



PRODUCT AND SYSTEM TECHNICAL TRAINING COURSE CATALOG

MOTOROLA SOLUTIONS EDUCATION SERVICES





WELCOME

Day in, and day out, governments and businesses around the world rely on effortless and reliable communication. Our customers call it their lifeline. To help businesses operate without interruption and to safeguard communities, workplaces, and ultimately, each one of us, we are determined to help keep the lifeline unbreakable.

With Motorola Solutions, Inc. Education Services, we help your two biggest lifeline investments - your personnel and your technology infrastructure - work together efficiently to maximize the value of your communication technologies.

Whether your organization is new to our latest innovations or has years of experience with us, our Education Services team helps expand your personnel's skills and knowledge for the full application of your technology investment.

Starting with professionally developed, real-world application and content, we always design your training with the learner in mind. Our experienced instructors average 20+ years in the communications industry and specialize in Motorola Solutions technologies and services. Immersive, hands-on experiences, expert lab environments, or online learning ensure we meet your learners with the right kind of learning at the right times.

Whether training is at your location or you visit our state-of-the-art facilities, we can help ensure that your personnel know how to amplify your investment, maximize operational efficiency, and ensure an unbreakable lifeline.

We look forward to working with you.



MOTOROLA
SOLUTIONS



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GENERAL INFORMATION

AN INTERACTIVE LEARNING EXPERIENCE PLATFORM... DESIGNED FOR YOU!

Use the search box and filters feature to quickly and easily search for training or documentation.

View your history and upcoming training on your personalized dashboard.

Receive reminder notifications of upcoming training or changes to your training.

Easily locate and download documents plus stay up-to-date with training news and announcements.



GENERAL INFORMATION

For information on prerequisites and to register for courses visit the LXP at:
LEARNING.MOTOROLASOLUTIONS.COM

For general information contact the North America Training Services help desk at:
(800) 247-2346, option 4 or training.na@motorolasolutions.com

THE LEARNING EXPERIENCE PLATFORM (LXP)

The LXP is your valuable resource to see the latest courses, descriptions, requirements, dates and locations.

If you are a Motorola Solutions Customer who already has a Motorola Solutions Login ID, you can go to the “Enroll in a Course” section for further instructions.



SET UP A NEW USER ACCOUNT AND PASSWORD



- Visit: **<https://learning.motorolasolutions.com>**
- Click “Register”
- Fill Out all the required information on the form
- Click “Submit”
- You will receive a confirmation of your submission
- You will next receive further information to activate your account (Up to 5 business days)



TO ENROLL IN A COURSE (ONCE YOU HAVE AN LXP ACCOUNT)



- Log in to the LXP: **<https://learning.motorolasolutions.com>**
- Click on “LOG IN”
- **Enter your Log In ID and Password and Click “LOG IN”**
- If you have forgotten your Log In or Password click on “Forgot Log In ID” or “Forgot Password”
- Find a training course by clicking “Browse Training” at the top of the screen Or use “Search Catalog” at the top of the screen

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TRAINING OPTIONS

In this catalog you will find a wide range of learning initiatives; some of them have been developed to be completed at your own pace, and others are led by our Technical Instructors:

LIVE TRAINING

It consists of scheduled live sessions, delivered either in class or in a virtual environment by our Technical instructors. Participants can immerse themselves in the subject; they receive substantial time for hands-on training that enables them to develop creating solutions for

unique problems. In both classes, the number of seats available is limited and advanced registration is required.

On the job training is also available, for those who prefer a more direct instruction.

ONLINE TRAINING

Online self-paced learning allows your team to gain foundational knowledge on a variety of topics using their computer, at their own schedule.

Where to start? Our training roadmaps will let you know the starting point and milestones of your development, so you can make sure you acquire the right knowledge to make the most of each step of your learning process.



UNDERSTANDING THE ICONS



LIVE TRAINING



ONLINE TRAINING



EXAM

POLICIES AND REQUIREMENTS

CANCELLATION AND RESCHEDULING BY THE STUDENT

Customer cancellation or rescheduling made less than 30 days prior to the class start date will be subject to the full course tuition.

CANCELLATION AND RESCHEDULING BY MOTOROLA SOLUTIONS

Motorola Solutions reserves the right to change or cancel classes up to 10 business days prior to the class start date. You will be notified at that time of such change or cancellation.

PROFESSIONALISM

Students are expected to maintain professional conduct and dress at all times. Class dress is casual, but smart. For safety and security reasons, we cannot permit shorts, thong type sandals, or tank tops in the classroom.

LAPTOP REQUIREMENTS

All our classes require students to bring their laptops to the classroom so that they may utilize an electronic copy of the class material. Please review your enrollment confirmation email for specific requirements for your class.

TRAINING CONTENT AND STRATEGY DISCLAIMER

All of Motorola Solutions training classes are designed to support and align with the Motorola Solutions Service strategy for each product. This strategy may include a combination of (but not limited to) processes, procedures, recommendations, and instructor experiential advice which may involve repair, replacement, and or recovery of hardware, software, or firmware of Motorola Solutions products. The repair, replacement, or recovery of these products may vary from product to product. Motorola Solutions reserves the right to change the structure and content of all courses at any time.

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PRICING AND HELPFUL INFORMATION

HOW TO MAKE PAYMENTS WHEN ENROLLING IN A COURSE

HOW TO MAKE PAYMENTS WHEN REGISTERING

For your convenience we accept the following methods of payment:

- Credit Card
- Purchase Order
- Company Check
- Training Banks

If prepayment is required to secure your registration, it must be received by Motorola Solutions 30 days prior to your attendance.

Contact the help desk above for assistance with payments and P.O. specifications.
All pricing listed is US dollars.

FOR QUESTIONS AND ASSISTANCE

Call the Education help desk at: 800-247-2346

Monday – Friday,
8:00 a.m. – 5:00 p.m. Central Time

or email us at:

training.na@motorolasolutions.com

TRAINING BANKS

Whether you're a technician, system manager or radio user, you rely on Motorola Solutions Education Services to obtain the necessary knowledge to get the full potential out of your Motorola Solutions equipment. The Motorola Solutions Training Bank is a discounted, pre-paid, non-expiring debit account that allows you to budget up front for your training needs. Training Banks can be applied towards all training options including, Instructor-Led Tailored Field Courses.

There are several benefits to Training Banks including:

- Allows you to budget up front for training needs
- Provides cost savings through discounted pricing tiers to maximize your training investment
- Does not require multiple POs, thus reducing internal approval cycle time and paperwork
- Training Banks do not expire



For more information on Training Banks, please visit us on the web at https://www.motorolasolutions.com/en_us/products/training/training-bank.html or email us at training.na@motorolasolutions.com.

Note: Training Banks are only applicable to nonfederal government customers.

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EDUCATION PACKAGES

Motorola Solutions Education Packages have been built by our technical education experts, to provide you a simpler way to select the right learning activities from our extensive training portfolio. These packages are all designed considering four vital aspects:

- Your Motorola Solutions Infrastructure & Devices
- The Level of Support provided by Motorola Solutions
- The tasks undertaken by your team, and
- The roles of the professionals in charge of those tasks

Behind these packages there are Education Services professionals whose aim is to fully prepare your team to achieve desired organizational efficiency and outcomes by ensuring that they have the knowledge, skill and competency needed to effectively interact with your Motorola Solutions technology investment.

If you wish to customize your Motorola Solutions training strategy, ask our Professional Education Services team to analyze your specific technical and end user training needs and gaps. Please work with your Motorola Solutions account representative to request this professional service.

Let Motorola Solutions Education Services help you ensure that your organization provides effortless and reliable communications, and keep your lifeline stronger than ever!

ASTRO® INFRASTRUCTURE EDUCATION PACKAGES



COMPLEMENT EDUCATION PACKAGE

Prepare your team to operate your ASTRO® Solution, achieving optimal organizational efficiency.

TOPICS

System Overview, Upgrade Differences, My View Portal, Device End User Best Practices, Dispatch End User Best Practices

SUPPLEMENT EDUCATION PACKAGE

Prepare your team to operate and administer your ASTRO® Solution, achieving optimal organizational efficiency.

TOPICS

System Overview, Administration, Secure Communications, Upgrade Differences, My View Portal, Device End User Best Practices, Dispatch End User Best Practices

SUPPORT EDUCATION PACKAGE

Prepare your team to operate, administer, and maintain your ASTRO® Solution, achieving optimal organizational efficiency.

TOPICS

System Overview, Core, RF-Subsystems, Transport, Administration, Dispatch, Secure Communications, Security Patch Management, Device End User Best Practices, Dispatch End User Best Practices

ASTRO® DEVICES EDUCATION PACKAGES



COMPLEMENT EDUCATION PACKAGE

Prepare your team to operate your APX™ devices.

TOPICS

Device Overview, My View Portal, Device End User Best Practices

SUPPLEMENT EDUCATION PACKAGE

Prepare your team to operate and administer your APX™ devices.

TOPICS

Device Overview, Programming and Radio Management, Device End User Best Practices

SUPPORT EDUCATION PACKAGE

Prepare your team to operate, administer, and maintain your APX™ devices.

TOPICS

Device Overview, Programming and Radio Management, Device End User Best Practices

Talk with your Motorola Solutions contact for a quote, or email us at training.na@motorolasolutions.com for more information on how to sign your team up for one of our Education Services Packages.

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SAMPLE PACKAGES



ASTRO® INFRASTRUCTURE SUPPLEMENT EDUCATION PACKAGE

This Education Package aligns with the Infrastructure ADVANCED Services Package

ASTRO® 25 SYSTEM OVERVIEW

MY VIEW PORTAL OVERVIEW

ASTRO® FEATURES AND FUNCTIONALITY

ASTRO® 25 SYSTEM FLEETMAPPING

ASTRO® 25 IV&D RADIO SYSTEM ADMINISTRATOR

MCC 7000 SERIES MANAGEMENT

CONSOLE ADMINISTRATOR
& DISPATCH END USER TRAINING

RADIO END USER TRAIN-THE-TRAINER

WAVE™ ADMINISTRATION & END USER

IMW OPERATIONS AND ADMINISTRATION

RADIO AUTHENTICATION

EXECUTIVE OVERVIEW

ASTRO® 25 IV&D SECURE COMMUNICATIONS



APX DEVICE SUPPORT EDUCATION PACKAGE

This Education Package aligns with the APX Device ESSENTIAL Services Package

APX QUICK START

APX RADIO MANAGEMENT OVERVIEW

APX CPS PROGRAMMING & TEMPLATE BUILDING

APX RADIO MANAGEMENT WORKSHOP

APX TECHNICAL SUBSCRIBER ACADEMY

RADIO END USER TRAIN-THE-TRAINER

LEGEND:

- Foundation
- Administration
- Maintenance
- Device & Console Best Practices
- Optional

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OPERATOR TRAINING

**THE SUCCESSFUL
IMPLEMENTATION OF YOUR
COMMUNICATIONS SYSTEM
DEPENDS ON ITS CONFIDENT
USERS.**

Users of your mobile and portable radios require training on their units to understand its basic operation, features and functions.

Dispatchers of your consoles require training to understand basic operation, features and functions; management personnel require training on the Motorola Solutions applications.



TRAIN-THE-TRAINER

With this option, Motorola Solutions trains people you have identified as qualified instructors so that they in turn can train each individual user in your organization. These classes are typically done on site using your equipment. The interactive End User Tool Kit (iEUTK) and/or tailored end user materials can be utilized.

AUDIENCE

This course is geared for customers who have an experienced, dedicated training staff in their organization. This course concentrates on specific product features and how it relates to the training process.

COURSE OVERVIEW

This course provides the customer's identified training personnel knowledge and practice applying training techniques that will enable them to successfully train their students. Trainers will use simulation, facilitation and hands-on activities to facilitate learning events supported by tailored training materials and job aides. Students will become proficient in discussing common tasks associated with the operation of the customer's radios and consoles as identified by the customer's needs analysis.

Note: This course is presented as customer specific and will cover pertinent information on customer equipment.

REQUISITE KNOWLEDGE

Previous training experience and radio system knowledge is a must.

TO REQUEST FIELD TRAINING, PLEASE CONTACT YOUR ACCOUNT MANAGER.

Note: The interactive End User Tool Kit (iEUTK) is not sold as a standalone product but included with our instructor-led, Train-The-Trainer or Operator Training.

OPERATOR TRAINING

With this option, the users within your organization are trained by a Motorola Solutions instructor. These classes are typically done on site using your equipment. The interactive End User Tool Kit (iEUTK) and/or tailored end user materials support this training option.

CONSOLES TRAINING

These courses provide operators and supervisors with an introduction to the basic operation, administration and feature functionality of the Console Systems. Through facilitation and hands-on practice, users learn to perform tasks that are associated with their organization's particular system.

- Overview of console configuration
- Console dispatcher and supervisor operation
- Alias Management
- Messaging

SUBSCRIBER TRAINING

These courses provide radio users with an introduction to their radios, a review of their radio's basic functionality by means of job aides tailored to exactly how they use their radios. Through facilitation and hands-on practice, users learn to perform common tasks associated with their radio configuration.

- Overview of radio configuration
- General radio operations

COURSES FOR CONSOLE PRODUCTS

- MCC 7000 Series Dispatch Console Administrator Training
- MCC 7000 Series Dispatch Console Operator Training
- MKM 7000 Console Alias Manager
- MOTOBRIIDGE IP Interoperable Solution Dispatch Console Operator
- MOTOBRIIDGE Administration Control Panel (ACP)
- MCD 5000 Operator

COURSES FOR MOBILES & PORTABLES

- APX™ Series
- MOTOTRBO™ Series
- XTL™/XTS Series

FOUNDATIONAL COURSES

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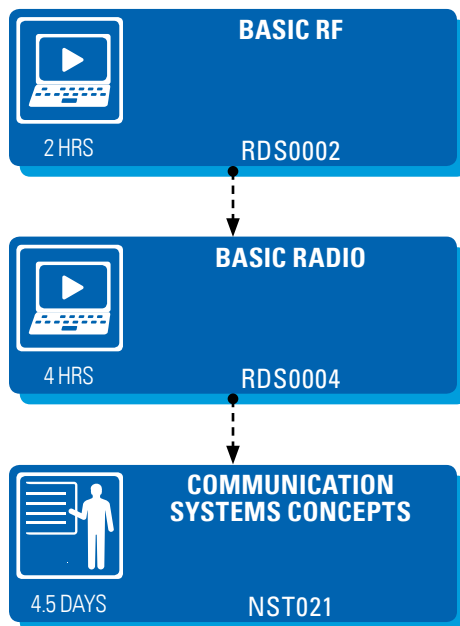
RADIO SOLUTIONS FOUNDATIONAL

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RF FUNDAMENTALS

RF BASICS / RADIO SYSTEM BASICS

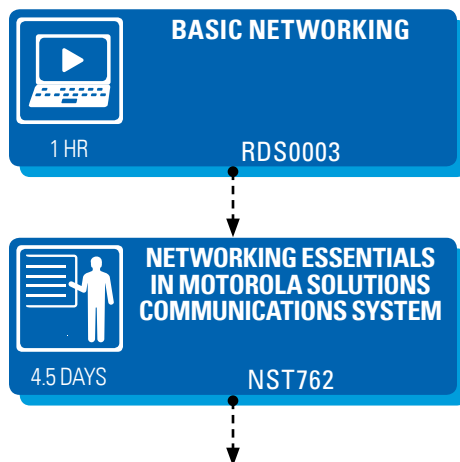


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IP/NETWORKING FUNDAMENTALS



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**BASIC RF**
2 HRS
RDS0002

COURSE OVERVIEW

This course emphasizes the concepts behind RF Systems theory and operation. Topics include basic radio transmitters and receivers, RF propagation, modulation, antenna systems, transmission lines and data-communications.

TARGET AUDIENCE

Technical staff who need to understand Communication Systems Concepts including basic radio, RF propagation, modulation, antenna systems, transmission lines and data-communications.

COURSE OBJECTIVES

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

- Describe electrical principles, including direct and alternating current.
- Describe the basic structure of radio transmitters and receivers.
- Describe the operation of the antenna system.
- Identify different types of transmission media.
- Describe RF propagation and understand system gains in a link budget.

REQUISITE KNOWLEDGE

None

PREREQUISITES

None

**BASIC RADIO**
4 HRS
RDS0004

COURSE OVERVIEW

The purpose of this course is to provide the student with the basic, foundational land mobile two-way radio knowledge required when working with Motorola Solutions. This course is ideal for all people who sell or service land mobile two-way radios and it was especially designed to meet the needs of the MR Channel and Motorola Solutions employees.

TARGET AUDIENCE

Individuals who need a foundational overview of two-way radios.

COURSE OBJECTIVES

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

- Define what a two-way radio is.
- Describe two-way radio components.
- Describe communication types.
- List and describe ways of expanding coverage.
- Describe analog and digital solutions.
- Describe how transmit and receive processes work in conventional and trunked two-way radio.
- Define system scalability.
- Identify the considerations to implementing a two-way radio.
- List the characteristics of single-site, single-zone and multi-zone systems.
- Explain the concept of two-way radio security.
- Describe the open standards for the following technologies: APCO P25, TETRA and DMR.

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- RDS0002 Basic RF

PREREQUISITES

None

**BASIC NETWORKING**
1 HR
RDS0003

COURSE OVERVIEW

This course provides a detailed description of the fundamentals of system networking. Topics include the OSI seven layer model, bridges and switches, IP and routing, applications and security.

TARGET AUDIENCE

Engineers who need to understand the essentials of system networking.

COURSE OBJECTIVES

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

- Identify the Elements and Interconnectivity of a basic network
- Define the OSI and TCP/IP Models
- Define the advantages of different Network Layout Options
- List the Physical and Data-Link Layers of the OSI and TCP/IP Models
- Define the Network and Transport Layers of the OSI and TCP/IP Models
- Identify the Service Layers within the OSI and TCP/IP Model
- Define the concept of Network Security.
- Identify standards organizations

REQUISITE KNOWLEDGE

None

PREREQUISITES

None

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**INTRO TO R56**
1 HR
NST9252

COURSE OVERVIEW

The purpose of this course is to present a high level overview of the RF site design and construction process, in line with the guidelines listed in Motorola Solutions' Standards and Guidelines for Communication Sites (R56) manual.

TARGET AUDIENCE

Technicians who need an introduction to the R56 processes.

COURSE OBJECTIVES

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

- Describe the site design and development tasks needed to meet R56 requirements.
- Describe the building and shelter design and installation tasks needed to meet R56 requirements.
- Identify the proper external and internal grounding tasks needed to meet R56 requirements.
- Identify transient voltage surge suppression needs that meet R56 requirements.
- Minimize the impact of RF Site Interference, in line with R56 requirements.
- Identify the equipment installation tasks needed to meet R56 requirements.

REQUISITE KNOWLEDGE

None

PREREQUISITES

None

**SITE INSTALLATION
PRACTICES WORKSHOP
(R56)**
3.5 DAYS
NST925

COURSE OVERVIEW

The Site Installation Practices Workshop (R56) course is designed to present the standards and guidelines for installing a Motorola Solutions communication system. Participants will understand how a properly installed system can help to ensure a safe and efficient communications system, reducing system down time.

TARGET AUDIENCE

Technical System Managers and Technicians

COURSE OBJECTIVES

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

- List the purposes of grounding and evaluate their importance in terms of personal safety and effective system installation and protection
- Apply principles of basic electronics to the installation standards found in the R56 manual
- Determine how an effectively installed ground system provides protection for a communication system from a lightning strike or electrical anomalies
- List the minimum requirements and specifications for the external and internal ground system
- List the minimum requirements and specifications for installation equipment, cables and documentation for a reliable communication system installation
- Investigate sources for possible solutions to various installation scenarios

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Graduate of a basic electronics course

PREREQUISITES

None

**R56 STANDARDS UPDATE
2017**
1 DAY
NST9256

COURSE OVERVIEW

The R56 Standards and Guidelines for Communication Sites is in the process of being updates for 2017. This course will cover all updates and is intended for individuals who have recently completed, or recertified their R56 certification. It will provide insight and understanding on the changes and their impact on the documented standard.

TARGET AUDIENCE

Electronics Equipment Technicians who are responsible for the installation or inspection of communications equipment. Communication Site Installers (R56) and Communication Site Installation inspectors (CSII)

COURSE OBJECTIVES

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

- Be familiar with a current glossary of terms
- Understand changes and their relationship to the manual and certification
- Be aware of high level R56 Standards manual updates by chapter

REQUISITE KNOWLEDGE

Individuals must hold a valid R56 or CSII certification, or have completed all necessary coursework prior to attending this course.

PREREQUISITES

None

RADIO SOLUTIONS FOUNDATIONAL

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**SERVER AND
VIRTUALIZATION
FOUNDATION**

4 DAYS

SRV1010

COURSE OVERVIEW

This course will prepare students to install a server and understand the basics of supported virtualization application. The course covers BIOS configuration, installing supported virtualization applications, installing a client and server OS and verifying operations. The course includes hands on lab exercises.

TARGET AUDIENCE

Technical Support Staff who need to understand virtual servers or install servers that utilize Virtual Machines (VM).

COURSE OBJECTIVES

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

- Configure BIOS parameters for server hardware
- Demonstrate basic knowledge of supported virtualization application, including capacity
- Install supported virtualization application on a server platform
- Configure supported virtualization application parameters of supported server hardware
- Install a Client OS and Server OS in a virtual environment
- Verify Server/Client operations in a virtual environment

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Comp-TIA Server+ Certification or equivalent

PREREQUISITES

None



**COMMUNICATION
SYSTEMS CONCEPTS**

4.5 DAYS

NST021

COURSE OVERVIEW

This course emphasizes the concepts behind RF Systems theory and operation. Major topics covered include:

- RF System Operation, including talkaround, repeater operation, and types of signaling used in RF Systems
- A basic walkthrough of building a communication system from Simplex, to Half Duplex, Voting Systems, and Simulcast is done, emphasizing the improvements in communication obtained with each step.
- Trunking Operation, including Smartzone operation
- Types of modulation used in RF System operation, including ASTRO®
- Radio frequency path including the antenna and transmission line
- Decibels and their uses on the job
- RF Propagation/RF Interference
- Basic Troubleshooting practices from the system perspective

TARGET AUDIENCE

Individuals who are interested in the operational concepts driving modern communication systems.

COURSE OBJECTIVES

Upon completing this course, the student will be able to:

- Define terms commonly used in two-way communication systems
- Effectively use two-way radio communication systems knowledge to troubleshoot typical two-way communication radio systems
- Develop requirements for a two-way radio system by establishing programming and protocol requirements as requested
- Improve skills in the interpretation of typical two-way radio checks of the receiver, transmitter and the antenna system to troubleshoot a two-way radio communication system
- Use decibels to interpret the radio frequency path and antenna system to describe expected radio communication system performance and troubleshooting

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Knowledge of basic electronics
- Experience using standard communication test equipment

PREREQUISITES

None



**NETWORKING ESSENTIALS
IN MOTOROLA SOLUTIONS
COMMUNICATIONS
EQUIPMENT**

4.5 DAYS

NST762

COURSE OVERVIEW

The Networking Essentials in Motorola Solutions Communications Equipment course provides the technician with the essential elements of networking required for the installation and maintenance of most Motorola Solutions communications systems. The course includes ample hands-on and basic troubleshooting on network elements.

TARGET AUDIENCE

System Technicians

COURSE OBJECTIVES

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

- Recall basic network terminology
- Compare basic configuration types, both logical and physical
- Describe the basic OSI (Open System Interconnect) model compared with the TCP/IP model
- Construct a basic LAN with a Windows Server Domain Controller and workstations
- Examine the interaction between the routers through their configurations
- Use common network commands to simulate traffic and validate connectivity and routing

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- An understanding of the basic Motorola Solutions Communications Systems is highly recommended
- Basic familiarization with computer operating systems is required
- A basic knowledge of networking is helpful and recommended

PREREQUISITES

None

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**BRIDGING THE KNOWLEDGE
GAP FOR ASTRO® 25 –
TECHNICIAN**

4 HRS

ACT100E

COURSE OVERVIEW

This seven-module course is designed to bring Technicians from different technical backgrounds and experience levels to a common starting point for the ASTRO® 25 curriculum. This course provides seven modules from the basic concepts of radio communication systems and computer networking features, through the evolution that led to the ASTRO® 25 trunking system's architecture.

TARGET AUDIENCE

This course is intended for System Technicians, and other ASTRO® 25 system users who are new to trunked radio systems. Also those with experience in non-IP-based radio systems like SmartNet and SmartZone.

COURSE OBJECTIVES

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


- Explain the different radio system concepts as applied to conventional and trunked systems
- Compare analog radio communication signaling to ASTRO® 25 radio communications signaling
- Identify different communication concepts using representative block diagrams of the respective systems
- Compare radio system communication concepts using representative block diagrams of the respective systems
- Compare how voice and data, information flow through different radio communication system types and how the signaling information controls that flow of information
- Describe the features of each radio communication system in terms of advantages and disadvantages

REQUISITE KNOWLEDGE

None

PREREQUISITES

None



**BRIDGING THE KNOWLEDGE
GAP FOR ASTRO® 25 –
SYSTEM ADMINISTRATOR**

4 HRS

ACT101E

COURSE OVERVIEW

This five-module course is designed to bring Administrators from different technical backgrounds and experience levels to a common starting point for the ASTRO® 25 curriculum. This course provides seven modules from the basic concepts of radio communication systems and computer networking features, through the evolution that led to the ASTRO® 25 trunking system's architecture.

TARGET AUDIENCE

System Administrators who are new to trunked radio systems. Also those with experience in non-IP-based radio systems like SmartNet and SmartZone.

COURSE OBJECTIVES

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

- Identify different communication concepts using representative block diagrams of the respective systems
- Compare radio system communication concepts using representative block diagrams of the respective systems
- Compare how voice and data information flows through different radio communication system types, and how the signaling information controls that flow of information
- Describe the features of each radio communication system in terms of advantages and disadvantages
- Explain the Trunked Radio System Concepts

REQUISITE KNOWLEDGE

None

PREREQUISITES

None



**ASTRO® 25 SYSTEMS
APPLIED NETWORKING**

4.5 DAYS

NWT003

COURSE OVERVIEW

The ASTRO® 25 Systems Applied Networking course provides technicians with the necessary networking information required for understanding the network components installed in modern Motorola communications systems. The course includes familiarization with basic networking concepts, and the networking components deployed in the ASTRO® 25 System.

TARGET AUDIENCE

Technical System Managers and Technicians

COURSE OBJECTIVES

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

- Define basic IP network concepts, hardware and protocols.
- Describe the LAN topologies for the ASTRO® 25 system.
- Describe the WAN topologies for the ASTRO® 25 system.
- Identify the current and legacy network components such as switches and routers.
- Perform backup, restore, and recovery procedures of routers and LAN switches.
- Analyze basic IP network connectivity and addressing.
- Define ASTRO® 25 Master Site VLAN/VRRP operation.
- Define ASTRO® 25 Network Transport Subsystem.
- Describe the various ASTRO® 25 Network Management applications.
- Identify network security components and concepts in an ASTRO® 25 system.
- Diagram SNMP deployment throughout the system.

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- NST762 Networking Essentials in Motorola Communications Systems

PREREQUISITES

None

RADIO SOLUTIONS FOUNDATIONAL

For information on prerequisites and to register for courses visit the LXP at:
LEARNING.MOTOROLASOLUTIONS.COM

For general information contact the North America Training Services help desk at:
(800) 247-2346, option 4 or training.na@motorolasolutions.com



MOTOTRBO™ SYSTEMS APPLIED NETWORKING

3.5 DAYS

PCT2007

COURSE OVERVIEW

The MOTOTRBO™ Systems Applied Networking provides technicians with the necessary information required for understanding the typical networking requirements for implementing a variety of MOTOTRBO™ solutions. The course includes familiarization/review of basic networking concepts and MOTOTRBO™-specific networking requirements. This course will focus on specific configurations for IP Site Connect, Linked Capacity Plus, and Connect Plus trunking systems.

TARGET AUDIENCE

Technical System Managers and Technicians

COURSE OBJECTIVES

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

- Recall Basic Networking Concepts
- Identify recommended network components for MOTOTRBO™ systems
- Define LAN/WAN topologies for MOTOTRBO™ systems
- Perform backup, restore and recovery of recommended network components
- Identify network security concepts for MOTOTRBO™ systems

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- NST762 Networking Essentials in Motorola Solutions Communications Equipment

PREREQUISITES

None

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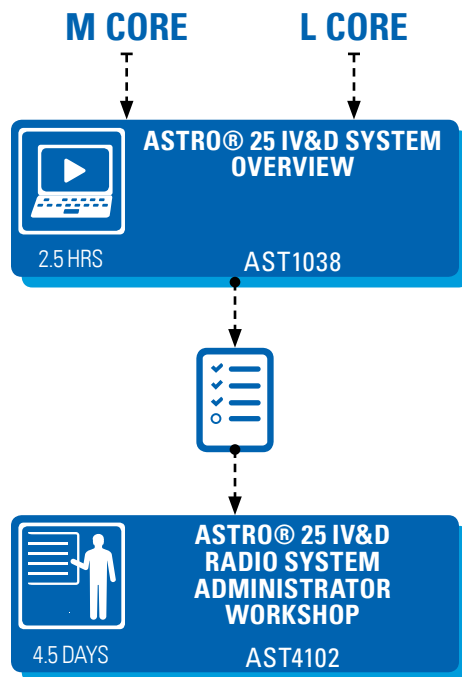


RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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LEARNING.MOTOROLASOLUTIONS.COM

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(800) 247-2346, option 4 or training.na@motorolasolutions.com

ASTRO® 25 IV&D RADIO SYSTEM ADMINISTRATOR



RECOMMENDED CURRICULUM IS COMPLETE



PARTICIPANT SHOULD BE ABLE TO CARRY OUT ADMINISTRATIVE TASKS IN THE ASTRO® 25 IV&D SYSTEM SUCH AS: PROVISIONING SUBSCRIBERS AND TALK GROUPS, GENERATING HISTORICAL REPORTS, CONTROLLING DEPLOYED SUBSCRIBERS AND MANAGING NETWORK ELEMENT CONFIGURATIONS. PARTICIPANT UNDERSTANDS FACTORS OF SYSTEM CONFIGURATION THAT IMPACT ASTRO® 25 SYSTEM MANAGEMENT.

OPTIONAL TRAINING ROADMAP

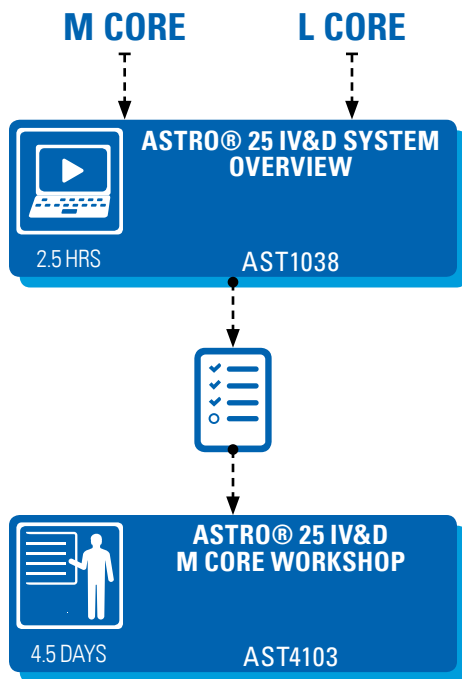
OPTIONAL TRAINING ROADMAP AVAILABLE.
CLICK ON THIS LINK TO GO TO PAGE 26
FOR ADDITIONAL DETAILS.

RADIO SOLUTIONS **ASTRO® 25 IV&D SYSTEMS**

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ASTRO® 25 IV&D M/L CORE TECHNICIAN



RECOMMENDED CURRICULUM IS COMPLETE



PARTICIPANT SHOULD UNDERSTAND ASTRO® 25 M CORE COMPONENTS, VIRTUAL SERVERS AND SERVICE STRATEGY. PARTICIPANT CAN INTERPRET SYSTEM ALARMS, PROPOSE SOLUTIONS FOR SYSTEM FAILURES, AND AS WELL AS RESTORING EQUIPMENT TO PROPER FUNCTIONALITY.

OPTIONAL TRAINING ROADMAP

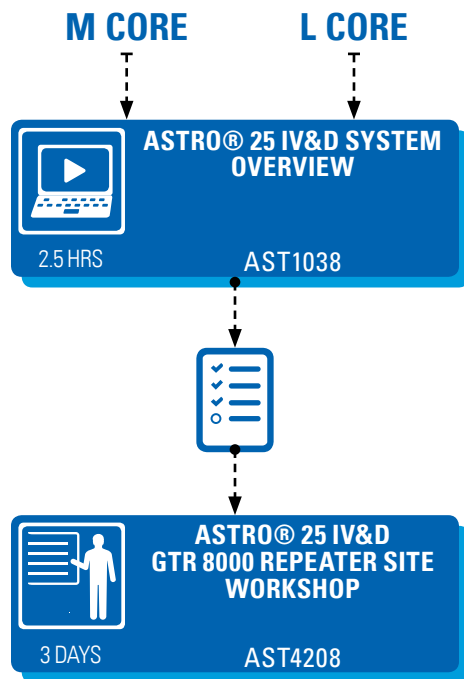
OPTIONAL TRAINING ROADMAP AVAILABLE.
CLICK ON THIS LINK TO GO TO PAGE 26
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RADIO SOLUTIONS **ASTRO® 25 IV&D SYSTEMS**

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ASTRO® 25 IV&D REPEATER SITE TECHNICIAN (GTR)



RECOMMENDED CURRICULUM IS COMPLETE



PARTICIPANT CAN MAINTAIN AN ASTRO® 25 REPEATER SITE INCLUDING: GTR8000 BASE STATION, GCP8000 SITE CONTROLLER AND OTHER SITE EQUIPMENT.
*PARTICIPANT PERFORMS ALIGNMENTS TROUBLESHOOTING AND FIELD REPLACEMENT OF SITE DEVICES DURING COURSE.

OPTIONAL TRAINING ROADMAP

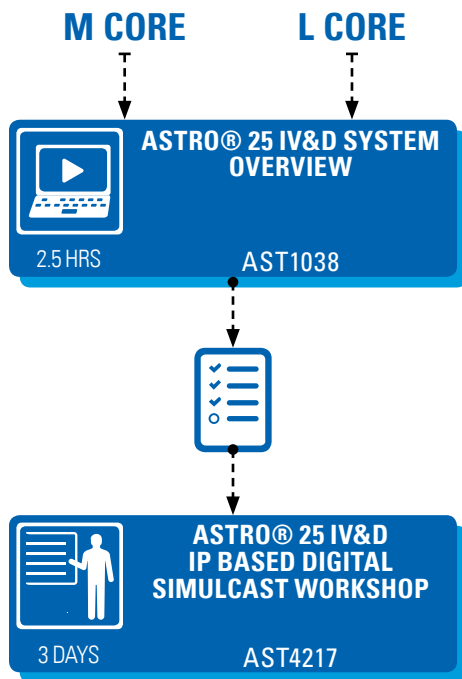
OPTIONAL TRAINING ROADMAP AVAILABLE.
CLICK ON THIS LINK TO GO TO PAGE 26
FOR ADDITIONAL DETAILS.

RADIO SOLUTIONS **ASTRO® 25 IV&D SYSTEMS**

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ASTRO® 25 IV&D IP SIMULCAST SITE TECHNICIAN



RECOMMENDED CURRICULUM IS COMPLETE



PARTICIPANT SHOULD BE ABLE TO MAINTAIN AN ASTRO® 25 REPEATER SITE INCLUDING THE GTR8000 BASE STATION, GCP8000 SITE CONTROLLER, SITE COMPARATOR AND OTHER SITE EQUIPMENT.

OPTIONAL TRAINING ROADMAP

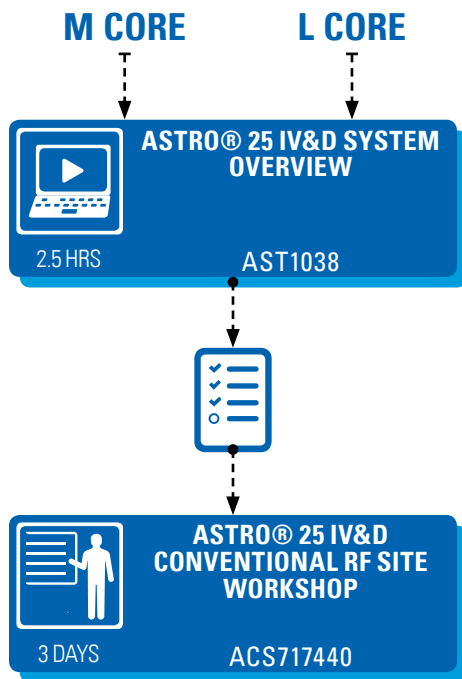
OPTIONAL TRAINING ROADMAP AVAILABLE.
CLICK ON THIS LINK TO GO TO PAGE 26
FOR ADDITIONAL DETAILS.

RADIO SOLUTIONS **ASTRO® 25 IV&D SYSTEMS**

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ASTRO® 25 IV&D CONVENTIONAL RF SITE TECHNICIAN



RECOMMENDED CURRICULUM IS COMPLETE



PARTICIPANT SHOULD BE ABLE TO MAINTAIN AN ASTRO® 25 REPEATER SITE INCLUDING THE GTR8000 BASE STATION, GCP8000 SITE CONTROLLER, SITE COMPARATOR AND OTHER SITE EQUIPMENT.

OPTIONAL TRAINING ROADMAP

OPTIONAL TRAINING ROADMAP AVAILABLE.
CLICK ON THIS LINK TO GO TO PAGE 26
FOR ADDITIONAL DETAILS.

RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS










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ASTRO® IV&D OPTIONAL TRAINING CURRICULUM

Motorola Solutions offers optional training for those participants who have completed their ASTRO® 25 curriculum and want to learn more about their system's infrastructure and/or features.

Select the training course below applicable to your system.

 2 HRS ASTRO® 25 IV&D DYNAMIC SYSTEM RESILIENCE ACS715023	 1 HR ASTRO® 25 IV&D INTERFACING SMARTZONE 3600 SYSTEMS ACS713360	 2 HRS ASTRO® 25 IV&D INFORMATION ASSURANCE ACS713211
 2 HRS ASTRO® 25 IV&D ENHANCED TELEPHONE INTERCONNECT ACS715480		
 4 DAYS ASTRO® 25 IV&D SECURITY PATCH MANAGEMENT AST2001	 4.5 DAYS ASTRO® 25 IV&D SYSTEMS FLEETMAPPING RDS1017	 2 DAYS ASTRO® 25 IV&D RADIO AUTHENTICATION AST2038
 4.5 DAYS ASTRO® 25 IV&D INFORMATION ASSURANCE WORKSHOP ACS716600	 3 DAYS ASTRO® 25 IV&D DOMAIN CONTROLLER ADMINISTRATION AST2015	

SUBSCRIBER OPTIONAL TRAINING CURRICULUM

 5 x 2.5 HRS APX™ CPS PROGRAMMING AND TEMPLATE BUILDING APX7001V	 4.5 DAYS APX™ TECHNICAL SUBSCRIBER ACADEMY APX010	 2 HRS ASTRO® 25 ISSI 8000 / CSSI 8000 FEATURE OVERVIEW AST2005
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RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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**ASTRO® 25 IV&D
SYSTEM OVERVIEW**

2.5 HRS

AST1038

COURSE OVERVIEW

The ASTRO® 25 IV&D System Overview course will provide participants with knowledge and understanding of the ASTRO® 25 IV&D system. This course will address M, L and K Core systems. System architecture, components and features will be explained. In addition, RF and console sites and their architecture, features and components will be discussed. Finally, call processing for voice and mobile data applications will be covered, and an introduction to applications available in the ASTRO® 25 system will be provided.

TARGET AUDIENCE

Core Technicians, Site Technicians, Console Technicians, Core Managers.

COURSE OBJECTIVES

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

- Understand the general architecture of an ASTRO® 25 IV&D Radio System
- Understand key features of available in the ASTRO® 25 IV&D Radio System
- Understand the components of the ASTRO® 25 Zone Core
- Understand site components in the ASTRO® 25 system
- Understand the features, capabilities and components of the MCC7000 series dispatch consoles
- Understand concepts of Mobility and Call Processing in the ASTRO25
- Understand the applications for managing the ASTRO® 25 system

REQUISITE KNOWLEDGE

None

PREREQUISITES

None



**ASTRO® 25 IV&D
M CORE WORKSHOP**

4.5 DAYS

AST4103

COURSE OVERVIEW

The ASTRO® 25 IV&D with M Core course teaches troubleshooting skills and best practices for the Trunked Large Systems. The course also focuses on gathering and analyzing system information to implement appropriate action(s) that return a system to full operational status.

TARGET AUDIENCE

M Core Master Site Technicians

COURSE OBJECTIVES

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

- Describe the ASTRO® 25 IV&D System architecture
- Identify the functional and radio subsystems that comprise the ASTRO® 25 IV&D System
- Explain and discuss call flow and data flow through ASTRO® 25 IV&D M Core devices and their subsystems
- Perform recommended routine maintenance procedures for ASTRO® 25 IV&D M Core
- Utilize the troubleshooting tools to diagnose a fault and restore the ASTRO® 25 IV&D M Core to the level of the Motorola Solutions-supported service strategy

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- ACT100E Bridging the Knowledge Gap for ASTRO® 25 – Technician
- NST762 Networking Essentials in Communication Equipment
- NWT003 ASTRO® 25 Systems Applied Networking

PREREQUISITES

AST1038 ASTRO® 25 IV&D System Overview



**ASTRO® 25 IV&D
CONVENTIONAL K CORE
WITH CONFIGURATION
MANAGER**

3 DAYS

ACS717410

COURSE OVERVIEW

The ASTRO® 25 IV&D Conventional with K Core and Configuration Manager course teaches advanced troubleshooting skills and best practices for the ASTRO® 25 IV&D Conventional K Core. It also focuses on administrator functions and how to use the ASTRO® 25 IV&D Configuration Manager applications. A technical introduction to the MCC 7000 series consoles as used within the ASTRO® 25 IV&D Conventional K Core, including some administrator functions, is also provided. Learning activities focus on gathering and analyzing system information to implement the appropriate actions that return a system to full operational status.

TARGET AUDIENCE

Master Site Technicians, System Administrators, Technical System Administrators, System Technicians and other Application Users

COURSE OBJECTIVES

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

- Understand key physical and functional characteristics of K Core conventional system.
- Perform tasks necessary to install K Core conventional system components.
- Perform configuration steps for K Core conventional system components.
- Understand available maintenance tools and indicators in K Core conventional system.

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- ACT101 Bridging the Knowledge Gap – System Administrators
- NST762 Networking Essentials in Communication Equipment
- NWT003 ASTRO® 25 Applied Networking

PREREQUISITES

AST1038 ASTRO® 25 IV&D System Overview

RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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**ASTRO® 25 IV&D
RADIO SYSTEM
ADMINISTRATOR
WORKSHOP**

4.5 DAYS

AST4102



**ASTRO® 25 IV&D
SYSTEMS FLEETMAPPING**

4.5 DAYS

RDS1017



**ASTRO® 25 IV&D
SECURITY PATCH
MANAGEMENT**

4 DAYS

AST2001

COURSE OVERVIEW

This workshop covers administrator functions for an ASTRO® 25 Integrated Voice and Data (IV&D) System. Learning activities in this course focus on how to use the different ASTRO® 25 IV&D System Management applications. Participants will be provided with an opportunity to discuss how to structure their organization and personnel for optimal ASTRO® 25 IV&D system use.

TARGET AUDIENCE

System Administrators, Technical System Administrators, System Technicians, and other Application Users. The applications covered in this course may only apply to customers with releases 7.17.

COURSE OBJECTIVES

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

- Describe the relationship between radio programming, console administration and system management, and the impact of this relationship on system planning.
- List the network management tools applicable at each phase of the system life cycle.
- Identify the advantages and disadvantages of options available for the configuration of system infrastructure and user parameters.
- Use the report and real-time data to monitor performance and make adjustments necessary to maintain acceptable system performance levels.

REQUISITE KNOWLEDGE

Completion of the following courses or equivalent experience:

- ACT101 Bridging the Knowledge Gap – System Administrators
- NST762 Networking Essentials in Communication Equipment
- NWT003 ASTRO® 25 Applied Networking

PREREQUISITES

AST1038 ASTRO® 25 IV&D System Overview

COURSE OVERVIEW

This workshop addresses topics necessary for the effective planning and mapping of an ASTRO® 25 IV&D radio system. During this course, the participants will learn about ASTRO® 25 features, capabilities, and restrictions in order to effectively plan and prepare for a new or upgraded ASTRO® 25 system.

TARGET AUDIENCE

Pre-sale customers, new system managers, system planning personnel

COURSE OBJECTIVES

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

- Discuss what a fleetmap is and why one is needed.
- Discuss the methodologies used to configure radio users and groups with the goal of optimizing the system resources.
- Describe the content to assist with fleetmapping decisions.
- Discuss frequency band plan organization and management.
- Describe basic planning requirements and complete a simple Fleetmap information template.
- Complete worksheets required to create a Fleetmap based on sample operational requirement information.

REQUISITE KNOWLEDGE

None

PREREQUISITES

None

COURSE OVERVIEW

Provide Motorola ASTRO® 25 Land Mobile Radio (LMR) system administrators the information needed to access and patch their Radio Network Infrastructure, update Anti-Malware definitions and collect log files.

TARGET AUDIENCE

Zone Core Master Site Technicians

COURSE OBJECTIVES

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

- Inventory LMR assets (Asset Inventory).
- Successfully access servers in the Zone Core.
- Successfully patch Radio Network Infrastructure.
- Update Anti-Malware Definitions for their Radio Network Infrastructure.
- Collect critical MS Windows and RHEL log files.

REQUISITE KNOWLEDGE

None

PREREQUISITES

AST4103 ASTRO® 25 IV&D M Core Workshop

RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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LEARNING.MOTOROLASOLUTIONS.COM

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**ASTRO® 25 IV&D
RADIO AUTHENTICATION**

2 DAYS

AST2038



**ASTRO® 25
INFORMATION ASSURANCE
WORKSHOP**

4.5 DAYS

ACS716600



**ASTRO® 25 IV&D
SECURE COMMUNICATIONS
WORKSHOP**

5 DAYS

AST4207

COURSE OVERVIEW

This course describes the Radio Authentication feature and defines the HW/SW components in the Radio Authentication system. In addition the course describes the Radio Authentication process, discusses the various Keys uses in Radio Authentication. The students will understand how to provision and distribute relevant Keys using the AuC Client GUI to access the AuC Server. Students will understand how to enable Radio Authentication in the System via the AuC Client and how to configure the KVL 4000 for Radio Authentication and manage subscribers from the AuC Client.

TARGET AUDIENCE

Customer Administrators or Technicians.

COURSE OBJECTIVES

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

- Describe Radio Authentication features and HW/SW components
- Describe the Radio Authentication process. Discuss the Keys used in Radio Authentication
- Provision and Distribute relevant Keys. Describe the AuC Client GUI
- Enable Radio Authentication in the System. Configure the KVL 4000 for Radio Authentication
- Manage Subscribers from the AuC Client. Discuss Radio Authentication functionality in a DSR system

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- AAE1400 Radio Authentication e-learning course.
- Radio System Administration or equivalent knowledge of the Provisioning Manager, ZoneWatch, Historical Reports, ATIA Log Viewer, Unified Event Manager (UEM), Unified Network Configurator (UNC).

PREREQUISITES

Access to customer ASTRO25 Radio System, AuC Server/Client is required. Customer to provide working Motorola Solutions' portable radio(s) capable of placing calls on the System, access to working AuC client/server along with admin login credentials, access to a working KVL4000 key loader that can upload keys to the AuC server.

COURSE OVERVIEW

Information Assurance (IA) refers to securing radio network access, protecting the privacy of network traffic using encryption, and assuring the integrity of data sent through the radio network or stored in the radio network. IA procedures and protocols offer FIPS-compliant techniques designed to harden the network. In this lab-based class, IA features are applied to network transport equipment by configuring HP switches, Motorola Solutions network routers, and firewalls in the classroom. Site level and zone core IA features are illustrated on the customer system or, by remotely accessing the Motorola Solutions Solutions OneLE ASTRO® 25 system.

TARGET AUDIENCE

Technical Support staff who must configure, maintain, and troubleshoot a hardened ASTRO® 25 system.

COURSE OBJECTIVES

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

- Identify and describe the various Information Assurance (IA) features available in the
- ASTRO® 25 IV&D network.
- Identify the system locations and scope of protection offered by IA features in the network.
- Harden ASTRO® 25 networks using Information Assurance (IA) features.
- Configure and restore IA features on HP switches and Motorola Solutions network routers.
- Configure site level IA features using the CSS or UNC.
- Manage zone core level IA features.
- Manage and check the configuration of firewalls in the ASTRO® 25 network.

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- NST762 Networking Essentials in Communications Equipment
- NWT003 ASTRO® 25 Applied Networking
- AST4103 ASTRO® 25 M-Core Workshop

PREREQUISITES

None

COURSE OVERVIEW

This workshop describes planning, installation, configuration, operations, and troubleshooting of Secure Communications within the ASTRO® 25 IV&D System.

TARGET AUDIENCE

System Technicians, System Administrators, Technical System Managers

COURSE OBJECTIVES

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

- Plan, organize, and implement Secure Communications in an ASTRO® 25 IV&D system.
- Install and configure a Key Management Facility (KMF) system and related components.
- Demonstrate centralized key management using Over-the-Air-Rekeying (OTAR).
- Perform System Administrator functions using the KMF server and KMF client.
- Troubleshoot installation and configuration problems for the KMF server, KMF client, and KMF database.

REQUISITE KNOWLEDGE

Completion of the following courses or equivalent experience:

- ACT100E Bridging the Knowledge Gap - Technicians
- NST762 Networking Essentials in Communication Equipment


PREREQUISITES

None

RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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**ASTRO® 25 IV&D
IP BASED DIGITAL
SIMULCAST WORKSHOP**

3 DAYS

AST4217

COURSE OVERVIEW

The ASTRO® 25 IV&D IP Based Digital Simulcast workshop provides an understanding of the components that comprise the ASTRO® 25 IV&D IP Simulcast subsystem, and how they operate in conjunction with each other. The workshop also explains the tools and methods available for troubleshooting components within the IP Based Simulcast subsystem.

TARGET AUDIENCE

Simulcast Site Technicians

COURSE OBJECTIVES

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

- Recognize the flow of message and control data within an ASTRO® 25 IV&D IP Digital Simulcast subsystem
- Identify the major components and connections within an ASTRO® 25 IV&D IP Digital Simulcast subsystem prime and remote sites
- Recognize how calls are processed within an ASTRO® 25 IV&D IP Digital Simulcast subsystem
- Perform maintenance and troubleshooting of select components in an ASTRO® 25 IV&D IP Digital Simulcast subsystem

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- ACT100E Bridging the Knowledge Gap for ASTRO® 25 – Technician
- NST762 Networking Essentials in Communication Equipment
- NWT003 ASTRO® 25 Systems Applied Networking

PREREQUISITES

AST1038 ASTRO® 25 IV&D System Overview



**ASTRO® 25 IV&D
GTR 8000 REPEATER SITE
WORKSHOP**

3 DAYS

AST4208

COURSE OVERVIEW

This workshop describes the components in the ASTRO® 25 IV&D System Repeater Site with GTR 8000 expandable site subsystem. This course also presents how the GTR 8000 expandable site subsystem operates and explains the tools and methods available for troubleshooting components within the subsystem.

TARGET AUDIENCE

GTR 8000 Site Technicians

COURSE OBJECTIVES

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

- Describe the ASTRO® 25 IV&D Repeater Site with GTR 8000 Expandable Site Subsystem configurations and components.
- Identify the GCP 8000 Site Controller functions and configuration requirements.
- Describe the connections and interfaces to the GCP 8000.
- Diagnose and troubleshoot the GCP 8000.
- Describe the functionality of the GTR 8000 Expandable Site Subsystem.
- Configure and troubleshoot the ASTRO® 25 Repeater Site with GTR 8000 Expandable Site Subsystem.
- Configure and troubleshoot the Network Transport subsystem.

REQUISITE KNOWLEDGE

Completion of the following courses or equivalent experience:

- ACT100 Bridging the Knowledge Gap - Technicians
- NST762 Networking Essentials in Communication Equipment
- NWT003 ASTRO®25 Applied Networking

PREREQUISITES

AST1038 ASTRO® 25 IV&D System Overview



**ASTRO® 25 IV&D
CONVENTIONAL RF SITE
WORKSHOP**

3 DAYS

ACS717440

COURSE OVERVIEW

The ASTRO® 25 IV&D Conventional RF Site workshop describes the components in the different ASTRO® 25 IV&D Conventional RF Sites topologies. This course also presents how the different ASTRO® 25 IV&D Conventional RF Sites topologies operate and explains the tools and methods available for troubleshooting components within the different ASTRO® 25 IV&D Conventional RF Sites topologies.

TARGET AUDIENCE

Site Technicians

COURSE OBJECTIVES

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

- Understand key physical and functional characteristics of conventional site.
- Perform tasks necessary to install conventional site components.
- Perform configuration steps for conventional site components.
- Understand available maintenance tools and indicators in conventional site.

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- ACT101 Bridging the Knowledge Gap – System Administrators
- NST762 Networking Essentials in Communication Equipment
- NWT003 ASTRO® 25 Applied Networking

PREREQUISITES

AST1038 ASTRO® 25 IV&D System Overview

RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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**ASTRO® 25
DOMAIN CONTROLLER
ADMINISTRATION**

3 DAYS

AST2015

COURSE OVERVIEW

This workshop covers the administrator and management functions in the ASTRO® 25 Domain Controller and how these functions affect both users and computers in the ASTRO® 25 system. Learning activities in this course focus on how to use the Domain Controllers to authenticate, administer, and authorize users and devices in the ASTRO® 25 System. Group Policies and Organizational Units, RADIUS, and DNS structure will be addressed during this course.

TARGET AUDIENCE

System Administrators, Technical System Administrators and System Technicians

COURSE OBJECTIVES

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

- Understand the Domain Controller server platform
- Understand the DNS Hierarchy in the ASTRO® 25 system
- Implement RADIUS authentication in applicable devices in an ASTRO® 25 system.
- Use Active Directory to control users in the ASTRO® 25 system.
- Understand Group Policy objects and how they impact users in the ASTRO® 25 Domain.

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- AST1038 ASTRO® 25 IV&D System Overview

PREREQUISITES

None



**INTELLIGENT MIDDLEWARE
5.2 OPERATION AND
ADMINISTRATION**

2 DAYS

RDS2025

COURSE OVERVIEW

The purpose of this course is to provide the steps to operate and maintain a customer's IMW system within their Motorola system (ASTRO®, DIMETRA, LTE).

TARGET AUDIENCE

Professionals responsible for the operation and maintenance of a customer's IMW system within their Motorola systems (ASTRO®, DIMETRA, LTE).

COURSE OBJECTIVES

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

- Describe IMW features.
- Perform installation of IMW.
- Configure an IMW system.
- Identify the IMW tools to administer the system.
- Perform routine administration.
- Perform troubleshooting.
- Understand system-specific considerations.

REQUISITE KNOWLEDGE

None

PREREQUISITES

None



**ASTRO® 25
ISSI 8000 / CSSI 8000
FEATURE OVERVIEW**

2 HRS

AST2005

COURSE OVERVIEW

The ISSI 8000 / CSSI 8000 Feature Overview self-paced course describes the optional Inter-RF Subsystem Interface available in an ASTRO® 25 IV&D System. It presents a description of the feature, its benefits and components, call processing scenarios, and an overview of the installation process.

TARGET AUDIENCE

System Managers, Technical System Managers, System Technicians, Application Users

COURSE OBJECTIVES

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

- Describe the ISSI 8000 / CSSI 8000 feature
- Describe the components of the ISSI 8000 / CSSI 8000 feature
- Describe the communication scenarios if this feature is enabled
- Follow the installation and configuration process if this feature is added to an ASTRO® system

REQUISITE KNOWLEDGE

Completion of the following courses:

- ACT100E Bridging the Knowledge Gap - Technicians
- AST1038 ASTRO® 25 IV&D System Overview

PREREQUISITES

None

RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

For information on prerequisites and to register for courses visit the LXP at:
LEARNING.MOTOROLASOLUTIONS.COM

For general information contact the North America Training Services help desk at:
(800) 247-2346, option 4 or training.na@motorolasolutions.com

**ASTRO® 25 IV&D
DYNAMIC SYSTEM
RESILIENCE**
2 HRS
ACS715023

COURSE OVERVIEW

The ASTRO® 25 IV&D Dynamic System Resilience (DSR) Overview is a self-study training course intended to provide a technical overview of DSR. The course describes how DSR adds a geographically separate backup for the Master Site to protect against a catastrophic failure.

TARGET AUDIENCE

System Administrators, System Technicians, Field Technicians

COURSE OBJECTIVES

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

- Differentiate between a non-DSR Master Site and a DSR Master Site

Describe the DSR components, operation and functionality of each of the following services:

- Voice
- Data
- Network Management
- Network Transport
- IP Services

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- ACS715200 - System Overview for ASTRO® 25 IV&D with M Core

PREREQUISITES

None

**ASTRO® 25 IV&D
INTERFACING SMARTZONE
3600 SYSTEMS**
1 HR
ACS713360

COURSE OVERVIEW

ASTRO® 25 IV&D Trunked System - Interfacing SmartZone 3600 Systems with SmartX is designed to allow communication between subscriber radios at existing 3600 RF sites and an ASTRO® 25 IV&D system. It is based on the Voice Processor Module hardware platform and enables the continued use of 3600 RF sites and subscriber radios with the release of ASTRO® 25 7.7 or higher. This self-study training course is intended to provide information related to the installation and functionality of, including the hardware and software associated with, the SmartX Site Converter in the ASTRO® 25 IV&D.

TARGET AUDIENCE

System Administrators, System Technicians, Field Technicians

COURSE OBJECTIVES

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

- Describe the SmartX Site Converter and its operation within the system
- Identify the major components and functionality.
- Know the requirements and components necessary to install a SmartX Site Converter

REQUISITE KNOWLEDGE

None

PREREQUISITES

None

**ASTRO® 25 IV&D
ENHANCED TELEPHONE
INTERCONNECT**
2 HRS
ACS715480

COURSE OVERVIEW

This web based course describes the functionality and the hardware and software associated with the Enhanced Telephone Interconnect feature in the ASTRO® 25 IV&D System.

TARGET AUDIENCE

System Technicians, System Administrators

COURSE OBJECTIVES

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

- Identify the function and major components for the Enhanced Telephone Interconnect feature
- Define the operation of the Enhanced Telephone Interconnect feature within the system
- Configure the Enhanced Telephone Interconnect equipment
- Troubleshoot the Enhanced Telephone Interconnect equipment

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- ACT100E or ACT101E Bridging the Knowledge Gap for ASTRO® 25
- NST762 Networking Essentials in Communication Equipment


PREREQUISITES

None

RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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LEARNING.MOTOROLASOLUTIONS.COM

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**SYSTEM OVERVIEW
FOR ASTRO® 25
INFORMATION ASSURANCE**

4 HRS

ACS713211

COURSE OVERVIEW

This web based course describes the functionality and the hardware and software associated CNI Network Security in the ASTRO® 25 IV&D System.

TARGET AUDIENCE

System Administrators, System Technicians, Field Technicians

COURSE OBJECTIVES

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

- Define network security and its functions
- List the network security components of an ASTRO® 25 IV&D system
- Define the functions, components and operation of the Core Server Management Server (CSMS)
- Identify the functions, components and operation of the Interface Barrier (NIB)
- Identify the functions, components and operation of the border router and the peripheral network router

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- ACT100E or ACT101E Bridging the Knowledge Gap for ASTRO® 25
- NST762 Networking Essentials in Communication Equipment
- NWT003 ASTRO® 25 Systems Applied Networking

PREREQUISITES

Take one of the following depending on system supporting:

- ACS713200 ASTRO25 IV&D with M Core System Overview
- ACS713420 ASTRO25 IV&D Conventional with M Core Overview
- ACS713430 ASTRO25 IV&D with L Core System Overview
- ACS713400 ASTRO25 IV&D Conventional with K Core System Overview

CONSOLE COURSES

ASTRO® 25 IV&D SYSTEM OVERVIEW (AST1038)	36
ASTRO® 25 IV&D DOMAIN CONTROLLER ADMINISTRATION (AST2015)	36
MCC 7000 SERIES DISPATCH CONSOLES WORKSHOP (CON012)	36
ASTRO® 25 NICE LOGGER INTEGRATION (AST1002)	37
MCD 5000 TECHNICAL WORKSHOP (RDS1022)	37

MCC 7000 SERIES DISPATCH CONSOLES WORKSHOP (CON012) FOCUSES ON THE CONSOLES APPLICATION IN AN M- OR L-CORE SYSTEM.

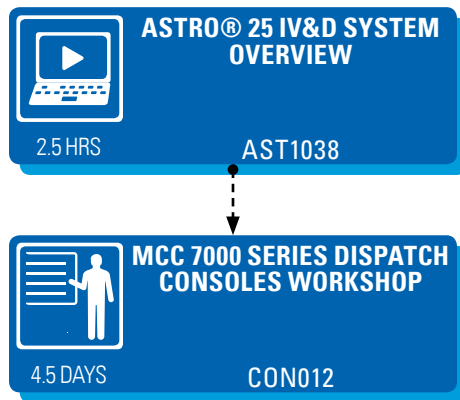


RADIO SOLUTIONS CONSOLES

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CONSOLES TECHNICAL TRAINING CURRICULUM



CURRICULUM COMPLETE



PARTICIPANT CAN MAINTAIN A MCC 7000 DISPATCH CONSOLE SITE INCLUDING: CONSOLE PC, VPM, CC GW'S AND AUX I/O SERVERS.
*PARTICIPANT PERFORMS TROUBLESHOOTING AND REPLACEMENT OF SITE DEVICES DURING COURSE.

OPTIONAL CONSOLE TRAINING

MCD 5000 TECHNICAL WORKSHOP
3 DAYS
RDS1022

ASTRO® 25 NICE LOGGER INTEGRATION
4.5 DAYS
AST1002

ASTRO® 25 IV&D DOMAIN CONTROLLER ADMINISTRATION
3 DAYS
AST2015

RADIO SOLUTIONS CONSOLES

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**ASTRO® 25 IV&D
SYSTEM OVERVIEW**
2.5 HRS
AST1038

COURSE OVERVIEW

The ASTRO® 25 IV&D System Overview course will provide participants with knowledge and understanding of the ASTRO® 25 IV&D system. This course will address M, L and K Core systems. System architecture, components and features will be explained. In addition, RF and console sites and their architecture, features and components will be discussed. Finally, call processing for voice and mobile data applications will be covered, and an introduction to applications available in the ASTRO® 25 system will be provided.

TARGET AUDIENCE

Core Technicians, Site Technicians, Console Technicians, Core Managers.

COURSE OBJECTIVES

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

- Understand the general architecture of an ASTRO® 25 IV&D Radio System
- Understand key features of available in the ASTRO® 25 IV&D Radio System
- Understand the components of the ASTRO® 25 Zone Core
- Understand site components in the ASTRO® 25 system
- Understand the features, capabilities and components of the MCC7000 series dispatch consoles
- Understand concepts of Mobility and Call Processing in the ASTRO25
- Understand the applications for managing the ASTRO® 25 system

REQUISITE KNOWLEDGE

None

PREREQUISITES

None

**ASTRO® 25 IV&D
DOMAIN CONTROLLER
ADMINISTRATION**
3 DAYS
AST2015

COURSE OVERVIEW

This workshop covers the administrator and management functions in the ASTRO® 25 Domain Controller and how these functions affect both users and computers in the ASTRO® 25 system. Learning activities in this course focus on how to use the Domain Controllers to authenticate, administer, and authorize users and devices in the ASTRO® 25 System. Group Policies and Organizational Units, RADIUS, and DNS structure will be addressed during this course.

TARGET AUDIENCE

System Administrators, Technical System Administrators and System Technicians

COURSE OBJECTIVES

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

- Understand the Domain Controller server platform
- Understand the DNS Hierarchy in the ASTRO® 25 system
- Implement RADIUS authentication in applicable devices in an ASTRO® 25 system.
- Use Active Directory to control users in the ASTRO® 25 system.
- Understand Group Policy objects and how they impact users in the ASTRO® 25 Domain.

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- AST1038 ASTRO® 25 IV&D System Overview

PREREQUISITES

None

**MCC 7000 SERIES DISPATCH
CONSOLES WORKSHOP**
4.5 DAYS
CON012

COURSE OVERVIEW

This course familiarizes participants in installation, configuration, management and repair of MCC 7000 Series Dispatch Consoles, Archiving Interface Servers, AUX I/O servers, and Conventional Channel Gateways. The focus is on a detailed discussion of console hardware and hands-on activities with the installation and configuration of the MCC 7000 Series Dispatch Consoles.

TARGET AUDIENCE

System Administrators, Console Technicians

COURSE OBJECTIVES

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

- Understand key physical and functional characteristics of MCC 7000 Series Dispatch Consoles.
- Understand physical installation requirements of MCC 7000 Series Dispatch Consoles.
- Perform tasks necessary to install MCC 7000 Series Dispatch Consoles components.
- Perform configuration steps for MCC 7000 Series Dispatch Consoles components.
- Understand available maintenance tools and indicators in MCC 7000 Series Dispatch Consoles.
- Perform routine maintenance activities in MCC 7000 Series Dispatch Consoles components.
- Troubleshoot MCC 7000 Series Dispatch Consoles components to the Motorola Solutions recommended service level.
- Perform tasks necessary to provision users for MCC 7000 Series Dispatch Consoles.
- Configure the MCC 7000 Series Dispatch Consoles interface.
- Perform required administrative activities for MCC 7000 Series Dispatch Consoles.

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- ACT100E or ACT101E Bridging the Knowledge Gap
- NST762 Networking Essentials in Communication Equipment
- NWT003 ASTRO® 25 Systems Applied Networking

PREREQUISITES

- AST1038 ASTRO® 25 IV&D System Overview

RADIO SOLUTIONS CONSOLES

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ASTRO® 25 NICE LOGGER INTEGRATION

4.5 DAYS

AST1002



MCD 5000 TECHNICAL WORKSHOP

3 DAYS

RDS1022

COURSE OVERVIEW

This workshop covers the tasks and knowledge to implement a NICE logging solution in an ASTRO® 25 system. Learning activities in this course focus on both initial installation and configuration, and operation and troubleshooting the components after installation. Participants will be provided with an opportunity to demonstrate, with available lab equipment, tasks required to install and maintain the related subsystem components.

TARGET AUDIENCE

Console Technicians, System Managers

COURSE OBJECTIVES

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

- Describe the functionality of the different components and applications required for NICE Radio logging
- Install and configure required components into an ASTRO® 25 system
- Perform administrative tasks necessary for operation of the logging solution
- Use system tools and applications to identify potential causes of failure of the logging solution

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- AST1038 ASTRO® 25 IV&D System Overview
- CON012 MCC7000 Series Dispatch Console Workshop

PREREQUISITES

None

COURSE OVERVIEW

This workshop supports those that install, configure, or support the MCD 5000 Deskset. This three day training course will cover installation procedures for the MCD5000 Deskset, Radio Gateway Unit (RGU), and connectivity to different station types. Configuration and programming of the MCD5000 and its supporting equipment will be covered through discussion and hands-on lab activities. Troubleshooting and maintenance techniques will be addressed to the Motorola Solutions recommended service level.

TARGET AUDIENCE

MCD 5000 Technicians

COURSE OBJECTIVES

By the end of the course, you will be able to:

- Identify the MCD 5000 System components and functions.
- Install MCD 5000 Deskset.
- Install Radio Gateway Units.
- Configure MCD 5000 subcomponents.
- Troubleshoot the MCD 5000 System to Motorola Solutions recommended service levels.

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- NST021 Communication Systems Concepts

PREREQUISITES

None

SUBSCRIBER COURSES

APX™ CPS PROGRAMMING AND TEMPLATE BUILDING (APX7001V)	39
APX™ TECHNICAL SUBSCRIBER ACADEMY (APX010)	39
APX™ RADIO MANAGEMENT WORKSHOP (RDS2017)	39
MOTOTRBO™ SUBSCRIBER AND REPEATER TECHNICAL SERVICE ACADEMY (TBO300)	40



RADIO SOLUTIONS SUBSCRIBERS

For information on prerequisites and to register for courses visit the LXP at:
LEARNING.MOTOROLASOLUTIONS.COM

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**APX™ CPS PROGRAMMING
AND TEMPLATE BUILDING**

5 x 2.5 HRS
APX7001V

COURSE OVERVIEW

The APX CPS Programming and Template Building course provides communications management personnel and technicians with the knowledge and training necessary to build templates and program the APX family of radios in the most efficient way possible. Supplemental videos for this VILT course can be seen by enrolling in RDS1018 and RDS1019 in the LXP.

TARGET AUDIENCE

Radio Technicians, System Managers

COURSE OBJECTIVES

By the end of the course, you will be able to:

- Build the APX family of programming templates using the APX CPS programming Software Program the specific parameters related to the various system types in which the subscriber unit will operate: Conventional, Single Site trunking, Simulcast, SmartZone or ASTRO® 25 IV&D TDMA and ASTRO® 25 IV&D x2.
- Demonstrate knowledge of the APX CPS navigation, tools, options and features that make efficient programming of the radio possible.
- Demonstrate a complete understanding of the various APX CPS programming efficiency tools, such as: Cloning, drag and drop, Codeplug Comparison tool, radio Flashing, Advance System Key Administrator, Codeplug Merging and many others.

REQUISITE KNOWLEDGE

Knowledge of the basic features and options of two-way radios and the basic concepts of trunking.

PREREQUISITES

None

**APX™ TECHNICAL
SUBSCRIBER ACADEMY**

4.5 DAYS
APX010

COURSE OVERVIEW

Participants will learn the capabilities, features and functions of the APX family of radios as well as how to correctly complete performance checks, radio alignments, disassembly/reassembly, maintenance and troubleshooting. This Academy will also focus on a detailed theory of operation for the APX family of radios. The APX Academy will also cover in detail: Radio Flashing, Encryption, Key Loading (Including configuring the APX radio for OTAR), Programming over P25 (Over the Air Programming), Advanced System Key Management, Vacuum and Submersibility Testing, APX Mobile Radio Installation and many other special setup or configuration modes with the radios. In addition to lecture, large amounts of hands on with scenario based lab work will be used to reinforce knowledge transfer. This Academy will cover in detail all models within the APX family of radios, including: XTS7000 and APX7500.

TARGET AUDIENCE

Radio Technicians

COURSE OBJECTIVES

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

- Distinguish between the features and specifications of the all the available radio's within the APX family of subscribers
- Verify the correct operation of the various radio's within the APX family of subscribers by completing Performance Checks and Alignment procedures
- Maintain & troubleshoot radio's within the APX family of subscribers
- Disassemble and reassemble various APX subscriber radio's using the documented procedures
- Verify the housing integrity of an APX 7000 portable radio
- Flash upgrade the various radio's within the APX family of subscribers
- Interpret the circuit theory of operation and use this information to isolate faults found at both the board and the component level

REQUISITE KNOWLEDGE

Completion of the following courses or equivalent experience:

- NST021 Communication Systems Concepts
- APX7001V APX CPS Programming and Template Building Overview

PREREQUISITES

None

**APX™ RADIO
MANAGEMENT WORKSHOP**

2.5 DAYS
RDS2017

COURSE OVERVIEW

Participants will learn the capabilities, features, and functions of the APX Radio Management Suite.

This course covers an APX CPS overview, APX Radio Management Overview, Basic Networking Primer, ASTRO25/CEN Networking and UNS Overview, and APX Radio Management Installation, Configuration, and Operations.

In addition, the course contains labs that focus on installation, configuration, and operation using both wired and POP25 updates to APX Subscriber radios in both a LAN and WAN environment.

TARGET AUDIENCE

Radio Technicians, System Managers, Radio Programmers

COURSE OBJECTIVES

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

- Describe the APX Radio Management Suite operations and required software and hardware components
- Describe all deployment options for APX Radio Management Suite
- Configure a basic APX Radio Management system using a single PC, multiple PCs on a LAN, and multiple PCs on a WAN.
- Troubleshoot common APX Radio Management installation, configuration, and operation issues
- Use Best Practices to implement and optimize Radio Management Performance.

REQUISITE KNOWLEDGE

Completion of the following courses or equivalent experience:

- APX7001V APX CPS Programming and Template Building Overview

PREREQUISITES

None

RADIO SOLUTIONS SUBSCRIBERS

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COURSE OVERVIEW

Participants will learn the capabilities, features and functions of the MOTOTRBO™ family of radios and repeaters as well as how to correctly complete performance checks, radio alignments, disassembly/reassembly, maintenance, and troubleshooting. This Academy will also focus on the detailed theory of operation. In addition to lecture, large amounts of hands on, scenario based lab work will be used to reinforce knowledge transfer. This Academy will cover in detail different models within the MOTOTRBO™ family of radios and repeaters.

TARGET AUDIENCE

Radio Technicians

COURSE OBJECTIVES

- Distinguish between the features and specifications of the MOTOTRBO™ portable and mobile radios and repeaters
- Verify the correct operations of the MOTOTRBO™ radios and repeaters by completing Performance Checks and Alignment procedures
- Maintain and troubleshoot MOTOTRBO™ radios and repeaters
- Disassemble and reassemble the radios using the documented procedures

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- CEDMEL2000 Introduction to MOTOTRBO™ Systems for Technicians

PREREQUISITES

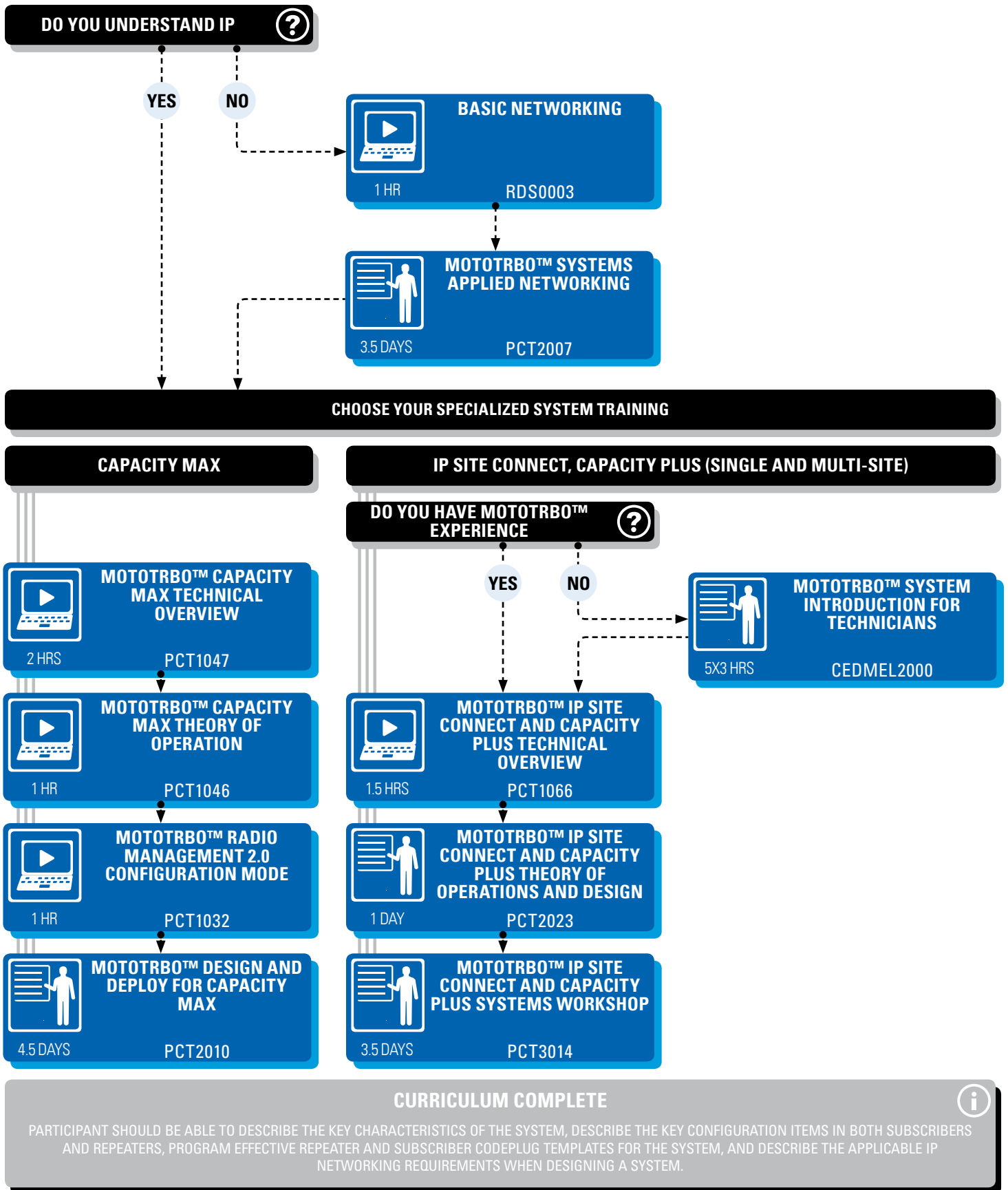
None

MOTOTRBO™ COURSES

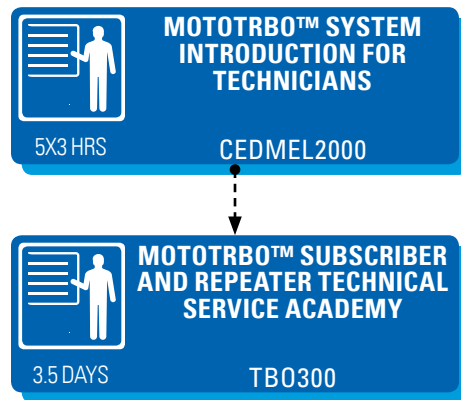
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MOTOTRBO™ TECHNICAL TRAINING CURRICULUM



MOTOTRBO™ TECHNICAL TRAINING CURRICULUM FOR SUBSCRIBER/REPEATER MAINTENANCE TECHNICIAN



CURRICULUM COMPLETE



PARTICIPANT WILL LEARN THE COMMON MOTOTRBO™ FEATURES AND CAPABILITIES TO DESIGN AND DEPLOY MOTOTRBO™ SYSTEMS. PARTICIPANT SHOULD BE ABLE TO COMPLETE PERFORMANCE CHECKS, RADIO ALIGNMENTS, DISASSEMBLY/REASSEMBLY, MAINTENANCE, AND TROUBLESHOOTING OF VARIOUS MOTOTRBO™ RADIO TYPES.

RADIO SOLUTIONS MOTOTRBO™

For information on prerequisites and to register for courses visit the LXP at:
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**MOTOTRBO™ SYSTEM
INTRODUCTION FOR
TECHNICIANS**

5X3 HRS

CEDMEL2000

COURSE OVERVIEW

This is an introductory course to the MOTOTRBO™ system theory of operation, key components and topologies. MOTOTRBO™ System Introduction for Technicians provides all the basic information about common MOTOTRBO™ features and capabilities, along with system design and deploy principles.

TARGET AUDIENCE

Professionals responsible for selling, designing, configuring, deploying, or maintaining MOTOTRBO™ Digital Radio Systems.

COURSE OBJECTIVES

Upon completion of this course, you will be able to:

- Describe the different components available to build your MOTOTRBO™ system.
- Explain the MOTOTRBO™ Modes and Systems.
- Describe the various Data Applications' capabilities and everyday uses within the MOTOTRBO™ systems.
- Describe MOTOTRBO's Digital and Analog features.
- Explain system and channel capacity planning.
- Explain MOTOTRBO™ IP network design considerations.
- Describe organizational requirement and resources needed to design the fleetmap.
- Describe the use and purpose of various tools such as: Radio Management, Tuner, RDAC, Air Tracer, Site Survey and 3rd Party Application Tools.
- Navigate the main screens of the Customer Programming Software (CPS) needed to configure the radios and repeaters.


REQUISITE KNOWLEDGE

Completion of the following optional courses or equivalent knowledge:

- RDS0003 Basic Networking
- RDS0002 Basic RF
- RDS0004 Basic Radio
- AAE1402 Professional and Commercial Radios (PCR) Portfolio Overview

PREREQUISITES

None



**MOTOTRBO™ SYSTEMS
APPLIED NETWORKING**

3.5 DAYS

PCT2007

COURSE OVERVIEW

The MOTOTRBO™ Systems Applied Networking provides technicians with the necessary information required for understanding the typical networking requirements for implementing a variety of MOTOTRBO™ solutions. The course includes familiarization/review of basic networking concepts and MOTOTRBO™-specific networking requirements. This course will focus on specific configurations for IP Site Connect, Linked Capacity Plus, and Connect Plus trunking systems.

TARGET AUDIENCE

Technical System Managers and Technicians

COURSE OBJECTIVES

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

- Recall Basic Networking Concepts
- Identify recommended network components for MOTOTRBO™ systems
- Define LAN/WAN topologies for MOTOTRBO™ systems
- Perform backup, restore and recovery of recommended network components
- Identify network security concepts for MOTOTRBO™ systems

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- NST762 Networking Essentials in Motorola Communication Systems

PREREQUISITES

None



**MOTOTRBO™ RADIO
MANAGEMENT 2.0
TEMPLATE MODE**

1 HR

PCT1026

COURSE OVERVIEW

This course is an introduction to MOTOTRBO's Radio Management (RM) 2.0 Template Mode software. You will learn how to install and use the enhancements of RM 2.0 Template Mode to program your fleet of radios.

TARGET AUDIENCE

This training is intended for individuals who are interested in learning MOTOTRBO's Radio Management (RM) 2.0 Template Mode software.

COURSE OBJECTIVES

Upon completion of this training, you will be able to:

- Describe MOTOTRBO™ Radio Management, its capabilities and functions.
- Set up Radio Management Template Mode.
- Manage your fleet using RM Template Mode.
- Manage the following functions:
 - Firmware
 - Language Packs
 - Voice Announcements
 - Text To Speech Packs
 - OTAP, Symmetric, RAS, & Privacy Keys
- Purchase and enable radio features using License Management.
- Create a group and assign radios.
- Sort groups.
- Search records.

REQUISITE KNOWLEDGE

None

PREREQUISITES

None

RADIO SOLUTIONS MOTOTRBO™

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**MOTOTRBO™ RADIO
MANAGEMENT 2.0
CONFIGURATION MODE**

1 HR

PCT1032

COURSE OVERVIEW

This self-paced course is a basic tutorial of Radio Management (RM) 2.0 Configuration Mode. A set of short videos present installation and deployment of RM components, explain the concepts of sets and configurations, and demonstrate the user how to navigate through RM Client views and functionalities. The course also covers migration from template to configuration mode, backup and restores procedures, as well as user and machine authorization. Completion of the final quiz is required to receive course credit.

TARGET AUDIENCE

Professionals responsible for configuring, deploying, or maintaining MOTOTRBO™ radios and repeaters. This would include, but is not limited to: communication system technicians, technical support personnel, service technicians and radio programmers

COURSE OBJECTIVES

By the end of the course, you will be able to:

- Explain the purpose of that Radio Management Configuration (RM) Mode.
- Explain the concept of sets and configurations.
- Set-up Radio Management 2.0 for the first time.
- Name and navigate through major RM Client views.
- Perform basic RM Configuration Client operations: populate and manage radio database, edit sets and configurations, etc.
- Perform Server Utility operations.

REQUISITE KNOWLEDGE

None

PREREQUISITES

None

**MOTOTRBO™ RADIO
MANAGEMENT WORKSHOP**

2 DAYS

PCT2022

COURSE OVERVIEW

The MOTOTRBO™ Radio Management 2.0 Workshop course provides technicians with the necessary information and practice to use the MOTOTRBO™ Radio Management 2.0 programming tool effectively.

TARGET AUDIENCE

System Managers and Technicians

COURSE OBJECTIVES

By the end of the course, you will be able to:

- Deploy and use RM 2.0 in a variety of real-world scenarios.
- Create and maintain configurations for basic MOTOTRBO™ Configurations (Connect Plus and Capacity Max excluded).
- Utilize Wi-Fi programming within RM 2.0.
- Use the RM Import and Export feature for database population.
- Convert existing radio templates and codeplugs to RM 2.0 Configurations.
- License and activate Radio and Application features.
- Use advanced features such as Data Mining.
- Use RM 2.0 to ease mass-deployments of subscribers.

REQUISITE KNOWLEDGE

Networking Essentials or Network + Certification.

- A high-level working knowledge of IP networking is important.

PREREQUISITES

PCT1032 MOTOTRBO™ Radio Management 2.0 Configuration Mode

**MOTOTRBO™ SUBSCRIBER
AND REPEATER TECHNICAL
SERVICE ACADEMY**

3.5 DAYS

TB0300

COURSE OVERVIEW

Participants will learn the capabilities, features and functions of the MOTOTRBO™ family of radios and repeaters as well as how to correctly complete performance checks, radio alignments, disassembly/reassembly, maintenance, and troubleshooting. This Academy will also focus on the detailed theory of operation. In addition to lecture, large amounts of hands on, scenario based lab work will be used to reinforce knowledge transfer. This Academy will cover in detail different models within the MOTOTRBO™ family of radios and repeaters.

TARGET AUDIENCE

Radio Technicians

COURSE OBJECTIVES

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

- Distinguish between the features and specifications of the MOTOTRBO™ portable and mobile radios and repeaters
- Verify the correct operations of the MOTOTRBO™ radios and repeaters by completing Performance Checks and Alignment procedures
- Maintain and troubleshoot MOTOTRBO™ radios and repeaters
- Disassemble and reassemble the radios using the documented procedures

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- CEDMEL2000 Introduction to MOTOTRBO™ Systems for Technicians

PREREQUISITES

None

RADIO SOLUTIONS MOTOTRBO™

For information on prerequisites and to register for courses visit the LXP at:
LEARNING.MOTOROLASOLUTIONS.COM

For general information contact the North America Training Services Desk at:
(800) 247-2346, option 4 or training.na@motorolasolutions.com



**MOTOTRBO™ CAPACITY
MAX TECHNICAL
OVERVIEW**

2 HRS

PCT1047

COURSE OVERVIEW

This self-study course is designed to help you learn the fundamentals of Capacity Max.

Whether you have a sales or technical background, this training will give you the information that you need to gain a basic understanding of Capacity Max. Begin by exploring the DMR standard and Capacity Max's positioning within the MOTOTRBO™ portfolio of systems.

Learn about the different hardware and software components that make up a Capacity Max system and gain an understanding of its logical and physical topology. Features, redundancy, design tools and warranty will also be addressed.

TARGET AUDIENCE

Professionals responsible for selling, designing, configuring, deploying, or maintaining MOTOTRBO™ radio systems. This would include, but is not limited to: communication system technicians, technical system managers, technical support personnel, service technicians, and sales representatives.

COURSE OBJECTIVES

By the end of the course, you will be able to:


- Explain Digital Mobile Radio (DMR)
- Describe a basic Capacity Max system and where it fits in the MOTOTRBO™ Portfolio
- Describe the Capacity Max's system physical and logical topologies
- List the minimum hardware and software requirements for a Capacity Max system
- Distinguish the three different types of Capacity Max Operating Modes
- Identify the different features and license types available for a Capacity Max system

REQUISITE KNOWLEDGE

Basic Radio knowledge

PREREQUISITES

None



**MOTOTRBO™ CAPACITY
MAX THEORY OF
OPERATION**

1 HR

PCT1046

COURSE OVERVIEW

This foundational self-study course is designed to help you understand the theory of how a Capacity Max system functions. It describes the life cycle of a call, which includes: call initiation, call queuing, call grant or rejection, call transmission(s), and call termination. This knowledge is important for system troubleshooting and maintenance purposes.

* This training is required prior to enrolling in the more advanced Capacity Max courses.

TARGET AUDIENCE

Professionals responsible for selling, designing, configuring, deploying, or maintaining MOTOTRBO™ radio systems. This would include, but is not limited to: communication system technicians, technical system managers, technical support personnel, service technicians, and sales representatives.

COURSE OBJECTIVES

Upon completion of this course, you will be able to describe and explain the functions of:

- Control Channel
- Roaming
- Radio Registration
- Call Request
- Call Setup
- Busy Queue
- Channel Allocation
- Call Termination

REQUISITE KNOWLEDGE

Basic Radio knowledge

PREREQUISITES

PCT1047 MOTOTRBO™ Capacity Max Technical Overview



**MOTOTRBO™ DESIGN AND
DEPLOY FOR CAPACITY
MAX**

4.5 DAYS

PCT2010

COURSE OVERVIEW

MOTOTRBO™ Capacity Max Design and Deploy begins by covering the design process for a Capacity Max Radio system. Participants will have the opportunity to practice designing and deploying a small scale, 2 Site/3 Channel, Capacity Max system in a safe classroom environment. This course will also cover how to configure Capacity Max using Radio Management 2.0 Configuration Mode.

TARGET AUDIENCE

This training is intended for professionals responsible for designing, configuring, or deploying MOTOTRBO™ radio systems.

COURSE OBJECTIVES

Upon completion of this course, you will be able to:

- Design a simple a 1-System 2 Site/3 Channel Capacity Max system
- Calculate Capacity Max capacity and bandwidth using a Case Scenario and System Design tools.
- Using Radio Management Configuration Mode, configure your radios and infrastructure.
- Deploy a 1-System 2 Site/3 Channel Capacity Max system.
- Using System Advisor, learn the fundamentals of troubleshooting and -maintaining a Capacity Max system.
- Execute Radio Management database backup and restore.
- Describe how to optimize a Capacity Max system.

REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Understanding IP Network Addressing.
- Knowledge of RF Propagation modeling tools


PREREQUISITES

- PCT1032 MOTOTRBO™ Radio Management 2.0 Configuration Mode
- PCT1046 MOTOTRBO™ Capacity Max Theory of Operation
- PCT1047 MOTOTRBO™ Capacity Max Technical Overview

RADIO SOLUTIONS MOTOTRBO™

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**MOTOTRBO™ CAPACITY
MAX SYSTEM ADVISOR
TUTORIAL**

1 HR

PCT1031

COURSE OVERVIEW

This course is a step-by-step tutorial on how to navigate the MOTOTRBO™ Capacity Max System Advisor Application. Participants will learn how to identify, search, create, manage, and customize the application.

TARGET AUDIENCE

Professionals responsible for managing MOTOTRBO™ radio systems. This would include, but is not limited to: communication system technicians, technical system managers, technical support personnel, service technicians, and sales representatives.

COURSE OBJECTIVES

By the end of the course, you will be able to:

- Perform standard operations in the System Advisor.
- Navigate the System Advisor.
- Perform Network Database, Fault Management, and Performance Management tasks.

REQUISITE KNOWLEDGE

None

PREREQUISITES

None

**MOTOTRBO™ IP SITE
CONNECT AND CAPACITY
PLUS TECHNICAL
OVERVIEW**

1.5 HRS

PCT1066

COURSE OVERVIEW

This course is designed to help you understand the basics of a MOTOTRBO™ IP Site Connect and a MOTOTRBO™ Capacity Plus system. We'll begin by exploring their capabilities, features and positioning within the MOTOTRBO™ system solutions; then, you will learn about the different components and their general topology, ending with a brief discussion on services packages available.

Whether you have a sales or technical background, this training provides you with the basic information to begin understanding how these MOTOTRBO™ systems operate, and prepares you to take the more advanced system courses.

TARGET AUDIENCE

Professionals responsible for selling, designing, configuring, deploying, or maintaining MOTOTRBO™ radio systems. This would include, but is not limited to: communication system technicians, technical system managers, technical support personnel, service technicians, and sales representatives.

COURSE OBJECTIVES

By the end of the course, you will be able to:

- Describe a MOTOTRBO™ IP Site Connect and Capacity Plus system.
- Explain the capabilities of the MOTOTRBO™ IP Site Connect and Capacity Plus system.
- Identify the MOTOTRBO™ IP Site Connect and Capacity Plus system components.
- Identify a MOTOTRBO™ IP Site Connect and Capacity Plus topology.
- Explain the difference in service plans between these systems..


REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Basic Radio knowledge
- CEDMEL2000 MOTOTRBO™ Systems Introduction for Technicians

PREREQUISITES

None

**MOTOTRBO™ IP SITE
CONNECT AND CAPACITY
PLUS THEORY OF
OPERATIONS AND DESIGN**

1 DAY

PCT2023

COURSE OVERVIEW

This course is designed to help you gain a solid foundation and understanding of the theory behind how an IPSC and Capacity Plus system functions. It describes the life cycle of a call, repeater arbitration and Motorola's proprietary Enhanced Channel Access (ECA) feature. In addition, you will learn about the different IPSC and Capacity Plus system design options, fleetmapping and the MOTOTRBO System Design Tool.

TARGET AUDIENCE

Professionals responsible for designing and deploying MOTOTRBO™ radio systems. This would include, but is not limited to: design engineers, communication system technicians, technical system managers, technical support personnel, service technicians, and sales representatives.

COURSE OBJECTIVES

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

- Explain the call processing methods.
- Define repeater arbitration, Enhanced Channel Access (ECA) and All Start.
- List the considerations that must be taken into account when designing a MOTOTRBO™ IP Site Connect, Capacity Plus Single-Site or Capacity Plus Multi-Site system.
- Use the MOTOTRBO™ System Design Tool to size the system.
- Explain the purpose of Fleetmapping, how to conduct a fleetmap and its importance in system design.
- Illustrate possible system deployment topologies based on options selected.
- Describe the roaming process which helps to optimize User coverage.
- Describe Data capabilities.
- Understand the purpose and intent of voting repeaters and receivers.

REQUISITE KNOWLEDGE

- Basic Radio knowledge
- CEDMEL2000 MOTOTRBO™ Systems Introduction for Technicians
- PCT1066 MOTOTRBO™ IP Site Connect and Capacity Plus Technical Overview

PREREQUISITES

None

RADIO SOLUTIONS **MOTOTRBO™**

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COURSE OVERVIEW

This course allows the participant to acquire in-depth hands-on experience in planning, configuring, and deploying the following MOTOTRBO™ systems: Digital Conventional, IP Site Connect, Capacity Plus Single and Multi-Site. Under the Instructor's guidance, participants will have the opportunity to practise designing and deploying the systems in a safe classroom environment. The course also provides information on the fleetmapping considerations together with exercises for each system type.

TARGET AUDIENCE

Professionals responsible for deploying MOTOTRBO™ radio systems.

COURSE OBJECTIVES

Upon completion of this course, the participant will be able to:

- Describe the MOTOTRBO™ IP Site Connect and Capacity Plus (Single and Multi-Site) systems, their capabilities, system components, and data application.
- Describe the MOTOTRBO™ IP Site Connect and Capacity Plus (Single and Multi-Site) theory of operation.
- Describe the available MOTOTRBO™ IP Site Connect and Capacity Plus (Single and Multi-Site) topologies.
- Take the steps needed to configure IP Site Connect and Capacity Plus (Single and Multi-Site) systems using MOTOTRBO™ CPS to program the subscribers and repeaters.

REQUISITE KNOWLEDGE

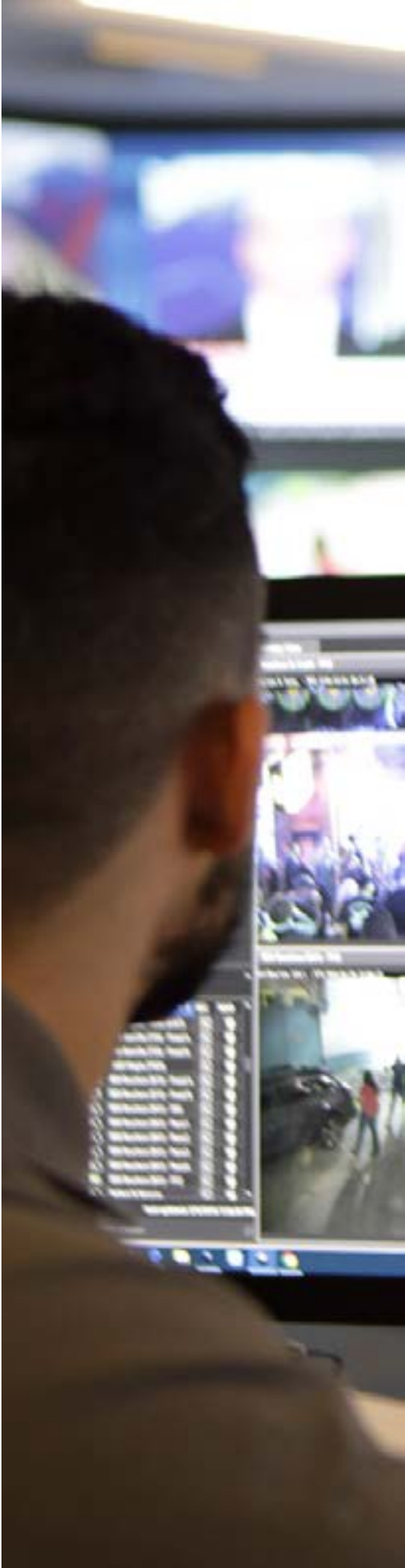
Basic Radio knowledge

PREREQUISITES

- CEDMEL2000 MOTOTRBO™ System Introduction for Technicians
- PCT1066 MOTOTRBO™ IP Site Connect and Capacity Plus Technical Overview
- PCT2023 MOTOTRBO™ IP Site Connect and Capacity Plus Theory of Operations and Design

SOFTWARE & APPLICATIONS

WAVE™ CERTIFIED INTEGRATION ENGINEER (AST3001)	50
WAVE™ ASTRO® 25 INTEGRATION WORKSHOP (AST2039)	50
WAVE™ MOTOTRBO™ INTEGRATION WORKSHOP (AST2040)	50
INTELLIGENT MIDDLEWARE 5.2 OPERATION AND ADMINISTRATION (RDS2025)	51



SOFTWARE & APPLICATIONS

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**WAVE™ CERTIFIED
INTEGRATION ENGINEER**

4.5 DAYS AST3001

COURSE OVERVIEW

The WAVE™ Certified Integration Engineer course provides instruction in designing, integrating, and troubleshooting WAVE™ systems. It also provides the groundwork for a basic understanding of how WAVE™ delivers a Radio-over-IP solution. The training scope covers WAVE™ integration to MOTOTRBO™, ASTRO®, and DIMETRA systems.

TARGET AUDIENCE

Sales/Systems Engineers who will design and implement WAVE™ solutions.

COURSE OBJECTIVES

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

- Understand and identify WAVE™ components.
- Install and configure the WAVE™ Management Server, Media Server, Proxy Server, Desktop Communicator, Advanced Desktop Communicator, and Mobile Communicators.
- Identify radio systems compatible with WAVE™ and list integration steps.
- Maintain and support a WAVE™ domain.

REQUISITE KNOWLEDGE

General knowledge of IP Networking, IP Telephony, Server-class Operating Systems

PREREQUISITES

None

**WAVE™ ASTRO® 25
INTEGRATION WORKSHOP**

2 DAYS AST2039

COURSE OVERVIEW

This workshop describes the components and settings required to configure shared talkgroups between ASTRO® 25 and WAVE™ 5000 networks using ISSI 8000. Beginning with installed ASTRO® and WAVE™ networks, the course covers the specific information required to map ASTRO® talkgroups to WAVE™ standard channels. Shared talkgroup operation is verified using ASTRO® and WAVE™ applications and tools.

TARGET AUDIENCE

Technical Support staff who configure, maintain, and troubleshoot WAVE™-to-ASTRO® integrated networks.

COURSE OBJECTIVES

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

- Describe WAVE™ TM to ASTRO® 25 integration.
- Document IP address plans for ASTRO® 25, WAVE™, ISSI and Internet connections.
- List ASTRO® 25 components for integration.
- Configure and verify ASTRO® 25 settings for WAVE™ integration.
- Configure and verify ISGW and ISSI Firewall settings.
- Configure WAVE™ standard channels, Radio System and WAVE™ Radio Gateway settings.
- Verify and troubleshoot shared talkgroup operation.

REQUISITE KNOWLEDGE

Completion of the following courses or equivalent experience:

- AST3001 WAVE™ 5000 Certified Integration Engineer
- AST4103 ASTRO® 25 M-Core Workshop

PREREQUISITES

None

**WAVE™ MOTOTRBO™
INTEGRATION WORKSHOP**

2 DAYS AST2040

COURSE OVERVIEW

This course covers integrating WAVE™ with MOTOTRBO™ Capacity Max, Connect Plus and Capacity Plus single and multi-site. Participants will receive lecture and hands-on training in the steps necessary to integrate an existing WAVE™ system with an existing TRBO system. The course does not cover the steps to deploy the WAVE™ virtual server environment or deploy the MOTOTRBO™ topologies other than the steps necessary to integrate the systems. Because of this, it is required that participants have advanced knowledge/experience of both WAVE™ and MOTOTRBO™.

TARGET AUDIENCE

Technical Support staff who configure, maintain, and troubleshoot WAVE™-to-MOTOTRBO™ integrated networks.

COURSE OBJECTIVES

Upon completion of this course, participants should be able to:

- Describe the different methods for integrating WAVE™ with MOTOTRBO™ systems.
- List the required components of the MOTOTRBO™ systems and the WAVE™ system for integration.
- Describe and perform WAVE™ to MOTOTRBO™ radio system integrations.
- Configure and verify MOTOTRBO™ settings for WAVE™ integration.
- Configure WAVE™ standard channels, Radio System and WAVE™ Radio Gateway settings.
- Verify and troubleshoot shared talkgroup operation.

REQUISITE KNOWLEDGE

Completion of the following courses or equivalent experience:

- AST3001 WAVE™ 5000 Certified Integration Engineer
- MOTOTRBO™ training on Capacity Max, Connect Plus and Capacity Plus as applicable

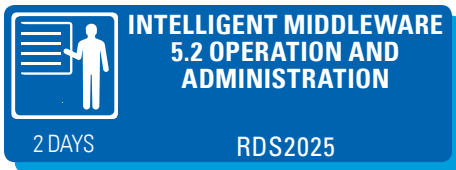
PREREQUISITES

None

SOFTWARE & APPLICATIONS

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COURSE OVERVIEW

The purpose of this course is to provide the steps to operate and maintain a customer's IMW system within their Motorola system (ASTRO®, DIMETRA, LTE).

TARGET AUDIENCE

Professionals responsible for the operation and maintenance of a customer's IMW system within their Motorola systems (ASTRO®, DIMETRA, LTE).

COURSE OBJECTIVES

By the end of the course, you will be able to:

- Describe IMW features.
- Configure an IMW system.
- Identify the IMW tools to administer the system.
- Perform routine administration.
- Perform troubleshooting.
- Understand system-specific considerations.

REQUISITE KNOWLEDGE

None

PREREQUISITES

None

CONTACT US

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[MOTOROLASOLUTIONS.COM/LEARNING](https://motorolasolutions.com/learning)

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Motorola Solutions, Inc.
North America Training Services
1303 E. Algonquin Road - Door 50
Schaumburg, Illinois 60196 U.S.A.

July 1st, 2019 - New Address:
2000 Progress Parkway - Door 50
Schaumburg, Illinois 60196 U.S.A.

Telephone Number: 800-247-2346



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Motorola Solutions, Inc.
500 West Monroe Street, Chicago, IL 60661 U.S.A.
motorolasolutions.com

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