

Network Resource Gateway (NRG) 5.0 Training Programs

Catalog of Course Descriptions



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Introduction

Ericsson has developed a comprehensive Training Programs service to satisfy the competence needs of our customers, from exploring new business opportunities to expertise required for operating a network. The Training Programs service is delineated into packages that have been developed to offer clearly defined, yet flexible training to target system and technology areas. Each package is divided into flows, to target specific functional areas within your organization for optimal benefits.

Service delivery is supported using various delivery methods including:

Icon	Delivery Method
	Instructor Led Training (ILT)
	Seminar (SEM)
	Workshop (WS)
	Virtual Classroom Training (VCT)
	Web Based Learning (WBL)
	Short Article (SA)
	Streaming Video (SV)
	CD-ROM (CD)
	Structured Knowledge Transfer (SKT)

Delivery Enablers

	Remote Training Lab (RTL)
	Web Portal (WP)

Ericsson Education E-Learning

	EEOnline @ http://learning.ericsson.net/eeonline/
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Intelligent Network Server (INS) 2.2 Operation



LZU 108 6368 R1A

Description

This course teaches students how to perform common tasks on the INS node. It provides hands-on training of tasks related to managing the INS node. It makes use of the system management GUI to practise entering new users of the TSP node manager with different authorities. Students gain practical experience in service provisioning and learn how to handle subscribers, feature subscriptions and their associated statistics. They also learn how to configure operations for charging and statistical output.

Learning objectives

On completion of this course the participants will be able to:

- 1 Define the role and structure of the Intelligent Network Server (INS) 2.2
 - 1.1 Describe the IN market direction
 - 1.2 Discuss the benefits of INS 2.2
 - 1.3 Explain where INS lies in the overall network topology
 - 1.4 Define the TSP and INS 2.2 Architecture
 - 1.5 Illustrate INS 2.2 supported services and protocols
 - 1.6 Introduce basic management, charging and statistical functionality
 - 1.7 Recognize INS Service Management / Graphical User interfaces
 - 1.8 Identify the tools and interfaces available to perform Service Management of the INS via CORBA, LDAP, HTTP, and SNMP
- 2 Explain and setup the INS architecture service framework
 - 2.1 Describe the main components of the INS including design and architecture perspective
 - 2.2 Analyze a service framework loaded on the INS
 - 2.3 Explain and configure the Protocol Gateway Function (PGF)
 - 2.4 Discuss the INS traffic scenario
 - 2.5 Demonstrate a service execution flow
 - 2.6 Introduce CDR, statistics and CAI functionality
- 3 Detail and configure important operational tasks
 - 3.1 Determine and configure CDR output for the INS
 - 3.2 Identify methodology to setup INS statistics
 - 3.3 Identify and interpret possible INS alarms, notifications and error logs
- 4 Manage a service on the INS using the INS management GUIs
 - 4.1 Explain the operation and maintenance architecture on the INS
 - 4.2 List the methods of service management on the INS
 - 4.3 Use CAI scripts to provision the INS node
 - 4.4 Distinguish between the CAI adapter, LDAP browser and SPT
- 5 Explain the data structure of a service on the INS node



- 5.1 Launch the LDAP browser and identify mandatory objects
- 5.2 Use the LDAP browser to create/read/update/delete service, feature and subscriber subscriptions
- 5.3 Add, remove, change or delete TSP O&M users

- 6 Perform provisioning using the Service Provisioning Tool (SPT)
 - 6.1 Explain the SPT concept
 - 6.2 Create/ delete/ modify subscribers with the SPT
 - 6.3 Create/ delete/ modify a hierarchy of subscribers with the SPT
 - 6.4 Create/ delete/ modify service and feature subscription with the SPT

Target audience

The Intelligent Network Server (INS) 2.2 Operation and Maintenance course is directed towards Ericsson and operator personnel responsible for and involved with the Operations and Maintenance of the INS 2.2 node.

Prerequisites

Successful completion of the following courses:

TSP System Overview (LZU 102 660 R2B)

TSP Node Management (LZU 102 665 R2A)

Duration and class size

The length of the course is 3 days and the maximum number of participants is 8.

Learning situation

This is an instructor-led training (ILT) course with practical exercises.

Theoretical modules are presented in a classroom environment complemented with practical exercises, which are conducted on the INS 2.2 node that has a VPN 2.2 service loaded.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.



Day	Topics in the course	Estimated time
1&2	<p>INS 2.2 Service Framework Introduction</p> <ul style="list-style-type: none">• Describe the benefits of INS 2.2• Explain how the INS interworks with multi-service networks including GSM/GPRS, Wireline, PSTN and UMTS. <p>INS 2.2 Architecture</p> <ul style="list-style-type: none">• Define the role and structure of the Intelligent Network Server (INS) 2.2 .• Describe the network protocols supported by the Application Server• Manipulate the protocol configuration file and env files <p>Operational tasks</p> <ul style="list-style-type: none">• Perform tasks to analyze CDR and Statistical output• Access the Alarms , Notifications and logs which can be generated by the INS. <p>INS Service Management / Graphical User interfaces</p> <ul style="list-style-type: none">• Explain the Operation and Maintenance architecture of the INS• Describe the function of Service Management on the INS• Identify and utilize the tools and interfaces available to perform Service Management of the INS via CORBA, LDAP,CAI, HTTP, and SNMP	10 hours



2&3

INS 2.2 Service Provisioning

8 hours

- Explain the data structure of a service on the INS node
- Start up the the LDAP Browser and perform the following tasks:
 - Configure subscriber data including
 - Create subscribers
 - Fetch subscriber data
 - Modify subscriber data
 - Create/delete/modify service and feature subscriptions
 - Add/Remove/Change O&M users

Use the Service Provisioning Tool (SPT) to perform the following tasks

- Create/delete/modify subscribers
 - Create/delete/modify a hierarchy of subscribers
 - Create/delete/modify service and feature subscriptions
- Activate statistics and view output in the file system.

Network Resource Gateway (NRG) 4.1 Operations



LZU 108 6502 R1A

Description

This course provides the participants with a detailed description of the functionality of the Network Resource Gateway (NRG) 4.1 and the skills necessary to perform tasks on the NRG 4.1 Management Client.

Learning objectives

On completion of this course the participants will be able to:

- 1 Identify the role and architecture of the Network Resource Gateway
 - 1.1 Discuss the NRG 4.1
 - In the market
 - In the network
 - 1.2 Explain the functionality of the NRG 4.1
 - 1.3 Analyze the benefits for the
 - Network Operator
 - Application Service Provider
 - End User
 - Application Developer
 - 1.4 Outline the Telecom Server Platform (TSP)
 - 1.5 Demonstrate the Service Development Kit (SDK)
- 2 Analyze the Parlay solution
 - 2.1 Outline the Parlay Solution
 - 2.2 Discuss the Open Service Architecture concept
 - 2.3 Investigate the Parlay / OSA Application Programming Interfaces (APIs)
 - 2.4 Examine the H-OSA Service Capabilities
- 3 List the new features of NRG 4.1 and how they work
 - 3.1 Describe the Parlay Framework
 - 3.2 Determine the Service Capabilities
 - Service overview
 - Configuration of different services
- 4 Perform the Service and System Management
 - 4.1 Explain the Service and System Management
 - 4.2 Analyze NRG data
 - 4.3 Handle alarms
 - 4.4 Evaluate statistics
 - 4.5 Identify notifications
- 5 Use the NRG Management Client to configure the features
 - 5.1 Log on to the NRG Management GUI



- 5.2 Interpret the roles in the management client
- 5.3 Configure the NRG Data via the management client
- 5.4 Manage/modify/add/configure applications and services
- 5.5 Test the Store and Retrieve functionality in the NRG

- 6 Demonstrate the Parlay X solutions
 - 6.1 Illustrate the Parlay X/Web services
 - 6.2 Explain the different kits required for the Parlay X/Web services
 - 6.3 Explain how SMS, MMS and Terminal Status web services work
 - 6.4 Provision NRG web services using the management client

- 7 Introduce the SIP Protocol
 - 7.1 Demonstrate how converged value-added services can be enabled to work with SIP sessions, PSTN and GSM/GPRS/UMTS networks.

Target audience

The target audience for this course is: Service Planning Engineers, Service Design Engineers, Service Deployment Engineers, System Technicians, Service Technicians, System Engineers, Service Engineers, System Administrators, Application Developers.

This audience is responsible for the Operations and Maintenance of the NRG 4.1.

Prerequisites

Successful completion of the following course:

- Telecom Server Platform (TSP) System Overview (LZU 102 660)

The following training course associated with NRG 4.1 is optional:

- Telecom Server Platform (TSP) Node Management (LZU 102 665)

Duration and class size

The length of the course is 2 days and the maximum number of participants is 8.

Learning situation

Instructor Led Training with practical exercises.

The course is based on the NRG 4.1 CPI documentation. Access to an NRG 4.1 Management Client is required.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Short description of the topics in the course	Estimated time
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Telecom Operator 2.0

Technical Realization of Multimedia Services



LZU 108 6936

Description

This course addresses the evolving multimedia business and the technologies available for efficient delivery of multimedia services. The multimedia services are now part of every operator's portfolio, with ever-increasing earnings from non-voice services. In order to best make use of these opportunities, this course provides a technical overview of multimedia service delivery.

This course goes through how the telecom operator can use the new technologies, frameworks and innovations to provide a layered architecture where enablers, integrated with business support systems and enhanced by gateways and frameworks, provide an effective service delivery environment.

The technical aspects of the solutions are discussed during the course. Examples are used throughout the course to illustrate the use of concepts, technologies and applications. Students are expected to complete short group exercises whereby the various technologies, standards and products are selected and put together in a simple (conceptual) end-to-end solution.

Learning objectives

On completion of this course the participants will be able to:

- 1 Describe the fundamental frameworks and standards which enable a move from vertical to horizontal layered architecture**
 - 1.1 Describe the importance of standards & frameworks in the Service Layer
 - 1.2 Describe the important standardization bodies and list their standards/protocols, such as ITU, 3GPP, IETF, OMA
 - 1.3 Provide an overview of the basic IP protocols used in multimedia services (IP, TCP, UDP, HTTP)
 - 1.4 Outline the layered architecture and its benefits.
 - 1.5 Define Service Layer & Service Layer network
 - 1.6 List major enablers and business support systems

- 2 Provide an overview of service enablers and terminal support systems**
 - 2.1 List the common enablers used in the Service Layer for browsing, messaging, video services, content delivery, location-based services and Mobile TV
 - 2.2 Provide a brief overview of each enabler in terms of function, protocols and traffic, including:
 - WAP Gateway
 - Short Message Service Centre (SMS-C)
 - Multimedia Messaging Service Centre (MMS-C)
 - Unified Messaging
 - Content Delivery System
 - Video Gateway

- Location-based Services/Positioning

- 2.3 Identify the sample products that implement the functions of the enablers listed above
 - 2.4 Describe support functions needed for secure and efficient usage of terminals for multimedia services including device configuration & management, security and synchronization
 - 2.5 Select relevant enablers to implement an example end-user service
- 3 List the business support systems needed to provide end-to-end services and describe their functionality**
- 3.1 Provide a brief overview of business support systems in terms of function, protocols and traffic, including:
 - Provisioning & service activation
 - Authorization/Single Sign On (SSO)
 - Rating, Charging & Billing
 - Operation and Maintenance
 - Application Integration
 - 3.2 Describe the common functions that need to be implemented to solve typical business and technical problems in a simplified service network
- 4 Analyze the need for a service delivery platform & describe its structure**
- 4.1 Explain the main domains of a service delivery platform including subscriber domain, service provider domain and operator domain
 - 4.2 Identify and explain the functions within each domain
 - 4.3 Discuss the use cases for each domain
 - 4.4 Provide an overview of solutions available
 - 4.5 Map the solution to the service delivery structure
 - 4.6 Explain the need and the role of system integration in deployment of a service delivery platform
- 5 Provide an overview of IMS (IP Multimedia Systems)**
- 5.1 Compare IMS and existing multimedia solutions
 - 5.2 List and describe the various subscriber services available including push-to-talk, we-share, messaging and presence
 - 5.3 Describe the structure of IMS including the core, mobile and wireline implementation
 - 5.4 List the main protocols and briefly describe their function including SIP and Diameter

Target audience

The target audience for this course is: All technical and marketing/sales staff new to the multimedia services and delivery, Service Design Engineers, Service Deployment Engineers, System Technicians, System Engineers, System Administrators, Application Developers, Business Management, Customer Care.

This audience will be anyone requiring an introduction to the technical aspects of multimedia services.

Prerequisites

The participants should be familiar with basic mobile telecommunications and/or Internet.

This course is a prerequisite for other Service Layer training, such as product and application development training.

Duration and class size

The length of the course is 2 days and the maximum number of participants is 16.

Learning situation

This course is based on theoretical instructor-led lessons given in a classroom environment.

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated time (hours)
1	Describe the fundamental frameworks and standards which enable a move from vertical to horizontal layered architecture	1
	Provide an overview of service enablers and terminal support systems	5
2	List the business support systems needed to provide end-to-end services and describe their functionality	3
	Analyze the need for a service delivery platform & describe its structure and function	2
	Provide an overview of IP Multimedia Subsystems (IMS)	1

Telecom Server Platform (TSP) 5 Operation and Maintenance



LZU 108 6443 R1B

Description

This course provides participants with the skills and knowledge to configure and manage the TSP5 platform. It explores the elements involved in the operation, administration and maintenance of the TSP5 platform. These include the areas of fault management, configuration management, performance and security management on the TSP5 platform. Each operation and maintenance task is complemented by practical exercises on a real TSP5 node. User interfaces for O&M purposes are also covered. Participants will complete practical configuration and management exercises using on-line documentation, TelORB Manager and the TSP Node Management (NM) Toolbox.

Learning objectives

On completion of this course the participants will be able to:

- 1 Describe the TSP operation and maintenance architecture
 - 1.1 Outline the operational and maintenance functional areas
 - 1.2 Navigate the embedded Element Managers – TSP Node Management Toolbox and TelORB Manager
 - 1.3 Use the on-line documentation
- 2 Perform fault management
 - 2.1 Use the user interface for receiving alarms and notifications
 - 2.2 Find the relevant alarm information in the on-line documentation
 - 2.3 Review the error logs in the system
- 3 Describe the principles of backup and restoration of the TSP platform, DBN Backup, Disk DBMS backup, IO backup, FS backup, Scheduled Centralized Archive Backup
 - 3.1 Create a Backup and restore the TelORB database
 - 3.2 Create a Backup and restore an IO
- 4 Describe various types of system upgrade that can be performed on the TSP platform
 - 4.1 Perform a system upgrade on the TSP-based node
 - 4.2 Describe the product inventory feature
- 5 Describe the Virtual IP function on the TSP platform
 - 5.1 Explain the distributed IP stack on the TSP platform
 - 5.2 Perform management functions of Virtual IP on the TSP platform via the Node Management interface
 - 5.3 Perform the router configuration

- 6 Describe SS7 protocol stacks supported by TSP Platform
 - 6.1 Detail the component structure of the SS7 stack on the TSP Platform
 - 6.2 Configure and manage the SS7 function on the TS5 Platform

- 7 Outline the different secure elements within TSP
 - 7.1 Describe provisioning principles
 - 7.2 Outline the concept of the JAMBALA Information Manager
 - 7.3 Describe the usage of LDAP protocol for the directory access
 - 7.4 Add administrators, using CM Browser

- 8 Describe the principles and networks configurations required for Geographical Network Redundancy functionality in TSP
 - 8.1 Identify the processes that provide data consistency between the Primary and Standby TSP nodes
 - 8.2 Configure and manage Geographical Network Redundancy on the TSP Platform

- 9 Describe the function of performance management on the TSP platform
 - 9.1 Explain the Performance Management Framework (PMF)
 - 9.2 Configure and analyze performance management data via xml files and CM browser

- 10 Manage the TSP hardware
 - 10.1 Describe the procedures required to add, remove or replace traffic processors.
 - 10.2 Replace faulty boards and cables

- 11 Describe the concept of the File Transfer Utility
 - 11.1 Explain how the FTU works
 - 11.2 Use FTU GUI to perform file transfer

- 12 Discuss the Diameter protocol
 - 12.1 Describe the main purpose of the Diameter protocol
 - 12.2 Describe the Diameter protocol layered architecture.
 - 12.3 Explain basic Diameter concepts

Target audience

The target audience for this course is: Network Deployment Engineers, Service Deployment Engineers, System Technicians, Service Technicians, System Engineers, Service Engineers, Field Technicians, System Administrators.

Prerequisites

Successful completion of the following courses:

- TSP 5 System Overview (LZU 108 6441)
- UNIX Basics (LZU 108 206)
- UNIX Fundamentals (LZUBB 108 170)
- Signaling in the Core Network GSM (LZU 108 897/2)

The participant should be familiar with Linux, TCP/IP and SS7.

Duration and class size

The length of the course is 4 days and the maximum number of participants is 8.

Learning situation

The course is based on instructor-led lessons and practical exercises on the TSP nodes. Remote access to this equipment is available to both the Ericsson and the operator's organizations.



Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate.

Day	Topics in the course	Estimated time
1	• TSP O&M Concept	3 hours
	• Fault Management	1.5 hours
	• Backup & Restoration	1.5 hours
2	• Backup & Restoration (cont.)	1 hour
	• System Upgrade & Inventory	2 hours
	• Virtual IP	2 hours
	• SS7 Management	1 hour
3	• SS7 Management (cont.)	2 hours
	• Security Management and Provisioning	2 hours
	• Geographical Network Redundancy	2 hour
4	• Geographical Network Redundancy (cont.)	1,5 hours
	• Performance Management	1,5 hours
	• Hardware Equipment Management	1 hour
	• File Transfer Utility	1 hour
	• Diameter Base Protocol	1 hour

Telecom Server Platform (TSP) System Overview



LZU 102 660 R2B

Description

This course serves as a general introduction to Ericsson Telecom Server Platform (TSP) and its applications.

Learning objectives

On completion of this course the participants will be able to:

- 1 Understand when TSP is a good platform choice and why
- 2 Be familiar with the applications available on TSP
- 3 Understand the main characteristics of TSP and how they are achieved.
- 4 Be familiar with the software and hardware architecture of TSP
- 5 Understand on an overview level how TSP executes jobs
- 6 Explain what signaling interfaces are supported by TSP
- 7 Understand how the Database works
- 8 Understand how high availability is achieved
- 9 Understand on a basic level how Node Management is performed
- 10 Describe the design tolls implemented on TSP

Target audience

The target audience for this course is anyone working with TSP.

Prerequisites

The participants should be familiar with basic knowledge about telecommunications and data communications.

Duration and class size

The length of the course is 1 day and the maximum number of participants is 16.



Learning situation

Instructor Led Training

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as an estimate.

Day	Short description of the topics in the course	Estimated time
1	<ul style="list-style-type: none">• Introduction• Applications on TSP• Software Architecture• TSP Hardware• Software execution and the database• Communication• High availability• Node Management• Development Environment	<p>0.5 hours</p> <p>1.0 hour</p> <p>1.0 hour</p> <p>1.0 hour</p> <p>1.0 hour</p> <p>0.5 hour</p> <p>0.5 hour</p> <p>0.5 hour</p> <p>0.5 hour</p>

UNIX Fundamentals



LZUBB 108 170 R1A

Description

This course provides an overview of the fundamentals of the UNIX operating system. It provides an introduction to the structure and operation of UNIX using the wide range of fundamental commands and utility programs. Tutorials on the 3 shells (Bourne, Korn and C) are given, allowing the students to experiment with useful shell scripts. Students are encouraged to use the fundamental commands and utility programs throughout the duration of the course.

Learning objectives

On completion of this course the participants will be able to:

- 1 Describe the history of UNIX
- 2 Describe the UNIX operating system
- 3 Describe the UNIX file system
- 4 Use fundamental UNIX commands
- 5 Give an overview of the vi editor
- 6 Work within a shell environment
- 7 Use network utility programs
- 8 Write basic shell scripts
- 9 Use the on-line documentation
- 10 Set up file permissions
- 11 Describe the role of the System Administrator
- 12 Describe the role of a UNIX System Administrator

Target audience

The target audience for this course is primarily personnel working with UNIX administration and needing to become familiar with UNIX and shell scripting.

Prerequisites

Successful completion of the following courses:

- UNIX Basics (LZU 108 5134)

Duration and class size

The length of the course is 2 days and the maximum number of participants is 8.



Learning situation

This course includes theoretical and practical instructor-led lessons given in both a classroom and a technical environment using equipment and tools.