

ALCATEL-LUCENT MOBILE ROUTING PROFESSIONAL



The Alcatel-Lucent Mobile Routing Professional (MRP) certification focuses on teaching the skills and best practices needed for designing and delivering scalable, highly reliable mobile IP/MPLS networks and services. A professional workforce certified at the Mobile Routing Professional level provides operators with significant network, operational, and business advantages. Benefits include faster time to market, higher reliability and availability, stronger operational efficiencies, and superior network design capabilities for delivering advanced, profitable, mobile services.

MARKET NEED

The wireless market is reaching unprecedented heights driven by consumer demand for a seamless voice, data, and multimedia experience. Major needs and trends include:

- Mobile operators must continue to keep pace with exponential growth in data and video usage which has been fueled by the success of 3G and 4G enabled laptops, smartphones, tablets, and online video and social networking sites.
- End users are demanding always-available service coverage and reliability with a guaranteed Quality of Service (QoS) and Quality of Experience (QoE).
- End users are demanding enriched, personalized services requiring more sophistication in the network.
- Least cost-per-bit transport has become a critical need for mobile operators as they scale network bandwidth to meet demand for mobile video applications. To achieve this, operators need to evolve and update their wireless networks to an all-IP paradigm. Major transformation considerations include:
 - Mobile technology evolution from 2G to 3G to 4G/LTE
 - Mobile backhaul architecture evolution from Time Division Multiplexing (TDM), frame relay, and Asynchronous Transfer Mode (ATM) to carrier Ethernet and IP/MPLS
 - Mobile backbone architecture evolution from TDM and ATM to IP/MPLS and the Evolved Packet Core (EPC)
- Transitioning the current operational environment and workforce to an IP-centric environment and workforce is also critical to reduce total cost of ownership and improve network and service operations

In summary, acquiring a work force of highly trained engineers, operations, planning, and support personnel is critical for a mobile operator's business success.

CERTIFICATION OBJECTIVES

The following course objectives are designed to ensure students receive in-depth technical knowledge and hands-on configuration skills related to today's IP mobile backhaul and packet core network and services. Upon completion of the certification, students will be able to:

- Describe the mobile backhaul transport's role in supporting 2G, 3G, and LTE network environments
- Describe Ethernet, SONET/SDH, Time Division Multiplexing (TDM), and Asynchronous Transfer Mode (ATM) access port configuration and components to support 2G, 3G, and 4G point-to-point and multipoint service access
- Configure Base Station (BTS) and the Mobile Telephone Switching Office (MTSO) TDM, ATM, and Ethernet access interfaces



- Establish protected MPLS Label Switch Paths (LSPs) and Service Tunnels (SDPs) to carry traffic from the cell site to the MTSO
- Identify and provision mobile backhaul resiliency features including redundant pseudowires and Virtual Routing and Redundancy Protocol (VRRP)
- Configure Virtual Private Routed Network (VPRN) services for routing bearer and signaling traffic into the mobile core
- Configure Synchronous Ethernet for mobile backhaul
- Describe the network and QoS requirements for optimizing data transport in 3G and LTE networks
- Explain the interfaces and protocols used in 3G
- Explore the LTE architecture and list the main components of an LTE network
- Identify the primary functions of the eNodeB, EPC, and their components
- Understand all of the interfaces used for signaling and communication between LTE components
- Explain the functions of an SGW and PGW
- Configure the 7750 MG for basic SGW functionality
- Configure the 7750 MG for basic PGW functionality
- Configure the QoS functionality on the 7750 MG
- Configure the MG-ISM redundancy function on the 7750 MG
- Troubleshoot basic MG issues on the 7750 MG using Operations, Maintenance, and Management (OAM) and debug tools.

BENEFITS

- The MRP certification provides a strong technical and working level background in the principles of IP/MPLS mobile backhaul and evolved packet core architectures, components, interfaces, and tools. While the certification focuses on Alcatel-Lucent Service Routing technology, students can leverage the knowledge and skill gained in any standardized 2G, 3G or LTE mobile transport environment.
- Students will receive practical, real-world training and experience with hours of hands-on lab training.
- An Alcatel-Lucent MRP certified workforce translates into many business and competitive advantages including faster time to market, better network and service reliability/availability, improved operational costs and efficiencies, superior planning and delivery skills, and improved customer quality of service experience.
- Students gain the skills and credibility to work in complex mobile network environments.
- Student career paths are enhanced with an advanced, specialized certification from a widely recognized industry leader.

ABOUT THE MRP CERTIFICATION

To achieve certification, participants only need to pass the required written and lab exams – attending the recommended courses are optional. Refer to the tables below for certification exam requirements.

The MRP certification is valid for three years. You must recertify to ensure your certification stays current. Individuals will be required to write the Alcatel-Lucent Mobile Routing Professional composite exam (exam #MRP4A1) to maintain a valid certification. Ensure you continue to benefit from having earned an industry respected IP designation by recertifying within your recertification eligibility period.

See <http://www.alcatel-lucent.com/src/recertification> for more information on recertification policies and procedures.

For more information on the Alcatel-Lucent SRC Program, contact your local Alcatel-Lucent account representative or visit <http://www.alcatel-lucent.com/src>.

CREDIT FOR OTHER IP CERTIFICATIONS

If you have already received an IP certification from Cisco or Juniper, and your certification is still valid, you may be eligible to receive credit towards prerequisite written exams in the Alcatel-Lucent Service Routing Certification program. To find out which third-part certifications are eligible for credit, which SRC exam exemptions you may be qualified to receive, and instructions on how to request an exemption, please visit the <http://www.alcatel-lucent.com/src/exemptions> web page. Please note that your third-party certification must be current/active to receive credit.

ALCATEL-LUCENT MOBILE ROUTING PROFESSIONAL (MRP) CERTIFICATION**COURSE AND WRITTEN EXAM**

The following course is recommended but not mandatory. All courses include classroom hours and in-depth lab training. All exams are mandatory but may be completed in any order to obtain a certification.

Please note, participants have the option of writing the [NRS II Composite Exam](#) (4A0-C01) as a substitute/replacement for writing the three individual NRS II written exams below (4A0-101, 4A0-103, 4A0-104).

RECOMMENDED COURSES	COURSE DURATION (DAYS)	MANDATORY EXAM	MANDATORY EXAM PRE-REQUISITES
Alcatel-Lucent Scalable IP Networks	4	4A0-100	NA
Alcatel-Lucent Interior Routing Protocols	5	4A0-101	NA
Alcatel-Lucent Multiprotocol Label Switching	5	4A0-103	NA
Alcatel-Lucent Services Architecture	4	4A0-104	NA
Alcatel-Lucent Quality of Service	5	4A0-107	NA
Alcatel-Lucent IP/MPLS Mobile Backhaul Transport	4	4A0-M01	NA
Alcatel-Lucent Mobile Gateways for the LTE Evolved Packet Core	5	4A0-M02	NA

**Note, students have the option of writing the [NRS II Composite Exam](#) (4A0-C01) as a substitute for writing the 4A0-101, 4A0-103, and 4A0-104 individual exams above.

PRACTICAL LAB EXAM

After completing the required written exams, students are required to complete the following practical lab exam, which tests their ability to configure and troubleshoot a managed communications network.

MANDATORY EXAMS	EXAM DURATION (HOURS)	MANDATORY EXAM	MANDATORY EXAM PRE-REQUISITES
Alcatel-Lucent Network Routing Specialist II Lab Exam	3.5	NRSII4A0	4A0-100, 4A0-101, 4A0-103, 4A0-104
Alcatel-Lucent Mobile Routing Professional Lab Exam	4	MRP4A0	4A0-100, 4A0-101, 4A0-103, 4A0-104, 4A0-107, 4A0-M01, 4A0-M02