LEARNING SERVICES

Packet Core 2011
Training Programs

Catalog of Course Descriptions

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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)
	Virtual Classroom Training (VCT)
	eLearning (WBL)
	Workshop (WS)
	Short Article (SA)
	Structured Knowledge Transfer (SKT)
	mLearning
	Job duty analysis (JDA)
	Competence GAP Analysis (CGA)

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EPC HSS/SLF 11A Operation and Configuration

LZU1088329 R1A

Description

This course provides participants with the knowledge and skills necessary to perform Surveillance, Operation and Configuration activities on the HSS/SLF 11A node in the Evolved Packet Core (EPC) environment.

Learning objectives

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

1 Describe HSS/SLF node functions and interworking
1.1 Describe EPS and EPC architecture and nodes
1.2 Describe HSS/SLF node functions in EPC
1.3 Explain HSS/SLF node interworking, interfaces and protocols
1.4 Describe HSS/SLF node architecture
1.5 Describe the difference between HSS Classic Deployment and HSS-FE Deployment.
1.6 Explain how HSS/SLF supports basic use cases

2 Perform surveillance tasks on 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 HSS/SLF parameters and to perform basic configuration checks of the HSS/SLF node and interfaces
2.4 Perform system backups
2.5 Perform software checks
2.6 Perform HSS/SLF node status checks
2.7 Schedule maintenance tasks
2.8 Explain the alarms connected to HSS/SLF, view alarm lists, perform alarm searches and fetch relevant logs

3 Explain how to configure HSS/SLF in a secure and redundant way
3.1 Explain how node hardening is achieved for HSS/SLF
3.2 Explain parameters in HSS/SLF that are important for security

4 Configure and verify HSS/SLF components and interfaces
4.1 Configure ESM parameters (ESM Configuration Container)
4.2 Configure and verify the interface between HSS-FE and CUDB
4.3 Configure and verify the S6a interface between HSS/SLF and MME
4.4 Configure and verify MAP interface between HSS and HLR
4.5 Configure AVG in HSS

4.6 Configure SLF parameters

5 Perform Fault management in the HSS/SLF
5.1 Resolve HSS/SLF related alarms

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

Target audience

The target audience for this course is:

System Engineers, Service Engineers.

Prerequisites

Successful completion of the following courses:

EPC System Survey LZU1087977
EPC Signaling LZU1087580
TSP 6 Operation and Maintenance LZU1087341

Duration and class size

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

Learning situation

This course 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.

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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 (hours)
1	HSS/SLF node functions and interworking	1
	Configuration parameters and surveillance tasks	4
	Security and redundancy	1
2	Configuration and verification of interworking interfaces and parameters	4
	Alarm handling	1
	Performance Management	1

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EPC Signaling

LZU1087580 R4A

Description

Evolved Packet Core (EPC) is part of the Evolved Packet System (EPS) that provides packet data services to mobile communication.
This course describes the protocols and signaling in the EPC infrastructure. It covers the interfaces in the EPC and also interworking with 3GPP and non-3GPP architectures with reference to the Ericsson EPC solutions . Traffic cases for the EPC describing the various scenarios such as Mobility, Session and Bearer management are explained.
Actual signaling traces are used where possible to show the practical aspects of signaling in an EPC network.

Learning objectives

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

1 Describe the EPC nodes and Interfaces
1.1 List and describe the function of the nodes in the EPC with reference to Ericsson EPC solutions.
1.2 Describe the LTE Access Interfaces such as S1 and X2
1.3 Describe the EPC Core Interfaces such as S10, S11, S6a, S5 and S8 interfaces
1.4 Describe Interfaces to external networks such as SGs, Gx and SGi.
1.5 List of interfaces to 2G/3G network and interworking interfaces to non-3GPP network.

2 Explain the Signaling and Protocols between the nodes
2.1 List and explain some EPS Identifiers, e.g. Geographical Identifier TA, MME Pool Area, SGW Serving area. E-UTRAN identifiers, PLMN identifiers, UE temporary Identifiers.
2.2 List and describe the protocols used in the EPC network, SCTP, Diameter, S1-AP, NAS, SGs-AP, GTP, RADIUS.

3 Understand, describe and explain how different traffic cases are handled by the EPC nodes
3.1 List nodes involved in traffic cases
3.2 Describe the Identity, Authentication and Location Management procedures

3.3 Explain the traffic cases of EPS Session Management
3.4 Describe selected traffic cases for Mobility and Handover procedures.
3.5 Analyze detailed EPS signaling flows and Message content for EPS procedure, e.g. Attach, Detach, TAU etc from actual traces.

4 Explain the supporting services for EPC
4.1 Describe signaling from the Home Subscriber Server (HSS) and AAA
4.2 Describe the DNS procedures for EPC
4.3 E2E Voice Signaling over LTE/EPC using IMS, CSFB, SRVCC.

Target audience

The target audience for this course is:

System Engineers, Service Planning Engineers, Network Design Engineers, Network Deployment Engineers.

Prerequisites

Successful completion of the following courses:

EPC System Survey LZU1087977

Knowledge of basic GPRS concepts and signaling in GPRS is helpful but not required.

Duration and class size

The length of the course is 3 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.

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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	EPC Nodes and Interfaces	1 hour
	EPC Signaling and Protocols	1 hour
	Traffic Cases	4 hours
2	Traffic Cases (Cont.)	4 hours
	Supporting Services	2 hour

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EPC System Survey

LZU 108 7977 R3A

Description

With the emergence of Long Term Evolution (LTE) as the future proof technology, this course is designed to examine how Evolved Packet Core (EPC) can become an integral part of the Evolved Packet System (EPS). EPC is the next generation technology that provides users with access to packet data services. This technology is an evolution from GSM, GPRS, EDGE and WCDMA technology that enables interconnectivity from RAN perspectives so that users could stay connected to their mobile network.
This is an introductory course aimed at providing an overview of EPC infrastructure and its associated nodes, EPC protocols and interfaces, EPC mobility architecture, EPC transport domain and operation and maintenance of EPC. This is an ideal course for those who wish to gain fundamental technical understanding for topics such as Access Point Names (APNs), IP connectivity, bearers and QoS, user plane, signaling plane from an end-to-end perspective.

Learning objectives

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

1 Show the evolution of GPRS for GSM & WCDMA nodes and functionality to EPS.
1.1 Show the evolution of GPRS for GSM & WCDMA nodes and functionality to EPS.
1.2 Describe EPC according to 3GPP R8 and R9.
1.3 Describe the Ericsson Evolved Packet System (EPS) inclusive of LTE and EPC.
1.4 Explain the benefits of Ericsson EPS to the operator and end user.E

2 Describe EPC according to 3GPP R8 and R9.
2.1 Describe the function of Mobile Management Entity (MME), Home Subscriber Server (HSS), Policy and Charging Rules Function (PCRF), Serving Gateway (SGW), Packet Data Network Gateway (PGW), Domain Name System (DNS) and Ericsson DPI node (SASN).
2.2 Describe the SGSN-MME node and features.
2.3 Describe the HSS node and features.
2.4 Describe the Service Aware Policy Controller (SAPC) node which provides PCRF functionality.
2.5 Describe Converged Packet Gateway (CPG) node which provides SGW and PGW functionality.
2.6 Describe Mobile Packet Gateway (GGSN-MPG) node which also provides SGW & PGW functionality.
2.7 Describe IPWorks node which provides DNS functionality.

2.8 Describe Ericsson Deep Packet Inspection (DPI) node SASN and it's features and functionality.

3 Describe the Ericsson Evolved Packet System (EPS) inclusive of LTE and EPC.
3.1 Explain the different protocols and interfaces of EPC
3.2 Describe the different interfaces and their functions.
3.3 Describe the GTPv2 protocol and usage scenario.
3.4 Explain the Geographical Network Structure, Tracking Area, PLMN area and their identity.
3.5 Charging Interfaces in EPC network.

4 Explain the benefits of Ericsson EPS to the operator and end user.E
4.1 Describe the functions and hardware of the Wireless Packet Platform (WPP) based SGSN-MME 2011A.
4.2 List the main hardware components in the SGSN-MME 2011A.
4.3 Illustrate the SGSN-MME 2011A features and functions used to connect the user to the EPS network.

5 Describe the function of Mobile Management Entity (MME), Home Subscriber Server (HSS), Policy and Charging Rules Function (PCRF), Serving Gateway (SGW), Packet Data Network Gateway (PGW), Domain Name System (DNS) and Ericsson DPI node (SASN).
5.1 Identify the supported interfaces and nodes that provide inter-working with the CPG.
5.2 Analyze the architecture of the CPG in terms of its hardware and software components.
5.3 Understand the capacity, characteristics and ISP of the CPG.
5.4 Describe the new router features in SmartEdge Operating System (SEOS)
5.5 Understand on an overview level the general In Service Performance features of the CPG with session resilience.

6 Describe the SGSN-MME node and features.
6.1 Describe the features of the GGSN-MPG 2011A that provide EPC functionality
6.2 Describe the hardware components of the GGSN-MPG 2011A
6.3 Illustrate the MPG functionality that provides LTE/WCDMA/GSM session continuity.

7 Describe the HSS node and features.
7.1 Describe the EPS Bearer, default and dedicated bearer.
7.2 Understand the main QoS parameters: QCI, ARP, AMBR, GBR etc.
7.3 A brief overview of the Services (data, voice and messages) that EPC enables.
7.4 Explain the alternative options for providing Voice and Messaging service over LTE/EPC.
7.5 Understand how to provide Voice service using IMS.
7.6 Explain the network features provided by EPS for coexistence with 3GPP CS Telephony.
7.7 List traffic scenarios for mobility, handover, session continuity.

8 Describe the Service Aware Policy Controller (SAPC) node which provides PCRF functionality.
8.1 Mobile Packet Backbone Network.

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8.2 Packet RAN.

9 Describe Converged Packet Gateway (CPG) node which provides SGW and PGW functionality.
9.1 OSS-RC overview.
9.2 Explain OSS-RC functions.
9.3 Understand basic software and hardware management on the CPG.
9.4 Understand concepts related to basic fault and performance monitoring on the CPG2010B.
9.5 Explain the node management terminal implementation in SGSN-MME 2011A.
9.6 Describe the OSS-RC usage to operate and maintain the SGSN-MME 2011A

Target audience

The target audience for this course is:

System Engineers, Service Planning Engineers, Network Design Engineers, Network Deployment Engineers.

Prerequisites

Successful completion of the following courses:

Some basic IP knowledge is desirable, but not necessary.
Knowledge of basic GPRS concepts is helpful but not required

Duration and class size

The length of the course is 1 days and 0 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.

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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 (hours)
1	Overview of the EPC	1 hour
	Infrastructure of EPC	1 hour
	Overview of SGSN-MME 2011A	1.5 hour
	Overview of CPG 2010B	1.5 hour
	Overview of GGSN-MPG 2011A	1 hour
2	EPC Protocols and Interfaces	1 hour
	The QoS and Bearer in EPS, EPS Services and the Mobility Architecture of EPS	3 hour
	EPC Transport Domain	1 hour
	EPC Operations and Maintenance	1 hour

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GGSN 2011 Configuration for SACC

LZU 108 8840 R1A

Description

Service Aware Charging and Control or more commonly known as SACC extends the GGSN-MPG functionalities to perform just that; charging and control of traffic based on the type and class of services. This functionality enables the GGSN-MPG to function more powerfully in terms of charging and providing better services towards the end customer. With the update of both the GGSN-MPG 2011B and the SACC to version 8 and 9, this learning product trains engineers on the aspects of configuration of features such as packet inspection, service classification, charging groups and others.

Learning objectives

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

1 Introduce the SACC 8 and 9 Solution
1.1 Describe the SACC solution based on GGSN-MPG 2011B node
1.2 List the interfaces available in this new SACC release
1.3 Understand the main SACC configuration inside GGSN-MPG 2011

2 Understand the PISC functionality
2.1 Describe how the rules are implemented
2.2 List the protocols available in the GGSN based solution
2.3 Define Header Inspection, Deep Packet Inspection and Heuristic Inspection
2.4 Configure PISC Rules

3 Detail the rating group concept and the Charging Methods
3.1 Understand volume, time and event-based charging
3.2 Describe the mapping between the services and the rating group and also apply it
3.3 Configure the Charging Method

4 Explain Authorization and Policy Control
4.1 Understand Authorization and Policy Control
4.2 Perform the GGSN configuration needed

5 List Credit Control settings
5.1 Set Quota Handling parameters
5.2 Outline Credit Control configurations

6 Understand Redirection Concept & APR
6.1 Define Redirection Reasons
6.2 Configure Redirection Services

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6.3 Define the APR

Target audience

The target audience for this course is:

Service Design Engineers, Network Design Engineers, Network Deployment Engineers, Service Deployment Engineers, System Engineers, Service Engineers.

Prerequisites

Successful completion of the following courses:

GGSN 2010 Network Engineer - LZU1088840 R2A (or: GGSN-MPG 2010 Operation & Configuration - LZU1088229 R1A)
SACC E2E Control (or SACC 6 Overview – LZU 1088841 R1A)

Duration and class size

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

Learning situation

This is an Instructor Led Training (ILT) course based on theoretical and practical instructor-led lessons given both in a classroom and 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 (hours)
1	Introduction	1.0
	PISC functionality	3.0
	Rating Group and Charging Methods	2.0
	Authorization and Policy Control	3.0
	Credit Control	2.0
	Redirection	1.0

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GGSN Network Engineer

LZU 108 8498 R1A

Description

Within the Packet Core Network, the Gateway GPRS Support Node acts as a medium to connect the mobile telecommunications world to the Internet as well as Virtual Private and Corporate networks alike. In order to be able to configure the GGSN to support these services, proper knowledge of the Ericsson GGSN should be acquired.
Upon completion of this course, the participant will be able to identify the Ericsson GGSN 2011 revision of the GGSN software. Configuration exercises are introduced to enhance the participants' knowledge of configuration in the JUNOS environment with the proper CLI commands. In addition to this, hardware architecture is also included to allow participants to understand the components of an Ericsson GGSN.

Learning objectives

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

1 Explain on an overview level the Packet Core Network and its components.
1.1 Detail the functions and services provided by the GGSN, with concepts such as PDP Context and Session Management procedures.
1.2 Understand GGSN 2011 architecture.

2 Explain and perform basic configurations for the GGSN 2011.
2.1 Understand basic JUNOS software components.
2.2 Navigate through GGSN CLI and configure basic system properties
2.3 General overview of GGSN configuration flows.

3 Understand and describe routing policies.
3.1 Understand and perform configuration for interfaces supported on the GGSN 2011.
3.2 Execute and understand routing configurations with application of filters and policies.

4 Detail configuration of services available on the GGSN 2011.
4.1 Observe IP addressing used in GGSN 2011.
4.2 Understand and perform configuration of GGSN 2011 services such as PIC configuration and GTP properties, as well as APNs and QoS parameters.

5 Describe security features on the GGSN 2011.
5.1 Explain and understand the security features available on the GGSN such as packet filtering and firewalls.
5.2 Understand tunneling protocols features of GGSN 2011.

6 Describe and configure Operation & Maintenance components in the GGSN 2011
6.1 Perform basic node monitoring procedures on the GGSN 2011 such as logs, charging, etc.
6.2 Understand and troubleshoot various components of the GGSN.
6.3 Introduction of GGSN Toolbox
6.4 Perform node backup and restore procedures on the GGSN
6.5 Identify connectivity and features related to OSS RC
6.6 Identify migration paths available from previous releases to GGSN 2011 (software upgrade and hardware migration)

Target audience

The target audience for this course is:

Network Design Engineers, Network Deployment Engineers, System Technicians, System Engineers, System Administrators

Prerequisites

Successful completion of the following courses:

GPRS System Survey LZU 108 876

Duration and class size

The length of the course is 4 days and 0 hours and the maximum number of participants is 8.

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Learning situation

This is an Instructor Led Training (ILT) course based on theoretical and practical instructor-led lessons given both in a classroom and technical environment, using equipment and tools which can be 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 (hours)
1	Introduction	2 hour
	Software Configuration	4 hour
2	Routing Configuration	4 hour
	Services Configuration	2 hour
3	Services Configuration	4 hour
	Security Configuration	2 hour
4	Security Configuration	2 hour
	General Operation & Maintenance	4 hour

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GGSN-MPG 2011 Delta

LZU 108 8549 R1A

Description

The GGSN-MPG has been introduced as a node that is capable of running functionalities in both the GPRS as well as the EPC network. It provides support for interfaces, procedures and parameters supported in both networks, evident with the introduction of new functionalities for PDN and Serving Gateway functions.
The GGSN-MPG 2011 Delta course highlights major and minor updates to the node in terms of software and hardware features and functionalities. Topics such as Session Resilience and PDN and Serving Gateway support are among some of the features discussed.
This course is suitable for mobile network operators looking for information on updates to the GGSN-MPG, especially if there are expansion plans to implement the new EPC network.

Learning objectives

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

1 Discuss the major update to the GGSN-MPG 2011 platform, now supporting the PDN Gateway and Serving Gateway functionalities in an EPC network.
1.1 Explain the PDN Gateway support where the GGSN-MPG is configured to support bearer activation, IP address allocation, etc.
1.2 Describe the Serving Gateway support on the GGSN-MPG handling signaling with the MME to perform bearer creation towards the eNodeB, among other functions.
1.3 Explore the support for Standalone PGW, Home Network (GTP S5), allowing for a split gateway architecture.
1.4 Understand the shared IP address pool across APNs
1.5 Explain the Multiple PDN support
1.6 Describe GGSN IPv6 User Plane

2 Discuss minor updates to the GGSN-MPG 2011 involving platform features and functionalities.

2.1 Describe Session Resilience updates
2.2 Explore the feature URI Volume Reporting
2.3 Explore CLI changes to cater for new application framework

3 Explore other updates relating to specific features of the GGSN-MPG 2011 and O&M improvements
3.1 Describe the In-Service Software Update feature, where updates to the GGSN-MPG can be performed while in operation.
3.2 Discuss the Toolbox Enhancements with the introduction of a PDC package to improve support operations.
3.3 Identify the new default CDR Charging Format.

Target audience

The target audience for this course is:

Service Design Engineer, Network Design Engineer, Service Deployment Engineer, System Technician, Service Technician, System Engineer, Service Engineer, Field Technician

Prerequisites

Successful completion of the following courses:

Successful completion of the following courses:
GGSN 2011 Network Engineer LZU108 8498
The participants should be familiar with earlier Ericsson GGSN 2009 and/or 2010 releases.

Duration and class size

The length of the course is 1 days and 0 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.

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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 (hours)
1	GGSN-MPG Major Updates supporting EPC	2 h
1	Minor Feature Upgrades	2 h
1	Miscellaneous Feature Improvements	2 h

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GGSN-MPG Operation and Configuration

LZU 108 8499 R1A

Description

The GGSN-MPG 2011 is a node that is capable of running Gateway functionalities in the EPC network. This node realizes the different procedures such as default and dedicated bearer creation, RADIUS authentication and IP address allocation among others.
Upon the completion of the GGSN-MPG 2011 Operation & Configuration course, the participants will be looking into the areas of operation and configuration of the GGSN-MPG through the execution of sample configurations and exercises in monitoring for the node.

Learning objectives

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

1 Describe on an overview level the Evolved Packet Core network and how the GGSN-MPG 2011 functions within this network.
1.1 Detail the functions and services provided by the GGSN-MPG, with concepts such as Bearer Activation and Session Management procedures.
1.2 Understand GGSN-MPG 2011 architecture both in terms of software and hardware.

2 Explain and perform basic configurations for the GGSN-MPG 2011.
2.1 Understand basic JUNOS software components.
2.2 Navigate through GGSN-MPG CLI and configure basic system properties
2.3 General overview of GGSN-MPG configuration flows.

3 Perform basic configurations on the GGSN-MPG such as interface, routing and security.
3.1 Identify steps to configure the physical interfaces such as port, VLAN tagging, etc.
3.2 Describe configurations related to routing such as protocols, metrics and links.
3.3 Explore different security configurations available on the GGSN-MPG such as packet filtering and firewalls.

4 Explore the configurations for setting up the GGSN-MPG to function in an EPS network environment.

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4.1 Discuss functionalities of the Serving Gateway and steps to configure the interfaces towards the eNodeB (S1-U) and the MME (S11).
4.2 Identify configurations involved to configure the PDN Gateway functionality and the interfaces involved such as the SGi, S5/S8, Gx and Gy.

5 Identify Operation & Maintenance procedures on the GGSN-MPG.
5.1 Explore commands to view new alarms related to the GGSN-MPG running in the Serving & PDN Gateway role.
5.2 Execute commands related to displaying status information on the GGSN-MPG running EPS services.

6

Target audience

The target audience for this course is:

Network Design Engineers, Network Deployment Engineers, System Technicians, System Engineers, System Administrators

Prerequisites

Successful completion of the following courses:

EPC System Survey LZU 108 7977

Duration and class size

The length of the course is 3 days and 0 hours and the maximum number of participants is 8.

Learning situation

This is an Instructor Led Training (ILT) course based on theoretical and practical instructor-led lessons given both in a classroom and technical environment, using equipment and tools which can be 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 (hours)
1	EPC Network Introduction	3 hours
	GGSN-MPG Software Configuration	3 hours
2	Basic System Configurations	6 hours
3	Interface & Services Setup	4 hours
	GGSN-MPG Operation & Maintenance	2 hours

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GPRS System Survey

LZU 108 876 R10A

Description

The GPRS network remains to be the mainstream technology of choice to carry data over the modern GSM/EDGE/WCDMA mobile networks of today.
The GPRS System Survey provides basic concepts in various areas of the network, both in the radio technology (GSM & WCDMA including EDGE & HSPA) and the core network.
Topics covered in this course are such as network architecture, traffic flows, and node level features including transport technologies.
This course is designed and catered for all knowledge levels, highlighting the Ericsson implementation of the GPRS technology.

Learning objectives

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

1 Explain the purpose of implementing packet switching in the existing GSM/WCDMA systems
1.1 Identify the evolution of cellular packet data technology
1.2 Understand the differences between Circuit Switching (CS) and Packet Switching (PS)
1.3 Describe the GSM/WCDMA GPRS network architecture
1.4 Describe a few examples of GPRS applications
1.5 List GPRS terminal features
1.6 Explain briefly the network evolution of GSM/WCDMA into EPC

2 Explain on overview level the air interface in GPRS covering the GSM network, including EDGE
2.1 Explain GPRS radio resource management
2.2 Understand GPRS throughput announcement, coding schemes, number of timeslots allocated, protocol headers added to payload and cell change in GPRS
2.3 Describe EDGE enhancement compared to GSM

3 Explain on overview level the air interface covering the WCDMA networks including HSPA
3.1 Briefly understand the QoS concept
3.2 Describe the radio resource control states
3.3 Describe the user plane bearers for WCDMA systems
3.4 Understand how the bandwidth is managed across the air interface
3.5 Briefly understand HSPA.

4 Understand and briefly describe the GPRS traffic cases
4.1 Show the GPRS transport architecture
4.2 Explain the mobility management states
4.3 Describe session management procedures
4.4 List the Gb Concepts
4.5 Explain on an overview level SGSN Pool Proxy functionality
4.6 Introduce 3GDT features

5 List the functions and hardware for the WPP based SGSN for both GSM and WCDMA systems as well as GGSN based on M20/M120/M320
5.1 List the main hardware components in the GPRS network
5.2 Explain the GPRS connectivity
5.3 List the protocol stack in the GPRS interfaces

6 Describe the BSS and RAN architecture for GPRS in GSM/WCDMA
6.1 Understand the configuration for Gb over IP connected to the PCU
6.2 List the interfaces on the WCDMA RAN architecture

7 Explain on an overview level the packet switching network in Mobile-PBN
7.1 Understand architectural and function overview of Mobile-PBN
7.2 Describe the Mobile Soft Switch Network Structure
7.3 List the interfaces on the WCDMA RAN architecture
7.4 Understand IP transport as in GP and IP
7.5 Briefly understand DNS and Roaming
7.6 Briefly understand Corporate Connectivity

Target audience

The target audience for this course is:

Field Technician, System Technician, System Engineer, Service Engineer, Network Design Engineer, Network Deployment Engineer, Service Design Engineer, Service Deployment Engineer.
This audience includes personnel in charge of the operation or engineering of Ericsson GSM SGSN and/or WCDMA SGSN nodes.

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Prerequisites

Successful completion of the following courses:

Ericsson WCDMA System Overview LZU 108 5418
GSM System Survey LZU 108 852

Duration and class size

The length of the course is 2 days and 0 hours and the maximum number of participants is 16.

Learning situation

Instructor Led Training (ILT) Version:
The length of the course is 2 days and the maximum number of participants is 16.
Virtual Classroom Training (VCT) Version:
The length of the course is 2 days and no more than 16 students participating in the VCT Sessions are recommended. Ericsson does not recommend CENTRA Sessions longer than 3 hours a day.

This course is based on theoretical instructor-led lessons given in a classroom environment, or given in a virtual classroom over the net by an instructor.

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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 (hours)
1	GSM/WCDMA Network Overview for GPRS	1,5 hour
	GSM Air Interface for GPRS	2,0 hour
	WCDMA Air Interface for GPRS	2,5 hour
2	Transport and Traffic Management	2,5 hour
	SGSN and GGSN Overview	1,5 hour
	BSS and WRAN Architecture for GPRS	1,0 hour
	Mobile-PBN	1,0 hour

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MME 2011 Configuration

LZU1088501 R1A

Description

If you need to build competence in configuring, operating and maintaining Ericsson MME in EPC network, this is the right course for you. Several configuration areas are covered for a comprehensive insight into SGSN-MME for LTE access.
The SGSN-MME 2011 is the latest Ericsson SGSN-MME product release, adding new and advanced features.

Learning objectives

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

1 Explain EPC Network basic concepts and the role of MME.
1.1 Explain the role of MME in EPC network.
1.2 Describe MME Interfaces and the protocols used.
1.3 Describe basic Mobility Management and Session Management procedures.
1.4 Explain the concepts of internal VPNs, IP service addresses, IP interfaces, IP Packet Filters in MME.
1.5 Describe the general configuration procedure in SGSN-MME.

2 Configure and maintain S1-MME Interface towards eNodeB.
2.1 Explain the concept of the Control Plane (S1-MME) and User Plane (S1-U) in S1 interface.
2.2 Explain the S1-AP and NAS procedures.
2.3 Describe the SCTP usage in S1-MME interface.
2.4 Configure and verify S1-MME interface.
2.5 Describe how eNodeBs are connected to MME

3 Configure and maintain S6a interface towards HSS.
3.1 Describe the functionality of S6a interface and the protocol used.
3.2 Explain the signaling procedures performed in the S6a interface.
3.3 Describe the usage of SCTP in the S6a interface.
3.4 Configure and verify S6a Interface.
3.5 Explain DIAMETER protocol and DIAMETER configurations.

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3.6 Configure IMSI Series Analysis tables in MME.

4 Configure and maintain S11, Gom, S10 and Gn interfaces.
4.1 Explain the functionality of S11, Gom, S10 and Gn interfaces.
4.2 Explain the usage of IP addresses in S11, Gom, S10 and Gn networks.
4.3 Configure and verify S11, Gom, S10 and Gn interfaces.

5 Configure Domain Name Service and Network Time Protocol in MME.
5.1 Explain the concept of using DNS.
5.2 Configure Domain Name System (DNS).
5.3 Explain the concept of using NTP.
5.4 Configure the Network Time Protocol.

Target audience

The target audience for this course is:

System Engineers, Service Planning Engineers, Network Design Engineers, Network Deployment Engineers.

Prerequisites

Successful completion of the following courses:

EPC System Survey LZU1087977 R2A
MME System Administration LZU1087979 R2A

Knowledge of basic GPRS concepts is helpful but not required.

Duration and class size

The length of the course is 3 days and 0 hours and the maximum number of participants is 8.

Learning situation

This course is based on theoretical instructor-led lessons given in both classroom and 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 (hours)
1	Introduction	1,5
	S1-MME Interface Configuration	4,5
2	S1-MME Interface Configuration (cont.)	1,5
	S6a Interface Configuration	4,5
3	S11, Gom, S10, Gn Interfaces Configuration	4
	DNS and NTP Configuration	2

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SACC 8 and 9 Overview

LZU 108 8839 R1A

Description

SACC is a powerful solution for operators that want to identify and control data services, QoS offered, access granted, based on services and/or on subscriber level. If you want to gain general knowledge about the main principles around the Service Aware Charging and Control Solution release 8 and 9, this course is for you. You will understand the components, protocols and enhancements that this solution is able to provide to the packet data network.

Learning objectives

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

1 Understand the Service Aware Charging and Control concept
1.1 Detail the service control needs
1.2 Explain charging enhancements enabled by SACC solution
1.3 List SACC solution benefits

2 Present an overview about the SACC architecture
2.1 Explain on overview level the main functionality and nodes in the SACC Solution
2.2 Understand SACC architecture

3 Explain the GGSN role inside SACC solution
3.1 List GGSN functionalities and features
3.2 Understand GGSN interfaces

4 Define SASN primary functionalities inside SACC Solution
4.1 List SASN general features
4.2 Understand SASN Traffic Analysis
4.3 Describe the SARA support functionality

5 List the Service Aware Policy Controller main functions
5.1 Describe Access Control and QoS Control functionalities
5.2 Understand the SAPC interaction with other nodes
5.3 Describe the SAPC applied to the fixed network

6 Understand the General SACC Operation in the Network
6.1 Describe general actions related to a PDP context.

Target audience

The target audience for this course is:

Network Design Engineers, Service Planning Engineers, Service Design Engineers, Network Deployment Engineers, System Technicians, and System Engineers.

Prerequisites

Successful completion of the following courses:

The participants should be familiar with (have knowledge and working experience of) 2.5 G and 3G packet networks and service offerings. Charging principles is also desirable.
GPRS System Survey LZU 108 876 (Course knowledge as a prerequisite)

Duration and class size

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

Learning situation

This course is based on theoretical instructor-led lessons and theoretical exercises 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 (hours)
1	Introduction	1
	SACC Architecture	0.5
	Exercises	0.5
	GGSN	0.5
	Exercises	0.5
	SASN	1
	Exercises	0.5
	Service Aware Policy Controller (SAPC)	0.5
	SACC Operation	0.5
	Exercise	0.5

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SACC E2E Control Generation 8 and 9

LZU 108 8841 R1A

Description

SACC is a powerful solution for operators that want to identify and control data services, QoS offered, access granted, based on services and/or on subscriber level. If you want to gain knowledge about the main principles around QoS Control and E2E QoS Control in the Service Aware Charging and Control Solution release 8 and 9 and its main benefits, this course is for you.

Learning objectives

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

1 Present an overview about the SACC architecture
1.1 Understand SACC solution benefits
1.2 Explain on overview level the main functionality and nodes in the SACC Solution
1.3 Understand SACC architecture

2 Understand the SACC Operation in the Network
2.1 Illustrate E2E QoS Control and nodes applied;
2.2 Recognize different traffic cases inside the solution
2.3 Describe actions related to a PDP context.

Target audience

The target audience for this course is:

Network Design Engineers, Service Planning Engineers, Service Design Engineers, Network Deployment Engineers, System Technicians, and System Engineers.

Prerequisites

Successful completion of the following courses:

- The participants should be familiar with (have knowledge and working experience of) 2.5 G and 3G packet networks and service offerings. Charging principles is also desirable.
- The students must attend (pre-requisite) the following courses:
- GPRS System Survey LZU 108 876 (Course knowledge as a prerequisite)
- SACC 8 and 9 Overview (Course or equivalent knowledge is a prerequisite)

Duration and class size

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

Learning situation

This course is based on theoretical instructor-led lessons and theoretical exercises 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	SACC Architecture	1.5
	Exercises	0.5
	SACC Operation	2.5
	Exercises	1.5

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SAPC 2011 Operation and Configuration

LZU 108 8551 R1A

Description

Mobile broadband is taking off and it is very important to understand the Fair Usage Policy Control, QoS and Access Policy Control. You may need to operate and configure the main equipment in order to manage all these new characteristics.

The SAPC 2011 Operation and Configuration course is recommended for who is working with operation and configuration tasks applied to the SACC solution. It defines how SAPC provides centralized policy management for access control and QoS control per subscriber, service and bearer basis according to the 3GPP Policy Charging and Control (PCC) architecture. This course includes up to the SAPC2011B features.

Learning objectives

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

1 Define the main concepts of the SAPC 2011B
1.1 Explain the role of SAPC2011B in SACC Solution
1.2 Understand the SAPC applied in different Ericsson solutions, e.g. LTE/EPC, GPRS, IMS etc
1.3 Present SAPC in a fixed network and converged network
1.4 Illustrate SAPC and Standards applied, including the 3GPP R9 PCRF Enhancements

2 Describe the SAPC 2011B Functionalities
2.1 List the Main SAPC Functions
2.2 Explain the Access Control in the SAPC
2.3 Describe the QoS Control in the SAPC
2.4 Present the Tethering control with SASN
2.5 Explain SAPC features when applied to a fixed network;
2.6 Describe the Support for Cisco SCE
2.7 Explain the Multi Vendor RADIUS/ RADIUS CoA
2.8 Present the flexibility of SAPC's integration with Ericsson and non-Ericsson external database
2.9 Explain APR, charging control and interface to OCS.

3 Understand the SAPC 2011 Architecture
3.1 Explain the Hardware architecture supported by SAPC 2011B

3.2 List the Software Structure of SAPC 2011
3.3 Describe the Interfaces of SAPC 2011B
3.4 Present the SAPC GUI Structure

4 Execute the SAPC 2011 Operation and analysis some Traffic cases
4.1 Interpret the CM Connection
4.2 Operate the GUI Connection
4.3 Understand the Analysis Sequence Performed by the SAPC
4.4 Describe some Examples of Operation.
4.5 Detailing the role of SAPC in some important Traffic Cases

5 Configure the SAPC 2011
5.1 Operate and Perform the SAPC 2011 Configuration
5.2 Modify Rules and Conditions in the SAPC
5.3 Creating Services (static, dynamic) in SAPC those will be installed in PCEF
5.4 Configuring a complete use case: Fair Usage Policy.
5.5 Configuring a use case, e.g. QoS change during default bearer creation, etc.

Target audience

The target audience for this course is:

Network Deployment Engineers, Service Deployment Engineers, System Technicians, Service Technicians, System Engineers, Service Engineers, and System Administrators

Prerequisites

Successful completion of the following courses:

The participants should be familiar with:

Unix knowledge

GPRS and EPC general knowledge

Basic knowledge in telecommunications and Data Networks

Working in Windows operating system environment.

SACC E2E Control – LZU 108 8230 (or SACC 8 Overview - LZU 108 8091)

TSP 6 Operation and Maintenance - LZU 108 7341

Knowledge about Cisco SCE, Juniper BRAS and Cisco BRAS configurations and limitations is recommended.

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Duration and class size

The length of the course is 3 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.

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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 (hours)
1	Introduction • Exercise	2.0
	Functionalities • Exercise	2.0
	Architecture • Exercise	2.0
2	Operation • Exercise	2.0
	Configuration • Exercise	2.0
	Laboratory • Exercise	2.0
3	Laboratory • Exercises	6.0

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SASN 2011 Operation and Configuration

LZU 108 8550 R2A

Description

The SASN 2011 Operation and Configuration course is recommended for who is working with operation and configuration tasks applied to the SACC (Service Aware Charging and Control) with SASN based solution. It defines how the Service Aware Support Node (SASN) provides network elements with the intelligence to identify the services in use. Also, it covers others potentials services such as advanced charging models, service access control, etc.

Learning objectives

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

1 Introduce the main components related with SASN 2011B:
1.1 Illustrate the SACC solution;
1.2 Identify the implementation of SASN 2011B in SACC solution;
1.3 Present the SASN 2011B architecture
1.4 Illustrate the SASN 2011B High Availability;
1.5 List the SASN2011B hardware & Software components.

2 Define the SASN 2011B functionalities:
2.1 Present the PISC functionality;
2.2 OS Detection (Tethering Support);
2.3 Illustrate the new Conversational Traffic Detection feature;
2.4 Define the Credit Control;
2.5 Illustrate the QoS Control and Local Time of Day QoS policies;
2.6 Present the Content Filtering;
2.7 Present the Policy Control & Profile Management;
2.8 Define Content Enrichment;
2.9 Illustrate Automatic, AoC and Top Up Redirection;
2.10 Present a briefly overview about SARA.

3 Present the Operation and Configuration for SASN 2011B:
3.1 Explain the access to the SASN Node;
3.2 Describe the different users and permissions;
3.3 Introduce CLI (Command Line Interface) commands;
3.4 Define the Configuration Wizard tool;
3.5 Describe the High Level configuration file;
3.6 Present several examples of configuration.

4 Describe the Charging Concept and Usage Records for SASN 2011B:
4.1 Present the Charging Concepts;
4.2 Define G-CDR, CDR and EDR;
4.3 Identify the G-CDR, CDR and EDR configuration.

5 Present the SASN 2011B available Interfaces:
5.1 Identify and briefly explain the Diameter, DCCA Gy, Gx+, ICAP, Rx interfaces and other interfaces.

6 Recognize the basics Maintenance procedures:
6.1 Define System Monitoring;
6.2 Recognize Alarms;
6.3 Explain Statistics;
6.4 Backup and Rollback.

Target audience

The target audience for this course is:

Network Deployment Engineers, Service Deployment Engineers, System Technicians, Service Technicians, System Engineers, Service Engineers, and System Administrators.

Prerequisites

Successful completion of the following courses:

• SACC E2E Control Generation 8 and 9 (or SACC 8 and 9 Overview - LZU 108 8839) LZU108 8841
• UNIX Basics (2 days ILT, or equivalent) LZU 108 5134
• IP Networking (4 days ILT, or equivalent) LZU 102 397
• GPRS System Survey (2 days ILT) LZU 108 876

The participants should be familiar with (have knowledge and working experience with) 2.5 G and 3G networks and service offerings. The participants should have general knowledge about LINUX and GPRS networks.

Duration and class size

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

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Learning situation

The course is based on instructor-led lessons and practical exercises given in both classroom and in technical environment using equipment and tools, which also can be accessed remotely from Ericsson.

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	Overview	1.5
	SASN Functionalities	2
	Exercise	1
	SASN Operation and Configuration	1
	Laboratory Exercise	0.5
2	SASN Operation and Configuration (cont)	2
	Laboratory Exercises	2
	SASN Charging Concepts	1
	Laboratory Exercises	1
3	SASN Interfaces	1.5
	Exercise	0.5
	SASN Maintenance	1.5
	Laboratory Exercises: Alarms, Statistics and Rollback	2
	Questions, Course Summary	0.5

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SGSN 2011 Configuration

LZU1088502 R1A

Description

If you need to build competence in configuring, operating and maintaining Ericsson SGSN node, this is the right course for you. Several configuration areas are covered for a comprehensive insight into SGSN-MME for both GSM and WCDMA access.
The SGSN-MME 2011 is the latest Ericsson SGSN-MME product release, adding new and advanced features.

Learning objectives

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

1 Explain GSM/WCDMA Network basic concepts and the role of SGSN.
1.1 Explain the role of SGSN in GSM/WCDMA GPRS network.
1.2 Describe SGSN interfaces and protocols used.
1.3 Describe basic Mobility Management and Session Management procedures.

2 Configure and maintain Gb over Frame Relay interface.
2.1 Explain the protocol stack for GB over Frame Relay interface
2.2 Configure and verify Gb over Frame Relay interface.
2.3 Connect SGSN to BSC.

3 Configure and maintain Gb over IP interface.
3.1 Explain the concept, advantages and network impact of Gb over IP.
3.2 Explain the concepts of dynamic configuration for Gb over IP and related procedures.
3.3 Configure and verify Gb over IP interface.
3.4 Explain Gb over FR to Gb over Ip procedure.

4 Configure and maintain Iu interface.
4.1 Describe the functionality of Iu interface and protocols used.
4.2 Describe SS7 connectivity types.
4.3 Explain the usage of IP addresses for Iu-C over IP.
4.4 Configure and verify Iu interface.
4.5 Connect SGSN to RNC.

5 Configure and maintain Gr interface.
5.1 Describe the functionality of Gr interface and protocols used.
5.2 Configure and verify Gr interface.
5.3 Connect SGSN to HLR.
5.4 Configure the IMSI Series Analysis tables in the SGSN.

5.5 Describe the configuration procedures for Gd, Gs, Gf, Ge and Lg interfaces.

6 Configure and maintain Gn & Gom interfaces.
6.1 Explain the functionality of Gn and Gom interfaces.
6.2 Explain the usage of IP address in the Gn and Gom networks.
6.3 Configure and verify the Gn and Gom interfaces.

7 Perform charging related configurations on SGSN.
7.1 Describe the different charging methods available on the SGSN.
7.2 Describe the CDR-based charging principle on the SGSN.
7.3 Understand triggering and closing of CDR.
7.4 Explain near-real-time and file-based output of CDR.
7.5 Configure charging functions on the SGSN.

8 Configure Domain Name Service in SGSN.
8.1 Explain the concept of using DNS.
8.2 Configure DNS.

9 Configure Network Time Protocol connectivity in SGSN.
9.1 Explain the concept of using NTP.
9.2 Configure the Network Time Protocol.

Target audience

The target audience for this course is:

System Engineers, Network Design Engineers, Network Deployment Engineers, Service Planning Engineers.

Prerequisites

Successful completion of the following courses:

GPRS System Survey LZU108876 R8A
SGSN System Administration LZU1087984 R2A

Duration and class size

The length of the course is 5 days and 0 hours and the maximum number of participants is 8.

Learning situation

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This course is based on theoretical instructor-led lessons given in both classroom and 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 (hours)
1	Introduction	1 hour
	Gb over Frame Relay Configuration	3 hours
	Gb over IP Configuration	2 hours
2	Gb over IP configuration (cont.)	2 hours
	Iu/SS7 Configuration	4 hours
3	Gr configuration	4 hours
	Gn & Gom Configuration	2 hours
4	Gn & Gom Configuration	2 hours
	Charging configuration	4 hours
5	Charging configuration (cont.)	2 hours
	DNS configuration	2 hours
	NTP configuration	2 hours

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SGSN MME MKVIII Delta

LZU1088616 R1A

Description

The SGSN-MME based on MkVIII HW is the latest in the Ericsson SGSN-MME product hardware family. This is a natural step for future proof hardware and the coming Ericsson Blade System (EBS) evolution which will include SGSN-MME, SAPC and HSS. This course is intended to introduce the new hardware and explain about the capability, advantage and the build up of the SGSN-MME MkVIII hardware.

Learning objectives

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

1 Introduction to the new SGSN-MME MkVIII hardware
1.1 Understand the driving factors for the introduction of the new MkVIII
1.2 Discuss the new MkVIII hardware for the SGSN-MME and its capacity and features
1.3 Review the environmental advantages of the new hardware through an improved architecture

2 Hardware and Software architecture
2.1 Identify major components of the MkVIII hardware including the chassis, magazines and processor blades
2.2 List available hardware layouts and configuration for the deployment of new SGSN-MME systems
2.3 Discuss the changes to the software architecture within the MkVIII hardware

3 Operation & Maintenance aspects
3.1 Discuss Operation & Maintenance aspects of the MkVIII hardware
3.2 Identify the migration process to the MkVIII hardware
3.3 Compare the differences between the MkVI, MkVI+ and MkVIII hardware versions

Target audience

The target audience for this course is:

Field Technician, System Technician, System Engineer, Service Engineer, Network Design Engineer, Network Deployment Engineer, Service Design Engineer, Service Deployment Engineer.
This audience includes personnel in charge of the operation or engineering of Ericsson SGSN-MME nodes.

Prerequisites

Successful completion of the following courses:

SGSN-MME 2010B Delta LZU1088227
Ericsson WCDMA System Overview LZU1085418
Knowledge of GPRS or EPC System is an advantage.

Duration and class size

The length of the course is 0 days and 3 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.

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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 (hours)
1	**Introduction to the new SGSN-MME MkVIII hardware**	0.5
	Hardware and Software architecture	1.5
	Operation & Maintenance aspects	1

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SGSN Pool Introduction

LZU 108 6459 R7A

Description

This course introduces “SGSN Pool Proxy” - an optional feature, offered with the SGSN-MME nodes. It incorporates an outline of the concept and migration strategies, describes the functionality related to SGSN Pool Proxy, covers Operation and Maintanance tasks, and deals with impacts on network planning and performance management.

Learning objectives

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

1 Explain the concept of SGSN Pool feature for GSM/WCDMA access
1.1 the concept of SGSN Pool
1.2 the advantage of SGSN Pool features
1.3 the importance of Network Resources Identifier (NRI)
1.4 the concept of SGSN Pool Proxy
1.5 SPP function to integrate non-pool aware nodes on Gb over IP Proxy Solution and SGSN Pool Proxy Solution
1.6 3G Direct Tunnel (3GDT)
1.7 briefly the SGSN-MME 2009B architecture

2 Classify the mobility management functionality related to SGSN pool
2.1 the mobility management functionality related to SGSN Pool
2.2 how the SGSN selection is performed
2.3 the main traffic cases in SGSN Pool

3 Understand the migration strategies related to SGSN Pool
3.1 the migration strategies related to SGSN Pool
3.2 the migration to SGSN Pool using PXM and CLI commands

4 Explain the SGSN Pool operation and maintenance procedure
4.1 the operations procedure in the SGSN Pool
4.2 the maintenance procedure in the SGSN Pool

5 Configure the SGSN in Pool with OSS-RC
5.1 the operation procedure in SGSN Pool using OSS-RC
5.2 the maintenance procedure in SGSN Pool using OSS-RC

Target audience

The target audience for this course is:

System Engineer, Network Deployment Engineer and Network Design Engineer.

Prerequisites

Successful completion of the following courses:

GPRS System Survey, LZU 108 2222
Gb over IP Introduction, LZU 108 6460 (for GSM networks)
Iu over IP Introduction, LZU 108 6595 (for WCDMA networks)
Further, the participants should be familiar with Operation and Configuration of the SGSN node at least on SGSN-MME 2010A level and have working experience.

Duration and class size

The length of the course is 1 days and 0 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.

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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 (hours)
1	• Introduction	1 hour
	• Mobility Management for SGSN Pool	2 hours
	• Migration to SGSN Pool	1 hour
	• Operation and Maintenance	1 hour
	• Configure the SGSN in Pool with OSS-RC	1 hour

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SGSN Pool Proxy R2 Operation and Configuration

LZU 108 7266 R2A

Description

This course will introduce the role of SPP as a new node in GPRS domain. This course cover the operational as well as maintenance procedures for the SPP for GSM. The course also includes hands-on activities with common SPP configuration and handling tasks.

Learning objectives

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

1 Understand the interfaces and protocols

2 List the hardware of SPP

3 List the software of SPP

4 Perform operation, maintenance, configuration and administration tasks

5 Understand theoretically the migration and integration tasks related to SPP

Target audience

The target audience for this course is:

Network Deployment Engineers, System Technicians, System Engineers, Field Technicians, System Administrators.

Prerequisites

Successful completion of the following courses:

Successful completion of the following flow and courses:

- GSM System Survey LZU 108 852
- GPRS System Survey LZU 108 876
- SGSN Pool Introduction LZU 108 6459

Duration and class size

The length of the course is 2 days and 0 hours 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.

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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 (hours)
1	Module 1: Protocol and Procedures	1.5 hours
1	Module 2: Hardware	0.5 hours
1	Module 3: Software	0.5 hours
1	Module 4: Operation	3 hours
1	Module 5: Migration and integration	0.5 hours
2	Module 6: EXERCISES	6 hours

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SGSN-MME 2011 Delta

LZU1088500 R1A

Description

If you already have working-experience in configuring, operating and maintaining an Ericsson SGSN-MME and you need to be updated with the latest release of the product, this is the right course for you. Several new and enhanced features are covered for a comprehensive insight into SGSN-MME 2011 functionalities.

Learning objectives

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

1 Explain the main differences between SGSN-MME 2010 and SGSN-MME 2011
1.1 Describe the main features of SGSN-MME 2011
1.2 List the interworking network elements with SGSN-MME 2011

2 Describe the hardware and capacity in SGSN-MME 2011
2.1 Highlight the new equipment in MkVI+ and MkVIII hardware
2.2 Explain the capability of the new hardware
2.3 List the capacity and throughput of SGSN-MME 2011
2.4 Explain the upgrade path to SGSN-MME 2011

3 Understand the enhancements to the existing features and the functioning of the new features
3.1 Explain the improvements of the existing features
3.2 List the new features introduced in SGSN-MME 2011
3.3 Explain how the features operate in the SGSN-MME 2011

4 Describe the changes related to SS7 and SCTP
4.1 Explain the New SS7 Stack implementation in SGSN-MME 2011
4.2 Understand the SCTP enhancements

5 Highlight the Operation and Maintenance changes in SGSN-MME 2011
5.1 List the new, modified or removed CLI commands
5.2 List the changes to alarms, events, logs and counters
5.3 Describe the enhancements of tracing tools

Target audience

The target audience for this course is:

System Engineers, Service Planning Engineers, Network Design Engineers, Network Deployment Engineers

Prerequisites

Successful completion of the following courses:

EPC System Survey, LZU1087977 R2A
GPRS System Survey, LZU 108 876 R8A
SGSN 2010 System Administration, LZU 108 9784 R1A
MME 2010 System Administration, LZU 108 7979 R1A
SGSN 2010 Configuration, LZU108 7985 R1A
MME 2010 Configuration, LZU108 7978 R1A

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.

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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 (hours)
1	Introduction	0,5 hours
	Hardware & Capacity	1,5 hours
	New and Enhanced Features	3 hours
	SS7 and SCTP	0,5 hours
	O&M Changes	0,5 hours

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SGSN-MME 2011 System Administration

LZU 108 8820 R1A

Description

The SGSN-MME 2011 System Administration course provides participants with knowledge and skills necessary to administer SGSN-MME 2011 node including basic SGSN-MME architecture, SGSN-MME operation and administration as well as fault management and security management.

Learning objectives

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

1 SGSN-MME node architecture, functions and interfaces
1.1 Explain the functionality and purpose of SGSN-MME in GSM, WCDMA and EPC networks
1.2 Describe basic procedures handled by SGSN and MME
1.3 Explain SGSN-MME software and hardware architecture
1.4 Explain IP address usage in SGSN-MME and different components' identities

2 Explain basic features and functionalities of the SGSN-MME 2011
2.1 Explain the concept of log management and in SGSN-MME
2.2 Describe SGSN-MME resilience functionalities
2.3 Describe SGSN-MME license management
2.4 Describe SGSN-MME Optional features
2.5 Describe SGSN-MME 11 New Features

3 Perform basic node management using Command Line Interface and Packet Exchange Manager
3.1 Describe O&M architecture and management domains in SGSN-MME
3.2 Explore configuration management domain using ALEX, PXM and CLI

4 Perform basic security management
4.1 Explain the concepts of security management
4.2 Perform user management
4.3 Assign tailored roles for different users

5 Perform systems administration tasks on the SGSN-MME 2011
5.1 Perform fault management on SGSN-MME
5.2 Perform software management on SGSN-MME
5.3 Explain and perform Checkpoint operation

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5.4 Prepare an SGSN-MME for software patch installation

6 Describe support systems available to the SGSN-MME 2011
6.1 Administer system software management with the GSS/GSA functionality
6.2 Describe the key functions of the OSS RC 10 in managing the GPRS network
6.3 Describe OSS tools such as the GPRS Configuration Management, Test and Monitoring as well as FM, PM and Pool Management features

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 and System Administrators

Prerequisites

Successful completion of the following courses:

GPRS System Survey, LZU 108 876 R10A
EPC System Survey LZU1087977 R3A

Duration and class size

The length of the course is 4 days and 0 hours and the maximum number of participants is 8.

Learning situation

This is an Instructor Led Training (ILT) course based on theoretical and practical instructor-led lessons given both in a classroom and technical environment, using equipment and tools which can be 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 (hours)
1	System and Architecture	2 hrs
	Features and Functions	4 hrs
2	Node Management	6 hrs
3	Security Management	3 hrs
	Systems Administration	3 hrs
4	Support Systems	6 hrs

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SGSN-MME 2011B Delta

LZU 108 8819 R1A

Description

If you already have working-experience in configuring, operating and maintaining an Ericsson SGSN-MME and you need to be updated with the latest release of the product, this is the right course for you. Several new and enhanced features are covered for a comprehensive insight into SGSN-MME 2011B functionalities.

Learning objectives

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

1 Explain the main differences between SGSN-MME 2011A and SGSN-MME 2011B
1.1 List the main highlights in SGSN-MME 2011B release
1.2 Describe SGSN-MME 2011B compliance to 3GPP standards and interworking compatibility to the other network elements

2 Describe software architecture changes and capacity in SGSN-MME 2011B
2.1 Explain changes in the MkVIII software architecture
2.2 Explain the upgrade/migration paths to SGSN-MME 2011B
2.3 Describe capacity and throughput of SGSN-MME 2011B

3 Explain the enhancements to the existing features and the functioning of the new features
3.1 List the new features introduced in SGSN-MME 2011B
3.2 Explain how the features operate in the SGSN-MME 2011B
3.3 Explain the improvements of the existing features

4 Describe SS7, SCTP and DIAMETER improvements
4.1 Describe SS7 improvements in SGSN-MME 2011B
4.2 Explain SCTP enhancements in SGSN-MME 2011B
4.3 Describe DIAMETER enhancements in SGSN-MME 2011B

5 Highlight the Operation and Maintenance changes in SGSN-MME 2011B
5.1 List the new, modified or removed CLI commands
5.2 List the changes to alarms, events, logs and counters
5.3 Describe the enhancements of tracing tools

Target audience

The target audience for this course is:

System Engineers, Service Planning Engineers, Network Design Engineers, Network Deployment Engineers

Prerequisites

Successful completion of the following courses:

EPC System Survey, LZU1087977 R3A
GPRS System Survey, LZU108876 R10A
SGSN-MME System Administration, LZU1087984 R2A
SGSN 2011(A) Configuration, LZU1088502 R1A
MME 2011(A) Configuration, LZU1088501 R1A

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	0.5 hours
	Hardware & Capacity	1 hours
	New and Enhanced Features	3.5 hours
	SS7 and SCTP	0.5 hours
	O&M Changes	0.5 hours

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