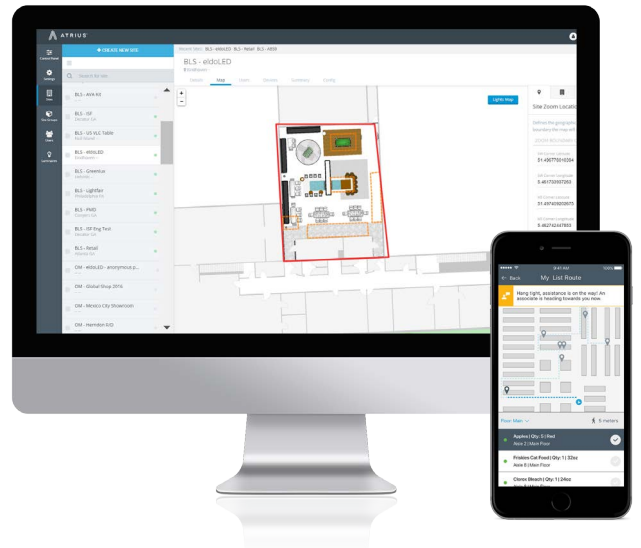




# ATRIUS NAVIGATOR

## FREQUENTLY ASKED QUESTIONS



### What is Atrius Navigator?

Atrius Navigator Platform Service is a Software Development Kit (SDK) that provides location-based (LBS) and indoor positioning services (IPS) for use within mobile applications. Atrius Navigator acquires data from the Atrius Sensory Network, luminaires enabled with Atrius.

### What luminaires work with Atrius Navigator?

Luminaires enabled with Atrius, featuring embedded Bluetooth low energy (BLE) and/or Visible Light Communication (VLC) technologies, work with Atrius Navigator. Acuity Brands Lighting (ABL) teams continue to release additional luminaires enabled with Atrius, further contributing to the Atrius Sensory Network. This is a continuous and ongoing effort with new product releases every month. For the most up-to-date Atrius Sensory Network, visit [www.acuitybrands.com/atrius](http://www.acuitybrands.com/atrius)

### How do I know if a particular luminaire is enabled with Atrius?

This is specified in the nomenclature and noted as "AE" in the luminaire spec sheet. The spec sheet will also feature a "enabled with Atrius" ingredient logo.

### What impact on power consumption does an enabled with Atrius luminaire have over one that is not enabled?

AE1Cx and AE1Bx fixtures have an additional standby power consumption of 150mW (approximately 0.5% power of a 30W fixture) to power the Bluetooth low energy radio. There is an additional impact of less than 2% fixture efficiency when VLC is enabled.

### If a fixture has to be replaced in a functioning indoor positioning facility, how do I ensure that the new fixture is also commissioned properly?

Customers who have already deployed Atrius Navigator receive a Maintenance App. This app allows them to recommission a new fixture by simply standing under it and following a two step process.

### How do I know if a luminaire features embedded BLE, VLC or both technologies?

The Atrius option group nomenclature indicates the capabilities of the luminaire. There are five characters in the nomenclature, example AE1CD. See table below to read the capabilities.

Character Placement	Character Description	Character Options	Significance
First two	Prefix	AE	Atrius Enabled. All luminaires enabled with Atrius start the nomenclature with these two letters
Third	Platform	1, 2, ...	Interoperable firmware platform. This number indicates which firmware platform the hardware was manufactured with
Fourth	Positioning Beacon	C – VLC & BLE Beacons B – BLE only Beacon V – VLC only Beacon	The type of beacon determines the positioning capability that could be deployed in that space
Fifth	Driver Communication	D – Digital A – Analog N – Fixture power supply only	This describes how the BLE board communicates with the driver. Digital communication is through eidoLED's ledcode. Analog communication does not use ledcode communication

**Do the fixtures have to be commissioned for Navigator capabilities to be utilized?**

Yes, Acuity’s Field services team is equipped with the necessary tools to commission a new space.

**How is the phone’s position calculated using VLC or BLE technologies?**

VLC uses angle of light entry into the mobile phone’s front camera to calculate the distance from a light fixture. The eldoLED driver, enabling VLC, in each luminaire has a unique ID that is used by the software to identify the location in a commissioned space. Direct line of visibility from the phone’s front facing camera to the luminaire is required for a position fix. See figure 1 below.

With BLE positioning, the mobile device uses the RSSI (received signal strength indicator) values of the enabled luminaires’ BLE radios to calculate its position. Navigator uses multiple algorithms in the background to update a phone’s location based on these RSSI values.



**What are all the components required for Atrius Navigator to work?**

See figure 2 for the solution architecture.

- Luminaires enabled with Atrius - installed and commissioned
- ECLYPSE A1000 for configuration of BLE communication and IP communication
- Atrius Navigator SDK and Atrius Admin
- End user mobile application leveraging the Navigator SDK

**How do I implement Atrius Navigator once all the components are installed and commissioned?**

Atrius Navigator is a software platform that is packaged in a software development kit (SDK) for a mobile app developer to incorporate into an existing or a new mobile app. A mobile app that incorporates the Navigator SDK will immediately begin sending its own x,y position to the Atrius Cloud, when in a commissioned space.

**Where is the position calculated?**

- Position is calculated on the mobile device

**How are positions sent to the cloud?**

- The mobile device sends its position to the cloud while in a commissioned space via the device’s data connections (WiFi or Cellular)
- If there is no active data connection, device positions are cached until data connection is available

**What is provided in the SDK?**

- Reference Apps that show both iOS and Android examples of using the SDK
- Navigator framework (a collection of libraries)
- Documentation
- Latest release notes

**What data is sent to the cloud?**

- Position coordinates
- Orientation
- Time stamp
- Mobile device ID

**How is the BLE firmware in the luminaires maintained for the sensory network over the life of the fixture?**

The ECLYPSE A1000 acts as the gateway that provides over-the-air BLE firmware upgrades to the light fixtures. See Figure 2

**How much battery is consumed on an end user’s mobile device when Atrius Navigator services are enabled?**

Navigator will switch between BLE and VLC services depending on phone position. BLE positioning consumes the same amount of battery on a mobile device as any other BLE enabled application. VLC positioning uses similar amount of battery as wifi enabled activity by phone.

**Does Acuity collect any personal information based on location of mobile device?**

Acuity does not collect any PII (personally identifiable information) from the Atrius Navigator SDK.

**Does Atrius Navigator require a data connection?**

- The first site initialization does require a data connection to receive site information. The site information can be cached to enable subsequent site initializations while offline. After site initialization, live data connection is not needed for ongoing positioning.
- Routing indoors does require a live data connection.

**How can I update action zones?**

Atrius Admin is a web application that is made available with the purchase of Atrius Navigator. It allows users to change the action zones through a visual mapping interface.

**My floor layout has changed. How do I update the map on the app to reflect these changes?**

The Atrius Admin can be used to update floor maps. Simply upload the latest map file for the appropriate space in this tool, and the new floor map will be reflected in the app.

**Does Acuity build the App for indoor positioning?**

Navigator SDK increases the value of any app by providing indoor positioning capability to that app. Acuity has built a Navigator Sales Demo app for the purpose of demonstrating the positioning and related business application capabilities. If customer does not have internal app development capabilities, Atrius partners can help build a suitable app.

**I have the SDK for Atrius Navigator; but how do I ensure it is the latest version?**

- The latest SDK is made available on the developer portal. <https://developers.acuitynext.com>

**APPENDIX**

Figure 2

**HOW IT WORKS**

Atrius Navigator SDK leverages Bluetooth low energy and/or Visible Light Communication technologies as well as readily-available sensor fusion technologies on users' mobile devices.

