



# TRX Systems Neon™ Indoor Location System User's Manual

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Version 1.3

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## Document History

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2 Oct 2012	1.1	Added Android and Target Applications Sections	Carol Politi
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3 Oct 2012	1.3	Added new pictures to APX (section 7.1) and replaced the command reference picture (section 10) .	Sarah Blaszak
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## 1 Introduction

This User's Manual provides information about how to configure, use, and maintain the Neon™ Indoor Location System, including use of the Neon Command Software, Tracking Units, Anchor Points, and Android Application.

## 2 Important Information

### 2.1 Software License and Warranty Information

Please refer to the Appendices of this document to find information about the TRX Software License and Warranty Agreement and the TRX Limited Hardware Warranty. The terms of the TRX Software License and Warranty must be read prior to using the system, and by using the system you are acknowledging acceptance of those terms.

### 2.2 Technical Support

TRX Systems provides technical support for the Neon Products and components including the Command Software, Command Software Reference, Ranging Anchor Nodes, Neon Mobile Android App, and the Tracking Devices. For technical support, contact TRX Systems by email at [support@trxsystems.com](mailto:support@trxsystems.com).

### 2.3 System Requirements

The Command Software is used to configure Neon Indoor Location System and to view the locations of tracked personnel. The Command Software Computer is a Windows 7 based PC. Although a laptop is most convenient for mobile setup and testing, it is not a requirement. Performance and peripheral requirements for the Command Software PC are as follows:

#### Minimum System Requirements

- Intel i5 Processor
- 4 GB RAM
- 7200 RPM HDD
- NVIDIA Graphics
- Windows 7

#### Recommended System Requirements

- Intel i7 Processor
- 6 GB RAM
- Solid State HD (SSD)
- NVIDIA Graphics
- Windows 7

### 3 Product Overview

The TRX Systems Neon™ Indoor Location System locates and tracks personnel indoors and where GPS is unreliable or unavailable. Neon™ fuses location and environment information to produce and deliver accurate, real-time locations of tracked personnel.

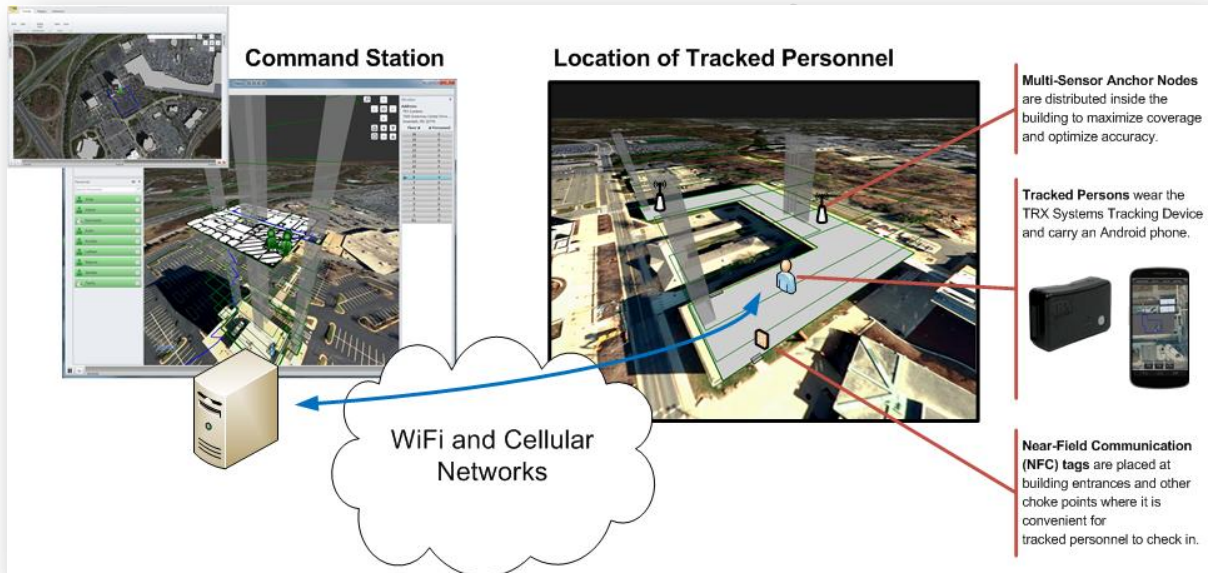


Figure 1. The Neon Indoor Location System.

The TRX Systems Neon Indoor Location System consists of the following elements:

- **Tracking Unit** – a tracking device worn on the waist of persons being tracked by Neon. The waist-worn tracking unit provides location information from a dense array of sensors including pressure, accelerometers, gyroscopes, magnetometers, ranging, and GPS. For the Neon system to work properly, the Tracking Units should be worn properly and periodically calibrated. Section 6.1 of this manual describes how to properly wear the Neon Tracking Unit.
- **Neon Mobile** – an Android Application installed on a smartphone. Neon Mobile is used for visualization of users' location; interacting with NFC Check-in locations; user entry of location corrections; and may be used for data communications with the Tracking Unit and the Command Software. For the Neon system to work properly, the Android smartphone and the Neon Mobile application must be properly configured for communications with the Tracking Unit and the Command Software. Section 8 of this manual describes how to properly configure the Neon Mobile application.

- **Neon Command Station Software** – the Neon Station Command Software (“Command Software”) is the primary user interface for interacting with the Neon Indoor Location System. The Command Software runs on a Windows-based PC, and it provides access to functions for configuring the Indoor Location System and viewing location results. Section 0 of this manual provides a description of the Command Software including installation and licensing (Section 5.1.3); starting and stopping the software (Section 5.1.1); and viewing tracking results (Section 5.2).
- **Ranging Anchor Node** – a multi-sensor anchor node that improves tracking accuracy. Ranging Anchor Nodes are installed at strategic locations to maximize their effectiveness for improving tracking accuracy. Refer to section 9 of this manual for information about how to install and configure Ranging Anchor Nodes.
- **Command Station Reference** – A Command Station Reference is a Ranging Anchor Node that is attached directly to the Command Software computer using a USB cable. The Command Software Reference provides the same function as a Ranging Anchor Node, but it provides additional reference sensor data to improve accuracy. Section 10 describes the proper configuration of the Command Station reference.
- **NFC Check-In Location** – an NFC RFID tag that is used to provide location updates of tracked personnel. A tracked person interacts with a Check-in Location by placing their phone equipped with the Neon Mobile Android App close enough to the Check-In Location to activate the NFC RFID tag. Refer to section 11 of this manual for information about how to install and configure NFC Check-In Locations.

## 4 Neon Target Applications

The Neon™ Indoor Location system is qualified for use in mission essential applications such as event/facility security and training, profiled in the following sections. Additionally, enhancements to the system will allow deployment in a wide array of mission critical applications to deliver situational awareness for tactical deployments (SWAT, urban search & rescue, fireground operations, etc.).

### 4.1 Event/VIP Security

The Neon Indoor Location System delivers a highly portable solution for obtaining enhanced situational awareness for event security applications where VIPs are being monitored, or where security personnel are positioned to secure an important event or facility. The Neon System delivers location and status of on-foot security personnel within buildings to enhance situational awareness and improve the effectiveness of incident management.

In this application, each member of the security detail is equipped with a TRX Tracking unit and an android-based cellular device or data-compatible radio. The location of all security personnel is shown in both 2D and 3D within the building in which the event is taking place (both from the Command Software operating on a laptop or from an Android handset or tablet). If there is an emergency, the appropriate personnel can be moved into place.

Feature	Description
Location and Tracks	The location of tracked personnel and the path each person took to get to their current location.
Level Information	Elevation information includes the floor level of each tracked personnel within a multi-story building, above and below ground.
Position and Gate	Identification of motions of personnel including as walking, running, crawling, traversing stairs and riding elevators. Activity level (active or motionless) and posture (standing, crawling or on back) are also provided.
User Interface	A 2D and 3D view of personnel operating within the building.
Map/Building Editing	A 3D view of the building in which the event is occurring can be quickly established, using only a satellite base map as a reference (Bing/Open Street Maps are both supported by Neon, and customers can import their own base maps). Floor plans images can be easily imported from a standard image file.
Alerting	Command Station operator will be alerted when tracked personnel are on-back or encounter impacts.
Anchor Nodes	Neon Multisensor Anchor Nodes are deployed in key areas (within closets, hotel rooms, conference areas) to enhance tracking accuracy. Anchor Nodes operate using line or battery power. No interaction from tracked personnel is required, and no networking of Anchor Nodes is required.
Check-In	Automatic Check-in of Security Personnel is performed through the use of their Android-based Check-in Application.
Event Review	The log of each of the Security Personnel is maintained to be used for review of execution of the security detail after the event. If pre-planning is performed, this log may be used to review and ensure the appropriate building security functions were performed in advance of the event.

## 4.2 Security Personnel Training

Security training for urban search & rescue and other emergency response operations are conducted in either dense urban areas or inside buildings where it can be difficult to obtain adequate insight into the execution of the training mission. The Neon™ Indoor Location System allows real-time tracking of the location and motion of personnel and records this information to be replayed for immediate and effective after action reviews.

Aspects of the system important for training deployments include the ability to quickly deploy the system with little support from existing surrounding infrastructure (power, networking) and the ability to rapidly create visualization of urban buildings in 3D to allow training anywhere. Neon Multisensor Anchor Nodes can be flexibly deployed within buildings, and require no power, networking, or personnel interaction.



In this application, each trainee is equipped with a TRX Tracking unit and an android-based cellular device or data-compatible radio. The location of all trainees are shown in both 2D and 3D within the building in which the event is taking place (both from the Command Software operating on a laptop or from an Android handset or tablet).

Personnel undergoing training may use the handheld to review the geography and building in which the mission will take place to assist in planning the mission. After a mission has been executed, it is possible to immediately replay the mission, showing the location and orientation of each of the personnel in training as the mission was executed.

<b>Feature</b>	<b>Description</b>
Location and Tracks	The real-time location of personnel and the path each person took to get to their current location.
Level Information	Elevation information includes the floor level of each tracked personnel within a multi-story building, above and below ground.
Position and Gate	Identification of motions of personnel including as walking, running, crawling, traversing stairs and riding elevators. Activity level (active or motionless) and posture (standing, crawling or on back) are also provided.
User Interface	A real-time 2D and 3D view of all personnel involved in the mission is provided during the execution.
Map/Building Editing	A 3D view of the building in which the event is occurring can be quickly established, using only a satellite base map as a reference (Bing/Open Street Maps are both supported by Neon, and customers can import their own base maps). Floor plans images can be easily imported from a standard image file.*
Alerting	Command Station operator will be alerted when tracked personnel are on-back or encounter impacts.
Anchor Nodes	Neon Multisensor Anchor Nodes are deployed in key areas (within closets, hotel rooms, conference areas) to enhance tracking accuracy. Anchor Nodes operate using line or battery power. No interaction from tracked personnel is required, and no networking of Anchor Nodes is required.
Check-In	Automatic Check-in of Security Personnel is performed through the use of their Android-based Check-in Application.
After Action Review	Each mission can be stored for after action reviews, and can be named to allow easy association of the mission with the data log. Such reviews can be performed immediately after an event or later after a series of missions have been executed.

\*Existing building editing features allow for rapid deployment of training where little is known about the building, and where floor plans may not be available (and when they are available, are likely to be image files). Additional development is ongoing to support close combat training that includes the ability to establish and configure precise floor plans, and to respect floor plan boundaries (e.g., walls, doorways).

## 5 Neon™ Command Software

The Neon Command Software is the primary user interface for interacting with the Neon Indoor Location System. Use the Command Software for viewing the locations of tracked personnel and for configuring Neon assets such as Ranging Anchor Nodes and NFC Check-In Locations. This section of the User's Manual will help you to get started with the Command Software.

The Neon Command Software consists of four programs that work together to deliver the locations of tracked personnel.

- **Neon User Interface** – this is the primary user's interface for viewing locations and configuring Neon.
- **Neon Software Tray Application** – While running, the Neon software tray application provides quick access to Neon status and the Neon User Interface. By default, the Neon Software Tray Application starts along with your computer.
- **Neon Communications Service** – The Neon Communications Service is a background process implemented as a Windows Service. Neon Communications Service is responsible for network communications between the Command Software and the tracked personnel. By default, the Neon Communications Service starts along with your computer.
- **Neon Navigation Service** – The Neon Navigation Service is a background process implemented as a Windows Service. Neon Navigation is responsible for final processing of sensor data into the locations of tracked personnel.

All of the Neon Command Software components work together to deliver the locations of tracked personnel.

### 5.1 Getting Started

The Neon User Interface can be started from the Windows Start menu by navigating the *All Programs to TRX Systems > Neon™ > Neon™ Interface*.

When starting the Neon software, Windows may ask you, "Do you want to allow the following program from an unknown publisher to make changes to this computer?" When you see this dialogue, please ensure that the program name is TRX.Neon.Command.exe, and then select "yes". The Neon splash-screen will then appear while the Neon Command Software is starting.

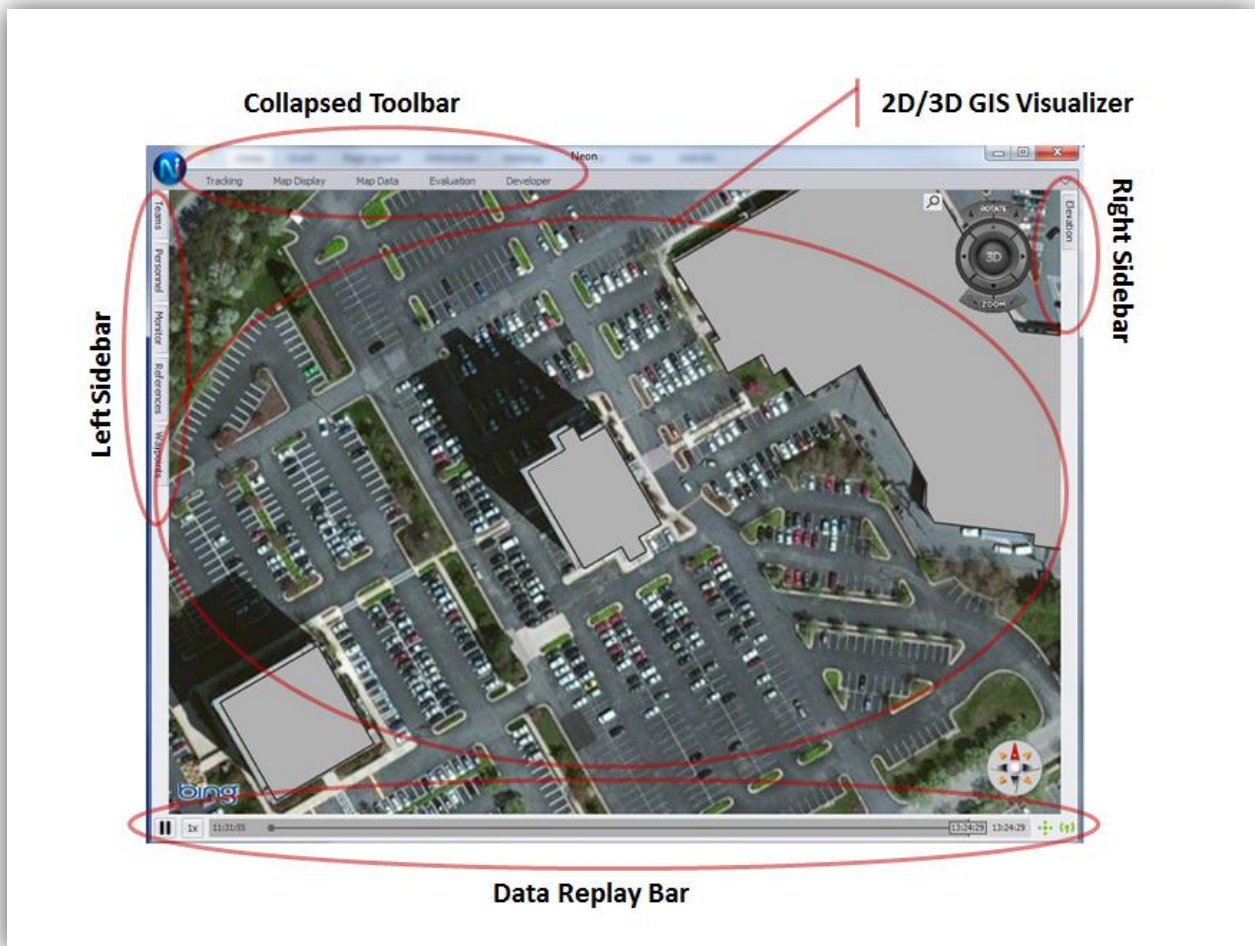


Figure 2. Neon Command Software User Interface at start.

The Neon Command Software user interface has been designed to maximize screen use for visualizing the locations of tracked personnel. Personnel status, system configuration, and related controls are accessible through the collapsible toolbar at the top of the user interface and through collapsible sidebars located on both the left and right sides of the screen. Click on toolbar and sidebar buttons to view their content. Double-click on these buttons so that their corresponding toolbar or sidebar will stay open.



Figure 3. Neon Tracking with sidebar windows expanded to monitor tracking.

### 5.1.1 Starting, Stopping and Controlling when Neon™ Runs

By default, the Neon Command Software starts when you start your computer. Assuming that the Neon software is already running, access the user interface from the Neon software tray application by right-clicking on the Neon icon in the software tray and selecting *Show*.

To access the user interface when the Neon software is not running, navigate the Windows Start menu *All Programs* to *TRX Systems > Neon™ > Neon™ Interface*.

To prevent Neon from starting at the same time as your computer, deactivate the Auto-Launch feature from the software tray application. Right click on the Neon software tray icon, and navigate the menu to *Options > Auto-Launch*. Neon will start with your computer if there is a check-mark next to the *Auto-Launch* menu selection.

### 5.1.2 Installation and Upgrade

Neon Command Software is distributed in a standard, self-expanding installer. A Neon Command Software installation package is named to incorporate version and build information. A typical Neon

installation package will be named similar to *Neon\_3.6.0.14120-Release-Release-Default.exe*. This corresponds to an official Neon version 3.6 release.

To install or upgrade the Neon software, simply double-click on the installation package. The installer will guide you through the process.

If a prior version of the Neon software is installed on your computer, the installer will first uninstall the old version of Neon leaving any existing log files intact. However, an upgrade will not leave any mapping or system configuration changes intact. **Export your mapping data and configuration/references data prior to performing a Neon upgrade.** Reimport this data after the upgrade is complete.

### 5.1.3 Licensing

It is important for you to read and understand the Neon license prior to operation of the system. Please refer to Appendix A. End User Agreement of this manual.

The Neon Command Software uses one or two license keys. The Neon License key activates the Neon Command Software on your computer. If you are using Bing Maps for your base map layer then your software will use a second license key for Bing Maps.



Figure 4. The Neon Command Software displays the license file entry screen.

The Neon Command Software License key is node-locked. This means that a Neon license key incorporates information unique to a specific computer. A separate license key must be generated for each computer where the Neon software is runs. When the Neon software is run on a computer without a valid license key, a dialogue will be displayed with instruction for obtaining a license key. The user is asked to send a specific hardware ID value to TRX Systems (support@trxsystems.com) so that we can generate a license key file. The user can then select the license key file to activate the software.

## 5.2 Using the Neon Command Software

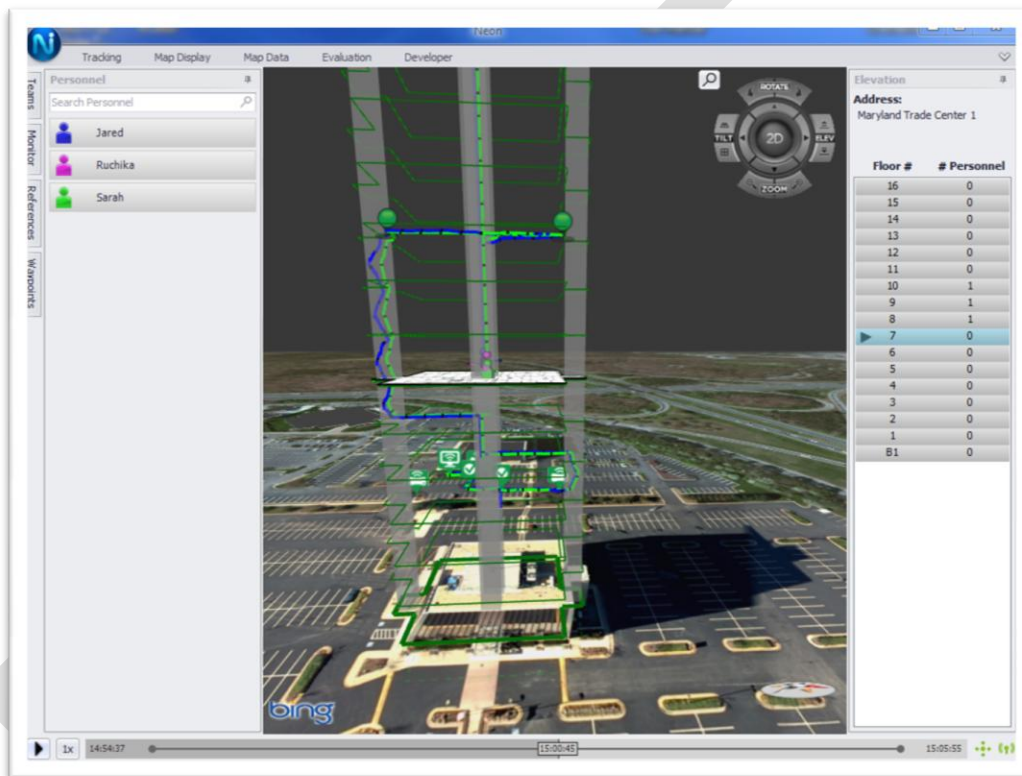


Figure 5. Neon Command Software displaying tracking results.

The Neon User Interface is designed to maximize the screen use for viewing the locations of tracked personnel. Functions for managing tracking data and map data are accessible through the toolbar ribbon at the top of the screen. Other system functions are accessible through dockable windows that are accessible along the left and right sidebars. The diagram above shows the Neon User interface with the Personnel and Elevation dockable windows expanded from the sidebar.

The major areas of the User Interface are

**GIS Visualizer** – A switchable 2D/3D GIS Visualizer that displays the locations of tracked personnel. The visualizer allows the user to view the locations of person in three dimensions inside and outside of buildings.

**Toolbar Ribbon** – Located across the top of the screen. The ribbon is minimized by default, and it can be forced to stay open by double-clicking on a toolbar ribbon tab. Toolbars implemented in the ribbon are

*Tracking toolbar* – Tracking restart, opening logged tracking data, and saving lags.

*Map Display toolbar* – Selection of displayed layer data and base-layer map data.

*Map Data toolbar* – Functions for managing map data and for editing building information.

**Left Sidebar** – Located along the left side of the screen. The left sidebar provides access to dockable windows that provide access to functions for viewing the status of tracked personnel and for system configuration. The left sidebar windows are

*Teams window* – Provides functions for managing teams and associating tracked personnel with teams.

*Personnel window* – Provides a list of tracked personnel, related status information, and access to person-level functions.

*Monitor window* – Displays detailed personnel status information.

*References window* – System configuration of Command Software Reference, Ranging Anchor Node locations, and NFC Check-in Locations.

*Waypoints window* – Entry and placement of waypoints.

**Right Sidebar** – Located along the right side of the screen. The right sidebar provides access to the Elevation window. The Elevation window is primarily used to select the displayed building floor in the GIS Visualizer.

**Data Replay Bar** – Located along the bottom of the screen. The data replay bar is used to view historical tracking data.

### 5.2.1 GIS Visualizer

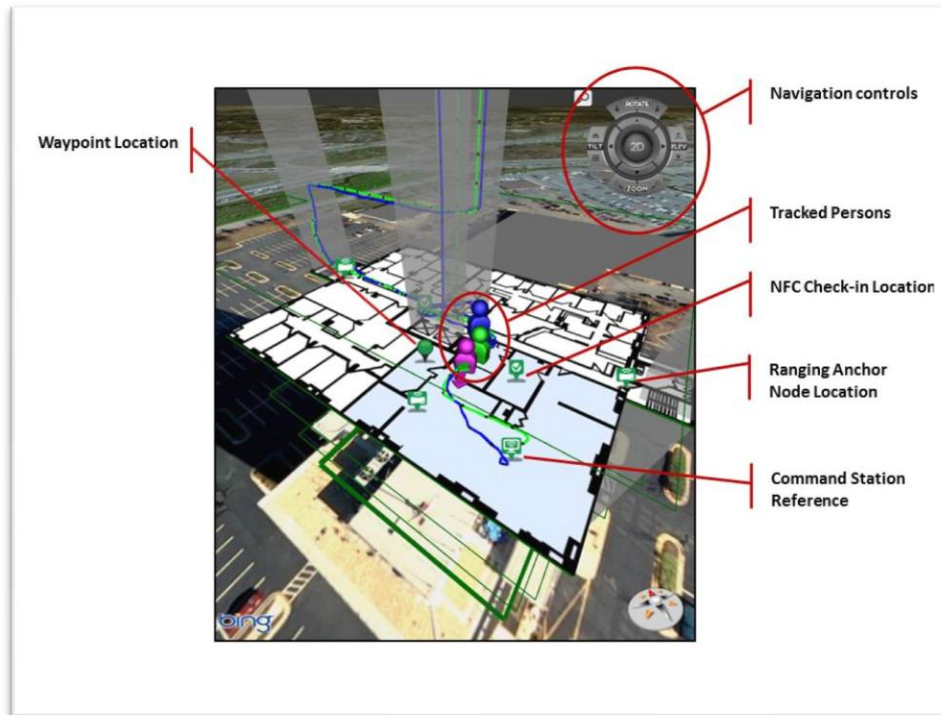


Figure 6. The Neon GIS Visualizer displaying tracking results.

The Neon GIS Visualizer presents the location of tracked personnel both indoors and outdoors. The visualizer supports both 2D and 3D modes of operation. In 2D mode, the visualizer shows the environment and personnel locations from a top-down viewpoint. In 3D mode, the visualizer presents Indoor Location System information in a fully navigable virtualized 3D representation of the environment.

### 5.2.1.1 Navigating the GIS Visualizer

A three-button mouse with a scroll-wheel is the easiest tool to use when interacting with the visualizer. However, all of the controls for interacting with the visualizer can be accessed using the on-screen controls and a standard two-button mouse.

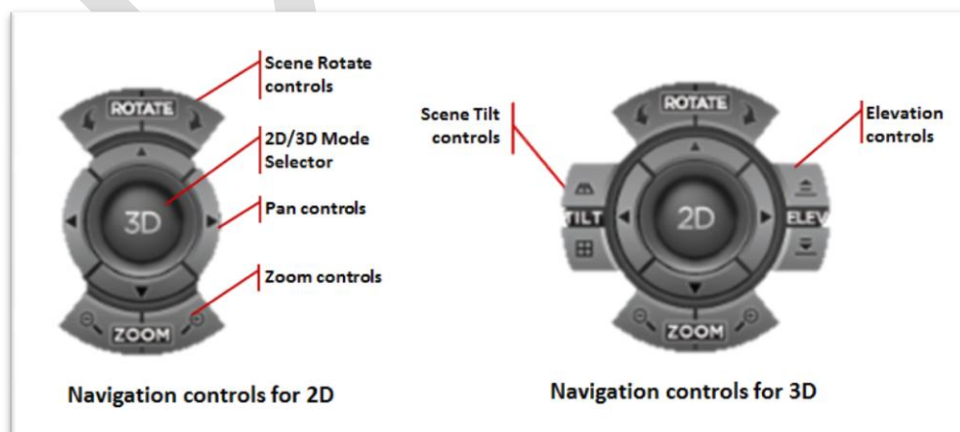




Figure 7. Neon Visualizer on-screen controls

The on-screen navigation controls are located in the top right corner of the visualizer window. The center button of the on-screen controls is used to switch between 2D and 3D modes of operation. The available navigation controls change depending on whether the visualizer is in 2D or 3D mode.

Table 1. Visualizer Navigation Controls in 2D Mode.

	On-screen Control	Mouse Control
Pan	Four directional buttons	Left mouse button drag
Zoom	Zoom in and out buttons	Mouse scroll-wheel
Rotate	Rotate left and right buttons	N/A

Table 2. Visualizer Navigation Controls in 3D Mode.

	On-screen Control	Mouse Control
Pan	Four directional buttons	Left mouse button drag
Zoom	Zoom in and out buttons	Mouse scroll-wheel
Rotate	Rotate left and right buttons	Right mouse button drag left and right
Tilt	Tilt up and down buttons	Right mouse button drag up and down
Elevation	Elevation up and down buttons	N/A

### 5.2.1.2 Looking inside of buildings

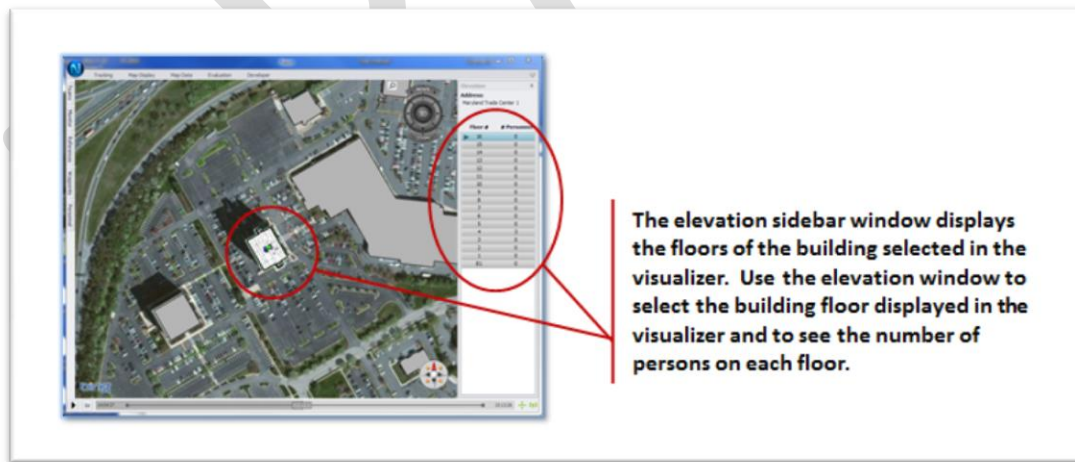


Figure 8. The Elevation sidebar window is used in conjunction with the visualizer.

The Neon GIS Visualizer displays the location of persons inside of buildings in three-dimensions. A building must be modeled before it can be shown in the visualizer.

The elevation window expandable from the right sidebar is used as a floor selector when viewing the interior of buildings. By default, buildings are represented as grey polygons overlaid on top of the base

map layer. Using the mouse, left click a building to view its interior. After selecting a building, its polygon turns white with a green outline, and the elevation window is populated with the selected building's floor information. When viewing a building in 3D, the building is shown as an extruded wireframe.

At a minimum, for a building to be visualized, it must have a building outline and number of floors. Building properties that can be modeled and viewed using the Neon user interface include

- Building outline,
- Floors and floor height,
- Floor plans,
- Exits, and
- Elevators.

### 5.2.1.3 Selecting Map Layer Content

The content of data displayed by the visualizer is selectable by the user. Control the content of visualized map data using the Map Display toolbar ribbon located at the top of the Neon screen.

Select the displayed base map layer using the Base Map dropdown. The supported base map layers are Bing Maps and OpenStreetMap (OSM). Both require an active connection to the internet.



Figure 9. The visualizer base map layer can be set to Bing, OpenStreetMaps or None.

Select the content of displayed layer data using the Layers dropdown on the Map Display toolbar ribbon. User selectable layer data includes:

- **Buildings** – toggle display of modeled buildings;
- **Floor plans** – toggle display of floor plans within a selected building;

- **Elevators** – toggle display of elevators within a selected building;
- **Stairwells** – toggle display of stairwells within a selected building;;
- **Exits** – toggle display of exits within a selected building;
- **References** – toggle display of Neon Indoor Location System assets such as Command Software Reference, NFC Check-in Locations, and Ranging Anchor Nodes;
- **Waypoints** – toggle display of user defined waypoints;
- **Compass** – toggle display of compass rose; and
- **Error Bounds** – toggles the display of location confidence error bounds around tracked personnel.

#### 5.2.1.4 Viewing Tracked personnel

To view the status and location of tracked personnel, use the Personnel window in conjunction with the GIS Visualizer. The Personnel window is accessible through the left sidebar, and it lists each person currently tracked by the Neon system.

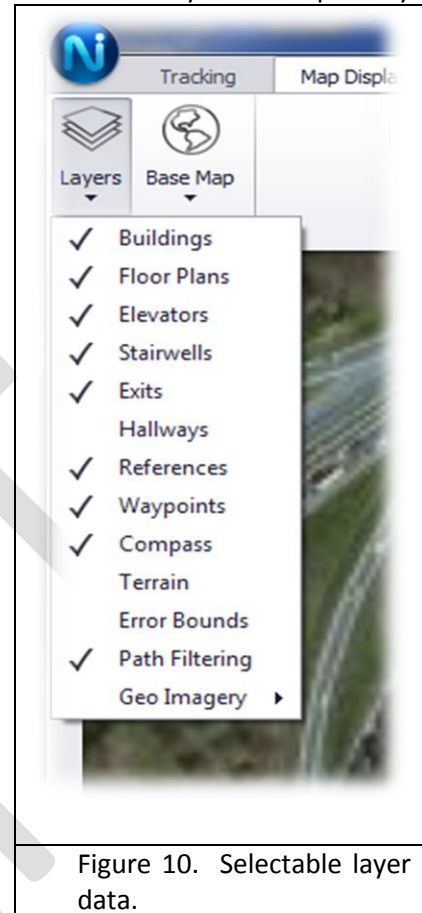


Figure 10. Selectable layer data.

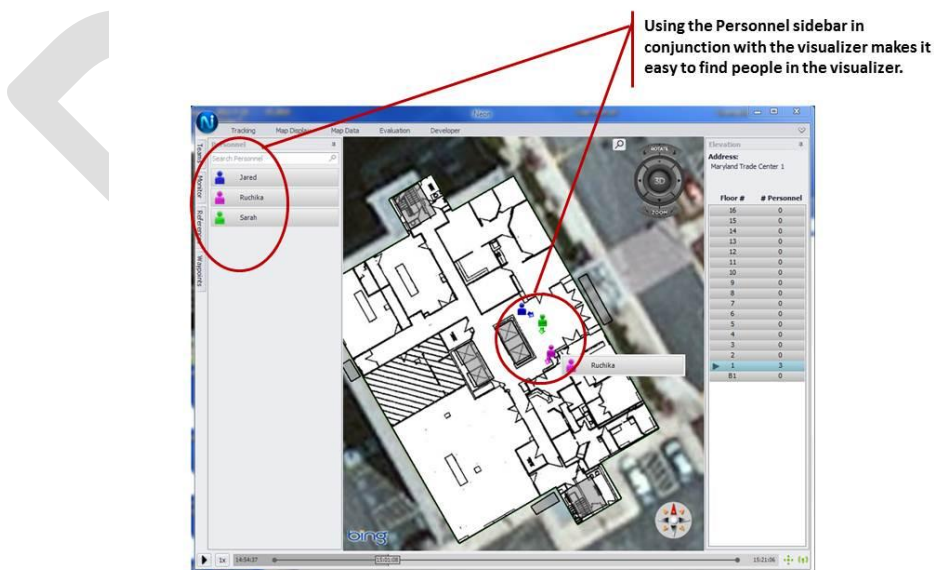


Figure 11. Figure of mainscreen with Personnel sidebar expanded. Show several people being tracked.

The locations of tracked personnel are presented in the visualizer using a model resembling a torso and heading arrow. In the visualizer, tracked person are differentiated using different colored models that correspond to their representation in the Personnel window. In addition, left clicking on a person inside the visualizer will present a floating name-bar that identifies the tracked person and provides access to control functions related to viewing the person's location data.

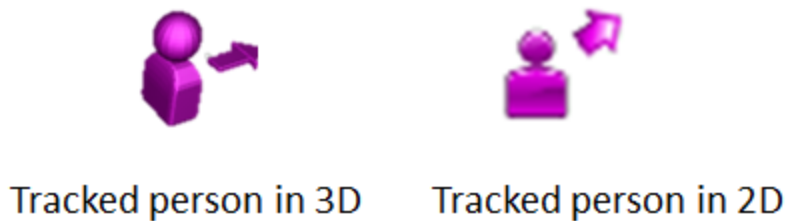


Figure 12. Figure of 2D representation of a person and a 3D representation of a person.

Neon includes several features designed to assist the user when monitoring the locations of tracked personnel. These functions are accessible through a drop-down menu that is accessible either by right-clicking on a tracked person's name in the Personnel window or by right clicking on the person's name that appears inside the visualizer after left-clicking on their icon.

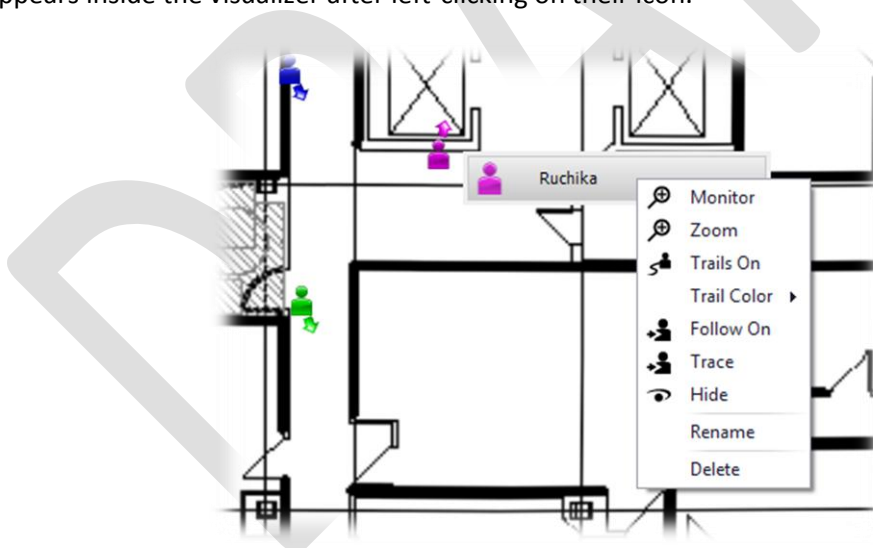


Figure 13. Accessing Neon visualizer functions associated with a tracked person.

These functions include:

- **Zoom** – Adjusts the visualizer so that the selected person is visible in the center of the screen.
- **Follow On / Follow Off** – Toggles follow-mode for a specific person. When the visualizer is “following” a tracked person, the visualizer adjusts the displayed scene so that the specified tracked person is always in the center of the screen.

- **Trails On / Trails Off** – Toggles the display historical locations for the selected person(s).
- **Trail Color** – Allows the user to manually select a model and trail color to use for the specified person.
- **Trace** – Turn on trails for the selected person, and turn off trails for all other persons.
- **Hide / Show** – Hide or show the location of the selected person. Hiding a person will remove their icon from the visualizer; show the person to restore their location to the screen.

## 5.2.2 Elevation Sidebar Window

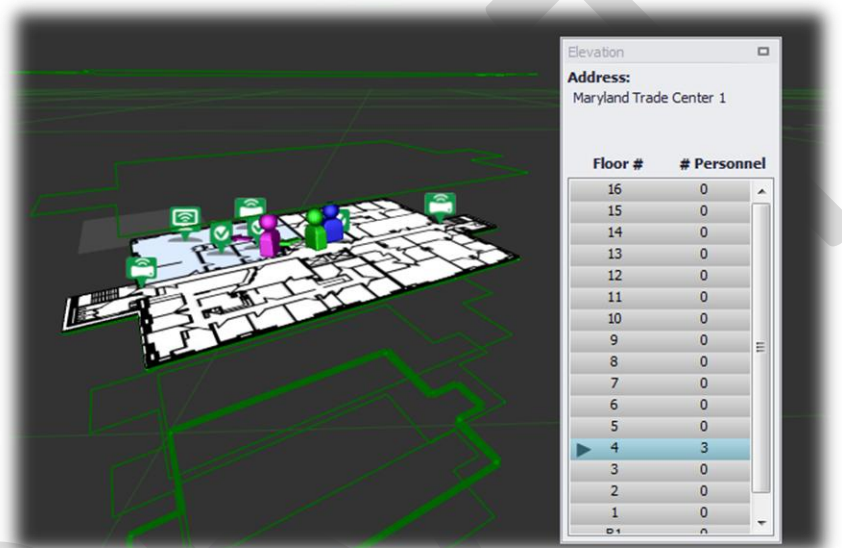


Figure 14. Use the elevation sidebar window.

The elevation sidebar window is accessible through the right sidebar. Use the elevation sidebar window in conjunction with the GIS Visualizer when looking inside buildings. When a building is selected inside the visualizer, the elevation window is populated with a list consisting of each floor in that building along with the number of persons on each floor of the building. Select a floor within the Elevation window by left clicking in the desired floor; the visualizer will change focus to the selected floor.

## 5.2.3 Teams, Personnel, and Monitor Sidebar Windows

The Teams, Personnel, and Monitor sidebar windows are used in conjunction with each other to organize tracked personnel into teams, to access personnel functions, and to view detailed location tracking status.

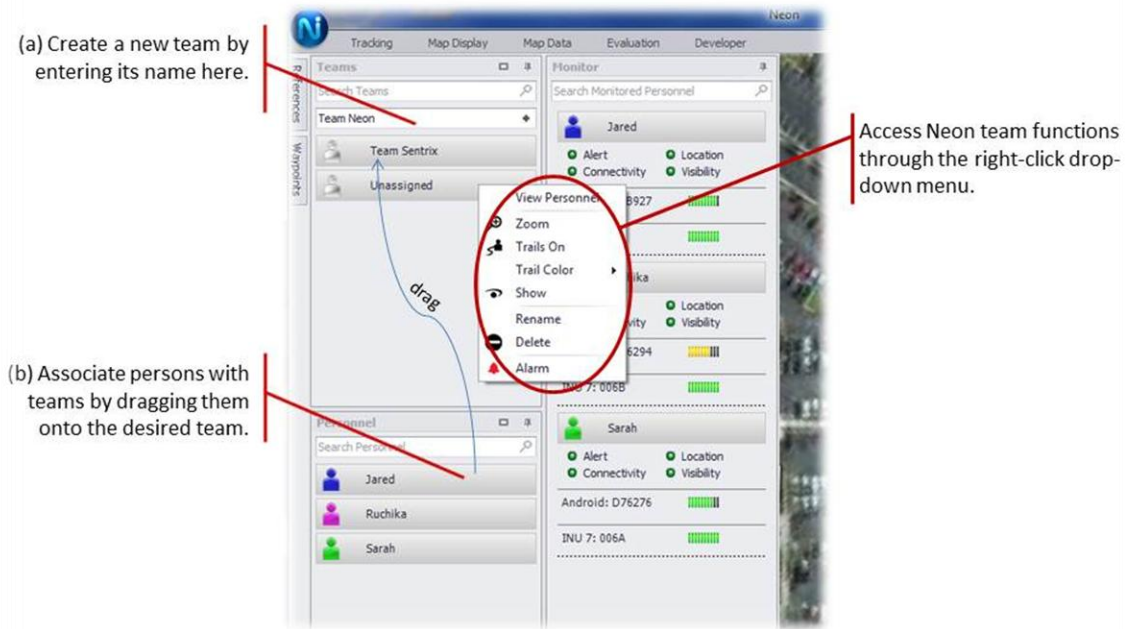


Figure 15. Teams sidebar; show with one team added and one team being added.

### 5.2.3.1 Working with Teams

The Teams window is used to manage teams and to associate personnel with teams. By default, personnel who have not been associated with a team are associated with a team named, “Unassigned”. To add a new team is added to the list of teams., use the “Add Team” field located at the top of the window.

To associate tracked personnel with a team, use the Personnel sidebar window in conjunction with the Teams window. Left click and drag a person from the Personnel window onto the desired team within the Teams window. **Once a team has been populated with its team members, trail display, trail color, and hide/show functions can be manipulated simultaneously for all members of the team.** Right click on the team name to access these functions.

Mouse-over a team name to display a pop-up window consisting of the team members. To view a filtered list of personnel associated with a team, select **View Personnel** accessible through the team right-click drop-down menu.

### 5.2.3.2 Working with Personnel

The Personnel sidebar window is used to display the list of persons currently tracked by Neon. The Personnel window is automatically populated as location data is transferred from the Neon Tracking unit to the Command Software. Each Personnel entry consists of:

- A trail color indicator resembling the person icon,
- An error status indicator visible when an error condition occurs, and
- The person's name.

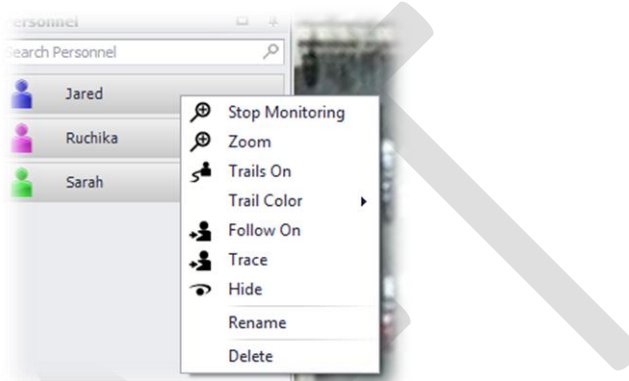


Figure 16. Access Neon functions associated with personnel using the right-click drop-down menu.

Mouse-over a person's name to display a pop-up window consisting of the detailed tracking status. To add a person's detailed status to the Monitor window, select **Monitor** accessible through the personnel right-click drop-down menu.

### 5.2.3.3 Monitoring Detailed Status

Use the Monitor Sidebar window to view detailed information about a person's status. By default, the monitor status indicators include

- **Alert** – an application specific alert. For example, the alarm condition is initiated by a tracked person using the Neon Mobile Android application.
- **Location** – indicates whether enough and the right type of location sensor data has been collected to be able to resolve the person's location. When this indicator is in an alarm state, the tracked person can check-in at an NFC Check-In Location or move within range of an Anchor Node to correct the problem.
- **Connectivity** – indicates whether there is a problem with communications between the person being tracked and the Neon Command Software.
- **Visibility** – indicates whether the Command Software User has chosen to *Hide* this person. A person can be unhidden using the Personnel right-click drop-down menu.

## 5.2.4 References Sidebar Window

The References Sidebar Window is used to manage and configure tracking assets including Ranging Anchor Nodes, NFC Check-In Locations, and the Command Software Reference. Use the References Window in conjunction with the Visualizer to configure the locations of these tracking assets.

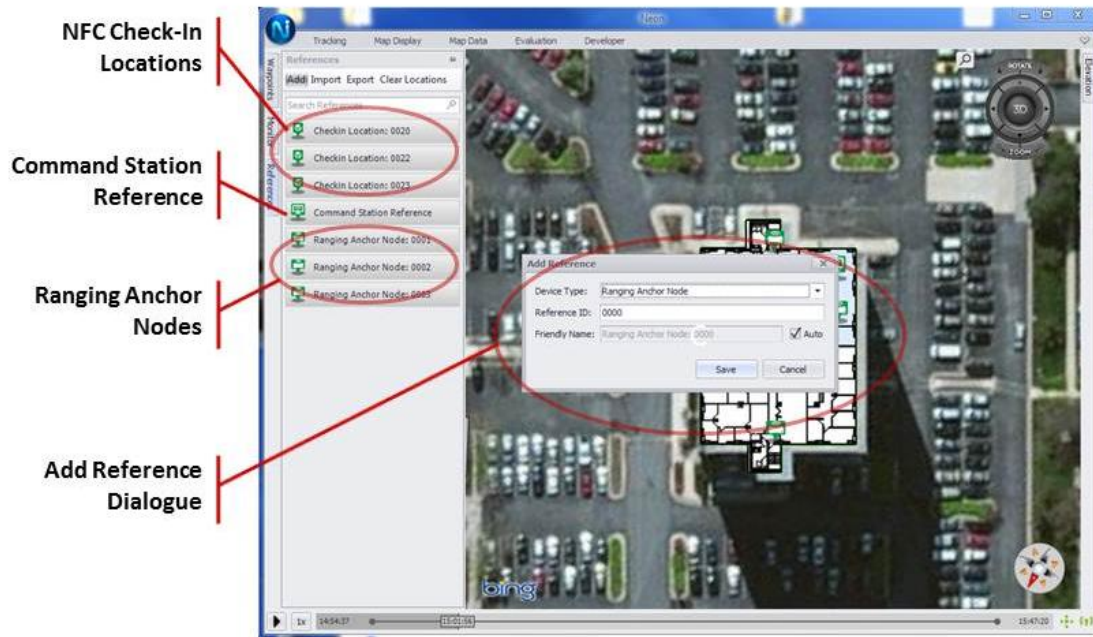


Figure 17. The References Sidebar Window and the Add References Dialogue.

By default, the references list is pre-populated with the Command Software Reference. However, each NFC Check-In Location and Ranging Anchor node must be configured in the system. To add and configure one of these assets to the system, first identify the Reference ID of the device to be configured. Next, add the device to the references list using the option at the top of the References window. A dialogue will appear: select the Device Type; enter the Reference ID of the device; and Save the device.

To configure the location of the Reference, drag the asset from the References window onto the Visualizer screen.



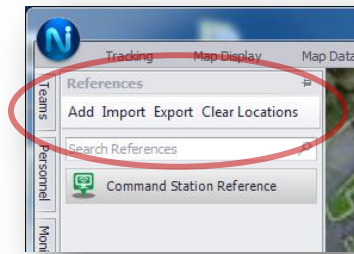


Figure 18. Reference Import, Export and Clear

Once References have been provisioned in the system, their information and locations can be saved using the Export function (the location of the Command Reference is not saved). The import function allows import of Reference data that was exported from Neon using the Export function (\*.trxref file). The Clear Locations function clears the locations of the command station and all other references from the current session but leaves the references provisioned in the Reference Sidebar. To delete a reference from the sidebar, right click on the reference and select Delete.

### 5.2.5 Waypoints Sidebar

The Waypoints Sidebar Window is used to manage and configure the list of waypoints that are used as pre-configured check-in locations when the tracked person is using the Neon Mobile Android App.

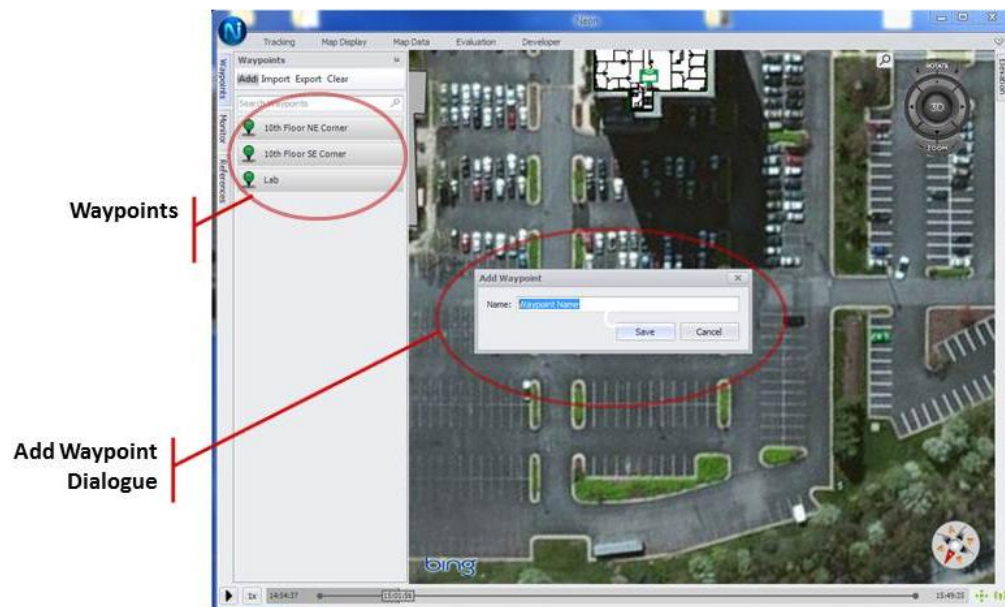


Figure 19. The Waypoints Sidebar Window and the Add Waypoint Dialogue.

To add and configure waypoints, first, use the Add button located at the top of the Waypoints window. Enter the name of the new waypoint in the Add Waypoint dialogue and click Save. The new Waypoint is

populated into the Waypoints window. To configure the location of the waypoint, drag the waypoint from the Waypoints window onto the visualizer screen.

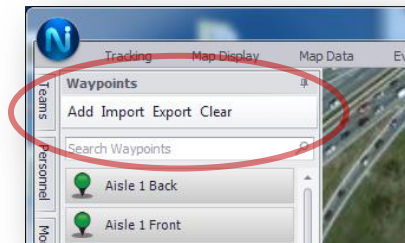


Figure 20. Waypoint Import, Export and Clear

Once Waypoints have been configured, their locations can be saved using the Export function. The import function allows import of Waypoints that were exported from Neon using the Export function (\*.trxwpt file) or from a CSV file with the following column headers:

Name, Latitude, Longitude, Level, Elevation

where latitude and longitude are WGS84 coordinates, level is building floor level indoors (main entry level is 0, when outside leave blank ), elevation is WGS84 (meters about the ellipsoid).

The Clear function completely removes all waypoints from the current session.

Waypoints configured in the Command Software User Interface are synchronized to instances of the Neon Mobile Android App. Tracked personnel using the Neon Mobile are able check-in to waypoints that are configured using the Waypoints sidebar window.

### 5.2.6 Data Replay Bar

Use the data replay bar to pause or speed-up the replay of logged data; locate a specific portion of a log; or to view location results from a few minutes ago. The data replay bar controls operate similar to video playback controls.

When viewing the contents of a log, the start and end times represent the duration of the logged data. During a tracking session, the end-time on the data replay bar is the current time.

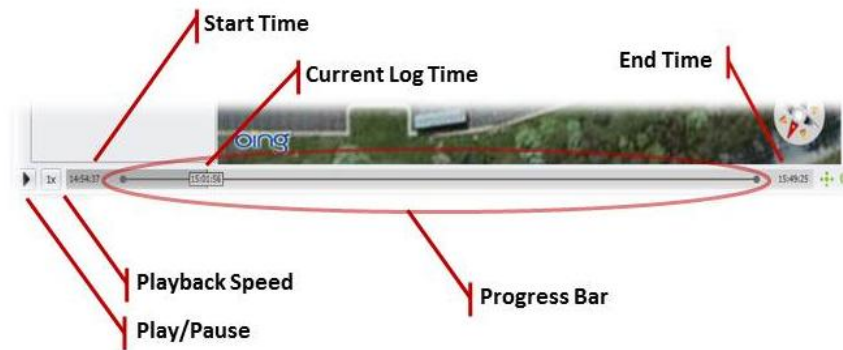


Figure 21. The Data Replay Bar.

### 5.3 Using Neon™ Logs

The Tracking Toolbar provides access to functions for tracking restart and working with Neon Logs. Use the restart button whenever a tracking session is starting. The restart button has the effect of saving existing tracking data to a log, flushing existing tracking data from the system, and resuming tracking.

The Save button has the effect of saving the current tracking session data without restarting. Finally, the Open button is used open a previously saved Neon Log.

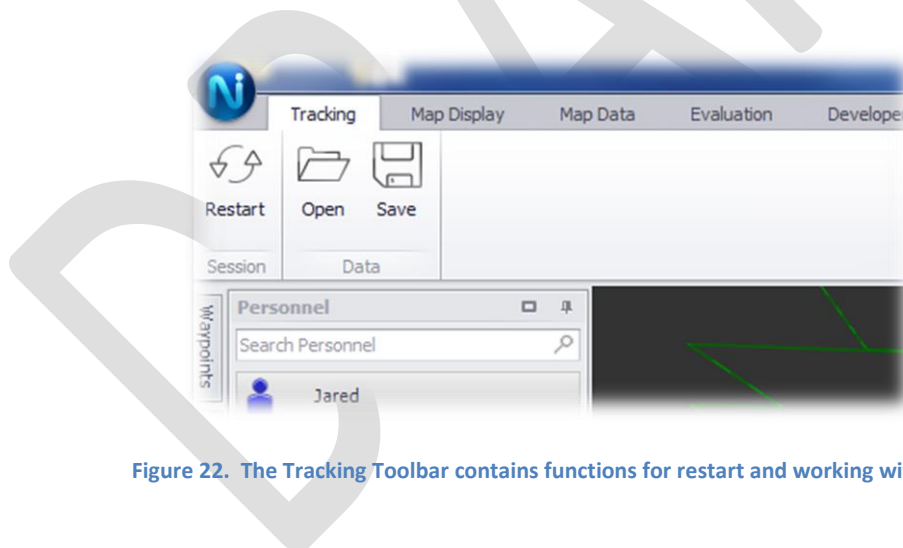


Figure 22. The Tracking Toolbar contains functions for restart and working with logs.

## 6 Neon™ Tracking Unit

The waist-worn tracking unit provides location information from a dense array of sensors including pressure, accelerometers, gyroscopes, magnetometers, ranging, and GPS. For the Neon system to work properly, the Tracking Units should be worn properly and periodically calibrated. Please read the FCC information located in **Appendix B. FCC Information** prior to operating this device.

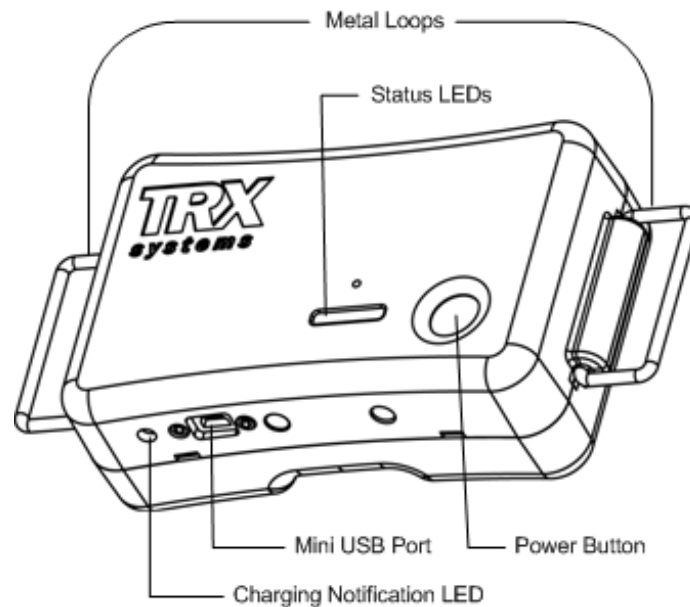


Figure 23. The Neon Tracking Unit.

The Tracking Unit sensor data is transferred to the Neon Command Software for final processing and display. The Tracking Unit integrates with your selected method of communication. Supported methods of communications include:

- 3G/4G cellular communications using a supported Android phone equipped with the Neon Mobile Android App.
- P-25 communications using Motorola APX Radios configured with Bluetooth and data capability.

### 6.1 Wearing the Neon Tracking Unit

Correct placement of the Neon Tracking Unit on the body is important for correct operation. To produce accurate tracking results, place the tracking unit securely around the waist, centered in front of the body. In the correct position, the tracking unit's power button is on the front of the unit and the mini USB port is facing down.

To secure the belt, (1) take the end of the belt and feed it through both D-ring metal loops on either side of the unit. (2) Next, fold the end over the inner ring and back through the outer ring. (3) Pull to tighten.

Turn the tracking unit on by pressing the power button on the lower left corner of the unit. The status LED lights on the unit will turn on and the unit will emit three short beeps to indicate that it is on.

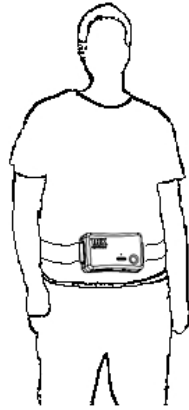


Figure 24. Wear the Neon Tracking Unit firmly against the waist facing forward.

## 6.2 Pairing with Communications Devices

The Neon Tracking Unit uses Bluetooth to interface with either the Android phone or Motorola APX radio. Pairing with cellular phone requires use of the Neon Mobile application (see section 6). The "status" screen within Neon mobile will indicate "OK" when the units are successfully paired, and will provide the name of the unit to which the mobile device is paired.

Pairing with the Motorola APX is performed by placing the Neon Tracking Unit next to the Motorola "blue dot" which enables automatic pairing. A series of beeps will be sounded when pairing has successfully occurred.

## 6.3 Tracking Unit LED Status

While tracking, the LED Status indicators on the Neon Tracking Unit provide indications of successful operation. The left LED will blink green at a regular interval indicating that the tracking unit is working properly. The middle LED will blink red when GPS is locked. The right LED will blink red when it exchanges ranging data with either another tracking unit or a ranging anchor node.

## 6.4 Tracking Unit Charging

The Neon Tracking Unit is charged through a mini USB port designed to allow for quick charging. Charging times will vary, and it can take up to four hours. Charge the Tracking Unit using the mini-USB to USB cables in conjunction with the charging USB hub that was delivered with your product.

The LED next to the mini-USB port will blink green when the Tracking Unit is accepting a charge, and it will be solid green when the tracking unit is fully charged.

## 6.5 Tracking Unit Maintenance

The Neon Tracking Unit should be periodically calibrated to ensure the most accurate tracking results.

## 7 Neon Communications Options

Each Neon Tracking Unit is paired with a portable, personal computing device to support transmission of location and sensor information from the Tracking Unit to the Command Software. The Command Station Computer must be configured appropriately to receive the data, as described in the following subsections.

### 7.1 Motorola APX

The Neon™ Indoor Location System is designed to work with Motorola APX portable radios operating in conventional mode. Motorola APX Radios are capable of providing data communications between the TRX Systems Tracking Unit and the Command Software. In this configuration, an APX radio is carried by each tracked person, and a single gateway radio is connected into the Command Station computer.

Each tracked person pairs their Motorola APX radio and TRX Systems tracking unit using Bluetooth. An APX radio is connected to the Command Station using a GCAI-to-USB cable. When properly configured, a Tracking Unit will automatically report location sensor data to the command station using the radio network. Ensure that your Motorola APX radios are equipped with the correct options and programmed with the correct frequencies for your deployment.

#### Motorola APX Requirements

- IV&D (packet data) - Q947
- Bluetooth - QA00583

#### 7.1.1 Connecting an APX Radio to the Command Station

Connect the APX gateway radio to the command station computer using a GCAI-to-USB cable then turn the APX gateway radio on.



Figure 252. Motorola APX Radio connected to a Command Station using a GCAI cable.

### 7.1.2 Connecting an APX Radio to a Tracking Unit

The Motorola radio and the TRX Systems tracking unit are connected by Bluetooth. If there is an existing paired set, the existing Bluetooth pairing must be cleared on the APX portable radio. To clear the pairing on the APX portable radio, navigate to *BT > Devices* then select *Clr > Yes*.



Figure 263. Location of blue dot and TRX Systems logo

To pair and connect, turn the tracking unit on and touch the blue dot on the back of the APX portable radio to the TRX Systems logo on the front of the Tracking Unit. You will hear a sequence of beep codes from the APX Radio and the Tracking Unit: (1) the APX Mobile Radio will beep twice; (2) the Tracking Unit will beep three times; and, finally, (3) the APX Mobile Radio will beep three times. The APX Mobile Radio and Tracking Unit are now a paired and connected. Once a Tracking Unit and APX Mobile Radio are paired they will stay paired until cleared.



Figure 27. Pairing a Tracking unit and Motorola APX Portable Radio.

You can verify an APX portable radio is paired or connected to a Tracking Unit by navigating to the **BT** menu and selecting **Devices** on the APX portable radio. The Reference ID of the Tracking Unit will appear as *Paired*, *Connected* or *No devices*. The communication status LED on the Tracking Unit is green when a Tracking Unit is connected to an APX portable radio.





Figure 35. Connection status indicators on the Tracking Unit and APX portable radio.

### 7.1.3 Connecting to a Neon Session

To connect to a Neon Session, start Neon Command Station Software. Ensure that an APX radio is connected to the command station and turned on. Each tracked person should: (1) attach a Tracking Unit securely around their waist with the TRX Systems logo facing outwards; (2) turn on the paired APX portable radio; (3) turn on their Tracking Unit.

## 7.2 Cellular or Wi-Fi (via an Android-based mobile handset)

When cellular or Wi-Fi connectivity is used, the Neon Mobile Application provides the interface to the Tracking Unit via Bluetooth pairing. Configuration of the Tracking Unit-Neon Mobile pairing is described in Section 8 of this document.

In this configuration, the Command Station interfaces to either a cellular data network (e.g., through a mobile data card with a static, public IP address) or interfaces to a Wi-Fi data network (again, with a static address). This static address must be programmed into the Android application. If a dynamic address is used (e.g., in a test configuration), the dynamic address must be programmed into Neon mobile each time it changes (which may happen when the Command Software application is restarted).

## 8 Neon™ Mobile Android Application

The TRX Android Tracking Application provides a local user interface and supports use of cell or Wi-Fi communications to send location Tracking Unit data the Command Software. It will also be possible to use Neon Mobile as a visualizer when using a radio for communications. The Neon Mobile user interface displays personnel locations inside an outside of buildings; allows a user to update their own position using Waypoints; and allows the user to interact with Neon NFC Check-In Locations.



Figure 36: NEON Mobile Application

### 8.1 Getting Started

If Neon Mobile is already installed, the Neon Application Icon will appear in your Apps folder. Click on that icon to activate the application. If this is the first time you have installed the software, you will be asked to review and accept the terms of service and a series of setup screens will guide you through the setup process, including configuration of your user name, Command Software IP Address, and pairing with the Tracking Unit that will be associated with this Android Device.

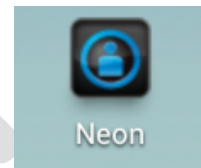


Figure 37: NEON Mobile Application Icon

### 8.2 Starting, Stopping, and Controlling when Neon Runs

After installation, Neon runs automatically when you startup your handset. You can exit the application by selecting the “back” button on your device. At that time you will be asked whether you want to shutdown Neon Services before going to the home screen. If you select “yes” the application will shut down (including any communications with the Command Software, if the Android Device is being used for communications). If you say “No”, the application visualize will shut down but the application process will remain running in the background.

### 8.3 Using the software

To begin using the software, click on the Neon Mobile icon in your applications folder (titled “Neon”). After launching, the map will be visible.

#### 8.3.1 System Status

Select “menu” and then “status” to see the status of all elements of the system, including:

- Device name and logical address.
- Command Software IP address and connection status
- Tracking Unit logical address and Bluetooth pairing status
- GPS location coordinates (i.e., the coordinates being

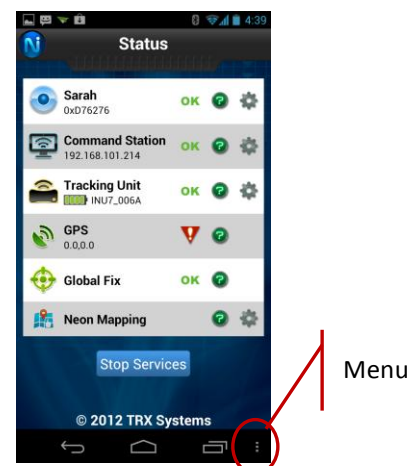


Figure 38: Neon Mobile Status Screen

- reported by GPS, if any) and GPS lock status
- Global fix status indicating whether there is some global knowledge of where you are, either through GPS, NFC check-in, ranging to an anchor node, or manual Waypoint selection or establishment from the Neon Mobile interface.
- Neon Mapping status including an indication of whether the device has a valid Bing maps key.

Click on the question mark for more information and on the “gear” to configure that system element.

### 8.3.2 Map

The default view of Neon Mobile is the map view which provides a view of the base layer map. In addition to the traditional Android menu selector, a row of menu and status items are also embedded within the software and appear at the top of the map. The first four icons (appearing from left to right) provide a quick indication of the following:

- Command Software Status
- Tracking Unit Status
- GPS Status
- Global Fix Status

If any of these have an alert, an exclamation point will appear within the status icon. Clicking on any of these icons will bring the user back to the status screen described in the prior section.

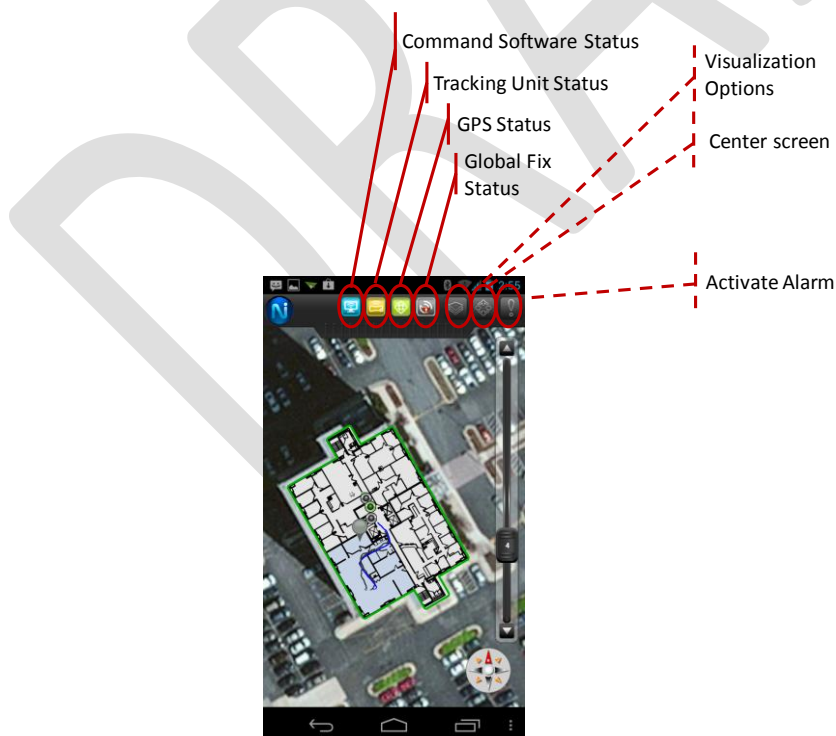




Figure 39: Neon Mobile Status & On-Screen Menus

### 8.3.3 Personnel

The personnel screen is also available through the menu. This screen identifies team members that are also connected to the same Command Software, along with both the name and logical identifier of the Tracking Unit.


If the map icon  is available beside a user, clicking on it will center your map interface on that user's location.

### 8.3.4 Waypoints

Waypoints are defined locations that may be used for reference or to update user location. It is possible to establish waypoints from the Command Software or from Neon Mobile. If established previously from the Command Software (reference section 5.2.5), the waypoints will show up with their location marked on the user interface  and on the Waypoint screen (Figure ) which is accessible from the menu.

To establish a Waypoint from Neon Mobile, open the Waypoint screen and click on the + in the upper right hand corner. This will open a dialog box that allows you to create a named waypoint at your current estimated location (Figure ).

Another method that can be used if the current estimate is incorrect, press and hold on the map display at the correct location of the place that the user is standing. (It is recommended that the user zoom in so that the most accurate location can be established.) Two things then happen: 1) a Waypoint is established at the location on the map that they are pressing (the Waypoint name is automatically generated) and 2) the user's location is automatically updated (i.e., "user-corrected") to that new Waypoint.

To check-in at an existing Waypoint, the user can either press and hold on the Waypoint icon on the map screen (the user will be queried if they want to check in), or the user can open the Waypoint screen (Figure ) and press on the check mark icon  next to the name of the Waypoint at which the user wants to check-in.

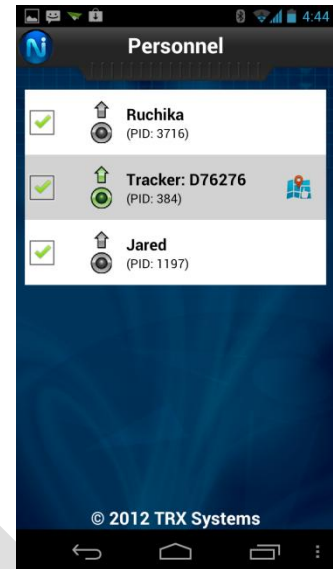


Figure 40: NEON Mobile Personnel Screen

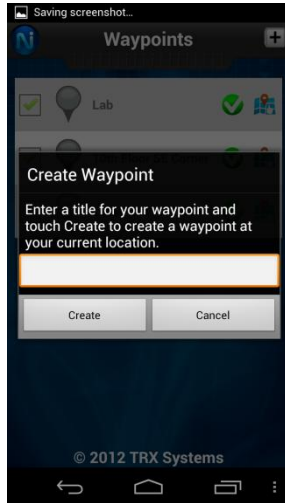


Figure 41: Neon Mobile Waypoint Creation

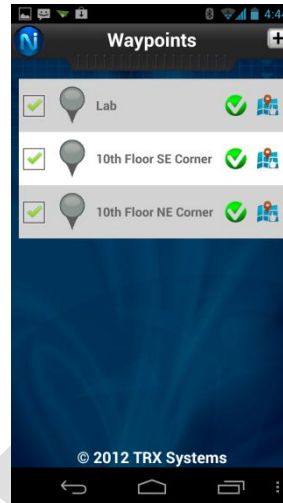



Figure 42: Neon Mobile Waypoint Check-in

If a map icon  is available beside a Waypoint, clicking on it will center your map interface on the location of that Waypoint.

Debug Waypoints are Waypoints that are used for evaluation only and do not affect the user's path (refer to section **Error! Reference source not found.**). A debug waypoint is any waypoint which has a name starting with "DEBUG".

The accuracy of a Waypoint check-in is 1 meter (i.e., the system assumes you are within one meter or an "arms-reach" from the waypoint at which you are checking in).

## 8.4 NFC Check-Ins

In addition to Waypoints, Neon Mobile allows for the use of Near Field Communications (NFC) anchors which are called "check-in locations" by the Command Software. To enable this functionality, the Neon "NFCCheckin" application must be installed on the mobile device.

If Checkin Locations have been configured by the Command Software, it will be possible to perform a location update by placing your phone (with the Neon Mobile application running) in front of the Checkin Anchor. The phone will beep to indicate the location update has been successfully performed.

## 8.5 Installation and Upgrade

Installation of the NOEN Mobile application requires downloading the NeonHH application to your phone. The most straightforward ways to do this are the following:

- Attach the handset to the computer using a USB and it will show up as a USB-connected device (this may take a few minutes if it is the first time you have connected the handset). Move the Neon Mobile Application (NeonHH) to your "downloads" folder.
- Assuming Internet connectivity is available, it is also possible to email the application to the handset. Upon downloading, the Neon Mobile Application (NeonHH) will appear in your "downloads" folder.

Click on the application (NeonHH\_release#.apk) and you will be asked to either install or replace the application. If you do replace the application, all previous user data will be maintained.

In addition to Neon mobile, the Neon NFC Checking application must also be installed if NFC checkins are being used. Again, it is possible to perform this installation or to update that application by moving the application to your downloads folder via a connected USB interface or by emailing that file to the handset and clicking on the .apk file.

## 9 Neon™ Ranging Anchor Node

A Neon Ranging Anchor Node is a multi-sensor anchor node that improves tracking accuracy. Ranging Anchor Nodes are installed at strategic locations to maximize their effectiveness for improving tracking accuracy. Please read the FCC information located in **Appendix B. FCC Information** prior to operating this device.

Ranging Anchor Nodes share the same form factor as the Neon Tracking Unit. However, Tracking Units and Anchor Nodes are not interchangeable. To prevent an Anchor Node from being inadvertently worn as a Tracking Unit, Anchor Nodes are assembled with only one D-Ring.



Figure 43. Neon Ranging Anchor Node.

Ranging Anchor Nodes are assigned a unique reference ID that is used when configuring the Neon Indoor Location System. Each ranging anchor node is labeled with a Reference ID that is entered into the Command Software configuration when placing anchors during installation.

To configure the system to use a ranging anchor node, it must be added to the system using the References sidebar window in the Command Software User Interface. The location of the Ranging Anchor is configured by dragging the Ranging Anchor Node from the References window onto the Visualizer screen. Refer to section 5.2.4 for information about using the References window.

The Ranging Anchor Node accepts power through its mini-USB port, and it can take power during normal operation. Like the tracking unit, the Ranging Anchor Node can run off of battery.

## 10 Neon™ Command Station Reference

A Command Station Reference is a Tracking Unit or Ranging Anchor Node that is attached directly to the Command Software computer using a USB cable. The Command Station Reference provides the same function as a Ranging Anchor Node, but it provides additional reference sensor data to improve accuracy. Please read the FCC information located in **Appendix B. FCC Information** prior to operating this device.



Figure 44. The Command Software Reference is attached directly to the computer hosting the Neon Command Software.

The Neon Command Station Reference provides the same functionality as the Ranging Anchor Nodes. The Command Software Reference does not use a Reference ID. Instead, the Command Software Reference is always pre-populated in the list of Neon User Interface References.

The Command Station Reference is charged the same way as the Tracking Unit and Ranging Anchor Node. Generally, the Command Software Reference will take power from the Command Software computer.

## 11 Neon™ NFC Check-In Location

A Neon NFC Check-In Location is an NFC RFID tag that is used to provide location updates of tracked personnel. A tracked person interacts with a Check-in Location by placing their phone equipped with the Neon Mobile Android App close enough to the Check-In Location to activate the NFC RFID tag.



Figure 45. A lanyard card NFC Check-In Location.

Each NFC Check-In Location is assigned a unique Reference ID that is used to configure the Neon Indoor Location System. The NFC Check-In Location ID is a four-digit number that is printed on the tag, and it is entered into the Command Software when placing the NFC Check-In Locations. The location of the NFC Check-In Location ID depends on the form factor. On lanyard cards, the ID is printed across the bottom of the card.

As described in section 5.2.4, use the References sidebar window in the Command Software User Interface to configure the Neon System to use the Check-In Location.



## Appendix A. End User Agreement

### END USER AGREEMENT

Please read the following terms and conditions carefully. This End User Agreement is between TRX Systems, Inc. (the "Company" or the "Licensor") and You, which if an entity aside from an individual user includes its employees, staff and personnel (collectively, the "Users", "You" or "Licensee"), for the use of the hardware, software and services to be provided hereunder, including any content and any related materials, the License Software, documentation, updates or modifications that may be provided to You by the Company or its licensees or agents (collectively, the "TRX System"). Your access to and use of the TRX System requires your compliance with the terms of this Agreement. By downloading or installing the software, or accessing and/or using any portion of the TRX System, you agree to be bound by this Agreement.

### RECITALS:

WHEREAS, when used properly, the TRX System provides Users, including first responders, miners, ground forces, and others), individual members of a Licensee organization or agency, partner agencies, incident commanders, and civil and military authorities, with tools for tracking and finding Users in locations without reliable GPS (collectively, "Incidents").

WHEREAS, COMPANY IS WILLING TO LICENSE THE TRX SYSTEM TO YOU ONLY UPON THE CONDITION THAT YOU ACCEPT ALL OF THE TERMS CONTAINED IN THIS END USER AGREEMENT. BY DOWNLOADING, INSTALLING, OR USING THE TRX SYSTEM, YOU AGREE TO THE TERMS AND CONDITIONS OF THIS AGREEMENT, AND YOU ARE BINDING YOURSELF AND THE BUSINESS ENTITY THAT YOU REPRESENT.

WHEREAS, the TRX System is provided subject to the limitations, restrictions and disclaimers of liability set forth below.

NOW THEREFORE, in exchange for the mutual promises and consideration set forth herein, the value of which is hereby acknowledged, the Parties hereto agree as follows:

1. Forms of Acceptance of Agreement. Licensee shall indicate their intention to be bound to the terms and conditions of this Agreement through one (1) of the three (3) modes of acknowledgement set forth below:

(a) Acceptance by Signature. By signature of a duly authorized officer of the Party hereto in the appropriate signature block below, Licensee consents to become a party to this Agreement and to be bound by its terms and conditions. This Agreement may be executed in counterparts, each of which will be deemed an original, but all of such counterparts together will constitute one and the same agreement,

(b) Acceptance by Clicking "I Accept" or by use of TRX System. BY CLICKING ON THE "I ACCEPT" BUTTON OR OTHERWISE USING ANY PART OF THE TRX SYSTEM, USER CONSENTS TO BECOME A PARTY TO THIS AGREEMENT AND TO BE BOUND BY ITS TERMS AND CONDITIONS. USER'S WRITTEN APPROVAL IS NOT A PREREQUISITE TO THE VALIDITY OR ENFORCEABILITY OF THIS AGREEMENT. IF USER DOES NOT WANT TO BECOME A PARTY TO THIS AGREEMENT OR DOES NOT AGREE WITH OR CANNOT COMPLY WITH ALL OF ITS TERMS, DO NOT CLICK ON THE "I ACCEPT" BUTTON OR USE ANY PART OF THE TRX SYSTEM, AND USER WILL NOT BE LICENSED TO THE TRX SYSTEM OR BE AUTHORIZED TO USE ANY PART OF THE TRX SYSTEM.

(c) Acceptance by email. BY RESPONDING VIA EMAIL TO THE COMPANY WITH AN AFFIRMATIVE WRITTEN EXPRESSION OF ASSENT TO BE BOUND TO THIS AGREEMENT, USER CONSENTS TO BECOME A PARTY TO THIS AGREEMENT AND TO BE BOUND BY ITS TERMS AND CONDITIONS. USER'S HAND WRITTEN APPROVAL IS NOT A PREREQUISITE TO THE VALIDITY OR ENFORCEABILITY OF THIS AGREEMENT. IF USER DOES NOT WANT TO BECOME A PARTY TO THIS AGREEMENT OR DOES NOT AGREE WITH OR CANNOT COMPLY WITH ALL OF ITS TERMS, DO NOT AFFIRM YOUR DESIRE TO BE BOUND BY THE TERMS OF THIS AGREEMENT IN AN EMAIL AND DO NOT USE ANY PART OF THE TRX SYSTEM, AND USER WILL NOT BE LICENSED TO THE TRX SYSTEM OR BE AUTHORIZED TO USE ANY PART OF THE TRX SYSTEM.

## 2. License.

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8. Limited Warranty.

(a) Hardware. Company warrants its hardware to be free from defective workmanship and materials under normal use ("Hardware Defects") for a period of one (1) year from the date of purchase from Company ("Warranty Period"). Hardware defects will be repaired or replaced at Company's sole choice without charge for parts or labor. Any repair made by Company to its hardware is warranted to be free from Hardware Defects for a period of ninety (90) days from the date of such repair.

(b) Software. Company warrants its software to substantially perform pursuant to the applicable user's manual for a period of one (1) year from the date of purchase from Company. To the original purchaser only, Company warrants the media on which the Licensed Software is supplied to perform pursuant to the applicable user's manual for a period of thirty (30) days from the date of purchase from Company; if the media does not conform during this period, the purchaser of that media may return the media for replacement media.

(c) ADDITIONAL LIMITATIONS. NEITHER WARRANTY SHALL APPLY TO NORMAL WEAR AND TEAR, ANY HARDWARE OR SOFTWARE WHICH HAS BEEN ABUSED, MISUSED, DAMAGED, ALTERED, NEGLECTED, SUBJECTED TO UNAUTHORIZED REPAIR OR INSTALLATION, , OR SUBJECT TO ACCIDENT, MOISTURE, LIQUIDS, PROXIMITY OR EXPOSURE TO HEAT OR SOME OTHER EXTERNAL FORCE, AS REASONABLY DETERMINED BY COMPANY.

(d) Procedure. To claim a Hardware Defect, You must contact Company product support at support@trxsystems.com for technical assistance. If Company determines in its sole judgment, after standard troubleshooting tests have been performed, that a Hardware Defect may exist, Company will issue a Return Materials Authorization number (RMA). That RMA number must appear in plain view on any shipment made to Company regarding the Hardware Defect. The RMA number shall be used in all communications with Company regarding the Hardware Defect. You must ship the hardware during the Warranty Period, in a traceable manner, along with the RMA number issued by Company and an

explanation of the defect, to the address provided to you by Company. You shall prepay the cost of shipping the hardware and bear the risk of loss while the hardware is in transit. Company shall determine in its sole discretion whether a Hardware Defect exists, and if so, whether to repair or replace such hardware. Company shall pay the shipping charges to return the hardware to you and bear the risk of loss during transit, unless Company determines that a Hardware Defect does not exist. In the event that Company determines a Hardware Defect does not exist, you shall promptly pay Company to return the hardware to you, including risk of loss during shipment. Any hardware not reclaimed by paying such shipment costs to Company within 30 days from notice of payment due will be discarded

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LAW. THE FOREGOING LIMITATIONS SHALL APPLY EVEN IF COMPANY HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES.

SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION AND EXCLUSION MAY NOT APPLY TO YOU.

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Licensee shall comply with all export laws and restrictions and regulations of the Department of Commerce, the United States Department of Treasury Office of Foreign Assets Control ("OFAC"), or other United States or foreign agency or authority, and Licensee shall not export, or allow the export or re-export of the TRX System in violation of any such restrictions, laws or regulations. By using the TRX System, Licensee agrees to the foregoing and represents and warrants that Licensee is not located in, under the control of, or a national or resident of any restricted country.

12. Indemnity.

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14. General.

This Agreement represents the complete agreement concerning this license between the Parties and supersedes all prior agreements and representations between them. This Agreement may be amended only by a writing executed by both parties. If any provision of this Agreement is held to be illegal or unenforceable, that provision shall be limited or eliminated to the minimum extent necessary to make it

legal and enforceable and this Agreement shall otherwise remain in full force and effect and enforceable. The failure of Company to act with respect to a breach of this Agreement by Licensee, Users or others does not constitute a waiver and shall not limit Company's rights with respect to such breach or any subsequent breaches. This Agreement is personal to Licensee and may not be assigned or transferred for any reason whatsoever without Company's prior written consent and any action or conduct in violation of the foregoing shall be void and without effect. Company expressly reserves the right to assign this Agreement and to delegate any of its obligations hereunder. This Agreement shall be governed by and construed under Maryland law (without regard to its conflicts of laws provisions) as such law applies to agreements between residents of any state in which this Agreement is entered into and performed. The sole and exclusive jurisdiction and venue for actions arising under this Agreement shall be the State and Federal courts in Prince George's County, Maryland and Licensee hereby agree to service of process in accordance with the rules of such courts.

Each party recognizes and agrees that the warranty disclaimers and liability and remedy limitations in this Agreement are material bargained for bases of this Agreement and that they have been taken into account and reflected in determining the consideration to be given by each party under this Agreement and in the decision by each party to enter into this Agreement.

If you have any questions about the Terms, please contact TRX at [TOS@trxsystems.com](mailto:TOS@trxsystems.com).

Last updated as of: August 28, 2012



## Appendix B. FCC Information

The following FCC information applies to the following components of the Neon™ Indoor Location System:

- Neon™ Tracking Unit,
- Neon™ Command Station Reference, and
- Neon™ Ranging Anchor Node.

### FCC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### FCC Notice to Users

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

TRX has not approved any changes or modifications to this device by the user. Any changes or modifications not expressly approved by TRX Systems may void the user's authority to operate this equipment.

### RF Exposure Notice

This device is a radio transmitter and receiver. It is designed not to exceed the limits for exposure to radio waves adopted by the FCC. These limits include a substantial safety margin design to assure the safety of all persons, regardless of age and health. The radio wave exposure guidelines use a unit of measurement known as the Specific Absorption Rate, or SAR. SAR test measurements were taken for this device and found to be below FCC limits.