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## Pre-configuring iBeacon Parameters

There are 4 key parameters to set for each beacon, to ensure they trigger the position action effectively – UUID, Major value, Minor value and Power.

### UUID

This is a unique institutional identifier value that will be supplied by Ex Libris on request. It will be the same identifier for all beacons for a customer.

### Major Value

The campusM implementation of iBeacons uses beacon regions to trigger actions. These regions are determined by the Major value (from 1 to 20) of the beacon configuration.

The devices' Operating System is passively scanning for registered beacon regions associated with campusM. When a registered region is encountered, the app is provided with some background processing time that will enable it to carry out the associated position action. It is the regions changes that trigger these actions - it is therefore important to ensure that, as end users move from one touchpoint to the next, they encounter a region change. This is especially important if the beacons are in close proximity.

Therefore, to maximized effectiveness of beacons we suggest varying the beacon Major values between 1 and 20 from one position to the next. Where you are deploying more than 20 beacons, restart the numbering of the Major value in such a way as to ensure that beacons with the same Major values are **not in proximity to each other**.

### Minor Value

This, in combination with the UUID and Major Value, provides the unique identifier for each beacon. With the UUID being the same for all beacons and the Major value varying from 1 – 20, it is important that the Minor value is **unique for each iBeacon** that is configured in campusM for the customer.

### Power value

Beacon region triggering depends on detecting the Bluetooth signals being transmitted by each beacon. This signal can be attenuated (or weakened) by walls, doors, and other physical objects. The signals are also affected by water, which means the human body itself will affect the range of beacons. It is important to be aware of these factors when setting the power levels and planning where the iBeacon will be deployed within a room. A central point above head level is great for wide coverage.

The beacons allow for variation in signal strength, with a scale between 0 and 7 allowing for modulation in signal range. The table below provides guidance on approximate range for each power level (and the inevitable impact on beacon battery life).

Power level	Approx. Range (Meters)	Approx. Battery Life (years)
0	2	6
1	4	5
2	10	4
3	20	3
4	30	3
5	40	2
6	60	1
7	70	<1