licensed software options for each DMS Server will control the features and number of clients that are allowed to use the software.

2.3 DMS Client

DMS is a Client/Server based system. The Client application can be installed on any client workstation in the Enterprise network. DMS will only allow the number of concurrent users specified in the DMS Client License to Log-In to DMS at one time. This is regardless of the number of Client applications that are installed.

Additional DMS Client Licenses and DMS upgrades can be obtained through an ABB Representative or contact ABB.

2.4 License Manager

DMS has been configured with the number of licenses specified in the original purchase. Please inquire with an ABB sales representative for upgrades on licenses and additional software modules. See the DMS Installation Manual for more info on activating the DMS installation.

2.5 Logon to DMS

Once the DMS Server and Client components are installed and running, the installation can be verified by launching the client application and logging into the server.

Double click on the desktop DMS icon to launch the DMS Client shortcut show below:



The following prompt will appear:

🍘 Login to DN	15		X
User Name:			
Password:			
🗖 Use	windows in	egrated security	
OK		Cancel	
	Change Pa	ssword	
	Server l	JRL	
🔽 Client/Ser	ver are loca	ated on the same P	C

The System Administrator logs on by using "SYSADMIN" (not case sensitive), with the password "admin" (case sensitive).

Note: The System Administrator should change the password and store it in a safe place.

The Server URL is defaulted to http://localhost/ because it assumes that the Server and Client were installed on the same machine. This entry tells the DMS Client Application where its data server is located.

Multi-Client installations will point clients to the networked DMS Server. All clients will install DMS Client on their personal or group workstations and the name of the server they want to attach to is entered as the Server URL.

To change the Server URL, select the Server URL button to direct the Client to the proper Server. This is only necessary when there are multiple servers.

ኛ Server Ul	રા 💊	×
	~	ОК
Value :	http://DMS Server/	Cancel

Enter the name of the server that the DMS Server database is installed on.

3.0 DMS Setup and Administration

There are several important administrative settings required to configure DMS for a work environment. Perform these settings while logged in as the System Administrator (Default Login - User: SYSADMIN, Password: admin).

DMS is designed to model anything from a single subsystem to a global enterprise. The first level of an enterprise that can be modeled is a "Division" and the next level is based on grouping of Devices within each division.

Device Folders and subfolders enable modeling of systems, or grouping of devices by type.

The following are key system configurations that are required:

- Creation of Division folders for the Enterprise
- Creation of Device Folder Structures
- Registering of DPC's (MFCs and DHH810-MFTs) and Calibration Standards
- Creating Users, assigning Division Permissions, Roles, and Groups
- Creating Calibration Procedures
- Creating an Action List Folder Structure

3.1 Plant Division Folders

The method of configuring the Enterprise is normally based on how the maintenance effort is structured. For example, if a plant has a single dedicated maintenance crew for three major divisions, then DMS would need to configured to have three divisions, and give all maintenance crew members access rights to all three divisions.

Alternatively, if the three divisions have separate dedicated maintenance crews, each crewmember would be given access rights to only their appropriately assigned division.

To create a plant division, right click on the "Division" icon, and select the "Create Division" option. Enter the division label and select OK.

⊡	
🖻 🚰 Enterprise	
Division	
庄 🚮 J New	
🕀 🔂 N Search for de	vices 📈
🕂 📈 Merram-2	

籂 Folder	x	2	×
		ОК	
Name		Cancel	

After naming the Division, the following default folders/icons will be created in that division:



Standard Device Folder Structure

A division can be configured to mimic, for example, a plant structure. Device Folders can be created and named according to the device type or system naming conventions. For example:

Modeling by Device Types



Modeling by Systems and Subsystems



If the System Administrator establishes a standard for how the devices and device folders will be configured, a template division can be developed which can be cloned (see Division Cloning) and used over and over as the base configuration for all divisions created for the Enterprise.

If the device folder configuration rights are granted to the Division Manager, the System Administrator is not required to pre-configure a template for that purpose.

3.1.1 Division Cloning

Any Division can be cloned. This is useful when an existing Division or Division Template can serve as the basis for a new Division. The following components of a Division are cloned when using the Division Clone feature:

- Calibration procedures
- Groups
- Roles
- Devices (non verified) and Device Folder Structure

Permissions (Users) are not cloned into the new Division since there will usually be different users assigned to the new division.

Cloning is controlled by access rights and is a permissive reserved solely for the System Administrator.

To clone a Division, right click on the Division Folder to be cloned, and select 'Clone'. At the prompt, enter the name of the new Division.

Press OK, and the new Division will appear under the Enterprise with its new name. All cloned devices will appear with the "?" icon because they will not have been verified. Refer to the Section: "Device Configuration Data Management" for detailed information on verification of devices.

Any required changes to Tag ID's will need to be handled from within the new Division.

3.2 Documenting Process Calibrator/Communicator (DPC)

Interface

The Industry Standard Field Calibrator Interface (FCINTF) Specification has been implemented for the DMS to DPC Interface. If this specification has been adopted by the manufacturer of a DPC and the associated driver is registered with MS Windows, then DMS will recognize the DPC. DMS will process information according to the Field Calibrator Interface.

The FCINTF only applies to calibration procedures and test results. The ABB DPC's (DHH800-MFC and DHH810-MFT) can handle the exchange of HART Device Configuration data in addition to calibration data.

There are two categories of equipment that are involved in performing calibration procedures:

- Calibrators/Communicators
- Calibration Standards

Refer to the section titled "DPC Interface" for a more detailed description of how this interface feature is used.

3.2.1 Setting Up the Interface COM Port

Using the 9 pin RS-232 serial communications port on a workstation, a serial cable can be connected between the DPC and the workstation to upload the DPC information.

Note: Some computers do not have a DB9 Serial COM Port. There are USB/RS-232 adapters available on the market, such as the Keyspan P/N USA-19QW, that can be used as an alternative.

Different workstations may have their COM ports configured differently. The default COM port for DMS is COM1. To change this to a different COM port, right click on the DPC Interface icon and select "Port". Enter the number of the COM port that the serial interface is configured for on the workstation.



By selecting the "Default Driver", the COM interface can be switched between different DPC types. For example, selections are provided for ABB DHH810-MFT and Fluke 74x Calibrator:



Note: If other calibrators are not shown, the DMS option to have other Calibrators may not have been purchased.

3.2.2 Registering DPC's and Calibration Standards

To ensure traceability to equipment used to execute calibration and configuration procedures, the equipment must be registered with DMS. Registration is performed at the Division level; however, calibration equipment can be used in different Divisions.

There are two methods for registering DPC's and Calibration Standards:

- Automatic Registration
- Manual Registration

3.2.2.1 Automatic Registration

Automatic Registration is available for ABB DHH810-MFT and DHH800-MFC series products. Other handhelds will be supported if they support the industry standard FCINTF Interface Specification.

For automatic registration, right click on the Communicators/Calibrators folder and choose Auto Import/Update DPC Info option to register the DPC automatically.

🖻 📷 Division	
🖻 🚮 ABB	
🚊 💼 Devices	
Temperature	
Pressure	
Level	
Control Valve	
🗄 🍅 Action Lists	
- 🙀 Calibration Standards	
Communication / California	l l
Register DPC Info Manually	
Auto Import/Update DPC Info	Register Communicator
Groups	Register Calibrator
🔣 Roles	

3.2.2.2 Manual Registration

For manual registration, select the Register DPC Info Manually and the following form will appear:

🕼 Calibration Equipment 🛛 🔀
Info
Vendor :
Model :
Serial number :
Last Calibration Date :
Recalibration period : months
Description :
Active Equipment OK Cancel

Enter the DPC and Calibration Standard information manually.

3.3 Setup Folder

The Setup Folder is an Enterprise level folder where Pre-Notice alerts, Device Model Library, Event Log and Alert settings are maintained. Each of these setting groups is addressed below.

All of the System Setup settings apply to the entire Enterprise.

3.3.1 Service Reasons

Whenever a calibration or configuration action item is uploaded or entered manually for a device, an entry is made into the history for the device. Each of these entries has a Service Reason assigned to it.

There are four (4) default service reasons defined as follows:

- New Installation
- Routine Service
- Maintenance
- OTS-Device Data (On The Spot)

It is recommended that the System Administrator set up the service reasons based on common plant practices and terminology. This will avoid typos and the entry of Service Reasons that are not clear. As an alternative, if a user has the appropriate rights, they can enter a user defined Service Reason as required.

To add a Service Reason, right click on the Service Reason and select "Add Service Reason" as shown below:

🖃 🔂 Setup	
🚞 Service Reas	ons
🗄 📄 Device Mode	Add Service Reason
🛁 Categories 🏾	<u> </u>
🚞 System Settin	gs
🔄 💼 SIL Ratings	

The following window will appear to allow the user to enter the new Service Reason.

😚 Reason	N	×
- Service Reason-	~	
	ОК	

The new Service Reason will appear as a default option whenever a calibration or configuration activity is uploaded for a device.

3.3.2 Device Model Library

The Device Model Library (DML) contains files that describe HART and Conventional field devices.

Device Model Libraries are located under the SETUP folder in the DMS folder tree.

HART Device Models

DMS is preinstalled with a DML that lists all HART Device Models that are registered with the HART Communications Foundation (<u>www.hartcomm.org</u>).

DMS supports all of these devices on at least the Generic level. However, ABB has implemented device specific command support for the devices that are "**BOLD**" in this list. A sample portion of the listing can be found below:

Name	Vendor 🔺	Category	Revision	Dof
1 2000T	ABB	Pressure Transmitter	2	1a890291
1 2600T-262/264	ABB	Pressure Transmitter	1	1a040101
1 2600T-268	ABB	Pressure Transmitter	1	1a030191
1 2600T-268	ABB	Pressure Transmitter	3	1a030391
E 652/6535	ABB	Temperature Transmi	1	1a0c0103
📑 658T	ABB	Temperature Transmi	1	1a0a0103
E FSM4000	ABB N	Flow Transmitter	0	1a1d0091
🔢 KST	АВВ 😼	Temperature Transmitter	1	1a080191
III KSX	ABB	Pressure Transmitter	5	1a010591
🔢 TH02	ABB	Temperature Transmi	1	16080108
ITRIO-WIRL	ABB	Flow Transmitter	0	1a1a0002
🔠 AI1500	Accutech	Temperature Transmi	1	5eef0101
🔢 VR1500	Accutech	Pressure Transmitter	1	5eee0191
📰 T798	Action Instruments	Temperature Transmitter	1	89ef0191
III MODEL 32E	AMERICAN LEVEL	Level	1	b27f0191
🔢 IQ Series	Ametek	Analytical	1	03040191
🔢 IQ Series	Ametek	Analytical	2	03040291
IQ SERIES	Ametek	Analytical	3	03040391
III ANDRSN1	Anderson	Pressure Transmitter	1	5ac80191
III MT115	Apparatebau Hundsbach	Temperature Transmitter	1	71ee0191
E APT 3100	Autrol	Pressure Transmitter	2	86680201
3 APT 3200	Autrol	Pressure Transmitter	2	86610201
III PRIMO	BADGER METER	Flow Transmitter	1	bd010191
50SM1000	Bailey	Flow Transmitter	4	121a0491
50VM1000	Bailey	Flow Transmitter	0	120/0091
50VT1000	Bailey	Flow Transmitter	0	120e0091
50×E 4000	Bailey	Flow Transmitter	0	12080091
1000 III 50×M1000	Bailey	Flow Transmitter	4	12190491
50×M2000	Bailey	Flow Transmitter	0	12070091
II PTH	Bailey	Pressure Transmitter	1	12420191
III TB / ML82 EC Cond	Bailey	Analytical	1	12540102
III TB / ML82 TC Conc	Bailey	Analytical	1	12590102
III TB / ML82 TC Cond	Bailey	Analytical	1	12580102
III TB / ML82 TE Conc	Bailey	Analytical	1	12570102
III TB / ML82 TE Cond	Bailey	Analytical	1	12560102
I TB / ML82PH IConc	Bailey	Analytical	1	12530102
III TB / ML82PH ORP	Bailey	Analytical	1	12510102
III TB / ML82PH pH	Bailey	Analytical	1	12500102
III TB / ML82PH pION	Bailey	Analytical	1	12520102
III TB /ML82 EC Conc	Bailey	Analytical	1	12550102

Updates are required to install the latest revision of the files or to include newly issued HART Device Models that are supported on the device specific level.

Conventional Devices

DMS includes some pre-installed conventional devices. Additionally, there are features that allow for the creation of user defined conventional devices.

Note: A Device Model must be available in the Device Model Library prior to adding it to DMS.

3.3.2.1 Creating New Conventional Device Models

A Device Model that does not exist for a particular conventional device can be created manually. When creating a new device model, the user is prompted for a category. This category defines which standard template of parameters to be used for the device model.

To add a new Device Model, follow this process:

- a. Is there an existing Device Category, such as pressure transmitter, that the new Device Model can be associated with?
- b. If not, then go to the Categories folder, under Setup, right click and select "New Category". Add a new Category to associate the new Device Model with.

🙀 Category	×
~	ОК
Name	Cancel

c. If an existing Category does exist, right click on the Device Model folder and select New Conventional.



d. Enter the requested data for the various fields in the Model window. Select the existing or a new Category that should be associated with the device by invoking the pull down menu.

٢	Model	~	×
	Model Info	13	
	Name :		
	Vendor :	New Vendor	
	Category :	Pressure Transmitter	
	Revision :		
		OK Cancel	

3.3.2.2 Creating New HART Device Models

If the latest DOFs (device object files) were downloaded from ABB, and a HART device modeled in the Device Model Library folder cannot be found, then the device model will need to be created manually.

To do this, right click on "Device Model Library" (in the Setup folder), and click "New HART":



The following input screen will appear:

(New Model		×
	New Model Info	43	_
	Manufacturer :		
	Model :	DOF Name :	
	Revision :		
	Category :		
		0K. Cancel	

Select the Manufacturer, Model, Category, and enter the Revision of the device. The device Revision can be found using a DHH810-MFT, DHH800-MFC, or other DPC to connect to the device and find its Device Revision parameter.

If the drop-down selections do not have a matching Manufacturer or Model, then they can be entered manually, but the DOF name is needed. In order to obtain the DOF name, save a configuration from the actual device to a DHH800-MFC or DHH810-MFT, and then upload the results to DMS (using the DPC Interface). DMS will display the DOF number with a message stating that the Model does not exist yet. The DOF name will be 6 digits.

Click the Left arrows to obtain the model info:

1	New Model			×
	New Model Info			
	Manufacturer :		•	
	Model :		• »	DOF Name :
	Revision :		 ~~	142e01
	Category :		•	t in the second s
		ОК	Cancel	
6	Now Model			V
Ś	New Model		Ş	×
8	New Model New Model Info Manufacturer :	F0×B0R0	↓	×
9	New Model New Model Info Manufacturer : Model :	FOXBORO IA_PRESSURE		DOF Name :
	New Model Info New Model Info Manufacturer : Model : Revision :	F0×B0R0 IA_PRESSURE 1	↓ ▼ ▼ >> ≪	DOF Name :
۲	New Model Info Manufacturer : Model : Revision : Category :	F0XB0R0 IA_PRESSURE 1		DOF Name :
	New Model Info Manufacturer : Model : Revision : Category :	FOXBORO IA_PRESSURE 1		DOF Name : 142e01

Select the category for the new device model:

٢	New Model		x
	New Model Info	ß	1
	Manufacturer :	FOXBORO	
	Model :	IA_PRESSURE DOF Name :	
	Revision :	1 142e01	
	Category :	Pressure Transmitter	
		OK Cancel	

3.3.2.3 Update Device Model Library

Newer versions of a Device Model may exist. To update a device model, right click on the device model library, and click on "DOF Auto Import/Update". Then navigate to the folder that has the new DOFs (downloaded from the ABB Website).

🖻 🔄 Setup		🗈 IQ Series
— 🧰 Service F	Reasons	🗉 IQ SERIES
Device Device	DOF Auto Upo	date via Internet
📄 System - 📄 SIL Rai	New Convent	ional
3rd Par	New HART	

The following window will appear:



Navigate to the File that contains the DOF's downloaded from ABB's Download Site. The default location is C:\Program Files\ABB\DMS Server\DMS\DOFs.

3.3.2.4 Updating the Device Model Library with Latest DOF's

Device Object Files (DOF's) are the same as Device Models; for every Device Model, there is a DOF associated with it. ABB maintains a web download site that contains all the latest DOF's. Access to this site is necessary only if an application requires the use of HART Devices.

The update process is done in 2 steps. First the newer DOFs need to be downloaded to update the DMS Device Model Library, which is maintained on the DMS Server. Second, the DOFs from the Device Model Library must be downloaded to the DPC. There are 2 methods for downloading the DOFs to the PC. The first requires an Internet link to access the DOFs while the second can use the Internet or a CD. The first method downloads all of the latest DOFs regardless of whether they have changed or not. The following steps are required for this method:

1. From DMS, select the Device Models folder and right click on it



2. Select DOF Auto Update via Internet. The following will appear -



3. This is then followed by:



The second method downloads only the DOFs chosen by the user regardless of whether they have changed or not. The following steps are required for this method:

- 1. Logon to the Download Site.
- 2. Select the Check All button to grab all DOFs
- 3. Uncheck any DOFs associated with firmware, DPC Manager, and any files not associated with HART devices.
- 4. Download the DOFs (these will be zipped and downloaded to the Clients workstation)
- Extract the DOFs from the zipped file into a MS folder. If no access to the Internet is available, later CD versions may be available that contain more up to date DOFs than when originally installed. These later DOFs can simply be copied into the MS folder.
- 6. From DMS, select the Device Model Library folder and right click on it.
- 7. Select DOF Auto Import/Update



8. Navigate to the location of the folder that contains the DOF's



9. Select OK and DMS will install these DOF's into the Device Model Library on the DMS Server.

Once the DOFs are downloaded to the DMS Server PC, they are ready for downloading to the DPC. The following steps are required:

1. From DMS, select DPC Manager from the DPC item in the menu bar



2. Press Yes when the following pop-up is displayed to download all DOF files

Device Management System
Do you want to download Server DOFs and update DPC?
Yes No

3. Select Yes to All if any existing DOFs need replacing.



4. The DPC Manager pop-up is then displayed. Press OK to confirm DPC has external power. DPC Manager will automatically update the DOFs onto the DPC.

Spec Manager v 4.0	
<u>S</u> ettings <u>H</u> elp	
DPC: Documenting Process Default Directory for Device Object Files (DOFs	Calibrator or Communicator) and DPC Firmware:
C:\Program Files\DPC Manager\DOF\	
Update DOFs on DPC	Update DPC
Auto Manual	
List DOFs	Update Firmware
DPC Computer	
DOF Update Status	Firmware Update Status
Log	Log
	xit

3.3.3 Categories

Categories allow the user to group device models, which makes the process of accessing common devices simpler. All device models are associated with a category. For instance, a calibration procedure can be defined by category, which makes it easier to cover several devices with a common calibration procedure. Additionally, sorts and searches are simplified by using category filters.

Sample Categories include:

Category Name
📰 Analytical
Analytical Indicator
Analytical Recorder
Analytical Transmitter
🗉 Other
🗉 Control Valve
Electric Motor
Electrical Indicator
Electrical Transmitter
Flow Indicator
Flow Transmitter
🗉 Level
🔠 Miscellaneous Equipment
🔠 Pressure Transmitter
🗉 Specialty
🔠 Temperature Transmitter
📰 Valve

In DMS, users can design and build their own Categories of conventional (non-hart) devices. There may be a need to do this to model specialty devices, or devices that DMS does not have by default.

The category building process is done with three steps:

- 1) Add a category and Edit its Properties
- 2) Create a Model using this category
- 3) Create devices using this model

Each step is detailed below:

3.3.3.1 Add/Edit new category

To add a category, click on the DMS SETUP folder:



The existing categories are shown in the right pane. To create a new category, right click on "Categories", and then click "New Category":



Provide a name for the new category. In the example below, "Temperature Indicator" was chosen:

餐 Category		×
		ОК
Name	Temperature Indicator	Cancel

The new category will be created. Then "right click" and click "Properties":



The default values that were created are shown. These are DMS defaults. All of the items with an "Identity" are values that are used in DMS Calibration procedures/results. If the intent is to use an ABB DHH810-MFT for calibration, then parameters will need Identities. The values can be retained and modified, or they can all be cleared and new values created.

,		-	
Parameter	Value	Identity	Clear All
Tag	Tag	TAG	
Descriptor			
Message			
Date	10-25-2002		
Units		PV_UNITS	
Damping Value	0.000		
Transfer Function	linear	PV_XFR	
Upper Range Value	0.000	PV_URV	
Lower Range Value	0.000	PV_LRV	
Output Upper Range Value	20.000	PV_OURV	
Output Lower Range Value	4.000	PV_OLRV	Edit
Output Units	mA	PV_OUNITS	
Final Assy Number	0		Add
			Add

When adding or changing a Parameter, Value, or Identity, the default values for the Category are changed. Any Device Models and Devices that are created using this category will carry these values.

If "Upper Range Value" is selected and "EDIT" is pressed, the following is displayed:

💏 Paramo	eter	N		x
Label :	Upper Range Value	43		
Identity	PV_URV		•	
Value :	100			
	OK	Cancel		

The "Upper Range Value" parameter is assigned the PV_URV identity. By assigning "Upper Range Value" to "PV_URV", all devices created using this category will have their URV value assigned to PV_URV.

Parameter	Value	Identity	Clear All
Tag	Tag	TAG	
Descriptor			
Message			
Date	10-25-2002		
Units	degC	PV_UNITS	
Damping Value	0.000		
Transfer Function	linear	PV_XFR	
Upper Range Value	100	PV_URV	
Lower Range Value	0.000	PV_LRV	
Output Upper Range Value	20.000	PV_OURV	
Output Lower Range Value	4.000	PV_0LRV	Edit
Output Units	mA	PV_OUNITS	
Final Assy Number	0		Add
			Add

3.3.3.2 Create Model using Category

A model can now be created using the newly created category. Go to the SETUP folder->Device Model Library. Right click on "Device Model Library", and then click "New Conventional":

E Setup	s Al1500
Categories	DOF Auto Import/Update
System Settings	New Conventional
SIL Ratings	THEODINA
	. 1VE MT115

The name Temp Display is assigned to the newly created Device Category of Temperature Indicator.

(Model		×
	Model Info		_,
	Name :	Temp Display	
	Vendor :	•	
	Category :	Temperature Indicator	
	Revision :	1	
		UK Cancel	

This is then included in the Device Model Library as shown below.

Name	Vendor	Category	Revision
💷 Temp Display		Temperature Indicator	1

3.3.3.3 Create Devices from new Model and Category

New devices can be created based on the newly created model:

Folder contains 0 item(s)	Tag
⊡…III DMS Root	
🚊 🚽 🚰 Enterprise	
🖻 💼 Division	
🖻 🖓 Div1	
🕀 🧰 🔂 New Device	

The Category will be the new category, and Model will be the newly created model.

🏀 Welcome to the Device Install Wizard		
Device Information		
General information for tag:		
General Calibration Active Configuration User Defined Data		
Device Identification		
Tag : TI-0001 Category : Temperature Indicator 💌		
Model : Temp Display		
Model Info: Vendor: ; Device Rev:1		
Device Alias : 0 🔽		
Full Model ID : SN : 1234		
Description :		
Location:		
0K Cancel		

3.3.4 System Settings

System Settings are used to set up the time parameters for the various alerts, events and notices. DMS has the following system settings that can be set by the user according to existing work practices and standard operating procedures:

System Setting Description	Value
Pre Notice - Device Calibration Due Date	14 Days
Pre Notice - Standards Re-Certification Due Date	30 Days
Life Span For Alert Log Items	30 Days
Life Span For Event Log Items	30 Days

<u>Pre Notice – Device Calibration Due Date</u>: This is a user settable parameter that represents the number of days prior to the actual calibration due date for a device. Based on this value, an alert will appear in the "Alerts" folder and the device listing will be **BOLD** for the specified number of days prior the calibration due date.

<u>Pre Notice – Standards Re-Certification Due Date</u>: This is a user settable parameter that represents the number of days prior to the actual recalibration due date for a Calibration Standard. Based on this value, an alert will appear in the "Alerts" folder the specified number of days prior to the Standards Re-certification Due Date.

<u>Life Span For Alert Log Items</u> – This is a user settable parameter that represents the number of days that an alert will remain in the Alerts Folder.

<u>Life Span For Event Log Items</u> – This is a user settable parameter that represents the number of days that an event will remain in the Events Folder.

3.3.5 SIL Ratings

SIL stands for Safety Integrity Level and is defined in the ISA Safety Instrumented Systems standard (ISA Standard 84.01). The SIL rating is a user settable value that represents the Calibration Cycle for a critical device.

If no SIL rating is required and the user prefers to define the Calibration Cycle at the Calibration Tab, the default SIL Rating of "0" should be used.

In general, SIL Ratings are 1, 2, and 3, which are defined in terms of Probability of Failure on Demand (PFD). A SIL rating of "3" has the highest PFD and "1" has the lowest.

In order to insure that SIL ratings are met, DMS allows the user to set the calibration cycle to be consistent with the existing preventive maintenance program. DMS then provides the alerts needed to satisfy the required calibration cycles.

SIL Rating 1, 2, and 3 are defaulted to 12, 6, and 3 months respectively. To change Calibration Cycles associated with SIL's, Select the SIL Rating icon, right click, and then select the properties option.

Safety Integrity Level	Name	Calibration Time Span (months)
II 0	N/A	
1	SIL1	12
E 2 Properties	SIL2	6
II 3 VS	SIL3	3

Enter the fields for the following screen:

4	SIL	×
	Properties	
	Level :	1 😼
	Calibration Time Span :	12 months
	ОК	Cancel

3.4 User Accounts and Security

DMS has extensive security features designed for optimal control of DMS data and features based on user definable access rights. The Microsoft network security model has been followed for the security features in DMS.

Individual users must be added to the application through the Security Configuration Interface at the Enterprise Level. Each user gets a User Name and Password that becomes the unique electronic signature. It is important that each user login to DMS with their own User Name and Password since all activity performed during a user's session is logged for traceability. Also, one user's access rights may be different from another's.

Adding a user to the DMS does not automatically grant them access to all DMS functions and data. Users must be associated with Roles and Groups within one or more specific Divisions. Access Rights that are assigned in the Role definitions associated with the Division that the Role belongs to.

The "Login to DMS" window appears when the user launches the DMS client applications as follows:
👫 Login to DMS	X
User Name:	
Password:	
Use windows integrated security	
OK Cancel	
Change Password	
Server URL	
Client/Server are located on the same P	С

After entering a valid Username and Password, any DMS user can change their Password by clicking on the "Change Password" button. When this is done, the following window appears:

😚 Change Password 🔪	×
Password:	
Confirm:	
ОК	Cancel

If a password is forgotten, the DMS System Administrator can Reset the password by overwriting the existing password with a new password.

3.4.1 DMS System Administrator

The System Administrator can add all users, however it is more practical to add the Division Administrators and give the Division Administrator the guidelines for adding their Division users.

The System Administrator DMS User Account (Username = SysAdmin) is standard for the DMS Enterprise. The SysAdmin account is set-up to be a member of a pre-defined Group and Role of all Divisions for which all DMS permissions have been enabled. This account is considered location independent and is granted full access to any and all Division's within the Enterprise. The purpose of the default account is to provide an overall DMS application administrator the ability to configure the application upon installation, and to rectify any security configuration problems that may arise.

It is recommended that the password associated with this account be modified after the application is installed and configured. Only personnel responsible for overall DMS management and maintenance should have access to this account.

The DMS System Administrator has the following predefined Access Rights:

- ✓ Security Management
- ✓ Define Plant Divisions
- ✓ General DMS Setup

To add a user, expand the Security Folder, right click on the "Users" folder, then select "Create New User"

E Secur	ity sersi	
🗄 🗄 🔂 Setu	Create New User	
🗄 👰 Online		13
🗄 🖷 🏺 DPC I	nterface	

Enter the fields for the following screen:

ኛ User 💊		×
User	\$	
User <u>N</u> ame :		
<u>F</u> ull name :		
Description :		
<u>E</u> mail :		
Account Type :	User Defined 🔽 Active Account	
-		
Password :		
Confirm :		
	DK Apply Close	

By using the "Active Account" check box, a user can be made Active or "In-Active".

3.4.2 Division Security

Divisions are defined within the Enterprise. Each time a Division is created, a set of default subfolders are created within the Division. Groups and Roles are managed within each Division. Division Groups are comprised of Division Role(s) and Users. Joining a User to a Group's User Membership automatically 'associates' the User with that Division.

Groups	Role Membership	User Membership
Administrators	Division Administrator	SYSADMIN
Supervisors	Maintenance Supervisor	N/A
Technicians	Instrument Technician	N/A

The following Default Groups and Roles have been pre-defined and pre-installed for DMS.

Roles	Permissions
Division Administrator	Read; Write; Calibrate; Configure; Approve Calibration;
	Approve Configuration; Local Division Management; DMS
	Setup; Security Management
Maintenance Supervisor	Read; Write; Approve Calibration; Approve Configuration
Instrument Technician	Read; Write; Calibrate; Configure

When a Division is created, a copy of these Groups and Roles is made and placed within the Area Group and Role folders respectively. This is done as a convenience to allow for more rapid set-up of the DMS application security.

DMS has a Secondary Level of security available for each Division that when configured, is inherited by all Division sub-folders. Divisions contain 'VIEW' and 'MODIFY' permissions, which can be configured separately for each User that is a member of a Division Group. By default, users who are members of a group within a Division are granted 'VIEW' and 'MODIFY' access to the Division and all its sub-folders and content. If a particular scenario requires it, specific users could be granted 'VIEW' only access to a Division. This would imply that the User (based on their Role permissions) would be able to perform 'Read only' operations on the data in the Division.

To access the View/Modify security options, right click on the Division of interest. Then, click on "Permissions".



Permissions for	Folder JWD Test	ß		×
Permissions Users: Name DMS_User	Description DMSUSER		Folder Permissions: Allow Permissions: View Modify	
		<u>D</u> K	Apply Close	

The following screen will appear with the list of Users that are associated with that Division:

Check the View or Modify button accordingly.

3.4.2.1 Access Rights (Permissions)

Several permissions are defined within the DMS to describe the various activities and/or operations that can be performed on the DMS data. Permissions are associated with Security Roles. Each security role defined in a specific area can be granted or denied each of the DMS permissions. The exception is the 'Define Plant Division' permission. This permission is granted to the built-in system account only. The following permissions comprise the DMS security system:

Permission	Description
Read	General read/view permission. Roles with this permission enabled allow
	users to view DMS application data.
Write	General Write/Modify permission. Roles with this permission enabled allow
	users to modify DMS application data.
Calibrate	Roles with this permission enabled allow users to upload/download
	Calibration procedure data and results
Configure	Roles with this permission enabled allow users to upload/download device
	Configuration data.
DMS Division	Roles with this permission enabled allow users to define and modify data
Management	common to a particular area. This would include defining and managing
	Calibration Procedures, Calibration Standards, Calibrators and
	Configurators for a Division.
Approve Calibration	Roles with this permission enabled allow users to validate and approve
	device Calibration results.
Approve Configuration	Roles with this permission enabled allow users to validate and approve
	device Configuration data.
Manage Security	Roles with this permission enabled allow users to add users to the DMS
	application and define and manage membership in Groups and Roles
	within a Division.

3.4.2.2 Roles

Roles are defined and managed as part of each Division and identify a set of enabled permissions. A minimum of one Role must be defined in each Division to identify the permissions enabled for each Group in the Division.

Each Role has pre-configured access rights, which can be viewed by selecting Roles, right clicking on the specific role and then selecting properties as shown below:



right click on the Role and Select Properties:

The following window will appear:

👫 DM5 Role		×
Role Group As	ssociation	_
Role <u>N</u> ame:	Instrument Technician	
Description:	Instrument Technician	
Role Type :	User Defined	
Role Permissions:		1
Allow Permiss Read Vrite Calibrate Configure DMS Area M Approve Cali Approve Con General DMS Manage Sec	sions:	
	<u>DK</u> <u>Apply</u> <u>Close</u>	

Each Role can be edited, and the Role can be associated to a Group. Users are associated with Divisions as well. When a user logs on, they will only see the Division that they have been given rights to.

In most cases, there will be one Role for every Group, and the Group will have multiple Users. In the event that two (2) Roles are associated with a single Group, the User's permissions will be consistent with the combination of both Roles.

3.4.2.3 Groups

Groups are defined and managed, as part of each Division with a Membership comprised of assigned Users. A minimum of one Group must be defined in each Division. Access to a Division is granted by joining a User to a Group within the Division.

Any number of Groups can be defined per Division as needed to meet a particular set of security requirements. Each Group within a Division is ultimately assigned to one or more Roles in the same Division.

3.4.2.4 Roles and Groups Example

For example, a Role could be "Calibration" with permissions as shown below:

💮 DMS Role		×
Role		
Role <u>N</u> ame:	Calibration Technician	
Description:	Calibration and Read permissions	
Role Type :	User Defined	
Role Permissions:		
Allow Permiss Read Write Configure DMS Area M Approve Calit Approve Con General DMS Manage Secu	anagement pration figuration Setup urity	
	<u>D</u> K <u>Apply</u> <u>Close</u>	

🙀 DMS Role	×	×
Role	~	
Role <u>N</u> ame:	Configuration	
Description:	Configuration and R/W Permissions	-
Role Type :	User Defined	
Role Permissions:		
Allow Permis	sions:	
I Read I Write	<u> </u>	
Calibrate		
DMS Area M	anagement	
Approve Cali	bration ————————————————————————————————————	
General DMS) Setup	
II Manade Sec		
	<u>OK</u> <u>Apply</u> <u>Close</u>	

Another Role could be "Configuration" with permissions as shown below:

The Role can be associated with a Group (from the Role Interface) as follows:

😚 DMS Role		×
Role Group	Association	
Instrument Teah	w .	
Course Assister	nician	
	to Role:	
Name	Description	
l echnicians	l echnicians	
,	Research 1	
Aga	<u>H</u> emove	
·		1
	<u>OK</u> <u>Apply</u> <u>Close</u>	

A Group that needs to perform both Calibration and Configuration Roles would be associated with the Group as shown below:

🏀 Associate Group(s) to Role	×
Name: Instru Select Groups:	ment Technician	
Name Administrators Supervisors Technicians Managers Everyone	Description Local (Division Level) Administrators Supervisors Technicians Managers Everyone	
	<u>O</u> K <u>C</u> ancel	

3.4.2.5 Security Setup Example

In a typical security setup, different users are assigned Access Rights to manage each Division in the Enterprise. Management of a Division includes the configuration of Users in the Division Groups and Roles. Assume for this example that the Enterprise will be modeled using 10 different Divisions.

- 1. Login to DMS with the SYSADMIN User ID.
- 2. Create the Divisions for the Enterprise
- 3. Create Users to manage Divisions and assign them to the Division Administrators Group for each respective Division. Assign the User ID and a default Password for each User.
- 4. For each Division, use the DMS preinstalled Role "Division Administrator", or create a new Role with access rights for "Manage Security"
- 5. For each Division, use the DMS preinstalled Group "Administrators", or create a new Group for the Role created above.
- 6. The preinstalled "Division Administrator" Role is already associated to the Administrators Group. If a new administrator Role and Group is created, then associate the new Role with the New Group.
- 7. For a given Division, Join a User (created previously) to the administrator Group. That user will have administrative access rights (as defined by the Role) for that specific Division.

- 8. When one of these new users (with administrative access rights) logs on to DMS, they will only see the Division for which they were given Group Membership. This could be multiple Divisions or a single Division.
- 9. Each of the Division Administrators would create any number of new Groups and Roles for their Division as needed.
- 10. The Division Administrators could also add any number of new Users to the application (if not already done by the SysAdmin user).
- 11. The Division Administrator can join users to a Group in their Division based on the Access Rights (as defined by the Role of the Group) that the Division Administrator wants that user to have.
- 12. There may be a need to "override" a user's access rights. The Division Administrator can quickly do this by assigning that user "View only" or "Modify" rights for the entire Division. Another use for this feature would be to give a user rights to a Division without having to join that user to a Group

.

4.0 Device Configuration Data Management

The Device Data Management Section describes the steps required for managing device data in DMS. This includes how to name folders, where to place devices, and importing device data.

4.1 Device Folders

Device folders are used to store groups of devices in DMS. They can be created and named such a way that fits user requirements for managing devices.

In a small enterprise, one Device folder would be sufficient to manage a group of devices. Larger establishments may have folders and even sub-folders to organize devices.

4.2 Devices

Devices will appear in the database listed by the Tag ID. The unique instance of a device in the DMS database is based on the combination of the Device TAG and the Device ID (S/N).

4.2.1 Device Data Entry

Devices are added manually or, if they are Smart Devices, they can be uploaded to DMS.

To create a device, right click a device folder and select Create New Device.



Then select from the ensuing pop-up if this is a Conventional or HART device:

🏀 Device Type	×
	3
C Cc	onventional
• H/	ART
ОК	Cancel

The Properties Window will then appear. There are four (4) tabs to enter device information:

4.2.1.1 General Tab

The General Tab contains the primary device attribute data. The required parameters are TAG, Category, Model, SN, and SIL Rating. See the following "General" tab displayed below:

🔆 Properties	×
Device properties for tag: TT-202	
General information for tag: TT-202	
General Calibration Active Configuration User Defined Data	(
Device Identification	
Tag : TT-202 Category : Temperature Transmitter	
Model: Conventional Temperature Transmitter	<u> </u>
Model Info- Vendor: Unknown; Revision:1	
Device Alias : SIL Rating : 1	_
Full Model ID : SN : 23532	_
Description :	_
Description.	
Location: Loop :	
OK Cancel	

	Parameter	Format	Description
		(alphanumeric)	
Req.	TAG*	27 Chars.	Device ID – This is the DMS device tag,
			and is separate and different than the
			HART tag of a Hart Device.
Req.	CATEGORY	Selection	Device Type
Req.	MODEL	Selection	Manufacturer Device Model based on
			Category
Req.	Device ID		This is the Serial Number for conventional
			devices and the HART Device ID for Smart
			devices.
Opt.	DEVICE ALIAS	16 Chars.	An alternate tagging convention, for
			example, the I/O address.
Req.	SIL RATING	Selection	Safety Integrity Level, 0 = None
Opt.	FULL MODEL ID	36 Chars.	Manufacturer's Model Identifier
Opt.	DESCRIPTION	1024 Chars.	A general description about the device or
-			related system.
Opt.	LOCATION	16 Chars.	Geographic Location, i.e. building, column,
-			tank, line, etc.

The Parameters for the General Tab are defined in the following table:

* *Important Note:* The Device Tag is the unique identifier that can only be used one time within a Division. This unique Tag is combined with the Device ID (Serial Number) for complete uniqueness within the Enterprise. Therefore, on the Enterprise level, a Tag ID can be duplicated in different divisions as long as the Device ID is unique.

4.2.1.2 Calibration Tab

The Calibration Tab contains information that defines the calibration parameter of the device as shown in the window below.

籂 Prope	erties		N
Devic	e properties for tag: TT-2	02	73
	Calibration information for tag: TT-2	02	
	College and a street of the second	[
General		User Defined Data	1
	Notify Limit:	2 % of sp	pan
Date	s		
	Last Calibration Date :	2004-10-28	
	Next Calibration Date :	2005-10-28	
	Calibration Cycle :	13 moi	nths
	OK	Cancel	

	Parameter	Format (alphanumeric)	Description
Req.	Notify Limit	X.XX	Error at which Alert for Out of Tolerance should be reported.
Req.	Last Calibration Date	Date	Last known calibration date for device.
Req.	Next Calibration Date	Date	Desired Next Calibration Date. Will be overridden if a SIL Rating of other than "0" is entered on the General Tab.
Req.	Calibration Cycle	# of Months	When a calibration is performed on a device, the calibration cycle will be added to the date of calibration to establish the Next Calibration Date. A SIL Rating setting > 0 in the Properties Tab will override this field.

The Calibration Tab parameters are defined in the table below:

4.2.1.3 Configuration Tab

The Configuration Tab contains all the device specific parameters that are defined in the Device Model. For HART devices, the Configuration Tab is populated when the device configuration is uploaded to DMS. For Conventional Devices, these fields contain default values and must be entered manually.

For CONVENTIONAL devices, double clicking on a parameter allows changes to be made to the values for the device. For example, by double clicking on the selected parameter, "Transfer Function", a pop-up dialog box is presented that allows selection of available transfer functions:

🍘 Parame	eter	×
Label :	Transfer Function	
Value :	square root	
[OK Cancel	

For HART devices, these parameters are READ ONLY, showing the parameters and Values of the device. To initiate a value change for a HART device, use the Configuration->Active function that is explained below.

Properties			
evice properties f	for tag: TT-2	is a second seco	
Active Configurati	on information for	tag: 11-202	
5			
neral Calibration Act	ive Configuration	User Defined Data	
Parameter		Value	
Tag		TT-202	•
Descriptor			
Message			
Date		10-25-2002	
Units		degC	
Damping Value		0.000	
Transfer Function		linear	
Input Upper Range Val	ue	100.000	
Input Lower Range Val	ue	0.000	
Final Assy Number		0	
Probe Type			
Number of wires			
ColdJuncComp			
Manual CJC			•
Last Configuration D	ata ·	2004.10.28	
Last Conliguration D	ale .	2004-10-20	
			Device Parameters
		1 .	1

4.2.1.4 User Defined Data

User defined parameters can be added to each device. The User defines the "Parameter Name" and the "Value" of the parameter. This feature allows the user to capture information not otherwise supported by DMS.

MOBILITY DMH820-DMS SOFTWARE OPERATIONS MANUAL

Device properties for tag: TT-202 User Defined Data information for tag: TT-202 General Calibration Active Configuration User Defined Data Custom Information Parameter Value	×
User Defined Data information for tag: TT-202 General Calibration Active Configuration User Defined Data Custom Information Image: Custom Information Image: Custom Information Parameter Value Image: Custom Information Image: Custom Information	
General Calibration Active Configuration User Defined Data Custom Information	
General Calibration Active Configuration User Defined Data Custom Information Parameter Value	
Custom Information Parameter Value	
Custom Information	
Parameter Value]
Parameter	
Edit	
Add	
OK Cancel	

Parameters are edited or added by clicking on the appropriate button and entering the information.

🏘 Param	eter	×
Label :	Customer Parameter	
Value :	Value of Parameter	
	OK Cancel	

4.2.2 Configurations – Active (HART Devices only)

To see the active (current) configuration on a HART device, right click on the device, and then click on Configuration-> Active:

🚱 Device Manag	gement System USER: sysadmin					
Item Edit DPC	Help					
🗋 🗈 🗃 🖉 🔯	a) ← ⇒ % bb 68 X 2 .					
DMS Shortcuts	Critical					
	Folder contains 6 item(s) ×	Tag		Description	Loop	Model
Enterprise	🖃 🖳 DMS Root	? PT-12001		Auto Import		2600T
Enterprise	🖻 🚰 Enterprise	🗣 DPT-0237		Auto Import	P3	3051
	E Division	🗣 FT-01027		Auto Import		3095MV
	Plant A	🧣 PT1		Coke Oven	P3	Conventior
Security		🗣 TB82	_	Auto Import		TB / ML82 T
_		🧣 TT-14600-	Properties		P3	TI/RTT20
			Clone			
			HART Configuration	Editor	Active	
Setup	🗊 🍅 Action Lists		Manage Calibration	Procedures •	Offline	
	Calibration Stan		Preview Calibration	Procedure	Active vs. Offline	. L
			Add To Action List F	or Calibration	Copy Active to Off	line
	+ 🖉 Documents		Find In Action List	_	Send Offline to Ac	Jon List
Import	E Calibration Proc		Set Loop Info		Copy Offline to Ac	tive
	🔣 Groups		All of a data to			
	S Roles		Attached Note			
	🖻 🚮 Production Unit 1		Print			
	Critical		Export			
	Non-Critical		Audit Trail			
	Action Lists		Deactivate Selected	Devices		
	Calibration Stan	L L				

This calls up the configuration screen:

🚱 Device Configuration		
Device Configuration Tag: PT 101		
Parameter	Value	Edit
Manufacturer	ABB	
Dev id	500541	
Model	2600T-262/264	
Tag	PT 101	
Descriptor	ABB DTM HI2600T-	
Message	THIS IS A TEST MSG	
Date	1-1-1900	
Pressure unit	psi	
Snsr temp unit	degC	
Sta pres unit	Bad1	
URV	100.002	
LRV	0.002	
Damp	0.000	
Xfer fnctn	Linear	
cut_linear %	10.000	
A0	0.020	
Δ1	3 102	`
		Device Parameters
	Action List	Cancel

😚 Device Configura	ation				×
Device Configu	ıration				
Tag: STT2	25 ง				
	-				
	💮 PV URV				× –
Parameter			~~		
Fld dev rev				OK	
Software rev	12.280				3 F
Poll addr				Cancel	1
Num reg preams] [
PV Unit		lacge			
PV URV		12.280			
PV LRV		-100.000			
URL		400.000			
LRL		-250.000			
Temp min span		0.650			
FT		Linear			
CJ int/ext		Int.			-
	🗖 Us	e full configuration	Cancel		

The value of Read/Write parameters can be changed by double clicking on them:

The values will remain in the DMS active configuration until the "Action List" button is clicked to send the configuration to the device and upload the configuration back to DMS.

The "Use Full Configuration" checkbox sets the all the parameters to be sent when the configuration is added to the action list. This is used when all the values need to be re-written on the device, not just values that were edited.

4.2.3 Configurations – Offline

DMS also supports Offline configurations. These are configurations that can be edited without affecting the device until they are copied over to the Active configuration.

餐 Offline Device Configuration	N	×
Device Configuration	~	
1ag:51125J		
Parameter	Value	Edit
Model	STT25H	
Distributor	Honeywell	
Manufacturer	HONEYWELL	
Dev id	99344	
Tag	STT25-J	
Message	NEW MESSAGE	
Universal rev	5	
Fld dev rev	1	
Software rev	11	
Poll addr	0	
Num req preams	7	
PV Unit	degU	
	full configuration	

An Active configuration can be copied to Offline to make a backup of the current configuration before making changes.

Tag		Description	Loop		Model	Last
? PT-12001		Auto Import			2600T	
🧣 DPT-0237		Auto Import	P3		3051	2003
🧣 FT-01027		Auto Import			3095MV	
🧣 PT1		Coke Oven	P3		Conventiona	200
TIS82	Proper Clone HART	ties		TB / ML82 TE C TI/RTT20		200
	Manag	e Calibration Procedu w Calibration Procedu	ures ► ure	Active Offline Active vs. Offline Copy Active to Offline Send Offline to Action List Copy Offline to Active		
	Add To Find Ir Set Lo	o Action List For Calib Action List op Info	ration			
	Attached Note Print					
	Export Audit 1 Deacti	t Frail vate Selected Device	s			

Tag		Description		Loop	Model
? PT-12001		Auto Import			2600T
2 DPT-0237	Auto Import			P3	3051
2 FT-01027		Auto Import			3095MV
🧣 PT1		Coke Oven		P3	Conver
🧣 TB82 🗖	. .:	A			TB / ML
🦹 TT-1460	Properties Clone	_		P3	TI/RTT
	HART Configuration Edit	tor 🕨	Ac	tive	
	Manage Calibration Procedures		Offline		
	Preview Calibration Procedure		Active vs. Offline		
	Add To Action List For Calibration		Copy Active to Offline Send Offline to Action List		
	Set Loop Info		Co	py Offline to A	Active
	Attached Note Print				
	Export Audit Trail Deactivate Selected De	vices			

The Active configuration can be compared with the Offline configuration by clicking "Active vs. Offline":

Parameters that are different will have the checkbox under the "Diff" column.

🖗 Compare Configurations 🛛 🛛 🔀				
Compare Device Co	onfigurations			
Tag : XI XXX				
			(
Parameter	Active	Offline	Diff	
Manufacturer	ABB	ABB		
Dev id	500541	500541		
Model	2600T-262/264	2600T-262/264		
Tag	\times	XIXXX		
Descriptor	ABB DTM HI2600T-	ABB DTM HI2600T-		
Message	<u>ଭ</u> ତ୍ତ୍ରତ୍ତ୍ରତ୍ର୍ର୍ର୍ର୍ର୍ର୍ର୍ର୍ର୍ର୍ର୍ର୍ର୍ର	NO MESSAGE FOR NOW	V	
Date	1-1-1900	1-1-1900		
Pressure unit	psi	psi		
Snsr temp unit	degC	degC		
Sta pres unit	Bad1	Bad1		
URV	100.002	100.002	-	
			Parameter	
		(
(^{**}	OK	Report		
<u></u>				

4.2.4 Uploading Device Data

Depending on the type of device (conventional or HART), the device data can vary widely. This data can be entered manually; however the following methods of importing the data will automate this process:

- Upload from Device to DPC, then from DPC to DMS
- Upload from Device to DMS via HART Modem (See SPA Option)
- Import Device Data to DMS via Import Utility

Additionally, DMS cloning features can be used to replicate single devices and groups of devices, or entire Divisions.

4.2.4.1 Uploading Device Configurations from DPC to DMS

For users of the DHH810-MFT or DHH800-MFC Series communicators, device data can be uploaded to the DMS via an RS-232 Serial Interface. (Refer to the DHH800-MFC and DHH810-MFT User's Manual for more Detail)

Note: The DHH800-MFC and DHH810-MFT must be registered with DMS prior to executing an interface session.

In general the following steps are required to use a DPC to upload configurations to DMS.

- Connect DPC to the HART Device and establish communications
- Navigate through the device menu to the "Save/Send" Function.
- Store the Device configuration into the DPC
- Connect the DPC to the DMS and upload the configuration to DMS

Refer to the **DPC Interface Section** of this user's guide for more detail on uploading configurations from the DPC to DMS.

4.2.4.2 Uploading Device Configuration from HART Device to DMS

Using the Single Point Access (SPA) option and a HART Modem, device configuration data can be uploaded directly from the device and saved into DMS.

Refer to the On-Line (Single Point Access) Option for more detail

4.3 Device Properties Tabs

Located below a Device List, there is a Frame with Tabs:

- General
- Documents
- History
- HART

Each tab provides a quick view of data groupings for each device.

4.3.1 General Tab

The General Tab is a quick view of the key parameters for a device as shown below:

Device properties for General information for se	r selected item elected device: XI XXX		
General Description : Auto Import	Tag Model Manufacturer Last Calibr Date Last Config Date Next Calibr Date Category Notify Limit Status	XI XXX 2600T-262/264 (Rev 1) ABB 2005-05-27 Pressure Transmitter	Report
General Documents Hist	tory Hart		

4.3.2 Documents Tab

The Documents Tab provides for the association of device documents, such as specifications, design drawings, loop diagrams, etc.

	Device propertion	es for selected it ation for selected device	em « PRESS1 -DP	
	Documents : 0 i	tems		
	Title	File Name	Description	
				View
				Remove
				Attach
Ľ				
G	eneral Document	s History Hart		

To add a document, click on the "Attach" button and the following window will appear:

🚱 Document					
Define Docu	Define Document Properties				
Provide	Provide Title, Description and Metadata for uploaded document				
Title :	TZIDC Model Information				
Description :	Model Definition				
Metadata :	TZIDC, Positioner				
Path :	C:\Documents and Settings\EROLSON.CA\My Documents\				
Hyperlini	k OK Cancel				

Enter the information to describe the document, and then click on the browser button and the following typical MS Windows interface will appear:

Open		? 🗙
Look in: My Recent Documents Desktop My Documents	 Instruments <li< th=""><th></th></li<>	
My Network Places	File name: 417702_D-APE-TZID-C200_3 ☑ Files of type: ✓ ☑ Car Open as read-only ✓	en ncel

Navigate to the file that that is to be associated to the device.

There are two options for associating a document, if the document is on the server that DMS is installed on, and then a HyperLink can be used. Check the Hyperlink option, and the link will be saved by DMS instead of the actual file.

Device Management System		
	Hyperlink file must be located in windows shared folder.	
	ОК	

If the Hyperlink option is not selected, the document will upload into DMS and the following message will appear when this operation is complete.

Device Management System 🛛 🗙
Document was successfully uploaded
OK

After the document has been Uploaded or Hyperlinked, the user will only have to double click on the file listing as shown in the window below, and the document will open in its native application.

evice propert Documents infor	ties for selected it mation for selected device	em ∝XIXXX	
Documents : 1	litems		
Title	File Name	Description	
TZIDC Model Ir	nform 417702_D-APE	-TZII Model Definition	Madin
			Modify
			View
			Remove
			Attach
neral Documer	History Hart		
1			

4.3.3 History Tab

This History Tab provides an Audit Trail for a device. Each entry represents an action that has been executed on a device.

The electronic signature or User Name is entered at the time the action item is executed.

Pevice properties for selected item							
History : 7	items			le			
Date	Туре	Heason	User	Status	Add		
4/11/2003	audit	Audit Trail Routine Service	SysAdmin	Dieapproved			
4/11/2003	audit	Audit Trail	SysAdmin	Disappioreu	Print		
4/11/2003	calibration	Routine Service	SysAdmin	Approved			
4/11/2003	action	Device is added for calibi	SysAdmin		Review		
4/11/2003	configuration	New Installation	SysAdmin				
4/11/2003	creation	Device added to DMS	SysAdmin		Diff		
					Trending		
					Report		
eneral Docu	ments History	y Hart					

To enter a manual action, click on the Add button and the following window will appear:

DMS Enterprise Manag	er			×
To add manual calibrat	ion results select	Yes; to add	general event	select No
	Yes	No		

Any activity that is not automatically logged by the DMS functions or features is required to be entered manually.

Choosing "NO" will cause the following window to appear:

ኛ Reaso	n			×
_ Service	Reason			
Tag:	PT-19C			
				-
			Apply to all	
		ОК]	

This allows the user to enter a pre-defined or user-defined Service Reason.

4.3.4 Manual Entry of Calibration Data

The Properties Frame interface enables the addition of a Manual Calibration procedure test and results. By choosing "YES" from the window above, the following interface appears for entering all manual calibration data:

Device Calibratio	on Resu	lts								Þ
		Ca	libration ir	for	matio	on				
Tag XI XXX Manufacturer ABB Calibrator Model Calibrator SN Sensor SN		Date Entered By Reviewed By Input LRV Input URV Input Units				_				
Device Loop					-As Lei	ft Results: -				
Pt. Input C 1 - - 2 - - 3 - - 4 - - 5 - - 6 - - 7 - -	Jutput	Expected Out			Pt. 1 2 3 4 5 6 7 8	Input	Output	Expected Out		
										_

Scroll to the bottom of the Manual Calibration window and there is an Approve and Disapprove check box. By selecting one of these, an authorized reviewer will assign a status to the Calibration Data.

Approve	Disapprove	ОК

4.3.5 HART Tab

The HART Tab lists a few key parameters that are HART specific for the user's quick review.

Vame	Value
nput Range	0.000 - 100.000 inH20
Jutput Range	4 - 20 mA
Devid	546768
Transfer Function	Linear

4.4 Cloning a Device

Cloning a device is the same as copying an existing device and saving it to a new device Tag ID. Cloning is used when a new device is being modeled that has the same device configuration as an existing device in the system.

To clone a device, right click on a device in the Device List and select the "Clone" option:

Tag		Description	A	lias	Model
2 DEV	Properties	***************************************		EVICE 1	Series 200
? DEV	Clone	~		EVICE 1	Series 200
	Configuration	ß	F		
	Manage Calibra	tion Procedures	۰l		
	Preview Calibra	tion Procedure			
<u> </u>	Add To Action L	ist For Calibration			
	Find In Action L	ist			
	Attached Note				
	Actached Note		_[
	Export				
	Delete Selected	Devices			

The following window will appear:

6	Clone Device	8	×
	Source Tag :	DEVICE 1	1
	New Tag :		
		OK Cancel	

Enter the "New Tag" and all properties of the cloned tag will be copied over to a newly created device with the same Tag ID.

CAUTION: HART uses a unique Serial Number called the Device ID. The cloned device needs to be updated with the new Device ID of the actual physical device being modeled.

🎨 DMS	×
DMS Path :	1
DMS Root	
ОК	

Enter the New Tag, select OK, and the following screen will appear:

Navigate to where the new device will be placed and select OK.

6	🖗 Config	uration service re	ason				×
	-Service Tag:	Reason DEVICE CLONE			 ß]
						-	
					Apply to all		
				OK			

Select a Service Reason and select OK.

The Cloned Tag will appear in the Device List

contains 2 item(s)	×	Tag 🕅	S Description	Alias	Model	Last C
🚊 💼 Division		2 DEVICE 1	Auto Import	DEVICE 1	Series 2000 Con	
🚊 🚮 JOES_DIVISION		? DEVICE 1 CLC	ONE Auto Import	DEVICE 1	Series 2000 Con	
MyFolder4						
👘 👘 Tootfoldor						

After cloning a device, the device will have a question mark '?' in front of the TAG number. This is because the cloned configuration has not been written to a device and updated in DMS.

5.0 Calibration Management

Device Calibration Management includes the following major steps:

- creation of calibration procedures
- setting device calibration cycles
- scheduling devices for calibration
- downloading calibration procedures
- executing the calibration procedure
- uploading as found/as left calibration results
- approving calibration results
- displaying calibration results
- updating device history

Calibrator and Calibration Standard Recertification

The DPC may have on board calibration standards, such as volt/amp meters that need to be recalibrated based on manufacturer's specifications. When a piece of calibration equipment is registered with DMS, this equipment has a next calibration due date, similar to that of a device. This calibration cycle information must be registered with DMS prior to using the calibration equipment on any of the devices modeled in DMS.

5.1 Calibration Procedures

Calibration Procedures are associated with a category and a device. This ensures that the same procedure is used each time a device is scheduled for calibration. Each unique procedure is only created a single time and associated to as many devices as necessary that are in the same category.

Calibration procedures are downloaded to a DPC for use in device calibration activities.

5.1.1 Creating a Calibration Procedure

To create a new calibration procedure, right click on the "Calibration Procedures" folder and select "New Transmitter Procedure" or "New Switch Procedure" depending on the device type.

5.1.1.1 Transmitter Calibration Procedure

Six (6) tabs are provided for detailing the transmitter procedure requirements.

5.1.1.1.1 General Tab

The General Tab contains the following basic information about the calibration procedure:

Category – a procedure can be assigned to a device category so that procedures are associated with a certain type of device. This prevents a procedure from being assigned to a device that is not in that category and makes existing procedures available to any new devices added in that category.

Name – The procedure name can be a Standard Operating Procedure Title, or any name that will represent the type of procedure.

🕼 Calibra	ation Pro	cedure						
General	Direction	Precision Test Points Instructions Advanced	,					
General Info								
		Category : Temperature Transmitter						
1	Name :	Temperature Cal Procedure 1						
		To be used for switch instruments						
Group Association for Category								
		erwrite ewsting deladir procedules Assign to Devices						
		Finish Close						

The checkbox "To be used for switch instruments" must be unchecked for transmitter calibration procedures.

5.1.1.1.2 Direction Tab

The Direction Tab defines the number of divisions, and whether or not a hysteresis check is included in the calibration procedure. It includes:

- Number of divisions
- Settling Time (the DPC user must wait for this amount of time prior to saving the next test point)
- Up From 0% of span to 100% of span
- Down from 100% of span to 0% of span

Calibration Procedure	X					
General Direction Precision Test Points Instructions Advanced						
┌─ Test Points─────						
Number of divisions : 5						
Settling time : 1 sec						
Direction						
✓ Up from 0% of span to 100% of span						
🕞 Down from 100% of span to 0% of span						
Group Association for Category						
Overwrite existing default procedures Assign to Devices						
Finish Close						

For example: five (5) divisions for up and down direction would result in 11 calibration points from 0% to 100% and back down to 0%.

5.1.1.1.3 Precision Tab

The Precision Tab defines the calibration procedure accuracy:

- **Maximum Allowable Error:** This is the user definable maximum error that is allowed before a device is considered out of tolerance.
- Adjust To: This is the target % error for making an adjustment to the device for a given test point.
- **Test Point Tolerance**: The applied calibration signal must be within this tolerance before the DPC will accept the "Save Data" command during the field calibration activity.

🚱 Calibr	ation Procedure		X				
General	Direction Precision Test Points Ins	tructions Advanced					
	[
	Maximum Error : 0.5	% of span					
	Adjust To : 0.4	% of span					
	Test Point Tolerance : 5	% of span					
- Group Association for Category							
0.00	Overwrite existing default proced	ures Assign to Dev	ices				
		Finish	Close				
5.1.1.1.4 Test Points Tab

The Test Points tab allows the generation and viewing of the points as a percentage of the span (percentage divided by number of points), and the tolerance of each point. This is dependent on the number of points and precision settings in the "Direction" and "Precision" tabs.

籂 Calibra	tion Proced	ure	×
General	Direction P	Precision Test Points Instructions Advanced	
		43	
_ Calibra	tion Points		
Index	Point	Test Point Tolerance	
1	0	5 Start at: 0 % of span	
2	33.33	5	
4	100	5 Finish at: 100 % of span	
		Generate	
- Groupy	Association for	r Category	
aroup.		ite existing default procedures Assign to Devices	
	, 0 roim		
Deper	ndencies	Update Close	

5.1.1.1.5 Instructions Tab

Setup Instructions – This message can be 255 characters and is the message that will be displayed on the DPC when the calibration procedure is performed in the field.

Cleanup Instructions - This message can be 255 characters and is the message that will be displayed on the DPC when the calibration procedure is completed.

ኛ Calibra	tion Procedu	re								x
General	Direction Pro	ecision	Test Points	s Ins	tructions	Advance	ed	43		
Setu	p Instructions :				Cleanup I	nstruction	s:			
My	Setup Instruction	ns:	4	3	My Clear	iup Instruc	ctions:		<u> </u>	
Con	nect to Device				Disconne	ect from de	evice			
				-1						
					1					
Group	Association for I	Category								1
	🔲 Overwrite	e existing) default pro	cedure	es _	Assign	to Devic	es		
Depe	ndencies				Llod	ata		Close	1	
	nuencies					ale		Close		

5.1.1.1.6 Advanced Tab – Special Calibration types

🌾 Calibration Procedure	×
General Direction Precision Test Points Instructions Advanced	
Calibration Type : Default	
Loop test 10-50 mA	
Note: All usage of "Input" or "Out Use Volts for output device under test.	
Settings	
Powered By : External 💌 Input Measure : Calibrator 💌	
Input Gen By : Calibrator 💌 Output Measure: Calibrator 💌	
Output Cal Type: mA / V (normal)	
Group Association for Category	7
Overwrite existing default procedures Assign to Devices	
Dependencies Update Close	

Calibration Type:

Default – This setting sets the procedure for standard mA and V output proportional calibration, for Conventional AND Hart Devices.

HART PV or USER ENTRY – This setting sets the procedure for a PV reading, which is read automatically from HART devices during calibration, or for Conventional/Fieldbus Devices, is manually entered into the calibrator.

Use Volts for Output – This setting will set the procedure for output to use Volts (instead of mA or PV).

Loop Test (4-20 mA) – This setting will set the procedure to measure the Loop current when set to 4 and 20mA. If the measure mode is set to "Simulate", the Cal procedure will automatically put the HART device into 4 and 20mA during calibration.

Loop Test (10-50mA) – This setting will set the procedure to measure the Loop current when set to 10 and 50mA. If the measure mode is set to "Simulate", the Cal procedure will automatically put the HART device into 10 and 50mA during calibration.

Settings:

Powered By – External – This default value tells the calibrator that the transmitter is powered externally. If this is set to Calibrator, the calibrator will attempt to power the device.

Input Gen By – Calibrator – This default value allows the calibrator to generate the input values. Manual allows editing of input values.

Input Measure – Calibrator – This default value tells the calibrator to read the inputs instead of entered Manually.

Output Measure – Calibrator – This default value tells the calibrator to read the outputs instead of entered Manually.

Output Cal Type – ma / V – This selection is for standard Proportional calibrations where the output is in mA or V. It can also be set to Pressure or Temperature for outputs that are entered manually or read directly from the transmitter.

5.1.1.2 Switch Calibration Procedure

Four (4) tabs are provided for detailing the switch procedure requirements.

5.1.1.2.1 General Tab

This tab is identical to the one for transmitter calibration procedures except that the checkbox "To be used by switch instruments" must be checked for switch calibration procedures.

6	Calibra	ation Pro	cedure					×
	General	Precision	Instructions	Advanced				
	Gene	ral Info						
				Catego	ry: Te	mperature Transr	nitter 💌	
	1	Name :	Temperature 9	Switch Cal Pr	ocedure 1			
					V T	o be used for swi	tch instruments	
	Group	Association	n for Category-				1	
		D 0ve	erwrite existing	default proce	dures:	Assign to	Devices	
						Finish	Close	

5.1.1.2.2 Precision Tab

Unlike the transmitter procedure configuration, this tab only provides a maximum error % of span which is a user definable maximum error that is allowed before a device is considered out of tolerance.

😭 Calibr	ration Procedure	
General	Precision Instructions Advanced	
	Maximum Error : 0.5 % of span	
Group	IP Association for Category	
	Uverwrite existing default procedures Assign to Devices	
De	ependencies Update Close	

5.1.1.2.3 Instructions Tab

This tab is identical to the one for transmitter calibration procedures.

5.1.1.2.4 Advanced Tab

Unlike the transmitter procedure configuration, this tab only provides an input calibration type which is user selectable for defining the sensor type used to calibrate the switch.

Calibration Procedure	×
General Precision Instructions Advanced	
Note: All usage of "Input" or "Output" terms are in reference to the	
device under test.	
Settings	
Input Cal Tupe: Pressure	
Group Association for Category	
Overwrite existing default procedures Assign to Devices	
	1
Dependencies Update Close	

5.1.2 Managing Calibration Procedures

Calibration Procedures are associated with devices and/or Categories. More than one procedure can be associated with a single device, however at least one of the associated procedures must be selected as the default procedure that is used for calibration of a device.

5.1.2.1 Associate Calibration Procedures with Devices

5.1.2.1.1 Associate One Device at a time

To associate a Calibration Procedure with a particular device, click on the device (In the Devices folder), then right click and select Manage Calibration Procedures. Then select Associate Calibration Procedures. See below:

🙀 Calibration Prcedure Managemen	t		×
Calibration Procedure Manag	jement		
Calibration procedures : 0 items Approved Calibration Procedures	>>> <<	Available Calibration Procedures 3 point up Pressure Cal 5 point up Pressure Cal	
Default Calibration Procedure :			
0K		Close	

The right hand column lists the available procedures for the Category of the Field Device being working on. Any procedures that were designated as Category "All" will be in this list as well.

If no procedures are presented here, there are two possibilities; there is either no calibration procedure created in the "Calibration Procedures" folder, or there are no Calibration procedures for this Category of device. For example, if a FLOW device is being managed, but there are only procedures defined for PRESSURE devices, then no available calibration procedures would be shown when trying to manage the FLOW device.

5.1.2.1.2 Associate Groups of devices

Groups of devices can be associated when creating or viewing the calibration procedure. This is done by right clicking on the Calibration Procedure, selecting Properties from the menu, by pressing the "Assign to Devices" button from the General tab, and selecting the folder that the devices are in.

5.1.2.2 Setting Default Calibration Procedure

A default procedure can be set for a particular device. Click on the Device (In the Devices folder), then right click and select Manage Calibration Procedures. Then select the desired Default Calibration Procedure.

The following window will appear "Default Calibration Procedure" selection box:

🏘 Default	Calibration Proce	dure	×
Default Cali	bration Procedure :	3 point up Pressure Cal	
	ОК	Cancel	

The procedure that is selected here will be the default procedure used when calibrating this specific device.

5.1.2.3 Preview a Calibration Procedure

After the calibration procedure is associated with a device, it can be previewed at any time by right clicking on the Device and selecting the Preview Option:

Calibrati	on Preview				×
Basic S	Setup				
Tag :		PRESS1 -DF	>		
Cal p	rocedure :	.5 %	•		
Trans	sfer Function :	RELATION_	LINEAR	•	
Index	Sensor1 Unit:	inH2O	Sensor2 Unit:m4	4	
1	0.0000		4.0000		
2	20.0000		7.2000		
3	40.0000		10.4000		
4	60.0000		13.6000		
5	80.0000		16.8000		
6	100.0000		20.0000		
	0	К	Print		

A print out of the procedure can be obtained by clicking on the Print button.

5.2 Scheduling Calibrations

The scheduling of Calibration activities for devices is automated in DMS based on the Calibration Cycle and Last Calibration Date. Action Lists are used to represent groupings of device calibrations that can be carried out within the same effort.

Scheduling can be event based as well. For instance, if an annual Division maintenance outage were planned, this event would be the basis for calibration activity instead of the calibration cycle. By grouping devices to be calibrated into a folder named after an event, the calibrations are scheduled on an event basis.

Action Lists and/or their Action Items are downloaded to a Documenting Process Calibrator (DPC), in order to execute the procedure in the field.

Note: The DPC must be registered prior to downloading or uploading procedures.

5.2.1 Action Lists

Action Lists are a "TO DO" list of Action Items to be performed on a device. The Action Items are identified with the Tag Name of the device to be calibrated. Multiple Action Lists can be created, each with its own folder. The folders are named based on classification, work order number, personnel assignment (person's name who will be performing the calibration), or any other user-defined scheme. Action Lists also track the status of the tag numbers listed.

Action Lists are usually populated based on the Alerts for "Device Due For Calibration". These alerts are based on the Calibration Cycle for each device.

5.2.2 Adding a Calibration to Action List

After a device has been associated with a default Calibration procedure, it can be added to an Action List as an Action Item. To do this, right click on the particular device (In the devices folder), then click "Add to Action List for Calibration".

The Action List screen appears:

😚 Action List	×
Add To :	~
MYLIST	Image: Image
Work Order:	
ОК	Cancel

To add the calibration to an Action List, select it from the Pick List and press OK. If there are no selections in the Drop down box, an Action List folder will need to be created with the '+' button.

The 'Work Order:' is a label that can be used to identify this particular action item. It can also be left blank.

An alternative method of assigning a device to an Action List would be to select a device, then drag and drop it into an existing Action List folder.

5.2.3 Downloading Calibration Procedures to a DPC

Once an Action List's Action Item is created, the Action Item can be downloaded to a DPC.

The entire Action List or selected Action Items can be downloaded.

To download the entire Action List to the DPC, right click on the Action List folder and select "Download Cal. Procedures to DPC".



The User will be required to choose between Configurations and Calibration Procedures separately. This is done because not all DPC's can handle device configurations. The only DPC's that DMS supports for transfer of device configurations is the ABB DHH810-MFT and the DHH800-MFC.

To download selected Action Items inside the Action List, right click on the selected items and select "Download to DPC".

W01 FT101 Download to DPC Review Reset Download Status Audit Trail Remove Item	W.0.	Tag		Туре
Reset Download Status Audit Trail Remove Item	🦹 W01	FT101	Download to DPC Review	CALINDATION
			Reset Download S Audit Trail Remove Item	Status

Each Action Item inside the Action List has a Status that indicates whether it has been downloaded or not.

The FCINTF Interface Specification that ABB uses requires that there be no Calibration Results on the DPC prior to adding new Action List items. ABB has implemented this same practice for Device Configurations as well.

If Calibration or Configuration results are found on the target DPC, then a message similar to the following will appear:

DMS Enterprise Manager 🛛 🗙
The target DPC contains calibration results. Upload the results, or remove them first.
OK

To enable the download operation, the User needs to Upload the results, or if the results are not needed for some reason, then the user needs to Remove it from the DPC. The Remove or Upload function is performed from the DPC Interface. Refer to the Uploading Calibration Results section or the Reviewing Calibration Results section for further direction.

5.2.4 Uploading Calibration Results

After a calibration Action Item is performed on a device, the results can be uploaded to DMS.

Note: The Port Setting must be set-up correctly for upload/download operations to work correctly. right click on the "DPC Interface" icon and select the proper COM port.

On the DPC Interface Icon, expand to show "Calibration" and "Configuration" options.

Right click on "Calibration", and then select "Preview". This will display the calibration procedures that are on the DPC.



The following is a sample Preview of a DPC:

Tag	SN	Location	Checked Out Fro	Туре	Status	Date
EPT-19C	649201			PROCEDURE		04/11/03
PT-19C	649201		WO DEMO	PROCEDURE		04/11/03
EPT-19C	649201			RESULT	Ready To C	04/11/03

Right click on "Calibration", and then select "Upload Cal Results to DMS". This will upload all the calibration results to DMS and automatically associate these results with their corresponding Action Items.

Additionally, the history for this device is populated with a "calibration" type entry.

To Remove or Clear calibration results from the DPC, right click on the Calibration Icon and select the CLEAR option, or right click on the individual Item and select the Remove option.

ſ	Tag	SN	Location	Checked Out Fro	Туре	Status	Date	
	[]]PT-19C	649201			PROCEDURE		04/11/03	
	PT-19C	649201		WO DEMO	PROCEDURE		04/11/03	
	■ PT-19C	649201			RESULT	Ready To C	04/11/03	
		Remove						

After the Calibration Procedure is removed, the windows will refresh and appear as follows:

Tag	SN	Location	Checked Out Fro	Туре	Status	Date	
[][PT-19C	649201			PROCEDURE		04/11/03	
FT-19C	649201		WO DEMO	PROCEDURE		04/11/03	
	649201		WU DEMU	PRUCEDURE		04/11/03	

Once Results are removed or cleared, they cannot be retrieved.

5.2.5 Reviewing Calibration Results

When a device is selected, the Device Properties frame appears at the bottom of the device list window. The "History" tab shows all the activity for the device. There are various types of entries in the History, such as:

Calibration – Manual or Automated Calibrations

Configuration – Device Configuration Changes

Audit - Manual Audit Event Entry

Creation - New Device added to DMS

The calibration results are Type "calibration"

evice prop History inform	erties for se nation for selecter	e lected item d device: TI 157				
History : 44	4 items					Add
Date	Туре	Reason	User	Status		Drive
2006-10-31	calibration	Maintenance	SysAdmin		•	
2007-07-13	action	Device is added for calibi	SysAdmin			Deview
2007-05-09	audit	Audit Trail	SysAdmin			neview
2007-05-09	calibration	Demo	SysAdmin	Approved		
2007-05-09	action	Device is added for calib	SysAdmin			Diff
2007-05-09	configuration	Maintenance	SysAdmin	MFx Upload		
2007-05-08	audit	Audit Trail	SysAdmin			Trending
2007-05-08	audit	Audit Trail	SysAdmin			
2007-05-08	calibration	lesting	SysAdmin	Approved		Report
2007-05-08	action	Device is added for calibi	SysAdmin			
2007-05-08	audit	Audit I rail	SysAdmin	. .		3rd Partu App
2007-05-08	calibration	Maintenance	SysAdmin	Approved	•	Jid Laity Mpp
eneral Docur	ments History	Hart				

To view calibration results, select the entry by clicking on it and then click on the Review button. The entry can be double clicked to invoke it. The following window will appear:

Tag T1 157 Date 2007-05-09 18:38:23 Manufacturer ABB Entered By SysAdmin Calibrator Model MFT 4010 -12-1-01 Reviewed By SysAdmin Calibrator SN 907030-W05 Input 0.000 to 400.000 degC Input Sensor SN 050407106 Input 0.000 to 400.000 degC Input Output 0 to 400 degC Input 0.000 0 0.000 Input 0.000 0 0.000 As Found: Max Error: 0.07 Pass (0.50) Pt Input 0.0000 0.0000 0.0700 2 100.0000 100.2600 100.0000 0.0650 3 266.7000 0.0475 1 4 400.0000 400.0000 0.0475 4 400.0000 400.1900 0.0475 5 6 -				Ca	libration in	nformati	on				csv ()
Device Loop As Found: Max Error: 0.07 Pass (0.50) As Left: Max Error: 0.07 Pass (0.50) Pt Input Output Expected Out Error 2 1 0.0000 0.2800 0.0000 0.2800 0.0000 0.0700 1 0.0000 0.0850 1 0.0000 0.0650 1 0.0000 0.0650 1 0.0000 0.0650 1 0.0000 0.0650 1 0.0000 0.0650 1 0.0000 0.0650 1 0.0000 0.0650 1 0.0000 0.0650 1 0.0000 0.0650 1 0.0000 0.0475 1 0.0000 0.0475 1 4 400.0000 400.1300 0.0475 1 1 0.0000 0.0475 1 1 0.0000 0.0475 1 1 0.0000 0.0475 1 1 0.0000 0.0475 1 1 0.0000 0.0475 1 1 0.0000 0.0475 1 1 0.0000 0.0475 1	Tag Man Calil Calil Sen	ufacturer brator Mode brator SN sor SN	TI 157 ABB MFT 4 90703 05040	010 -12-1-01 D-₩05 7106		Date Entered Review Notify I Input Output	1 By red By _imit	2007-05-0 SysAdmin SysAdmin 0% 0.000 to 0 to 400	09 18:38:23 400.000 degC degC		
Pt Input Output Expected Out Error 2 1 0.0000 0.2800 0.0000 0.0700 2 100.0000 100.2600 100.0000 0.0650 3 266.7000 266.8900 266.7000 0.0475 4 400.0000 400.1900 0.0475 3 266.7000 0.0475 5)evic As Fo	e Loop ound: Max Erro	or: 0.07 Pass	: (0.50)		As Le	eft: Max Error:	0.07 Pass (0	.50)		
1 0.0000 0.2800 0.0000 0.0700 2 100.0000 100.2600 100.0000 0.0650 3 266.7000 266.8900 266.7000 0.0475 4 400.0000 400.1900 400.0000 0.0475 5 - - - - 6 - - - - 7 - - - - 8 - - - - 0.07 0.06 0.05 0.07 0.06 0.05 - - - - - 8 - - - - - 0.07 0.06 0.05 0.07 0.06 0.05 0.04 - - - - - - 0.02 - - - - - - 0.04 - - - - - - - - 0.02 - - - - - - - </th <th>Pt.</th> <th>Input</th> <th>Output</th> <th>Expected Out</th> <th>Error % 🔺</th> <th>Pt.</th> <th>Input</th> <th>Output</th> <th>Expected Out</th> <th>Error %</th> <th>+</th>	Pt.	Input	Output	Expected Out	Error % 🔺	Pt.	Input	Output	Expected Out	Error %	+
2 100.0000 100.2600 100.0000 0.0650 3 266.7000 266.8900 266.7000 0.0475 4 400.0000 400.1900 400.0000 0.0475 5 - - - - 6 - - - - 7 - - - - 8 - - - - 0.07 0.06 0.05 0.07 0.06 0.05 0.04 - - - 0.04 - - - - - 0.05 - - - - - 0.07 - - - - - - 0.04 - - - - - - - 0.04 - <td>[1</td> <td>0.0000</td> <td>0.2800</td> <td>0.0000</td> <td>0.0700</td> <td>1</td> <td>0.0000</td> <td>0.2800</td> <td>0.0000</td> <td>0.0700</td> <td></td>	[1	0.0000	0.2800	0.0000	0.0700	1	0.0000	0.2800	0.0000	0.0700	
3 266.7000 266.8900 266.7000 0.0475 4 400.0000 400.1900 400.0000 0.0475 5 - - - - 6 - - - - 7 - - - - 8 - - - - 0.07 - - - - 0.05 - - - - 0.03 - - - - - 0.02 - - - - - -	2	100.0000	100.2600	100.0000	0.0650	2	100.0000	100.2600	100.0000	0.0650	-
4 400.0000 400.1900 400.0000 0.0475 5 6 6 6 6 6 7 8 7 8 6 7 0.07 0.06 0.05 0.04 0.05 0.05 0.04 0.03 0.04 0.03 0.04 As Found 0.02 0.02 0.02 0.02 0.02 0.02	3	266.7000	266.8900	266.7000	0.0475	3	266.7000	266.8900	266.7000	0.0475	
5 6 7 5 6 7 7 8 7 8 7 8 0.07 0.06 0.07 0.06 0.05 0.04 0.03 0.04 0.03 As Found 0.02 0.02 0.02 0.02	4	400.0000	400.1900	400.0000	0.0475	4	400.0000	400.1900	400.0000	0.0475	
6 7 8 6 7 8 0.07 0.06 0.07 0.06 0.05 0.04 0.03 0.04 0.03 As Found 0.02 0.02 0.02 0.02 As Left	5					5					
7 7 7 8 7 8 • • • 0.07 0.06 0.07 0.06 0.05 0.04 0.05 0.04 •	6					6					
18 18 0.07 0.06 0.06 0.05 0.04 0.03 0.03 0.02 0.02	7					7					
0.07 0.06 0.05 0.04 0.03 0.02 0.07 0.06 0.05 0.04 0.05 0.04 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.02 0.02	8				-	8					-
		0.07							0.07 0.06 0.05 0.04 0.03 0.02	As Found As Left	

Press the csv button to save the data into a comma separated value format file which can be used in many spreadsheet and database applications. Press the ... button to view the calibration procedure details that were used during the calibration.

Scroll down to the bottom of the Calibration Results Graph. An authorized reviewer can approve or disapprove a Calibration Procedure by checking either of the boxes. This will update the Status of the calibration procedure in the Action List.

[1	
	Approve Disapprove		ОК

In order to generate a Calibration Certificate, click on the "REPORT" button and then the Print button.

CALIBRATION CERTIFICATE



AS FOUND: MAX EDDOD: 0.28766070.06

AS LEFT:

22.3790

3

MAXT	RROR: 0.	28/009/9	90	
POINT	INPUT	OUTPUT	EXPECTED OUTPUT	ERROR [%]
1	0.0000	3.9910	4.0000	-0.0563
2	11.1460	11.9560	11.9721	-0.1007
3	22.3420	20.0260	19.9800	0.2877

MAXERROR: 0.05351878 %					
POINT	INPUT	OUTPUT	EXPECTED OUTPUT	ERROR [%]	
1	0.0000	4.0020	4.0000	0.0125	
2	11.1880	12.0050	12.0021	0.0178	

20.0064

0.0535

20.0150

12/30/2002

5.3 Manual Calibration

When a DPC is used that does not have the ability to exchange calibration procedure and calibration test results with the DMS software, a Manual Calibration is used to enter the calibration information.

The entry point for this feature is at the Device's History. To initiate a manual calibration, navigate to the device that was calibrated, select the History tab, and click on the ADD button.

DN	S Enterprise Manager 🛛 🔀
	o add manual calibration results select Yes; to add general event select No
	<u>Y</u> es <u>N</u> o

Click on YES to add a Manual Calibration and the following window will appear:

🕅 Device Calibration F	Results	
	Calibration in	formation
Tag Manufacturer Calibrator Model Calibrator SN Sensor SN	65401 Meriam Instrument	Date Calibrated By Reviewed By Input LRV Input URV Input UNts On et But
Device Loop		As Left Results:
Pt. Input Output 1 2 3 2 3 3 4 5 5 6 7 7 8 9 10	LI Expected Ou Error %	Pt. Input Output Expected Ou Error % 1 2 - - - 2 - - - - 3 - - - - 4 - - - - 5 - - - - 6 - - - - 7 - - - - 8 - - - - 9 - - - - 10 - - - -

The Tag and Device Manufacturer information is entered automatically. Enter all other calibration information by double clicking on the field. For example, the following window pops up when the Sensor SN is double clicked on:

👫 Sensor SN		×
Melue i	 ОК	
value:	Cancel	

Enter the Value and select OK. The calibration data points are handled in the same manner.

6.0 Documenting Process Calibrator (DPC) Interface

Note: Refer to the section for Registering DPC's and Calibration Standards. Calibration equipment must be registered with DMS prior to performing any upload/download operations between the DPC and DMS.

6.1 DPC Recertification Tracking

DMS tracks due dates for calibration equipment recertification. The Last Calibration Date and the Calibration Cycle of a standard or hand held is used to issue an Alert to the user when the equipment is due for recertification

6.2 Downloading from DMS to DPC

All download operations for DMS to DPC are initiated from the Action Lists folder. The Action Lists folder contains Action Items, such as Configuration Changes and/or Calibration Procedures.

Individual Action Items can be downloaded from DMS to the DHH810-MFT by right clicking on the Action Item (TAG ID) in the Action List folder and selecting the "Download to DPC" option



In most cases, an Action List contains multiple Action Items that will be performed by a single individual, or on a given maintenance routine or route. To download an Action List, right click on the Action List folder and select the "Download Cal Procedures to DPC" and/or "Download Configurations to DPC" options.



Only ABB products, such as the DHH810-MFT and the DHH800-MFC, can perform configuration Action Items. Other DPC's do not store and transfer HART Device configuration data.

Regardless of which method is used to download an Action Item to the DPC, the "Status" field is updated to reflect that the Action Item(s) has been downloaded.

6.3 Uploading from DPC to DMS

All upload operations for DPC to DMS are initiated from the DPC Interface folder. The DPC Interface folder contains two components;

Calibration – Calibration Results (Preview and Upload) and Procedures (Preview) Configuration – Device Configuration data (Preview and Upload)

To preview what is available on a DPC to be uploaded, right click on the Calibration or Configuration icon and select the Preview option



To upload Configuration or Calibration results from the DPC to DMS, right click on the appropriate icon and select the Upload from DPC option.

For each item that is uploaded, there will be a prompt for a Service Reason

Note: Although the user can preview configuration edits and results, only the results of a configuration change or a configuration that was saved from a device can be uploaded.

7.0 Search Options

DMS has several Search options available to support analysis of data or to locate devices based on the Search Criteria.

Searches are based on device characteristics and parameters. Searches can be performed at two major levels in DMS;

- Enterprise Level for all Divisions
- Division Level for all Devices within a Division

To perform a search on the Enterprise Level, right click on the Division folder and select one of the predefined searches;

<u>**Due For Calibration**</u> – Devices that are due for calibration based on the device's last calibration date and the Pre-Notice setting.

<u>Reached Notify Limit</u> – Devices that have met the Notify Limit for accuracy that was set for each device (based on the most recent calibration results).



If a more detailed search is required, then select the "Advanced" option, which will provide the following window:

🕼 Find 🛛 🔀
Advanced Search
Search Criteria
Tag:
Alias:
Model :
Vendor :
Category :
Description :
Location : Loop :
Service Reason :
Device Config :
Edit Parameter Parameter
Add
Use % sign for your wild card searches 🔽 Critical Devices
Find Cancel Active

With this interface, the user can search on various device parameters.

General Parameters – A search can be formed on the most common general parameter for a device.

Device Settings - Automatic pull down menu displays the existing Model, Vendor, and Category for quick reference from the search window.

Action Items – A pull down menu is available for easy reference to specific types of activity on devices based on Service Reasons.

HART Device Parameters - HART parameters vary widely between different device models. This interface allows the user to search devices based on the HART configuration data for a given device.

The same searches available at the Enterprise Level are available at the Division Level. To perform a search at the Division Level, select the desired Division, right click, and select the Search For Devices option.

There is an additional predefined search for "Cal Results to Be Reviewed". Otherwise, the search options are the same as for the Enterprise Level.



After any search is performed, the results of the search are displayed in the Search Results Window.

	(
Tag	DMS Location	
2 XX-DEV05	Root/Meriam2\Devices	
-		
1		
	-	
General-		
	Tag	
	Model	
	Manufactu	For the second se
	Last Calib	Date
	Last Carfi	Date
	Last Collin	j Date
	Next Callb	
	Calegory	
	lolerance	
Descripti	on:	
		<u>*</u>
		Report
General Do	cuments History Hart	
		5
,		

8.0 Optional – DMS Online (Single Point Access)

DMS Online is an optional Software Module for Single-Point Access to Hart Devices using a HART Modem. This enables device monitoring, configuration and upload directly from the DMS.

8.1 Connecting to a device

Connect a Hart modem from a COM port on the PC to a Hart Device.

In DMS the 'Online' symbol should appear towards the bottom of the folder tree. Click on the '+' to expand Online and show the COM ports:

 归 Online
COM 1
— ӯ Сом 2
— ӯ сом з
— ӯ сом 4
🗐 🗇 СОМ 5

Select the COM port to which the Hart modem is connect, right click and then select connect:



The following message will appear:



Click on 'OK' and DMS will poll the device and show found devices in the right display pane:

Tag	Address	Model
MYTAG	0	1151s

8.1.1 PV Properties

The first option for an online device is to monitor the PV properties (PV and AO) and the HART Status byte results. Right click on the Tag ID and choose PV Properties.

Tag	A	ddress	Model	
PT-19C	PV Properties		3051C	
	Connect			
	Upload To DMS			

The following window will appear and refresh every 5 Seconds. To force a refresh, click on the refresh button.

👫 P¥ Info		×
Primary Variable:	PV: -0.182 InH20	
Analog Output:	A0: 3.994 mA	
Status:	Config Changed,	
	Refresh	

8.1.2 Connect To Device

Right click on the Tag ID and select "Connect". DMS will load the device configuration and display the parameters:

Tag		Address	Model
PT-	PV Properties	0	3051C
	Copport		
	Connect		

First, the following status message will appear:



Next the Device Configuration window will appear:

Parameter	Value	Edit
Manufacturer	ABB	
Dev id	500541	
Model	2600T-262/264	
Tag	XIXXX	
Descriptor	ABB DTM HI2600T-	
Message	<u>ଭତ୍ତତ୍ତ୍ରତ୍ତ୍ରତ୍ତ୍ର୍ର୍ର୍ର୍ର୍ର୍ର୍ର୍ର୍ର୍ର୍</u>	
Date	1-1-1900	
Pressure unit	psi	
Snsritemplunit	degC	
Sta pres unit	Bad1	
URV	100.002	
LRV	0.002	
Damp	0.000	
Xfer fnotn	Linear	
cut_linear %	10.000	
A0	0.020	
61	3 102	

CAUTION: It is recommended that only one parameter be edited at a time, especially when there is a chance that the parameter being changed will have an impact on other parameters. For instance, a change to the "Units" of a device should be done independently. This is so all of the other parameters will be based on the new units setting.

To edit a parameter, double click on the parameter and the following window will appear:

👫 Unit	د	<
inH2O	ОК	
	Cancel	

The parameters changed in On-Line mode will be indicated with a checkbox in the 'EDIT' column as they are changed.

Parameter	Value	Edit
Manufacturer	ABB	
Devid	500541	
Model	2600T-262/264	
Tag	XIXXX	
Descriptor	ABB DTM HI2600T-	
Message	MESSAGE REMOVED	
Date	1-1-1900	
Pressure unit	psi	
Sinsritempiunit	degC	
Stapres unit	Bad1	
JRÝ	100.000	
_RV	0.002	
Damp	0.000	
Kfer fnotn	Linear	
out linear%	10.000	
40	0.020	_
A1	2102	

Changed parameters can be sent to the device by clicking 'Send To Device', or clicking the "Use Full Configuration" checkbox first can send the entire configuration. DO NOT check the "USE FULL CONFIGURATION" option for minimal changes.

The "Use Full Configuration" option is primarily used to clone devices.

After sending the changes, DMS will automatically re-poll the device. Select the Connect option and verify that the changes have been made.

8.1.3 Uploading Device Configurations into DMS

A device(s)'s configuration is imported into DMS with the "Upload To DMS" function:

Tag		Address	Model
PT-19	PV Properties Connect		3051C
	Upload To DMS		

If it is a new device (Unique Tag name and Device ID), a prompt will be made for inserting the device into a DMS folder. If the device exists in DMS, this function will update the configuration for the existing DMS device.

8.1.4 Multi-drop with Online

If DMS does not find a device at address 0, it will attempt to perform a multi-drop search for devices at address 1-15. The following message is displayed:

Device Managem	System	×
No device at addr 0, r	> perform multidro	n noll?
	Seri Si in Maldaro	p poli:
Yes	No	

Click on "Yes" to search for Multi-drop devices. There will be a 30 second delay while DMS polls all Multi-drop devices. Then the results are shown.

If two devices are connected on a loop with addresses 1 & 2, a screen similar to the following will appear:

Tag	Address	Model	
DEV TAG1	1	6535	
DEV TAG2	2	1151s	

Right click on any of the devices displayed to choose the On-Line options.

9.0 Importing Data into DMS

DMS can import data from comma separated value (*.CSV) or Excel (*.XLS) files using the Import tool built into DMS.

There are four steps to importing data into DMS:

- 1) Generate ".csv" templates for the device or device types that are in use.
- 2) Using Microsoft Excel, copy data into the template under appropriate column headings
- 3) Profile the data and make adjustments with the DMS import tool
- 4) Import the data into device folders with the import tool.

These steps are discussed in detail below.

To import data, first generate Excel templates (based on type of device) using the import tool built into DMS. Open the generated file and then copy or manually enter the device data into the template being careful to align the data into the matching columns. This prepares the data for importing with the DMS import tool.

Click the "Import" DMS shortcut to load the import tool.



9.1 Generating Templates

Before importing data, templates need to be generated for each type of device that are used. There are 10 possible HART device templates, and 16 conventional device templates. A template can be generated based on a 'Specific Model' of device. If HART devices are in use and the ABB DHH810-MFT or DHH800-MFC is used to save HART configurations, then data should be imported into one of the HART Templates. For all other devices, use the conventional templates to import the data.

Note: Develop separate import templates for the common types of devices being imported. Do not attempt to mix dissimilar device types in one template.

9.1.1 Generating a template

To generate a template, use the dropdown box next to "Generate Template (HART)" or "Generate Template (Conventional)" to select the device type:

🚰 Open 🛛 🔛 Save 🛛 🖽 Profile	F Import Generate Template (HART) :	Gen
		Generic Pressure Level Temperature Level-Radar Flow-Magnetic Flow-Vortex Flow-Coriolis

Next, click "Generate Template":

🛛 🚰 Open 🛛 🕁 S	ave 🔛 Profile	Import	Generate Template (HART) :	Temperature	▼ Ge
			Generate Templa	ite (HART) :	No file sp

A prompt for a directory to place the template appears. Specify or create a directory that will be used for importing:

Example:

Browse for Folder	? ×
Select DOF Directory	
Documents and Settings DOFS downloads Fonts GHOST I386 mport install mfxinstall microsoft visual studio My Downloads	
OK Can	cel

9.2 Putting data into a Template

Open the generated ".csv" file using Microsoft Excel. For example, "temperature.csv" is generated for HART temperature devices:

M	1icros	oft Exc	el - Te	empe	rature.	CSV									_ 🗆
	Eile	<u>E</u> dit	⊻iew	Inse	rt Fo	rmat	<u>T</u> ools	<u>D</u> ata	<u>W</u> indov	/ <u>H</u> elp		N	ype a questio	n for help	B
	2	8) 🔁	6	ð. 💞	8	Ba (*	l • 😒	\$ 10 v	CH + 🧕	δ	• ≜↓	ZI 🛍 🦧	2 °	<u>A</u> -
1		<u>b</u> 2	•	6	🦻 🖪	6	💘 Rep	ly with	<u>⊂</u> hanges.	E <u>n</u> d Rev	view	•			
	A1		•		<i>f</i> ∡ Far	nily (ode (3)	l							
	1	A	E	3	С		D		E	F		G	Н		J
1	Fami	ilγ Col	Tag N	lame	SN		PV ass	ign Fi	eld Devid	Manufac	tu Mo	odel	Hart Tag	Hart SN	Hart D
2															
3															

All the column headings are shown. Many of the columns are standard HART headings, and in this case, many of them are specific to temperature since the generated template is for Hart Temperature devices.

The data can be copied into these columns. Some of the columns are required when using the import tool, like "Tag Name", "Manufacturer", and "Model". However, there is no need to fill all columns if the information is unknown or does not exist.

When finished with entering information into the Excel spreadsheet, save the ".csv" file. It will be loaded into DMS in the "Profiling" step – next.

Note: We recommend that only about 20 devices max be profiled at time for optimal speed of profiling and making changes. This will vary depending on the speed of the computer.

9.3 Profiling the Data with the Import Tool

Profiling is the process of verifying that the data is ready to be imported. The DMS import tool uses colors to indicate whether each line of data is ready to be imported, or if modifications are needed.

Once data is in a template, the DMS import tool can be launched by clicking on the "Import" DMS shortcut.

Once the import tool is launched, click on "Open" and navigate to the template (with data) that was created:

🍀 Device Manage	ement System USER: sysadmin
Item Edit MFx	Help
	/ ← → % h th X 2 .
DMS Shortcuts	🛛 🚰 Open 🔄 Save 🛛 🛗 Profile 🕨 Import 🛛 Generate Te
<mark>î q^îq</mark> î	Open

After opening the file, the data is shown in the import tool:

Example:							
籂 Device Manage	ment System USE	R: sysadmin					
Ltem Edit MFx	Help						
	8 ← → X ha	°L×IQ.	2				
DMS Shortcuts	🛛 😅 Open 🛛 🔚 Save	Profile 🕨	Import Generate	e Template (HART) :	•	Generate Templa	te (Conventio
5					C:\DOFS\	Temperature2.csv	
• <u>•</u>	Family Code (3) 🛛 👻	Tag Name 📼	SN 👻	PV assignment 👻	Field Device Rev 👻	Manufacturer 👻	Model
Enterprise	3	TT-1041			1	PR ELETRONICS	PR5335
	3	TT-1042			1	PR ELETRONICS	PR6335
1	3	TT-1043			3	ROSEMOUNT	3044
Security	3	TT-1044	12		1	ROSEMOUNT	3044c
occurry	3	TT-1045				ROSEMOUNT	3044c
	3	TT-1046		Term Temp		ROSEMOUNT	3144
	2	TT 1047		Term Terms		DOSEMOUNT	21.4.4

Once the data is loaded, click on the "Profile" button to begin the Profiling process:

縃 Device Manage	ment System USEI	R: sysadmin						
Item Edit MF×	Help							
	6 ← → % ħ	r × 2.						
DMS Shortcuts	🔁 Open 🛛 🖬 Save	🔛 Profile 🕨	Import	Generate	Template (HART) :	•	Generate Templa	te (Conve
5						C:\DOFS\	Temperature2.csv	
• <u>•</u>	Family Code (3) 👻	Tag Name 👻	S	SN 👻	PV assignment 👻	Field Device Rev 📼	Manufacturer 👻	Mo
Enterprise	3	TT-1041				1	PR ELETRONICS	PR5335
	3	TT-1042				1	PR ELETRONICS	PR6335
🤹 🚺	3	TT-1043				3	ROSEMOUNT	3044
Security	3	TT-1044	12			1	ROSEMOUNT	3044c
Coounty	3	TT-1045					ROSEMOUNT	3044c
	3	TT-1046			Term Temp		ROSEMOUNT	3144
000	3	TT-1047			Term Temp		ROSEMOUNT	3144
Setup	3	TT-1048			Term Temp		BOSEMOUNT	3144

If everything is good, each line will turn green or cyan, indicating a good profile. If the lines turn red, then the Manufacturer and Model will need to be checked to make sure they exist and match the spelling/name in DMS.

To do this, click on the Manufacturer cell for a "Red" line. A drop down list of Manufacturers is presented. Make sure the name that was entered appears in the drop down list. The spelling in the drop down list is correct. If necessary, select the Manufacturer by clicking on the Manufacturer name in the list.

Check the Model in the same way, click on the cell and make sure the model is correct.

For example, a Rosemount 3095 may have been entered for Mfgr and Model. There is only a 3095C in the drop down, so this correct model would need to be selected and re-profiled to correct the problem.

Also, scroll across to the right and verify that all values have a "Green" cell. Some of them may be "Red", indicating a value that doesn't exist, or incorrect. See the examples below for more information.

Selected columns can be locked in the import tools so that they stay on screen while scrolling right to look for individual red cells. To implement this, locate the desired column headers (ABB recommends Tag Number, Manufacturer, Model and Field Dev Rev columns) and right click on each column that needs to be locked. To unlock, simply right click on the desired header again.

The order of the import tool columns can be arranged to preference. Simply drag and drop the column headers into the preferred arrangement.

Note: If there are troubles profiling a particular mfgr/model device, the problem could be with a manufacturer / model number mismatch. Some Manufacturers have purchased other manufacturers and still offer the purchased products. The HART data may still recognize the device as being manufactured by the original company. ABB offers products still listed as Hartmann & Braun, Bailey, Bailey Fischer Porter, and ABB. Inputting an ABB model TH02 will cause a Red line since the correct HART listing is Hartmann & Braun model TH02. Refer to the HART DD Library list of devices for correct manufacturer names and exact HART model numbers used. See www.hartcomm.org and search for HART DD Library.

Solid line color key examples:

Ex1					
3	TT-1043		3	ROSEMOUNT	3044

White cells indicate data needs to be profiled. Click on "Profile" to begin profiling.

Ex	.2						
►	3	PT-1000				FOXBORO	IA_PRESSURE
Те	mplate Misma	tch – A Press	ure device wa	s put in a Terr	nperature impor	t template (Fa	amily Code
3).	Device types	must go into t	he proper tem	plates.			

Ex. 3

Data is valid, and generic (no DMS DOF exists for this device –Universal and Common Practice command information will be imported)

	EX. 4	4					
	3		TT-1046	Term Temp		ROSEMOUNT	3144
1	. .		 		<i>a i</i>		

Data is valid, and has an existing DMS DOF with full device configuration.

Ex. 5

Б		_	_		
I	1	PT-1000		ABB	600T
•					

The green line but BOLD AND RED tag indicates Mfgr and Model are correct, but some values further down are incorrect. If this error occurs, scroll to the right to find the errors. Then click the drop down arrow for a list of correct choices or instructions for other remedies.

 3
 TT-1045
 ROSEMONT
 3044c

 Data is INVALID. In this example, the Manufacturer "Rosemount" is misspelled. Click the

 Manufacturer cell's drop down arrow for Manufacturer's list and spelling. Click the Model cell's

 drop down arrow for correct list of the Manufacturer's model numbers.

Cell Color key examples:

Red Cell:

Ex. 1:							
SMAR	TT301		descriptor	message	12/18/2003	К	•

In this example, the "Units" cell has the value "K". The real value should be "Deg K" since this particular device uses this format. All possible selections will be listed and selected by clicking on the Cell and Drop-down selection:



Ex. 2:

Upper Range Value 🕠	 Lower Range Value 	Upper Sensor Limit 🕞	Lower Sensor Limit 🕞	Minimum Span ,	 Transfer Function
100	0	2000	0	ONE 💌	Linear

In this example, the text type is wrong. A value of "ONE" was entered in Field "Min Span". This value should be a numeric value, like "50" or "1000".

Yellow Cell:

SMAR	TT301			descriptor	message	12/18/2003	Deg K	•
The vollow call indicates a Change has been made to the call volue — call has been modified								

The yellow cell indicates a Change has been made to the cell value – cell has been modified. Yellow cells are OK to import. (They do not turn green during subsequent profile runs).

Violet cell:

Family Code (3)	- Tag Name 👻	SN 👻	PV assignment 👻	Field Device Rev 👻	Manufacturer 👻	Model 👻	
3	TT-1047				ROSEMOUNT	3144	

In this example, a violet cell indicates that a "PV Assignment" value can be selected for a Multi-Variable device. This is a multi-function device that can have a selectable PV assignment. Selecting a PV assignment will likely cause some cells to the right to become red. Always re-run Profile after selecting a PV assignment for a multi-variable device.



If the cell remains red after exhausting all known Manufacturer and Model Number remedies:

A HART device that is not yet listed in the DMS Device Model Library may be the problem. Check the Device Model Library list for the device – in question. If it is not there, right click on Device Model Library found under "Setup" in the DMS root directory. Select "New Hart" and enter the requested data. This will add the device to the DMS list and should allow the red line in the import tool to change to cyan once Profile is re-run. Import can then take place.

9.4 Final import steps

When profiling is finished and all import lines are green or cyan color, and all Tag Numbers text is in black font, click on the "IMPORT" button to begin importing the data into DMS.

In the ensuing prompt, specify a folder to place the new imported Devices. Also specify Service reasons for each device. Before importing it may be desirable to add the Service Reason "Import from Template" to the DMS Service Reasons. This can be done by clicking on "Setup" in the DMS root directory, and then right clicking on the Service Reasons menu option. This Service Reason can then be used for all Template Import work and the activity will be tagged as such in the device history tab.
10.0 3rd Party Application Association

A 3rd party application can be associated to Devices in DMS. This is an external program like ValveVue[®], ValveLink[®], Word, or Excel. The data from these applications can be stored in the DMS device history, and the application can be launched from DMS when looking at this data or history of data in DMS.

There are 4 steps to setting up a 3rd party application:

- 1) Add the 3rd party Application association to DMS Setup folder
- 2) Associate Application to DMS Device Model
- Create devices that use this model (the model will need to be created if it doesn't exist in the DMS model library)
- 4) Add data from the 3rd party Application into a device's history.

Each step will be discussed below:

10.1 Add 3rd Party Application to DMS

Go to the DMS Setup folder and then open the "3rd Party Applications" folder. To add a new application, right click on this folder, and then click "NEW":



Enter the name of the application. Below, "ValveLink®," was used as an example:

😚 3rd Pa	rty Application	×
	43	ОК
Name	Valvelink	Cancel

The application will be added in the right pane. Right click on it and click Properties:

Name		DMS Key Code	Local Path
⊞ ValveLink		0EAEC26847234015B1CCE22B85BAF2DB	
	Properties		

This calls up a pop-up window with entries for the "Application Name", and "Path at Local". Use the Browse button to navigate to the location of the Application. The example below locates ValveLink[®]:

😚 3rd Party Application Properties	×
Application Name: ValveLink	
Description :	
Launch conditions	
Auto Launch Params:	
Path at Local:	
C:\Program Files\ValveLink\vlink.exe	
OK Cancel	

The "Auto Launch" checkbox is un-checked because a valvelink '.exp' export file cannot be autolaunched by double-clicking it. (This checkbox is enabled if the data files that are being accessed can be auto-launched by double clicking on them, like Word (.doc) or Excel (.xls) files.)

The path associated with the name will be shown:

Name	DMS Key Code	Local Path
🔠 ValveLink	0EAEC26847234015B1CCE22B85BAF2DB	C:\Program Files\ValveLink\vlink.exe

The 3rd party application is now added to DMS "3rd party apps" and is ready to be associated to Device Models.

10.2 Associate Application to a DMS Device Model

Once a 3rd Party application is created in the Setup folder (previous step), it can be associated to a Device Model in the DMS Device Model Library.

Continuing the previous example, the 3rd Party application can be associated to the DVC6000 model in DMS. This association is made in the Device Model Library (in the Setup Folder) by picking the DVC6000, right clicking on it, and choosing "Associate with Application":

🖃 🛁 Setup	■ DVC6000	Fishe	er Controls	Valve
Service Reasons	🔠 Kammer	Download DOF To MFX	serve	Valve
표 📄 Device Model Library	E Logix 12:	Replace Server DOF	serve	Valve
Categories	🗈 Logix 12:	Associate with Application	serve	Valve
Sustem Settings	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	Elou) (alua

This calls up the screen below allowing selection of the 3rd party application as an approved application for this model by clicking on it, and moving it to the "Approved Applications" by pressing the left arrows.

Total : 0 items		
Approved Applications		Available Applications
		ValveLink
	>>>	
	<	

The 3rd party application "ValveLink[®]" is now associated with the DVC6000 model in DMS.

10.3 Add Devices using the 3rd Party Associated Model

At this point, a new DVC6000 device (Tag) can be created that uses the associated 3rd party application model.

Example:

Create a device based on the DVC6000 model:

- 💻 DMS Root		
🖻 👼 Enterprise		
🖻 💼 Division		
🖻 🚮 Div		
Devices		
🗄 🏠 🔁	New Device	

🔆 Welcome to the Device Install Wizard	×
Device Information	
General information for tag:	
General Calibration Active Configuration User Defined Data	
C Device Identification	
Tag : VT-1000 Category : Valve	
Model Info: Vendor: Fisher Controls; Device Rev: 1	
Device Alias : SIL Rating : 1	
Full Model ID : SN :	
Description :	
OK Cancel	

Click "OK" to finish adding the device.

10.4 Add Data from 3rd Party Application to Device History

DMS is now ready to work with data from the 3rd party application. In order to do this, the tag data from the 3rd party application needs to be exported and attached to the "History" of the device. Below are the steps:

First click on the device. Continuing with the previous example, click on "VT-1000", which is the Tag name for the DVC6000 device (created in the previous step).

Tag	Description	Alias	Model	Last Calib. Date	Next C
? VT-1000			DVC6000		

Then click the "3rd part App" button in the "History" tab of this Tag:

History :	1 items				644
Date	Туре	Reason	User	Status	Print
2004-01-14	creation	Device added to DMS	SysAdmin		 Review
					Diff
					Trending
					Report
					3rd Party Ap

After clicking "3rd Party App", select it, and click "Run":

Select Application	
Tag: VT-1000	
Avaliable Applications :	
ValveLink	
Run	Cancel

Then answer "Yes" to run the application:

DMS Enterprise Manager	×
Are you sure you want to ru	un the application 'ValveLink'?
(<u>Y</u> es	No

DMS will minimize, and the 3rd party application will run.

Login with the 3rd party application account information, connect to the actual device, perform monitoring/diagnostics, save the dataset, and export the data to a Temporary directory.

The exported 3rd party application file needs to be saved in a temporary directory. In this example, VT-1000.exp is placed in C:\TempValveLink. When the export is finished, close the 3rd party application and DMS should appear with a prompt to select the exported file:

🛠 Select Files	
	Browse
	Delete
	Cancel
	ОК

Click "Browse" to select the exported file(s).

👫 Select Files	
C:\TempValveLink\VT-1000.exp	
	Browse
	Delete
	Cancel
	ОК

Add a Service reason:

👫 Service reason		×
Service Reason		
Tag: VT-1000		
Routine Service		-
	Apply to all	
	ОК	

A History record in DMS now exists with the attached ValveLink[®] exported Tag:

Date	Туре	Reason	User	Status	Print
2004-01-14	partner	ValveLink; Routine Serv	ic SysAdmin		
2004-01-14	creation	Device added to DMS	SysAdmin		Review
					Diff
					Trending
					Report
					3rd Party A

To view the 3rd party application DMS history item, double-click on the item:

History : 2 i	items			
Date	Туре	Reason	User	Status
2004-01-14	partner	ValveLink; Routine Servic	SysAdmin	
2004-01-14	creation	Device added to DMS	SysAdmin	

DMS will launch the 3rd party application. From here, select "Import Tag Data" and open the file in the "Results" folder that is displayed by DMS.

📴 ValveLink '	¥L2000				
Tag Network	Instrument Setup	Calibration	Diagno		
New HART T	ag				
New FF Tag		H			
Open or Mod	dify Tag C	trl+0			
Close Tag	C	trl+C			
Import Tag (Data				
Import FIRS	T Data				
Import Valve	Link File				? ×
Look jn: 🔂	Results		•	🗢 🔁 i	➡ 🎟
VT-1000					
File <u>n</u> ame:	VT-1000				<u>O</u> pen
Files of <u>type</u> :	All (*.*)			•	Cancel



The 3rd party application opens with the imported data for the selected device.

11.0 Backing Up and Restoring DMS data

It is important to back up the DMS Server data on a regular basis in the event of a catastrophic hard-drive crash or erasure. DMS provides a backup utility (located on the DMS CD). This backup utility exports the database and all files needed to recover the DMS server.

11.1 Installing the Backup Utility

The backup utility is located in the folder "DMS Backup" on the DMS CD. This utility must be installed on the machine that has the DMS Server installed.

Double-Click on "DMSBackupUtil.exe" to install the program. Once installed, the backup utility will be accessible in the Programs/Program Files ->ABB :

💼 Device Management System 🔸	🗃 Backup Utility
<i>₩</i>	🙀 Device Management System
	🙀 DMS Activation Wizard
	🕐 DMS Help
	🚇 DMS Server Configurator

11.2 Performing a DMS Backup

Backup should be performed during off-hours when no DMS clients are connected to the server. This will guarantee that no new data is being added during the backup process.

Launch the DMS Backup utility:

💼 Device Management System 🔸	😸 Backup Utility
	🙀 Device Management System
	🙀 DMS Activation Wizard
	🕐 DMS Help
	🚇 DMS Server Configurator

The following should appear:

🞜 DMS Backup Utility	
BackUp	Restore
Backup Folder Path :	
C:\Program Files\ABB\DMSBackupUtili	ty\Backups
DMS Server Path :	
C:\Program Files\ABB\DMSServer	
	BackUp

Make sure the "Backup" tab is selected instead of the "Restore" tab.

The "Backup Folder Path" will be the destination of the backup. It is recommended that this is left as the default directory. Then copy the backup files onto backup media or another drive to have a secondary backup location.

The "DMS Server Path" is the location where the DMS Server was installed. Only change this if DMS Server was installed in a different directory or hard drive.

Note: The backup utility does not support Mapped or Network Drives. After performing the backup, it's possible to copy the created backup folder to a network or mapped drive.

When ready to perform the backup, press the "BACKUP" button:



This backup process will take between 1 and 30 minutes depending on how many Devices and history items the DMS Server has.

The backups will be found in the folder listed below: "C:\Program Files\ABB\DMSBackupUtility\Backups" folder.

The backup folders will have the Date and Time in the Folder name. See the example below:

Name	Size	Туре 🔺
DMS(01-20-04@11.06)		File Folder
C DMS(02-18-04@15.40)		File Folder
C DMS(02-18-04@16.58)		File Folder
C DMS(02-19-04@16.55)		File Folder
🛅 DMS(12-09-03@11.33)		File Folder
DMS(12-17-03@11.07)		File Folder

In this example, there are six backups in the "Backups" folder. They are time and date stamped in the folder name.

Important: Backups made with one version of DMS Server should only be restored onto the same version of DMS.

11.3 Restoring a DMS Server Backup

If DMS Data needs to be restored from a backup, the following should be done:

- Make sure the DMS Server software is installed on the machine where the data is being restored. (The restore utility will then restore the Data backup into the DMS Server software and database)
- 2) Run the Backup utility:



Once the backup utility is run, click on the "RESTORE" tab:

🗃 DMS Backup Utility	X
BackUp Restore	
Path to Backup Folder :	
Path to DMS Server Folder :	
U:\Program Files\ABB\DMSServer	
Restore	

The "DMS Server Path" is the location where the DMS Server was installed. This should only be changed if the DMS Server was installed in a different directory or hard drive.

Browse for Folder
Select A Directory
🖻 🛅 DMSBackupUtility 🛛 🔺
🖻 🖓 🧰 DMSBackupUtility
🖻 🗁 Backups
DMS(05-13-05@14.38)
DMSServer
🕀 💼 Adobe
🕀 🛅 Autodesk
🗈 🛅 Autodesk Volo View
🕀 🗁 Broadcom 🍡
Readcom Advanced Control Suit
OK Cancel

The "Path to Backup Folder" is the location of the backed up DMS folder. In the below example, the backup done on 05/13/2005 at 2:38PM is selected for restore:

Once OK is clicked, the selected path is shown:

🗃 DMS Backup Utility	
BackUp Restore	
Path to Backup Folder :	
C:\Program Files\ABB\DMSBackupUtility\Backups\DMS(05-13-05@14.38)	
Path to DMS Server Folder :	
C:\Program Files\ABB\DMSServer	
Restore	

Click the "RESTORE" button to begin the Restore process.

If the restore is made onto the same computer and hard drive, users can login to a DMS client and see the recovered data. If a new machine or hard drive is being restored as part of a recovery procedure, then the DMS Server needs to be re-activated by contacting ABB. Refer to chapter 13 for contact information.

12.0 DMS Terminology

The following is a definition of terms used in conjunction with DMS. Other industry definitions may exist for some of these terms; however, the following are the convention that ABB has chosen for the Device Management Solution.

Action Item – An Action Item is either a configuration edit or a calibration procedure. These are managed separately by DMS, because not all DPC's have the ability to handle a HART device configuration.

Action List – The Action List is a container for Action Items that can be created and named by the user. Commonly, the Action List is named after a Work Order number and contains Action Items to be executed per that Work Order.

Adjust To – If a test point fails, the Adjust To value is the new requirement for Maximum Allowable Error for the present calibration session. This prevents the technician from calibrating a device to be "marginally acceptable". That way, the device should not fail in the near future.

Alert Life Span – This is a System Setting that controls how long an item appearing in the Alert Log will be maintained.

Calibration Cycle – This is the period of time required for recalibration of a device. If a user defined device model does not require calibration, this parameter can be set by the user to represent the period for routine maintenance.

Calibration Equipment Pre Notice - This is a System Setting that controls how many days prior to the calibration equipment's recertification due date that an Alert will be issued.

Calibration Procedure – This is a series of test points including direction up or down the span, error and tolerance requirements, and start-up/wrap-up instructions. Calibration Procedures are user definable and can be executed manually, or via the DPC Interface on a DPC.

Calibration Procedure Terms

Conventional Device – This is any device that is not a HART Device.

Device – A device is any equipment that the user desires to model in their Division. The most common device is a process instrument. However, the flexibility of DMS allows virtually anything to be modeled and as many parameters as necessary can be assigned to define the configuration for the Device.

Device Calibration Pre Notice - This is a System Setting that controls how many days prior to a device's calibration due date that an Alert will be issued.

Device Configuration – The Device Configuration is developed based on its model and category. For HART Devices, the device configuration consists of all the parameters for the HART device as defined by ABB's DOF Technology.

Device Model Library – The Device Model Library contains all device models for DMS. For HART Devices, the Device Model is based on ABB's DOF Technology. For Conventional Devices, the Device Model is based on a standard parameter set or the User Defined parameters.

Device Object File (DOF) – this the name the ABB uses to define the device description, or in other words, the device profile. In DMS, the term Device Model is used interchangeably with DOF. All DOFs are contained in a Device Model Library. Conventional (non-HART) devices do not require a DOF, however they do require a Device Model.

Division – DMS uses the term Division to represent a process system within DMS. A Division carries with it all the standard feature sets available for managing a system of any size. Most importantly, security access rights are driven by the assignment of user's to Divisions.

Documenting Process Calibrator (DPC) - This is a Process Calibrator that has the ability to store calibration procedures and save test results and/or measurements on dedicated memory. ABB' version of a DPC is the DHH810-MFT Series Calibrator/Communicator.

Documenting Process Communicator (DPC) – This is a Process Communicator that has the ability to store device configuration data on dedicated memory. ABB' version of a DPC is the DHH810-MFT Series, Communicator.

Enterprise – DMS uses the term Enterprise to define the most encompassing entity at the top of a hierarchy for any given system modeled in DMS.

Event Life Span - This is a System Setting that controls how long in the Event Log.

Field Calibrator Interface (FCINTF) – This is an industry standard specification that defines the methods used to communicate between a DPC and PC based Software. ABB uses this standard to interface with its DHH810-MFT Series calibrator/communicator. The specification only deals with test and measurement information, not device configuration data.

Group – A Group is a set of similar Roles and associated Users. Groups associate User's with access rights of the Roles.

HART Device – This is a device that conforms to the HART Communication Foundation's HART Specification.

History – The History of a device is maintained for all activity associated with a device. The User Name and Date are recorded for each activity in the History log.

Last Calibration Date - The calibration cycle uses this date as the reference for the next calibration date.

Maximum Allowable Error – This error is defined at the Calibration Procedure level and is the maximum absolute error. If a test point error is outside this requirement, a Fail status will be applied for the Test Point and the overall Procedure.

Next Calibration Date – This date is based on the Last Calibration Date and the Calibration Cycle. However, it can be overridden to force an Alert prior to the end of the Calibration Cycle.

Number of Divisions – This is the number of test points in a span. For instance for a four point test from 0% to 100% of Span, the Number of Divisions would be 4. In this same example, if testing is done up and down the span, then there will be a total 9 test points, not 8. The 100% test point will only be taken one time.

Role – A Role is a set of access rights that can be assigned to a Group, then associated with a User to provide the User the access rights of the Role.

Service Reason – A service reason is a user definable description that is assigned to an activity for the purposes of clarification in the History Log.

System Setting – System settings are user settable parameters that control aspects of scheduling and alerting functions.

Tag –The tag is the identifying name of devices used in DMS. This tag can be up to 27 characters long. This tag identifier is used throughout DMS, in Configurations, Calibrations, and the Action List. It can be changed in the 'General' tab of a device's properties. This is NOT to be confused with the device Tag used in Hart devices

Test Point Tolerance - DMS defines this tolerance as the % of SPAN that a test point must be taken within. For instance, if a test point is required a 75%, an the Test Point Tolerance is 5%, then the test point must be taken within 70% and 80% of SPAN.

User – The System Administrator at the Enterprise level creates A User. Any number of users can be created in DMS, however the DMS Client License controls the number of concurrent users that are able to use the software at any given time.

13.0 DMS Technical Support

This User's Guide has been incorporated into the DMS Software. Most features are accessible using a "right click". Use the right click on every thing that may have an option, and pop up windows will navigate through the software.

For additional information or technical support, go to the ABB Web Site at:

http://www.abb.com

or contact Technical Support on the phone 8:00 AM to 5:00 PM EST, Monday to Friday at:

1.800.HELP.365

or, email questions to:

ins.techsupport@us.abb.com

14.0 Ordering DMS

Ordering information						
Device Management System (DMS) Software Variant digit No. 1 - 7	8 - 10	11	12	13	14	15
DHH820-DMS Catalog No. DHH820-						
Mobility Device Management System Software	DMS					
Device Management System (DMS) Software, DMS Server and Integral Client,						
1 Year Software Maintenance plus Documenting Process Calibrator /						
Communicator (DPC) Interface to DMS included.						
This feature enables users to electronically exchange calibration						
procedure and /or HART Device configuration data with DMS software through						
a RS-232 Serial Interface.						
Type 1)						
DMS Server with DPC interface (Calibration and Configuration) 2)		1				
DMS Server with DPC interface (Configuration Only) 2)		2				
No. of DMS Clients						
No 3)			0			
1 Client integral to DMS Server (Calibration and Configuration) 4)			1			
5 Clients (Calibration and Configuration) 4)			2			
10 Clients (Calibration and Configuration) 4)			3			
1 Client integral to DMS Server (Configuration Only) 5)			4			
5 Clients (Configuration Only) 5)			5			
10 Clients (Configuration Only) 5)			6			
Add 21 CFR 11 Support			<u> </u>			
No				0		
Expand Existing DHH820-DMS				<u> </u>		
New Initial Purchase						
Expand from 1 to 5 clients (Calibration and Configuration) 6)					1	
Expand from 5 to 10 clients (Calibration and Configuration) 6)					;	
Expand from 1 to 10 clients (Calibration and Configuration) 6)					2	
Expand from 1 to 5 clients (Configuration Only) 7)					4	
Expand from 5 to 10 clients (Configuration Only) 7)					-	
Expand from 1 to 10 clients (Configuration Only) 7)					6	
Expand Existing DHH820-DMS (already have 21 CER Part 11)					-	
No						
Notes:						0
1) Latest version of Mobility Interface Software CD set is included. CD sets for previous versions are available on a request basis.						
and documenting of device configuration information.	ig, uowin	Uauin	y,			
3) Zero entry of Digit 12 is required and only valid when expanding an existing DMS that has already been purchased						
4) Non-zero entry of Digit 12 is required for any new DMS purchase. These options may only be selected if Digit 11 is a one.						
6) Non-zero entry of Digit 14 is only valid if Digit 12 is zero, and requires supply of existing DMS serial number with the PO.						
These options may only be selected if Digit 11 is a one.						
7) Non-zero entry of Digit 14 is only valid if Digit 12 is zero, and requires supply of existing DMS serial number with the PO. These options may only be selected if Digit 11 is a two.						
Additional ordering information						

Catalog No.
3B277U01) 3KXD311800L0041
A200U01) 3KXD311820R4301
ncluded on CD
A201U01) 3KXD311820R4401
ncluded on CD
3KXD311820L0101
3KXD311820L0102
3KXD311820L0103

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www.abb.com/instrumentation

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