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Geolocation General Description

In this document, Extreme Network provides a general overview of geolocation systems.

Global Positioning System (GPS) technology is used internally in Extreme's outdoor access points to determine geographic coordinates and location uncertainty with a 95% confidence level. GPS is a network of satellites orbiting the Earth, constantly transmitting signals that can be received and processed by these access points. Here is how this process works:

1. Satellite Signal Reception: Outdoor access points have GPS receivers that capture signals from multiple satellites. These signals contain precise time information.
2. Using the timing information from multiple satellites, the access point calculates its exact location on Earth through a process called trilateration. By comparing the time, it took for signals to reach the access point from different satellites, it can pinpoint its coordinates and elevation.
3. While GPS provides impressive accuracy, there is always some degree of uncertainty. This is due to factors such as signal interference or satellite geometry. Extreme Networks cooperates with a certified test lab to provide location uncertainty estimates to ensure a 95% confidence level in the accuracy of the determined geographic coordinates.
4. Maintaining the correctness and accuracy of geolocation data is crucial for the AFC system. Therefore, outdoor access points perform daily confirmation with AFC system at least once every 24 hours. A power cycle occurs when outdoor access points are moved, or a temporary power failure, access points automatically determine their location and re-authenticate with the AFC to reestablish operations.
5. The GPS module (Teseo-LIV3F) is used to receive and track the L1C/A signals at 1575.42MHz for obtaining geographic coordinates, and it has the capability to operate concurrently with Galileo.

In conclusion, geolocation systems are integral to the operation of Extreme outdoor access points. By using GPS technology internally, these access points can determine their precise location on Earth, providing a 95% confidence level for the accuracy of the geographic coordinates. Regular confirmation checks and post-power cycle operations ensure that the geolocation data remains reliable.