# vIMS 1 2018 System and Products

## Training Programs

## Catalog of Course Descriptions

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# Introduction

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

Service delivery is supported using various delivery methods including:

| Delivery Method |
| --- |
| Instructor Led Training (ILT) |
| Web-based Learning (WBL) |



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# CSCF 17 Operation and Configuration

LZU1082418 R1A

Description:

This course will provide the participants with a thorough understanding of Call Session Control Function CSCF and its role in MMTel, VoLTE and Wi-Fi Calling solutions. The course focuses on the node architecture, traffic support functions as well as Surveillance,
Operation and Configuration activities on CSCF 17.

Learning objectives:

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

1 Describe CSCF node functions and interworking
1.1 Describe CSCF node functions
1.2 Explain node interworking - Interfaces and Protocols
1.3 Explain how CSCF supports basic session establishment procedures

2 Explain and handle CSCF Operational support functions
2.1 Describe O&M Interface and navigate the Element Manager
2.2 Use the CPI description documents to identify the function of CSCF parameters and
2.3 Perform system backups and software checks
2.4 Explain the alarms connected to CSCF, view alarm lists, perform alarm searches and
2.5 Perform CSCF nodes status checks
2.6 Handle Performance management for CSCF
2.7 Perform User Data Output

3 Describe the DIAMETER interface management in CSCF
3.1 Explain how to configure Diameter Own Node
3.2 Explain how to configure Diameter Peer Node
3.3 Explain how to configure Diameter Routing

4 Describe and handle Charging Management in CSCF
4.1 Explain how to configure Charging Triggers
4.2 Explain how to configure Charging Profiles

5 Explain and handle CSCF Access Authorization and Authentication support
5.1 Configure control of number of contacts per user
5.2 Explain and configure CSCF for Subscribed Media Profile (SMP) support
5.3 Configure Digest and IMS AKA authentication methods

6 Explain and handle CSCF Registration support
6.1 Explain CSCF Registration and 3:rd party registration support
6.2 Explain and Configure Access Awareness

7 Explain and handle CSCF Services and Application support
7.1 Explain service invocation in CSCF
7.2 Explain and configure Shared Initial Filter Criterias (IFC)

8 Explain and handle CSCF Traffic support
8.1 Configure the interface between CSCF and DNS/ENUM
8.2 Configure & verify Number Normalization tables in CSCF
8.3 Configure & verify BGCF (External Network Selection)

9 Explain and handle CSCF Emergency Call support
9.1 Configure Basic Emergency Call Handling in E-CSCF
9.2 Explain Emergency Access Transfer Function (EATF) and the Emergency SRVCC support for VoLTE

## Target audience:

This course is suitable for anyone who is required be able to configure/operate/maintain CSCF.

## Prerequisites:

Successful completion of the following courses:
IMS Overview, LZU1082585
IMS Signaling, LZU1087193
TSP Operation and Maintenance, LZU1089924
The following course is required if BSP hardware is used:
BSP 8100 Operation and Maintenance, LZU1089779
The following course is recommended but not a mandatory pre-requisite:
MMTel Provisioning, LZU1089067

## 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 a technical environment using equipment and tools.


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# HSS-FE 1 Operation and Configuration for Volte

LZU1082587 R1A

Description:

This course provides participants with the knowledge and skills necessary to perform Surveillance, Operation and Configuration activities on the HSS-FE 1 node in the VoLTE environment. The course covers both virtual and native HSS-FE.

Learning objectives:

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

1 Describe HSS-FE node functions and interworking
1.1 Describe network solutions Ericsson HSS-FE is a part of
1.2 Describe HSS-FE functions in VoLTE environment
1.3 Explain HSS-FE interworking, interfaces and protocols

2 Explain the HSS-FE node architecture
2.1 Explain the native HSS-FE implementation
2.2 Explain the HSS-FE implementation as a VNF
2.3 Explain External Connectivity and eVIP functionality
2.4 Perform Scaling Management

3 Explain HSS-FE Operation and Maintenance Principles
3.1 Describe O&M Interface
3.2 Perform Compute Resources Check
3.3 Explain Fault Management principles
3.4 Perform HSS-FE Health Check
3.5 Explain Performance Management principles
3.6 Perform Backup and Restore

4 Describe the role of HSS-FE in IMS
4.1 Describe how HSS-FE supports basic IMS procedures
4.2 Configure Cx/Dx interface between HSS-FE and CSCF
4.3 Configure Sh/Dh interface between HSS-FE and Application Servers
4.4 Configure Service Profiles containing Triggers in HSS-FE
4.5 Configure Charging Profiles in HSS-FE

5 Describe the role of HSS-FE in EPC
5.1 Describe how HSS-FE supports basic EPC procedures
5.2 Configure ESM parameters (ESM Configuration Container)
5.3 Configure the S6a interface between HSS-FE and MME
5.4 Configure SWx interface between HSS-FE and AAA
5.5 Configure MAP interface between HSS-FE and HLR

6 Describe the role of HSS-FE in VoLTE
6.1 Describe how HSS-FE supports VoLTE specific procedures
6.2 Configure VoLTE specific parameters on HSS-FE

7 Explain HSS-FE common functions
7.1 Configure the interface between HSS-FE and CUDB

8 Configure AVG Module in HSS-FE
8.1 Configure AVG in HSS-FE

## Target audience:

This course is suitable for anyone who is required be able to configure/operate/maintain HSS-FE in IMS networks.

## Prerequisites:

Successful completion of the following courses:

IMS Overview LZU1082585
Virtual EPC Overview LZU1082264
IMS Signaling LZU1087193
EPC Signaling LZU1087580
VoLTE Concepts LZU1089425
VoLTE e2e Use Cases LZU1089426
Virtual IMS Concepts LZU1082227
The following course is a prerequisite for native HSS-FE 1:
BSP 8100 Operation and Maintenance LZU1089779
The following courses become prerequisites if HSS-FE 1 is a part of Ericsson Certified Cloud offering:
BSP 8100 Operation and Maintenance LZU1089779
Cloud Execution Environment 16A (CEE), LZU1082354
Ericsson Cloud Execution Environment 16A (CEE) System Administrator, LZU1082353

## 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:

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# IMS Overview

LZU1082585 R1A

Description:

If you want to know how operators and end users can benefit from IMS and what the different Ericsson IMS solutions are, then this is the right course for you.
The course provides an overview of the IP Multimedia Subsystem (IMS) and the Ericsson solutions for IMS, based on Release 17 and vIMS 1. End user benefits and what IMS services an operator can offer are explained. The features, nodes & signaling aspects are described for the business offerings related to IMS 17 and vIMS 1.

Learning objectives:

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

1 Identify the role and purpose of IMS
1.1 Explain why there is a need for IMS
1.2 Present operator and end-user benefits of IMS.
1.3 Describe the IMS system in brief – the architecture and capabilities IMS provides
1.4 List which standardization bodies define IMS and IMS related services

2 Describe the Ericsson IMS/MMTel Services
2.1 Describe the Ericsson MMTel Supplementary and Regulatory Services
2.2 Describe Service Enabling Mechanisms in Ericsson IMS/MMTel
2.3 Outline the platforms used for the IMS nodes

3 Recognize Ericsson's IMS Solutions
3.1 Identify the purpose of Ericsson's IMS business solutions
3.2 Recognize the Mobile Telephony Evolution with VoLTE process and offerings
3.3 Recognize the Enriched Communication offerings
3.4 Recognize the PSTN to IP process and offerings
3.5 Recognize the Visual Communication offering
3.6 Recognize the Mobile Unified Communication offering
3.7 Recognize the Converged Transit offering

4 Interpret ‘typical’ IMS signaling flows
4.1 Express a basic understanding of SIP
4.2 Interpret the SIP & Diameter signaling sequence for Registration
4.3 Interpret the SIP signaling sequence for an IMS to IMS session
4.4 Interpret the SIP signaling sequence for an IMS to GSTN session
4.5 Interpret the SIP signaling sequence for an GSTN to IMS session

5 Outline the Nodes and Interfaces in Ericsson MMTel
5.1 Explain the functional nodes in Ericsson MMTel
5.2 Identify the signaling and media protocols used

Target audience:

This course is suitable for anyone who is required to be familiar with IMS.

Prerequisites:

Students should have a good general knowledge of telecommunications.

Duration and class size:

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

Learning situation:

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



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# IMS Overview Online

LZU1082517 R1A

Description:

If you want to know how operators and end users can benefit from IMS and what the different Ericsson IMS solutions are, then this is the right course for you.
The course provides an overview of the IP Multimedia Subsystem (IMS) and the Ericsson solutions for IMS, based on Release 17 and vIMS 1. End user benefits and what IMS services an operator can offer are explained. The features, nodes & signalling aspects are described for the business offerings related to IMS 17 and vIMS 1.

Learning objectives:

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

1 Identify the Role and Purpose of IMS
1.1 Explain why there is a need for IMS
1.2 Present operator and end user benefits of IMS
1.3 Describe the IMS system in brief
1.4 List which standardization bodies define IMS and IMS related services
1.5 Explain what is meant by the IMS ecosystem

2 Outline Ericsson IMS Portfolio
2.1 Explain the services provided by IMS.
2.2 Outline the platforms used for the IMS nodes.

3 Recognize IMS Solutions
3.1 Identify the purpose and architecture of a number of IMS based solutions, such as VoLTE, PSTN to IP and RCS.
3.2 Recognize Ericsson's offerings in each solution.

4 Interpret IMS e2e Session Setup
4.1 Have a basic understanding of the SIP protocol
4.2 Interpret the SIP & Diameter signaling sequence for registration
4.3 Interpret the SIP signaling sequence for an IMS to IMS Session and IMS to GSTN Session

5 Outline the Nodes and Interfaces in Ericsson MMTel
5.1 Describe the architecture of Ericsson IMS.
5.2 Name and explain the functional nodes
5.3 Explain how the IMS Core interworks with LTE and other packet networks
5.4 Identify the signaling and media protocols and describe where they are used.

Target audience:

This course is suitable for anyone who is required to be familiar with IMS.

Prerequisites:

Students should have a good general knowledge of telecommunications.

Duration and class size:

The length of the course is 2 hours.

Learning situation:

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



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# IMS Signaling

LZU1087193 R1A

Description:

This course provides a detailed introduction to signaling in IMS by presenting the protocols involved and different traffic cases from the IMS System.
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 (Session Description Protocol);
- Diameter protocol and IMS related Diameter applications;
- H248/MeGaCo.

Actual signaling traces are used where possible to show the practical aspects of signaling 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 | Identify the roles of IETF, 3GPP, TISPAN, OMA and GSMA in IMS. |
| 1.2 | Review the main 3GPP specifications and IETF RFCs relating to IMS. |
| 1.3 | Introduce the concepts related to mobile and fixed access to IMS. |
| 1.4 | Recognize the main protocols, signaling flows and node functions for typical IMS Sessions, including Registration, IMS to IMS Sessions and IMS to CS sessions. |
| 2 | Discuss the structure, specifications and usage of Session Initiation Protocol (SIP) and Session Description Protocol (SDP) in IMS. |
| 2.1 | Describe what SIP is and the reasons why SIP is required in IMS. |
| 2.2 | List and describe the main RFCs related to SIP and SDP. |
| 2.3 | Explain the basic functions and capabilities of SIP and SDP. |
| 2.4 | Relate the function of SIP Components, SIP Proxies and SIP User Agents (UAC, UAS). |
| 2.5 | Interpret stateful and stateless SIP Proxies. |
| 2.6 | Explain the specifications, functions and usage of all the SIP methods and the more common SIP responses. |
| 2.7 | Outline SIP transactions and dialogs. |
| 2.8 | Discuss telephone numbers, SIP-URIs, Tel-URIs for addressing end-users. |
| 2.9 | Explain the routing and addressing principles of SIP messages and the function of the SIP routing header fields (Request URI, Via, Route, Record-Route, Contact and others). |
| 2.10 | Outline the function and uses of the more common SIP header fields used in IMS and their related RFCs. |

2.11 Identify the function of SDP and the offer / answer model for SDP in IMS.
2.12 Review the structure of SDP and the function of the SDP fields with reference to the associated RFCs.
2.13 State the use of SDP in SIP and MeGaCo signaling sequences.

3 Recognize the structure, specifications and usage of the diameter Protocol in IMS
3.1 List the base functions and capabilities of diameter and the associated RFCs.
3.2 Review the routing principles of diameter in IMS.
3.3 Show the structure of commands.
3.4 Interpret the structure, types and format of AVPs.
3.5 Outline the main diameter base protocol messages and AVPs.
3.6 State vendor specific commands & AVPs
3.7 Describe the services provided by the Cx/Dx, Zx, Sh/Dh, Rx and Rf interfaces in IMS.
3.8 Relate the main IMS diameter messages and AVPs associated with the Cx/Dx, Zx, Sh/Dh, Rx and Rf interfaces in IMS.

4 Outline the structure, specifications and usage of H.248 (MeGaCo)
4.1 Describe the main function and usage of H.248 in IMS and the main RFCs.
4.2 Review the H.248 context model.
4.3 Discuss the H.248 commands, descriptors and parameters and their use in IMS.
4.4 Explain packages and profiles.
4.5 Interpret typical H.248 signaling sequences in IMS and their relationship with SIP and ISUP signaling.

5 Analyze detailed IMS signaling flows and Message content for registration, session establishment and other call scenarios
5.1 Describe SIP to SIP and SIP to ISUP session establishment.
5.2 Explain the Registration process, including Authentication.
5.3 Discuss SIP/ISUP interworking including the function and use of Number Normalization, ENUM and External Network Selection (Breakout – BGCF).
5.4 Explain SIP forking.
5.5 Relate detailed SIP and SDP signaling flows and messages from traces.
5.6 Interpret detailed diameter signaling flows and message content for registration (Cx/Dx and Sh/Dh), Session Establishment and Charging (Rf).
5.7 Analyze detailed H.248 signaling traces between SBG & BGF and MGC & MGW during call establishment and clearing.

Target audience:

This course is suitable for anyone who is required to be familiar with IMS Signaling principles.


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## Prerequisites:

Successful completion of the following courses:

IMS Overview, LZU1082585, or equivalent.
In addition the students should have a good basic understanding of general datacom and telecom networks and good knowledge of IP networking and the TCP/IP protocol family.
The prerequisites are essential in order to ensure that all the course objectives are met.

## Duration and class size:

The length of the course is 3 days and the maximum number of participants per session is 16.

## Learning situation:

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


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# IPWorks 2 Operation and Maintenance for IMS

LZU1082659 R1A

Description:

Do you need to know how to configure a virtualized 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 maintenance of IPWorks. The course emphasizes the understanding of virtualized IPWorks deployment on the IMS network and the knowledge of configuring the DNS and ENUM (with Number Portability) services as well as the Active Select DNS and DHCP. The students are introduced to fault, node and performance management of the system.

Learning objectives:

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

1 List the purpose of IPWorks and the services it provides
1.1 Introduction to IPWorks features and functions

2 Explain the architecture of IPWorks
2.1 Explain Virtualization concepts
2.2 Describe Component Based Architecture and name relevant supporting components
2.3 Review of Hardware and Software Architecture

3 Recount IPWorks redundancy options
3.1 Describe the redundancy options

4 Describe IPWorks deployment scenarios in IMS network
4.1 Relate IPWorks importance in IMS network

5 Work with IPWorks interfaces
5.1 Apply COM CLI
5.2 Get familiar to Netconf

6 Configure various parts of the system
6.1 Configure DNS server
6.2 Configure ASDNS
6.3 Operate ENUM server
6.4 Operate DHCP server

7 Execute fault management
7.1 Inspect alarms and work with the SNMP agents
7.2 Configure and view logs

8 Practice maintenance tasks
8.1 System backup and restore
8.2 Configure and view statistics reports

9 Handle User management
9.1 Managing User Profile and Access Control

## Target audience:

This course is suitable for anyone who is required be able to configure/operate/maintain IP Works 2 in IMS networks.

## Prerequisites:

Successful completion of the following courses:

IMS Overview, LZU1082585
Virtual IMS Concepts, LZU1082227
The following courses become prerequisites if IPWorks Virtualized is a part of Ericsson Certified Cloud offering:
BSP 8100 Operation and Maintenance LZU1089779
ECM Fundamentals, LZU1089914

## 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 lessons given in a technical environment using equipment and tools.


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# MGC Operation and Configuration for IMS

LZU1082431 R1A

## Description:

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

## Learning objectives:

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

1 Describe MGC with its features and functions
1.1 Understand the position of the MGC within the IMS based solutions
1.2 Name the MGC interfaces and protocols
1.3 List and describe the MGC features and functions
1.4 Explain the terminology used in the MGC

2 Describe MGC system architecture
2.1 Present the logical architecture of MGC
2.2 Describe the hardware and software implementation
2.3 Explain the high availability feature of the MGC

3 Handle surveillance activities on the MGC
3.1 Use the MGC element manager together with the node documentation
3.2 Check the MGC status and interfaces
3.3 Interpret MGC alarms and events
3.4 Create and fetch the MGC logs
3.5 Perform MGC Backup
3.6 Initiate and collect MGC statistics

4 Explain network use cases with MGC
4.1 Illustrate the call flows for the break out and in scenarios via MGC

5 Configure MGC interworking interfaces
5.1 Configure the MGC H.248 interface
5.2 Configure the MGC interface towards IMS core network
5.3 Configure the MGC interface towards PSTN network
5.4 Define MGC number and routing analysis
5.5 Test MGC number and routing analysis
5.6 Create the MGC DNS and charging interfaces

6 Understand how to configure a secure and redundant MGC
6.1 Present the redundancy method and concepts applied to secure MGC

Target audience:

This course is suitable for anyone who is required be able to configure/operate/maintain MGC in IMS networks.

Prerequisites:

Successful completion of the following courses:

IMS Overview, LZU1082585
IMS Signaling, LZU1087193
IS 3.1 Overview, LZU1087566
IS 3.1 Operation and Configuration, LZU1087567

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 a technical environment using equipment and tools.


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# MRS Operation and Configuration

LZU1082588 R1A

## Description:

Do you need competence in how to operate and configure the Ericsson Media Resource System (MRS)? This course covers just that. It will provide the participants with the knowledge to perform Surveillance, Operation and Configuration activities on the MRS.
It consists of theory and practical exercises on how to operate and configure the IM-MGW, Mobile Access, Multimedia Resource Function Processor (MRFP), Multimedia Resource Function Controller (MRFC) and Border Gateway Function (BGF) functions included in the MRS. This includes configuration of media interfaces towards IP and TDM networks.
The course provides hands-on training with the MRS Node Manager, as well as Command Line Interface (CLI) and some applications in Operation Support System-Radio and Core (OSS-RC) related to MRS operation and configuration.

## Learning objectives:

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

1 Describe MRS System Architecture and functions
1.1 Understand the benefits of the Base Packages and Value Packages
1.2 State the different functions included in the MRS

2 Describe the Media Resource Platform (MRP) functions and concepts
2.1 Explain the MRP concept
2.2 Describe the MRP hardware Architecture
2.3 Describe how Fault Tolerant Execution is achieved by the use of Reliable Programs, State Data Storage, the node File System and the Database
2.4 Explain Error Recovery functions, supervision, escalation staircase and the Trace and Error log principle
2.5 Explain the Configuration Version (CV) concept and how a node is started

3 Perform basic fault management on a MRS node as described in the Customer Product Information (CPI)
3.1 Explain the O&M architecture for MRS
3.2 Explain the use of CPI documents
3.3 Read the Alarm List and Alarm Log to manage faults in MRS
3.4 Follow an Operational Procedure to solve an alarm

4 Understand the role of different Management Interfaces for MRS
4.1 Understand the role of Node Manager
4.2 Understand the role of OSS-RC for management of MRS

4.3 Check and understand existing configuration in a MRS using the Node Manager and/or OSS-RC
4.4 Understand the role of Command Line Interface (CLI) and Node Command Line Interface (NCLI) in MRS
4.5 List and run some useful CLI and NCLI commands

5 Describe the Configuration Process for MRS
5.1 Explain the CCR Collection form
5.2 Describe the MRS initial start process
5.3 Describe the MRS Traffic Configuration process

6 Explain the MRS configuration and use Node Manager and/or OSS-RC to change or configure parts of the different interfaces
6.1 Describe and configure IP transport
6.2 Describe and configure TDM transport
6.3 Configure the IM-MGW interworking interfaces
6.4 Configure the Mobile Access interworking interfaces
6.5 Configure the BGF interworking interfaces
6.6 Configure the MRFP/MRFC interworking interfaces
6.7 Explain and configure the signaling bearer in MRS
6.8 Explain and define Virtual Media Gateway, Virtual Media Resource Function Processor/Controller and Virtual Border Gateway Function.

## Target audience:

This course is suitable for anyone who is required be able to configure/operate/maintain MRS in IMS networks.

## Prerequisites:

None

## Duration and class size:

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

## Learning situation:

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


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# MTAS 17 Operation and Configuration

LZU1082444 R1A

Description:

This course will provide the participants with a thorough understanding of Mutimedia Telephony Application Server MTAS 17 and its role in MMTel, VoLTE/Wi-Fi Calling and SIP Trunking solutions. The course focuses on the node architecture, data structure as well as Surveillance, Operation and Configuration activities on MTAS 17.

Learning objectives:

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

1 Describe MTAS node functions and its role in IMS based solutions
1.1 Review the MTAS node functions as a part of MMTel Solution
1.2 Review the MTAS node functions as a part of VoLTE/Wi-Fi Calling Solution
1.3 Review the MTAS node functions as a part of SIP Trunking Solution
1.4 Recognize the subscriber data handling concept in MTAS and the role of HSS
1.5 Describe the MTAS node interworking, interfaces and protocols

2 Explain MTAS node architecture
2.1 Explain MTAS architecture
2.2 Describe O&M interface

3 Explain MTAS Operation and Maintenance Principles
3.1 Explain Fault Management principles
3.2 Perform MTAS Health Check
3.3 Explain Performance Management principles
3.4 Perform Backup and Restore

4 Configure MMTel AS components and interworking interfaces
4.1 Describe basic MMTel Use Cases and the role of MMTel AS
4.2 Configure SIP interface towards CSCF
4.3 Configure Sh/Dh interface towards HSS
4.4 Configure MTASv Charging and Rf/Ro interfaces towards Charging Mediator
4.5 Configure and Mp interface between MTASv and MRFP
4.6 Configure Number Normalization tables in MTASv
4.7 Configure XDMS subsystem

5 Configure SCC AS components and interworking interfaces
5.1 Describe basic VoLTE/Wi-Fi Calling Use Cases and the role of SCC AS
5.2 Configure SDS parameters
5.3 Configure T-ADS parameters
5.4 Configure SRVCC parameters

5.5 Configure Additional SCC-AS features

6 Configure ST AS components
6.1 Configure ST AS components
6.2 Describe basic SIP Trunking Use Cases and the role of ST AS
6.3 Configure ST AS Parameters

7 Configure NW AS components
7.1 Describe basic NW AS use cases and the role of NW AS
7.2 Configure NW AS parameters

8 Configure BL AS components
8.1 Describe basic BL AS use cases and the role of BL AS
8.2 Configure BL AS parameters

9 Configure MMTel AS and ST AS supplementary services and explain signaling sequences
9.1 Configure and verify Communication Diversion service
9.2 Configure and verify Communication Barring service
9.3 Configure and verify Identity Presentation/Restriction service
9.4 Configure and verify other supplementary services

## Target audience:

This course is suitable for anyone who is required be able to configure/operate/maintain MTAS 17.

## Prerequisites:

Successful completion of the following courses:

IMS Overview, LZU1082585
IMS Signaling, LZU1087193
TSP Operation and Maintenance, LZU1089924
The following course is required if BSP hardware is used:
BSP 8100 Operation and Maintenance, LZU1089779
The following course is recommended but not a mandatory pre-requisite:
MMTel Provisioning, LZU1089067

## Duration and class size:

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


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www.ericsson.com/ourportfolio/services/learning-services

Learning situation:

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

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# SBG 17 Operation and Configuration

LZU1082442 R1A

## Description:

Without SBG the IMS network is vulnerable to both internal and external attacks. This course will help you to understand the importance of SBG in VoLTE and VoIP networks from a security point of view and its support for other features and functions. It will cover operational aspects and configuration so that you can operate and configure the Ericsson SBG 17 in your VoLTE/VoIP Networks.
The course is practical and includes tasks like configuring signaling interfaces, security functions, VoLTE related functions and new VoLTE/VoIP network connections.

## Learning objectives:

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

1 Describe the SBG Network implementation
1.1 List SBG Interfaces and Protocols
1.2 List SBG ensuring and enabling functions
1.3 Describe the SBG roles in 3GPP and TISPAN network architectures
1.4 Describe the node functions implemented by SBG.

2 Describe the SBG key Network features
2.1 Describe the network security features
2.2 Describe the Quality of Service Assurance features
2.3 Explain SBG monitoring of session activity
2.4 Explain SBG connectivity support to users and networks
2.5 Explain SBG Charging
2.6 Explain Geographical Location support
2.7 Explain Priority Service Support

3 Explain SBG routing procedures and basic signaling sequences
3.1 Explain how SIP routing is performed in IBCF, P-CSCF and ATCF
3.2 Explain SBG basic signaling sequences for Registration, Session Establishment and Session Termination

4 Describe the SBG System Architecture and perform basic O&M tasks
4.1 Describe the IS System Architecture
4.2 Describe the Operation and Maintenance Architecture
4.3 Handle SBG Blades and Blade Systems
4.4 Handle SBG SW Backup and Restore
4.5 Handle SBG Alarms and Events
4.6 Handle SBG Logs

4.7 Handle VLAN's for SBG
4.8 Describe the SBG capacity and redundancy

5 Configure SBG interworking interfaces
5.1 Configure SIP session signaling interfaces
5.2 Configure Diameter and DNS Interworking Interfaces

6 Configure Emergency Call support in SBG
6.1 Configure Emergency Call support for mobile users

7 Configure SBG for external BGFs
7.1 Explain the distributed BGF concept
7.2 Explain BGF detection and selection mechanisms
7.3 Explain how to configure H.248 signaling connections in SGC towards an external BGF
7.4 Configure external BGF interface
7.5 Configure the SBG for Optimized BGF Selection

8 Configure SBG to enable SRVCC functionality
8.1 Explain the use of the CS network type
8.2 Explain the call cases involved in access transfer
8.3 Configure Access Transfer Control Function (ATCF)

9 Configure SBG to enable VoWiFi functionality
9.1 Explain the configuration needed to enable VoWiFi in SBG

10 Configure signaling tracing in the SBG
10.1 Configure the interface to the trace collection entity
10.2 Configure a trace session
10.3 Explain the trace file format

11 Configure additional SBG features (Optional)
11.1 Configure SIP header blacklists
11.2 Configure User Agent White Lists
11.3 Configure SMM Rules
11.4 Configure SIP Request Throttling
11.5 Configure SIP Error response mapping
11.6 Configure LBO Inbound Roaming
11.7 Configure Connection Admission Control
11.8 Configure Transcoding
11.9 Configure Priority Service Support
11.10 Configure S8 Home Routed Roaming

Target audience:

This course is suitable for anyone who is required be able to configure/operate/maintain SBG 17.


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## Prerequisites:

Successful completion of the following courses:

IMS Overview, LZU1082585
IMS Signaling, LZU1087193
IS 3.1 Overview, LZU1087566
IS 3.1 Operation and Configuration, LZU1087567

## Duration and class size:

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

## Learning situation:

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


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# vAFG Operation and Maintenance

LZU1082610 R1A

## Description:

Do you want to know how to operate and maintain the virtualized Authentication Federation Gateway (vAFG)? How to use the CPI to do your required tasks? Do you want to know more about fault management in vAFG? Are you interested in the vAFG system health checks and performance management? Do you want to be able to perform the necessary configuration on the vAFG? If so, then this course is for you.
This course follows on from the Authentication Federation Gateway (vAFG) Overview course. It explores the Operation and Maintenance (O&M) tasks using the CPI and will give students a good understanding of the fault management, system health checks, performance management, license validation and parameter configuration. The course uses hands-on exercises to teach the students everything they need to know about operating and managing vAFG

## Learning objectives:

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

1 Outline vAFG overview
1.1 Explain vAFG virtualized architecture
1.2 Describe vAFG feature
1.3 Investigate different authentication mechanisms
1.4 Review vAFG Extended Features

2 Introduce vAFG Operation & Maintenance (O&M)
2.1 Navigate vAFG CPI O&M documentation
2.2 Access the system using MSA and explore the dashboard
2.3 Describe vAFG Fault Management
2.4 Assess vAFG Performance Management

3 Perform system health checks
3.1 Check node status
3.2 Perform Health Checks on vAFG
3.3 Review vAFG Logging and Tracing functions

4 Perform vAFG O&M tasks
4.1 Perform backup
4.2 Describe Restart, Start & Stop the vAFG
4.3 Perform restore
4.4 Create Dump Report
4.5 Validate vAFG licensing

4.6 Assess vAFG Synchronization

5 Manage the vAFG configuration and provision
5.1 Configure XDM AP
5.2 Provision XDM AP
5.3 Configure SLB
5.4 Configure and provision Cross-Network Proxy
5.5 Configure and provision Trusted Proxy
5.6 Configure and provision OpenID Connect
5.7 Configure and provision Trusted Proxy

## Target audience:

This course is suitable for anyone who is required be able to configure/operate/maintain vAFG.

## Prerequisites:

Successful completion of the following courses:

vAFG Overview, LZU1082611-R1A

## 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 lessons given in a technical environment using equipment and tools.


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# vAFG Overview

LZU1082611 R1A

## Description:

Do you want to know what the virtualized Authentication Federation Gateway (vAFG) is? How it enables operators to provide and extensive and advanced set of authentication and authorization and security features? What are the benefits and use cases? If so, then this course is for you.
This course will give students a broad understanding of the vAFG product, system architecture, features and the benefits of the product. As part of the overview, the virtualized architecture of the vAFG is described.
The virtualized vAFG solution provides end-user authentication, authorization and security mechanisms for different feature packages, IMS, OpenID Connect (also known as Web ID), LTE-BC (Broadcast), IoT/M2M and Trusted Proxy. This course will explore these feature packages.

## Learning objectives:

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

1 Introduce vAFG (Virtualized AFG)
1.1 Examine vAFG and security requirements
1.2 Document the benefits and requirements for vAFG
1.3 Describe the vAFG overall architecture
1.4 List vAFG features
1.5 Introduce GBA Authentication

2 Define bootstrapping
2.1 Recognize Generic Bootstrapping Architecture (GBA)
2.2 Define bootstrapping procedure
2.3 Determine GBA user security settings
2.4 Explain GBA call flows

3 Describe XDM aggregation
3.1 Define XDM aggregation
3.2 Identify XDM in the network and XCAP
3.3 Illustrate XDM architecture and implementation
3.4 Describe XDM AP features
3.5 Define encryption and compression
3.6 Review vAFG authentication methods

4 Describe other vAFG features
4.1 Explain OpenID Connect

4.2 Explain Media Broadcast LTE-BC
4.3 Explain vAFG Internet of Things (IoT)
4.4 Explain vAFG Trusted Proxy (TP) functionality

5 Explain Operation and Maintenance
5.1 Evaluate Performance Management and record keeping
5.2 Describe Fault Management
5.3 Review vAFG Application Supervision
5.4 Describe Back and Restore
5.5 List logs used for Operation and Maintenance

Target audience:

This course is suitable for anyone who is required to be familiar with vAFG.

Prerequisites:

There are no prerequisites for this course.

Duration and class size:

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

Learning situation:

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


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# vCSCF 1 Operation and Configuration

LZU1082451 R1A

Description:

This course will provide the participants with a thorough understanding of Virtualized Call Session Control Function, vCSCF, and its role in MMTel, VoLTE and WiFi calling solutions. The course focuses on the node architecture, traffic support functions as well as Surveillance, Operation and Configuration activities on vCSCF 1.

Learning objectives:

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

1 Describe vCSCF node functions and interworking
1.1 Describe vCSCF node functions
1.2 Explain node interworking - Interfaces and Protocols
1.3 Explain how vCSCF supports basic session establishment procedures

2 Describe the CSCF VNF implementation
2.1 Describe the VM types used for the CSCF VNF
2.2 Explain CSCF VNF scalability

3 Examine and handle vCSCF Operational support functions
3.1 Perform Configuration Management using ECLI
3.2 Discuss and perform Fault Management
3.3 Elaborate and perform Backup and Restore
3.4 Explain and handle External Connectivity - eVIP
3.5 Perform vCSCF automated Health Check
3.6 Perform vCSCF basic node checks
3.7 Perform User Data Output

4 Describe the DIAMETER interface management in vCSCF
4.1 Explain how to configure Diameter Own Node
4.2 Explain how to configure Diameter Peer Node
4.3 Explain how to configure Diameter Routing

5 Describe and Handle Charging Management in vCSCF
5.1 Explain how to configure Charging Triggers
5.2 Explain how to configure Charging Profiles

6 Explain and Handle vCSCF Access Authorization and Authentication support
6.1 Configure control of number of contacts per user
6.2 Explain and configure vCSCF for Subscribed Media Profile (SMP) support
6.3 Configure Digest and IMS AKA authentication methods

7 Explain and Handle vCSCF Registration support
7.1 Explain vCSCF registration and 3:rd party registration support
7.2 Explain and configure access awareness

8 Explain and Handle vCSCF Services and Application support
8.1 Explain service invocation in vCSCF
8.2 Explain and configure shared Initial Filter Criterias (IFC)

9 Explain and Handle CSCF Traffic support
9.1 Configure & verify number normalization tables in CSCF
9.2 Configure & verify BGCF (External Network Selection)

10 Explain and Handle CSCF Emergency Call support
10.1 Configure basic emergency call handling in E-CSCF
10.2 Explain Emergency Access Transfer Function (EATF) and the emergency SRVCC support for VoLTE

Target audience:

This course is suitable for anyone who is required be able to configure/operate/maintain CSCF 1.

Prerequisites:

Successful completion of the following courses:
IMS Overview, LZU1082585
IMS Signaling, LZU1087193
Virtual IMS concepts, LZU1082227 The following courses become prerequisites for the System Verified offering:
Foundation Series - Ericsson Cloud Execution Environment (CEE) (WBL), LZU 108 2538
Ericsson CEE R6 System Administrator, LZU 108 2536
Foundation Series - Ericsson Hyperscale Datacenter Systems 8000 (WBL), LZU 108 2539
Ericsson HDS 8000 Command Center Manager 2.4 System Administration, LZU 108 2537
or BSP 8100 Operation and Maintenance, LZU1089779

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 a technical environment using equipment and tools.



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# Wi-Fi Calling e2e Use Cases

LZU1082229 R1A

## Description:

The course provides a detailed overview of Wi-Fi Calling end2end use cases. It includes exercises with a thorough analysis of Wi-Fi Calling signaling captures previously taken in a live Wi-Fi Calling networks. Attach and registration in Packet Core and MMTel, session setup, service entitlement and Wi-Fi – VoLTE mutual handovers are among the cases studied.

## Learning objectives:

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

1 Explain basic use cases in Wi-Fi Calling network
1.1 Explain Wi-Fi and EPC attach procedures
1.2 Explain service entitlement and MMTel registration procedures
1.3 Explain Wi-Fi Calling session setup procedures
1.4 Explain ICS in Wi-Fi Calling
1.5 Explain seamless handover procedures between Wi-Fi and VoLTE

2 Analyze traces of Wi-Fi Calling use cases
2.1 Perform analysis of Wi-Fi and EPC attach procedures
2.2 Perform analysis of service entitlement and MMTel registration procedures
2.3 Perform analysis of Wi-Fi Calling session setup procedures with ICS
2.4 Perform analysis of handover procedures between Wi-Fi and VoLTE

## Target audience:

This course is suitable for anyone who is required be able to configure/operate/maintain Wi-Fi Calling Solution.

## Prerequisites:

Successful completion of the following courses:

Wi-Fi Calling Solution Overview LZU1089981
Recommended courses:
IMS Signaling LZU1087193
VoLTE e2e Use Cases LZU1089426

Duration and class size:

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

Learning situation:

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



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# Wi-Fi Calling Solution Overview

LZU1089981 R1A

## Description:

The course provides a detailed overview of the Wi-Fi Calling Solution components from an end2end perspective. It describes the Ericsson Wi-Fi Calling solution for SIM and Multi-Device. The solution architecture and the roles of the EPC and IMS components are explained in detail. The Wi-Fi Calling Use Cases including interworking with VoLTE technology are described.

## Learning objectives:

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

1 Describe what Wi-Fi Calling is, and explain the solution's driving factors and benefits
1.1 Describe Wi-Fi Calling Driving Factors
1.2 Explain Wi-Fi Calling Benefits
1.3 Outline the Wi-Fi Calling for SIM-device architecture
1.4 Outline the Wi-Fi Calling for Multi device architecture
1.5 Outline the trusted Wi-Fi access architecture

2 Explain the Ericsson Wi-Fi Calling solution for SIM-device
2.1 Describe the steps for activating the Wi-Fi Calling service
2.2 List the solution specific nodes and their roles
2.3 Describe the call setup signaling for a Wi-Fi call
2.4 Explain how Wi-Fi calling interworks with VoLTE
2.5 Outline the entitlement solution for SIM-based Wi-Fi Calling

3 Explain the Ericsson Wi-Fi Calling solution for Multi-Device
3.1 Explain the Multi-Device Solution Network Architecture
3.2 List the solution specific nodes and their roles
3.3 Explain basic use cases and nodes interworking

## Target audience:

This course is suitable for anyone who is required to be familiar with Wi-FI Calling solution.

## Prerequisites:

Successful completion of the following courses:
IMS Overview LZU1082585
Virtual EPC Overview LZU1082264

## Duration and class size:

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

## Learning situation:

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


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# Virtual IMS Concepts

LZU1082227 R1A

Description:

This course provides explanation of the virtualization and cloud concepts needed to undetstand the deployment of the virtualized IP Multimedia Subsystem (IMS) and the Ericsson Virtualized Network Functions (VNFs) for IMS. The Network Functions Virtualization (NFV) architecture according to ETSI NFV, the open source platform OPNFV and the Ericsson Cloud System will be explained

Learning objectives:

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

1 Explain virtualization and cloud concepts
1.1 Explain the virtualization efficiency and revenue opportunities
1.2 Understand what is meant by a Virtual Machine (VM)
1.3 Explain the cloud concept according to the US National Institute of Standards and Technology (NIST)

2 Explain the ETSI Network Functions Virtualization (NFV) Reference Architecture
2.1 Explain the functionality and interfaces for NFVI, VNF, VNFC, MANO and Hypervisor
2.2 Explain what is meant by VNF Instantiation and Transition
2.3 Explain what is meant with VNF scaling
2.4 Explain virtual switching

3 Explain the open source platform OPNFV
3.1 Explain how OPNFV relates to ETSI NFV
3.2 Explain the main OPNFV software components

4 Explain the Ericsson Cloud System offering
4.1 Explain how Ericsson Cloud System relates to ETSI NFV and OPNFV
4.2 Explain the Cloud Execution Environment (CEE)
4.3 Understand the Ericsson Cloud Manager (ECM)

5 Explain Ericsson's VNF offering for IMS
5.1 Relate the Ericsson IMS VNFs to ETSI NFV
5.2 Explain the VM types for IMS VNFs
5.3 Explain high availability and robustness concepts for IMS VNFs
5.4 Explain Ericsson NFV delivery Models

6 Give examples on how different Ericsson virtual IMS functions are deployed
6.1 Explain deployment of vMTAS and vCSCF
6.2 Explain deployment of vSBC

Target audience:

This course is suitable for anyone who is required to be familiar with virtualization principles in IMS.

Prerequisites:

Successful completion of the following courses:

IMS Overview LZU1082585

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.



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# vMRF 1 Operation and Configuration

LZU1082589 R1A

## Description:

This course provides the participants with a thorough understanding of Virtualized Media Resource Function, vMRF, and its role in MMTel, VoLTE and WiFi calling solutions. The course focuses on the node architecture, traffic support functions as well as Surveillance, Operation and Configuration activities on vMRF 1.

## Learning objectives:

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

1 Describe vMRF node functions and interworking
1.1 Discuss vMRF node functions
1.2 Identify node interworking - Interfaces and Protocols
1.3 Review how vMRF supports basic session establishment procedures

2 Discuss the MRF VNF implementation
2.1 Review the VM types used for the MRF VNF
2.2 Explain MRF VNF enabled cloud features

3 Elaborate and handle vMRF operational support functions
3.1 Perform Configuration Management using ECLI
3.2 Show how to perform Fault Management
3.3 Illustrate and perform Performance Management
3.4 Recognize and perform Backup and Restore
3.5 Elaborate and handle External Connectivity
3.6 Perform vMRF basic node checks
3.7 Perform Media Stream Recording

4 Perform H.248 interface management in vMRF
4.1 Configure and Verify the H.248 interface in vMRF

5 Discuss how to handle Tone Sending
5.1 Configure Tones to be played in connection to a call
5.2 Configure Tones to be played in connection to a voice conference

6 Interpret how to handle Audio Announcements
6.1 Handle Basic Narrowband (NB) and Wideband (WB) announcements
6.2 Configure variable and multi-language NB and WB announcements

7 Explain and Handle DTMF Tone support
7.1 Configure DTMF tone detection

8 Explain and Handle Audio Conferencing
8.1 Configure audio conferencing support in vMRF
9 Discuss the vMRF Emergency and Priority Call support

## Target audience:

This course is suitable for anyone who is required be able to configure/operate/maintain vMRF 1.

## Prerequisites:

Successful completion of the following courses:

IMS Overview, LZU1082585
IMS Signaling, LZU1087193
Virtual IMS concepts, LZU1082227
The following courses become prerequisites for the System Verified offering:
Foundation Series - Ericsson Cloud Execution Environment (CEE) (WBL), LZU 108 2538
Ericsson CEE R6 System Administrator, LZU 108 2536
Foundation Series - Ericsson Hyperscale Datacenter Systems 8000 (WBL), LZU 108 2539
Ericsson HDS 8000 Command Center Manager 2.4 System Administration, LZU 108 2537 or
BSP 8100 Operation and Maintenance, LZU1089779

## 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 lessons given in a technical environment using equipment and tools.


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# vMTAS 1 Operation and Configuration

LZU1082455 R1A

Description:

This course will provide the participants with a thorough understanding of a Virtualized Mutimedia Telephony Application Server vMTAS 1 and its role in MMTel, VoLTE/Wi-Fi Calling and SIP Trunking solutions. The course focuses on the node architecture, data structure as well as Surveillance, Operation and Configuration activities on vMTAS 1.

Learning objectives:

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

1 Describe vMTAS node functions and its role in vIMS based solutions
1.1 Describe the vMTAS node functions as a part of MMTel Solution
1.2 Describe the vMTAS node functions as a part of VoLTE/Wi-Fi Calling Solution
1.3 Describe the vMTAS node functions as a part of SIP Trunking Solution
1.4 Explain the subscriber data handling concept in vMTAS and the role of HSS
1.5 Explain the vMTAS node interworking, interfaces and protocols

2 Explain the vMTAS node architecture
2.1 Explain Virtualization concepts
2.2 Describe Component Based Architecture and name relevant supporting components
2.3 Describe vMTAS application components and the purpose for each of them

3 Explain vMTAS Operation and Maintenance Principles
3.1 Describe O&M Interface
3.2 Explain Fault Management principles
3.3 Explain Configuration Management principles
3.4 Explain Performance Management principles
3.5 Perform server status and health check
3.6 Perform system backups and schedule maintenance tasks
3.7 Perform vMTAS surveillance tasks
3.8 Use the CPI description documents to identify the function of vMTAS parameters

4 Configure MMTel AS components and interworking interfaces
4.1 Describe basic MMTel use cases and the role of MMTel AS
4.2 Configure SIP interface towards CSCF
4.3 Configure Sh/Dh interface towards HSS
4.4 Configure vMTAS charging and Rf/Ro interfaces towards charging mediator
4.5 Configure and Mp interface between vMTAS and MRFP
4.6 Configure Number Normalization tables in vMTAS
4.7 Configure XDMS subsystem

5 Configure SCC AS components and interworking interfaces
5.1 Describe basic VoLTE/Wi-Fi Calling use cases and the role of SCC AS
5.2 Configure SCC AS parameters and interfaces

6 Configure ST AS components
6.1 Describe basic SIP Trunking use cases and the role of SCC AS
6.2 Configure ST AS Parameters

7 Configure NW AS (IWF) components
7.1 Describe basic NW AS use cases and the role of NW AS
7.2 Configure NW AS parameters

8 Configure Business Line AS (BL AS) components
8.1 Explain basic Unified Communication use cases and the role of BL AS
8.2 Configure BL AS parameters

9 Configure MMTel AS and ST AS supplementary services and explain signaling sequences
9.1 Configure and verify Communication Diversion service
9.2 Configure and verify Communication Barring service
9.3 Configure and verify Identity Presentation/Restriction service
9.4 Configure and verify other supplementary services

Target audience:

This course is suitable for anyone who is required be able to configure/operate/maintain vMTAS 1.

Prerequisites:

Successful completion of the following courses:

IMS Overview, LZU1082585
IMS Signaling, LZU1087193
Virtual IMS Concepts, LZU1082227
The following courses become prerequisites for the System Verified offering:
Foundation Series - Ericsson Cloud Execution Environment (CEE) (WBL), LZU 108 2538
Ericsson CEE R6 System Administrator, LZU 108 2536
Foundation Series - Ericsson Hyperscale Datacenter Systems 8000 (WBL), LZU 108 2539
Ericsson HDS 8000 Command Center Manager 2.4 System Administration, LZU 108 2537
or
BSP 8100 Operation and Maintenance, LZU1089779

Duration and class size:

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

Learning situation:

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# VoLTE Concepts

LZU1089425 R1A

## Description:

The course provides a detailed overview of VoLTE components from end2end perspective. It explains the concept of Mobile Telephony Evolution, the VoLTE architecture, VoLTE and CS voice coexistence, migration mechanisms (CSFB, ICS, SRVCC) and deployment scenarios. The QoS mechanism, emergency calls handling, media transport and signaling for basic traffic cases are also described.

## Learning objectives:

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

1 Explain the concept of Mobile Telephony Evolution
1.1 Explain the need of telephony in LTE
1.2 Explain the concept of GSMA VoLTE

2 Describe VoLTE/CS Voice network architecture, its components and functions of different nodes
2.1 Describe MMTel general architecture and review services provided by MMTel
2.2 Describe EPS general architecture
2.3 Describe VoLTE/CS Voice network architecture
2.4 Describe VoLTE CS Voice network nodes and their function

3 Explain migration mechanisms for VoLTE/CS coexistence
3.1 Explain Circuit Switched Fall Back (CSFB) functionality and architecture
3.2 Explain IMS Centralized Services (ICS) functionality and architecture
3.3 Explain Single Radio Voice Call Continuity (SRVCC) functionality and architecture

4 Explain VoLTE deployment scenarios

5 Explain how QoS required for MMTel services is assured in LTE/EPC

6 Describe basic traffic cases in VoLTE/MMTel network.

## Target audience:

This course is suitable for anyone who is required to be familiar with VoLTE solution.

Prerequisites:

Successful completion of the following courses:

IMS Overview, LZU1082585
EPC System Survey, LZU1087977

Duration and class size:

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

Learning situation:

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


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# VoLTE e2e Advanced

LZU1082456 R1A

## Description:

This course provides the participants with competence needed to perform advancedoperation and maintenance tasks on the complete VoLTE 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.Most of the course time is dedicated to the fault finding activity in a e2e VoLTE lab with a detailed analysis and discussions. Special attention is paid to the node interworking and
signaling protocols.
The course is mainly oriented to the participants with Core (IMS, EPC, MSS) background. Students with RAN background are recommended to attend LZU1089466 “Voice over LTE e2e Realization and RAN Functionality” instead.

## Learning objectives:

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

1 Analyze e2e signaling traces in the VoLTE network
1.1 Explain basic VoLTE e2e signaling traces; attach, registration, call establishment and call termination
1.2 Explain service specific signaling traces concerning SRVCC and ICS

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 to locate, analyze and solve end-to-end session faults in the VoLTE network.

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

## Target audience:

This course is suitable for anyone who is required be able to perform faultfinding activities in VoLTE networks.

## Prerequisites:

Successful completion of the following courses:

VoLTE Concepts, LZU1089425
VoLTE e2e Use Cases, LZU1089426
Students are required to have at least 6 months VoLTE practical experience. These prerequisites are essential in order to ensure that all the course objectives can be met.

## 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 a technical environment using equipment and tools.


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# VoLTE e2e Use Cases

LZU1089426 R1A

## Description:

The course provides a detailed overview of VoLTE end2end use cases. It includes exercises with a thorough analysis of VoLTE traces taken on a live VoLTE/CS network: VoLTE registration, Session setup, SRVCC and IMS Centralized Services (ICS).
The course is mainly oriented to the participants with Core (IMS, EPC, MSS) background. Students with RAN background are recommended to attend LZU1089466 “Voice over LTE e2e Realization and RAN Functionality” instead.

## Learning objectives:

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

1 Review the basic concepts of VoLTE and its architecture
1.1 Explain what is VoLTE and its background
1.2 Explain the Ericsson VoLTE architecture

2 Explain VoLTE attach and registration
2.1 Describe VoLTE attach and registration procedures
2.2 Perform analysis of VoLTE attach and registration signaling captures

3 Explain VoLTE session setup
3.1 Describe VoLTE session setup procedures
3.2 Perform analysis of VoLTE session setup signaling captures

4 Explain SRVC
4.1 Describe SRVCC procedures
4.2 Perform analysis of SRVCC signaling captures

5 Explain ICS
5.1 Describe ICS procedures
5.2 Perform analysis of ICS signaling captures

## Target audience:

This course is suitable for anyone who is required to be able to operate and maintain VoLTE solution.

Prerequisites:

Successful completion of the following courses:

VoLTE Concepts LZU1089425
Recommended courses:
IMS Signaling LZU1087193
EPC Signaling LZU1087508
MSS Signaling LZU1088627

Duration and class size:

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

Learning situation:

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

# VoLTE for Unified Communication Solution Overview

LZU1082586 R1A

## Description:

This course provides an overview of the VoLTE for Unified Communication business solution, created by Ericsson in cooperation with Cisco. The services offered by the solution will be described, as well as the impact on the nodes in Ericsson IMS. Signaling aspects are described for Unified Communication end-to-end sessions..

## Learning objectives:

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

1 Explain the concept of VoLTE for Unified Communication
1.1 Recognize the need for Unified Communication (UC)
1.2 Describe operator and end-user benefits of Unified Communication
1.3 Review how Ericsson VoLTE for Unified Communication interworks with 3rd party Unified Communication systems

2 Describe the VoLTE for Unified Communication architecture
2.1 List the solution components in the VoLTE for Unified Communication solution
2.2 Recognize the new features introduced on Ericsson IMS nodes
2.3 Identify the role of the Business Line Application Server

3 Discuss VoLTE for Unified Communication services
3.1 List the supplementary services supported by BL AS
3.2 Describe UC routing and UC routing numbers
3.3 Recognize number and user identity handling in VoLTE for Unified Communication

4 Explain basic VoLTE for Unified Communication call flows
4.1 Elaborate the signaling in an end-to-end call between two VoLTE UC users

## Target audience:

This course is suitable for anyone who is required to be familiar with VoLTE for Unified Communication solution.

Prerequisites:

Successful completion of the following courses:

IMS Overview, LZU1082585
VoLTE Concept, LZU1089425
VoLTE e2e Use Cases, LZU1089426

Duration and class size:

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

Learning situation:

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


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# vSBC 1 Operation and Configuration

LZU1082515 R1A

## Description:

This course will cover architecture, main features, operational aspects, and configuration of the Ericsson Virtual Session Border Controller (vSBC). The vSBC is a merge of functionality that was previously implemented in three different products:
- Virtual Session Border Gateway (vSBG)
- Virtual Web Communication Gateway (vWCG)
- Virtual Border Gateway Function (vBGF)

The vSBC is a product for virtualized communication networks. It provides one commercial offering for Voice over LTE (VoLTE), Voice over Wifi (VoWiFi), Video over LTE (ViLTE), Rich Communications Services (RCS), Interconnect, Fixed VoIP, and Web communication solutions. The course is practical and includes tasks like configuring signaling interfaces, security functions, communication related functions and new logical network connections. The practical tasks are performed on vSBG and vBGF.

## Learning objectives:

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

1 Describe the vSBC Network implementation
1.1 Describe the vSBC role in VoLTE/ViLTE, VoWiFi, RCS, Interconnect, and Web
1.2 Review the different network functions implemented by vSBC
1.3 List the vSBC Interfaces and supported Protocols

2 Discuss the vSBC main functions
2.1 Describe the vSBC Security functions
2.2 Explain the vSBC Connection Admission Control functions
2.3 Elaborate the vSBC Media Control functions
2.4 Explain the vSBC Load Control and Overload Protection functions

3 Introduce the vSBC signaling session handling and basic signaling sequences
3.1 Review how SIP sessions are handled in vSBC
3.2 Elaborate how Web access is handled in vSBC
3.3 Explain vSBC basic signaling sequences for Registration, Session Establishment,

4 Elaborate the SBC Virtual Network Functions (VNFs) and perform basic O&M tasks
4.1 Discuss the software architecture for the different SBC VNFs
4.2 Outline and perform Configuration Management using the ECLI
4.3 Recognize and perform Fault Management
4.4 Review and perform Performance Management
4.5 Interpret and perform Backup and Restore

4.6 Explain and handle vSBC Logs
4.7 Review and handle QoS Monitoring
4.8 Explain vSBC processor and network architecture

5 Configure vSBC signaling interworking interfaces
5.1 Configure SIP signaling interfaces
5.2 Configure Diameter and DNS signaling interfaces
5.3 Configure H.248 signaling interfaces
5.4 Configure HTTP signaling interfaces
5.5 Configure XCAP signaling interfaces

6 Configure vSBC media interworking interfaces
6.1 Configure vBGF media interfaces for trusted and untrusted networks

7 Configure vSBC for external BGFs
7.1 Explain the distributed BGF concept
7.2 Discus BGF detection and selection mechanisms
7.3 Configure vSBC for Optimized BGF selection

8 Configure emergency call support in vSBC
8.1 Explain emergency call support in vSBG
8.2 Configure emergency identities
8.3 Configure emergency bearers

9 Handle the SIP Message Manipulation (SMM) function
9.1 Import and export SMM Rules
9.2 Configure and activate SMM Filters

10 Configure vSBC to enable SRVCC functionality
10.1 Explain the use of the CS network type
10.2 Review the call cases involved in access transfer
10.3 Configure Access Transfer Control Function (ATCF)
10.4 Configure Access Transfer Gateway (ATGW)

11 Configure vSBC to enable VoWiFi support
11.1 Configure vSBC to enable Multi Device handling
11.2 Configure vSBC to enable Non-SIM Device Handling12.1 Configure Capability Exchange support

12 Configure vSBC to enable Web communication
12.1 Configure Calling Services
12.2 Configure Instant Messaging Services
12.3 Configure Content Share Services
12.4 Configure the WebRTC GW functionality

13 Configure signaling tracing in vSBG
13.1 Configure a trace session
13.2 Explain the trace file format


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## Target audience:

This course is suitable for anyone who is required be able to configure/operate/maintain vSBC 1.

## Prerequisites:

Successful completion of the following courses:

IMS Overview, LZU1082585
IMS Signaling, LZU1087193
Virtual IMS Concepts, LZU1082227
The following courses become prerequisites for the System Verified offering:
Foundation Series - Ericsson Cloud Execution Environment (CEE) (WBL), LZU 108 2538
Ericsson CEE R6 System Administrator, LZU 108 2536
Foundation Series - Ericsson Hyperscale Datacenter Systems 8000 (WBL), LZU 108 2539
Ericsson HDS 8000 Command Center Manager 2.4 System Administration, LZU 108 2537
or
BSP 8100 Operation and Maintenance, LZU1089779

## Duration and class size:

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

## Learning situation:

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