Global Services

IMS Common System (ICS) 5.0
Training Programs

Catalog of Course Descriptions

The information in this document is subject to change without notice.

ERICSSON

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 and the expertise required to develop new end-user services.

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.

What's in the ICS 5.0 Training Package? – Target Groups

The ICS 5.0 course flows are focusing on the following job categories:

Fundamentals

Operations Centre: Front and Back Office

IS/IT Support

Business Management

Fundamentals
- Fundamentals

Operations Centre

Front Office
- System Technician
- Service Technician

Back Office
- System Engineer
- Service Engineer

IS/IT Support
- System Administrator

Business Management
- Business Developer

Service delivery is supported using various delivery methods including:

Icon	Delivery Method
	Instructor Led Training (ILT)

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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)

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Training Needs Analysis and Training Planning for ICS

Since each installed ICS Solution is adapted to the customers' individual requirements, one standard training plan/flow will not suit all customers or target group. For this reason, Ericsson's Learning Architects can help operators (and MUs) to analyze their training needs and then assist by delivering a flexible training program adapted to their specific solution and requirements. This is called Competence Gap Analysis or Training Needs Analysis and can be performed by meetings with the MU/customer (including telephone conferences) and by email.

A range of mostly short duration courses and course 'modules' has been produced, each of which can be delivered as standard courses or adapted where necessary and combined into large course flows to match the outcome of the Training Needs Analysis.

The training products are of four 'levels' –

Competence Gap Analysis

Introductory & Overview Courses (Fundamentals)

These provide the basic knowledge required by all participants before undertaking more advanced training, and can also be suitable for participants who require an Overview of the IMT Solution. For example 'IMS Overview' and 'IMS Signaling'

Platform Training Courses (System/Service Technicians and Engineers).

These provide advanced Operation and Maintenance training for the BCS platforms, for example TSP and IS. Designed mainly for System and Service Engineers maintaining the nodes or the applications hosted on these nodes. These are essential pre-requisites for Operation and Configuration and other Engineer training for certain BCS Nodes. See the individual 1550s for details.

In Addition, certain participants may require training on specific 'support' platforms – for example MultiMediation, OSS, EMA.

Surveillance level Training (System/Service Technicians)

This training is designed for 'Front Office' System and Service Technicians and equivalents.

Note: All Surveillance level training is delivered within a Learning Solutions Project where adequate Training Needs Analysis has been made in order to customize the Learning Objectives and Tasks.

Operation and Configuration level Training (System/Service Engineers)

These courses are designed for 'Back Office' System & Service Engineers and equivalents. It is essential that participants have attended the Introduction Training and Platform Training (where required). See the individual 1550s for details.

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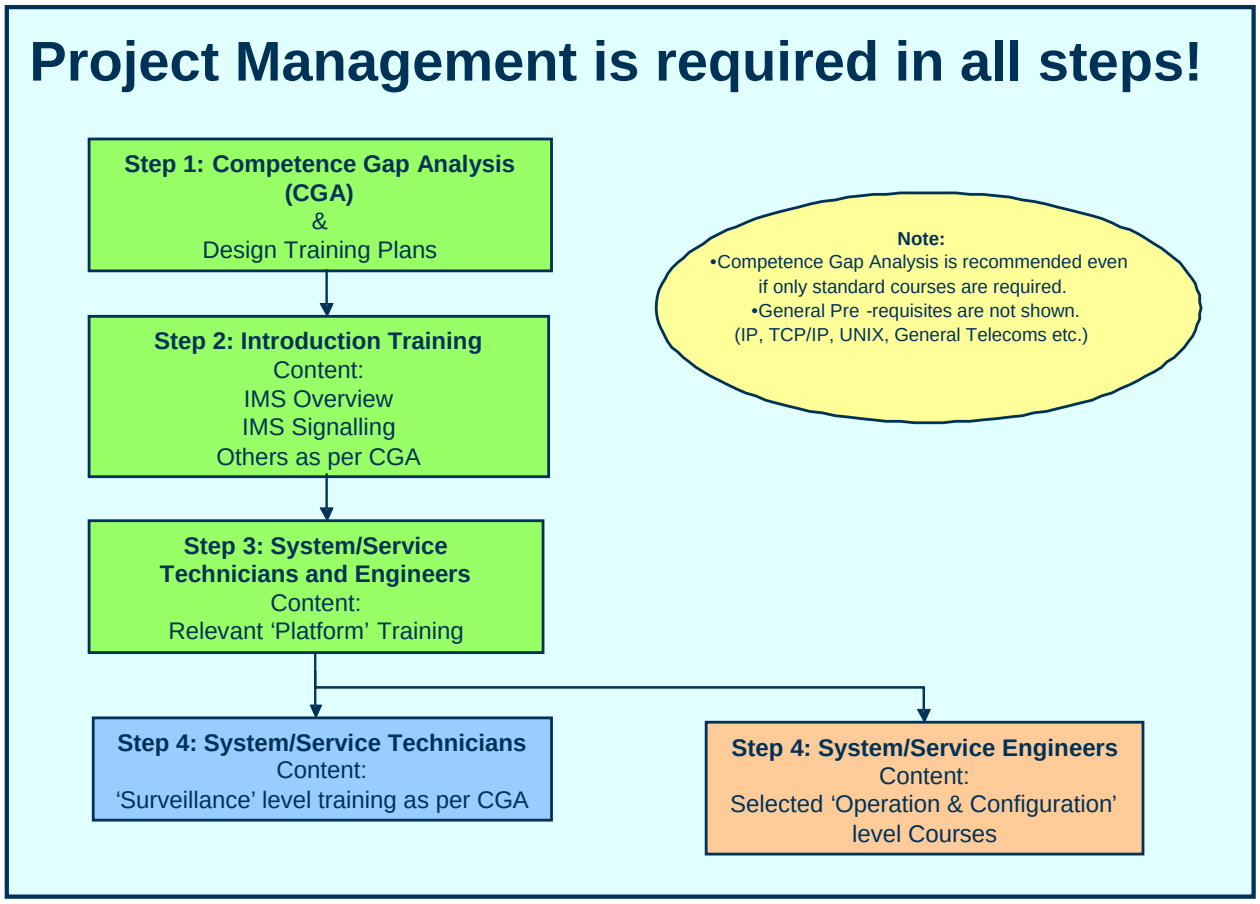
IMS Training Flow

The following are the recommended steps for a complete and efficient competence development on the IMS technology:



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Learning Solutions

Ericsson's Learning Architects can help operators to analyze their competence needs from a business perspective, using Competence Gap Analysis (CGA), and then assist them to deliver a flexible competence development program suited to their needs. The experts can also assist with the evaluation of the training effectiveness against Key Performance Indicators (KPIs), conducting pre-tests before the program begins and post-tests to evaluate progress made during the program.

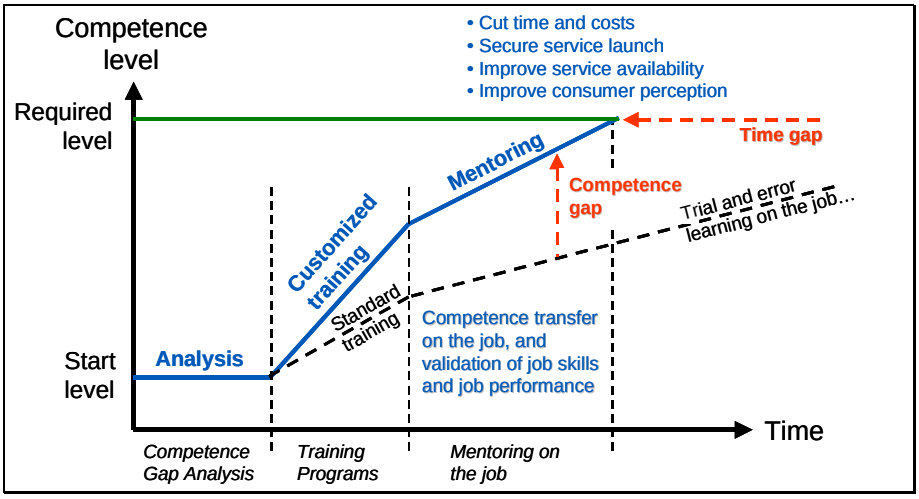

Figure 1. Analysis (CGA), Customization and Mentoring – How to add value relating to your business.

The result is a flexible program which is not only aligned with the business and operational requirements but is also customised to suit the requirements of the group or individuals to which it is directed. Flexibility is ensured; those with expertise spend less time achieving the required standard for task completion, while those at a more basic level get the help and time they need to reach it.

Competence Gap Analysis (CGA)

IMS is a **network evolution** and requires **competence evolution** towards the New Multimedia and IP networks.

Ericsson Education can help the operators to further **optimize** the competence evolution, by designing of a **tailor-made training solution** that supports effective learning and **performance** of the employees within the organization

The CGA **assesses the technical competence** of the employees in the relevant departments and **aligns the training plan to the operational needs** throughout the network evolution

Activities:

- Assessment of current competence level for the different job roles;

- Identification of the gaps by Mapping current and required competence levels;

- Identification of the customer specific competence needs/skills to be addressed in the training delivery, based on the customer operations, job roles and IMS technical implementation

Structured Knowledge Transfer (SKT)

The SKT usually takes place at the customer site using the customer's network. The mentor leads each student through tasks that are defined for that employee's job function. Since the SKT is based on the employee daily tasks and customer network, it helps to strengthen the employee's confidence to conduct the tasks on the new network/technology

With SKT a mentor works with a small group (max. 4), ensuring that the participants master the content of a job task list drawn up for each identified job role and duty or responsibility, and approved by the customer. The result is accelerated learning tailor-made to the customer's needs and objectives.

As there is no room for error when working on live equipment, the participants have to have completed the prerequisite training courses and lab training before undertaking the SKT. The mentor demonstrates the tasks involved in the job, working with the participants until they successfully perform each duty and task. In effect, while the participants are doing their job, they are learning in their own working environment.

Tasks and skills are identified during the Competence Gap Analysis (CGA) phase, based on the customer specific job roles and operations.

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INTRODUCTION TRAINING

IMS in a Nutshell

LZU 108 7775 R2A

Description

Do you want to learn more about IP Multimedia Subsystem (IMS)? This web-based course is an introduction to Ericsson IMS. It provides an overview of the IP Multimedia Subsystem (IMS) and the Ericsson solutions based on IMS Common System 5.0 (ICS 5.0). The IMS architecture is briefly described.

Learning objectives

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

1 Explain the purpose and benefits of IMS

2 Describe the IMS architecture briefly

3 List the Ericsson IMS offerings

Target audience

The target audience for this course is: Fundamentals

Prerequisites

Students should have a good general knowledge of telecommunications.

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Duration and class size

The length of the course is 1 hour.

Learning situation

This a web-based interactive training course with multimedia content.

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IMS 5.0 Overview

LZU 108 7721 R1A

Description

This course provides an overview of the IP Multimedia Subsystem (IMS) and the Ericsson solutions for IMS based on IMS Common System 5.0 (ICS 5.0). Why there is a need for IMS and, end user benefits and what IMS services an operator can offer are explained. The features, nodes & signalling aspects are described for the IMS offerings related to ICS 5.0.

Learning objectives

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

1 Explain why there is a need for IMS
1.1 Describe the IMS system in overview – the services and capabilities IMS provides.
1.2 List which standardization bodies define IMS and IMS related services
1.3 Explain what is meant by the IMS eco system
1.4 Present operator and end-user benefits of IMS.

2 Outline the Ericsson IMS Offerings
2.1 Give examples of IMS offerings in the areas of Voice, Video, Presence, Messaging and Business communication
2.2 Explain the use and position of the IMS Common System in the offerings.

3 Describe the ICS 5.0 architecture.
3.1 Name and explain the functional nodes in ICS 5.0
3.2 Demonstrate how ICS interworks with PSTN, Mobile and VoIP networks
3.3 List the signalling and media protocols and describe where they are used
3.4 Recognize the main features of ICS 5.0
3.5 Identify the platforms used in the ICS system

4 Present ‘typical’ IMS end-to-end session set-ups
4.1 Illustrate the SIP & Diameter signalling sequences for Registration, IMS to IMS and IMS to PSTN sessions.

Target audience

The target audience for this course is: Fundamentals

Prerequisites

Students should have a good general knowledge of telecommunications.

Duration and class size

The length of the course is 1 day (6 hours) 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
1	• Introduction to IMS	1 hour
	• Ericsson IMS Solutions	2 hours
	• ICS 5.0 Architecture	2 hours
	• IMS end-to-end session set-up	1 hour

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IMS from A Business Perspective

LZU108 2078 R1A

Description

For many, IMS is the future. It will provide revenue enhancing services and open up new channels in a convergent environment. For some more, IMS represents a standardized base on which to build for future.

How will money be generated with IMS? Are their alternatives and what's the best way forward?

IMS from business perspective aims to provide a business overview to give you answers you need to make your decisions about one of the most important technological innovations in the telecom industry.

By understanding the market needs and taking own business goals in mind, it will be possible to find the best way forward. Ericsson's global presence allows us to provide business perspective based on global understanding. As one of the leaders in this field, Ericsson has technical and market knowledge to provide the best.

Learning objectives

On completion of this course the participants will be able to apply the knowledge to own situation and provide guidance for own IMS strategy.

1. Understand the market evolution behind the move towards IMS
   List the main business and technology drivers
   Give examples of Converging solutions
   Provide an overview of the IMS Technology and innovative IMS services
   Explain operator and end-user benefits of IMS based multimedia services

2. List common enablers in IMS networks
   List operator & end-user benefits of IMS based multimedia services
   Present an overview of types of services available
   Give examples of services using IMS-unique properties

3. Explain the roles in an economic eco-system
   Describe IMS business ecosystem
   Define the various B2B relationships in the eco-system
   Discuss IMS support for development and evolution of new services

4. Describe best practices for service launch for maximizing IMS service uptake
   Build services packages for different segments
   Discuss pricing schemes
   Suggest suitable promotions for each segment

5. List key elements influencing the profitability of the IMS networks
   Describe different IMS Business case scenarios
   List some IMS success stories

Target audience

The target audience for this course is: Business Developers
This audience has responsibility of defining, recommending or implementing the operator strategy specifically within the multimedia domain

Prerequisites

The participants should be familiar with basic telecommunications business and the evolution towards multimedia services. A successful completion of Telecom Operator 2.0; Business Challenges & Opportunities (LZU 108 6935) will provide the neccesary understanding.

Duration and class size

The length of the course is 6 hours 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
1	• Business & Technological drivers	45 minutes
	• IMS Services	45 minutes
	• IMS Eco System	45 Minutes
	• Successful launch of IMS services	45 Minutes
	• Building IMS Business Case & Wrap-up	90 Minutes

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IMS Signalling

LZU 108 7193 R1D

Description

This course provides an introduction to signalling in the IMS by presenting the protocols involved and different traffic cases from the IMT system (IMS Multimedia Telephony) and PTT.
The following protocols are described with reference to the Ericsson IMS solutions and to the relevant IETF and 3GPP specifications: SIP protocol and the most important IMS related extensions to SIP; SDP; the Diameter Base protocol and IMS related Diameter applications and H248/MeGaCo. In addition other related protocols, such as MSCML, TBCP, DNS & RTP will be outlined.
Actual signalling traces are used where possible to show the practical aspects of signalling in an IMS network.

Learning objectives

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

1 Describe the architecture of IMS; the functions of the main logical nodes in the IMS System; the main IMS specifications and protocols.
1.1 Describe the roles of IETF, 3GPP, TISPAN & OMA in IMS.
1.2 Describe the main 3GPP specifications and IETF RFCs relating to IMS.
1.3 Describe the concepts related to mobile and fixed access to IMS.
1.4 Describe the main protocols, signalling flows and node functions for typical IMS Sessions, including Registration, IMT to IMT Sessions; IMT to GSTN sessions and Push To Talk sessions.

2 Describe the structure, specifications and usage of Session Initiation Protocol (SIP), Session Description Protocol (SDP) & MSCML.
2.1 Describe the main RFCs related to SIP, SDP and MSCML.
2.2 Describe the basic functions and capabilities of SIP, SDP & MSCML
2.3 Describe the specifications, functions and usage of the SIP Methods and Responses.
2.4 Explain the routing and addressing principles of SIP messages and the function of the SIP routing headers.
2.5 Describe the function and uses of the most common SIP header fields used in IMS and their related RFCs.
2.6 Explain the offer / answer model for SDP in SIP.
2.7 Describe the structure of SDP and the function of the SDP fields with reference to the associated RFCs.
2.8 Describe the function purpose and use of Number Normalization, ENUM and External Network Selection (Breakout – BGCF).
2.9 Describe the specification, function and structure of MSCML.

3 Describe the structure, specifications and usage of the Diameter Protocol
3.1 Describe the basic functions and capabilities of Diameter and the associated RFCs.
3.2 Describe the routing principles of Diameter in IMS.
3.3 Describe the main Diameter base protocol messages and AVPs.

3.4 Describe the services provided by the Cx/Dx, Zx, Sh and Rf interfaces in IMS.
3.5 Describe the main IMS Diameter messages and AVPs associated with the Cx/Dx and Rf interfaces in IMS.
3.6 Analyze typical Diameter signalling flows and Message content for Registration (Cx) and Charging (Rf) interfaces.

4 Describe the structure, specifications and usage of MeGaCo / H.248
4.1 Describe the main function and usage of MeGaCo in IMS and the main RFCs.
4.2 Describe the MeGaCo Context Model.
4.3 Describe the MeGaCo Commands and Parameters in IMS.
4.4 Describe typical MeGaCo signalling sequences.

5 Describe the IMS architecture and signalling flows for PTT sessions
5.1 Describe the PTT services and the mobile IMS architecture.
5.2 Describe the signalling sequences for a typical PTT session.

6 Analyze detailed Signalling Trace Analysis for a range of IMT & PTT session scenarios.
6.1 Analyze detailed WireShark protocol analyzer traces for a range of IMS sessions, including Registration, IMT to IMT, IMT to PSTN & PTT session establishment (DNS, SIP, SDP, Diameter charging, and Megaco).
6.2 Describe the signalling flows, message routing, header fields and SDP body.

Target audience

The target audience for this course is: System Technicians, Service Technicians, System Engineers, Service Engineers.

Prerequisites

The students should have attended

IMS 5.0 Overview LZU 108 7721

In addition the students should have a good basic understanding of general datacom and telecoms networks and good knowledge of IP networking and the TCP/IP protocol family.

Duration and class size

The length of the course is 18 hours (3 days) and the maximum number of participants is 16

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Learning situation

Instructor Led Training (ILT). This course is based on theoretical instructor-led lessons and theoretical exercises based on WireShark traces.

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	• IMS Revision & Standards.	1.5 hours
	• SIP Theory	3 hours
	• Registration trace exercise	1.5 hours
2	• SIP Theory part 2 and SDP	1.5 hours
	• Diameter Theory	1.5 hours
	• Exercises: Analysis of IMT Session establishment traces: SIP Message Routing; SIP to SIP Session inc. Charging	3 hours
3	• Megaco Theory	1 hour
	• IMS to GSTN Breakout Theory	1 hour
	• Analysis of IMT Traces continued: IMS to GSTN Breakout	2 hours
	• PTT Theory and trace exercises	1.5 hours
	• Summary & Close	0.5 hour

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SURVEILLANCE TRAINING

Description

This training will provide the participants with the knowledge to perform surveillance activities. It will provide practice using the procedures necessary to keep the system functioning.

All Surveillance level training is delivered within a Learning Solutions Project.

The below Generic Learning Objectives are customized on a per Node and Need basis for each Customer.

Generic Learning objectives, to be customized before training delivery!

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

1 Perform surveillance tasks on the Node
2 Explain Node interworking and protocols.
3 Explain the alarms connected to the Node
4 Navigate the Element Manager and use CPIs, in order to perform basic status checks of the Nodes and Interfaces
5 Fetch and understand relevant logs for the Node
6 Explain how to monitor the performance of the Node
7 Configure and verify Node measurements

Target audience

The target audience for this training is: System Technician, Service Technician

Prerequisites

Successful completion of the following courses:

IMS Overview

IMS Signaling

Platform Operation and Maintenance training

Platform related courses and courses for the provisioning, charging and O&M systems supporting ICS 5.0 system are referenced in the Prerequisite and oher related training at the end of this catalog.

Duration and class size

The length of the training will vary in every Customization and the number of participants will be maximum 8.

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Learning situation

Theory and Practical tasks performed on an ICS 5.0 system

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OPERATION & CONFIGURATION TRAINING

IMS Operation and Maintenance Advanced

LZU1087209 R1A

Description

This course provides the participants with competence needed to perform advanced operation and maintenance tasks on the complete IMS network.

The course is mainly practical and includes tasks like resolving alarms as well as locating and solving end-to-end session establishment faults which requires an undestanding of complex signaling traces.

Learning objectives

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

1 Perform analysis of signaling traces in the IMS network.
1.1 Explain common signaling traces.
1.2 Explain service specific signaling traces.

2 Use protocol traces to locate, analyze and solve faults.
2.1 Configure and use WireShark to capture and display relevant data in traces.
2.2 Perform WireShark traces in order to locate, analyze and solve end-to-end session faults in the IMS network.

3 Solve alarms related to the IMS network nodes.
3.1 Locate the root cause of the alarms and solve them using IMS Customer Product Information (CPI) library.

Target audience

Customer System Engineers and Service Engineers, plus Ericsson Personnel working with operation, configuration and provisioning of IMS network nodes.

Prerequisites

Successful completion of the following courses:

IMS Overview

TSP Operation and Maintenance

IMS Signaling

HSS /SLF Operation & Configuration and CSCF Operation & Configuration

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Or

CSCF & HSS /SLF Operation & Configuration

IS PSTN GW Configuration

CSCF & HSS /SLF Operation & Configuration

Duration and class size

The length of the course is 18 hours (3 days) and the maximum number of participants is 6.

Learning situation

This training is based on theoretical and practical instructor-led sessions given in both classroom and in a technical environment using equipment and tools, which can be accessed remotely.

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	• Examination of different signaling traces	6 hours
2	• Locate and solve end-to-end session faults	6 hours
3	• Locate and solve end-to-end session faults	3 hours
3	• Solve alarms	3 hours

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CSCF 5.0 HSS/SLF 5.0 Operation and Configuration

LZU 108 7709 R1A

Description

This course will provide the participants with the knowledge to perform Surveillance, Operation and Configuration activities on the CSCF, HSS & SLF Nodes.

It will provide practice using the procedures necessary to keep the nodes functioning and to be able to perform Network expansions.

Learning objectives

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

1 Describe CSCF, HSS, SLF node functions and interworking
1.1 Describe CSCF, HSS, SLF node functions
1.2 Explain nodes interworking, interfaces and protocols
1.3 Describe CSCF, HSS, SLF nodes architecture
1.4 Explain how CSCFs, HSS, SLF support basic session establishment procedures

2 Perform surveillance tasks on CSCF, HSS, SLF
2.1 Describe User Access
2.2 Navigate the Element Manager
2.3 Use the CPI Description documents to identify the function of CSCF, HSS, SLF parameters and to perform basic configuration checks of the CSCF, HSS, SLF nodes and interfaces
2.4 Perform system backups
2.5 Perform software checks
2.6 Perform CSCF, HSS, SLF nodes status checks
2.7 Schedule maintenance tasks
2.8 Explain the alarms connected to CSCF, HSS, SLF, view alarm lists, perform alarm searches and fetch relevant logs

3 Explain how to configure CSCF, HSS, SLF in a secure and redundant way
3.1 Explain how node redundancy can be achieved for CSCF, HSS, SLF
3.2 Explain how node hardening is achieved for CSCF, HSS, SLF
3.3 Explain parameters in CSCF, HSS, SLF that are important for security

4 Configure and verify the CSCF, HSS, SLF components and interworking interfaces
4.1 Configure and verify the Cx/Dx interfaces between CSCF and HSS/SLF
4.2 Configure and verify the Rf/Ro interfaces between CSCF and a Charging Mediator
4.3 Configure and verify the Sh/Dh interface between AS and HSS/SLF
4.4 Configure and verify the Zx/Dzx interface between AP and HSS/SLF
4.5 Configure and verify the Gi interface between HSS and GGSN
4.6 Configure and verify the SS//MAP interface between HSS and HLR
4.7 Configure and verify the interface between CSCF and DNS/ENUM
4.8 Configure and verify the ISC interface between CSCF and AS
4.9 Configure and verify Number Normalization tables in CSCF
4.10 Configure and verify the BGCF (External Network Selection)
4.11 Configure and verify Policy Control Parameters on CSCF and HSS
4.12 Configure and verify Service Profiles containing Triggers in HSS
4.13 Configure and verify Individual Service Profiles and Triggers in HSS
4.14 Configure Charging Profiles in CSCF and HSS
4.15 Configure AVG in HSS
4.16 Configure and verify the Emergency Call Handling in E-CSCF
4.17 Configure and verify SLF Parameters

5 Perform root cause analysis of faults in the CSCF, HSS, SLF
5.1 Resolve CSCF, HSS, SLF related alarms
5.2 Relate IMS end-to-end session faults to faulty parameter settings in CSCF, HSS, SLF
5.3 Use session traces in order to localize and solve CSCF, HSS, SLF faults
5.4 Find and solve faults in HSS, SLF related to subscriber provisioning

6 Handle Performance management for CSCF, HSS, SLF
6.1 Explain how to monitor the performance of the CSCF, HSS, SLF
6.2 Configure and verify CSCF, HSS, SLF measurements

Target audience

System Engineers, Service Engineers.

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Prerequisites

Successful completion of the following courses:

IMS 5.0 Overview	LZU 108 7721
IMS Signaling	LZU 108 7193
MMTel 3.0 End to End Signaling	LZU 108 7703
(or BCS 2.0 End to End Signaling	LZU 108 7720)
TSP 6 Operation and Maintenance	LZU 108 7341

Duration and class size

The length of the course is 30 hours (5 days) and the maximum number of participants is 6.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools, which are accessed remotely.

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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	• CSCF, HSS, SLF node functions and interworking	2 hours
	• Configuration parameters and surveillance tasks	4 hours
2	• Configuration parameters and surveillance tasks	6 hours
3	• Security and redundancy	1 hour
	• Configuration and verification of interworking interfaces and parameters	5 hours
4	• Configuration and verification of interworking interfaces and parameters	6 hours
5	• Configuration and verification of interworking interfaces and parameters	2 hours
	• Performing root cause analysis of faults	3 hours
	• Performance Management	1 hour

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CSCF 5.0 HSS/SLF 5.0 Delta

LZU 108 7741 R1A

Description

This course focuses on the differences between CSCF4.1 HSS4.1 SLF1.1 and CSCF5.0 HSS/SLF5.0 products. Functional and architectural changes made as well as CSCF5.0 HSS/SLF5.0 new features are discussed. The course includes practical exercises which mainly focus on the new features.

Learning objectives

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

1 Describe CSCF5.0, HSS/SLF 5.0 new features
1.1 Describe changes done to CSCF, HSS, SLF node functions
1.2 Explain changes that affected nodes interworking, interfaces and protocols

2 Describe architectural changes in CSCF5.0, HSS/SLF 5.0
2.1 Explain the architectural differences between TSP5 and TSP6
2.2 Explain O&M interface enhancements in TSP6

3 Configure and verify the CSCF, HSS, SLF new functions and components
3.1 Configure Carrier Routing parameters and verify the result
3.2 Configure Access Awareness parameters and verify the result
3.3 Configure Number Portability related parameters and verify the result
3.4 Configure and verify Number Normalization (enhanced) functionality
3.5 Configure and verify External Network Selection (enhanced) functionality
3.6 Configure and Authentication Vector Generation parameter and verify the result
3.7 Configure and verify the Rx interface when having SBG

Target audience

System Engineers, Service Engineers.

Prerequisites

Successful completion of the following courses:

CSCF 4.1 HSS 4.1 SLF 1.1 Operation and Configuration LZU 108 7198

Besides, the participants are expected to have a practical experience working with CSCF4.1 and HSS 4.1 nodes.

Duration and class size

The length of the course is 6 hours (1 day) and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in a technical environment using equipment and tools, which are accessed remotely.

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	• CSCF5.0, HSS/SLF 5.0 new features	1.5 hours
	• Architectural changes in CSCF5.0, HSS/SLF 5.0	1 hour
	• Configuration of the CSCF, HSS, SLF new functions and components	3.5 hours

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IPWorks 6.0 Overview

LZU 108 7697 R1A

Description

Need to know about IPWorks? Is it just a DNS and DHCP server? What is special about it? IPWorks is an advanced product with many features and deployment scenarios.

This course provides participants with little to no experience of DNS and DHCP an overview of the IPWorks system. It describes how the system can be used to deliver an efficient, highly-available and centrally managed Domain Name System (DNS), Telephone Number Mapping (ENUM) and Dynamic Host Configuration Protocol (DHCP) services for mobile and wireline IP networks.

Learning objectives

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

1. Understand the purpose of IPWorks and the services it provides
2. Present the features of IPWorks
3. Explain the architecture of IPWorks
4. Recount IPWorks redundancy options
5. Describe IPWorks deployment scenarios
6. Work with the three different IPWorks interfaces

Target audience

The target audience for this course is: Service Planning Engineer, Service Design Engineer, Network Design Engineer, Network Deployment Engineer, Service Deployment Engineer, System Technician, Service Technician, System Engineer, Service Engineer

Prerequisites

The participants should be familiar with Solaris/Unix and TCP/IP.

Duration and class size

The length of the course is 6 hours (1 day) and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in technical environment using equipment and tools.

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	Describe the purpose of IPWorks	1 hour
	Present the features of IPWorks	1 hour
	Explain the architecture of IPWorks	1 hour
	Recount IPWorks redundancy options	0,5 hour
	Describe IPWorks deployment scenarios	1 hour
	Work with the three different IPWorks interfaces	1,5 hour

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IPWorks 6.0 Operation and Maintenance

LZU 108 7699 R1A

Description

Do you need to know how to configure IPWorks, do basic maintenance tasks, and learn some tips and tricks? IPWorks is an advanced product with several user interfaces, a layered architecture, and a combination of disk-based and memory-based databases.

This course provides practical knowledge on the operation and configuration of IPWorks. The course emphasizes the knowledge of configuring the DHCP, DNS, ENUM and ActiveSelect services. The students are introduced to fault, node and performance management of the system. Furthermore, the course covers some security aspects of IPWorks. With the help of the manual provided in this course, and the guidance of the instructor, the attendees will be able to learn the most efficient ways of performing operation and maintenance procedures.

Learning objectives

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

1 Configure various parts of the system
1.1 Perform DHCP server configuration
1.2 Configure DNS server
1.3 Operate ENUM server
1.4 Utilize ActiveSelect monitor

2 Execute fault management
2.1 Inspect alarms and work with the SNMP agents
2.2 Configure and view logs

3 Practice maintenance tasks
3.1 System backup and restore
3.2 Configure and view statistics reports

4 Handle IPWorks security aspects
4.1 Add views and areas
4.2 Configure access control lists
4.3 Create user profiles

Target audience

The target audience for this course is: Service Planning Engineer, Service Design Engineer, Network Design Engineer, Service Deployment Engineer, Network Deployment Engineer, System Technician, Service Technician, System Engineer, Service Engineer, System Administrator.

Prerequisites

Successful completion of the following course:

IPWorks 6.0 Overview - LZU 108 7697 R1A

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Duration and class size

The length of the course is 12 hours (2 days) and the maximum number of participants is 8.

Learning situation

This course is based on theoretical and practical instructor-led lessons given in both classroom and in technical environment using equipment and tools.

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	• Configure various parts of the system	6 hours
2	• Execute fault management	2 hours
	• Practice maintenance tasks	2 hours
	• Handle security aspects	2 hours

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SBG3.0 Operation and Configuration for IMS

LZU 108 7201 R2A

Description

Concerned about security of your IMS network? Wanted to know what SBG can offer? Without SBG, your IMS network is vulnerable to attack from both internally and externally. This course will help you to understand the importance of SBG in IMS network from security point of view and supports for other features and functions. It will also cover operational aspects and configuration so that you can operate and configure Ericsson SBG 3.0 with FD1 in your network.

Learning objectives

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

1 Describe SBG 3.0 with FD1 Features and Functions
1.1 List SBG Interfaces and Protocols
1.2 List and Describe SBG Features and Functions
1.3 Describe the mapping of SBG functions to standard
1.4 Describe the position of SBG in various IMS solutions.

2 Describe SBG System Architecture
2.1 Describe the logical architecture of SBG
2.2 Describe the Hardware and Software implementation of SBG

3 Perform Surveillance activities (basic operation and maintenance) of SBG
3.1 Login and navigate the SBG element manager and the SBG CPI
3.2 Monitor the SBG Status and Interfaces
3.3 Monitor SBG Alarms and Events
3.4 Initiate and collect SBG logs
3.5 Perform SBG Backup
3.6 Initiate and collect SBG statistics

4 Describe network use cases with SBG
4.1 Describe signaling flow via SBG
4.2 Describe media flow via SBG

5 Describe the Installation process of SBG
5.1 Describe the SBG Installation process
5.2 Describe possible options for SBG installation
5.3 Describe the IS network configuration for SBG

6 Configure and verify the SBG Interworking interfaces
6.1 Configure and verify SBG interface towards access or foreign network
6.2 Configure and verify SBG interface towards core network
6.3 Configure and verify SBG e2 interface (Geographical Location)
6.4 Configure and verify SBG Rq interface (Admission Control)
6.5 Configure and verify SBG Rf interface (Charging)
6.6 Configure and verify SBG interface towards DNS

6.7 Configure and verify SBG signaling and media routing
6.8 Configure and verify SBG function specific parameters.

7 Describe and Configure SBG Features
7.1 Describe the handling of NAPTR failures as defined in RFC 3263 default procedure.
7.2 Describe and configure Hosted NAT traversal.
7.3 Describe and configure the User agent whitelist.
7.4 Describe how to display contact bindings for a specific user.

8 Describe and configure the SBG TISPAN P-CSCF functionality
8.1 Describe the new role which allows an A-SBG to act as a P-CSCF towards a core network.
8.2 Describe and configure the new SIP Mw-reference point.
8.3 Describe and configure the SBG P-CSCF handling of Via headers compared with the SBG in an A-ALG role.
8.4 Describe the handling of the P-Associated-Identity header.
8.5 Describe the default hard-coded topology hiding for P-CSCF role.
8.6 Describe and configure an E-CSCF as outgoing proxy for emergency calls using UDP and/or TCP as transport protocol.

9 Perform root cause analysis of faults in SBG
9.1 Analyze and solve SBG alarms
9.2 Analyze and solve end to end signaling faults

10 Set up and analyze performance measurements for SBG

11 Describe how to configure a secure and redundant SBG
11.1 Describe the fallback option for Geographical redundancy of SBG

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Target audience

The target audience for this course is: Service Planning Engineers, Service Design Engineers, Network Design Engineers, Network Deployment Engineers, Service Deployment Engineers, System Engineers, Service Engineers and System Administrators.

This audience is responsible for operation and configuration of the SBG.

Prerequisites

Successful completion of the following courses:

- IMS Overview LZU 108 7721
- IMS Signaling LZU 108 7193
- Integrated Site Overview LZU 108 6364
- Intergrated Site Operation and Configuration LZU 108 6832

Duration and class size

The length of the course is 18 hours (3 days) and the maximum number of participants is 8.

Learning situation

The course is based on the theoretical and practical instructor-led lessons given in a classroom environment with remote access to the SBG.

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	Features and Functions	2 hrs
	Architecture	1 hr
	Surveillance Activities	1.5 hrs
	SBG Network use cases	1.5 hrs
2	SBG Installation	1 hr
	SBG Configuration	3 hrs
	P-CSCF Configuration	2 hrs
3	Alarms and Events analysis	2 hr
	SBG measurement analysis	1 hr
	SBG Fault Finding	2 hrs
	SBG Node Hardening	1 hr

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IS MGC 6.1 Operation and Configuration

LZU 108 7705 R1A

Description

Do you need competence in how to operate and configure the MGC? This course covers just that. It will provide the participants with the knowledge to perform Surveillance, Operation and Configuration activities on the MGC.

It consists of theory and practical exercises on how to operate and configure the MGC on Ericsson Integrated Site (IS). This includes configuration of signaling interfaces towards IP and TDM networks, number analysis and routing.

Learning objectives

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

1 Describe the IS MGC with its Features and Functions
1.1 Name the IS MGC Interfaces and Protocols
1.2 List and Describe the IS MGC Features and Functions
1.3 Understand the position of IS MGC in various network solutions

2 Explain the IS MGC System Architecture
2.1 Present the logical architecture of IS MGC
2.2 Describe the Hardware and Software implementation

3 Handle Surveillance activities on the IS MGC
3.1 Use the MGC element manager together with the node documentation
3.2 Monitor the IS MGC Status and Interfaces
3.3 Interpret IS MGC Alarms and Events
3.4 Create and fetch the IS MGC logs
3.5 Perform IS MGC Backup
3.6 Initiate and collect IS MGC statistics

4 Explain the IS MGC network use cases
4.1 Illustrate the control signaling via the IS MGC for different network deployments

5 Understand the Installation process of the IS MGC
5.1 Describe the possible options for the IS MGC installation

6 Configure and verify the MGC Interworking interfaces
6.1 Configure the interface towards the Media Gateway (MGW)
6.2 Configure the signaling interface towards an IP network
6.3 Configure the interface towards a TDM network
6.4 Configure the Charging interface
6.5 Configure the interface towards DNS
6.6 Define the number analysis and routing tables
6.7 Establish an end-to-end call using the configured interfaces and data

7 Perform root cause analysis of fault in IS MGC
7.1 Analyze and solve IS MGC alarms
7.2 Trace and solve end to end signaling faults

8 Understand how to configure a secure and redundant IS MGC

Target audience

The target audience for this course is: System Engineer, Service Engineer, Service Technician and System Technician

This audience is responsible for operation and configuration of the IS MGC.

Prerequisites

Successful completion of the following courses:

- IMS 5.0 Overview LZU 108 7721
- IMS Signaling LZU 108 7193
- IS 2.0 Overview LZU 108 7085
- IS 2.0 Operation and Configuration LZU 108 7086

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Duration and class size

The length of the course is 12 hours (2 days) and the maximum number of participants is 8.

Learning situation

The course is based on the theoretical and practical instructor-led lessons given in a classroom environment.

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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	• Features and Functions	2 hours
	• Architecture	1 hour
	• Surveillance Activities	2 hours
	• MGC Network Use Cases	1 hour
2	• MGC Installation	1 hour
	• MGC Configuration	3 hours
	• Alarms and Events Analysis	1 hour
	• MGC Measurement Analysis	0,5 hours
	• MGC Node Hardening	0,5 hours

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IS MGW 2.0 Operation and Configuration for IMS

LZU 108 7704 R1A

Description

Do you need competence in how to operate and configure the MGW for IMS? This course covers just that. It will provide the participants with the knowledge to perform Surveillance, Operation and Configuration activities on the MGW. It consists of theory and practical exercises on how to operate and configure the MGW on Ericsson Integrated Site (IS). This includes configuration towards IMS and TDM networks.

Learning objectives

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

1 Describe the IS MGW with its Features and Functions
1.1 Name the IS MGW Interfaces and Protocols
1.2 Understand the position of IS MGW in various network solutions

2 Explain the IS MGW System Architecture
2.1 Present the logical architecture of IS MGW
2.2 Describe the Hardware and Software implementation of IS MGW

3 Handle Surveillance activities on the IS MGW
3.1 Use the MGW element manager together with the node documentation
3.2 Monitor the IS MGW Status and Interfaces
3.3 Interpret IS MGW Alarms and Events
3.4 Initiate and fetch the IS MGW logs
3.5 Perform IS MGW Backup
3.6 Initiate and collect IS MGW statistics

4 Explain the IS MGW network use cases
4.1 Illustrate the control signaling and the media flows via the IS MGW

5 Understand the Installation process of IS MGW
5.1 Describe the possible options for IS MGW installation

6 Configure and verify the IS MGW and Inter-working interfaces
6.1 Define an IS Virtual MGW
6.2 Configure and verify the IS MGW interface towards an IP network
6.3 Configure and verify the IS MGW interface towards a TDM network
6.4 Initiate Media Supervision

7 Perform root cause analysis of faults in the IS MGW

8 Understand how to configure a secure and redundant IS MGW

Target audience

The target audience for this course is: System Engineer, Service Engineer, Service Technician, System Technician

This audience is responsible for operation and configuration of the IS MGW.

Prerequisites

Successful completion of the following courses:

- IMS 5.0 Overview LZU 108 7721
- IMS Signaling LZU 108 7193
- IS 2.0 Overview LZU 108 7085
- IS 2.0 Operation and Configuration LZU 108 7086

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Duration and class size

The length of the course is 12 hours (2 days) and the maximum number of participants is 8.

Learning situation

The course is based on the theoretical and practical instructor-led lessons given in a classroom environment.

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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	• Features and Functions	2 hours
	• Architecture	1 hour
	• Surveillance Activities	2 hours
	• MGW Network use cases	1 hour
2	• MGW Installation	1 hour
	• MGW Configuration	2 hours
	• Alarms and Events analysis	1 hour
	• MGW measurement analysis	1 hour
	• MGW Node Hardening	1 hour

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ICS5.0 IS PSTN Gateway Operation and Configuration

LZU 108 7706 R1A

Description

Do you need competence in how to operate and configure the IS PSTN GW? This course covers just that. It will provide the participants with the knowledge to perform Surveillance, Operation and Configuration activities on the IS PSTN GW when used in an IMS context.

It consists of theory and practical exercises on how to operate and configure the PSTN GW on Ericsson Integrated Site (IS). This includes configuration of signaling interfaces towards IP and TDM networks, number analysis and routing.

The IS PSTN GW consists of the MGC 6.1 and MGW 2.0 nodes which are interconnected via H.248.

Learning objectives

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

1 Describe ICS 5.0 IS PSTN Gateway with its Features and Functions
1.1 Understand the position of the PSTN GW within the ICS5.0 based solutions
1.2 Name the IS PSTN GW Interfaces and Protocols
1.3 List and Describe the IS MGC Features and Functions
1.4 Explain the terminology used in the IS PSTN GW

2 Explain the IS PSTN GW System Architecture
2.1 Present the logical architecture of IS PSTN GW
2.2 Describe the Hardware and Software implementation

3 Handle Surveillance activities on the IS PSTN GW
3.1 Use the PSTN GW element manager together with the node documentation
3.2 Monitor the PSTN GW Status and Interfaces
3.3 Interpret PSTN GW Alarms and Events
3.4 Create and fetch the PSTN GW logs
3.5 Perform PSTN GW Backup
3.6 Initiate and collect PSTN GW statistics

4 Explain the IS PSTN GW network use cases
4.1 Illustrate the call flows for the break out and in scenarios via PSTN GW

5 Configure and verify the PSTN GW Interworking interfaces
5.1 Configure the PSTN GW H.248 interface
5.2 Configure the PSTN GW interface (signaling and media) towards IMS core network
5.3 Configure the PSTN GW interface (signaling and media) towards PSTN network
5.4 Define PSTN GW number and routing analysis
5.5 Create the PSTN GW DNS and Charging interfaces
5.6 Establish an end-to-end call using the configured interfaces and data

6 Perform root cause analysis of faults in PSTN GW
6.1 Analyze and solve PSTN GW alarms
6.2 Trace and solve end to end signaling faults

7 Understand how to configure a secure and redundant PSTN GW

Target audience

The target audience for this course is: System Engineer, Service Engineer, Service Technician and System Technician with responsiblity for operation and configuration of the IS PSTN GW.

Prerequisites

Successful completion of the following courses:

- IMS Overview LZU 108 7721
- IMS Signaling LZU 108 7193
- IS 2.0 Overview LZU 108 7085
- IS 2.0 Operation and Configuration LZU 108 7086

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Duration and class size

The length of the course is 24 hours (4 days) and the maximum number of participants is 8.

Learning situation

The course is based on the theoretical and practical instructor-led lessons given in a classroom environment.

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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	• PSTN GW Introduction and Architecture	3 hours
	• PSTN GW Surveillance activities • Practical Exercises	2 hours
	• PSTN GW Network Use cases • Practical Exercises	1 hour
2	• PSTN GW Installation Overview	1 hour
	• PSTN GW Initial Configuration • Practical Exercises	3 hours
	• IP Side configuration (SIP and RTP media)	2 hours
3	• TDM Side configuration (SS7/ISUP and TDM transport)	2 hours
	• Number Analysis and Call Routing	2 hours
	• Practical Exercises	2 hours
4	• PSTN Alarm and Event Analysis	3 hours
	• PSTN GW Signaling tracings	2 hours
	• PSTN GW Node Hardening	1 hour

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PGM 4.1 Operation & Configuration

WORK IN PROGRESS – To be replaced with PGM 5.0 when finalize

LZU1087204 R1A

Description

Is Presence and Group & Data Management (PGM) part of your IMS implementation? Do you need to understand how to operate, maintain and configure your PGM node?

This course will help the students to gain a thorough understanding of the tasks necessary to perform on the PGM and the Ericsson Application Server (EAS). It is targeted to those with TSP experience who also need the application level knowledge.

Learning objectives

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

1. Describe where EAS is positioned in IMS.
2. Describe the EAS architecture.
3. Use the TSP Node Management Toolbox to identify the EAS-related alarms and notifications.
4. Navigate the SPA Console to perform basic checks of EAS parameters.
5. Perform Disk DBMS backup.
6. Identify relevant EAS logs.
7. Monitor the EAS performance measurements via LDAP.
8. Set up and analyze performance measurements for EAS.
9. Perform EAS user security management.
10. Extract and analyze application logs from the EAS.
11. Perform DNS server and network connection verification.
12. Describe the PGM components and their roles in IMS networks.
13. Describe PGM interworking.
14. Analyse SIP traces to find PGM-related events.
15. Use the TSP Node Management Toolbox to identify PGM related alarms and notifications.
16. Navigate the SPA Console to perform basic checks of PGM parameters and interfaces.
17. Identify relevant PGM logs.
18. Monitor the PGM performance measurements via LDAP.
19. Set up and analyze performance measurements for PGM.
20. Check PGM database from command line

Target audience

The target audience for this course is: System Engineer, Service Engineer

Prerequisites

The participants should be familiar with...or Successful completion of the following courses:

IMS 4.1 Overview	LZU 108 7192
IMS Signaling	LZU 108 7193
TSP5 Operation & Maintenance	LZU 108 6443

Duration and class size

The length of the course is 12 hours (2 days) and the maximum number of participants is 8.

Learning situation

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

Time schedule

The time required always depends on the knowledge of the attending participants and the hours stated below can be used as estimate. (This paragraph is mandatory).

Day	Topics in the course	Estimated time
1	• Perform EAS Operation and Maintenance tasks, such as Fault-, Node-, and Performance Management	3 hours
	• Perform EAS Operation & Configuration tasks, such as Performance Management, Security Management, and Fault Handling	2 hours
2	• Perform PGM Operation and Maintenance tasks, such as Fault-, Node-, and Performance Management	6 hours
	• Perform PGM Operation and Configuration tasks such as Performance Management and Database checking	1 hour

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Prerequisites and Other Related Training

The following training is recommended :

IP Networking LZU 102 397

IP Advanced LZU 108 6748

TSP6 Overview LZU1087339

TSP6 Operation and Maintenance LZU1087341

IS 2.0 Overview LZU1087085

IS 2.0 Operation and Configuration LZU1087086

OMP 1.1 Training Package - **WORK IN PROGRESS**

EMA 5.0 Training Package

OSS-RC 7 Training Package

MM 6.0 Training Package