EDUCATION SERVICES

CTR8500/8300 Installation, Operation and Maintenance

TRN-CTR8583-IOML2-A/B/C/D

Course Specifics

Duration:	3 days
Class capacity:	10 students
Materials provided:	Instruction and user Manuals (USB) Student Handbook (e-Book) Datasheets (USB)

Course Description

The CTR 8500/8300 is the industry's first microwave router. It is a fully integrated microwave networking solution, delivering a unique combination of high capacity all-packet transport, Carrier Ethernet, IP/MPLS and PWE services and comprehensive mission critical microwave features. The CTR is purpose-built for microwave, enabling operators to prepare for the all-IP future.

The CTR8500/8300 Installation, Operation and Maintenance course teaches students key functions of the CTR8500/8300 platform. The course includes an overview of all available modules and the chassis, initial setup, install and login, basic configuration with the CLI, system commissioning, configuration, diagnostics, maintenance and troubleshooting. Extensive hands-on labs (nearly 50% of the course duration) and case studies offer students with scenarios they will face in real deployments in their networks.

Courses are conducted by **AVIAT expert trainers** in a mentoring environment backed by their deep technology expertise and experience in implementation of microwave wireless and IP networks.

The CTR8540 Installation, Operation and Maintenance course is conducted at the Aviat Training locations or can be arranged at customer sites

Target Audience

This course is intended for installation and service personnel responsible for installation, configuration, test and maintenance procedures for the CTR8500/8300 product.

Prerequisites

- Participants must complete CTR System Overview E-Learning course.
- Participants should have a basic understanding of Microwave and IP Fundamentals and have basic computer skills.
- Each student must bring laptop PC and have administrator rights on the PC with the following parameters.
    - Pentium 4 or later w/ 1GB of RAM and 250 Mb of free hard drive space.
    - Microsoft Windows 7, 8, or 10 and Google chrome as web browser.
    - USB Port / LAN Port / and DB9 serial port connexion or adapter

Objectives

Upon successfully completing this course, participants will be able to:

- Basic installation and configuration of CTR8500/8300 equipment

- Provisioning of features such as Management, RF Links, Ethernet VLANs, QoS, and Link Aggregation
- Basic diagnostics, troubleshooting and preventive maintenance for CTR8500/8300

Course Outline

System Overview

- CTR8540 Platform Base Hardware Highlights
- System Architecture and signal flow
- Chassis and modular cards overview – RACx2, POE x2, PWR
- CTR8311/8312 Platform Hardware Highlights

Network Management and Initial Setup

- CLI Management via Serial and Ethernet
- CTR Portal Web based GUI Management
- In-band management and out-of-band Management
- SNMP
- Provisioning slots for optional cards – RAC, POE, PWR
- Provisioning RF Links
- Provisioning ports on Ethernet and TDM interfaces
- Provisioning with Scripts

Modular Cards and Radio Options

- Features and capabilities of the RAC cards – adaptive modulation, G.8262 compliance, and link aggregation support.
- Features and capabilities of the POE cards – support for WTM3x00 and 4x00 ODRs.
- ODU600, ODU600v2, ODU300hp, and IRU600v3 support – Capacity, Modulation and Channel Bandwidth combinations, protection configurations, adaptive modulation

Deployment Scenarios

- Edge Applications
- Nodal Applications
- Aggregation Applications
- Inter and Intra RAC/ODU Protection and Configuration
- Cabling to Cell Site Routers for traffic and Management
- RF Link Provisioning Scripts

VLAN and Ethernet QoS Configuration

- Port Based VLANs
- VLAN Tagging and Trunking (IEEE 802.1Q)
- Provider Bridging (IEEE 802.1ad)
- Ethernet QoS and Congestion Management
- QoS implementation – Classifier, Scheduling, Policing
- QoS mapping (IEEE 802.1p, DSCP)

Performance Statistics and Monitoring

- RF Link Performance Statistics and Monitoring using CLI and GUI
- Ethernet Performance Statistics and Monitoring using CLI and GUI
- System Sensors
- RFC2544 Ethernet tests and interpretation

Carrier Ethernet Features

- Layer 1 Link Aggregation
- 2+0, 4+0, and XPIC Configuration
- Layer 2 Link Aggregation
- Synchronization (ITU-T G.8262, G.8264, TDM Clock)
- TDM Pseudowire Transport and configuration

Troubleshooting and Maintenance

- Troubleshooting Overview
- Troubleshooting Techniques and Options
- Troubleshooting Configuration and Link (RF and Ethernet) Problems
- Maintenance Overview
- Troubleshooting Path Problems
- Fault Analysis and Reporting
- License and Software Management
- Configuration Management
- RAC and ODU Replacement

Required Equipment for Training Sessions at Customer Sites

RADIO	One equipment rack with 48VDC power supply (note; all CTR8540 equipment is positive earth) At least 1 Traffic free hop – 2 radios talking to each other. (Path has been simulated with at least 60dB of attenuation, for troubleshooting training variable attenuators are preferred however not mandatory) Chassis configurations should include as a minimum: •RAC card (optional depending on Network Deployment and Configuration) with •PoE cards (optional depending on Network Deployment and Configuration) with •SD cards with relevant licenses based on Network Deployment and Configuratic •ODUs should be a matching pair that is same sub band and TR spacing with on •ODRs should be a matching pair that is same sub band and TR spacing with on
OTHER EQUIPMENT	Ethernet tester Digital Multimeter.
CLASSROOM SET UP	Sufficient in size to handle all participants, instructor, desks, chairs, classroom equipment. The room must have enough 110 AC (220) AC power and air conditioning to operate equipment, all students clients PC's and the server or radio as required. **Classroom Equipment** Marker board, SVGA or Overhead projector and screen. **Desk and Chairs** Desks or workstations with enough room for each student to write have open books, client PC and / or, keyboard and monitor. **Internet Access** Internet access through the server or through client PC.

Pricing & Scheduling

Please contact your Aviat local sales team for a quote or email aviatcareeducate@aviatnet.com and request pricing for the following items:

TRN-CTR8583-IOML2-A	CTR 8500/ 8300: Installation, Operation and Maintenance, Layer 2 - ILT, 3 DAYS, Aviat Training Center - Open Enrollment -per Student
TRN-CTR8583-IOML2-B	CTR 8500/ 8300: Installation, Operation and Maintenance, Layer 2 - ILT, 3 DAYS, Aviat Training Center- 10 Students Max
TRN-CTR8583-IOML2-C	CTR 8500/ 8300: Installation, Operation and Maintenance, Layer 2 - ILT, 3 DAYS, Customer Location- 10 Students Max
TRN-CTR8583-IOML2-D	CTR 8500/ 8300: Installation, Operation and Maintenance, Layer 2 - ILT, 3 DAYS, Customer Location-with Equipment- only for US- 10 Students Max

ProVision installation, configuration & Management

TRN-PV-ICM

Course Specifics

Duration:	2 days
Class capacity:	10 students
Materials provided:	Instruction Manual (USB) Student Handbook (USB) Datasheets

Course Description

Aviat ProVision™ is a powerful, standards-based Element Management System (EMS). Designed to simplify Carrier Ethernet and TDM network designs and services, it provides superior intelligence for mobile and private network operators. ProVision delivers network management across the full Aviat product portfolio, key partner products and many third-party SNMP-based platforms. It provides efficient, seamless end-to-end network management solutions for TDM, Carrier Ethernet, and hybrid microwave networks.

The ProVision™ Installation, Configuration and Management course provides full guidance on the installation, use and administration of ProVision EMS software. The course will cover in detail all aspects of using the EMS for fault management, configuration management, performance monitoring and reporting.
By leveraging the extensive hands-on labs exercises (50% of the course duration) provided, students will be able to master the ProVision EMS features and significantly reduce complex configuration time for deployment.

Courses are **conducted by AVIAT expert trainers** in a mentoring environment backed by their deep technology expertise and experience in implementation of microwave wireless and IP networks.
The ProVision Installation, Configuration and Management course **is conducted at Aviat Training locations or can be arranged at customer sites.**

Target Audience

This course is intended for Network Operations Center (NOC) operators and engineers involved in managing microwave networks using the ProVision EMS.

Prerequisites

- Participants must complete ProVision System Overview e-learning course
- Participants should have knowledge and experience in the areas of network operations fundamentals and telecommunications fundamentals.
- The student will need a Notebook computer with an Ethernet port and running on one of the following Operating Systems:
  - Windows XP Pro
  - Windows Vista
  - Windows 7
  - Windows 2003 Server
  - Windows 2008 Server

Objectives

Upon successfully completing this course, participants will be able to perform:

- Installation and configuration of ProVision software

- Basic diagnostics, troubleshooting and preventive maintenance of microwave network elements using ProVision EMS
- Setup users and administer features for fault management, configuration management and reporting

EDUCATION SERVICES

Course Outline

ProVision Introduction

- Functions & features
- Minimum hardware specifications
- Understand ProVision Architecture
- Deployment Options

Navigating ProVision

- Main User Interface
- Menu Bar
- Tree Viewer – Physical and Logical Viewer
- Map Viewer, adding a map background to map viewer
- View and change radio configuration
- View and change network IP addresses

Fault Management

- Managing Events – event properties, acknowledge, clear
- Event Browser – filters, browser options, scoreboards
- Viewing Security logs – log on/off, configuration changes
- Configure Event Notifications
- Configure and Interpret Scoreboards

Performance Monitoring

- Configure device data collection
- Interpret performance history & trends
- Set up Performance thresholds
- Interpret Ethernet Bandwidth Utilization
- Produce Inventory & fault reports

Eclipse Features

- Create, trace, view and diagnose circuits
- Perform bulk software loads
- Produce capacity, inventory & fault reports

ProVision Installation and User Administration

- Requirements for ProVision Installation
- ProVision Server and Client Installation
- Verifying ProVision Server is running
- Logging in to Client Software
- Navigating ProVision
- Basic User Account creation and access level

Deploying and Managing Radios and Generic Devices

- Information required for deployment
- Deploying containers – regions, sites and racks
- Deploy, Manage, Rename, Delete and Unmanage Radios and Generic Devices such as switches, routers, third party microwave radios, multiplexers etc
- Deploying EMS/Proxy in ProVision
- Re-parenting an object
- Create, verify and delete a link
- Reposition Map viewer objects – lock/unlock object moving
- Verify ProVision is receiving events

Configuration Management

- View and Change Network IP addresses
- Uploading Eclipse licenses
- Perform Bulk configuration for devices on the Network
- Network Auto-Discovery of Radios and Devices
- Circuit Provisioning and Collection
- Configure Logical Containers
- Creating Map Annotation

Reports

- Generate Helpdesk reports
- Generate Capacity, Inventory and Fault Reports
- Generate Network Health Reports – RF and Ethernet Network Health Reports
- Generate Security Status Report of Radios and Devices
- Configure Schedule Reports
- Customize reports from report fields and objects

ProVision Installation and Administration

- Understand ProVision server/Client relationship
- Creating Regional access for users
- Session Manager Administration
- Email Server Configuration
- Understand communication with Network elements
- Administer database manual and scheduled backup and security profiles
- Northbound Interface (NBI)description and configuration
- Configure ProVision Redundancy Controller
- Discuss remote access options
- Understand licensing requirements and procedures.

Pro Vision VLAN Management

- Viewing Discovered VLANs for Eclipse and CTR 8540 and 8300
- Creating VLANs for Eclipse
- Creating VLANs for CTR 8540 and 8300
- Modifying a VLAN
- Validating VLAN Configuration
- Deleting a VLAN

Ethernet OAM Management

- Viewing Discovered EOAM Maintenance Associations
- Viewing EOAM Configuration Details
- Configuring EOAM
- Configuring EOAM to provide Fault Monitoring of VLANs for Eclipse
- Validating EOAM Configuration

ERP Ring Management

- Viewing Discovered Layer 1 and ERP Rings
- Viewing Ring Configuration Details
- Configuring ERP Rings
- Modifying an ERP Ring
- Deleting an ERP Ring
- Validating ERP Ring Configuration

EDUCATION SERVICES

Required Equipment for Training Sessions at Customer Sites

RADIO	One equipment rack with 48VDC power supply (if using 48VDC PoE units). At least 1 Traffic free hop – 2 radios talking to each other. (Path has been simulated with at least 60dB of attenuation, for troubleshooting training variable attenuators are preferred however not mandatory). One hub or switch One computer per 2 students One computer (when TNET Proxy Server and/or TNET equipment is required) 240v power points Radio links can be hired for duration of training course if required.
OTHER EQUIPMENT	Computer requirements: 2 GHz processor (w/512K cache) 1GB memory or greater GB Hard disk space CD-ROM Video Card Capable of 1024x768 “True Color” or higher Windows 2000/ XP/ Vista LAN card USB port CAT 5 cables
CLASSROOM SET UP	Sufficient in size to handle all participants, instructor, desks, chairs, classroom equipment. The room must have enough 110 AC (220) AC power and air conditioning to operate equipment, all students clients PC’s and the server or radio as required. **Classroom Equipment** Marker board, SVGA or Overhead projector and screen. **Desk and Chairs** Desks or workstations with enough room for each student to write have open books, client PC and / or, keyboard and monitor. **Internet Access** Internet access through the server or through client PC.

Pricing & Scheduling

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TRN-PV-OVERVIEW-E	Provision Overview eLearning -price per Student
TRN-PV-ICM-A	ProVision: Installation, Configuration and Management - ILT, 2 DAYS, Aviat Training Center - Open Enrollment -per Student
TRN-PV-ICM-B	ProVision: Installation, Configuration and Management - ILT, 2 DAYS, Aviat Training Center- 10 Students Max
TRN-PV-ICM-C	ProVision: Installation, Configuration and Management - ILT, 2 DAYS, Customer Location- 10 Students Max
TRN-PV-ICM-D	ProVision: Installation, Configuration and Management - ILT, 2 DAYS, Customer Location- with Equipment- only for US- 10 Students Max