

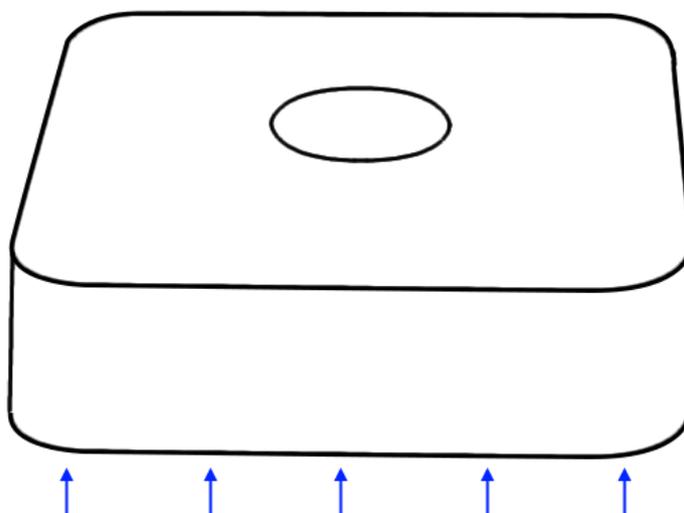
Manual for BlueRange Mesh Hardware Installation

Before Mounting

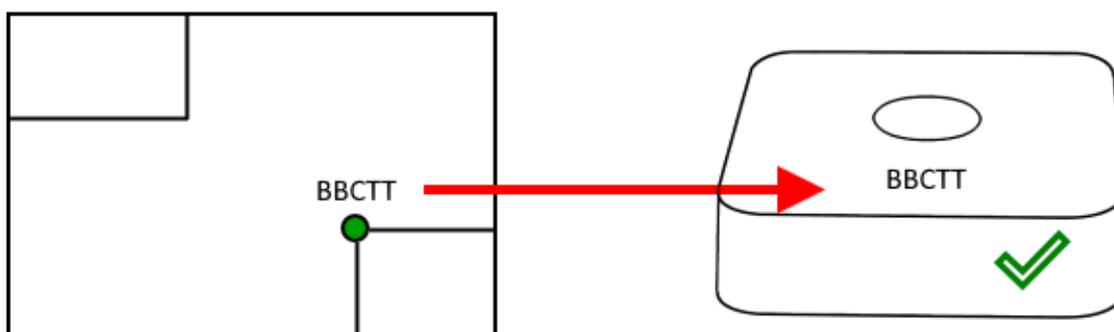
Before mounting the MeshBeacons, **please note** that the serial number (e.g. BBCTT) is on the back with which the beacon will hang to the wall.

You are able to first bring the beacons to their position, **scan them and start the enrollment later**, as you don't need to be in reach of all the beacons to enroll them, only network access is needed.

The beacons come with **adhesive** stickers to mount them easily anywhere.



Make sure that the beacon with the correct serial number is placed in the correct place where it is placed in the Enrollment App. The more accurate the better.



This serial number is just an example!

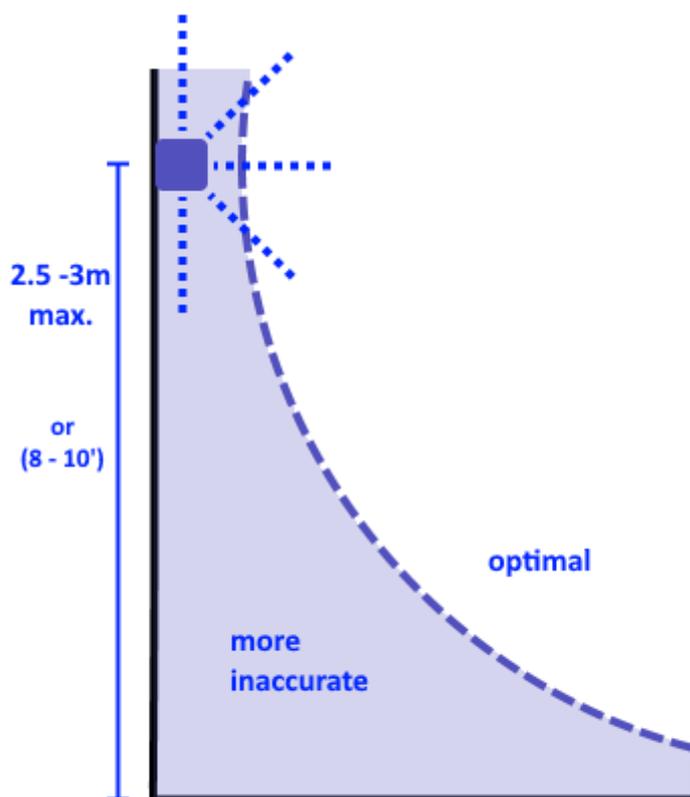
Optimal Positioning

Height

Keep in mind that the best height would always be in height of tracked assets. Since this is impractical in most cases, the difference in altitude between AssetBeacons and MeshBeacons is later removed via a test run and the resulting reference data.

For reasons of practicability the height isn't defined exactly as different rooms are different in height.

For particularly high rooms or halls you should make sure that a height of **2.5 to 3 meters** is not exceeded.



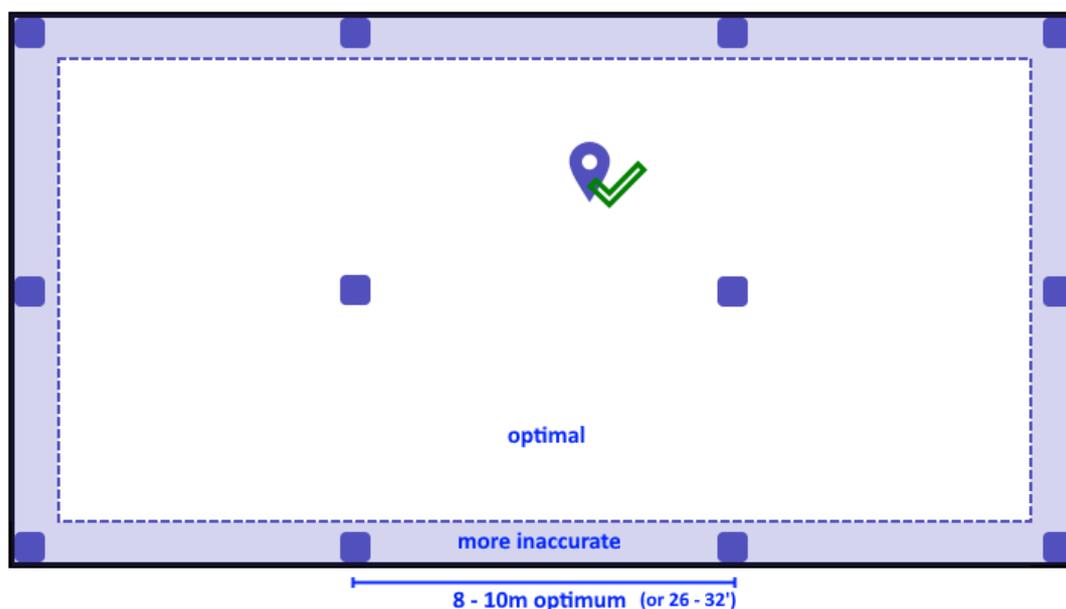
Please also note that there is a zone along the walls within which Asset Tracking is less accurate than more in the center of the room.

This is because this area is covered by fewer beacon signals at the same time. The more MeshBeacon signals cover an area the more precise is the asset tracking.

Distance between MeshBeacons

The recommended max. distance between two MeshBeacons is **8 - 10 meters**. This ensures that the MeshBeacon after the next can still be reached in the event of a failure.

Under optimal conditions and in free space, the MeshBeacons can reproduce significantly higher ranges. However, the maximum range of a MeshBeacon is specified as 15 meters.

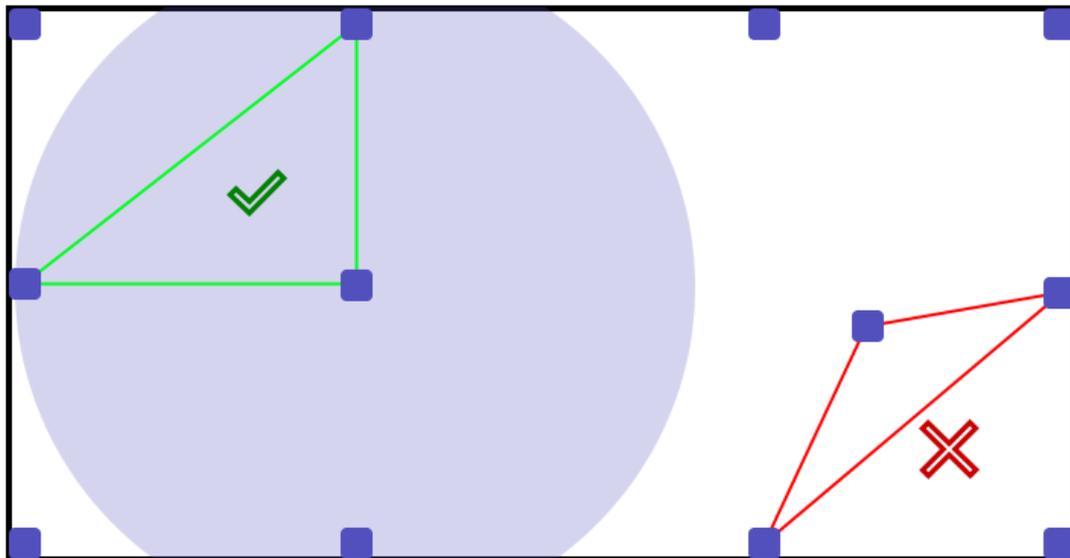


Asset Tracking Requirements

For **precise asset tracking** make sure the entire area is covered by MeshBeacon signal range. Three mesh beacons each form a triangle within which the trilateration is performed.

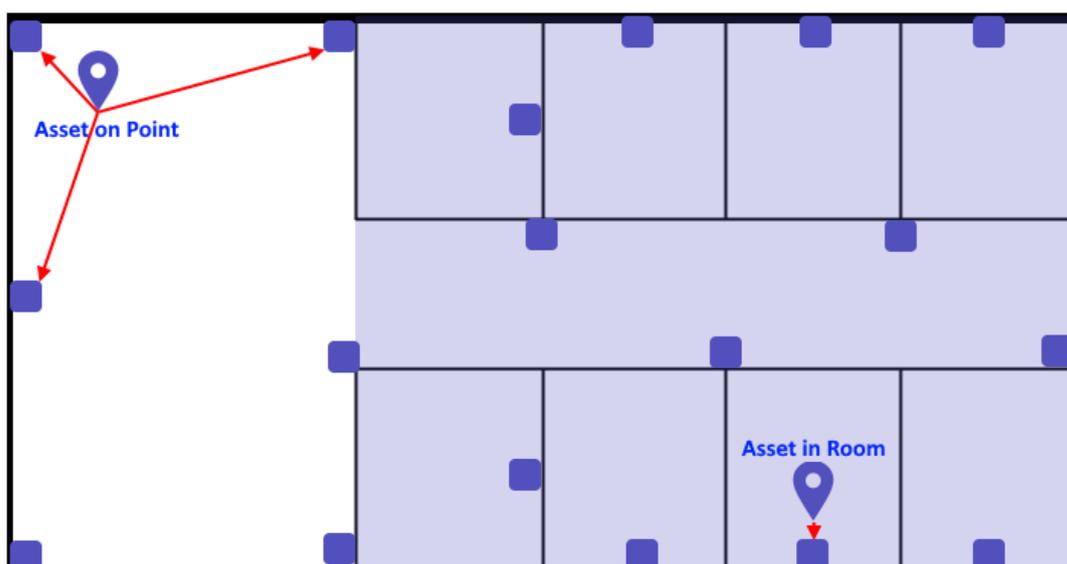
To cover as much area as possible by three MeshBeacons, ensure the triangle in between is wide and covers as much space as possible.

If the beacons are placed too tightly, the triangle therefore the trilateration area is too flat. In this case, not the entire room is covered by asset tracking.



For **unprecise asset tracking** in only rough zones instead of precise on-point tracking you need to place only one MeshBeacon, which is connected to the mesh, in the corresponding zone or room.

An asset is always assigned to the MeshBeacon to which the strongest connection exists, if no trilateration is possible.



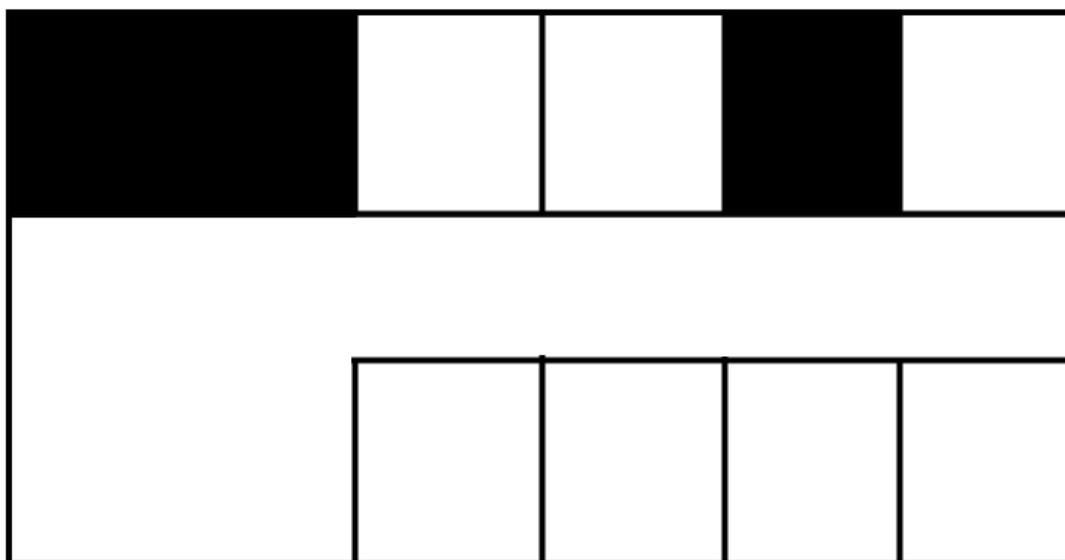
BlueRange and Walls

In the current version of the Platform you can upload a **wallmap** beside your standard map of the site.

The wallmap and the site map must **match in dimensions**. Then the wallmap determines the areas where no asset can be located, e.g. because of walls.

In your wallmap the color black defines blocked areas and the color white free areas.

If you have specific areas or rooms where you know you don't need or want asset tracking, you can block them by blacking them out.



The specification of blocked area supplements the algorithm and thus enables more precise asset tracking.

Please note that the thickness and condition of a wall have a decisive effect on the signal range of the MeshBeacon.

An example:

The signal **may be able** to penetrate a wall of thin or unstable material. Nevertheless, the signal on the other side is weak.

The signal is **certainly not able** to penetrate a massive reinforced concrete wall. Here a way around it must be found, e.g. a door or similar, to maintain the mesh connection.