TABLE OF CONTENTS

Chapter 1 MPACT Overview

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 MPact Architecture</td>
<td>1-2</td>
</tr>
<tr>
<td>1.1.1 MPact Beacons</td>
<td>1-3</td>
</tr>
<tr>
<td>1.1.2 MPact Server</td>
<td>1-3</td>
</tr>
<tr>
<td>1.1.2.1 MPact High Availability</td>
<td>1-3</td>
</tr>
<tr>
<td>1.1.3 MPact Toolbox</td>
<td>1-3</td>
</tr>
<tr>
<td>1.1.4 MPact Client SDK</td>
<td>1-3</td>
</tr>
<tr>
<td>1.2 System Hardware and Software Requirements</td>
<td>1-4</td>
</tr>
<tr>
<td>1.2.1 Browser Support</td>
<td>1-4</td>
</tr>
<tr>
<td>1.2.2 Server Hardware Minimum Requirements</td>
<td>1-4</td>
</tr>
<tr>
<td>1.2.3 Server Hardware for Medium Deployments</td>
<td>1-4</td>
</tr>
<tr>
<td>1.2.4 Server Hardware Requirements for Larger Deployments</td>
<td>1-5</td>
</tr>
<tr>
<td>1.2.5 Server Port Requirements</td>
<td>1-5</td>
</tr>
<tr>
<td>1.3 Toolbox, SDK and Server Communication</td>
<td>1-6</td>
</tr>
</tbody>
</table>

Chapter 2 Locationing

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Dashboard Insights</td>
<td>2-2</td>
</tr>
<tr>
<td>2.1.1 Selected Sites</td>
<td>2-4</td>
</tr>
<tr>
<td>2.1.2 Selected Category</td>
<td>2-6</td>
</tr>
<tr>
<td>2.1.3 Category Values</td>
<td>2-8</td>
</tr>
<tr>
<td>2.1.4 Site and System Summary</td>
<td>2-8</td>
</tr>
<tr>
<td>2.1.5 Category Engagement</td>
<td>2-11</td>
</tr>
<tr>
<td>2.1.6 Other Insight Features</td>
<td>2-12</td>
</tr>
<tr>
<td>2.2 Dashboard Health</td>
<td>2-13</td>
</tr>
<tr>
<td>2.2.1 Site Level Dashboard Health</td>
<td>2-16</td>
</tr>
<tr>
<td>2.3 MPact Mobile App Location &amp; Analytics Dashboard</td>
<td>2-18</td>
</tr>
<tr>
<td>2.3.1 MPact Dashboard Installation and Configuration</td>
<td>2-18</td>
</tr>
<tr>
<td>2.3.2 Server Analytics</td>
<td>2-20</td>
</tr>
<tr>
<td>2.3.3 Mobile App System and Site Summary</td>
<td>2-21</td>
</tr>
<tr>
<td>2.3.4 Logout and Version Information</td>
<td>2-21</td>
</tr>
<tr>
<td>2.4 Active View</td>
<td>2-23</td>
</tr>
<tr>
<td>Chapter 3 Configuration</td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td>---</td>
</tr>
<tr>
<td>3.1 Account Management</td>
<td>3-2</td>
</tr>
<tr>
<td>3.2 Categories and Category Values</td>
<td>3-4</td>
</tr>
<tr>
<td>3.2.1 Create New Categories</td>
<td>3-5</td>
</tr>
<tr>
<td>3.2.2 Edit Categories</td>
<td>3-5</td>
</tr>
<tr>
<td>3.2.2.1 Copy Categories</td>
<td>3-5</td>
</tr>
<tr>
<td>3.2.2.2 Delete Categories</td>
<td>3-6</td>
</tr>
<tr>
<td>3.2.3 Create Category Values</td>
<td>3-6</td>
</tr>
<tr>
<td>3.2.3.1 Edit Category Values</td>
<td>3-7</td>
</tr>
<tr>
<td>3.2.3.2 Delete Category Values</td>
<td>3-7</td>
</tr>
<tr>
<td>3.3 Notifications</td>
<td>3-8</td>
</tr>
<tr>
<td>3.3.1 Event Notification Modifications</td>
<td>3-14</td>
</tr>
<tr>
<td>3.3.1.1 Enable/Disable Event Notifications</td>
<td>3-14</td>
</tr>
<tr>
<td>3.3.2 Notifications Verification</td>
<td>3-14</td>
</tr>
<tr>
<td>3.4 Subscribers</td>
<td>3-15</td>
</tr>
<tr>
<td>3.4.1 Create New Subscriber</td>
<td>3-16</td>
</tr>
<tr>
<td>3.5 System Configuration</td>
<td>3-18</td>
</tr>
<tr>
<td>3.6 Profile Configuration</td>
<td>3-20</td>
</tr>
<tr>
<td>3.6.1 User Profile</td>
<td>3-20</td>
</tr>
<tr>
<td>3.6.2 Beacon Profile</td>
<td>3-23</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 4 Operations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 System Maintenance and Operations</td>
<td>4-2</td>
</tr>
<tr>
<td>4.2 Tree Setup</td>
<td>4-4</td>
</tr>
<tr>
<td>4.2.1 Node Modifications</td>
<td>4-5</td>
</tr>
<tr>
<td>4.2.2 Site Template</td>
<td>4-6</td>
</tr>
<tr>
<td>4.3 Reports</td>
<td>4-10</td>
</tr>
<tr>
<td>4.3.1 Scheduled Reports</td>
<td>4-10</td>
</tr>
<tr>
<td>4.3.2 On Demand Reports</td>
<td>4-13</td>
</tr>
<tr>
<td>4.3.3 System Report Examples</td>
<td>4-14</td>
</tr>
<tr>
<td>4.3.4 Site Report Examples</td>
<td>4-18</td>
</tr>
</tbody>
</table>
ABOUT THIS GUIDE

This chapter is organized into the following sections:

- Using the Documentation
- Zebra Technologies Corporation (“Zebra”) End-User Software License Agreement
Using the Documentation

The following sections provide information about the document and notational conventions used in the guides and provides a list of related documentation.

Document Conventions

The following conventions are used in this manual to draw your attention to important information:

- **NOTE:** Indicates tips or special requirements.
- **CAUTION:** Indicates conditions that can cause equipment damage or data loss.
- **WARNING!** Indicates a condition or procedure that could result in personal injury or equipment damage.

Revision History

This guide has the following release and revision milestone history:

<table>
<thead>
<tr>
<th>Release</th>
<th>Date</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 Revision A</td>
<td>August, 2014</td>
<td>Release of initial 1.0 baseline of MPact.</td>
</tr>
<tr>
<td>1.0.1 Revision B</td>
<td>December, 2014</td>
<td>Updated to 1.0.1 feature baseline.</td>
</tr>
<tr>
<td>1.0.2 Revision C</td>
<td>March, 2015</td>
<td>Updated to 1.0.2 feature baseline.</td>
</tr>
<tr>
<td>1.1.0 Revision D</td>
<td>May, 2015</td>
<td>Updated to 1.1.0 feature baseline.</td>
</tr>
<tr>
<td>2.0.0 Revision A</td>
<td>February, 2016</td>
<td>Updated to 2.0.0 feature baseline and incorporated new Zebra templates.</td>
</tr>
</tbody>
</table>
Notational Conventions

The following notational conventions are used in this document:

- Italics are used to highlight specific items in the general text and to identify chapters and sections in this and related documents.
- Bullets (●) indicate:
  - lists of alternatives
  - lists of required steps that are not necessarily sequential
  - action items
- Sequential lists (those describing step-by-step procedures) appear as numbered lists.

Related Documentation

MPact Location and Analytics documentation includes the following:

- MPact Location & Analytics Deployment Guide
- MPact Location & Analytics Server Reference Guide
- MPact Location & Analytics Android Toolbox User Guide
- MPact Location & Analytics iOS Toolbox User Guide
- MPact Location & Analytics Client Software Development Kit
- MPact Location & Analytics Server API Reference Guide
- MPact Location & Analytics Hardware Installation Guide
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To obtain software licenses for MPact Location & Analytics Server, Toolbox or Client Software Development Kit, provide the following information:

- Identification
- Email address
- Payment
CHAPTER 1 MPACT OVERVIEW

The MPact Platform for Mobile Marketing, shopping is centered on customer needs. It is the only indoor locationing platform to unify Wi-Fi and Bluetooth® Smart Technology to capture more analytics, accuracy and insight. Learn which aisles and products customers prefer, their shopping history, and what influences their buying decisions to create interactions that lead to transactions. MPact offers shoppers site maps to quickly find items, prompts associates to tend to those who linger in areas, and communicates loyalty points and promotions.

MPact offers major advantages to facilitate mobile marketing to deliver the best possible service for customers, and at the same time maximize income potential for the enterprise, be it a hotel chain or a retail establishment.

- **Unequaled Value** - MPact helps in identifying where customers are inside the facility, and delivers the most personalized service possible at very low costs.

- **Unification of WiFi and Bluetooth® Smart Locationing** - MPact is the only platform in the industry to offer a single system with end-to-end locationing visibility and analytics on unifying both WiFi and Bluetooth Smart technologies.

- **Unbelievably Easy Deployment** - MPact platform deployment enables administrators to deploy, access and act on locationing analytics data in the same day.

- **Comprehensive Locationing Services** - MPact offers three different levels of locationing services based on presence, zone and aisle level positions.

- **Support for Public and Private Cloud** - MPact provides deployment flexibility by having the server, either on the cloud or on the premises, based on business needs.

- **High Availability (HA)** - MPact supports high-availability clusters (also known as HA clusters or failover clusters) which are groups of MPact server nodes deployed reliably with minimum down-time.
1.1 MPact Architecture

The MPact architecture is comprised of the following:

- MPact Beacons
- MPact Server
  - MPact High Availability
- MPact Toolbox
- MPact Client SDK

NOTE: The MPact Client SDK runs on iPhone (iOS 7 and later) and Android phones (Android 4.3 and later).
1.1 **MPact Beacons**

Bluetooth® Smart beacons operate in several modes including iBeacon™, MPact, Battery Save and SecureCast. Beacons enable customer engagement by providing real-time location triggers and notifications, prompting shoppers to access targeted advertisements.

NOTE: Battery information is not available in iBeacon mode. This guide assumes the beacon is in Battery Save or MPact mode.

Beacon placements can be adjusted within a deployment floor plan, and depending on the mode selected, their battery life can be tracked over time. Administrators can cursor over a beacon on a site’s floor plan to assess remaining battery life.

1.1.2 **MPact Server**

MPact Server provides an interface to install and maintain MPact beacons throughout the deployment site. The server software utilizes an analytics infrastructure and locationing API.

MPact Server receives its beacon data from client devices moving about a retail environment. The Beacon IDentifier is compared to other Beacon IDentifiers mapped to a specific location (accomplished using the MPact management UI). When a match occurs, the MPact Server either places the mobile client within a site or places the mobile client in close proximity to specific products. The mobile client’s location, the beacon’s proximity to specific products, and the beacon’s remaining battery life are all stored on the MPact Server’s local database for administrative retrieval and analysis.

The MPact Server application manages the MPact infrastructure and administrative framework. The MPact Server UI configures site floor plans required for beacon placement and locationing, manages the association of beacons with specific products, supports beacon installation and maintenance and provides the visualization and analytics needed for both mobile clients and beacons.

1.1.2.1 **MPact High Availability**

MPact supports High Availability (HA). The MPact Server requires three nodes for HA to function: Active, Standby and Quorum. Out of the three nodes, at least two must be running for the cluster to function. Data is replicated among the three nodes for reliability. A redirector (software redirector running on a separate fourth node or a hardware redirector) must be configured to handle HTTP requests. The redirector is configured to prefer the Active node and fallback to the Standby node when the Active node is down.

1.1.3 **MPact Toolbox**

The MPact Toolbox application runs on both iPad and Android devices and is designed for easy beacon deployment and management. During a typical MPact installation, an iPad or Android device is carried within a retail area to scan each beacon’s barcode during deployment. The handheld can also validate existing beacon functionality at any time. An administrator can add, modify or delete beacons and beacon positions on a site’s floor plan on the Toolbox. Beacon updates are pushed to the MPact Server. For more information on the Toolbox, refer to the MPact Location & Analytics Toolbox User Guides available from www.zebra.com/support.

1.1.4 **MPact Client SDK**

The MPact Client SDK is available in both iOS (version 7 or later) and Android (version 4.3 or later) platforms. The client SDK integrates directly into an application and allows it to listen for Bluetooth Smart transmissions. Upon receiving a beacon emission, the client library sends relevant information to the MPact Server. If the client receives data from more than one beacon within a given interval, the utilized beacon is based on a beacon selection algorithm distributed between the client and
Communication between the client library and the MPact Server is secured through SSL. For more information, see MPact Location & Analytics Software Development Kit available from www.zebra.com/support.

### 1.2 System Hardware and Software Requirements

This section lists the minimum hardware and software requirements to install and run MPact Server.

#### 1.2.1 Browser Support

MPact Server requires the following browser support:
- Internet Explorer version 11 or above
- Google Chrome version 33 or above
- Mozilla Firefox version 26 or above

#### 1.2.2 Server Hardware Minimum Requirements

MPact Server is a Linux-based system. As a prerequisite to installing MPact Server, ensure the server has the following capacity:
- 4 Cores
- 8 GB RAM
- 200 GB Disk space
- Operating Systems (OS): Debian 7.3 (Use Console Mode in Debian, not GUI mode), Red Hat 6.5
  - Python 2.7.3 required for Red Hat and Debian
  - Display resolution minimum is 1024 x 768 pixels

#### 1.2.3 Server Hardware for Medium Deployments

- 8 Cores
- 16 GB RAM
- 250 GB Disk space
- Operating Systems (OS): Debian 7.3 (Use Console Mode in Debian, not GUI mode), Red Hat 6.5
  - Python 2.7.3 required for Red Hat and Debian
  - Display resolution minimum is 1024 x 768 pixels

#### 1.2.4 Server Hardware Requirements for Larger Deployments

- 24 Cores
- 35 GB RAM
- 1 TB Disk space
- Operating Systems (OS): Debian 7.3 (Use Console Mode in Debian, not GUI mode), Red Hat 6.5
  - Python 2.7.3 required for Red Hat and Debian
  - Display resolution minimum is 1024 x 768 pixels
### 1.2.5 Server Port Requirements

MPact Server requires the following be added as trusted ports to an organization's security policy:

<table>
<thead>
<tr>
<th>Port Details</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ajp connector port = 8009</td>
<td>Used by Tomcat.</td>
</tr>
<tr>
<td>Tomcat server port = 8005</td>
<td>Used by Tomcat.</td>
</tr>
<tr>
<td>TOMCAT HTTP PORT= 8080 or 80 or customer defined</td>
<td>Used by Tomcat for REST APIs and UI.</td>
</tr>
<tr>
<td>TOMCAT HTTPS PORT=8443 or 443 or customer defined</td>
<td>Used by Tomcat for REST APIs and UI.</td>
</tr>
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<td>DFS NAMENODE SECONDARY HTTP ADDRESS= 50090</td>
<td>Used by hadoop.</td>
</tr>
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<td>Used by hadoop.</td>
</tr>
<tr>
<td>DFS DATANODE HTTP ADDRESS = 50075</td>
<td>Used by hadoop.</td>
</tr>
<tr>
<td>DFS DATANODE IPC ADDRESS = 50020</td>
<td>Used by hadoop.</td>
</tr>
<tr>
<td>DFS NAMENODE HTTP ADDRESS = 50070</td>
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</tr>
<tr>
<td>DFS NAMENODE BACKUP ADDRESS = 50100</td>
<td>Used by hadoop.</td>
</tr>
<tr>
<td>DFS NAMENODE BACKUP HTTP ADDRESS = 50105</td>
<td>Used by hadoop.</td>
</tr>
<tr>
<td>DFS JOURNALNODE RPC ADDRESS = 8485</td>
<td>Used by hadoop.</td>
</tr>
<tr>
<td>DFS JOURNALNODE HTTP ADDRESS = 8480</td>
<td>Used by hadoop.</td>
</tr>
<tr>
<td>DFS.NAMENODE.RPC-ADDRESS 8020</td>
<td>Used by hadoop.</td>
</tr>
<tr>
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</tr>
<tr>
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<td>Used by hbase.</td>
</tr>
<tr>
<td>HBASE MASTER PORT= 60000</td>
<td>Used by hbase.</td>
</tr>
<tr>
<td>HBASE MASTER INFO PORT = 60010</td>
<td>Used by hbase.</td>
</tr>
<tr>
<td>HBASE REGIONSERVER PORT = 60020</td>
<td>Used by hbase.</td>
</tr>
<tr>
<td>HBASE REGIONSERVER INFO PORT = 60030</td>
<td>Used by hbase.</td>
</tr>
<tr>
<td>HBASE ZOOKEEPER PROPERTY CLIENTPORT= 2181</td>
<td>Used by hbase.</td>
</tr>
<tr>
<td>HBASE_REST_PORT= 9080</td>
<td>Used by hbase.</td>
</tr>
</tbody>
</table>
1.3 Toolbox, SDK and Server Communication

Figure 1-2 illustrates communications between MPact Toolbox, the SDK, and MPact Server, as well as the client application to the MPact Server. The Toolbox requests information stored on the Server, for example, tree hierarchy, floor plans, and beacon positions. As deployment changes are made in the Toolbox, the Toolbox updates the Server.

Figure 1-2 MPact Toolbox, SDK and MPact Server Communication
Use **Locationing** configuration options to review trending customer data. **Dashboard Insights** provide information on new and returning customer visits, as well as time engaging with specific products. **Dashboard Health** displays information on remaining battery life for beacons by site and collectively for the system. **Active View** is a real-time visualization tool for both client tracking on a floor plan and the beacons reporting their whereabouts. Use this information to assess the effectiveness of product categorizations and beacon placements within specific deployments.

For more information, refer to the following:

- **Dashboard Insights**
- **Dashboard Health**
  - **MPact Mobile App Location & Analytics Dashboard**
- **User Tracking**
2.1 Dashboard Insights

Dashboard Insights trend customer data for specific products as well as collectively for site-wide deployments. A tree displays as a hierarchical set of sites and floors collapsible under the main System node.

It's important to differentiate customers from one another based on their frequency and repeat visits. Keep the following in mind when administrating customer data:

- **Unique Customer** - A client is considered unique if seen for the first time in the last 30 days. A unique customer detected by MPact always constitutes a unique visit, but not all unique visits translate to unique customers.

- **Repeat Customer** - A repeat customer is one who has been detected more than once in the last 30 days. These customer analytics are calculated based on the last 30 days, even if the system has been running for more than 30 days. MPact uses the last 30 days of data collection as the average.

- **Unique Visit** - A unique visit occurs when a client is seen for the first time at a location.

The tree is ranked by customer counts detected within a site.

To administrate site and system wide customer trending:

1. Select Insights under the Locationing main menu.

2. Select the top level System node from the tree on the left-hand side of the screen.

   **Insights** update every hour, based on the system clock (12:00, 1:00, 2:00, 3:00, 4:00 etc.).
The top row displays four summaries listing customer data collected from all sites within the MPact managed system. The left panel displays a summary listing customer data collected for a specific date range. Use the calendar icons to define the date range.

3. Refer to the following summary information:

<table>
<thead>
<tr>
<th>Today's Customers</th>
<th>Lists the customer count (both unique and repeat) across all sites for the current day. A percentage of change (arrow) displays the increase (green arrow) or decrease (red arrow) in customers visiting sites from the previous day. Percentage: ((\text{Total count of customers across all sites for the current day} - \text{Total customer count across all sites for the previous day}) / \text{Total customers across all sites for the previous day})\times 100.|</th>
</tr>
</thead>
<tbody>
<tr>
<td>Today's New Customers</td>
<td>Lists the total new customer count across all sites for the current day. A percentage (arrow) displays the increase or decrease in new customers visiting the sites from the previous day. Percentage: ((\text{Total new customers across all sites for the current day} - \text{Total count of new customers across all sites for the previous day}) / \text{Total count of new customers across all sites for the previous day})\times 100.|</td>
</tr>
<tr>
<td>Avg. Customers / Day</td>
<td>Displays the average number of customers visiting sites over the last 30 days. A percentage displays the increase or decrease in customer activity. Use this information to assess whether customer activity is trending upward or downward in respect to changes to product activity and new beacon placements. ((\text{Total customers across all sites for past X days}) / (X \text{ days})). X is number of days and is &lt;=30.|</td>
</tr>
</tbody>
</table>
2.1.1 Selected Sites

Use the Selected Sites table to display trending information for sites within the system. This information can be filtered and displayed within a graph.

1. Scroll to the Selected Sites table to review trending data for MPact sites.
2. Use the drop-down menus for each column to filter data in ascending or descending order. Additionally, use the check boxes to select which columns to display, including Rank, Total Customer, Site Name or by Change.
3. Scroll to the Selected Sites table.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Average Engagement</th>
<th>Site Name</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4 hr 35 min 18 sec</td>
<td>LowesUS1_2</td>
<td>0 (0 Sec)</td>
</tr>
<tr>
<td>2</td>
<td>4 hr 35 min 10 sec</td>
<td>LowesUS1_3</td>
<td>0 (0 Sec)</td>
</tr>
<tr>
<td>3</td>
<td>2 hr 51 min 12 sec</td>
<td>LowesUS1_1</td>
<td>0 (0 Sec)</td>
</tr>
<tr>
<td>4</td>
<td>2 hr 1 min 59 sec</td>
<td>MacyUK1_14</td>
<td>0 (0 Sec)</td>
</tr>
<tr>
<td>5</td>
<td>1 hr 55 min 13 sec</td>
<td>MacyUK1_8</td>
<td>0 (0 Sec)</td>
</tr>
<tr>
<td>6</td>
<td>1 hr 54 min 9  sec</td>
<td>LowesUS1_4</td>
<td>0 (0 Sec)</td>
</tr>
</tbody>
</table>

*Figure 2-3 MPact Dashboard Insights - Selected Sites*

The Row Count on the right displays the site count, and further to the right the Display Filter icon lists site filtering options.

4. Select the Display Filter drop-down menu to view site filtering options.

The filter displays information for 1 Week or for 1 Month including filtering of the top fifteen or bottom ten sites. It also displays information by Customers or Engagement spent within a product category. Column selections vary depending on the Customer Visibility selection.

*Figure 2-4 MPact Dashboard Insights - Display Filter Options*
5. Refer to the following Display Filter options:

<table>
<thead>
<tr>
<th>View By</th>
<th>Use the drop-down menu to set incremental data for one week or one month.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show By</td>
<td>Use the arrows to select up to the top fifteen or the bottom ten ranked sites for display.</td>
</tr>
</tbody>
</table>
| Customer Visibility | Set Customer Visibility for either of the following:
  - Customers: Users occupying a site at a given time.
  - Engagement: Users occupying a site based on their engagement time. |

6. Use the drop-down menus to the right of each column to sort and filter the display columns. Options for columns are similar, based on previously selected Display Filter options. Select a column’s drop-down menu to sort data in an ascending or descending order and select display headings.

7. Review the following site data column options:

<table>
<thead>
<tr>
<th>Rank (Engagement)</th>
<th>Ranking is based on site (average engagement or total customers) or category on category values.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Engagement</td>
<td>Lists the average duration (in hours, minutes and seconds) customers have dwelled (remained) at each site for the selected filter time, either one week or one month.</td>
</tr>
<tr>
<td>Category</td>
<td>Lists the names of either the top 15 categories or bottom 10 categories where high/low levels of user traffic are detected and reported. Use this information to assess whether improved product categorization or adjustments in beacon placements would increase dwell times for poorly performing sites.</td>
</tr>
<tr>
<td>Change (Engagement)</td>
<td>Lists the numeric increase or decrease in customer or engagement activity for either the top 15 or bottom 10 sites listed for the selected filter time. The difference in customers/engagement is also listed numerically on the right, with a green or red arrow indicating the positive (green) or negative (red) direction the information is currently trending.</td>
</tr>
</tbody>
</table>

8. Select one or more sites in the table using the check boxes in the left-most column to display site trends.
Make changes to the graph using filtering options and site selections. To remove the graph, deselect the check boxes for the site.

### 2.1.2 Selected Category

Refer to the **Selected Category** table to review category characteristics based on filter selections, column sorting and trending data options.

To sort and filter table data:

1. Scroll to the **Selected Category** table.

![Figure 2-7 MPact Dashboard Insights - Selected Category Table](image-url)
2. Refer to the following site data:

<table>
<thead>
<tr>
<th><strong>Rank (Engagement)</strong></th>
<th>Lists each category or site's numeric rank, amongst the top 15 or bottom 10 categories or sites in respect to either Engagement (dwell time in minutes and seconds) or the number of Customers (users). Selections are made from the Display Filter drop-down menu.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Avg Engagement</strong></td>
<td>Lists the average duration (in hours, minutes and seconds) customers have dwelled (remained) at each category for the selected filter time, either one week or one month.</td>
</tr>
<tr>
<td><strong>Total Customers</strong></td>
<td>Lists the total customer count for a particular site for either the past week or month including the current day (includes unique and repeat customers). The default is 7 days.</td>
</tr>
<tr>
<td><strong>Category</strong></td>
<td>Lists the names of the top fifteen categories (or bottom ten categories) where high levels of user traffic are detected and reported. Use this information to assess whether improved product categorization, or adjustments in beacon placements, would increase dwell times for poorly performing sites.</td>
</tr>
<tr>
<td><strong>Change (Engagement)</strong></td>
<td>Lists the numeric increase or decrease in customer or engagement activity for either the top 15 or bottom 10 categories listed for the selected filter time. The difference in engagement/customers is also listed numerically on the right, with a green or red arrow indicating the positive (green) or negative (red) direction the information is currently trending.</td>
</tr>
</tbody>
</table>

The **Row Count** on the right displays the site count, and further to the right the **Display Filter** icon lists site filtering options.

3. Select one or more sites in the table, using the check boxes in the left-most column, to display a graph of trends.

![Figure 2-8 MPact Dashboard Insights - Selected Category Graph](image)

The graph in **Figure 2-8** shows the **Display Filter** settings for the selected sites and corresponding data in the table. Make changes to the graph using filtering options and site selections. Deselect the check boxes to remove the graph from the display.
2.1.3 Category Values

Use the **Category Values** table to review category value characteristics for the system.

To sort and filter table data:

1. Optionally scroll to the Category Values table and select category value characteristics based on filter selections, column sorting and trending data options.

![Figure 2-9 MPact Dashboard Insights - Category Values Table](image)

The graph in **Figure 2-10** shows **Category Values** for the **Electronics Category** drop-down selection.

![Figure 2-10 MPact Dashboard Insights - Category Values Graph](image)

2.1.4 Site and System Summary

Select a site level node from the tree to display customer and associate trends for the specific site.

- **Calendar** use the calendar to select the start and end days for site level trends:
  - **New Customers** - The total new customers for the selected period.
  - **Repeat Customers** - The total repeat customers for the selected period.
  - **Associates** - The total associates for the selected period (Store Employees).
  - **Engaged Customers** - The number of customers who entered a store and spend at least 10 minutes inside the store.
  - **Bounce Customer** - The number of customers who walked into a store, but spent very little time before exiting. Customers who spend between 3 minutes – 10 minutes are counted towards this category.
  - **Passing-by Customers** - The number of customers walking across a store. For example, if a store is located in a mall, there may be a large number of customers walking by without entering the store. Any customer observed for less than 3 minutes in a store are counted towards this category.
  - **Avg./Day (Average per day)** - The average number of new and repeat customers per day.
- **Peak at** - The date which the average number of new and repeat customers per day are at their peak.
- **Customer/Associate Ratio** - The customer to associate ratio. Ratio is calculated based on unique plus repeat for both customers and associates for the selected duration.
- **Peak at** - The date which the customer to associate ratio is at its peak for the selected period.
- **Total Customers** - The total number of customers for the selected period.
- **Avg./Day** - The average number of engaged customers per day. **Engaged Customers** represents the average number of customers who entered a store and spend at least 10 minutes inside the store.
- **Avg./Day Bounced** - The average number of bounced customers per day. **Bounce Customer** represents the average number of customers who walked into a store, but spent very little time before exiting. Customers who spend between 3 minutes – 10 minutes are counted towards this category.
- **Peak at** - The dates which the number of engaged and bounced customers are at their peak for the selected period.
- **Avg. Passing-by** - The average number per day of customers passing-by. **Passing-by Customers** represents the average number of customers walking across a store. For example, if a store is located in a mall, there may be a large number of customers walking by without entering the store. Any customer observed for less than 3 minutes in a store are counted towards this category.
- **Peak at** - The date which the number of passing by customers is at its peak for the selected period.

**NOTE:** Trends can be viewed for any period of time and each graph can be turned on or off.
1. Select the **Site Ranking** button in the upper-right corner to display the rank with respect to **Customers** and **Engagement** for all sites in the system.

**Site Rank by Customers** compares the total number of customers across sites and includes both new and repeat customers.

**Site Rank by Engagement** is based on average engagement times for a site and compares individual sites to all sites in the system. The ranking is based on the last week, showing whether the volume has increased or decreased.

---

![Site Ranking](image)
2.1.5 **Category Engagement**

Optionally scroll to the **Category Engagement** table and select category value characteristics based on filter selections, column sorting and trending data options.

- Click the circle chart to display its category value.
- Select boxes in the left-most column to display **Category Engagement** user trends over a week.

To display Category Engagement trends:

1. Select one or more check boxes in the left-most column to graphically display engagement trends over time.

![Figure 2-13 MPact Dashboard Insights - Site Category Engagement Trends](image1)

2. Use the **Display Filter** drop-down menu to refine the display as needed.

**Figure 2-14** shows the top three categories by **Customers** over a one week period, as selected using the **Display Filter**.

![Figure 2-14 MPact Dashboard Insights - Site Category Engagement Trends](image2)
2.1.6 Other Insight Features

The features mentioned in this section are available on many of the screens within MPact Server. The lists may differ, but the functions are the same.

**Tree Hierarchy** filtering is available by selecting the filter icon. Select check box items to filter and display list items in the hierarchy, which may include **country**, **country region**, **city**, **site**, and **floor**. Select the filter icon a second time to close the drop-down check box menu.

![Tree Hierarchy Filter](image)

*Figure 2-15 MPact - Filtering*

Select the **Bell** icon in the upper-right hand side of the main screen to enable and disable error notification pop-ups. When enabled, error notifications are visible for only a few moments within a popup dialog to the left of the bell.

![Error Notification Icon](image)

*Figure 2-16 MPact - Error Notification Icon*

Select the **Enlarge Screen** icon in the upper-right hand side of the main screen to enlarge the viewing area of the screen. Close the tree and headings, and enlarge the screen to encompass the area when selected. Select the X in the upper-right corner to display the original view of the screen.

![Enlarge Screen Icon](image)

*Figure 2-17 MPact - Enlarge Screen Icon*

Select the **Question Mark** icon to launch the MPact Server online help system.

![Question Mark Icon](image)

*Figure 2-18 MPact - Online Help Icon*

Select **Sign Out** from the **superuser** drop-down menu in the upper-right hand side of the main screen to sign out of MPact Server.

![Sign Out Icon](image)

*Figure 2-19 MPact - Sign Out Icon*
2.2 Dashboard Health

Dashboard Health displays the beacon’s remaining battery life, and the number of missing and mis-placed beacons for the entire MPact system or selected site (the health display is not available at the floor level). The system and site health views data at different levels of granularity. Dashboard Health analytic functions update every six hours.

**NOTE:** There is no battery reporting for the iBeacon format on the Health Dashboard. A blue pie chart displays for iBeacon format, however, no battery information displays.

To administrate MPact Dashboard Health tracking capabilities:
1. Select Health under the Locationing main menu.
2. Select the System node within the left-hand menu tree.

Dashboard Health information displays for sites with installed beacons. Sites with no beacons installed do not appear in the Batter Life by Sites table.

![MPact System Dashboard Health](figure)

**Figure 2-20** MPact System Dashboard Health

3. Refer to the top row to troubleshoot the following beacon information:

<table>
<thead>
<tr>
<th>Battery under 10%</th>
<th>Displays the total number of beacon batteries with less than 10% battery life remaining. Use this information to prioritize beacon replacements to ensure the system remains fully supported with optimally powered beacons.</th>
</tr>
</thead>
</table>

- **Battery Under 10%**
- **Misplaced Beacons**
- **Missing Beacons**

![Battery Under 10% Table](table)
4. Refer to the **Battery Life by Sites** table to review summary battery life information for sites with beacons installed, and assess whether specific sites warrant beacon replacements and administration.

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missing Beacons</td>
<td>Displays the total number of missing beacons in the MPact managed system. Missing beacons are beacons not heard for 48 hours. They might have been properly installed, scanned and placed on a site’s floor plan, but are unaccounted for when trending beacon data from that target’s site.</td>
</tr>
<tr>
<td>Misplaced Beacons</td>
<td><em>Installed Beacon IDs</em> must match the Planned Beacon ID. If there is a mis-match, the beacon is flagged as a Misplaced Beacon. When the Planned Beacon ID is specified, the system assumes that Installed Beacon is the correct one and does not raise a Misplaced flag for that beacon.</td>
</tr>
<tr>
<td>Total Beacons</td>
<td>Lists the total active beacon count for the listed sites comprising the MPact system.</td>
</tr>
<tr>
<td>Site Name</td>
<td>Lists the name of the site provided by the administrator when the site was provisioned with a floor plan and beacons were strategically placed, based on product categories.</td>
</tr>
<tr>
<td>0% - 10% Battery</td>
<td>Displays the number of beacons for each listed site with a battery life between 0% - 10% <em>Battery Left</em>. This beacon should be prioritized for immediate replacement. Each site may have been provisioned with beacons at different times, so this information is helpful to filter specific sites from the entire system that require battery replacements.</td>
</tr>
<tr>
<td>10% - 25% Battery</td>
<td>Displays the number of beacons for each listed site with battery life between 10% - 25% <em>Battery Left</em>. This beacon should be queued for replacement no later than one week. Each site may have been provisioned with beacons at a different time, so this information is helpful to schedule specific sites for battery replacements.</td>
</tr>
<tr>
<td>25% - 50% Battery</td>
<td>Displays the number of beacons for each listed site with battery life between 25% - 50% <em>Battery Left</em>. This beacon should be scheduled for replacement, but no immediate action is warranted.</td>
</tr>
<tr>
<td>50% - 75% Battery</td>
<td>Displays the number of beacons for each listed site with battery life between 50% - 75% <em>Battery Left</em>. This beacon should be considered a relatively new deployment with no battery replacement either prioritized or scheduled.</td>
</tr>
<tr>
<td>75% - 100% Battery</td>
<td>Displays the number of beacons for each listed site with battery life between 75% - 100% <em>Battery Left</em>. This beacon should be considered a new deployment with no battery replacement either prioritized or scheduled.</td>
</tr>
</tbody>
</table>
5. Use the drop-down menus for each table column to filter data in ascending or descending order. Determine which columns to display by selecting the appropriate check box for the level of battery life.

![Figure 2-21 MPact Dashboard Health - Battery Life by Site Column Sort Options](image)

**NOTE:** Each column has similar column sort options (ascending, descending, column headings) for all table columns within Dashboard Health.

6. Scroll to the Misplaced and Missing Beacons table to view the number of missing and misplaced beacons for selected sites.

![Figure 2-22 MPact Site Dashboard Health - Misplaced and Misplaced Beacons](image)

7. Refer to the following Missing and Misplaced Beacons table for more information:

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Site Name (Total Beacons)</th>
<th>Site Name</th>
<th>Site Name (Total Beacons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Name</td>
<td>Site Name</td>
<td>Site Name</td>
<td>Site Name</td>
</tr>
<tr>
<td>Site1</td>
<td>Site2</td>
<td>Site1</td>
<td>Site2</td>
</tr>
<tr>
<td>Site Name</td>
<td>Site Name</td>
<td>Site Name</td>
<td>Site Name</td>
</tr>
<tr>
<td>Site1</td>
<td>Site2</td>
<td>Site1</td>
<td>Site2</td>
</tr>
<tr>
<td>Site Name</td>
<td>Site Name</td>
<td>Site Name</td>
<td>Site Name</td>
</tr>
<tr>
<td>Site1</td>
<td>Site2</td>
<td>Site1</td>
<td>Site2</td>
</tr>
</tbody>
</table>

- **Site Name**
  Lists the name of the site provided by the administrator when the site was provisioned with a floor plan and beacons were strategically placed, based on product categories.

- **Missing Beacons**
  Displays the total number of missing beacons for the listed site. Missing beacons are beacons not heard from within a 48 hours. They might have been properly installed, scanned and placed on a site’s floor plan, but are unaccounted for when trending beacon data from that target’s site.

- **Misplaced Beacons**
  *Installed Beacon IDs* must match the Planned Beacon ID. If there is a mis-match, the beacon is flagged as a Misplaced Beacon. When the Planned Beacon ID is specified, the system assumes the Installed Beacon is the correct one and does not raise a Misplaced flag for that beacon.
2.2.1 Site Level Dashboard Health

Dashboard Health at the site level displays the percentage of remaining battery life for each beacon and estimates the number of days of remaining useful life.

To administrate MPact Dashboard Health tracking capabilities at the site level:

1. Select a Site node within the left-hand menu tree. Dashboard Health information displays collectively for the selected site.

![MPact Site Dashboard Health - Site Health](image)

2. Refer to the Battery Life table to assess individual beacon health in respect to remaining days of operation.

<table>
<thead>
<tr>
<th>Beacon Name</th>
<th>Lists each beacon’s numeric ID assigned uniquely upon its installation using the iPad resident Toolbox application.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position Name</td>
<td>Lists the position description (time stamped number) assigned when configuring the placeholder in active view.</td>
</tr>
<tr>
<td>Battery Left</td>
<td>Displays a percentage representing the listed beacon’s remaining battery life. Use this information in combination with the Days Remaining value to prioritize beacon replacements.</td>
</tr>
<tr>
<td>Days Remaining</td>
<td>Lists each beacon’s projected useful operation, based on the beacon battery’s consumption to date. Use this information to help prioritize the selected site’s beacon replacements.</td>
</tr>
</tbody>
</table>
3. Scroll to the **Missing Beacons** table to assess deployed beacon health for a site.

![Figure 2-24 MPact Site Dashboard Health - Missing Beacons](image)

4. Refer to the following **Missing Beacons** field to assess the attributes of incorrectly installed beacons:

<table>
<thead>
<tr>
<th>Beacon Name</th>
<th>Lists each beacon's numeric ID assigned uniquely upon installation using the iPad resident Toolbox application.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Seen</td>
<td>Displays a timestamp when each missing beacon was last detected by the MPact Server.</td>
</tr>
<tr>
<td>Position Name</td>
<td>Lists the position description (time stamped number) assigned when configuring the placeholder in active view.</td>
</tr>
</tbody>
</table>
| Battery Status | Displays a percentage representing the missing beacon's remaining battery life. Use this information to assess whether the site's missing beacons are at risk of going offline completely. Battery life is represented by the following colors:  
  • **Green**: Indicates there is between 40% ≤ 100% remaining beacon battery life.  
  • **Yellow**: Indicates there is between 20% ≤ 40% remaining beacon battery life.  
  • **Red**: Indicates there is between 0% ≤ 20% remaining beacon battery life. |

5. Scroll to the **Misinstalled Beacons** table to assess whether there are deployed unaccounted for beacons when viewing the site. A Misinstalled Beacon is one in which there is a discrepancy exist between the Planned Beacon and the Installed Beacon.

A Beacon is considered mis-installed if the following is true:
- Planned Beacon ID is empty
- Planned Beacon ID does not match Installed Beacon ID

![Figure 2-25 MPact Site Dashboard Health - Misinstalled Beacons](image)

6. Refer to the following **Misinstalled Beacons** field to review incorrectly installed beacons:

<table>
<thead>
<tr>
<th>Position Name</th>
<th>Lists the position description (time stamped number) assigned when configuring the placeholder in active view.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned Beacon</td>
<td>Contains the Planned Beacon ID.</td>
</tr>
</tbody>
</table>
Upon selecting the **Reconcile** icon, the **Planned Beacon ID** becomes equal to the **Installed Beacon ID** and the misplaced beacon is found.

<table>
<thead>
<tr>
<th><strong>Installed Beacon</strong></th>
<th>Contains the Installed Beacon ID deployed at the Position.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reconcile</strong></td>
<td>Shows an actionable icon when the Planned and Installed Beacon IDs do not match. When a user clicks on the button, it automatically converts the Planned Beacon ID to an Installed Beacon ID. Thus removing the dependency of mis-installed beacon.</td>
</tr>
</tbody>
</table>

Upon selecting the **Reconcile** icon, the **Planned Beacon ID** becomes equal to the **Installed Beacon ID** and the misplaced beacon is found.

![Figure 2-26 MPact Site Dashboard Health - Beacon Reconciliation](image)

## 2.3 MPact Mobile App Location & Analytics Dashboard

The MPact Location & Analytics Dashboard uses analytical data collected from, and reported at, varying intervals of the MPact Server. The following are the data types collected from the MPact Server to determine the effectiveness of product placement, customer engagement and mobile marketing efforts.

- **Server Analytics**: Today’s customers entering the store percentage (customers who have been in the store before), today’s new customers entering the store per day (customers who have not been in the store in the last month), average customers in the store per day, average customer in-store engagement per day up to 30 days, average time customers are engaged in the last 30 days, and bar graphs showing the number of customers weekly and monthly.

- **Site Trends and Ranking**: Site names, site ranking, number of customers per site, engagement time per site, change in number of customers and engagement time per site weekly and monthly, and graphs of the number of customers per week or month color coded by site.

The analytics display resembles existing Dashboard Insight pages, though analytics provides performance information at a far more granular level. The analytics user interface populates information within a data store, with multiple displays partitioned by performance function. The data store is a customizable display managed with just the content the administrator wants viewed. The data store is purged after 90 days if no administration is conducted sooner.

### 2.3.1 MPact Dashboard Installation and Configuration

Search for the MPact Location & Analytics Dashboard in Google Play or the Apple Store and install it on your iOS or Android device. To configure the app:

1. From the login screen select the cog icon to display the Server Option screen.
2. Enter the Server IP address of the MPact Server.
3. Enter an IP Port or leave the default port setting and toggle the on/off switch to choose whether to connect using HTTP or HTTPS.
4. To return to the login screen, select the **Set Server** check box and select **Set Server** on right-hand side of the **Server Option** screen as shown in the following figure:

![MPact App Configuration screen](image1)

**Figure 2-27** MPact App Configuration screen

5. Enter the username and password of the MPact Server to login. The Server Analytic screen displays.

![Dashboard Login](image2)

**Figure 2-28** Dashboard Login
2.3.2 Server Analytics

View Server Analytics by week or month by selecting the menu icon at the top-left corner of the app screen. The following information displays in four quadrants, with a graph at the bottom portion of the screen:

- **Today's Customers** - Both the number of customer for today and the % change compared to previous day's customer (the percentage change is an increase/decrease green or red, depending on whether the percentage value has increased or decreased).

- **Today's New Customer** - Both the number of new customers and the percentage change in the number compared to previous day’s customers.

- **Average Customers/Day** - The average number of customers in the store per day within the last 30 days.

- **Average Engagement/Day** - The average engagement times for a site within the last 30 days.

- **Engaged Customers** graph represents the numbers of customers who entered a store and spent at least 10 minutes inside the store.

- **Passing-by Customers** graph represents the number of customers walking across a store. For example, if a store is located in a mall, there may be a large number of customers walking by without entering the store. Any customer observed for less than 3 minutes in a store are counted towards this category.

- **Bounce Customer** graph represents the numbers of customers who walked into a store, but spent very little time before exiting. Customers who spend between 3 minutes – 10 minutes are counted towards this category.

- **Graphs** - Green represents the number of repeat customers and orange represent new customers. View by week or by month by selecting the menu icon at the top-left corner of the Dashboard screen.
2.3.3 Mobile App System and Site Summary

- Select a site level node from the tree to display customer and associate trends for the specific site.
- Calendar use the calendar to select the start and end days for site level trends:
- New Customers - The total new customers for the selected period.
- Repeat Customers - The total repeat customers for the selected period.
- Associates - The total associates for the selected period (Store Employees).
- Engaged Customers - The number of customers who entered a store and spend at least 10 minutes inside the store.
- Bounce Customer - The number of customers who walked into a store, but spent very little time before exiting. Customers who spend between 3 minutes – 10 minutes are counted towards this category.
- Passing-by Customers - The number of customers walking across a store. For example, if a store is located in a mall, there may be a large number of customers walking by without entering the store. Any customer observed for less than 3 minutes in a store are counted towards this category.
- Avg./Day (Average per day) - The average number of new and repeat customers per day.
- Peak at - The date which the average number of new and repeat customers per day are at their peak.
- Customer/Associate Ratio - The customer to associate ratio. Ratio is calculated based on unique plus repeat for both customers and associates for the selected duration.
- Peak at - The date which the customer to associate ratio is at its peak for the selected period.
- Total Customers - The total number of customers for the selected period.
- Avg./Day - The average number of engaged customers per day. Engaged Customers represents the average number of customers who entered a store and spend at least 10 minutes inside the store.
- Avg./Day Bounced - The average number of bounced customers per day. Bounce Customer represents the average number of customers who walked into a store, but spent very little time before exiting. Customers who spend between 3 minutes – 10 minutes are counted towards this category.
- Peak at - The dates which the number of engaged and bounced customers are at their peak for the selected period.
- Avg. Passing-by - The average number per day of customers passing-by. Passing-by Customers represents the average number of customers walking across a store. For example, if a store is located in a mall, there may be a large number of customers walking by without entering the store. Any customer observed for less than 3 minutes in a store are counted towards this category.
- Peak at - The date which the number of passing by customers is at its peak for the selected period.

2.3.4 Logout and Version Information

To logout or view version information, tap the menu icon at the top left corner of the app screen. Tap the Sign Out icon in the right-hand corner of the menu to logout.
System

Casino
HardwareEngineering
Home Improvement
Hospital
Large Hotels
Mall
Restaurant Chains
CA-107

Version 2.0.0

Figure 2-30: MPact Dashboard Logout
2.4 Active View

The MPact Active View provides a single location where administrators can navigate to beacon deployments, view status in a customized way, view beacons and users on a floor plan and launch management tools. The MPact framework is hierarchical and distributed, with potentially thousands of beacons and users accessible from a single management point.

The Active View is a real-time visualization tool for tracking clients on a floor plan and beacons reporting their whereabouts. The display can be toggled on and off (so only clients, beacons or both display). An Active View can be displayed for the entire MPact system, a selected site or a floor plan.

To administrate the MPact Active View:

1. Select Active View under the Locationing main menu item.

![Figure 2-31 MPact Dashboard - Active View](image)

Active View displays a global map (at the system level) depicting the MPact system’s geographic site deployment. Use the feature to navigate to a site deployment location of interest. Unplaced Sites display within a sub-screen at the top left of the geographic map. Unplaced sites can be selected and dragged from the screen and placed at their appropriate deployment locations within the system or site levels.

![Figure 2-32 MPact Active View - Geographic Map](image)
2. Use the zoom feature to increase (+) or decrease (-) the size of the GPS map, or use the arrows (within the circle) to move right, left, up or down to a site deployment location. When a site is selected, a hand displays within the zoom circle to display the initial default setting.

![Figure 2-33 MPact Dashboard - Zoom Navigation](image)

In addition to the zoom feature, the mouse can also navigate by left-clicking on a GPS map area and dragging the map up, down, right, and left. The roller on the mouse can be used to zoom in and out of the map from any level of the hierarchy. The zoom feature automatically zooms in on locations as selections are made from the hierarchy system level, to the county, city, and site levels.

3. Use the **Tree Hierarchy** to expand the **System** nodes and navigate to a site deployment location. **Unplaced Sites** display within a sub-screen at the top left of the display at both the system and site levels (not within a floor level). Unplaced sites can be dragged to their appropriate location on the GPS map. While site placement on a map is optional, placing a site serves as a visual tool for the administrator.

Cursor over a site to display summary location information about the site.

![Figure 2-34 MPact Active View - Tree Hierarchy and Site Placement](image)

4. Select the **Views** drop-down menu at the site level to hide or show GPS map view, 3D stack view, and floor views for the selected site.
When an individual floor plan is selected, its corresponding location displays in the tree on the left-hand side of the screen. However, selecting the 3D view from the tray displays the site level on the tree.

3D stack view is available for sites having more than one floor plan. Use the cursor to drag the 3D stack in a circle, up or down, right or left to view the floors from any angle.

**NOTE:** 3D stack view is not supported in Internet Explorer.
5. Expand the **Tree Hierarchy** and select an existing floor deployment.

![MPact Active View - Floor View with Deployed Beacons](image)

**Figure 2-36 MPact Active View - Floor View with Deployed Beacons**

Figure 2-36 shows beacons in various deployment stages. Beacon placements can be visually assessed and modified as required.

6. Refer to the following for beacon position assessment:

<table>
<thead>
<tr>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🔄️</td>
<td><em>Empty</em> – Represents a position with no beacon installed.</td>
</tr>
<tr>
<td>❁️</td>
<td><em>Gray</em> – Represents a position with a beacon installed that is inactive.</td>
</tr>
<tr>
<td>🔥️</td>
<td><em>Green</em> – Indicates there is between 40% ≤ 100% remaining beacon battery life.</td>
</tr>
<tr>
<td>🟢</td>
<td><em>Yellow</em> – Indicates there is between 20% ≤ 40% remaining beacon battery life.</td>
</tr>
<tr>
<td>🔴</td>
<td><em>Red</em> – Indicates there is between 0% ≤ 20% remaining beacon battery life.</td>
</tr>
</tbody>
</table>
7. Other information at the bottom of the screen includes:
   - **Total Users** displays the total number of users currently on the floor.
   - **Total Beacons** displays the total number of beacons currently in the floor.
   - **Location** defines whether floor measurements are displayed in meters or feet.

### 2.5 Floor Plan Upload

After the tree setup is built down to the site floor level, load a *Floor Plan* image to the site’s *Floor*. A site can have multiple floors and floor plans. Optimally, a floor plan should be an accurate representation of the retail floor layout, which includes broad category labeling for items in the area. For example, a grocery store would have labels such as dairy, meats, vegetables etc.

Floor plan dimensions:
- **Minimum floor plan dimension** = 45,000 square feet
- **Maximum floor plan dimension** = 200,000 square feet

Floor plan images have the following constraints:
- **Format**: JPEG/JPG/PNG
- **Maximum resolution**: 10,000 x 10,000 pixels ~ 20MB

**NOTE:** An MPact floor plan origin is top-left on the screen, whereas an ADSP origin is bottom-left. If ADSP has only DWG (Auto Cad) files, then the corresponding floor plan does not show up in MPact; ADSP does not provide a corresponding a bit map image.

To upload a floor plan:
1. Select **Active View** under the Locationing main menu item.
2. From the **Tree Preview** area, open the tree hierarchy down to the floor level.
3. Select **Edit Mode**.

![Image of MPact Server UI Edit Floor Plan](image1)

*Figure 2-37 MPact Server UI Edit Floor Plan*

4. Select the **Edit Floor Plan** button to browse and select a floor plan. In some cases, users may not want to upload a floor plan and can choose to use the default floor plan shown in **Figure 2-38**.

5. Select **Replace Floor Plan**.

![Image of MPact Server UI Active View - Default Floor Plan](image2)

*Figure 2-38 MPact Server UI Active View - Default Floor Plan*

6. Select the upload button to browse and select a floor plan.

7. Select **Open** to upload the file.
8. Crop the image to the required coverage area or Select **Skip this step**.

9. Set the scale for your building. Click on the floor plan to start a measuring line, then click again to set the line.

10. Set the physical size of the area the floor plan represents:
    - **Unit**: Select either Meters or Feet.
    - **Auto Fit Positions**.

11. Select **Finish** to commit the updates or **Reset Scale** to revert to the last saved configuration.
2.6 Users

Use the Users button to display current users populating a selected site's floor, as seen in Figure 2-40 in blue and pink. View either BLE or Wi-Fi type user movements on the floor over a 24 hour period to see which product areas are most frequented and for how long.

![Figure 2-40 MPact Active View - Users](image)

To view user movement information:

1. Select the Users button.
2. Select whether BLE or WiFi (or both) (Live or Forensic) users display within the floor and the Start Date/Time and End Date/Time if Forensic is chosen.

![Figure 2-41 MPact Active View - User Selection](image)

Bluetooth clients (selected by default) display in yellow, and WiFi clients display in green. No addition color options are available for clients. Select both options to assess the number of different client types propagating a floor in Active View.
3. Cursor over a user on the floor to display the user’s name associated with the mobile device.

4. Refer to the **Visuals** setting to refine when clients are removed from a floor plan when they stop sending updates.

![Figure 2-42 MPact Active View - User Time Out Setting](image)

Set a time out time from 5 seconds to 10 minutes. When the time out period is exceeded, those clients that have not sent updates since the set time out interval display their client ID and position momentarily, then are removed from the floor map. Set User Icon and Device Icon size by pixel value.
2.6.1 Positions

Use Positions to secure a beacon’s physical location on a site floor plan. Positions contains the beacon’s X-axis and Y-axis coordinates, the beacon’s direction and antenna pattern, and product categories and category values assignment, which is included in Dashboard analytics. Product Categories and Category Values are assigned to a beacon’s position, which allows Subscribers to receive Notifications. For more information, see Notifications.

When placing beacon positions on the floor plan, ensure the beacon’s position is located with respect to the selected product category. For example, beacon positions can be strategically placed on end caps, aisle entrances, and at seasonal promotional displays.

To place and configure a position on a floor plan:

1. Select Active View under the Locationing main menu item.

2. Select a deployment floor plan from the Tree Hierarchy.

3. Select the Edit Mode button on the far-right of the toolbar to expand toolbar options.
4. Use the **Select** and **Add** drop-down menu options for the following:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Select Beacon Positions</strong></td>
<td>Select an existing beacon position on a site's floor plan to edit its properties or position.</td>
</tr>
<tr>
<td><strong>Select Device Position</strong></td>
<td>Select an existing device position on a site's floor plan to edit its properties or position.</td>
</tr>
<tr>
<td><strong>Select Floor Regions</strong></td>
<td>Select an existing floor region (enclosed boundary) on a site's floor plan to edit its properties or position.</td>
</tr>
<tr>
<td><strong>Add Position</strong></td>
<td>Adds a new position on a site's floor plan.</td>
</tr>
<tr>
<td><strong>Add Region</strong></td>
<td>Adds a new region on a site's floor plan.</td>
</tr>
</tbody>
</table>

5. Select **Add Position** from the drop-down menu.

6. Double-click on the beacon's intended position on the floor plan.
The **Add Position** dialog box displays auto-populated with the position’s **X-axis** and **Y-axis** coordinates on the floor plan.

![Add Position: System > Testing > Floor](image)

**Figure 2-46 MPact Server Active View - Position Configuration**

7. Refer to the following configuration options for adding a position:

<table>
<thead>
<tr>
<th>Position Name</th>
<th>Generates a time stamp when a name is unassigned. The position name displays for battery life, missing beacons and misinstalled beacons within Dashboard Health.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position Description</td>
<td>Provide a 30 character maximum description for the beacon's physical deployment location.</td>
</tr>
</tbody>
</table>
| Position Location (meters)     | Auto-populated X and Y axis coordinates are relative (zero) to the upper left-hand corner of the floor plan and increase to the right (X) and down (Y) from the left-hand corner of the floor plan.  
  The position location was auto-populated earlier by double-clicking on the location within the floor plan. Additionally, feet or meters display depending on what was selected when the floor plan was uploaded. |
| Use Hex for Major/Minor        | Use Hexadecimal values for Major/Minor values.                                                                                   |
| Use Decimal for Major/Minor    | Use Decimal values for Major/Minor values.                                                                                       |
### Enable Notification
Enable this feature to support regional notifications (targeted coupons and pop-up displays) for clients (not the MPact Server). Notifications can now be sent based on UUID, as well as the Major and Minor fields of the beacon frame (in both iBeacon and MPact modes). This helps create notifications based on the various zones within a site for an improved user experience. The maximum number of region notifications supported is 20, including the UUID, otherwise the maximum is 19 for both Android and iOS.

With iBeacon mode, both Major and Minor are supported for regional notifications. With MPact mode, only Major is supported for regional notifications. In Battery Save and SecureCast modes, no regional notifications are supported.

### Beacon Configuration
A site ID must be heard by a client to send updates to the MPact Server. For iBeacon and MPact mode installations, set the Major and Minor beacon configuration to 0 for the client to use its MAC address in its advertisement message to the MPact Server. The values of major 0 and minor 0 are not valid region notifications. Those values have been reserved for instructing the firmware to broadcast using a default MAC address. A region notification is tied to the major and minor values set in the database and does not apply to site ID beacons.

- **Major**: Set from 0 - 65535. A Major component for device class and a Minor component for more refined information like product category. The Major field is for identifying the device class. For example, the Major value could be the same for each device on the first floor or a particular site. The default value for the Major field is the second to the last and third to the last byte of the MAC address.

- **Minor**: Set from 0 - 65535. In both the iBeacon and MPact modes, the Minor field is for more refined information, like product category. The Minor field consists of two bytes and the last byte of the MAC address is its default value. The second byte for MPAct mode is for battery life and for iBeacon mode it is ff. In MPact mode however, region notifications are not supported for the minor value.

### Position Categories
Select **Add Category** to assign a **Category** to the position (left drop-down menu displays) and select **Category Values** (right drop-down menu displays) appropriate for the beacon’s position on the site floor.

These selections send notifications, coupons or product information to the shopper’s mobile client when the customer is browsing in the site.

### Advanced Beacon Settings
Advanced beacon settings are not functional in nature, they change nothing on the beacon itself. They serve only as a visual aid within Active View.

- **Antenna Pattern**: Use this drop-down option to determine how the Heat Map displays for a beacon. The Heat Map displays in either 180 or 360 degree orientations for a semi-ellipse or circle shape.

- **Planned Beacon**: Use this option for deployment scenarios where users want to install specific Beacon IDs at specific locations. In such scenarios, this Planned Beacon ID is compared to the actual Installed Beacon ID. If there is a mis-match, it is highlighted under the Analytics section.

- **Degrees**: Controls how Heat Maps are displayed for a beacon. The option is applicable only for the semi-circle antenna pattern. The default, 0 degrees, displays the Heat Map toward the east, 90 degrees toward the south, etc. Based on the value set, the orientation of the Heat Map changes accordingly.

- **Beacon Offset**: Determines how far from a beacon the user icon displays.
8. Select **Save** to commit the updates, **Reset** to revert to the last saved configuration or **Cancel** to close and exit the screen.

   The newly created **Position** displays as an empty circle on the floor plan, indicating no beacon is currently assigned to the position.

9. Cursor over the **Position** to display the state of the position's information.

![Figure 2-47 MPact Server Active View - Add Position](image)

**NOTE:** Ensure position categories are appropriately assigned for the location.

10. Repeat this process to add more beacon positions, or copy one or more positions for mass distribution.

### 2.6.1.1 Position Modification

For larger deployments, positions can be copied and pasted repeatedly until there are enough positions to cover the deployment floor. When a position is copied and pasted, the pasted position has the minimum configuration and must be modified as required to reflect the correct configuration for its new location and category.

Select the **Edit Mode** button on the far-right of the toolbar to expand toolbar options. Activating **Select Beacon Positions** from the drop-down adds to the choices available on the toolbar.

![Figure 2-48 MPact Server Active View - Position Edit Mode](image)

The following options are available on the toolbar (from left to right):

- **Copy Positions**: Copies one or more highlighted positions.
- **Paste Positions**: Pastes one or more highlighted positions.
- **Beacon Align Tool**: Adjusts the direction in which the beacon displays in *Heat Maps*, from 0-360 degrees.
- **Edit Beacon Positions**: Edits the configuration of one or more positions.
• **Move Beacon Positions**: Moves one or more positions.
• **Delete Beacon**: Deletes a single installed beacon. Not applicable for multiple installed beacons
• **Delete Beacon Positions**: Deletes installed beacon(s) on one or more positions.

### 2.6.1.2 Copy and Paste Beacon Positions

Use copy and paste to create multiple beacon positions for large deployments. When a position is copied and pasted, the newly pasted position contains the same beacon specific information, and might require editing after the position is determined.

To copy a position:  
1. Select **Active View** under the Locationing main menu item.  
2. Select a deployment floor plan from the **Tree Hierarchy**.  
3. Select a floor plan with one or more positions to copy, or create a new position.  
4. Select the **Edit Mode** button on the far-right of the toolbar to expand toolbar options.

5. Choose **Select Beacon Positions** from the drop-down menu to select one or more positions.

6. Drag the cursor over one or more positions to highlight the positions.

7. From the expanded toolbar, select the **Copy** icon, then, select the **Paste** icon immediately to the right.
8. Select the **Move** icon to move the newly pasted position to its new location and category. Continue copying and pasting multiple icons until there are enough to cover the floor.

### 2.6.1.3 Move Beacon Positions

To move beacon positions:

1. Select the **Edit Mode** button from the toolbar to expand toolbar options.
2. Choose **Select Beacon Positions** from the drop-down menu.
3. Drag the cursor over one or more positions to highlight the positions.
4. From the expanded toolbar, select the **Move Beacon Positions** icon, then, drag the position to its new location.

### 2.6.1.4 Edit Beacon Positions

Edit beacon positions anytime as floor configurations or products change.

To edit a beacon position:

1. Select the **Edit Mode** button from the toolbar to expand toolbar options.
2. Choose **Select Beacon Positions** from the drop-down menu.
3. Drag the cursor over a position to highlight the position.
4. From the expanded toolbar, select the **Edit Beacon Positions** icon.
5. Edit the position parameters as required.
6. Select **Save** to commit the updates, **Reset** to revert to the last saved configuration or **Cancel** to close and exit the screen.
2.6.1.5 Delete Beacon Positions

To delete beacon positions and the installed beacon on the beacon position:

1. Select the **Edit Mode** button from the toolbar to expand toolbar options.
2. Choose **Select Beacon Positions** from the drop-down menu.
3. Drag the cursor over one or more positions to highlight the positions to delete.
4. From the expanded toolbar, select the **Delete Beacon Positions** icon.

![Figure 2-55 MPact Server Active View - Delete Beacon Positions](image)

The **Delete Beacon Position Group** dialog box displays.

![Figure 2-56 MPact Server Active View - Delete Beacon Position Group](image)

5. Perform either of the following as needed:
   - **Delete selected beacons**
   - **Delete selected beacons and beacon positions**
6. Select **Yes** to complete the deletion.

2.6.2 Heat Map

A **Heat Map** collects data over the past 24 hour period and refreshes every hour. It displays areas of heat (total number of customer visits) where user traffic is at its heaviest for adjacent beacons. Use the **Heat Map** for visualizing beacon coverage and reflecting beacon deployment. Administrators can view a graphical representation of how a floor's beacons are visited, and how customers linger in specific locations.

The beacon's emission direction is set from the **Position** dialog box at the time the floor plan is installed. For more information, see **Position Modification**.
The following settings are available by selecting the **Heat Map** drop-down menu:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLE/WiFi</strong></td>
<td>Select BLE or WiFi users or both to choose whether customers' visits are tracked using BLE or WiFi or both.</td>
</tr>
<tr>
<td><strong>Select Profile</strong></td>
<td>Select Profile from the following: Assets, Associates, BLE Users, Customers, WiFi Users.</td>
</tr>
<tr>
<td><strong>Live/Forensic</strong></td>
<td>Select the duration to view heatmaps in real-time (Live) or over a defined time period (Forensic). For example, administrators can define the time period from any time in the past to the present day. This enables administrators to assess trends, advertisements, and product placements in specific areas of the retail floor for a particular time period.</td>
</tr>
<tr>
<td><strong>Total Visits</strong></td>
<td>Displays heat (increasingly darker colors) in respect to cumulative beacon visits. If a particular product category is poorly visited amongst well visited products, it is most likely in need of placement in a new floor area adjacent to similar product categories.</td>
</tr>
<tr>
<td><strong>Total Unique Visits</strong></td>
<td>Displays heat based on the number of individual visits to beacon locations. This value does not factor in repeat visits. Thus, it can be compared to Total Visits to better assess how product categories and their beacon locations are remembered by a floor's customer traffic.</td>
</tr>
<tr>
<td><strong>Total Dwell Time</strong></td>
<td>Displays heat based on the duration customers linger (dwell) near specific beacon locations. The darker the color, the longer customers are lingering near a beacon's location. This enables administrators to assess the effectiveness of advertisements and product placements in specific areas of the retail floor.</td>
</tr>
</tbody>
</table>
Cursor over any beacon’s heat map to display summary information on that position.

2.6.2.1 Align Beacon Position Heat Map Display

Use the Beacon Align Tool to position how a beacon displays on a Heat Map. The alignment does not affect beacon emissions, and is only a visual representation of a Heat Map’s display. Settings display, based on the X-axis and moving clockwise, can be set at any degree (0-360) moving clockwise.

**NOTE:** Changing the beacon alignment in Active View alters the Toolbox display of the blue dot (the installer) once the beacon is installed using the Toolbox.

To align a beacon’s Heat Map display:

1. Determine the direction of the heat display.
   
   The following Heat Map image displays beacons at 180 degrees, and requires change to the direction where customers dwell in the aisle, in this case, at 90 degrees.

   ![Figure 2-59 MPact Server Active View - Beacon Alignment at 180 Degrees](image)

2. Select the Edit Mode button from the toolbar to expand toolbar options.

3. Choose Select Beacon Positions from the drop-down menu.

4. Drag the cursor a position to highlight the position.

5. From the expanded toolbar, select the Beacon Align Tool icon.
6. When the alignment tool displays, drag the adjustment from 180 to 90 degrees to refine the direction where customers dwell, toward the center of the aisle.

![Figure 2-61 MPact Server Active View - Align Beacon Tool Display](image)

7. Select the **Edit Mode** button, then, **Heat Map**, to display the intended dwell area.

The following **Heat Map** image displays the beacon in front of the **Cell Phone** area at 90 degrees, toward the area where customers dwell.

![Figure 2-62 MPact Server Active View - Beacon Alignment at 80 Degrees](image)

8. Make changes to the rest of the beacons as required.
2.6.3 Regions

Use Regions to send notifications based on activities within a defined boundary on a floor plan. A Region is a free form boundary and can be spread over a large area and fixed on the floor plan. Regions apply to beacons and WIFI access points. Associate regions with categories and category values to send notification and data for dashboard analytics. When activated, Notifications are sent to a Web server based on the regions configured. Regions can be configured to send notifications when a user enters or dwells in a region. For more information, see Notifications.

Regions are not a required setting, and can be added to a floor plan anytime. They cannot be copied and pasted.

To add a region to a floor plan:

1. Select Active View under the Locationing main menu.
2. Select a site floor from the Tree Hierarchy on the left side of the screen.
3. Select the Edit Mode button from the top right-hand side of the tool bar.
4. Select Add Floor Region from the drop-down menu.
5. Place the cursor on the floor plan and click each boundary corner to select an outline of the floor region, until the boundary is closed at the starting point.

For example, five clicks draws a rectangular region. However, the boundary can be most any shape.

![Figure 2-65 MPact Server Active View - Add Floor Region Boundary](image)

When the boundary is closed, the Add Floor Region dialog box displays. Add information as required, including category and category values, for sending notifications for promotional items.

![Figure 2-66 MPact Server Active View - Add Floor Region Dialog Box](image)

6. Refer to the following region configuration options:

<table>
<thead>
<tr>
<th>Region Name</th>
<th>Optionally provide a 30 character maximum region name. If no name is assigned, it will not display on tool-tip summaries for region identification.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region Description</td>
<td>Enter a 30 character maximum description to further differentiate this region from others with similar attributes.</td>
</tr>
<tr>
<td>Position Categories</td>
<td>Select Add Category to assign a category to a position. Select Category Values (from the drop-down menu) for the region on the site floor. These selections are required for notifications, coupons or product information sent to a shopper's mobile client when browsing the site.</td>
</tr>
</tbody>
</table>
7. Review the newly created region.

![Figure 2-67](image1)

**Figure 2-67** MPact Server Active View - Floor Region Expected Results

When the cursor is placed over the region, a popup displays supporting information.

![Figure 2-68](image2)

**Figure 2-68** MPact Server Active View - Floor Region Tool-Tip Summary

8. Turn displayed regions on and off by selecting and deselecting the **Regions** button.

9. Select from the following as required:
   - **Delete**: Choose **Select Floor Regions** from the drop-down menu, then select the **Delete Region Position** button to remove the region from the floor plan.
   - **Move**: Choose **Select Floor Regions** from the drop-down menu, then select the **Move Region Position** button to drag and release the region on the floor plan.
   - **Edit**: Choose **Select Floor Regions** from the drop-down menu, then select the **Edit Region Position** button to change the boundaries of the floor plan region.

<table>
<thead>
<tr>
<th>Region Vertices (meters or feet)</th>
<th>Vertices (plural for vertex) are a special point describing the corners (or intersections) of geometric shapes. They can display in either meters or feet as region coordinates.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region Color</td>
<td>Assign a color to the region to differentiate it from other regions.</td>
</tr>
</tbody>
</table>
2.6.4 Edit Mode

The floor level displays a collection of toolbar buttons, from left to right, for Users, Positions, Heat Map, Regions and Edit Mode. These items to display deployed items within a selected floor. Select or deselect each button to turn features on and off.

The Edit Mode button on the far right-hand side of the toolbar allows the administrator to make changes to a number of items, including the floor plan, positions, beacons, devices and regions.

When the Edit Mode button is selected at the floor plan level, the following edit options become available:

- **Edit Floor Plan**: Replaces an existing floor plan.
  
  Using an existing floor map (with or without a beacon position), the feature is used to replace an existing floor plan, edit the boundary of an existing floor plan (by cropping the floor map) and update the coordinates (X, Y) of the floor plan by drawing a line on top of any known object (width or length in meter/feet).

- **Color**: Provides color to a region.

- **Select and Add**: Selects beacon positions, device positions, and floor regions. Also use to add floor regions on a floor plan or add beacon positions.
2.7 User Tracking

MPact administrators can track one user’s movements at a time, filtered and customized on a site’s floor. Use this information to help assess the effectiveness of product categorizations and beacon placements within specific deployments.

To administrate MPact user tracking capabilities:

1. Select **Active View** under the Locationing main menu item.
2. Select a site floor from the tree hierarchy.

**NOTE:** When selecting **User Tracking**, the user selection setting is not defined and must be set by the administrator. Double-clicking on a user from Active View launches user tracking with the user set for tracking.

3. Select **Users** to select a time interval and other tracking options.
4. Refer to the following user tracking options to filter visibility:

<table>
<thead>
<tr>
<th><strong>Select Time Interval</strong></th>
<th>Use the <em>Start Date</em> and <em>End Date</em> menus to set the beginning and end period for tracking a user's movements within the site and selected floor. This is the interval the selected user's movements display on the MPact interface. The default is 1 hour.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Select User to Track</strong></td>
<td>Select <em>Get Users</em> to display a list of available users (mobile clients) from the drop-down menu to track within the specified interval. Select a user from the list provided. Only one user can be tracked at a time. When a user is selected, the administrator can toggle between floor plan displays if the target user navigates from one floor to another. If no user is located, a message displays stating no user could be located within the time specified. If that's the case, consider expanding the time interval utilized. When a user is selected, a user icon displays on the floor plan.</td>
</tr>
<tr>
<td><strong>Play as a Movie</strong></td>
<td>User movements can be customized (accelerated) to display as video animation. Available user movement speeds include, 1x, 2x, 4x, 8x and 16x. Play, fast forward and rewind functions are available to assist the administrator from the lower, left-hand, side of the user tracking screen. This feature is enabled by default.</td>
</tr>
<tr>
<td><strong>Show Dwell Time</strong></td>
<td>Select the dwell time option to apply circles to users representing how long they have remained in a specific location. A circle has a user icon on it, if it's the user's most recent position. Visited locations display as a blue circle without the icon. Refer to the lower, right-hand, portion of the screen to review the legend illustrating how the dwell increases as the user remains (in minutes) at a specific location. Dwell time assists administrators in placing specific advertisements in locations where customers tend to linger.</td>
</tr>
<tr>
<td><strong>Show User Name</strong></td>
<td>Select <em>Show User Name</em> to display the user name of the client device.</td>
</tr>
</tbody>
</table>

5. Select **Apply** to begin user tracking with the defined filter settings.

**NOTE:** User movements can be replayed for each client up to a maximum of 1000 client updates. If a client is set to send updates every 4 seconds, set a specific hour to replay client movements.
Use the System Configuration portion of the server UI for Account Management and system access assignments. Categories allow an administrator to group product family items logically and better apply significance to locationing, customer traffic and engagement time. MPact events are tied to categories and category fields.

For more information, refer to the following:

- Account Management
- Categories and Category Values
- Notifications
- System Configuration
- Profile Configuration
3.1 Account Management

Use **Account Management** functions to create new MPact Server administrative accounts, edit existing user accounts, assign roles to accounts, and copy attributes of one account to another or remove obsolete user accounts. Accounts created on the server are used by both the server and the Toolbox. The Toolbox uses the accounts to access the server. For more information, see *MPact Location & Analytics Toolbox Reference Guide* available at: [www.zebra.com/support](http://www.zebra.com/support).

To manage MPact Server user accounts:

1. Select **Account Management** under the Configuration main menu item.

   ![Figure 3-1 MPact Main Menu - Operations](image1)

   The screen displays existing users, their assigned roles and the last time they logged into the system.

   ![Figure 3-2 Account Management - Create New User Account](image2)

   2. Select **+ Create New Account** to define a new user.

      ![Figure 3-3 Account Management - Create User](image3)
3. Set the following user credentials:

| **Account Type** | Setting an account type is required for new users. Specify whether the newly created user is an Administrator or Guest.  
*Administrator Privileges:* Full system-wide read/write permissions  
*Guest Privileges:*  
  - Read permissions only.  
  - No access to Account Management and System Configuration functions.  
  - No access to System Maintenance, API Backup and Restore functions. |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Name</strong></td>
<td>Enter a thirty character maximum Full Name for the user. This is the name displayed for user identification within the system. Setting the full account name is required for new users.</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Provide a thirty character maximum Account Description to best describe this new user and differentiate them from others. A description is optional.</td>
</tr>
<tr>
<td><strong>User Name</strong></td>
<td>Enter a thirty character maximum user name to associate with specific user activity on this account.</td>
</tr>
<tr>
<td><strong>Password</strong></td>
<td>Provide a thirty character maximum password to provide account protection for the user.</td>
</tr>
<tr>
<td><strong>Re-Password</strong></td>
<td>Confirm the password to ensure its accuracy in subsequent logins. Confirming the password is required.</td>
</tr>
</tbody>
</table>

4. To modify an existing user account, select a user’s check box to activate the **Edit** drop-down menu, or double-click on a user from amongst those displayed.

When editing a user, select only one at a time, as user credentials cannot be revised for a collective set. A selected user displays editable fields for revising their **Account Type**, **Full Name**, **Description** and **Password**. A time stamp also lists the last time each user was active.

![Figure 3-4 Account Management - Edit User](image)

5. Change one or more fields as required to edit the selected user's configuration. When completed, select **OK** to commit the updates, **Reset** to revert to the last saved configuration or **Cancel** to close and exit the screen.

6. To remove an existing user, use the **Edit** drop-down menu and select the **Delete** option. A prompt displays to confirm the removal.

7. To copy an existing user and their credentials, use the **Edit** drop-down menu and select the **Copy** option. A prompt displays requesting a password. Enter a password to complete the copy command.

8. Select **OK** to commit the updates.
3.2 Categories and Category Values

Use Categories to group product family items logically and apply significance to locationing, customer traffic and engagement time. MPact events are tied to categories and category fields. When beacons are deployed, they are associated with the location of a specific product category within a floor map. As client users move about the floor, their beacon visits and engagement times is associated with product categories and the beacon’s location.

Add Category Values to refine existing Categories. Ensure any values added make up logical groups of products, well suited for the client traffic and engagement time.

To administrate Categories:

1. Select Categories under the Configuration main menu item. Existing categories display on the left-hand side of the screen.
2. Select a Category from amongst those displayed to list the product names administratively aligned with that category’s beacon location on a site’s floor plan. Supporting category data displays on the right-hand side of the screen (Category Values).

![Figure 3-5 Categories](image)

Accessories is selected as the category in Figure 3-5. The values on the right-hand side of the screen represent the product categories grouped for tracking under the parent Accessories category.
### 3.2.1 Create New Categories

Create new Categories that best reflect product and beacon locations.

To create a new Category to associate with a beacon:
1. Select [+ Create New Category].
2. Enter a thirty character maximum Category Name and Category Description.
3. Select OK to commit the updates.

Upon creation, the new category displays on the left-hand side of the screen.

### 3.2.2 Edit Categories

To edit an existing Category:
1. Select a Category to edit from the left-hand side of the screen.
2. Select Edit from the Edit drop-down menu.
3. Make changes to the Category Name or Category Description.
4. Select Ok to commit the updates.

#### 3.2.2.1 Copy Categories

Copy categories when new customer tracking locations are needed with existing values, perhaps as categories grow too large in the product definition.

To copy an existing Category:
1. Select a category to copy from the left-hand side of the screen.
2. Select Copy from the Edit drop-down menu.
3.2.2 Delete Categories

Delete categories as they become obsolete.

To delete a Category:
1. Select a Category to delete.
2. Select Delete from the Edit menu.
3. Select Yes to implement the changes to the category list.

3.2.3 Create Category Values

To create a new category value (insert a product class table entry) for an existing category:
1. Select a Category from the Category List on the left-hand side of the screen.
2. Select the + Add New Value button to the right of Category Values to display new fields.
3. Add Name and Description values that correspond to the category’s product family.
4. Select Update to implement the new value.

NOTE: Ensure any value you add is a logical group of products, well suited for the client traffic and engagement time reported under its parent category’s beacon.
3.2.3.1 Edit Category Values

Ensure any revised value is suited for its parent category or risk skewing the effectiveness of customer visits and engagement times reported by beacons.

To edit Category Values:
1. Select a Category from the **Category List** on the left-hand side of the screen.
2. Select the check box for the value that requires editing.
3. Select **Edit** from the **Delete** drop-down menu.

4. Make changes to the **Category Value Name** or **Category Value Description** fields as required.
5. Select **Update** to commit the changes.

3.2.3.2 Delete Category Values

Delete Category Values as they become obsolete or unsuited for their parent category.

To delete and remove Category Values:
1. Select a **Category** from the **Category List** on the left-hand side of the screen.
2. Select the check box for the value that requires editing.
3. Select **Delete** from the **Delete** drop-down menu.

4. Select **Update** to commit the changes.
3.3 Notifications

Notifications inform subscribers when an action is performed or an event is received, which can be as simple as passing a beacon location. MPact can send four types of notifications based on Category, Region, Beacon and Site. Each notification can be triggered by any of the following Entry, Presence, Dwell, Exit and Density. Each notification can be assigned to one or more subscribers or destinations.

Use Notifications to route MPact Server generated events and filter the subscribers receiving them.

To administrate MPact Server notifications:
1. Select Notifications under the Configuration main menu item.

![Figure 3-12 MPact Main Menu - Notifications](image)

The Event Notifications screen displays.

![Figure 3-13 Configuration - Event Notifications](image)

2. Select + Create New Notification and choose Category, Beacon, Region or Site from the drop-down menu to define the configuration of a unique MPact Server event.
Figure 3-14  Configuration - Create New Notification
3. Refer to the following to create a new, unique server event notification or refine event notification details of an existing notification:

<table>
<thead>
<tr>
<th><strong>Notification Name</strong></th>
<th>Enter a thirty character maximum event name to help differentiate it from others with similar configurations. Consider the <strong>Category</strong>, <strong>Beacon</strong> or <strong>Region</strong> event type when assigning an event name. This is a required field.</th>
</tr>
</thead>
</table>
| **Type**              | Select **+ Create New Notification** from the drop-down menu to specify the an event emphasizing a category, beacon or region notification.  
When **Category** is selected, the right-hand side of the display lists the product categories defined thus far for the selected system, site or floor. Filter whether the notification for this event is associated with a specific product category or applied to all the category placements made thus far.  
When **Beacon** is selected, the right-hand side of the display lists all the beacon deployments defined thus far for the selected system, site or floor. Use each listed beacon's Position ID and Beacon Name to filter for this specific event.  
When **Region** is selected, the right-hand side of the display lists beacon region configurations defined thus far for the selected system, site or floor. Use each beacon's Position ID and its deployed region name to filter which regions are included/excluded from each event based on geographic considerations. Region notification (dwell times) can also be used for WiFi clients detected within a region.  
**Site** at the right-hand side of the display lists beacon site configurations defined thus far for the selected system, region or floor. Use each listed beacon's Position ID and its deployed site name to filter which sites are included/excluded from each event based on geographic considerations. Site notification (dwell times) can also be used for WiFi clients detected within a region. |
| **Subscriber(s)**     | Use the drop-down menu to specify the groups receiving an event notification. Each event can have a unique group of subscribers. If there are no subscribers appropriate to a specific event, select the **Confirm > Notifications > Subscribers** to define the type and server parameters. |
| **Description**       | Provide a unique 30 character maximum description to differentiate this event from other events with similar attributes. |
**Trigger(s)**

Select one or more of the following trigger events:

**Basic Triggers:**

- **Entry** triggers a notification when a client enters a particular configured path. For example, electronics > cellphones. Whenever a client enters this path for the first time, an Entry notification is generated. A client is a repeat within 2 hours from the last time the client was seen. Once 2 hours have elapsed, the client is considered new.

- **Presence** triggers a notification when a client is present at a path for a predefined time. For example, if a client is continuously at the electronics > cellphones section. When a client enters this section, an entry notification is sent (if configured), and a presence event is also sent. The presence trigger has a “repeatEverySecs” value associated with it. The default value is 300 seconds. This attribute triggers how often the notification is repeated. For example, the configured value of this attribute might be 300 seconds (5 minutes). Presence events, in this case, are sent only every 5 minutes (if the client is present).

- **Dwell** triggers a notification when clients spend a specific amount of time at a particular path. For example, if any client spends more than 10 minutes in the electronics -> cellphones section, the following two values are set in the UI - `dwellTime` and `repeatEverySeconds`. Set `dwellTime` to 600 seconds (for 10 minutes) and `repeatEverySeconds` to 300 seconds (5 minutes). Once the cumulative dwell time of a client adds up to 10 minutes, the first dwell time notification is sent.

- **Exit** triggers notifications for the non-existence or a client exiting from a path. This is determined by a global configuration value. For example, the value can be configured as two hours. Therefore, if the client is inactive for two hours, the MPact Server considers the client "exited" and sends out an exit notification.

**Density Triggers:**

There are two types of Density Triggers:

- **Profile Specific Density:**

  Profile Specific Density trigger notifications when a specific number of clients or spend a defined period of time at a specific path. For example, five clients of "customer" profile spent 15 minutes collectively at electronics > cellphones section. Three conditions must be met for notifications to be sent: 1) The number of clients is 5 or more. 2) Each client must be in a "customer" profile. 3) Clients must collectively spend 15 minutes at the electronics > cellphones section.

- **All-Profile(s):**

  This trigger is similar to the Profile Specific Density trigger, however, it is not profile dependent. Notifications are triggered when the following two conditions are met: 1) The number of clients must be >= configured value. 2) The accumulated dwell time of those clients >= the dwell time configured by user.
### Trigger(s)

From the *Density Trigger* tab click *Add Trigger* and select one of the following from the drop-down menu:

- Assets
- Associates
- BLE Users
- Customers
- WiFi Users

- **Count** - Click the up or down arrow to choose a higher or lower count than the default 50.
- **Dwell Time** - Click the up or down to choose a higher or lower dwell time than the default of 300.
- **Ratio Triggers**: Ratio Triggers notifications occur when the density criterion of two profiles are met and the ratio of the number of clients of those profile are <= to the configured ratio. For example, in the following scenario, notifications are sent when the ratio of associates (Profile1) to customers (Profile 2) drops below 50%. If there is one associate and one customer at a path. The ratio is \(\frac{1}{1} = 1\). If a new customer comes to that path, the number of associates is one and the number of customers is two. Therefore the ratio is: \(\frac{1}{2} = 0.5 \times 50\%\). However, notifications are not sent because it must drop below 50%. If one more customer comes in the ratio becomes \(\frac{1}{3} = 0.33\%\), satisfying the ratio and count conditions.

From the *Ratio Trigger* tab click *Add Trigger* and select one of the following from the drop-down menu for Profile1 and Profile2:

- Assets
- Associates
- BLE Users
- Customers
- WiFi Users

- **Trigger %** - Click the up or down arrow to choose a higher or lower Trigger percentage than the default of 50.
- **Enabled** checkbox: Turns on the notification sent to selected devices when the trigger has been activated.

### Filters

The panel on the lower, right-hand, side of the screen differs depending on whether category, beacon or region is selected as the event type. Once the *Type* is selected, select the beacons, categories or regions included in event consideration.
4. Select **Save** to commit changes or **Cancel** to close and exit the screen.
3.3.1 Event Notification Modifications

Select one of the following from the Event Notification Delete drop-down menu:

- **Edit**: Enables the update of notification data.
- **Copy**: Adds a copy of a notification to the list.
- **Delete**: Removes an existing notification(s) from the list.

![Event Notification Delete drop-down menu](image)

**Figure 3-16** Event Notification Delete drop-down menu

### 3.3.1.1 Enable/Disable Event Notifications

Select or deselect Enable Notifications checkbox to enable or disable event notifications from the Event Notifications Group Grid. Enabling or disabling notifications is done when a new notification is created (refer to Figure 3-15).

### 3.3.2 Notifications Verification

MPact pushes notifications in JSON format. Copies of outbound notifications successfully sent by MPact are not stored in the database; only failed outbound notifications are stored in the database.

To verify Notifications are working:

1. Setup a Web Server (e.g. Apache).
2. Write a script or CGI or servlet to process posted notifications in Web Server.
3. Configure MPact with Web Server details (Configure Subscriber in MPact).
3.4 Subscribers

Use Subscribers to segregate event notifications to the users or administrators most impacted. Subscriber are a subset of Event Notifications. Each set of subscribers can have different domain locations and contact configurations applied.

To administrate MPact Server notifications:

1. Select Subscribers under the Configuration main menu item.

2. Highlight a Subscriber Name to modify.

3. Select one of the following from the Delete drop-down menu:
   - **Edit**: Enables the update of subscriber data.
   - **Copy**: Adds a copy of a subscriber to the list.
   - **Delete**: Removes an existing subscriber from the list.
3.4.1 Create New Subscriber

If there are no existing subscribers to suit event notification needs, create a new one.

To create a new subscriber:

1. Select the **Create New Subscriber** button.
   
   An existing subscriber can be selected to display the same fields used for adding a new subscriber.

2. Set the following attributes for a new or existing subscriber:

   | **Subscriber Name** | Provide a subscriber name to help differentiate it from other subscribers. The name could be an indicator of the administrator name(s) comprising the subscriber group or a partial description. |
   | **Subscriber Type** | Use the drop-down menu to select the connection medium used to provide MPact Server notifications to the target subscriber. The default setting is Web Server (REST). |
   | **Description** | Optionally, provide a description to detail the subscriber’s membership or creation objective. |
3. Select **Save** to commit the updates, **Reset** to revert to the last saved configuration or **Cancel** to close and exit the screen.

<table>
<thead>
<tr>
<th><strong>Server URL</strong></th>
<th>Provide the complete and accurate domain path to the server resource used to host event notifications on behalf of this subscriber. Both HTTP and HTTPS path types are supported.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Auth Type</strong></td>
<td>Identify the user validation (authentication) type when posting notification data to subscribers. The supported types are <strong>Basic, Form and None</strong>.</td>
</tr>
<tr>
<td><strong>Timeout (ms)</strong></td>
<td>Set the time-out value (in 500 ms increments from 500 - 3000 milliseconds) used to terminate a connection attempt to the designated server when a connection cannot be established.</td>
</tr>
<tr>
<td><strong>Retries</strong></td>
<td>Set the number of server retry attempts (from 0 - 5) initiated upon a failed connection before further attempts are terminated.</td>
</tr>
<tr>
<td><strong>HTTP Header Parameters</strong></td>
<td>When posting the notification data to subscribers, optionally define <strong>Key</strong> and <strong>Value</strong> custom HTTP Headers in the post. These custom values are added to the HTTP Headers along with payload data.</td>
</tr>
<tr>
<td><strong>Custom Parameters</strong></td>
<td>When posting notification data, MPact generates a set of (name, value) pairs. Optionally, add <strong>Key</strong> and <strong>Value</strong> custom parameters, in addition to what is generated by MPact. These (name, value) pairs are taken as-is and added into the notification posted.</td>
</tr>
</tbody>
</table>
3.5 System Configuration

Use the **Network Proxy Settings** to define how event subscribers receive notifications from the MPact Server:

To administrate MPact Server **Network Proxy Settings**:

1. Select **System Configuration** under the Configuration main menu item.

![Figure 3-21 MPact System Configuration](image-url)
2. Set **Network Proxy Settings** to define how event subscribers receive their notifications from the MPact Server:

<table>
<thead>
<tr>
<th><strong>User Name</strong></th>
<th>Enter a 30 character maximum user name to associate with specific user activity on this account.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Password</strong></td>
<td>Provide a 30 character maximum password to provide account protection for the user.</td>
</tr>
<tr>
<td><strong>HTTP Proxy Settings</strong></td>
<td>Set the Web domain location for the subscriber event notifications (for example, <a href="http://www.hostname-example.com">www.hostname-example.com</a>). This is the IP address of the proxy server.</td>
</tr>
<tr>
<td><strong>Port</strong></td>
<td>Use the spinner control to set a virtual port integer for the connection between the MPact Server and the defined proxy server IP address. The IP address should be the proxy server IP address, and the port number is the port where the proxy server is running. This is the proxy server’s port number.</td>
</tr>
<tr>
<td><strong>ByPass Proxy</strong></td>
<td>Optionally, bypass a proxy Web domain by providing a numerical IP address for the recipient server receiving event notifications on behalf of the subscribers. Enter the subscriber’s IP address that bypasses the proxy server.</td>
</tr>
</tbody>
</table>

MPact Server event notifications can be parsed into separate groups (subscribers). Each set of subscribers can have different domain locations and contact configurations applied. Subscribers are a good way to segregate event notifications to the users or administrators most impacted.

3. Refer to the **UI Settings** field to define a **Session Timeout** value (in minutes) to terminate the MPact Server session when inactivity is detected. The available range is from 0 - 120 minutes.

4. Select **Save** to commit these network proxy settings to the MPact Server. Select **Discard** to cancel the updates and revert to the last saved configuration.
3.6 Profile Configuration

Use the Profile Configuration screen to configure the following profile types:

- **User Profile** - There are five User Profile types:
  - **Asset Profile** - The default profile for auto-discovering and categorizing Assets based on Dwell Time (engagement time). By default this profile is always enabled. Custom profiles cannot be created. Analytics and Notifications are disable by default.
  - **Associate Profile** - The default profile for auto-discovering and categorizing Associates based on Dwell Time (engagement time). By default this profile is always enabled.
  - **Customer Profile** - The default profile for auto-discovering and categorizing Customers based on Dwell Time (engagement time). By default this profile is always enabled. All users are assigned into customer profile by default.
  - **RF Profile** - The profile for clients discovered based on source type = BLE and Wi-Fi. By default this profile is always enabled. Custom profiles cannot be created.
  - **Beacon Profile**
    - ATLS-T1B-INDOOR1 (SKUs: MPACT-T1B10-000-WR, MPACT-T1B20-000-WR) - Beacon for indoor use only
    - MPACT-INDOOR1 (SKUs: MPACT-2000-01-WR) - Beacon for indoor use only
    - MPACT-OUTR1 (SKU: MPACT-4000-01-WR) - Beacon for outdoor use only. Beacon antenna is angled down with 10db pad.
    - MPACT-OUTDR (SKUs: MPACT-4001-01-WR, MPACT-4002-01-WR) - Beacons for outdoor use only. Beacon antenna is angled sideways with 10db pad.
    - MPACT-USB1(SKU: MPACT-MB3000-01-WR) - USB powered beacon

![NOTE: A beacon profile label should be same as its SKU.]

3.6.1 User Profile

Use the User Profile configuration screen to add or edit custom and default profiles based on the categorization of assets, associates and customer dwell time. On RF User Profiles for BLE and WiFi users analytic, notification and report functions are disabled by default.

To configure a User Profile:
1. Select User Profile under the Profile Configuration main menu item.
2. Select + sign to add a custom User Profile or select the pencil icon to edit one of the following default user profiles: Asset Profile, Associate Profile or Customer Profile.

![NOTE: Several User Profile types can be configured, including Asset, Associate and Customer. RF Profiles cannot be edited. By default, BLE users and WiFi users are enabled.]
Figure 3-22 MPact Default User Profiles
3. Refer to the following to configure Profiles:

<table>
<thead>
<tr>
<th>Profile Name</th>
<th>Enter a custom profile name. The default name for each User Profile cannot be edited.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Enter a custom profile name description when adding a custom profile. The default description for each User Profile cannot be edited.</td>
</tr>
<tr>
<td>Enable</td>
<td>The enable checkbox for enabling or disabling a User Profile is checked by default.</td>
</tr>
<tr>
<td>Profile Feature</td>
<td>Notifications, and Reports are enabled for the following User Profiles: Assets, Associates and Customers and not RF profiles. Check or un-check the boxes to enable or disable a specific rule for the following User Profiles: Assets, Associates and Customers.</td>
</tr>
</tbody>
</table>

*Figure 3-23 MPact Default User Profile Configuration*
Engagement time is the length of time an Asset, Associate, or Customer is present at a location (i.e. store). Each profile has set default engagement times that can be customized:

- **Asset**: 20hrs
- **Associate**: 8hrs
- **Customers**: 0hrs

IDs are associated with a specific Assets, Associates, and Customers (usually a MAC address).

There are three methods to convert a client into an Associate:

- **Engagement Time**: (when a client fulfills the engagement time rule the client ID will be mapped into Associate profile the next day.)
- **Static Client List**: (Static map a Client ID by inputting the Client ID into the Static Client List and it is associated with Associate Profile immediately)
- **Regex for Client**: (input the ^ character to represent the beginning of Client ID. For example enter ^TEST into the Regex for Client field and any client ID beginning with TEST will be mapped into Associate profile the next day.)

### RF Profiles

- **BLE User**: The profile for clients discovered based on source type = BLE. By default this profile and all rules are enabled.

- **WiFi User**: The profile for clients discovered based on source type = WiFi. By default this profile and all rules are enabled.

4. Click **Save** to commit the user profile configuration updates.

#### 3.6.2 Beacon Profile

Use the **Beacon Profile** Configuration screen to set global beacon settings for indoor, outdoor, replaceable or USB beacons on the MPact Server, then push to selected beacons as their respective configurations warrant. A beacon’s firmware transmits BLE beacons. A beacon’s transmit power and mode configuration are set using the MPact Server interface, then pushed to beacons using the MPact Toolbox application.

Beacon configuration settings must be set accurately by the MPact Server before provisioned to an MPact Toolbox supported device. Once downloaded to a device, the beacon configuration is set on the actual beacons.

**NOTE:** Configure several beacon models including **USB (MPACT-USB1)**, **Outdoor (MPACT-OUTDR)**, **Indoor (MPACT-INDR1, ATLST1B)** from the **Beacon Profile** menu.
Figure 3-24 MPact Beacon Profile Configuration
To administrate MPact Server beacon configurations:

1. Refer to the following table to set the **Beacon Configuration** for the following beacon types *indoor, Outdoor Replaceable* and *USB*:

| **Beacon Mode** | Sets the mode defining how signals are emitted from MPact beacons. Supported modes include *Battery Save, SecureCast, iBeacon, MPact* (default setting). Refer to the *MPact Location & Analytics Deployment Guide* for information on installing a beacon. The guide is available at: [www.zebra.com/support](http://www.zebra.com/support).
| **Battery Save**: Optimized for battery life by making the broadcast packet as small as possible (the beacon contains the minimal amount of information needed to support MPact Server functions). An MPact beacon contains the power-save mode beacon, Beacon ID and a single byte representing the percentage of battery life remaining (0-100).
| **SecureCast**: Is a method of broadcasting encrypted signals (using an Advanced Encryption Standard Key) over Bluetooth for organizations that utilize fraud protection to tie beacon signals to verified presence detection. SecureCast ensures beacons do not display identifiers (MAC address) and are constantly rotating and changing.
| **iBeacon**: Created by Apple for use in iOS devices (beginning with iOS version 7.0). There are three data fields Apple has made available to iOS applications, a **UUID** for device identification, a **Major** value for device class and a **Minor** value for more refined information like product category. The UUID must be the same on the beacon and the server. The Major field identifies the device class (range, 0-65535). For example, the Major value could be the same for each device on the first floor or a particular department store. The Minor field is for more refined information (range, 0-65535), like product category. Beacons configured in iBeacon mode use a combination of Major and Minor values for the Beacon ID. After scanning and installing the beacons in the Toolbox, the beacon configuration must be reapplied (pushed from the Server) using the Toolbox (*Configuration*) to associate the Major and Minor values from the Server.
| **MPact**: Uses the iBeacon format. The Major and Minor fields need to be configured so the MPact data is compatible with the MPact Server.

| **Client Update** | Set the client update frequency (sec).

| **UUID** | If setting the beacon mode to iBeacon or MPact, enter a 16 byte hex character string. The UUID must be the same on the beacon and the Server. A UUID is represented by 36 characters (32 alphanumeric characters and four hyphens), for example, 123a4567-e23b-89d3-a234-135790864215.
| The **Universally Unique IDentifier (UUID)** classification is meant to be broad. For example, a UUID could identify a beacon was owned by a specific company. To generate a UUID, use any GUID/UUID generation tool to create your own identifier, for example, the uuidgen command in OS X. The uuidgen command generates a UUID, which is a 128-bit value guaranteed to be unique.

| **Transmit Power** | Set the beacon’s output power from -23 to 0 dBm. The default power setting for the *MPACT-USB1* beacon -13 dBm, *MPACT-OUTR1*, and *MPACT-OUTDR* is -21 dBm, *MPACT-INDR1* Indoor beacon -23 dBm, and for both SKUs of *ATLS-T1B* Indoor beacon it is -23 dBm.

| **Interval (0.1 sec to 10 sec)** | Define an interval (from 0.1 - 10 sec) for a beacon transmission. With a shorter the interval, there is increased accuracy, but a shorter battery life. The default setting is 0.6 seconds for the Replaceable beacon, 0.1 seconds for the Indoor and USB beacon and 0.2 seconds for the Outdoor beacon.
2. Select **Save** to commit the beacon configuration updates.

### Proximity

The MPact Server includes APIs for determining the proximity to an iOS or Android device using a process known as “ranging.” The MPact Server APIs apply filters to the accuracy estimate to determine an estimated proximity.

The estimate is indicated using one of the following proximity states:

- **Immediate**: This state represents a high level of confidence a device is very close to the beacon. The approximate distance from the device is less than 1 meter.

- **Near**: A line of sight from a device to the beacon indicates a proximity of 1-3 meters. If there are obstructions between a device and the beacon which causes signal attenuation, a Near state may not be reported even though the device is in this range.

- **Far**: A device is detected but the confidence in the accuracy is too low to determine either Near or Immediate. The Far state does not necessarily imply a device is not physically near a beacon.

### Firmware

Choose **Select File** to launch a screen for navigating the system for a target firmware file for subsequent beacon uploads. For USB beacons choose between Image A or B. For all other beacons the only firmware choice is Image B.
Use **System Maintenance** and **Operations** to Backup and Restore system logs for archive and server operations. **API** functions enable the administrator to retrieve category values, beacon positions, beacon configurations, hierarchal trees and beacon device ID. Tree Setup enables the administrator to build global to site hierarchy-specific information for deployments down to the site’s floor plan.

To administrate MPact Server operations, refer to the following:

- *System Maintenance and Operations*
- *Tree Setup*
- *Reports*
4.1 System Maintenance and Operations

To administrate MPact operations:

1. Select **System Maintenance > Operations** to display CLI commands.

![Figure 4-1 MPact Main Menu - Operations](image1)

- **Start Server**: `.nxstats start`
  - **Syntax**: `.nxstats start`
  - **Description**: This command starts all processes.
  - **Check**: When the command completes, issue the command `.` to check status, to ensure all processes have started.

- **Stop Server**: `.nxstats stop`
  - **Syntax**: `.nxstats stop`
  - **Description**: This command stops all processes.
  - **Check**: Issue the command `.` to check status, to ensure all processes have stopped.

- **Backup Database**: `.nxstats backup -cPath=/var`
  - **Syntax**: `.nxstats backup -cPath=/var`
  - **Description**: This command to backup the MPact database where user define directory. Example `.`

- **Restore Database**: `.nxstats restore -cPath=/var`
  - **Syntax**: `.nxstats restore -cPath=/var`
  - **Description**: This command to restore the MPact database where user define directory. Example `.`

![Figure 4-2 MPact System Maintenance - Operations](image2)

The **System Maintenance > Operations** screen displays **Start Server**, **Stop Server**, **Backup Database** and **Restore Database**. Please refer to the **MPact Location and Analytic Deployment Guide** for information about using the MPact Launchpad.

For example, if the server interface freezes, or is unexpectedly unavailable, use the following commands:

- **Start Server**: `./nxstats start`
  - This command starts all processes.
When the command completes, issue the command, `./nxstats status`, to ensure all processes have started.

- **Stop Server:** `./nxstats stop`
  When the command completes, issue the command, `./nxstats status`, to ensure all processes have stopped.

- **Backup Database:** `./nxstats backup [-fromPath=<fromPath>] [-toPath=<localPath>]`
  This command outputs a local file generated to the local hard drive. `-fromPath` is the path (in HDFS) from which the data is backed up. `-toPath` is the path on the local server where the data is backed up. If the `-toPath` argument is not specified, the data is backed up to the following path: `/root/usr/nuxi/data/tmp/filemgr`.

  ![NOTE: The arguments within the bracket are optional.](image)

- **Restore Database from File:** `./nxstats restore -fromFile=<filePath>`
  This command restores the data from local tar.gz compressed file to the database. `-fromFile` is the parameter which takes the location of the file on the local server (which at some point was backed up). The entire database is truncated while restoring. Therefore, keep a backup of the existing database.

- **Restore Database from Snapshot:** `./nxstats restore -fromSnapshot`
  This command restores the data from the Snapshot directory (in HDFS) to the database. The entire database is truncated while restoring. Therefore, keep a backup of the existing database.

  ![NOTE: Although, not included on the Operations screen, Auto Snapshots create a snapshot of all planning data created on the MPact Server every 24 hours.](image)
4.2 Tree Setup

Use Tree Setup to build the tree hierarchy for each site location. A tree hierarchy is built from a global site location, down to each floor, including floor plans for each floor.

To administrate the MPact tree hierarchy:

1. Select Tree Setup under the Operations main menu item.

2. From the System drop-down menu, select Add Child and drag the cursor over to select add a Country, Country Region, City, Campus or Site. As each node is built, more choices become available, for example, Floor.

NOTE: Most characters, including spaces, are valid in the Tree Hierarchy, except the following: -q- $* < > # _ = \\. 

---

![Figure 4-3 MPact Server - Tree Setup](image1)

![Figure 4-4 MPact Server UI Tree Setup - Adding Tree Nodes](image2)
3. From the **Add Node** dialog box, enter a node **Name** and select **OK**.

![Add Node dialog box](image)

*Figure 4-5 MPact Server UI Tree Setup - Add Node*

4. Continue adding nodes as required until reaching the **Floor** level.

Tree setup is saved automatically. When Tree setup is complete, upload a floor plan. See *Floor Plan Upload*.

### 4.2.1 Node Modifications

Nodes can be edited, copied and pasted into another node or deleted using the drop-down menu. *Figure 4-6* shows the drop-down menu for the San Francisco County node.

![Node Modifications](image)

*Figure 4-6 MPact Server UI Tree Setup - Node Modifications*

5. Refer to the following node modification options:

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Add Child</strong></td>
<td>Adds a new node to the tree. Following are the specific nodes choices: Country, Country Region, City, Campus, Site or Floor.</td>
</tr>
<tr>
<td><strong>Edit</strong></td>
<td>Allows changes to the node’s name.</td>
</tr>
<tr>
<td><strong>Copy/Paste</strong></td>
<td>Allows copying (and pasting) of the node and its child items to a like position in the hierarchy.</td>
</tr>
</tbody>
</table>
6. Select **Save** to commit the updates or **Reset** to revert to the last saved configuration.

The next step is to add a floor plan to the floor level node.

### 4.2.2 Site Template

When copying a site as a template, all of its data (including floor, floor plan, placeholder, categories, category values) are copied and placed into a new site. The entire infrastructure is set up exactly like the site from which it was copied. To complete setting up a newly pasted site template, the only step required is configuring the beacons for the site’s placeholders.

To copy a site as a template:

1. Select **Tree Setup** under the Operations main menu item.

   ![MPact Server - Tree Setup](image)

   **Figure 4-7 MPact Server - Tree Setup**

2. Select the arrow near a **Region**.
3. Select a **Site** under the **Region** selected.
4. Click the down-arrow next to a **Site**.
5. Click **Copy Template**.
6. Click the down-arrow next to a Site.
7. Click Paste Template to paste the copied site template under a Region.
8. Click Copy Template.
9. Enter a *Name* for the new site.
10. Click **OK**. A popup displays.
11. Click **OK**. A new site is created with all of the data including floor, floor plan, placeholder, categories and category values from the copied site.
4.3 Reports

The MPact Server can generate Scheduled and On Demand reports in PDF format for both system and site level insights and health analytics on either. Each report level can have its data collection and reporting periods set uniquely.

4.3.1 Scheduled Reports

Scheduled Reports collect analytics for the following predefined time periods. Scheduled Reports can be run daily, weekly or monthly.

To administrate the MPact Server Scheduled Reports:

For an example of the system and site reporting output, see System Report Examples and Site Report Examples.

1. Under Reports click Scheduled under the Operations main menu item.

![Figure 4-12 MPact Server - Scheduled Report](image)

![Figure 4-13 MPact Server - Reports](image)
The Reports screen lists *System Reports* (for all supported MPact Server sites) or *Site Reports* depending on whether a specific site has been selected from the MPact Server system/site/floor tree hierarchy on the left-hand side of the screen.

**NOTE:** Reports are available for the entire system and selected sites, no specific floor reporting is available once a site is expanded.

2. The report generation trending period for the system or selected site can be modified by selecting the *Scheduler Configuration* button.

3. Set a *System Insights* report trending period.

   System insights provide information on new and returning customer site visits and the dwell time spent engaging with specific products for the system. MPact Server insights update every two hours, based on the system clock (12:00, 2:00, 4:00 etc.).

   Determine whether system-wide reports are generated daily, weekly or monthly. If selecting Weekly, set the weekday used for the 7 day trending period. Daily is the default setting.

4. Set a *Site Insights* report trending period for the MPact system.

   Site insights reports trend new and returning customer site visits and the dwell time spent engaging with specific products. MPact Server insights update every two hours, based on the system clock (12:00, 2:00, 4:00 etc.).

   Select whether site specific reports are generated daily, weekly or monthly. If selecting Weekly, set the weekday used for the 7 day trending period. Daily is the default setting.

5. Set a *Site Health* report trending period for the MPact system.
Health reports detail remaining beacon battery life and the number of missing and mis-placed beacons for a site. Health analytic functions update every six hours in the MPact Server.

Daily Site Health reports is the default setting.

**NOTE:** When individual sites can have their system reporting settings overridden. Once overridden, specific insight and health report trending periods can be set for that specific site.

6. Expand the MPact Server system/site tree hierarchy on the left-hand side of the screen and select a site for unique reporting.

7. Select the **Override System Settings** option to enable the site insights and health **Scheduler Options**. A site cannot have its own unique report generated without this setting enabled (it is disabled by default).

8. Set a **Site Insights** report trending period for this site.

   Insights reports trend new and returning site visits and the dwell time spent engaging with specific products. Site insights update every two hours, based on the system clock (12:00, 2:00, 4:00 etc.).

   Select whether site specific reports are generated daily, weekly or monthly. If selecting Weekly, set the weekday used for the 7 day trending period. Daily is the default setting.

9. Set a **Site Health** report trending period for this site.

   Health reports detail remaining beacon battery life and the number of missing and mis-placed beacons for a site. Health analytic functions update every six hours.

   Daily is the default setting.
10. Select **Save** to commit the changes. Select **Cancel** to revert to the last saved configuration.

### 4.3.2 On Demand Reports

On Demand Reports allow administrators to run system level and health reports for *Today, Yesterday, Last Week* or the *Last 30 days*.

To administrate the MPact Server and site On Demand Reports:

1. Select **On Demand Reports** under the Operations main menu item.

2. **Set a System Insights** report trending period.
   
   System insights trend on new and returning customer site visits and the dwell time spent engaging with specific products for the system.
   
   Select whether system-wide reports are generated for *Today, Yesterday, Last Week* or the *Last 30 days*.

3. **Set a Site Insights** report trending period for this site.
   
   Insights reports trend new and returning site visits and the dwell time spent engaging with specific products. Site insights update every two hours, based on the system clock (12:00, 2:00, 4:00 etc.).
Select whether site specific reports are generated for *Today*, *Yesterday*, *Last Week* or the *Last 30 days*.

4. Set a **Site Health** report trending period for this site.

Health reports detail remaining beacon battery life and the number of missing and mis-placed beacons for a site. Health analytic functions update every six hours in the MPact Server.

Select whether Site Health specific reports are generated for *Today*, *Yesterday*, *Last Week* or the *Last 30 days*.

4.3.3 **System Report Examples**

System reports display by filename (as generated by MPact upon compilation), size (in MB) and the time each was generated by the MPact Server.

To review a system level report:

1. Select a MPact system PDF report file link from amongst those displayed.

   Toggle the **Generated at** date stamp of the System Report file from oldest or most recent as needed.
A System Insights report lists (on the top of each report page) the trending period and date the file was compiled. The Overview field contains:

- **Number of Total Customers** - Lists the total customer count (both unique and repeat) across all sites for the report trending period.
- **Total New Customers** - Lists the total new customer count across all sites for the report trending period.
- **Total Repeat Customers** - Lists the total repeat customer count (more than one visit to a particular site) for all sites for the report trending period.

2. Refer to the Analysis section to review top and bottom customer counts and dwell times for the sites comprising the entire MPact system.

The **Number of Customers by Day - System Wide** chart trends the number of customer visits (by day) for all the sites comprising the MPact system.
Figure 4-21 MPact Server Report - New Customers vs Repeat Customers

The **New Customers vs Repeat Customers** chart trends the ratio of new versus existing customers visiting the sites comprising the MPact system (during the defined reporting period).

Figure 4-22 MPact Server Report - Average Engagement at different categories (top 5)

The **Avg Engagement across different stores (Top 5)** chart lists the system's top 5 (or less) sites with the highest reported customer dwell times. These sites have potentially the best beacon placements in respect to the product categories the beacons support.
The **Customers across different stores (Top 5)** chart lists the top 5 (or less) sites for customer counts. Use this information to assess whether high site engagements are related to high customer counts for specific sites within the MPact system.

The **Avg Engagement at different stores (Bottom 5)** chart lists the bottom 5 (or less) sites for customer engagement. These are the sites within the MPact system where customer dwell times are the smallest, possibly reflecting poor beacon placements in respect to specific product categories.
The Customers across different stores (Bottom 5) chart lists the bottom 5 (or less) sites for customer counts. Use this information to assess whether poor site engagements are related to poor customer counts for specific sites within the MPact system.

### 4.3.4 Site Report Examples

Site reports display by filename (as generated by MPact upon compilation), size (in MB) and the time each was generated by the MPact Server.

To review a site level report:

1. Expand the MPact System from the hierarchy on the left-hand side of the screen.
2. Select a site for which site level reports are enabled.

   Toggle the Generated at date stamp of the Site Report file list from oldest or most recent as needed.

    ![Site Level Insights](image)

A Site Level Insights report lists (on the top of each report page) the trending period and date the file was compiled. The Overview field contains:

- **Number of Total Customers** - Lists the selected site’s total customer count (both unique and repeat) for the report trending period.
- **Total New Customers** - Lists the site’s total new customer count for the report trending period.
- **Total Repeat Customers** - Lists the site’s total repeat customer count (more than one visit to a particular site) for the report trending period.

3. Refer to the **Analysis** section to review top and bottom customer counts and dwell times for the selected site.

![Number of Customers by Day](image1)

**Figure 4-27 MPact Site Report - Number of Customers by Day - System Wide**

The **Number of Customers by Day** chart trends the number of customer visits (by day) for the selected site. Assess whether the customer count is inline with expectations.

![New Customers vs Repeat Customers](image2)

**Figure 4-28 MPact Site Report - New Customers vs Repeat Customers**

The **New Customers vs Repeat Customers** chart trends the ratio of new versus existing customers visiting the selected site during the defined reporting period. A high number of repeat customers may represent good beacon placements for specific product categories.
The **Avg Engagement across different categories (Top 5)** chart lists the site’s top 5 (or less) categories with the best reported customer dwell times. Site level insights also report this information in table format, with each top 5 category reporting the average engagement in minutes.

The **Customers across different categories (Top 5)** chart lists the top 5 (or less) site categories for customer counts. Use this information to assess whether high site engagements are related to high customer counts for this specific site. Site level insights also report this information in table format, with each top 5 category reporting its total customer count.
The **Avg Engagement across different categories (Bottom 5)** chart lists the bottom 5 (or less) product categories for customer engagement. These are the site’s categories where customers dwell times are the smallest, possibly reflecting poor beacon placements in respect to specific product categories. Site level insights also report this information in table format, with each bottom 5 category reporting its total customer count.

The **Customers across different categories (Bottom 5)** chart lists the site’s bottom 5 (or less) product categories reporting customer counts. Use this information to assess whether poor site engagements are related to poor customer counts. Site level insights also report this information in table format with each bottom 5 category reporting its total customer count.
CHAPTER 5 MPACT INTEGRATION WITH ADSP

The Zebra AirDefense™ Services Platform’s (ADSP) Proximity Awareness and Analytics module allows enterprises to detect, analyze and act on location information from Wi-Fi devices. By utilizing ADSP, analytics are delivered which can be used to improve in-store engagement and drive conversions.

By integrating ADSP’s location data into MPact, MPact can provide its customers a unified location solution for both Wi-Fi and BLE. The data flow is from ADSP to MPact only, not vice-versa.

For more information on integrating ADSP and MPact, refer to the following:

- ADSP and MPact Server Integration
- Synchronizing Planning Data
- Importing Floorplan into MPact
- Setting Up MPact as a Subscriber
- Tracking Wi-Fi and BLE Clients
5.1 ADSP and MPact Server Integration

The MPact platform offers unified BLE and Wi-Fi location tracking and analytics. Existing AirDefense customers, who use WiFi location based services, can migrate to MPact if they want to track visitors carrying BLE and/or Wi-Fi devices. To track BLE and Wi-Fi devices from MPact, ADSP needs to port LBS (Location Based Services) data and events to the MPact Server.

The following tasks must be completed:

- Synchronize planning data from ADSP with MPact.
- Configure the MPact Server as a Subscriber to LBS services on ADSP

5.1.1 ADSP and MPact Version Compatibility

- MPact 1.0.1 or later
- ADSP 9.1.2

5.1.2 Synchronizing Planning Data

Before location data can be sent from ADSP into MPact (as a one time manual process), the two platforms need to synchronize planning data. The planning data includes:

- Network tree hierarchy
- Floor plans along with their attributes (length, width etc.)
- Mapping devices to floor plans along with their locations
- Regions

NOTE: Region notifications also extend to WiFi clients.

5.1.3 Exporting Floorplan from ADSP

To send location data for a Wi-Fi client from ADSP to MPact, ADSP FloorPlan need to be exported first. If there are any regions defined on the ADSP FloorPlan, those regions would be automatically preserved on the MPact Server when these FloorPlan’s are imported.

To copy floor designs from ADSP create a ZIP file called FloorPlan.zip:

1. Login as root to the ADSP UI using an smxmgr account.
2. Enter $cd /usr/local/tmp to change to a temporary directory on ADSP.
3. Enter $exportFloorplan to create a file called Floorplan.zip (This command requires the user be a root user under the root directory in ADSP).
5.1.4 Importing Floorplan into MPact

MPact utilizes its own proprietary CLI created specifically for importing the data exported by the ADSP exportFloorplan command.

To import the Floorplan.zip file into MPact:

1. Copy Floorplan.zip file into the /tmp directory in MPact using the following command:
   ```bash
   $ scp FloorPlan.zip root@<mpact_ip>:/usr
   ```

2. Logon to the MPact UI using SSH.

3. Enter `cd /usr/nuxi/scripts/bin` to change to the /bin directory on MPact.

4. Enter `./atls importADSPPlanningData /tmp/FloorPlan.zip` to import the Floorplan.zip from ADSP into MPact.

Country, Region, City, Campus and Site names for any floor in ADSP tree hierarchy are automatically created in MPact when the script runs.

To check the tree setup from the Main Menu in ADSP:

1. Navigate to Configuration > Appliance Platform > Tree Setup.

![Figure 5-1 ADSP Configuration Tab](image-url)
To verify the matching tree setup in MPact:

1. Navigate to **Main Menu > Tree Setup**.

![MPact Tree Setup](image)

**Figure 5-2** MPact Tree Setup

### 5.1.5 Setting Up MPact as a Subscriber

To track Wi-Fi and BLE clients from MPact, ADSP must be configured to stream LBS data and events to the MPact Server for all Wi-Fi clients. This is done by using the Subscriber profile for location based services in ADSP. The ADSP tree and MPact tree should match.

1. Logon to the ADSP UI using an smxmgr account.
2. Navigate to **Configuration > Operational Management > Location Subscriber Profiles**.
3. Select **New Template** to create a new profile.

![ADSP Create New Template](image)

**Figure 5-3** ADSP Create New Template
The location **Location Subscriber Profile** screen displays.

![Location Subscriber Profile](image)

**Figure 5-4** Location Subscriber Profile

4. Navigate to **Connection Settings** and enter the following link in the **Subscriber Push URL**: 
   `<MPact-IP-Address>/stats/services/rest/v1/proc/save_gzip/ss/updateClientStatusADSP`

5. Select the JSON format.

6. Enter an appropriate username and password.

7. Navigate to **Location & Region Events** to enable location data and events (optional).

8. Navigate to **Presence Events** to enable presence notifications.

9. Click **Save and Close**.

   The **Location Subscriptions** screen displays.

![Location Subscriptions](image)

**Figure 5-5** Login Subscription (Profile)

10. Select the **Enable Configuration** checkbox and the new Subscriber profile that was created.

11. Click **Apply**.

   MPact should start receiving LBS data and events from ADSP.
5.2 Tracking Wi-Fi and BLE Clients

To track Wi-Fi and BLE clients:
1. Login to MPact Server remotely:
2. Navigate to one of the following sites:
   - http://<server IP>/mpact
   - https://<server IP>/mpact
3. Enter the User Name (superuser is the default) and Password (mpact123 is the default) and select Login.
   Select Remember Me to use the same credentials in subsequent logins.
   Select Reset to clear the fields and start again.
4. Navigate to Main Menu > Active View.
5. Navigate to the desired site in the Tree Hierarchy. The system automatically displays icons of all floors in that site.
6. Select the floor plan for which you want to track the clients.

**Figure 5-6 Floor plan (Active View)**
7. Check the BLE and WiFi check boxes in the Users drop-down to enable BLE and WiFi tracking. Wi-Fi clients display in green and BLE clients display in yellow.

8. Click the Regions button to enable or disable Regions (optional).
CHAPTER 6 ABOUT MPACT

Refer to the following for MPact Server license and revision information:

- License Management
- About MPact
6.1 License Management

Use the License screen to access current application use. Licenses are purchased on an annual basis and can be upgraded anytime. Licenses expire after one year, at the end of the month, from the date the license is purchased. License limits or violations apply on a monthly basis from the day of installation of the first license. MPact keeps track of license countable items, which includes site, beacon, and customer visits.

<table>
<thead>
<tr>
<th>ANNUAL LOCATION SOFTWARE &amp; ANALYTICS LICENSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPACT-SMALL-50-LIC</td>
</tr>
<tr>
<td>MPACT-MED-100-LIC</td>
</tr>
<tr>
<td>MPACT-LRG-500-LIC</td>
</tr>
<tr>
<td>MPACT-UNL-X00-LIC</td>
</tr>
</tbody>
</table>

**Figure 6-1** MPact Annual License Options

Oversubscribe maximum number of sites: The system (global) stops collecting any new client update data (beacon battery level, BLE & Wi-Fi visit/dwell time/current user count). The Active View client count is zero. To recover, either purchase more licenses or remove sites from the system to resume from the point of oversubscription.

Oversubscribe maximum number of beacons: The additional beacon causes the MPact Server to stop collecting data from all the beacons (beacon battery level, BLE visit/dwell time/current user count). The system still collects data (visit/dwell time/current user count) from Wi-Fi clients. To recover, either buy more licenses or remove additional beacons to resume from the point of oversubscription.

Oversubscribe maximum number of visits: The additional visit will cause the MPact Server to stop collecting BLE visit/dwell time. The system still collects data (visit/dwell time/current user count) from Wi-Fi clients. Buy more licenses to recover. Data collection resumes from the point of oversubscription. Consumed license information for customer visits resets to zero (0) at the beginning of each month.

**NOTE:** When purchased, ADSP Licenses are separate and not integrated with the MPact Server licensing structure.

To view License Management information:

1. Select License under the About main menu item.

**Figure 6-2** MPact Main Menu - Operations
The **MPact Location & Analytics License Management** screen details the MPact Server license and its current state of use. **Figure 6-3** shows no license has been applied.

2. Periodically assess whether the terms of the current license account for growth and scalability for future deployments:

<table>
<thead>
<tr>
<th><strong>Server Unique Identifier</strong></th>
<th>This unique identifier is specific to the server and is required when making calls to Support. It is recommended you copy this string and include it when contacting Support, as this string is case sensitive and needs to retain its existing lower case format to remain valid.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upload License File</strong></td>
<td>Uploads a new purchased license file provided at the time of purchase.</td>
</tr>
<tr>
<td><strong>Last Updated</strong></td>
<td>Lists the date the application was last updated to its current revision. Licenses are renewed annually, however, updates to the license can be purchased as needed.</td>
</tr>
</tbody>
</table>
| **Licenses**                  | Provides evidence the software has been legally purchased and the user has agreed to the conditions of use and distribution.  

**License String**: Unique string for each applied license.  
**Expiration Date**: End-of-month date when the license expires.  
**Number of Sites**: Number of sites the license supports.  
**Number of Beacons**: Number of beacons the license supports.  
**Number of Client Visits**: Number of client visits the license supports.  
**Uploaded On**: Date the license was applied to the system. |
6.1.1 License Purchase and File Upload

When the MPact Server software is initially installed, a license file is required before the MPact Software can store data. This license file is generated by Support using the Server Unique Identifier found in the License Management, area of MPact Server.

To request an MPact Server license file:

1. Contact Support with the following information:
   - Choose the preferred licensing option. Contact your sales representative for licensing options. Refer to License Management for licensing examples.
   - Please mention to Support the MPact version number you have installed or would like to install. To obtain the Server Unique Identifier, MPact must already be installed. Refer to About MPact for gathering MPact software version information.
   - Supply the email address and the Server Unique Identifier to Support to receive a license file.

The support team generates the license file based on the annual license purchase agreement.

**NOTE:** The Server Unique Identifier is required when making calls to Customer Support. It’s recommended you copy/paste this string and include it when contacting Customer Support, as this string is case sensitive and needs to retain its existing lower case format to remain valid.

When the license file arrives, copy the license file onto the desktop.

2. Launch MPact Server.

3. Select License under the About main menu item.

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<table>
<thead>
<tr>
<th>License Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>License Term:</strong> Lists the entities (sites, beacons, or customer visits) the license supports.</td>
</tr>
<tr>
<td><strong>Licensed:</strong> Lists the number of licensed sites, beacons and customer visits.</td>
</tr>
<tr>
<td><strong>Consumed:</strong> Lists the number of sites with the application in use, the number of beacons showing activity in the system and the number of customer visits per global system. Newly added sites or beacons update after several minutes or within an hour for scalability setup. Newly added visits update on a per day basis.</td>
</tr>
</tbody>
</table>

**NOTE:** License information for customer visits resets to zero (0) at the beginning of each month.
4. Place the cursor in the **Upload License File** field and select the License File received from the Customer Support team and placed on the desktop.

5. Upload the file.

6. Select **Refresh**.

   It takes at less then 3 minutes for the file to upload to the system and display license details on the page.
6.2 About MPact

The About screen lists specific MPact Application and Support data to assist administrators in assessing whether their version of the MPact Server software is the latest, or requires an update to utilize the most recent feature set available. Additionally, the About screen contains contact information by region to streamline the support process should an administrator require assistance.

To view MPact Support contact information:

1. Select About under the About main menu item.

2. Refer to the About screen for the following:

<table>
<thead>
<tr>
<th><strong>Application</strong></th>
<th>Refer to the Application field to confirm the MPact Server software build version. The build number is required for all Support inquiries or to assess whether a newer version may be available to provide enhanced functionality. Additionally, the Configuration Revision and Platform Revision describe which version the listed build is utilizing and the platform in which its currently residing. This too may be requested by Support.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Support</strong></td>
<td>The Support field lists telephone contact information for different geographic regions of the world to assist administrators in prompt issue resolution. Additionally, the URL to the Support site displays to provide Support contact information and product collateral in form of user manual documentation and product data sheets.</td>
</tr>
</tbody>
</table>
If you have a problem with your equipment, contact Support for your region. Support and issue resolution is provided for products under warranty or that are covered by a services agreement. Contact information and Web self-service is available by visiting www.zebra.com/support.

When contacting Support, please provide the following information:
- MAC ID of the unit
- Model number or product name
- Software type and version number

Support responds to calls by email or telephone within the time limits set forth in support agreements. If you purchased your product from a business partner, contact that business partner for support.

**Customer Support Web Site**

The support site, located at www.zebra.com/support provides information and online assistance including developer tools, software downloads, product manuals, support contact information and online repair requests.

**Manuals**

To see manuals, go to: www.zebra.com/support.