

Hands-On Nokia (Siemens) EWSD Maintenance and Troubleshooting Course



Course Description

This detailed and extensive course provides the skills and practical understanding to perform maintenance and troubleshooting of the Nokia (formerly Siemens) EWSD switching system, and its various remotes options including the DCO ONE-Up feature. It discusses the use of maintenance terminals such as the OMT, EAI, and SYPD, including the use of the Smart Commander, and BCT Boot, BMML, and Alarm Console programs, and also looks at system output messages like Maintenance Message Numbers (MMN) and Fault Location Numbers (FLN). Several Electronic Document Delivery System (EDDS) books are reviewed, including the Trouble Locating Manual (TLM), Trouble Analysis Procedures (TAP), and Detailed Level Procedures (DLP). Key Books such as 0200, 0825, and 1088 are covered in detail, using several examples.



Previous types of troubles are reviewed and used as exercises, including line and trunk maintenance, Line & Trunk Groups (LTG), Digital Line Unit (DLU), and DIU/DLUS modules. All digital exchange Switching Network (SN) options are discussed, including the DE3, DE4, DE51, DE52 and DE54. The IOP processor architecture is also included, with a discussion of how MB, SCDP, BAP, CAP, and other CP113 components fit together. Various versions of the CP113 are compared to the actual configurations used in the local switch. Clocking, the CCNC and SS7 are also discussed, so students understanding how A links connect to STPs.

GR-303 RDT remotes (Release 25) and the DCO ONE-UP (LLS & RLS re-home) options, and IPH packet module can be included, depending upon the local network topology.

Our non-intrusive exercises equip the student to conduct day-to-day maintenance activities, perform troubleshooting procedures, including cabling and parts of the backplane, and much more. The course is flexible, allowing the most important content for a particular group of students to be emphasized.

Students Will Learn

- **TDM Switching Fundamentals**
- **EWSD System Operation**
- **Primary modules used, including different versions like LTGC, LTGK, LTGO**
- **Different SN Time & Space stage versions (DE3, DE4, DE5x)**

- **CP113 Configurations**
- **OMT and MML command access via serial, IP, and SmartCommander**
- **Various Siemens documentation and the EDDS**
- **How to find equipment within the system**
- **Subscriber testing, DLU modules, LTGs, and other system module test**
- **How to change cards in various system modules**
- **How to look-up alarms, engineering parameters, and LTG-DLU relationships**
- **Where to find and how to use the SYPD and EAI**
- **Basic DN translations & malicious call tracing**
- **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 EWSD switch.

Prerequisites

A basic understanding of telecommunications and switching principles is helpful due to the accelerated nature of the course.

Course Outline

Module 1 : Switching Fundamentals

- T&R, E&M, 2/4/8 Wire Trunking
- Supervision & Signaling, Talk Battery
- Decibels
 - logarithmic scale
 - copper & optical measurements

Digital: A/D & D/A Conversion

- Nyquist Theorem
- Multiplexing Samples

Time Division Multiplexing (TDM)

- Pulse Code Modulation (PCM)
- DS0, DS1, DS3
- Speech Highways, PDC, SDC
- Line Coding
- Transport: AMI, B8ZS
- Carrier Signal Comparison
- Binary & Hexadecimal overview
- PSTN & CCSS7 Overview
- Why Legacy PSTN Support

Module 2 : EWSD System Operation

- EWSD Topology
- Time-Space-Time Stage, SN
- Hardware Modules:
 - CP113 - IOPC, IOP:MB, IOP:UNI, BAP, CAP, OMT/SYPC interfaces
 - MB, interfaces to SN, CCNC
 - CCG
 - SN to LTG interfaces and highways
 - SN Networks (DE3, DE4, DE5:1, 5:2, 5:4 options)
 - LTGC/LTGG/LTGO - incl. DIU/LDI options like DIU24, DIU48, DIU240
 - DLU - Local, Remote, DLUA, DLUB, DLU(x), Semi-Shelfs
 - CCNC incl. SS7 Concepts
 - HDD & MOD Backup
 - RSU/RCU/One-Up, SASC
 - SLC-Series Remotes (SLC-96)
 - GR-303 RDT
 - IPH - Packet Handler
 - SE - other Service Equipment, Ringing, DSX, RAD-PAD, etc.
- Bay Types
 - MUT, semi-shelf, slots
 - Fuse Locations
- Functional Diagram, End-to-End Call

Module 3 : Man-Machine/SmartCommander

- Input/Output & Man-Machine
- OMT - serial access
- SmartCommander - UNIX & Windows
- Basic Craft Terminal (BCT) Boot
- Basic Man-Machine Language (BMML) Commands
- Command Assistant
- Basic Command Structure: operator - device - action
- SC: SYSD (Iss 017+)
- Examples

Module 4 : BMML Commands

- Command Operators: CONF, DIAG, DISP, DUMP, STAT, etc.
- Command Examples
 - DISPDN, DISPALARM, DISPUSERID, DISPLTG, etc.
 - STATSUB, STATDLUMOD, STATTRUNK, STATPORT, STATSSP, etc.
 - TESTSUB, TESTTRUNK, SENDLOOPBACK, etc.
- Practice Looking-Up Commands
- Network Commands: CONFLTG, DIAGDIU, CONFNS, etc.
- Examples & Practice

Module 5 : Documentation

- Electronic Document Delivery System (EDDS) - Compiled HTML (.chm, .pdf versions)
- Book 0200 - Documentation Catalog & Glossary
- Book 0825 - Installation and Acceptance
 - Book 1088 - Maintenance Summary Guide
- Job Site Documentation: Orders, Installation, Drawings, ECD, CLL
 - System Output Messages: MMN, FLN

- TLM, TAP, DLP

Module 6 : Maintenance

- Replacing Modules:
 - ESD Requirements
 - OST & Power-Removal Requirements
 - Module VCC level
 - Correct Module Extraction & Insertion
- Listing Troubles, Lockouts, Blocked Devices
- Directory Numbers & SLMs
 - DISPSUB, TESTSUB, DISPDLUPORT, STATPORT, TESTDLULC, etc.
- Locating a Module
 - Changing a DLU line card module
 - Changing an RGB ringing generator
 - Changing a DCC power supply
- Test Modules
 - LCMM, FMTU, MTAM, displaying & testing
- Alarm Modules - ALEX
- Trunk Modules
 - DIU, ATE:TM, displaying & testing
- COPYGEN System Image
- Student Examples

Module 7 : Troubleshooting

- NOC/SCC Interaction
- ESD Precautions
- System Status
 - STATSSP, STATSN, STATCCNC, DISP & SRCHALARM, etc.
- LTG Fault Example - bad GPLSx, LTGCTL
- CCG Clock Fault Example
- Alarm Messages
 - Using the MMN
 - Using the FLN
- Diagnostics & Configuration
 - CBL, MBL, CONF, ACT, etc.
- Recoveries:
 - Emergency Action Interface (EAI)
 - NSTART0 - 3
 - ISTART1 - 2x
- Examples

Module 8 : Translations Introduction

- Subscriber Administration
 - Book 1005
 - Procedure Numbers
 - CRSUB, EDITSUB, MODSUB, DISPSUB, CANSUB
 - Call Forward, Auto Recall, etc.
- Tracing, Malicious Calls
 - TRACELST, MALAD

MCTIMM, MCTREQ options

Module 9 : Student Resources

- Functional Block Diagram
- Glossary
- Operational States
- Trunk Status Codes

Notes

5 Day & 10 Day Available

Can be combined with the EWSD Support Course for a customized curriculum.

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