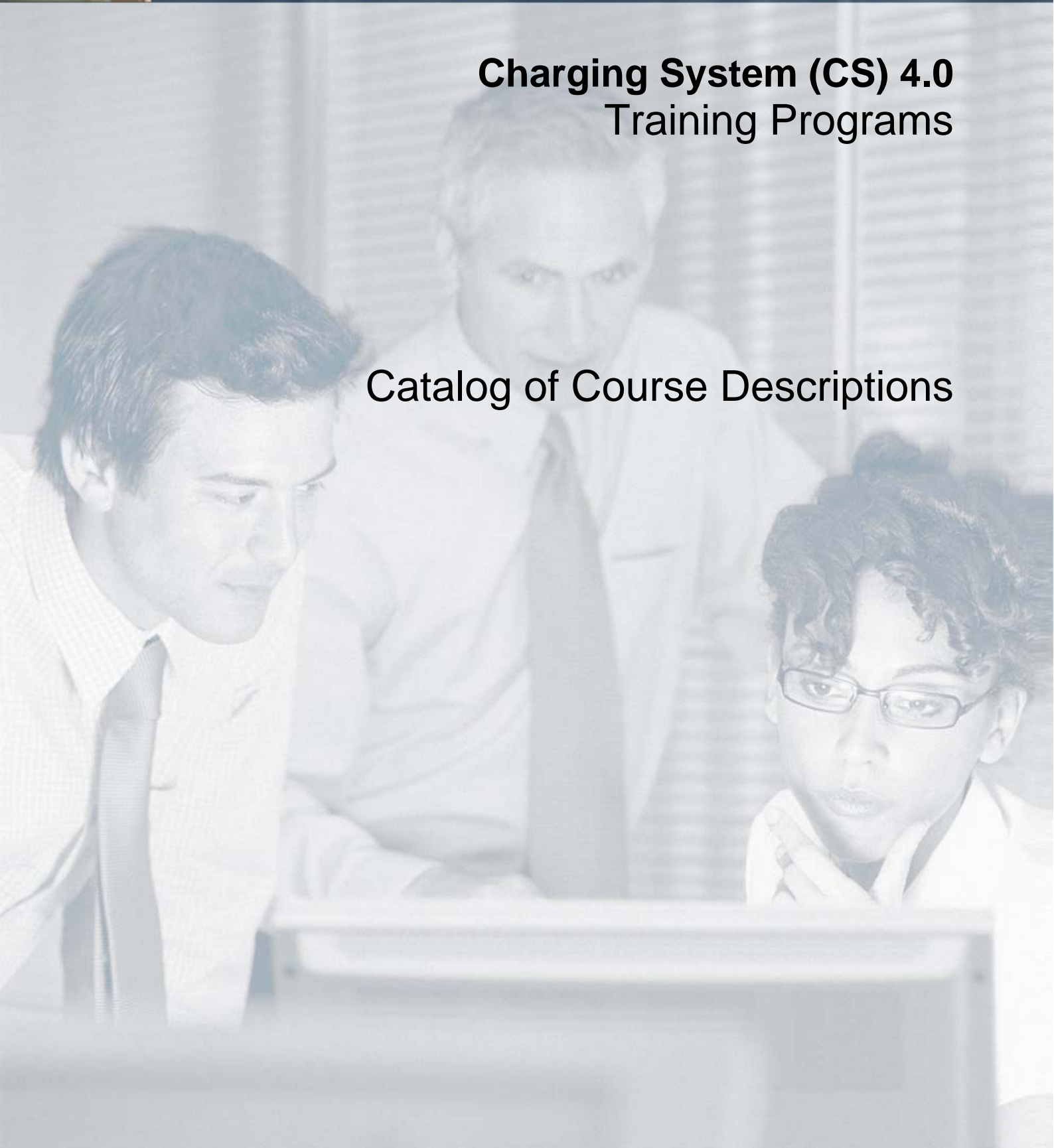




# Charging System (CS) 4.0 Training Programs

## Catalog of Course Descriptions





# 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:**

<b>Icon</b>	<b>Delivery Method</b>
	Instructor Led Training (ILT)
	Seminar (SEM)
	Workshop (WS)
	Virtual Classroom Training (VCT)
	Web Based Learning (WBL)
	Short Article (SA)
	Streaming Video (SV)
	CD-ROM (CD)
	Structured Knowledge Transfer (SKT)
<b>Delivery Enablers</b>	
	Remote Training Lab (RTL)
	Web Portal (WP)



## CCN Operation for CS 4.0



LZU 108 7349 R1B

### Description

This course provides information about configuration procedures for the Charging Control Node (CCN) in the Charging System.

### Learning objectives

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

- 1 Operate the CCN Manager Application environment
  - 1.1 Locate CCN in the CS 4.0 network
  - 1.2 Introduce the Node Management Toolbox Applications
  - 1.3 Describe the role of CCN Manager Application
  - 1.4 Describe the LDAP protocol
  - 1.5 List and explain supporting CPI documents
  - 1.6 Navigate the CCN Manager GUI
  - 1.7 Describe the data categories within CCN Manager
  - 1.8 Outline the CCN configuration order of priority
  
- 2 Manipulate CCN Manager configuration data
  - 2.1 Explore CCN settings common to all services
  - 2.2 Configure access, service and function settings
  - 2.3 Be aware of all parameters within the fields
  
- 3 Explore CCN Configuration procedure
  - 3.1 Configure access, service and function settings
  - 3.2 Be aware of all parameters within the fields
  - 3.3 Be aware of the correct procedure for configuration
  - 3.4 CCN support for SACC/PRS charging via SASN or GGSN using the Gy service context interface
  
- 4 Obtain CCN statistics
  - 4.1 Describe where statistics are obtained in CCN
  - 4.2 List the categories of statistical counters in CCN
  - 4.3 Recognize how statistical measurements are handled
  - 4.4 Describe how statistical files can be viewed
  
- 5 Manage and troubleshoot CCN Faults
  - 5.1 Identify the Alarm Interfaces: local alarm display, OSS, SNMP
  - 5.2 Examine the alarm database in TSP
  - 5.3 Monitor the error logging process
  - 5.4 Retrieve data to support troubleshooting
  
- 6 Discuss system administration
  - 6.1 Be aware of the CCN hardware and software configuration on TSP



6.2 Navigate the Node Management GUI

6.3 Identify maintenance procedures

### **Target audience**

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

### **Prerequisites**

Successful completion of the following courses:

GPRS System Survey LZU 108 876

Telecom Server Platform (TSP) 5 Operation and Maintenance LZU 108 6443

Charging Control Node (CCN) 5 Overview LZU 108 6321

### **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 both classroom and in a technical environment using equipment and tools.

### **Time schedule**

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

<b>Day</b>	<b>Topics in the course</b>	<b>Estimated time</b>
1	Introduction to the CCN and Operation	2.0 hours
1	Operate the CCN configuration application environment	5.0 hours
2	Manipulate CCN Manager configuration data	3.0 hours
2	Analyze CCN statistics and reports	2.0 hours
2	Manage and troubleshoot CCN faults	1.0 hours
2	Look at Node Maintenance Functions	1.0 hours

## Charging Control Node (CCN) Overview for CS 4.0



LZU 108 7350 R1B

### Description

This course informs students about the role of the Charging Control Node (CCN) in the Charging System 4.0 network. The course explains the CCN network context, explores selected traffic cases and introduces the CCN configuration application..

### Learning objectives

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

- 1 List the main functions of CCN in a CS 4.0 network.
- 2 Identify and describe the CCN machine-machine interfaces and the main features of the signaling interfaces (CS1+, CAPv1-3, Diameter SCAPv1, SCAP V2/DCC, CIP/IP, ERTC).
- 3 Describe how charging occurs using CCN by explaining selected traffic cases.
- 4 Introduce the CCN Manager GUI, identify the main menus and options and describe the configuration principles.
- 5 Identify the major network impact on the following when CCN is integrated into the network: MSC/GPRS/SDP/SGSN/Service Class and Tariff Structure/IP Network.
- 6 List some of the statistics available within CCN.

### Target audience

The target audience for this course is: Service Planning Engineers, Service Design Engineers, Network Design Engineers, Network Deployment Engineers, Service Deployment Engineers, System Technicians, Service Technicians, System Engineers, Service Engineers, Field Technicians, System Administrators, Business Developers, Customer Care Administrators, Fundamentals.

This audience covers any personnel requiring a technical introduction to the role of the Charging Control Node, CCN, in current and in future Charging System networks.

### Prerequisites

Successful completion of the following courses:

TSP 5 Overview, LZU 108 6441

Charging System 4.0 Overview LZU 108 7351

### 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 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	Describe the CCN Architecture and Interfaces	1.5 hours
	Identify and describe the main features of the signaling interfaces (CS1+, CAPv1-3, Diameter SCAPv1, SCAP v2/DCC, CIP/IP, ERTC)	1.5 hours
	Describe how charging occurs using CCN by explaining selected traffic cases	0.5 hours
	Introduce the CCN Manager Application, identify the main menus options and describe the configuration principles	1.0 hour
	Identify network impact when CCN is integrated into the network:	1.0 hour
	List some of the statistics and reports available within CCN	0.5 hour

## Charging Data Reporting System (CRS) 4.1 Audit & Financial Reports



LZU 108 7553 R1A

### Description

This course will target the practical needs of Audit, Financial, Marketing and Business Analysts in their daily use of the Charging Data Reporting System (CRS). It will help them to understand GUI-based terminology for CRS, understand the purpose and usage of the various reports available to them from CRS.

### Learning objectives

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

- 1 Describe Ericsson's Charging Data Reporting System.
  - 1.1 List the major benefits of CRS.
  - 1.2 Provide an overview of Charging System and CRS's role within Charging System.
  - 1.3 List the major components of CRS.
  - 1.4 List the major functionalities of CRS.
  - 1.5 List the differences between DWS 4.0 and CRS 4.1.
  - 1.6 List the differences between Business Objects 6.5 and Business Objects XI.
- 2 List the Business Objects reports in CRS.
  - 2.1 Describe the contents of each Audit report in CRS.
  - 2.2 Describe the contents of each Financial report in CRS.
  - 2.3 Execute a Business Objects report.
- 3 Create custom Business Objects reports.
  - 3.1 Describe the available universes and datamarts in CRS.
- 4 List the Statistics reports in CRS.
  - 4.1 Describe the Activation report.
  - 4.2 Describe the Financial report.
  - 4.3 Describe the Subscription report.
  - 4.4 Execute the Statistics reports.
- 5 List the data exports available in CRS.
  - 5.1 Describe each type of data export.
  - 5.2 Execute each type of data export.
  - 5.3 Configure each type of data export.
  - 5.4 Monitor the execution of a data export.
- 6 Troubleshoot and resolve common reporting issues/problems in CRS.

### Target audience

The target audience for this course is: Business Developers, Customer Care Administrators.



Also, staff involved in processing prepaid charging intelligence: marketing staff, business analysts, financial department, auditors, fraud investigators. Other participants who might benefit from this training are IT staff and prepaid network support staff.

### **Prerequisites**

The participants should be familiar with Charging System 4.0. Participants need an overview understanding of the role of the nodes in the CS 4.0 network and also the different call types supported in their Charging System. Participants also need to know how to use Netscape and Internet Explorer Web browsers.

**Duration and class size**

The length of the course is 1 day and the maximum number of participants is 8.

**Learning situation**

The methods used in training will involve a short instructor led overview of the charging intelligence aspects of the CRS system. The training material will be the CRS user documentation. The practical exercises will involve task-based learning. Students will be given realistic scenarios to solve and document. Students will use user documentation to support these scenarios.

This training will take place on the customer site, with remote connection to CRS.

Additional requirements will be:

A classroom with a multi-media projector, large whiteboard and whiteboard markers.

Per student and for the instructor:

1 personal computer configured customer care client and connections to the CRS

Access and logins for Call Service History Reports and Account History Reports, Audit Reports and Financial Reports

**Time schedule**

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

<b>Day</b>	<b>Short description of the topics in the course</b>	<b>Estimated time</b>
1	<ul style="list-style-type: none"> <li>• Overview of Charging System 4.0 as well as the CRS 4.1 system architecture and purpose.</li> </ul>	60 minutes
	<ul style="list-style-type: none"> <li>• Introduction to Business Objects XI</li> </ul>	30 minutes



- Audit Reports definition and content 30 minutes
- Practical Exercises Part 1: Audit Reports Practical Exercises with instructor support 30 minutes
- Financial Reports definition and content 30 minutes
- Practical Exercises Part 2: Financial Reports Practical Exercises with instructor support 30 minutes
- Basic Business Objects administration 30 minutes
- Custom Business Objects reports creation 30 minutes
- Practical Exercises Part 3: Business Objects Report Creation with instructor support 30 minutes
- Statistics Reports definition and content 30 minutes
- Practical Exercises Part 4: Statistics Reports Practical Exercises with instructor support 30 minutes
- Data Exports definition and content 30 minutes
- Practical Exercises Part 5: Data Exports Practical Exercises with instructor support 30 minutes
- Overview of common reporting problems in CRS 30 minutes

# Charging Data Reporting System (CRS) 4.1 For Customer Care



LZU 108 7552 R1A

## Description

This course will target the needs of customer care in their daily use of the Charging Data Reporting System (CRS 4.1) AHR and CSHR reports. It will help them to learn the terminology for CRS, and understand the purpose and usage of the reports available to them from CRS.

## Learning objectives

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

- 1 Describe Ericsson's Charging Data Reporting System.
  - 1.1 List the major benefits of CRS.
  - 1.2 Provide an overview of Charging System and CRS's role within Charging System.
  - 1.3 List the major components of CRS.
  - 1.4 List the major functionalities of CRS.
  - 1.5 List the differences between DWS 4.0 and CRS 4.1.
  
- 2 Describe Account History Reports in CRS
  - 2.1 Execute an Account History Report
  - 2.2 Describe Account History Report contents
  - 2.3 Configure Account History Reports in CRS
  
- 3 Describe Call and Service History Reports in CRS
  - 3.1 Execute a Call and Service History Report
  - 3.2 Describe Call and Service History Report contents
  
- 4 Describe Call and Account History API
  - 4.1 Execute Call and Account History API
  - 4.2 Describe Billable Minutes API
  - 4.3 Execute Billable Minutes API
  
- 5 Describe Usage and Account History API
  - 5.1 Execute Usage and Account History API.
  
- 6 View user account information
  
- 7 Identify and troubleshoot common customer care issues/problems in CRS.

## Target audience

The target audience for this course is Customer Care Administrators. Other participants who might benefit from this training are IT staff and prepaid network support staff. Also business

development staff may like to increase their knowledge of what information is now available within the system to support subscriber queries.

### Prerequisites

The participants should be familiar with Charging System 4.0. They need to have a clear overview of each node's role in the Charging System 4.0 network as well as the different call types supported in their Charging System 4.0.

Participants also need to know how to use Netscape and Internet Explorer Web browsers.

### Duration and class size

The length of the course is 1 day and the maximum number of participants is 8.

### Learning situation

The methods used in training will involve a short instructor led overview of the customer care aspects of the CRS system. The training material will be the CRS user documentation. The practical exercises will involve task-based learning. Students will be given realistic scenarios to solve and document. Students will use user documentation to support these scenarios.

Additional requirements will be:

A classroom with a multi-media projector, large whiteboard and whiteboard markers.

Per student and for the instructor:

1 personal computer configured customer care client and connections to the CRS

Access and logins for Call Service History Reports and Account History Reports

1 prepaid test subscription and phone per student

1 prepaid test vouchers per student - each with different face values

This training could also take place on a test server at the MU Ericsson site provided there is full access to operational CRS and Charging System customer GUIs. Classroom requirements as above.

### Time schedule

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

Day	Short description of the topics in the course	Estimated time
1	<ul style="list-style-type: none"> <li>Overview of Charging System 4.0 as well as the CRS 4.1 system architecture and purpose</li> </ul>	30 minutes
	<ul style="list-style-type: none"> <li>CRS AHR theory</li> </ul>	30 minutes
	<ul style="list-style-type: none"> <li>Practical Exercises Part 1: Account History Report Practical exercises with instructor support</li> </ul>	30 minutes



- CRS AHR configuration theory 30 minutes
- Practical Exercises Part 2: Account History Report Configuration exercises with instructor support 30 minutes
- CRS CSHR theory 30 minutes
- Practical Exercises Part 3: Call and Service History Report Practical exercises with instructor support 30 minutes
- CRS CSHR configuration theory 30 minutes
- Practical Exercises Part 4: Call and Service History Report Configuration exercises with instructor support 30 minutes
- CRS Call and Account History API theory 30 minutes
- Practical Exercises Part 5: Call and Account History API exercises with instructor support 30 minutes
- CRS Usage and Account History API theory 15 minutes
- Practical Exercises Part 6: Usage and Account History API exercises with instructor support 15 minutes
- User Account theory 15 minutes
- Overview of common customer care problems with CRS 15 minutes

## Charging Data Reporting System (CRS) 4.1 System Administration



LZU 108 7554 R1A


### Description

This course will target the practical needs of system administrators in their use of the Charging Data Reporting System (CRS). It will help them to understand GUI-based terminology for CRS, understand the purpose and usage of the various reports available to them from CRS.

### Learning objectives

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

- 1 Describe Ericsson's Charging Data Reporting System.
  - 1.1 List the major benefits of CRS.
  - 1.2 Provide an overview of Charging System and CRS's role within Charging System.
  - 1.3 List the major components of CRS.
  - 1.4 List the major functionalities of CRS.
  - 1.5 List the differences between DWS 4.0 and CRS 4.1.
  
- 2 List 3PP software/hardware used in CRS.
  - 2.1 Describe the functionality of 3PP software.
  - 2.2 Describe the different models of CRS.
  - 2.3 Describe the dimensioning specifications of an entry-level server and a small/medium/large server.
  - 2.4 Describe the hardware specifications of an entry-level server and a small/medium/large server.
  
- 3 List the customer care reports available in CRS.
  - 3.1 Explain the procedure to run a customer care report.
  - 3.2 Describe the Account History Report.
  - 3.3 Execute an Account History Report.
  - 3.4 Configure the Account History Report.
  - 3.5 Describe the Call and Service History Report.
  - 3.6 Execute a Call and Service History Report.
  - 3.7 Configure the Call and Service History Report.
  - 3.8 Execute the Account History Report API.
  - 3.9 Execute the Call and Service History Report API.
  - 3.10 Execute the Usage and Account History API 2.0.
  
- 4 List the data exports available in CRS.
  - 4.1 Describe each type of data export.
  - 4.2 Execute each type of data export.
  - 4.3 Configure each type of data export.
  - 4.4 Monitor the execution of a data export.

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- 5 List the Business Objects reports in CRS.
    - 5.1 Describe the Audit reports in CRS.
    - 5.2 Describe the Financial reports in CRS.
    - 5.3 Execute a Business Objects report.
    - 5.4 Configure CCB loads.
    - 5.5 Perform general Business Objects administration.
  
  - 6 List the Statistics reports in CRS.
    - 6.1 Describe the Activation report.
    - 6.2 Describe the Financial report.
    - 6.3 Describe the Subscription report.
    - 6.4 Execute the Statistics reports.
  
  - 7 Explain the use of Ericsson Multi Mediation 5.0 in CRS.
    - 7.1 Describe the major changes from EMM 4.0 to EMM 5.0.
    - 7.2 Describe the CDR flow process.
    - 7.3 Use the EMM GUI to perform basic administrative tasks.
    - 7.4 Load and activate the EMM configuration in CRS.
  
  - 8 Describe the Administration GUI in CRS.
    - 8.1 Describe the Administration tab in the Administration GUI.
    - 8.2 Explain the function of each section of the Administration tab.
    - 8.3 Describe the Configuration tab in the Administration GUI.
    - 8.4 Explain the function of each section of the Configuration tab.
  
  - 9 Describe the number normalization process.
    - 9.1 Create new number normalization rules.
    - 9.2 Resolve numbers failing number normalization.
    - 9.3 Troubleshoot numbers that were mis-normalized.
    - 9.4 Create new number series.
    - 9.5 Describe and implement number categorization.
  
  - 10 Describe general CRS database administration tasks.
    - 10.1 Describe the function of each option in the database administration menu.
  
  - 11 List the backup solutions in CRS.
    - 11.1 Describe the filesystem backup solutions.
    - 11.2 Execute each type of filesystem backup.
    - 11.3 Describe the database backup solution.
    - 11.4 Execute a database backup.
    - 11.5 Monitor the status of a database backup.
  
  - 12 Describe the general monitoring and maintenance tasks in CRS.
    - 12.1 Perform daily/weekly/monthly system administration tasks.
  
  - 13 Troubleshoot and resolve common CRS issues/problems.

## Target audience

The target audience for this course is: System Administrators.

## Prerequisites

The participants should be familiar with Charging System 4.0. Participants need an overview understanding of the role of the nodes in the Charging System 4.0 network and also the different call types supported in their PrePaid Service. Participants also need to be operating at the level of database administrator and need to be working at the level of system administrator for UNIX servers and have system administrator level knowledge of networking. Ideally system administrators should also know about the support and maintenance of Business Objects.

## Duration and class size

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

## Learning situation

The methods used in training will involve a instructor led overview of the system administration aspects of the CRS system. The training material will be the CRS system administrator and troubleshooting documentation as well as the user guide. The practical exercises will involve task-based learning. Students will be given realistic scenarios to solve and document. Students will use system documentation to support these scenarios.

This training will ideally take place on the customer site, with a remote connection to CRS.

Additional requirements will be a classroom with a multi-media projector, large whiteboard and whiteboard markers:

1 PC (configured as an admin PC) per student and for the instructor, with remote logins to the CRS server.

## Time schedule

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

Day	Short description of the topics in the course	Estimated time
1	<ul style="list-style-type: none"> <li>Overview of Charging System 4.0 as well as the CRS 4.1 system architecture and purpose.</li> </ul>	60 minutes
	<ul style="list-style-type: none"> <li>Overview of CRS software/hardware</li> </ul>	60 minutes
	<ul style="list-style-type: none"> <li>CRS AHR/CSHR theory</li> </ul>	60 minutes



- Practical Exercises Part 1: Account History Report and Call and Service History Report Practical exercises with instructor support 30 minutes
- CRS AHR/CSHR configuration theory 60 minutes
- Practical Exercises Part 2: Account History Report and Call and Service History Report Configuration exercises with instructor support 30 minutes
- Data Exports definition and content 60 minutes
- Practical Exercises Part 3: Data Exports Practical Exercises with instructor support 30 minutes
- 2 • Audit Reports definition and content 30 minutes
- Practical Exercises Part 4: Audit Reports Practical Exercises with instructor support 30 minutes
- Financial Reports definition and content 30 minutes
- Practical Exercises Part 5: Financial Reports Practical Exercises with instructor support 30 minutes
- Basic Business Objects administration 30 minutes
- Statistics Reports definition and content 30 minutes
- Practical Exercises Part 6: Statistics Reports Practical Exercises with instructor support 30 minutes
- 3 • Ericsson Multi Mediation 5.0 in CRS theory 120 minutes
- Overview of CRS Administration GUI 120 minutes
- Number normalization and categorization theory 60 minutes
- Practical Exercises Part 7: Number Normalization Practical Exercises with instructor support 60 minutes
- Database administration theory 60 minutes
- Backup and Restore theory 60 minutes
- Overview of common reporting problems in CRS 60 minutes

## Charging System 3.0 Call Handling



LZU 108 7174 R1B

### Description

Identifying Ericsson Charging System 3.0 as an IN service and understanding how this service is triggered from relevant core/switching nodes is essential to have a complete view of the “solution in action”.

Prepaid System operations and Core Network operations are often considered separately due to the different nature of involved nodes both in terms of platforms and in terms of configuration requirements.

Scope of this course is providing the audience with good knowledge on the functionalities and configuration data of all Core Network and IN nodes involved into Charging System Traffic Cases; special focus is on SSF/SCF functionalities that represent the critical gap to fill in between Ericsson Charging Solution and Core.

Students will learn all steps required for configuration of Core and Charging data to build complete Charging System Call Flows, verify and interpret results.

To achieve the target, technical workshops cover provisioning of subscribers and services, configuration of exchange data, definition of SS7 data, definition of IN invocation, testing of prepaid traffic cases.

### Learning objectives

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

- 1 Charging System 3.0 Network, Features and Traffic Cases
  - 1.1 Describe Charging System 3.0 Network Architecture and list the functions of each node
  - 1.2 Identify the signaling protocols used in Charging System 3.0 Network
  - 1.3 List main features of Charging System - both Basic and Optional
  - 1.4 Describe the basic call flow handling
  - 1.5 Identify main traffic-cases and special features that require configuration in the SSF/SCF/HLR/MSC/VLR
- 2 Charging System Traffic case call setup
  - 2.1 Detail functions of main nodes involved in Charging System traffic cases
  - 2.2 Explain how a Charging System traffic case is identified in the network.
  - 2.3 Explain how a Charging System call is analyzed in the network.
- 3 SSF and SCF Architecture
  - 3.1 Explain how XSS, SSF, CCN and SDP are connected.
  - 3.2 List the component parts of SSF and SCF.
  - 3.3 Describe the structure of SCF software.

- 4 SSF Trigger Tables
  - 4.1 State the function of each trigger table in SSF.
  - 4.2 Describe how to configure the SSF trigger tables for the different Charging System traffic cases.
  
- 5 CCN Configuration
  - 5.1 Explore CCN settings common to all services
  - 5.2 Configure access, service and function settings
  - 5.3 Be aware of main parameters within the fields
  - 5.4 Be aware of the correct procedure for configuration.
  
- 6 INAP Signal Tracing
  - 6.1 Describe the sequence of INAP operations between SSF/SCF/SDP for a Charging System Call.
  - 6.2 State the function of each INAP operation.
  
- 7 Charging System Statistics
  - 7.1 Describe what IN Service Statistics can be obtained
  - 7.2 Explain where the statistics are requested and viewed
  
- 8 Announcements in Charging System
  - 8.1 Describe how announcements are used in Charging System calls.
  - 8.2 Explain how to configure XSS in order to support playing of announcements during IN calls.

### **Target audience**

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

### **Prerequisites**

The participants should be familiar with general concepts of Charging System and AXE810 configuration handling or Successful completion of the following courses:

GSM MSC/VLR Operation

Charging System 3.0 Overview LZU 108 6321

Charging Control Node (CCN) Overview LZU 108 6321

### **Duration and class size**

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

### **Learning situation**



The course is based on instructor led lessons in a classroom and completion of practical workshops in a training exchange 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	• Charging System 3.0 Network, Features and Traffic Cases	3 hours
	• Workshop 1: Provisioning in Charging System	2,5 hours
	• Charging System Traffic case call setup	2,5 hours
2	• Workshop 2: VLR update/MS to MS call	3 hours
	• SSF and SCF Architecture	2,5 hours
	• Workshop 3: CCN configuration	2,5 hours
3	• SSF Trigger Tables	2 hours
	• Workshop 4: Configuration and testing of basic Charging System traffic cases	5 hours
4	• Workshop 5: Configuration and testing of basic Charging System traffic cases	4 hours
	• INAP Signal Tracing	3 hours
5	• Workshop 6: interpretation of the information on an INAP signal trace from a Charging System test call	3 hours
	• Charging System Statistics	2 hours
	• Announcements in Charging System	2 hours

## Charging System (CS) 4.0 Overview



LZU 108 7351 R1B



LZU 108 7351 R1B

### Description

Operator staff who will use the Charging System must be aware of the possibilities and features of the system.

This course provides the participants with a general technical knowledge of the Ericsson Charging System 4.0 . The course focuses on describing the features of Charging System 4.0 , its architecture and how traffic cases are handled. It also focuses on the structure and function of this network with particular emphasis on all nodes involved and new capabilities. The node platforms and interfaces are examined along with the service features, both basic and optional.

The course prepares students for further study on specific nodes and applications so that the Charging System can be utilised to its full potential.

### Learning objectives

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

- 1 Explain the nodes that comprise the Charging System 4.0 network with particular emphasis on the ADM, AIR, MINSAT, CCN, VS, IVR and SDP functionality.
- 2 Analyze the function of each network node and explain the hardware and software architecture of the Charging System 4.0 nodes.
- 3 Define the purpose of the various interfaces and protocols and describe the man-machine interfaces as listed in the CPI documentation.
- 4 Highlight and explore the new functionality and new and improved features introduced with Charging System 4.0.
- 5 Identify the interaction of network nodes by examining a selected group of Traffic Cases.

### Target audience

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

### 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 is 16.

### Learning situation

There are two versions of this course:

- **ILT version:** This course is based on theoretical instructor-led lessons given in a classroom environment.
- **VCT version:** This is a theoretical course given in a virtual classroom over the net by an instructor. The course contains modules like slide presentations, exercises, self-paced studies and tests.

### Time schedule

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

<b>Day</b>	<b>Topics in the course</b>	<b>Estimated time</b>
1	<ul style="list-style-type: none"><li>• Charging System 4.0 Network Architecture, Node Functions and Traffic Cases</li></ul>	2hrs 30mins
	<ul style="list-style-type: none"><li>• Charging System Subscriber Management and Lifecycle Management.</li></ul>	1hr 30mins
	<ul style="list-style-type: none"><li>• Charging System 4.0 Features with particular emphasis on Subscriber Segmentation, Community Charging, SCAPv2 Service charging, Flexible &amp; location aware refill.</li></ul>	2hrs
	<ul style="list-style-type: none"><li>• Interfaces towards and within the Charging System</li></ul>	1hr

## Charging System (CS) 4.0 Overview Delta



LZU 108 7352 R1B



LZU 108 7352 R1B

### Description

Operator staff who will use the Charging System must be aware of the possibilities and features of the system.

This course provides the participants with a general technical knowledge of the Ericsson Charging System 4.0 . The course focuses on describing the features of Charging System 4.0 , its architecture in comparison to CS 3.0 CP6 and how traffic cases are handled. It also focuses on the structure and function of this network with particular emphasis on the new capabilities introduced in CS 4.0 by exploring the new interfaces and service features.

### Learning objectives

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

- Explain the nodes that comprise the Charging System 4.0 network with particular emphasis on the ADM, AIR, MINSAT, CCN, VS, IVR and SDP functionality.
- Identify the new hardware and software architecture of the Charging System 4.0 nodes.
- Highlight and explore the new functionality and new and improved features introduced with Charging System 4.0.
- Identify the interaction of network nodes by examining a selected group of Traffic Cases.

### Target audience

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

### Prerequisites

C3 3.0 Overview LZU 108 6254.

### Duration and class size

The length of the course is 0.5 day and the maximum number of participants is 16.

### Learning situation



There are two versions of this course:

- **ILT version:** This course is based on theoretical instructor-led lessons given in a classroom environment.
- **VCT version:** This is a theoretical course given in a virtual classroom over the net by an instructor. The course contains modules like slide presentations, exercises, self-paced studies and tests.

Recommended delivery for this single course is VCT.

### 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	Charging System 4.0 Network Architecture, Node Functions and Traffic Cases	2.0 hours
	Identify the new hardware and software architecture of the Charging System 4.0 nodes.	1.0 hours
	Highlight and explore the new functionality and new and improved features introduced with Charging System 4.0.	1.0 hours

## Charging System (CS) 4.0 Rating Management Delta



LZU 108 7356 R1B

### Description

Operators must charge their subscribers in a clear and open fashion while also ensuring there is no revenue leakage. Also with new features and functionality charging has become a very complex process.

This course focuses on Charging System 4.0 FD2 changes in rating functionality. The course will explore the impact of the Ericsson Rating Engine on SDP and of the new tools available in the RMA. The course will show how to set up rating plans and describe the improved Dedicated Accounts and Usage Accumulators administration.

The course teaches students to design, simulate and activate selection structures for realtime rating of all calls in the network.

### Learning objectives

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

- 1 Understand how the use of RMA instead of TMA has brought dramatic improvements
- 2 Explain which new tools are available in RMA in order to improve efficiency and correctness while working on Selection Trees
- 3 Understand the meaning of "Context" and illustrate how to define settings for each Service
- 4 Explain how to define and use Tree Defined Fields
- 5 Understand the new functions and how they impacted on Charging System network flexibility
- 6 Recognize the changes in the existing functionalities while moving from CS 3.0 CP6 to CS4.0 FD2
- 7 Describe the improvements in Dedicated Accounts and Usage Accumulators administration

### Target audience

The target audience for this course is: Service Deployment Engineers, Business Developers.

This audience would be working in designing new schemes for business development and implementing the technical solution for those schemes.

### Prerequisites

The participants should be familiar with the CS 4.0 FD2 network as they should have successfully completed either the following courses:



- Charging System 4.0 Overview LZU 108 7351 R1B
- Charging System 4.0 Overview Delta LZU 108 7352 R1B

The participants must have successfully completed the following course:

- Charging System 3.0 Tariff Handling Delta LZU 108 6334 R3B

### **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 and practical instructor-led lessons given in both classroom and in a technical environment using an SDP with SMA and RMA, which can also be accessed remotely.

## Charging System (CS) 4.0 Rating Management



LZU 108 7355 R1B

### Description

Operators must charge their subscribers in a clear and open fashion while also ensuring there is no revenue leakage. Also with new features and functionality charging has become a very complex process.

This course focuses on Charging System 4.0 FD2 rating functionality. The course will explore the impact of community charging, subscriber segmentation, lifecycle notifications, notifications to the user and account management.

The course teaches students to design, simulate and activate selection structures for realtime rating of all calls in the network.

### Learning objectives

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

- 1 Describe the features available in CS 4.0 FD2 rating management
- 2 Describe how the Ericsson Rating Engine is used for rating purposes
- 3 Explain and configure tariffs based on Community Charging Support
- 4 Explain and configure tariffs based on Improved Subscriber Segmentation Support
- 5 Enable USSD/SMS Notifications to the subscriber
- 6 Describe how to set up Life-Cycle Notifications to External Systems
- 7 Configure an Account Management structure

### Target audience

The target audience for this course is: Service Deployment Engineers, Business Developers.

This audience would be working in designing new schemes for business development and implementing the technical solution for those schemes.

### Prerequisites

The participants should be familiar with the CS 4.0 FD1 network as they should have successfully completed either the following courses:

- Charging System 4.0 Overview LZU 108 7351 R1B



- Charging System 4.0 Overview Delta LZU 108 7352 R1B

### **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 both classroom and in a technical environment using an SDP with SMA and RMA, which can also 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.

<b>Day</b>	<b>Topics in the course</b>	<b>Estimated time</b>
1	Module 0 Introduction to Charging System 4.0	1.0 hours
	Module 1 SMA and RMA	2.0 hours
	Exercise 0	1.5 hours
	Module 2 Dedicated Accounts, Accumulators and Bonus	1.0 hours
	Exercise 1 part 1 – 2	1.5 hours



2	Exercise 1 part 3 – 4	1.5 hours
	Module 3 Community Charging	1.5 hours
	Exercise 2	2.0 hours
	Module 4 Subscriber Segmentation	1.5 hours
3	Exercise 3	2.0 hours
	Module 5 USSD/SMS notifications to the User	1.0 hours
	Exercise 4	2.0 hours
	Module 6 Life-Cycle notifications to an External System	1.5 hours
4	Module 7 Account Management	2.0 hours
	Exercise 5	2.0 hours
	Additional Exercise	2.5 hours

## CS 4.0 Troubleshooting & Maintenance SKT



LZP 101 105 R1B

### Description

The OPEX reduction is a challenge for operators and keeping the employees well trained is a way to reduce the maintenance time as well as network unavailble time.

This SKT is designed to accelerate learning and deliver an intermediate level of competence to participants in a short amount of time. Engineers gain a specialized understanding of their roles and responsibilities while operating and maintaining their live CS system.

### Target audience

The target audience for this CS SKT training is the Pre and Pos-paid Technicians/Engineers responsible for maintenance and operation of their Charging System.

### Prerequisites

The participants should be familiar with Charging concepts and have successfully completed the following instructor led training courses, mandatory for participation in the SKT

UNIX Experience

CS 4.0 Overview LZU 108 7351 R1B

CS 4.0 System Administration LZU 108 7354 R1B

### Duration and class size

The length of the combined CS SKT is 5 days. The training includes the following activities: SDP tasks, AF tasks, Minsat tasks, AIR tasks, and Voucher Server tasks.

The minimum number of participants is two (2), and the maximum number of participants is four (4).

## Learning situation

The SKT is mentor-based training. The mentor ensures that each participant has access to the equipment, and correctly accesses reference documentation required for each duty/task/step. The mentor then presents, demonstrates, and follow participants' performance on each duty/task/step required to operate and maintain the CS System.

## TABLE OF CONTENTS FOR CS 4.0 SKT

### Maintenance

#### SDP

##### DUTY A: SDP Daily Maintenance

- TASK A-1: CHECK SYSTEM BACKUP TO TAPE
- TASK A-2: CHECKING ROOT MAILBOX
- TASK A-3: CHECKING /VAR/ADM/MESSAGES
- TASK A-4: CHECKING THE LOAD
- TASK A-5: CHECKING INPUT CDR FILES
- TASK A-6: CHECKING OUTPUT CDR FILES
- TASK A-7: CHECK SCHEDULED JOB CDR FILES
- TASK A-8: CHECK LOG FILES

##### DUTY A: SDP Weekly Maintenance

- TASK A-9: CHECK SS7 LINKS AND ASSOCIATIONS
- TASK A-10: CHECK THE SDP DATABASE
- TASK A-11: CHECK DISK SPACE
- TASK A-12: CHECK TIME SYNCHRONISATION
- TASK A-13: CHECK PRIVATE LAN

##### DUTY A: SDP Monthly Maintenance

- TASK A-14: CHECK LOG FILES
- TASK A-15: DISPLAY SYSTEM DIAGNOSTIC INFO

#### AIR

##### DUTY B: AIR Daily Maintenance

- TASK B-1: CHECK SYSTEM BACKUP TO TAPE
- TASK B-2: CHECKING ROOT MAILBOX
- TASK B-3: CHECK /VAR/ADM/MESSAGES
- TASK B-4: CHECK CPU LOAD
- TASK B-5: CHECK SWAP USAGE
- TASK B-6: CHECK DISK LOAD
- TASK B-7: CHECK LOG FILES
- TASK B-8: CHECK DISK STATUS
- TASK B-9: COMPONENTS STARTED BY FDSCOMPCONTROLLER

**DUTY B: AIR Weekly Maintenance**

TASK B-10: REMOVE OLD TASKS IN AIR TASK MANAGER  
TASK B-11: REMOVE OLD STATISTICS FILES  
TASK B-12: CHECK DISK SPACE  
TASK B-13: IDENTIFY AIR CONFIGURATION FILES

**DUTY B: AIR Monthly Maintenance**

TASK B-14: CHECK LOG FILES  
TASK B-15: DISPLAY SYSTEM DIAGNOSTIC INFO

**VS****DUTY C: VS Daily Maintenance**

TASK C-1: CHECK SYSTEM BACKUP TO TAPE  
TASK C-2: CHECK ROOT MAILBOX  
TASK C-3: CHECK /VAR/ADM/MESSAGES  
TASK C-4: CHECK CPU LOAD  
TASK C-5: CHECK LOG FILES  
TASK C-6: CHECK STATUS OF DATAGUARD CONFIGURATION

**DUTY C: VS Weekly Maintenance**

TASK C-7: CHECK VS DATABASE  
TASK C-8: CHECK DISK SPACE  
TASK C-9: REMOVE OLD TASKS FROM VS TASK MANAGER  
TASK C-10: REMOVE OLD REPORT FILES  
TASK C-11: REMOVE OLD STATISTICS FILES  
TASK C-12: CHECK PRIVATE LAN

**DUTY C: VS Monthly Maintenance**

TASK C-13: CHECK LOG FILES  
TASK C-14: DISPLAY SYSTEM DIAGNOSTIC INFORMATION  
TASK C-15: REMOVE OLD dgStatusMon LOGS

**AF****DUTY D: AF Daily Maintenance**

TASK D-1: CHECK SYSTEM BACKUP TO TAPE  
TASK D-2: CHECK ROOT MAILBOX  
TASK D-3: CHECK LOG FILES  
TASK D-4: CHECK CPU LOAD  
TASK D-5: VERIFY AF PROCESS IS RUNNING  
TASK D-6: IDENTIFY AF CONFIGURATION FILE  
TASK D-7: GENERATE STATISTICS  
TASK D-8: VERIFY ZONE SYNCHRONISATION

**MINSAT****DUTY E: MINSAT Daily Maintenance**

TASK E-1: CHECK SYBASE ERROR LOGS  
 TASK E-2: CHECK ADMINISTRATOR MESSAGES  
 TASK E-3: CHECK MAIL  
 TASK E-4: CHECK LOG FILES  
 TASK E-5: CHECK DISK SPACE  
 TASK E-6: CHECK DISK MIRRORING  
 TASK E-7: VERIFY DATABASE SIZE  
 TASK E-8: CHECK DATABASE FOR DATA INTEGRITY  
 TASK E-9: DUMPING DATABASES  
 TASK E-10: FILE SYSTEM BACKUP  
 TASK E-11: CHECK FOR CORE FILES

**DUTY E: MINSAT Weekly Maintenance**

TASK E-12: DELETE OLD SYBASE ERROR LOGS

**Troubleshooting****DUTY A: SDP Troubleshooting**

TASK A-1: CHECK PSC-SOGINTERFACE RELATED ISSUES  
 TASK A-2: CHECK STATUS OF FDS COMPONENTS  
 TASK A-3: CAN'T CONNECT TO PUBLIC INTERFACE  
 TASK A-4: CHECK INAP LOAD REGULATION IN SDP  
 TASK A-5: HOW TO START AND STOP SS7  
 TASK A-6: TIMESTEN REPLICATION DOWN  
 TASK A-7: AUTONEGOTIATION CHECK  
 TASK A-8: FDS CONFIGURATION BACKUP  
 TASK A-9: CURRENCY CONFIGURATION  
 TASK A-10: CREATE NEW USER OF SMA WITH RESTRICTED ACCESS  
 TASK A-11: PERFORM DATABASE SNAPSHOT  
 TASK A-12: SHUTDOWN FDS SERVER

**DUTY B: AIR/VS Troubleshooting**

TASK B-1: SIMULATE SUCCESSFUL VOUCHER REFILL  
 TASK B-2: AIR/VS STATISTICS  
 TASK B-3: VOUCHER REPORTS  
 TASK B-4: SIMULATE FAILED VOUCHER REFILL  
 TASK B-5: CREATE PROMOTION PLAN  
 TASK B-6: TRUSTED HOSTS IN FSC-AirXmlRpc FILE  
 TASK B-7: PERFORM BATCH VOUCHERLESS REFILL  
 TASK B-8: ORACLE DATABASE BACKUP  
 TASK B-9: DATABASE COMMUNICATION FAILURE  
 TASK B-10: UCIP REQUESTS

**DUTY C: AF Troubleshooting**

TASK C-1: ADD A NEW SDP  
 TASK C-2: GENERATE AND ADD NEW SUBSCRIBERS TO NEW SDP

**DUTY D: MINSAT Troubleshooting**

TASK D-1: VERIFY DRs SENT CORRECTLY TO MINSAT  
 TASK D-2: RELOAD MINSAT CRONTAB  
 TASK D-3: SERVICE CLASS CHANGE

TASK D-4: MINSAT BIND ERROR  
 TASK D-5: VERIFYING DATABASE SIZE  
 TASK D-6: ADD NEW FRAMEWORK DAEMON  
 TASK D-7: FREE UP DISK SPACE FROM WTMPX  
 TASK D-8: PROVISION SUBSCRIBERS

### Time schedule

Day	Topics in the course	Estimated time
1	<ul style="list-style-type: none"> <li>• SDP Maintenance</li> </ul>	4 hours
1	<ul style="list-style-type: none"> <li>• SDP Troubleshooting</li> </ul>	2 hours
2	<ul style="list-style-type: none"> <li>• SDP Troubleshooting</li> </ul>	3 hours
2	<ul style="list-style-type: none"> <li>• AIR/AF Maintenance</li> </ul>	3 hours
3	<ul style="list-style-type: none"> <li>• AIR/AF Maintenance</li> </ul>	2 hours
3	<ul style="list-style-type: none"> <li>• VS Maintenance</li> </ul>	4 hours
4	<ul style="list-style-type: none"> <li>• AIR, VS and AF Troubleshooting</li> </ul>	4 hours
4	<ul style="list-style-type: none"> <li>• MINSAT Maintenance</li> </ul>	2 hours
5	<ul style="list-style-type: none"> <li>• MINSAT Maintenance</li> </ul>	3 hours
5	<ul style="list-style-type: none"> <li>• MINSAT Troubleshooting</li> </ul>	3 hours

## Charging System (CS) 4.0 System Administration



LZU 108 7354 R1B

### Description

Operators must ensure that their Charging System is running as efficiently as possible and that there is no network downtime.

The course teaches the participants how to administer, operate & maintain the Charging System. It is an instructor-lead-training (ILT) course for the MINSAT, AIR Server, Voucher Server and SDP systems. Participants will be shown how to complete daily routine tasks on the servers to ensure the smooth running of the Charging System. They will also learn how to configure the servers to deliver the best service possible to customers.

This will ensure a smooth operation of the Charging System for the operator and hence the end customer.

### Learning objectives

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

1. Describe the architecture of the Charging System 4.0 FD2 network as outlined in the CPI documentation.
2. Identify the various hardware supported by the Charging System.
3. Understand the FDS architecture and its importance in the Charging System.
4. Determine the functionality and use of the SDP and how it interacts with other nodes.
5. Understand how the Account Finder manages its information.
6. Assess the Voucher Server capabilities and perform regular tasks.
7. Configure the AIR Server to provide the functionality required for refills and enquiries.
8. Identify the role of MINSAT and its new architecture.
9. Perform regular Maintenance and Fault Tracing tasks of the nodes in order to successfully provide the service.

### Target audience

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



This audience will work on system administration, operation and maintenance of the MINSAT, AIR, Voucher Servers and SDPs in the Charging System 4.0 CP2 network.

### **Prerequisites**

The participants should be familiar with the network architecture and features of Charging System and they must be able to use UNIX commands. This knowledge could be gained from experience or by attending the following courses:

Charging System 4.0 Overview, LZU 108 7351

UNIX Fundamentals LZUBB 108 170

### **Duration and class size**

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

### **Learning situation**

This learning product combines instructor-led training with task-oriented based exercises on the MINSAT, AIR Server, Voucher Server, Account Finder and SDP. Access to MINSAT, AIR Server, Voucher Server and SDP is required for delivery of this course either in a test environment or at an operator site.



## Time schedule

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

<b>Day</b>	<b>Topics in the course</b>	<b>Estimated Time</b>
1	Module 1 Introduction	
	1hr 15mins	
	Module 2 System Hardware	1hr 15mins
	Module 3 FDS	
	45mins	
	Module 1, 2, 3 Exercises	1hr 30mins
2	Module 4 SDP (Part 1)	
	60mins	
	Module 4 Exercises	
	60mins	
	Module 4 SDP (Part 2)	1hr 30mins
3	Module 4 Exercises	1hr 30mins
	Module 5 Account Finder	1hr 30mins
	Module 5 Exercises	1hr 30mins
	Module 6 Voucher Server	
4	1hr 15mins	
	Module 6 Exercises	
	1hr 30mins	
	Module 7 AIR Server	
	1hr 30mins	
4	Module 7 Exercises	
	2hrs	
	Module 8 MINSAT (Part 1)	
	2hrs	
4	Module 8 Exercises	
	2hrs	
	Module 8 MINSAT (Part 2)	
	1hr	



<b>Day</b>	<b>Topics in the course Estimated Time</b>	
5	Module 9 Maintenance and Fault Tracing Module 9 Exercises 2hrs 30 mins	2hrs

## Charging System (CS) 4.0 MINSAT Customer Care



LZU 108 7353 R1B

### Description

Customer Care personnel must deal efficiently with their customers to deliver the best possible service to them.

This course focuses on the customer care interface and explains the application and platform supporting the customer care role. The participants learn how to perform necessary customer care tasks, querying and maintaining account information on the MINSAT server. Participants will learn how to provision and administer subscriber accounts, how to handle voucher queries and how to administer new optional features for Charging System 4.0 CP2.

This course will ensure that all staff will be able to quickly and effectively deal with any customer issues.

### Learning objectives

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

- 1 Examine the nodes that comprise the Charging System 4.0 CP2 network with particular emphasis on the AIR, MINSAT, VS, VXML-IVR, DWS and SDP functionality.
- 2 Explain the main function of MINSAT in the context of the Charging System 4.0 CP2 Architecture. To describe how to manage the system subscribers using the MINSAT GUI.
- 3 Explain the life cycle of a prepaid subscription. To describe overall functions and features so that support and verification of subscriber problems can be done.
- 4 Explain the different MINSAT access levels and the Customer Care role.
- 5 Utilise the Customer Care GUI to perform operations on subscriber accounts, for example: debits, rebates, voucher refills, change of service class etc.

### Target audience

The target audience for this course is: Customer Care Administrators. This audience need to become familiar with the Customer Care role and responsibilities and who need to fully understand the GUI supporting those responsibilities.

**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 is 8.

**Learning situation**

This is a task-oriented learning course based on tasks in the work process given in a technical environment using equipment and tools, which are accessed remotely.

**Time schedule**

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

<b>Day</b>	<b>Topics in the course</b>	<b>Estimated time</b>
1	Module 1 - Introduction	1.5 hours
	Module 2 – MINSAT Customer Care GUI	5.0 hours
	• View Subscriber Information, Account History, Subordinate Information	30 mins
	• Account Administration	30 mins
	• Voucher and Credit Card Refills	20 mins
	• Rebates and Debits	20 mins
	• View or change Language Setting, Service Class and Name and Address	20 mins
	• Family and Friends service	20 mins
	• HLR Profile and Barred Numbers	20 mins
	• View Voucher details and Promotion Plans	30 mins
	• Understand Advanced Pane	30 mins
	• Community Group data	20 mins
	• Service Offerings	20 mins
	• Account Group data	20 mins
	• USSD EoC Notifications	20 mins



### Time schedule

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

<b>Day</b>	<b>Topics in the course</b>	<b>Estimated time</b>
1	Module 1 From TMA to RMA	1.5 hours
	Module 2 New Functions	1.5 hours
	Module 3 Improved functions	1.5 hours
	Exercise 1	1.0 hours
	Exercise 2	1.0 hours

