SECTION 10

00318 AMD 4 ATTACHMENTS

Motorola Solutions has provided the following information in this section:

- 00318 AMD 4 Exhibit B3-Experience, Qualification and Services: Project Managers Project Managers (Resumes)
- 00318 AMD 4 Exhibit B3-Experience, Qualification and Services Exhibit B3-Training (Course Catalog)
- 00318 AMD 4 Exhibit B3-Experience, Qualification and Services Exhibit B3-Other Mission-Critical Operations (White Paper)

10.1 00318 AMD 4 EXHIBIT B3-EXPERIENCE, QUALIFICATION AND SERVICES: PROJECT MANAGERS (RESUMES)

Michael Daversa, Project Manager - Backup

PROJECT MANAGER

Day Wireless
2415 South 200th Street
SeaTac, WA 98188
Phone: 206-400-6111
Email: mdaversa@daywireless.com

Date of Hire: 2005

Biography:

As a member of the Day Wireless project team, Mike is assigned to various projects as needed and provides the capabilities for managing small and large projects.

Mike holds a variety of industry certifications and training awards include Project Management Professional (PMP). Per the Electronic Technicians Association, International (ETA) he is a Certified Service Manager (CSM) and he is a Microsoft Certified Professional (MCP).

His unique mix of wireless communication experience and IT communications technical expertise adds extra value to his role as project manager. This allows him to be especially effective in leading advanced telecommunication system implementations.

Mike has led numerous projects involving sophisticated digital RF and IP integrated solutions. Recent examples include deployments for:

Washington State Patrol 800 MHz Migration, WA State Department of Corrections Rebanding, VA Hospital BDA Installation and WA State DOC Digital Dispatch Console Deployments.

Expertise:

- Program Management
- Project Management
- Land Mobile Radio Technologies
- Information Technology
- Site Safety/OSHA Compliance

Education:

Bridgewater State College, BA History
US Army School of Information Technology
US Army Primary Leadership Development Course

Awards, Affiliations and Certifications:

- Project Management Professional (PMP)
- Microsoft Certified Professional (MCP)
- Certified Service Manager (CSM per ETA)

	Chris Lelli
Program Manager	**Motorola Solutions, Inc.** 7915 207th St. Ct E Spanaway, WA 98387 (253) 302-2667
Year of Hire:	2016
Motorola Solutions Professional Experience:	Program Manager, generally responsible for: Ensuring that all aspects of technology, architecture, and human resources are coordinated to support the initiation, planning, execution and services phases of the project. Experienced in the integration of various Motorola radio and data system projects in the public safety markets, including; site development; microwave, dispatch console and logging systems; subscriber installation, and functional acceptance testing. Recent Project Experience: • State of Montana System Upgrade. State-wide upgrade of 11 Dispatch Centers and 48 RF sites. • Butte – Silver Bow 800 MHz Upgrade. Implementation of a 2-site 800 MHz system integrated with the new Edge subsystem. • Ada County Sheriff's Office, Idaho. County-wide migration from circuit based Simulcast to 6-site IP Simulcast system • Montana Highway Patrol, Montana. Upgrade of 12 consoles from Gold Elite to MCC 7500 dispatch console system • Idaho State Police, Idaho. Upgrade of (25) MCC 7500 and (6) MCC 7100 consoles at 4 different sites from existing Gold Elite consoles • Kootenai County Sheriff's Office, Idaho. Integration of Spillman Integration Services on the customers' existing CAD mapping application by addition of 3 enhanced data channels at 3 different sites • Ada County Sheriff's Office, Idaho. Upgrade of backup dispatch center from Gold Elite Consoles to MCC 7500 consoles
Other Professional Experience:	Training and Operations Officer/Security Manager – U.S. Navy, NOSC Kitsap, Bremerton, WA. 2015-2016 • Security Manager for the largest reserve center in the Northwest, serving over 800 reservists, was responsible for the highest compliance percentage versus the lowest error rate. Managed more than 800 reservist's security clearances and personally initiated more than 200 investigations/reinvestigations for Top Secret/Secret clearances Operations/Chief Staff Officer – U.S. Navy, CTF-152/CDS-50, Manama, Bahrain. 2014-2015 • Served as the Chief Staff Officer for CTF-152, a position normally assigned to an individual 3 ranks higher • Responsible for the daily operations of CTF-152 and CDS-50 with zero errors despite the reduction of staff members of 23 to 4 to support the implementation of the Joint Coalition Planning Cell (JCPC) to manage instability in Yemen • Trained more than 320 gulf cooperation council officers and enlisted as Battle Watch Officers ensuring standardized protocols and procedures were developed and used amongst 40 coalition countries
Education, Training and Certificates	• MBA, Pacific Lutheran University, 2011 • BS, Workforce Education and Development, Southern Illinois University, 2002 • AS, Vincennes University, 2002 • AAS, Pierce College, 2003 • AT, Pierce College, 2003 • Certificate in Project Management, University of Washington, 2017

SEAN GRIER – PMP

Senior Project Manager

SENIOR TECHNOLOGY PROGRAM / PROJECT MANAGEMENT

SUMMARY OF QUALIFICATIONS

- PMP Certified Project Manager in good standing with PMI since 2005
- Able to lead large project teams
- Experienced in project scheduling and planning
- Highly skilled at job costing and subcontractor/client negotiations
- Accomplished at building strong customer relationships
- Capable of meeting and exceeding demanding time and performance requirements
- Skilled at containing and reducing costs without degrading performance
- Can communicate effectively at all management and client levels
- Comfortable with developing strong and effective cross-functional teams
- Excellent “outside-the-box” problem solving skills
- Take complete ownership of projects and tasks assigned to me
- Understand and use standard Project Management methodologies

ACHIEVEMENTS

Factory Implementation Lead Project Manager for Boeing Commercial Aircraft - Lead the implementation and testing in the Everett Factory for 777X Low-Rate Initial Production (LRIP).

Factory Implementation Lead Project Manager for Boeing Commercial Aircraft - Lead the planning and scheduling for production implementation for the 1.3M ft2 Composite Wing Center in Everett for the 777X wing build.

Factory Reconfiguration Project Manager for Boeing Commercial Aircraft – Supported the development of long-range Master Phasing Plan and schedule for reconfiguration of the Everett Factory in support of the new 777X derivative. Led the development of the Integrated Master Schedule for the Fixed Automated Upright Build project (FAUB) for 777 and 777X fuselage build.

Automation Project Manager for Boeing Commercial Aircraft – Led multi-disciplined team through completion of complex Planning Directive and Business Case for of cleaning, sanding and painting of twin-aisle aircraft in Everett Paint Hangars using Robotic Automation. Project showed savings of 25% of flow and 40% reduction in touch-time labor.

777 Helium-Test Project Manager for Boeing Commercial Aircraft – Successfully implemented new leak-detection methods in the factory using Helium. This project reduced factory flow by 4 hours and touch-time labor by 8 hours (~50%) as well as reducing flow in the fuel docks by 4 hours. Improved overall delivery quality by identifying leaks upstream in the value-stream, reducing rework costs substantially.

LEMS Project Manager for Boeing Commercial Aircraft – Provided project management support and leadership to bring state-of-the-art laser technology to the painting process for the Everett twin-aisle paint hangars. Through the LEMS project, laser projectors have replaced the need for Mylar tools for lay-up and masking of complex liveries on the 777 and 787 aircraft lines.

CDMA and GSM Overlay Manager for Wireless Facilities – Developed and managed a team of 25 direct-reports, and 10 contracting crews to implement a CDMA and GSM overlay for Western Wireless throughout 8 western states. Deployed over 200 sites in 12 months, including design, construction, installation, optimization and drive testing.

Program Manager and Bid and Quote Manager for Motorola - Managed team of 5 senior PMs. Developed goals and objectives for all team members. Mentored and recruited new project managers. Responsible for financial results and growth within the area with projects throughout Washington, Oregon, Alaska, Idaho, Wyoming and Montana.

Managed B&Q activities for all major wireless projects within Western US. Created job-costing templates that shaved 75% of time required to complete the Bid and Proposal cycle. Average yearly projects value $250M. Developed project timelines using Primavera, SureTrak and MS Project. Conducted initial contractor selection and negotiation and set project budgets.

Developed a system for qualifying and mentoring Women-owned / Minority-owned businesses (WBE, MBE) to be utilized by Motorola on required projects throughout the US.

WORK EXPERIENCE

Motorola – Senior Project Manager 2019 – Present

Lead Project Team on a County-wide trunked Astro 25 radio system, including site construction, microwave design and implementation. Full contract, finance, subcontracting, and client satisfaction responsibilities.

Boeing Commercial Aircraft – Project Manager September 2007 – 2019

Boeing Commercial Aircraft – Contract Project Manager (Volt Technical Services) November 2005 – September 2007

Alltel Communications – Contract Project Manager April 2005 – November 2005

TeleCommunication Systems – Manager E-911 July 2004 – April 2005

Wireless Facilities – Overlay Project Manager April 2003 – July 2004 Wireless Werks –

Contract Project Manager October 2002 – December 2002 AT&T Wireless – Manager

Fixed Base Deployment Dec. 1999 – Sep. 2001 Birch Telecom – Manager of Project

Management **June 1999 – Nov. 1999 Project**

Management Consultant **December, 1998 – June, 1999**

Motorola – Senior Project Manager & Group Leader July 1995 – Dec. 1998 Motorola –

Outsourcing & Bid and Quote Manager April 1991 – June 1995 Motorola – Project

Supervisor September 1986 – March 1991

OTHER CAREERS

Senior Field Technician, Motorola – Repair, installation and optimization of 2-way fixed, mobile and portable communications equipment, paging terminals and Computer Aided Dispatch systems.

Electronic Technician 1st Class, US Coast Guard – Repair of various communications, navigation and cryptographic equipment. Fisheries, drug interdiction and law enforcement at sea. Supervision of maintenance and repair personnel.

EDUCATION

Masters of Project Management (PMI) - George Washington University 1999

PMP Certification – PMI 2005 (current through 2021)

AWARDS AND CERTIFICATES

Federal Communications Commission License (General Class w/ Radar Endorsement)

TECHNICAL KNOWLEDGE

Operating Systems Windows (3.11 through Current) IBM OS/2

UNIX

Desktop Applications Primavera P3 – P6 and SureTrak Microsoft Word

Microsoft Excel

Microsoft Outlook/Exchange Microsoft Project

Microsoft PowerPoint Microsoft Visio

JONATHAN SIMIRICA

19102 20th DR SE G 101 BOTHELL, WA 98012 | 630.991.0378 | SIMIRICAJONATHAN@GMAIL

PROFESSIONAL EXPERIENCE

NOKIA – BELLEVUE, WA *04/2019 – 12/2019*

NATIONAL PROJECT MANAGER

Tasked with overseeing carrier small cell & FirstNet DAS deployments within 15+ national markets. Developed & owned full-scale project plans defining project scope, milestones, resource allocation, performance expectations and product delivery.

- Consulted customers on viable end to end model small cell solutions for data center, commercial, industrial, & medical facilities.
- Established end to end project workflow between sales, engineering, mobilization & commissioning
- Vendor management such as qualifying, SLA term negotiations, pricing, RFP generations, bid award & operations.
- Supported new market contracts utilizing local presence or 3rd party support.

E2 OPTICS – BELLEVUE, WA *06/2016 – 04/2019*

PROJECT MANAGER IV

Managed multiple projects for Carrier DAS, Small Cell, Wi-Fi, structured cabling for data center (greenfield & brownfield), medical, commercial, and industrial facilities nationwide.

- Key leader for all project phases including bidding, design, construction, commissioning, testing and close out.
- Created workflow processes of local and satellite branches between engineering, construction and commissioning.
- Managed vendor coordination including invitation to bid, vendor qualifying, RFP generation, pricing negotiations and award
- Financial control of projects such as estimating, budgeting, permitting, invoicing, change orders, and P&L reports

CCS INC – WILLOWBROOK, IL *09/2014 – 06/2016*

OPERATIONS MANAGER

Responsible for end to end project & operations management for underground utilities (fiber, power, water, gas) engineering drawings for permitting submittals.

- Managed end to end models for cell tower site acquisitions, engineering & permitting submittals.
- Led operational direction of project coordinators, permitting specialists, engineers, & field survey crew to complete deliverables.
- Attended sales calls, gathered customer requirements and provided recommended construction approaches.
- Developed & submitted progress reports, proposals, change orders, invoices, and other related submittals.

SAC WIRELESS – SCHAUMBURG, IL *06/2012 - 09/2014*

A&E PROJECT MANAGER

A&E designer for in building DAS deployment for AT&T, Verizon, Sprint, and T-Mobile for facilities nationwide including. Began as a project coordinator and within one year was promoted to A&E with a set goal to create new standards for low voltage construction drawings. Received mentorship & training from Sr. Architect on industry disciplines of drafting and design. Collaborated with project managers, engineers and sub-contractors on successfully completion of project tasks.

- Gathered requirements for small cell/DAS site acquisitions, permitting & engineering drawing furnishing
- Extensive knowledge of leading wireless telecommunications equipment such as; Alcatel-Lucent, CommScope, Ericsson, & Cisco
- In-depth experience with PIM/Sweep, fiber OTDR, fiber optic splicing, CW testing, and spectrum analyzing procedures

S-BUILDING SERVICES, INC. – CHICAGO, IL *04/2007 - 06/2012*

PROJECT MANAGER

Managed multiple construction projects of residential and commercial properties. Experienced in multiple fields of construction, city building code requirements, interpreting and executing Architect's plans according to industry standards.

- Daily construction tasks would include electrical, plumbing, HVAC, framing, tiling, concrete, and more.
- Purchase & coordinate delivery of construction materials requested by construction managers to job site
- Collaborated with Architects for construction drawing revisions and city building code requirements
- Assess permit needs and zoning conflicts in project developments

Cameron W. Burford

Kirkland, WA 98034 · Cell: (954) 297-5299 · Cwburford@gmail.com

EDUCATION

Purdue University, West Lafayette, IN — Graduated: August 2018
Major: Electrical and Computer Engineering-Technology — *Concentration:* **Digital Systems**
Minor: Technology Leadership Innovation (TLI)

Certifications

MIT - Certificate in Additive Manufacturing
Udemy - Code in Python3: Programming beginning to advanced

KEY SKILLS

C, Python (Backend Flask, GraphQL)**, Embedded C, SQL, Matlab**, **LabVIEW, X Code, Visual Studio Code, Atmel, 8-Bit Microcontroller** (Arduino Uno, STK 600, & Mega 2560), **16-Bit Microcontroller** (TMS320C5515 eZdsp), **32-Bit Microcontroller** (Beaglebone Green Wireless & ARM Cortex-M0+ SAM D20 & SAM D21)**, Ni Multisim, PLC programming** (Allen Bradley)**, Studio 5000, Studio 500, Visual Basic, Microsoft Office, Simulink, AutoCAD Electrical, Project Management, Program Management**

WORK EXPERIENCE

BLK Space (Start Up) — **Kirkland, WA**
Co – Founder (Full Stack Engineer/Social Media Marketing Specialist) — June 2020 – Present

- Web scrape large amount of data from websites and use GraphQL to query the data to the front end, to let the client specify exactly what data it needs.
- Create social media marketing plans that reinforce and support the company's marketing efforts in other channels.
- Provide reporting and analytics on campaigns; present strategic recommendations to team based on analysis of the data.
- Provide social media publishing and coverage (live tweeting) during key promotion, including some evenings and weekends.

The Boeing Company — **Seattle, WA**
Equipment Engineering Project Manager – 737/777 Program (BCA) — November 2018– August 2020

- Lead process improvement efforts to improve production rate by 36% for the 737 program which made the company over $1,000,000 in sales a month and reduced operating cost by $10,000 in wing production.
- Manage equipment used in maintenance training for equipment service personnel and engineers on the operation and maintenance of automated tools and equipment that support production.
- Present weekly reports to management outlining project deliverables, critical factors, and any variances to project.
- Lead supplier engagements to analyze technical proposals, negotiate bids, and monitor performance through project completion.
- Collect and analyze machine data using SQL for process improvement, root cause analysis, and preventative maintenance.
- Diagnose and correct equipment for system malfunctions to decrease down time and develop new maintenance plan.
- Modify, test, calibrate, and document system configuration to meet compliance requirements.
- Collaborate with cross-functional teams to implement innovative solutions for defective equipment and improve production flow.

Equipment Engineering IT (Temporary Assignment) - 737 Program (BCA) — October 2019 – March 2020

- Managed software data that allows technicians to pre-load line replacement units prior to installing them on a plane, so the aircraft can be ready for delivery.
- Provided documentation of software and how to upload/download it to the system for The Boeing Company and the FAA.
- Performed security analysis of operational and development environments, threats, vulnerabilities and internal interfaces to define and assess compliance with accepted industry and government standards.

ENGINEERING PROJECTS

Random Guessing Color Game — May 2020

- Created a program in Python that ask the users to pick a color from a predetermined list of colors. If the user guesses right the game is over. If the user guesses wrong, they are prompted to keep playing until the right color was guessed.

LEADERSHIP EXPERIENCE

National Society of Black Engineers – Purdue University — August 2013 - Present
Member/Conference Planning Chair/Region 4 Hospitality & Special Project Coordinator

- Responsible for coordinating all entertainment-related events for the Conference, including spiritual enrichment, study rooms and physical fitness activities for over 630 members.

ROBIN MCNETT

5636 44TH AVE SW
SEATTLE, WA 98136
253-632-6149
ROBIN.MCNETT@MOTOROLASOLUTIONS.COM

Profile:
Talented and driven project manager with an extraordinary ability to foster and manage relationships between clientele and project staff while staying focused on details.
I have a broad range of experience in client-facing roles which I draw on to build customer, vendor, and employee relations. I believe whole-heartedly that a positive work environment is key to a successful project and team management.

EMPLOYMENT HISTORY:

Motorola Solutions, Inc **Project Manager** **Sept 2016 – Present**
Seattle, WA

ArenaNet, LLC **Recruiting Coordinator** **May 2015 – Sept 2016** **Bellevue, WA**

- Support 2 Recruiters with Full Cycle Recruiting which involves scheduling and managing candidates.
- Maintained Recruiting and provided training of the system to over 25 hiring managers.
- Built relationships with candidates for a positive interview process, honest communication, and an enjoyable hiring experience.
- Coordinating and scheduling travel for all candidates.
- Assist HR Manager and Director on 90 onboarding processes for up to 10 new employees monthly.

Day Wireless Systems **Junior Project Manager** **June 2011 – May 2015** **SeaTac, WA**
Day Wireless provides innovative wireless communication technology solutions to Fortune 100 Companies in various sectors including healthcare, public safety, government agencies and academic institutions. In my current role I am lead Project Manager on projects up to $350,000 and support Senior Project Managers in projects up to $4 million dollars.

Core responsibilities include:

- Support Project Management Team with invoicing, time tracking, customer relations, scheduling, building, and maintaining project modules within the AS400 software environment.
- Responsible for reviewing and interpreting RFP's RFQ's, and bid packets with the goal of drafting and finalizing bid proposals.
- Pre-sale and post-sale project development strategy.
- Coordinating and scheduling travel for up to 10 Team Members.
- Maintaining project specific inventory working with vendors, purchasing and warehouse personnel to resolve all discrepancies or find suitable substitutes in time critical situations.
- Creating and maintaining project related reports including Gantt charts, Schedule of Values, Stakeholder roster, and Profit/Loss Report.
- Front line field PM responsible for interacting daily with customers and vendors to make real time, on the spot corrections and adjustments to ensure both project schedule and budget stay intact.
- Processing complex change order requests between end-customer, vendors, and additional project stakeholders throughout project lifecycle.
- Making real time, on the spot corrections and adjustments to ensure both project schedule and budget stay intact.

10.2 00318 AMD 4 EXHIBIT B3-EXPERIENCE, QUALIFICATION AND SERVICES: EXHIBIT B-3-TRAINING (COURSE CATALOG)

PRODUCT AND SYSTEM TECHNICAL TRAINING COURSE CATALOG

MOTOROLA SOLUTIONS - WORLDWIDE EDUCATION

2020 EDITION | PUBLISHED SEP-2020

MOTOROLA SOLUTIONS

2020 EDITION | NORTH AMERICA

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 delivered virtually, at your location or in 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

TABLE OF CONTENTS

GENERAL INFORMATION

OUR LEARNING EXPERIENCE PORTAL

AN INTERACTIVE PLATFORM… DESIGNED FOR YOU! THE LXP IS YOUR VALUABLE RESOURCE TO SEE THE LATEST COURSES, DESCRIPTIONS, REQUIREMENTS, DATES AND LOCATIONS.

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.

HOW TO ACCESS THE LEARNING EXPERIENCE PORTAL

If you are a Motorola Solutions Customer who already has a Motorola Solutions Login ID, you can go to the "Enrol 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 (if you are a MSI Customer with an established 10-digit Motorola Customer Account Number, please enter your Company Name in 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

* If you are looking for FCC Narrowband training and you do not have an established 10-digit Motorola Customer Account Number with us, please visit businessonline.motorolasolutions.com for account set up and training access.

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.

EDUCATION BUNDLES: ACCELERATE YOUR LEARNING JOURNEY

Worldwide Education understands your challenging needs during uncertain times. Travel limitations, the continued safety of your first responders that serve and protect your citizens, and assurance there is zero training downtime is critical. To meet these challenges, we offer course bundles that combine a virtual learning experience with traditional, hands-on learning.

Watch the video to learn more about how you can accelerate your training today.

THE TWO COMPONENTS OF OUR EDUCATION BUNDLES

The virtual component will focus on live discussions, application-based demonstrations, and various online activities using our virtual training hosted solutions and our lab environment.

The practical component will take place at either one of our facilities or, in case of buy-out sessions, at your location. This part of the training will focus on performing the tasks discussed in the virtual sessions. Once you have complete the two components, you will receive credit for the bundle and the equivalent traditional course.

Compared to our traditional full in-class offerings, you may be able to combine multiple practical components into one week or less. This will not only allow you to complete multiple courses (bundles) during that time, it will also help to reduce your overall travel costs and time investment.

BENEFITS FOR YOU

- Live training sessions led by our subject-matter expert certified instructors accessible from your computer
- Practice through demos and guided virtual lab environment
- Active participation and interaction assured, by limiting the number of participants per group
- Reduction of travel expenses and time away from home

READY TO GET STARTED?

Find your courses or email us at training.na@motorolasolutions.com

QUALITY ASSURANCE: THE TPMA FRAMEWORK

MOTOROLA SOLUTIONS WORLDWIDE EDUCATION COMMITS TO EXCELLENCE IN INSTRUCTOR-LED TRAINING

For 45+ years, our instructors continue to be laser-focused on your two lifeline investments - your personnel and your technology infrastructure. Our mission is to work together efficiently to maximize the value of your communication technologies.

Motorola Solutions is aware of the impact training experiences have on your team and your organization. When it comes to supporting the success of your employees and your technology infrastructure, we seek to continually deliver exceptional training to you.

For over 10 years, we have built and implemented the Training Performance Monitoring & Assessment (TPMA) framework in our organization. Our internal instructors are held to the highest level of training standards outlined within the Learning & Performance Institute (LPI). The TPMA certificate is widely-recognized and accepted as the premiere institute for learning, assessing and benchmarking trainer progress.

Anywhere in the world, those who hold a TPMA certificate demonstrate that they have reached or exceeded the highest standards demanded within the industry.

WHY DO TPMA CERTIFICATIONS MATTER?

Adopting TPMA standards is essential to meet industry trends and leading industry best practices to meet user needs, enhance instructor development and ultimately leads to a happy customer experience.

LPI ensures the quality of the instructors' training delivery is maintained and meets the highest quality standards, provides expert feedback on their performance and promotes the development of their facilitator skills.

Visit us at learning.motorolasolutions.com to register for our training courses.

ACHIEVING OPTIMAL PERFORMANCE MATTERS TO US

- We focus on the needs of the learner, not the trainer
- The personalized approach and structured consistency of standardized-requirements help win business

"The instructor did an outstanding job. Truly a professional and extremely knowledgeable. Never rushed and always listened. Provided feedback to all questions and allowed students to participate at their own level of expertise and speed."

"The Instructor was extremely helpful during the training. He has an excellent way of teaching and was very attentive to the students when asked questions. I liked that he went over each and every field of CPS. Excellent Instructor! I would recommend to anyone!"

"The instructor showed outstanding skills to combine theory, practice, actual cases and hands-on training. Great training."

"Exceptional course, no words to explain the instructor's commitment and professionalism. Vast experience, humbleness, patience and amazing teaching skills. A different and positive class."

"Excellent coach. Direct, precise, detailed. Explain everything in the right way. Honestly, the best coach I have ever had. They do not skip anything, explain everything in detail. My knowledge after this training is much better. During the entire training, he was fully committed to us."

"The best teacher I have ever had in any previous training courses. Very challenging and interactive teaching helping me to understand the system from the bottom to top with a lot of additional slides from the teacher with extremely good and clear explanations in the system networking for deeper understanding."

"One of the best instructors I had. Speaks clearly, responsive to the students; actions and very good at making the students stay alert and attentive."

"Amazing training, very glad to join it. Amazing trainer, very vibrant, very knowledgeable trainer. Looking forward to more training with him. Good trainer from a good company."

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, Radio Maintenance, 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.

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

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.

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

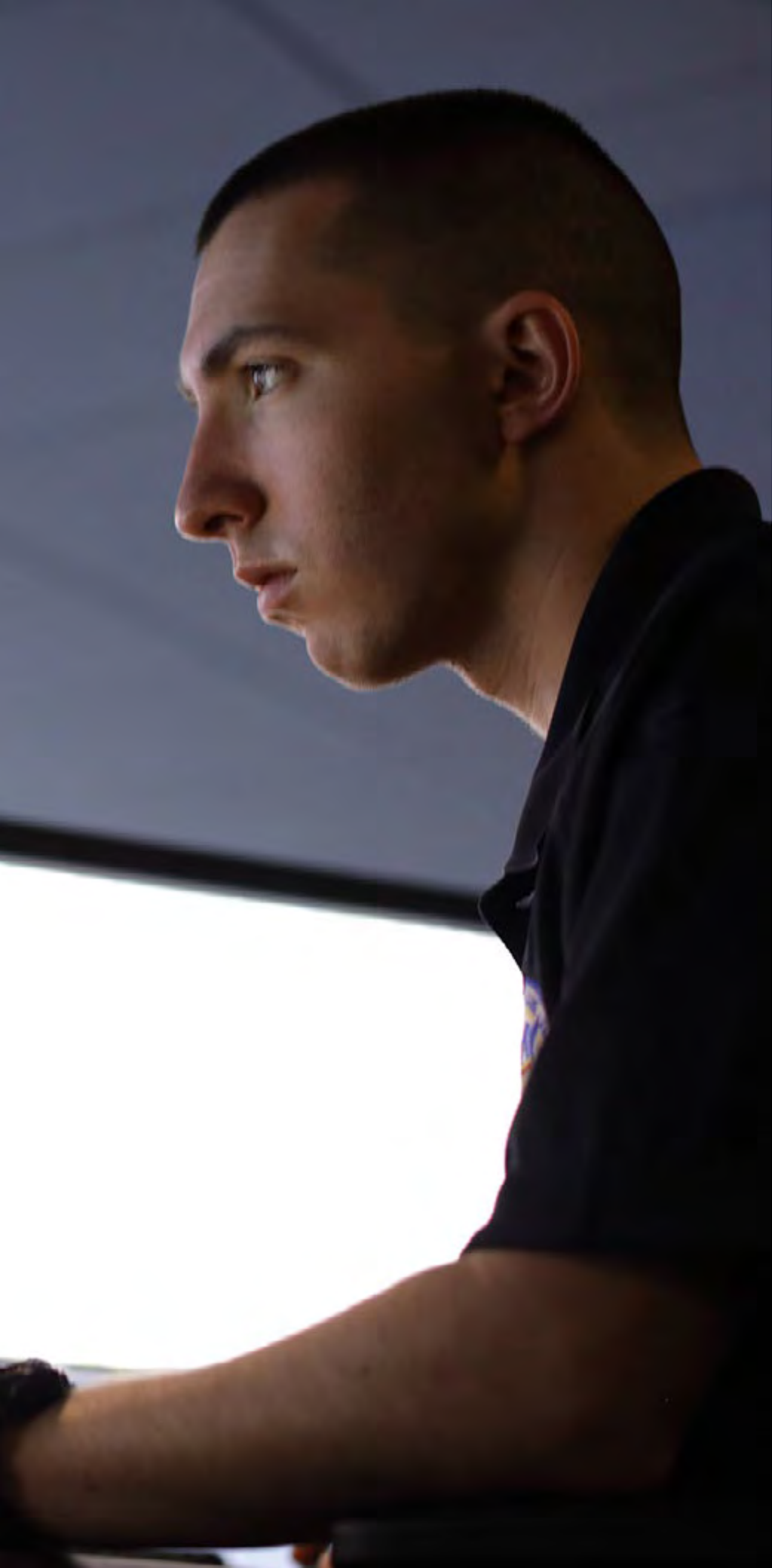
Whether you're a technician, system manager or radio user, you rely on Motorola Solutions Education Services to obtain the necessary knowledge to get the full potential out of your Motorola Solutions equipment. The Motorola Solutions Training Bank is a discounted, pre-paid, non-expiring debit account 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 non-federal government customers.

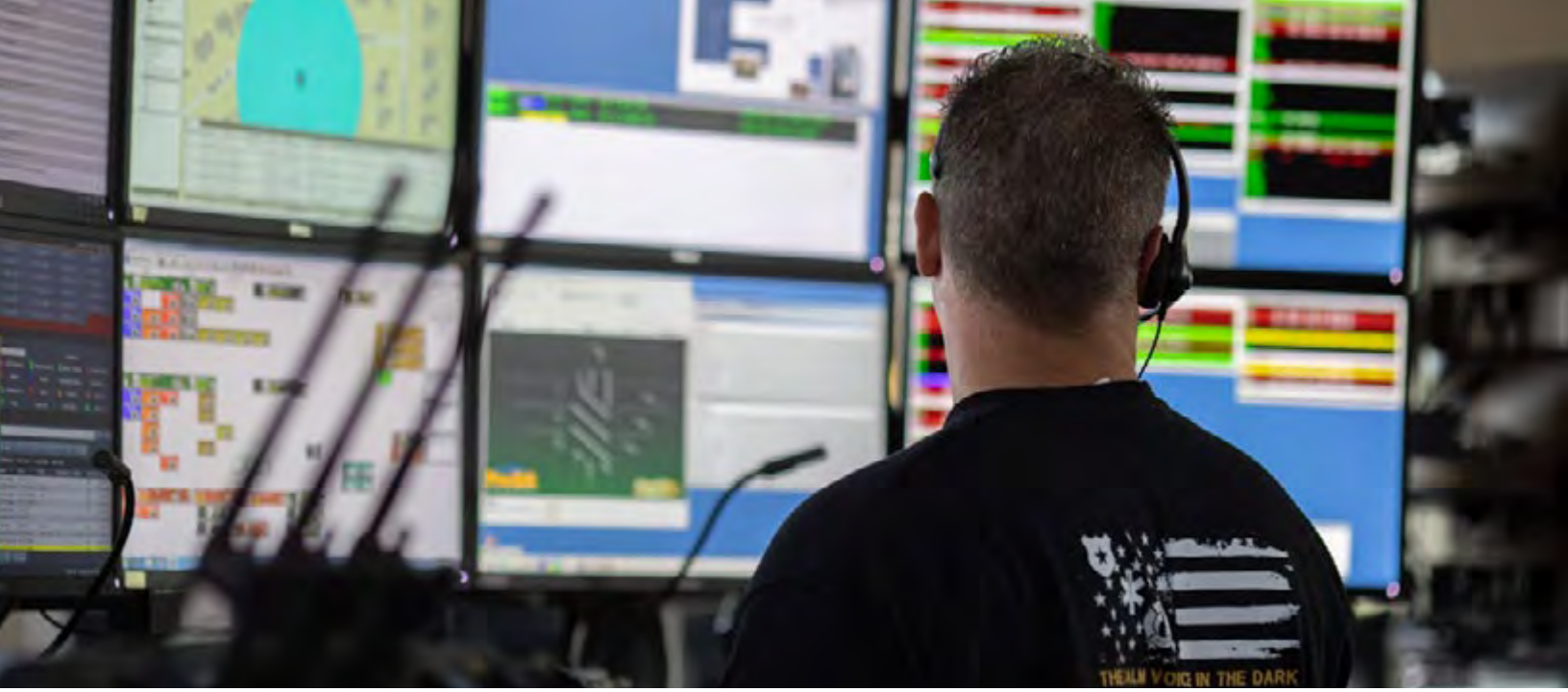


OPERATOR TRAINING

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 done on site using your equipment. The interactive End-User Toolkit (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.

OPERATOR TRAINING

With this option, the users within your organization are trained by a Motorola Solutions instructor. These classes are done on site using your equipment. The interactive End-User Toolkit (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
- MOTOBRIDGE IP Interoperable Solution Dispatch Console Operator
- MOTOBRIDGE Administration Control Panel (ACP)
- MCD 5000 Operator

COURSES FOR MOBILES & PORTABLES

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

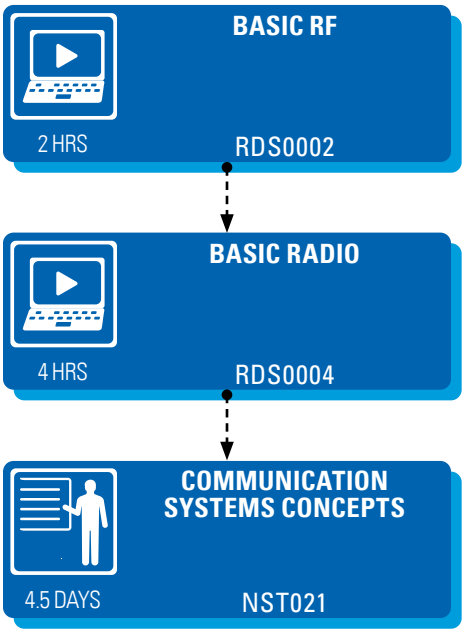
TO REQUEST FIELD TRAINING, PLEASE CONTACT YOUR ACCOUNT MANAGER.

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

FOUNDATIONAL COURSES

RF FUNDAMENTALS

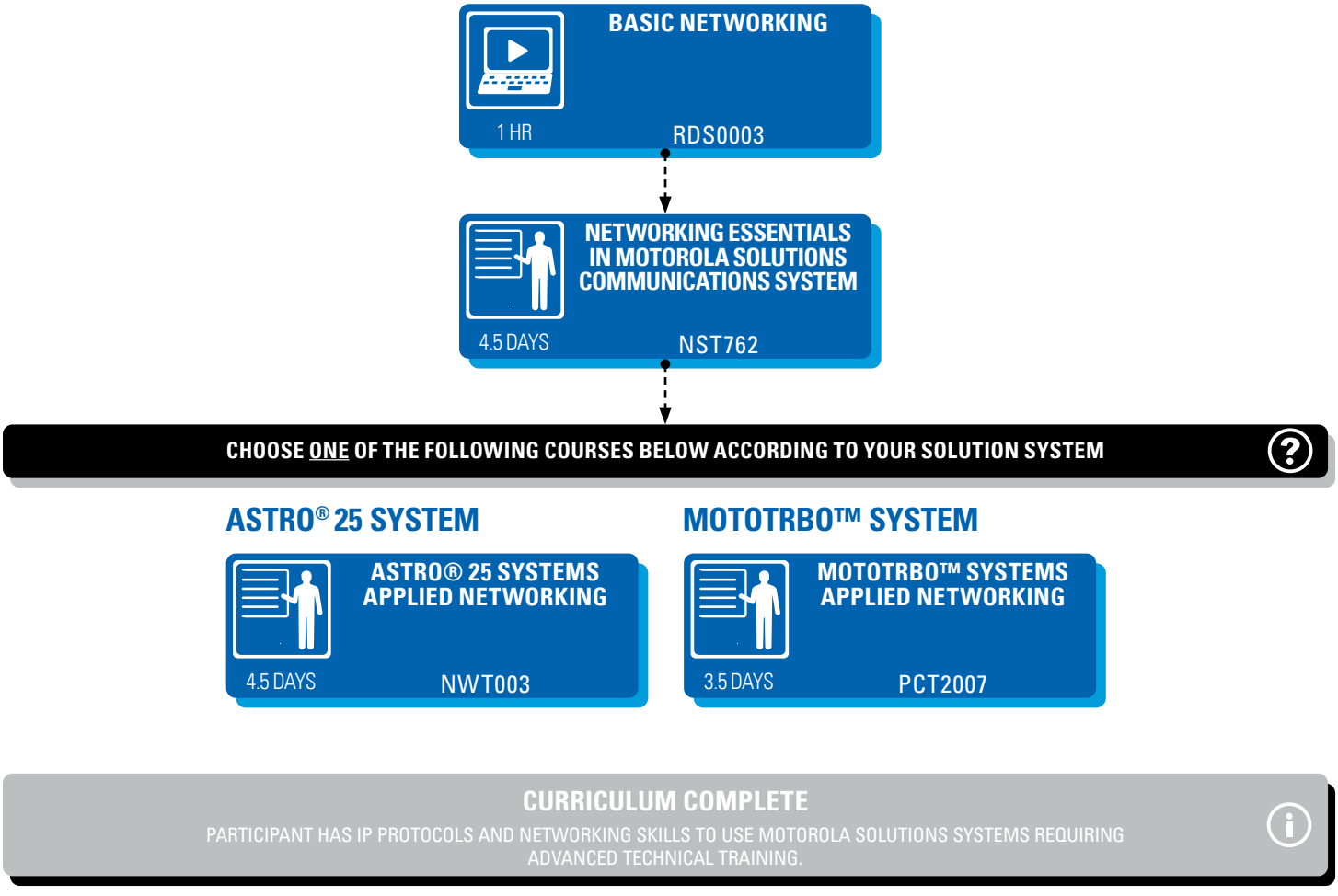
RF BASICS / RADIO SYSTEM BASICS



CURRICULUM COMPLETE

PARTICIPANT HAS RF KNOWLEDGE REQUIRED FOR ADVANCING TO MORE COMPLEX TECHNICAL TRAINING COURSES.

IP/NETWORKING FUNDAMENTALS



CLICK HERE TO GO TO PAGE 20 FOR MORE DETAILS ON ASTRO® 25

CLICK HERE TO GO TO PAGE 43 FOR MORE DETAILS ON MOTOTRBO™

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.

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

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.

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

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

INTRODUCTION 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. All students are encouraged to download the Preparation Guide.

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

1 DAY | NST9256

COURSE OVERVIEW
This course will cover all updates to the R56 Standards and Guidelines for Communication Sites and is intended for individuals who have recently completed, or need to re-certify their R56 certification. It will provide insight and understanding on the changes and their impact on the documented standard. This course is offered as Virtual Instructor sessions. Please ensure you have a computer with video enabled to participate in the course session and ask questions.

TARGET AUDIENCE
Electronics Equipment Technicians who are responsible for the installation or inspection of communications equipment. Communication Site Installers (R56) and Communication Site Inspectors/ Auditor (CSIA)

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 CSIA certification of have completed all necessary coursework prior to attending this course.

PREREQUISITES
None

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

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

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

PREREQUISITES

None

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 courses or equivalent experience is highly recommended:

- An understanding of basic Motorola Communications Systems
- Basic familiarization with computer operating systems
- Basic knowledge of networking (RDS0003 - Basic Networking)

PREREQUISITES

None

BRIDGING THE KNOWLEDGE GAP FOR ASTRO® 25 – TECHNICIAN

4 HRS ACT100E

COURSE OVERVIEW

This 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 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 five 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 is targeted for System Administrators 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:

- 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

COURSE OVERVIEW

The MOTOTRBO™ Systems Applied Networking provides technicians with the necessary information required for understanding the typical networking requirements for implementing a variety or 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
- Indentify 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

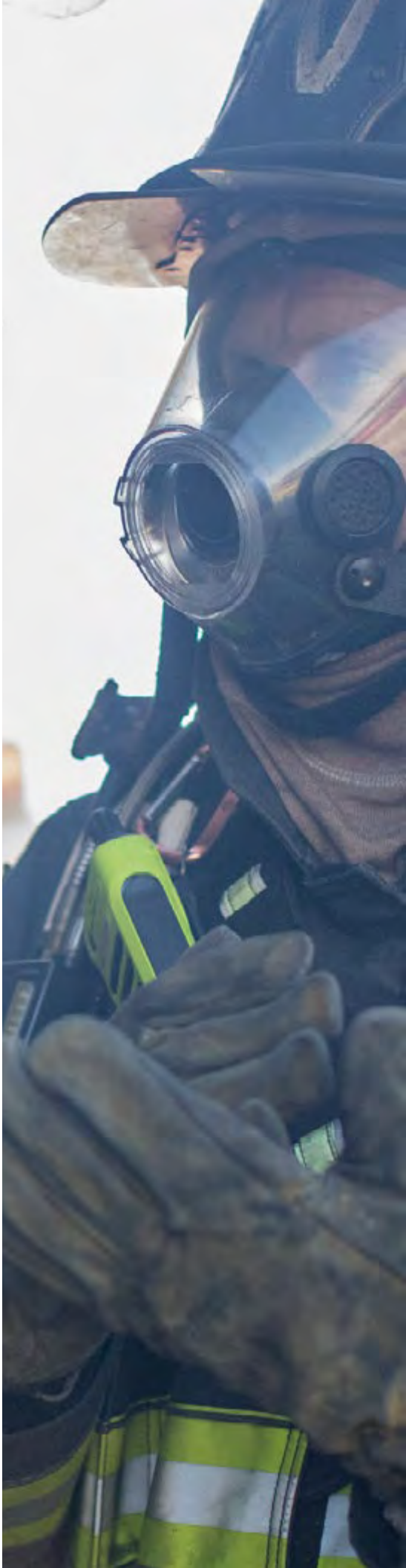
Completion of the following course(s) or equivalent experience:

- NST762 Networking Essentials in Motorola Solutions Communications Equipment

PREREQUISITES

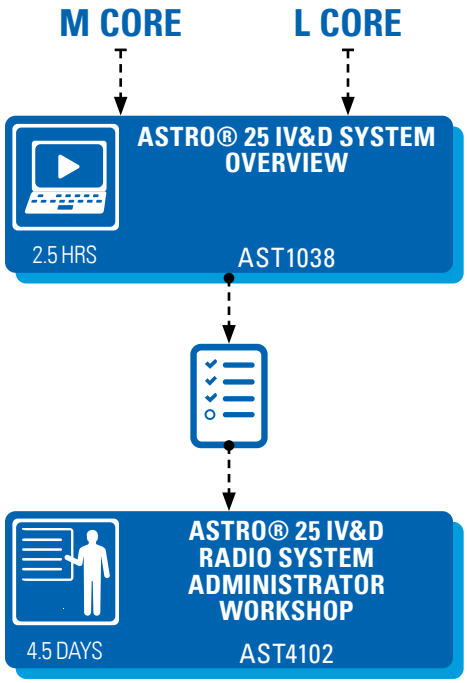
None

ASTRO® 25 IV&D SYSTEM COURSES



ASTRO® 25 IV&D SYSTEM COURSES CONT

ASTRO® 25 IV&D RADIO SYSTEM ADMINISTRATOR



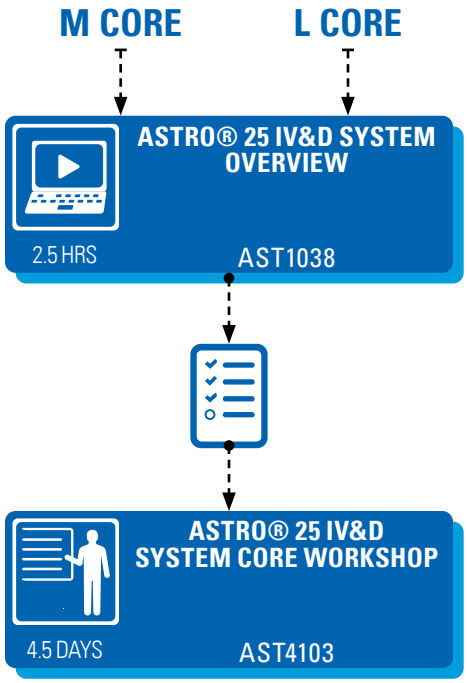
RECOMMENDED CURRICULUM IS COMPLETE

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 29
FOR ADDITIONAL DETAILS.

ASTRO® 25 IV&D M/L CORE TECHNICIAN



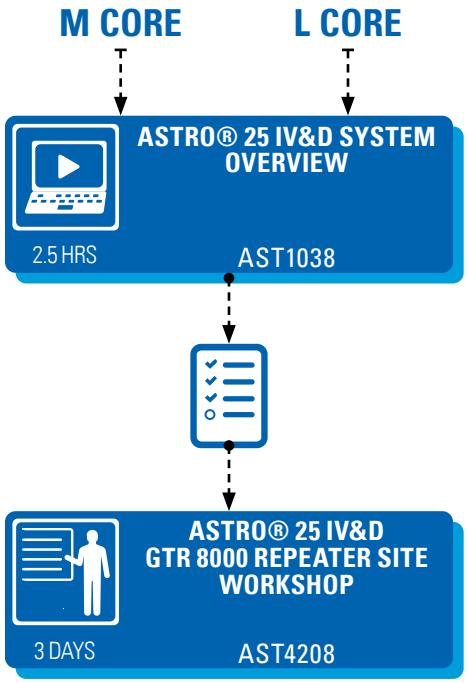
RECOMMENDED CURRICULUM IS COMPLETE

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 29
FOR ADDITIONAL DETAILS.

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



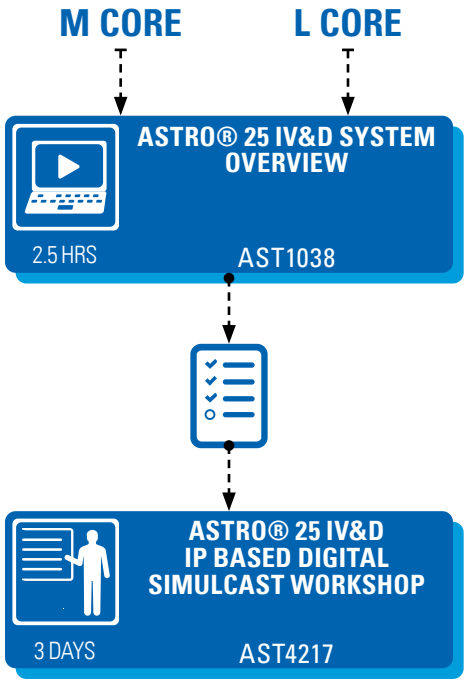
RECOMMENDED CURRICULUM IS COMPLETE

PARTICIPANT CAN MAINTAIN AN ASTRO® 25 REPEATER SITE INCLUDING: GTR 8000 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 29
FOR ADDITIONAL DETAILS.

ASTRO® 25 IV&D IP SIMULCAST SITE TECHNICIAN



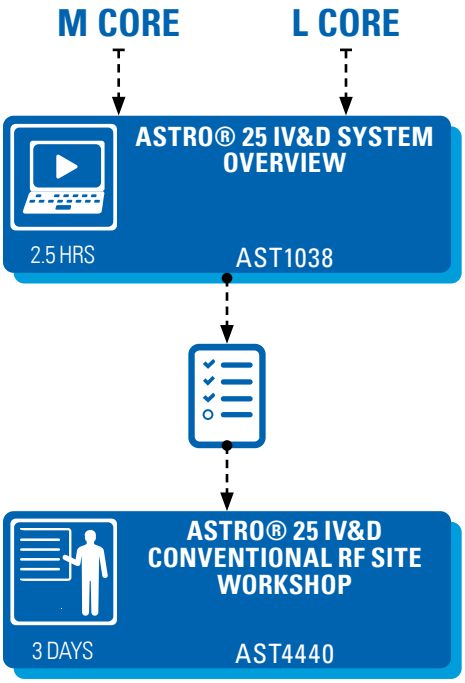
RECOMMENDED CURRICULUM IS COMPLETE

PARTICIPANT SHOULD BE ABLE TO MAINTAIN AN ASTRO® 25 REPEATER SITE INCLUDING THE GTR 8000 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 29
FOR ADDITIONAL DETAILS.

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 GTR 8000 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 29
FOR ADDITIONAL DETAILS.

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.

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

ASTRO® 25 IV&D INFORMATION ASSURANCE
2 HRS ACS715211

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

ASTRO® 25 SECURITY PATCH MANAGEMENT
20 HRS AST2001V

ASTRO® 25 SYSTEMS FLEETMAPPING
15 HRS RDS1017V

ASTRO® 25 IV&D RADIO AUTHENTICATION
2 DAYS AST2038

ASTRO® 25 IV&D INFORMATION ASSURANCE WORKSHOP
4.5 DAYS AST0071

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

SUBSCRIBER OPTIONAL TRAINING CURRICULUM

APX™ CPS PROGRAMMING AND TEMPLATE BUILDING
5X2.5 HRS/2 DAYS APX7001V

APX™ TECHNICAL SUBSCRIBER ACADEMY
4.5 DAYS APX010

ASTRO® 25 ISSI 8000 / CSSI 8000 FEATURE OVERVIEW
2 HRS AST2005

APX™ RADIO MANAGEMENT WORKSHOP
2.5 DAYS RDS2017

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 ASTRO® 25
- Understand the applications for managing the ASTRO® 25 system

REQUISITE KNOWLEDGE

None

PREREQUISITES

None

ASTRO® 25 IV&D SYSTEM CORE WORKSHOP

4.5 DAYS | AST4103

COURSE OVERVIEW

The ASTRO® 25 IV&D with ASTRO® 25 System Core course teaches advanced 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

ASTRO® 25 System Core Master Site Technicians

COURSE OBJECTIVES

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

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

REQUISITE KNOWLEDGE

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

- Bridging the Knowledge Gap (ACT100E or ACT101E)
- Networking Essentials in Communication Equipment (NST762)
- ASTRO® 25 Systems Applied Networking (NWT003)
- ASTRO® 25 IV&D System Overview (AST1038)

PREREQUISITES

None

ASTRO® 25 IV&D CONVENTIONAL RF SITE WORKSHOP

3 DAYS | AST4440

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

System Technicians

COURSE OBJECTIVES

After completing this course, the participant 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 courses or equivalent experience:

- Bridging the Knowledge Gap – System Administrators (ACT101E)
- Networking Essentials in Motorola Communications Equipment (NST762)
- ASTRO® 25 System Applied Networking (NWT003)
- ASTRO® 25 IV&D System Overview (AST1038)

PREREQUISITES

None

ASTRO® 25 IV&D CONVENTIONAL CORE WITH CONFIGURATION MANAGER WORKSHOP

3 DAYS | AST4410

COURSE OVERVIEW

The ASTRO® 25 IV&D Conventional Core with Configuration Manager course teaches advanced troubleshooting skills and best practices for the ASTRO® 25 IV&D Conventional Core with Configuration Manager. It also focuses on administrator functions and how to use the ASTRO® 25 IV&D Configuration Manager applications.
A technical introduction to the MCC 7500 as used within the ASTRO® 25 IV&D Conventional Core with Configuration Manager, 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 participant will be able to:

- Understand the key physical and functional characteristics of the ASTRO® 25 Conventional Core with Configuration Manager system.
- Perform tasks necessary to install the ASTRO® 25 Conventional Core with Configuration Manager system components.
- Perform configuration steps for the ASTRO® 25 Conventional Core with Configuration Manager system components.
- Understand the available maintenance tools and indicators in the ASTRO® 25 Conventional Core with Configuration Manager system.

REQUISITE KNOWLEDGE

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

- Bridging the Knowledge Gap – System Administrators (ACT101E)
- Networking Essentials in Motorola Communications Equipment (NST762)
- ASTRO® 25 System Applied Networking (NWT003)
- ASTRO® 25 IV&D System Overview (AST1038)

PREREQUISITES

None

ASTRO® 25 IV&D RADIO SYSTEM ADMINISTRATOR WORKSHOP

4.5 DAYS | AST4102

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.

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:

- AST1038 ASTRO® 25 IV&D System Overview
- ACT101E Bridging the Knowledge Gap – System Administrators
- NST762 Networking Essentials in Communication Equipment
- NWT003 ASTRO® 25 Applied Networking

PREREQUISITES

None

ASTRO® 25 SYSTEMS FLEETMAPPING

15 HRS | RDS1017V

COURSE OVERVIEW

This virtual classroom training 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

ASTRO® 25 SECURITY PATCH MANAGEMENT

20 HRS | AST2001V

COURSE OVERVIEW
This virtual classroom training will 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 System Core Workshop

ASTRO® 25 IV&D RADIO AUTHENTICATION

2 DAYS | AST2038

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 ASTRO® 25 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.

ASTRO® 25 IV&D SECURE COMMUNICATIONS WORKSHOP

5 DAYS | AST4207

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

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:

- AST1038 ASTRO® 25 IV&D System Overview
- ACT100E Bridging the Knowledge Gap for ASTRO® 25 – Technician
- NST762 Networking Essentials in Communication Equipment
- NWT003 ASTRO® 25 Systems Applied Networking

PREREQUISITES

None

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:

- AST1038 ASTRO® 25 IV&D System Overview
- ACT101E Bridging the Knowledge Gap - Technicians
- NST762 Networking Essentials in Communication Equipment
- NWT003 ASTRO®25 Applied Networking

PREREQUISITES

None

STANDALONE GTR 8000 CONVENTIONAL BASE RADIO

2 DAYS | AST2006

COURSE OVERVIEW

This course is designed to give the participants the ability to align, troubleshoot and repair the Standalone GTR 8000 Base Station/Repeater to Motorola Solutions recommended service levels. Emphasis is placed on the use of Configuration Service Software (CSS) and its role in configuration, maintenance, diagnostics, alignments, and optimization of the Standalone GTR 8000 Base Radio/ Repeater.

TARGET AUDIENCE

Maintenance Technicians

COURSE OBJECTIVES

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

- Understand basic concepts of the various radio systems supported by the GTR 8000 Conventional Base Radio
- Identify the equipment modules of the GTR 8000 Conventional Base Radio
- Operate and perform routine maintenance on the GTR 8000 Conventional Base Radio
- Understand basic operational theory of GTR 8000 Conventional Base Radio components
- Configure the GTR 8000 Conventional Base Radio using Configuration Service Software (CSS)
- Identify the different backplane connections on the GTR 8000 Conventional Base Radio
- Perform calibration and alignment adjustments for the GTR 8000 Conventional Base Radio
- Troubleshoot problems and identify/replace faulty modules in the GTR 8000 Conventional Base Radio

REQUISITE KNOWLEDGE

General RF Knowledge and Skills Basic Knowledge of Two-Way Radio systems

PREREQUISITES

None

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

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

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

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:
- AST1038 ASTRO® 25 IV&D System Overview

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

SYSTEM OVERVIEW FOR ASTRO® 25 IV&D INFORMATION ASSURANCE

4 HRS ACS715211

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
None

ASTRO® 25 INFORMATION ASSURANCE WORKSHOP

4.5 DAYS | AST0071

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 workshop, IA features are applied to network transport equipment by configuring switches, 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 ASTRO® 25 system.

TARGET AUDIENCE

This course is intended to those who need to learn the characteristics and capabilities of ASTRO® 25 Systems using Information Assurance Features - Technicians and Administrators who need to maintain or administer Information Assurance-enabled ASTRO® 25 Systems.

COURSE OBJECTIVES

After completing this course you should be able to:

- Identify and describe the various Information Assurance (IA) features available in the ASTRO® 25 IVD network.
- Identify the system locations and scope of protection offered by IA features.
- Harden ASTRO® 25 networks using Information Assurance (IA) features.
- Configure and restore IA features on ASTRO® switches and 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:

- NWT003 ASTRO® 25 Applied Networking
- AST4103 ASTRO® 25 IV&D System Core Workshop

PREREQUISITES

None

INTRODUCTION TO KVL 5000

1 DAY | AST0067

COURSE OVERVIEW

The purpose of this training is to provide an introduction to the Key Variable Loader 5000. The course covers procedures which help participants familiarize themselves with the device and guide them through its configuration process. Participants will learn about features of KVL 5000, managing of encryption keys, loading keys into target device, configuring target devices using KVL 5000, sharing keys between KVLs, using KVL in an OTAR system, and managing log records.

TARGET AUDIENCE

Technical Support Staff responsible for managing secure devices.

COURSE OBJECTIVES

At the end of this course, you will be able to:

- Perform initial configuration of the KVL 5000
- Manage encryption keys in the KVL 5000
- Load keys and key groups into target devices
- View or remove keys from target devices
- Share keys between KVLs
- Configure and use the KVL 5000 in an OTAR system
- Manage key records

REQUISITE KNOWLEDGE

None

PREREQUISITES

None

ASTRO® 25 CUSTOMER ENTERPRISE NETWORK WORKSHOP

3 DAYS | AST0072

COURSE OVERVIEW

This course describes the Customer Network Interface (CNI) between the Motorola ASTRO® 25 Radio Network Infrastructure (RNI) and certified Customer Enterprise Network (CEN) Architectures and discusses the protocols and infrastructure components that support the RNI-DMZ CEN and the Control Room CEN.

TARGET AUDIENCE

This course is intended to those who need to learn the characteristics and capabilities of ASTRO® 25 Customer Enterprise Networks - Technicians and Administrators who need to maintain or administer Customer Enterprise Networks within ASTRO® 25 Systems.

COURSE OBJECTIVES

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

- Discuss ASTRO® 25 certified architectures used to support the interface between the Radio Network Infrastructure and the Customer Enterprise Network.
- Understand how to administer and configure FortiGate firewall objects and policies to support the CNI.
- Discuss NAT and how Network Address Translation is used to support the CNI.
- Understand Layer 2 and Layer 3 network protocols used to support the CNI.

REQUISITE KNOWLEDGE

None

PREREQUISITES

None

COURSE OVERVIEW

The MOSCAD Network Fault Management (NFM) course covers the programming, maintenance and operation of the:

- Site Device Manager Unit (SDM)3000 Remote Terminal Unit (RTU)
- SDM3000 Network Translator (SNT)
- IP Gateway
- Graphic Master Computer (GMC)

The course focuses on a detailed discussion of the different types of Network Fault Management systems, SDM3000 RTU hardware, hands-on activities with programming the RTUs, Attach Site Builder Applications for Tag Generation, Generating Tags and Files, navigating with the web browser features and the Graphic Master Computer.

TARGET AUDIENCE

System Managers, Service Technicians, Motorola Service Center, End Users

COURSE OBJECTIVES

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

- Install NFM SDM3000 builder software on students laptops
- Configure alarm points using SDM3000 builder
- Generate Tags and Files to import alarm tags
- Navigating and acknowledging alarms at the Graphic Master Computer
- Utilize the web browser features to view and configure the system
- Create Custom Tabs
- Create Custom Maps

REQUISITE KNOWLEDGE

- A basic understanding of Windows navigation
- Laptop computer with Windows XP
- Windows program files must be on the “C” directory

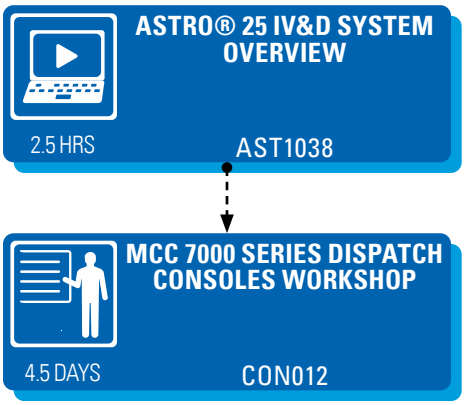
PREREQUISITES

None

CONSOLE COURSES

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

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

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 ASTRO® 25
- 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

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

APX™ SUBSCRIBER COURSES

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

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 Level 2 (block-level) theory of operation for the APX family of radios and provide a review of APX CPS and Radio Management programming. In addition to the lecture, large amounts of hands on with scenario-based lab work will be used to reinforce knowledge transfer.

TARGET AUDIENCE

This course is intended for who would like to get familiar with the features, operation principles, troubleshooting steps and disassembly and reassembly of the APX family of radios.

COURSE OBJECTIVES

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

- Distinguish between the features and specifications of APX Portable and Mobile radios
- Verify the correct operation of the various radios within the APX family of subscribers by completing Performance Checks and Alignment procedures
- Disassemble and reassemble APX radios using the documented procedures
- Maintain and troubleshoot radios within the APX family of subscribers

REQUISITE KNOWLEDGE

Completion of the following courses or equivalent experience:

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

PREREQUISITES

None

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, ASTRO® 25/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

COURSE OVERVIEW

This course provides an overview of the features and functions of the APX ™ series Radio Management software. Participants will learn what the Radio Management software is designed to do, and will also learn how to use it to program large and small groups of subscribers portfolio of systems.

TARGET AUDIENCE

Technicians and System Managers needing an understanding of the basics of the Radio Management application as well as database and fleet management.

COURSE OBJECTIVES

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

- Identify the solution that Radio Management provides
- Differentiate between All-in-One PC needs and Distributed Use needs regarding Radio Management
- Locate the APX Radio Management
- Navigate the APX Radio Management screens
- Populate the database
- Schedule a Read job
- Manage multiple APX radios simultaneously
- Create, modify, and select programming templates
- Schedule a Write job
- Conduct a search
- Search, sort, and group radios
- Sort and manage information in the Table view
- Identify the function of the Job view

REQUISITE KNOWLEDGE

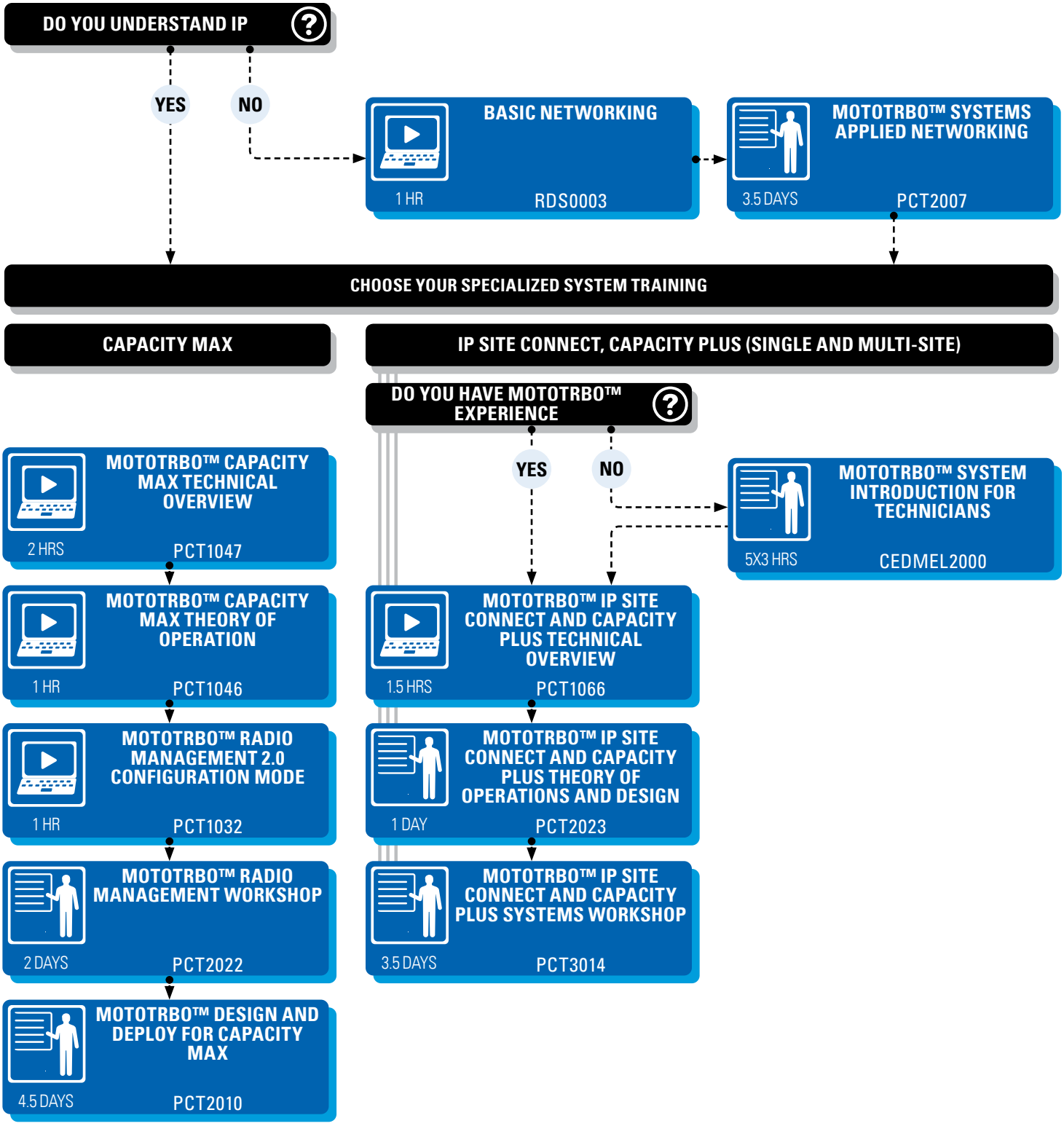
None

PREREQUISITES

None

MOTOTRBO™ COURSES

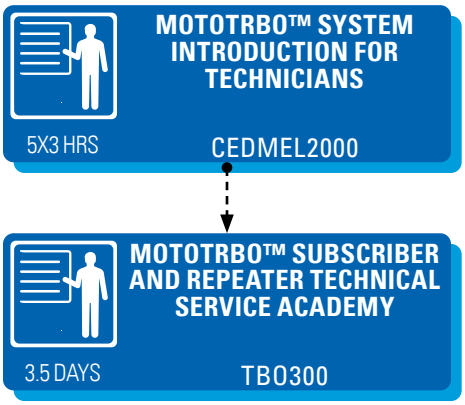
MOTOTRBO™ TECHNICAL TRAINING CURRICULUM



CURRICULUM COMPLETE

PARTICIPANT SHOULD BE ABLE TO DESCRIBE THE KEY CHARACTERISTICS OF THE SYSTEM, DESCRIBE THE KEY CONFIGURATION ITEMS IN BOTH SUBSCRIBERS AND REPEATERS, PROGRAM EFFECTIVE REPEATER AND SUBSCRIBER CODEPLUG TEMPLATES FOR THE SYSTEM, AND DESCRIBE THE APPLICABLE IP NETWORKING REQUIREMENTS WHEN DESIGNING A SYSTEM.

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.

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. Upon successfully completing this course, individuals should be ready to take the more advanced Design and Deploy courses for IP Site Connect, Capacity Plus (Multi-Site and Single Site), Capacity Max and/ or Connect Plus.

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:

- Correctly categorize the different components available to build your MOTOTRBO system.
- Accurately explain the functional technology that MOTOTRBO systems employ
- Propose the MOTOTRBO topology that best fits the user requirements.
- Correctly describe MOTOTRBO's digital and analog features.
- Analyze the various data applications' capabilities and everyday uses within the MOTOTRBO systems.
- Refer to system and channel capacity considerations during system planning.
- Refer to MOTOTRBO IP network design considerations during system planning.
- Design a fleetmap in accordance with organizational requirements and resources.
- Select the right MOTOTRBO tool for your needs.
- Successfully purchase, register, and activate premium radio features.

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

COURSE OVERVIEW

The MOTOTRBO™ Systems Applied Networking provides technicians with the necessary information required for understanding the typical networking requirements for implementing a variety or 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

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

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.

TARGET AUDIENCE

Professionals responsible for configuring, deploying, or maintaining MOTOTRBO™ radios and repeaters.

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

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

COURSE OVERVIEW

This course is an introduction to MOTOTRBO™ Customer Programming Software (CPS) 2.0. You will learn how to install and use CPS 2.0 to program your equipment.

TARGET AUDIENCE

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 CPS 2.0.
- Describe the key workflows of CPS 2.0.
- Update a codeplug using CPS 2.0 for specific system types.
- Demonstrate a good level of knowledge for the processes of managing licenses in CPS 2.0.

REQUISITE KNOWLEDGE

None

PREREQUISITES

None

COURSE OVERVIEW

This course will provide information and an overview of the MOTOTRBO Nitro SLN 1000 Portable 2 way Radio. Basic Operations and warranty information will also be covered.

TARGET AUDIENCE

This course is intended for users that would like to learn about the MOTOTRBO Nitro SLN 1000 Portable 2 way Radio.

COURSE OBJECTIVES

After completing this training course you will be able to:

- Identify the SLN 1000 Radio
- Identify radio controls of the SLN1000 radio.
- Identify Status Indicators and what they represent
- Identify different types of call, which of them to use in a given situation, and how to make them quickly and easily.
- Identify the features of the radio and how to use them
- Understand the warranty of the radio

REQUISITE KNOWLEDGE

None

PREREQUISITES

None

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

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.

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.

TARGET AUDIENCE

Professionals responsible for selling, designing, configuring, deploying, or maintaining MOTOTRBO™ radio systems.

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

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. You will also learn about the different system components and their general topology. The course will also review available MOTOTRBO™ services packages.

TARGET AUDIENCE

Professionals responsible for selling, designing, configuring, deploying, or maintaining MOTOTRBO™ radio systems.

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

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 MOTORBO System Design Tool.

TARGET AUDIENCE

Professionals responsible for designing and deploying MOTOTRBO™ radio systems.

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

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.

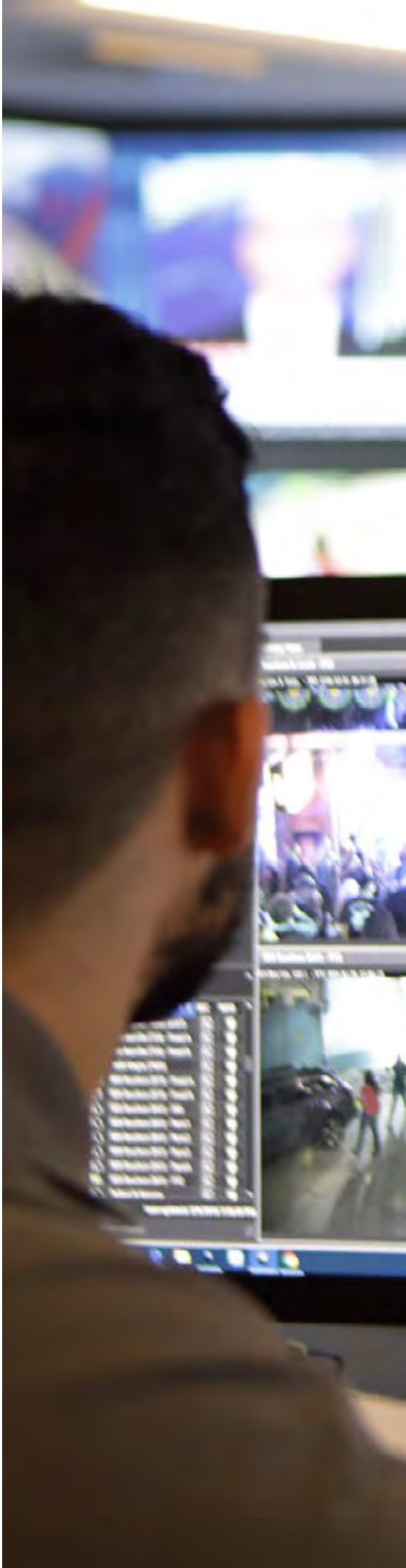
REQUISITE KNOWLEDGE

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



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

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 IV&D System Core Workshop

PREREQUISITES

None

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

Our website is your portal to find help to meet your organizational training needs. Keep up to date with the latest version of this catalog, our training schedule, or simply use the Contact Us function for additional questions or assistance.

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10.3 00318 AMD 4 EXHIBIT B3-EXPERIENCE, QUALIFICATION AND SERVICES: EXHIBIT B-3-OTHER MISSION-CRITICAL OPERATIONS (WHITE PAPER)

SERVICES FOR MISSION-CRITICAL OPERATIONS

MAXIMIZE THE VALUE OF YOUR TECHNOLOGY ECOSYSTEM

WHITE PAPER

MOTOROLA SOLUTIONS

CONTENTS

For public safety agencies tasked with mission-critical operations, assuring peak system performance is critical. Efficient and cost-effective management of an ever-evolving technology ecosystem is complex, requiring the right set of expertise and tool sets.

DEALING WITH COMPLEXITY IS A 24/7/365 MANDATE

Many traditional communications and mission-critical systems are transitioning from being hardware to software-centric, expanding the IT footprint far beyond where it was even a few years ago. In addition, public safety agencies have experienced a rapid infusion of new technologies such as body-worn cameras, new software platforms and video analytics.

Agencies are saddled with legacy, outdated systems and insufficient IT resources, including both staff and budget. 40% of an agency's computers may be over seven years old and running decades old software.[1]

Add it all up and agencies are struggling with increasing technology complexity, without the means to adequately manage it. The stakes for public safety organizations trying to keep up are only getting higher.

Natural disasters. Terrorism. Cyber attacks. In 2018 alone, there were 315 natural disasters globally that each caused billions of US dollars in damages.[2] In just one recent hurricane, Motorola Solutions tallied 500,000 system events in 48 hours from our customers' public safety systems that were in the path of the storm. In 2019, there were hundreds of mass shootings across the globe, with that number increasing at a rapid pace each year. Recent cyberattacks have held city governments' data hostage, costing them millions of dollars to get their systems up and running again. This is just a small sample of the threat environment public safety agencies must operate in.

When lives are at stake, you need to overcome these challenges and ensure the uninterrupted availability and peak effectiveness of mission-critical communication systems.

AGENCIES ARE SADDLED WITH LEGACY, OUTDATED SYSTEMS AND INSUFFICIENT IT RESOURCES, INCLUDING BOTH STAFF AND BUDGET.

OVERCOME COMPLEXITY. ACCELERATE PERFORMANCE. MANAGE COSTS.

Complexity, performance, and cost. Any plan to ensure mission-critical performance must start with managing these three critical factors. To do so, you need a unified management platform across your entire public safety technology ecosystem including networks, radios, software applications and video intelligence.

OVERCOME COMPLEXITY

Today's mission-critical ecosystem is a set of sophisticated IT-interdependent technologies, including command center software, video cameras, two-way radios, site controllers, routers, LAN switches, servers, dispatch consoles and more. Each component has its own unique level of complexity and lifespan.

When this ecosystem is comprised of disjointed pieces with differing management needs, it creates inefficiencies, makes updating overly complex and introduces multiple points of failure. Gaining operational efficiency and increased visibility into an ever-evolving technology ecosystem requires an integrated approach to system management.

70% of complex technology implementations fail or are challenged.[3]

Disconnected systems and multiple touchpoints create inefficiencies and multiple points of failure.

ACCELERATE PERFORMANCE

For mission-critical public safety agencies tasked with saving lives, accelerating performance starts with ensuring system availability, resiliency and responsiveness. Any downtime is simply too great a risk to the public and agency personnel.

As public safety systems become more software-centric and IP-based, downtime can be caused by any number of issues, including cyberattacks, software bugs, manual configuration problems and outdated software. Add in the possibility of physical harm to systems from storms or attacks and an "always-on, always-secure system" becomes an increasingly difficult task.

53% of network outages are caused by natural disasters.[4]

Increasing number and intensity of natural disasters are putting stress on the network like never before.

MANAGE COSTS

Overcoming system complexity and availability are essential, requiring the right skill set and expertise. Developing the right capabilities also requires budget levels that many agencies are challenged to meet. Increasing cost pressure continues to put relentless pressure on existing resources.

The budget constraints are driving the need for a predictable cost model to support and sustain the technology ecosystem. Not to forget, that lowering the total cost of ownership continues to be one of the top priorities for agencies.

40% of city CIOs cite insufficient budgets and IT resources as a significant barrier to their objectives.[5]

Agencies are facing relentless pressure to do more with less.

Given these obstacles, what's the best path forward for you to ensure peak performance for your mission-critical technology ecosystem?

The answer is clear. Your agency needs access to end-to-end mission-critical capabilities and expertise, from technical support, to system monitoring and management services, to cybersecurity solutions that span the entire technology ecosystem including radios, software applications, video analytics and security. You may already have mission-critical best-in-class technologies. However, the real value of your investments can only be unlocked with the right combination of in-house skills, managed and support services. Today, this combination of the right technology solution, paired with the right service delivery model, is the foundation of successful technology implementations.

HIRING AN EXTERNAL SERVICE PROVIDER CAN EMPOWER YOUR TEAM WITH HIGHLY SPECIALIZED TALENT, INDUSTRY-LEADING PROCESSES, ONGOING TRAINING AND CUTTING-EDGE TOOLS.

PARTNER WITH A TRUSTED SERVICE PROVIDER

The potential benefits of pairing your mission-critical technology ecosystem with end-to-end services can only be achieved by selecting the right provider—one that can demonstrate the value of seamless orchestration of people, processes and tools to successfully deliver on these capabilities. While it's possible to institute the right processes, hire the right people and secure the right tools in-house at your agency, it can be highly challenging and costly.

Your agency is rightly focused on its core mission, not the detailed upkeep of IT and mission-critical systems. Hiring an external service provider can empower your team with highly specialized talent, industry-leading processes, ongoing training and cutting-edge tools. Plus, partnering with the right service provider can help reduce the total cost of ownership for your mission-critical systems. There are key factors to consider when selecting a service provider.

DEEP MISSION-CRITICAL SKILLS AND EXPERIENCE

Having domain expertise around traditional two-way radio systems is a baseline requirement for any service provider. That expertise should extend to managing change, cloud-based solutions, new machine-learning and artificial intelligence technologies, security, software and video solutions and most importantly successfully managing integration across all of these platforms. The service provider should be constantly investing in knowledge sharing, training and communication of best practices to ensure that their skill set stays sharp and is always relevant.

ALIGNMENT WITH INDUSTRY-LEADING ITIL FRAMEWORK

Like any other IT system, your mission-critical ecosystem requires adoption of an ITIL-based approach to service management that focuses on aligning mission-critical services with the needs of an organization and adopts an agile approach to change management. Leveraging the principles of the ITIL framework your service provider should follow detailed processes, procedures, tasks, and checklists that can be applied towards service design, service transition, service operations and continual service improvement.

FLEXIBLE CONSUMPTION MODELS

A one-size-fits-all approach simply doesn't work for today's agencies. A service provider must have deep expertise across all delivery models, including in-house, managed services, and cloud-based or hybrid as-a-service consumption models. They should structure that expertise to uniquely meet your specific business needs.

VISIBILITY AND CONTROL

Working with a service provider does not have to mean losing control or visibility. The right service provider will partner with you to define and execute service-level agreements (SLAs) that align with your business outcomes. These can range from response times to system availability and capacity. Any provider should always allow you to have granular visibility into your system health including networks, radios, software applications and security. Service providers can offer this access through a secure web-based portal, giving you an easy to access, end-to-end view of your system.

AUTOMATION FOR SYSTEM MANAGEMENT

A forward-looking service provider understands that it is important to transition from a break/fix methodology to a proactive approach that emphasizes problem prevention and continuous improvement. Investing in sophisticated automation and analytics technologies can make system and security management more predictive and prescriptive, driving faster and more efficient resolution of system issues.

CENTRALIZED DELIVERY COUPLED WITH LOCAL EXPERTISE

A service provider with global capabilities can learn from diverse customers across the globe, constantly improving service delivery governance, platforms and processes. At the same time, local expertise and community presence ensures compliance with specific regulatory and legal requirements. You are best serviced by providers offering a combination of both. Global coverage also lays the foundation of a rich data lake that constantly helps improve machine-learning models driving automation.

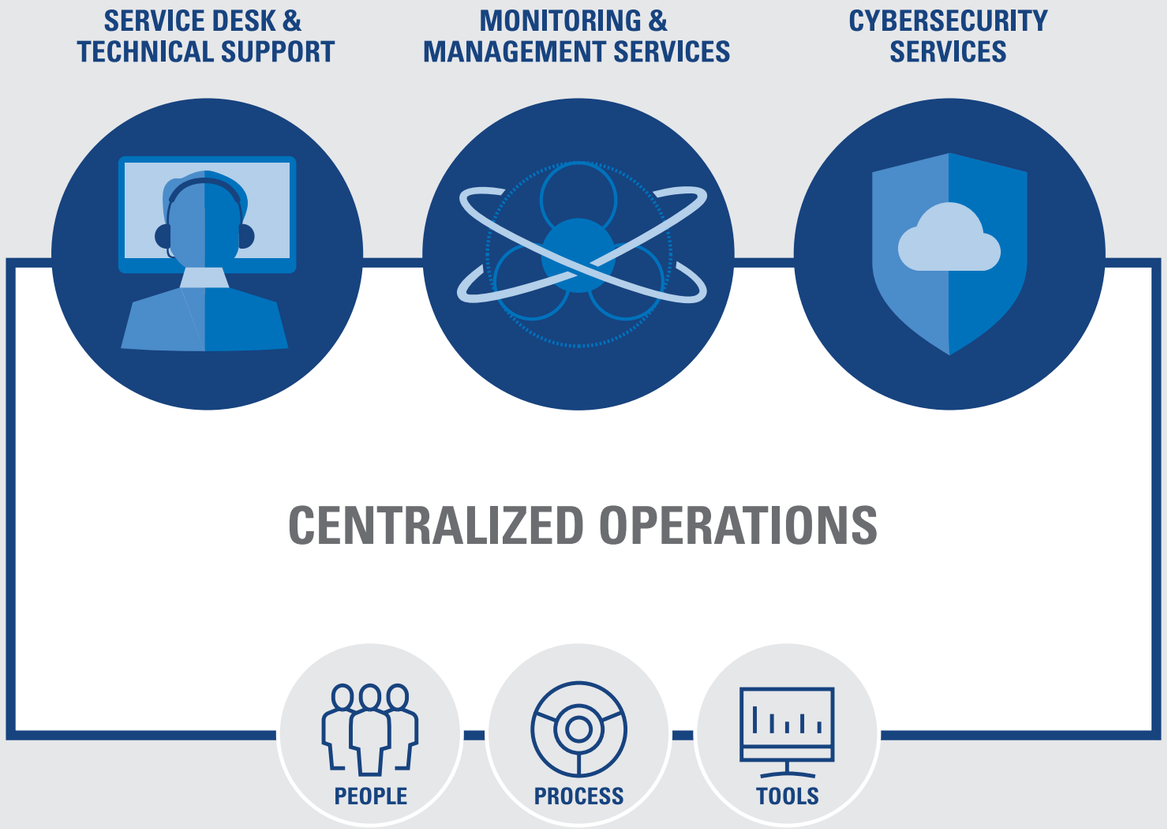
RESEARCH AND DEVELOPMENT DRIVING INNOVATION

Working with a service provider should be a long-term strategic partnership. You need a forward looking partner that continuously makes informed investments in new technologies and transformative strategies. These investments are what allow them to deliver the most innovative solutions that align to your business needs.

PARTNERING WITH THE RIGHT SERVICE PROVIDER CAN HELP REDUCE THE TOTAL COST OF OWNERSHIP FOR YOUR MISSION-CRITICAL SYSTEMS.

TRUSTED MISSION-CRITICAL SERVICES FROM MOTOROLA SOLUTIONS

Motorola Solutions manages your entire mission-critical ecosystem, with technical support, monitoring and management, and cybersecurity services, centrally delivered with the right combination of people, process and tools.



SERVICE DESK AND TECHNICAL SUPPORT

Motorola Solutions Technical Support services provide on-site and remote support for technical issues arising from devices, infrastructure, applications and video cameras. Our specialists offer specific troubleshooting capabilities, leverage a rich knowledge base and are skilled in diagnosis and swift resolution of system performance and operational issues. We provide industry-leading tools and have well-defined processes to record, monitor, escalate and report technical service issues.

With state-of-the-art diagnostic equipment, repair tools and replacement parts, you can receive the peace of mind that all of your agency's radio and infrastructure components are protected in the event of an unexpected failure and are back in operation as soon as possible. When serviced, all system components are returned to you with original factory specifications and updated with the latest firmware. Plus, our service centers are certified to comply with ISO9001, ensuring the highest quality repairs. We also offer accidental damage coverage, so damage from water, chemicals or physical abuse are never a concern and your repair and replacement costs are fixed and predictable.

Preventive maintenance on your system components, including two-way radios and network equipment, ensures you can extend the life of your systems. From physical inspection and cleaning of radios to component alignment of the network equipment, we ensure that the system components remain in top condition with the latest firmware and updates.

MONITORING AND MANAGEMENT SERVICES

Motorola Solutions Monitoring and Management services include a wide range of capabilities that help you ensure mission-critical availability, responsiveness and resiliency.

To prevent network outages, we offer robust and proactive network infrastructure monitoring and incident management services from our Network Operations Center. Our network management capabilities can automatically detect and identify network issues in minutes. Our automated network monitoring, coupled with a seasoned team of network engineers and technicians, ensure that complex network issues are resolved as quickly as possible. Advanced reporting services provide near real-time visibility into network performance and capacity while continuous data analysis improves ongoing system management, preventing issues by addressing their root causes before they impact network performance and end users. We are looking to adopt a similar approach for monitoring the health of video cameras and two-way radios.

Our Network Operations Center plays a critical role during an emergency or disaster-related major event, such as political conventions, natural disasters and catastrophes that have a direct or potential impact on customers' systems. In these instances, multiple teams within Motorola Solutions are activated for real-time, hands-on support and communication.

We also specialize in Lifecycle Management services that help you maintain and secure your systems. These services address technology refreshes, while enabling security and ongoing system availability and resilience. They include software maintenance, system upgrades and ongoing lifecycle management. Periodic technology updates are provided for base stations, site controllers, routers, LAN switches, servers, dispatch consoles, operating system software and more, so your system stays current and future-proof.

In addition, our Device services ensure all your two-way radio communication needs are met, with a full range of device programming and provisioning services. These services include radio management software licensing, on-site set up and training, database hosting and access to a management portal that helps you maintain visibility into your devices. With constant technology, software and security feature updates, you maximize the performance of your radios.

Our expert teams of field service engineers are always ready for all on-site incident restoration efforts utilizing sophisticated service fault diagnostics and resource management tools to manage service restoration. Our technicians will ensure that the network performance sustains operational standards, with guaranteed restoration times adhering to established service level agreements.

OUR NETWORK MONITORING CAPABILITIES CAN AUTOMATICALLY DETECT AND IDENTIFY NETWORK ISSUES IN MINUTES.

CYBERSECURITY SERVICES

Our Cybersecurity services approach follows the National Institute of Standards and Technology (NIST) Cybersecurity Framework, to help you manage your cyber risk awareness, detection, response and recovery. We closely follow leading governance and oversight strategies throughout the product development, implementation and operational support lifecycle.

We help your agency assess risk by inventorying critical assets and systems, then providing a thorough risk analysis and vulnerability assessment. Next, we develop a roadmap and strategy to deploy new policies and procedures, introduce protective tools and implement appropriate access and auditing controls.

It is well known that security patching is the first and best defense against cyber attacks. We work with you to identify the gaps around your system patches. All hardware and software assets, network and communication flows and dependencies are identified, mapped, classified and managed according to criticality. As new patching needs arise, they are tested and deployed within the network.

WE CLOSELY FOLLOW LEADING GOVERNANCE AND OVERSIGHT STRATEGIES THROUGHOUT THE PRODUCT DEVELOPMENT, IMPLEMENTATION AND OPERATIONAL SUPPORT LIFECYCLE.

Our continuous 24x7x365 security monitoring capabilities can automatically detect system abnormalities, allowing you to take action faster. Our security experts assist in restoring functionality with recovery plans uniquely tailored to your organization and use lessons learned to inform the process from the start.

INDUSTRY-LEADING NIST CYBERSECURITY FRAMEWORK

IDENTIFY	PROTECT	DETECT	RESPOND	RECOVER
Assess risks	**Develop safeguards**	**Make timely discoveries**	**Take action**	**Restore functionality**
Inventory critical assets and systems	Develop policies and procedures, introduce protective tools	Continuous monitoring 24/7/365	Establish a robust response plan	Institute a recovery plan
Provide a thorough risk analysis	Implement appropriate access and auditing controls	Enable auditing capabilities	Create, analyze, triage and respond to detected events	Create improvements to prevent future attacks

EXPERTS TO HELP BUILD IT RIGHT - TOOLS TO PROTECT THE MISSION - SERVICES TO SUPPORT THE LIFECYCLE

CENTRALIZED OPERATIONS

Our service delivery model is enabled by seamless orchestration of people, process and tools.

PEOPLE

We bring years of mission-critical expertise with personnel that stay sharp through comprehensive, ongoing training, knowledge sharing and communication of best practices. Project Managers, Service Delivery Managers, System Technologists, Network Engineers, Security Specialists, Data Analysts and Field Service Managers hold top industry certifications and work hand-in-hand to ensure system availability, performance and security.

PROCESS

We have unparalleled experience working with agencies around the globe to design service delivery strategies that successfully support mission-critical operations. We are aligned with the principles of industry recognized ITIL management practices, Service Design, Service Transition and Service Operations within our public safety service delivery framework. This methodology further brings a culture of continuous improvement to service delivery and performance.

TOOLS

We have invested in industry-leading tools that apply analytics, accelerate machine learning and drive automation. These tools, together with a rich data set, make the management system more predictive and proactive while augmenting decision making. From network operations, to system updates or security operations, automation and analytics accelerates service response and scales operations so they can manage the peak load of a catastrophic event such as a hurricane.

INDUSTRY-DEFINING TALENT

"Our job is to ensure that the first responders are able to respond and rescue to minimize any damage to life and property. We prepare our field teams with the right ammunition to face the next big thing during a crisis. And when the next big thing does not happen, is when we know that we were well-prepared."

Kevin Sweet
Motorola Solutions NOC Manager

With 15 years of experience developing and managing mission-critical systems, Sweet supported Hurricanes Katrina, Harvey, Barry, Irma and Sandy, California Wildfires, Las Vegas and San Bernadino Shootings.

INDUSTRY LEADING ITIL FRAMEWORK

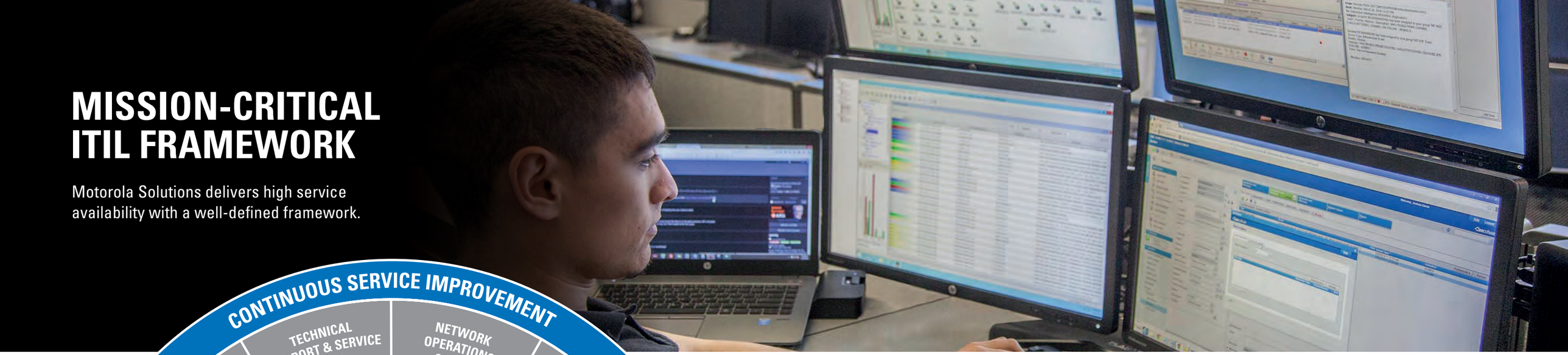
- Fully managed operational risk and service performance
- High service availability meeting mission-critical requirements
- Centralized service management across the entire technology ecosystem
- Intelligent performance analytics for proactive troubleshooting
- Predictable, cost-effective methods of maintaining and evolving the system

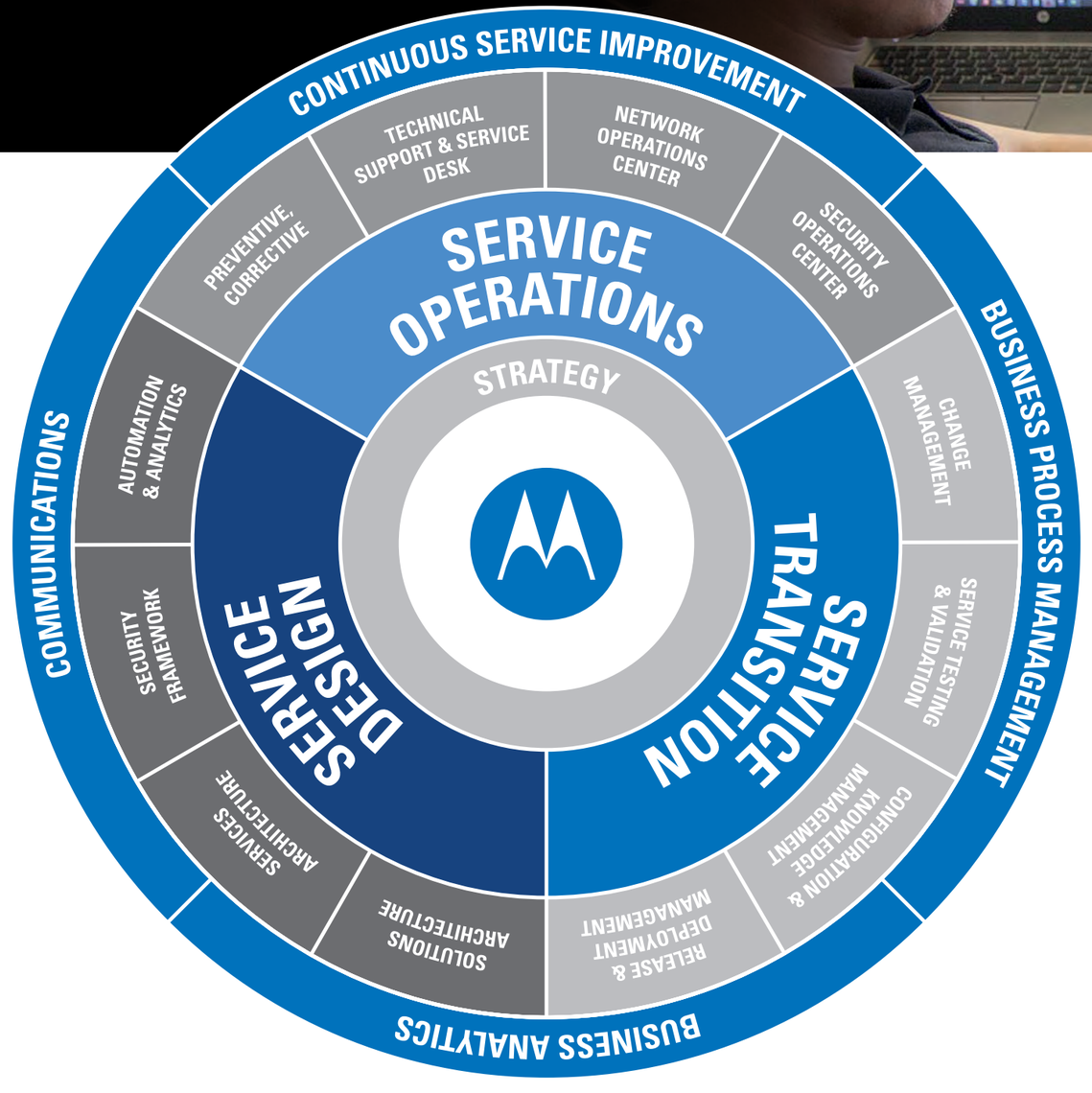
AUTOMATION AND ANALYTICS

- Predictive and prescriptive analytics for system monitoring
- Machine learning to continuously optimize system performance
- Chatbot for self-service and enhanced end-user experience
- Sensor-based diagnostics to proactively monitor ecosystem health and resolve issues

MISSION-CRITICAL ITIL FRAMEWORK

Motorola Solutions delivers high service availability with a well-defined framework.





ITIL process has various stages each focused on a specific phase of the service lifecycle.

STRATEGY

We develop a deep understanding of our customers' operating procedures that directly informs our service strategy. Our experienced team draws on intimate knowledge from our customers to develop the service delivery model, ensuring that the service architecture, policies and processes meet your needs. A robust governance model ensures secure data management and information flows.

SERVICE DESIGN

Motorola Solutions designs and implements a comprehensive solutions and services architecture with built-in security. Automation, analytics and other leading-edge technologies are included as a part of the service design.

SERVICE OPERATIONS

Well-defined procedures and processes ensure that all the day-to-day management and support activities are running smoothly, such as network and security operations and service desk. Escalation handling processes are also documented.

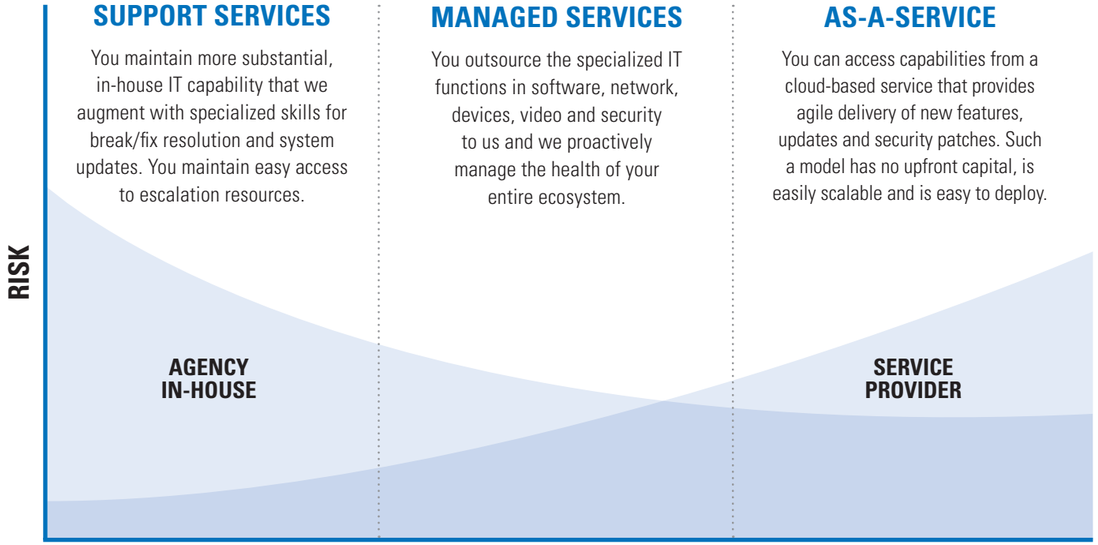
SERVICE TRANSITION

We help you with onboarding, documenting SLAs while ensuring you are comfortable with the processes, procedures and changes. All services are tested and validated before release. With change management, we control any changes to configurable assets or system activities, ensuring that they are implemented with minimal disruption and risk. Configuration management verifies that system change requests are expeditiously fulfilled while managing comprehensive records and accurate views of release information.

OUR EXPERIENCED TEAM DRAWS ON INTIMATE KNOWLEDGE FROM OUR CUSTOMERS TO DEVELOP THE SERVICE DELIVERY MODEL, ENSURING THAT THE SERVICE ARCHITECTURE, POLICIES AND PROCESSES MEET YOUR NEEDS.

SERVICE CONSUMPTION MODELS

We provide flexible options in-line with your business and IT needs.



SERVICE MANAGEMENT PORTAL

Get visibility into your system with a web-based portal.

We understand that it is critical for you to have full visibility into the performance of your entire technology ecosystem. Our web-based management portal, MyView, provides actionable insights into your system status and health, allowing you to keep an eye on the health of your mission-critical ecosystem. MyView provides quick, easy insight into your network, devices, security, software and services delivery status.

MyView Portal provides technical support details on your open cases and repairs, available software updates, and recent orders. You can view proactive notifications on upcoming events, and secure messages between you and your Motorola Solutions contact.

With a friendly user interface you can get access to graphical reports showing your current and historical data for network availability, coverage, capacity, security and network monitoring cases, average resolution time for all cases and more. Graphical case reports are also available for technical support, returned material authorizations and on-site dispatch.

GLOBAL SCALE AND EXPERIENCE

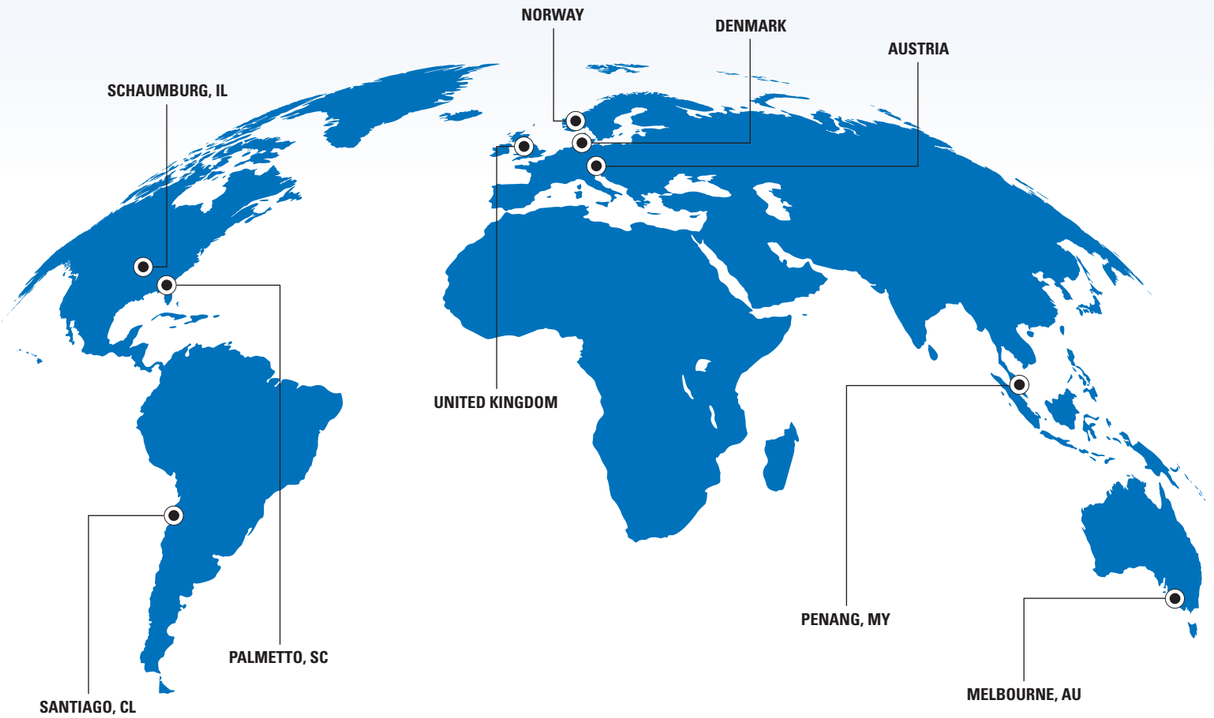
4M
USERS UNDER OUR MANAGED SERVICE

20M
EVENTS PROACTIVELY MONITORED EACH DAY

13K
SYSTEMS INSTALLED

100K
CUSTOMERS ACROSS 100 COUNTRIES

90+
YEARS OF EXPERIENCE



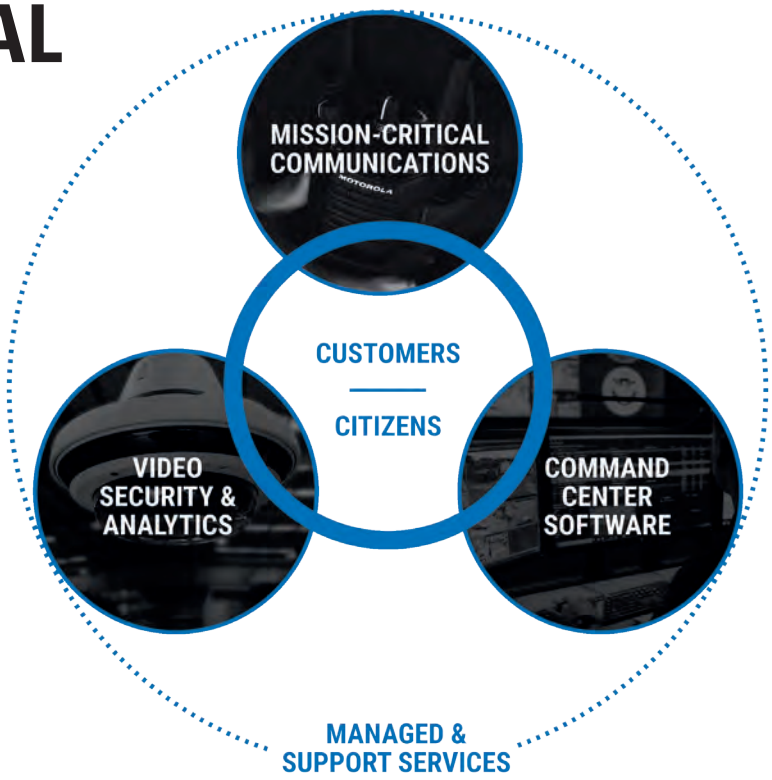
MISSION-CRITICAL ECOSYSTEM

Complexity managed.
So your technology is ‘always on’.

Whether managing everyday routines or major disasters, your technology must be ready. Our mission-critical rigor to people, process and tools centralizes operations so you can stay focused on your mission and not the technology.

From everyday technical support, to 24/7 monitoring and management, and cybersecurity, your technology ecosystem is assured for resiliency, availability and responsiveness, secure from threats and always current with technology advancements.

The complexity of managing networks, devices, software, video and security is unified, and your total cost of ownership is predictable. And in an environment of sophisticated threats, you can shield your operations to identify, prevent and respond to cyber attacks, and make sure your system is always on and never failing.



AT MOTOROLA SOLUTIONS, WE CONNECT AND CREATE A SAFER WORLD.

NOTES

1 Bloomberg Businessweek, 2-28-19
2 Reliefweb, 6-21-19
3 https://pmiwdc.org/sites/default/files/presentations/201703/PMIW_LocalCommunity_Tysons_presentation_2017-02.pdf
4 https://ussignal.com/uploads/general/Documents/General/misc/IT-Resiliency-Infographic.pdf
5 2019 CIO Agenda: A Government Perspective, Gartner

For more information, visit **www.motorolasolutions.com/services**

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