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Knowledge Management Centre – KMC

Digital Solutions

2023 Knowledge Catalogue for Customers

Kontron, July 2023

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1 Training center introduction

The emergence of new technologies that replace, complement and upgrade traditional telecommunications networks and facilitate the introduction of new services often make telecommunications providers face difficult decisions: which of the new technologies to choose; when and how to introduce it into the network; and what services to offer end users.

The mission of the S&T Iskratel Training Center is to provide professional training for S&T Iskratel customers, business partners and everyone connected via modern telecommunications.

Our vision of professional training is to provide training programs about all types of S&T Iskratel products, solutions and telecommunication technologies, which provide the participants with a clear and complete review of knowledge they need in their business environment and workplaces.

With our help participants in the training process will be able to attain their goals (successful operation of our systems and new products) in an easier, faster and more efficient way than anywhere else.



The classrooms are equipped with the most advanced terminal equipment and connections to the test bed. We organize our trainings, by previous agreement, also at our customer's premises (if the customer is able to provide the necessary equipment).

Training courses by Broadband Solutions (Širokopasovne rešitve) are as follows:

- Communications Core Solutions (Telekomunikacijska omrežja)
- 5G Private Mobile Communication Solution (5G Zasebna mobilna omrežja)
- Transport Solutions (Digitalizacija transporta)
- Energy Solutions (Digitalizacija energetike)
- Public Safety Solutions (Pametne in varne skupnosti)

2 Communications Core Solutions

2.1 (SSB8100AA) - CS & MG & O&M Basic – Call server and media gateway basic management and maintenance

Code for order:	55B8100AA
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Training duration: 2,5 days

Description

This particular course is intended for participants who will work with SI3000 multiservice commutation node on a basic level.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know system basics and understand architecture
- Know to manage system on a basic level
- Know basic maintenance procedures
- Know basic fault elimination steps.

<u>Prerequisites</u>

- Participants need to have basic knowledge and understanding about telecommunication and IP networks, layer 2/Layer 3 and network security.
- Participants need to have a basic knowledge about NGN protocols, especially SIP.
- Participants need to have a basic knowledge about Linux operating system.

- Introduction
 - CS and SMG product basics
- General functionality presentation
- Routing
- Subscriber management
- Alarms management
- Faults elimination
- Maintenance procedures

2.2 (SSB8101AA) - CS & MG & O&M Advanced – Call server and media gateway advanced management and maintenance

Code for order:	SSB8101AA
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Training duration: 5 days

Description

This particular course is intended for participants who will work with SI3000 multiservice commutation node (MSCN) on an advanced level.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know system advanced and understand architecture
- Know to upgrade system SW
- Know to set-up call server (CS) and signaling media gateway (SMG)
- Know system functions
- Know to manage system on an advanced level
- Know advanced maintenance procedures
- Know advanced fault elimination steps.

Prerequisites

• Participants need to have successfully done CS & MG & O&M Basic – Call server and media gateway basic management and maintenance course.

- Introduction
 - General about CS and SMG product
- System SW upgrade procedure
- Advanced routing
- Advanced diagnostic and fault elimination

2.3 (SSB8102AA) - CS & MS & MG & O&M Basic – Call server, media server and media gateway basic management and maintenance

Code for order: SSB8102AA

Training duration: 3 days

Description

This particular course is intended for participants who will work with SI3000 multiservice commutation node on a basic level.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know system basics and understand architecture
- Know to manage system on a basic level
- Know basic maintenance procedures
- Know basic fault elimination steps.

Prerequisites

- Participants need to have basic knowledge and understanding about telecommunication and IP networks, layer 2/Layer 3 and network security.
- Participants need to have a basic knowledge about NGN protocols, especially SIP.
- Participants need to have a basic knowledge about Linux operating system.

- Introduction
- CS, MS and SMG product basics
- General functionality presentation
- Routing
- Subscriber management
- Alarms management
- Faults elimination
- Maintenance procedures

2.4 (SSB8103AA) - Upgrade CS6114 to CS6116 – customized course

Code for order: SSB8103AA

Training duration: 5 days

Description

This course is aimed at the participants, who work on operational and administrative tasks on CS solutions. Course is customized on CS solution upgrade from version 14 to version 16.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know the upgraded system and understand its architecture
- Know how to administer the system on the basic level
- Know how to use the system and its functionalities on the basic level
- Know the basic troubleshooting steps

Prerequisites

- Participants need to have the basic knowledge about CS6114 solution and be a user/administrator of the CS solution.
- CS solution has to be prepared and evaluated from both sites before training starts.

- General system introduction
- Differences MNM (MN6031) upgrade to MNS (MN6211)
- Differences CS version14 upgraded to CS version 16
 - HW/SW components
 - Configuration procedure
 - Administration procedures
- Troubleshooting
- On-job training

2.5 (SSB8104AA) - Oracle Session Border Controller (SBC) – Basic configuration, administration and maintenance

Training duration: 5 days

Description

This Oracle Session Border Controller (SBC) Configuration, Administration and Maintenance course is designed for service provider network professionals involved in SIP session delivery and control. Training course covers the SBC concept, basic access and peering scenarios, security oriented configuration requirements, role of SBC in IMS deployment, basic troubleshooting steps.

During the course, the participants will:

- learn the general overview of the system
- learn the architecture and components of the system
- learn the basic access and peering configuration
- learn the DoS protection and Call Admission Control configuration
- learn the basic troubleshooting steps on the system
- test basic functionality

Possible audience:

- Manager
- System/solution integrator

Competences:

- Plan SBC integration with customer's network.
- Plan and create common configurations.
- Perform routine operations (system access, configuration, management, backup/restore).
- Test basic functionality.

Prerequisites

• Participants need to have the basic knowledge of telephony systems, TCP/IP networking, VoIP telephony and familiarity with computer communication systems and concepts.

<u>Contents</u>

- Introduction to the Session Border Controller
 - Session Border Controller platforms overview
 - Session Border Controller architecture and concepts common to all platforms
 - Software and services
- Provisioning Interfaces
 - Physical Interface Provisioning
 - Network Interface Provisioning
 - Virtual Platform Networking
- Configuration Concept
 - Realms and Realm bridging
 - Session Agents
 - SIP Interfaces
 - Header Manipulation Rules
 - IMS specifics
- Access and Peering scenarios
 - Initial configuration and configuration workflow

- Access-Backbone in General
- Access Policy Based Realm Bridging (PBRB) model
- SIP hosted NAT traversal
- Media latching
- Peering PBRB model
- High-Availability configuration
 - High-Availability overview
 - Configuring the Primary and Secondary node
- Denial of Service Protection
 - DoS configuration elements overview
 - Call Admission Control overview
- Troubleshooting and Maintenance
 - Identify and resolve boot issues
 - Identify and troubleshoot network issues
 - Troubleshooting and monitoring signaling by using ACLI commands
 - Troubleshoot registration issues
 - Restore and backup the configuration

2.6 (SSB8105AA) - Oracle Session Border Controller (SBC) – Basic configuration, administration and maintenance

Training duration: 3 days

Description

This Oracle Session Border Controller (SBC) Configuration, Administration and Maintenance course is designed for service provider network professionals involved in SIP session delivery and control. Training course covers the SBC concept, basic access and peering scenarios, security oriented configuration requirements, role of SBC in IMS deployment, basic troubleshooting steps.

During the course, the participants will:

- learn the general overview of the system
- learn the architecture and components of the system
- learn the basic access and peering configuration
- learn the DoS protection and Call Admission Control configuration
- learn the basic troubleshooting steps on the system
- test basic functionality

Possible audience:

- Manager
- System/solution integrator

Competences:

- Plan SBC integration with customer's network.
- Plan and create common configurations.
- Perform routine operations (system access, configuration, management, backup/restore).
- Test basic functionality.

Prerequisites

• Participants need to have the basic knowledge of telephony systems, TCP/IP networking, VoIP telephony and familiarity with computer communication systems and concepts.

- Introduction to the Session Border Controller
 - Session Border Controller platforms overview
 - Session Border Controller architecture and concepts common to all platforms
 - Software and services
- Provisioning Interfaces
 - Physical Interface Provisioning
 - Network Interface Provisioning
 - Virtual Platform Networking
- Configuration Concept
 - Realms and Realm bridging
 - Session Agents
 - SIP Interfaces
 - Header Manipulation Rules
 - IMS specifics
- Access and Peering scenarios
 - Initial configuration and configuration workflow

- Access-Backbone in General
- Access Policy Based Realm Bridging (PBRB) model
- SIP hosted NAT traversal
- Media latching
- Peering PBRB model
- High-Availability configuration
 - High-Availability overview
 - Configuring the Primary and Secondary node
- Denial of Service Protection
 - DoS configuration elements overview
 - Call Admission Control overview
- Troubleshooting and Maintenance
 - Identify and resolve boot issues
 - Identify and troubleshoot network issues
 - Troubleshooting and monitoring signalling by using ACLI commands
 - Troubleshoot registration issues
 - Restore and backup the configuration

2.7 (SSB8107AA) - Upgrade CS6115 to CS6116 – customized course

Code for order: SSB8107AA

Training duration: 1 day

Description

This course is aimed at the participants, who work on operational and administrative tasks on CS solutions. Course is customized on CS solution upgrade from version 15 to version 16.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know the upgraded system
- Know how to administer new functionalities
- Know the basic troubleshooting steps

Prerequisites

- Participants need to have the basic knowledge about CS6115 solution and be a user/administrator of the CS solution.
- CS solution has to be prepared and evaluated from both sites before training starts.

- General system introduction
- Differences CS version 15 upgraded to CS version 16
- HW/SW components
- Configuration procedure
- Administration procedures for new and changed functionalities
- IT Call Analyzer
- Troubleshooting

2.8 (SSB8108AA) - CS & MS & O&M Basic – Call server, media server and media gateway basic management and maintenance

Code for order: SSB8108AA

Training duration: 3 days

Description

This particular course is intended for participants who will work with SI3000 multiservice commutation node on a basic level.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know system basics and understand architecture
- Know to manage system on a basic level
- Know basic maintenance procedures
- Know basic fault elimination steps.

Prerequisites

- Participants need to have basic knowledge and understanding about telecommunication and IP networks, layer 2/Layer 3 and network security.
- Participants need to have a basic knowledge about NGN protocols, especially SIP.
- Participants need to have a basic knowledge about Linux operating system.

- Introduction
 - CS and MS product basics
- General functionality presentation
- Routing
- Subscriber management
- Alarms management
- Faults elimination
- Maintenance procedures

2.9 (SSB8109AA) - Training for PSTN Networks and IP based voice transmission technology (VoIP)

Code for order: SSB8109AA

Training duration: 5 days

Description

This course is aimed at the participants, who start working with PSTN and VoIP technologies.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know the theoretical basics of PSTN networks
- Know the theoretical basics of VoIP
- See few practical examples

Prerequisites

• Participants do not need to have some specific knowledge.

- Theoretical knowledge
 - PSTN networks
 - overview and structure of these networks
 - PSTN services and applications
 - evolution of pocket switched services
 - voice transmission over pocket switched network
 - the new network model (topology)
 - signalling systems overview
 - IP based voice transmission technology VoIP
 - IP based network overview: build up, addressing, routing, transfer mechanism, protocols
 - VoIP networks build up, structures, descriptions
 - quality parameters: delay, jitter, pocket loss, MOS, etc.
 - QoS: classes, traffic control,
 - directives of VoIP networks installations, signalling protocols
 - H.323
 - SIP
 - SGCP & MGCP
 - further protocols (SCCP, Skype, stb, ...) most important applications
 - IP PBX
 - Fax over IP
 - Call Centres
 - Dialler services
 - Unified communication solutions
- Practical part (knowledge)
 - Design and realizations
 - Make VoIP service with SMB tools
 - VoIP monitoring, troubleshooting

- Troubleshooting at the end customer
- Apply supported solutions for VoIP introduction and operation
- VoIP analyses, QoS parameters measure, making measuring and other reports

2.10 (SSB8110AA) - Basic knowledge about virtualization, NFV and SDN

Code for order: SSB8110AA

Training duration: 2 days

Description

This course is aimed for the participants, who work on virtualization, NFV and SDN technologies

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know the general overview of the virtualization
- Know the network Functions Virtualization and Software-Defined Networking (SDN)
- Know the NFV Building Blocks
- Know the NFV Flexibility
- Know the NFV Reference Architecture
- Know the NFVI Domains
- Know the NFV Networking Terminology
- Know the Management and Orchestration
- Know the NFV Use Cases

Prerequisites

• Participants need to have the basic knowledge about telecommunications with an emphasis on the NGN network elements.

- Virtualization
 - - Cloud Technology
 - - Hypervisors
 - - Linux Containers
 - - COTS hardware
 - - Virtual Machines
- Network Functions Virtualization and Software-Defined Networking (SDN)
 - - The function and benefits of NFV
 - - How NFV and SDN fit together
 - - How SDN and NFV are controlled
 - - Functions of MANO (NFV Management and Orchestration)
 - - NFVI (NFV Infrastructure)
- NFV Building Blocks
 - - VNFs
 - - VNF Components (VNFC)
 - - Virtual Machines
 - - The relation between VNF, VNFC and VM
 - •
 - NFV Flexibility
 - - What scaling is and why we do it
 - - Horizontal scaling (scale in and out)
 - - Vertical scaling (up and down)

- NFV Reference Architecture
 - - The whole ETSI NFV Reference Picture
 - - NFVI, VNFs
 - - Element Managers (EM)
 - - The inside of the MANO (NFVO, VNFM and VIM)
 - - Interaction with OSS/BSS
 - - Reference points / interfaces
 - Example: VNF Instantiation Procedure \
- NFVI Domains
 - - The Hypervisor Domain
 - The Compute Domain
 - - The Infrastructure Network Domain
 - NFVI-PoPs (NFVI Point-of-Presence)
- NFV Networking Terminology
 - - Example terms that are shown in relation to each other:
 - NS (Network Service)
 - VNF / PNF (Physical Network Function)
 - VNFC
 - VL (Virtual Link)
 - VNFFG (VNF Forwarding Graph)
 - NFP (Network Forwarding Path)
 - CP (Connection Point)
 - Network Types
 - E-LINE
 - E-LAN
 - E-TREE
- Management and Orchestration
 - - A detailed look inside the NFV MANO
 - NFVO (NFV Orchestrator)
 - - VNFM (VNF Manager)
 - - VIM (Virtualized Infrastructure Manager)
- NFV Use Cases
 - - A walk-through of the nine NFV use cases chosen by ETSI
 - - NFVIaaS, VNFaaS and VNPaaS
 - - VNF Forwarding Graph
 - - Virtual Mobile Core & IMS
 - - Virtual Mobile Base Station
 - - Virtual Home Environment
 - - Virtual CDNs
 - - Fixed Access NFV
- Certification

2.11 (SSB8111AA) - Basic and advanced course SI3000 Virtual IP Multimedia Subsystem (vIMS) – management, administration and maintenance

Code for order: SSB8111AA

Training duration: 15 days

Description

This training course is designed to prepare the ground specialist for system use and maintenance, who requires basic knowledge of equipment operation, including theoretical knowledge and practical skills for hardware and software maintenance and the administration of all system functionalities.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know IMS network architecture, basic concepts, standards and components
- Know CSP Iskratel virtualization platform and its components
- Know Management System (MNS)
- Know FMS, PMON (Performance Monitoring) subsystems
- Scaling and configuration of IMS-core components
- Know access level and components
- Know routing management function for NGN and TDM networks
- Know Media Gateway Control Function (MGCF)
- Know maintenance procedures and troubleshooting

Prerequisites

• Participants need to have a good understanding of basic concepts of vIMS, the evolutionary development of switching systems and the method of using vIMS in telecommunications networks.

- IMS network architecture
- Basic concepts, standards and components.
- User identification on the IMS network SIP protocol and call handling principle on the IMS network. Network security principles.
- Network function virtualization (NFV) technology overview.
- Software-defined networking (SDN) overview.
- NFV management and orchestration (MANO) principles overview.
- Integration with mobile radiotelephone communications networks overview.
- CSP Iskratel virtualization platform and its components:
 - Open-source components (OpenStack, Zabbix, CEPH)
 - NFV management and orchestration (MANO)
 - Scalability and on-boarding of virtualized network functions (VNF)
 - Management System (MNS) (Basic + Advanced)
 - NGN and IMS management principle
 - User interface and basic SNM settings
 - Auto-configuration of network elements
- FMS, PMON (Performance Monitoring) subsystems (Basic + Advanced)
- Interaction with OSS/BSS operator systems via OpenMN interfaces. (Basic + Advanced)

- Configuring user profiles in the SI3000 vIMS solution.
- Scaling and configuration of IMS-core components: (*Basic + Advanced*)
 - Home Subscriber Server (HSS)
 - ENUM/DNS
 - Telephony Application Server (TAS)
 - Interrogating Call Session Control Function (I-CSCF)
 - Serving Call Session Control Function (S-CSCF)
 - Emergency Call Session Control Function (E-CSCF)
- Scaling and configuration of IMS-Edge components: (Basic + Advanced)
 - Proxy CSCF (P-CSCF)
 - SIP network border controller (IBCF)
 - Access level. (Basic + Advanced)
- Connecting subscriber access gateways to the IMS core: (Basic + Advanced)
 - SIP protocol
 - H.248/MEGACO protocol and its application for connecting access gateways to AGCF.
- Analog subscriber gateway access (SAK blade): (*Basic + Advanced*)
 - NEM interface
 - Configuring SAK profiles and creating a new node
- Creating subscribers.
- IMS routing.

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- Analog subscriber SAK blade:
 - SAK blade initial installation procedure
 - Maintenance procedures.
 - Analog subscriber SAK blade:
 - Creating subscribers,
 - Local routing,
 - Testing telephone lines and telephone sets by SAK and MNS means.
- Application of access gateways on the IMS network (connecting TDM access nodes): (Basic + Advanced)
 - Main interfaces and signalling of the TDM access network (DSS1, V5.2)
 - SIGTRAN. SCTP, IUA, V5UA protocols.
 - Media Gateway (MGW)
 - Access Gateway Control Function (AGCF)
 - Interexchange connections: (Basic + Advanced)
 - General routing principles
 - Main interfaces and signalling of the TDM network (SSN7, 2VSK)
 - SIGTRAN. SCTP, M2UA protocols.
 - SIP-T, SIP-NNI interexchange protocols
- Interexchange connections administration (Basic + Advanced)
- Routing management function for NGN and TDM networks (Breakout Gateway) (BGCF) (Basic + Advanced)
- Configuring interexchange connections with NGN/IMS networks
- Media Gateway Control Function (MGCF) (Basic + Advanced)
- Media gateway SI3000 MGW.
 - Hardware and software
 - Function licensing
 - NEM interface
 - Creating a new node
 - Basic settings

- Maintenance procedures. (Basic + Advanced)
- Configuring IMS network interaction with TDM switching nodes over the SSN7 protocol.
- Value-added services
- Number translation.
- Conferencing.
- Remote Terminal Service.
- VXML.
- Maintenance procedures:
 - Call Interception
 - Simplified answering circuit (SAC)
 - Dialling via the selected trunk
 - Test dialling by trunks and trunk groups
- Traffic registration and charging:
 - Statistics collection using the PMON (Performance Monitoring) application
 - Charging and data collection for charging information
- Practical exercise on the topics covered
- Basic and advanced Troubleshooting
- Exam
- Certification

2.12 (SSB8112AA) - SI3000 IMS Access Gateway Control Function (AGCF) - Basic operation, administration and maintenance

Code for order:	SSB8112AA
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Training duration: 5 days

Description

Iskratel has a long tradition in the field of the development of telecommunications products and solutions. Based on its experience, Iskratel can either build the entire IMS network for its customers or just set up an individual network element, necessary in a certain phase of the network's evolution. Network elements used in Iskratel IMS solutions represent the evolution of the products of the SI3000 line.

This particular course provides the knowledge to operate, administrate and maintain the SI3000 IMS system in role of AGCF.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Get familiar with the SI3000 IMS architecture
- Recognize AGCF entity as part of IMS solution
- Know how to operate and administrate the SI3000 AGCF
- Know how to perform the regular maintenance procedures
- Know the basic diagnostic steps

Prerequisites

- Participants should have good understanding of telecommunications based on NGN and IMS networks.
- Good knowledge on VoIP and NGN related protocols, especially SIP and H.248, is required.

<u>Contents</u>

- Introduction and overview of Iskratel AGCF IMS/vIMS with SMG solution:
 - Supported IMS/vIMS platforms (Hardware based/KVM/Openstack),
 - Basic concept, standards and components,
 - SIP connection to IMS core and NGN connections to MSANs and SMGs,
 - AGCF high availability and geo-redundancy (optional),
 - Licensing on AGCF
 - Iskratel AGCF IMS/vIMS solutions:
 - Software structure and WEB start up configuration,
 - NEM interface,
 - Creating a new node,
 - Basic settings description,
 - Configuration of SIP towards IMS core,
 - Configuration of SIGTRAN protocols (SCTP, IUA, DSS1),
 - Configuration of H.248/MEGACO protocol,
 - In depth configuration of H.248/MEGACO protocol for other MSANs vendors,
 - Configuration of accesses and IMS users,
 - Maintenance procedures, tracing and basic troubleshooting.
 - Signalling Media gateway SI3000 SMG:
 - NEM interface,

- Creating a new node,
- Basic settings description,
- Configuration of TDM network (DSS1),
- Configuration of SIGTRAN protocols (SCTP, IUA, DSS1),
- Configuration of H.248/MEGACO protocol,
- Maintenance procedures, tracing and basic troubleshooting.
- Converter to STM-1 interface (optional):
 - Hardware, software and start up configuration,
 - Basic settings description,
 - Maintenance procedures and basic troubleshooting.
- SI3000 MNS, FMS, OpenMN:
 - SI3000 MNS (Management Node System),
 - Licensing,
 - User accounting,
 - Backup procedures,
 - SI3000 FMS (Fault Monitoring System),
 - Open MN interface (optional).

2.13 (SSB8113AA) - SI3000 IMS Access Gateway Control Function (AGCF) - Advanced operation, administration and maintenance

Code for order:	SSB8113AA
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Training duration: 5 days

Description

Iskratel has a long tradition in the field of the development of telecommunications products and solutions. Based on its experience, Iskratel can offer advanced courses for AGCF solution.

Possible audience:

- Manager
- System/solution integrator

Competences:

- In depth registration procedures,
- In depth the diagnostic procedures on more levels,
- In depth know how to deploy virtual AGCF.

Prerequisites

- Participants need to successfully complete basic AGCF course.
- Good understanding of virtualization concepts is required.
- Good understanding of IP networking is required.

- Overview of SI3000 AGCF Basic Course
 - Supported IMS/vIMS platforms (Hardware based/KVM/Openstack),
 - - Basic concept, standards and components,
 - SIP connection to IMS core and NGN connections to MSANs and SMGs,
 - - AGCF high availability and geo-redundancy (optional),
 - - Licensing on AGCF
- Deeper understanding of SIP, H248 and SIGTRAN protocols in AGCF solution
 - SIP Interface,
 - H248 Interface,
 - SIGTRAN (SCTP, IUA)
- Understanding Registration mechanisms in detail
 - Registration of MSAN subscribers POTS and ISDN,
 - Registration of PBX subscribers,
 - Search and Register mechanism for unregistered subscribers,
 - Maintenance mode for registrations (reshuffling registrations).
- Advanced Troubleshooting
 - Resolving Registration failures,
 - Resolving DNS problems,
 - Logs structure and analysis
 - Troubleshooting unsuccessful calls,
 - Troubleshooting fax and data calls.

2.14 (SSB8117AA) - ON-job vIMS training

Code for order: SSB8117AA

Training duration: 5 days

Description

This training course is designed to help specialist for system use, installation, administration, maintenance and test system for acceptance.

Possible audience:

- Manager
- System/solution integrator

Competences:

• Know to use system, installation, administration, maintenance and test system for acceptance.

Prerequisites

• Participants need to successfully pass basic/advanced training.

Contents

• Help specialist for system use, installation, administration, maintenance and test system for acceptance.

2.15 (SSB8118AA) - SI3000 IMS Access Gateway Control Function (AGCF) - Basic operation, administration and maintenance

Code for order:	SSB8118AA
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Training duration: 3 days

Description

Iskratel has a long tradition in the field of the development of telecommunications products and solutions. Based on its experience, Iskratel can either build the entire IMS network for its customers or just set up an individual network element, necessary in a certain phase of the network's evolution. Network elements used in Iskratel IMS solutions represent the evolution of the products of the SI3000 line.

This particular course provides the knowledge to operate, administrate and maintain the SI3000 IMS system in role of AGCF.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Get familiar with the SI3000 IMS architecture
- Recognize AGCF entity as part of IMS solution
- Know how to operate and administrate the SI3000 AGCF
- Know how to perform the regular maintenance procedures
- Know the basic diagnostic steps

Prerequisites

- Participants should have good understanding of telecommunications based on NGN and IMS networks.
- Good knowledge on VoIP and NGN related protocols, especially SIP and H.248, is required.

- Introduction and overview of Iskratel AGCF IMS/vIMS with SMG solution:
 - - Supported IMS/vIMS platforms (Hardware based/KVM/Openstack),
 - - Basic concept, standards and components,
 - SIP connection to IMS core and NGN connections to MSANs and SMGs,
 - - AGCF high availability and geo-redundancy (optional),
 - - Licensing on AGCF
 - Iskratel AGCF IMS/vIMS solutions:
 - - Software structure and WEB start up configuration,
 - NEM interface,
 - - Creating a new node,
 - - Basic settings description,
 - Configuration of SIP towards IMS core,
 - - Configuration of SIGTRAN protocols (SCTP, IUA, DSS1),
 - - Configuration of H.248/MEGACO protocol,
 - - In depth configuration of H.248/MEGACO protocol for other MSANs vendors,
 - - Configuration of accesses and IMS users,
 - - Maintenance procedures, tracing and basic troubleshooting.
 - Signalling Media gateway SI3000 SMG:
 - - NEM interface,

- - Creating a new node,
- - Basic settings description,
- - Configuration of TDM network (DSS1),
- - Configuration of SIGTRAN protocols (SCTP, IUA, DSS1),
- - Configuration of H.248/MEGACO protocol,
- - Maintenance procedures, tracing and basic troubleshooting.
- SI3000 MNS, FMS:
 - - SI3000 MNS (Management Node System),
 - - Licensing,
 - - User accounting,
 - - SI3000 FMS (Fault Monitoring System),

2.16 (SSB8119AA) - SI3000 IMS Media Gateway Control Function (MGCF) - Basic operation, administration and maintenance

Code for order:	SSB8119AA
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Training duration: 3 days

Description

Iskratel has a long tradition in the field of the development of telecommunications products and solutions. Based on its experience, Iskratel can either build the entire IMS network for its customers or just set up an individual network element, necessary in a certain phase of the network's evolution. Network elements used in Iskratel IMS solutions represent the evolution of the products of the SI3000 line.

This particular course provides the knowledge to operate, administrate and maintain the SI3000 IMS system in role of MGCF.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Get familiar with the SI3000 IMS architecture
- Recognize MGCF entity as part of IMS solution
- Know how to operate and administrate the SI3000 MGCF
- Know how to perform the regular maintenance procedures
- Know the basic diagnostic steps

Prerequisites

- Participants should have good understanding of telecommunications based on NGN and IMS networks.
- Good knowledge on VoIP and NGN related protocols, especially SIP and H.248, is required.

<u>Contents</u>

- MGCF Media Gateway Control Function (MGCF) (Basic)
- Introduction and overview of Iskratel MGCF IMS/vIMS with MGW solution:
 - Supported IMS/vIMS platforms (Hardware based/KVM/Openstack),
 - Basic concept, standards and components,
 - SIP connection to IMS core and NGN/TDM connections to other networks,
 - MGCF high availability and geo-redundancy (optional),
 - Licensing on MGCF
- Iskratel MGCF IMS/vIMS solutions:
 - Software structure and WEB start up configuration,
 - NEM interface,
 - Creating a new node,
 - Basic settings description,
 - Configuration of SIP towards IMS core,
 - Interexchange connections: (Basic)
 - general routing principles
 - SIGTRAN. SCTP, M2UA protocols.
 - Main interfaces and signalling of the TDM network (SSN7)
 - SIGTRAN. SCTP, IUA protocols.
 - Main interfaces and signalling of the TDM network (DSS1)

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- Media Gateway (MGW)
- SIP-T, SIP-NNI interexchange protocols
- Maintenance procedures, tracing and basic troubleshooting (Basic).
- IMS network interaction with TDM and NGN networks.
 - Configuring interexchange connections with NGN/IMS networks
 - Configuring SIGTRAN protocols for SCTP, M2UA, IUA, SS7, DSS1.
 - Configuring H248 protocol
 - Routing management function for NGN and TDM networks (MGCF) (Basic)
 - Routing Configuration
 - Number translations
 - DialPlan for NGN trunks
- Media gateway SI3000 MGW.
 - hardware and software
 - function licensing
 - NEM interface
 - creating a new node
 - basic settings
 - maintenance procedures. (Basic)
- Configuring VXML on MGCF and MGW
- Traffic registration and charging:
 - charging and data collection for charging information

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2.17 (SSB8150AA) - SI3000 IMS Access Gateway Control Function (AGCF) and Media Gateway Control Function (MGCF) – Basic operation, administration and maintenance

Code for order: SSB8150AA

Training duration: 5 days

Description

Iskratel has a long tradition in the field of the development of telecommunications products and solutions. Based on its experience, Iskratel can either build the entire IMS network for its customers or just set up an individual network element, necessary in a certain phase of the network's evolution. Network elements used in Iskratel IMS solutions represent the evolution of the products of the SI3000 line.

This particular course provides the knowledge to operate, administrate and maintain the SI3000 IMS system in role of AGCF and MGCF.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Get familiar with the SI3000 IMS architecture
- Recognize AGCF entity as part of IMS solution
- Recognize MGCF entity as part of IMS solution
- Know how to operate and administrate the SI3000 AGCF
- Know how to operate and administrate the SI3000 MGCF
- Know how to perform the regular maintenance procedures
- Know the basic diagnostic steps

Prerequisites

Participants should have good understanding of telecommunications based on NGN and IMS networks. Good knowledge on VoIP and NGN related protocols, especially SIP and H.248, is required.

<u>Contents</u>

- Introduction and overview of Iskratel AGCF IMS/vIMS with SMG solution:
 - Supported IMS/vIMS platforms (Hardware based / KVM / Openstack),
 - Basic concept, standards and components,
 - SIP connection to IMS core and NGN connections to MSANs and SMGs,
 - AGCF high availability and geo-redundancy (optional),
 - Licensing on AGCF
 - Iskratel AGCF IMS/vIMS solutions:
 - Software structure and WEB start up configuration,
 - NEM interface,
 - Creating a new node,
 - Basic settings description,
 - Configuration of SIP towards IMS core,
 - Configuration of SIGTRAN protocols (SCTP, IUA, DSS1),
 - Configuration of H.248/MEGACO protocol,
 - In depth configuration of H.248/MEGACO protocol for other MSANs vendors,
 - Configuration of accesses and IMS users,
 - Maintenance procedures, tracing and basic troubleshooting.

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- Signalling Media gateway SI3000 SMG:
 - NEM interface,
 - Creating a new node,
 - Basic settings description,
 - Configuration of TDM network (DSS1),
 - Configuration of SIGTRAN protocols (SCTP, IUA, DSS1),
 - Configuration of H.248/MEGACO protocol,
 - Maintenance procedures, tracing and basic troubleshooting.
- SI3000 MNS, FMS:
 - SI3000 MNS (Management Node System),
 - Licensing,
 - User accounting,
 - SI3000 FMS (Fault Monitoring System),
- MGCF Media Gateway Control Function (MGCF) (Basic)
- Introduction and overview of Iskratel MGCF IMS/vIMS with MGW solution:
 - Supported IMS/vIMS platforms (Hardware based/KVM/Openstack),
 - Basic concept, standards and components,
 - SIP connection to IMS core and NGN/TDM connections to other networks,
 - MGCF high availability and geo-redundancy (optional),
 - Licensing on MGCF
- Iskratel MGCF IMS/vIMS solutions:
 - Software structure and WEB start up configuration,
 - NEM interface,
 - Creating a new node,
 - Basic settings description,
 - Configuration of SIP towards IMS core,
 - Interexchange connections: (Basic)
 - General routing principles
 - SIGTRAN. SCTP, M2UA protocols.
 - Main interfaces and signalling of the TDM network (SSN7)
 - SIGTRAN. SCTP, IUA protocols.
 - Main interfaces and signalling of the TDM network (DSS1)
 - Media Gateway (MGW)
 - SIP-T, SIP-NNI interexchange protocols
 - Maintenance procedures, tracing and basic troubleshooting (Basic).
- IMS network interaction with TDM and NGN networks.
 - Configuring interexchange connections with NGN/IMS networks
 - Configuring SIGTRAN protocols for SCTP, M2UA, IUA, SS7, DSS1.
 - Configuring H248 protocol
 - Routing management function for NGN and TDM networks (MGCF) (Basic)
 - Routing Configuration
 - Number translations
 - DialPlan for NGN trunks
- Media gateway SI3000 MGW.
 - Hardware and software
 - Function licensing
 - NEM interface
 - Creating a new node

- Basic settings
- Maintenance procedures. (Basic)
- Configuring VXML on MGCF and MGW
- Traffic registration and charging:
 - Charging and data collection for charging information

2.18 (SSB8151AA) - Basic and advanced course SI3000 Virtual IP Multimedia Subsystem (vIMS) – management, administration and maintenance

Code for order: SSB8151AA

Training duration: 5 days

Description

This training course is designed to prepare the ground specialist for system use and maintenance, who requires basic knowledge of equipment operation, including theoretical knowledge and practical skills for hardware and software maintenance and the administration of all system functionalities.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know IMS network architecture, basic concepts, standards and components
- Know CSP Iskratel virtualization platform and its components
- Know Management System (MNS)
- Know FMS, PMON (Performance Monitoring) subsystems
- Scaling and configuration of IMS-core components
- Know access level and components
- Know routing management function for NGN and TDM networks
- Know Media Gateway Control Function (MGCF)
- Know maintenance procedures and troubleshooting

Prerequisites

• Participants need to have a good understanding of basic concepts of vIMS, the evolutionary development of switching systems and the method of using vIMS in telecommunications networks.

- IMS network architecture
- Basic concepts, standards and components.
- User identification on the IMS network SIP protocol and call handling principle on the IMS network. Network security principles.
- Network function virtualization (NFV) technology overview.
- Software-defined networking (SDN) overview.
- NFV management and orchestration (MANO) principles overview.
- Integration with mobile radiotelephone communications networks overview.
- CSP Iskratel virtualization platform and its components:
 - Open-source components (OpenStack, Zabbix, CEPH)
 - NFV management and orchestration (MANO)
 - Scalability and on-boarding of virtualized network functions (VNF)
 - Management System (MNS) (Basic + Advanced)
 - NGN and IMS management principle
 - User interface and basic SNM settings
 - Auto-configuration of network elements
- FMS, PMON (Performance Monitoring) subsystems (Basic + Advanced)
- Interaction with OSS/BSS operator systems via OpenMN interfaces. (Basic + Advanced)

- Configuring user profiles in the SI3000 vIMS solution.
- Scaling and configuration of IMS-core components: (*Basic + Advanced*)
 - Home Subscriber Server (HSS)
 - ENUM/DNS
 - Telephony Application Server (TAS)
 - Interrogating Call Session Control Function (I-CSCF)
 - Serving Call Session Control Function (S-CSCF)
 - Emergency Call Session Control Function (E-CSCF)
- Scaling and configuration of IMS-Edge components: (Basic + Advanced)
 - Proxy CSCF (P-CSCF)
 - SIP network border controller (IBCF)
 - Access level. (Basic + Advanced)
- Connecting subscriber access gateways to the IMS core: (Basic + Advanced)
 - SIP protocol
 - H.248/MEGACO protocol and its application for connecting access gateways to AGCF.
- Analog subscriber gateway access (SAK blade): (*Basic + Advanced*)
 - NEM interface
 - Configuring SAK profiles and creating a new node
- Creating subscribers.
- IMS routing.

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- Analog subscriber SAK blade:
 - SAK blade initial installation procedure
 - Maintenance procedures.
 - Analog subscriber SAK blade:
 - Creating subscribers,
 - Local routing,
 - Testing telephone lines and telephone sets by SAK and MNS means.
- Application of access gateways on the IMS network (connecting TDM access nodes): (Basic + Advanced)
 - Main interfaces and signalling of the TDM access network (DSS1, V5.2)
 - SIGTRAN. SCTP, IUA, V5UA protocols.
 - Media Gateway (MGW)
 - Access Gateway Control Function (AGCF)
 - Interexchange connections: (Basic + Advanced)
 - General routing principles
 - Main interfaces and signalling of the TDM network (SSN7, 2VSK)
 - SIGTRAN. SCTP, M2UA protocols.
 - SIP-T, SIP-NNI interexchange protocols
- Interexchange connections administration (Basic + Advanced)
- Routing management function for NGN and TDM networks (Breakout Gateway) (BGCF) (Basic + Advanced)
- Configuring interexchange connections with NGN/IMS networks
- Media Gateway Control Function (MGCF) (Basic + Advanced)
- Media gateway SI3000 MGW.
 - Hardware and software
 - Function licensing
 - NEM interface
 - Creating a new node
 - Basic settings
- Maintenance procedures. (Basic + Advanced)
- Configuring IMS network interaction with TDM switching nodes over the SSN7 protocol.
- Value-added services
- Number translation.
- Conferencing.
- Remote Terminal Service.
- VXML.
- Maintenance procedures:
 - Call Interception
 - Simplified answering circuit (SAC)
 - Dialling via the selected trunk
 - Test dialling by trunks and trunk groups
- Traffic registration and charging:
 - Statistics collection using the PMON (Performance Monitoring) application
 - Charging and data collection for charging information
- Practical exercise on the topics covered
- Basic and advanced Troubleshooting
- Exam
- Certification

Code for order: SSB8152AA

Training duration: 2 days

Description

This training course is designed to prepare the specialist for use and maintenance system 3GPP AAA server and ePDG.

Possible audience:

- Manager
- System/solution integrator

Competences:

• use and maintenance system 3GPP AAA server and ePDG.

Prerequisites

• Participants need to have a good understanding of basic concepts of vIMS, the evolutionary development of switching systems and the method of using vIMS in telecommunications networks.

Contents

- Basics about 3GPPAA server as an extended AAA servers compliant to 3GPP standards
- Authentication of subscribers based on their SIM cards launch WiFi calling
- ePDG gateway between WiFi hospots and mobile data core networks (PDN GW)

2.20 (SSB8153AA) - SI3000 IMS Access Gateway Control Function (AGCF), SI3000 IMS Media Gateway Control Function (MGCF) – Operation, administration and maintenance

Code for order: SSB8153AA

Training duration: 5 days

Description

Iskratel has a long tradition in the field of the development of telecommunications products and solutions. Based on its experience, Iskratel can either build the entire IMS network for its customers or just set up an individual network element, necessary in a certain phase of the network's evolution. Network elements used in Iskratel IMS solutions represent the evolution of the products of the SI3000 line.

This particular course provides the knowledge to operate, administrate and maintain the SI3000 IMS system in role of AGCF and MGCF.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Get familiar with the SI3000 IMS architecture
- Recognize AGCF entity as part of IMS solution
- Recognize MGCF entity as part of IMS solution
- Know how to operate and administrate the SI3000 AGCF
- Know how to operate and administrate the SI3000 MGCF
- Know how to perform the regular maintenance procedures
- Know the basic diagnostic steps

Prerequisites

- Participants should have good understanding of telecommunications based on NGN and IMS networks.
- Good knowledge on VoIP and NGN related protocols, especially SIP and H.248, is required.

Contents

- Introduction and overview of Iskratel AGCF, MGCF solution:
 - Supported IMS/vIMS platforms (Openstack),
 - Basic concept, standards and components,
 - AGCF in the role of access gateway controller (MSANs),
 - MGCF in the role of PRI controller,
 - MGCF in the role of PCONV2 controller,
 - AGCF and MGCF high availability and redundancy (optional),
 - Licensing on AGCF and MGCF.
- SI3000 MNS, FMS, OpenMN:
 - SI3000 MNS (Management Node System),
 - Licensing,
 - User accounting,
 - Backup procedures,
 - SI3000 FMS (Fault Monitoring System),
 - Open MN interface (optional).

- Iskratel AGCF IMS/vIMS solutions:
 - -Software structure and WEB start up configuration,
 - NEM (Network Element Manager) interface,
 - Creating a new node,
 - Basic AGCF settings description,
 - Configuration of SIP towards IMS core,
 - Configuration of SIGTRAN protocols (SCTP, IUA, DSS1),
 - Configuration of H.248/MEGACO protocol,
 - In depth configuration of IUA/H.248/MEGACO protocol for other MSANs vendors,
 - Setting parameters towards IMS core and MSANs,
 - Configuration of AGCF accesses and AGCF users,
 - Registration of MSAN subscribers; POTS and ISDN,
 - Configuration of Performance measurements,
 - Maintenance procedures, tracing and basic troubleshooting.
- Iskratel MGCF IMS/vIMS solutions:
 - Software structure and WEB start up configuration,
 - NEM (Network Element Manager) interface,
 - Creating a new node,
 - Basic MGCF settings description,
 - Configuration of SIP towards IMS core,
 - Setting parameters towards IMS core,
 - Routing management function for NGN and TDM networks:
 - Routing Configuration,
 - Number translations,
 - DialPlan for NGN trunks.
 - Configuring interexchange connections with NGN/IMS networks:
 - Configuring SIGTRAN protocols for SCTP, IUA, DSS1.
 - Configuring H248/MEGACO protocol.
 - Media Gateway (MGW),
 - SIP-T, SIP-NNI interexchange protocols.
 - Configuration of Performance measurements,
 - Maintenance procedures, tracing and basic troubleshooting.

2.21 (SSB8154AA) - Basic and advanced course SI3000 Virtual IP Multimedia Subsystem (vIMS) – management, administration and maintenance

Code for order: SSB8154AA

Training duration: 10 days

Description

This training course is designed to prepare the ground specialist for system use and maintenance, who requires basic knowledge of equipment operation, including theoretical knowledge and practical skills for hardware and software maintenance and the administration of all system functionalities.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know IMS network architecture, basic concepts, standards and components
- Know CSP Iskratel virtualization platform and its components
- Know Management System (MNS)
- Know FMS, PMON (Performance Monitoring) subsystems
- Scaling and configuration of IMS-core components
- Know access level and components
- Know routing management function for NGN and TDM networks
- Know Media Gateway Control Function (MGCF)
- Know maintenance procedures and troubleshooting

Prerequisites

• Participants need to have a good understanding of basic concepts of vIMS, the evolutionary development of switching systems and the method of using vIMS in telecommunications networks.

<u>Contents</u>

- IMS network architecture
- Basic concepts, standards and components.
- User identification on the IMS network SIP protocol and call handling principle on the IMS network.
- Network function virtualization (NFV) technology overview.
- Software-defined networking (SDN) overview.
- NFV management and orchestration (MANO) principles overview.
- Presentation of vIMS solution.
- Integration with mobile radiotelephone communications networks overview.
- CSP Iskratel virtualization platform and its components:
 - Open-source components (OpenStack)
 - NFV management and orchestration (MANO)
 - On-boarding of virtualized network functions (VNF)
- Management System (MNS) (Basic + Advanced)
 - IMS management principle
 - User interface and basic SNM settings
- FMS, PMON subsystems (Basic + Advanced)
- Interaction with OSS/BSS operator systems via NBI interfaces (OpenMN, REST). (Basic + Advanced)
- Scaling and configuration of IMS-core components: (Basic + Advanced)

- Home Subscriber Server (HSS)
- ENUM/DNS
- Telephony Application Server (TAS)
- Interrogating Call Session Control Function (I-CSCF)
- Serving Call Session Control Function (S-CSCF)
- Emergency Call Session Control Function (E-CSCF)
- Scaling and configuration of IMS-Edge components: (Basic + Advanced)
 - Proxy CSCF (P-CSCF)
 - SIP network border controller (IBCF)
 - Access Gateway Control Function (AGCF)
 - Breakout Gateway Control Function (BGCF)
 - Media Gateway Control Function (MGCF
- AGCF Application of access gateways on the IMS network: (Basic + Advanced)
 - H248 protocol
 - SIGTRAN: SCTP, IUA protocols.
 - Connecting AGWs to AGCF over H.248/IUA
 - Main interfaces and signalling of the TDM access network (DSS1)
 - Media Gateway (MGW)
- MGCF, BGCF Interexchange connections: (Basic + Advanced)
 - General routing principles
 - SIGTRAN: SCTP, M2UA, M3UA, M2PA protocols.
 - Main interfaces and signalling of the TDM network (SSN7)
 - SIP-T, SIP-NNI interexchange protocols
- MGCF, BGCF Interexchange connections administration: (Basic + Advanced)
- Configuring interexchange connections with NGN/IMS networks (SIP, SIP-T)
- Configuring IMS network interaction with TDM switching nodes over the SSN7 protocol.
 - Media gateway SI3000 MGW.
 - Hardware and software
 - Function licensing
 - NEM interface
 - Creating a new node
 - Basic settings
 - Maintenance procedures. (Basic + Advanced)
 - Connecting subscriber access gateways to the IMS core: (Basic + Advanced)
 - SIP protocol
 - H.248/MEGACO protocol and its application for connecting access gateways to AGCF.
- Creating subscribers.
- IMS routing.

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- Value-added services
- Number translation.
- Conferencing.
- VXML.
- Maintenance procedures
- Traffic registration and charging:
 - Statistics collection using the PMON application
 - Charging and data collection for charging information
- Practical exercise on the topics covered

- Basic and advanced Troubleshooting
- Exam
- Certification

2.22 (SSB8152AA) - AS Training (Gintel)

Code for order: SSB8152AA

Training duration: 3 days

Description

This training course is designed to prepare the specialist for installation, administration and maintenance AS.

Possible audience:

System/solution integrator

Competences:

• Knows AS installation, administration and maintenance

Prerequisites

• Participants need to have a good understanding of basic concepts telecommunications networks.

<u>Contents</u>

- VPN
- VPBX
- IM SSF

2.23 (SSB8300AA) - SI3000 Virtual IP Multimedia Subsystem (vIMS) technology basics

Code for order: SSB8300AA

Training duration: 3 days

Description

This training course is designed to prepare the ground of technology basic knowledge for the people who is not familiar with IMS technology. Training includes theoretical knowledge and few practical use cases.

Possible audience:

- Manager
- System/solution integrator

Competences:

• Theoretically knows vIMS basics

Prerequisites

• Participants need to have a good understanding of telecommunications networks.

<u>Contents</u>

- Basic IMS principles
- IMS network architecture
- Basic elements IMS entities
- IMS user entities
- IMS registration and call
- SI3000 IMS project

Knowledge exam

Multi choice questionnaire (in SmartArena)

- IMS in general
- IMS network architecture
- Basic IMS elements
- IMS user entities

Knowledge exam requalification

2.24 (SSB8309AA) - Management and monitoring systems in SI3000 vIMS solution

Code for order: SSB8309AA

Training duration: 1 day

Description

Training includes overview of SI3000 Management and Monitoring systems as part of Iskratel vIMS solution.

Possible audience:

- System Engineer
- System/solution integrator

Competences:

Basic vIMS knowledge

Prerequisites

• Good understanding of basic concepts of vIMS and usage of vIMS in telecommunication networks.

Contents

- Introduction of Management and Monitoring systems:
 - IMS provisioning portal
 - MNS Management Node System
 - FMS Fault Monitoring System
 - PMON Performance Monitoring

Knowledge exam

Written exam (Multi choice questionnaire)

Knowledge exam requalification

2.25 (SSB8316AA) - Oracle Session Border Controller (SBC). P-CSCF and IBCF functions

Code for order: SSB8316AA

Training duration: 5 days

Description

Training course "Oracle Session Border Controller (SBC). P-CSCF and IBCF functions" is intended for ground specialists who maintain VoIP services on the field. Course contains principal knowledge about Oracle Session Border Controller IMS and advanced knowledge about P-CSCF and I-BCF roles. Practical exercises, tech talk and use cases are included.

Possible audience:

- System Engineer
- System/solution integrator

Competences:

• Knows vIMS elements

Prerequisites

• Course listeners must have at least basic knowledge of VoIP technology and IMS.

Contents

- IMS network architecture
- Network security principles.
- Introduction of Session Border Controller
 - Hardware platforms overview
 - Virtual platform overview
 - Architecture of Session Border Controller and common concepts
- System Interfaces
- Configuration Concept
- Realm
- Session Agents
- SIP interfaces
- Header Manipulation Rules
- IMS specifics. P-CSCF role
- IMS specifics IBCF role
- Access and Peering Scenarios
 - Access-Backbone scenario
 - SIP hosted NAT traversal
 - Media latching
- Peering PBRB model
- High-Availability configuration
- Denial of Service Protection
 - DoS Configuration overview
 - Call Admission Control overview
 - Maintenance and Troubleshooting
 - Troubleshooting and monitoring of the signalling traffic within ACLI
 - Troubleshooting of the registration process

• System backup and restore

Knowledge exam

Practical exam.

• Listeners do the lab tasks during the course.

Knowledge exam requalification

2.26 (SSB8320AA) - Elements of the SI3000 vIMS solution – Telephony Application Server (TAS) network element

Code for order: SSB8320AA

Training duration: 2 days

Description

This course provides the participants with a knowledge about TAS functionalities, TAS redundancy, licensing, management procedures, charging and troubleshooting.

Possible audience:

- Manager
- System/solution integrator

Competences:

- At the end of this training you will be able to understand the concepts of TAS in IMS solution. You will understand redundancy concepts in Iskratel TAS.
- You will be able to manage TAS functionalities over NEM and perform basic troubleshooting, monitor alarms and basic system logs.

Prerequisites

• Participants need to have a good understanding of basic concepts of vIMS, basic telecommunication skills, SIP and Linux.

<u>Contents</u>

- Introduction, prerequisites, purpose of TAS
- TAS architecture
- TAS functionalities
 - Supported supplementary services
 - Voice media server
 - VoXML
- Protocols:
- SIP, Diameter, H.248
- Charging (CDR, Ro)
- Performance counters
- Licensing
- Troubleshooting
- Alarms, traces, logs
- Administration

Knowledge exam

Yes

Knowledge exam requalification

2.27 (SSB8321AA) - Elements of the SI3000 vIMS solution – Multimedia Resource Function MRF (Media Server - MS) network element

Code for order: SSB8321AA

Training duration: 1 day

Description

This course provides the participants with a knowledge about MRF (MS) functionalities, management procedures and troubleshooting.

Possible audience:

- Manager
- System/solution integrator

Competences:

- At the end of this training you will be able to understand the concepts of MRF and MS (Iskratel Media server product).
- You will be able to perform basic administration and configuration procedures, monitor performance results, alarms and troubleshoot problems by checking system logs.

Prerequisites

• Participants need to have a good understanding of basic concepts of vIMS, basic telecommunication skills and knowledge, H.248, SIP protocol.

Contents

- Introduction, MRF and Iskratel MS (Media Server) product
- MS architecture, description and configurations
 - Interfaces by protocols and functionalities
 - Media handling possibilities and voice quality
 - tones detection and generation, transcoding, conferences, proxy, VoiceXML interpreter
 - VAD, CNG, AGC, PLC
 - Use cases and configuration procedures
- Capacity, performance and limitations
- Performance monitoring counters and general statistics measurements
- Troubleshooting, alarms, traces, logs

Knowledge exam

Yes

Knowledge exam requalification

2.28 (SSB8324AA) - Elements of the SI3000 vIMS solution – Media Server (MS) network element

Code for order: SSB8324AA

Training duration: 2 days

Description

This training course is designed to prepare the ground specialist for system use and maintenance, who requires basic knowledge of equipment operation, including theoretical knowledge and practical skills for hardware and software maintenance and the administration of all system functionalities.

Possible audience:

- Manager
- System/solution integrator

Competences:

• Theoretically knows vIMS basics

Prerequisites

• Participants need to have a good understanding of basic concepts of vIMS, the evolutionary development of switching systems and the method of using vIMS in telecommunications networks.

Contents

- Role of Media Server within the network
- Use cases based on MS
- Administration

Knowledge exam

No

Knowledge exam requalification

2.29 (SSB8327AA) - Elements of the SI3000 vIMS solution – Home Subscriber Server (HSS) network element

Code for order: SSB8327AA

Training duration: 1 day

Description

This course provides the participants with a knowledge about HSS functionalities, HSS redundancy in Iskratel TAS, licensing, management procedures and troubleshooting.

Possible audience:

- Manager
- System/solution integrator

Competences:

- At the end of this training you will be able to understand the concepts of HSS in IMS solution. You will understand replication mechanisms and redundancy concepts in Iskratel HSS.
- You will be able to manage profiles and trigger points in HSS over GUI and perform basic troubleshooting, monitor alarms and basic system logs.

Prerequisites

• Participants need to have a good understanding of basic concepts of vIMS, basic telecommunication skills, Diameter and Linux.

<u>Contents</u>

- Introduction, prerequisites, purpose of HSS
- HSS architecture
 - SW structure and database
 - Database Replication between clusters
- HSS management
 - Service profiles, trigger points, network configuration
- Protocols:
 - Diameter
- Troubleshooting
- Alarms, traces, logs

Knowledge exam

Yes

Knowledge exam requalification

2.30 (SSB8332AA) - Elements of the SI3000 vIMS solution – Signalling Media Gateway network element

Code for order: SSB8332AA

Training duration: 2 hours

Description

This training course is designed to prepare the ground specialist for system use and maintenance, who requires basic knowledge of equipment operation, including theoretical knowledge and practical skills for hardware and software maintenance and the administration of all system functionalities.

Possible audience:

- Manager
- System/solution integrator

Competences:

• Theoreticaly knows vIMS basics

Prerequisites

• Participants need to have a good understanding of basic concepts of vIMS, the evolutionary development of switching systems and the method of using vIMS in telecommunications networks.

Contents

- Role of Signaling Media Gateway within the network
- Use cases based on SMG
- Administration

Knowledge exam

No

Knowledge exam requalification

2.31 (SSB8334AA) - SI3000 IMS Media Gateway Control Function (MGCF), MNS and FMS – Basic operation, administration and maintenance

Code for order: SSB8334AA

Training duration: 4 days

Description

Iskratel has a long tradition in the field of the development of telecommunications products and solutions. Based on its experience, Iskratel can either build the entire IMS network for its customers or just set up an individual network element, necessary in a certain phase of the network's evolution. Network elements used in Iskratel IMS solutions represent the evolution of the products of the SI3000 line.

This particular course provides the knowledge to operate, administrate and maintain the SI3000 IMS system in role of MGCF.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Get familiar with the SI3000 IMS architecture
- Recognize MGCF entity as part of IMS solution
- Know how to operate and administrate the SI3000 MGCF
- Know how to perform the regular maintenance procedures
- Know the basic diagnostic steps

Prerequisites

- Participants should have good understanding of telecommunications based on NGN and IMS networks.
- Good knowledge on VoIP and NGN related protocols, especially SIP and H.248, is required.

<u>Contents</u>

- MGCF Media Gateway Control Function (MGCF) (Basic)
- Introduction and overview of Iskratel MGCF IMS/vIMS with MGW solution:
 - Supported IMS/vIMS platforms (Hardware based / KVM/Openstack),
 - Basic concept, standards and components,
 - SIP connection to IMS core and NGN/TDM connections to other networks,
 - MGCF high availability and geo-redundancy (optional),
 - Licensing on MGCF
- Iskratel MGCF IMS/vIMS solutions:
 - Software structure and WEB start up configuration,
 - NEM interface,
 - Creating a new node,
 - Basic settings description,
 - Configuration of SIP towards IMS core,
 - Interexchange connections: (*Basic*)
 - General routing principles
 - SIGTRAN. SCTP, M2UA protocols.
 - Main interfaces and signalling of the TDM network (SSN7)
 - SIGTRAN. SCTP, IUA protocols.

- Main interfaces and signalling of the TDM network (DSS1)
- Media Gateway (MGW)
- SIP-T, SIP-NNI interexchange protocols
- Maintenance procedures, tracing and basic troubleshooting (Basic).
- IMS network interaction with TDM and NGN networks.
 - Configuring interexchange connections with NGN/IMS networks
 - Configuring SIGTRAN protocols for SCTP, M2UA, IUA, SS7, DSS1.
 - Configuring H248 protocol
 - Routing management function for NGN and TDM networks (MGCF) (Basic)
 - Routing Configuration
 - Number translations
 - DialPlan for NGN trunks
- Media gateway SI3000 MGW.
 - Hardware and software
 - Function licensing
 - NEM interface
 - Creating a new node
 - Basic settings
 - Maintenance procedures. (Basic)
- Configuring VXML on MGCF and MGW
- Traffic registration and charging:
 - Charging and data collection for charging information
- SI3000 MNS, FMS:
 - SI3000 MNS (Management Node System),
 - Licensing,
 - User accounting,
 - SI3000 FMS (Fault Monitoring System)

2.32 (SSB8336AA) - Elements of the SI3000 vIMS solution – Mobil Access Gateway Control Function network element

Code for order:	SSB8336AA
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Training duration: 7 days

Description

This training course is designed to prepare the ground specialist for system use and maintenance, who requires basic knowledge of equipment operation, including theoretical knowledge and practical skills for hardware and software maintenance and the administration of all system functionalities.

Possible audience:

- Manager
- System/solution integrator

Competences:

• Theoretically knows vIMS basics

Prerequisites

- Participants should have good understanding of telecommunications based on IMS and Mobile networks.
- Good knowledge on VoIP and NGN related protocols, especially SIP, ISUP and H.248, is required.

Contents

- Mobile communications (from M-AGCF point of view)
 - Important mobile entities
 - Numbering
 - Protocols Camel (CAP) and MAP
 - Routing in mobile network
 - Questionnaire
 - Configuration in mobile network (sccp routing, users in HLR, ISUP/SIP-T toward MGCF)
 - Emergency calls
 - Introduction to M-AGCF
 - Architecture
 - Use cases introduction
 - Call flows
 - Administration of M-AGCF specific data
 - Troubleshooting and traces
- FMC/UC user administration
 - Service provider (SP) actions
 - Organization Administrator (OA) actions

Knowledge exam

No

Knowledge exam requalification

2.33 (SSB8340AA) - Iskratel Cloud Platform (ICP) Infrastructure Overview

Code for order: SSB8340AA

Training duration: 5 days

Description

This course provides the participants with a general introduction to ICP (Iskratel Cloud Platform) solution.

Possible audience:

- Manager
- System/solution integrator

Competences:

- To be able understand the concepts of the ICP (Iskratel Cloud Platform) solution.
- To be able handle the management Openstack GUI (Horizon)
- To be able monitor alarms, events and notifications.
- To be able handle basic administration tasks on ICP.

Prerequisites

- Prior knowledge in data center infrastructures, basic concepts of operating systems, networking concepts and virtualization technologies.
- At least know some virtualization terms. Have a clear understanding about Public Cloud and Private Cloud Computing.

Contents

- Introduction to Cloud Infrastructure Technologies
- ICP (Iskratel Cloud Platform) solution architecture
 - Mandatory components of the environment
 - The network connection between the bare-metal servers and the data center environment
 - High availability with ICP.
- Deploying ICP
 - Types of deployments ICP
 - Compute, storage, and network in relation to ICP
 - Information&Operation Center: Fai-Kolla server with monitoring function
 - Repository server
 - HW initial actions
 - Specific ICP-cloud configuration.
- ICP Openstack administration.
- ICP status monitoring. Logs analyzing.
- ICP Health troubleshooting. Identifying problems with OpenStack services. Resolving problems
- ICP maintenance. Minor upgrade. Compute node adding.

Knowledge exam

Yes

Knowledge exam requalification

2.34 (SSB8341AA) - Iskratel Cloud Platform (ICP) Orchestrator Basics Overview

Code for order: SSB8341AA

Training duration: 0,5 day

Description

This course provides the participants with a general introduction to the Iskratel Orchestrator system.

Possible audience:

- Manager
- System/solution integrator

Competences:

- At the end of this training you will be able to understand the concepts of the ICP (Iskratel cloud platform) orchestrator.
- You will be able to handle the management GUI. You will be able to do basic configuration tasks.

Prerequisites

• Iskratel Cloud platforma (ICP) Orchestrator Basics Overview Course

Contents

- Introduction, prerequisites, purpose of an Iskratel orchestrator
- Architecture & platform
- Features
- Functions
- Practical demo
 - VNF on-bording into ICP orchestrator
 - Catalogues
 - Orchestrate NS
 - Manage PoPs
 - Drivers
 - Upgrade
- Service control

Knowledge exam

Yes

Knowledge exam requalification

Code for order: SSB8342AA

Training duration: 1 day

Description

This course provides the participants with a general introduction to the Iskratel Orchestrator system.

Possible audience:

- Manager
- System/solution integrator

Competences:

- At the end of this training you will be able to understand the concepts of the ICP (Iskratel cloud platform) orchestrator.
- You will be able to handle the management GUI.
- You will be able to do advanced configuration tasks like deply/healing/recovery.

Prerequisites

• Iskratel Cloud platforma (ICP) Orchestrator Basics Overview Course

Contents

- Introduction, prerequisites, purpose of an Iskratel orchestrator
- Architecture & platform
- Features
- Functions
- Details of ICP orchestrator
- Practical demo
 - Prepare Excell for VNF onbording
 - VNF onbording into ICP orchestrator
 - Stages at deploy of VNF in details
- Healing

Knowledge exam

Yes

Knowledge exam requalification

2.36 (SSB8343AA) - SI3000 IMS Portal's Basics Overview

Code for order: SSB8343AA

Training duration: 0,5 day

Description

This course provides the participants with a general introduction to the Iskratel SI3000 IMS Common and SI3000 IMS Provisioning Service Provider Portal.

Possible audience:

- Manager
- System/solution integrator

Competences:

- At the end of this training you will be able to understand the concepts of the SI3000 IMS Common and SI3000 IMS Provisioning Service Provider Portal.
- You will be able to do basic configuration tasks.
- Advanced configuration tasks will be presented during IMS training.

Prerequisites

• Iskratel Cloud Platform (ICP) Orchestrator Basics Overview Course

Contents

- Introduction, prerequisites, purpose of a SI3000 IMS Portals
- Architecture
- North bound interface (REST)
- South bound interfaces
- License
- Connection status
- IMS user status
- IMS Network overview
- Event Log

Knowledge exam

Yes

Knowledge exam requalification

2.37 (SSB8344AA) - SI3000 System Management Administrator

Code for order: SSB8344AA

Training duration: 3 days

Description

This course provides the participants with information how to administer, monitor and operate the Iskratel SI3000 System Management application.

Possible audience:

- Manager
- System/solution integrator

Competences:

- At the end of this training you will be able to understand the architecture of the SI3000 System Management.
- You will be able to do basic configuration tasks, administration tasks and perform operational and administrative activities.

Prerequisites

• Knowledge on DB IMS architecture and general knowledge on web based applications

Contents

- Implemented solution architecture overview
- Implemented solution architecture components overview
- Integration points overview
- UMBOSS Portal administration
- UMBOSS Fault Monitoring module administration
- UMBOSS Performance Monitoring module administration
- UMBOSS NDM module hands-on training
- UMBOSS CM module hands-on training

Knowledge exam

No

Knowledge exam requalification

Code for order: SSB8345AA

Training duration: 2 days

Description

This course provides the participants with information how to operate the Iskratel SI3000 System Management application.

Possible audience:

- Manager
- System/solution integrator

Competences:

- At the end of this training you will be able to understand the architecture of the SI3000 System Management.
- You will be able to do basic configuration tasks, administration tasks and perform operational and administrative activities.

Prerequisites

• Knowledge on DB IMS architecture and general knowledge on web based applications

Contents

- Implemented solution architecture overview
- Implemented solution architecture components overview
- Integration points overview
- UMBOSS Fault Monitoring module hands-on training
- UMBOSS Performance Monitoring module hands-on training
- UMBOSS Portal hands-on training
- UMBOSS NDM module hands-on training
- UMBOSS CM module hands-on training

Knowledge exam

No

Knowledge exam requalification

2.39 (SSB8346AA) - SI3000 Charging Gateway Function

Code for order: SSB8346AA

Training duration: 2 days

Description

This course provides the participants with information how to operate the Iskratel SI3000 Charging Gateway Function module.

Possible audience:

- Manager
- System/solution integrator

Competences:

• At the end of this training you will be able to understand the architecture of the IMS charging architecture, set up and configure Iskratel CGF server.

Prerequisites

• Knowledge on IMS architecture and general knowledge on telecommunication charging principles

Contents

- IMS Charging Architecture (offline charging)
- Setup and configuration of CDF server:
 - Setup server
 - Connectivity to VNFs
 - Configuration of diameter protocol
 - Setup and configuration of CGF server:
 - Setup server
 - Configuration of stored data
 - Integration with billing system / 3rd party systems
- Monitoring and Troubleshooting

Knowledge exam

No

Knowledge exam requalification

2.40 (SSB8347AA) - SI3000 IMS Access Gateway Control Function (AGCF) – Operation, administration and maintenance

Code for order:	SSB8347AA
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Training duration: 5 days

Description

Iskratel has a long tradition in the field of the development of telecommunications products and solutions. Based on its experience, Iskratel can offer advanced courses for AGCF solution.

This particular course provides the advanced knowledge of how to operate, administrate and maintain the SI3000 IMS system in role of AGCF.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Basic configuration,
- Registration procedures,
- Diagnostic procedures on more levels,

Prerequisites

- Participants need to successfully complete basic AGCF course.
- Good understanding of virtualization concepts is required.
- Good understanding of IP networking is required.

Contents

- SI3000 MNS:
 - SI3000 MNS (Management Node System),
 - Licensing,
 - User accounting,
 - Backup procedures,
 - Geo-redundancy,
 - Open MN.
- SI3000 FMS overview
- Supported vIMS platforms (KVM)
- Overview of SI3000 AGCF Basic Course
 - Basic concept, standards and components,
 - Licensing on AGCF,
 - Global configuration of AGFC,
 - SIP connection to IMS core,
 - NGN connections to MSANs and SMGs.
- AGCF high availability and geo-redundancy
- Administration of SIP, H248 and SIGTRAN protocols in AGCF solution
 - SIP Interface,
 - H248 Interface,
 - SIGTRAN (SCTP, IUA).
- AGCF accesses configuration over NEM
- AGCF subscriber provisioning over NEM
- Registration mechanisms in detail

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- Registration of MSAN subscribers POTS and ISDN,
- Registration of PBX subscribers,
- Search and Register mechanism for unregistered subscribers,
- Maintenance mode for registrations (reshuffling registrations).
- Basic calls and dial plan
 - Advanced Troubleshooting
 - Resolving Registration failures,
 - Resolving DNS problems,
 - Logs structure and analysis
 - Troubleshooting unsuccessful calls.

2.41 (SSB8348AA) - Basic and advanced course SI3000 Virtual IP Multimedia Subsystem (vIMS) and Unified Communications (UC) management, administration and maintenance

Code for order: SSB8348AA

Training duration: 10 days

Description

This training course is designed to prepare the ground specialist for system use and maintenance, who requires basic knowledge of equipment operation, including theoretical knowledge and practical skills for hardware and software maintenance and the administration of all system functionalities.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know IMS network architecture, basic concepts, standards and components
- Know CSP Iskratel virtualization platform and its components
- Know Management System (MNS)
- Know FMS, PMON (Performance Monitoring) subsystems
- Scaling and configuration of IMS-core components
- Know access level and components
- Know routing management function for NGN and TDM networks
- Know Media Gateway Control Function (MGCF)
- Know maintenance procedures and troubleshooting
- General UC introduction
- Solution architecture
- Provisioning
- Services
- Fault elimination and maintenance procedures

Prerequisites

• Participants need to have a good understanding of basic concepts of vIMS, the evolutionary development of switching systems and the method of using vIMS in telecommunications networks.

Contents

- IMS network architecture
- Basic concepts, standards and components.
- User identification on the IMS network SIP protocol and call handling principle on the IMS network. Network security principles.
- Network function virtualization (NFV) technology overview.
- Software-defined networking (SDN) overview.
- NFV management and orchestration (MANO) principles overview.
- CSP Iskratel virtualization platform and its components:
 - Open-source components (OpenStack, Zabbix, CEPH)
 - NFV management and orchestration (MANO)
 - Scalability and on-boarding of virtualized network functions (VNF)
- Management System (MNS) (Basic + Advanced)
 - IMS management principle

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- User interface and basic SNM settings
- Auto-configuration of network elements
- FMS, PMON subsystems (Basic + Advanced)
- Interaction with OSS/BSS operator systems via OpenMN interfaces. (Basic + Advanced)
- Configuring user profiles in the SI3000 vIMS solution.
- Scaling and configuration of IMS-core components: (Basic + Advanced)
 - Home Subscriber Server (HSS)
 - ENUM/DNS
 - Telephony Application Server (TAS)
 - Interrogating Call Session Control Function (I-CSCF)
 - Serving Call Session Control Function (S-CSCF)
 - Emergency Call Session Control Function (E-CSCF)
- Scaling and configuration of IMS-Edge components: (Basic + Advanced) Proxy CSCF (P-CSCF)
 - SIP network border controller (IBCF)
- Access level. (Basic + Advanced)
 - Connecting subscriber access gateways to the IMS core: (Basic + Advanced)
 - SIP protocol
 - H.248/MEGACO protocol and its application for connecting access gateways to AGCF.
- Analog subscriber gateway access (SAK blade): (Basic + Advanced)
 - NEM interface
 - Configuring SAK profiles and creating a new node
- Creating subscribers.
- IMS routing.
- Analog subscriber SAK blade:
 - SAK blade initial installation procedure
 - Maintenance procedures.
- Analog subscriber SAK blade:
 - Creating subscribers,
 - Local routing,
 - Testing telephone lines and telephone sets by SAK and MNS means.
- Application of access gateways on the IMS network (connecting TDM access nodes): (Basic + Advanced)
 - Main interfaces and signalling of the TDM access network (DSS1, V5.2)
 - SIGTRAN. SCTP, IUA, V5UA protocols.
 - Media Gateway (MGW)
 - Access Gateway Control Function (AGCF)
- Interexchange connections: (Basic + Advanced)
 - General routing principles
 - Main interfaces and signalling of the TDM network (SSN7, 2VSK)
 - SIGTRAN. SCTP, M2UA protocols.
 - SIP-T, SIP-NNI interexchange protocols
- Interexchange connections administration (Basic + Advanced)
- Routing management function for NGN and TDM networks (Breakout Gateway) (BGCF) (Basic + Advanced)
- Configuring interexchange connections with NGN/IMS networks
- Media Gateway Control Function (MGCF) (Basic + Advanced)
- Media gateway SI3000 MGW.
 - Hardware and software

- Function licensing
- NEM interface
- Creating a new node
- Basic settings
- Maintenance procedures. (Basic + Advanced)
- Configuring IMS network interaction with TDM switching nodes over the SSN7 protocol.
- Value-added services
- Number translation.
- Conferencing.
- Remote Terminal Service.
- VXML.
- Maintenance procedures:
 - Call Interception
 - Simplified answering circuit (SAC)
 - Dialling via the selected trunk
 - Test dialling by trunks and trunk groups
- Traffic registration and charging:
- Statistics collection using the PMON (Performance Monitoring) application
- Charging and data collection for charging information
- Unified Communication features:
 - Media Server
 - UC vIMS IVR Auto-Attendant
 - Web portal
 - UC vIMS Provisioning and Self-care
 - Digital Recorder
- Practical exercise on the topics covered
- Basic and advanced Troubleshooting
- Exam
- Certification

2.42 (SSB8130AA) - SI3000 MSCN – Lawful Interception – basic

Code for order: SSB8130AA

Training duration: 2 days

Description

This course is aimed at the participants, who work on operational and administrational tasks on SI3000 Multiple Services Control Node (MSCN). It focuses on the configuration of Call Server for Lawful Interception (LI) purposes.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know the LI system and understand its architecture
- Know how to set up the Call Server for LI
- Know the Lawful Interception Module
- Be able to manage the system

Prerequisites

- Participants need to have the basic knowledge about telecommunications with an emphasis on the NGN network elements.
- It is necessary for them to understand IP networks, Layer2/Layer3 networking and network security.
- Knowledge of NGN protocols, especially SIP, is beneficial.

Contents

- Introduction
 - General on the MSCN
- ETSI LI
 - System architecture
 - Ll functions
 - Standardized interfaces.
- Iskratel LI configuration
 - System elements
 - Element roles
 - Monitoring of statistics
 - Full monitoring
- Upgrade of existing SI2000/SI3000 equipment
 - LI specific parameters
 - HW administration
- LI Module (LIM)
 - Installation procedure
 - Interfaces (CS, MN)
 - LIM administration
 - Control protocols
- Administration Function (ADMF) client
 - Use of application
 - Creation/Deletion of certain interception methods
 - Customer

- Group of subscribers
- Trunk/route interception
- Interception of the V5.x interface
- VPN call interception
- LI data storing
- Ll data print

2.43 (SSB8131AA) - SI3000 MSCN – Basic operation, administration and maintenance

Code for order: SSB8131AA

Training duration: 5 days

Description

This course is aimed at the participants, who work on operational and administrative tasks on SI3000 Multiple Services Control Node (MSCN) on a basic level.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know the system and understand its architecture
- Know the SIP, SIP-T, ISUP protocol
- Know how to administer the system on the basic level
- Know how to use the system and its functionalities on the basic level
- Know the basic troubleshooting steps

Prerequisites

- Participants need to have the basic knowledge about telecommunications with an emphasis on the NGN network elements.
- It is necessary for them to understand IP networks, Layer2/Layer3 networking and network security.
- Knowledge of NGN protocols, especially SIP, is beneficial.

Contents

- 2 days in Iskratel training center
 - Introduction
 - Introduction to the SI3000 Call Server (CS) and Media Gateway (MG) product
 - Blicnet solution and migration description
 - MSCN operating system configuration
 - Licensing on CS, MG
 - Database backup and restore
 - Setup of local subscribers
 - IP subscribers creating SIP subscribers
 - Local routing
 - Signaling
 - SIP-T
 - Introduction to SIGTRAN, SCTP, MEGACO and a connection diagram
 - Connecting TDM exchanges with SSN7 via MG and M2UA
 - Routing
 - Trunk groups and trunks
 - Tariff
 - Recording and charging
- 3 days On job training at Customer
 - Supplementary services
 - Call offering

- Call identification
- Supplementary Service Set
- Account suspension
- Subscriber groups, PBX, LH
- Centrex
- Number translation
- IN and CSTA
- Call trace
- Maintenance procedures
 - Events monitoring
 - Troubleshooting
- Practical exercises from Subscriber supplementary services, traffic (NP) routing, number translations, ...
2.44 (SSB8132AA) - SI3000 MSCN - Lawful Interception

Code for order: SSB8132AA

Training duration: 1 day

Description

This course is aimed at the participants, who work on operational and administrational tasks on SI3000 Multiple Services Control Node (MSCN). It focuses on the configuration of Call Server for Lawful Interception (LI) purposes.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know the LI system and understand its architecture
- Know how to set up the Call Server for LI
- Know the Lawful Interception Module
- Be able to manage the system

Prerequisites

- Participants need to have the basic knowledge about telecommunications with an emphasis on the NGN network elements.
- It is necessary for them to understand IP networks, Layer2/Layer3 networking and network security.
- Knowledge of NGN protocols, especially SIP, is beneficial.

- Introduction
 - ETSI LI
 - System architecture
 - LI functions
 - Standardized interfaces.
- Iskratel LI configuration
 - System elements
 - Element roles
 - Monitoring of statistics
 - Full monitoring
 - LI specific parameters
- LI Module (LIM)
 - Interfaces (CS, MN)
 - LIM administration
 - Control protocols
- Administration Function (ADMF) client
 - Use of application
 - Creation/Deletion of certain interception methods
 - Group of subscribers
 - Trunk/route interception
 - VPN call interception
 - LI data storing
 - Ll data print

2.45 (SSB8170AA) - SI3000 Compact Call Server installation – basic operation, administration and maintenance

Code for order:	SSB8170AA
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Training duration: 5 days

Description

This course is aimed for the participants, who work on installation as well as on operational and administrational tasks on SI3000 Compact Call Server.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know the general overview of the system
- Know the architecture and components of the system
- Know the installation procedures
- Know basic NGN protocols (SIP)
- Know the administration procedures
- Know the basic maintenance tasks
- Know the basic troubleshooting steps on the system

Prerequisites

- Participants need to have the basic knowledge about telecommunications with an emphasis on the NGN network elements. Besides that, it is necessary for them to understand IP networks, Layer2/Layer3 networking and network security.
- Participants need basic knowledge from SI3000 MSCN or SI3000 iCS products.
- Knowledge of NGN protocols, especially SIP, is beneficial.
- Basic knowledge of Linux operating system is required.

<u>Contents</u>

- Introduction to the SI3000 Compact Call Server
- SI3000 Compact Call Server product description
- Installation and set-up procedures overview
 - DNS configuration
 - Operating System Installation
 - Operating system configuration
 - Installing software on Management node
 - Inserting a new node on Management node
 - Inserting of Ethernet interfaces
 - Installing software and data on the cCS
 - Licensing on cCS
 - NTP configuration
 - Hardware modules installation and configuration
 - POTS subscriber module installation and configuration
- Setup of local subscribers
- Configuration of TDM subscribers
 - Configuration of IP subscribers
 - Local routing

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- IP signalling
 - SIP/SIP-T signalling
- TDM signalling
 - SS7 signalling
 - DSS1/QSIG signalling
- Routing
 - Trunk groups and trunks
 - Routing
 - Number translation
- Centrex
- Supplementary services
 - Call offering
 - Abbreviated dialling
 - Call identification
 - Call completion
 - Call restriction
 - Subscriber groups
 - Account suspension
 - Subscriber line status display
 - Various supplementary services
- Alarm Management
- Maintenance procedures
- Troubleshooting

2.46 (SSB8171AA) - SI3000 FMS

Code for order: SSB8171AA

Training duration: 1day

Description

This course is aimed at the participants, who work on operational and administrational tasks on SI3000 Fault Management System (FMS).

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know the system and its architecture
- Know how to set up the system for operation
- Know the functions of the system
- Be able to manage the system
- Be proficient in the system administration and its functions
- Know the basic troubleshooting steps

Prerequisites

- Participants need to have a good knowledge on the telecommunication networks.
- Basic knowledge on industry grade servers and Linux OS is beneficial.

- FMS client start and connection to the FMS server
- Explanation of the FMS window
- Manage User Views and Create Submaps for Subnets in the Explorer window
- Explanation of the Device Panel window and assigning objects to views
- Explanation of a graphical or detailed view in the Maps window
- Alarm monitoring via the Events window
 - Explanation of alarm severity with regard to the icons and colour, and alarm handling
 - Viewing alarms and alarm history for a particular object
 - Alarm filtering and searching
- Accessing object functions context start (Properties, Enable/Disable, Alarms, Tools)
- Overview of the Tools menu
 - View and user management
 - Setting the FMS client
 - Creating charts
 - Scanning the network
 - MIB Browser

2.47 (SSB8172AA) - SI3000 MNS – Management Node System

Code for order: SSB8172AA

Training duration: 1day

Description

Course is aimed for participants, which will work in installation and maintenance of management for Iskratel products. During the course participants will learn about installation procedure and basic maintenance.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Basics of SI3000 MNS product
- How to use MNS solution
- Know network elements management
- Know basic maintenance procedures
- Know basic steps on the system of recognising, diagnostic and fault elimination.

Prerequisites

- Participants need to have deep understanding of telecommunications, especially in the area of the network management.
- Knowing of Linux OS is mandatory.

- Introduction
- The MNS architecture
- Licensing
- Functions of the system
- Security administration (users, groups, ...)
- System administration
- Assurance administration
- Logging History

2.48 (SSB8173AA) - SI3000 Modular Power Supply (MPS) – Operation, administration and maintenance

Code for order: S	SB8173AA
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Training duration: 2,5 days

Description

This course is aimed at the participants, who work on operational and administrational tasks on SI3000 Modular Power System (MPS).

Possible audience:

- Manager
- System/solution integrator

Competences:

- Get to know the system and understand its architecture
- Learn how to set up the system
- Learn the system functionalities
- Learn how to operate the system
- Learn how to administer the system and its functionalities
- Learn basic troubleshooting steps

Prerequisites

• Participants need to have the basic telecommunication and electro technical knowledge plus at least basic knowledge of IP networks.

Contents

- Modular Power Supply system (MPS) product presentation
 - MPS1000 description
 - MPS1000.600/1500
 - MPS1000.200
 - MPS1000.80
 - MPS1000.50
 - MPS15
 - Battery system (AGM, OPzV, OPzS, LPF, Ni-Cd...)
 - DC/AC system (DAC6000)
 - DC/DC
- Main benefits of MPS1000
- Technical characteristics
- Construction (differences between the various systems)
- Description of sub-racks and modules
- Description of features and parameters
- SW features
- Administration options
- Display interface
- Connecting to the system
 - Via Web interface
 - Via Ethernet
- Upgrading VRx units
- Control and monitoring

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- Adding MPS1000 into the Fault Management System (FMS)
 - Via Ethernet
- Alarm monitoring
- Statistic (tabele, grafs, export, ...)

2.49 (SSB8174AA) - SI3000 FMS

Code for order: SSB8174AA

Training duration: 0,5 day

Description

This course is aimed at the participants, who work on operational and administrational tasks on SI3000 Fault Management System (FMS).

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know the system and its architecture
- Know how to set up the system for operation
- Know the functions of the system
- Be able to manage the system
- Be proficient in the system administration and its functions
- Know the basic troubleshooting steps

Prerequisites

- Participants need to have a good knowledge on the telecommunication networks.
- Basic knowledge on industry grade servers and Linux OS is beneficial.

- FMS client start and connection to the FMS server
- Explanation of the FMS window
- Manage User Views and Create Submaps for Subnets in the Explorer window
- Explanation of the Device Panel window and assigning objects to views
- Explanation of a graphical or detailed view in the Maps window
- Alarm monitoring via the Events window
 - Explanation of alarm severity with regard to the icons and colour, and alarm handling
 - Viewing alarms and alarm history for a particular object
 - Alarm filtering and searching
- Accessing object functions context start (Properties, Enable/Disable, Alarms, Tools)
- Overview of the Tools menu
 - View and user management
 - Setting the FMS client
 - Creating charts
 - Scanning the network
 - MIB Browser

2.50 (SSB8175AA) - SI3000 MNS – Management Node System

Code for order: SSB8175AA

Training duration: 0,5 day

Description

Course is aimed for participants, which will work in installation and maintenance of management for Iskratel products. During the course participants will learn about installation procedure and basic maintenance.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Basics of SI3000 MNS product
- How to use MNS solution
- Know network elements management
- Know basic maintenance procedures
- Know basic steps on the system of recognising, diagnostic and fault elimination.

Prerequisites

- Participants need to have deep understanding of telecommunications, especially in the area of the network management.
- Knowing of Linux OS is mandatory.

- Introduction
- The MNS architecture
- Licensing
- Functions of the system
- Security administration (users, groups, ...)
- System administration
- Assurance administration
- Logging History

2.51 (SSB8176AA) - SI3000 Modular Power Supply (MPS) – Operation, administration and maintenance (short)

Code for order: SSB8176AA

Training duration: 1 day

Description

This course is aimed at the participants, who work on operational and administrational tasks on SI3000 Modular Power System (MPS).

Possible audience:

- Manager
- System/solution integrator

Competences:

- Get to know the system and understand its architecture
- Learn how to set up the system
- Learn the system functionalities
- Learn how to operate the system
- Learn how to administer the system and its functionalities
- Learn basic troubleshooting steps

Prerequisites

• Participants need to have the basic telecommunication and electro technical knowledge plus at least basic knowledge of IP networks.

- Modular Power Supply system (MPS) product presentation
 - MPS1000 description
 - MPS1000.600/1500
 - MPS1000.200
 - MPS1000.80
 - MPS1000.50
 - MPS1000.25
- Main benefits of MPS1000
- Technical characteristics
- Construction (differences between the various systems)
- Description of sub-racks and modules
- Description of features and parameters
- SW features
- Administration options
- Display interface
- Connecting to the system
 - Via Web interface
 - Via Ethernet
 - Upgrading VRx units
- Control and monitoring
- Adding MPS1000 into the Fault Management System (FMS)
 - Via Ethernet
- Alarm monitoring, statistic...

2.52 (SSB8177AA) - SI3000 Outdoor cabinet - Maintenance

Code for order: SSB8177AA

Training duration: 1 day

Description

This course is aimed at the participants, who work on operational and administrational tasks on SI3000 Equipment, located and mounted in outdoor cabinets (ODUx products).

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know the main parts of the outdoor cabinets (ODU x).
- Know how to monitor the main parameters of ODU x performance
- Know the basic troubleshooting steps

Prerequisites

- The participants should have basic electro-technical knowledge.
- Knowledge about telecommunications and telecommunication networks is beneficial.

- Iskratel outdoor cabinets overview
- Main components of the ODU x system
 - ODU x with its main installation
 - Distribution frames
 - Racks with active equipment
 - Power Supply
 - Climate control
 - Sensorics
 - Battery system (AGM, LPF)
- Regular maintenance procedures
 - Outdoor cabinets (ODU x)
 - Active equipment (of Iskratel origin)
 - Climate control
 - Other equipment, if installed (e.g. video surveillance)

2.53 (SSB8178AA) - SI3000 Outdoor cabinet – Maintenance (short)

Code for order: SSB8178AA

Training duration: 0,5 day

Description

This course is aimed at the participants, who work on operational and administrational tasks on SI3000 Equipment, located and mounted in outdoor cabinets (ODUx products).

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know the main parts of the outdoor cabinets (ODU x).
- Know how to monitor the main parameters of ODU x performance
- Know the basic troubleshooting steps

Prerequisites

- The participants should have basic electro-technical knowledge.
- Knowledge about telecommunications and telecommunication networks is beneficial.

- Iskratel outdoor cabinets overview
- Main components of the ODU x system
 - ODU x with its main installation
 - Distribution frames
 - Racks with active equipment
 - Power Supply
 - Climate control
 - Sensorics
- Regular maintenance procedures
 - Outdoor cabinets (ODU x)
 - Active equipment (of Iskratel origin)
 - Climate control
 - Other equipment, if installed (e.g. video surveillance)

2.54 (SSB8179AA) - SI3000 MNS – Management Node System

Code for order: SSB8179AA

Training duration: 0,5 day

Description

Course is aimed for participants, which will work in installation and maintenance of management for Iskratel products. During the course participants will learn about installation procedure and basic maintenance.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Basics of SI3000 MNS product
- How to use MNS solution
- Know network elements management
- Know basic maintenance procedures
- Know basic steps on the system of recognising, diagnostic and fault elimination.

Prerequisites

- Participants need to have deep understanding of telecommunications, especially in the area of the network management.
- Knowing of Linux OS is mandatory.

- Introduction
- The MNS architecture
- Licensing
- Functions of the system
- Security administration (users, groups, ...)
- System administration
- Assurance administration
- Logging History

2.55 (SSB8270AA) - SI3000 Compact Call Server installation – basic operation, administration and maintenance

Code for order: SSB8270AA

Training duration: 4 days

Description

This course is aimed for the participants, who work on installation as well as on operational and administrational tasks on SI3000 Compact Call Server.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know the general overview of the system
- Know the architecture and components of the system
- Know the installation procedures
- Know basic NGN protocols (SIP)
- Know the administration procedures
- Know the basic maintenance tasks
- Know the basic troubleshooting steps on the system

Prerequisites

- Participants need to have the basic knowledge about telecommunications with an emphasis on the NGN network elements. Besides that, it is necessary for them to understand IP networks, Layer2/Layer3 networking and network security.
- Participants need basic knowledge from SI3000 MSCN or SI3000 iCS products.
- Knowledge of NGN protocols, especially SIP, is beneficial.
- Basic knowledge of Linux operating system is required.

<u>Contents</u>

- Introduction to the SI3000 Compact Call Server
- SI3000 Compact Call Server product description
- Installation and set-up procedures overview
 - DNS configuration
 - Operating System Installation
 - Operating system configuration
 - Installing software on Management node
 - Inserting a new node on Management node
 - Inserting of Ethernet interfaces
 - Installing software and data on the cCS
 - Licensing on cCS
 - NTP configuration
 - Hardware modules installation and configuration
 - POTS subscriber module installation and configuration
- Setup of local subscribers
 - Configuration of TDM subscribers
 - Configuration of IP subscribers
 - Local routing

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- SIP/SIP-T signalling
- TDM signalling
 - SS7 signalling
 - DSS1/QSIG signalling
- Routing
 - Trunk groups and trunks
 - Routing
 - Number translation
- Centrex
- Supplementary services
 - Call offering
 - Abbreviated dialling
 - Call identification
 - Call completion
 - Call restriction
 - Subscriber groups
 - Account suspension
 - Subscriber line status display
 - Various supplementary services
- Alarm Management
- Maintenance procedures
- Troubleshooting

2.56 (SSB8271AA) - SI3000 Compact Call Server installation – basic operation, administration and maintenance

Code for order: S	588271AA
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Training duration: 2 days

Description

This course is aimed for the participants, who work on installation as well as on operational and administrational tasks on SI3000 Compact Call Server.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know the general overview of the system
- Know the architecture and components of the system
- Know the installation procedures
- Know basic NGN protocols (SIP)
- Know the administration procedures
- Know the basic maintenance tasks
- Know the basic troubleshooting steps on the system

Prerequisites

- Participants need to have the basic knowledge about telecommunications with an emphasis on the NGN network elements. Besides that, it is necessary for them to understand IP networks, Layer2/Layer3 networking and network security.
- Participants need basic knowledge from SI3000 MSCN or SI3000 iCS products.
- Knowledge of NGN protocols, especially SIP, is beneficial.
- Basic knowledge of Linux operating system is required.

<u>Contents</u>

- Product presentation
- Install blade from USB key (single or duplicated?)
- Basic Clish, WEB Clish
- Install NE SW from MN
- Basic configuration of subscribers, feature description, routing (local calls, outside connection (SIP, DSS1))
- Troubleshooting (signalling and tcpdump traces, logs)

2.57 (SSB8272AA) - SI3000 Compact Call Server installation, basic operation, administration, maintenance and BGW, DRS, MPD

Code for order: SSB8272AA

Training duration: 3 days

Description

This course is aimed for the participants, who work on installation as well as on operational and administrational tasks on SI3000 Compact Call Server, BGW, DRS and MPD.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know the general overview of the system
- Know the architecture and components of the system
- Know the installation procedures
- Know basic NGN protocols (SIP)
- Know the administration procedures
- Know the basic maintenance tasks
- Know the basic troubleshooting steps on the system

Prerequisites

- Participants need to have the basic knowledge about telecommunications with an emphasis on the NGN network elements. Besides that, it is necessary for them to understand IP networks, Layer2/Layer3 networking and network security.
- Participants need basic knowledge from SI3000 MSCN or SI3000 iCS products.
- Knowledge of NGN protocols, especially SIP, is beneficial.
- Basic knowledge of Linux operating system is required.

- cCS:
 - Product presentation
 - Install blade from USB key (single or duplicated?)
 - Basic Clish, WEB Clish
 - Install NE SW from MN
 - Basic configuration of subscribers, feature description, routing (local calls, outside connection (SIP, DSS1))
 - Troubleshooting (signalling and tcpdump traces, logs)
- BGW:
 - Basic installation to a virtual machine (VM already prepared)
 - Trunking configuration (basic explanation of parameters)
 - Connecting cCS to BGW over SIP trunk (peering)
- DRS:
 - Basic Configuration of DRS
 - Devices under monitoring
 - Recordings
- MPD:
 - Presentation of MPD

- GUI
- Features

2.58 (SSB8273AA) - SI3000 Compact Call Server – basic operation, administration and maintenance

Code for order: SSB8273AA

Training duration: 4 days

Description

This course is aimed for the participants, who work on operational, administrational and maintenance tasks on SI3000 Compact Call Server.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know the general overview of the system
- Know the architecture and components of the system
- Know the installation procedures
- Know basic NGN protocols (SIP)
- Know the administration procedures
- Know the basic maintenance tasks
- Know the basic troubleshooting steps on the system

Prerequisites

- Participants need to have the basic knowledge about telecommunications with an emphasis on the NGN network elements. Besides that, it is necessary for them to understand IP networks, Layer2/Layer3 networking and network security.
- Participants need basic knowledge from SI3000 MSCN or SI3000 iCS products.
- Knowledge of NGN protocols, especially SIP, is beneficial.
- Basic knowledge of Linux operating system is required.

- Introduction to DSS Nigeria project
 - Short overview of current status of project
- Introduction to the SI3000 Compact Call Server
- SI3000 Compact Call Server product description
- Installation and set-up procedures overview
- Hardware modules installation and configuration
 - POTS subscriber module installation and configuration
 - ISDN subscriber module installation and configuration
- Setup of local subscribers
 - Configuration of TDM subscribers
 - Configuration of IP subscribers
 - Local routing
- IP signalling
 - SIP signalling
- TDM signalling
 - SS7 signalling
 - DSS1 signalling
- Routing

- Trunk groups and trunks
- Routing
- Number translation
- Centrex
- Supplementary services
- Alarm Management
- Maintenance procedures
- Troubleshooting

2.59 (SSB8274AA) - Management Node System (MNS) and Fault Management System (FMS) – management and maintenance

Code for order: SSB8274AA

Training duration: 1 day

Description

This particular course is intended for participants who will manage network elements with management node system (MNS) and Fault Management System (FMS).

Possible audience:

- Manager
- System/solution integrator

Competences:

- Basics of SI3000 MNS product
- How to use MNS solution
- Know network elements management
- Know basic maintenance procedures
- Know basic steps on the system of recognising, diagnostic and fault elimination
- Know FMS system and architecture
- How to set-up FMS system
- How to use FMS solution
- Know to manage and administrate system
- Know functions of FMS system
- Know basic maintenance procedures
- Know basic diagnostic and fault elimination steps.

Prerequisites

- Participants need to have a good knowledge about telecommunication networks, especialy network management.
- Participants need to have a basic knowledge about Linux operating system.

- MNS introduction
 - Network elements management NEM
 - DHCP, ACS, DNS, NTP topology
 - User account management Security
 - System set up management
 - Terminal test line management
- FMS introduction
 - Application overview
 - Faults elimination

2.60 (SSB8275AA) - SI3000 Compact Call Server – basic operation, administration and maintenance

Code for order:	SSB8275AA
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Training duration: 5 days

Description

This course is aimed for the participants, who work on operational, administrational and maintenance tasks on SI3000 Compact Call Server.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know the general overview of the system
- Know the architecture and components of the system
- Know the installation procedures
- Know basic NGN protocols (SIP)
- Know the administration procedures
- Know the basic maintenance tasks
- Know the basic troubleshooting steps on the system

Prerequisites

- Participants need to have the basic knowledge about telecommunications with an emphasis on the NGN network elements. Besides that, it is necessary for them to understand IP networks, Layer2/Layer3 networking and network security.
- Participants need basic knowledge from SI3000 MSCN or SI3000 iCS products.
- Knowledge of NGN protocols, especially SIP, is beneficial.
- Basic knowledge of Linux operating system is required.

Contents

- Introduction to DSS Nigeria project
- Short overview of current status of project
- Introduction to the SI3000 Compact Call Server
- SI3000 Compact Call Server product description
- Installation and set-up procedures overview
- Hardware modules installation and configuration
 - POTS subscriber module installation and configuration
 - ISDN subscriber module installation and configuration
- Setup of local subscribers
 - Configuration of TDM subscribers
 - Configuration of IP subscribers
 - Local routing
- IP signalling
- TDM signalling
- SS7 signalling
- DSS1 signalling
- Routing
 - Trunk groups and trunks

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- Routing
- Number translation
- Centrex
- Supplementary services
- Alarm Management
- Maintenance procedures
- Troubleshooting

2.61 (SSB8180AA) - UC – Universal Communications basic management and maintenance

Code for order: SSB8180AA

Training duration: 3 days

Description

This particular course is intended for participants who will work with Universal Communications (UC) solution on a basic level.

Possible audience:

- Manager
- System/solution integrator

Competences:

- General UC introduction
- Solution architecture
- Provisioning
- Services
- Fault elimination and maintenance procedures

Prerequisites

- CS & MS & MG & O&M Basic Call server, media server and media gateway basic management and maintenance
- Management Node System (MNS) management and maintenance

Contents

- Introduction
 - Concept of UC solution
 - Target customers
 - Services and UC service packages
- Solution architecture overview
 - Components and their role in the solution
 - Interfaces
 - Network architecture
- Provisioning
 - System configuration prerequisites for UC
 - UC provisioning Service Provider admin
 - UC Self-care Enterprise Admin
 - UC Self-care End User
 - iDMS provisioning of terminals and softphones
- Web Audio Services
 - IVR Auto attendant
 - Audio Conferencing
 - Notification call
- Faults elimination
- Maintenance procedure

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2.62 (SSB8181AA) - UC – Universal Communications management and maintenance

Code for order: SSB8181AA

Training duration: 10 days

Description

This particular course is intended for participants who will work with Universal Communications (UC) solution on a basic and intermediate level.

Possible audience:

- Manager
- System/solution integrator

Competences:

- General UC introduction
- Solution architecture
- Provisioning
- Services
- Fault elimination and maintenance procedures

Prerequisites

- CS & MS & MG & O&M Basic Call server, media server and media gateway basic management and maintenance
- Management Node System (MNS) management and maintenance
- Good knowledge of Iskratel CSP AI and AP

Not including in course

- OS installation on hosts
- Virtual machine deployment all VMs will be deployed in advance
- MNS application will be installed and in operation
- CS will be installed and configured until basic call
- MS/MG will be installed and configured SIGTRAN ready
- DRS installation and configuration
- Yealink terminals specifics

- Introduction
 - Concept of UC solution
 - Target customers
 - Services and UC service packages
 - Different UC configurations
 - Required HW resources
 - SW matrix
- Solution architecture overview
 - Components and their role in the solution
 - Interfaces
 - Network architecture
- Specifics of pre-installed virtual machines

- SE (Service Enabler) installation and configuration in HA
- CDR server installation (non-HA) and configuration:
 - RADIUS configuration
- Addressbook (AB) installation and configuration in HA:
 - MNS configuration needed for AB
- Proxy installation and configuration in HA
- WEB portal installation and configuration in HA
- Presence server installation and configuration in standalone (no difference compare to HA)
- Protocols between applications, used IP ports
- Provisioning
 - Working with templates
 - iDMS for Yealink terminals
 - Configuration of DHCP used for terminals
 - Softphone provisioning
 - MSRP without SBC/BGW (RDP, file sharing, ...) CS configuration
- SSL certificates:
 - General about SSL
 - Cerificate ordering
 - Cerificate installation
- IVR installation and configuration on WP, CS, MS
- Voice to mail installation and configuration on WP, CS, MS
- Connection to Active Directory configuration on MNS and SP
 - Only addressbook
 - Full integration with AD
- Lite Contact Center (LCC) configuration on WP, CS, MNS, DRS
- SBC role in UC solution MSRP specific configuration
- Upgrade specifics:
 - SE upgrade
 - WP upgrade Wildfly change
- Main differences between UC Enterprise and UC Telco
- Troubleshooting

2.63 (SSB8182AA) - UC – Universal Communications basic management and maintenance

Code for order: SSB8182AA

Training duration: 1,5 days

Description

This particular course is intended for participants who will work with Universal Communications (UC) solution on a basic level.

Possible audience:

- Manager
- System/solution integrator

Competences:

- General UC introduction
- Solution architecture
- Provisioning
- Services
- Fault elimination and maintenance procedures

Prerequisites

- CS & MS & MG & O&M Basic Call server, media server and media gateway basic management and maintenance
- Management Node System (MNS) management and maintenance

- Introduction
 - Concept of UC solution
- Solution architecture overview
 - Components and their role in the solution
 - Interfaces
 - Network architecture
- Provisioning
 - System configuration prerequisites for UC
 - UC Self-care Enterprise Admin
 - UC Self-care End User
 - iDMS provisioning of terminals and softphones
- Web Audio Services
- IVR Auto attendant
- Faults elimination
- Maintenance procedure

2.64 (SSB8183AA) - UC – Universal Communications basic management and maintenance

Code for order: SSB8183AA

Training duration: 1 day

Description

This particular course is intended for participants who will work with Universal Communications (UC) solution on a basic level.

Possible audience:

- Manager
- System/solution integrator

Competences:

- General UC introduction
- Solution architecture
- Provisioning
- Services
- Fault elimination and maintenance procedures

Prerequisites

- CS & MS & MG & O&M Basic Call server, media server and media gateway basic management and maintenance
- Management Node System (MNS) management and maintenance

- Introduction
 - Concept of UC solution
- Solution architecture overview
 - Components and their role in the solution
 - Interfaces
 - Network architecture
- Provisioning
 - System configuration prerequisites for UC
 - UC Self-care Enterprise Admin
 - UC Self-care End User
 - iDMS provisioning of terminals and softphones
- Web Audio Services
- IVR Auto attendant
- Faults elimination
- Maintenance procedure

2.65 (SSB8184AA) - BC – Universal Communications basic management and maintenance

Code for order: SSB8184AA

Training duration: 1 day

Description

This particular course is intended for participants who will work with Universal Communications (BC) solution on a basic level.

Possible audience:

- Manager
- System/solution integrator

Competences:

- General UC (BC) introduction
- Solution architecture
- Provisioning
- Services
- Fault elimination and maintenance procedures

Prerequisites

- CS & MS & MG & O&M Basic Call server, media server and media gateway basic management and maintenance
- Management Node System (MNS) management and maintenance

- Introduction
 - Concept of BC solution
- Solution architecture overview
 - Components and their role in the solution
 - Interfaces and Network architecture
- Web portal
 - BC Enterprise Administrator
 - Subscriber numbers and Users management
 - Adding and synchronizing subscriber numbers via the Web portal
 - Assigning the subscriber numbers to users
 - Assigning additional terminals to user
 - Adding additional devices to user and configure services
 - BC Self-care End User
- Provisioning
 - iDMS provisioning of terminals and softphone W10
 - Edit additional parameters for individual SIP terminals
 - Remote Phone reset
 - Remote Phone firmware update
 - Connection to terminal Web settings
 - Online monitoring of Phone provisioning and SIP registration state
- Web Audio Services
 - IVR Auto attendant
 - LCC- Lite Call Center

- Universal number, Anywhere line
- Improved Black/white list management
- Improved configuration of Multi Line Hunting Groups MLHG

3 5G Private Mobile Communication Solution (5G Zasebna mobilna omrežja)

3.1 (SSB8080AA) - 5G Fundamentals

Code for order: SSB8080AA

Training duration: 1 day

Description

Direct correlation with high-bandwidth applications, low latency, Internet of Things (IoT) services and beyond is associated with 5G. If you are interested in expanding your basic mobile network knowledge in to the 5G domain this course is for you, for gaining insight into the basic concepts of the 5G core network, explanation of the architecture and technical concepts of the 5G core network.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know basic mobile network knowledge in to the 5G domain
- Know architecture and technical concepts of the 5G core network.

Prerequisites

- General technical understanding of Mobile Packet Core Network (SGSN-MME, SGW/PGW, PCRF, HSS) will be a plus.
- Knowledge of IMS and Cloud.

- Explore 5G Core standardization, network evolution and use cases
- Explain the basic conceptual network architecture and technology for the 5G Core
- Explain the basic concepts for 5G core cloud native aspects and management
- Provide an Overview of AMF, SMF, UPF, UDM, UDR, AUSF, PCF, NRF network function.

3.2 (SSB8081AA) - 5G Core Basic Protocols and Procedures

Code for order: SSB8081AA

Training duration: 2 days

Description

This course explains the protocols and the signaling used for the 5G Core (5GC) infrastructure. It describes the interfaces in 5GC and the interworking with 3GPP 5G RAN. The course describes various 5GC use case scenarios such as Connection, Registration, Mobility, and Session management based on the 3GPP Release 16. The theory will be exemplified with exercises analyzing 5GC Wireshark traces.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know the protocols and the signaling used for the 5G Core (5GC) infrastructure.
- Know the interfaces in 5GC and the interworking with 3GPP 5G RAN.
- Know various 5GC use case scenarios.

Prerequisites

- General technical understanding of Mobile Packet Core Network (SGSN-MME, SGW/PGW, PCRF, HSS), and 5G network (AMF, SMF, UPF, UDM, UDR, AUSF, PCF, NRF).
- Knowledge of IMS and Cloud will be a plus.

- Explain the basic conceptual network architecture and technology for the 5G Core.
- Deep dive in to the interfaces and explain the signalling, protocols and service exchange between the network functions.
- Analyse the basic procedures for 5GC and call flows.

3.3 (SSB8082AA) - 5GC Operation and Configuration

Code for order: SSB8082AA

Training duration: 2 days

Description

S&T Iskratel 5GC is a complete cloud native solution, which runs on Iskratel Cloud Platform, which consist of a Control Plane, User Plane and Management functionalities. 5GC complies with 3GPP Rel 16 and have the role of the following network functions AMF, SMF, UPF, UDM, UDR, AUSF, PCF, NRF. This course provides an overview of 5GC, its architecture, functions, and features supported. Participants also learn about daily operation and maintenance of the S&T Iskratel 5GC system.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know 5GC overview
- Know architecture, functions and features supported
- Know daily operation and maintenance

Prerequisites

- General technical understanding of Mobile Packet Core Network (SGSN-MME, SGW/PGW, PCRF, HSS), and 5G network (AMF, SMF, UPF, UDM, UDR, AUSF, PCF, NRF).
- Knowledge of IMS and Cloud will be a plus.

- Perform S&T Iskratel 5GC basic Operation and Maintenance
- Explain 5GC control and user part with Networking and Perform Configuration
- Manage and accomplish SBI Interfaces Configuration
- Outline the basic troubleshooting in 5GC
- Describe the Element Management system
- Perform Subscriber management through Element Management system
- Perform Fault Management, Performance Management in Element Management system with Network Health Monitoring regular checkups.

4 Transport Solutions (Digitalizacija Transporta)

4.1 (SSB8276AA) - Dispatcher System Overview (GSM-R)

Code for order: SSB8276AA

Training duration: 1 day

Description

This particular course provides the knowledge for users and maintenance personals of a Digital Dispatcher Centre.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know advantages and goals of GSM-R network
- Know basics of GSM-R functionalities
- Know DDS in GSM-R architecture
- Know basic tasks and functionalities of particular elements in DDS
- Know redundancy basics of particular elements in DDS
- Know DDS geo-redundancy
- Know local redundancy

Prerequisites

• Participants should have good knowledge and understanding of telecommunication functionalities in local networks.

- Advantages and goals of GSM-R network
- Basics of DDS in GSM-R architecture
- Basics of GSM-R functionalities
- Basic functionalities of particular elements in DDS
- Architecture of DDS redundancy
- Basics in case of switch off particular elements in DDS
- Basics in case of switch off one central location
- Basic location performances in case of central location switch off or not access
- Local DDS performing mode TK desk redundancy

4.2 (SSB8191AA) - Dispatcher System Technology (GSM-R)

Code for order: SSB8191AA

Training duration: 2 days

Description

This particular course provides the general knowledge of a deeper technical solution.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Basics of a system and understanding of an architecture
- Principals of how to operate system
- Basics about SI3000 CS, SMG, DS, LA and MNS products.

Prerequisites

- Participants need to have a good knowledge about telecommunication and IP networks.
- Participants need to have a basic knowledge about NGN protocols, especially SIP, DSS1 and MGCP.

- DDS network architecture
- Connection between central and local part
- Connection with other networks
- Terminal equipment connection
- Numbering plan
- Presentation of a basic operation principals
- Type of calls
 - Local calls
 - Calls in/from public network
 - Calls in/from ŽAT
 - Calls in/from GSM-R
 - Local commutation
- DDS network disaster recovery
 - Standard operation mode
 - Critical situation
- IP network architecture
 - L2/L3 redundancy
 - IP segmentation
- IP network disaster recovery

4.3 (SSB8195AA) - Call Recording in GSM-R

Code for order: SSB8195AA

Training duration: 0,5 day

Description

This particular course is intended for participants who need general information about call recording system.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Basics about product MIDA Call Recording System
- Basics about call recordings from user point of view

Prerequisites

• Participants need to have a good knowledge about telecommunication networks.

- Short introduction to MIDA Call Recorder
 - MIDA product description
 - Presentation of GUI part
 - Recording principles
- Troubleshooting and maintenance
4.4 (SSB8197AA) - MPD Multi Purpose Dispatcher (Gastrans)

Code for order: SSB8197AA

Training duration: 0,5 day

Description

This particular course is intended for participants who will work with MPD desk.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know MPD desk
- Know to set-up MPD desk
- Know function of the system
- Know to use MPD desk and all functions.

Prerequisites

- Participants need to have knowledge and understanding about telecommunication networks.
- Participants need to have a basic knowledge how to use personal computer.

- Basics about MPD desk
- HW equipment
- Graphical interface MPD administration
- Graphical interface application use

4.5 (SSB8198AA) - Terminal equipment

Code for order: SSB8198AA

Training duration: 0,5 day

Description

This particular course is intended for participants who will work with different terminal equipment.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know SIP terminal equipment
- Know analog terminal equipment
- Know terminal adapters
- Know basic features of terminal equipment
- Know to use terminal equipment

Prerequisites

• Participants need to have knowledge and understanding about telecommunication networks.

- Basics about SIP terminal equipment
- Basics about analog terminal equipment
- Basics about terminal adapters
- Basic settings on SIP terminal equipment
- Basic settings on analog terminal equipment
- Basic settings on terminal adapters
- Troubleshooting

4.6 (SSB8199AA) - MPD Multi Purpose Dispatcher (OTC)

Code for order: SSB8199AA

Training duration: 1 day

Description

This particular course is intended for participants who will work with MPD desk.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know MPD desk
- Know to set-up MPD desk
- Know function of the system
- Know to use MPD desk and all functions.

Prerequisites

- Participants need to have knowledge and understanding about telecommunication networks.
- Participants need to have a basic knowledge how to use personal computer.

- Basics about MPD desk
- HW equipment
- Graphical interface MPD administration
- Graphical interface application use

4.7 (SSB8260AA) - MPD Multi Purpose Dispatcher (Svjaz sovescanji)

Code for order: SSB8260AA

Training duration: 1 day

Description

This particular course is intended for participants who will work with MPD desk.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know MPD desk
- Know to set-up MPD desk
- Know function of the system
- Know to use MPD desk and all functions.

Prerequisites

- Participants need to have knowledge and understanding about telecommunication networks.
- Participants need to have a basic knowledge how to use personal computer.

- Basics about MPD desk
- HW equipment
- Graphical interface MPD administration
- Graphical interface application use

4.8 (SSB8261AA) - MPD Multi Purpose Dispatcher (Attendant console)

Code for order: SSB8261AA

Training duration: 1 day

Description

This particular course is intended for participants who will work with MPD desk.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know MPD desk
- Know to set-up MPD desk
- Know function of the system
- Know to use MPD desk and all functions.

Prerequisites

- Participants need to have knowledge and understanding about telecommunication networks.
- Participants need to have a basic knowledge how to use personal computer.

- Basics about MPD desk
- HW equipment
- Graphical interface MPD administration
- Graphical interface application use

4.9 (SSB8262AA) - Lite Dispatcher (OTC)

Code for order: SSB8262AA

Training duration: 1 day

Description

This particular course is intended for participants who will work with MPD desk.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know MPD desk
- Know to set-up MPD desk
- Know function of the system
- Know to use MPD desk and all functions.

Prerequisites

- Participants need to have knowledge and understanding about telecommunication networks.
- Participants need to have a basic knowledge how to use personal computer.

- Basics about MPD desk
- HW equipment
- Graphical interface MPD administration
- Graphical interface application use

4.10 (SSB8263AA) - Railway Information and Notification System

Code for order: SSB8263AA

Training duration: 1 day

Description

This particular course is intended for participants who will work with MPD desk.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know MPD desk
- Know to set-up MPD desk
- Know function of the system
- Know to use MPD desk and all functions.

Prerequisites

- Participants need to have knowledge and understanding about telecommunication networks.
- Participants need to have a basic knowledge how to use personal computer.

- Basics about MPD desk
- HW equipment
- Graphical interface MPD administration
- Graphical interface application use

4.11 (SSB8264AA) - Park communication

Code for order: SSB8264AA

Training duration: 1 day

Description

This particular course is intended for participants who will work with MPD desk.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know MPD desk
- Know to set-up MPD desk
- Know function of the system
- Know to use MPD desk and all functions.

Prerequisites

- Participants need to have knowledge and understanding about telecommunication networks.
- Participants need to have a basic knowledge how to use personal computer.

- Basics about MPD desk
- HW equipment
- Graphical interface MPD administration
- Graphical interface application use

4.12 (SSB8265AA) - MPD Multi Purpose Dispatcher (GSM-R) – User part

Code for order: SSB8265AA

Training duration: 1 day

Description

This particular course is intended for participants who will work with dispatcher terminal MPD.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know dispatcher terminal MPD
- Know to set-up dispatcher terminal MPD
- Know function of the system
- Know to use dispatcher terminal MPD and his features

Prerequisites

- Participants need to have knowledge and understanding about telecommunication networks.
- Participants need to have a basic knowledge how to use personal computer.

- Short MPD description
- GUI (windows and icons description)
- Alarms
- Set-up overview
- Directory structures
- Application overview
- Practical work with application

4.13 (SSB8266AA) - MPD Multi Purpose Dispatcher (GSM-R) -Administrator

Code for order: SSB8266AA

Training duration: 1 day

Description

This particular course is intended for participants who will support and maintain MPD dispatcher terminal.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know dispatcher terminal MPD
- Know to set-up dispatcher terminal MPD
- Know function of the system
- Know to use dispatcher terminal MPD desk and his features
- Know dispatcher server and his features

Prerequisites

- Participants need to have knowledge and understanding about telecommunication networks.
- Participants need to have a basic knowledge how to use personal computer.

- Short MPD
- GUI (windows and icons description)
- Administration procedures
- Alarms
- Set-up overview
- Directory structures
- Application overview
- Practical work with application
- Dispatcher Server
 - Central directory
 - Application upgrade
 - Licences
- Maintenance

4.14 (SSB8267AA) - MPD Multi Purpose Dispatcher (Autoattendent console) – User part

Code for order: SSB8267AA

Training duration: 0,5 day

Description

This particular course is intended for participants who will work with dispatcher terminal MPD.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know dispatcher terminal MPD
- Know to set-up dispatcher terminal MPD
- Know function of the system
- Know to use dispatcher terminal MPD and his features

Prerequisites

- Participants need to have knowledge and understanding about telecommunication networks.
- Participants need to have a basic knowledge how to use personal computer.

- Short MPD description
- GUI (windows and icons description)
- Alarms
- Set-up overview
- Directory structures
- Application overview
- Practical work with application

4.15 (SSB8268AA) - MPD Multi Purpose Dispatcher (Autoattendent console) - Administrator

Code for order: SSB8268AA

Training duration: 0,5 day

Description

This particular course is intended for participants who will support and maintain MPD dispatcher terminal.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know dispatcher terminal MPD
- Know to set-up dispatcher terminal MPD
- Know function of the system
- Know to use dispatcher terminal MPD desk and his features
- Know dispatcher server and his features

Prerequisites

- Participants need to have knowledge and understanding about telecommunication networks.
- Participants need to have a basic knowledge how to use personal computer.

- Short MPD
- GUI (windows and icons description)
- Administration procedures
- Alarms
- Set-up overview
- Directory structures
- Application overview
- Practical work with application
- Dispatcher Server
 - Central directory
 - Application upgrade
 - Licences
- Maintenance

4.16 (SSB8275AA) - Iskratel FDS System - Configuration and maintenance

Code for order: SSB8275AA

Training duration: 4 days

Description

This particular course is intended for participants who need general information about FDS System configuration and maintenance.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Basic configuration of the FDS
- Basic configuration of terminal equipment
- Basic maintenance and troubleshooting procedures

Prerequisites

- Participants need to have a good knowledge about telecommunication networks.
- Participants need to have a good knowledge about GSM-R.
- Participants need to have a basic knowledge SIP terminal equipment.
- Participants need to have a basic knowledge about Linux based operating systems.

- Introduction to SI3000 management system MNS
- Introduction to SI3000 fault monitoring system FMS
- Introduction to CS, SMG configuration
 - Setup of local subscribers
 - IP subscribers
 - GSM-R dispatcher
 - Local routing
 - Signalizations
 - SIP signalization for IP subscribers
 - DSS1 signalization for interconnection towards GSM-R
 - Routing
 - Trunk groups and trunks
 - Routing
 - Supplementary services
- Introduction to DS configuration
 - GSM-R dispatcher configuration
 - GSM-R connection configuration
 - Reporting
 - Terminal equipment
 - GSM-R dispatcher
 - Installation
 - Configuration
 - Presentation of GUI part
 - Call handling

- Introduction to power supply MPS
- Maintenance and troubleshooting procedures
 - Tools (Wireshark, tcpdump ...)
 - Log files

5 Energy Solutions (Digitalizacija energetike)

5.1 (SSB8200AA) - MPD Multi Purpose Dispatcher (ATESTAT)

Code for order: SSB8200AA

Training duration: 1 day

Description

This particular course is intended for participants who will work with MPD desk.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know MPD desk
- Know to set-up MPD desk
- Know function of the system
- Know to use MPD desk and all functions.

Prerequisites

- Participants need to have knowledge and understanding about telecommunication networks.
- Participants need to have a basic knowledge how to use personal computer.

- Basics about MPD desk
- HW equipment
- Graphical interface MPD administration
- Graphical interface application use

5.2 (SSB8260AA) - MPD Multi Purpose Dispatcher (Svjaz sovescanji)

Code for order: SSB8260AA

Training duration: 1 day

Description

This particular course is intended for participants who will work with MPD desk.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know MPD desk
- Know to set-up MPD desk
- Know function of the system
- Know to use MPD desk and all functions.

Prerequisites

- Participants need to have knowledge and understanding about telecommunication networks.
- Participants need to have a basic knowledge how to use personal computer.

- Basics about MPD desk
- HW equipment
- Graphical interface MPD administration
- Graphical interface application use

5.3 (SSB8261AA) - MPD Multi Purpose Dispatcher (Attendant console)

Code for order: SSB8261AA

Training duration: 1 day

Description

This particular course is intended for participants who will work with MPD desk.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know MPD desk
- Know to set-up MPD desk
- Know function of the system
- Know to use MPD desk and all functions.

Prerequisites

- Participants need to have knowledge and understanding about telecommunication networks.
- Participants need to have a basic knowledge how to use personal computer.

- Basics about MPD desk
- HW equipment
- Graphical interface MPD administration
- Graphical interface application use

5.4 (SSB8201AA) - Lite Dispatcher (ATESTAT)

Code for order: SSB8201AA

Training duration: 1 day

Description

This particular course is intended for participants who will work with MPD desk.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know MPD desk
- Know to set-up MPD desk
- Know function of the system
- Know to use MPD desk and all functions.

Prerequisites

- Participants need to have knowledge and understanding about telecommunication networks.
- Participants need to have a basic knowledge how to use personal computer.

- Basics about MPD desk
- HW equipment
- Graphical interface MPD administration
- Graphical interface application use

5.5 (SSB8202AA) - PNS

Code for order: SSB8202AA

Training duration: 1 day

Description

This particular course is intended for participants who will work with MPD desk.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know MPD desk
- Know to set-up MPD desk
- Know function of the system
- Know to use MPD desk and all functions.

Prerequisites

- Participants need to have knowledge and understanding about telecommunication networks.
- Participants need to have a basic knowledge how to use personal computer.

- Basics about MPD desk
- HW equipment
- Graphical interface MPD administration
- Graphical interface application use

5.6 (SSB8203AA) - Industrial IoT Technologies

Code for order: SSB8203AA

Training duration: 2 days

Description

This course would go through the Layers of IoT concept as prerequisites for IoT Solution. It would also go through industrial exchange protocols as well as communication technologies stating the advantages and disadvantages of each one.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know IoT concept
- Know industrial exchange protocols

Prerequisites

• General understanding of Industrial processes and basic knowledge of IT technologies

- Explain the layers of IoT solution
- Explanation of requirements that make IoT Solution Industrial
- Dive in to industry protocols and mapping the to the use case
- IoT Technology trends

5.7 (SSB8204AA) - CIM fundamentals

Code for order: SSB8204AA

Training duration: 3 days

Description

Basic understanding of IEC CIM standards. High Level overview of IEC 61968, IEC 61970 and IEC 62325. Introduction in to CIM modeling, CIM data structure and data formats.

Possible audience:

- Manager
- System/solution integrator

Competences:

- Know basics of IEC CIM standards.
- High Level overview of IEC 61968, IEC 61970 and IEC 62325.
- Know basics of CIM modeling, CIM data structure and data formats.

Prerequisites

• General Understanding of electrical Grid. Basic knowledge of UML and Semantic web technologies

- Drivers for CIM concept
- Area of IEC 61968, IEC 61970 and IEC 62325
- CIM UML modeling
- CIM RDF objects recognition

5.8 (SSB8205AA) - CIM integration and modelling

Code for order: SSB8205AA

Training duration: 3 days

Description

This training would take a deep dive in to CIM modeling, creation of CIM profiles- both as UMLs and RDFs. It would discuss the standard rules as well as advantages and disadvantages of different modeling approaches.

Possible audience:

- Manager
- System/solution integrator

Competences:

• High level knowledge of CIM modeling, creation of CIM profiles- both as UMLs and RDFs.

Prerequisites

- Basic understanding of CIM.
- Good knowledge of electrical grid.
- Basic knowledge and experience with modeling.

Contents

- How to create a CIM UML profile in Enterprise Architect
- How to generate CIM RDF Schema
- When to map in RDF and when in XML
- How to generate XSD schema for the dynamic model
- Level of abstraction in profile creation potential threats for a project

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