

Course ID  
**IPGEOLOC**  
Course Duration  
**2-3 days**

Course Title  
**IP, Location and Geo-Location Technologies for Law Enforcement, Intelligence, and Public Safety**

**Related Courses**

- Unified Communications in Public Safety, Law enforcement, and Homeland Security (UNIFIED, 2-3 days)
- Voice Communications and Technologies for 911 Call Takers, Supervisors and Trainers (VOICE-911, 2-3 days)
- VoIP for 911 Administrators, Managers, Directors and Regulators (VOIP-911, 2-3 days)
- State-of-the-art of Wireless Communications for Non-engineering Professionals, Managers, and Executives ( WIRELESS-EXEC, 4 days)
- Architecture and Operation of Wireless Networks for Technical Investigators: From Their Analog Origins to the Emerging 3G Technologies (WIRELESS-TI, 4-5 days)
- Security, Privacy and Information Integrity for Managers Executives and Policy Makers (SECURITY-EXEC, 2-3 days)
- SIP Security: A Comprehensive Short Course (SIPSEC, 2 days)
- IP Security v2 (IPSec v2) Architecture and Protocols (IPSEC, 2-3 days)
- IP Security v3 (IPSec v3) Workshop (IPSECWS, 2-3 days)
- VoIP Security (VOIPSEC, 2 days)
- IEEE 802.11 (WiFi) Wireless LAN Security (WIFISEC, 3 days)
- Principles of Network Security: CompTIA Security+ and US DoD Directive 8570.1 (NETSEC, 3-4 days)
- Communications Assistance to Law Enforcement Act (CALEA): Technologies and Compliance for TDM and Packet Voice Services (CALEA, 2-3 days)

**Aimed At**

Law enforcement, intelligence, and public safety personnel who have a need for a survey course on location, tracing, and geo-location technologies.

**Group Size**

5-25

**Prerequisites**

You should have an understanding of IP networks and basic law enforcement and public safety applications of location technologies as well as a working knowledge of wireless technologies.

**Course  
in a Nutshell**

Physically locating a person or entity based upon certain characteristics such as IP address, Media Access Control (MAC) address, physical characteristics of an emitted signal or other identifying characteristics is of the greatest interest to law enforcement, intelligence, and public safety organizations.

In this course, you will acquire a comprehensive overview of the state-of-the-art of the subject technologies. We will explain all of the important application areas and the underlying technologies in plain, easily understood language with clear examples as well as application mini-case studies.

**Customize It!**

We can adapt this course to your group's backgrounds and needs at little to no added charge. The course content can be customized to emphasize or de-emphasize specific aspects or discussed at a high or lower level of technical detail.

**Course  
Outline**

- Introduction
- Law Enforcement
  - Applications
    - LoJack for Laptops
    - Asset/Weapon/Vehicle Tracking
    - CALEA
  - Legal/Regulatory/Policy
- Intelligence
  - Applications
    - Target Location
    - Intelligence Gathering
    - Geo-Correlation
    - Threat Assessment and Patterns
  - Legal/Regulatory/Policy
- Public Safety/911
  - Applications
    - Emergency Caller Location
    - Telemetry/Automatic Crash Notification
    - Dispatch/Responder Location
  - Federal Communications Commission
    - Wireless E-911 Location Accuracy
    - VoIP E-911 Location Accuracy
- Technologies

- Web Apps and Mashups
  - Yahoo Maps
  - Google Earth
  - Microsoft Virtual Earth
  - GIS Interface
- Wireless
  - Radio Direction Finding
  - High Frequency Direction Finding
  - Ultra Wideband Precision Geolocation
  - Radio Fingerprinting
  - [Embedded] Geographic Positioning System (GPS)
  - Network Assisted GPS
  - Radio Frequency ID (RFID)
  - Time Difference of Arrival (TDOA)
  - Angle of Arrival (AOA)
  - Multipath Analysis
  - Advanced Forward Link Trilateration
  - Enhanced Observed Time Difference
- Terrestrial
  - TraceRoute
  - PING/RTT Triangulation
  - PingER/ViPER
  - TULIP
  - CBG – Constraint Based Geolocation
- Standards
  - TIA TR 45.1 PN-4985
  - TIA TR 45.2 PN-3890
  - RFC 2151
  - RFC 3609
  - IEEE Standards Coordinating Committee 41
- Conclusion

**How You Will  
Learn**

- This course is taught as a participative tutorial by a highly qualified communications and technologies specialist who's intimately familiar with the public safety, law enforcement, and intelligence areas.
- If you already know something the subject matter, we will build on the existing knowledge. We will use clear examples, exercises, and application mini-case studies to make sure you understand the techniques taught in this course.
- We will provide you with a Participant Handbook that will help you recall and reference what you learned in class.

*Revised*

*May 10, 2008f*