



User Manual

Mobile Duress Application

Preface

Notice

Copyright 2022 Inovonics

Inovonics intends this manual for use by Inovonics customers only. All comments concerning the contents of this manual should be directed to the Inovonics marketing department. No part of this work covered by copyright may be reproduced in any form either graphically, electronically or mechanically; including photocopying, recording, taping, or storing in an information retrieval system without prior written permission from Inovonics.

Revision

Revision C

Trademarks

All brand names and product names used in this manual are trademarks, registered trademarks, or trade names of their respective holders.

Technical Services Contact Information

For Inovonics technical services:

- E-mail: support@inovonics.com
- Phone: (800) 782-2709; (303) 939-9336

Document Conventions

The following notices are used throughout this document:

Note: Emphasizes points, provides supplementary information, or indicates minor problems in an expected outcome.

Caution: Indicates possible damage to equipment or loss of data, as well as potential problems in an expected outcome.

Warning: Indicates the possibility of minor injury to oneself or others.

Danger: Indicates the possibility of serious or fatal injury to oneself or others.

Table of Contents

Notice	1
Revision	1
Trademarks	1
Technical Services Contact Information	1
Document Conventions	2
Chapter 1 Mobile Duress Application Overview	6
1.1 Mobile Duress Application Introduction	6
1.2 Mobile Duress System Components	8
1.2.1 Mobile Duress Pendants	8
1.2.2 Locators	8
1.2.3 Mobile Duress Gateway	8
1.2.4 Mobile Duress Application	8
1.2.5 Repeaters	9
1.2.6 Other EchoStream Hardware	9
1.3 Software and Firmware Updates	9
Chapter 2 Managing User Access	10
2.1 Overview	10
2.2 User Roles	11
2.2.1 Viewer	11
2.2.2 Technician	11
2.2.3 Administrator	11
2.3 Add a New User	12
2.4 Manage your Access Profile	12
2.5 Manage Users	13
2.5.1 Email	13
2.5.2 Reset	13
2.5.3 Remove	13

2.5.4 Change Role	13
2.5.5 All Sites	13
2.5.6 Add Access	13

Chapter 3 Managing the Site Portfolio **14**

3.1 Overview	14
3.2 Site Options	15
3.2.1 View	15
3.2.2 Import	16
3.2.3 Export	16
3.2.4 Remove	16
3.3 Add a New Site	16
3.4 Configure a Site	17
3.4.1 Configure a Site using the Microsoft Excel Configuration File	17
3.4.2 Configure a Site and Devices using the Mobile Duress App	19
3.5 Activate a Site	20
3.6 Modify a Site	22
3.6.1 Modify a Site using the Microsoft Excel Configuration File	22
3.6.2 Modify Site and Devices using the Mobile Duress App	23
3.6.3 Install/Replace Inovonics Devices	25
3.7 Set Site User Notifications	25
3.8 View Device Status	26

Chapter 4 Installing and Testing Locators **28**

4.1 Overview	28
4.2 Install Locators	28
4.3 Test Location	30
4.3.1 Test Individual Locators	30
4.3.2 Perform Freestyle Test	31

Chapter 5 Integration **33**

5.1 Overview	33
5.2 MQTT API	33
5.2.1 MQTT Integration Setup	33
5.2.2 Connecting to the MQTT Broker	34

5.2.3 MQTT Subscriptions	34
Chapter 6 Troubleshooting the Mobile Duress System	35

6.1 Overview	35
6.2 Connectivity	35
6.3 Location	37

Chapter 1

Mobile Duress Application Overview

1.1 Mobile Duress Application Introduction

Duress pendants, or panic buttons, have played a crucial role in protecting life and property for decades, but they've always been limited by the inability to locate mobile users. Though security systems can easily associate a fixed pendant with a specific location upon installation, determining the indoor location of a mobile duress pendant is significantly more difficult, and cost prohibitive to deploy even when possible. In the event of an emergency, nothing is more important than making sure responders get the information they need. In the case of mobile duress pendants, that has to include the location of the activation.

The Inovonics mobile duress system delivers an innovative location solution, built upon the reliability and cost effectiveness of EchoStream®. The Inovonics mobile duress system delivers precise location accuracy — room, zone or floor, depending on what your specific location requires — using application programming interface (API) push notifications to integrate directly into a central station or other IP-based software application. Those in danger can easily and discreetly notify responders with the location of the incident, lowering response times when it matters most.

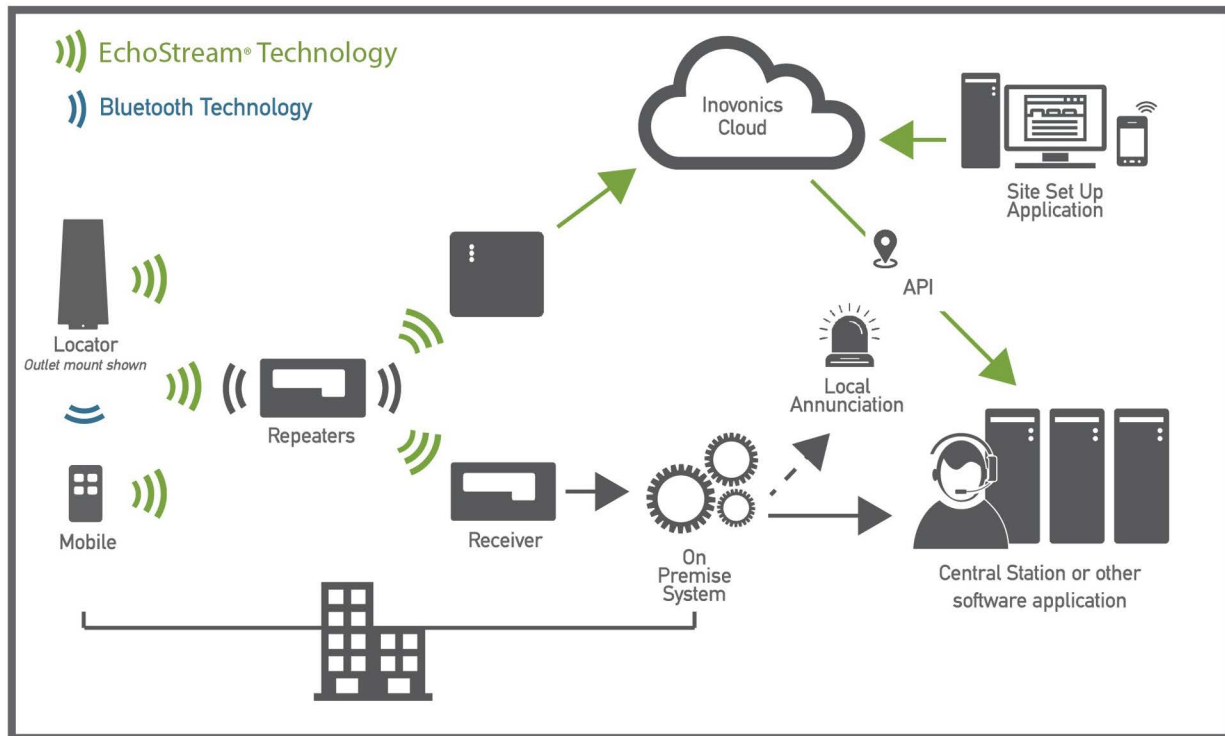


Figure 1-1 Inovonics mobile duress system

As shown in Figure 1-1, when a mobile duress pendant is activated, the alarm travels through the EchoStream network to the Inovonics mobile duress gateway. At the same time, any nearby locators transmit the location of the alarm. The mobile duress application will analyze the location data to determine the precise location for roughly ten seconds, and then deliver it to the security system with which it has been integrated.

The Inovonics mobile solution is scalable depending on the location granularity a specific site may require. Locators are able to cover specific rooms, zones or floors with a high degree of accuracy. A properly installed mobile duress system will deliver floor level accuracy with 99.99% precision and room accuracy with 90% precision, delivering the adjacent room or zone in the remaining 10% of instances.

The Inovonics mobile duress system is cloud-based, and can provide a school district, hospital network, or any other multi-site enterprise with the ability to remotely monitor system health from any IP connected computer or mobile device. Further, the Inovonics network operations center constantly monitors sites, preemptively looking out for potential problems that could impact system performance.

Note: Please refer to the *Inovonics Mobile Duress Brochure* for the most current listing of Inovonics mobile duress pendants, locators, gateways and other system components.

1.2 Mobile Duress System Components

Each mobile duress system includes the following components:

1.2.1 Mobile Duress Pendants

Inovonics mobile duress pendants are designed to be carried on an employee's person. They use Inovonics EchoStream technology to transmit alarms upon pendant activation, and also transmit a signal to Inovonics locators.

1.2.2 Locators

Inovonics locators take the received signal strength indicator (RSSI) from the mobile duress pendants, convert it into an EchoStream message and rebroadcast the message through the EchoStream network for delivery to the Inovonics mobile duress gateway.

1.2.3 Mobile Duress Gateway

The Inovonics mobile duress gateway receives EchoStream messages from EchoStream pendants, locators and repeaters, filtering out unregistered transmitter IDs (TXIDs) before sending data to the mobile duress application.

1.2.4 Mobile Duress Application

The mobile duress application receives messages from the mobile duress gateway, and within ten seconds, disseminates notifications to:

- Central station monitoring, access control or other IP based software applications via API (required).
- Authorized users via email or text message (optional).

The mobile duress application provides a user interface to create, manage, generate reports from and define notification policies for the site in question.

The application also enables an organization's administrators to establish access permissions by site for any authorized user.

1.2.5 Repeaters

Repeaters are an optional component of an Inovonics system that expand the coverage area of the network. Repeaters can be easily included in the initial installation or added as the system grows. Repeaters receive messages and retransmit them at high power, optimizing communication paths to effectively manage RF traffic.

1.2.6 Other EchoStream Hardware

The Inovonics mobile duress system manages delivery of location information into customer-defined integration points. An Inovonics security receiver wired into an intrusion panel or other on premise system is required for management of alarms and supervisory messages. Inovonics mobile duress systems can operate alongside of other intrusion systems. Please refer to the Inovonics website or contact your account manager for details about Inovonics security receivers and other hardware components.

1.3 Software and Firmware Updates

Inovonics will periodically update the mobile duress application software and mobile duress gateway firmware to include new functionality, bug fixes and to incorporate customer feedback. Inovonics will provide notifications via a pop up page upon log in prior to the new versions going live.

Chapter 2

Managing User Access

2.1 Overview

The access screen is used to manage users and their access to sites within the mobile duress application for your organization, also referred to as your portfolio. Authorized users can add and remove users, change user roles and access permissions, and reset passwords.

Click ACCESS in the top right-hand corner of any page to open the user access page in a new tab.

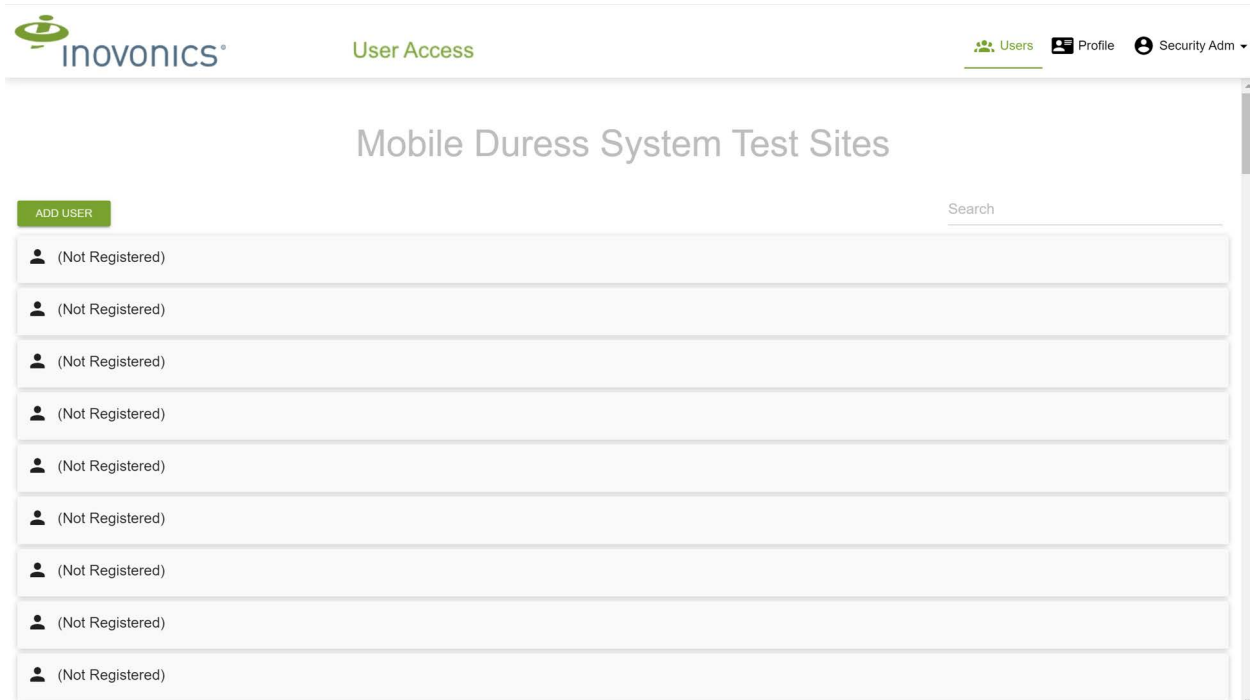


Figure 2-1 User Access Page

2.2 User Roles

Administrators must assign a role to each user who has access to the application. This will control who can access information and change parameters within your portfolio. There are three access roles: viewer, technician and administrator.

2.2.1 Viewer

Users with the viewer role cannot add, remove or edit anything in the application. They can only download reports, export site configuration files and view information for sites they have been given access to; optionally, within a time frame specified by an administrator. Inovonics recommends the viewer role for employees, subcontractors or end customers that only need to see site information or receive email or text notifications as detailed in section 3.7, "Set Site User Notifications" on page 25.

2.2.2 Technician

Users with the technician role can download reports and view and edit information in sites they are given access to by an administrator; optionally, within a time frame specified by an administrator. Inovonics recommends the technician role for employees or subcontractors that will routinely need to edit sites.

2.2.3 Administrator

Users with the administrator role can download reports and view and edit information for an organization's full portfolio. They can also assign site access and add or remove users, including other administrators. Inovonics recommends the administrator role for only a finite number of employees to tightly manage access.

Note: Administrators are responsible for removing users within their portfolios, including employees, subcontractors and/or end customer staff that have changed roles or are no longer employed by the organization in question. Inovonics strongly discourages the use of personal email addresses or email addresses the administrator cannot control. Inovonics strongly recommends administrators ensure their organization has standard operating procedures in place to manage user access.

2.3 Add a New User

To add a new user:

- 1 Click ADD USER.
- 2 Enter the new user's email.
- 3 Confirm the email address.
- 4 Select a role: viewer, technician or administrator.
- 5 Click ADD USER.

Once the user is added, the application will email a link to the new user. The user will follow this link to complete their registration.

2.4 Manage your Access Profile

Click on you profile name in the top right of the user access page to manage your access profile. Here you can see your email, name, and phone numbers, as well as change your password.

To edit profile information:

- 1 Click EDIT PROFILE.
- 2 Edit the fields as desired.
- 3 Click EDIT PROFILE to save the changes.

Note: The email and mobile phone number entered will be used by the mobile duress application to send out notifications as detailed in section 3.7, "Set Site User Notifications" on page 25.

To change your password:

- 1 Click CHANGE PASSWORD.
- 2 Enter your old password.
- 3 Enter the new password.
- 4 Confirm the new password.
- 5 Click CHANGE PASSWORD.

2.5 Manage Users

Clicking or hovering the cursor over a user will provide the following management options:

2.5.1 Email

Click the email icon to send an email to the user.

2.5.2 Reset

Click RESET to reset the user's password.

2.5.3 Remove

Click REMOVE to remove the user.

2.5.4 Change Role

Click CHANGE ROLE to change the user's access role.

2.5.5 All Sites

Click ALL SITES to either add or revoke access to all sites for the user.

2.5.6 Add Access

If a viewer or technician has not been assigned access to all sites, they can be assigned access to specific sites and within specific time frames by an administrator.

To assign access for a viewer or technician:

- 1 Click ADD ACCESS on a viewer or technician who has not been given access to all sites.
- 2 Select the site or sites to which you wish to give them access.
- 3 As desired, select a start date and an end date for their access.
- 4 Click ADD ACCESS.

Chapter 3

Managing the Site Portfolio

3.1 Overview

The portfolio page allows you to view a site, import or export its configuration file and/or remove it from your portfolio. Icons indicate site status, with inactive and/or untested sites appearing at the top of your portfolio list. No icon indicates the site's status is normal. Sites appear in alpha numeric order.

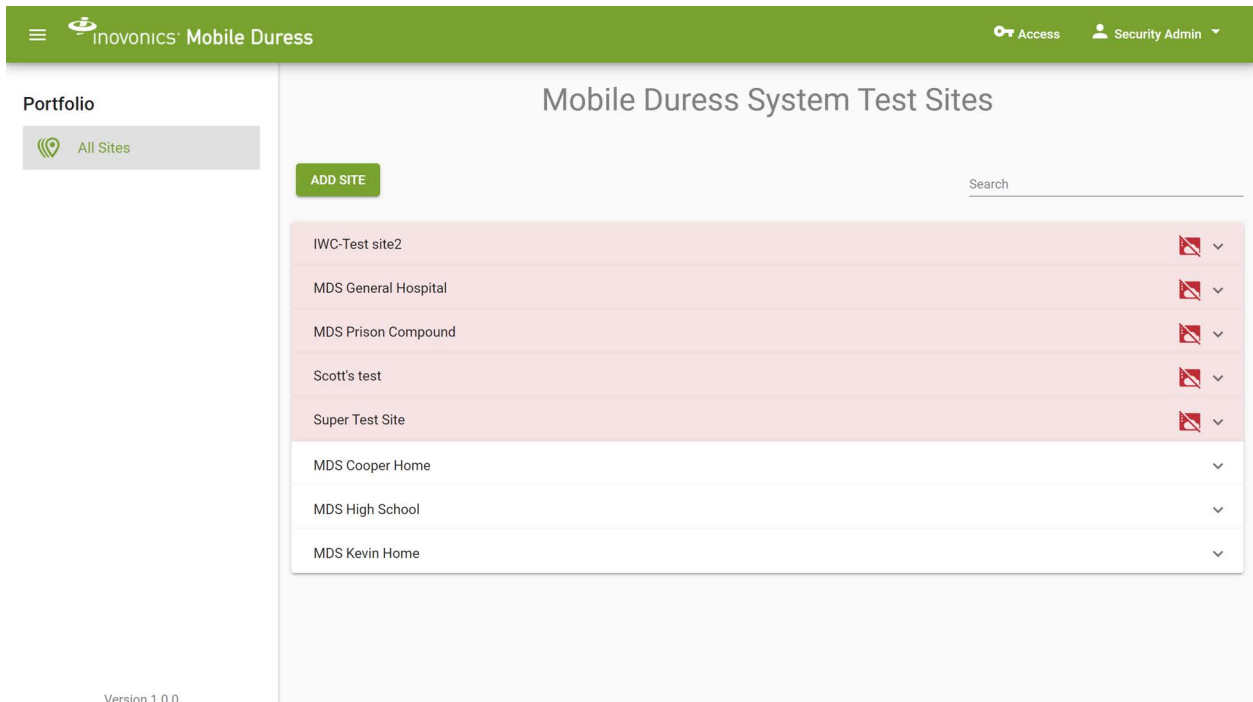


Figure 3-1 Portfolio Page

3.2 Site Options

Click on any individual site to see additional details, including the site name, address, time zone, last sync date, last modified date, gateway serial number and authorization code and any notes. All fields can be edited by clicking UPDATE.

The following options are also available when hovering over the site name:

- View
- Import
- Export
- Remove

3.2.1 View

View is used to view and manage the mobile duress pendants, gateway, integration options, and buildings, along with the associated locators and repeaters, for each of your sites.

Click VIEW to see the following:

- The pendants tab, which list the pendants registered to the site.
- The gateway tab, which displays details for the gateway.
- The integration tab, which displays where the system sends API notifications in the event of a mobile duress pendant alarm activation.
- The individual buildings tabs, which provide details about the locators and repeaters registered to the site. Building names are user-defined in the configuration file.

Pendants, repeaters and the gateway can also be edited from View. To edit a pendant, hover over the pendant and click UPDATE; to edit a repeater or locator, click on the building where it's located and then hover over the device and click UPDATE.

3.2.2 Import

Click IMPORT to import the Excel spreadsheet with your site configuration information. For details, see section 3.4, “Configure a Site” on page 17.

3.2.3 Export

Click EXPORT to download a modifiable Excel spreadsheet used to configure your site.

3.2.4 Remove

Click REMOVE to delete the site.

3.3 Add a New Site

To add a new site:

- 1 Click ADD SITE.
- 2 Enter the following:
 - The site name.
 - The site address.
 - The time zone where the site is located.
 - Any installation notes for the site.

Note: The mobile duress application does not require the address and time zone fields to be completed. However, Inovonics recommends completing both prior to finalizing the install, as they are important administrative reference points. If not completed, the application will assign the Greenwich Mean Time (GMT) standard to the site.

- 3 Click ADD SITE.

The site will appear in the portfolio list.

3.4 Configure a Site

There are two ways to configure the hardware components installed in the site: using the Microsoft® Excel® configuration spreadsheet or through the mobile duress app.

Note: Gateway connectivity and pendant, locator and repeater communications can all be tested after configuration, although this may not be practical for larger sites.

3.4.1 Configure a Site using the Microsoft Excel Configuration File

- 1 Move your cursor over the site name.
- 2 Click EXPORT.
 - The Microsoft Excel configuration file will download to your downloads folder.
- 3 Open the Microsoft Excel configuration file.
- 4 View and/or enter data in each tab:

Note: The mobile duress configuration file uses a combination of drop down menus and data entry. Data can also be copied and pasted. The TXID for pendants and locators can be entered manually or by scanning the TXID barcode stickers on the packaging with a bar code scanner. See the barcode scanner's installation instructions for more details.

- The site tab automatically populates based on the add site details.
- The gateway tab is where you enter the gateway details. See gateway installation instructions to find required identifiers.
- The buildings tab is used to enter the building(s) for the site. Each building created will appear as a separate entry in the mobile duress application.

Note: You can also use the buildings tab for floors, zones or any other means of differentiating the areas of the site. Just enter the floor name or zone name in the building name field.

- The pendants tab is where you enter details for each pendant.
-

Note: Make sure to designate the pendant received with your gateway as the test pendant for the site.

- The locators tab is where you enter details for each locator, including the locations reported to the system via notification.
 - The repeaters tab is where you enter repeater details.
 - The reference tab contains data to assist with importing. The fields in this tab cannot be edited.
 - The help tab provides additional instructions about use of the template.
 - The integration tab is where you select the security system you will be integrating with from the dropdown menu and provide the necessary account number.
-

Note: Please contact your account manager for information about additional integration options as needed.

- 5** When you are done editing, save the file, making sure to not change the file name.
 - 6** In the mobile duress application move your cursor over the site name.
 - 7** Select IMPORT.
 - 8** When prompted, choose the edited Microsoft Excel configuration file.
 - 9** Select IMPORT SITE.
 - 10** From the portfolio, click VIEW on the site to confirm the pendants, gateways, buildings, locators, repeaters, and integration option have all successfully imported.
-

Note: For more information about VIEW options see section 3.2.1, “View” on page 15.

- 11** Use the site configuration file to clearly label all hardware so technicians know where each should be installed.
 - 12** Save the exported file in an archived location as a backup of your site configuration.
-

Note: You can use the import function to import a backed up site configuration as needed.

3.4.2 Configure a Site and Devices using the Mobile Duress App

The site gateway, buildings and any pendants, repeaters and/or locators can all be configured using the mobile duress app.

3.4.2.1 Configure the Site Gateway using the Mobile Duress App

- 1** Click VIEW on the site.
- 2** Click GATEWAY on the top of the site's page.
- 3** Click ADD GATEWAY.
- 4** Update the following fields:
 - The gateway's Inovonics model number.
 - The authorization code provided for the gateway by Inovonics.
 - The location where the gateway is installed
 - Any installation notes.
- 5** When all the information has been filled out, click ADD GATEWAY.
- 6** Clearly label the gateway so technicians know where it should be installed.

3.4.2.2 Configure Pendants using the Mobile Duress App

- 1** Click PENDANTS on the top of the site's page.
- 2** Click ADD PENDANT.
- 3** The following fields can be configured or edited:
 - The pendant's name
 - The pendant's TXID.
 - The pendant's Inovonics model number.
 - Any installation notes.
- 4** When all the information has been filled out, click ADD PENDANT.
- 5** Clearly label pendants so that each is assigned to the appropriate person.

3.4.2.3 Configure Buildings using the Mobile Duress App

- 1 Click ADD BUILDING on the top of the site's page.
- 2 Fill out the following:
 - The building name
 - Any building notes.
- 3 When all the information has been filled out, click ADD BUILDING.

3.4.2.4 Configure Repeaters and Locators using the Mobile Duress App

- 1 Click on the building which will include the repeater or locator.
- 2 Click ADD REPEATER or ADD LOCATOR.
- 3 Fill out the following:
 - The device name
 - The device's TXID.
 - The device's Inovonics model number.
 - Any installation notes.
- 4 When all edits have been made, click ADD REPEATER or ADD LOCATOR.
- 5 Clearly label repeaters and locators so technicians know where each should be installed.

3.5 Activate a Site

Note: Inovonics recommends adding new sites and configuring them in a controlled setting prior to activation.

- 1 Install all locators, repeaters and the gateway per the installation instructions.

Note: The first time you connect a mobile duress gateway to the Internet it will check for and initiate firmware updates. This may take up to 15 minutes and the gateway may experience a re-boot cycle to complete the update.

Note: Inovonics recommends use of the Inovonics EN7017 survey kit and app to ensure proper repeater coverage.

- 2** Label the pendant shipped with your gateway as the test pendant for the site.
- 3** Press the alarm button on the test pendant battery to activate it.
- 4** On the mobile duress application, click the site to expand the site details. Check last synced to confirm that the gateway has successfully checked in.
- 5** From the portfolio page, click VIEW on the site you are activating to open the site configuration page.
- 6** Click VIEW STATUS on the left-hand navigation menu.
- 7** Confirm the installation location for each device matches the site configuration within the mobile duress application.
- 8** Confirm all locators and repeaters are checking in.
- 9** Perform a location test per section 4.3, “Test Location” on page 30.
- 10** Once you have completed test location, press the alarm buttons on each of the mobile duress pendants which will be used in the site to activate them.
- 11** Click VIEW STATUS.
- 12** Confirm the pendants are checking in.
 - Check-ins are sent every three minutes. You can also push the reset button to send a message immediately.
- 13** Distribute pendants to site personnel.

3.6 Modify a Site

There are two ways to edit site details and add or edit hardware components installed in a site: using the Microsoft® Excel® configuration spreadsheet or through the mobile duress app.

3.6.1 Modify a Site using the Microsoft Excel Configuration File

Note: Any file you import will overwrite the previous configuration. If adding hardware, fill in the appropriate fields below the configuration details for existing hardware. If replacing hardware, only change the fields for the hardware you are replacing.

- 1 On the portfolio page, click EXPORT on the site you want to modify.
 - The Microsoft Excel configuration file will download to your downloads folder.
- 2 Open the site configuration Microsoft Excel file.
- 3 Add, remove or edit system components as needed within the Microsoft Excel file site configuration file.
 - For more information, see section 3.4, “Configure a Site” on page 17.
- 4 Save the Microsoft Excel site configuration file in your archive location.
- 5 Click IMPORT on the site you are modifying.
- 6 Navigate to the Microsoft Excel configuration file.
- 7 Click IMPORT SITE.
- 8 Click VIEW on the site.
- 9 Click VIEW STATUS on the left-hand navigation menu.
- 10 Verify the edits have been imported.
- 11 If you have added or replaced hardware:
 - a. Install the hardware.
 - b. Confirm the installation location for each device matches the site configuration within the mobile duress application.
 - c. Confirm any newly installed devices are checking in.
 - d. Perform a location test per section 4.3, “Test Location” on page 30 for any newly installed locators.

- e. Activate any newly installed pendants.
- f. Confirm any newly installed pendants are checking in.

3.6.2 Modify Site and Devices using the Mobile Duress App

The site details, gateway, buildings and any pendants, repeaters and/or locators can all be configured using the mobile duress app.

3.6.2.1 Modify Site Details using the Mobile Duress App

- 1** Click the down arrow on the right side of the site field to display site details.
- 2** Click UPDATE.
- 3** Modify the site details as needed:
 - The site name.
 - The site address.
 - The time zone where the site is located.
 - Any site notes.
- 4** When finished, click UPDATE SITE.

3.6.2.2 Modify the Site Gateway using the Mobile Duress App

- 1** Click VIEW on the site for which you want to modify the gateway.
- 2** Click GATEWAY on the top of the site's page.
- 3** Click UPDATE GATEWAY.
- 4** Modify the gateway fields as needed:
 - The gateway's Inovonics model number.
 - The authorization code provided for the gateway by Inovonics.
 - The location where the gateway is installed
 - Any installation notes.
- 5** When finished, click UPDATE GATEWAY.

3.6.2.3 Modify Pendants using the Mobile Duress App

- 1** Click PENDANTS on the top of the site's page.
- 2** Click UPDATE.
- 3** Modify the following fields as needed:
 - The pendant's name
 - The pendant's TXID.
 - The pendant's Inovonics model number.
 - Any installation notes.
- 4** When finished, click UPDATE PENDANT.

3.6.2.4 Configure Buildings using the Mobile Duress App

- 1** Click BUILDINGS on the top of the site's page.
- 2** Click UPDATE BUILDING on the top of the site's page.
- 3** Fill out the following:
 - The building name
 - Any building notes.
- 4** When finished, click UPDATE BUILDING.

3.6.2.5 Modify Pendants, Repeaters and Locators using the Mobile Duress App

- 1** Click VIEW on the site where the hardware component is located.
- 2** To edit a pendant, hover over the pendant and click UPDATE; to edit a repeater or locator, click on the building where it's located and then hover over the device and click UPDATE.
- 3** The following fields can be configured or edited:
 - the device name
 - The device's TXID.
 - The device's Inovonics model number.
 - Any installation notes.
- 4** When finished, click UPDATE.

3.6.3 Install/Replace Inovonics Devices

If you have added or replaced hardware:

- 1 Install the hardware.
- 2 Confirm the installation location for each device matches the site configuration within the mobile duress application.
- 3 Confirm any newly installed devices are checking in.
- 4 Perform a location test per section 4.3, “Test Location” on page 30 for any newly installed locators.
- 5 Activate any newly installed pendants.
- 6 Confirm any newly installed pendants are checking in.

3.7 Set Site User Notifications

Users can also elect to receive notifications of alarms via text or email for sites where they are permitted access.

Note: Ensure user notifications are only sent to appropriate personnel. Typically, you would not want to have notifications sent to people who might themselves be activating an alarm, or whom the receipt of a notification might cause them to be detected.

To set user notifications:

- 1 Click your username on the upper right hand corner of the portfolio page.
- 2 Click NOTIFICATIONS.
- 3 Enable text and/or email notifications.
- 4 Select the site for which you'd like to receive notification.
- 5 Select UPDATE NOTIFICATIONS.
- 6 The system will email and/or text a six digit code confirmation code. Enter the code when prompted.

3.8 View Device Status

- 1 Click VIEW on a site.
- 2 On the left-hand menu, click VIEW STATUS to see the status of all registered devices.


At the top of the view status page, you will see check-in percentages over the last 24 hours for all devices.


Under the check-in percentages you will see information for every device registered to the site including:


- Model displays the type of device for which information is displayed on this line.
- Building displays the building where the repeater or locator is installed.
- Name/location displays the name and/or location of the registered mobile duress pendant, locator or repeater.

Note: For locators, this will be the location in the Microsoft Excel configuration spreadsheet, which is the location which will be reported by the mobile duress application.

- TXID displays the unique transmitter identification number for the mobile duress pendant, locator or repeater.
 - Status displays the status of the device that sent the message as follows:
 - ✓ The device is behaving as expected.
 - 🔋 The device has a low battery.
 - 📶 The device has not been heard from by the gateway.
 - 🔪 The device has been tampered.
 - 🔄 The device has been reset.
 - ❗ Indicates a communication error between the device and the gateway.

 Indicates AC power loss for locators and repeaters.

 Indicates a pendant is in alarm.

 Indicates the device has never checked in.

- Last heard displays the date and time when the last message from this device was received, if a message has been received within the last 24 hours.
- Signal level displays the signal level of the message as measured by the gateway. The signal level values indicate the signal's relative strength, ranging from 0-99. The higher the value number, the stronger the signal strength. For optimal installs, the signal strength should be 10 or higher.
- Signal margin displays the signal margin of the message as measured by the gateway. The signal margin is the measurement of the decibel level of the message, minus the decibel level of any interfering signals. For optimal installs, the signal margin should be the same as the signal level; however in all cases both should be 10 or higher.

The search bar allows you to search by any of the columns. You can also sort by column by selecting the up/down arrow to the right of each heading.

Chapter 4

Installing and Testing Locators

4.1 Overview

A properly installed Inovonics mobile duress system will deliver a high degree of indoor location accuracy in a commercial construction environment. This chapter provides details about site setup, hardware placement and post-installation site testing to achieve your desired performance.

Please contact Inovonics technical services or your account manager to ensure your testing takes into account any unique attributes or user needs for your specific application.

Inovonics highly recommends installers perform a test location for all sites, archiving a copy for the integrator's records and providing a copy to the end customer for future reference.

4.2 Install Locators

The radio frequency (RF) propagation — or behavior — of a wireless technology is impacted by everything the RF waves come in contact with. Drywall, glass and wood usually let signals pass through easily; other materials, such as concrete or metal, may inhibit or attenuate the signal. Even furniture, people, vegetation and the moisture content of the air can have an impact.

For best results:

- Ensure locator information is entered into the mobile duress app per section 3.4, “Configure a Site” on page 17.
- Install the locators in an unobstructed outlet, removed from metal.
- Unless installing the locator in Canada, use the outlet security screw.
- Install the locator in the upper outlet to allow access to the lower outlet.
- Use the same outlet location for adjacent rooms. For example, in the north wall’s center outlet.
- If you need to protect the locator, use a plastic cover with interior dimensions of 5.5”x2.5”x1.5”, or a NEMA enclosure such as the Inovonics ACC650 plastic outdoor enclosure.
- Plan on each properly installed locator covering up to a:
 - 50-foot radius indoors, in a typical room with furniture, people, etc.
 - 300-foot radius indoors or outdoors, if there are no obstructions.
 - 100-foot radius outdoors when installed at a height of 15 feet with the locator facing down into the coverage area, such as on a lamp post.
- Use multiple locators if you need to cover large areas. Make sure to label each accordingly. For example, “room 201 west” and “room 201 east”.
- Use the application’s test location feature to ensure desired locations are consistently reported. Make sure to download the test report for future reference.

And don’t:

- Install the locator on a power strip.
- Install the locator on a wall switch controlled (hot or half hot) or GFI outlet.
- Install the locator in an outlet behind furniture or any other obstruction.
- Install the locator in a closet, unless you intend to locate in that specific closet.
- Use country-specific outlet adapters unless instructed by Inovonics technical support.

4.3 Test Location

There are two ways to test location in a site. You can test by individual locator, or perform a free style test, where you can move through out a building with a test pendant and test all locators in a site.

4.3.1 Test Individual Locators

Individual locators can be tested to confirm that the correct location is reported when a mobile duress pendant is activated, and allow you to adjust individual locator placement to refine results.

To test in individual locators:

- 1 Click VIEW on the site where the locator you want to test is located.
- 2 Click TEST LOCATION on the left-hand navigation bar.
- 3 Select TEST for the locator you're testing.
- 4 Move to the center of the room where the locator you're testing is installed.
- 5 Hold the pendant waist high with the back of the pendant facing the locator.
- 6 Activate the pendant and wait in the same position until the LED on the pendant flashes red, indicating a restoral message has been sent.
 - A pop up window will provide the status of the test. If the location reported was the location selected, the result will be a pass. If the location reported was not the location selected, the result will be a fail. The test will time out if a test pendant activation is not heard within 20 seconds.
- 7 Clicking TEST each time, repeat the activation five times from the same position to ensure an adequate sample.
- 8 Clicking TEST each time, activate the pendant in the following orientations, five times each:
 - With the locator on your left.
 - With the locator on your right.
 - With the locator behind you.
- 9 Based on the results, modify locator placement or add locators as needed.
- 10 If locator placement has been modified or if locators have been added, repeat steps 3 to 8.

- 11** Repeat steps 3 to 8 for all locators on the site.
 - The total test results for the site will be shown at the top of the test location page, including the percentage of those devices which have passed, failed or remain untested.
- 12** When done, select ALL SITES to return to the portfolio page.

4.3.2 Perform Freestyle Test

Test individual locators is used to confirm that the correct location is reported when a mobile duress pendant is activated, and allow you to adjust individual locator placement to refine results.

To test in individual locators:

- 1** Click VIEW on the site where the locator you want to test is located.
- 2** Click TEST LOCATION on the left-hand navigation bar.
- 3** Click FREESTYLE TEST for the locator.
- 4** Move to the center of the room where the first locator you're testing is installed.
- 5** Hold the pendant waist high with the back of the pendant facing the locator.
- 6** Activate the pendant and wait in the same position until the LED on the pendant flashes red, indicating a restoral message has been sent.
 - A pop up window will provide the status of the test and the location received. If the location reported was the location selected, the result will be a pass. Ensure the location is correctly reported.
- 7** Repeat the activation five times from the same position to ensure an adequate sample.
- 8** Activate the pendant in the following orientations, five times each:
 - With the locator on your left.
 - With the locator on your right.
 - With the locator behind you.
- 9** Based on the results, modify locator placement or add locators as needed.
- 10** If locator placement has been modified or if locators have been added, repeat steps 3 to 8.

- 11** Repeat steps 4 to 8 for all locators on the site.
- 12** When done, select ALL SITES to return to the portfolio page.

Chapter 5

Integration

5.1 Overview

The Inovonics mobile duress system leverages APIs to deliver location information and other alerts directly to any IP-based application, such as central station monitoring, access control, video management or other command and control systems.

For details on current integrations in place please contact your account manager. For mobile duress dealers that require a new integration beyond those currently in place, the following provides details.

5.2 MQTT API

The Inovonics MQTT API is used to receive device notifications and the location of alarms. Clients that are subscribed to the MQTT broker will receive events and notifications as the cloud processes them without having to poll the RESTful API for information.

5.2.1 MQTT Integration Setup

MQTT integrations are set up to allow a client to listen to MQTT traffic at the site level. MQTT clients do not use the same authentication as the RESTful API; the authorization credentials (a globally unique username and password) must be configured to create an MQTT integration to connect and subscribe to MQTT traffic for a specific site.

The integration is set up with RESTful APIs.

5.2.2 Connecting to the MQTT Broker

The MQTT broker URL will be provided by Inovonics upon request. The broker allows for both TLS encrypted (port 8883) and unencrypted (1883) connections, but it is highly recommended to use an encrypted connection. The Inovonics broker has a CA signed certificate that is used for encrypted connections.

Currently the Inovonics MQTT Broker uses MQTT version 3.1.1 but it is likely that the broker will be migrated to MQTT version 5.0 in the future. In order to connect the username and password configured in the MQTT, integration will need to be used. The client ID for the connection must be globally unique. Inovonics recommends using the same client ID and username. In the future there may be further restrictions on the client IDs that can be used.

When connecting it is also recommended to set the "Clean Session" flag to false. This will allow a client that disconnects to reconnect and receive any messages that it missed.

Currently the Inovonics MQTT broker will store unsent messages for up to one day.

5.2.3 MQTT Subscriptions

MQTT subscriptions can be made after connecting with the client. In general, Inovonics recommends subscribing to MQTT topics with a QOS of 2 in order to prevent missing or duplicate messages. Currently there is a common status topic that can be used to determine the health of the cloud. Every authenticated MQTT user automatically has access to this topic. The rest of the topics are restricted by MQTT username. This prevents an MQTT integration for one site from listening to traffic from another site. All MQTT payloads are in JSON format.

Chapter 6

Troubleshooting the Mobile Duress System

6.1 Overview

This chapter helps troubleshoot issues that might occur with the mobile duress system. If you are unable to resolve an issue, please contact Inovonics technical support:

- E-mail: support@inovonics.com.
- Phone: (800) 782-2709

6.2 Connectivity

During normal operation, the green LED on the mobile duress gateway indicates that it is receiving power and the amber LED indicates a good IP connection. When the green LED is unlit, the mobile duress gateway does not have power; and when amber LED is unlit or flashing, the mobile duress gateway does not have an IP connection.

Note: The amber LED will flash for up to 15 minutes when the mobile duress gateway is initially booted up or recovering from a loss of power. This is normal, indicating that the mobile duress gateway is checking for firmware updates.

Problem	Possible Solutions
<p>The amber LED on the mobile duress gateway is flashing or unlit, indicating the mobile duress gateway does not have an IP connection.</p>	<ul style="list-style-type: none"> • Ensure the gateway is not booting up. The amber LED will flash for up to 15 minutes when powering up. • Check for loose or disconnected cabling, and connect cabling as needed. • Ensure Ethernet routers and/or switches have power. If not, provide power. • Ensure the WAN and Ethernet LEDs above the Ethernet port on the mobile duress gateway are lit. If not, contact Inovonics technical support. • Connect a laptop to the Ethernet cable attached to the IP gateway's RJ45 port and attempt to open a web site. If not, contact your IT department. • Ensure with your IT department that the Ethernet meets the minimum requirement of 10/100Base-T, DHCP, static IP, and correct as needed. • Ensure the router you are using assigns addresses via DHCP, with the DHCP lease set to a value greater than 30 seconds (non-zero and non-infinite); allows outbound connections on the following ports: DNS (UDP 53), HTTPS (TCP 443), NTP (UDP 123), TCP port 9000; and is not double NATed, where traffic is flowing through multiple routers that are doing network address translation. If needed, replace router.
<p>The green LED on the mobile duress gateway is unlit, indicating it is not receiving power.</p>	<ul style="list-style-type: none"> • Check the terminal block connections and reconnect cabling as needed. • Ensure you are using known good cabling, a good power supply and a good outlet. Replace as needed.
<p>Both green and amber LEDs are lit, but the mobile duress gateway is no longer communicating with the cloud.</p>	<ul style="list-style-type: none"> • Confirm the mobile duress gateway's serial number and authorization code match those for the site within the application. Correct as needed. • Click on the site to see when the last time the mobile duress gateway synced with the cloud, and contact Inovonics technical support.

6.3 Location

Problem	Possible Solutions
<p>Incorrect room being reported upon pendant activation during testing.</p>	<ul style="list-style-type: none"> • Ensure the locator in the room is installed in a similar location to the locators in adjacent rooms. (In the north wall's center outlet, for instance.) • Ensure the locator is unobstructed by furniture and removed from metal. • Ensure the locator is receiving power, and not mounted on a wall switch controlled outlet or power strip. • Move the locator to a different outlet and retest. • Add another locator to the room and retest.