

AEM Proximity Experience Platform (PxP)

Submission Title: AEM Proximity Experience Platform (PxP)

Submission Body: **AEM Proximity Experience Platform (PxP)** – A complete end-to-end solution to Build & Deliver proximity based personalized experience using Adobe Products/Solutions (e.g. AEM, Launch, Analytics, I/O and AEP). **PxP** will also include APIs and SDK for developers (similar to Adobe Mobile SDK) for iOS, Android & Web Applications (Angular, React) development.

User experience around all of us is revolutionized by IoT, Mobile and Connect Devices. To harness true power of IoT/Connected Devices it is important to deliver relevant and meaningful content at right time so that it makes most impact. This not only creates wow moment for users but it is key to drive more business.

"**AEM Proximity Experience Platform (PxP) & SDK (PxP SDK)**" is a project/idea to build an end-to-end solution which will contain everything that Adobe customers would need to build proximity based personalized user experience using Adobe products, IoT and Beacon/iBeacon technology. The PxP solution will leverage Adobe's existing product (e.g. Adobe Launch, Analytics, AEM, AEP, Target) capabilities to create end-to-end integration and user experience. The PxP solution will be delivered as an AEM/CRX package. The AEM package can be installed (in AEM) by the Adobe customer who wants to build proximity based engaging user experience using Beacons/iBeacons technology, AEM and other Adobe Products. Mobile and web application developers can use PxP SDK which also be delivered as part of this solution.

The AEM Proximity Experience Platform (PxP) SDK will be a complete solution. The package/solution will include following:

- An AEM interface to manage iBeacons in AEM (e.g. add and configure new beacons)
- An AEM interface for author to map/associate Beacon with AEM content (Pages, Content Fragments, Assets etc.)
- An indexing connector that will index content with beacon information/meta-data for fast discovery and delivery of content
- An API platform that will provides real-time events related to Beacons and Proximity (Tentative)
- Pre-Built downloadable Adobe PxP SDK for iOS, Android and Web applications (e.g. Angular, React). The SDK will be based on Open API and Swagger standards and it will allow developers to leverage PxP features and capabilities to build their own experience
- Easy integration hooks (configurable) with
 - Adobe Launch
 - Adobe Analytics
 - Adobe I/O
 - Adobe Target
- A boilerplate started mobile application template to help developer getting started

Why this submission matters - how it will demo?

The PxP idea has potential to become a core offering (like DAM, AEM Forms etc.) from Adobe in future. The idea of iBeacon-based personalization is catching up in every industry. There is no end-to-end solution that exists today that Adobe customers can use as an offering from AEM or Adobe to build proximity-based personalized experience.

Live demo (development is in-progress) will include following (screenshots: <http://shorturl.at/giqrC>):

- AEM Beacon Manager interface for managing beacons in AEM
- Content Creation and Beacon Mapping interface
- Open APIs (based on Swagger) & SDK (Mobile and Web) for managing beacons using APIs (without AEM interface)
- Open APIs (based on Swagger) & SDK (Mobile and Web) client for pulling content from AEM based on beacon proximity
- A fully working mobile application to show PxP's proximity-based personalization capabilities. Working on developing Use Case #1 below for demo.
- Data tracked by Analytics from demo mobile application

Sample user cases:

- **Demo Mobile Application** (see screenshots: <http://shorturl.at/giqrC>): Deliver content based on user's physical location (e.g. specific partner booth on Adobe Summit floor) at a given point of time (I am working on demo with dummy content which is almost ready)
- **Retail**: Deliver shopping offers/discounts based on in which department user is currently shopping
- **Healthcare**: In hospitals/buildings deliver helpful information to users based on their current location inside the building
- **Travel**: On airports deliver content (food options, maps to guide user, offers etc.) based on terminal where a user is (some work has already been done by other players on this use case but not with AEM or Adobe products)

Any relevant links

Demo Screenshots: https://github.com/suryakand/adobe-px-demo/blob/master/PxP_Screenshots.pdf

Beacons/iBeacons is just one form of device, I believe PxP has potential to become an extensible solution from Adobe that would allow Adobe customers to create impactful solutions by blending Adobe technologies with IoT and other Connected Devices. I have extensive working experience with Adobe products as well as with IoT and I am excited to build and present PxP.

In past I have won hackathons for designing innovative IoT and iBeacon-based solution for IBM, KONE (the elevator company) and Philips while I was in SFO Bay Area. Here are some references links:

- <https://developer.ibm.com/iotplatform/2016/10/11/hackathon-showcase-att-iot-bay-area/>
- <https://www.linkedin.com/pulse/2-days-hackathon-iot-smart-elevators-lights-cloud-plug-shinde/>
- <https://twitter.com/BMAEvents/status/914654959949320192>

***** Demo screenshots on next page (in-progress) *****

Fig. 1: Mobile App Login Screen

Fig. 2: Content Rendering based on physical location (proximity) of user from a Beacon

Fig. 3: Mobile Application Settings

Fig. 4: Beacon Debug Screen (for demo and developers only)

Fig. 5: AEM Dashboard Navigation – Proximity Beacon Manager

Fig. 6: AEM Beacon Manager - Dashboard

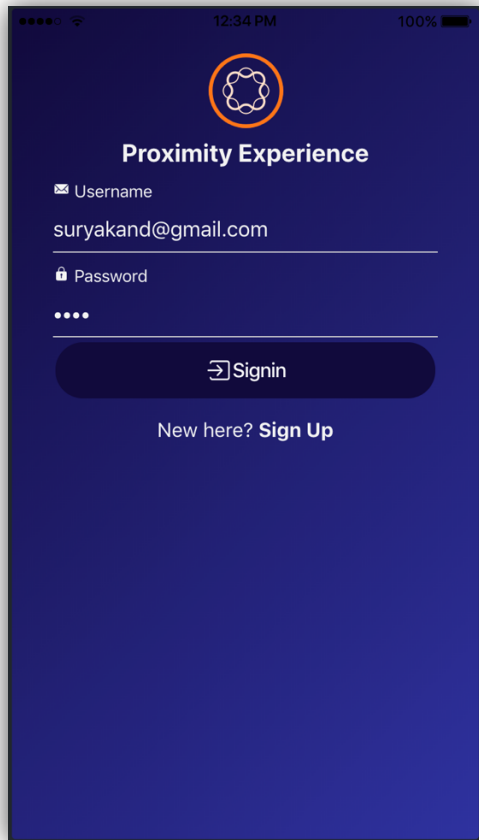
Fig. 7: AEM Beacon Manager Interface - Add/Edit/Delete/Update Beacons

Fig. 8: AEM - Beacon Detail Screen

Fig. 9: Adobe Analytics – PxP content tracking

Fig. 10: Swagger APIs for managing Beacon without AEM user interface

Fig. 11: Swagger APIs for PxP mobile SDK and fetching content from AEM



AEM Proximity Experience Platform (PxP) Boilerplate/Demo Mobile Application

Fig. 1: Mobile App Login Screen

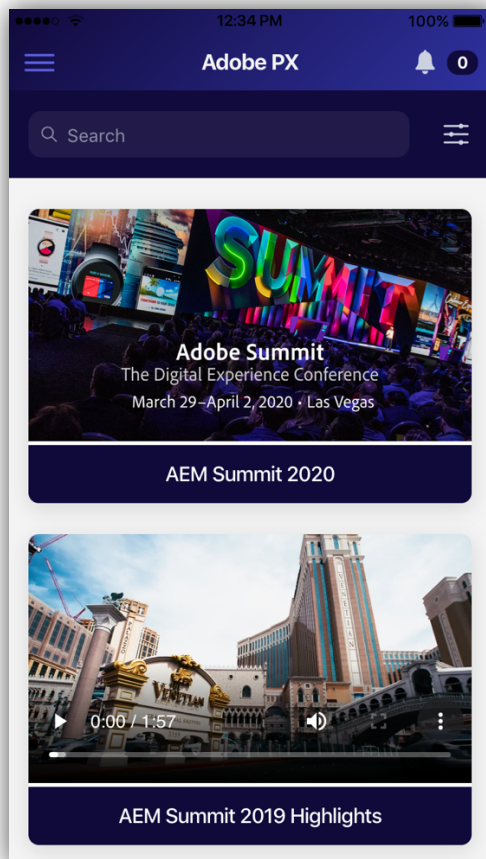


Fig. 2: Content Rendering based on physical location (proximity) of user from a Beacon

Content is pulled using content service and PxP Mobile SDK (built as part of this solution). PxP SDK can be used with any web (Angular, React etc.) or mobile platform.

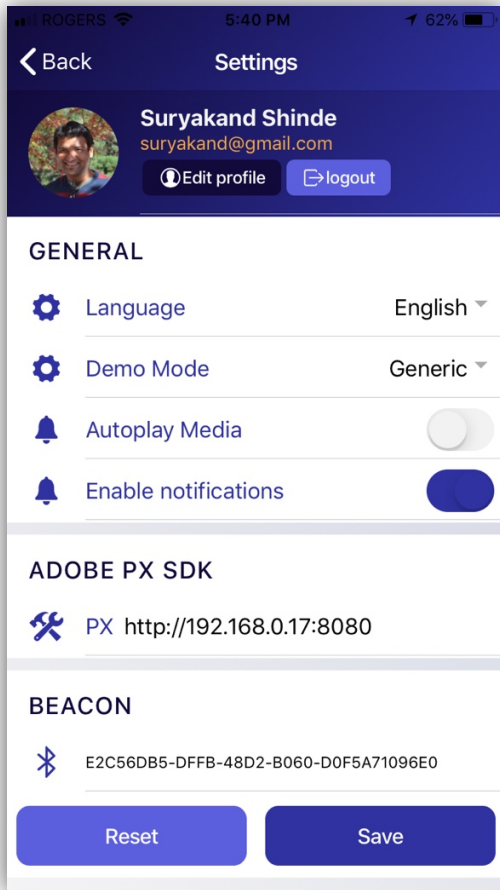


Fig. 3: Mobile Application Settings

Settings screen to control Beacon range, language and demo mode (summit floor, rental car use case or museum)

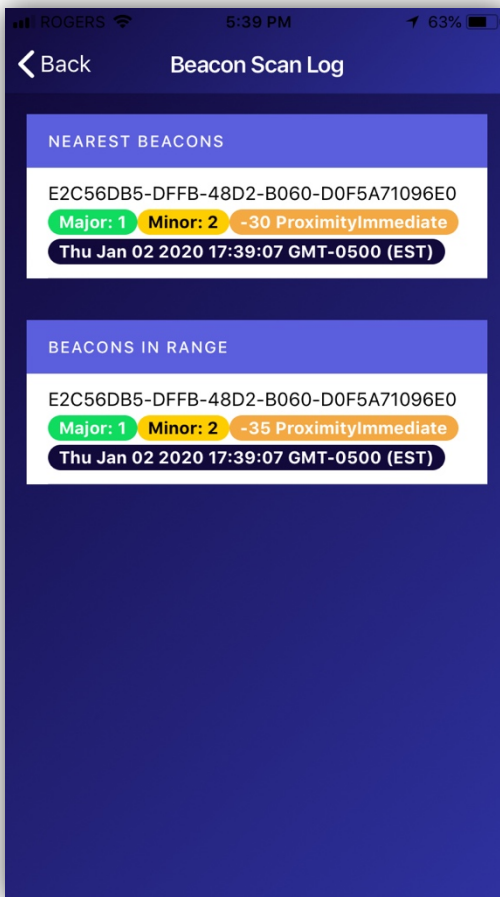


Fig. 4: Beacon Debug Screen (for demo and developers only)

Debug screen lists all beacons in range of mobile application along with beacon parameters. This helps in debugging and allows developer to focus on development.

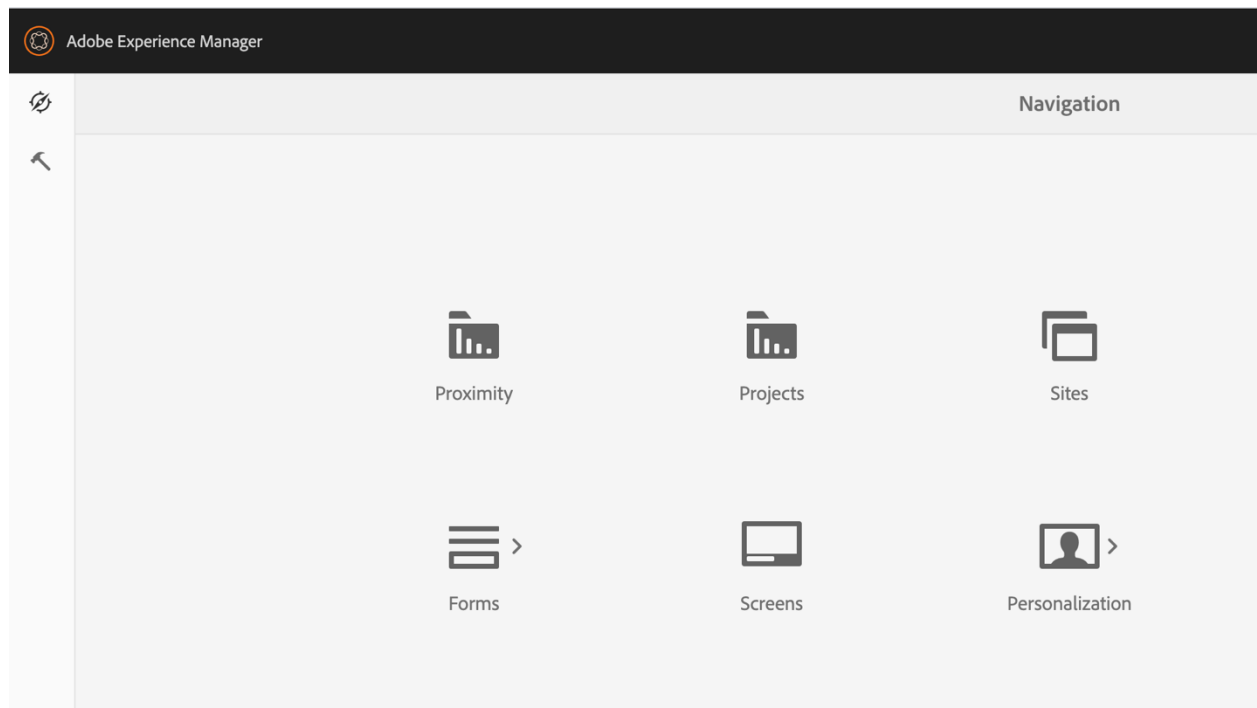


Fig. 5: AEM Dashboard Navigation – Proximity Beacon Manager

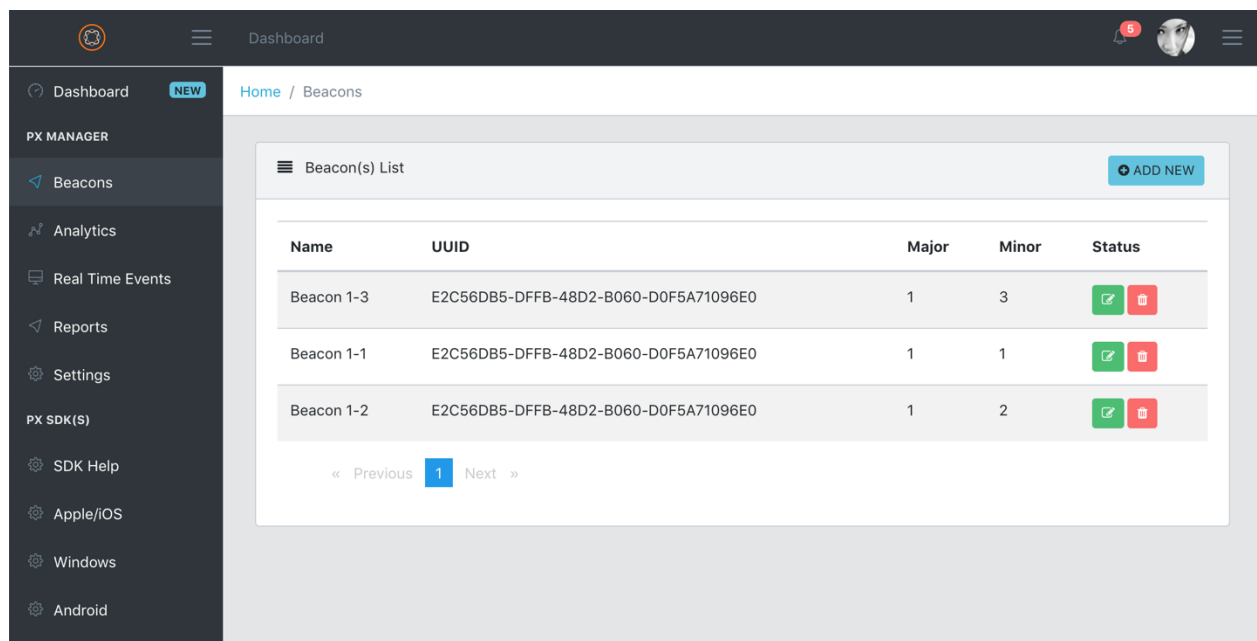
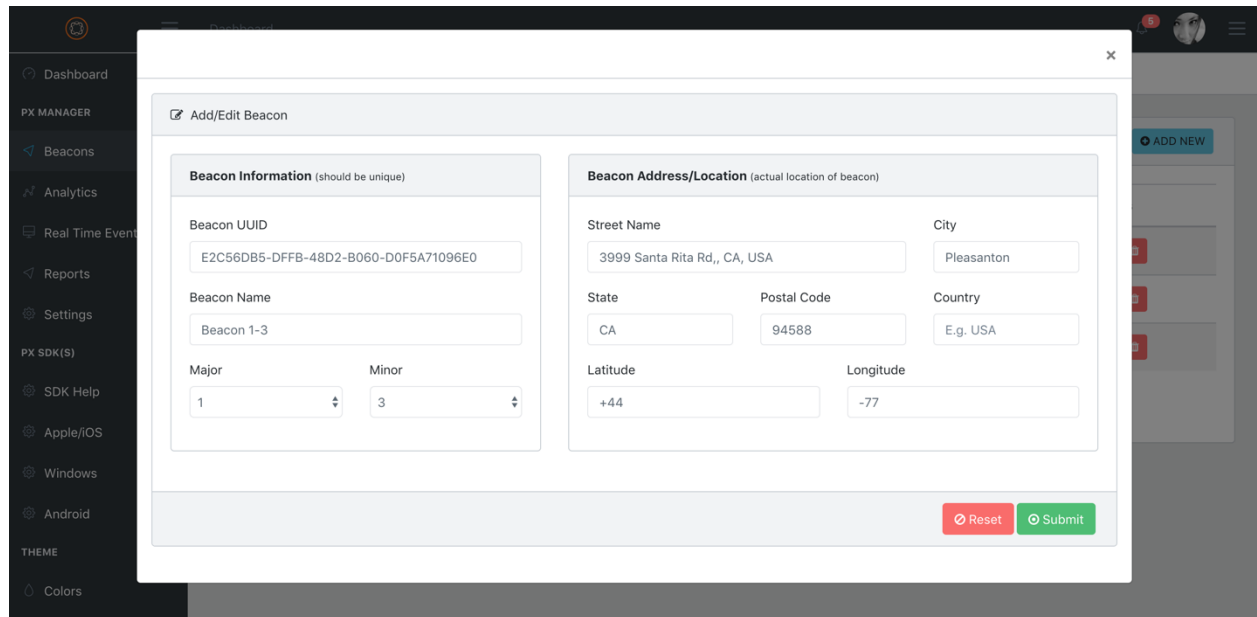
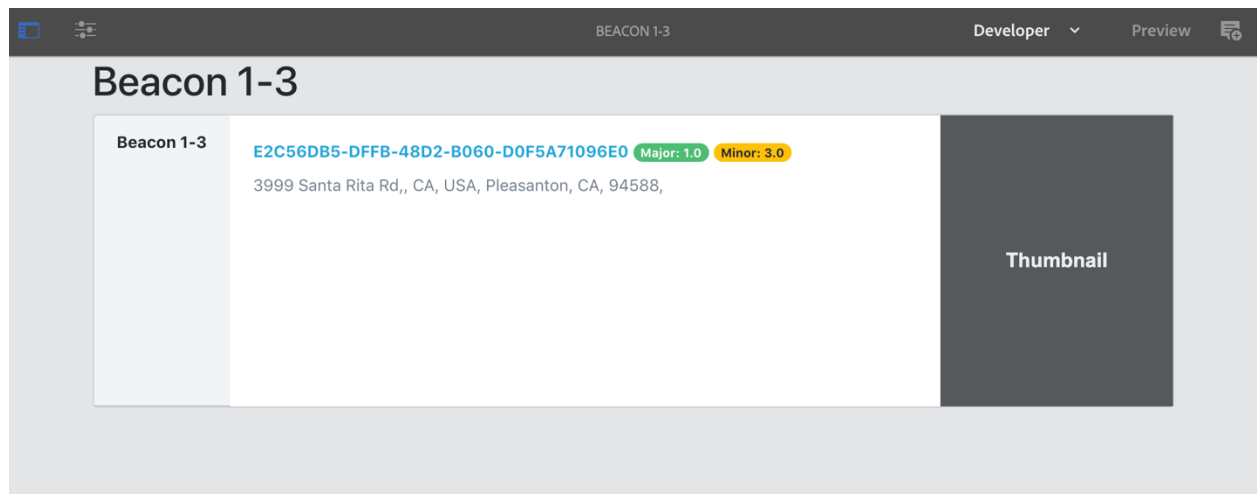


Fig. 6: AEM Beacon Manager - Dashboard



The image shows a web application interface for managing beacons. A sidebar on the left contains navigation links: Dashboard, PX MANAGER, Beacons, Analytics, Real Time Events, Reports, Settings, PX SDK(S), SDK Help, Apple/iOS, Windows, Android, THEME, and Colors. The main content area is a modal window titled 'Add/Edit Beacon'. It is divided into two columns. The left column, 'Beacon Information (should be unique)', contains fields for 'Beacon UUID' (E2C56DB5-DFFB-48D2-B060-D0F5A71096E0), 'Beacon Name' (Beacon 1-3), and 'Major/Minor' version numbers (Major: 1, Minor: 3). The right column, 'Beacon Address/Location (actual location of beacon)', contains fields for 'Street Name' (3999 Santa Rita Rd., CA, USA), 'City' (Pleasanton), 'State' (CA), 'Postal Code' (94588), 'Country' (E.g. USA), 'Latitude' (+44), and 'Longitude' (-77). At the bottom right of the modal are 'Reset' and 'Submit' buttons.

Fig. 7: AEM Beacon Manager Interface - Add/Edit/Delete/Update Beacons



The image shows the 'Beacon Detail Screen' for 'Beacon 1-3'. The header bar includes a logo, the title 'BEACON 1-3', and user roles 'Developer' and 'Preview'. The main content area has a large title 'Beacon 1-3'. Below it, a card displays the beacon's details: 'Beacon 1-3', the UUID 'E2C56DB5-DFFB-48D2-B060-D0F5A71096E0', and version tags 'Major: 1.0' and 'Minor: 3.0'. The address '3999 Santa Rita Rd., CA, USA, Pleasanton, CA, 94588,' is listed below. To the right of the card is a large dark gray rectangle labeled 'Thumbnail'.

Fig. 8: AEM - Beacon Detail Screen

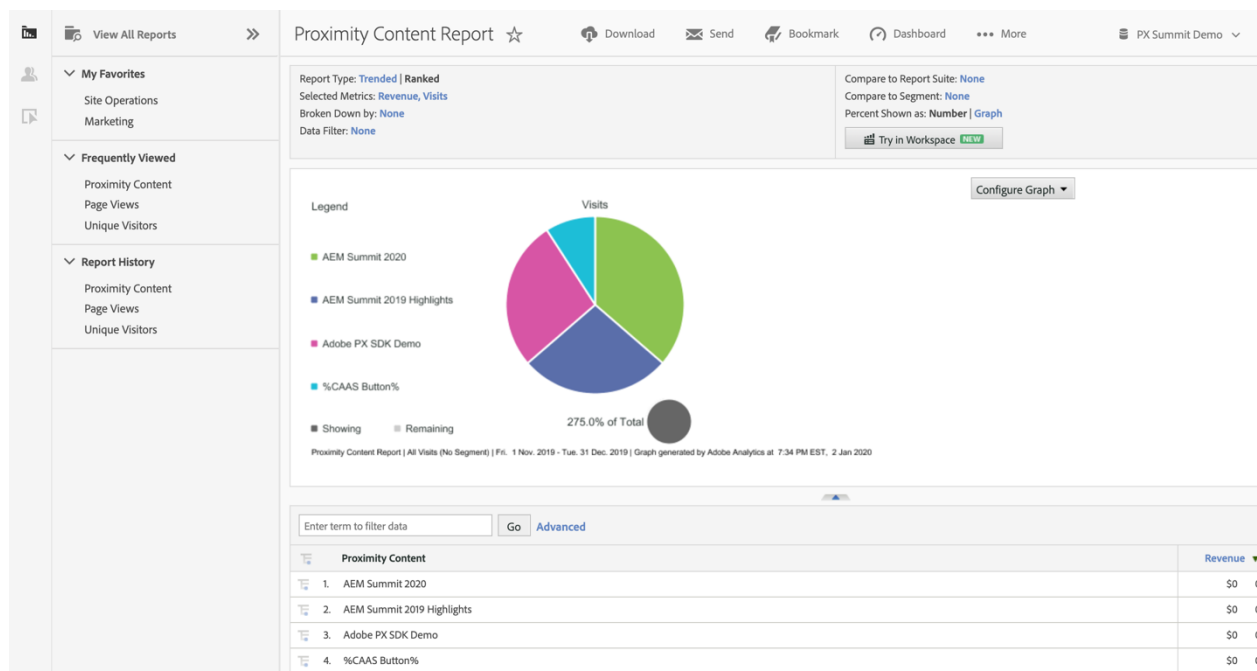


Fig. 9: Adobe Analytics – PxP content tracking

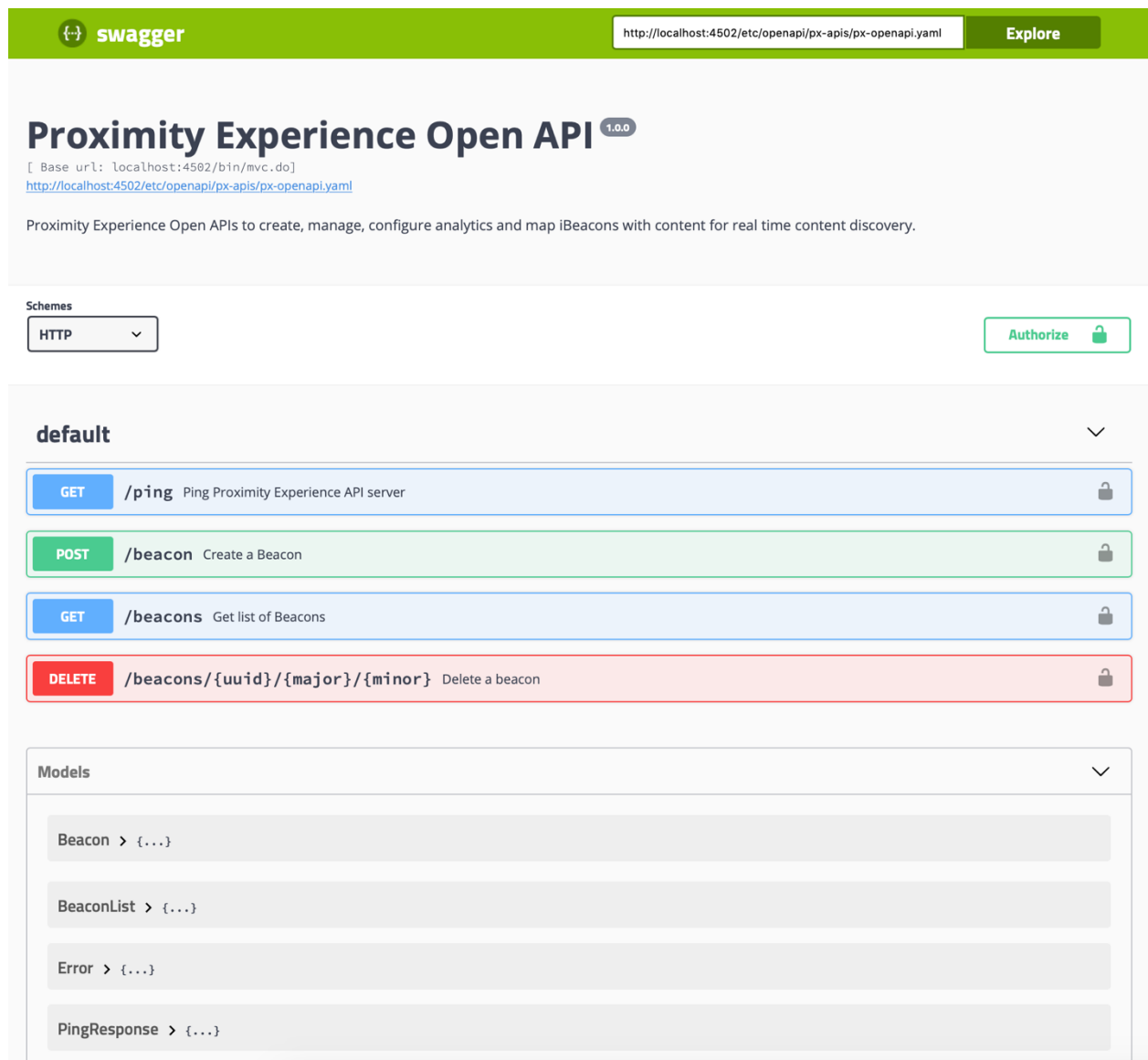



Fig. 10: Swagger APIs for managing Beacon without AEM user interface

 **Swagger**
Supported by SMARTBEAR

/v3/api-docs

Explore

OpenAPI definition v0 OAS3[/v3/api-docs](#)

Servers

http://localhost:8080 - Generated server url

PX

GET /api/px/{uuid}/{major}/{minor} Search Content for a given beacon

Schemas

Pageable >

PxResult >

PxSolrResponse >

Sort >

Fig. 11: Swagger APIs for PxP mobile SDK and fetching content from AEM