MPact Location & Analytics Platform
2.0.0.0-057R

MPact 2.0.0.0-057R Server, Firmware, ToolBox and SDK

Overview

MPact 2.0 is a major feature release introducing a whole new analytics suite for the retail and hospitality verticals with a customizable granular view into customers' visitation trends as well as associate staffing. Enhancements have also been made in the Active view section of the Dashboard for heat maps and client device placements in zones. MPact 2.0 also introduces a Launchpad application for easy set up for a high availability clustered environment.

MPact 2.0 supports the new beacons introduced and enables the concept of per beacon profiles for configuration. The SDK and server also allow for proximity based settings per beacon as part of the configuration settings.

1. Platforms Supported

Beacons supported with MPact v2.0:

- MPACT-T1B10-250-WR (Replaceable Coin Cell Battery BLE Beacons)
- MPACT-T1B20-250-WR (Replaceable Coin Cell Battery BLE Beacons)
- MPACT-MB2000-25-WR (Replaceable 2AA Battery BLE Beacons)
- MPACT-MB3000-05-WR (USB Powered BLE Beacon)
- MPACT-MB4000-06-WR (IP67 rated Outdoor beacon – non replaceable battery)

Please visit mpact.zebra.com for more details on Beacons specifications. Please visit support.symbol.com and search for MPact to access the technical documentation on MPact for installation and operations.

Browsers supported with MPact 2.0 server software:
- FireFox 26+
- Google Chrome 30+
- Internet Explorer 11+.
Note: For best results, use Chrome or Firefox

MPact Software Server OS support:

- Certified on Debian v7.2. Verified it works on all 7.2+ versions
- Certified on RedHat 6.5. Verified it works on 6.5+ versions.
- Large OVA is also available for installing in VMware environments

MPact Toolbox supported on following devices:
For IOS - iPad 3, iPad 4, iPad Air, iPad Air 2 and iPad Mini with iOS versions 7.1 or later
For Android- TC55 (Android v4.4.3), TC70 (Android 4.4.2), Samsung S5 with Android 5/Lollipop and Nexus 9 (Android 6.0.1)

MPact SDK supported for following OS:
 IOS7 or later, Android 4.3 or later and Win CE 7 (for Zebra's MC18 and WT 41N0 devices in specific regions – please review WT41N0 product details for interoperability)
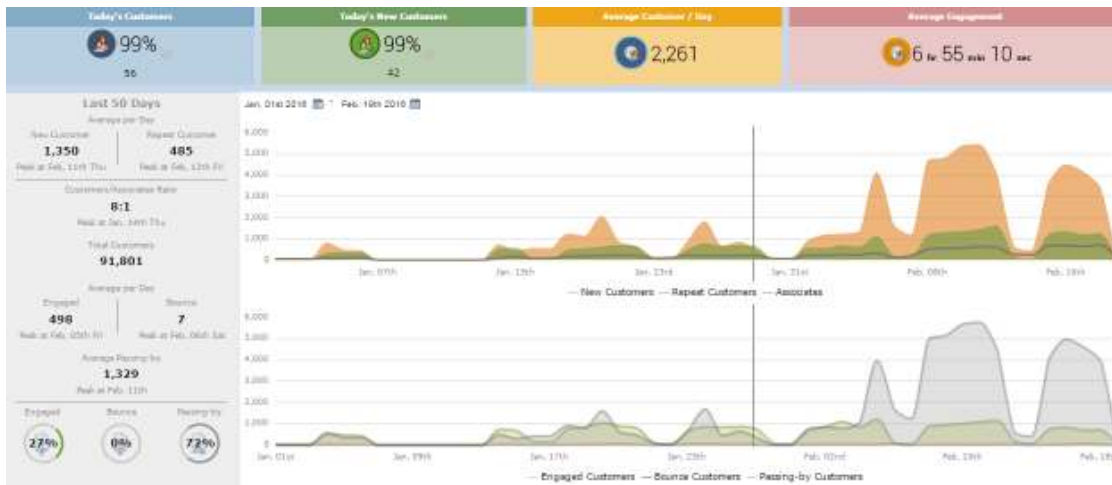
2. New Features in MPact 2.0

MPact 2.0 introduces numerous enhancements for the server software, SDK and Toolbox as well as the mobile dashboard app and the Launchpad application (previously called MCM).

MPACT SERVER SOFTWARE ENHANCEMENTS

1. **New Analytics for customers and associate trends with customizable time filters on "Insights" dashboard**

MPact 2.0 introduces the concept of creating profiles for customers, associates and assets. With machine learning algorithms, MPact analytics intelligently classifies wireless devices (either via wifi or BLE) as associates or assets so that a more accurate view of customer counts can be displayed.

Time filters allow for an hourly, daily and weekly view of trends based on the time interval chosen.

For customer traffic counting, prior to 2.0, MPact made available data visualization for the last week or last month for new and repeat customers as fixed time periods. V2.0 adds more granularity by providing details on associates in addition to new and repeat customer trends on the Insights dashboard with customizable start and end times, going back in time upto 3 months.

Another view has also been added where trends can be seen for customers traffic flows based on time spent in the store as passer by/bounce or engaged visitors.

There is a graphical view of this trend data as well as an aggregated count now available in the 2.0 Insights Dashboard. This aggregated view also displays the customer to associate ratio for the chosen time period.

Enhancements to the Active View on the Dashboard Menu include:
- The icon sizes to be adjusted so that the visualization of located items is easier for large scale maps.
- Heatmaps can now be viewed for BLE and Wifi for profiles created such as an associate heatmap or a customer heatmap.
- Device names can be configured to show up in the Active View screen as a configurable function.

2. Support for new beacons and beacon profiles

MPact 2.0 provides configuration and battery management for the following beacons:
- MPact 2000 –Replaceable battery indoor BLE beacon with model number MPACT-INDR1
- MPact 3000 – USB powered indoor BLE beacon with model number MPACT-USB1
- MPact 4000 – Non-replaceable battery outdoor IP67 rated BLE beacon with model number MPACT-OUTDR1

Configurations can now be created on the MPact server software:
- for every beacon model as a global setting
- per beacon with beacon override settings

3. New API for data extraction

MPact 2.0 has added more visibility into the data collected via Aggregate APIs as well as additional context for beacon detections and configurations via APIs
  a. New tabs for other types: FlushPending, Aggregates
  b. BLECProtocolSequence, BeaconJob, BeaconProfile, BeaconProfileAudit, ClientProfile, ClientProfileGroup, DwellCounts, OutboundNotificationError, Profile, ProfileGroup, TagStatusDaysRemain
  c. OutboundNotificationStatus

MPact 2.0 also enables notifications per site, in addition to beacon, category and region that existed previously.
  a. Type=Site

4. New notification rules

Prior to 2.0, MPact delivered programmatic notifications to back end systems for entry and dwell triggers. In the 2.0 release, MPact has added 4 more business rules to trigger a notification into a workforce management system or a marketing campaign/content management system. These new business rules are:
  a. Presence
  b. Exit
  c. Density (eg. If a line at POS is beyond 10 customers, then trigger a notification)
  d. Ratio (eg. If the number of customers exceeds number of associates , trigger a notification)

5. Tree Structure enhancements

The tree structure module on the server has been enhanced to be more efficient, consume less network bandwidth and accommodating of multiple users editing the different parts of tree at the same time. Each action performed by the user, for any single node is the tree is treated individually and automatically - directly saving the micro-change into the system instead of saving the entire tree for such changes.

6. Proximity Settings per beacon

Prior to 2.0, Mpact supported configuration for the SDK to initiate interactions via the app at immediate, near or far as a global setting across all beacons. MPact 2.0 delivers the flexibility to enable proximity settings to the SDK per beacon. This enhancement is supported on the server and the SDK for both IOS and Android.

7. Flexible configuration model for SDK communication with Mpact server

MPact 2.0 enables the ability for customers to configure the frequency of SDK communication with the server. Previously, this was a fixed communication at a 4 second interval. This is the default value.

MPACT SDK ENHANCEMENTS

In conjunction with MPact server software enhancements, changes have also been made to the IOS and Android SDK that allow for :
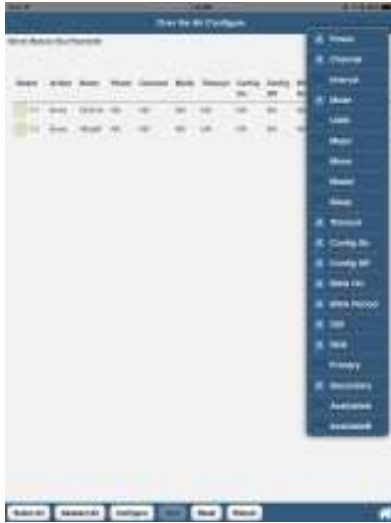1. Customizable Client Status update interval between SDK and Mpact server software - default value is 4 seconds.
2. Per beacon proximity settings for immediate, near or far
3. Recognize beacon model/SKU by SDK to account for different power and range profiles
4. Optimized operations for mobile device power efficiencies in absence of network connectivity either via cellular or wifi

MPACT TOOLBOX ENHANCEMENTS

Both the Android and IOS toolboxes are now available for configuration and maintenance of all the beacons MB1000, MB2000, MB3000 and MB4000.Consequently, based on beacon model, different configurations can be pushed depending on type of beacon. Server connectivity to the toolbox is required for beacon onboarding and validation.

Some other enhancements to the toolbox functionality include:

1. Configuration and Firmware update screens have been combined with the ability to choose Firmware option in the Setting screen
2. Global settings are shown per beacon profile and depends on what toolbox detects. For example - If toolbox detects indoor beacon MB2000 beacon then it will show settings for indoor beacons only.
3. If there are multiple types of beacon then you can select/unselect which types of beacons you want to see.
4. Different configuration parameters are added and you can select which parameters you want to see on screen for configuration
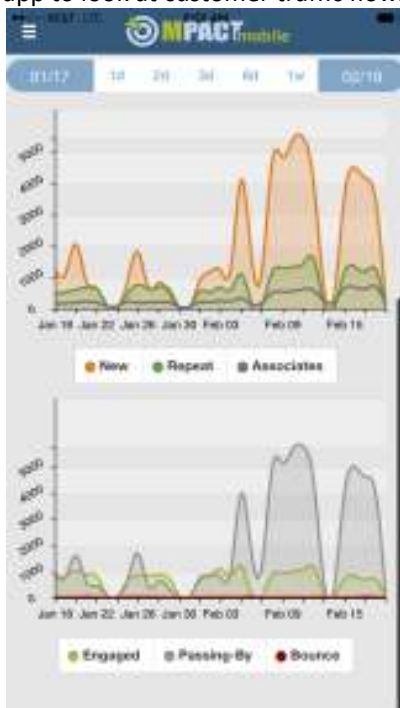
5. Beacons now support and auto connect mode where they can automatically go into connect mode after a certain configured time interval.
6. Better alignment of the "blue-dot" next to a beacon (earlier deployments could skew this representation depending on high-density pixels,

MPact LAUNCHPAD APPLICATION FOR EASY INSTALLATION
Previously called MCM – the MPact Launchpad application has been enhanced to make the deployment of single node or clustered nodes of Mpact server software extremely easy and efficient.

REDESIGNED MOBILE APPLICATION FOR THE "INSIGHTS" VIEW
This app is available for both IOS and Android –and can be a store manager app as well as a CMO's app to look at customer traffic flows in store

3. Default Settings on the Beacons

Beacon type	Beacon Interval	Beacon Tx Power	Beacon Mode	Auto connect Interval	Beacon UUID
MPACT-T1BX0	600 ms	-23 dBM	Mpact	0	FE913213-B311-4A42-8C16-47FAEAC938DB
MPACT-MB2000	100ms	-21 dBM	Mpact	0	FE913213-B311-4A42-8C16-47FAEAC938DB
MPACT-MB3000	100ms	-13 dBM	Mpact	Alternates between transmit and connect mode	FE913213-B311-4A42-8C16-47FAEAC938DB
MPACT-MB4000	200ms	-13 dBM	Mpact	0	FE913213-B311-4A42-8C16-47FAEAC938DB

4. Software Installation and Upgrade

3.1 Software Installation

The MPact software installation can be done easily by accessing the MPact server via the CLI or the MPact Launchpad application can be used (previously called MCM). Please refer to the server deployment guide for more details.

3.2 Upgrade

Please read this section very carefully for upgrade. If certain steps are missed out, there is a potential of the database not being persistent after the upgrade.

To upgrade to the latest version of MPact Server, please follow these steps

1. Open a terminal session.
2. Log in as root.
3. Change the folder to **cd/usr**.
4. Create a new folder, **mkdir installer** or any other directory.
5. Change current folder to the installer folder, **cd installer** or what the directory has been named.
6. Download the <**File name.gz**> file to this folder or copy it from available location to the installer folder.
7. Untar the MPact tar file, **tar-xvf <file name>** under the directory folder created in step 4. Change permissions of the nx_installer folder**, chmod-R 755/usr/installer /nx_installer**.
8. Once untarred, change to the install folder, **cd nx_installer** directory.
9. If installations needs to be done with custom directory and ports, use the following python command line to upgrade:

>*python install.py -silent -mpactbase "/usr" -mpactdata "/var2/nuxi" -mpactlogs "/var/log" -mpactpids "/var" -mpacthttpport "80" -mpacthttpsport "443" -mpactuser "root"*
If default directory and ports are ok as part of installation, then use the following command line to upgrade:
> *python install.py –silent*

10. When the Server installation is complete, start the MPact services: **cd /usr/nuxi/scripts/bin** and execute **./nxstats start**
11. Wait for the Mpact service to be up and running: login and configure the system parameters.

To login to MPact Server remotely:
1. Go to one of the following sites:
   - •**http://<server IP>/mpact**
   - •**https://<server IP>/mpact**
   If server has been installed at a custom port, then goto:
      - • **http or https://<server IP><port>/mpact**
2. Enter the User Name (**superuser** is the default) and Password (**mpact123** is the default), and select Login.

NOTE: In order to login to the Debian instance using the OVA, the default login credentials are username: **root**, password: **mpact**
NOTE: If this is an upgrade, the previously entered password will persist. Mpact123 is the default password for a fresh install of the server software.

3.2 Compatibility Matrix
See below for Server, SDK/Toolbox and Beacon firmware version compatibility

Server Software Version	SDK	Beacon Firmware	Installation Toolbox	Mobile app for System Insights
1.0	1.0	1.0	1.0	NA
1.0.1	1.0.1	1.0/1.0.1	1.0.1	1.0.1 Demo only
1.0.2	1.0.2	1.0/1.0.1/1.0.2	1.0.2	1.0.2 Supported
1.1	1.0.2/1.1	1.1	1.1	1.1
2.0	2.0	1.1/2.0	1.1/2.0	2.0

5. Important Notes

1. MB2000, MB3000 and MB4000 are shipping with firmware version 2.0 and will work with 2.0 server out of the box.
2. The Analytics on the Insights screen as well as the heatmap in Active View get refreshed every hour. Previously, the heatmap screen was refreshed every 5 minutes. We will revert back to that time interval in a future release.
3. For wifi, regions need category mappings. Regions apply only to wifi and need to be exported from ADSP platform, if they exist there.
4. Supported Air Defense Services Platform Wi-Fi locationing integration release is 9.1.2.

5. Wi-Fi Engagement time had issues the way it was being visualized in Mpact 1.1. That has been optimized and corrected in 2.0 for a more accurate representation of wifi Engagement time
6. The server and the toolbox previously allowed for setting a particular channel for the beacon to transmit in. That capability has been disabled and the beacons now transmit on all three channels – 37,38 and 39.

7. Known Issues

Server Related Issues		
CQ/ SPR	**Headline**	**Comments**
Licensing		
Locationing 00201578/ MPACT-706	Internet Explorer hangs when applying license	Recommend using Mozilla Firefox or Google Chrome. If IE is used, reopen IE and the license should have applied.
MPACT-2169	Notification: default dwell time, repeat time, count field are empty after upgrading server from 1.1 to 2.0	Please re-enter the notification rules when upgrading server software from 1.1
Analytics		
Locationing 00200470/ MPACT-966	Definition of region and position names supports only three special characters – (Underscore(_) Hyphen (-) and Space ( ))	Recommendation: Restrict usage of special characters in naming convention to Underscore(_) Hyphen (-) and Space ( )
Locationing 00201574/ Closed	Editing or adding categories with "comma" (,) will delete all existing category values	Workaround: Please refrain from creating category names with "commas". Planned enhancement in subsequent release
Locationing 00203593/MPACT-1349	Default Major and Minor is not its MAC address, as required, for out of the box configuration	Workaround: Configure each beacons that is required to broadcast its MAC address as its Major and Minor, to Major 0 and Minor 0.
Locationing 00203947/ MPACT-1199	Server does not returning the beacons information for the query "tagsInSite" if site name has "," character.	Workaround: Please refrain from creating site names with "commas". Planned enhancement in subsequent release
MPACT-2422	User Profile: Customized Customer profile may lead to visualization issues	Profiles for customers can be tweaked for dwell time for segmenting between passer-by, bounce and engaged. However, further customization may lead to issues on the analytics visualization on the Dashboard
Locationing 00205090/ MPACT-220	After rebooting the machine in which the MPact Server has been installed, all process does not automatically restarted	Workaround: Manually stop and start all the processes

Locationing 00208102/ MPACT-41	Unable to assign beacon placeholder to floor plan if category is created without category value	Workaround: Please create at least one category value for every category.

Reports		
SDK Related Issues		
CQ/ SPR	**Headline**	**Comments**
Locationing 00201594/ MPACT-711	User icon on the application can sometime bounce around to multiple tags	This issue is seen more often with the 64-bit versions of iOS devices. Planned fix in subsequent release
MPACT-2354	MPact SDK - SDK must be restarted to receive changing intervals of clientUpdates which is edited in MPact server/Beacon profile	An application relaunch will restart the SDK
ToolBox Related Issues		
CQ/ SPR	**Headline**	**Comments**
Locationing 00200718/ MPACT-1007	Toolbox can sometimes show successful upgrade even if the upgrade process failed.	Workaround: After firmware upgrade, please check the version of the FW by rebooting the beacon. If there is a mismatch of the version, please upgrade again. Planned fix in subsequent release