

v1.14_Datasheet SoftWLC

General features

SoftWLC is a software Wi-Fi controller that provides a complex solution for organizing guest and service networks. SoftWLC software package combines Wi-Fi access points, access switches and routers manufactured by Eltex into a single product. The package allows configuring and maintaining networks and user services in accordance with a client's requirements.

Key features of SoftWLC

- Automated launching of access points
- Providing functions for monitoring of network elements: access points, access switches, routers
- Providing functions for network element individual control
- Providing functions for network element group control
- Providing functions for group policies, customer lists, individual/group shapers configuring and other service functions management
- Providing access points' firmware automatic update
- Providing Captive Portal authorization of Wi-Fi users with different identification methods: incoming SMS, outgoing SMS, voice call, Government Services, vouchers, preconfigured accounts of mass events participants
- Opportunity to create flexible portal scenarios with time or traffic limits for users. Paid scenarios are also available.
- Possibility of identification portal to flexibly work on schedule
- Opportunity to set up scheduled network operation including password rotation for portal identification network primary connection
- Providing Enterprise authorization with traffic encryption. Identification can be performed with a login/password or with an integrated TLS certificate
- Possibility of "portal" user roaming between access points and user id keeping between sessions
- Providing a graphical provider console for management and monitoring system
- Possibility of deploying a supervisory-level system which means that some settings and monitoring functions can be transferred from a provider to a client in accordance with B2B
- Providing provider's enterprise clients with B2B Admin Panel graphical interface that comprises basic elements for obtaining network operation statistics and tools for Wi-Fi users' accounts management
- Providing enterprise clients with guest portal setting GUI (in accordance with B2B) that includes basic elements for design, identification options and other features
- Providing service interface (Northbound) for system settings automatization and connection with the provider's or its B2B clients' OSS

Main SoftWLC modules and their functions

- **EMS server**
 - management and monitoring of other modules of the system
 - receiving and processing of SNMP traps sent by system components
 - device initialization and configuration
 - performing group operations with devices
 - notification on failures
 - scheduled monitors to control system operation
 - providing graphical user interface
 - monitoring with saving data to a Round-Robin Database
- **WEB portal**
 - A module providing a set of WEB portals for user authorization in Hotspot networks
- **Portal Constructor**
 - A tool that allows virtual portal creating and configuring for user authorization in Hotspot networks
- **B2B Admin Panel**
 - providing interface for Wi-Fi users' accounts creation and basic service management operations
- **Database**
 - Mysql
 - MongoDB
- **RADIUS server**
 - AAA operations
 - WPA-enterprise authorization
- **DHCP Server**
 - assigning primary (external) IP addresses to access points with option 43 (suboptions 11 and 12) that allows creating GRE tunnels to ESR
 - assigning secondary (management, tunnel) IP addresses to access points with option 43 (suboptions 10 and 13) for access point management, detection and automatic initialization
 - assigning IP addresses to Wi-Fi users connected to access points
 - classification of DHCP clients by 82, 60 options and giAddr Field
- **APB service**
 - roaming for users authorized via WEB portal
 - configuration and transmission of public IP address lists for portal authorization
- **Auth Service**
 - system authentication and authorization
 - B2B Admin Panel
 - Portal Constructor
- **Notification Gateway**
 - centralized interchange between platform elements and external systems (SMS gateways, Call centers and electronic mail servers) via SMTP, SMPP, HTTP, WebSocket

- **PCRF**
 - authorization and authentication of users connected via BRAS (the mechanism allows providing user service based on third-party vendors' access points)
 - accounting accumulation for all authorization mechanisms and transferring it to a database
 - controlling the number of Wi-Fi users' simultaneous sessions for all authorization mechanisms
 - deauthentication of Wi-Fi users authorized via WPA-enterprise modes and BRAS
- **NBI**
 - connection between SoftWLC components via the SOAP protocol
 - service operation maintenance
 - Customer Cab
 - Portal Constructor
 - PCRF
 - TLS authorizatон certificates issuing

SoftWLC technologies:

- equipment management and monitoring
 - SNMP
 - ICMP
- user authorization
 - portal authorization on Eltex access points
 - EAP authorization (WPA2 enterprise) on the RADIUS server
 - portal authorization on third- party access points (BRAS + PCRF)
- Roaming
 - portal user roaming on Eltex access points
- Integration with external systems
 - SMS gateways
 - SMSC gateway
 - PTK gateway
 - Sviazbank gateway
 - Svyaznoy Zagruzka
 - SevenSky
 - GSM gateways (NetPing SMS)
 - Active Directory
 - Hot-WiFi
 - SI

Compliance of used technologies (protocols) with standards and specifications:

- EAP (WPA2)
 - IEEE 802.11i (Wi-Fi Protected Access II, defines security mechanisms for wireless networks)
 - AES (encryption standard)
 - RFC 3748
- SNMP
 - defined as a component of TCP/IP by the IETF
 - RFC 1157
- ICMP
 - is an Internet standard (included in the STD 5 standard)
 - RFC 792
- RADIUS
 - RFC 2866 RADIUS Accounting
- RRM
 - IEEE 802.11h - Transmit power control and dynamic frequency selection for wireless local area networks
 - IEEE 802.11k - RRM for wireless local area networks
- SMTP
 - RFC 5321
- HTTP
 - RFC 2616
- WebSocket
 - RFC 6455
- Roaming is carried out in accordance with IEEE 802.11r standard

System requirements for the SoftWLC server

- Ubuntu Server 18.04 LTS **operating system**

The number of devices	HP Proliant	CPU core, Xeon	RAM, Gb	HDD
up to 50 AP	DL20	4, E3-1240v5, 8M Cache, 3.50 GHz	8	2x500G
from 50 to 200 AP	DL60	6, E5-2603v3, 15M Cache, 1.60 GHz	16	2x500G
from 200 to 500 AP	DL160	8, E5-2630v3, 20M Cache, 2.40 GHz	32	2x1T
from 500 to 1 thousand AP	DL160	8, E5-2630v3, 20M Cache, 2.40 GHz	64	2x1T

Minimum requirements for a system operator's work station

Dual core processor with 2.5 GHz or more frequency
 Random access memory size 4 GB or more
 Monitor resolution 1920x1080 or more
 Stable server connection, recommended speed 10Mbit/s or more
 Keyboard, mouse
 java jre 1.8 (with relevant updates)
 Chrome or Firefox browser (with relevant updates)