Configuring TAU subscriber gateway (advanced level) v.1.1

Course Duration: 16 academic hours (2 days)

Target Audience:

- System Administrators;
- Technical and Engineering Employees;
- Maintenance and Technical Support Engineers;
- Network Software Developers;
- Technical Personnel for the operation of telephone networks.

Course Pre-requisites:

- Knowledge of the basics of deployment and operating data transmission networks (DTN), the TCP/IP protocol stack, the principles of operation of traditional (TDM) and IP telephony;
- Having basic knowledge of SIP, SIP-T signaling protocols;
- Understanding the principle of operation of FXS and FXO ports;
- Ability to debug the operation of telephony signaling protocols in order to obtain information about the stages of establishing a connection, the conversation phase, hang-up or related errors at all stages of establishing a connection; perform basic configuration of subscribers and external interfaces (trunks) on IP telephony equipment using the manufacturer's documentation, find the necessary information about the operation of IP telephony devices and functional features in the documentation and / or the Internet; perform work on designing telephone communication schemes taking into account the specified requirements and justify their decisions;
- Having confident computer skills; skills of commissioning telephony devices, their basic configuration and providing remote access to devices; debugging, logging and tracing at the station equipment level, including at the level of debugging signaling protocols, as well as receiving network dumps with subsequent analysis of signaling protocol diagrams and media traffic; working with regular expressions and/or templates when working with a numbering range; setting up a quality of service (QoS) system, including on network equipment.

Upon completion of the course, the participants will:

Be able to:

- confidently apply knowledge of existing models of TAU subscriber gateways manufactured by Eltex;
- confidently configure the subscriber gateway according to the tasks set in the project, perform a basic check of the obtained result;
- use measuring equipment and built-in debugging tools;
- perform basic configuration of station equipment (using documentation) and register the TAU subscriber port in the IP telephony network.

Have the knowledge of:

- the basic principles of operation of modern IP telephony networks;
- the composition and basic principles of operation of traditional telephony networks, including protocols and interfaces;
- hardware configuration and functional capabilities of various models of TAU subscriber gateways;
- acceptable parameters for configuring FXS and/or FXO ports of the TAU gateway;

- operating principle of the subscriber kit of a digital PBX, operating principle of an analog telephone set.

Acquire the following skills:

- skills in basic design of IP telephony networks to replace traditional PBX in a corporate network using Eltex TAU subscriber gateways;
- skills in analyzing problems that arise during operation and other situations related to the need to debug TAU subscriber gateways;
- skills in searching for the necessary documentation on the equipment manufacturer's website.

Curriculum

"Configuring TAU subscriber gateway (advanced level) v.1.1"

Activity	Description	Time
Topic:	**1. Product line and key specifications**	**1 hour**
Description:	1.1. Eltex TAU subscriber gateways product line overview 1.2. Main characteristics of devices 1.3. Protocols and features 1.4. Application diagrams of devices 1.5. Example of using equipment on an IP telephony network	1 hour
Lab:	—	

Activity	Description	Time
Topic:	**2. Architecture and hardware configuration**	**2 hours**
Description:	2.1. Hardware configuration 2.2. One-module and submodular architecture of gateway, available submodules, calculation of the gateway configuration 2.3. Technical characteristics and operating parameters	2 hours
Lab:	—	

Activity	Description	Time
Topic:	**3. Network settings and management**	**1 hour**
Description:	3.1. Using static and dynamic (DHCP) addressing 3.2. Using different VLANs for signaling, voice, management 3.3. Control and monitoring using SNMP 3.4. Network security issues of devices 3.5. Synchronization with NTP server 3.6. Routing table, adding routes 3.7. Managing device using web configurator 3.8. Managing device in console mode (CLI) 3.9. Resetting device to factory settings, restoring the password	1 hour

Lab:	—	

Activity	Description	Time
Topic:	**4. Gateway settings in isolated PBX mode**	**2 hours**
Description:	4.1. SIP and H.323 protocol settings (overview) 4.2. Basic gateway settings, "SIP/H.323 profiles". "Disabled" mode 4.3. Studying the "Codecs" section 4.4. Studying regular expressions used in the TAU gateway dialing plan 4.5. Studying subscriber port parameters, "subscriber profiles" and individual port settings 4.6. Monitoring subscriber ports in "Disabled" mode	1 hour
Lab:	4. Configuring TAU for operation with subscribers 4.1. Studying regular expressions through practical examples 4.2. Configuring an isolated office PBX scheme	1 hour

Activity	Description	Time
Topic:	**5. Gateway settings in external PBX registration mode**	**2 hours**
Description:	5.1. Configuring the "SIP/H.323 profile". Parking and Homing modes. 5.2. Additional profile settings, inbound and outbound functions. 5.3. Proxy reservation in Homing mode. 5.4. Subscriber port settings using global and individual authorization, monitoring the status of subscriber registration.	1 hour
Lab:	5. Configuring and monitoring subscriber registration on an external PBX (SMG and/or Softswitch ECSS-10) *2 types of IP-PBX are provided as an external registrar, the choice is made by the instructor taking into account the preferences of the students. If there is free time, both options can be considered. In some exceptional cases, an IP-PBX from a third-party manufacturer is provided.	1 hour

Activity	Description	Time
Topic:	**6. Working with FXO ports**	**1 hour**
Description:	6.1. Subscriber profile parameters used for FXO settings 6.2. Example of a typical FXO port connection diagram on Eltex MS-240 PBX 6.3. Configuring FXO groups, numbering FXO ports 6.4. Other options for connecting TAU using FXO ports	1 hour
Lab:	—	

Activity	Description	Time
Topic:	**7. Additional functions**	**3 hours**
Description:	7.1. Extended regular expression capabilities in TAU gateway dialing plan 7.2. Number modifiers 7.3. Special call type 7.4. Additional subscriber profile (port) settings 7.5. Supplementary services (VAS) settings 7.6. Serial groups and PickUp groups	1 hour
Lab:	7. Connecting and configuring supplementary services.	2 hour

Activity	Description	Time
Topic:	**8. Gateway maintenance**	**1.5 hours**
Description:	8.1. Logging and tracing using Syslog 8.2. Testing subscriber ports, reasons for port blocking, FXS statistics 8.3. Gateway status monitoring, CPU and memory control 8.4. Periodic routine maintenance	1.5 hours
Lab:	—	

Intermediate testing and final exam: 2.5 hours
One free-of-charge attempt of certification test is provided within the frameworks of this course. The participant may use this attempt on the last day of the course.
In case the test attempt is unsuccessful, the participant may contact the Commercial Department for purchasing the additional attempt.
The participant may use the paid attempt within one calendar month starting from the data of course completion.