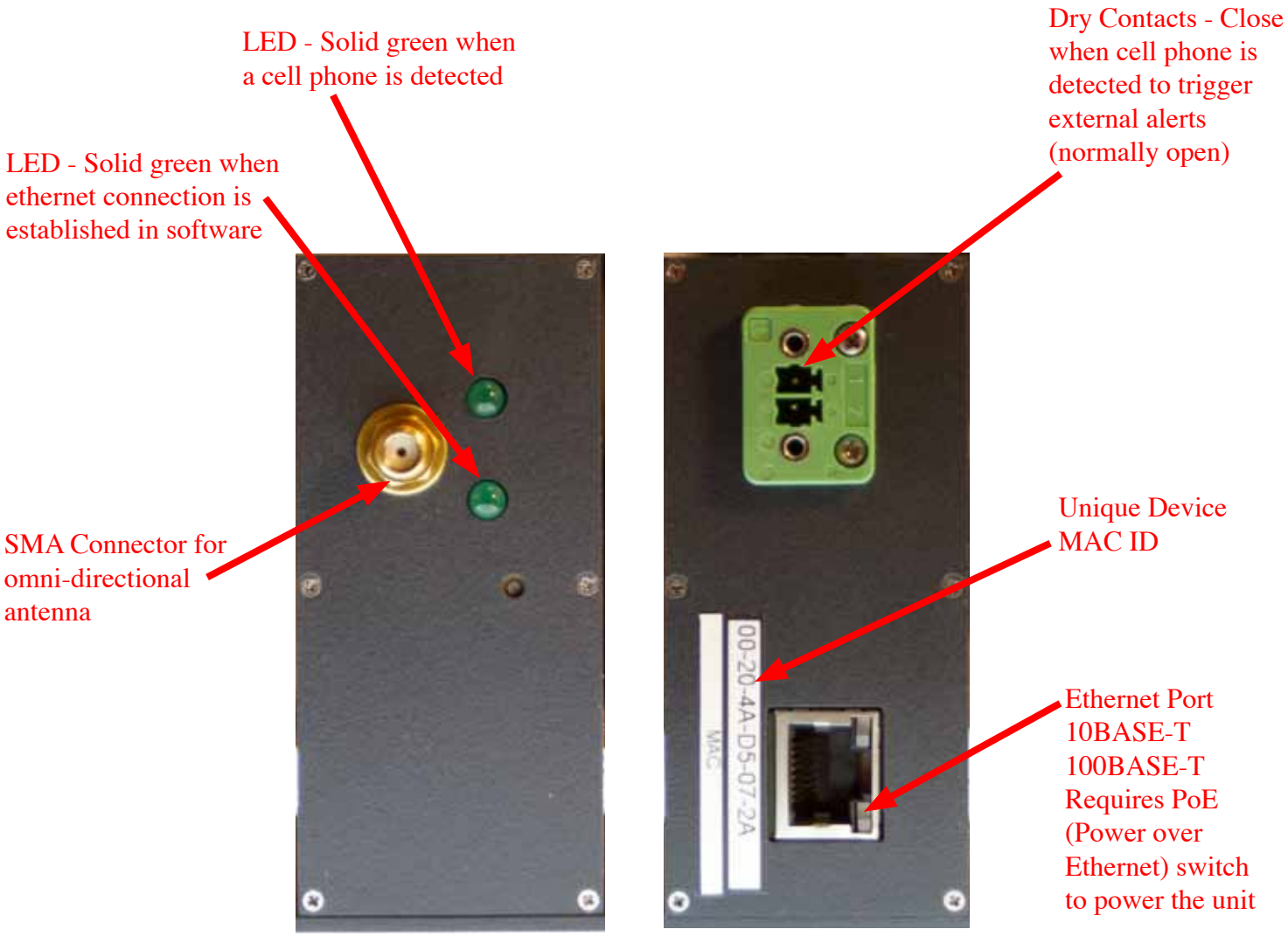
ETHERHOUND CELLPHONE TRIGGER

manual version 1.0

Contents

EtherHound Hardware



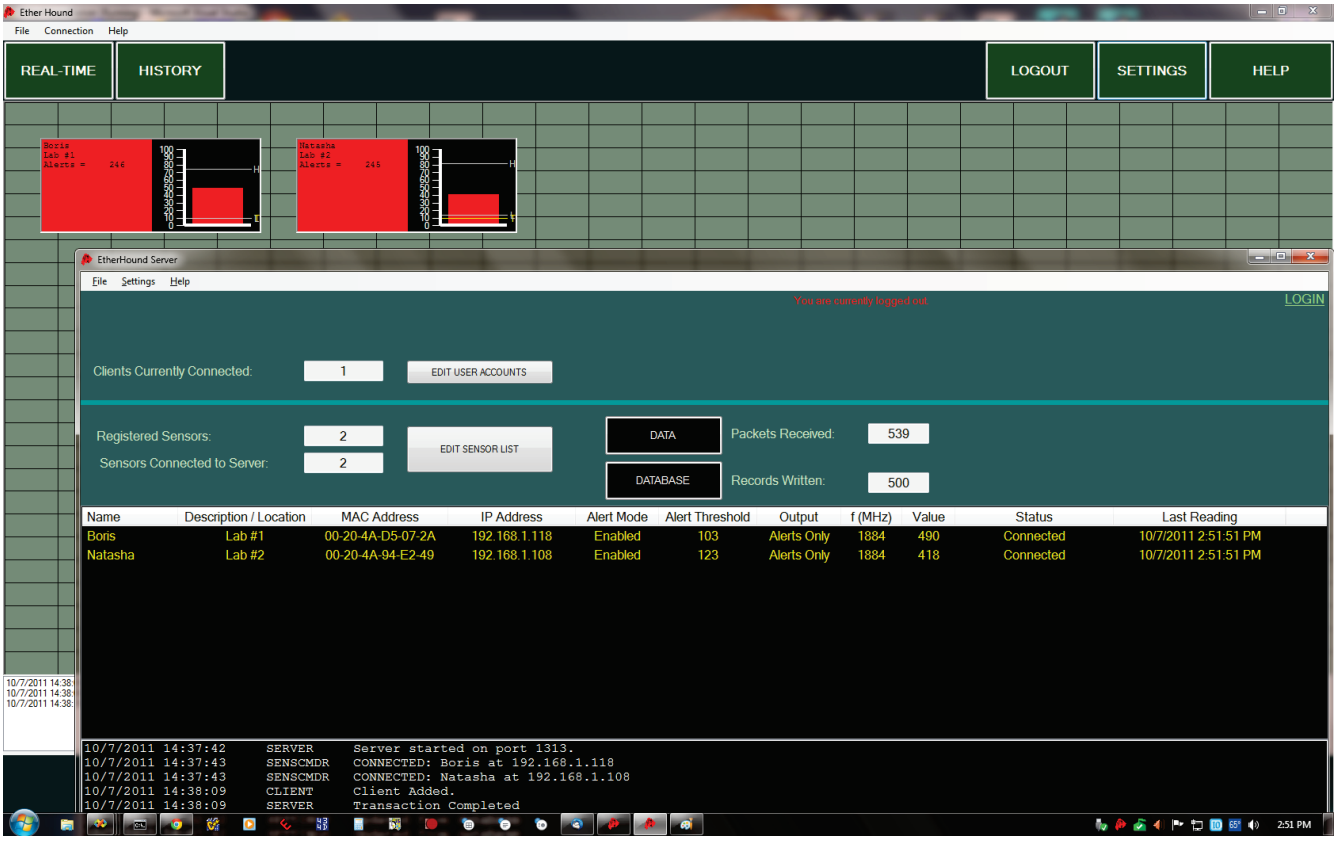
EtherHound Software User Manual

Introduction

The EtherHound sensor detects cellphone transmissions within a certain specified area.

Deployment of multiple EtherHound sensors creates a sensor network which can be monitored by the EtherHound application software.

Standard use of EtherHound sensors require two software applications. A server application runs on a network server with access to all of the EtherHound sensors through TCP/IP. This applications maintains a connection with each of the sensors and collects data to be stored in an SQL database.



The server application also communicates to any number of client applications running on remote machines. It will pass requested information from/to the clients as well as the sensors.

There is also a client application which runs remotely and receives information on the sensor network. It can also be used to change the settings of the sensors on the network given the appropriate user access.

Minimum System Requirements

Server Application

OS	Windows Vista/Windows 7
CPU	2.6 GHz processor
Memory	4GB
HDD	500GB
Display	1280x1024

Client Application

OS	Windows Vista/Windows 7
CPU	2.6 GHz processor
Memory	2GB
HDD	300GB
Display	1280x1024

SERVER APPLICATION

As stated before, the server application runs on a network server with access to all of the EtherHound sensors through TCP/IP. This applications maintains a connection with each of the sensors and collects data to be stored in an SQL database.

The server application also communicates to any number of client applications running on remote machines. It passes requested information from/to the clients as well as the sensors.

Getting Started

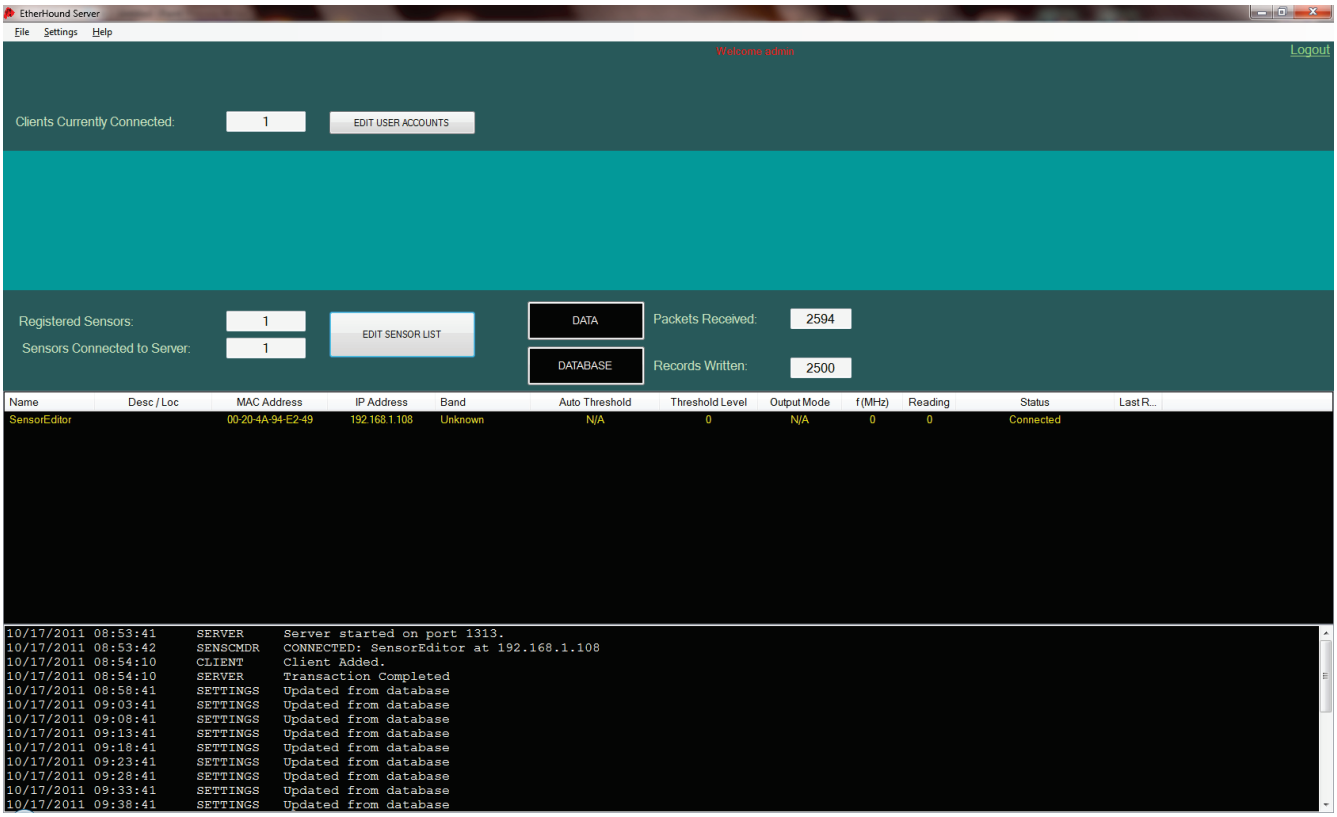
Install the server application by running the setup.msi installer from the secure digital card media provided. This file will be in the EtherHound server folder.

After installation, run the application. The first time the application is run, the EtherHound server (EHS) will announce that a database has been created.

There will be one user account by default. See the 'User Account' section for adding new users. There will be no sensors registered. See the 'Sensors' section for adding sensors.

MAIN DISPLAY

The top of the main display screen will show the number of clients connected and the number of sensors connected. It will also show the number of packets received from all sensors and the number of these packets written to the database. Packets are written in batches to the database to reduce the processing overhead drain on the processor of the PC. There are also buttons to edit sensors and users.



In the middle section of the display is a list of sensors registered to the EHS. There is a line for each sensor providing the following information.

Name	This is the name given to the sensor.
Description	A brief description of the sensor, usually specifying location.
MAC address	Permanent MAC address of the EtherHound sensor.
IP address	Current IP address.
Band	RF Band selected (i.e. “United States”).
Auto Threshold	States whether the sensor is determining it's own 'trigger' threshold.
Current Threshold	Between 0 and 1000. Current level at which an alert is triggered.
Output Type	Either all power readings are transmitted or only alerts.
Status	States whether sensor is available and connected to server.
Frequency	Last frequency reported by the sensor in MHz.
Value	Last power value between 0 and 1000 reported by the sensor.
Last Reading	Date and time of last report from sensor.

The bottom of the display reports certain messages such as a sensor being connected, a user being connected, database being updated, or any errors that may occur in processing.

SENSORS

Each EtherHound sensor must be registered and added to the list of sensors by a user with administrative access. Registration codes are provided for each sensor in the format of XXXX-XXXX-

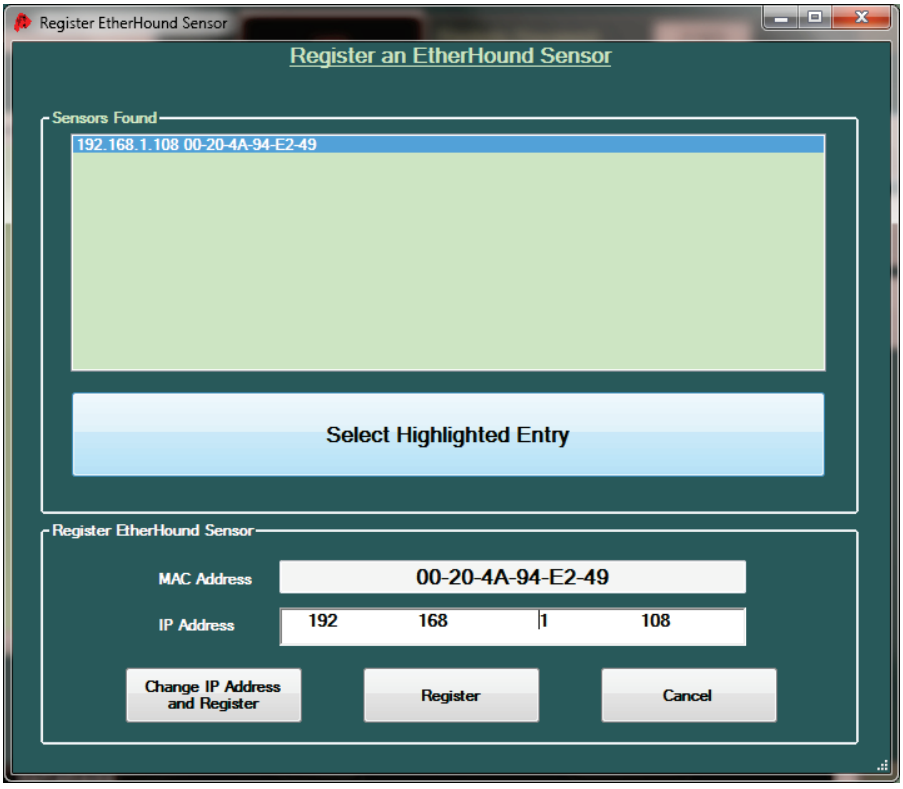
XXXX. After registration, data being reported by the sensor will become available to the server and any user authorized to access that information.

Also, anyone with authorization will be able to adjust the settings of the sensor. See the 'settings' section of the client application portion of this manual.

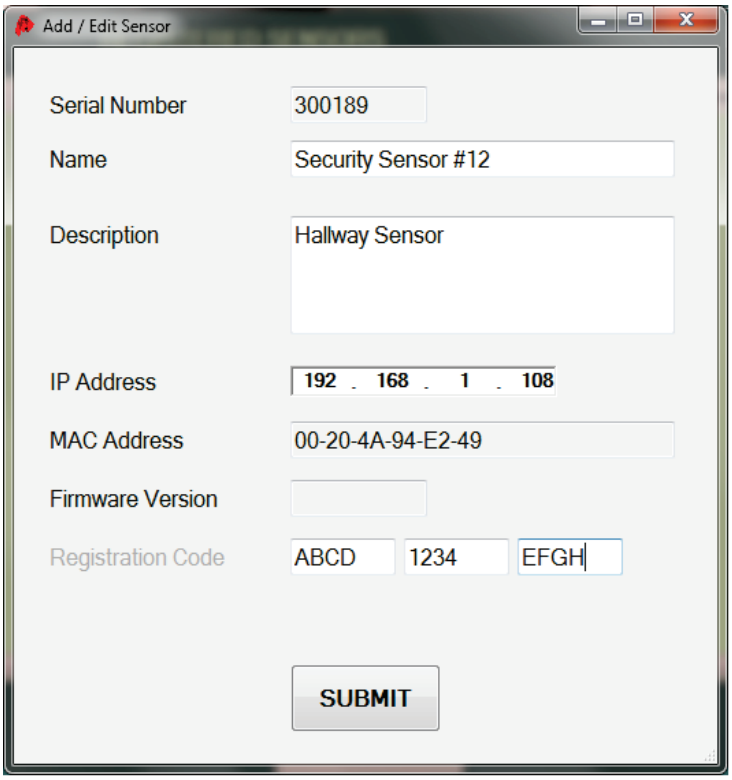
Adding a Sensor

To add a sensor, click on 'edit sensor list' from the main display. This can only be accessed by a user logged in with administrator privileges. When the sensor list is displayed, press the 'add' button.

A dialog box appears showing a lit of MAC addresses and IP addresses found. Match up the MAC address for the desired sensor and select. Then either select 'register' if you are satisfied with the current IP address, or 'change IP address and register' if you would like to change the IP address of the sensor.

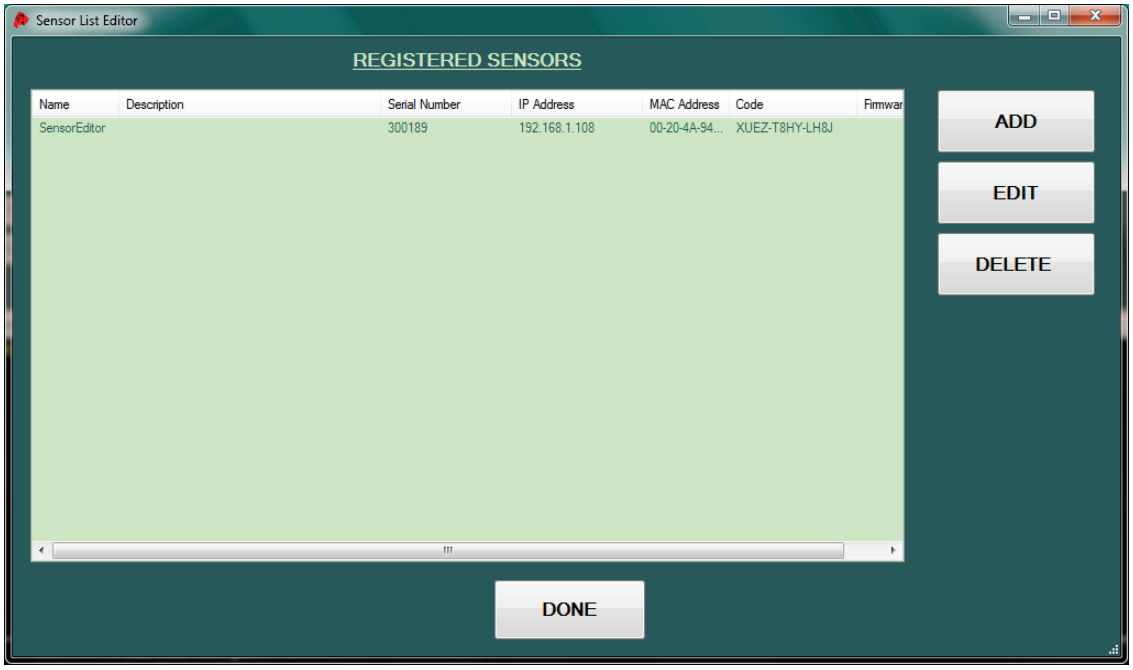


A dialog box will then appear which will allow the user to register the new sensor. Enter a name and description for the sensor and then enter the registration code provided. Press 'submit'. If the registration code is valid, the sensor has been registered to the database and it's settings and data will now be available.



Editing a Sensor

To edit an existing sensor, a user with administrative access selects a sensor from the sensor list, then presses the 'edit' button. The same dialog box will appear as when the sensor was created.



Edit the appropriate fields and then press 'apply' to commit the changes. Press 'cancel' to ignore any changes.

Deleting a Sensor

To delete a sensor, a user with administrative access simply has to select a sensor from the sensor list, then press the 'delete' button.

USER ACCOUNTS

Anyone wishing to view information about the EtherHound sensors from a client need to have a user account. There are user accounts with two different access levels. A basic access level allows a user to view certain information and data about the sensor network. This level user cannot edit user accounts or sensor settings.

A user account with administrative access is entitled to any features allowed by a basic account. In addition, an administrative account can add,edit, or create accounts and can alter sensor settings.

There is a default account created when the database is created for the first time. The user id is “admin” and the password is “password”. It has an access level of “administrator”. Once a new administrator account has been created, the default account can be deleted.

Adding a user account

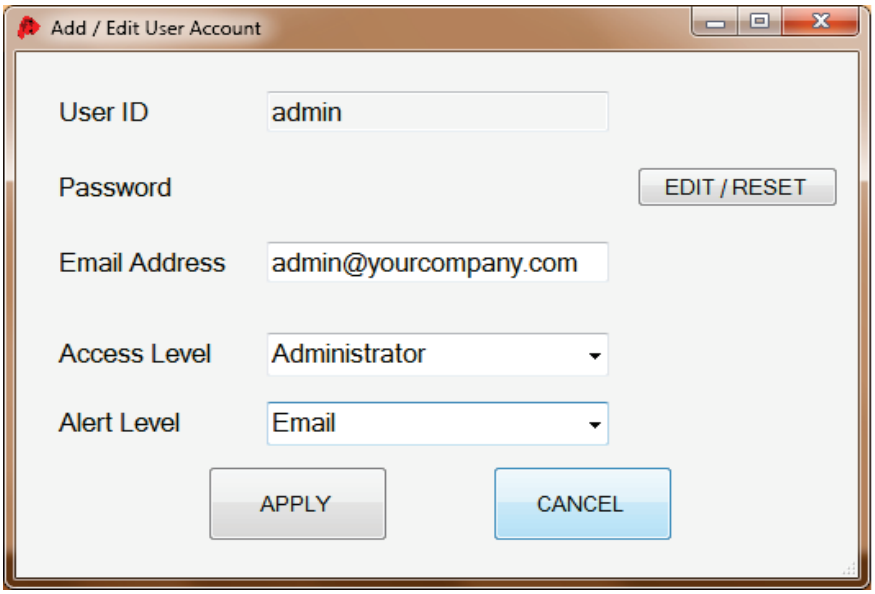
To add a user account, click on 'edit user accounts' from the main display. This can only be accessed by a user logged in with administrator privileges. When the user account list is displayed, press the 'add' button.

A dialog box will appear which will allow the user to create a new user account. Enter the new username and create a password by pressing the 'edit/reset' button. You will be prompted to enter a password twice.

Enter a valid email address in which to receive alerts (if desired). Choose either 'basic' or 'administrative' access. Finally, choose whether this user is to receive email alerts.

Editing a user account

To edit an existing account, a user with administrative access selects an account from the user account list, then presses the 'edit' button. The same dialog box will appear as when the account was created.



Edit the appropriate fields and then press 'apply' to commit the changes. Press 'cancel' to ignore any changes.

Deleting a user account

To delete a user account, a user with administrative access simply has to select an account from the user account list, then press the 'delete' button.

DATABASE

The database used to store the information is an SQLite database that can be accessed using basic SQL commands. There are free applications that can be downloaded to read an SQLite database. Information for user accounts, sensors, and recorded data are stored in this database.

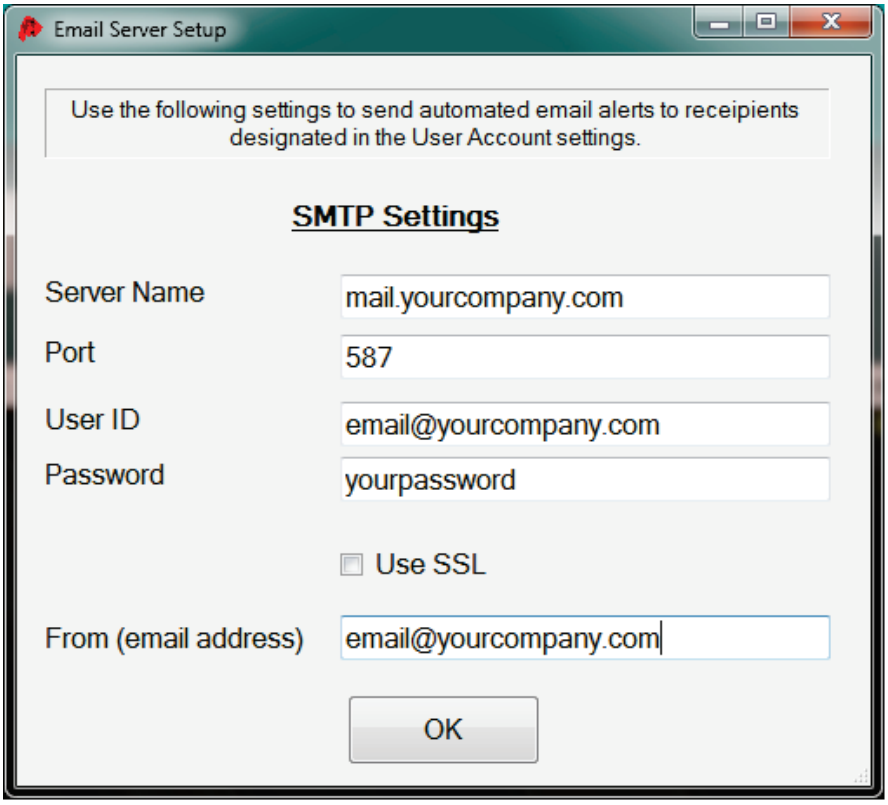
The filename for this database typically is in the form “ehdata###.hdb”. Back up this information periodically to prevent any accidental loss of data.

EMAIL ALERTS

Email alerts can be sent to any user accounts who request them. An email will be sent whenever a sensor has triggered an alert that an active phone has been detected.

Server Settings

The mail server connection must be setup before a user can begin receiving emails. This can be accomplished by choosing SETTINGS/EMAIL ALERTS from the main menu.



Fill in each of the fields as though you were setting up information for a SMTP mail server. These fields include:

Server Name, Port, User ID, Password, SSL (if applicable), and the email address from which the emails are to be sent.

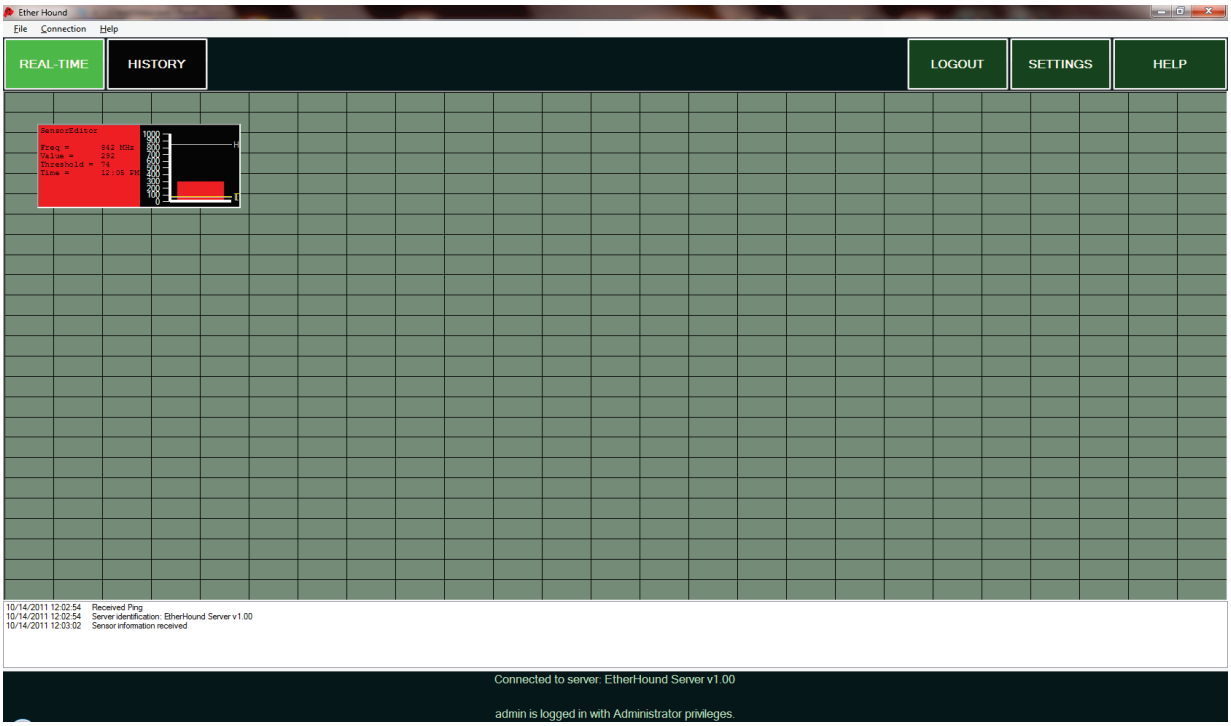
This information will be used for any user account who wishes to receive alert emails.

CLIENT APPLICATION

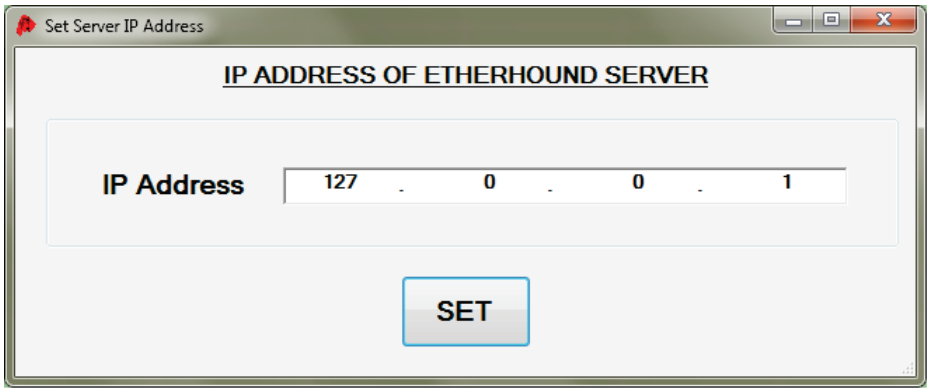
Getting Started

Install the client application by running the setup.msi installer from the secure digital card media provided. This file will be in the EtherHound client folder.

You will be prompted for a username and password upon entering the application. A valid account must be logged into before any data can be viewed from any sensor.



When run for the first time, the IP address for the machine running the server application must be entered. This can be done by choosing 'connection/IP address' from the main menu.



MAIN DISPLAY

The main display has 4 distinct sections. Under the main menu is a panel with a series of buttons. On the left are 'real-time' and 'history'. Clicking on the 'real-time' button will highlight the button and display real-time information as described below. Clicking on the 'history' button will highlight that button and allow the user to select historical data for viewing as also described below.

On the right-hand side of the panel are the following:

LOGIN/LOGOUT: Use this button to login or logout of the server.

SETTINGS: Use this button to access the system and sensor settings.

HELP: Displays information about the application.

Below this panel is the sensor data section. In real-time display mode, current sensor information is displayed. In history display mode, historical data is shown for the time period selected.

Below the sensor information panel is a panel that reports certain messages regarding information transacted between the server and client applications.

Finally, the bottom panel shows information regarding the version of the server application and whether a connection has been made. It also displays the user currently logged in and with what privileges.

REAL-TIME

Normal Mode

In normal display mode, all of the registered sensors are shown together as individual boxes. Each box shows:

Last frequency reported
Last power reading (0-1000)
Last trigger threshold reported
Time of last report

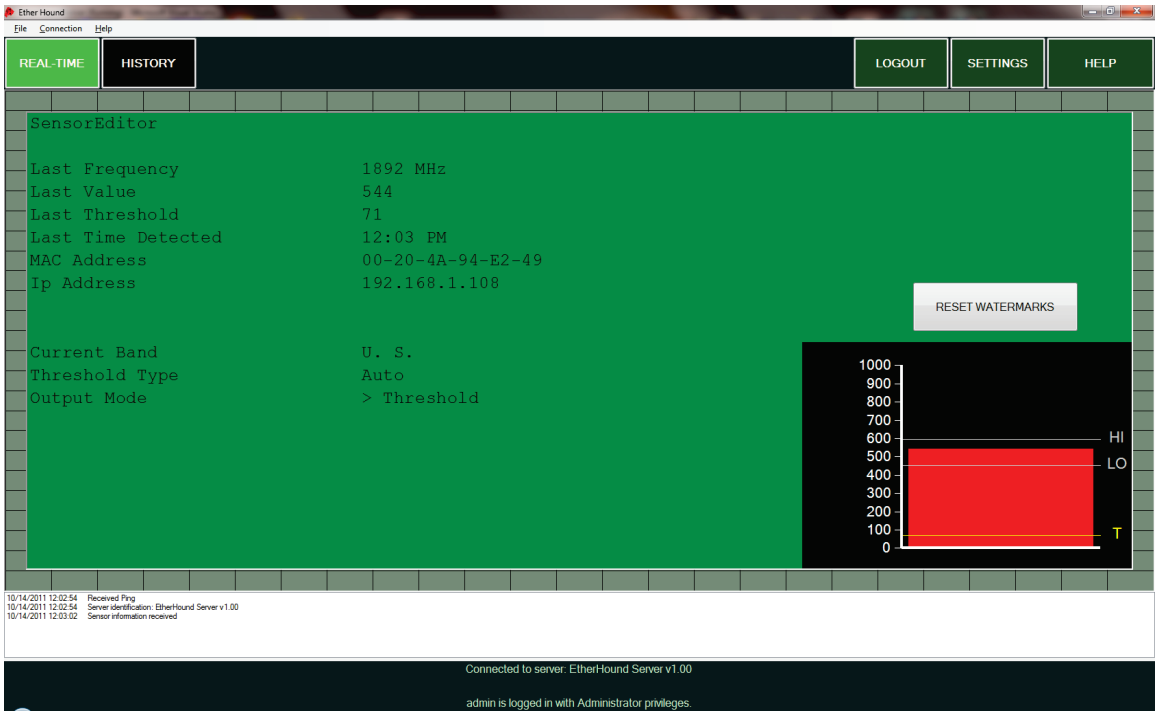
The box will be green if the sensor is not currently triggered. The box will become red as readings above the trigger threshold are reported (sensing a phone in use).

A bar graph showing the last power report is on the right-hand side. It also shows the high and low watermark readings since the last reset. Last reported threshold is also displayed in the graph.

Showcase Mode

Double-clicking on any of the sensor boxes in normal mode will bring that particular sensor into showcase mode. The box will be expanded to cover the whole sensor panel. The following information is then displayed.

Last frequency reported
Last power reading (0-1000)
Last trigger threshold reported
Time of last report
MAC address
IP address
Current band
Whether auto threshold is turned on
Whether the output from the sensor is all data or only data above trigger threshold



A bar graph showing the last power report is on the right-hand side. It also shows the high and low watermark readings since the last reset. Last reported threshold is also displayed in the graph.

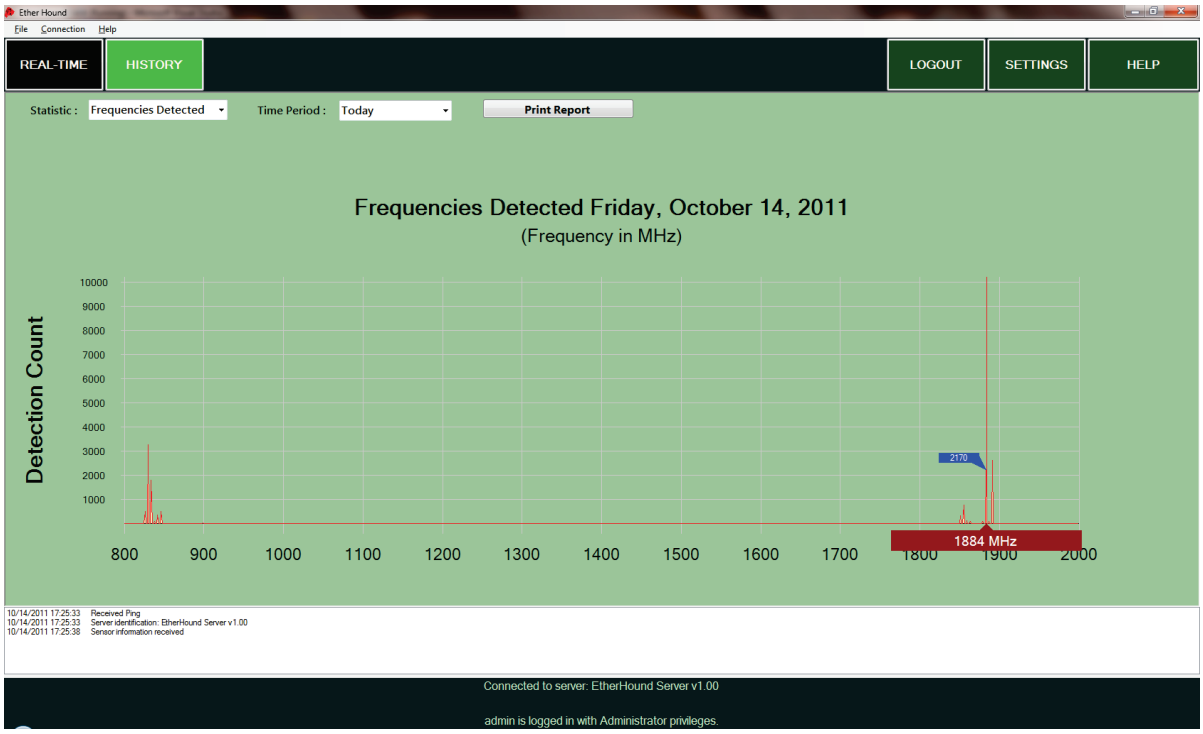
Press the 'reset watermark' button to reset the high and low watermark levels.

HISTORY

Historical data can be retrieved from the database created by the server by entering 'history' mode. This section can only be accessed by a user logged in with appropriate access.

Generating Reports

When history is selected, a graph will appear with the ability to select a date range. The report generated shows the frequencies where data has appeared over the given time period.



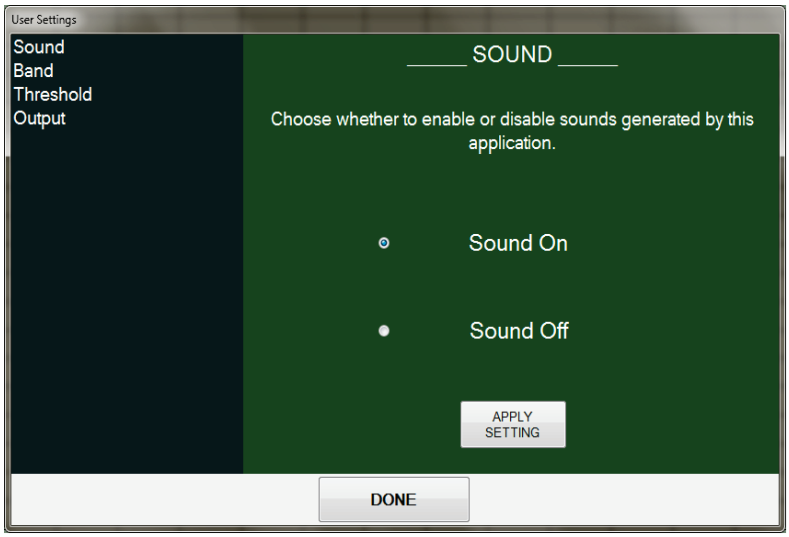
This report can be printed out by choosing the 'print report' button.

SETTINGS

Various settings can be selected by choosing the 'settings' button from the top panel of the application.

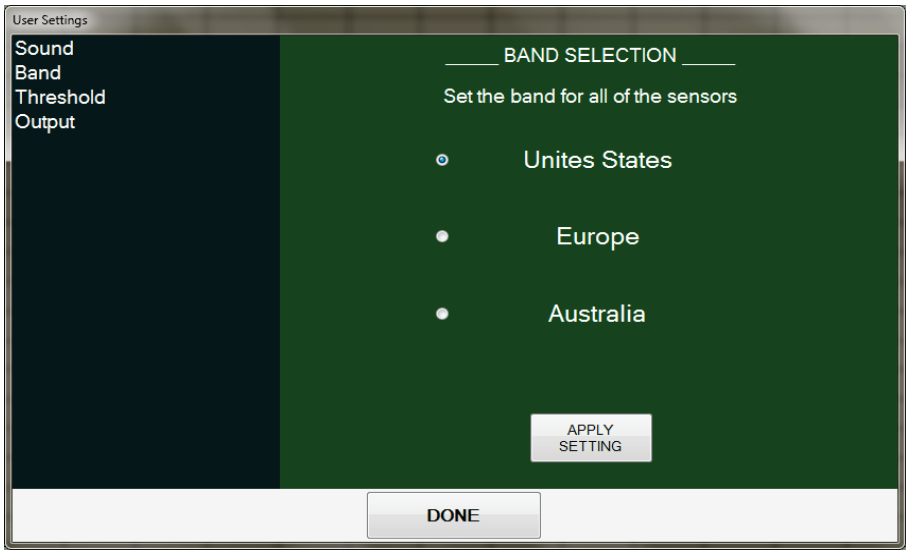
Sound

The sound heard when an alert has been triggered can be turned on or off by choosing from this menu and pressing 'apply setting'.



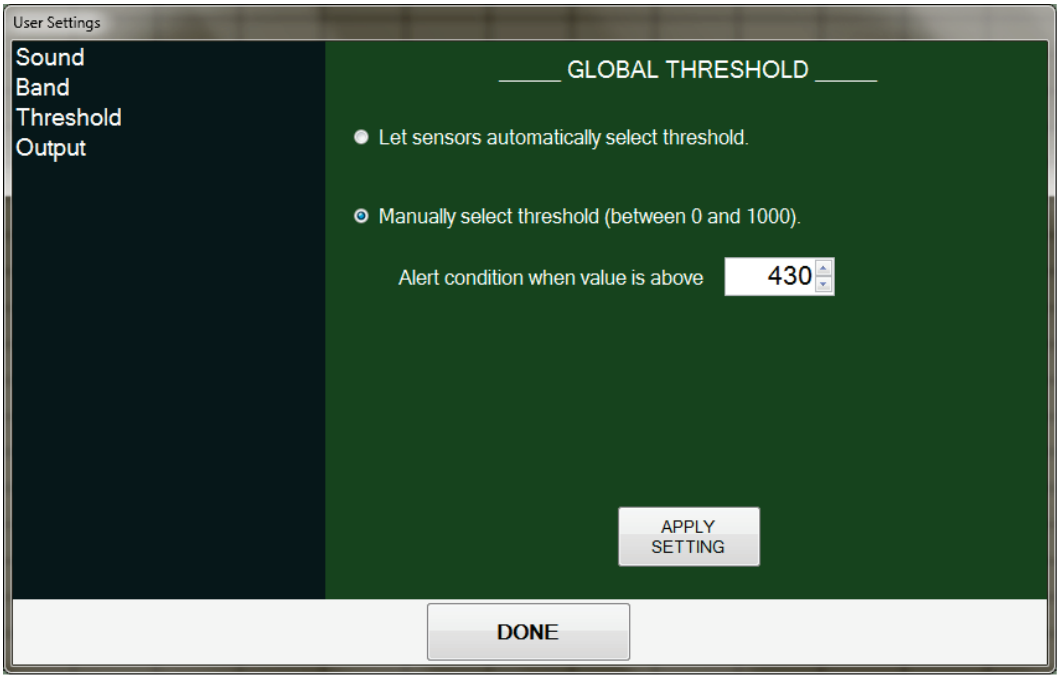
Band

The operating band of all of the sensors can be selected by choosing from this menu and pressing 'apply setting'. Current bands to choose from include the United States, Europe, and Australia.



Threshold

Pulling up this tab allows the user to choose whether or not to use auto-threshold. When auto threshold is set for a sensor, the sensor itself will automatically set the trigger threshold to a value by sensing the noise floor for that particular location.



If auto-threshold is turned off, the trigger threshold will be set to whatever the user determines between 0 and 1000.

Output

The output of the sensors can be set to report all readings from the sensors (multiple readings per second). The sensors can also be set to only report values above the currently set trigger threshold. In this way, the amount of traffic overhead on the network can be reduced.