



## MasterLink R510.4 User's Guide

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# 1 About MasterLink

MasterLink R510.4 provides a single software package to configure, calibrate and access data from gas volume correctors. The software's intuitive dashboard enables users to quickly determine the overall health status of instruments. Employing standardized terminology, it makes it easy to configure and calibrate instruments, import data, and generate reports and graphs, thereby eliminating time-consuming manual effort.

The MasterLink R510.4 software employs a dashboard based design philosophy enabling users to get a one-shot status of connected devices. A gas industry first, the software can connect to the device using a choice of short-range wireless communication protocols. Its dashboard displays information about alarms, battery voltage, audit trail, configuration integrity, firmware status, time sync and live data. This helps the user understand the current condition of the connected device from a holistic point of view.

The MasterLink R510.4 software addresses the increasing adoption of mobile devices for functions like checking the health of field devices, downloading reports, instrument calibration and other activities once performed exclusively on a laptop. The software offers versatile wireless connectivity and is compatible with the latest versions of both the iOS and Android operating systems.

## 1.1 Features

MasterLink allows users to:

- Define dashboard data (auto) download settings
- Provides a wizard based calibration approach
- Enable SSL encrypted communication with site Over the Air (OTA)
- Enable BLE security
- Secure critical site data
- Download audit, event and alarm log data
- Generate reports such as:
  - Item report
  - Site report
  - Calibration report
  - Short List report
  - Audit Trail reports
  - Event Log report
  - Alarm Log report
  - Activity Log report
  - Cellular Log report
  - Diagnostic Log report

- Perform Database Administrative tasks such as
  - CSD (Comma Separated Data) Conversion
  - Import/Export instrument data
  - Import/Export site data
- Perform instrument and modem firmware updates
- Capture live data and plot graphs
- Plot graph over Audit Trail data
- Perform role based user administration for MasterLink
- Administer access privileges for device level functions by sending user table
- Configure communication settings
- Perform offline log-in configuration and send to instrument when connected

## 1.2 Security Considerations

- It is recommended to use the Cloud Link 4G modem in integrated mode with EC 350 for better Bluetooth security during pairing
- For data protection, it is recommended to provide full privileges to the *ProgramData\Honeywell\MasterLink* folder only to appropriate MasterLink users
- All files transferred to an Android device for use by MasterLink must be deleted after use to ensure that there is no data loss / leak
- It is recommended to keep the Android phone or iPhone used for MasterLink updated with the security patches released by the respective platforms
- It is also recommended to enable SSL for secure communication with MasterLink R510.4

## 1.3 Supported Device Functionality

\*CL = Cloud Link 4G Modem, PA = Pulse Accumulator, TC = Turbo Corrector,

	EC 350	CL	EC 350+CL	PA	CNI-4	Mini Max	ER-X	TCI	Mini-AT	TC	Ac Cute-st	ERX 350	ERX 350+CL	Mini	Turbo Mon	PT Mod-bus	ER	EC-AT
Item Report	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Audit Report	✓	*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	*	*	✓	✓
Alarm Report	✓	✓	✓	*	✓	✓	*	*	✓	✓	✓	✓	✓	*	*	*	*	✓
Event Report	✓	✓	✓	*	✓	✓	*	*	✓	✓	✓	✓	✓	*	*	*	*	✓
ShortList	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

\*CL = Cloud Link 4G Modem, PA = Pulse Accumulator, TC = Turbo Corrector,

	EC 35-0	C-L	EC 35-0+CL	P-A	CNI-4	Mini Max	ER-X	T-CI	Mini-AT	T-C	Ac Cute-st	ER X 35-0	ER-X 35-0+CL	Mini	Turbo Mon	PT Mod-bus	E-R	EC-AT
Report																		
Activity Report	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Diagnostic Report	*	✓	✓	*	✓	*	*	*	*	*	*	*	✓	*	*	*	*	*
Cellular Report	*	✓	✓	*	✓	*	*	*	*	*	*	*	✓	*	*	*	*	*
Send Log Configuration	✓	*	✓	*	*	*	*	*	*	*	*	✓	✓	*	*	*	*	*
Change Instrument Access Code	*	*	*	✓	*	✓	✓	✓	✓	✓	✓	*	*	✓	✓	✓	✓	✓
Send User Table	✓	✓	✓	*	✓	*	*	*	*	*	*	✓	✓	*	*	*	*	*
Send Item File	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Config Check Template	✓	*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P1 Calibration	✓	*	✓	*	*	✓	✓	*	✓	✓	✓	✓	✓	✓	*	*	✓	✓
P2 Calibration	✓	*	✓	*	*	*	✓	*	✓	✓	✓	✓	✓	*	*	*	✓	*
P3 Calibration	*	*	*	*	*	*	✓	*	*	*	*	*	*	*	*	*	*	*
Temperature Calibration	✓	*	✓	*	*	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	*	✓	✓
Firmware Download	✓	✓	✓	*	✓	*	*	*	*	*	*	✓	✓	*	*	*	*	*
Config By Item Or Group	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Audit Trail Edit	✓	*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	*	*	✓	✓
Shut Down Device	✓	*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Live Data Graph	✓	*	✓	*	*	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	*	✓	✓

\*CL = Cloud Link 4G Modem, PA = Pulse Accumulator, TC = Turbo Corrector,

	EC 35-0	C-L	EC 35-0+CL	P-A	CNI-4	Mini Max	ER-X	T-CI	Mini-AT	T-C	Ac Cute-st	ER X 35-0	ER-X 35-0+CL	Mini	Turbo Mon	PT Mod-bus	E-R	EC-AT
Administer Data	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EVC Firmware Download	✓	*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Certificate Upload	*	✓	✓	*	✓	*	*	*	*	*	*	*	✓	*	*	*	*	*
Modem Firmware Download	*	✓	✓	*	✓	*	*	*	*	*	*	*	✓	*	*	*	*	*
Time Sync	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	*	*	✓	✓
Write Items	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Active Alarms	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	✓	✓
User Management	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Generate Reports	✓	✓	✓	*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EVC Reset Battery	✓	✓	✓	*	*	*	*	✓	*	*	*	✓	✓	*	*	*	*	*

### 1.4 Supported File formats and extensions

FILE FORMAT EXTENSION												
	Item File	Item Template File	Firmware File	User Table	Short-List File	Logging Configuration	Audit Graphs	Live Graph Setting	Live Graph Values	ShortList File With Value	Certificate file	
EC 350	IE3	TE3	BIN	UT-E	CE3	LC	AGS	LGS	LGV	KE3		
Cloud Link 4G Modem	ICL	TCL	BIN	UT-E	CCL					KCL	PEM	
EC 350 + Cloud Link	ECL	TEL	BIN	UT-E	CEL	LC	AGS	LGS	LGV	KEL		
Pulse Accumulator	IPA	TPA	MMX		CPA					KPA		

FILE FORMAT EXTENSION											
	Item File	Item Template File	Firmware File	User Table	Short-List File	Logging Configuration	Audit Graphs	Live Graph Setting	Live Graph Values	ShortList File With Value	Certificate file
CNI4	INI4	TNI4	MMX/-BIN	UT-E	SNI4					KNI4	
Mini-Max	IMX	TMX	MMX		CMX			LGS	LGV	KMX	
ERX	IEX	TEX	MMX		CEX			LGS	LGV	KEX	
TCi	ITC	TTCI	TCA		CTC			LGS	LGV	KTC	
Mini AT	IMA	TMA	TXT		CMA			LGS	LGV	KMA	
Turbo Corrector	ITT	TTT			CTT			LGS	LGV	KTT	
AccuTest	ITA	TTA			CTA			LGS	LGV	KTA	
ERX 350	IER-3	TER3	BIN	UT-E	CER3	LCER3		LGS	LGV	KER3	
ERX 350 + Cloud Link	IER-3L	TER3L	BIN	UT-E	CER3L	LCER3	AGS	LGS	LGV	KER3L	
Mini	IMN	TMN			CMN			LGV		KMN	
TurboMonitor	ITB	TTB	TBX/T-8X		CTB					KTB	
PT Mod-bus	IPT-C	TPTC	PTX		CPTC					KPTC	
ER	IER	TER			CER			LGS	LGV	KER	
ECAT	IAT	TAT			CAT			LGS	LGV	KAT	

In MasterLink R510, file extensions of Cloud Link 4G Modem and EC350 + Cloud Link Integrated device have been changed as below:

File format extension				
	Item File	Item Template	ShortList	Shortlist with
	-R510	-R510	-R510	Values-R510
CloudLink	.ICL	.TCL	.CCL	.KCL
EC 350 + Cloud Link	.ECL	.TEL	.CEL	.KEL

## 2 Installation

This chapter describes the installation of MasterLink software.

### 2.1 Before you install

Here are the recommended system specifications:

#### Stand Alone Central Server Configuration

Component	Requirement
CPU	Quad Core and above
RAM	8 GB and above
Disk Space	80 GB and above
Operating System	Windows Server 2012 – SP1 (Standard, Essentials) : 64 bit Windows Server 2012 R2 –SP1 (Standard, Essentials) : 64 bit Windows Server 2016 (Standard, Essentials) : 64 bit
Database	SQL Server 2008 R2 (Standard, Enterprise) : 32 bit SQL Server 2012 (Standard, Enterprise) : 32 bit SQL Server 2014 (Standard, Enterprise) : 32 bit SQL Server 2008 R2 (Standard, Enterprise) : 64 bit SQL Server 2012 (Standard, Enterprise) : 64 bit SQL Server 2014 (Standard, Enterprise) : 64 bit SQL Server 2016 (Standard, Enterprise) : 64 bit SQL Server 2017 (Standard, Enterprise) : 64 bit
Web Server	Internet Information Server (IIS) 8.0

#### Database Server Configuration

Component	Requirement
CPU	Quad Core and above
RAM	8 GB and above
Disk Space	80 GB and above
Operating System	Microsoft Windows 2008 Standard Edition 32 bit Microsoft Windows 2008 Standard Edition 64 bit Microsoft Windows 2008 R2 Standard Edition 32 bit

Component	Requirement
	Microsoft Windows 2008 R2 Standard Edition 64 bit Windows Server 2012 – SP1 (Standard, Essentials) : 64 bit Windows Server 2012 R2 –SP1 (Standard, Essentials) : 64 bit Windows Server 2016 (Standard, Essentials) : 64 bit
Database Server	SQL Server 2008 R2 (Standard, Enterprise) : 32 bit SQL Server 2012 (Standard, Enterprise) : 32 bit SQL Server 2014 (Standard, Enterprise) : 32 bit SQL Server 2008 R2 (Standard, Enterprise) : 64 bit SQL Server 2012 (Standard, Enterprise) : 64 bit SQL Server 2014 (Standard, Enterprise) : 64 bit SQL Server 2016 (Standard, Enterprise) : 64 bit SQL Server 2017 (Standard, Enterprise) : 64 bit

**Note:** If you are using a database instance on your network, you need to have domain user permission.

#### Application/ Web Server Configuration

Component	Requirement
CPU	Quad Core and above
RAM	8 GB and above
Disk Space	80 GB and above
Operating System	Windows Server 2012 – SP1 (Standard, Essentials) : 64 bit Windows Server 2012 R2 –SP1 (Standard, Essentials) : 64 bit Windows Server 2016 (Standard, Essentials) : 64 bit
Web Server	Internet Information Server (IIS) 8.0

## Client Configuration

Component	Requirement
CPU	Dual Core and above
RAM	4 GB and above
Disk Space	40 GB and above
Operating System	<p>Windows 7 – SP2 / Convenience rollup (Professional, Enterprise, Ultimate) : 32bit, 64 bit</p> <p>Windows 8 – (Core, Pro, Enterprise) : 32bit, 64 bit</p> <p>Windows 8.1 – (Core, Pro, Enterprise) : 32bit, 64 bit</p> <p>Windows 10 – (latest build 2 months before release) : 32bit, 64 bit</p> <p>Windows Vista Standard Edition 32 bit</p>

## Mobile Recommendations

Android	<p>Android OS 4.3x, 4.4.0-4.4.4, 5.0.0-5.0.2, 5.1.x, 6.0</p> <p>RAM: 1 GB onwards Memory: 8 GB onwards</p> <p>Processor Speed: Dual-core 1 GHz onwards</p> <p>Communication BLE compatible</p> <p>General availability of Mail Client required</p>
iOS	<p>OS 7.1.x, 8.4.x, 9.1.x, 10.1.x</p> <p>Memory: 8 GB onwards</p> <p>Screen Size: 3.5 inches onwards</p> <p>RAM: 1 GB onwards</p> <p>Communication BLE capability</p> <p>General availability of Mail Client required</p>

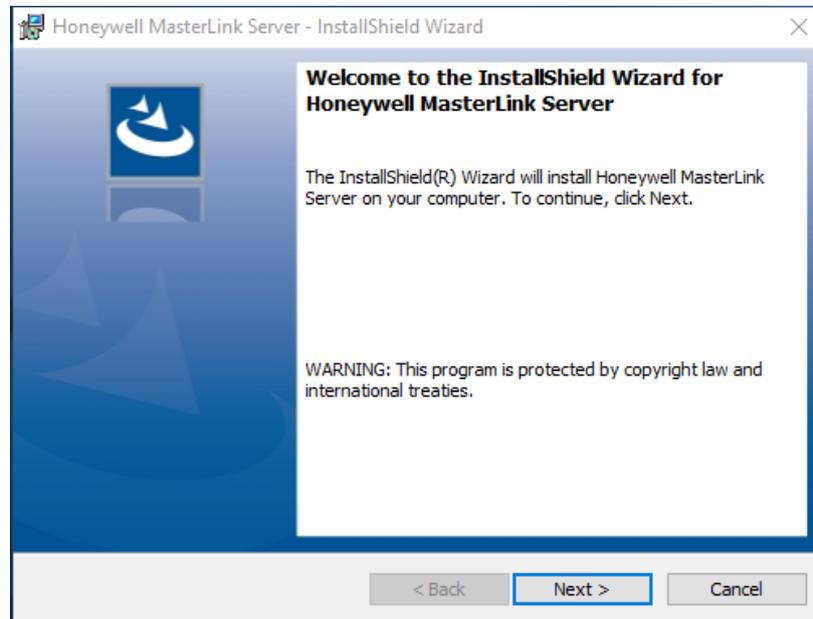
## 2.2 MasterLink Server Installation

### Prerequisites:

Administrative Privileges are required to install the application.

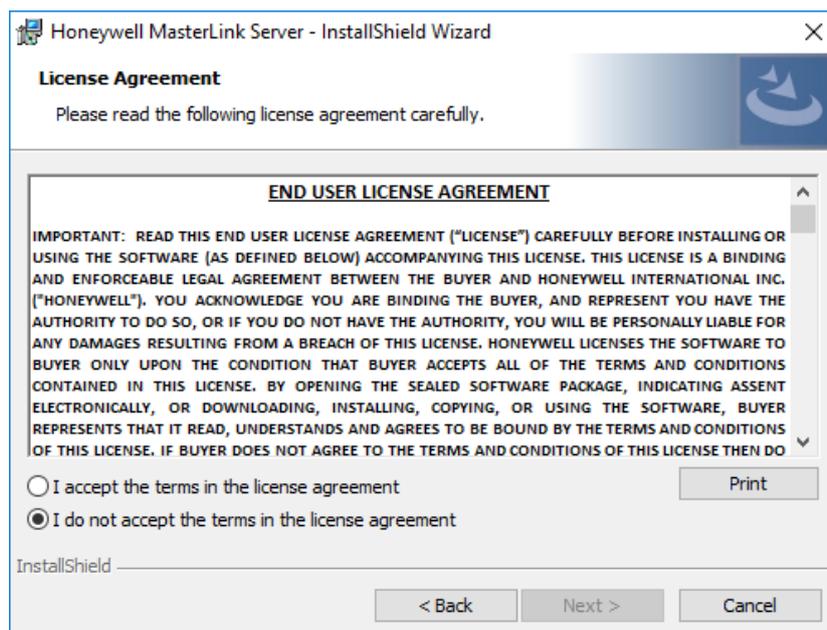
### To Install MasterLink Server:

1. Launch the installer. The *MasterLink - InstallShield Wizard* appears.

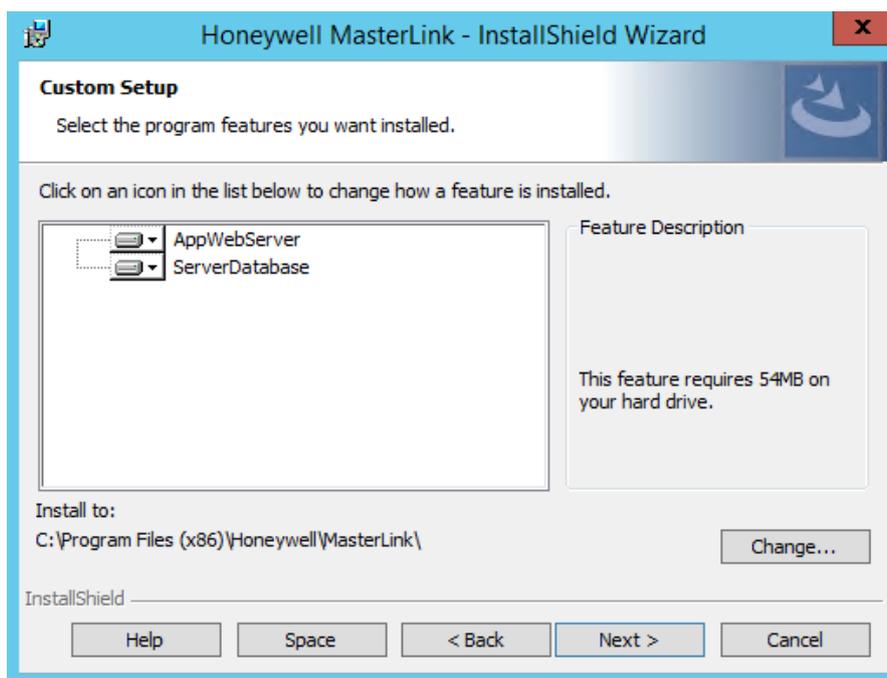


Click **Next**. The *License Agreement* page appears.

2. Click *I accept the terms in the license agreement* and then click **Next**. The *Feature Selection* page appears.



3. Unselect Client and Select both AppWebServer and ServerDatabase feature from the list and then click **Next**.

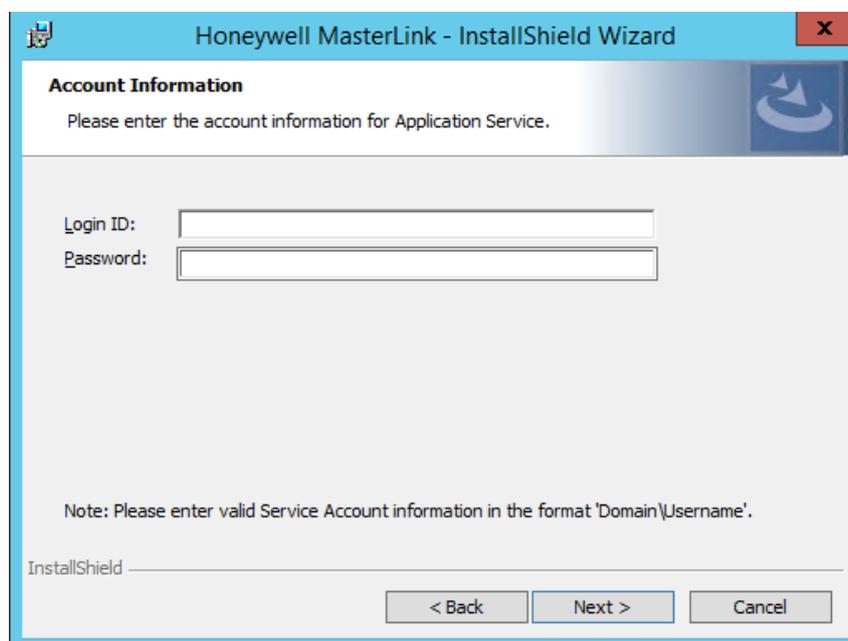


The *Login account information* page appears.

*Note : AppWebServer and ServerDatabase can be installed in separate servers (same network).*

4. Login with your administrator credentials and then click **Next**.

The *Website and Port Number details for Installation* page appears.



5. Provide the Website Name and valid Port numbers and then, click **Next**.

Honeywell MasterLink - InstallShield Wizard

**Website Information**  
Please enter the Website and Port number details for installation

Website Name:

MasterLinkServer Port No:

IdentityServer Port No:

MLAlarmsService Port No:

InstallShield

< Back   Next >   Cancel

6. You can browse and select a database on your network.

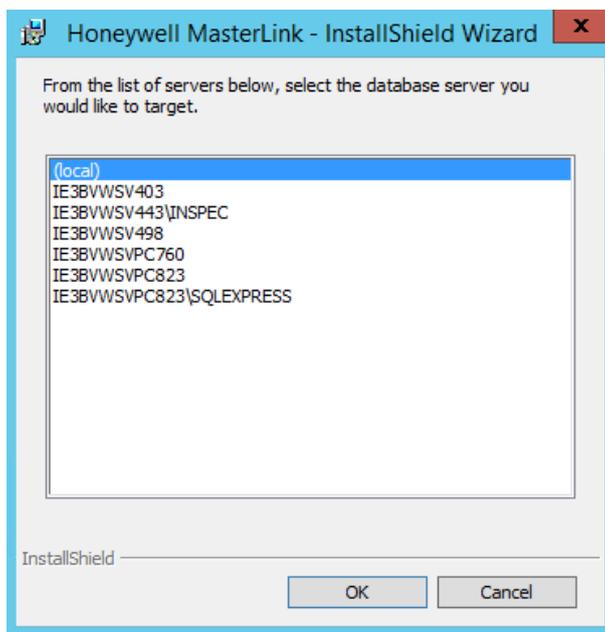
Honeywell MasterLink - InstallShield Wizard

**Database Server**  
Select database server and authentication method

Database server that you are installing to:

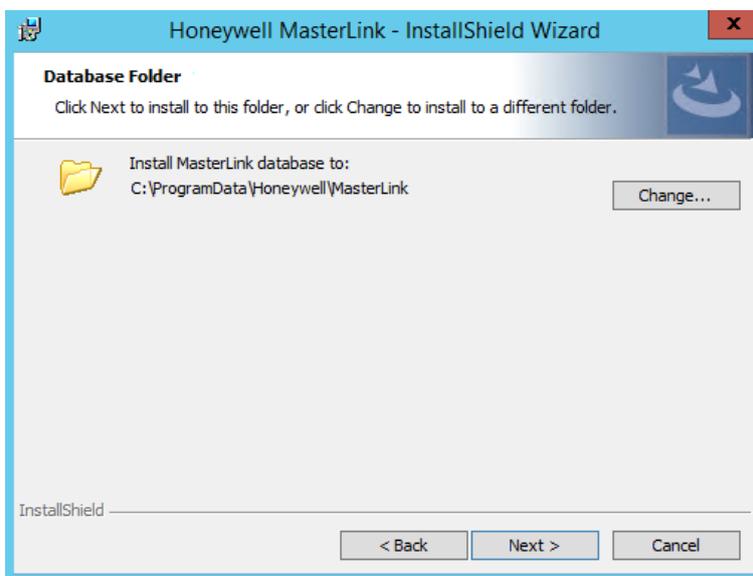
InstallShield

< Back   Next >   Cancel

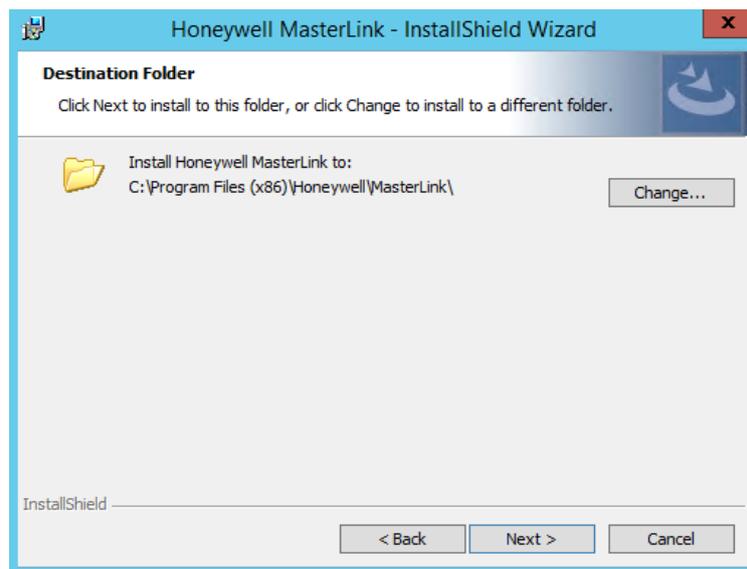


**Note:** If you are using a database instance on your network, you need to have domain user permission.

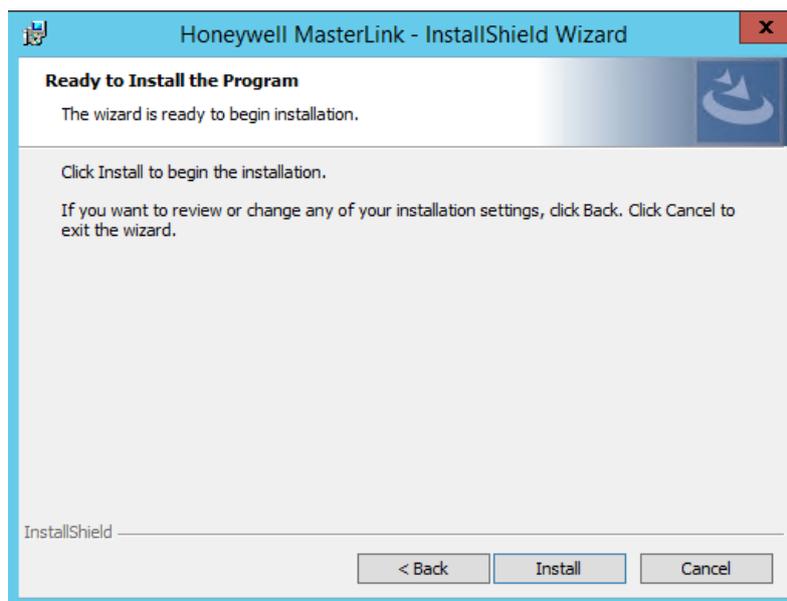
8. Click **Next**. The *Database Folder* page appears. Browse and select the folder where you want to install MasterLink database files.



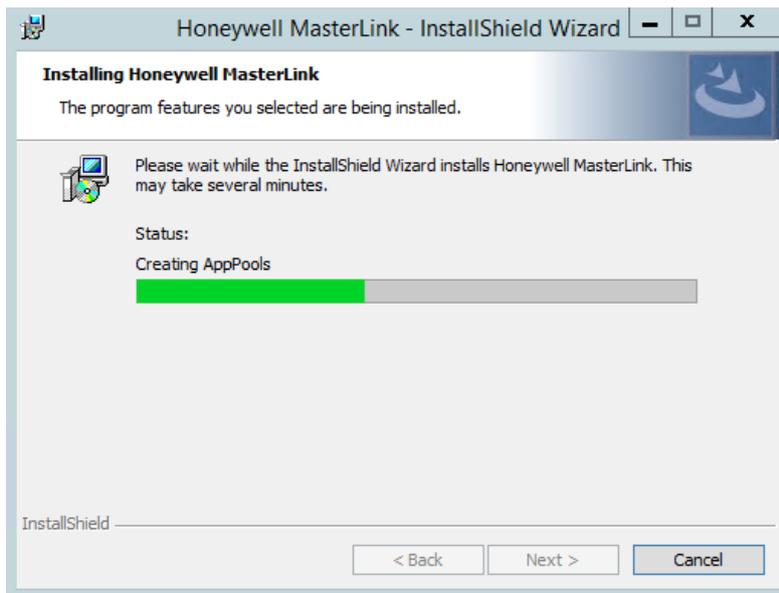
9. Click **Next**. The *Destination folder* page appears, displaying information about the default destination folder.



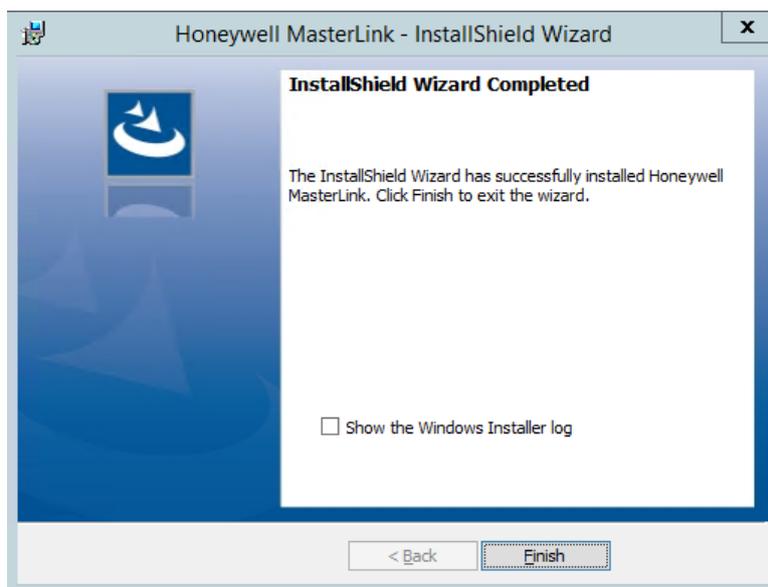
10. Click **Next**. The *Ready to install the Program* page appears.



11. Click **Install** to continue.



12. Finally, click **Finish** to complete.



**Note:** Select the check box to view the Installer log.

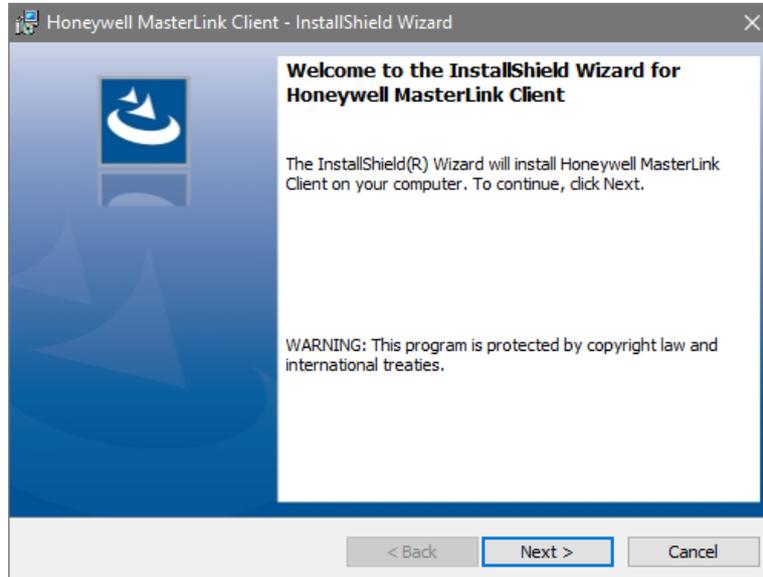
## 2.3 MasterLink Client Installation

### Prerequisites:

Administrative Privileges are required to install the application.

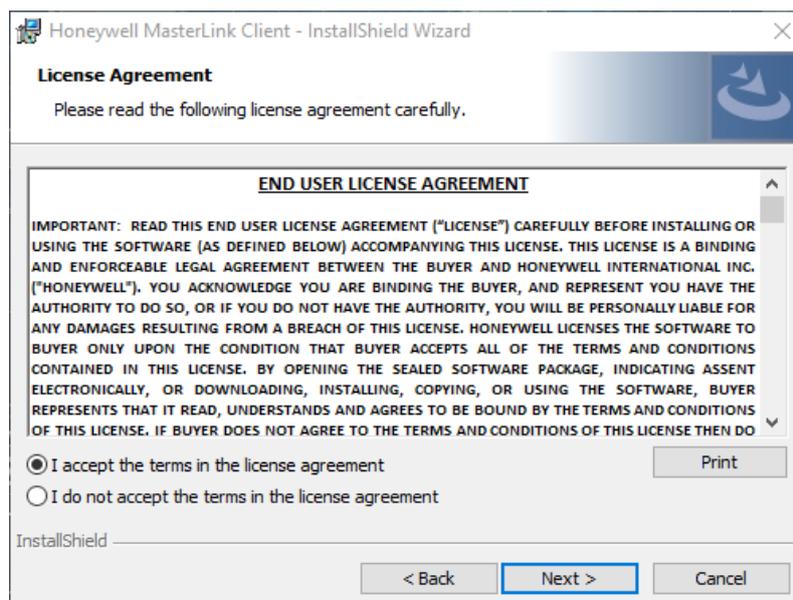
### To Install MasterLink Server:

1. Launch the installer. The *MasterLink - InstallShield Wizard* appears.



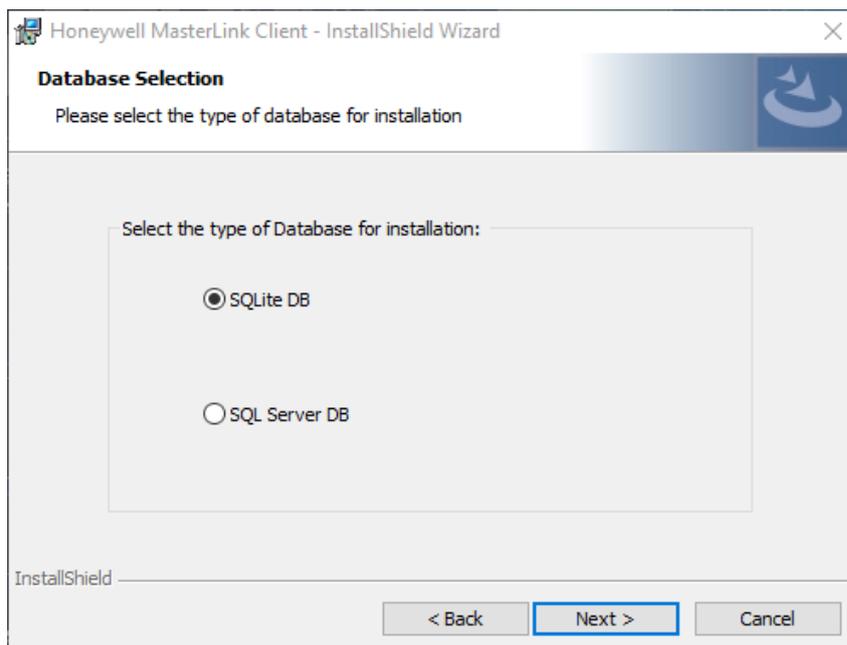
Click **Next**. The *License Agreement* page appears.

2. Click *I accept the terms in the license agreement* and then click **Next**. The *Feature Selection* page appears.



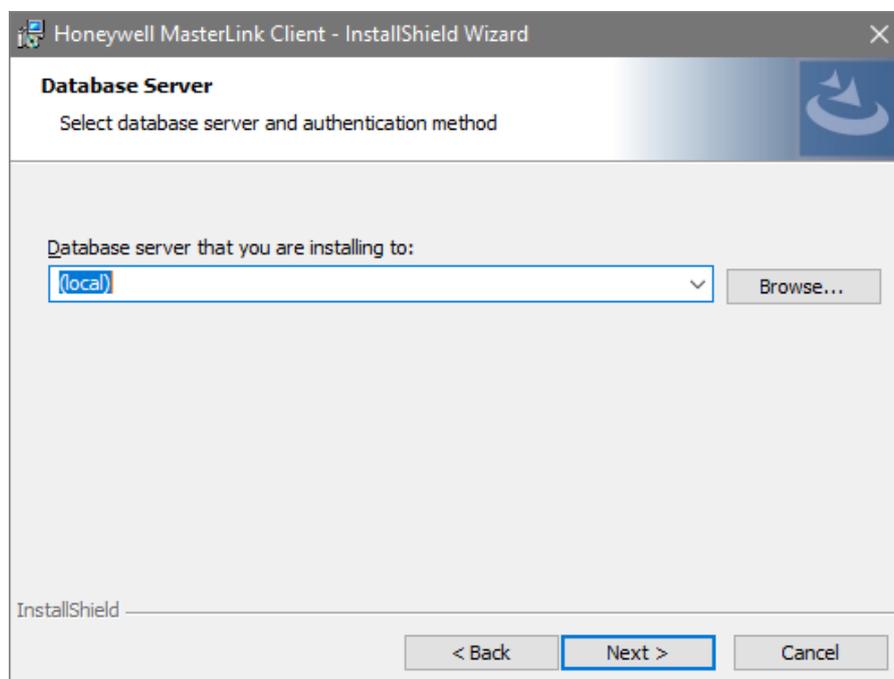
3. Select the type of Database for installation - SQLite(default) or SQL Server.

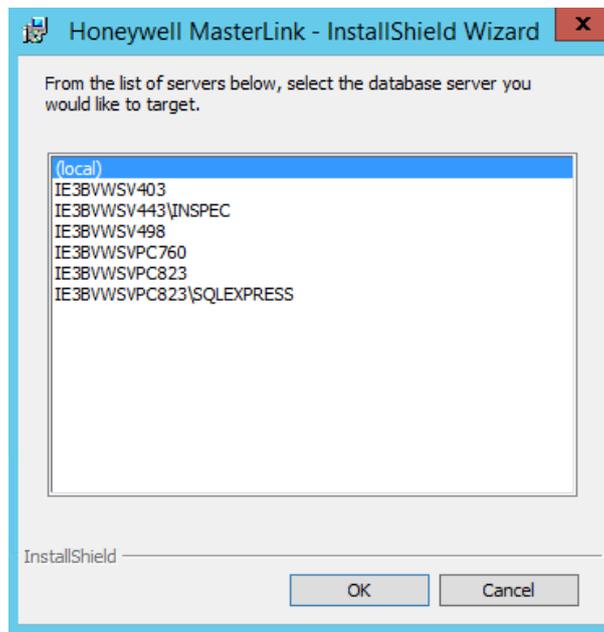
Click Next to continue.



SQLite DB is selected by default.

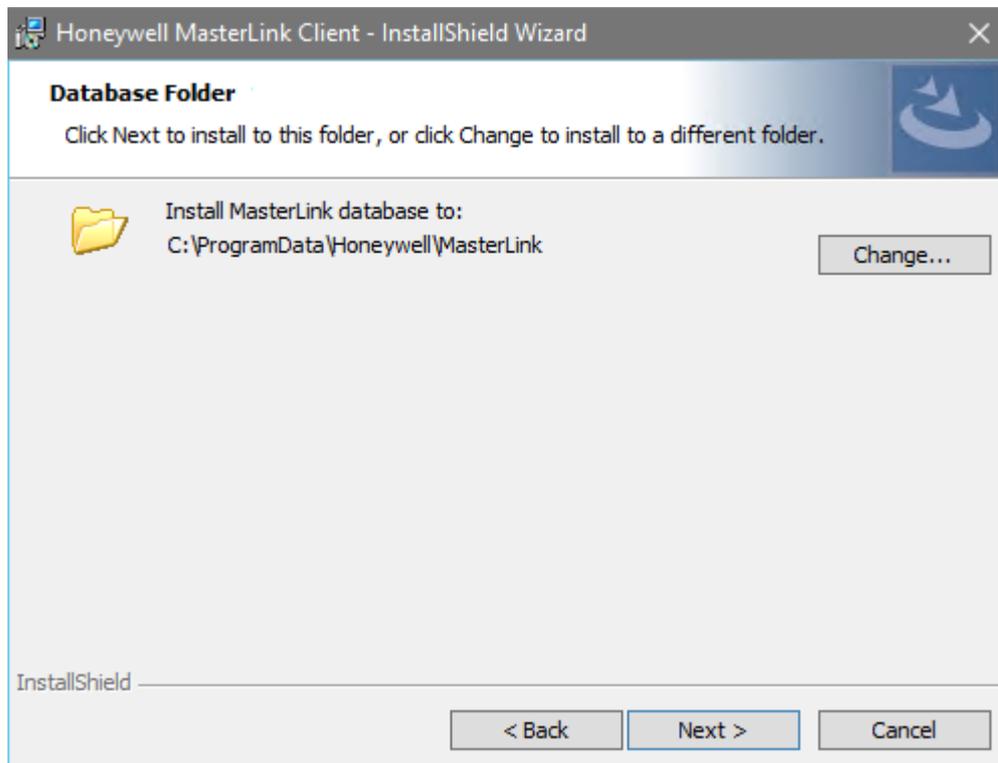
If you select SQL Server DB, then you need to browse and select a database on your network.



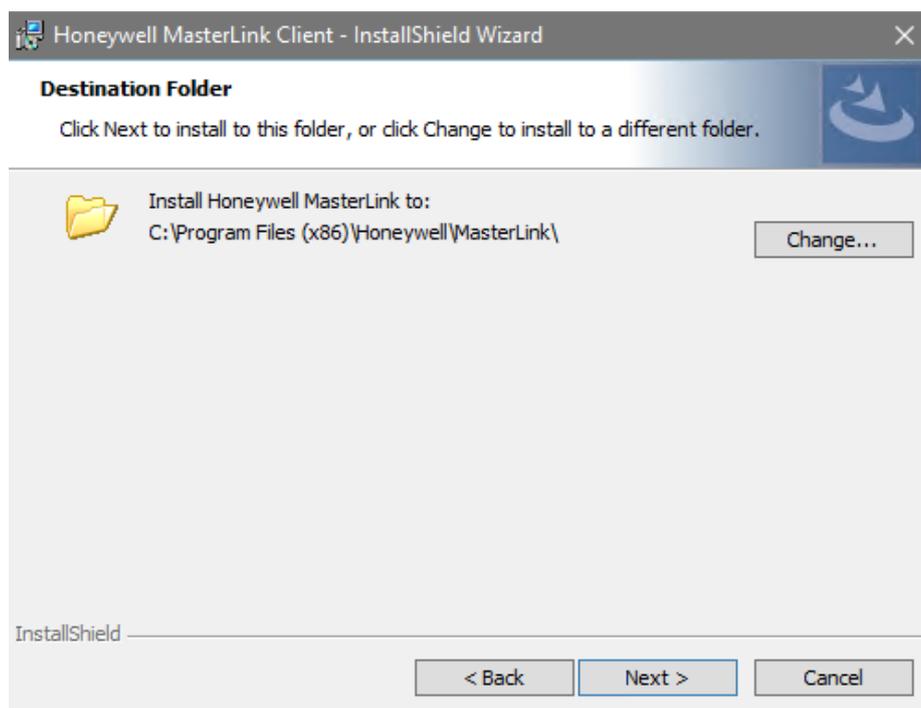


**Note:** If you are using a database instance on your network, you need to have domain user permission.

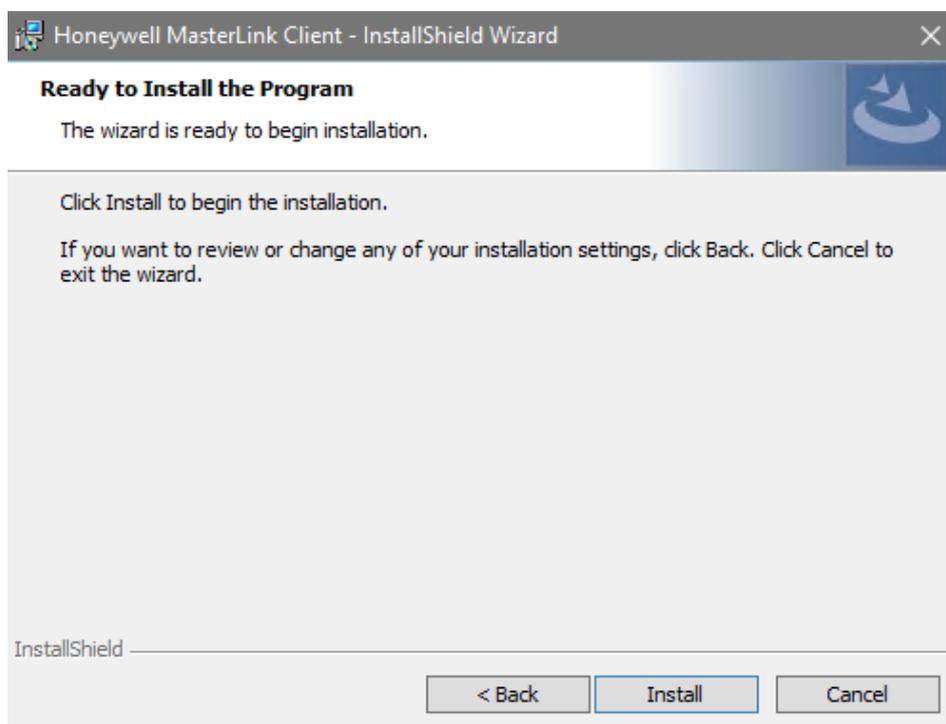
8. Click **Next**. The *Database Folder* page appears. Browse and select the folder where you want to install MasterLink database files.



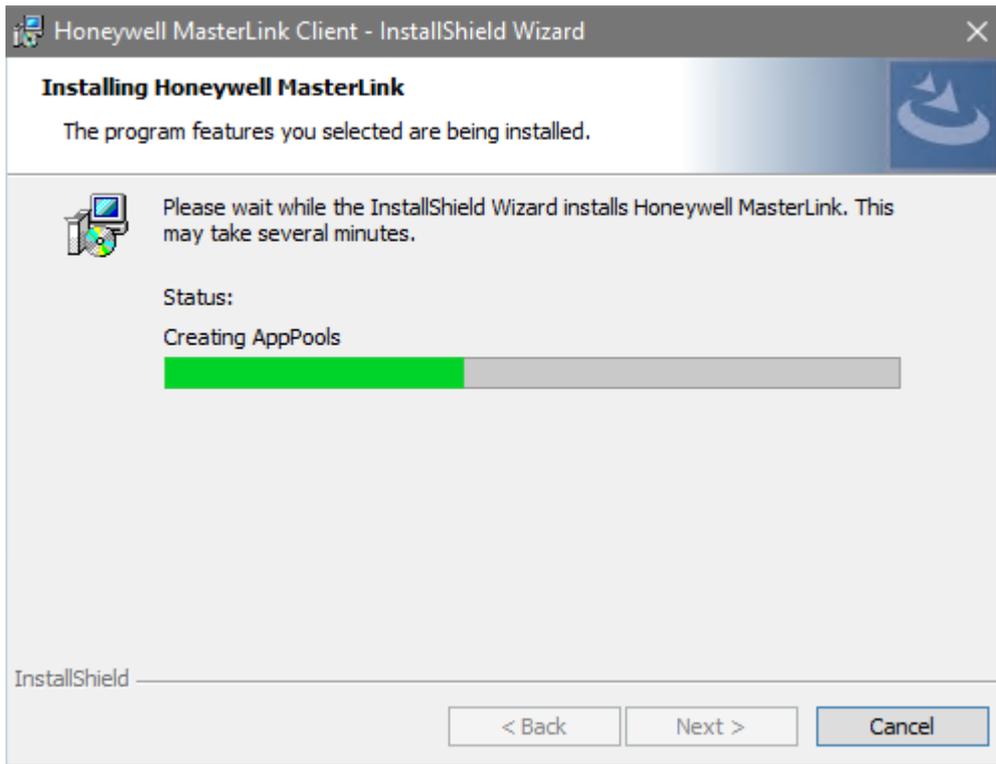
9. Click **Next**. The *Destination folder* page appears, displaying information about the default destination folder.



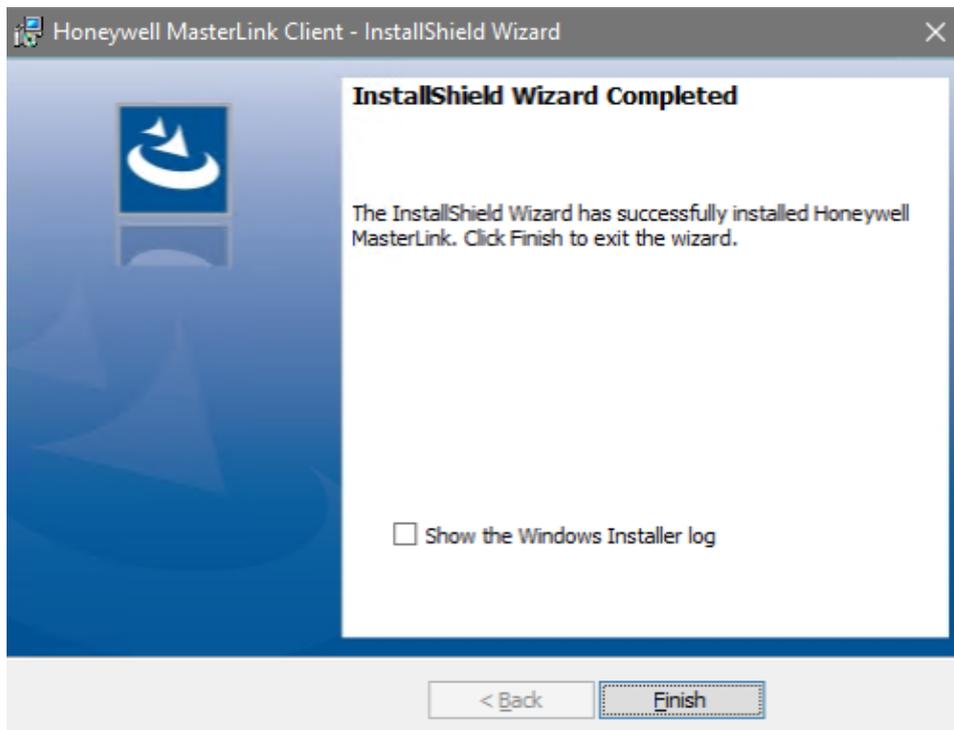
10. Click **Next**. The *Ready to install the Program* page appears.



11. Click **Install** to continue.



12. Finally, click **Finish** to complete.



**Note:** Select the check box to view the Installer log.

## 2.4 Interoperability with SuiteSQL

MasterLink R510.1 can coexist with Suite SQL.

New MasterLink R510.1 can be used with either SQL database Server or SQLite database.

If a single data source is preferred with an existing MasterLink SQL installation, please choose SQL Server as a database option during MasterLink R510.1 installation.

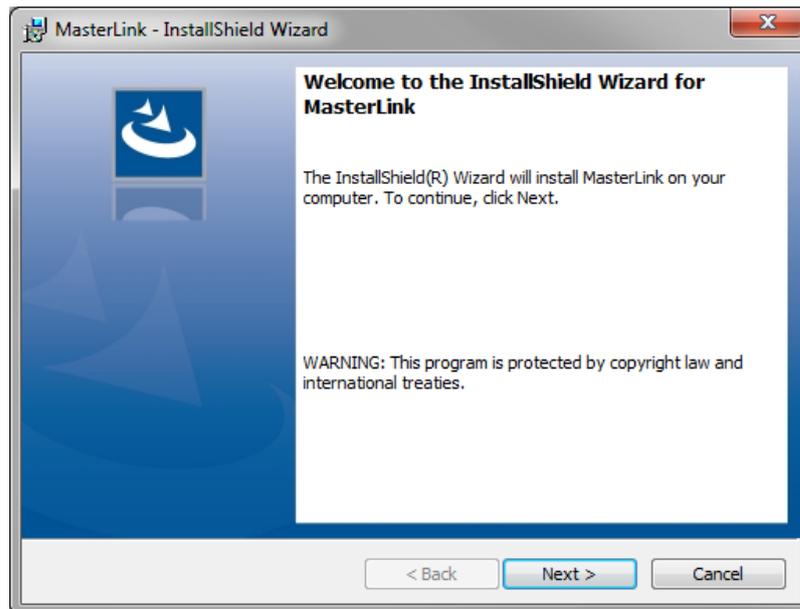
## 2.5 MasterLink Client Installation with SQL Server

### Prerequisites:

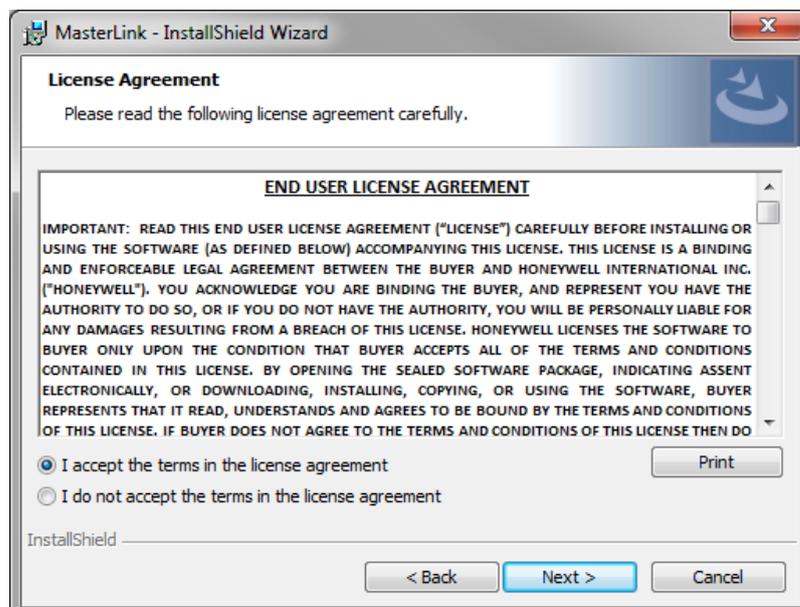
- If you are using SQL Server, then a SQL Server instance must be installed before installing MasterLink.
- Administrative Privileges are required to install the application.

### To Install MasterLink Installation with SQL Server:

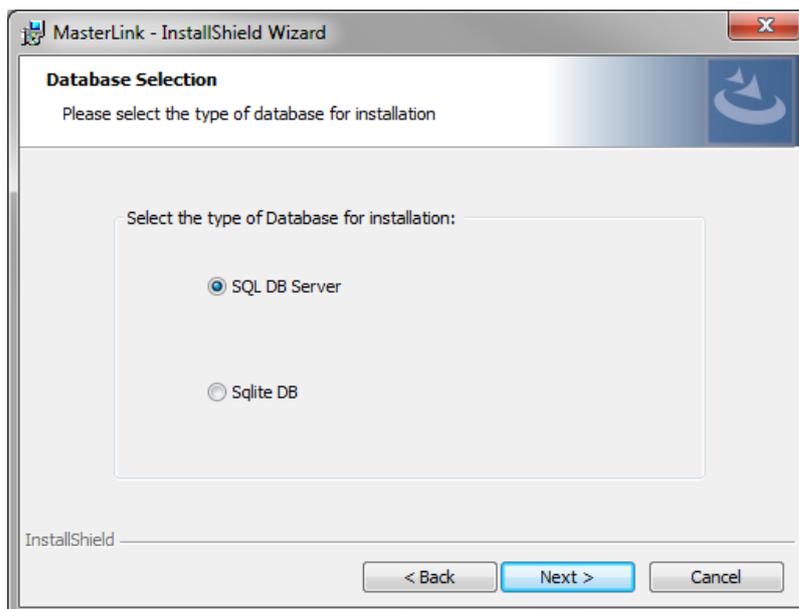
1. Launch the installer. The *MasterLink - InstallShield Wizard* appears.



2. Click **Next**. The *License Agreement* page appears.



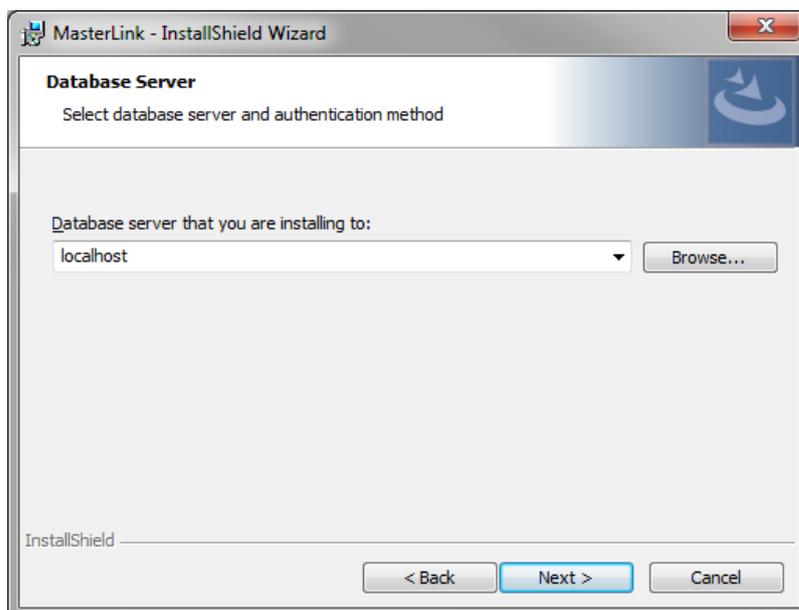
3. Click *I accept the terms in the license agreement* and then click **Next**. The *Database Selection* page appears.



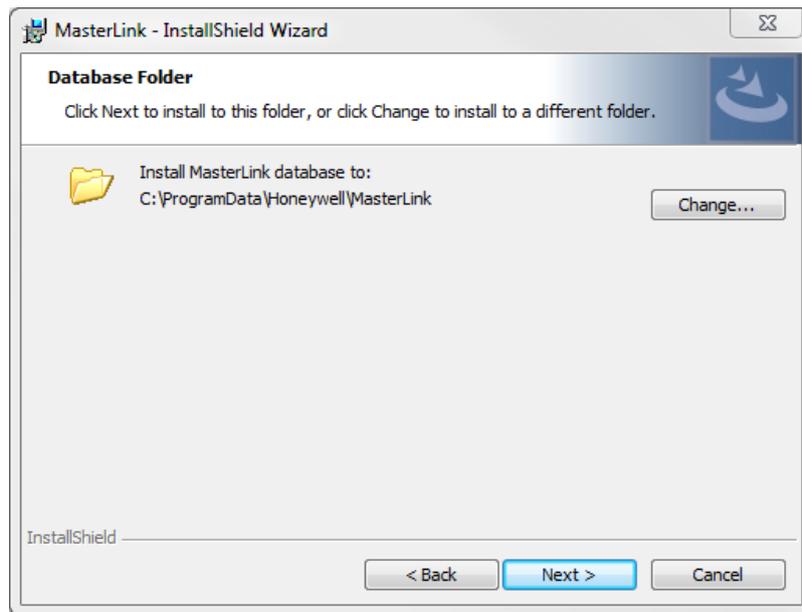
By default, *SQL DB Server* is selected.

If you choose to continue with a *SQL DB Server* for installation, then you will see the following page (as shown in step 4), where you need to select the database server instance.

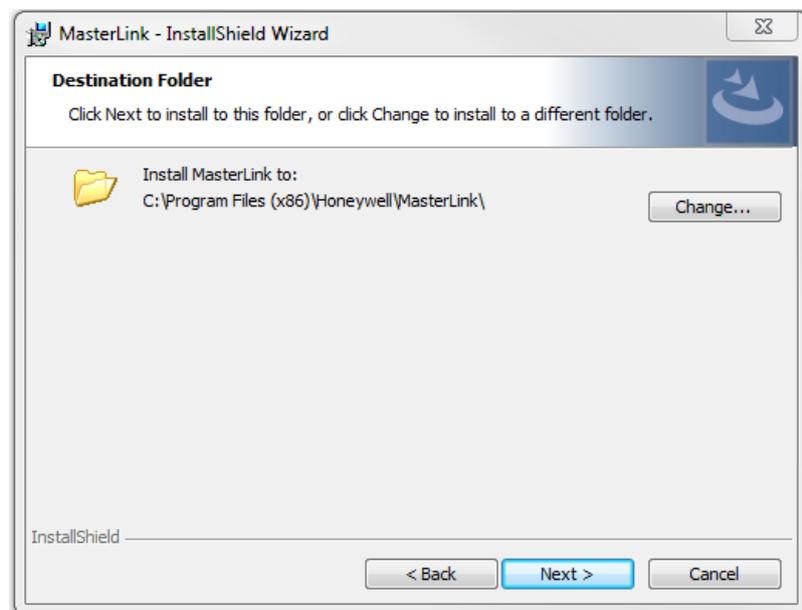
4. Click **Next** to continue. The *Database Server* page appears.



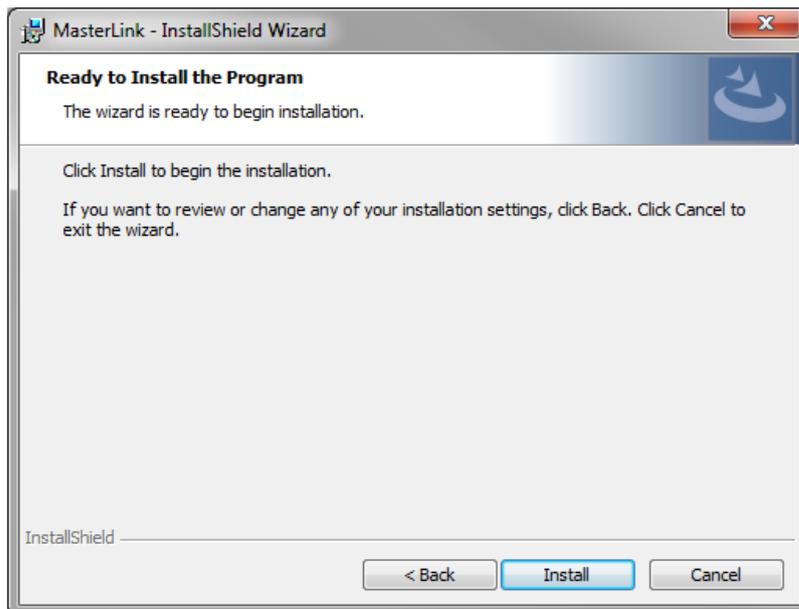
5. Click **Next**. The *Database Folder* page appears. Browse and select the folder where you need to install MasterLink and database files.



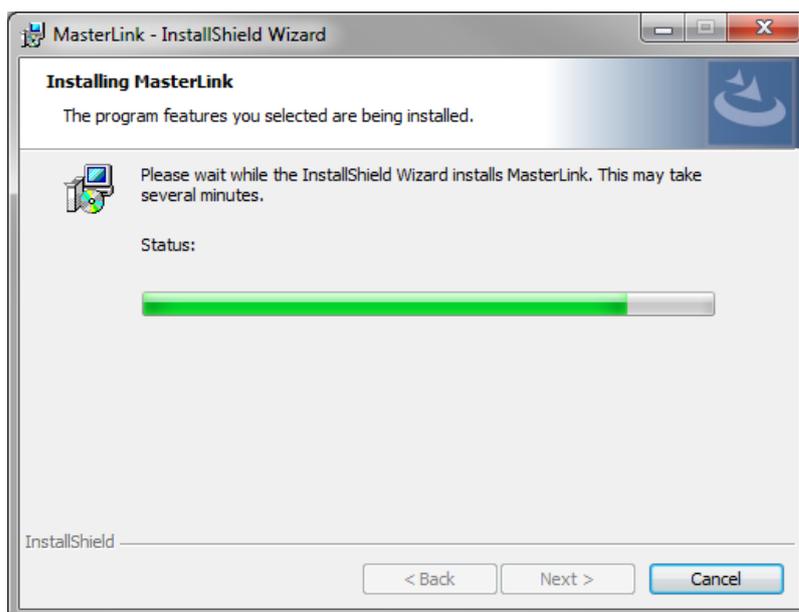
6. Click **Next**. The *Destination folder* page appears, displaying information about the default destination folder.



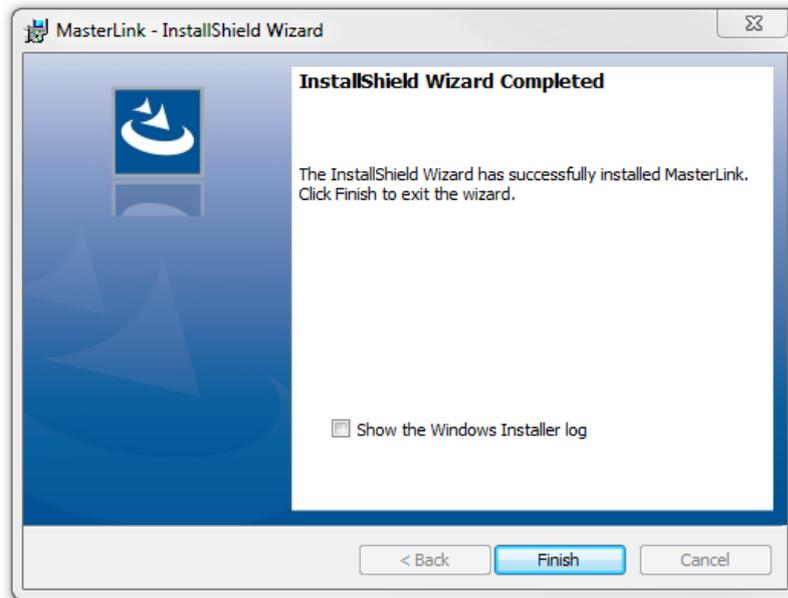
7. Click **Next**. The *Ready to install the Program* page appears.



8. Click **Install** to continue.



9. Finally, click **Finish** to complete.



**Note:** Select the check box to view the Installer log.

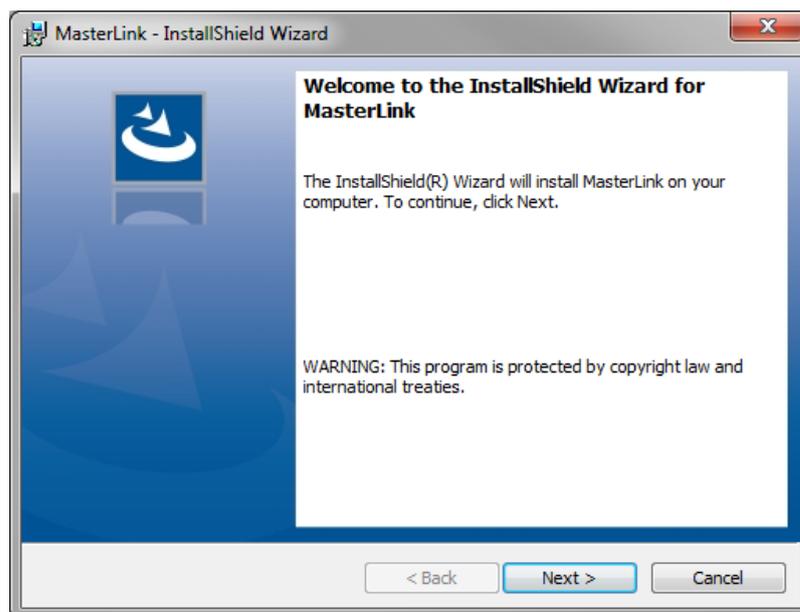
## 2.5.1 Installing MasterLink with remote SQL Server

### Prerequisites:

If you are using SQL Server, then a SQL Server instance needs to be installed before installing MasterLink R510.4 on Windows 8/8.1 or higher machines.

### To Install MasterLink with remote SQL Server

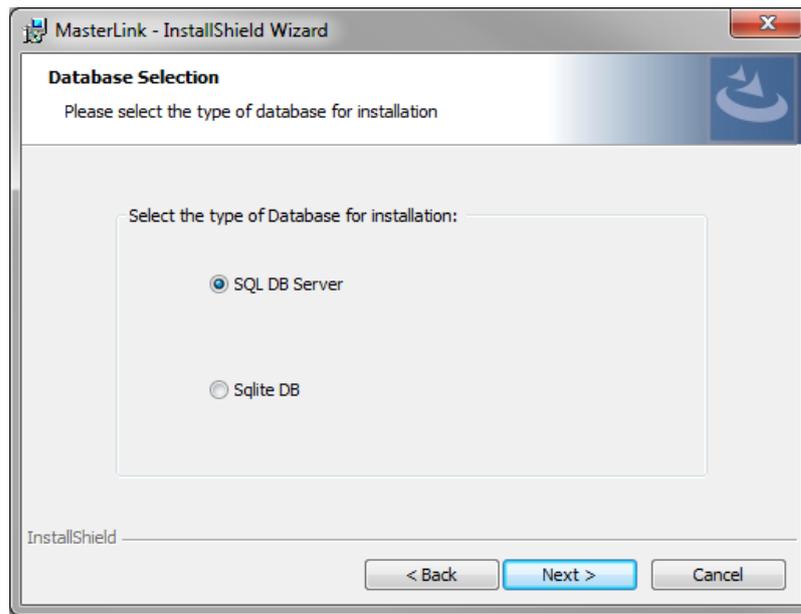
1. Right-click Setup file and then click *Run as administrator*. The *MasterLink - InstallShield Wizard* appears.



2. Click **Next**. The *License Agreement* page appears.

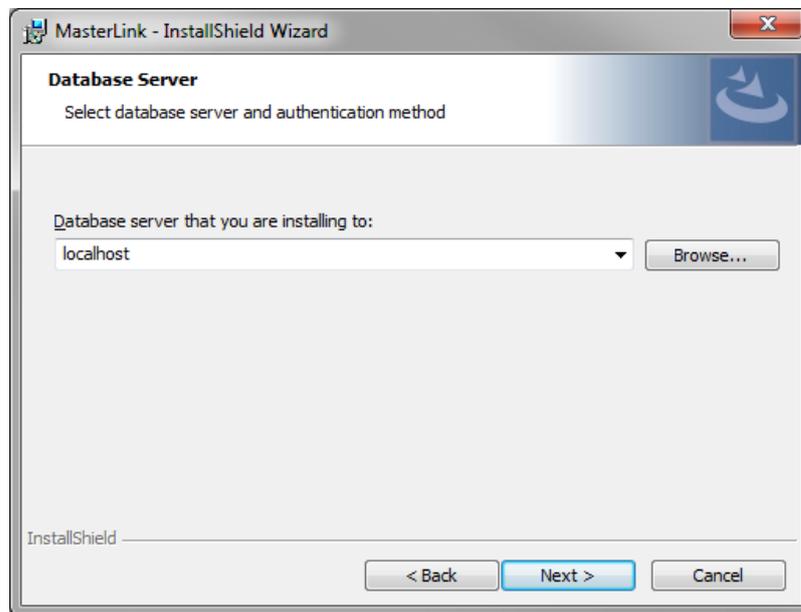


3. Click *I accept the terms in the license agreement* and then click **Next**. The *Database Selection* page appears.

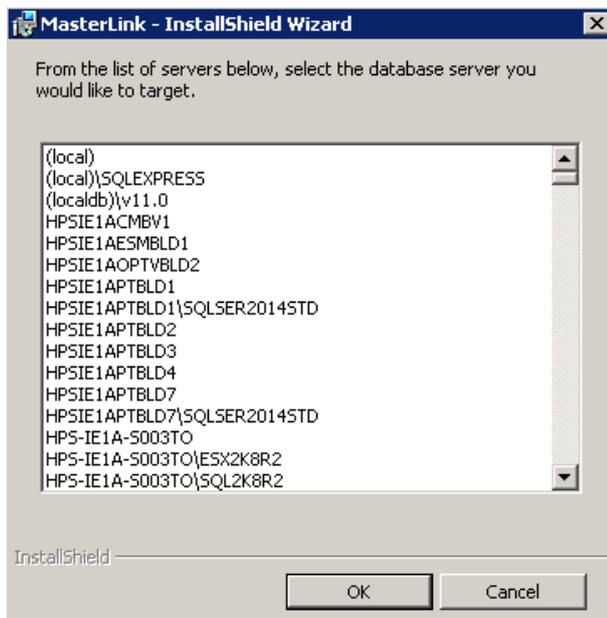


By default, *SQL DB Server* is selected. If you choose to continue with a *SQL DB Server* for installation, then you will see the following page (as shown in step 4), where you need to select the database server instance.

4. Click **Next**. The *Database Server* page appears.

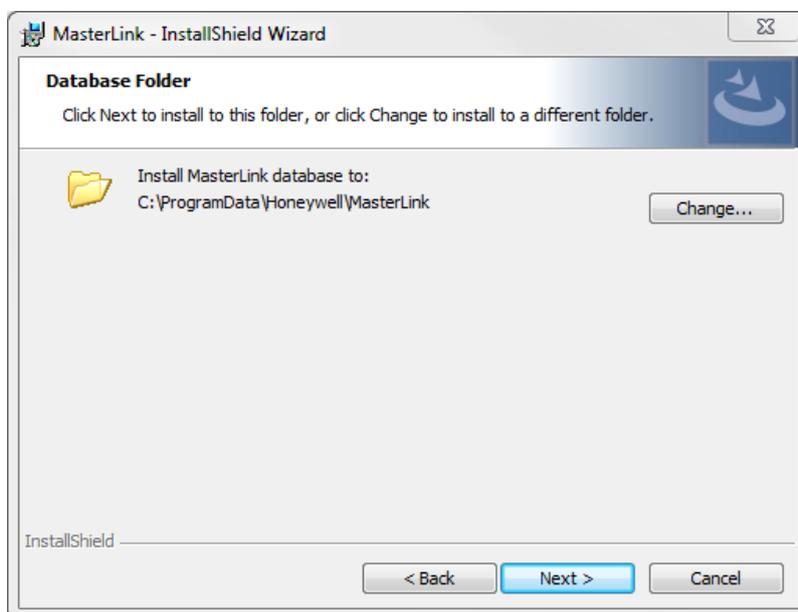


You can browse and select a database on your network.



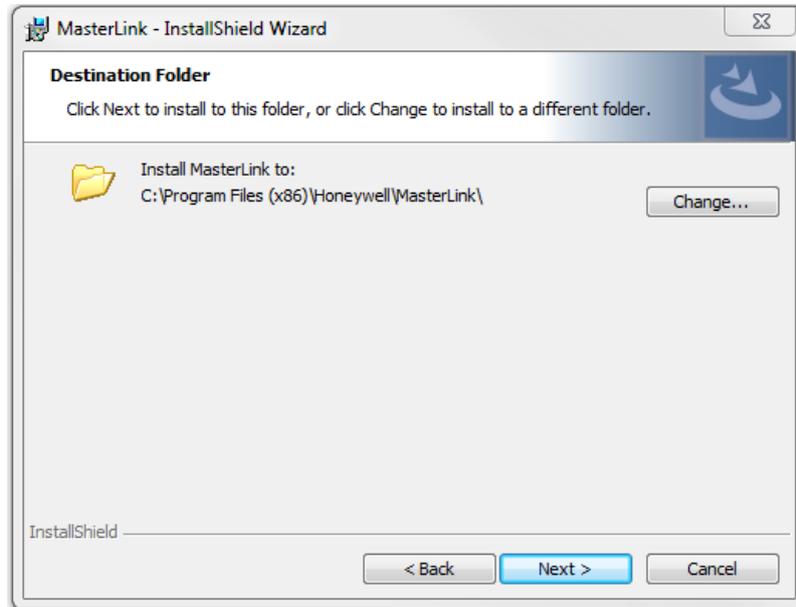
**Note:** If you are using a database instance on your network, you need to have domain user permission.

5. Click **Next**. The *Database Folder* page appears. Click on **Change** and enter the path on the remote machine where user intends to create the Database files. The path selected on remote machine should not exist on the machine where the installer is running

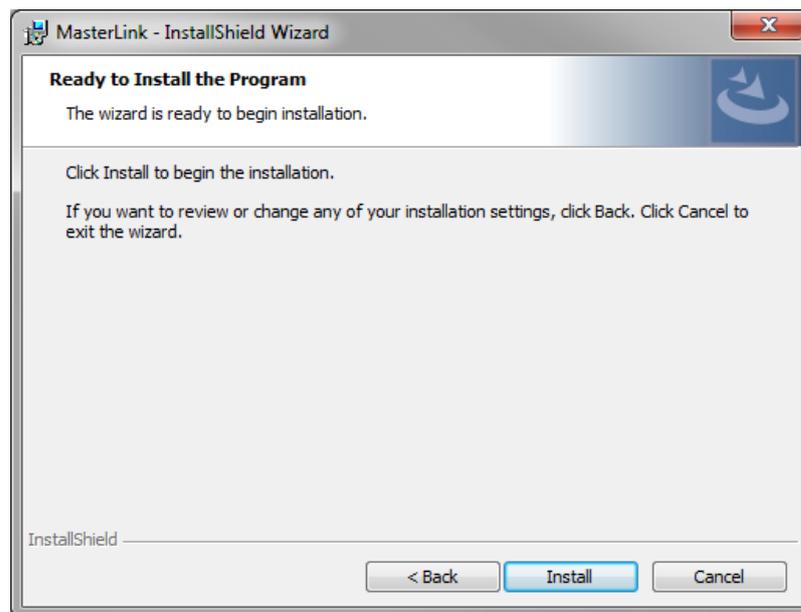


**Note:** The path selected on remote machine should exist on remote machine.

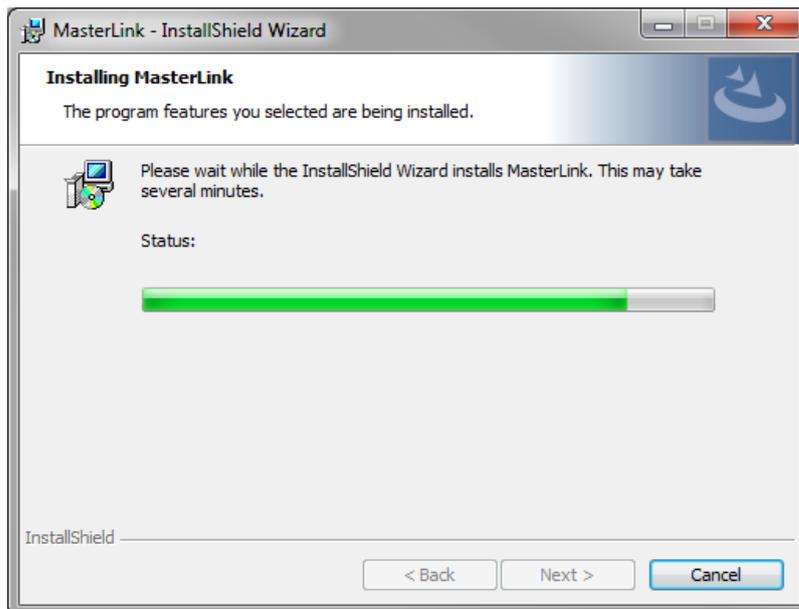
6. Click **Next**. The *Destination folder* page appears, displaying information about the default destination folder. The path selected on remote machine should not exist on current machine where installer is running



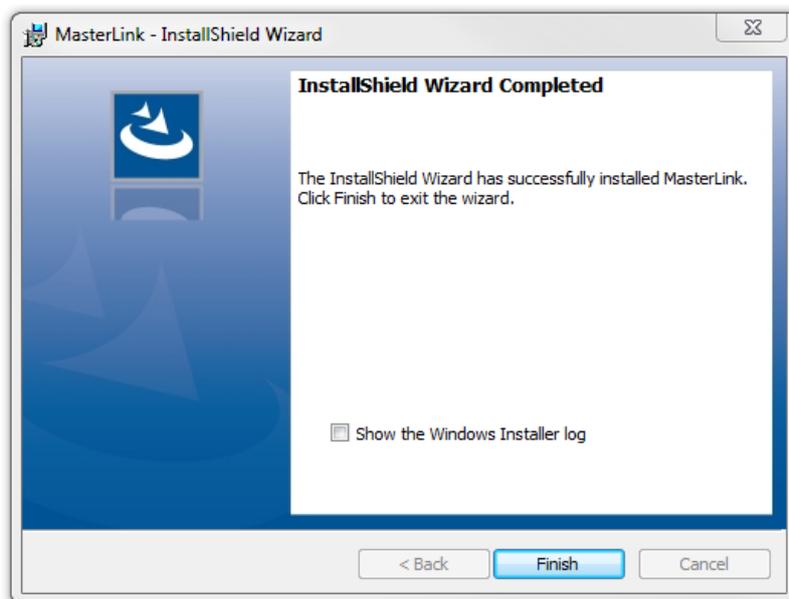
7. Click **Next**. The *Ready to install the Program* page appears.



8. Click **Install** to continue.



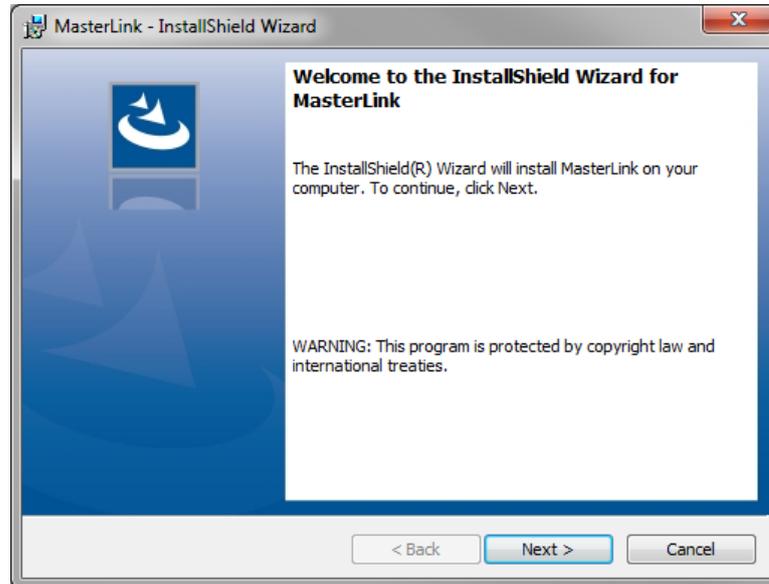
9. Click **Finish** to complete.



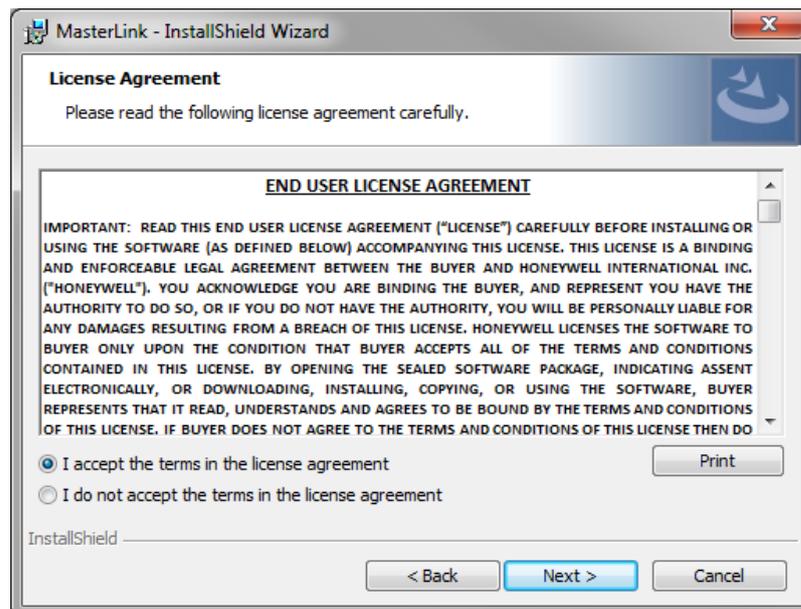
**Note:** Select the check box to view the Installer log.

## 2.6 Installing MasterLink with SQLite

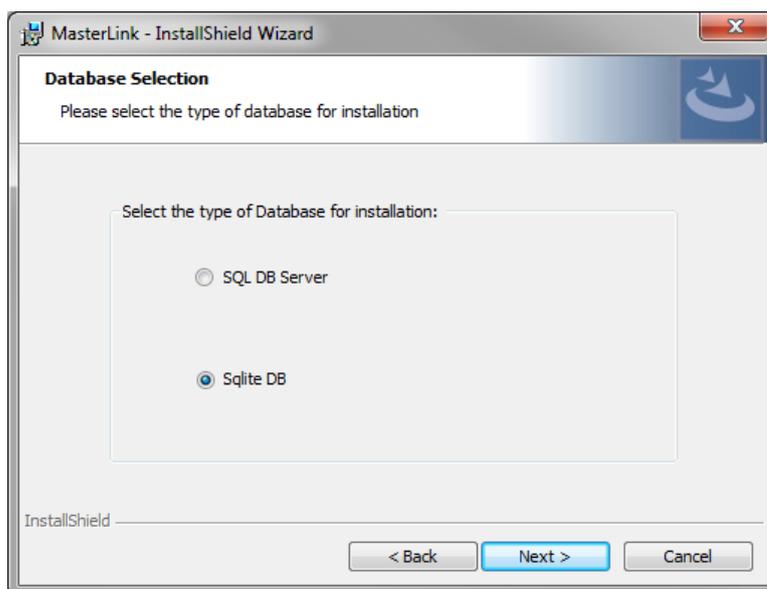
1. Right-click Setup file and then click *Run as administrator*. The *MasterLink - InstallShield Wizard* appears.



2. Click **Next**. The *License Agreement* page appears.

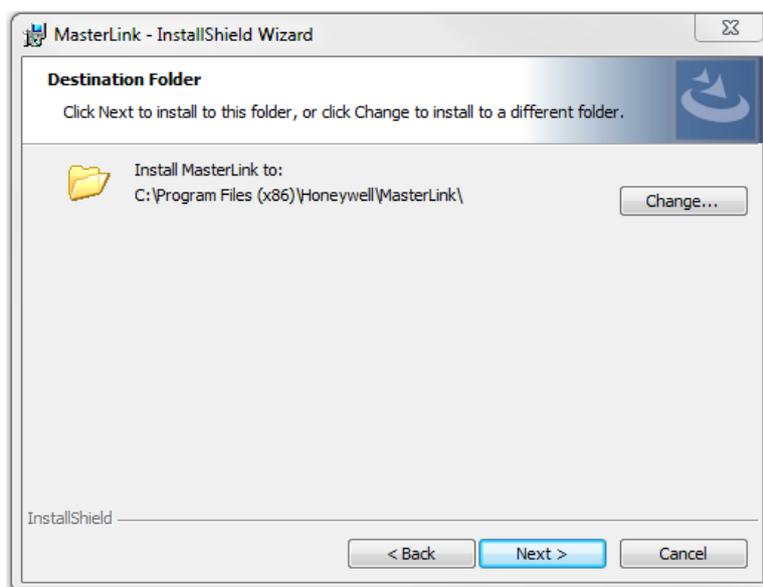


3. Click *I accept the terms in the license agreement* and then click **Next**. The *Database Selection* page appears.

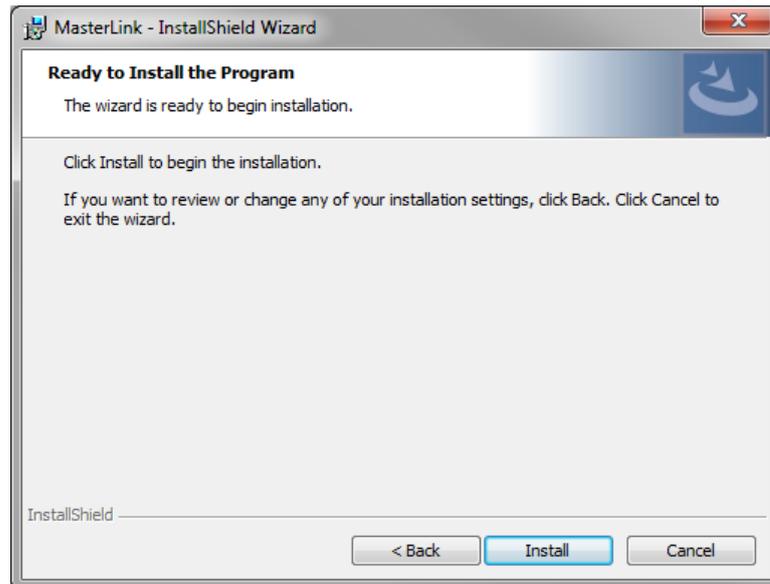


By default, SQL DB Server is selected. User is required to select SQLite DB.

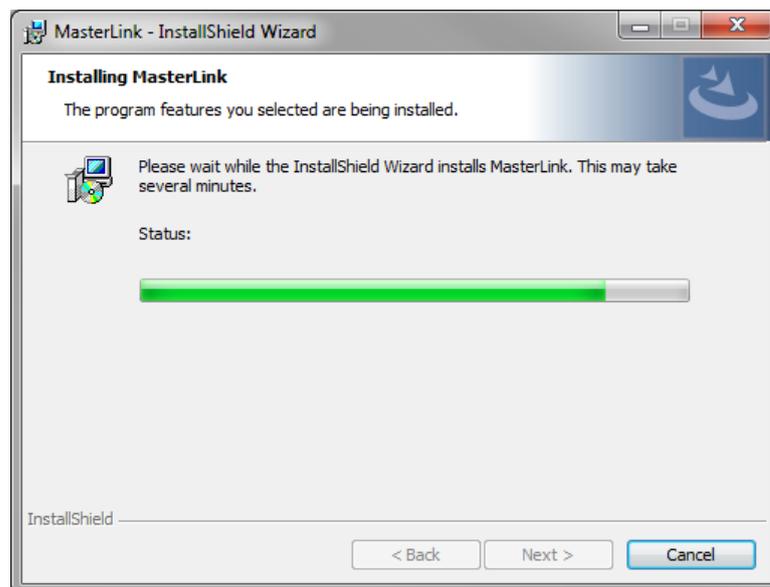
4. Click **Next**. The *Destination folder* page appears, displaying information about the default destination folder.



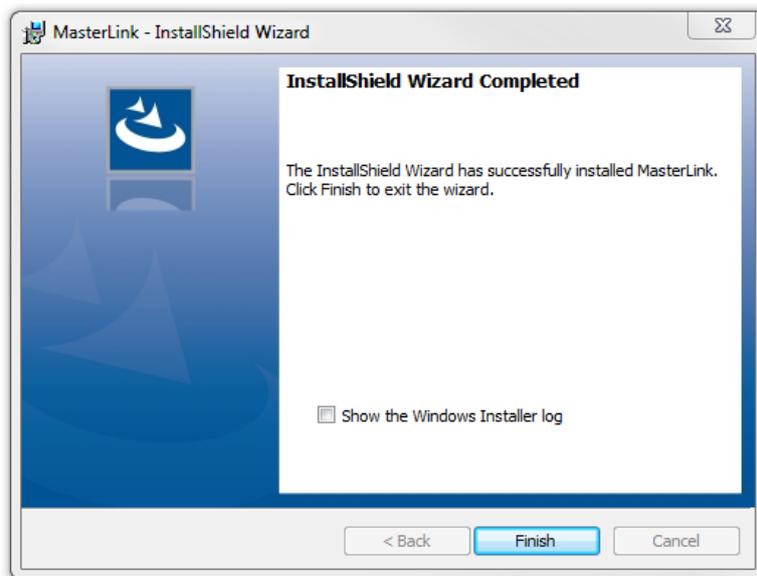
5. Click **Next**. The *Ready to install the Program* page appears.



6. Click **Install** to continue.



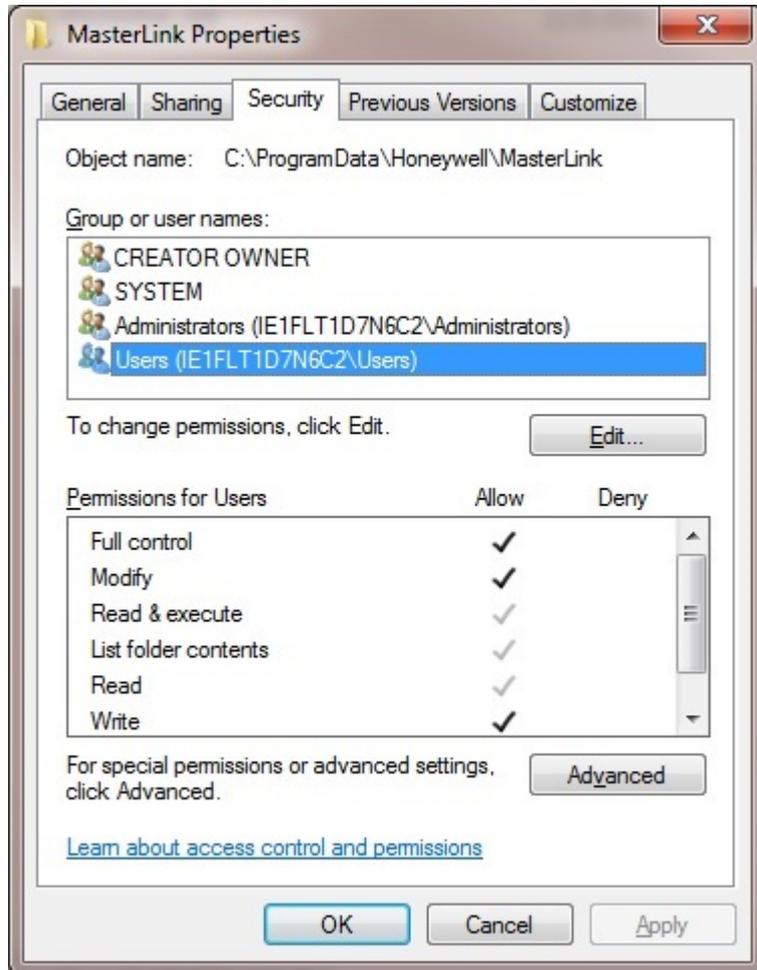
7. Click **Finish** to complete.



**Note:** Select the check box to view the Installer log.

## 2.7 Post Installation Steps

1. To log on to MasterLink application, users need access to C:\ProgramData\Honeywell\Masterlink. By default, all users under Users group has the required privileges. If a user falls under any other user group, then administrator should give “Full Control” privileges on folder “C:\ProgramData\Honeywell\Masterlink” for that particular user group.

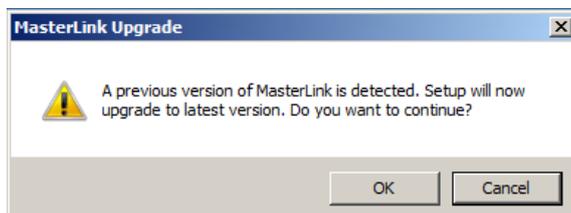


2. If SQL server is used as a database while installing the MasterLink application, then all users who will use the application must be provided DBO access on SUITE32 database.

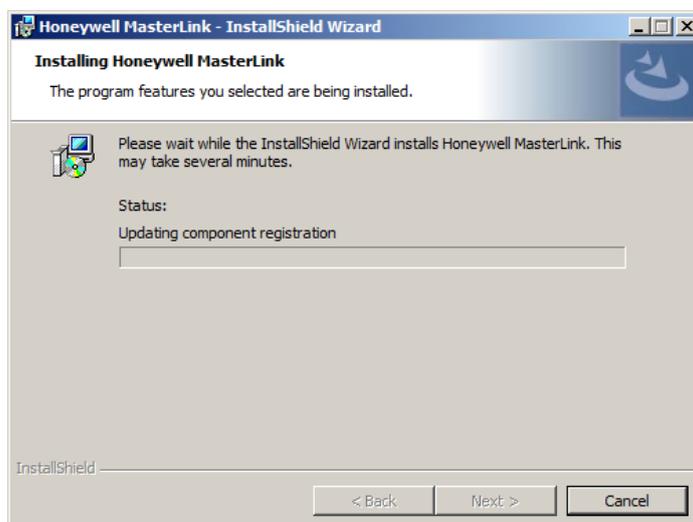
## 2.8 Upgrading MasterLink

To upgrade MasterLink R510.4 from R500.1 to R510.1:

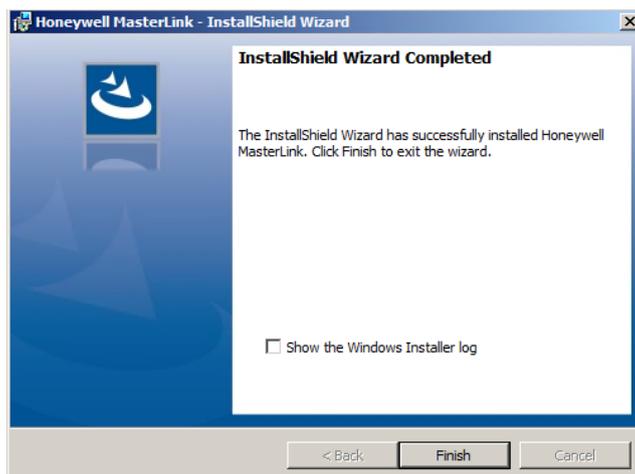
1. On the machine where MasterLink R510.4 R500.1 is installed, launch the MasterLink R510.4 R510.1 installer. The following pop-up appears.



2. Click **OK**. The installation wizard continues with the upgrade process,



3. After the upgrade completes, the following page appears. Click **Finish** to complete the upgrade.

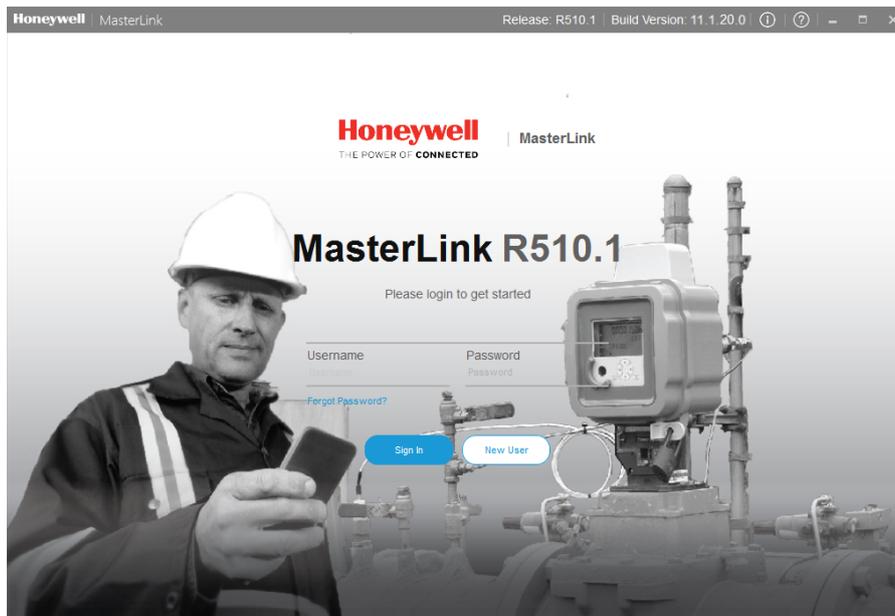


## 3 MasterLink User Interface

This chapter describes the steps of getting started with MasterLink. This chapter also explains the user interface along with the different features that are available in separate tabs.

### 3.1 Getting Started

On launching the MasterLink, you will see a screen to log on.



#### 3.1.1 User Creation and Activation Process

To start using MasterLink Application, one must create a Site Administrator user who can in turn create multiple users with different privileges based on the business requirements.

##### 3.1.1.1 Site Administrator Creation

The Site Administrator must initially get a MasterLink license from Honeywell Process Solutions | Mercury Instruments. This license key can be used to register a Site Administrator in the MasterLink Application. Contact [TAC team](#) to get your license key.

##### 3.1.1.2 Creating Users

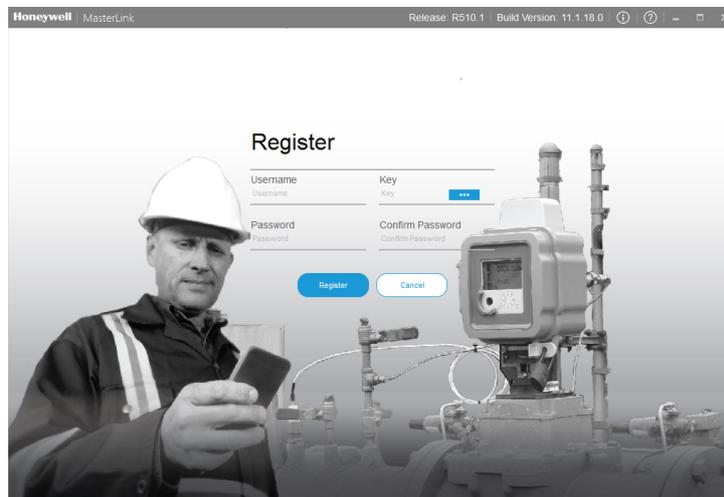
After the site administrator is registered, they can create new users using [Security](#) feature. To know more on passkey generation refer to [User Configuration](#).

For individual user, the generated license key must be emailed to the respective users allowing them to register and start using MasterLink application.

### 3.1.1.3 User Registration

For a first time user, click **New User** and register. User is required to register with license key provided by the site Administrators. The **User name** you enter while registering must match with the user name used while creating the license key.

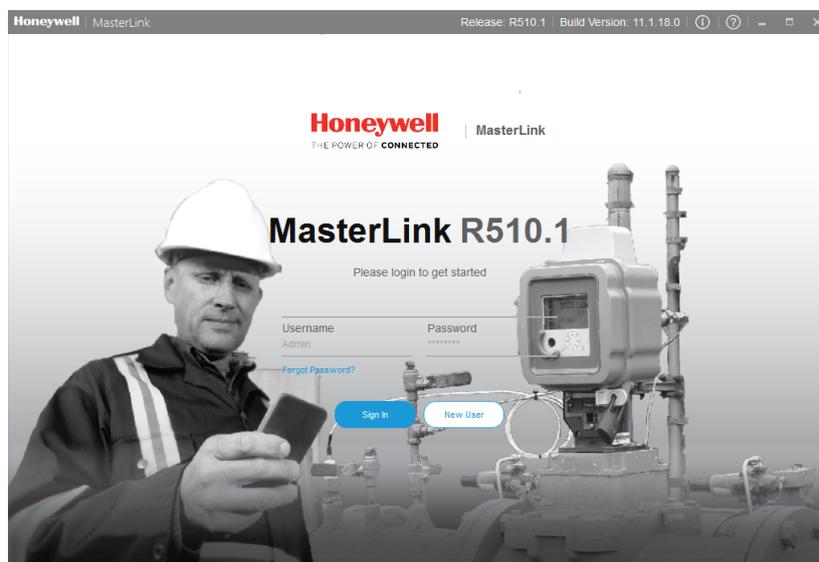
Enter the log-in details, browse and select the license key, and then click **Register**.



The screenshot shows the 'Register' screen in the Honeywell MasterLink application. The window title is 'Honeywell | MasterLink' and the version information is 'Release: R510.1 | Build Version: 11.1.18.0'. The background features a worker in a hard hat and safety vest holding a smartphone, with industrial equipment in the background. The 'Register' heading is centered. Below it, there are four input fields: 'Username' (with a sub-label 'Username'), 'Key' (with a sub-label 'Key'), 'Password' (with a sub-label 'Password'), and 'Confirm Password' (with a sub-label 'Confirm Password'). The 'Key' field has a blue button with three asterisks. At the bottom, there are two buttons: 'Register' (blue) and 'Cancel' (white).

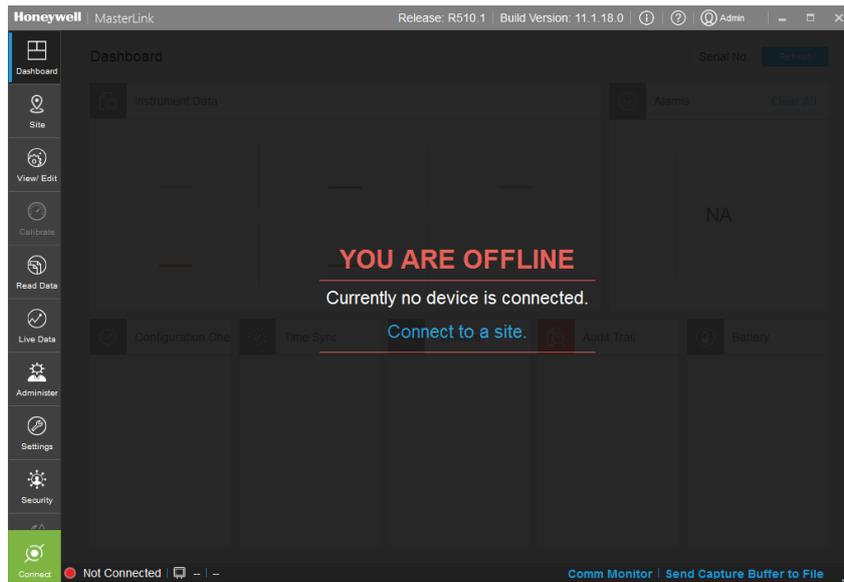
The Login screen appears.

Log on with your credentials. Click **Sign In**.



The screenshot shows the 'Login' screen in the Honeywell MasterLink application. The window title is 'Honeywell | MasterLink' and the version information is 'Release: R510.1 | Build Version: 11.1.18.0'. The background features the same worker and industrial equipment as the previous screen. The 'Honeywell' logo is at the top left, with the tagline 'THE POWER OF CONNECTED' below it. The 'MasterLink' logo is at the top right. The main heading is 'MasterLink R510.1'. Below the heading, it says 'Please login to get started'. There are two input fields: 'Username' (with a sub-label 'Username') containing 'Admin' and 'Password' (with a sub-label 'Password') containing '\*\*\*\*\*'. A 'Forgot Password?' link is below the password field. At the bottom, there are two buttons: 'Sign In' (blue) and 'New User' (white).

The following screen is displayed:



Refer **MasterLink Installation Guide** for understanding the prerequisites and installation instructions.

### 3.1.1.4 Forgot Password

If users forget their password they can reach out to the site Administrator for a new passkey. Once the key is received, users can reset their passwords by clicking the **Forgot Password** link. The Forgot Password screen appears.

Enter your user-name, browse and select the license key, and finally enter your new password. Click **Reset** to log-in with the new password.

**Honeywell** | MasterLink Release: R510.1 | Build Version: 11.1.18.0

## Forgot Password

<input type="text" value="Username"/>	<input type="text" value="Key"/>
<input type="password" value="Password"/>	<input type="password" value="Confirm Password"/>

## 3.2 Sites

The 'Sites' screen lists all sites configured in the MasterLink application. A Site refers to a field instrument such as:

1. Accutest	10. ERX 350 + Cloud Link 4G Modem
2. Cloud Link 4G Modem	11. Mini
3. CNI4	12. Mini-AT
4. EC 350	13. Mini-Max
5. EC 350 + Cloud Link 4G Modem	14. PTModbus
6. ECAT	15. Pulse Accumulator
7. ER	16. TCI
8. ERX	17. Turbo Corrector
9. ERX 350	18. Turbo Monitor

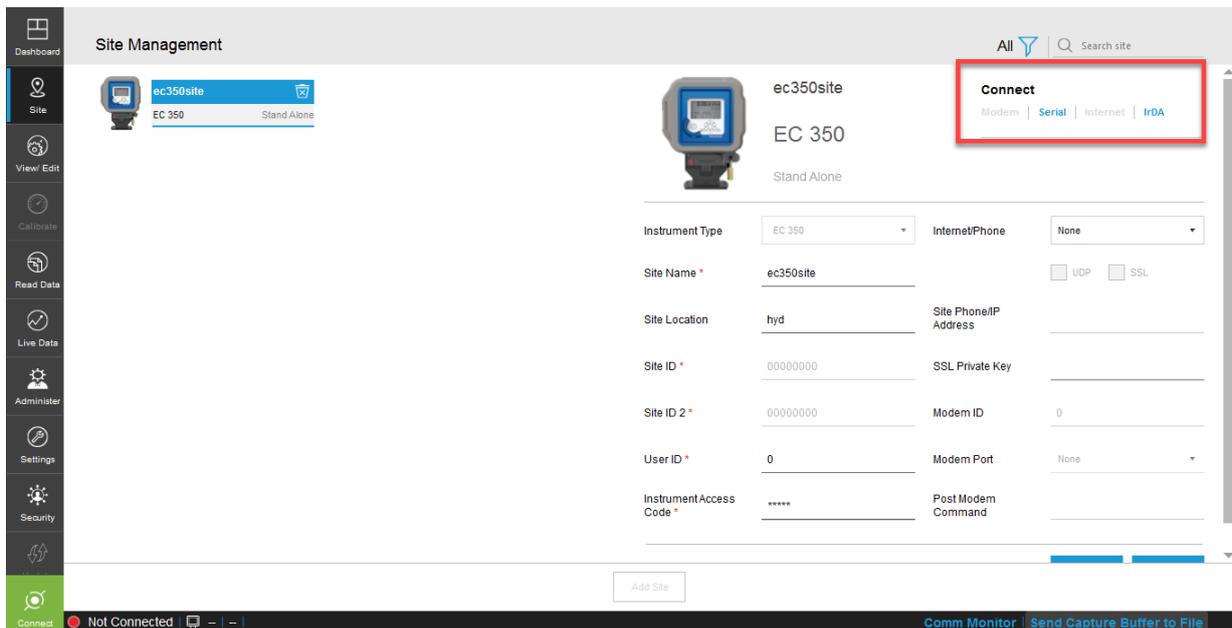
The user can also add a new Site, as well as edit or remove an existing Site. From the 'Sites' screen, users can connect to a device deployed on the field.

This section describes the steps to configure and add a site to MasterLink. It also explains how to connect and communicate with existing sites.

**Note:** In Coexistence scenario, any Cloud Link related sites that are added using New Master link will be displayed as “Unknown” sites in MasterLink.

### 3.2.1 Add Site

In the 'Site Management' screen, you can configure and connect to site.



Site can be connected and configured over the following interfaces based on deployment (device type):

	Serial	IRDA	Modem	Internet*
EC 350	✓	✓	✓	✓
Cloud Link	✓	✗	✗	✓
EC 350 + Cloud Link	✓	✓	✗	✓
Pulse Accumulator	✓	✗	✓	✓
CNI4	✓	✗	✗	✓
Mini Max	✓	✗	✓	✓
ERX	✓	✗	✓	✓
TCI	✗	✓	✗	✗
Mini AT	✓	✗	✓	✓
Turbo Corrector	✓	✗	✓	✓
Accutest	✓	✗	✓	✓
ERX 350	✓	✓	✓	✓
ERX 350 + Cloud Link	✓	✓	✗	✓
Mini	✓	✗	✓	✓
Turbo Monitor	✓	✗	✓	✓
PT Modbus	✓	✗	✓	✗
ER	✓	✗	✓	✓

	Serial	IRDA	Modem	Internet*
ECAT	✓	✗	✓	✓

\* Assuming that a cellular modem is being used.

**Note:** Before adding a new site, ensure that you have configured your communication settings under [Settings > Communications Setup](#).

Click **Add Site** to create a new site or a field device. This function is used to add site information to the Site List.

**Site Management**

EC350 + Cloud Link  
Integrated Mode

Instrument Type: EC350 + Cloud Link | InternetPhone: None

Site Name \* | Site Phone/IP Address \* |  VDP  SSL

Site Location | Site Phone/IP Address \*

Site ID \* | SSL Private Key

Site ID 2 \* | Modem ID: 0 | **Configure the site details and click **Save****

User ID \* | Modem Port: None

Instrument Access Code \* | Post Modem Command

Connected ( EC 350 ) | ec350site | 00000000 - 00000000 | | [Comm Monitor](#) | [Send Capture Buffer to File](#)

**Attention:** In integrated mode, Site IDs must be identical for device and modem. (If you are using EVC or Recorder's Site ID with 8 digits, then Modem ID should be Last 6 digits).

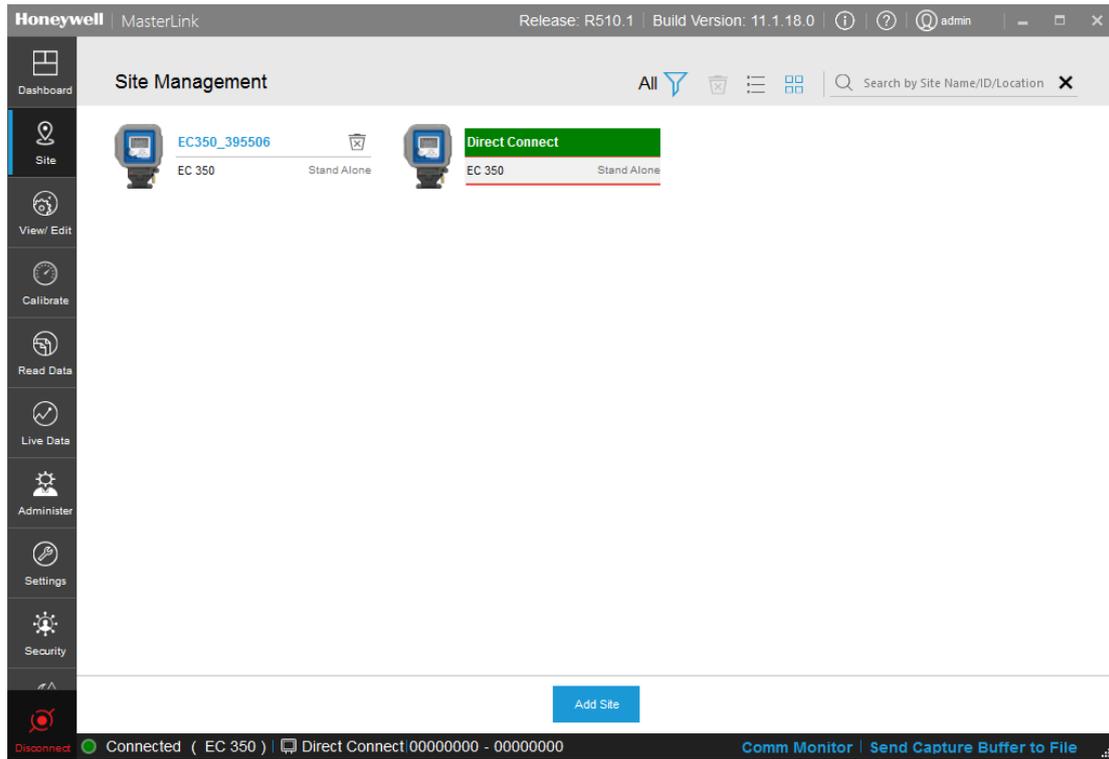
Also, an integrated site must be added in 'Integrated' mode only. Otherwise only the Cloud Link modem will be added as a site followed by a sync with the central server. A Site once created and synced with the central server cannot be deleted from the server. However, the site can be deleted from Technician's mobile app.

**Attention:** Site IDs must not be changed after it is synced with the central server. If the Site ID is changed after the sync, then the mobile iOS app may not work as expected.

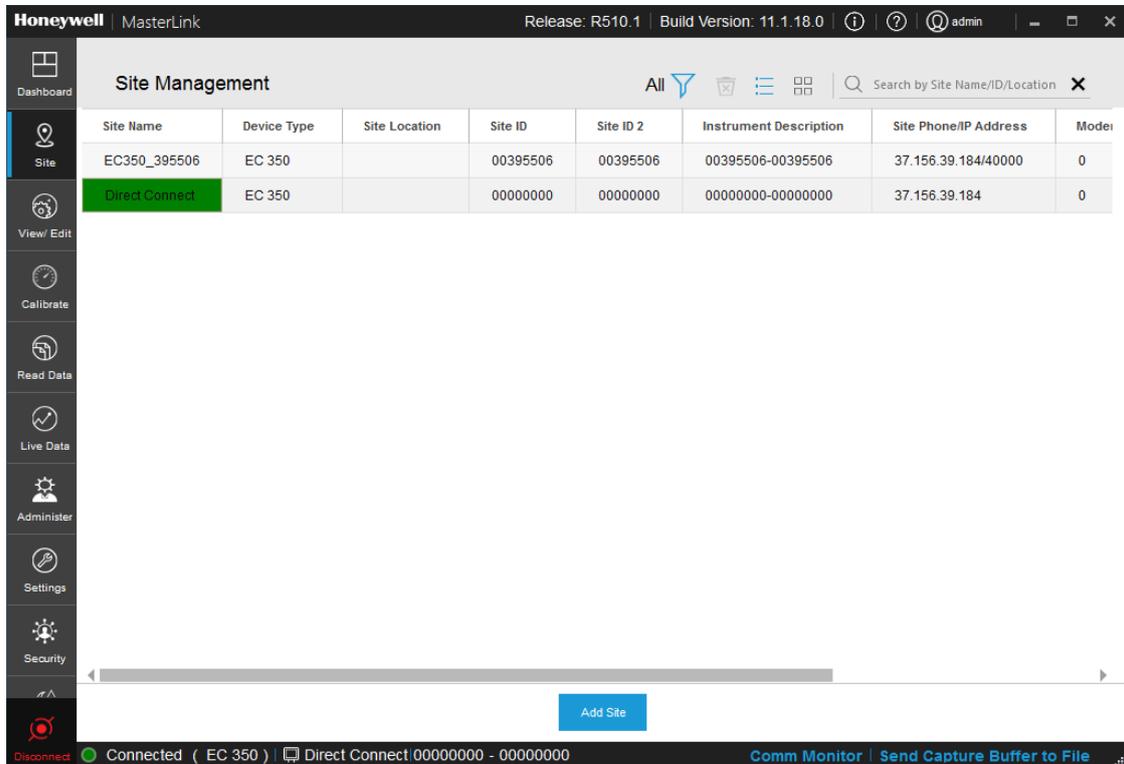
While adding an integrated site, the EVC or Recorder's site IDs will be shown as Site IDs of integrated sites. The Cloud Link modem's Site ID will not be displayed as the Site ID of the integrated site. However, the Site ID of the Cloud Link modem will still be used to scan and detect the integrated site.

The 'Site Management' screen has 2 views:

1. Tile View:

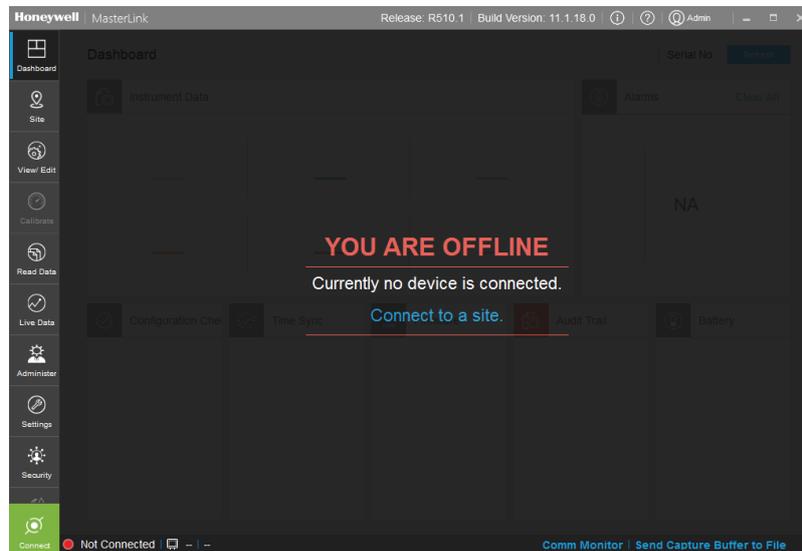


2. List View:



### 3.2.2 Connecting to a Site

When you log on to MasterLink and if you are not connected to a site or a device, you will see the following screen.



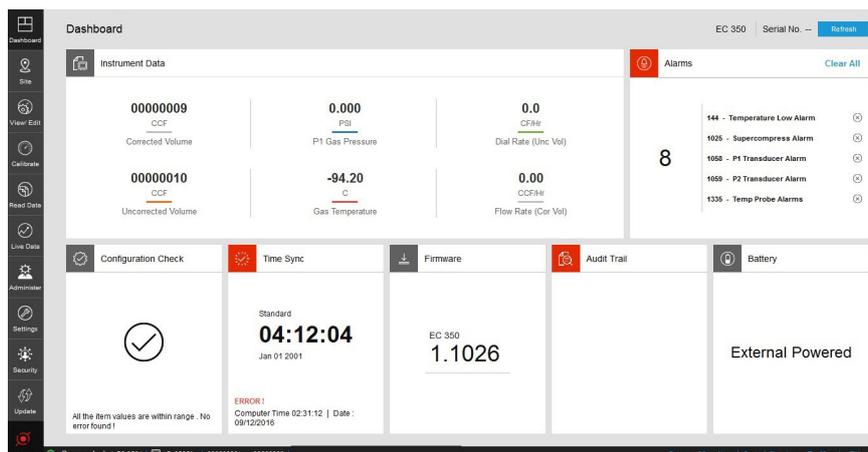
Click on the **Site** tab or the **Connect to a Site** link to get started.

Configured sites can be connected using the 'Site Management' screen of MasterLink.

**Note:** To connect an instrument through serial interface or modem configure the communication settings in the [Settings tab](#).

After successfully connecting to the device, the dashboard starts downloading the data.

**Note:** It is recommended that the user waits till the dashboard data is loaded.



**Note:** Panels with red icons indicate that user attention is required.

### 3.2.3 Direct Connect

The 'Direct Connect' feature lets the MasterLink R510.4 connect to a site which is physically connected to a computer. The Direct Connect functionality works based on the serial port or IrDA settings configured under [Settings > Communications Setup](#).

To connect a device:

1. Physically connect the instrument using a serial or IrDA interface.
2. Configure the required communication settings, go to [Settings > Communications Setup](#).
3. Configure the user specific User ID and Access Code, go to [Settings > Device Properties](#)
4. Click **Connect** located at the bottom left. The device will be connected and the dashboard starts loading.

After connecting to an instrument users must manually add it to the site list. If the site is not already added, an **Add Site** page will be shown.

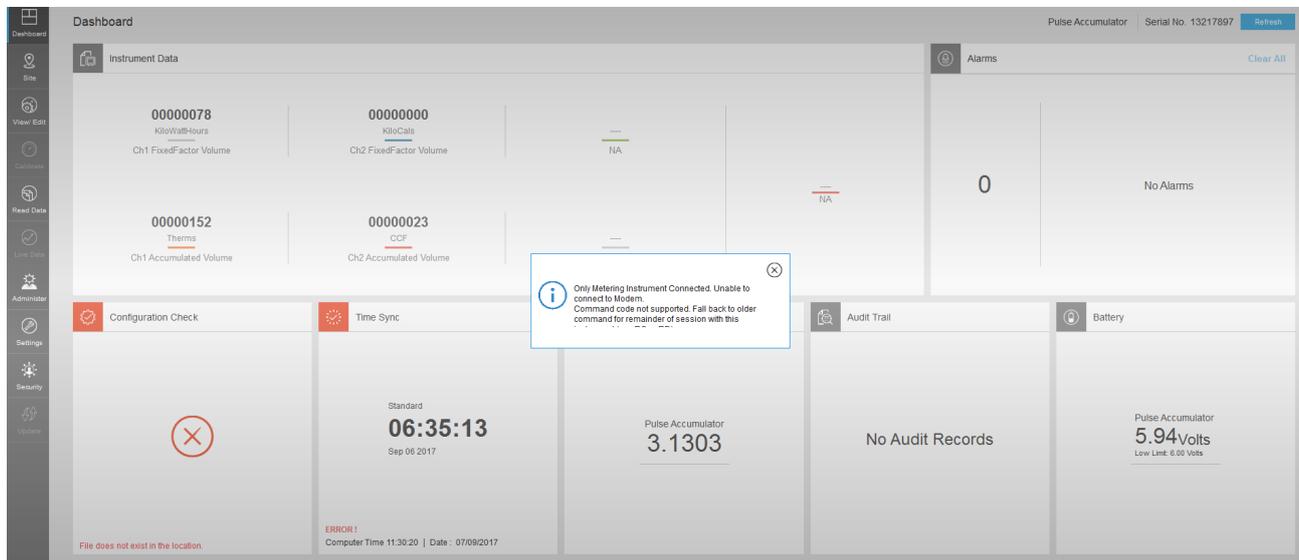
The screenshot shows the 'Site Management' interface for a 'Pulse Accumulator Stand Alone' device. The 'Direct Connect' section is active. The form contains the following fields and values:

Field	Value
Instrument Type *	Pulse Accumulator
InternetPhone	None
Site Name *	Direct Connect
UDP	<input type="checkbox"/>
SSL	<input type="checkbox"/>
Site Location	
Site Phone/IP Address	
Site ID *	00700800
SSL Private Key	
Site ID 2 *	00700800
Modem ID	0
Event Log User Id	0
Modem Port	None
Instrument Access Code *	*****
Post Modem Command	

A warning message is displayed: **Warning** The instrument you are connected is not added as a site. Please add the site. At the bottom of the form, there are 'Save' and 'Cancel' buttons.

Provide required site details and click on **Save**.

In case of integrated device, for example CNI4 (Pulse Accumulator + Cloud Link 4G Modem). If MasterLink R510.4 is able to connect to Pulse Accumulator only and not the Cloud Link 4G Modem, then the dashboard loads only the with the Pulse Accumulator data and notifies users that it could not connect to CNI4. This scenario arises if the site is already added as CNI4, but only the Pulse Accumulator is connected. In this case, If the site is not already added, MasterLink will just treat the connected device as standalone Pulse Accumulator.



### 3.3 Dashboard

On successful site connection, dashboard data gets loaded automatically based on the 'Auto Download Settings'.

Dashboard has various panels that show current data from the connected site. The dashboard automatically reads and displays the following data:

- Critical instrument data
- Last call details (when MasterLink R510.4 is used)
- Active alarms
- Configuration checks based on the item template file
- Time Sync
- Firmware
- Audit Trail data
- Battery status

Using Data Download Settings, you can configure the dashboard data and as per your requirement.

The screenshot displays the MasterLink Dashboard interface. At the top, it shows 'Integrated EC350 + Cloud Link' and 'Serial No. 123456789' with a 'Refresh' button. The main content is divided into several panels:

- Instrument Data:** Displays six key metrics:
  - Corrected Volume (CCF): 00414141
  - P1 Gas Pressure (PSI): 0.000
  - Dial Rate (Unc. Vol) (CF/Hr): 0.0
  - Uncorrected Volume (CCF): 00111111
  - Gas Temperature (F): -135.06
  - Flow Rate (Cor Vol) (CCF/Hr): 0.00
  - Last Known Signal Strength: 0 dBm
- Alarms:** Shows 5 active alarms:
  - 144 - Temperature Low Alarm
  - 1025 - Supercompress Alarm
  - 1058 - P1 Transducer Alarm
  - 1335 - Temp Probe Alarms
  - 107 - Tamper Detected Alarm
- Configuration Check:** Shows a green checkmark and the message: 'All the item values are within range. No error found!'.
- Time Sync:** Shows DST 18:33:27 on Dec 21 2016.
- Firmware:** Shows EC-350 1.1033 and Cloud Link 1.0001.
- Audit Trail:** Shows 'Download Completed'.
- Battery:** Shows 'External Powered'.

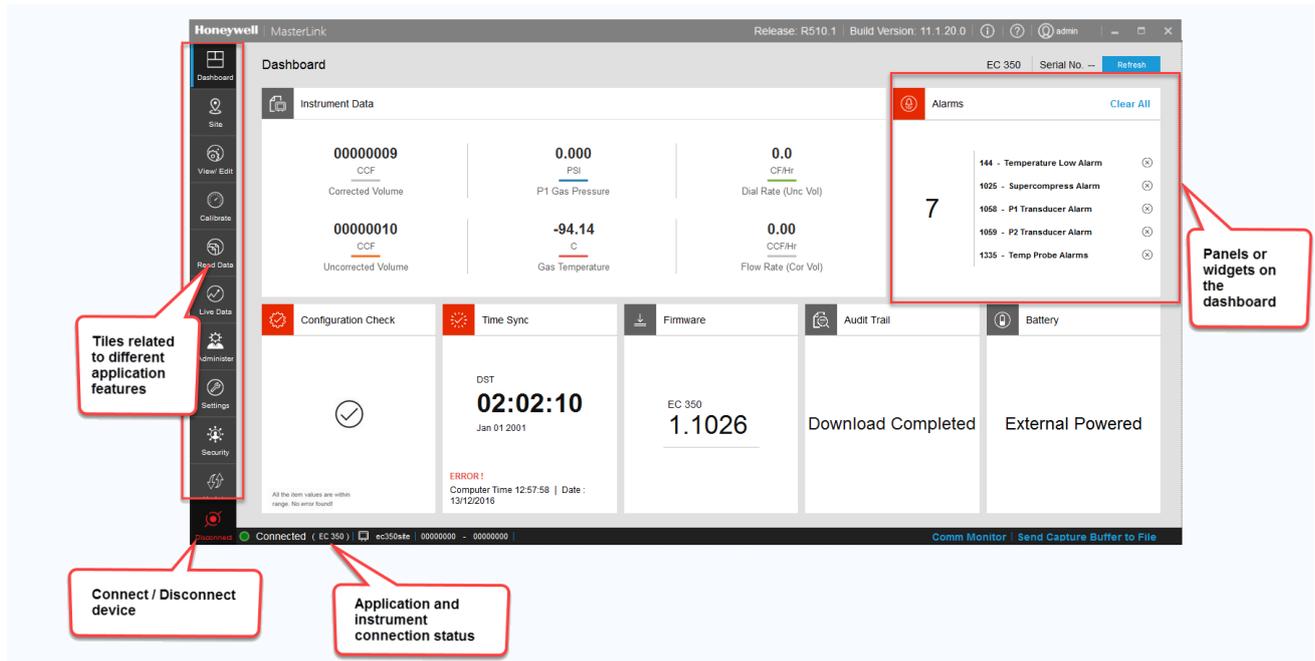
At the bottom, a status bar indicates 'Connected (EC350 + Cloud Link)' and 'Comm Monitor | Send Capture Buffer to File'. A watermark for 'Activate Windows' is visible in the bottom right corner.

**Note:** The instrument data can vary based on the connected device type.

The dashboard has various panels containing instrument data, organized in panels. User can further drill down to see relevant data by clicking on respective panels.

### 3.3.1 User Interface

User Interface consists of the following sections:

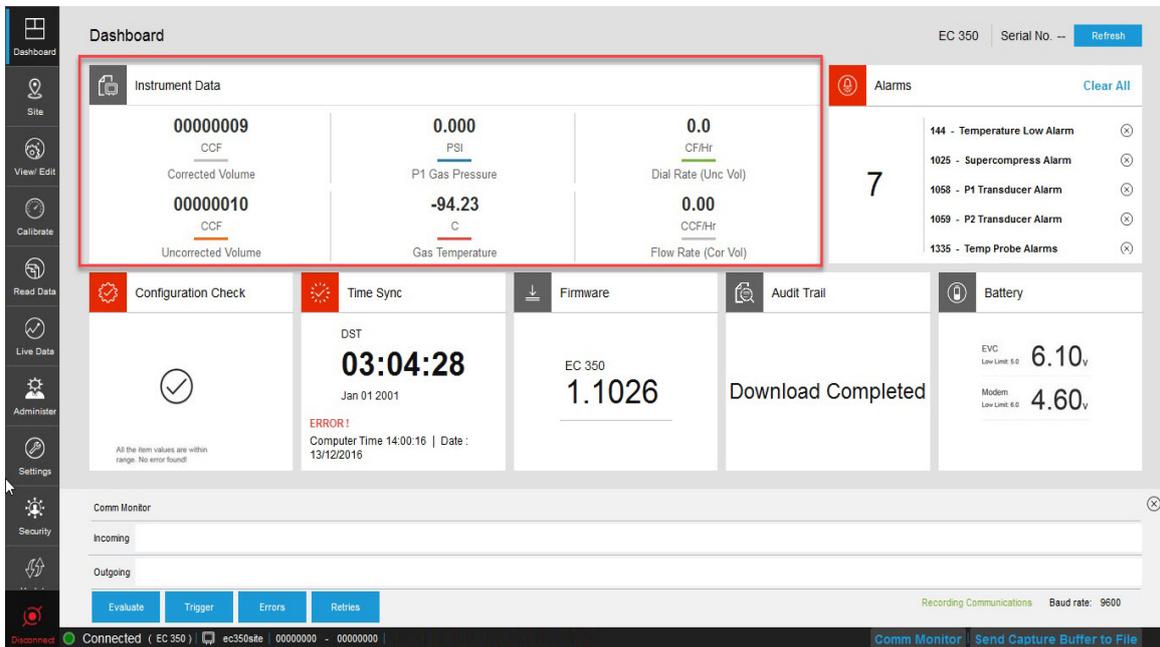


- Tiles related to the application features include:
- Header contains:
  - MasterLink application release and build number
  - About MasterLink button (i)
  - Masterlink Application help button (?)
  - User account button
- Footer contains the following information:

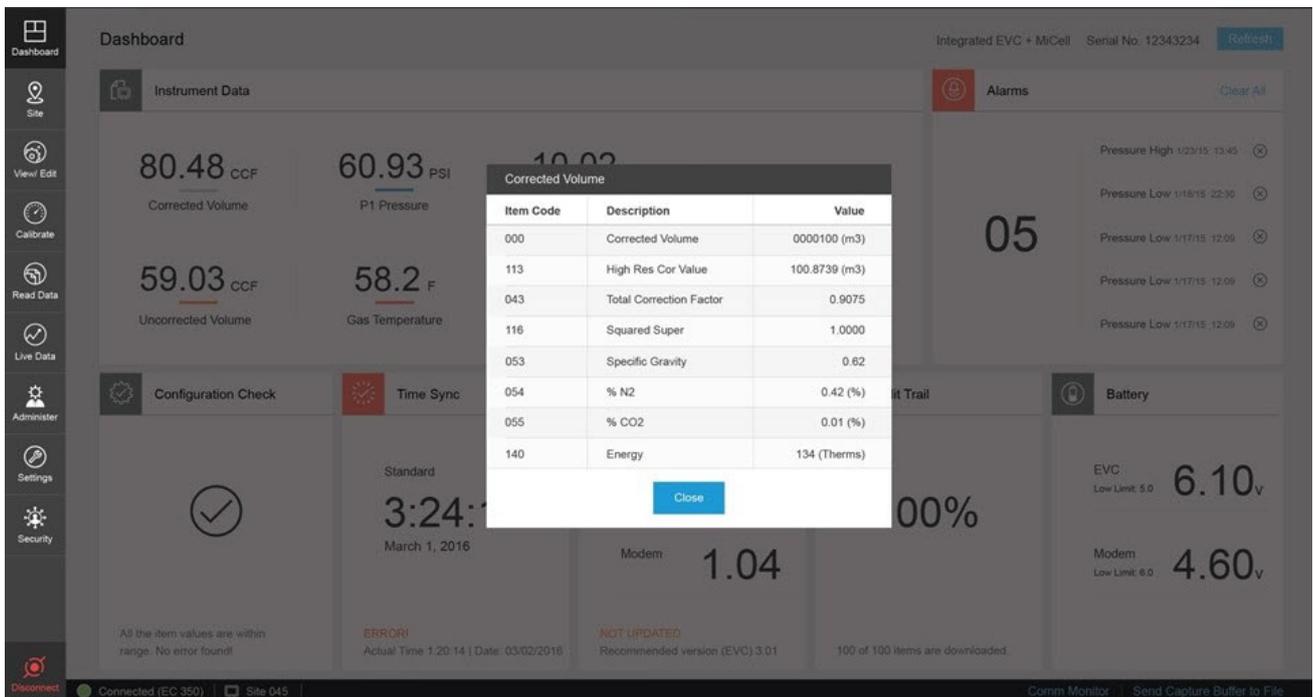
Icons	The icons displayed on the footer are used to illustrate the following: - Not connected to any site,  - Connecting to a site,  - Connected to a site
Comm Monitor	Displays all the communications (command/responses) between MasterLink application and the connected site.
Send Capture Buffer to File	Allows the user to save all the communication into a file for analysis.

### 3.3.2 Instrument Data

The Dashboard shows current instrument data from the connected site. This data is read from the instrument and displayed under the *Instrument Data* widget.

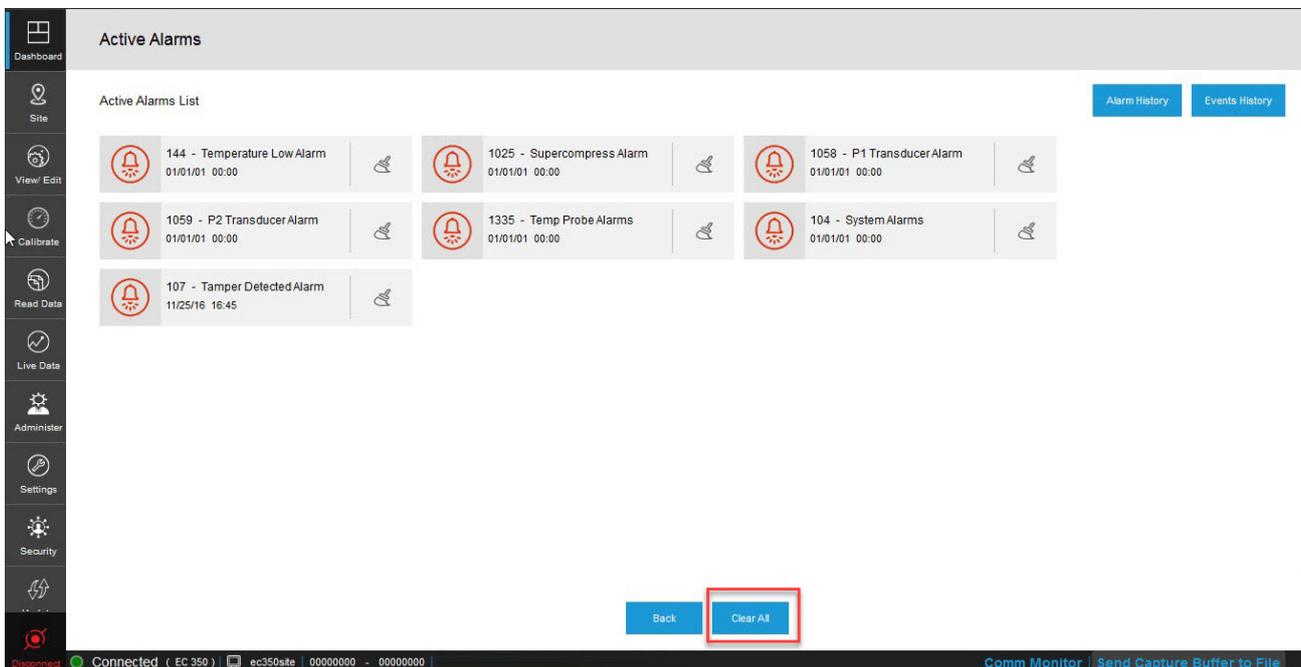


On clicking any value, further details are displayed.



### 3.3.3 Alarms

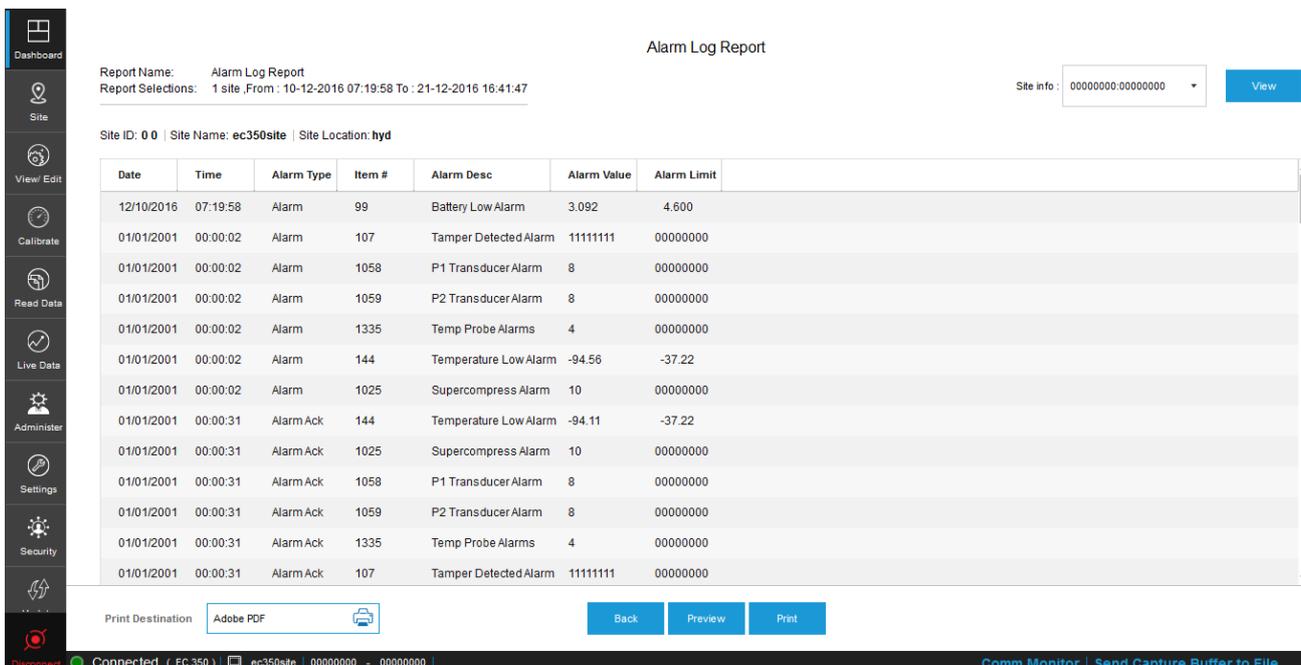
User can drill down to alarm and event history by clicking on the number of active alarms displayed on the dashboard.



Individual alarms can be cleared by clicking 

All active alarms can be cleared at once, by clicking **Clear All**.

User can access alarms and event log reports from the Dashboard.



Refer [Auto Download Settings](#) page for more details.

### 3.3.4 Configuration Check

After connecting to the instrument, MasterLink compares values of items defined in the template with actual values in the instrument and reports the status of Configuration Check widget on Dashboard. User can correct the values from the drill-down screen.

Item Number	Description	Default	Actual
<input type="checkbox"/> 0	Corrected Volume	9	
<input checked="" type="checkbox"/> 2	Uncorrected Volume	4	00000000
<input type="checkbox"/> 5	Ch-A Pulses Waiting	24	00000000
<input type="checkbox"/> 13	Base Pressure	12	14.7300
<input type="checkbox"/> 14	Atmospheric Pressure	45	14.7300

When all the values are corrected, the Configuration Check widget reports status as 'All Items found are within range'.

Read more: [Item Template Configuration](#)

### 3.3.5 Time Sync

'Time Sync' page provides a user configurable option to enable/disable auto time synchronization of the connected device with your PC.

Alternatively, time can be synchronized manually by clicking on **Sync**.

The screenshot displays the 'Time Sync' configuration page. On the left is a vertical navigation menu with icons for Dashboard, Site, View/Edit, Calibrate, Read Data, Live Data, Administrator, Settings, Security, and Disconnect. The main content area is titled 'Time Sync' and contains three sections: 'Instrument Time' showing '18:38:55 Dec 21 2016', 'Computer Time' also showing '18:38:55 Dec 21 2016', and 'Instrument DST Compensation Options' with two radio buttons: 'Do not observe DST' (unselected) and 'Observe DST' (selected). At the bottom of the main area are 'Back' and 'Sync' buttons. The footer status bar shows 'Connected (EC350 - Cloud Link)' and 'Comm Monitor | Send Capture Buffer to File'.

Time difference trigger point is taken into account when application reports time synchronization status.

Refer [Time Sync Properties](#) page for more details.

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### 3.3.6 Firmware Update

Dashboard reports the current firmware revision/version(s) loaded in the instrument(s).

The screenshot shows the MasterLink Dashboard for an EC 350 instrument. The 'Instrument Data' section displays the following values:

- Corrected Volume: 00000011 CCF
- P1 Gas Pressure: 0.000 PSI
- Dial Rate (Unc Vol): 0.0 CCF/Hr
- Uncorrected Volume: 00000010 CCF
- Gas Temperature: -94.15 C
- Flow Rate (Cor Vol): 0.00 CCF/Hr

The 'Alarms' section shows 7 active alarms, including Temperature Low Alarm, Supercompress Alarm, and P1/P2 Transducer Alarms. The 'Firmware' section, highlighted with a red box, shows the current version as 1.1026. Other sections include Configuration Check (with an error message), Time Sync (showing DST 03:14:05), Audit Trail (Download Completed), and Battery (External Powered).

Firmware versions can be upgraded using the firmware drill down screen.

The screenshot shows the 'Update' screen for upgrading the firmware. It includes the following fields and sections:

- Firmware Filename:** File Location:
- Current Firmware:**  **Firmware Type:**
- Loader:**  **New Firmware:**
- Selected Firmware Details:**

Step	Status
Validate FW file	
Send Firmware	
Validate Firmware	
Sync date and time	

At the bottom, there are 'Start Upgrade' and 'Reset' buttons.

The **Update** screen consists of three tabs:

- EC 350 Firmware Upgrade
- Cloud Link 4G Modem
- Certificate

The current firmware version details are displayed on the relevant update screen. The firmware file to be used can be browsed and version of the firmware to be upgraded is displayed under 'Selected Firmware Details' section.

Browse and select the required firmware file to be uploaded and observe application displays the information of firmware file selected under 'Selected Firmware Details' section.

The new firmware is transferred to the instrument and then installed.

**Note:** MasterLink R500 Application (Windows & Mobile) supports firmware upgrade to the EC 350 and Cloud Link 4G Modem, only if the devices have the following firmware versions:

Cloud Link 4G Modem: 1.0001

EC 350: 1.1032

It is not recommended to perform a firmware upgrade, unless the devices are running on the versions mentioned above.

### 3.3.7 Audit Trail

As soon as you connect an instrument to MasterLink Software Applications, Audit Trail data from the instrument is automatically downloaded. Instrument data is automatically downloaded if the Auto Download settings are enabled.

**Read Data**

Item File | **Audit Trail** | Alarm Logs | Event Logs | Diagnostic Logs | Cellular Logs | Shortlist | Activity Log

**Audit Trail Report**

Report Name: Audit Trail Report  
 Report Selections: 1 site, From 2016-12-10 07:15:00 To 2016-12-13 14:32:02

Site info: 00000000:00000000 Log #: 1 **View**

Site ID: 00 Log1 | Site Name: ec350site | Site Location: hyd

Log Date and Time	Incremental Cor Vol (CCF)	Incremental Unc Vol (CCF)	P1 Interval Avg Press (PSI-G)	Interval Avg Gas Temp (C)	Battery Voltage Reading (VOLTS)	Corrected Volume (CCF)	Uncorrected Volume (CCF)	P1 Gas Pressure (PSI-G)	Gas Temperature (C)	Case Temperature (C)	Battery Low Volt Limit (VOLTS)
12/10/2016 7:15:00 AM	0	0	.000	-94.24	3.091	9	10	.000	-94.25	22.11	4.600

Print Destination: Adobe PDF **Back** **Preview** **Print** **Export CSD**

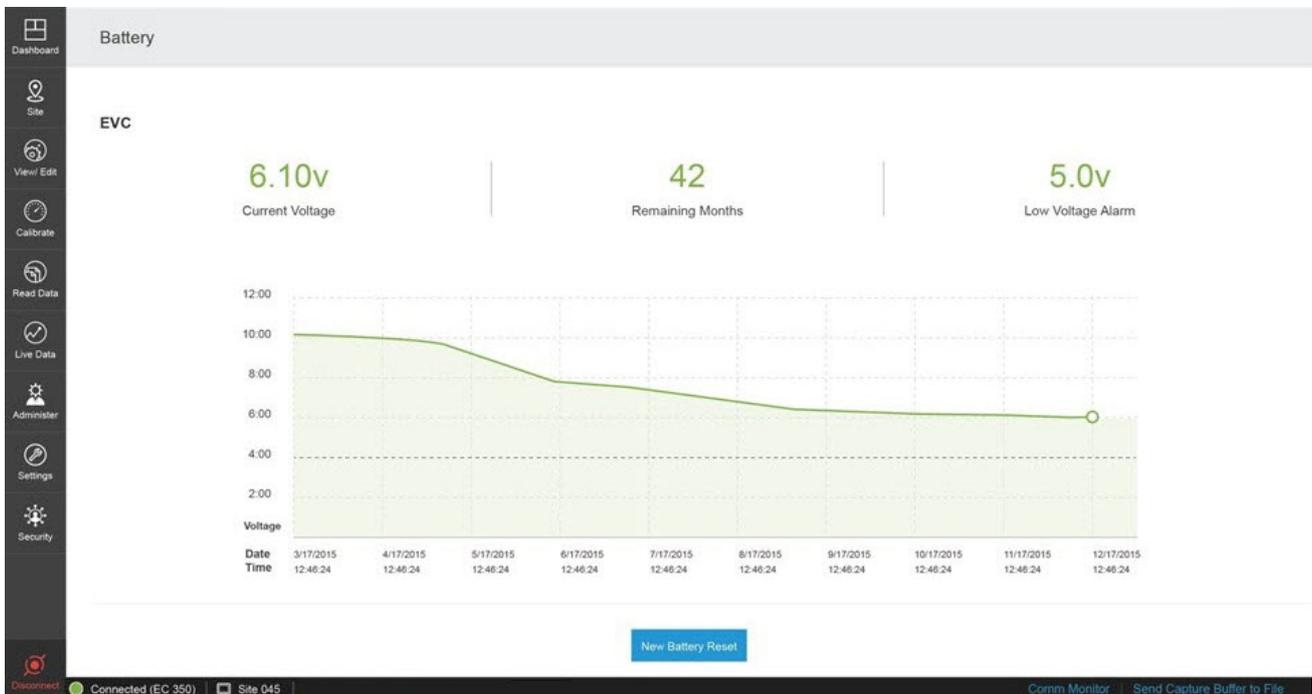
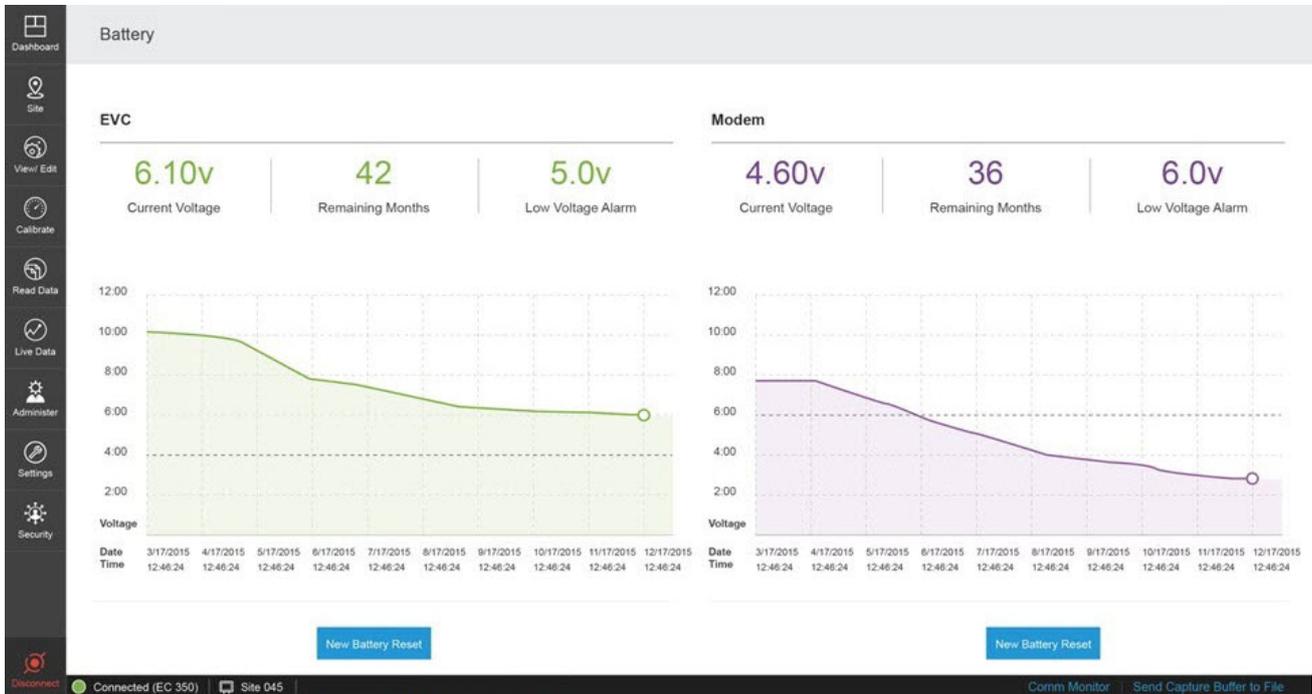
Connected (EC 350) | ec350site | 00000000 - 00000000 **Comm Monitor** | Send Capture Buffer to File

Refer [Auto Download Settings](#) for more details.

### 3.3.8 Battery

While connecting to the site, application reads the type of power source (Battery or External). If battery powered, voltage is displayed on Dashboard.

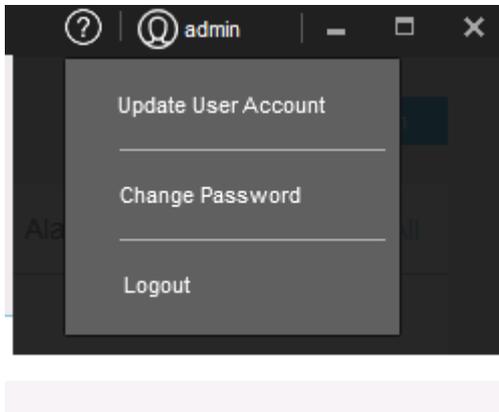
Dashboard battery drill down is not allowed if the site is externally powered. However, if the site is battery powered the Dashboard drill down plots the battery voltage against time.



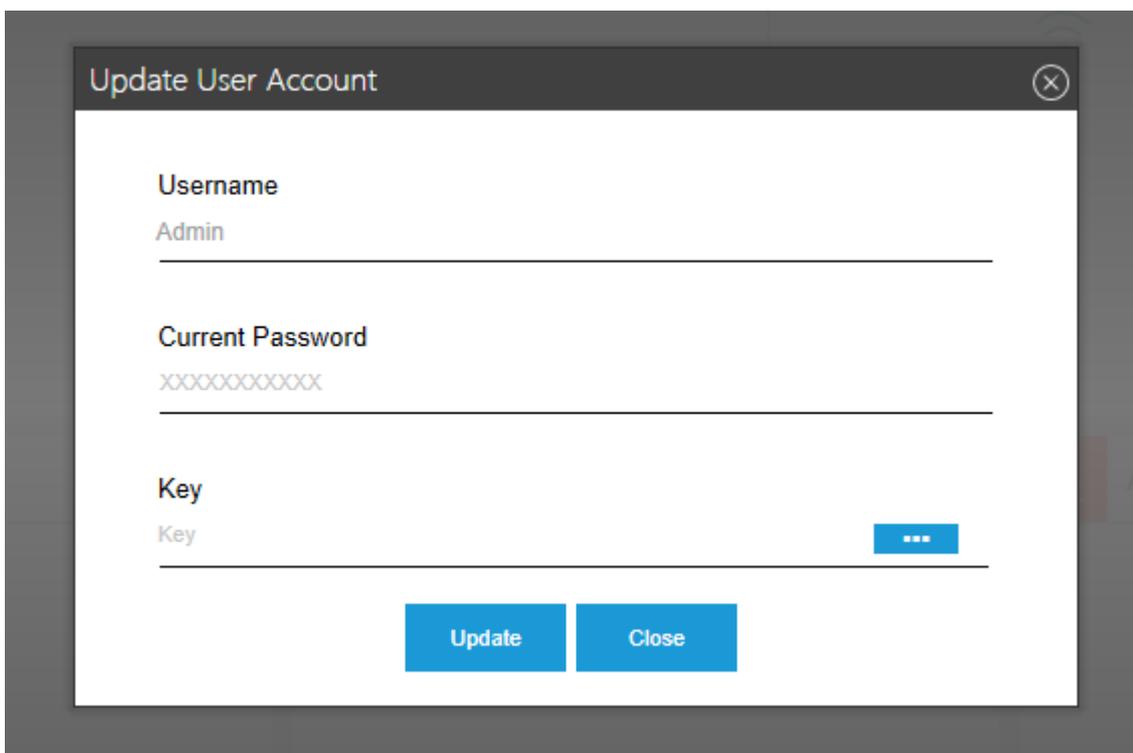
### 3.3.9 Update User Account

If privileges associated with user role are modified, then the respective user account needs to be updated with a new passkey shared by administrator.

Click on username and select **Update User Account**.



The **Update User Account** pop-up appears.

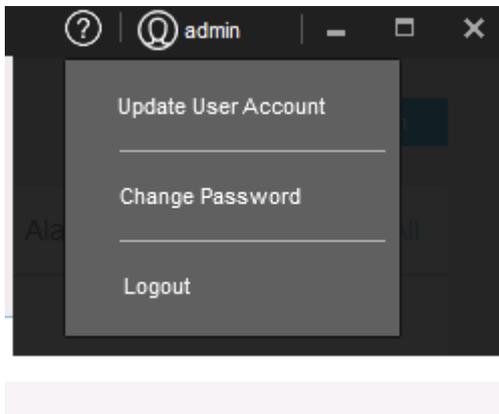


Update user account using the new key sent by the administrator.

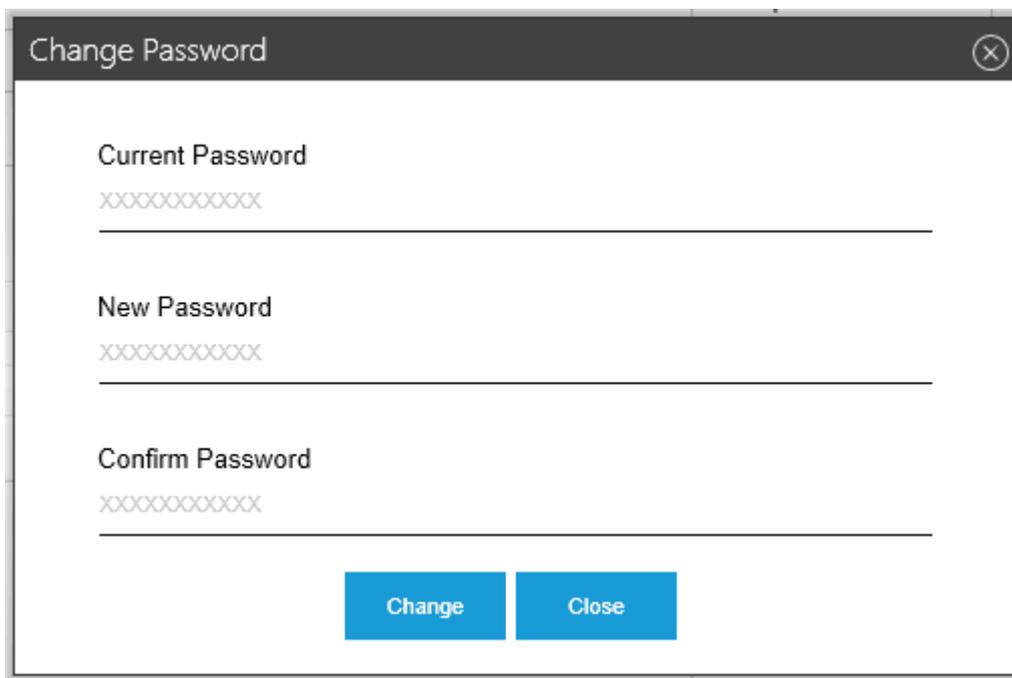
### 3.3.10 Change Password

Password of an existing user can be changed using the Change Password option.

Click on user-name and select **Change Password**.



The **Change Password** pop-up appears.

A screenshot of a 'Change Password' dialog box. The dialog has a title bar with the text 'Change Password' and a close button. Inside the dialog, there are three input fields, each with a label and a placeholder of 'XXXXXXXXXX': 'Current Password', 'New Password', and 'Confirm Password'. At the bottom of the dialog, there are two blue buttons: 'Change' and 'Close'.

Type current password, and then the new password. You also need to confirm your new password by typing it again.

After you finish making the required changes, click **Change** to save the changes.

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## 3.4 View and Edit

This tab has the functionality for performing various interactions with device such as read/write item, read item file etc.

### 3.4.1 Configure by Group

MasterLink must be connected to an instrument for this function to work. 'Configure by Group' tab displays groups categorized by items corresponding to connected instrument.

Instrument items (which vary per type of instrument) can be grouped by function. The 'Configure by Group' tab displays the item values that apply to the type of connected instrument after grouping them by function. For example, all items related to pressure calibration are displayed on one screen.

When connected to an instrument, you can click on the **Read** button to read item values from the connected instrument.

To change item values:

1. Click on the desired function group (panel on left) to see the group items (panel on right).
2. Select an item by clicking the check box next to it.
3. Enter a value for the selected item number, and click on **Write** button.

The screenshot shows the MasterLink 'View/Edit' interface. The 'Configure by Group' tab is active, displaying a table of items under the 'Volume & Energy' group. The table has columns for Item Number, Description, Value, and Unit. Item 000, 'Corrected Volume', is selected with a checkmark. The 'Value' field for item 000 contains '00000011'. Callout boxes point to the 'Read Item' and 'Write Item' buttons, with text: 'Read item values from the connected device' and 'Write item values to the connected device'.

Item Number	Description	Value	Unit
<input checked="" type="checkbox"/>	000 Corrected Volume	00000011	CCF
<input type="checkbox"/>	002 Uncorrected Volume	00000010	CCF
<input type="checkbox"/>	113 HI Res Cor Vol	11.0000	CCF
<input type="checkbox"/>	892 HI Res Unc Vol	0.0000	CCF
<input type="checkbox"/>	090 Cor Volume Units	CCF	---
<input type="checkbox"/>	096 Corr Vol # of Digits	8 Digits	---
<input type="checkbox"/>	092 Unc Volume Units	CCF	---
<input type="checkbox"/>	097 Unc Vol # of Digits	8 Digits	---
<input type="checkbox"/>	098 Meter Index Rate	10 CF	---
<input type="checkbox"/>	114 Meter Scaling Factor	1.000000	---
<input type="checkbox"/>	433 Volume Input Mode	LF-JMB/Instrument Drive	---
<input type="checkbox"/>	432 Meter Model	Other	---
<input type="checkbox"/>	439 Meter Displacement (CF)	1.000000	CF/rev
<input type="checkbox"/>	434 Daily Backup Volume	00000000	CCF

### 3.4.2 Configure by Item

MasterLink must be connected to an instrument for this function to work as different instruments have different items and groups categorized. 'Configure by Item' tab displays all items corresponding to connected instrument and by default, all items are sorted by item number.

An item can be searched with Item number or description. The check box must be checked in order to read/write value(s) of any item.

To change item values:

1. Select an item by clicking on the check box next to it.
2. Enter a value for the item number.
3. Click **Write Item** after making the changes. This will write the new item value to the connected instrument.

The screenshot displays the 'View/ Edit' interface for configuring items. The main area contains a table with the following data:

Item Number	Description	Value	Unit
<input checked="" type="checkbox"/> 000	Corrected Volume	00000012	CCF
<input type="checkbox"/> 002	Uncorrected Volume	00000010	CCF
<input type="checkbox"/> 005	Ch-A Pulses Waiting		----
<input type="checkbox"/> 006	Ch-B Pulses Waiting		----
<input type="checkbox"/> 007	Ch-C Pulses Waiting		----
<input type="checkbox"/> 008	P1 Gas Pressure	0.000	PSI
<input type="checkbox"/> 010	P1 High Alarm Limit	1422335.	PSI
<input type="checkbox"/> 011	P1 Low Alarm Limit	-71.117	PSI
<input type="checkbox"/> 012	P1 Cal Atmos Pressure		PSI
<input type="checkbox"/> 013	Base Pressure	1234.000	PSI
<input type="checkbox"/> 014	Atmospheric Pressure	14.6960	PSI
<input type="checkbox"/> 015	Press used at P1-Zero		PSI

Two callout boxes are present: one pointing to the 'Read Item' button with the text 'Read item values from the connected device', and another pointing to the 'Write Item' button with the text 'Write item values to the connected device'.

Sliding the mouse over the column divider until a cross is displayed, then dragging it to the desired width can resize the column widths. Use the up/down arrows or across arrows for full viewing of all data fields.

**Note:** Selecting a check box against an item after modifying the search criteria would refresh the previous selections.

Click on **Advance Options** and select **Raw Item Access** to modify the value of an item.

The screenshot shows the 'View/Edit' interface with a table of items. The 'Advance Options' menu is open, showing 'Raw Item Access' and 'Shut Down' options.

Item Number	Description	Value	Unit
111	Temperature Factor Mode	Fixed	----
112	P1 Transducer Type	Gauge	----
113	Hi Res Cor Vol	387.7509	CF
114	Meter Scaling Factor	1.000000	----
116	Squared Supercompress	0.9999	----
118	Reference Number 1		----
119	Reference Number 2		----
120	Calibration Date P1 Press	1/1/0001	MM-DD-YY
121	Calibration Date Temp	1/1/0001	MM-DD-YY
122	Firmware Version	1.1102	----
127	Instrument Type Code		----
130	Scroll List Item 1		----

Search for a particular item either by number or description.

The screenshot shows the 'View/Edit' interface with a search dialog box open. The dialog box is titled 'Raw Item Access' and contains fields for 'Item Number' (114) and 'Value' (2). The 'Read Item' and 'Write Item' buttons are visible at the bottom of the dialog.

Clicking on **Shut down** will shut down the device.

### 3.4.3 Send Item File

An Item File stores the current instrument's item code values on your computer in a file. You can configure different items corresponding to an instrument in an 'Item File' and then send it to the device.

Click **Browse** and select the item file. (.IE3 for EC 350, .ICL for Cloud Link 4G Modem, .ECL for EC 350 + Cloud Link 4G Modem)

View/Edit

Configure by Group | Configure by Item | **Send Item File** | Logging Configuration | Manage User Table | Manage Shortlist

Choose an item type  Cal-Items  Non Cal-Items Location:  **Browse**

**Browse and select the item file.**

Send to Device

Connected ( EC 350 ) ec350site 00000000 - 00000000 Comm Monitor Send Capture Buffer to File

View the values configured for different item numbers.

View/Edit

Configure by Group | Configure by Item | **Send Item File** | Manage Logging Configuration | Manage User Table | Manage Shortlist

Location: \\ie10nt3ks015\RMG\MasterLinkR500.1\IE1\_Build\_9\_Nov\_2015 **Browse**

Item Number	Item Description	Value	Unit	Item Number	Item Description	Value	Unit
0000	Corrected Volume	00242990	CF	0013	Excess TCal Change %	2.0000	CF
0002	Uncorrected Volume	00266559	CF	0014	Total Correction Factor	1.0000	CF
0005	Ch-A pulses waiting	00000000	--	0015	Press Correction Factor	1.0000	--
0006	Ch-B pulses waiting	00000000	--	0016	Temp Correction Factor	1.0000	--
0007	Ch-C pulses waiting	00000000	PSI	0017	Aux Correction Factor	1.0000	PSI
0008	P1 gas pressure	13.775	PSI	0018	Unsquarred Supercompress	1.0000	PSI
0010	P1 high alarm limit	99999.99	PSI	0019	Battery Voltage Reading	2.372	PSI
0011	P1 low alarm limit	-1.000	PSI	0020	Battery Low Volt Limit	4.600	PSI
0012	P1 Cal atmos pressure	0.0000	PSI	0021	Shutdown Voltage Limit	4.000	PSI
0012	P1 Cal atmos pressure	0.0000	PSI	0021	Shutdown Voltage Limit	4.000	PSI
0012	P1 Cal atmos pressure	0.0000	PSI	0021	Shutdown Voltage Limit	4.000	PSI
0012	P1 Cal atmos pressure	0.0000	PSI	0021	Shutdown Voltage Limit	4.000	PSI
0012	P1 Cal atmos pressure	0.0000	PSI	0021	Shutdown Voltage Limit	4.000	PSI

Choose an item type  Cal-Items  Non Cal-Items **Send to Device**

**Send the Item File to the device**

Connected ( EC 350 ) Site 045 Comm Monitor Send Capture Buffer to File

Click **Send to Device** to send the Item File to the connected field instrument.

### 3.4.4 Logging Configuration

[Available only for EC 350 and ERX 350 devices]

Using MasterLink software, an instrument can be configured to contain as many as 5 independent logs, each with its own collection of item values and collection (sample) frequency. Each log can be configured to collect values for up to 20 items.

The screenshot displays the 'Logging Configuration' interface. On the left, a table lists available items:

Item Number	Description
0	Corrected Volume
2	Uncorrected Volume
113	Hi Res Cor Vol
892	Hi Res Unc Vol
90	Cor Volume Units
96	Corr Vol # of Digits
92	Unc Volume Units
97	Unc Vol # of Digits
98	Meter Index Rate
114	Meter Scaling Factor

The 'Log Configuration' section shows a tree structure for 'EC 350' with 'Audit Trail Logs' expanded to 'Log1'. The configuration for 'Log1' includes a frequency of '5 minutes' and a list of 11 items. The item '226 - Incremental Unc Vol' is currently selected. To the right, a bar chart illustrates the memory allocation for five logs, with Log 1 occupying approximately 20%, Log 2 about 15%, Log 3 about 10%, Log 4 about 5%, and Log 5 occupying the remaining 45%.

The order of the items in the Log Configuration list determines the order in which the values are stored and thus the order in which they will later appear in a report. Items in the list can be moved up and down to change the order.

The selected items from a log can be removed by clicking .

The configuration can be saved for future references to a configuration file (\*.cnfg) with the **Save setup to file** button. It can later be retrieved with the **Read setup from file** button. Only \*.cnfg files can be read; item files (\*.ie3) are not compatible.

In the 'Allocate log memory' tab, configure the percentage of available memory which can be allocated to each log.

The screenshot shows the 'Allocate Log Memory' configuration screen. On the left, a table lists five logs with their respective settings:

Log	Percent	Days	Records	Enable
Log 1	20.0	10	2898	<input checked="" type="checkbox"/>
Log 2	15.0	18	2609	<input checked="" type="checkbox"/>
Log 3	10.0	16	1581	<input checked="" type="checkbox"/>
Log 4	5.0	33	790	<input checked="" type="checkbox"/>
Log 5	50.0	7905	7905	<input checked="" type="checkbox"/>

The 'Log Configuration' panel on the right shows settings for 'Log 1', including an interval of 10 minutes and a list of items (9 of 20):

- 225 - Incremental Cor Vol
- 226 - Incremental Unc Vol
- 206 - P1 Interval Avg Press
- 207 - Interval Avg Gas Temp
- 48 - Battery Voltage Reading
- 0 - Corrected Volume
- 8 - P1 Gas Pressure

On the far right, a bar chart visualizes the memory allocation for each log, showing Log 1 (red, 20%), Log 2 (orange, 15%), Log 3 (yellow, 10%), Log 4 (green, 5%), and Log 5 (purple, 50%).

**Note:** The sum total of memory allocated for all logs must be equal to 100%.

The consequence of a particular allocation setting is reflected in the number of days' worth of data as well as the number of records that can be written before overwriting will occur. The smaller a log's allocation, the less data it will be able to store. When the limit is reached, the oldest records will be overwritten with the newer ones.

**Note:** A log's interval setting will impact days, but not record numbers.

The Enable check-boxes may be used to suspend data collection for one or more logs. A log's existing records will not be affected when the log is disabled.

Ensure that the device is connected to MasterLink. Click **Send to Instrument** to push the log configuration to the device. A few seconds will be required for the transfer. A window should appear indicating 'Successfully Configured'.

Click **Read setup from Device** to read logging configuration settings from the connected instrument.

**Attention:** When you change the log configuration by modifying the memory allocation, all existing logs will be erased.

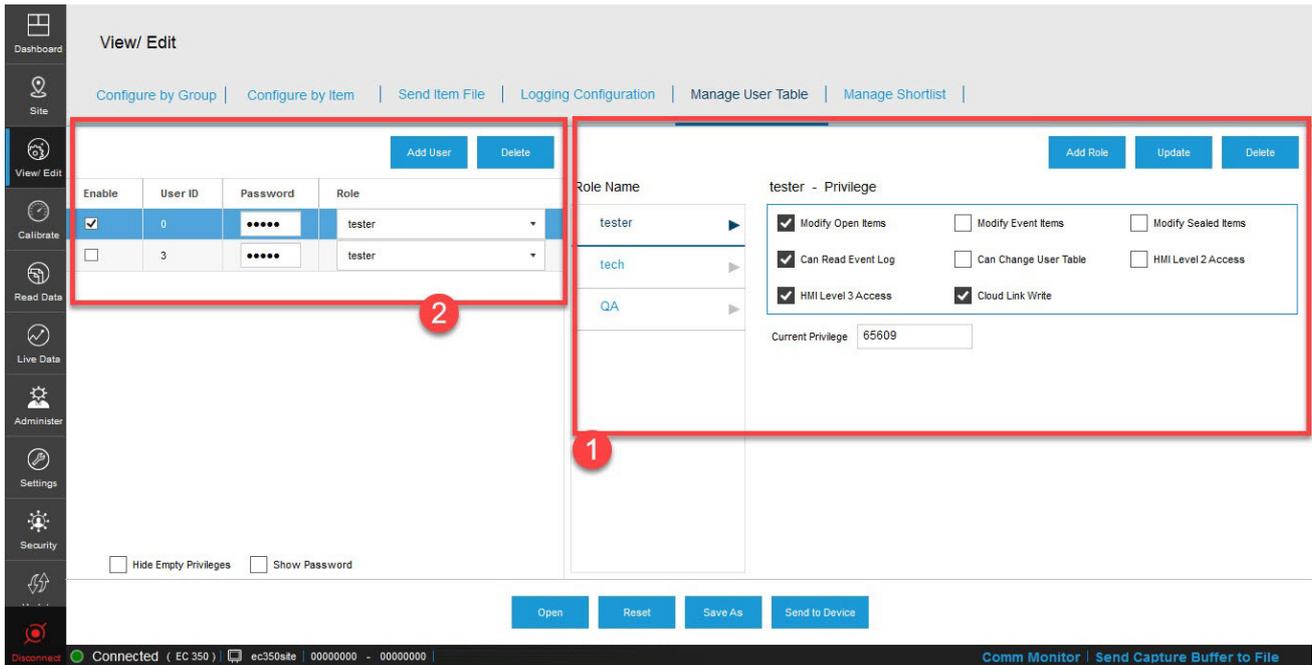
**Attention:** It is recommended to save the item file and log configuration file before changing the memory allocation of the logs.

### 3.4.5 Manage User Table

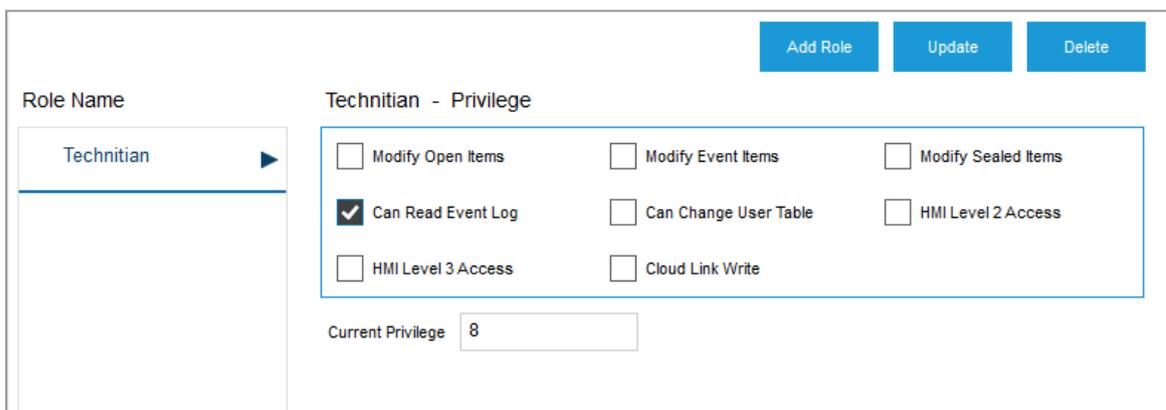
Access to an instrument can be controlled by defining users and assigning them Passcodes with defined privileges. Start by creating a role, then assign the role to the user and define Passcode.

User IDs and Passcodes are used to log-in to an instrument. When creating a user account, assign User ID, and a Passcode, and assign a role to the new user. Valid User IDs are 0 through 99 (decimal numeric). Valid passcodes are 00000 through 99999 (decimal numeric). The Passcode must be 5 digits in length.

Click on **Open** and load an existing saved .UTE (Manage User Table) file.



Based on the privileges assigned to the role, the value of the privilege changes or vice-versa.



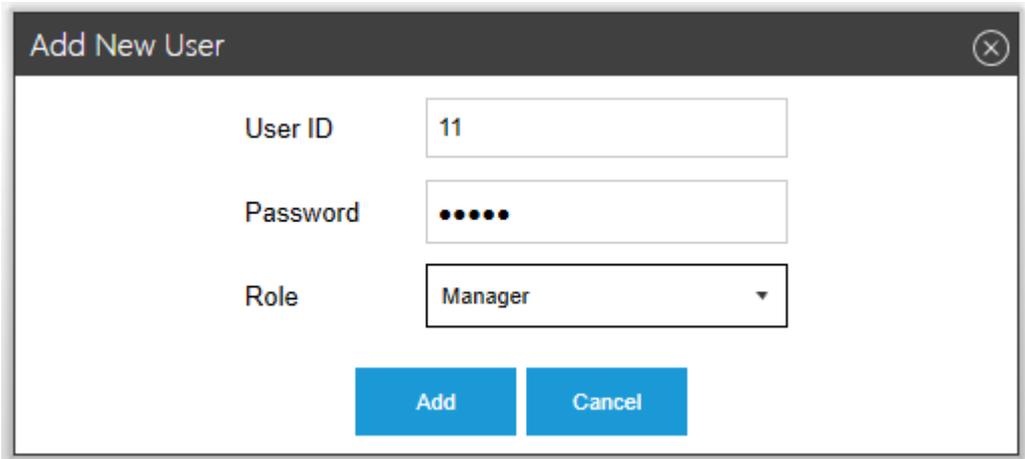
1. Click the check box under privileges to assign permissions to the role.
2. After a role is created, click **Add User** to create a new user.
3. After updating the privileges, click **Update** to save the changes.

The following privileges can be granted:

- Modify Open Items
- Modify Event Items
- Modify Sealed Items
- Can Read Event Log
- Can Change User table
- HMI Level 2 Access
- HMI Level 3 Access
- Cloud Link Write

To add a user:

1. Click **Add User** to add new users.



The screenshot shows a dialog box titled "Add New User" with a close button in the top right corner. The dialog contains three input fields: "User ID" with the value "11", "Password" with five dots, and "Role" with a dropdown menu showing "Manager". At the bottom of the dialog are two buttons: "Add" and "Cancel".

2. Enter the **User ID** and **Password**.
3. Assign a role or change the role of an existing user by selecting a different role from the **Role** drop-down.
4. Click **Add** to complete the process of adding a new user.

Click **Save As** to save a copy of the user table created. This user table is encrypted and saved in .UTE format.

Click on **Send to Device** to send a user table to the connected instrument.

**Note:** For CNI4 device, the User Table must be created with only one user.

### 3.4.6 Manage Shortlist

A Shortlist is the same as the standard Item list (stores the current instrument's item values), except that you can customize it to include required items.

To create a Shortlist:

1. Start by selecting the instrument type.
2. The items displayed in the 'Items' column are populated based on the selected instrument type.
3. Use the **Add** button to move selections to the *Selected Items* pane.
4. Items listed in the '*Selected Items*' column will be printed using Shortlist Report.

The **Save** option, saves the Shortlist to the database.

The **Save Setup to file** option exports the shortlist.

**Note:** By default, instrument specific short lists are created (all sites). Use the Site ID 1 and Site ID 2 drop-downs to create site specific short lists. The short list files are named as <SiteID1>\_<SiteID2>\_yymmddhhmmss.CE3 file. Example: 44571111\_44571111\_161214120204

You can save and download the Shortlist as a file for later use. You can also read an existing Shortlist file.

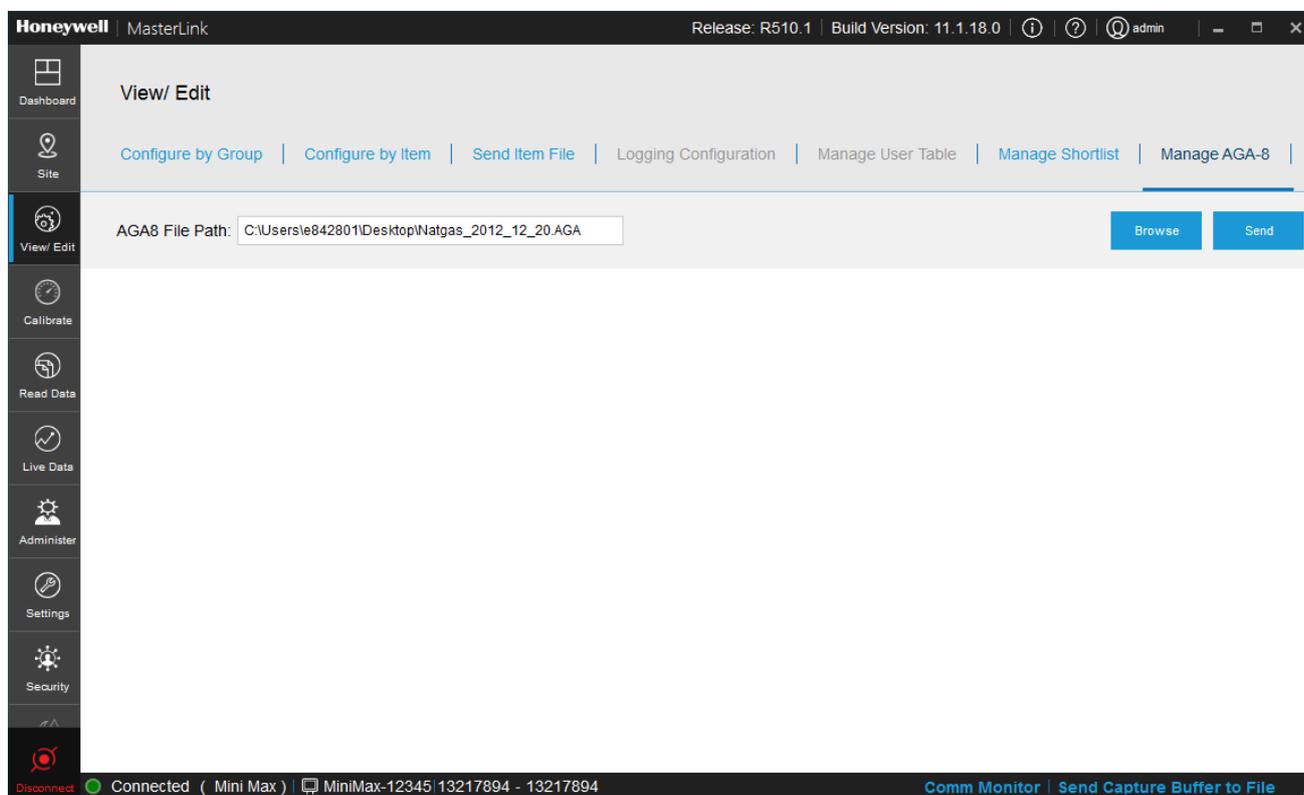
**Note:** By default all shortlist files are stored in *C:\ProgramData\Honeywell\MasterLink\ShortListFiles*.

### 3.4.7 Manage AGA-8

AGA-8 calculations determine the compressibility of natural gas and other hydrocarbons based on its components. These calculations are ideally designed to determine the compressibility of natural gas. These calculations can be gross or detailed. These (.aga) files can be generated using SuiteSQL (MasterLinkSQL) software. You can use the 'Manage AGA-8' tab to send .aga files to a connected instrument. This feature is supported by the following legacy Mercury devices:

- Mini-Max
- Mini-AT
- Accutest
- Turbo Corrector
- ECAT

On the Manage AGA screen, **Browse** and then select a .aga file.



Finally click **Send** to send the .aga file to the connected legacy Mercury instrument.

## 3.5 Calibrate

### 3.5.1 kPressure Calibration P1

This procedure is used to calibrate the pressure transducer to a pressure calibration standard.

#### **UNDERSTANDING PRESSURE CALIBRATION:**

This is a simple two-point calibration. First, calibrate pressure at a low scale pressure and then again at a high scale pressure. Each time, adjust the pressure calculated by the instrument to match the reading from your pressure standard (reference standard calibrator). Adjusting the low scale pressure is called "Zero Calibration" while adjusting the high scale pressure is called "Span Calibration." Span calibration actually uses some of the information determined from performing the zero calibration. For this reason, you will need to at least "sample" a low scale pressure before you can begin the span calibration. Sampling occurs when you indicate that the pressure is ready to be averaged.

#### **BEFORE STARTING THE PRESSURE CALIBRATION:**

Make certain that the following items have been verified for correctness:

- Pressure Calibrator
- Pressure Unit Code (unit of measure)
- Transducer Serial Number (assigned at the factory)
- Type of Transducer (gauge or absolute)

P1 Calibration table displays current Calibration pressure and two previous pressure values along with Calibration date in mm-dd-yy format. Current span Calibration pressure and two previous pressure values are also displayed.

## To calibrate pressure:

1. Apply a zero reference pressure (low range) to the P1 pressure transducer of the instrument, and wait for the instrument to stabilize.
2. Click **Average Now** to apply a zero reference pressure to the instrument.

The screenshot shows the 'Calibrate' interface with the 'Pressure 1 Zero Calibration' table and the 'Live Pressure' input field. The table lists various calibration items, and the 'Live Pressure' field is set to 0.35064 PSI. The 'Average Now' button is highlighted.

Item Number	Description	Value	Unit
13	Base Pressure	14.6960	PSI
14	Atmospheric Pressure	1.0000	PSI
17	Calibration P1-Zero	-1.7918	PSI
18	Cal Prev-1 P1-Zero	-1.8146	PSI
19	Cal Prev-2 P1-Zero	-0.0014	PSI
20	Calibration P1-Span	0.9966	----
21	Cal Prev-1 P1-Span	0.9989	----
22	Cal Prev-2 P1-Span	1.0000	----
23	Min PCal Point Diff %	50.0000	----
24	Excess PCal Change %	2.0000	----
87	P1 Pressure Units	PSI	----
112	P1 Transducer Type	Gauge	----

Live Pressure:  PSI

**Average Now** **Change**

Done

The screenshot shows the 'Calibrate' interface with the 'Please wait...' dialog box open. The 'Live Pressure' field is now 'Averaging...'. The 'Average Now' button is highlighted.

Item Number	Description	Value	Unit
13	Base Pressure	1234.000	PSI
14	Atmospheric Pressure	14.6960	PSI
17	Calibration P1-Zero	0.0000	PSI
18	Cal Prev-1 P1-Zero	0.0000	PSI
19	Cal Prev-2 P1-Zero	0.0000	PSI
20	Calibration P1-Span	1.0000	----
21	Cal Prev-1 P1-Span	1.0000	----
22	Cal Prev-2 P1-Span	1.0000	----
23	Min PCal Point Diff %	50.0000	----
24	Excess PCal Change %	25.0000	----
87	P1 Pressure Units	PSI	----
112	P1 Transducer Type	None	----

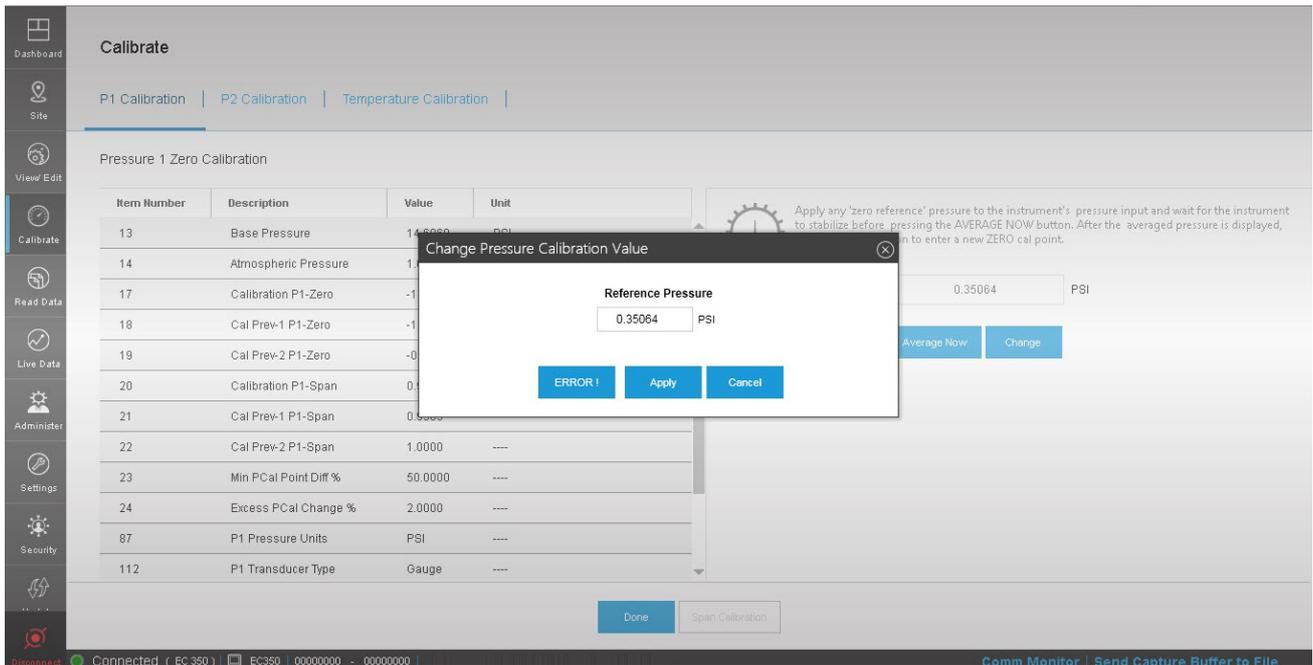
Live Pressure:  PSI

**Average Now** **Change**

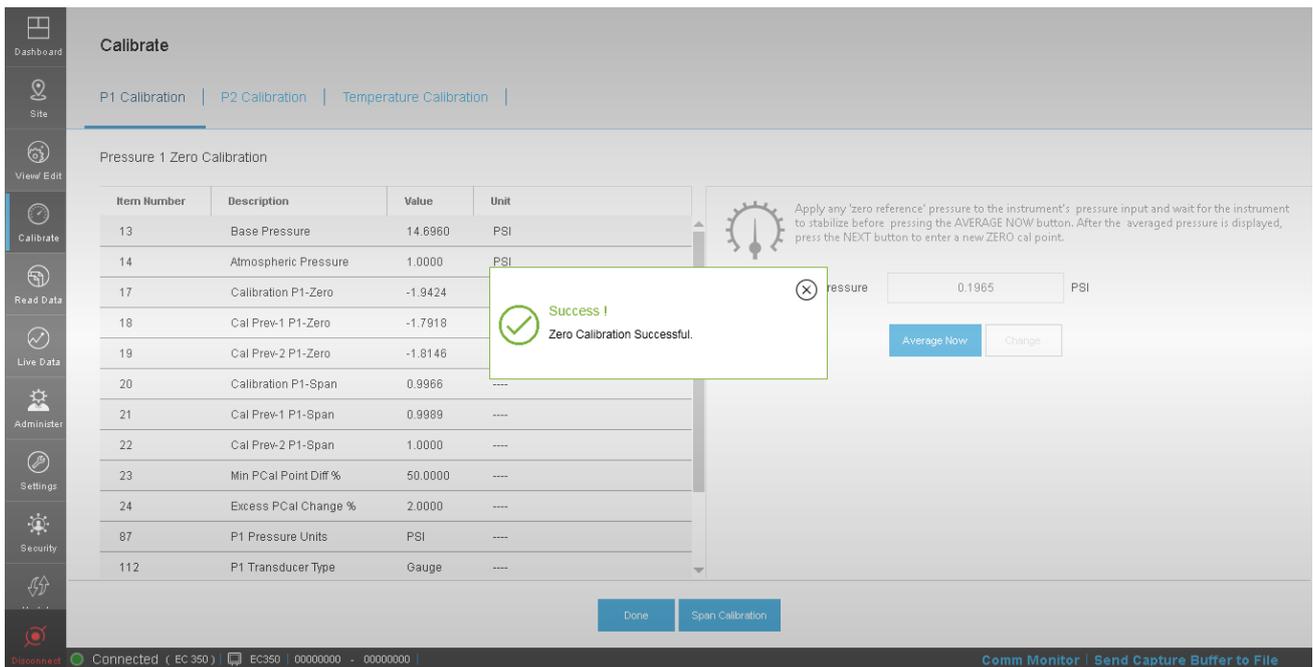
Done

The averaged pressure appears.

3. Click **Change** to enter a zero cal point.



4. Change the value to accurately match the zero reference pressure applied to the pressure transducer. Click **Apply**.



- Click **Span Calibration**. Apply a high pressure such that the pressure applied is at least 50% more than the zero reference pressure. Wait for the pressure reading displayed on the Pressure 1 dialog box to exceed the zero reference pressure by 50%.

**Note:** For example, if the zero reference pressure on a 100 PSI transducer equals 0.00 PSI, then the span reference pressure must be between 50.00 and 100.00 PSI. If the zero reference pressure on a 600 PSI transducer equals 0.00 PSI, then the span reference pressure must be between 300.00 and 600.00 PSI.

The screenshot shows the 'Calibrate' interface with a sidebar on the left containing navigation options: Dashboard, Site, View/Edit, Calibrate (selected), Read Data, Live Data, Administer, Settings, Security, and Disconnect. The main content area is titled 'Calibrate' and has sub-tabs for 'P1 Calibration', 'P2 Calibration', and 'Temperature Calibration'. Under 'P1 Calibration', there is a section for 'Pressure 1 Zero Calibration' which contains a table with the following data:

Item Number	Description	Value	Unit
13	Base Pressure	14.6960	PSI
14	Atmospheric Pressure	1.0000	PSI
17	Calibration P1-Zero	-1.9424	PSI
18	Cal Prev-1 P1-Zero	-1.7918	PSI
19	Cal Prev-2 P1-Zero	-1.8146	PSI
20	Calibration P1-Span	0.9966	----
21	Cal Prev-1 P1-Span	0.9989	----
22	Cal Prev-2 P1-Span	1.0000	----
23	Min PCal Point Diff %	50.0000	----
24	Excess PCal Change %	2.0000	----
87	P1 Pressure Units	PSI	----
112	P1 Transducer Type	Gauge	----

To the right of the table is a 'Live Pressure' input field showing '0.2053 PSI'. Above the input field is a gauge icon and a text instruction: 'Apply any 'zero reference' pressure to the instrument's pressure input and wait for the instrument to stabilize before pressing the AVERAGE NOW button. After the averaged pressure is displayed, press the NEXT button to enter a new ZERO cal point.' Below the input field are two buttons: 'Average Now' and 'Change'. At the bottom of the interface are 'Done' and 'Span Calibration' buttons. The status bar at the very bottom shows 'Connected ( EC 350 )', 'EC350 | 00000000 - 00000000', and 'Comm Monitor | Send Capture Buffer to File'.

- Click **Apply**.

- After the pressure stabilizes, click **Average Now**. MasterLink averages the reading and displays the average pressure.

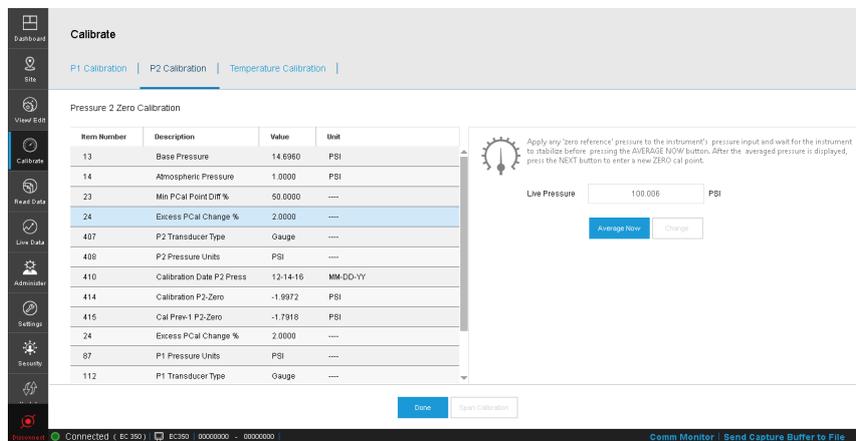
The screenshot displays the 'Calibrate' section of the MasterLink user interface. The main window is titled 'Calibrate' and contains a table of calibration items. A modal dialog box titled 'Restore Line Pressure' is overlaid on the table. The dialog contains the following text: 'To Complete the calibration process, first restore normal line pressure to the instrument and click done. To return to calibration click Recalibration.' Below this text, it displays 'P1 Gas Pressure : 100.0046 PSI' and two buttons: 'Recalibrate' and 'Done'. The background interface shows a table with columns 'Item Number', 'Description', 'Value', and 'Unit'. The table lists various calibration items, including 'Cal Prev-1 P1-Zero', 'Cal Prev-2 P1-Zero', 'Calibration P1-Span', 'Cal Prev-1 P1-Span', 'Cal Prev-2 P1-Span', 'Min PCal Point Diff %', 'Excess PCal Change %', 'P1 Pressure Units', and 'P1 Transducer Type'. A sidebar on the left contains navigation icons for Dashboard, Site, View/Edit, Calibrate, Read Data, Live Data, Administer, Settings, and Security. At the bottom of the interface, there is a status bar showing 'Connected ( EC 350 )' and 'Comm Monitor | Send Capture Buffer to File'.

Item Number	Description	Value	Unit
18	Cal Prev-1 P1-Zero	-1.9424	PSI
19	Cal Prev-2 P1-Zero	-1.9424	PSI
20	Calibration P1-Span	0.0000	PSI
21	Cal Prev-1 P1-Span	0.0000	PSI
22	Cal Prev-2 P1-Span	0.0000	PSI
23	Min PCal Point Diff %	50.0000	%
24	Excess PCal Change %	2.0000	%
87	P1 Pressure Units	PSI	----
112	P1 Transducer Type	Gauge	----
120	Calibration Date P1_Press	12-22-16	MM-DD-YY

- To complete the calibration process, restore the normal line pressure to the instrument, and then click **Done**.
- For Recalibration, click **Recalibrate** and repeat the same process.

## 3.5.2 Pressure Calibration P2

P2 Calibration contains different calibration items. The procedure is same as performed for P1 calibration.



The screenshot shows the 'Calibrate' interface for P2 Calibration. The left sidebar contains navigation options: Dashboard, Site, View/Edit, Calibrate, Read Data, Live Data, Administrator, Settings, and Security. The main content area is titled 'Pressure 2 Zero Calibration' and features a table of calibration items and a live pressure input field.

Item Number	Description	Value	Unit
13	Base Pressure	14.6960	PSI
14	Atmospheric Pressure	1.0000	PSI
23	Min PCal Point Diff %	50.0000	----
24	Excess PCal Change %	2.0000	----
407	P2 Transducer Type	Gauge	----
408	P2 Pressure Units	PSI	----
410	Calibration Date P2 Press	12-14-16	MM-DD-YY
414	Calibration P2-Zero	-1.9972	PSI
415	Cal Prev-1 P2-Zero	-1.7818	PSI
24	Excess PCal Change %	2.0000	----
87	P1 Pressure Units	PSI	----
112	P1 Transducer Type	Gauge	----

Live Pressure:  PSI

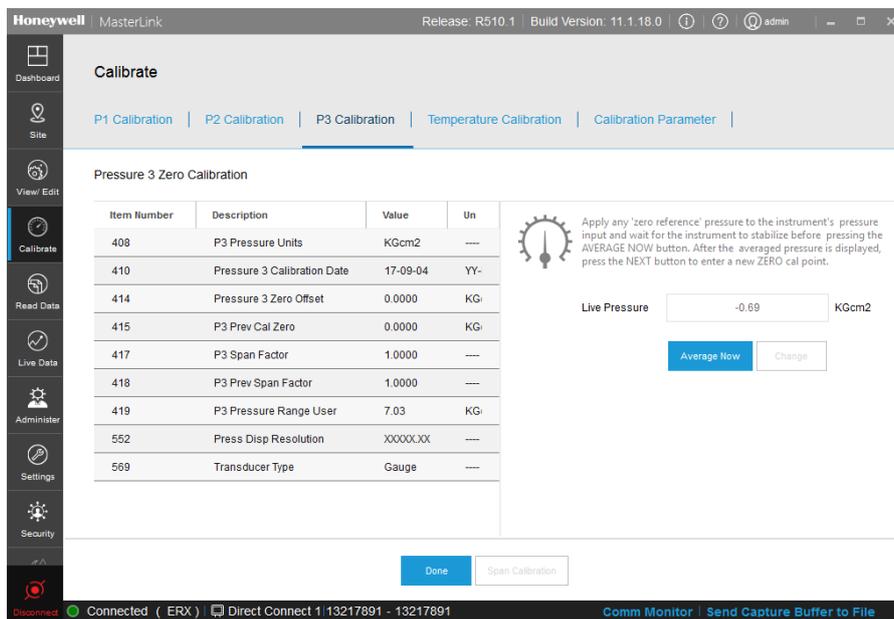
Buttons: Average Now, Change

Bottom status bar: Connected ( Ec 250 ) Ec250 00000000 - 00000000 Comm Monitor | Send Capture Buffer to File

## 3.5.3 Pressure Calibration P3

[Applicable for ERX only]

P3 Calibration contains different calibration items. The procedure is same as performed for P1 calibration.



The screenshot shows the 'Calibrate' interface for P3 Calibration. The left sidebar contains navigation options: Dashboard, Site, View/Edit, Calibrate, Read Data, Live Data, Administrator, Settings, and Security. The main content area is titled 'Pressure 3 Zero Calibration' and features a table of calibration items and a live pressure input field.

Item Number	Description	Value	Un
408	P3 Pressure Units	KGcm2	----
410	Pressure 3 Calibration Date	17-09-04	YY-
414	Pressure 3 Zero Offset	0.0000	KG-
415	P3 Prev Cal Zero	0.0000	KG-
417	P3 Span Factor	1.0000	----
418	P3 Prev Span Factor	1.0000	----
419	P3 Pressure Range User	7.03	KG-
552	Press Disp Resolution	XXXXXX	----
569	Transducer Type	Gauge	----

Live Pressure:  KGcm2

Buttons: Average Now, Change

Bottom status bar: Disconnected Connected ( ERX ) Direct Connect 1 | 13217891 - 13217891 Comm Monitor | Send Capture Buffer to File

## 3.5.4 Temperature Calibration

### UNDERSTANDING TEMPERATURE CALIBRATION

This is a simple two-point calibration. First, calibrate the gas temperature sensor at a low scale temperature and then again at a high scale temperature. Each time, adjust the temperature calculated by the instrument to match the reading from your reference standard calibrator.

Adjusting the low scale temperature is called "Zero Calibration" while adjusting the high scale temperature is called "Span Calibration." A low temperature source, usually an ice bath (32 °F) is used to determine the Temperature Zero Calibration. A higher temperature source is used to determine the Temperature Span Calibration (gain). The default Calibration Parameters require the Span Temperature exceed the Zero Temperature by at least 10% of the instrument's temperature range.

Span calibration actually uses some of the information determined from performing the zero calibration. For this reason, you will need to at least "sample" a low scale temperature before you can begin the span calibration. Sampling occurs when you indicate that the temperature is ready to be averaged.

To calibrate temperature:

1. Insert the temperature probe of the instrument, along with an accurately calibrated thermometer into a low temperature bath or dry well, which provides the temperature zero reference. Wait for the temperature reading displayed on the Temperature Calibration dialog box to be stabilized.
2. Click **Average Now**. MasterLink averages the reading and displays the average temperature.

**Calibrate**

P1 Calibration | P2 Calibration | **Temperature Calibration**

Temperature Zero Calibration

Item Number	Description	Value	Unit
31	Case Temperature	22.84	C
34	Base Temperature	15.56	C
35	Calibration T-Zero	-0.9719	C
36	Cal Prev-1 T-Zero	-0.9019	C
37	Cal Prev-2 T-Zero	-0.8699	C
38	Calibration T-Span	1.0000	----
39	Cal Prev-1 Temp-Span	1.0000	----
40	Cal Prev-2 Temp-Span	1.0000	----
41	Min TCal Point Diff %	10.0000	----
42	Excess TCal Change %	2.0000	----
89	Temperature Units	C	----
121	Calibration Date Temp	09-16-16	MM-DD-YY

Insert the temperature sensor in a low temperature calibration bath and wait for the temperature reading to stabilize before accepting or changing the temperature to match the zero reference temperature.

Live Temperature:  F

**Average Now** | Change

Done | Span Calibration

Connected ( EC 350 ) | ec350site | 00000000 - 00000000 | Comm Monitor | Send Capture Buffer to File

**Calibrate**

P1 Calibration | P2 Calibration | **Temperature Calibration**

Temperature Zero Calibration

Item Number	Description	Value	Unit
31	Case Temperature	22.84	C
34	Base Temperature	15.56	C
35	Calibration T-Zero	-0.9719	C
36	Cal Prev-1 T-Zero	-0.9019	C
37	Cal Prev-2 T-Zero	-0.8699	C
38	Calibration T-Span	1.0000	----
39	Cal Prev-1 Temp-Span	1.0000	----
40	Cal Prev-2 Temp-Span	1.0000	----
41	Min TCal Point Diff %	10.0000	----
42	Excess TCal Change %	2.0000	----
89	Temperature Units	C	----
121	Calibration Date Temp	09-16-16	MM-DD-YY

Insert the temperature sensor in a low temperature calibration bath and wait for the temperature reading to stabilize before accepting or changing the temperature to match the zero reference temperature.

Live Temperature:  F

**Average Now** | Change

Done | Span Calibration

Please wait...  
Cancel

Connected ( EC 350 ) | ec350site | 00000000 - 00000000 | Comm Monitor | Send Capture Buffer to File

The screenshot shows the 'Calibrate' section of the MasterLink User Interface. The 'Temperature Calibration' tab is active. On the left, a table lists calibration items:

Item Number	Description	Value	Unit
31	Case Temperature	22.84	C
34	Base Temperature	15.56	C
35	Calibration T-Zero	-0.9719	C
36	Cal Prev-1 T-Zero	-0.9019	C
37	Cal Prev-2 T-Zero	-0.8699	C
38	Calibration T-Span	1.0000	----
39	Cal Prev-1 Temp-Span	1.0000	----
40	Cal Prev-2 Temp-Span	1.0000	----
41	Min TCal Point Diff %	10.0000	----
42	Excess TCal Change %	2.0000	----
89	Temperature Units	C	----
121	Calibration Date Temp	09-16-16	MM-DD-YY

On the right, there is a 'Live Temperature' input field set to '-20' with a unit selector 'F'. Below it are 'Average Now' and 'Change' buttons. A 'Done' button is at the bottom of the table area, and a 'Span Calibration' button is to its right. The status bar at the bottom shows 'Connected ( EC 350 )' and 'Comm Monitor | Send Capture Buffer to File'.

3. Click **Next** to change the value to accurately match the temperature measured by the calibrated thermometer placed in the low temperature bath. Click **Apply**.

This screenshot shows the same 'Calibrate' interface as above, but with a dialog box titled 'Change Temperature Calibration Value' open. The dialog box contains a 'Reference Pressure' input field with the value '158' and a unit selector 'F'. At the bottom of the dialog are three buttons: 'ERROR!', 'Apply', and 'Cancel'. The background interface is dimmed, showing the 'Live Temperature' field now set to '156.43' and the 'Change' button highlighted. The status bar at the bottom remains the same.

**Note:** On entering incorrect values, an error message is displayed.

Temperature Span Calibration

Item Number	Description	Value	Unit
31	Case Temperature	74.45	F
34	Base Temperature	60.01	F
35	Calibration T-Zero	-1.3859	F
36	Cal Prev-1 T-Zero	-1.4949	F
37	Cal Prev-2 T-Zero	0.0545	F
38	Calibration T-Span	1.0039	----
39	Cal Prev-1 Temp-Span	1.0006	----
40	Cal Prev-2 Temp-Span	1.0000	----
41	Min TCal Point Diff %	10.0000	----
42	Excess TCal Change %	2.0000	----

Warning  
Attempting to write unacceptable data value to a particular Item number (format or range issues).

temperature  F

Average Now Change

- Click **Span Calibration**. Insert the temperature probe of EC 350 and the calibrated thermometer into a high temperature bath, which provides the temperature span reference. The temperature reading displayed on the Temperature Calibration dialog box must exceed the zero reference temperature by at least 15% to proceed with span calibration.

Temperature Span Calibration

Item Number	Description	Value	Unit
31	Case Temperature	74.45	F
34	Base Temperature	60.01	F
35	Calibration T-Zero	-1.4949	F
36	Cal Prev-1 T-Zero	0.0545	F
37	Cal Prev-2 T-Zero	0.0545	F
38	Calibration T-Span	1.0039	----
39	Cal Prev-1 Temp-Span	1.0006	----
40	Cal Prev-2 Temp-Span	1.0000	----
41	Min TCal Point Diff %	10.0000	----
42	Excess TCal Change %	2.0000	----

Success!  
Span Calibration Successful.

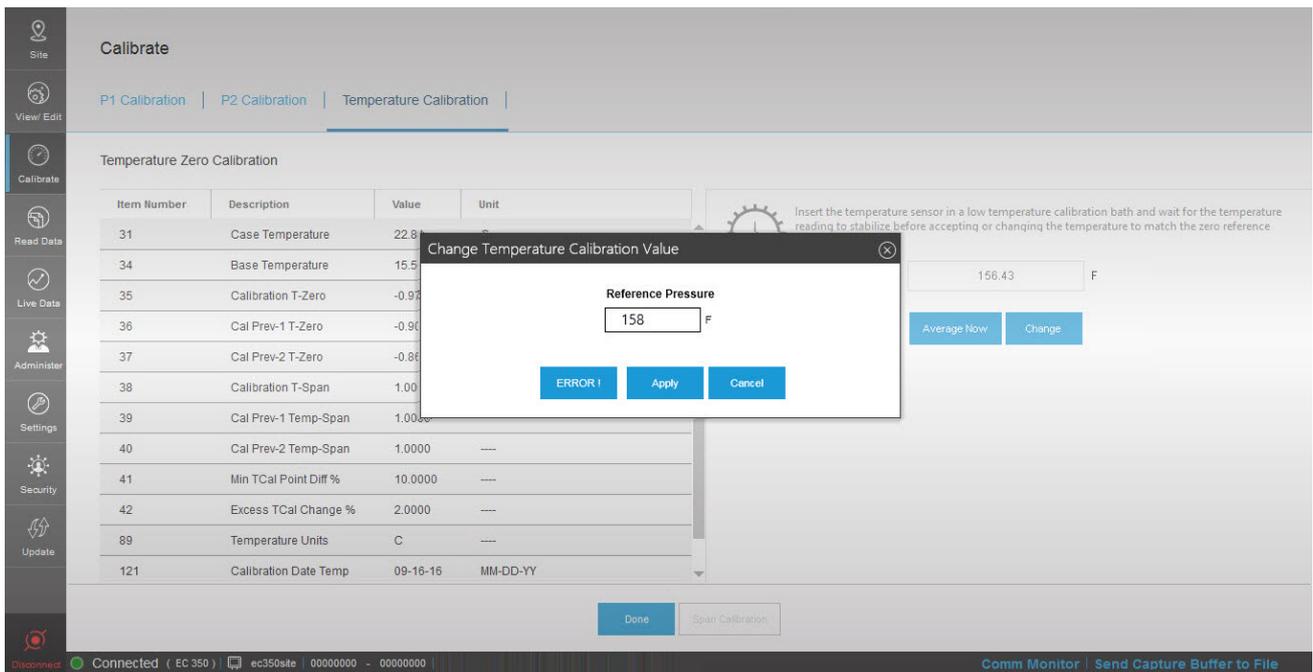
temperature  F

Average Now Change

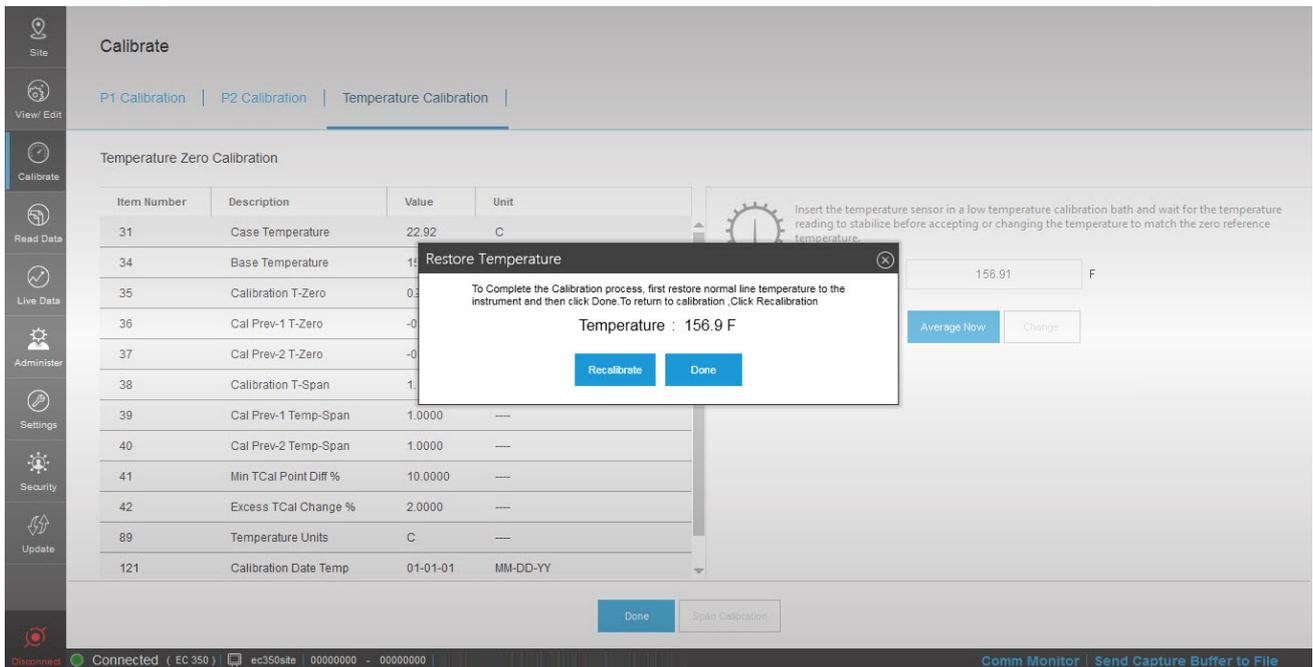
- After the reading stabilizes, click **Average Now**.

MasterLink averages the reading and displays the average temperature.

- Click **Change**. Change the value to accurately match the temperature measured by the calibrated thermometer placed in the high calibration bath. Finally click **Apply**.



- To complete the calibration process, first restore normal line temperature to the instrument, and then click **Done**.

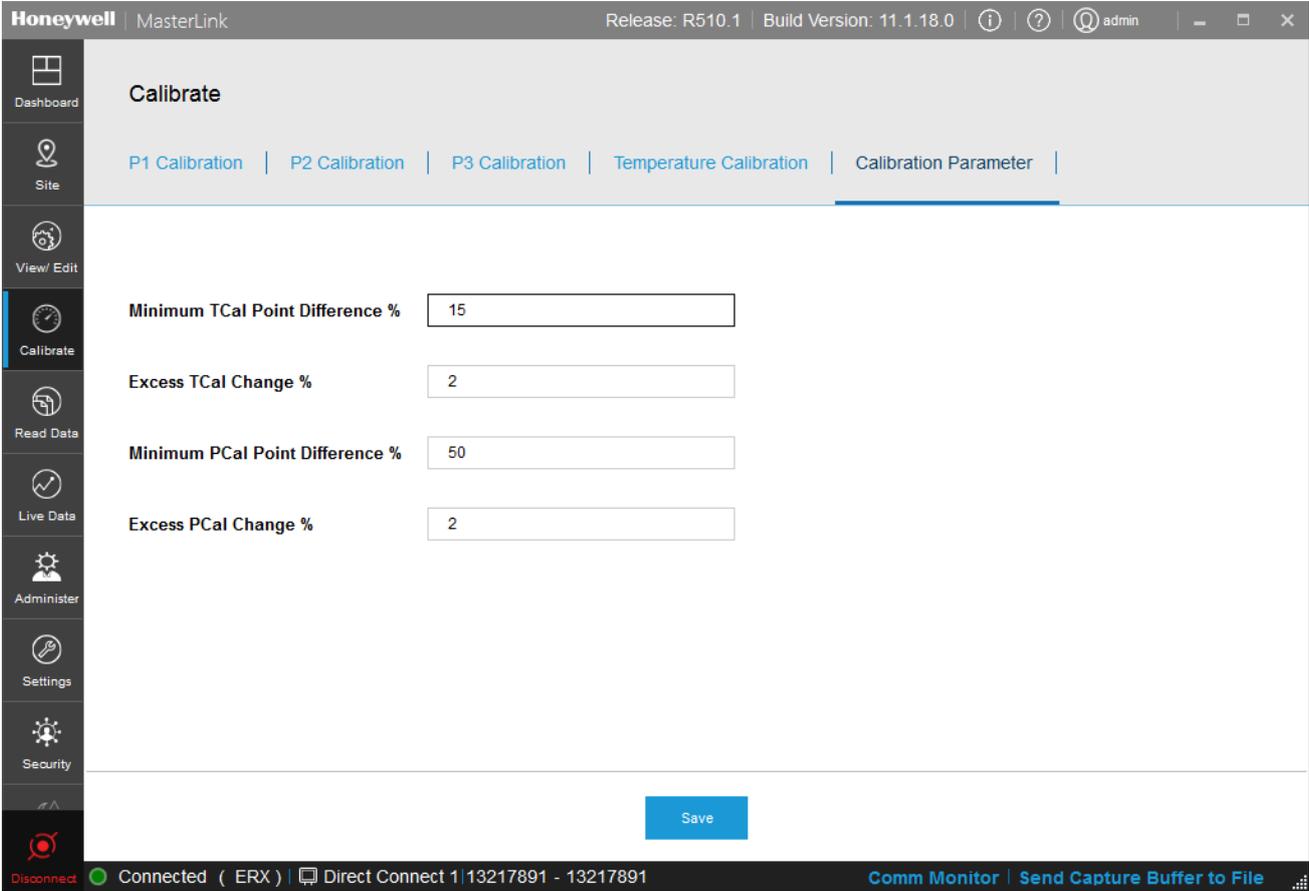


**Note:** Supported temperature range: -40 °C to 70 °C

- For Recalibration, click **Recalibrate** and repeat the same process.

### 3.5.5 Calibration Parameter

This tab is used to configure calibration parameters for legacy Mercury devices, such as ERX, ER, and Mini.



Enter the values and click **Save** to calibrate the connected legacy Mercury device.

## 3.6 Read Data

The Read data functionality is now re-designed to read and report data from the same screen. Users can read the logs from the instrument and can also generate reports.

In integrated mode

- When connected to integrated EC 350 over IrDA, logs from MasterLink R510.4 cannot be downloaded.
- When connected through TCP/IP - all logs can be downloaded

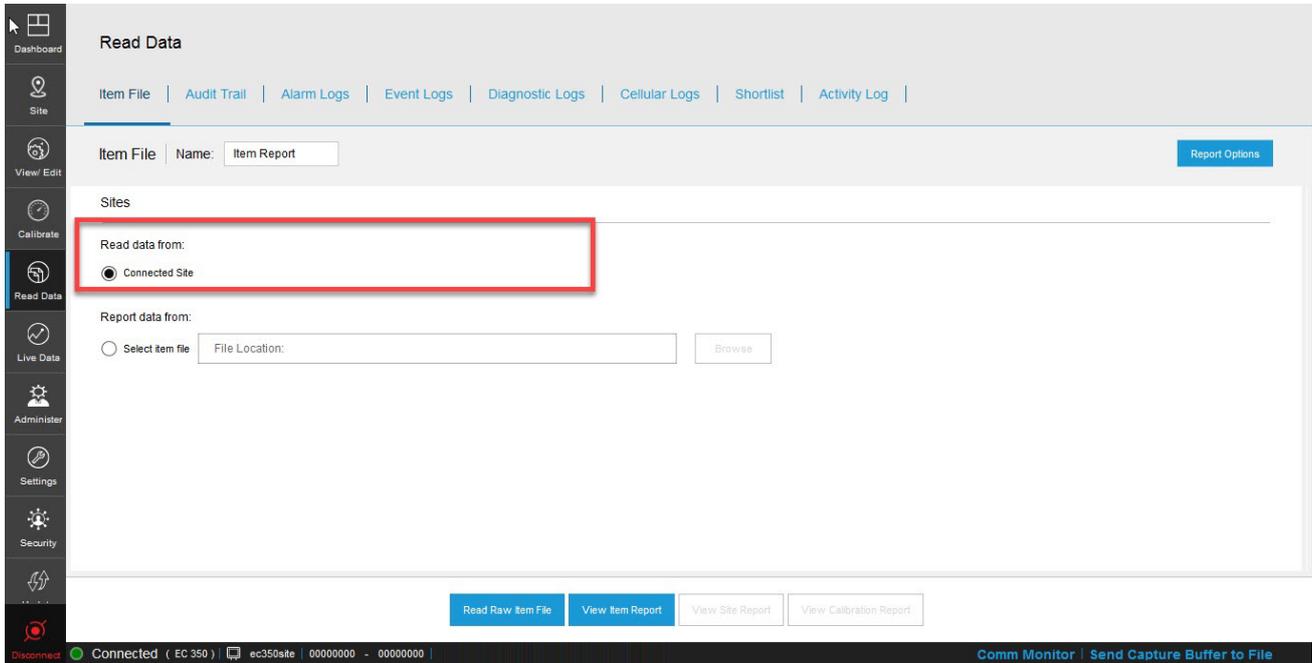
In EC 350 mode

- When connected to EC 350 tabs corresponding to cellular logs and diagnostic logs are disabled.

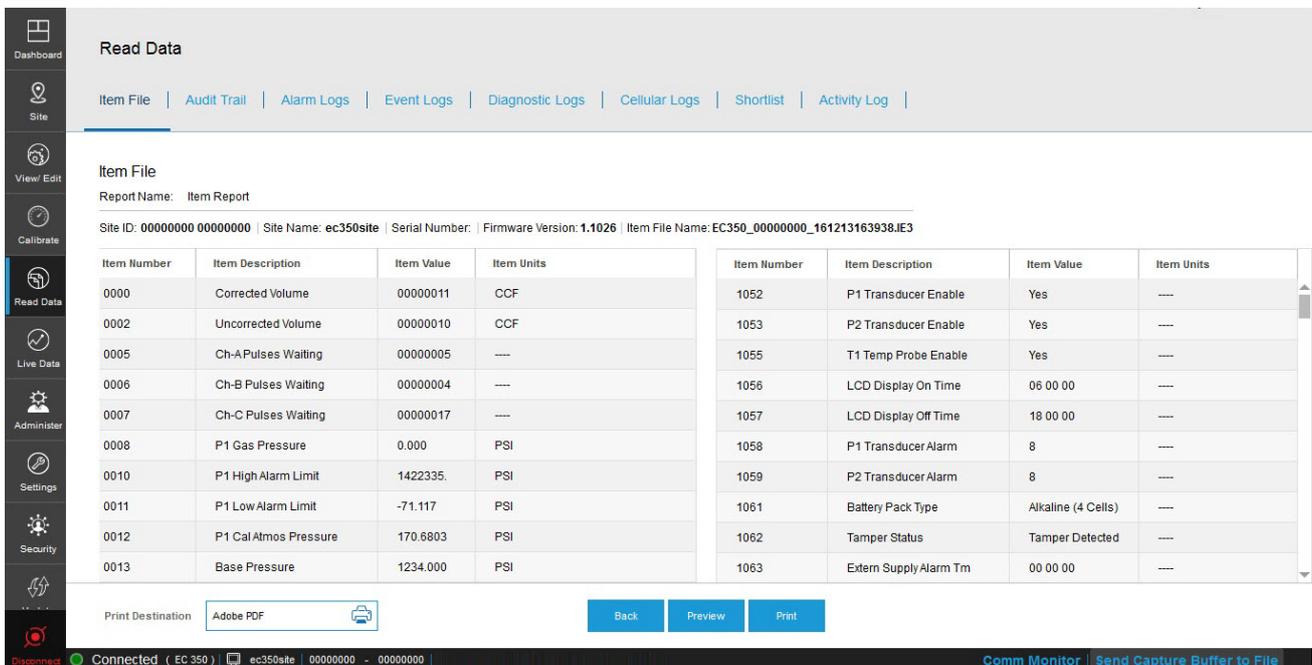
### 3.6.1 Item File

Use the 'Item File' tab to read the item numbers and their current values from the instrument. An Item File stores the connected site instrument's item values in a file (\*.IE3 for EC 350, \*.ICL for Cloud Link 4G Modem, \*.ECL for EC 350 + Cloud Link 4G Modem).

Item file can be read (online) from the connected instrument or can be viewed (offline) from a stored item file.



The Item File report appears.



Export or Print the data.

Click **View Site Report** under Item File tab to generate site report.

**Read Data**

Item File | Audit Trail | Alarm Logs | Event Logs | Diagnostic Logs | Cellular Logs | Shortlist | Activity Log

**Site Report**  
 Report Name: Item Report  
 Site ID: 00000000 00000000 | Site Name: ec350site | Serial Number: "" | Firmware Version: 1.1026 | Item File Name: EC350\_00000000\_161213163938.JE3

**Volume**

Item Number	Item Description	Item Value	Item Units
0000	Corrected Volume	00000011	CCF
0002	Uncorrected Volume	00000010	CCF
0090	Cor Volume Units	CCF	----
0092	Unc Volume Units	CCF	----
0096	Corr Vol # of Digits	8 Digits	----
0097	Unc Vol # of Digits	8 Digits	----
0098	Meter Index Rate	10 CF	----
0113	Hi Res Cor Vol	11.0000	CCF

**Pressure**

Print Destination: Adobe PDF

Back Preview Print

Connected ( EC 350 ) | ec350site | 00000000 - 00000000 | Comm Monitor | Send Capture Buffer to File

Click **View Calibration Report** under item file tab to view calibration report.

**Read Data**

Item File | Audit Trail | Alarm Logs | Event Logs | Diagnostic Logs | Cellular Logs | Shortlist | Activity Log

**Calibration Report**  
 Report Name: Item Report  
 Site ID: 00000000 00000000 | Site Name: ec350site | Serial Number: "" | Firmware Version: 1.1026 | Item File Name: EC350\_00000000\_161213163938.JE3

**Volume**

Item Number	Item Description	Item Value	Item Units
0000	Corrected Volume	00000011	CCF
0002	Uncorrected Volume	00000010	CCF
0113	Hi Res Cor Vol	11.0000	CCF

**Pressure**

Item Number	Item Description	Item Value	Item Units
0008	P1 Gas Pressure	0.000	PSI
0013	Base Pressure	1234.000	PSI
0014	Atmospheric Pressure	14.6960	PSI
0017	Calibration P1-Zero	0.0000	PSI

Print Destination: Adobe PDF

Back Preview Print

Disconnect Connected ( EC 350 ) | ec350site | 00000000 - 00000000 | Comm Monitor | Send Capture Buffer to File

**Note:** Application must be connected to an instrument to perform this operation.

## 3.6.2 Audit Trail

Use the 'Audit Trail' tab to view and download Audit Trail data from the instrument.

The screenshot shows the 'Read Data' interface with the 'Audit Trail' tab selected. The interface includes a sidebar with navigation options like Dashboard, Site, View/Edit, Calibrate, Read Data, Live Data, Administer, Settings, Security, and a status bar at the bottom. The main content area is divided into three sections: 'Sites & Logs', 'Date Range', and 'Log selection'. The 'Sites & Logs' section has radio buttons for 'Connected Site' and 'Selected Sites', with a 'Select Sites' button. The 'Date Range' section has radio buttons for 'Today', 'Yesterday', 'This Month', 'Last Month', 'Since Last Download', 'Last N Days', 'Since', and 'From/To', along with date and time pickers. The 'Log selection' section has checkboxes for 'Log 1' through 'Log 5' and a 'Check All' button. A 'View' button is at the bottom center. Red boxes and circles highlight specific elements: a red box around 'Sites & Logs' and 'Date Range' with a red circle '1' next to 'Select Sites' and a red circle '3' next to 'Calculate Date Range'; another red box around 'Log selection' with a red circle '2' next to 'Check All'.

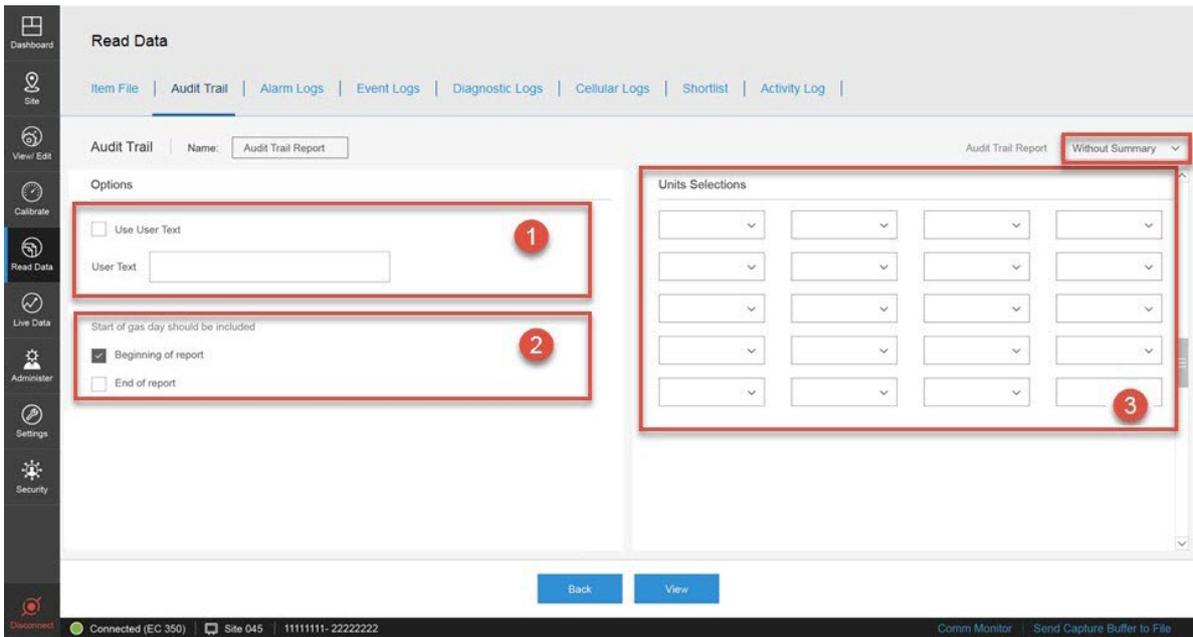
Application must be connected to an instrument to view Audit Trail reports.

Relate the steps highlighted in the image above with the steps below:

1. Start by selecting the site. Logs can be read from a connected site (online), or can be retrieved from exiting list of sites (offline). The connected site will be selected by default. For selecting multiple sites use **Select Sites** option.
2. Select the **log** or select **Check All**
3. Select the **Date Range**
4. Click **View** to view Audit Trail Report.

If required, click on **Report Options** to view or add more information in the report.

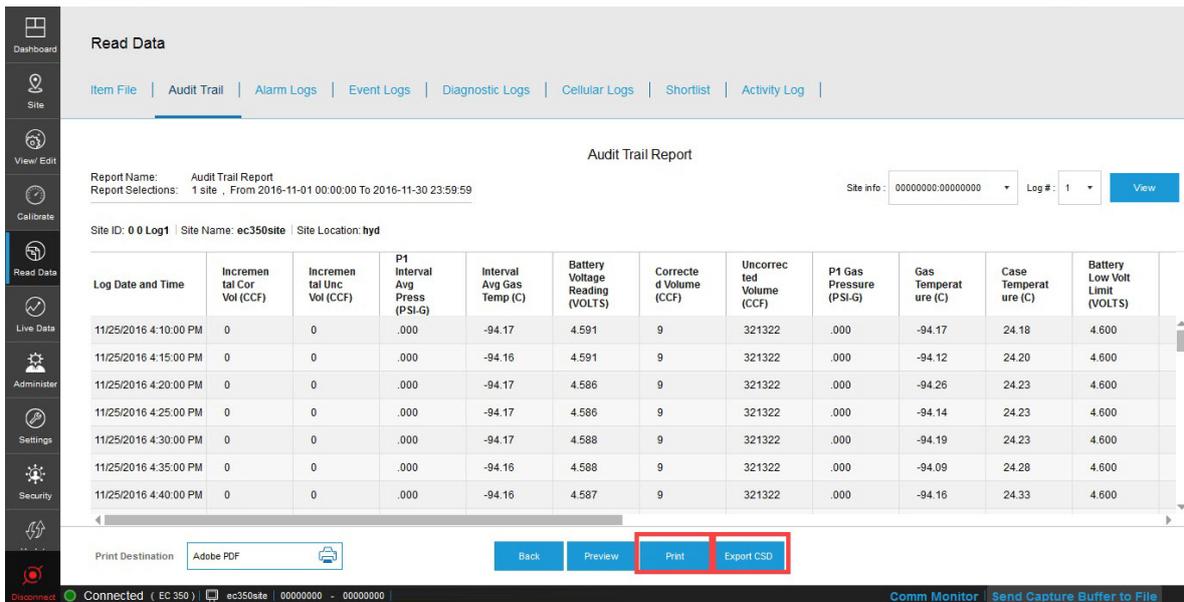
Audit Trail Report can be viewed without Summary - This function is used to provide a full report (without summary) of the audit trail data that pertains to a particular instrument.



Relate the steps highlighted in the image above with the steps below:

1. Start by checking **Use User Text**, and entering the name of the report.
2. Select whether *start of gas day* is to be included in **Beginning of report** or towards the **End of Report**.
3. Select the **Units Selections**.
4. Click **View**.

The Audit Trail Report appears based on selected criteria.



You can choose to **Export** or **Print** the data.

### 3.6.2.1 Audit Trail Graphs

The Audit Trail Graph function displays selected report items in graph format. It is recommended that items with numeric values are used for plotting the graph.

**Note:** This is an offline operation.

Relate the steps highlighted in the image above with the steps below:

1. Start by selecting the site from the Site and Logs section.
2. Select one **log** out of 5 logs.
3. Select the **Date Range**

Select the date range. Select the check box next to the date range choice.

- Selecting today, will report data from 12-hours up to the time the report is begun.
- Choosing Yesterday will print from a 24-hour span up to the time the report is begun.
- This Month reports only the data for the current month.
- The Last Month reports back 30 days.
- If Last N Days is chosen, enter the number of days.
- When selecting either Since or From/To, date and time fields appear on the screen for input.

Click **Graph Options** to customize the audit trail graph.

The screenshot shows the 'Audit Trail Graph' configuration interface. The 'Configuration' section (highlighted with a red box and labeled '1') contains the following fields:

Y Axis Item	Y Min	Y Max	Color	Line Style
Corrected Volume	0	100	Red	Solid Line(Medium)
Uncorrected Volume	0	100	Blue	Solid Line(Medium)
P1 Gas Pressure	0	100	Green	Solid Line(Medium)
Gas Temperature	0	100	Orange	Solid Line(Medium)

The 'Log selection' section (highlighted with a red box and labeled '2') contains the following options:

- Each item on separate graph
- Show Data Point on Lines

Buttons for 'Load Setup', 'Save Setup', 'Back', and 'Show Graph' are also visible.

Relate the steps highlighted in the image with the steps below:

1. Configure the Y-Axis item, Y Min, Y Max, Color and Line Style
2. Select the required option from the **Log selection**

#### Audit Trail Graph - Y Axis Item

Toggle-click on the box to select/deselect the item(s) to graph. The items chosen will be displayed on the actual graph when the Preview button is clicked.

#### Audit Trail Graph - Y Min

This option sets the values for the minimum Y scale (vertical scale). To change these defaults, click on that field and enter the new value.

#### Audit Trail Graph - Y Max

This option sets the values for the maximum Y scale (vertical scale). To change these defaults, click on that field and enter the new value.

#### Audit Trail Graph - Color

For each of the 4 items, click on the down arrow next to the color fields for selectable options, then click on the selection. The color selections and item titles will be displayed on the actual graph legend when Preview is clicked.

#### Audit Trail Graph - Line Style

For each of the 4 items, click on the down arrow next to the line style field for selectable options, then click on the selection. Dashed or dotted line styles will not be noticeable on data lines unless the data points are fairly far apart.

## Log Selection

- **Each item on separate graph** - Checking this box will draw one item per graph. If this is unchecked, more than one item will be drawn on a graph. A graph can have two Y scales (vertical); one on each side. If two items have the same unit of measure, they can share a Y scale. The Y scales are located along the left and right sides of the graph.
- **Show data points on lines** - Data lines may be drawn with or without dots

3. Click **Show Graph**. The Audit Trail Graph appears based on the selected criteria.

## Audit Trail Graph - Save Setup

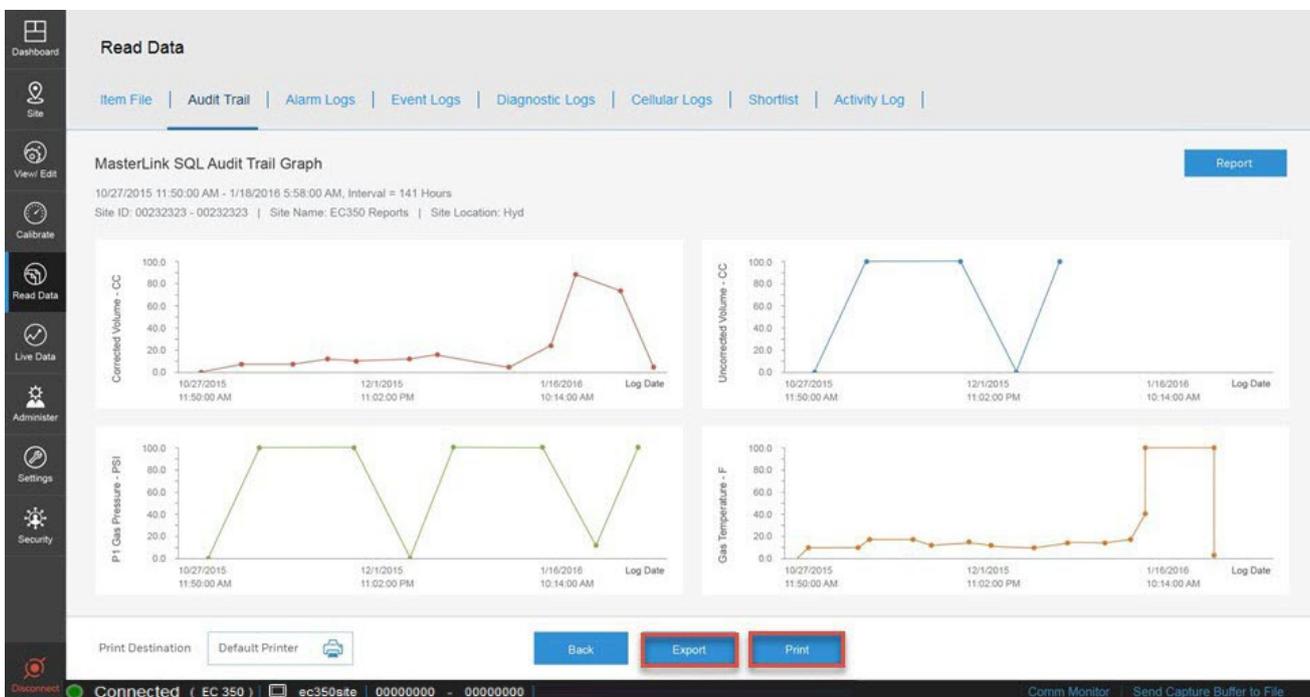
Click this button to save the Audit Trail Graph Setup configuration. These defaults can be reused when you click the Load Setup button. The default file extension is .ags and is saved in the installation designated file folder for report/graph files.

## Audit Trail Graph: Load Setup

Click this button to load the Audit Trail Graph Setup configuration which is previously saved to file with the "Save Setup" feature. The file is saved in the installation designated file folder for report/graph files.

After selecting a file, click the Open button to proceed with this function or Cancel to return to the currently displayed graph setup.

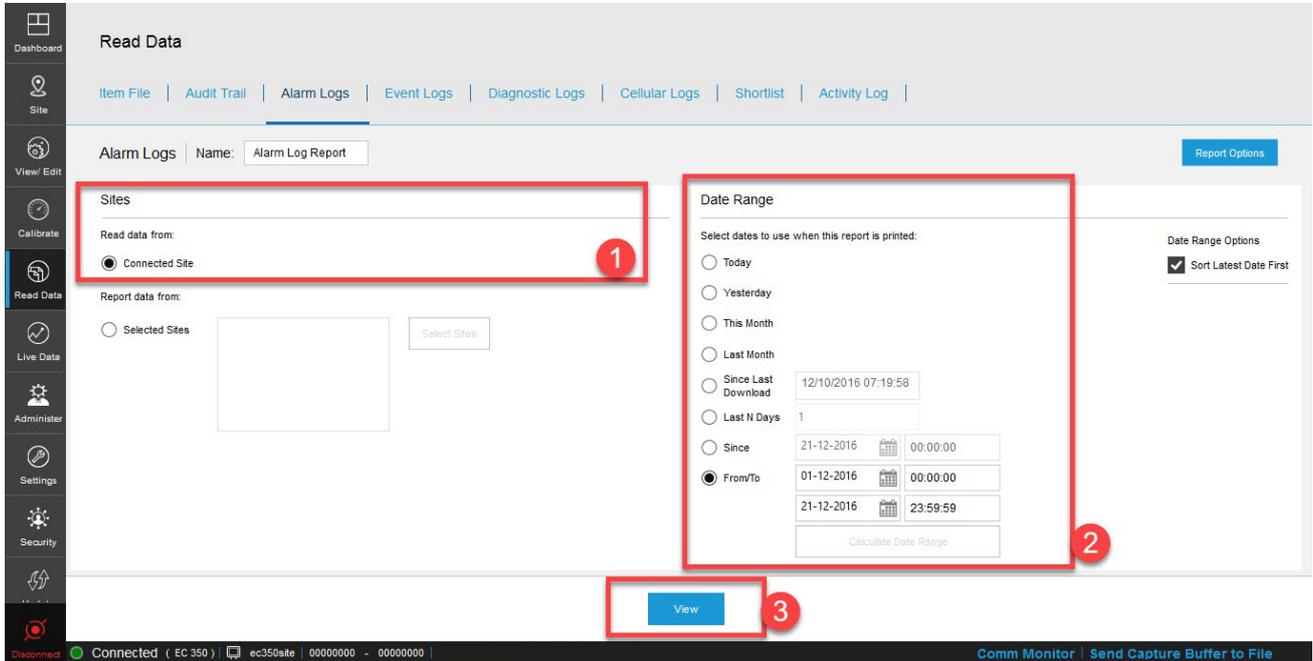
After customizing the graph, finally click **Show Graph** to view Audit Trail Graph.



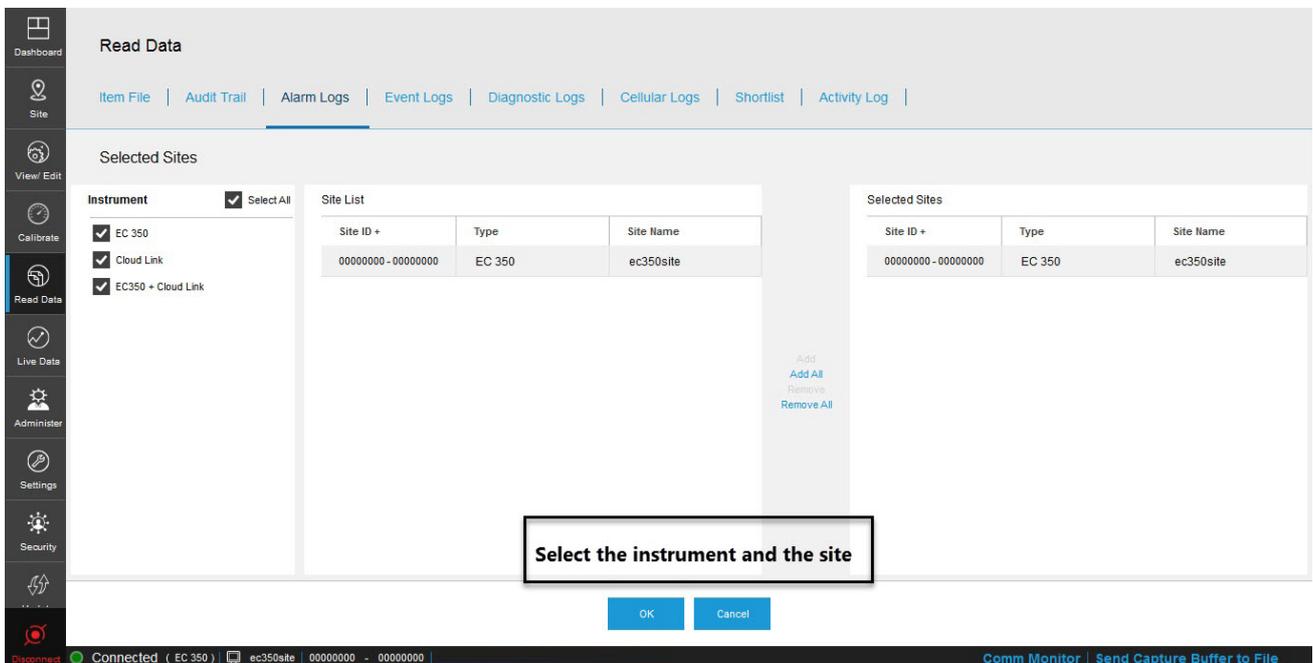
You can choose to **Export** or **Print** the data.

### 3.6.3 Alarm Logs

Use the 'Alarm Logs' tab to read and view all alarm activity data from a connected instrument. An Alarm Log record is defined as any alarm activity, which includes new alarms, alarms acknowledged as well as alarms that have been cleared. Alternatively, you can choose to select a list of sites and then generate a report.



Start by selecting sites. You can either read alarm logs from a connected site or select a list of sites to read logs from.



Select the date range of the report and then click **View**.

The Alarm Logs appear based on your selected criteria. You can choose to **Preview** or **Print** the data.

- Dashboard
- Site
- View/ Edit
- Calibrate
- Read Data**
- Live Data
- Administer
- Settings
- Security
- Disconnect

**Read Data**

Item File | Audit Trail | **Alarm Logs** | Event Logs | Diagnostic Logs | Cellular Logs | Shortlist | Activity Log

### Alarm Log Report

Report Name: Alarm Log Report  
 Report Selections: 1 site , From 2016-11-01 00:00:00 To 2016-11-30 23:59:59

Site info: 00000000:00000000 View

Site ID: 0 0 | Site Name: ec350site | Site Location: hyd

Date	Time	Alarm Type	Item #	Alarm Desc	Alarm Value	Alarm Limit
11/25/2016	16:53:15	Alarm Ack	1058	P1 Transducer Alarm	8	00000000
11/25/2016	16:53:15	Alarm Ack	1025	Supercompress Alarm	10	00000000
11/25/2016	16:53:15	Alarm Ack	104	System Alarms	16384	00000000
11/25/2016	16:53:15	Alarm Ack	1059	P2 Transducer Alarm	8	00000000
11/25/2016	16:53:15	Alarm Ack	107	Tamper Detected Alarm	11111111	00000000
11/25/2016	16:53:15	Alarm Ack	1335	Temp Probe Alarms	4	00000000
11/25/2016	16:53:14	Alarm Ack	144	Temperature Low Alarm	-94.13	-37.22
11/25/2016	16:45:40	Alarm	107	Tamper Detected Alarm	11111111	00000000
11/25/2016	16:45:40	Alarm	104	System Alarms	16384	0

Print Destination: Adobe PDF 
Back
Preview
Print

Connected ( EC 350 ) | ec350site | 00000000 - 00000000

Comm Monitor | Send Capture Buffer to File

### 3.6.4 Event Logs

The Event Log records activity that is directly linked to and maintained within the instrument. An "event" documents an item change in the instrument or an instrument download. Event Log activities include:

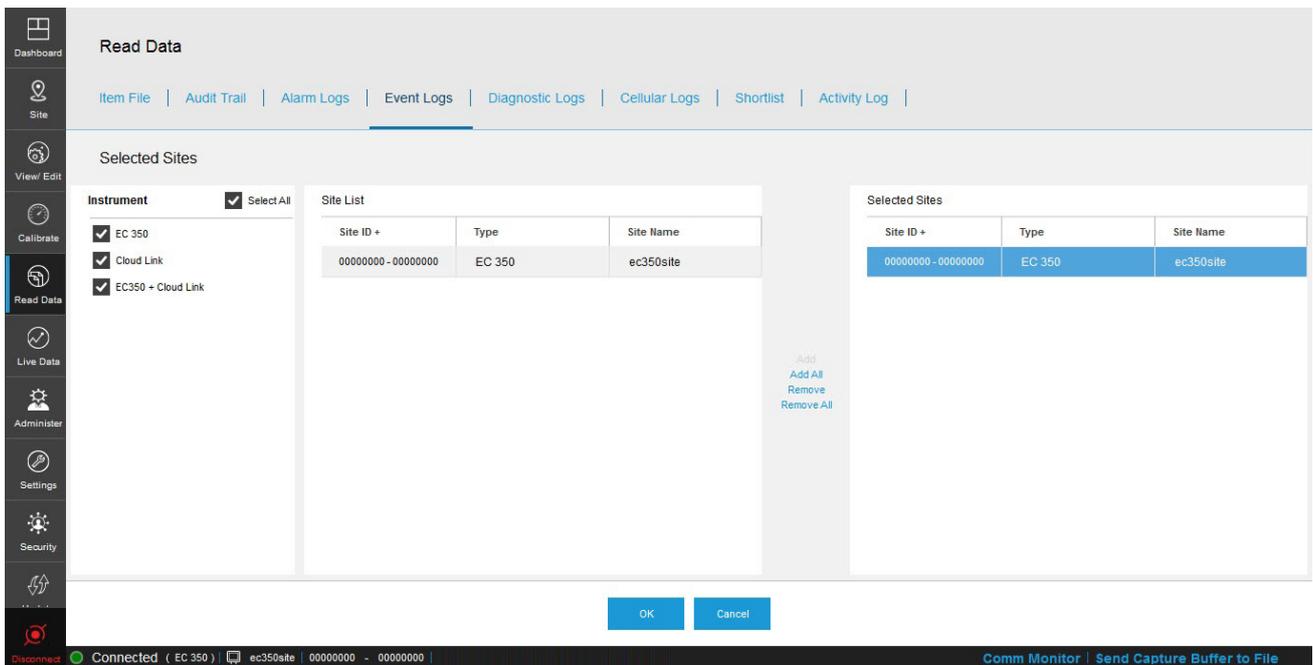
- Calibration Changes
- Access Code Changes
- Shutdown
- Item Code Changes
- Event Log Downloads

Use the 'Event Logs' tab to read event data from a connected instrument.

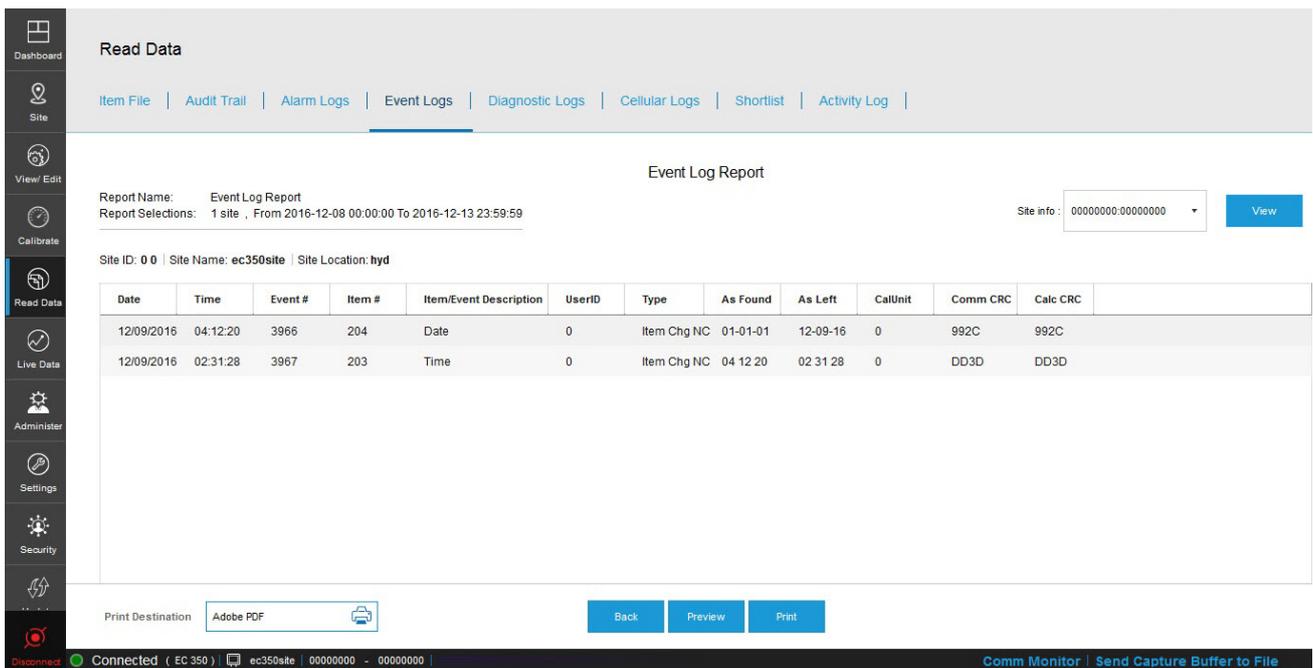
**Note:** This log is different from the Activity Log because that log mainly focuses on software activity (and some firmware activity) where the Event Log function records activity that is directly linked to and maintained by the instrument.

Relate the steps highlighted in the image above with the steps below:

1. Event Logs can be read from a connected site. Alternatively, user can select a site from the available list of sites and then generate a report.



2. Select the date range of the report.
3. Click **View**. The Event Logs appear based on your selected criteria.

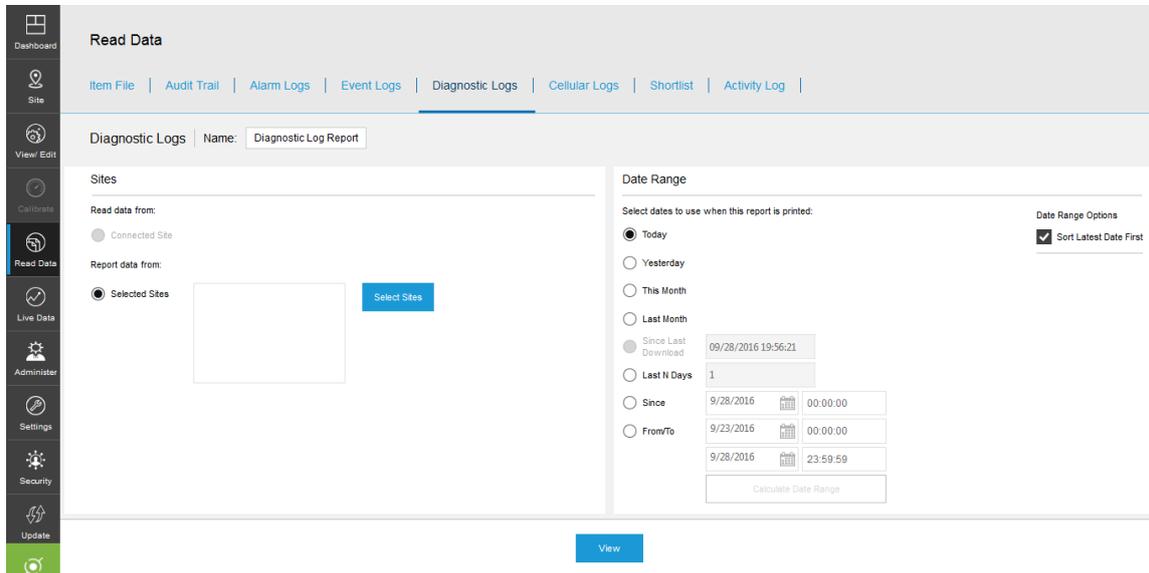


4. **Preview** or **Print** the data.

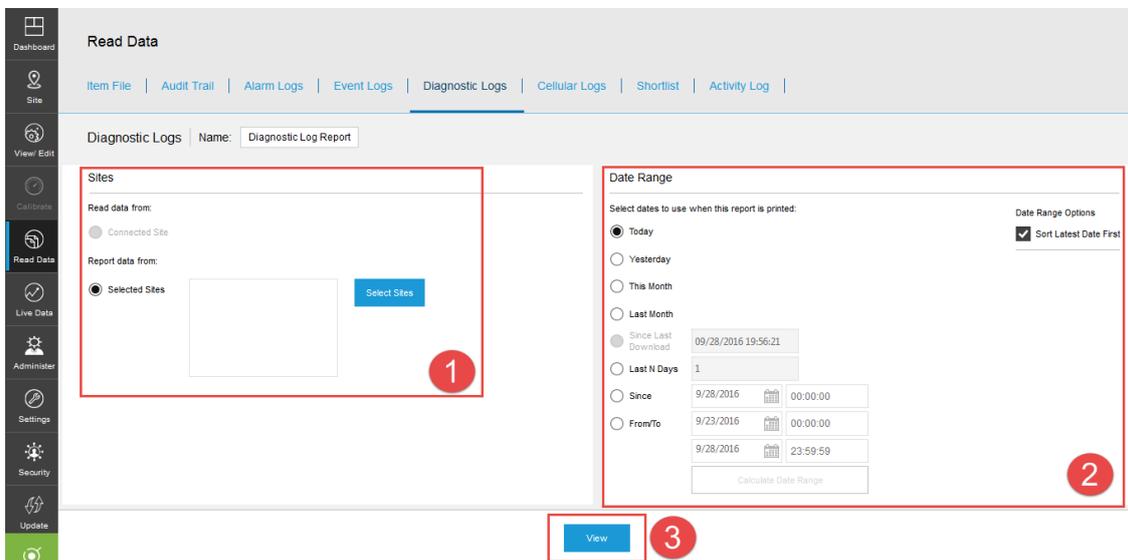
### 3.6.5 Diagnostic Logs

Use the 'Diagnostic Logs' tab to read diagnostic data from a Cloud Link 4G Modem.

Diagnostic logs are applicable to Cloud Link 4G Modem only and would be available when connected to Cloud Link 4G Modem or in integrated mode.



You can read Diagnostic logs from the currently connected site. Alternatively, you can choose to select a list of sites and then generate a report.



Relate the steps highlighted in the image above with the steps below:

1. Start by selecting the required site(s).
2. Then select the date range, and finally click **View** to read the Diagnostic log report.
3. You can also choose to **Export** or **Print** the data.

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### 3.6.6 Cellular Logs

Use the 'Cellular Logs' tab to read cellular data from a connected Cloud Link 4G Modem. Cellular Logs contain cellular connectivity and communication data of the connected modem.

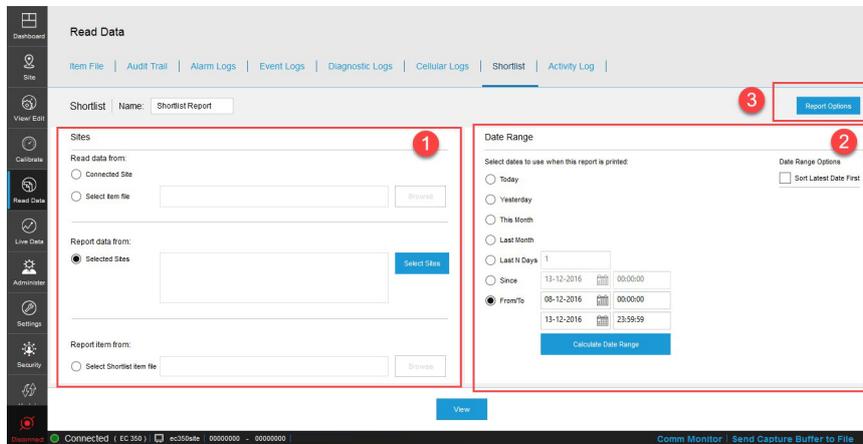
You can read Cellular logs from the currently connected site. Alternatively, you can choose to select a list of sites and then generate a report.

Relate the steps highlighted in the image above with the steps below:

1. Start by selecting the required site
2. Then select the date range, and finally click **View** to read the Cellular log report.
3. You can also choose to **Export** or **Print** the data.

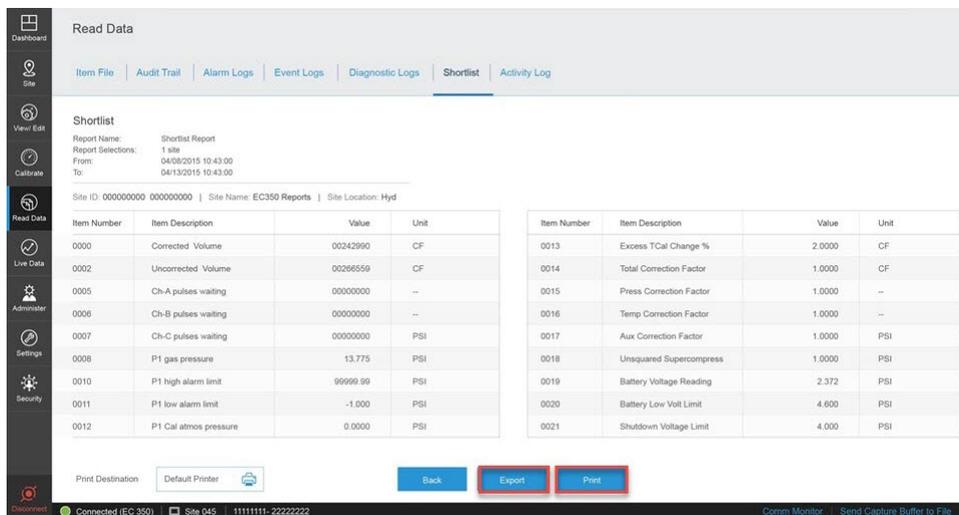
### 3.6.7 Shortlist

The Shortlist Template created using [Manage Shortlist](#) tab can be used to generate report for the corresponding shortlist.



Relate the steps highlighted in the image above with the steps below:

1. Select the site list or the item file.
2. Select the dates to use when the report is printed.
3. Click **Report Options** to enter user text. Check *Use User Text*, type the text that should appear in the report in the **User Text** box.
4. Click **View** to view the shortlist report.



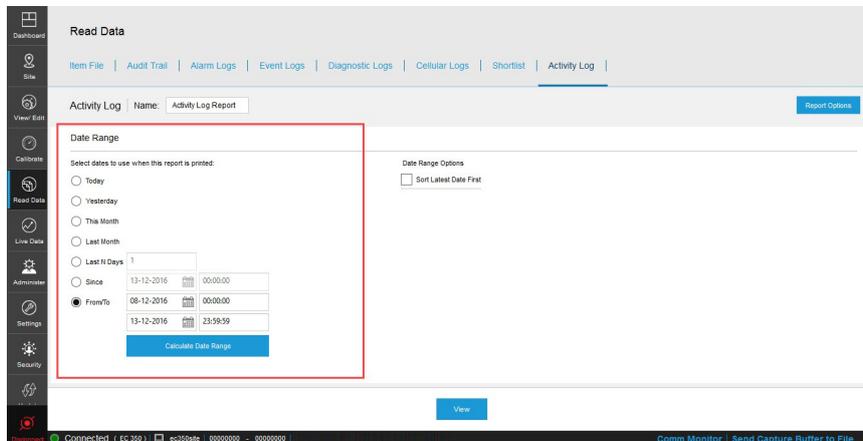
You can choose to **Preview** or **Print** the data.

**Note:** In Shortlist report, firmware version and serial number are not be displayed until the user selects Firmware version (**item #122**) and serial number (**item#62**) in Shortlist.

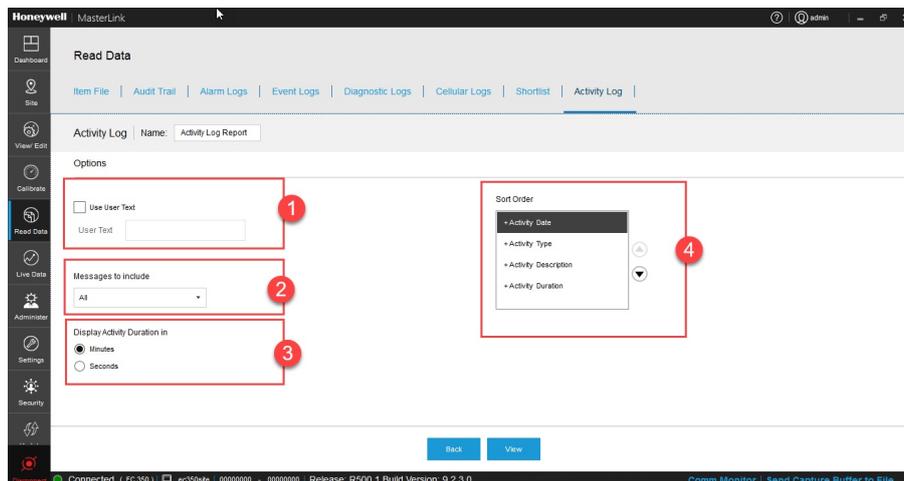
### 3.6.8 Activity Log

Use the 'Activity log' tab to read data on software activity.

Select the date range of the report and then click **Report Options**.



Customize the report in the **Report Options** page.



Relate the steps highlighted in the image above with the steps below:

1. Start by checking **Use User Text**. Type the text that should appear in the report in this box.
2. Select the **Messages to include**. There are 3 options for message reporting.
3. Select the **Display Activity Duration in**.
4. Select the **Sort Order**. This list shows the data columns that will be used in the report. Double click on the data type to change the sort order for that column: + (ascending) or - (descending).
5. Finally click **View** to view activity log report.

### 3.7 Live Data

The Live Data Graph function will graph data read directly from connected instruments.

- The computer/laptop must be connected to an instrument in order to display a live graph.
- You select which items to graph as well as other graph configuration items.
- The 'Live Data Graph' screen will display previously selected actual graph items in two graph sections when this function first begins. The device adjusts the upper and lower limits for each items from the settings provided.

Y Axis Item	Y Min	Y Max	Alarm Low	Alarm High	Graph Number
<input checked="" type="checkbox"/> P1 Pressure	0	100	-71.117	1422335	1
<input checked="" type="checkbox"/> Gas Temp	-40	170	-37.22	73.89	1
<input checked="" type="checkbox"/> Case Temp	-40	170	22.06	27.63	1
<input checked="" type="checkbox"/> Flow Rate	0	500	0	0	1
<input checked="" type="checkbox"/> Dial Rate	0	20000	0	0	1
<input type="checkbox"/> P2 Pressure	0	100	-1	99999.99	1

Y Axis Item	Color	Line Style
P1 Pressure	Blue	Solid Line(Thick)
Gas Temp	Green	Solid Line(Thick)
Case Temp	Orange	Solid Line(Thick)
Flow Rate	Magenta	Solid Line(Thick)
Dial Rate	Red	Solid Line(Thick)
P2 Pressure	Black	Solid Line(Thick)

Log selection:  Each item on separate graph,  Show Data Point on Lines,  Draw alarm lines

Reading Interval: 2 Seconds, X Axis Width: 15 Seconds

Buttons: Save, Show Graph

Status: Connected ( EC 350 ) | ec350site 00000000 - 00000000 | Comm Monitor | Send Capture Buffer to File

Click Show Graph to view the graph.

Started : 12/22/2016 4:29:02 PM

Site ID : 00000000 - 00000000 | Site Name : EC350 | Site Location : |

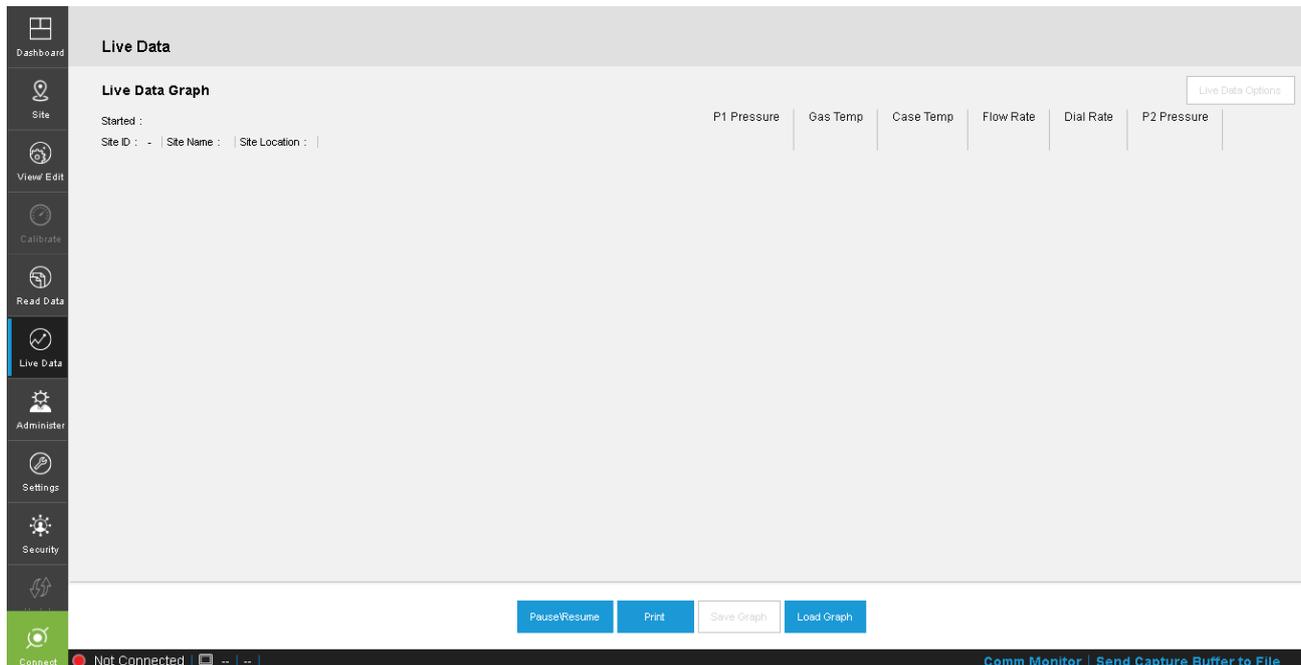
Summary: P1 Pressure **5.0706** PSI, Gas Temp **21.55** F, Flow Rate **400.18** CF/Hr, Dial Rate **898.4** CF/Hr

Buttons: Pause/Resume, Print, Save Graph, Load Graph

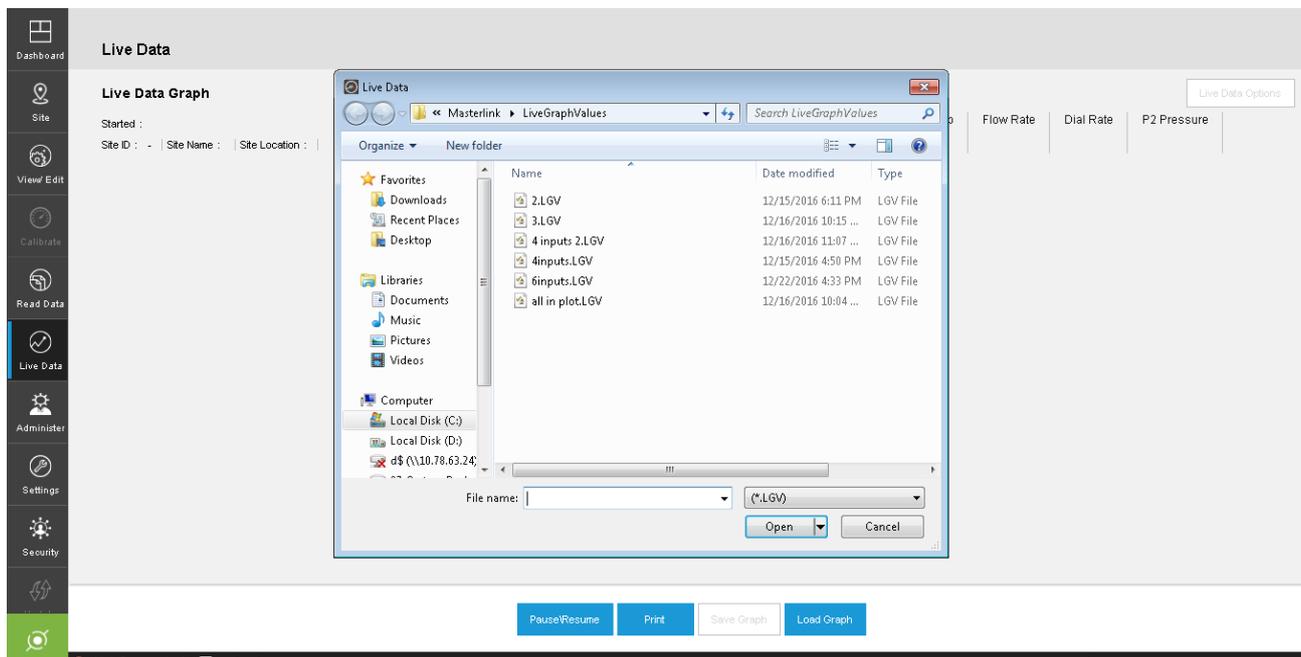
Status: Not Connected | Comm Monitor | Send Capture Buffer to File

Click **Save Graph** to save the Live Graph Setup. By default, .LGV file is saved in the C:\ProgramData\Honeywell\MasterLink \LiveGraphSettings folder.

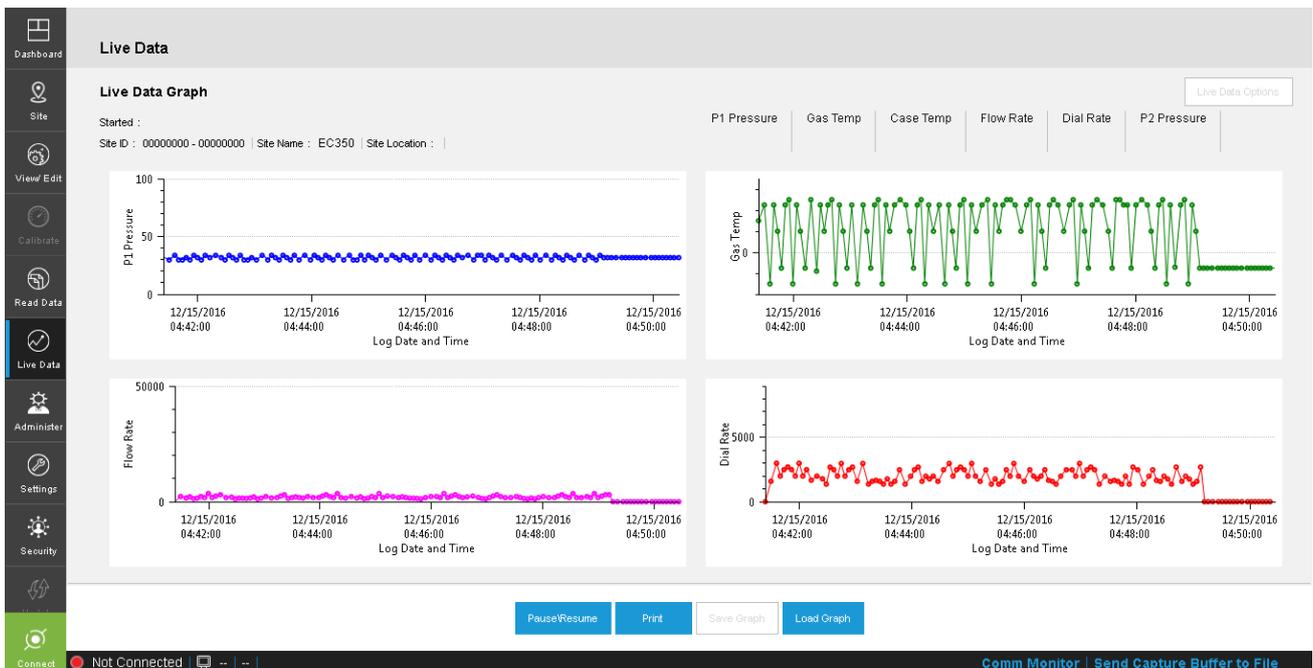
You can view graphs offline as well.



Click **Load Graph** to load saved graphs.



Select the desired graph and click **Open**.



**Attention:** Load Graph is disabled when we have an active connection to the instrument. Please disconnect from the instrument to use this option.

### Items to Graph

The availability of items depends on the instrument linked to the computer. Toggle-click on the box to select/deselect the item(s) to graph. The default values for the minimum and maximum Y scale (vertical scale) correspond to the alarm limits. To change these defaults, click on that field and enter the new value.

**Note:** You can select numbers in the Graph Number column to group the items together. For example, if you want to view the Gas temperature and the Case temperature on the same graph, you can assign a value of 1 for both the items, and they will be displayed on the same graph. If you do not assign a graph number, then all 4 items will be displayed on the same graph. Viewing all 6 inputs is possible in 2 or more graphs.

### Graph Configuration

Pressure 1, Pressure 2, Gas Temperature, Case Temperature, Dial Rate, and Flow Rate items are available for graph configuration. For each of the 6 items, click on the down arrow next to the color or line style fields for selectable options, then click on the selection. Dashed or dotted line styles will not be noticeable on data lines unless the data points are fairly far apart. Toggling this box next to the following options on the Live Graph Setup dialog screen can activate other selections that affect the display of the graph.

## Log selection

1. **Each item on separate graph:** Checking this box will draw one item per graph. If this is unchecked, more than one item will be drawn on a graph. A graph can have two Y scales (vertical); on each side. If two (up-to 4) items have the same unit of measure, they can share a Y scale. The Y scales are located along the left and right side of the graph.

**Live Data**

**Live Data Graph**

Item to Graph

Y Axis Item	Y Min	Y Max	Alarm Low	Alarm High	Graph Number
<input checked="" type="checkbox"/> P1 Pressure	0	100	10	100	1
<input checked="" type="checkbox"/> Gas Temp	-40	70	-22	122	1
<input checked="" type="checkbox"/> Case Temp	-40	70	69.79	81.21	1
<input checked="" type="checkbox"/> Flow Rate	0	20000	0	0	1
<input checked="" type="checkbox"/> Dial Rate	0	6000	0	0	2
<input checked="" type="checkbox"/> P2 Pressure	0	100	5	120	2

Graph Configuration

Y Axis Item	Color	Line Style
P1 Pressure	Red	Dot Line
Gas Temp	Magenta	Dash Dot Line
Case Temp	Orange	Solid Line(Thick)
Flow Rate	Green	Dash Dot Dot
Dial Rate	Blue	Dashed Line
P2 Pressure	Black	Solid Line(Thick)

Log selection

Each item on separate graph  Show Data Point on Lines  Draw alarm lines

Reading Interval: 1 Seconds X Axis Width: 15 Seconds

Save Show Graph

Connected ( EC 350 ) EC350 00000000 - 00000000 Comm Monitor | Send Capture Buffer to File

**Live Data**

**Live Data Graph**

Started : 12/22/2016 4:27:44 PM

Site ID : 00000000 - 00000000 Site Name : EC350 Site Location : |

Live Data Options

P1 Pressure	Gas Temp	Flow Rate	Dial Rate	P2 Pressure
5.0411 PSI	21.56 F	1682.3 CFM	744.7 CFM	0 PSI

Log Date and Time

Pause/Resume Print Save Graph Load Graph

Connected ( EC 350 ) ec350site 00000000 - 00000000 Comm Monitor | Send Capture Buffer to File

2. **Show data points on lines:** Data lines may be drawn with or without dots.
3. **Draw alarm lines:** Check this box if the alarm lines are to be drawn on the graph.
4. **Reading Interval:** Enter a number for the Reading Interval (in seconds). This option controls the frequency with data is read from the instrument and thus, how often points are plotted.

Please note that point-to-point spacing may vary somewhat due to rounding and screen resolution.

5. **X-Axis Width:** Enter a number for the X-Axis Width (in seconds). The X-axis is located across the bottom of the graph. This option controls the number of data points shown on the graph at one time. Please note that a slightly different number of data points may actually be shown due to rounding and screen resolution.

Click **Show Graph** to view the graph.

## 3.8 Administration

### 3.8.1 sActivity Log - Purge

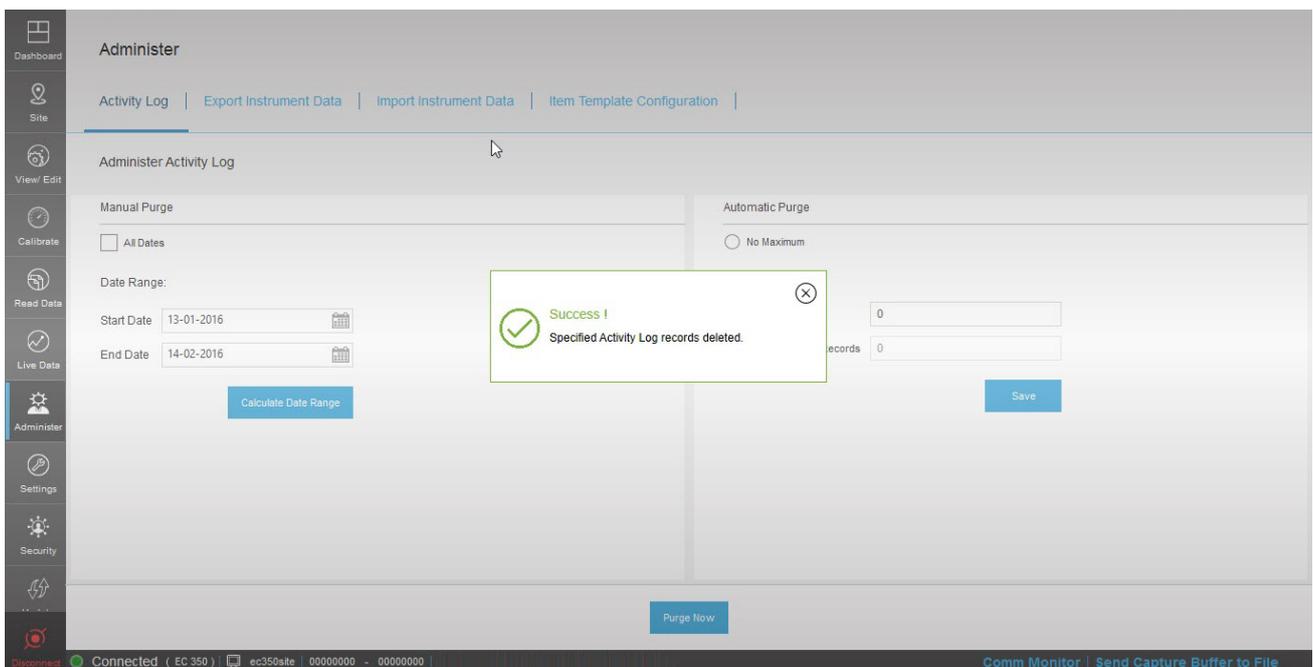
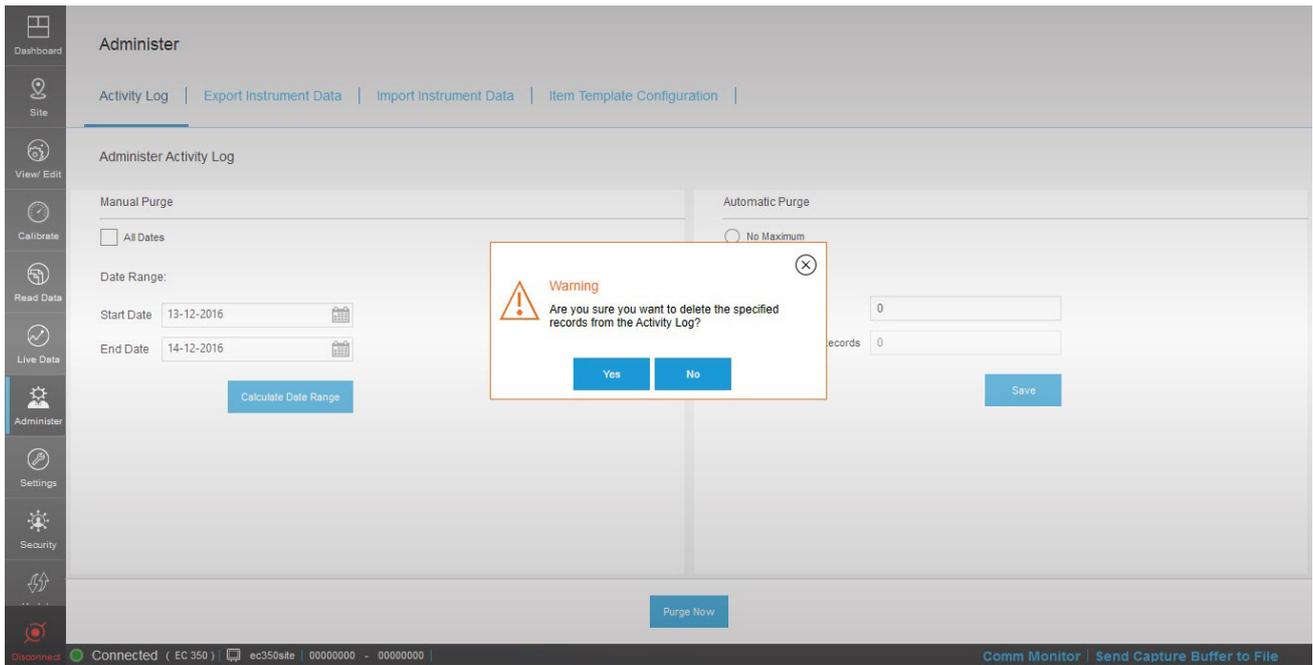
Use Activity log - Purge to permanently delete the activity logs of the MasterLink. Please note that this log is different from the Event Log because this log mainly focuses on software activity (and some firmware activity) where the Event Log function records activity that is directly linked to and maintained within the instrument.

The screenshot shows the 'Administer Activity Log' interface. It is divided into two main sections: 'Manual Purge' and 'Automatic Purge'. The 'Manual Purge' section includes an 'All Dates' checkbox, 'Date Range' fields for 'Start Date' (13-12-2016) and 'End Date' (14-12-2016), and a 'Calculate Date Range' button. The 'Automatic Purge' section includes radio buttons for 'No Maximum', 'Number of Days' (selected), and 'Number of Data Records', each with a corresponding input field set to '0', and a 'Save' button. A 'Purge Now' button is located at the bottom center. The interface also features a sidebar with navigation icons and a top navigation bar with links like 'Activity Log', 'Export Instrument Data', etc.

**Manual Purge** - This method requires that a date parameter be set. The default setting is *All Dates*. If this is set, every record in the activity log will be purged. To de-select this option and open the fields for starting and ending date entries, uncheck on the **All Dates** box. Enter the desired dates, or click the **Calculate Date Range** button to automatically retrieve the database starting and ending dates. After the date range has been set, click the **Purge Now** button to execute this function.

**Automatic Purge** - Although the default setting is No Maximum (which means that no records are removed until the manual method is executed), records may be automatically removed without user intervention. Records can be removed after the file has reached a set number of days or number of data records. To set one of these two limits, de-select the No Maximum option by clicking on that radio button, and then select the radio button next to *Number of Days* or *Number of Data Records*. Next, enter the number of days for data records in the box for the option that was chosen. Finally click **Save**.

Click **Purge Now**, to manually remove activity logs.



## 3.8.2 Export Instrument Data

The 'Export Instrument Data' tab can be used to export instrument data.

The screenshot shows the 'Export Instrument Data' interface with the following elements:

- File Type:** Radio buttons for LAN, SQLite (selected), and CSV.
- Export to:** A text input field and a 'Browse' button.
- Options:** Radio buttons for 'Only Site Data' and 'Instrument Data' (selected). Checkboxes for 'Log Data' and 'Shortlist Data'.
- Instrument List:** A list of instruments with checkboxes, including 'Accufest', 'Cloud Link', 'CNI4', 'EC 350', 'EC350 + Cloud Link', 'ECAT', and 'ER'. A 'Select All' checkbox is checked.
- Site List Table:**

Site ID +	Type	Site Name
10020030 - 10020030	CNI4	-:()?&@_!~<=>\$%E[]{}#%*+*
00000000 - 00000000	EC 350	0_EC350
30000000 - 40000000	CNI4	100001:200002
00000123 - 00000000	EC 350	110011:220022
00132333 - 00132333	CNI4	123456:123456
00123456 - 00654321	EC 350	123456 EC350 Modem
- Selected Sites Table:** An empty table with columns for Site ID +, Type, and Site Name.
- Date Range:** 'Start Date' (8/10/2017 00:00:00) and 'End Date' (8/10/2017 23:59:59) fields, with an 'All Dates' checkbox and a 'Calculate Date Range' button.

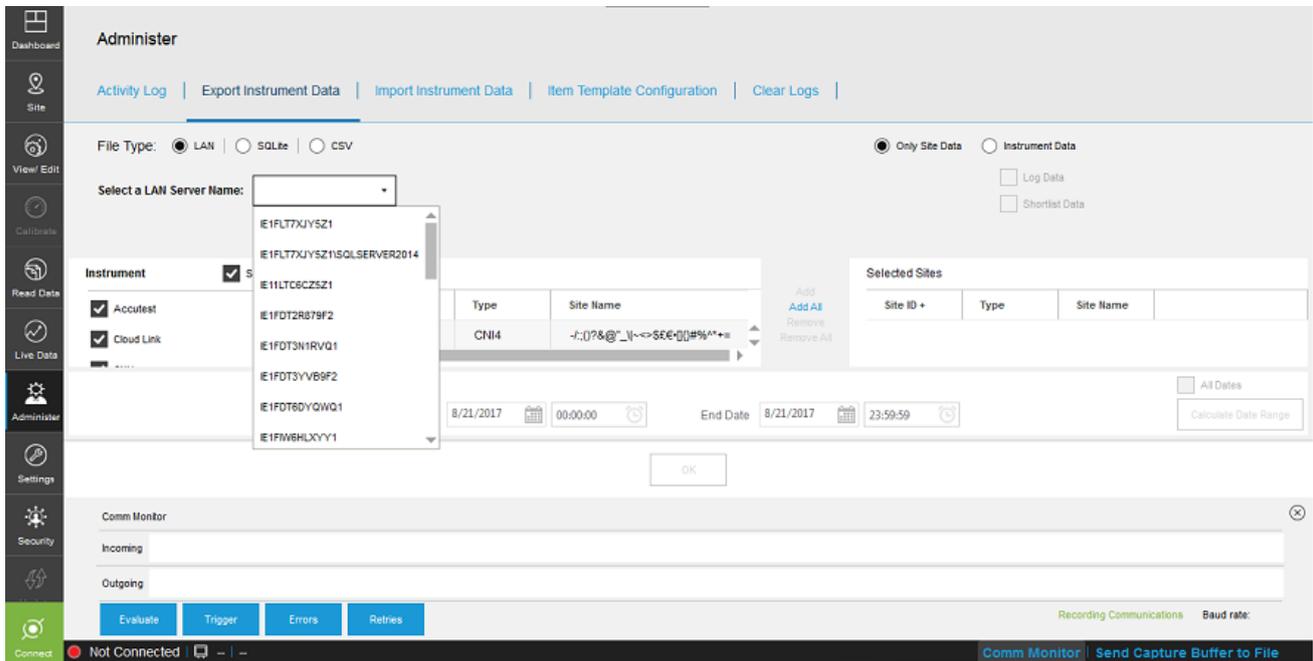
Relate the steps highlighted in the image with the instructions for exporting instrument data.

1. Select the export file type. **LAN**, **SQLite**, and **CSV** are supported when MasterLink is installed.
2. Browse and select the **Export To** location.
3. Select the **Only Site Data** option to export only the site data or select the **Instrument Data** option to be able to export log data for the selected sites.
4. Select **Instrument** type. To select all instruments, click **Select All**.
5. A **Site List** gets populated based on your selected instruments. Select the site(s) and use **Add/Add All/Remove/Remove All** to add or remove sites.
6. Select the **Date Range**.
7. Click **OK** to export instrument data.

**Note:** In all of the supported exported file types, if Only Site data is chosen, only sites are exported but not logs/data/Shortlist.

## Export Instrument or Site Data to a remote SQL Server over LAN:

1. Select the **LAN** option. The application would load all available SQL Server on the same network. The user performing this operation must have **db\_admin privileges** on the remote SQL Server.



2. Choose appropriate SQL Server. The selected SQL Server must have the MasterLink Database for successful export.
3. Select the **Only Site Data** option to export only the site data or select the **Instrument Data** option to be able to export log data for the selected sites.
4. Select **Instrument** type. To select all instruments, click **Select All**.
5. A **Site List** gets populated based on your selected instruments. Select the site(s) and use **Add/Add All/Remove/Remove All** to add or remove sites.
6. Select the **Date Range**.
7. Click **OK** to export instrument data.

## Export Instrument or Site Data to SQLite

1. Select SQLite file type option.

The screenshot shows the 'Administer' interface for exporting data to SQLite. The 'File Type' is set to 'SQLite'. The 'Export to' path is 'C:\ProgramData\Honeywell\Masterlink\SQLite\Export\_AccuTest'. The 'Instrument' list includes Accutest, Cloud Link, CN14, EC 350, EC350 + Cloud Link, ECAT, and ER. The 'Site List' table shows columns for Site ID, Type, and Site Name. The 'Date Range' is set from 8/21/2017 00:00:00 to 8/21/2017 23:59:59. The 'Selected Sites' table is currently empty.

Instrument	Site ID +	Type	Site Name
Accutest	10020030 - 10020030	CN14	-.:0?&@_ \-<=>\$%&#{}[]#%*'+=
Cloud Link	30000000 - 40000000	CN14	100001200002
CN14	00000123 - 00000000	EC 350	110011220022
EC 350	00132333 - 00132333	CN14	123456.123456
EC350 + Cloud Link	00123456 - 00654321	EC 350	123456_EC350_Modem
ECAT	13163584 - 13163584	Mini-AT	13163584/Gasnet

2. Browse and select the location for the SQLite file. Give a name to the SQLite file. If an existing SQLite file is chosen, it will be overwritten.
3. Select the **Only Site Data** option to export only the site data or select the **Instrument Data** option to be able to export log data for the selected sites.
4. Select **Instrument** type. To select all instruments, click **Select All**.
5. A **Site List** gets populated based on your selected instruments. Select the site(s) and use **Add/Add All/Remove/Remove All** to add or remove sites.
6. Select the **Date Range**.
7. Click **OK** to export instrument data.

## Export Instrument or Site Data to CSV

1. Select the CSV file type.

The screenshot shows the 'Administer' interface for exporting data. The 'File Type' is set to 'CSV'. The 'Export to' field contains the path 'C:\ProgramData\Honeywell\Masterlink\SiteList\Report\Site.csv'. The 'Instrument' list on the left has several items checked, including 'Accutest', 'Cloud Link', 'CN4', 'EC 350', 'EC350 + Cloud Link', 'ECAT', and 'ER'. The 'Site List' table in the center shows columns for 'Site ID +', 'Type', and 'Site Name'. The 'Selected Sites' table on the right is currently empty. The 'Date Range' is set from '8/21/2017 00:00:00' to '8/21/2017 23:59:59'. The 'Only Site Data' radio button is selected, and 'Instrument Data' is disabled. The 'Log Data' and 'Shortlist Data' checkboxes are also disabled.

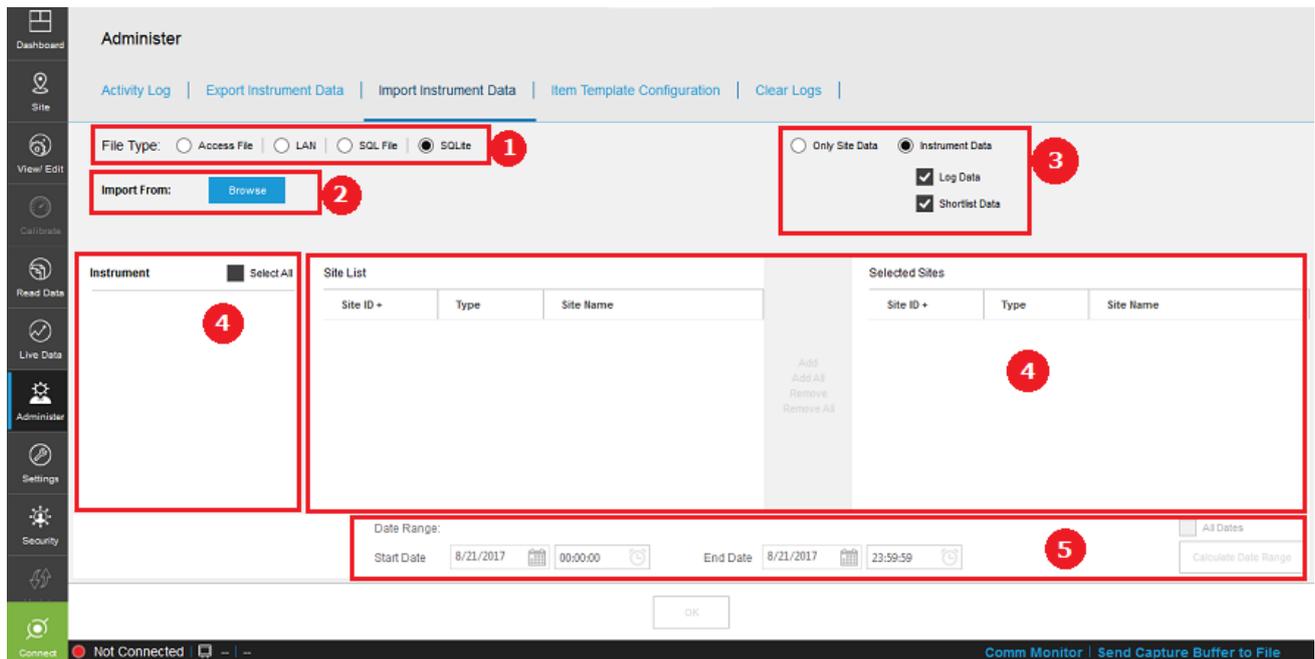
Site ID +	Type	Site Name
10020030 - 10020030	CN4	-.:0?&@_ \ ~<=>\$%&#{}[]#%*+&#x2D;
30000000 - 40000000	CN4	100001200002
00000123 - 00000000	EC 350	110011220022
00132333 - 00132333	CN4	123456.123456
00123456 - 00654321	EC 350	123456_EC350_Modem
13163584 - 13163584	Mini-AT	13163584/Gasnet

2. Browse and select the location you need instrument data to be exported to CSV file. Give a name to the CSV file..
3. Only Sites are exported to CSV file. Instrument data cannot be exported to CSV file and hence disabled.
4. Select **Instrument** type. To select all instruments, click **Select All**.
5. A **Site List** gets populated based on your selected instruments. Select the site(s) and use **Add/Add All/Remove/Remove All** to add or remove sites.
6. Select the **Date Range**.
7. Click **OK** to export instrument data.

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### 3.8.3 Import Instrument Data

The 'Import Instrument Data' tab can be used to import instrument data.



Relate the steps highlighted in the image with the steps below:

1. Start by selecting select the import file type. Access File, LAN, SQL File and SQLite file types are supported when MasterLink is installed.
2. Select the physical location of the file to be imported.
3. Select the type of data source.
4. Select **Instrument** type. To select all instruments, click **Select All**.
5. A **Site List** gets populated based on your selected instruments. Select the site(s) and use **Add/Add All/Remove/Remove All** to add or remove sites.
6. Select the **Date Range**.
7. Click **OK** to import instrument data.

## Import from Access File

1. Select Access file type option and browse the access file (.ARC or .mdb file).

The screenshot shows the 'Administer' interface for importing data from an Access file. The 'File Type' is set to 'Access File'. The 'Import From' field shows the path 'C:\ProgramData\Honeywell\Masterlink\Archives\hi.arc'. The 'Only Site Data' option is selected. The 'Instrument' list includes Accutest, Cloud Link, CN4, EC 350, EC350 + Cloud Link, ECAT, and ER. The 'Site List' table is populated with the following data:

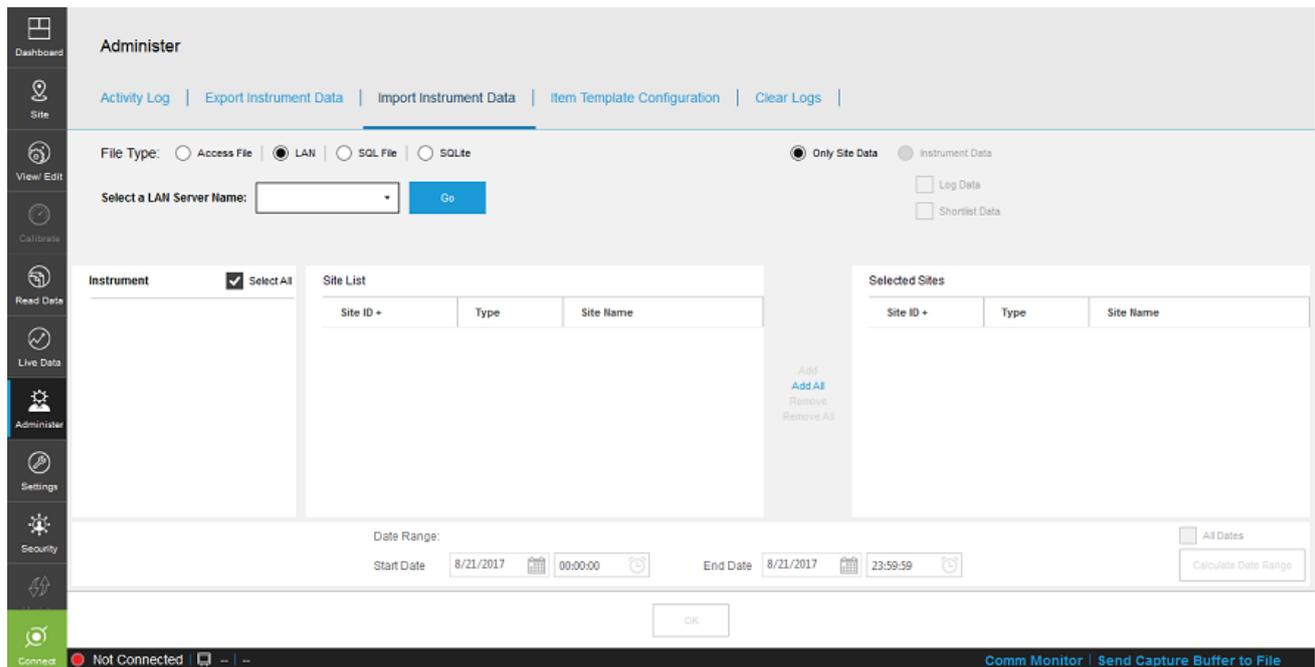
Site ID *	Type	Site Name
00000000 - 00000000	Mini-AT	atetminat
00000000 - 00000000	Mini Max	fdgf
00000000 - 00000001	Pulse Acc	PA_MM
00000035 - 43543545	Mini-AT	zxdvf
00004966 - 00454656	EC 350	hits
00011111 - 00022222	ERX	_honeywe_ftp_ovt

The 'Date Range' is set from 8/21/2017 00:00:00 to 8/21/2017 23:59:59. The 'All Dates' checkbox is checked. The 'Calculate Date Range' button is visible.

2. Sites in the selected archive access database would be listed out.
3. By default, site data option is selected. If sites in the archive file does not have logs only Site Data options is enabled.
4. Select **Instrument** type. To select all instruments, click **Select All**.
5. A **Site List** gets populated based on your selected instruments. Select the site(s) and use **Add/Add All/Remove/Remove All** to add or remove sites.
6. Select the **Date Range**.
7. Click **OK** to import instrument data.

## Import from LAN

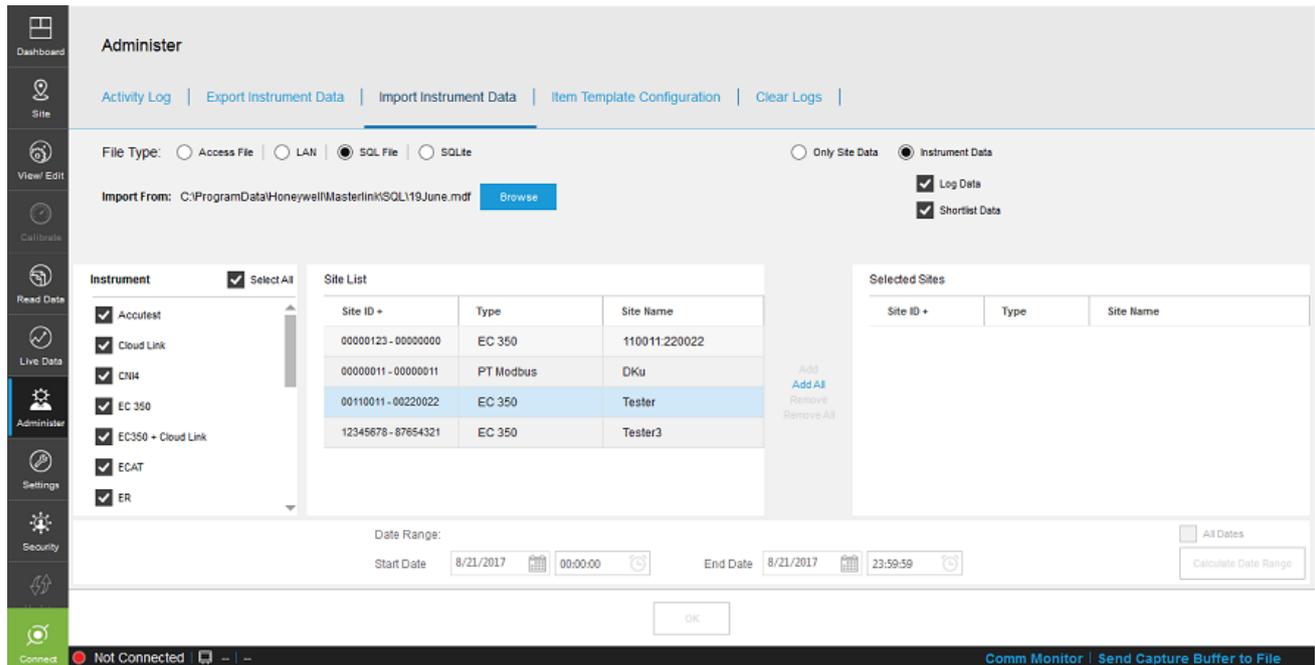
1. Select LAN option, application would list out the SQL Server over LAN.



2. Select appropriate server or type in the right SQL Server and click on **Go**.
  - Make sure the SQL Server chosen has proper MasterLink Database
3. Sites from the LAN would be listed out.
4. Select **Instrument** type. To select all instruments, click **Select All**.
5. A **Site List** gets populated based on your selected instruments. Select the site(s) and use **Add/Add All/Remove/Remove All** to add or remove sites.
6. Select the **Date Range**.
7. Click **OK** to import Site/instrument data.

## Import from SQL File

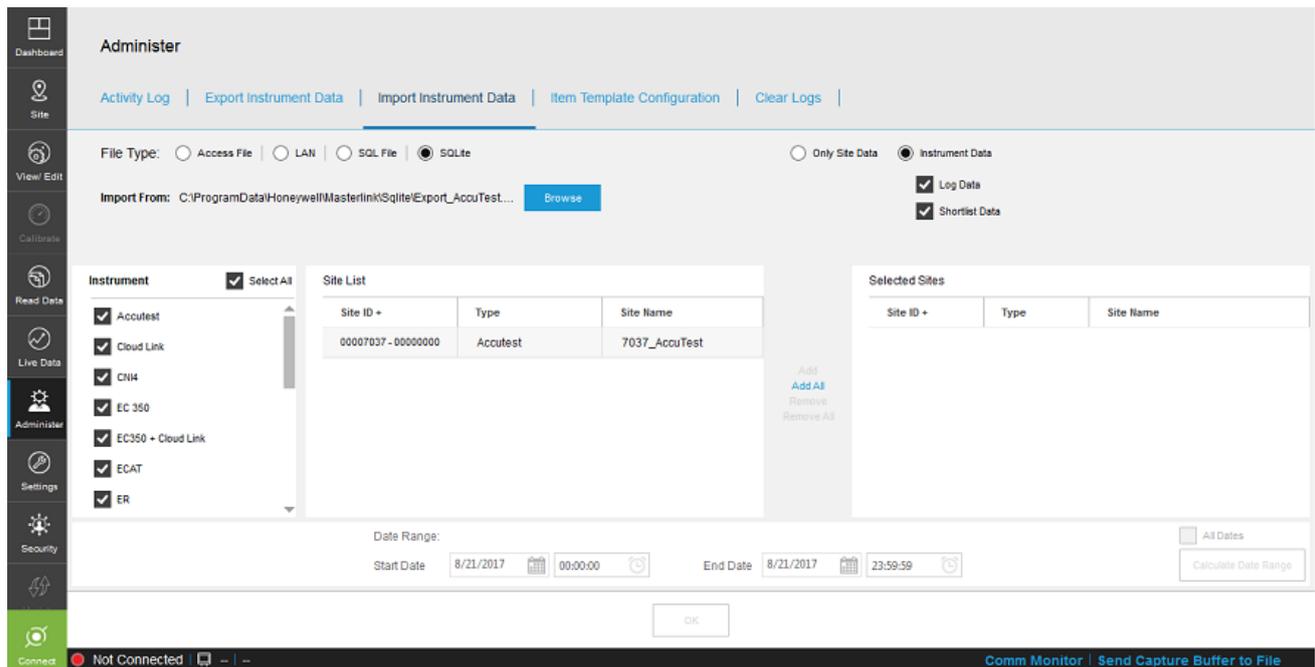
1. Select the **SQL File** option.



2. Browse an appropriate .MDF file to import sites.
3. Pre-requisite for importing from SQL file to MasterLink application installed with Sqlite.
  - Make sure there is a proper SQL Server is running and able to attach the SQL .mdf file chosen.
  - Make changes in MLR510 config file AppSettings.xml file. It should have proper SQL Server connection string with master as the default. initial catalogue. This is mandatory to connect to that SQL Server and attach the selected .mdf file to perform Import.
  - **Note:** Do not try to import from any SQL .mdf which is already attached to SQL Server.
4. Select **Instrument** type. To select all instruments, click **Select All**.
5. A **Site List** gets populated based on your selected instruments. Select the site(s) and use **Add/Add All/Remove/Remove All** to add or remove sites.
6. Select the **Date Range**.
7. Click **OK** to import Site/instrument data.

## Import from SQLite

1. Select the SQLite File option.



2. Browse an appropriate .sqlite file to import sites.
3. Select the type of data source.
4. Select **Instrument** type. To select all instruments, click **Select All**.
5. A **Site List** gets populated based on your selected instruments. Select the site(s) and use **Add/Add All/Remove/Remove All** to add or remove sites.
6. Select the **Date Range**.
7. Click **OK** to import Site/instrument data.

**Note:** While importing or exporting shortlist Data, only shortlist Item Data is exported/imported but not the shortlist items configuration.

te

### 3.8.4 Item Template Configuration

Item Template Configuration screen can be used to create and save a template containing item numbers (related to the device integrity) along with reference values.

The screenshot displays the 'Item Template Configuration' interface. On the left, a sidebar contains navigation icons for Dashboard, Site, View/Edit, Calibrate, Read Data, Live Data, Administer, Settings, Security, and a power icon. The main content area is titled 'Item Template Configuration' and includes a breadcrumb trail: Activity Log | Export Instrument Data | Import Instrument Data | Item Template Configuration. Below the title, there are three main sections:

- Instrument Type:** A list with 'EC350', 'Cloud Link', and 'EC350 + Cloud Link' (selected).
- Items:** A list of 17 items, with '5 - Ch-A Pulses Wating' selected. The items are: 0 - Corrected Volume, 2 - Uncorrected Volume, 5 - Ch-A Pulses Wating, 6 - Ch-B Pulses Wating, 7 - Ch-C Pulses Wating, 10 - P1 High Alarm Limit, 11 - P1 Low Alarm Limit, 12 - P1 CalAtmos Pressure, 13 - Base Pressure, 14 - Atmospheric Pressure, 15 - Press used at P1-Zero, and 16 - Press used at P1-Span.
- Template Items:** A table with two columns: 'Template Items' and 'Reference Value'. It contains two rows:
 

Template Items	Reference Value
90 - Cor Volume Units	CCF
89 - Temperature Units	F

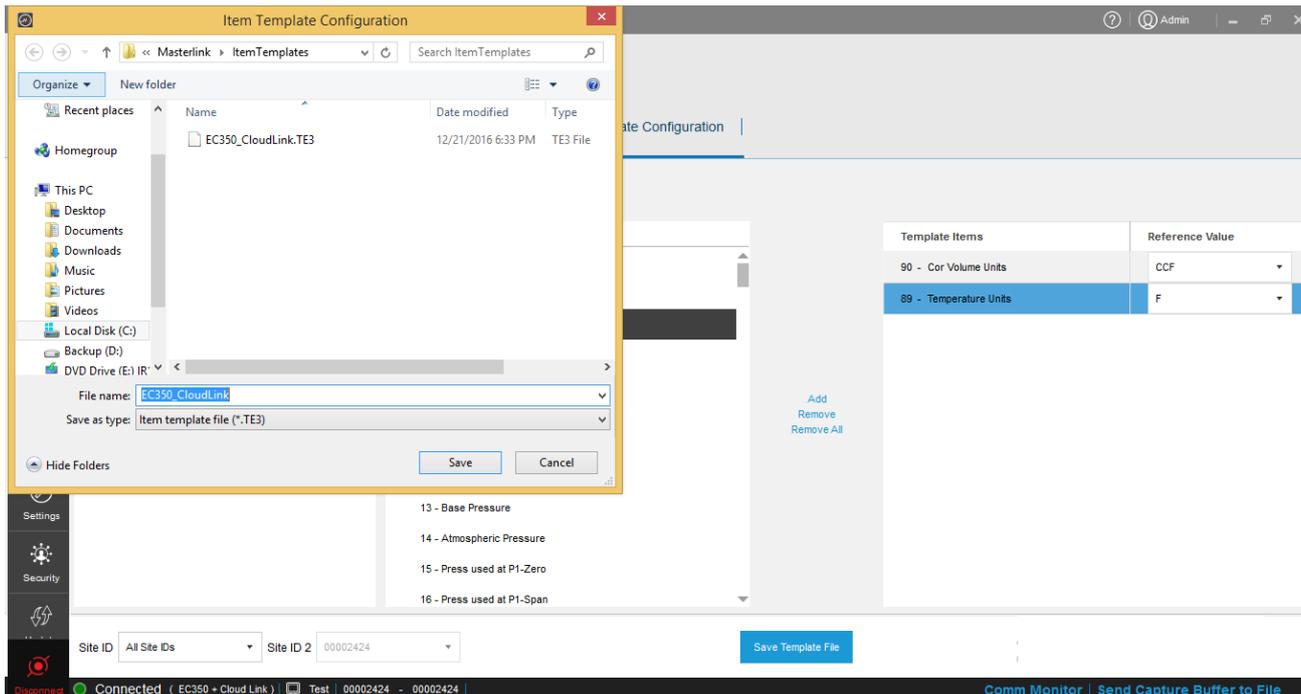
At the bottom of the main area, there are 'Add', 'Remove', and 'Remove All' buttons. Below the main area, there are 'Site ID' dropdowns (set to 'All Site IDs') and a 'Site ID 2' field (set to '00002424'). A 'Save Template File' button is located at the bottom right. The status bar at the very bottom shows 'Connected (EC350 + Cloud Link)' and 'Test | 00002424 - 00002424'.

While MasterLink is connecting to an instrument, the values (default) from this template are compared with the values(actual) read from the instrument. If there is a mismatch, then an error is displayed on the *Dashboard - Config Check* widget, and drill down on the widget will display further details.

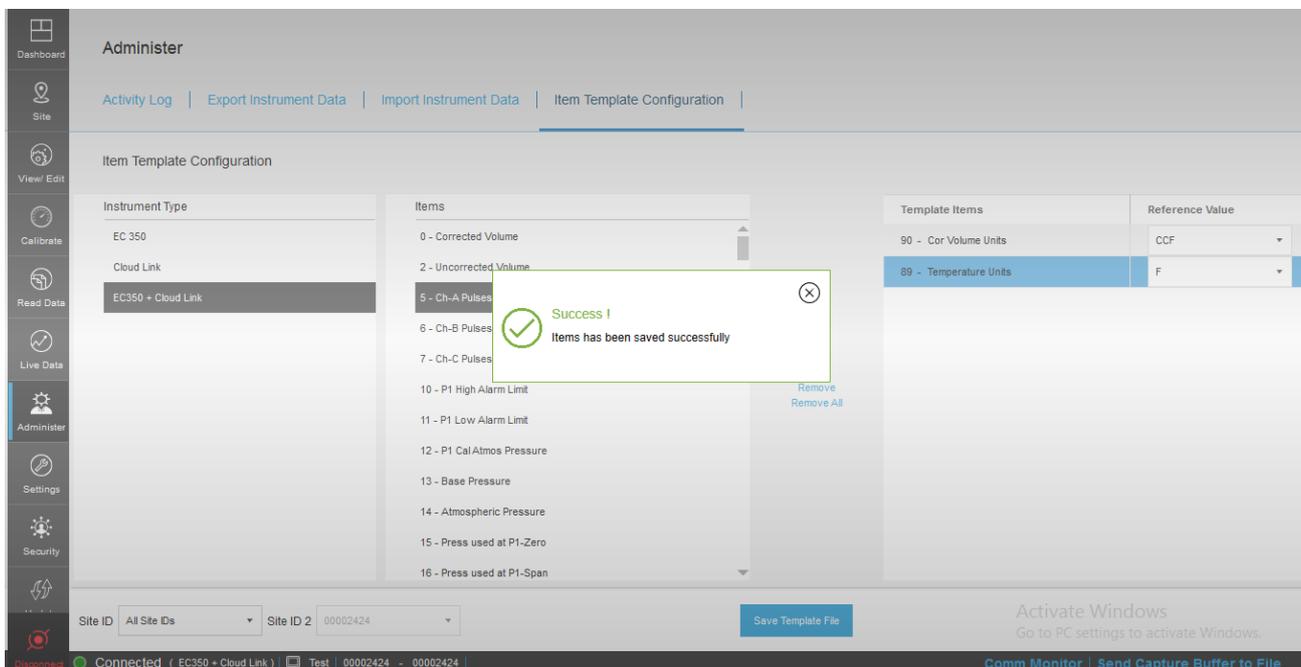
Refer [Dashboard Configuration check](#) for more details.

Start by selecting the instrument type. Based on the selected instrument type, the applicable items appear on the screen. Select and **Add** the required items to your list. Add a reference value for the selected items.

Click **Save Template File** to save a copy of the template that you just created.



**Note:** By default, instrument specific Item Templates are created (EC 350.TE3, Cloud Link.TE3, EC350\_Cloud Link.TE3). Use the Site ID 1 and Site ID 2 fields to create site specific Item templates. The item template files are named as <SiteID1>\_<SiteID2>.TE3 file. Ensure that the file is saved in C:\ProgramData\Honeywell\MasterLink \ItemTemplates folder.



### 3.8.5 Clear Logs

You can use the 'Clear Logs' screen to clear logs from the connected site. The logs are cleared from the MasterLink database, and not from the connected device or site.

Since the purpose of the 'Clear Logs' feature is to clean the MasterLink database without archiving the data, it is recommended to [Export Instrument Data](#) before performing this action.

The screenshot displays the 'Clear Logs' interface in the Honeywell MasterLink application. The interface is divided into several sections:

- Navigation Sidebar:** Includes options like Dashboard, Site, View/Edit, Calibrate, Read Data, Live Data, Administrator, Settings, Security, and Connect.
- Administer Section:** Contains tabs for Activity Log, Export Instrument Data, Import Instrument Data, Item Template Configuration, and Clear Logs.
- Log Selection:** Radio buttons for 'Logs' (selected) and 'Sites'. Checkboxes for Audit Trail Logs, Alarm Logs, Event Logs, Diagnostic Logs, Cellular Logs, and Shortlist Logs.
- Instrument Selection:** A list of instrument types with checkboxes, including Accutest, Cloud Link, CNI4, EC 350, EC350 + Cloud Lin, ECAT, and ER.
- Site List Table:**

Site ID +	Type	Site Name
00000000 - 00000000	EC 350	Direct Con
13217891 - 13217891	ERX	Direct Con
00395506 - 00395506	EC 350	EC350_35
13217894 - 13217894	Mini Max	MiniMax-1
- Selected Sites Table:**

Site ID +	Type	Site Name
00000000 - 00000000	EC 350	Direct Con
13217891 - 13217891	ERX	Direct Con
00395506 - 00395506	EC 350	EC350_35
- Date Range:** Start Date (9/3/2017 12:00:00) and End Date (9/14/2017 12:00:00) with a 'Calculate Date Range' button.
- Clear Logs Button:** A prominent blue button at the bottom.

To clear logs:

1. Start by selecting **Logs** or **Sites**. Then select the logs that you want to clear. If you select Sites, then all logs in the selected site will be cleared.
2. Select the instrument type, and then a list of sites will be displayed. Click on the required site (s) and click **Add**.
3. Select the required date range.
4. Finally click **Clear Logs** to clear the selected logs.

## 3.9 VAS

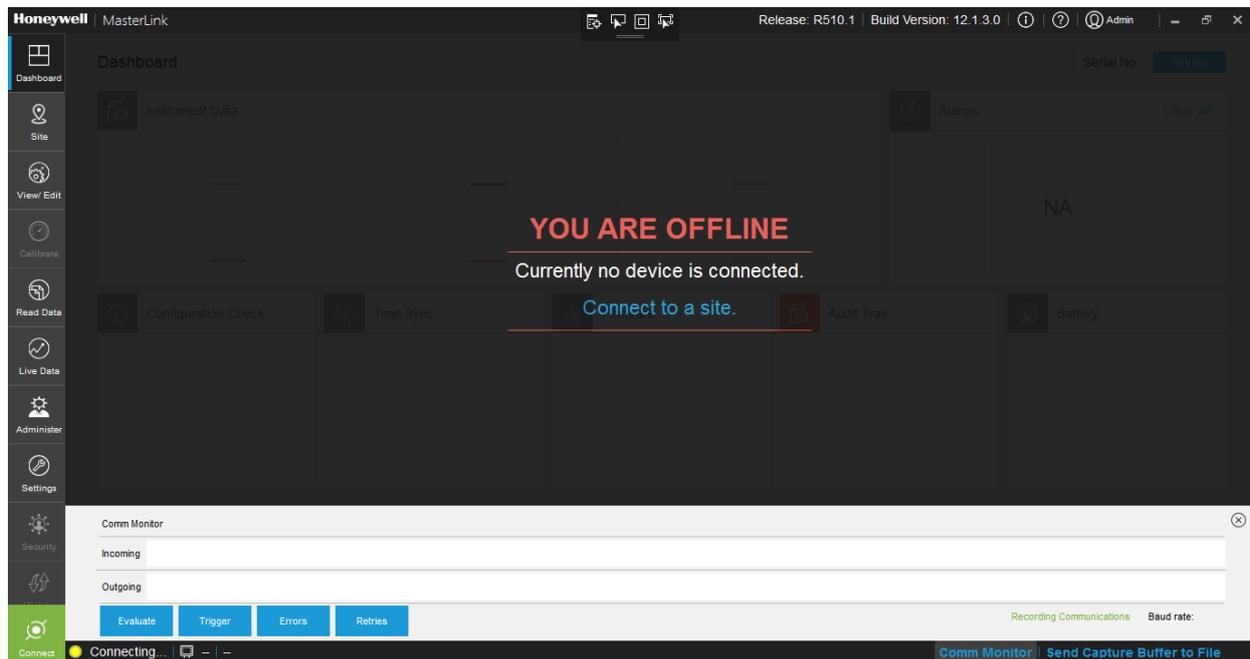
### 3.9.1 TAC (Technical Assistance Center) Support

Assistance in planning, trouble shooting, installation, training and maintenance of the site instruments is rendered through TAC. A member with TAC chat client is available for the user in pre-defined times only.

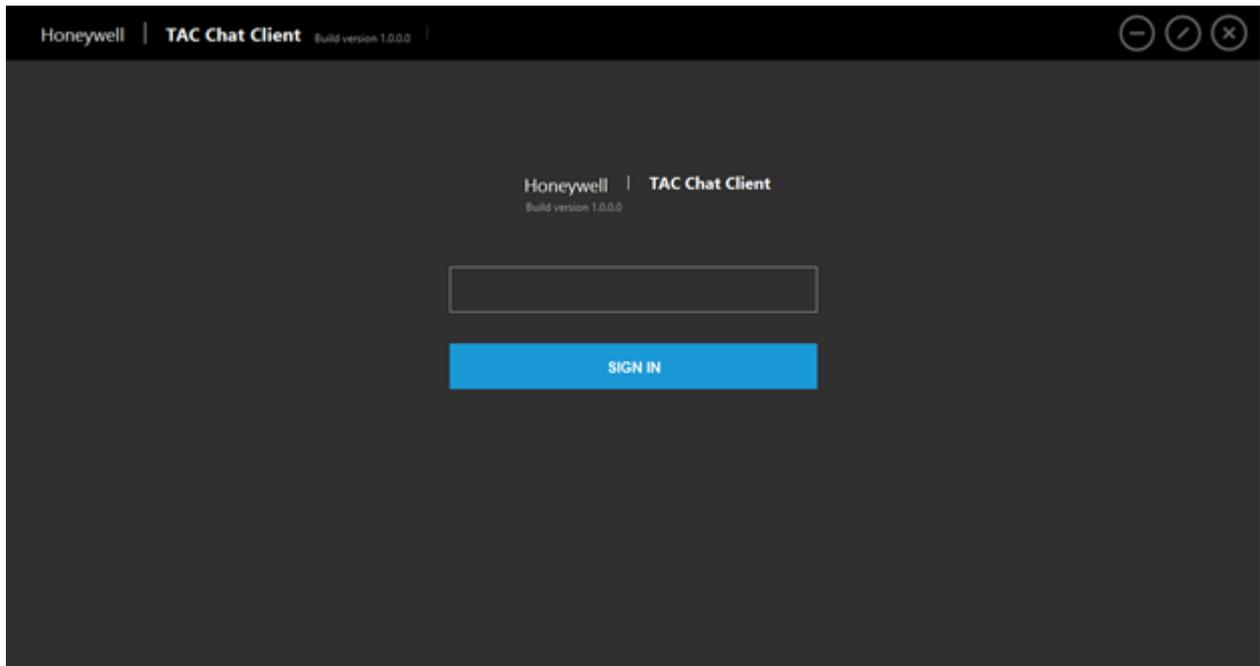
*Dashboard application is accessible only in the Internet Explorer browser.*

#### Prerequisites

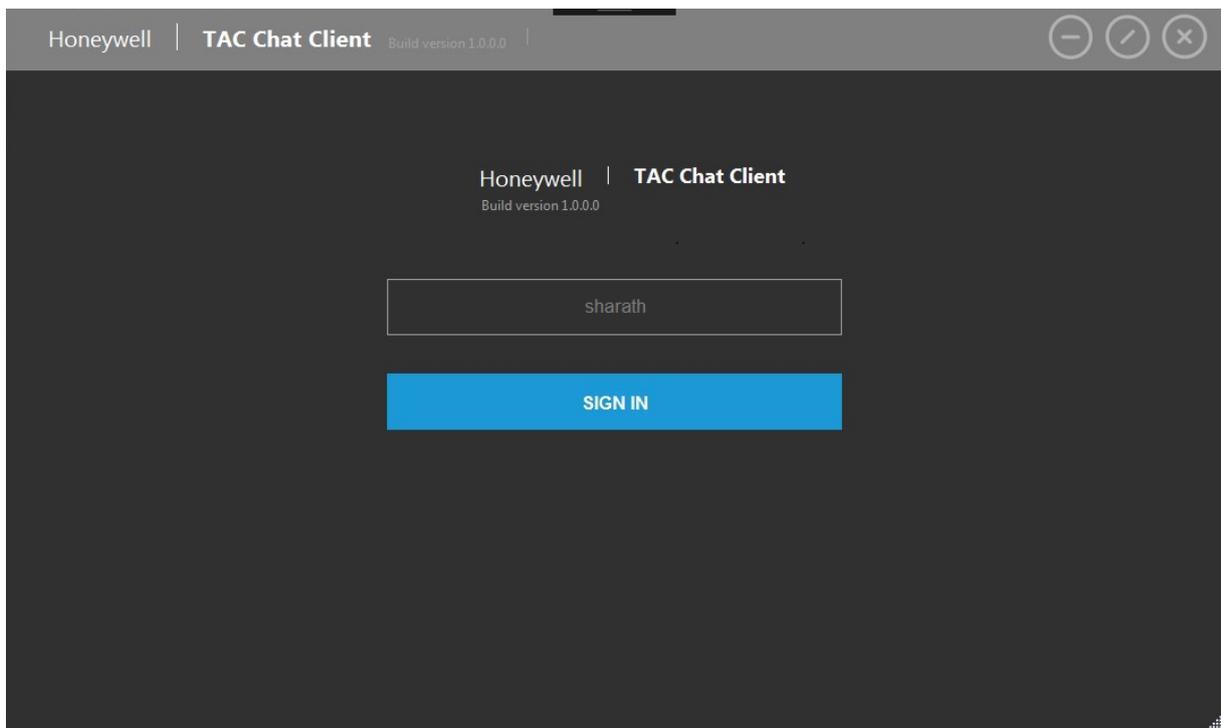
It is required that the MasterLink Dashboard should be open (offline or online mode) for the chat client application to commence with the user at the site.



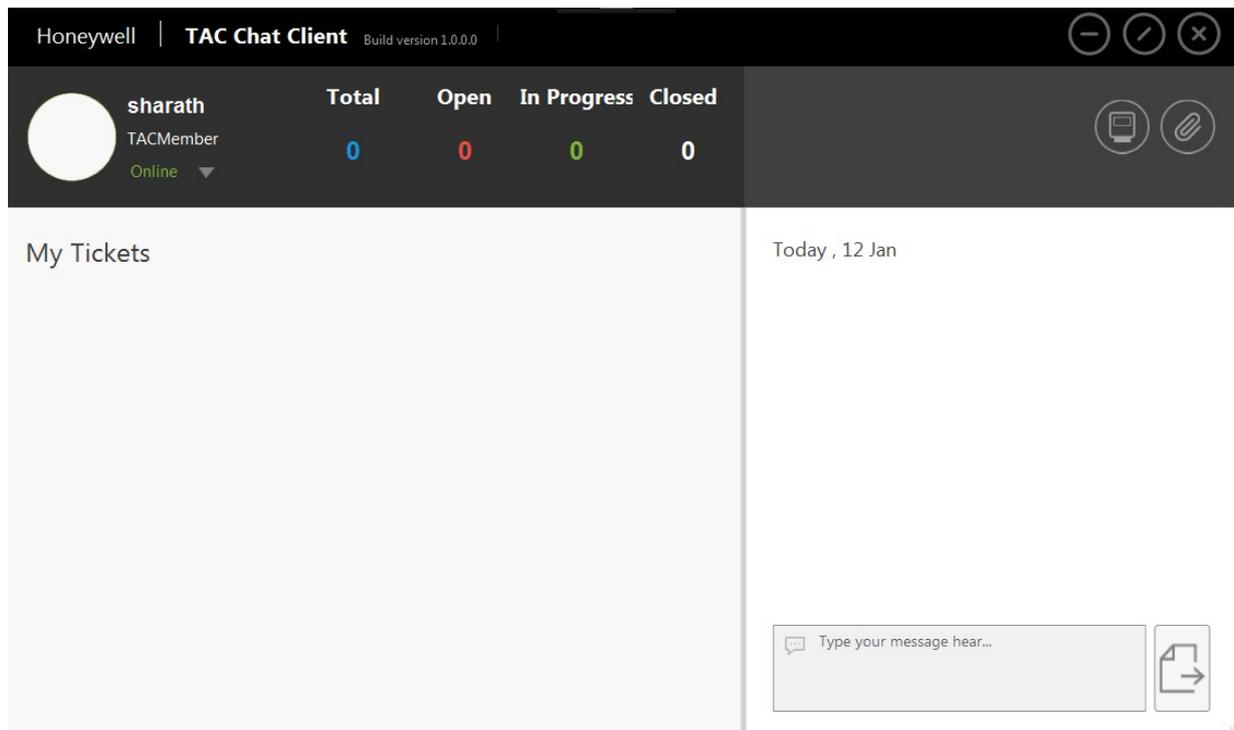
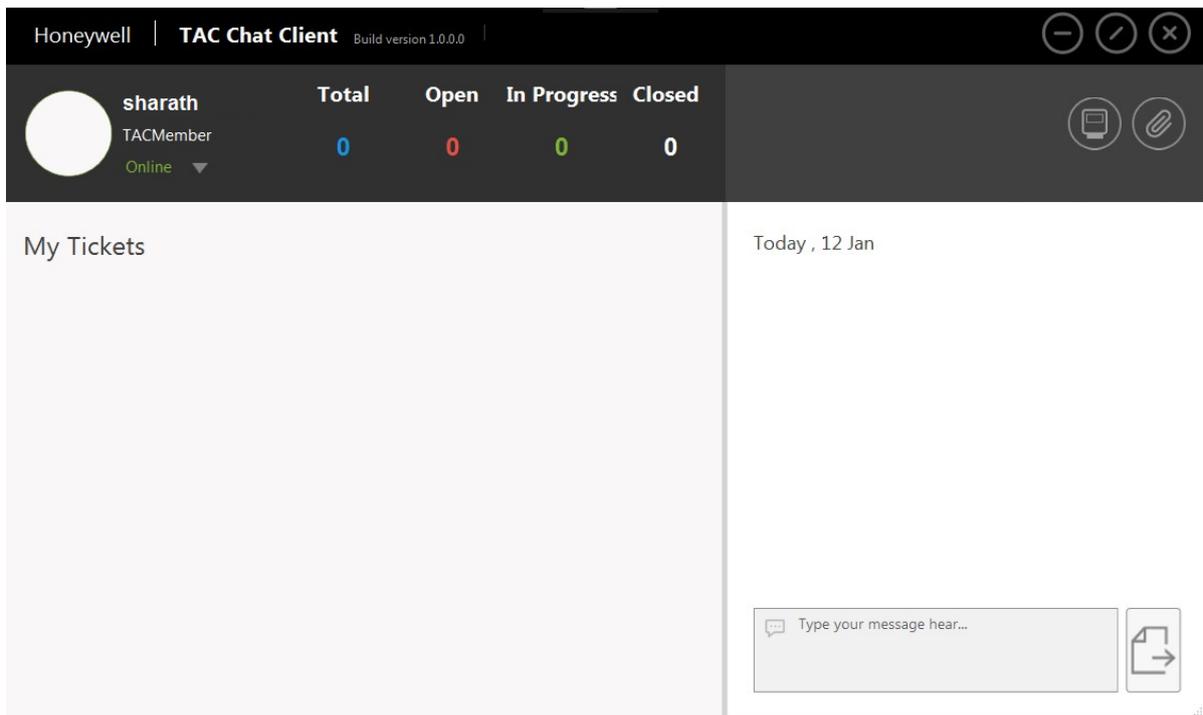
On launching the remote client, you will see a screen to sign in.



Login with your details.



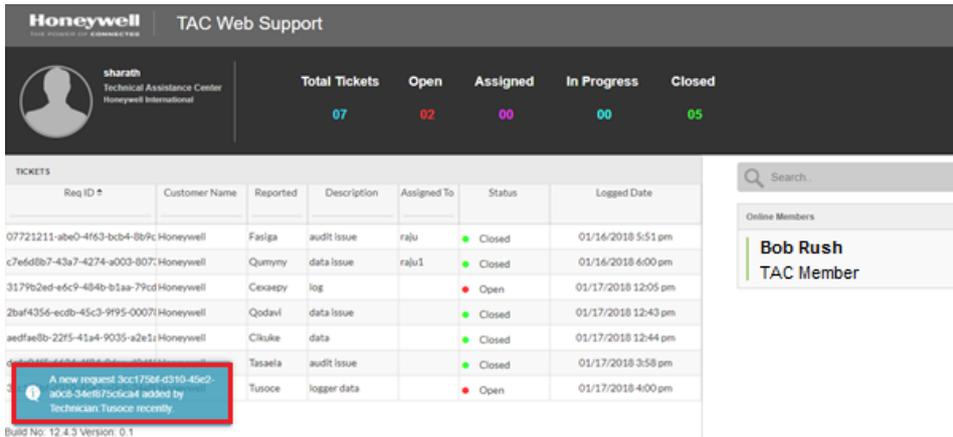
When there are no new requests from the site, this is how the dashboard appears with zero lined below the different modes of requests.



### 3.9.2 Requests

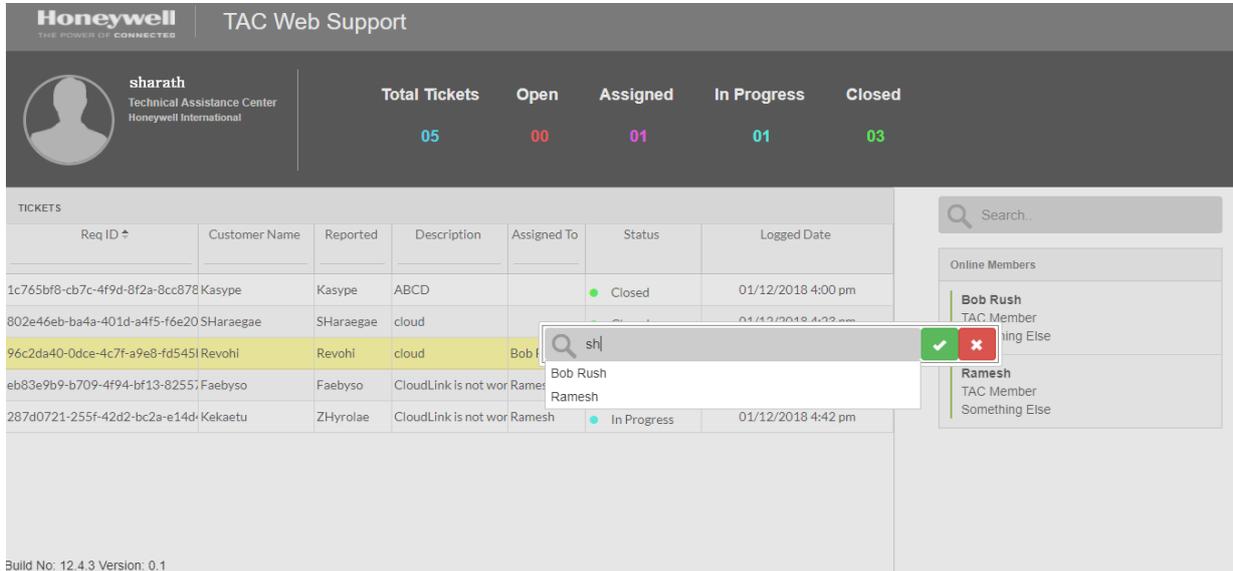
- **Total** : Number of requests that the TAC member receives from the site
- **Open** : Request that the member has to initiate to resolve
- **In Progress**: Request that the member is currently working on
- **Closed** : That which has been resolved and closed

When the user at the site faces some technical glitch then, he initiates the TAC support from his mobile device which redirects to the remote client as below. A new request pop-up window appears to the left bottom.



Once the new request pops up, assigning a member to resolve the corresponding request can be done in three different ways:

1. Drag and drop : Tap on the request issue, drag it with the cursor or mouse pointer and assign it to the members available online on the right of the screen.
2. Search : Tap on the issue request, when it gets highlighted unlike the image below then, type the name of the chosen online members to assign.



3. Direct Online : Select the request and click on the members who are online and then, tap on 'Assign' to assign the request

**Honeywell** | TAC Web Support

sharath  
Technical Assistance Center  
Honeywell International

**Total Tickets** 07   **Open** 02   **Assigned** 00   **In Progress** 00   **Closed** 05

Req ID #	Customer Name	Reported	Description	Assigned To	Status	Logged Date
07721211-abe0-4f63-bcb4-8b9c	Honeywell	Fasiga	audit issue	raju	Closed	01/16/2018 5:51 pm
c7e6d8b7-43a7-4274-a003-807	Honeywell	Qumymy	data issue	raju1	Closed	01/16/2018 6:00 pm
3179b2ed-e6c9-484b-b1aa-79cd	Honeywell	Cexaepy	log		Open	01/17/2018 12:05 pm
2ba4356-ecdb-45c3-9f95-0007	Honeywell	Qodavi	data issue		Closed	01/17/2018 12:43 pm
aedfae8b-22f5-41a4-9035-a2e1	Honeywell	Clukue	data		Closed	01/17/2018 12:44 pm
dc4c04f5-6624-4f84-9dae-d9d1	Honeywell	Tasaala	audit issue		Closed	01/17/2018 3:58 pm
3cc175bf-d310-45e2-a0c8-04eff	Honeywell	Tusoce	logger data	sharath	In Progress	01/17/2018 4:00 pm

Build No: 12.4.3 Version: 0.1

Once the request is assigned to one of the TAC member, issue with a brief technical description pops up at the bottom right of the screen along with the user information from the site. This will update the request number accordingly. The TAC member can accept/ignore the request and can also forward the request to another member when he chooses to 'Ignore'.

sharath  
TACMember  
Online

**Total** 1   **Open** 0   **In Progress** 1   **Closed** 0

**New Ticket Arrived**

**My Tickets**

**CloudLink is not working**

Customer ID	User ID	Device Type
Kekaetu	ZHyrolae	EC350

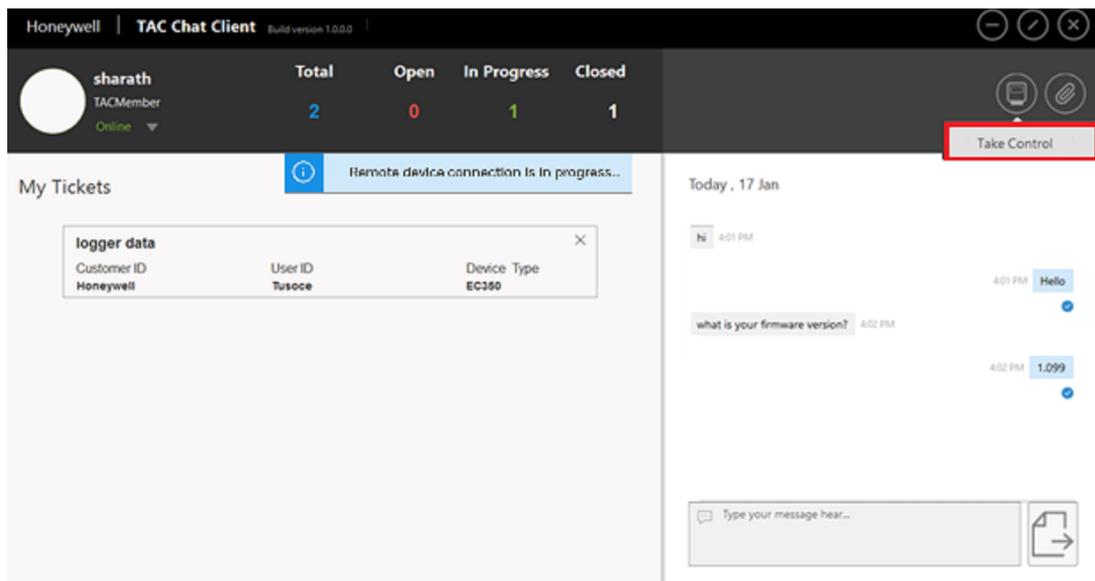
Type your message

ZHyrolae  
Hi TAC I am facing Issu...

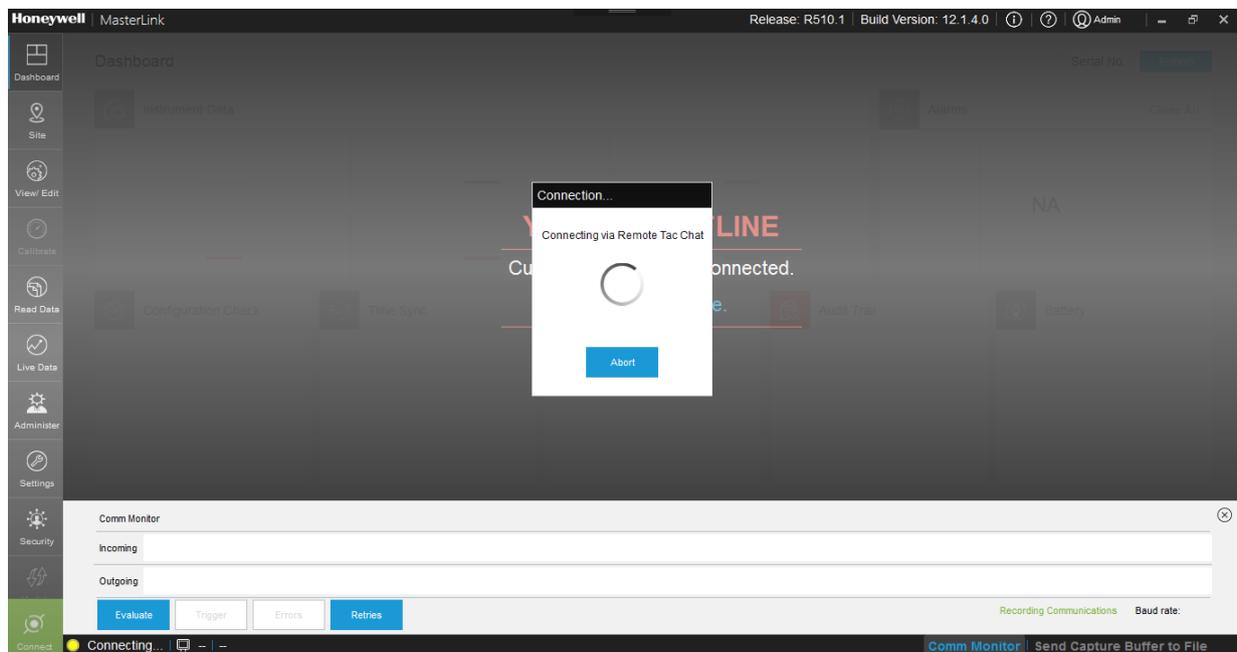
Reply   Ignore

If he is accepting the request then, the chat communication between the member and the user at the site is initiated. All the technical specifications are exchanged via chat communication regarding the issue. If the request is meagre then, chat communication is sufficient to resolve the issue if

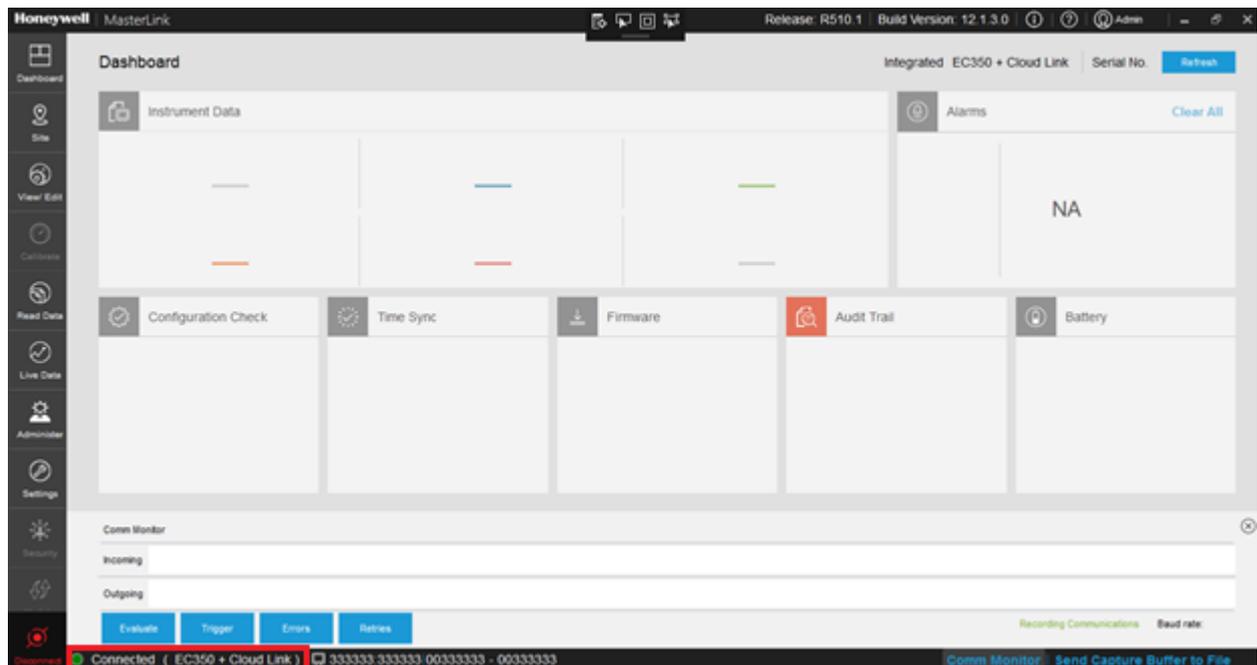
not, a remote server request has to be initiated through 'Take Control'.



The MasterLink application dashboard will be initiated with Remote access request as below



Remote connection established

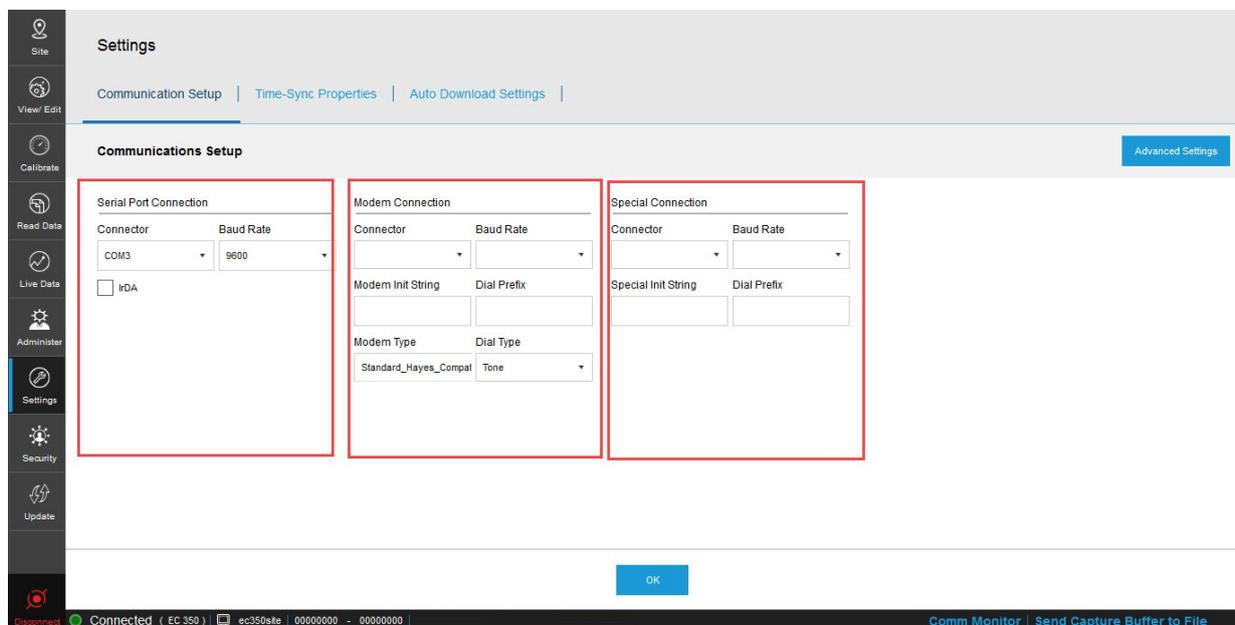


Once the issue is resolved, the request is closed by 'Disconnect' on Dashboard application or Logging out of TAC chat client or the user at the site can close the chat support.

## 3.10 Settings

### 3.10.1 Communications Setup

The 'Communications Setup' tab can be used to define the relevant communication settings required for connecting to the instrument.



Communication settings can be defined for:

- Serial Port
- Modem

- Special Connectivity option

**Serial Port Connection** type connects the PC directly to the instrument using a serial cable. Follow the steps to communicate using a serial port connection:

1. **Connector:** Select the COM port
2. **Baud Rate:** Select the applicable baud rate from the drop down list.
3. **IrDA:** Check IrDA only for IR communication and uncheck for serial communication

**Modem Connection** type connects the PC to a Hayes modem using POTS (plain old telephone service) to another Hayes modem then to the instrument. Follow the steps to communicate using a modem connection:

1. **Connector:** Select the COM port
2. **Baud Rate:** Select the applicable baud rate from the drop down list.
3. **Dial Prefix:** If required, enter a dial prefix. These characters will precede the site list phone number in the site list. This is commonly used to access an outside line (9,) or on a portable computer, to temporarily enter an area code without modifying the site list.
4. **Modem Type:** Select either **Standard Hayes Compatible** (default) or the **Racal Radio Pad** from the drop down list.
5. **Dial Type:** Select either **Tone** (default) or **Pulse** from the drop down list.
6. **Modem Init String:** Enter the modem initialization string. This string is modem specific.

**Note:** Please note that a description of the modem configuration settings are detailed in the operation manual that was supplied with modem. Please refer to modem manual and find the command that turns off error control. This command, following the command to reset the modem to factory defaults, is usually all that is needed for the modem initialization string.

**Attention:** For Racal Radio Pad configuration, set the Modem Init String to: **&FQOEVOVOSO-O=OS12=OXO**

**Special Connection** type can be used to support standard modems (i.e., a second standard modem), which may have special configuration requirements. In addition, they can support some models of wireless TCP/IP modems (CDPD modems for example.) They are connections that have modems on both the PC (host) and instrument ends. Follow the steps to communicate using a modem connection:

1. **Connector:** Select the COM port
2. **Baud Rate:** Select the applicable baud rate from the drop down list.
3. **Dial Prefix:** If required, enter a dial prefix. These characters will precede the site list phone number in the site list. This is commonly used to access an outside line (9,) or on a portable computer, to temporarily enter an area code without modifying the site list.
4. **Special Init String:** Select the special initialization string from the drop down list.

Click **Advanced Setup** to use default settings. These are additional settings used for serial connection for all Honeywell devices. If required, change these values to establish communication with 3rd Party devices.

MasterLink strongly encourages the use of the default settings.

Parity	Data Bits
None ▼	Bit8 ▼
Stop Bits	<input type="checkbox"/> Default Setting
One ▼	

The default settings will be automatically read and entered. Click on each of the drop-down boxes and select a choice from those lists.

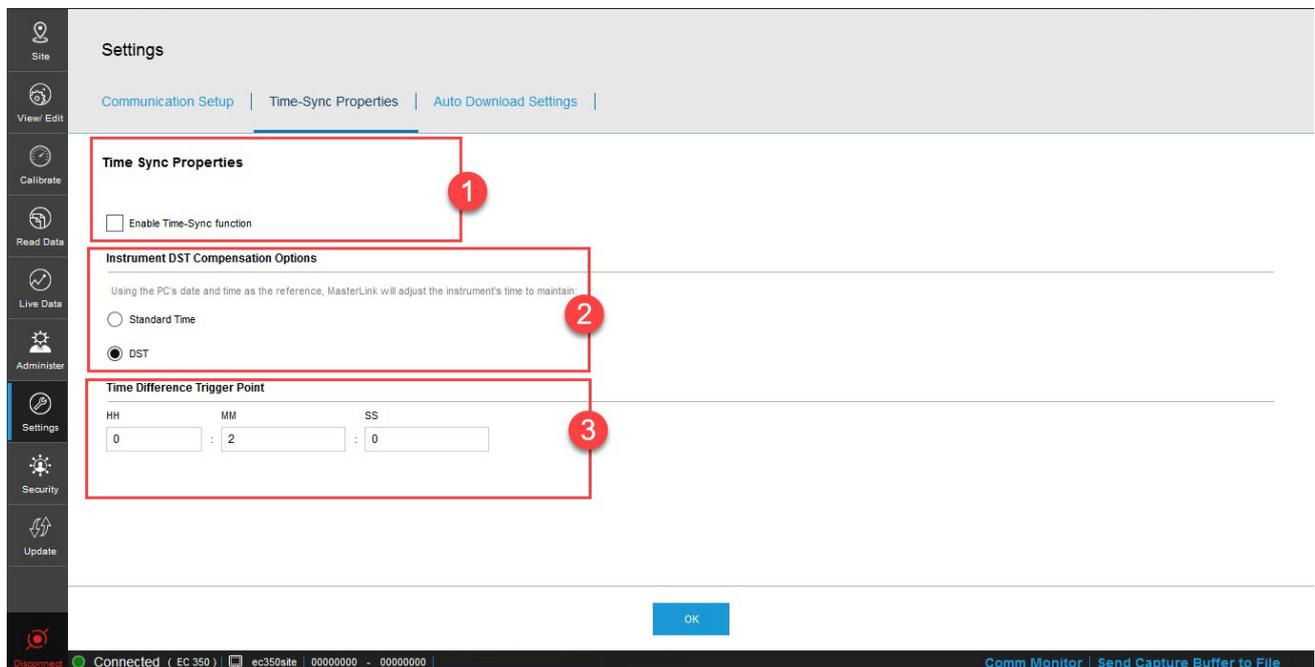
The **Default Setting** check box will reset the parity, data bits, and stop bits to their original configuration.

**Note:** Please note that more description of the modem configuration settings are detailed in the operation manual that should have been supplied with modem.

After configuring the communications settings, click **OK** to save the changes.

### 3.10.2 Time-Sync Properties

Time-Sync Properties' tab can be used to configure the Time Sync settings. The Time Sync function is used to synchronize instrument time with host time.



To configure Time Sync properties:

1. Check **Enable Time-Sync function**
2. Select either **Standard Time** or **DST**.
3. View or modify **Time Difference Trigger Point**. A Time Sync will be triggered based on the time difference configured in this field.

Click **OK** to save the changes.

**Note:** It is recommended that for any change in settings, you need to disconnect and then reconnect the instrument, for the settings to take effect. You can verify time-sync from the dashboard.

### 3.10.3 Auto Download Settings

The 'Auto Download Settings' tab is used to configure the number of days for which dashboard data is loaded.

**Note:** It is applicable only for Dashboard data.

Edit or modify the auto download settings for the following logs:

- Alarm
- Audit Trail
- Event

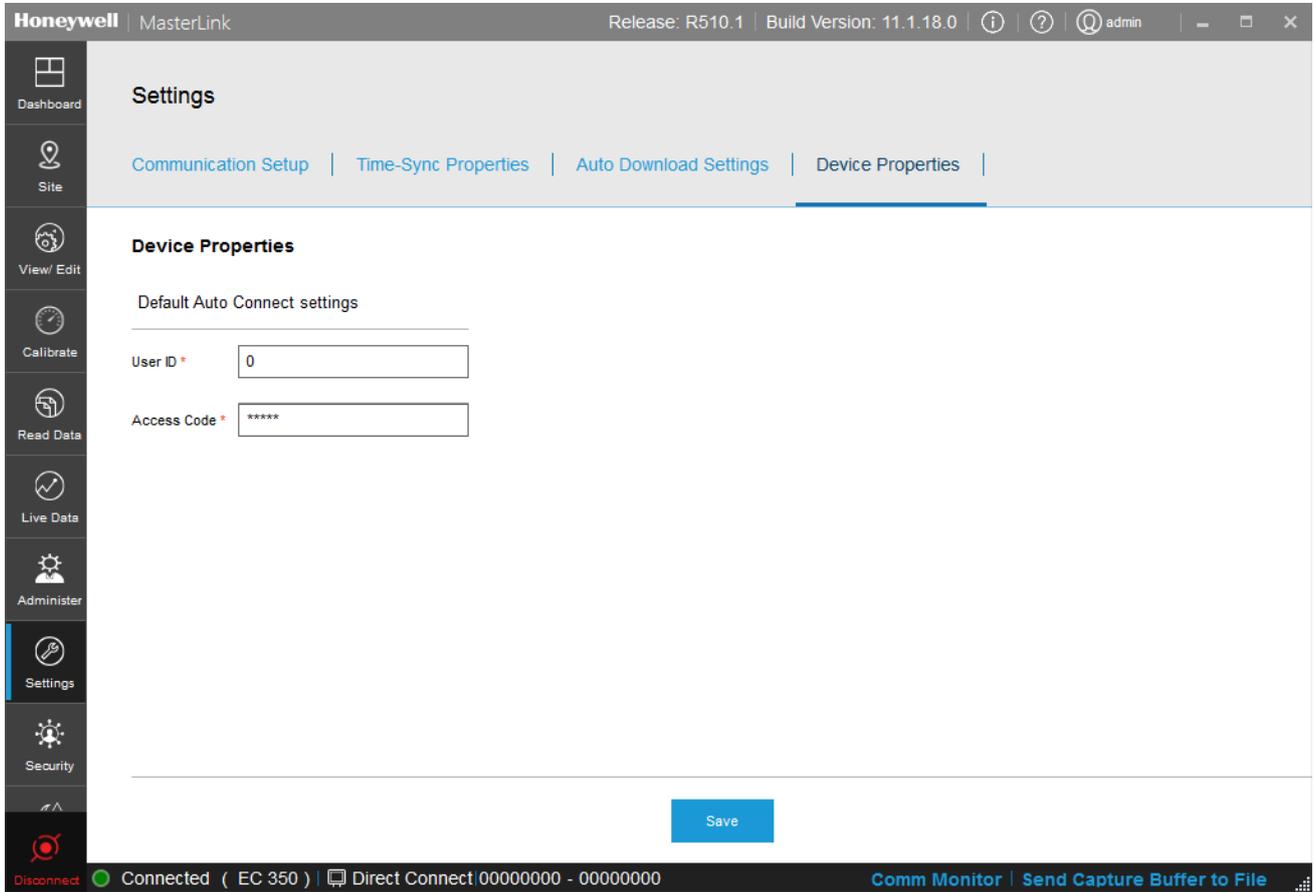
Check either **From Last Download** or **Number of Days** , enter the number of days and then click **OK**.

**Note:** Configure the Number of days as 0 to disable auto download of logs on dashboard.

### 3.10.4 Device Properties

The Device Properties include the **User ID** and the **Access Code** used to connect to a site in case of Direct Connect.

While using the 'Direct Connect' feature, enter the **User ID** and the **Access Code** of the instrument, and then click **Save** to continue connecting to the site.



## 3.11 Security and User Management

MasterLink supports a role based access control mechanism. A MasterLink administrator can create roles and assign permissions to the role. The administrator can then create users and assign roles to users. With this role based access mechanism, user is restricted to the operations that are associated with assigned role. This is a mechanism used to control access to different MasterLink operations.

User Management enables the utilities to secure the access to different MasterLink functionalities by its Technicians / operators. This should not be confused with the User Table functionality as User Table helps to manage access to device functionalities.

User Management is typically an administrative function. It allows an Administrator to

- Create Users who could log into MasterLink application
- Restrict the user's operation capabilities by assigning roles with specific privileges
- Group different operational privileges in terms of roles.

A role defines a set of permissions that are assigned to a user, which allow them to perform a set of actions. Example of a role could be "Level 1 Technician" who can only read information from the device using MasterLink and a "Level 2 Technician" who can read and write information. The created roles can then be assigned to different users needing similar access privileges.

### 3.11.1 User Roles

A role is a collection of permissions that defines a function, such as the Administrator or a Field Service Engineer. Users who are placed in this role will inherit these permissions. Roles are created by users (usually administrators) and are used to group together privileges or other roles. They are a means of facilitating the granting of multiple privileges or roles to users.

On the 'User Roles' screen, you can view a list of all the roles configured in the system, and the list of users assigned to a selected role.

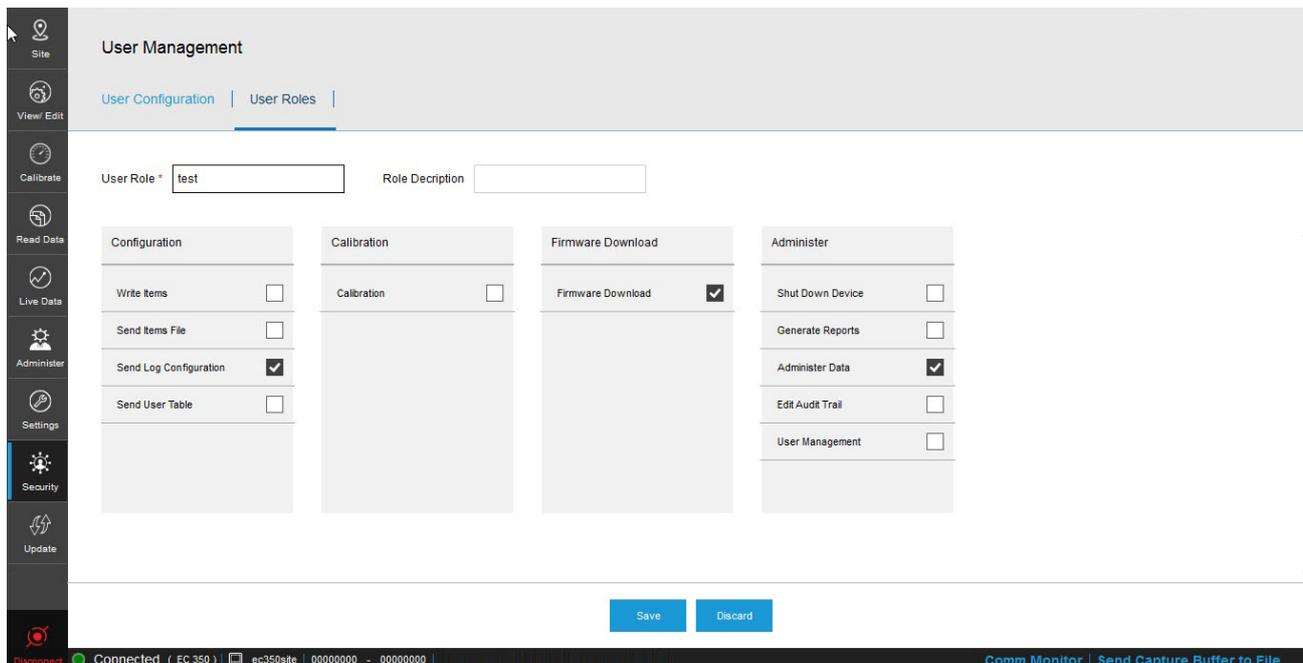
The screenshot shows the 'User Management' interface. The 'User Roles' tab is active. A table titled 'Admin\_Role' is displayed with the following data:

Full Name	Email	Last Accessed
Admin		12/12/2016 6:24:41 PM

Callouts indicate 'Delete the selected role' and 'Modify the selected role' for the table row. An 'Add New' button is highlighted at the bottom of the interface.

To create a new role:

1. On the 'User Roles' screen, click **Add New**.
2. Type the name and description of the role.
3. Select the check-box next to a privilege to assign it to the role being created.
4. Click **Save**.



The new role will appear in the list of roles on the 'User Roles' screen.

Using the table, you can then edit the role name, the description, and the role privileges.

To delete a role, select the role from the list of roles and then click  on the top-right corner of the screen.

### 3.11.2 User Configuration

The 'User Configuration' screen shows a list of all existing MasterLink users and this screen also allows you to create new MasterLink users.

**Attention:** Before creating a new user, ensure that you have already created a user role, and necessary permissions are assigned to that role. To learn more about creating a new role, refer to the section on [Creating User Roles](#).

To create a new user:

1. On the 'User Configuration' screen, click **Add New**.
2. Type the user name of the new user.
3. Select a role from the **Assigned Role** drop-down list. Roles configured in the [User Roles](#) tab, appear in this drop-down list. If you need to change permissions assigned to this role, or if you need to create a new role, then you can make the required changes in the [User Roles](#) tab.
4. Type a password for the user account, and then re-type it to confirm the password.
5. Click **Save**.

The screenshot displays the 'User Management' interface. The left sidebar contains navigation icons for Dashboard, Site, View/Edit, Calibrate, Read Data, Live Data, Administrator, Settings, and Security. The main content area is titled 'User Management' and includes tabs for 'User Configuration' and 'User Roles'. Below the tabs is the 'Add New User' section. On the left, there is a profile card with a placeholder for a user image, fields for 'Username' and 'User Role', and a 'Generate Licence File' button. To the right, the 'User Information' section contains fields for 'User Name \*' (filled with 'test123'), 'Assigned Role' (a dropdown menu showing 'Admin\_Role'), and 'Email ID \*' (filled with 'test123@abc.com'). The 'Password Information' section contains fields for 'Password \*' (masked with asterisks) and 'Confirm Password \*' (also masked). At the bottom of the form are 'Save' and 'Discard' buttons. The status bar at the very bottom shows 'Connected ( EC350 + Cloud Link )', 'Test | 00002424 - 00002424', and 'Comm Monitor | Send Capture Buffer to File'.

The newly created user is added to the list of users.

### 3.11.2.1 Passkey Generation

A Passkey contains encrypted information of user name and privileges. For a user to be effected in other MasterLink instances a Passkey needs to be generated by the Administrator and sent to the user. The site Administrator can create the following passkey files:

- **User Registration** - This is used to create license files to allow new users to register to the MasterLink application.
- **Update Account** - This is to change privileges of an existing user. Privileges can be added/removed based on the business requirement.
- **Forgot Password** - If a user forgets their password, site administrator can create passkey files allowing users to reset their password.

The screenshot displays the 'User Management' interface. On the left is a vertical navigation menu with icons for Dashboard, Site, View/Edit, Calibrate, Read Data, Live Data, Administrator, Settings, and Security. The main content area is titled 'User Management' and has sub-tabs for 'User Configuration' and 'User Roles'. Below the tabs, there are two user cards: 'Admin Admin\_Role' and 'test123 Admin\_Role'. The 'test123 Admin\_Role' card is selected and highlighted with a dashed border. To the right of the user cards, the details for the selected user are shown. The 'User Information' section includes fields for 'User Name' (test123), 'Assigned Role' (Admin\_Role), and 'Email ID' (test123@abc.com). Below this is the 'Passkey Generation' section, which contains three rows of controls: 'Register', 'Update Account', and 'Forgot / Reset Password', each with a key icon (a circle with a key symbol) to its right. At the bottom of the main content area are 'Save' and 'Cancel' buttons. The footer of the interface shows a status bar with 'Disconnect', 'Connected ( EC350 + Cloud Link )', 'Test | 00002424 - 00002424', and 'Comm Monitor | Send Capture Buffer to File'.

To generate a passkey:

1. On the User Configuration screen, select a user account to view details of the user.
2. Under Passkey Generation, click on the key icon next to the activity. You can generate the following keys:
  - **Register:** A key to register a new MasterLink user
  - **Update Account:** A key to update an existing MasterLink user account.
  - **Forgot/Reset Password:** A key to reset a forgotten or lost password.
3. Browse and select a location to save the passkey.
4. Send the passkey as an attachment to the user through an email.

 **User Role**  
Tech

**User Information**

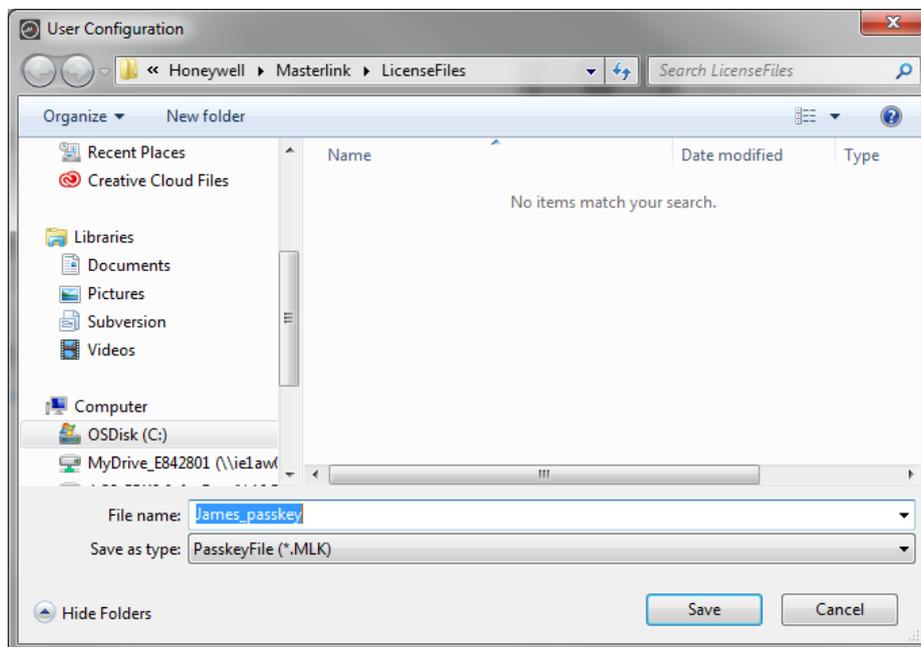
User Name \*

Assigned Role

Email ID \*

**Passkey Generation**

Register	<input type="radio"/>
Update Account	<input type="radio"/>
Forgot / Reset Password	<input type="radio"/>





# 4 Update

You can use MasterLink to update the EC 350/ERX 350 device or Modem firmware, and can also load the instrument with security certificates. This chapter describes the process of updating field instrument firmwares and loading security certificates.

## 4.1 EC 350/ ERX 350 Firmware Update

You can use MasterLink to upgrade EC 350/ ERX 350 firmware.

To get started, click **Browse** and select the firmware file.

The screenshot displays the MasterLink software interface for updating EC 350/ERX 350 firmware. The interface is organized into a sidebar on the left and a main content area. The sidebar contains navigation icons for Site, View/Edit, Calibrate, Read Data, Live Data, Administer, Settings, Security, and Update. The main content area is titled 'Update' and includes tabs for 'EVC 1.1032', 'Modern', and 'Certificate'. Below the tabs, there is a 'Firmware Filename' field with a 'Browse' button. The 'Versions' section shows 'Current Firmware' as 1.1032 and 'Loader' as 3.1000. The 'Selected Firmware Details' section includes fields for 'Firmware Type' and 'New Firmware'. A table on the right side of the interface tracks the upgrade process with columns for 'Step' and 'Status'. The steps listed are 'Validate FW file', 'Send Firmware', 'Validate Firmware', and 'Sync date and time'. At the bottom of the main area, there are 'Start Upgrade' and 'Reset' buttons. The status bar at the bottom of the window shows 'Connected (EC 350)', 'Site 045', '11111111-22222222', 'Comm Monitor', and 'Send Capture Buffer to File'.

Click **Start Upgrade** to upgrade the EC 350/ ERX 350 firmware. As the firmware upgrade progresses, you can observe the status on the right pane.

## 4.2 Cloud Link Modem Firmware Update

You can use MasterLink to upgrade Cloud Link Modem firmware.

To get started, Click **Browse** and select the firmware file.

The screenshot shows the 'Update' page in the MasterLink interface. The page has a dark sidebar on the left with navigation icons for Site, View/Edit, Calibrate, Read Data, Live Data, Administer, Settings, Security, and Update. The main content area is titled 'Update' and has tabs for 'EVC', 'Modem', and 'Certificate'. Under the 'Modem' tab, there is a 'Firmware Filename' field with a 'Browse' button. Below this are 'Versions' and 'Selected Firmware Details' sections, each with 'Current Firmware' and 'New Firmware' input fields. At the bottom of the main area are 'Start Upgrade' and 'Reset' buttons. On the right side, there is a table with 'Step' and 'Status' columns, containing the following rows:

Step	Status
Validate Firmware	
Send Firmware	
Validate Firmware	
Sync date and time	

The status bar at the bottom shows 'Connected (EC 350)', 'Site 045', '11111111-22222222', 'Comm Monitor', and 'Send Capture Buffer to File'.

Click **Start Upgrade** to upgrade the Cloud Link Modem firmware. As the firmware upgrade progresses, you can observe the status on the right pane.

### 4.3 Upload Cloud Link Modem Certificates

This tab is enabled if application is connected to EC 350 MasterLink R510.4 or integrated EC 350.

To enable SSL communication, **Security Enable** check box under certificate tab must be checked. Then upload a valid security certificate to the MasterLink R510.4 and host. These certificates can be self-signed or signed by a third party.

Select the certificate type from the dropdown.

**Browse** and select a certificate file.

The certificate can be a:

- Client Certificate,
- Server Certificate,
- Private Key, or
- Ca Certificate

Click **Update** to send the certificate to the instrument.

#### Loading certificates to a MasterLink R510.4

**Note:** It is Mandatory to load security certificates to Cloud Link using Serial interface. Renewal of certificates can be done using any of the supported interfaces.

1. The following order to must be followed to load certificates to Cloud Link:

- Key Certificate
- Client Certificate

- Server Certificate
- CA certificate

1. Configure SSL private key in Cloud Link (Item Number: 3086)
2. Enable SSL in Cloud Link (Item Number: 3017)
3. Restart Cloud Link
4. Make sure that Time Sync is applied after restart of Cloud Link. This step is not required if SIM card with static IP address is used.
5. Add/Edit site as IPv4 with SSL enable as shown in below screen.

**Note:** The IP address and the port number can vary based on the customer network settings.

6. Configure SSL Private Key. This key should match the one configured in Cloud Link (Item Number: 3086)
7. Configure IP address and port number.

Internet/Phone	IPv4
	<input type="checkbox"/> UDP <input checked="" type="checkbox"/> SSL
SSL Private Key	*****
Site Phone/IP Address *	192.168.1.1 : 40000

**Note:** Place the certificates (CA, Client and Private Key file) in *C:\ProgramData\Honeywell\MasterLink\Certificates*. Certificate names should match with following naming convention:

CA Certificate Siteld1\_Siteld2\_ca.pem

Client Certificate Siteld1\_Siteld2\_clientcertificate.pem

Private Key file Siteld1\_Siteld2\_keyfile.pfx

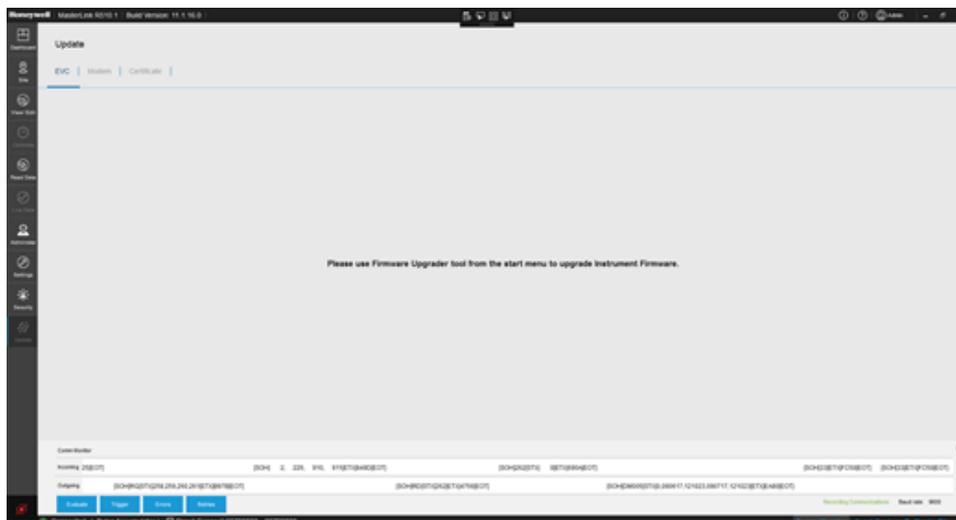
## 4.4 Legacy Devices Firmware Upgrades

Mercury Instruments legacy devices include:

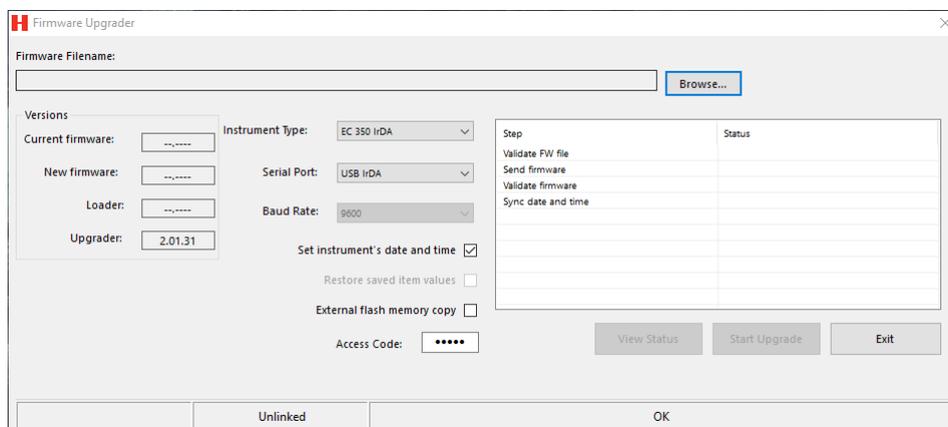
1. Accutest	8. Mini-Max
2. CNI4	9. PTModbus
3. ECAT	10. Pulse Accumulator
4. ER	11. TCI
5. ERX	12. Turbo Corrector
6. Mini	13. Turbo Monitor
7. Mini-AT	

For Mercury Instruments legacy devices, you need to use the **Firmware Upgrader** tool to upgrade firmware.

MasterLink displays the following message if you try to update firmware of legacy devices:



The **Firmware Upgrader** tool is installed along with MasterLink R510.4, and an icon will be available on your desktop.



## 5 Troubleshooting scenarios

Scenario	001
Problem	MasterLink stops communication with EVC over IrDA though Link is connected.
Environment	All OS
Resolution	Remove IrDA link and connect back.

Scenario	002
Problem	Connection fails over serial.
Environment	All OS
Resolution	<ul style="list-style-type: none"> <li>▪ It could be mismatch of baud rate of MasterLink and device.</li> <li>▪ It could be mismatch of comm port selection.</li> </ul>

Scenario	003
Problem	Load graph button is disabled when a user is connected to the site.
Environment	All OS
Resolution	Disconnect the instrument to activate the Load Graph button.

Scenario	004
Problem	User is unable to view certain dash board and Instrument data when connected to Android mobiles.
Environment	All OS
Resolution	Double tap the item to view the details.

Scenario	005
Problem	Application does not display device ID in 'Add/Pair' tab of MasterLink Android application once instrument session is timed out .
Environment	All OS
Resolution	Use Site Management screen to connect to the device.

Scenario	006
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Problem	Application does not display device ID in "Add/Pair tab of MasterLink Android application once instrument session is timed out .
Environment	All OS
Resolution	Use Site Management screen to connect to the device.

Scenario	007
Problem	Item value/description is not completely visible in the Dashboard/Configure by Group screens.
Environment	All OS
Resolution	Tap the item value field to view the data

Scenario	008
Problem	User is unable to abort send log configuration file transfer.
Environment	All OS
Resolution	The transfer would be completed in a minute. Please wait till the operation is done.

Scenario	009
Problem	Sometimes site id's are duplicated in Add/Pair site screen.
Environment	iOS and Android
Resolution	<p>This issue usually happens if site ID's Cloud Link 4G Modem are changed after an instrument is paired with the mobile. Advised to not to change the site IDs of Cloud Link 4G Modem once they are installed in the field.</p> <p>To resolve the issue:</p> <ol style="list-style-type: none"> <li>1. Download any Bluetooth Low Energy app from App Store / Play Store</li> <li>2. Scan for Cloud Link</li> <li>3. Still you can see the Cloud Link site id as previous names.</li> <li>4. Try to connect the Cloud Link</li> <li>5. Scan once again. You will able to see new site id's</li> <li>6. Now connect from MasterLink</li> </ol>

Scenario	010
Problem	In TCP/IP connection, the device is not responding

Environment	All OS
Resolution	Then check the session timeout. By default the item is set to 30 seconds. Increase the session timeout.

Scenario	011
Problem	Device connectivity issue after a application is force closed or hanged
Environment	All OS
Resolution	If the device is not connecting, wait for 10-15 minutes until the communication session timeout of Cloud Link expires.

Scenario	012
Problem	Post uninstallation of MasterLink installed with SQL Server, if the user wants to delete existing MasterLink Database
Environment	All OS
Resolution	<p>Perform the following steps:</p> <ul style="list-style-type: none"> <li>▪ Detach the SUITE32 Database from the SQL Server (make sure you know the path for database files).</li> <li>▪ Delete the SUITE32 database files (both .mdf &amp; .ldf) physically from the disk.</li> </ul>

Scenario	013
Problem	Post uninstallation of MasterLink installed with SQLite, if the user wants to delete existing MasterLink SQLite Database
Environment	All OS
Resolution	<p>Delete MLConfig.sqlite file from the below locations:</p> <ul style="list-style-type: none"> <li>▪ C:\Program Files (x86)\Honeywell\MasterLink</li> <li>▪ C:\ProgramData\Honeywell\Masterlink\Sqlite</li> </ul>

Scenario	14
Problem	Configuration check functionality not working for Integrated EC350 and CL
Environment	Desktop and Mobile
Resolution	Ensure you have the template file with new file extensions

Scenario	15
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Problem	Preview of log data results in error or truncation of report data
Environment	All OS
Resolution	Change the default printer to “Microsoft XPS Document Writer” or ensure the default printer page size is configured as A4

Scenario	16
Problem	Communication buffer is not showing any data
Environment	Desktop
Resolution	Open the Communication Buffer window to start capturing the communication log in the file

Scenario	17
Problem	Edit Audit Trail button disabled
Environment	All OS
Resolution	Ensure user has the privilege to edit audit trail data. If user has privilege but still disabled then logoff and login to get it enabled.

Scenario	18
Problem	Memory allocation options for Log 4 and Log5 are not visible
Environment	All OS
Resolution	Ensure user has the privilege to edit audit trail data. If user has privilege but still disabled then logoff and login to get it enabled.

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## 6 Glossary

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### A

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#### Activity Log

This function is used to quickly view the Activity Log on screen. Please note that this log is different from the Event Log because this log mainly focuses on software activity (and some firmware activity) where the Event Log function records activity that is directly linked to and maintained within the instrument.

#### Alarm Log

The alarm log contains descriptions of all significant problems detected by the system

#### Audit Trail

You can use the 'Audit Trail' tab to view and download Audit Trail data from the instrument. The term "Audit Trail" has different meanings in MasterLink Software Application that depend on the type of connected instrument.

### D

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#### DBO

Database Owner. dbo is the default schema in SQL Server. You can create your own schemas to allow you to better manage your object namespace.

#### Diagnostic log report

Displays log files containing messages that record all types of events, including startup and shutdown information, errors, warning messages, and access information

### E

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#### Event Log

The Event Log records activity that is directly linked to and maintained within the instrument.

### I

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#### Item File

An Item File stores the current instrument's item code values on your computer in a file.

#### Item Report

Displays comprehensive information for items

### K

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#### key

Passkey generated by the site Administrator

### L

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#### Load Graph

Loads saved graphs when offline

#### Log trigger

A log trigger is an action that caused a record to be written to the audit trail log in the instrument.

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## S

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### **Serial port**

Port of your system to which the device is connected

### **Short List**

A Short List is the same as the standard Item List (stores the current instrument's item code values), except that you can customize it.

### **Site Report**

Displays the number of workers/employees and work equipment at the construction site

### **SSL**

SSL (Secure Sockets Layer) is the standard security technology for establishing an encrypted link between a web server and a browser. This link ensures that all data passed between the web server and browsers remain private and integral.