

Hands-On Genband (Nortel) DMS-10 Switch Advanced Support Course



Course Description

The Genband (formerly Nortel) DMS-10 Switch Support course was developed to help telcos continue to support their extensive DMS-10 networks with less reliance upon external resources.

As with many switching systems, the DMS-10's overall reliability is high enough that techs do not often work with advanced problems, so that when such problems do occur, it can be difficult to know how to proceed.

Overlays are looked at in detail, looking special commands like SWCH, CHG, DNLD, 1BUS, and other recovery or firmware related options. Exercises and examples are provided to show how to upgrade the firmware of all system processors, or just certain ones like the 3T98 CPU. These examples are helpful for understanding how any processor in the system can be reloaded, which may become necessary for individual maintenance issues.

Remotes are also looked at in more detail, where OVLY CNFG is used to understand what types of remotes are equipped and how they are engineered. Cables and links are studied, to help understand how the host Network ultimately provides switching to a distant remote over carrier spans. This requires understanding of various hardware components including the DCM/DSI, SRLKs, HIE, RCC, and with HSO-SSO, the DLC modules.

Additional documents are studied, including environmental, electrical, and grounding, plus Installation Methods which show processes for system cabling, upgrades, and conversions. These procedures may not always be used today, but such documents serve as excellent benchmarks for complex troubles.

Other topics like OVLY LOG, Operational Measurements, and Bug Messages are reviewed, plus there are several examples from real-world troubleshooting, including outages, CPU, and other common-control hardware faults.

The course covers a broad range of knowledge, yet is flexible and can be changed to match the specific needs of a given telco or region, and the types of hardware used locally.

Students Will Learn

- **DMS-10 system module review to ensure no gaps in knowledge**
- **Inter-module cabling and backplanes**
- **Bay, shelf, pack, and cable port locations**
- **Different NET and IFPK options, GTSB, and Di-Loop counts**
- **How to use less common OVLY options**
- **Use and understand all types of NTP documents**
- **Use system logs and Bug messages to troubleshoot**
- **Work with HSO-SSO clusters, looking at alarms for each node**
- **Know the types of RLCM-family remotes, plus SLC & GR-303 connections**
- **Recovery procedures using EPs, and understand 1-Bus mode**

- **Troubleshooting by previous examples**
- **And much more**

Target Audience

Technical staff such as Central Office Technicians, NOC/SCC, certain management personnel, and those seeking cross-training or system interoperability with the DMS-10 switch, and who need to solve complex or chronic problems.

Prerequisites

Students are recommended to have previously completed the DMS-10 Maintenance and Troubleshooting course, or have a good understanding of the DMS-10 switching system and its various overlays and commands, as well as general Central Office concepts.

Course Outline

Module 1 : DMS-10 Switch Summary

- CPU Core
 - MTI, TTY0 & 1
 - IOI devices
 - Bay Options
- Network
 - Classic vs. EN/CNI
 - Interface Packs
 - MLI & DS-30A
 - Bay Options
- IO
 - GPIO
 - MPU, LSHF
- Peripherals
 - Line: PSHF, LCM
 - Trunk: PSHF, DCM, DSI
 - Packet: PGI

Remotes

- RSC, RSC-S
 - RLCM-Family incl. OPM, OPAC, Star Hub
 - RSLE, RSLM, OPSM
 - HIE, RMM, ESA, RCC
 - SCM-10U: DMS-1U
 - SCM-10R: DMS-1R
 - SCM-10S: SLC-96
 - SCM-10A: ESMA & GR-303 RDTs

- REM
- Cluster Concept
 - HSO-SSO
 - LCC-SSO
- Time Division Multiplexing (TDM)
 - MLI, DS-30A, DS-60, DS-256
 - Time-Space-Time Philosophy
- Functional Block Diagram (Tier 2)
- 297-3601-150 - Equipment Identification

Module 2 : Cabling and Links

- MTI - TTY0 & 1, Alarm Panel
- SDI, DSDI, TTY2-31
- Ethernet - 3T84
- PCM & Control Signals
 - PELP vs. Di-Loop
- Network Interface to Peripherals (PSHF, DCI, LCM)
- Links to Remotes
 - DSX, HIE Shelf
 - SRLK, DS-1, MLI/DS-30A, DS-30B
 - 3T50 DLC & HSO-SSO
 - RCC
 - 6X73 LCC
- Alarms
 - ALPK, ALPT, TALM
- IM 03-4208 - DMS-10 Physical Handbook
- 297-3601-100 - General Description

Module 3 : Commands

- Resident (RES) Commands? LIST TRB, CSEL, MON, ACC, OVLY, etc.
- Detailed OVLY Options
 - Overlay Selection: PE vs. CE equipment
 - CKT
 - CPK
 - PED
 - DED
 - NED
 - DN
 - ODQ
 - TLT
 - LIT
 - ALO
 - IOD
 - CED
 - LED
 - SED
 - BERT
 - CNFG
 - LOG
 - Various examples - translating a cable, finding engineered parameters, etc.
- NTP 297-3601-311 DMO
- NTP 297-3601-506 MDI

- Exercises

Module 4 : Documentation

- Helmsman v4.x
 - CD-ROM Install & Browser-Based
 - Helmsman Alternatives
- NTP & Procedure Look-up
 - 297-3601-000 - Index to NTPs
- Nortel Technical Publications (NTP) - 297 Series
 - 297-3601-002 - NTP Description and Use
 - 297-3601-100 - General Description
 - 297-3601-150 - Equipment Identification
 - 297-3601-300 - Input/Output System
 - 297-3601-311 - Data Modification Manual
 - 297-3601-316 - DIP Switch Settings
 - 297-3601-450 - Provisioning
 - 297-3601-456 - Operational Measurements
 - 297-3601-500 - General Maintenance Information
 - 297-3601-506 - Maintenance Diagnostic Input
 - 297-3601-511 - Maintenance and Test
 - 297-3601-902 - Pocket Guide
 - 297-3601-903 - Output Message Manual
 - Procedure Concept: EP, GP, RP, MP, TP
- HW Baseline Report
- Job Site Documentation
 - J - Equipment Assembly
 - IS - Interconnect Schematic
 - SD - Schematic Diagram
 - IM - Installation Method
- Demonstration & Examples
 - Classic-EN/CNI Switch Box procedure example

Module 5 : Support

- Temperature and Environment
 - 297-3601-180 - System Performance Specifications
- Electrical Capabilities
 - 297-3601-184 - Circuit Interface for Lines, Trunks, Test Trunks
- Power & Grounding
 - 297-3601-187 - Grounding System
- Locating Equipment
 - OVLY CNFG - SITE, SSO, SHD "REx"
 - OVLY IOD - DLC
 - OVLY NED - Network type, PELP types
 - OVLY CED - CPU Core, 1BUS, SWCH, QUE HEX
 - OVLY SED - CCS7, LAN
 - OVLY DED - CE peripherals, Network, Remotes
 - OVLY PED - PSHF peripherals
 - Bay labeling
 - "Translate" P & C
- Line Test:
 - PMS system components
 - External systems: 4TEL, Test Desk/DMM

- Logs
 - OVLY LOG
 - QUE, SRCH
 - LINE, TTY, ALM, TEXT
- Bug Messages
 - \$QM & OMM
- Operational Measurements
 - EADAS format
 - Measurement Types
 - PRNT OPM
- Examples:
 - Replacing Line 6X05 Drawer
 - RMM Fault
- Exercises & Practice

Module 6 : RTOS & Software

- GRS-3601-60220 - Generic Release Summary
- System Software Versions
 - Using Upgrade Docs as references
 - OVLY UPDT - QPL
 - OVLY CNFG - UPGD options
- Processor Versions
 - STAT LCMC ALL
 - VERS IFPK ALL
 - VERS LAN ALL
 - VERS IOI
 - etc.
- RTOS CPU Upgrade
 - IM 65-4969 Upgrade Example
 - TP 3147 Reload Example
 - Generic Upgrade Process
 - DNLD
 - SWCH
 - CHG

Module 7 : Troubleshooting

- Emergency Procedures
 - Preparedness & Proofing
 - EP 0006 Power-Up (Cold-Start) Procedure
 - EP 0009 Dead System Recovery Procedure
 - EP 0012 Manual System Software Reload Procedure
- Troubleshooting Procedures
 - TP 6023 & TP 7103 & - RLCM Outage Example
 - 297-8351-550 - RLCM Maintenance Manual
 - TP 4072 - Network Interface Pack fault
- Student Examples

Delivery Method

Instructor-Led with numerous exercises throughout

Equipment Requirements

(This apply's to our hands-on courses only)

BTS provides equipment for a very successful Hands-On course, but encourages students to bring their own equipment to the course such as laptops, documentation, etc. This provides students with the opportunity to incorporate their own gear and resources into the labs, gaining valuable experience with their specific equipment.

BTS always provides equipment to have a very successful Hands-On course. BTS also encourages all attendees to bring their own equipment to the course. This will provide attendees the opportunity to incorporate their own gear into the labs and gain valuable training using their specific equipment.

Course Length

5 Days