



# 5G Roaming and Interworking

TPR1057x | Expert-Led Live | 5G Core | Expert

Course Duration: 4 hours

Roaming is an essential feature in wireless networks. It extends home PLMN coverage to other service provider networks nationally or internationally. 5G roaming is implemented as a complement to 4G roaming because the operators will be at different points of implementing 5G networks over the next 5 to 10 years. 5G roaming is different from 4G roaming as it uses Service-Based Architecture. There are several different options for interworking between 5G and 4G networks, and there are differences between IMS network implementations - VoNR versus VoLTE, etc. Further, there are many 5G use cases - Enhanced Mobile Broadband, Massive Machine Type Communications, Ultra-Reliable Low Latency Communications, vehicle apps, etc. This course focuses on the Enhanced Mobile Broadband based on 3GPP specifications Release 16.

## Intended Audience

This course is intended for planning, engineering, and operations teams. It assumes existing knowledge of 5GS Core networks.

## Objectives

After completing this course, the learner will be able to:

- Define various roaming scenarios such as 5G-5G, 5G-4G
- Sketch end-to-end architecture of 5G<-->5G and 5G<-->4G Roaming networks
- Step through end-to-end roaming call flows - Registration and PDU Session
- Walk-through important roaming procedures, e.g., handovers
- Explain service delivery implementations for voice and data services

## Course Prerequisites

[5G Core Network Overview](#)

## Outline

1. 5G Roaming Architecture
    - 1.1 5G Roaming Scenarios
    - 1.2 5G <--> 5G Roaming architecture
    - 1.3 5G <--> 4G Roaming architecture
    - 1.4 Inter-PLMN secured interconnectionsExercise: Build 5G roaming network
  2. Basic 5G Operations for Roaming Ues
    - 2.1 Session Registration and Security Setup
    - 2.2 Policy Implementation
    - 2.3 PDU Session Setup in roaming scenariosExercise: End-to-end 5G roaming call flow
  3. Special Procedures for Roaming
    - 3.1 Network Slice Management
    - 3.2 Network Steering
    - 3.3 5G <--> 4G Handovers
    - 3.4 Idle Mode behavior
  4. Service Delivery in Roaming Configurations
    - 4.1 Data services
    - 4.2 IMS VoNR services
    - 4.3 IMS emergency services
- Putting It All Together