

# Real Time Location System

## Questions and Answers

### What type of assets can I track with Ekahau RTLS?

Using the Ekahau Real-Time Location System, you can locate and track mobile assets, inventory, and people. All can be tracked in real-time, indoors and outdoors (wherever you have Wi-Fi coverage).

### Can I track assets without using a Wi-Fi radio tag?

Yes. If the device is Wi-Fi enabled, such as a laptop, PDA, IV-Pump, or VoIP phone, an Ekahau radio tag is not necessarily needed. Instead, you may install the Ekahau Client (Ekahau “software tag”), thus enabling the tracking capability. (The Ekahau client is supported on Windows 2000/XP and Windows CE/Pocket PC devices.

### What system components are provided with Ekahau RTLS?

Ekahau RTLS is a turn-key solution that comes with all necessary system components. Included are the Ekahau Positioning Engine (EPE); the Ekahau Device Manager (EDM), which manages tracking tag configuration over the network; Ekahau Client for tracking Wi-Fi enabled devices such as laptops and PDAs; Ekahau tracking tags for non Wi-Fi enabled assets; and the Ekahau Tracker and Tracker Enterprise applications for organizing, tracking, reporting, and defining event-based business logic (such as alerts and notifications for your tracked assets).

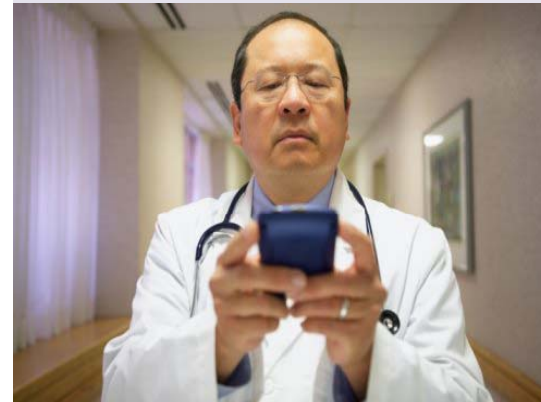
### Does Ekahau RTLS integrate with other applications or information systems?

Absolutely. Ekahau provides developer's guidelines for integrating location data from the Ekahau Positioning Engine with any third-party application, database or ERP system. Ekahau Positioning Engine 3.1 has both a Java Software Developer's Kit (SDK) and a socket-based API for integration. Also, you can create business rules that control functions specific to applications within your facility based on events, time, or proximity.

Ekahau features two radio tags: the T201 is rechargeable and great for human tracking; the smaller T301-A, right, has a five-year battery life, is not rechargeable, and is ideal for asset tracking.



## Solution Overview



### **What is the maximum distance Ekahau RTLS can locate a mobile asset?**

Ekahau RTLS can track mobile assets and people within the Wi-Fi network's coverage area indoors and outdoors. In other words, as long as your laptop is on the network, it can be tracked by Ekahau.

### **What is the accuracy of the Ekahau RTLS system?**

Similar to other tracking solutions, accuracy of the Ekahau RTLS system depends largely on the network that is in place. For best results, tracked devices (tags and soft clients) should be able to receive signals (RSSI above -75 dBm) from at least three access points throughout the tracking area. In a typical indoor multi-floor Wi-Fi environment, 1 to 3 meter accuracy is expected. To improve accuracy, additional low-cost access points that do not connect to the data backbone can be added to provide "dummy" beacon signals which can be utilized by EPE for better accuracy.

### **What type of networks does Ekahau work with? Do I need to modify my network for Ekahau RTLS?**

EPE is totally vendor agnostic and will work with any type of 802.11 b/g network. This includes both fat- and thin-AP infrastructure. In a typical Wi-Fi environment designed for data transfer and/or voice traffic, the density of access points is more than adequate, with no modifications needed. Ekahau RTLS requires tracked devices to receive signals (RSSI above -75 dBm) from at least three or more access points throughout the tracking area. Ekahau RTLS can be configured to use RSSI data from any access point, even when transmitting from another floor, or it can be configured to utilize a specific SSID only.

### **Does Ekahau RTLS interfere with the Wi-Fi network data and voice traffic?**

The Ekahau software collects only RSSI values from network access points and sends that data to the server. These data bytes per location do not cause any interference with normal traffic. Ekahau tags employ a motion sensor to manage power, so the tags that are not moving are in sleep mode (depending upon the settings) and thus are not routinely sending any packets across the network.

### **Won't several thousand RTLS tags communicating bring my Wi-Fi network to a halt?**

Absolutely not. Each Ekahau tag or client communicates only about 60 bytes of data per location update. Even if 3,000 tags would update the location data at the same time (which is never the case in real life) the data transfer would only by approximately 180 KB over the entire network.

### **How long does the RF pre-survey /site calibration take during deployment?**

Ekahau has developed an easy-to-use site survey tool for RTLS deployment. The time required for the survey is approximately 45 minutes per 10,000 ft.2 (1000 m2). System calibration is done with a laptop. Compared to the time and cost of competing installations, the Ekahau RTLS set-up is several times faster and much easier than deploying proprietary hardware or antenna-based systems where physical installation and cabling are required.

### **What Wi-Fi access points should I use with Ekahau RTLS?**

Ekahau RTLS supports any brand of 802.11 access points.

### **What happens to the location accuracy if I move or add/remove access points?**

Because the Ekahau system is listening to signals from many access points in any given location, blocking or removing one access point does not dramatically impact system performance dramatically. It is also possible to exclude unnecessary or conflicting access points from the model that belong to the neighboring company network. If new access points are added or existing ones are moved, it is very easy to update the positioning model database by recording new RF data points.

### **What happens to the location accuracy if the environment changes?**

Small everyday operational changes to the enterprise environment do not impact the system performance dramatically.

For example, stacks of boxes are always being moved in and out of a manufacturing floor and shipping/receiving dock environment. The impact of everyday operation to the location accuracy typically is only +/-5%. In case there are major changes to the environment (for example, the installation of new walls), one can record new RF survey sample points of that specific area, and easily update the location model database.

### **What unique capabilities does the Ekahau RTLS radio tag offer?**

Our radio tags are full-duplex 2-way communication devices, so not only does the system collect information, but messages and alarms can be sent to the tag as well. Our radio tags provide various ring tones, colored lights, even an LED display (T301). The T201 tag is rechargeable and can be powered from any 4v to 6v source. This includes several types of assets with RS-232 ports, such as IV pumps or computers, which can charge the tag from any 15- or 9-pin serial or USB port. The T201 tag also has a built in accelerometer and can be configured to report its location any time it is moved. The accelerometer can also be disabled, allowing the tag to report on a periodic basis only. Ekahau tags includes a call-button, that can be used for panic alarming and other user initiated events.

### **What type of wireless security does Ekahau RTLS provide?**

The current T201 tag supports 128-bit WEP encryption. The T301 tag will support WPA-PSK.

As security concerns are paramount in today's wireless market, additional security can be achieved by creating a secure VLAN for the Ekahau solution with port-based security enabled. Ekahau will provide a list of necessary communication ports and traffic on any other port can be blocked. Ekahau tags can also operate on a non-broadcast mode and SSID and MAC address filtering can be enabled if necessary.

### **Does dynamic power management affect the accuracy of the Ekahau Positioning Engine?**

Ekahau's positioning algorithms have been designed from the beginning to adapt to the ever-changing nature of wireless environments. Our core algorithms are also beneficial when dynamic power management is in use as the algorithm minimizes the effort of a changing radio environment. Since the effect of dynamic power management to the radio signal strength is typically small and limited to a few access points, it does not have an effect on location accuracy.

### **What is the cost of the Ekahau Tag?**

The cost of a tag is irrelevant because the real cost to you is in how installing an Ekahau system will prevent costly loss of your assets. The cost of installing our system can easily return the investment within a few months in many cases.

### **Do I need a Wi-Fi network to implement an Ekahau solution?**

Yes. Ekahau RTLS uses your 802.11 b/g network to locate your assets.

However, to answer the question more directly, the cost of a tag starts at \$0 for our software tag which you can download for free off the Internet and immediately begin tracking a Wi-Fi-enabled device, such as a laptop.

Ekahau radio tags, priced from \$50 and discounted based on the size of the installation, are for tracking high value assets that need a way to report their location. These might include mobile equipment, warehouse containers, forklifts, and other assets that move.

### **What are the server requirements for Ekahau?**

For non-critical evaluation systems of less than 100 clients, the entire solution can be run from a typical office PC if necessary. For production systems, a dedicated server is recommended.

For systems greater than 500 tags it is best to dedicate one platform for EPE and a second platform for the application layer (Tracker Enterprise). Server requirements include 40 GB free HD space, 2 Ghz or better processor, at least 1 GB of RAM. Windows XP Pro, Windows 2000 Server, Windows 2003 Server, and Linux are supported.

## Solution Overview

The benefits of location technology are well-known in manufacturing, supply chain, healthcare, mining and other industries where the tracking and protection of valuable assets and people are paramount.



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