SECURE USER GUIDANCE
FOR
LANCOM R&S®UNIFIED FIREWALL UF-360
WITH LANCOM SYSTEMS OPERATING SYSTEM
LCOS FX 10.11 RU4

Version 1.4

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1. GENERAL DESCRIPTION

This document is the Secure User Guidance for the BSZ certification of the “LANCOM R&S®Unified Firewall UF-360” with LANCOM Systems Operating System “LCOS FX 10.11 RU4” and “IPSec VPN" (Target of Evaluation, TOE) at the BSI.

This document describes the requirements to operate the TOE in a secure manner. Deviations from these requirements are subject to the risk management of the administrator.

2. DISCLAIMER

This product is targeted at professional users who have the experience and knowledge to operate network components in a secure manner.

3. DOCUMENTATION

3.1 Device documentation LCOS FX 10.11 RU4

Beside this Secure User Guidance there is an additional user manual available. This document can be downloaded from the address below:

www.lancom-systems.de/download/documentation/manuals/MA_LCOS-FX-10-11-User-Manual_DE.pdf

3.2 Acronym Table

Acronym	
BSI	Bundesamt für Sicherheit in der Informationstechnik
BSZ	Beschleunigte Sicherheitszertifizierung
CLI	Command Line Interface
DNS	Domain Name Service
DHCP	Dynamic Host Configuration Protocol
USB	Universal Serial Bus
LMC	LANCOM Management Cloud
UTM	Unified Threat Management
SSH	Secure Shell
SNMP	Simple Network Management Protocol
IPSec	IP security
LAN	Local Area Network
LCOS FX	LANCOM Systems Operating System; the operating system of LANCOM R&S®Unified Firewalls
NAT	Network Address Translation
PPP	Point-to-Point Protocol
TOE	Target of Evaluation
VPN	Virtual Private Network

VLAN	Virtual Local Area Network
WebConfig	Web-based management interface

4. ENVIRONMENT

1 The administrator must ensure that physical access to the LANCOM R&S®Unified Firewall is only possible for authorized personnel and every physical access is securely logged.

2 The USB port of the LANCOM R&S®Unified Firewall must not be used except for reinstallation.

3 The serial port must not be used.

5. CONFIGURATION

5.1 WebConfig

For the management of the LANCOM R&S®Unified Firewall UF-360 the web-based management has to be used. By default, it runs on port 3438. It can only be accessed via HTTPS using TLS 1.3. Supported browsers are up-to-date versions of Google Chrome and Mozilla Firefox. In the following it is called WebConfig.

5.2 Firmware Download and Installation

1 Use the download area in the License portal in myLANCOM to download the LCOS FX 10.11 RU4 ISO file and the USB installer to create a bootable USB flash drive.

2 Check the hash values of the ISO file and the USB installer.

2.1 LCOSFX 10.11 RU4 ISO sha256sum:
5A53A703200B8833B3E101D83082BE6FA40914BF6889921F1FDC9B13AD4D5651

2.2 USB Installer sha256sum:
c0c084927e46465cd377d5a81f4b226c878595435e0de12e70a4777ffd448030

3 Use a secure USB flash drive and a secure Windows Laptop or Desktop PC to create a bootable USB flash drive with LCOS FX using the default backup as initial configuration.

4 Plug the USB flash drive into the LANCOM R&S®Unified Firewall and switch it on. The installation takes several minutes.

5 At the end of the installation, the LANCOM R&S®Unified Firewall shuts down. Unplug the USB flash drive and switch the LANCOM R&S®Unified Firewall on again.

The procedure is also described in this Knowledge Base article.

5.3 Physical Port Configuration

In the certified state it is not allowed to use NIC extension modules.

For the onboard SFP+ ports only the official LANCOM SFP-SX-LC10 may be used.

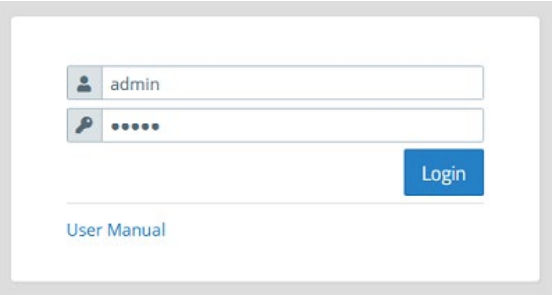
The firewall must be the only physical connection between the networks which are to be protected / regulated.

5.4 Initial Configuration

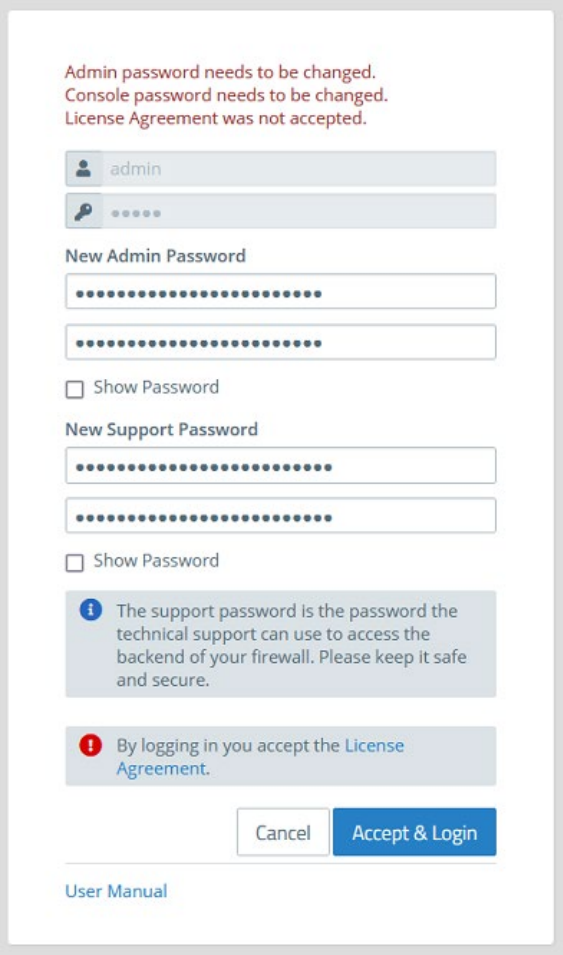
1 Connect a secure client (Laptop or PC) directly via Ethernet to port eth1.

2 Open a web browser and enter the address https://192.168.1.254:3438/ to connect to the LANCOM R&S®Unified Firewall via WebConfig.

3 Enter ‘admin’ as username and password.

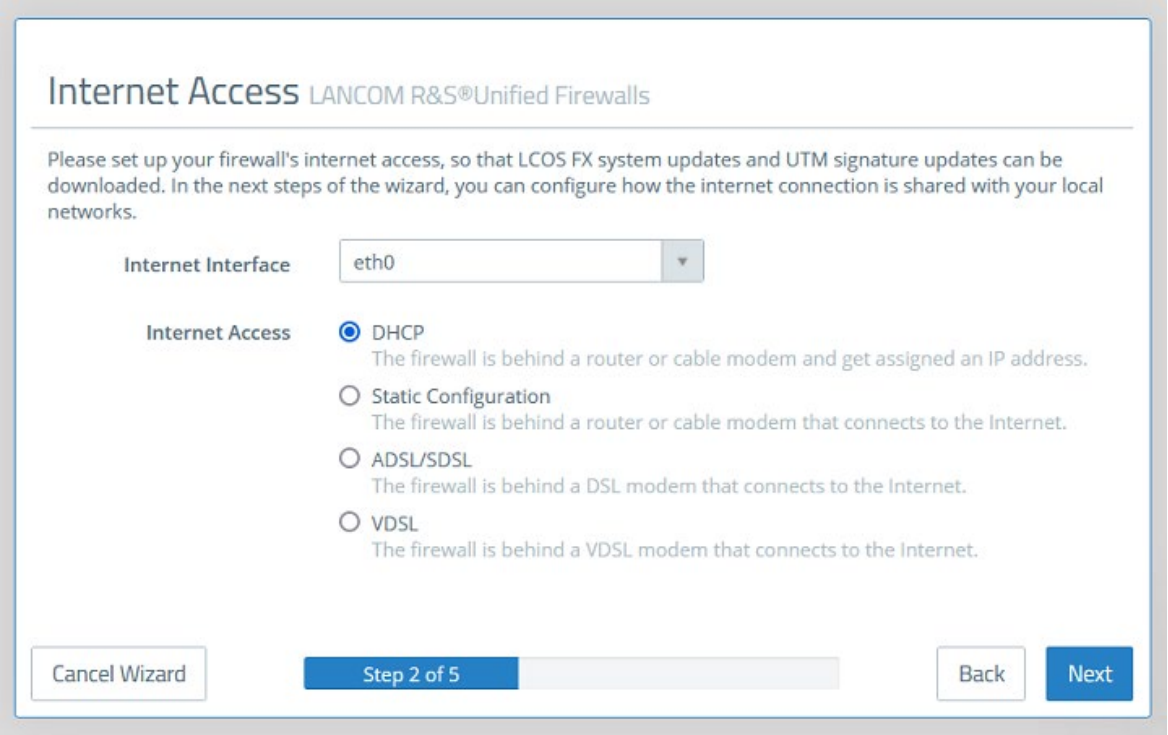


4 WebConfig then asks for a new admin password to access WebConfig and for a new support password. The support password is necessary for direct access to the LCOS FX operating system via SSH or serial console. Select two different strong passwords according to the BSI guidelines.

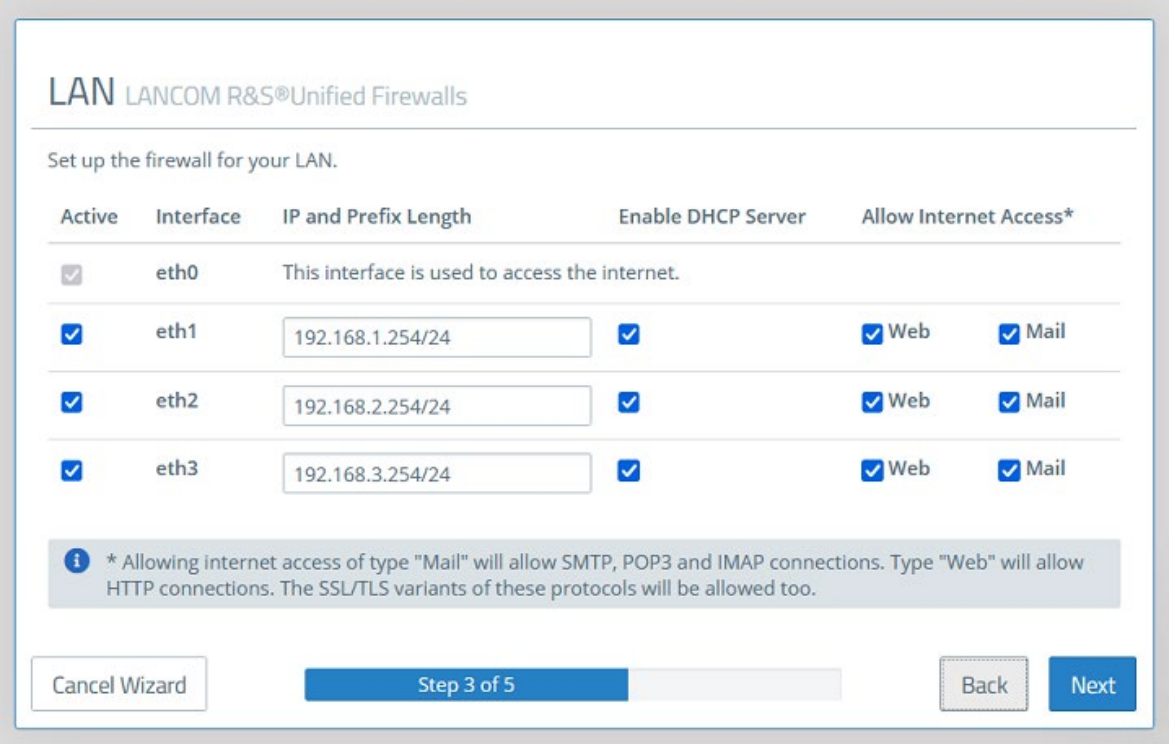


5 Start the setup wizard and follow the steps. The procedure is also described in this Knowledge Base article.

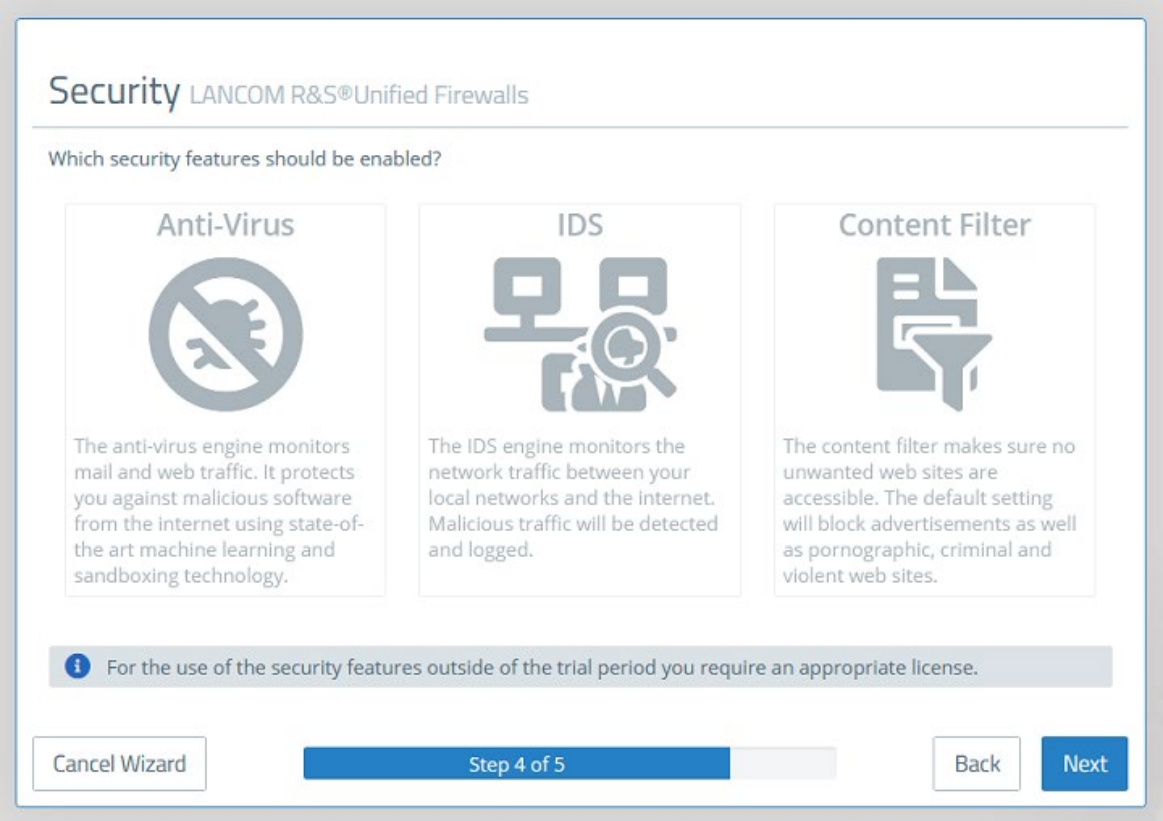
5a Configure Internet access.



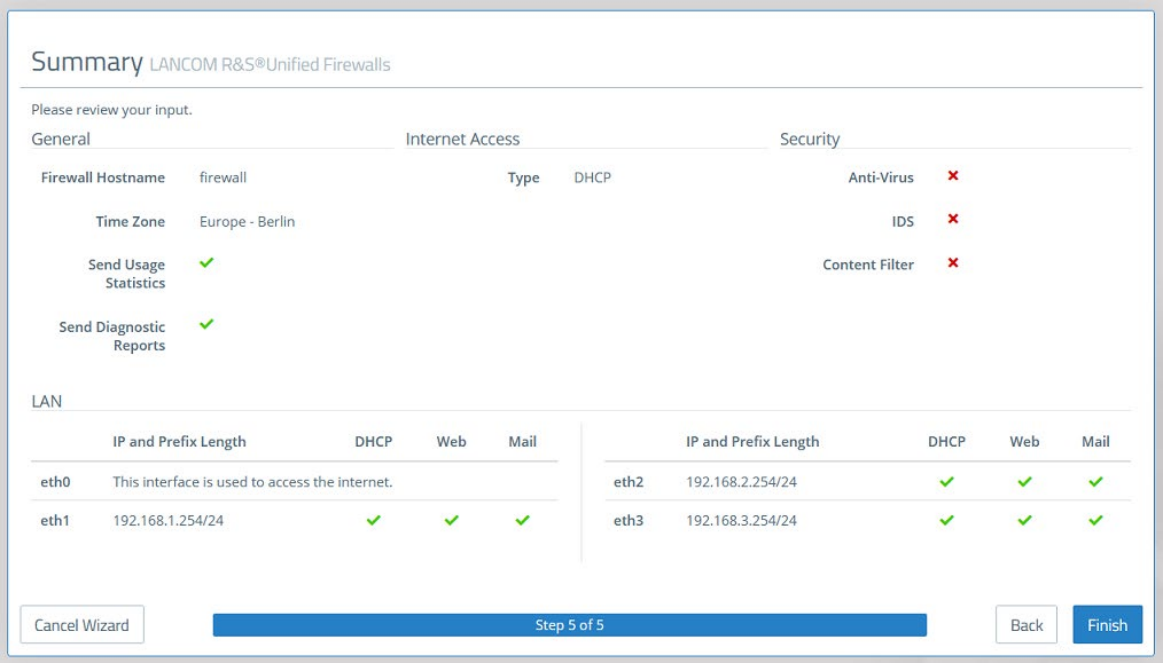
5b Configure the local networks. Please note, that one physical port must be reserved for administrative access to the firewall.



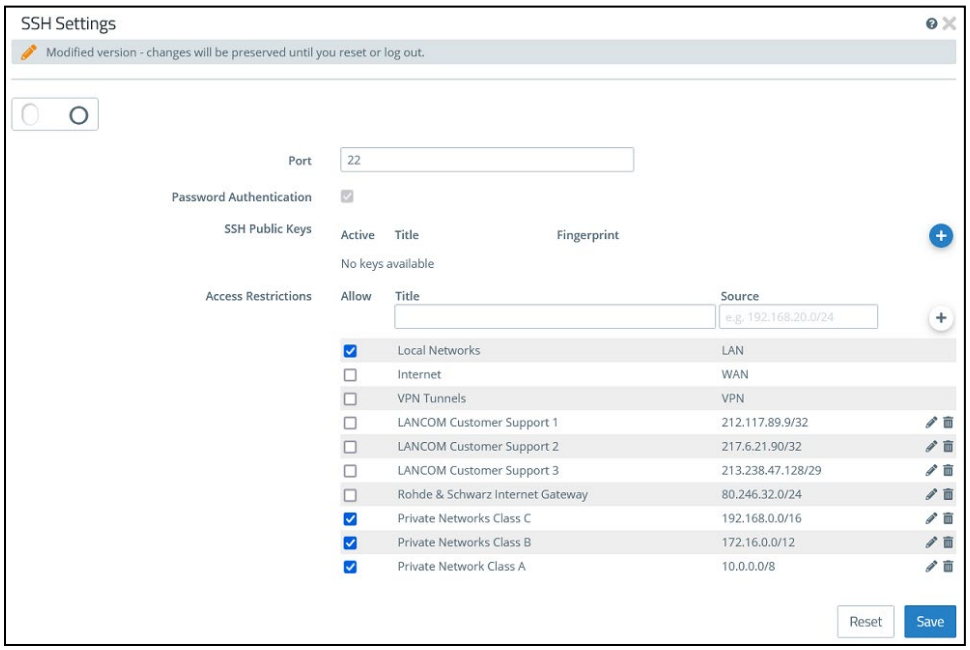
5c Deactivate all UTM features.



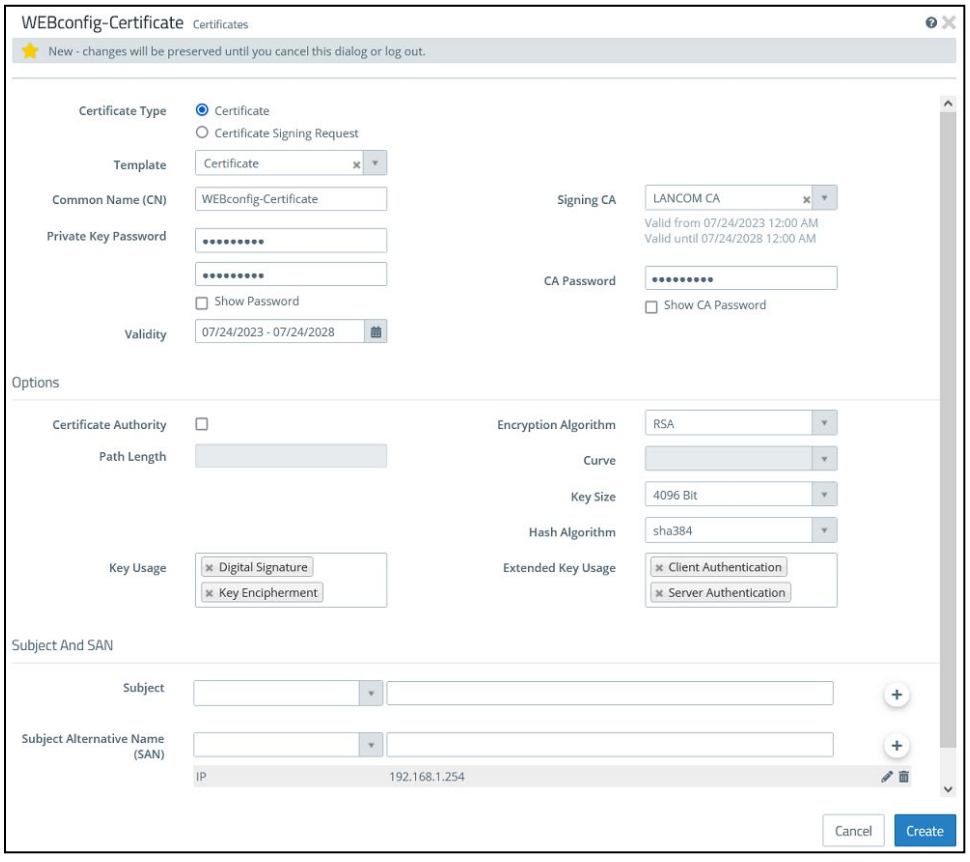
5d A summary of the settings is shown. Complete the setup wizard by clicking ‘Finish’. Afterwards the settings are applied and you are logged out automatically.



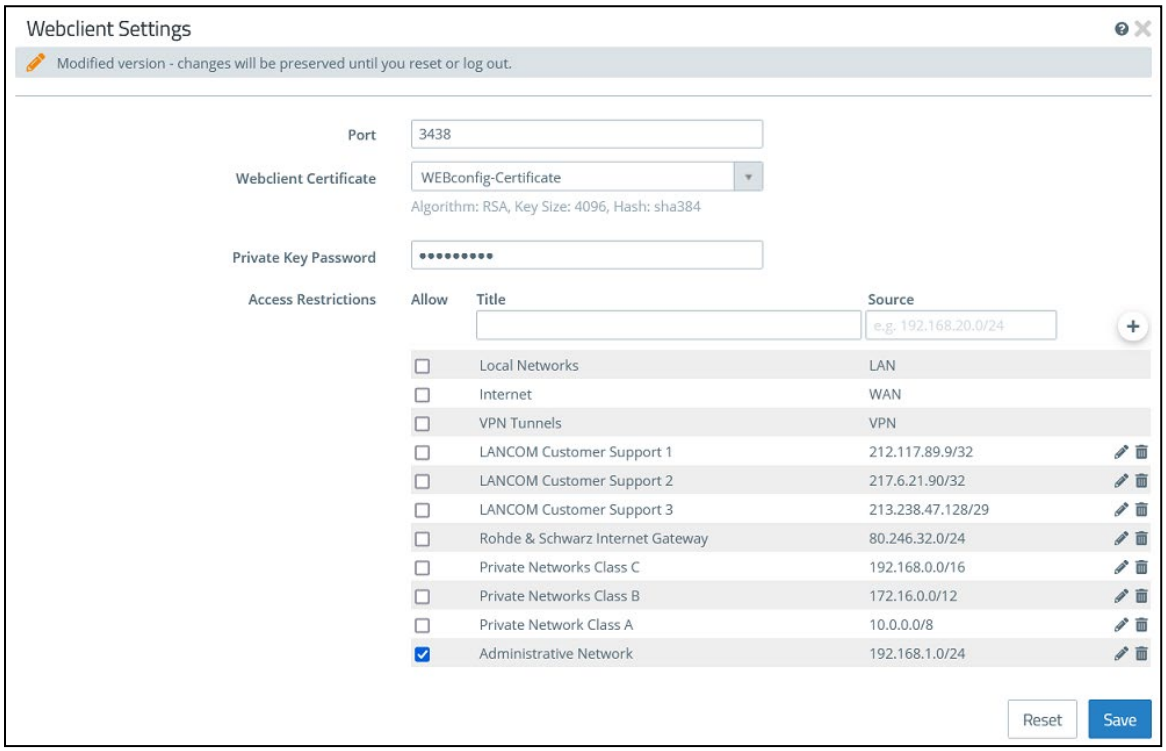
6 Login to the Unified Firewall again and deactivate SSH access in the menu ‘Firewall → Firewall Access → SSH Settings’ by clicking on the slider in the top left corner.



7 Create a new WebConfig certificate in the menu ‘Certificate Management → Certificates’. In the new WebConfig certificate, enter the IP address of the administrative interface as the ‘Subject Alternative Name’. The procedure is also described in this Knowledge Base article.



8 Restrict WebConfig access to the administrative network (in this example 192.168.1.0/24) in the menu ‘Firewall → Firewall Access → Webclient Settings’. Also, select the new WebConfig certificate created in the last step.

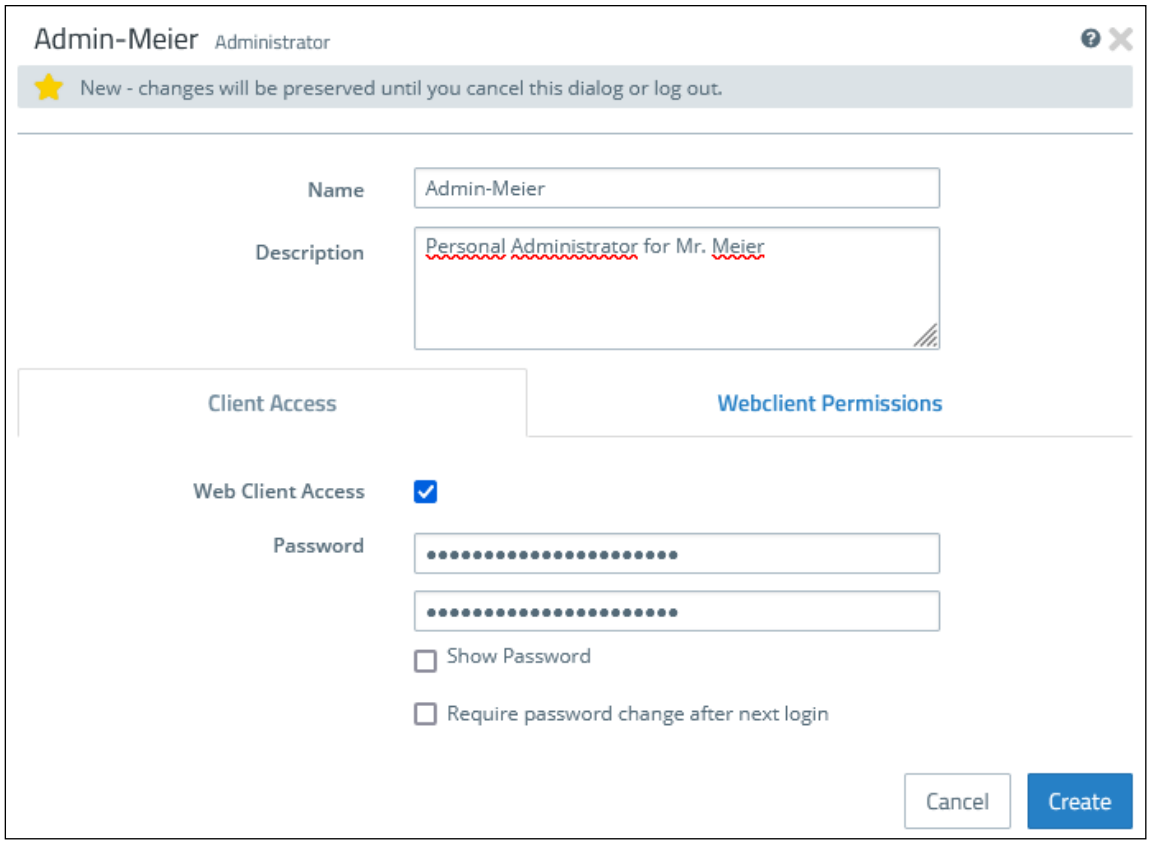


9 Deactivate the LMC connectivity in the menu ‘Firewall → LMC Settings’ by clicking the slider in the top left corner.

10 Finally create at least one personified administrator account in the menu ‘Firewall → Administrators’.

After the initial configuration, the administrator account with the name ‘admin’ must only be used to create personal administrator accounts.

Management of the LANCOM R&S®Unified Firewall must be conducted using personal administrator accounts, which can be unambiguously related to one specific person.



6. CONFIGURATION OF THE LANCOM R&S®UNIFIED FIREWALL UF-360

In the evaluated state, only the features and services described in this chapter may be used plus features and services which are active in the default configuration and which were not disabled during the initial configuration.
For the involved risks and guidance for secure configuration when using features which were not evaluated see the manual of the firewall (accessible via WebConfig -> Help), the Knowledge Base (https://knowledgebase.lancom-systems.de/display/KBEN) and the general security information (https://www.lancom-systems.com/service-support/general-security-information).

6.1 Menu “Firewall → Administrators”

The administrative user account must be created as described in Chapter 5.3, Step 10. It is mandatory that one administrative user account per person exists in the configuration of the Unified Firewall.

6.2 Menu “Firewall → Backup”

There are no restrictions on the use of the functions in this configuration menu. Please ensure that the backups created are kept in a safe and secure place or storage.

6.3 Menu “E-Mail Settings”

There are no restrictions on the use of the functions in this configuration menu.

6.4 Menu “Firewall → Executive Report”

There are no restrictions on the use of the functions in this configuration menu.

6.5 Menu “Firewall → Firewall Access”

The access to the LANCOM R&S®Unified Firewall via WebConfig must be restricted as described in Chapter 5.3, Step 7.

6.6 Menu “Firewall → License”

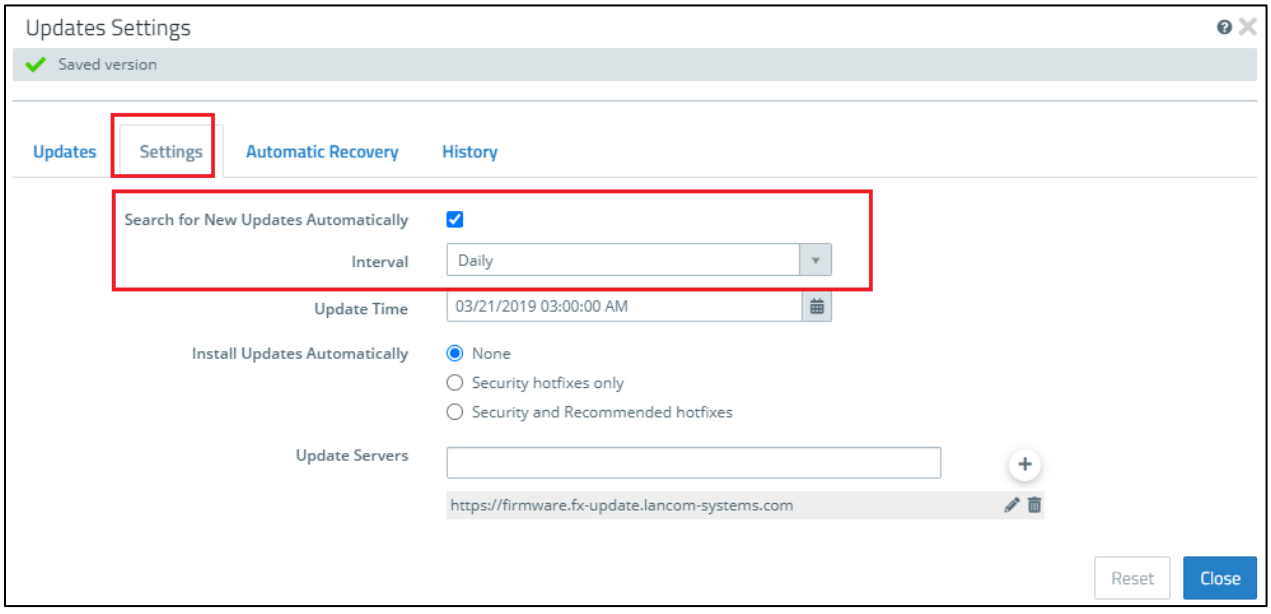
There are no restrictions on the use of the functions in this configuration menu.

6.7 Menu “Firewall → Time Settings”

There are no restrictions on the use of the functions in this configuration menu.

6.8 Menu “Firewall → Update Settings”

There are no restrictions on the use of the functions in this configuration menu. Please make sure to check for new updates in the update settings on a regular basis.



6.9 Menu “Monitoring & Statistics”

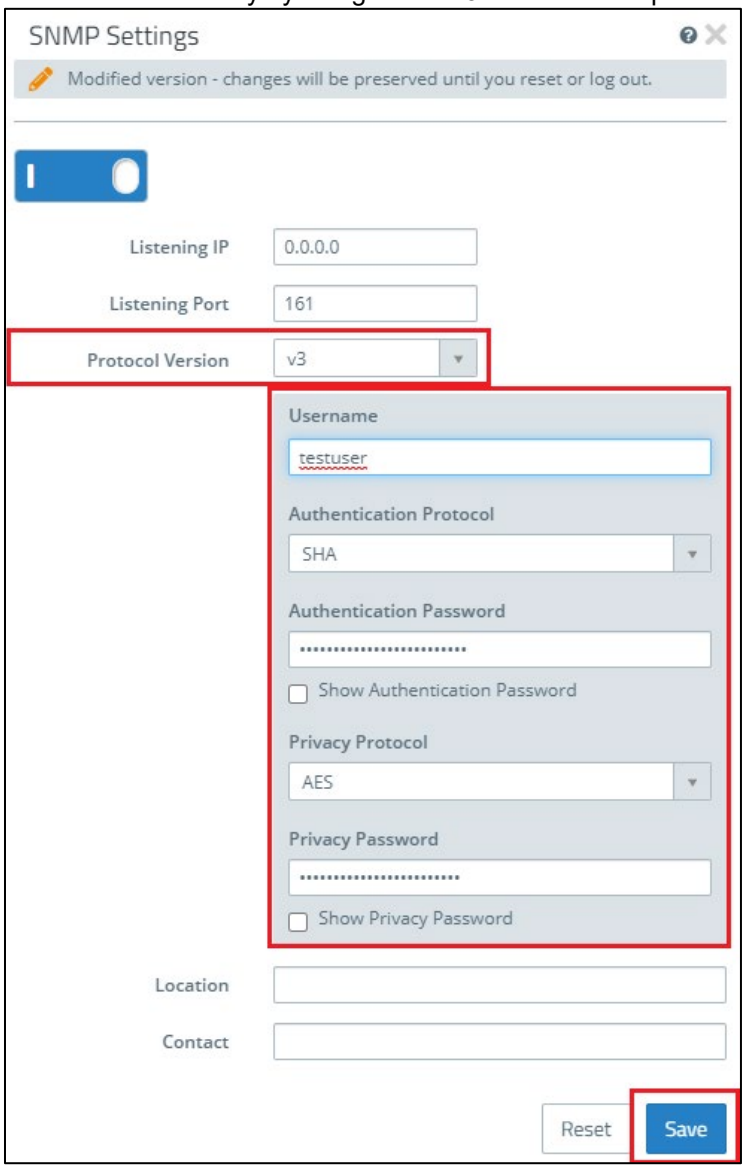
It is recommended to regularly check all three available logs:

- **System Log:** The System Log creates and displays a list of recent system events.
- **Alert Log:** In the Alert Log editing window, you can see what traffic is blocked by your LANCOM R&S®Unified Firewall or how traffic was transmitted through the firewall.
- **Audit Log:** The Audit Log creates records about every configuration change made on your LANCOM R&S®Unified Firewall (e.g. updating the VPN settings), executed actions (e. g. importing a backup) and what caused the change or action.

Further information on the configuration of the logs can be found in chapter 3.4.2.8 of the user manual.

6.9.1 Usage of SNMP

SNMP is allowed only by using SNMPv3 with a secure password.



6.9.2 E-Mail Notifications

The use of E-Mail Notifications is allowed. Be aware that emails contain sensitive information and must therefore be transmitted in encrypted form (e.g. via SMIME encryption) and received and stored in a secure location.

6.9.3 External Syslog

The use of an external Syslog-Server is only allowed by using a secure IPSec VPN tunnel to the server.

6.10 Menu “Network → Interfaces”

The following interfaces can be used without any restrictions. The use of interfaces that are not listed is not permitted for BSI-compliant use of the LANCOM R&S®Unified Firewall.

- Ethernet interfaces
- VLAN interfaces
- Bond interfaces
- Bridge interfaces
- PPP interfaces

Attention: The use of VLANs on Bridge interfaces is forbidden because Bridges can use VLAN interfaces as bridge ports.

Attention: The firewall must be the only logical connection between the networks which are to be protected / regulated.

6.11 Menu “Network → Connections”

The following connections can be used without any restrictions:

- Network connections
- PPP connections

6.12 Menu “DHCP Interfaces”

There are no restrictions on the use of the functions in this configuration menu.

6.13 Menu “DNS”

There are no restrictions on the use of the functions in this configuration menu.

6.14 Menu “Traffic Shaping”

There are no restrictions on the use of the functions in this configuration menu.

6.15 Menu “Routing → Routing Rules”

There are no restrictions on the use of the functions in this configuration menu. Please be aware that triangular routing has to be avoided for the connection tracking to function properly.

6.16 Menu “Routing → Routing Tables”

There are no restrictions on the use of the functions in this configuration menu. Please be aware that triangular routing has to be avoided for the connection tracking to function properly.

6.17 Menu “Desktop”

The following desktop objects can be used without any restrictions:

- Internet Objects
- VPN Networks
- VPN Hosts
- VPN Groups

- Network
- Hosts
- Host Groups

6.17.1 Desktop Connections

In desktop connections, the following items are allowed to be used:

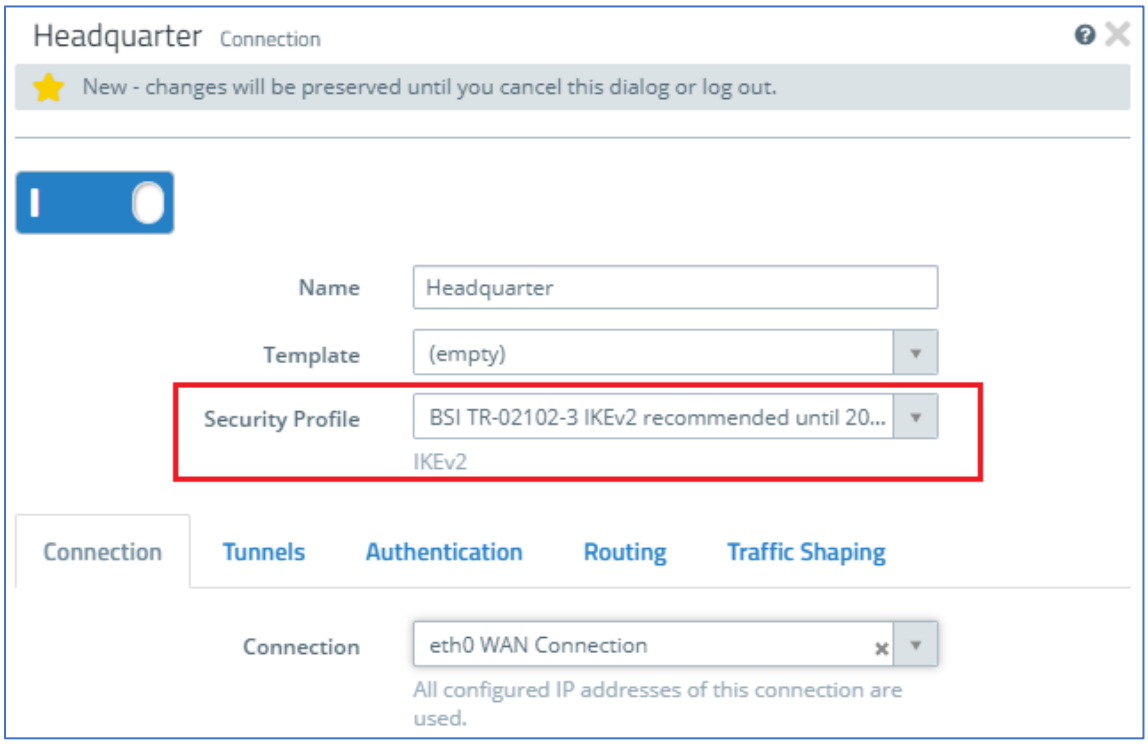
- Protocol/port-based filter
- NAT
- URL/Content Filter

The use of the following items is forbidden:

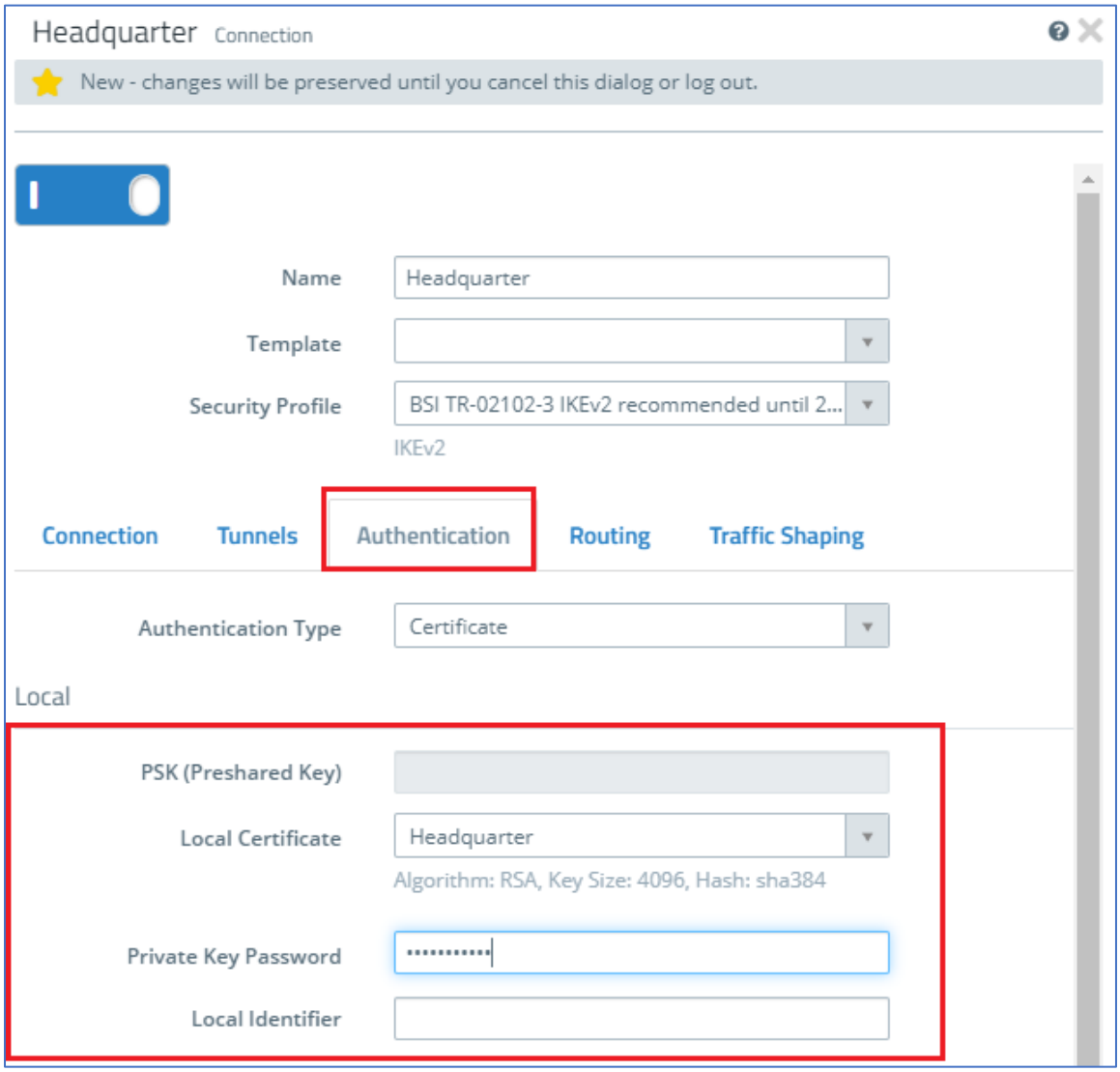
- Application filter
- Application-based routing.

6.18 Menu “VON → IPSec”

1 When creating VPN connections, it is mandatory to use the existing BSI security profile.

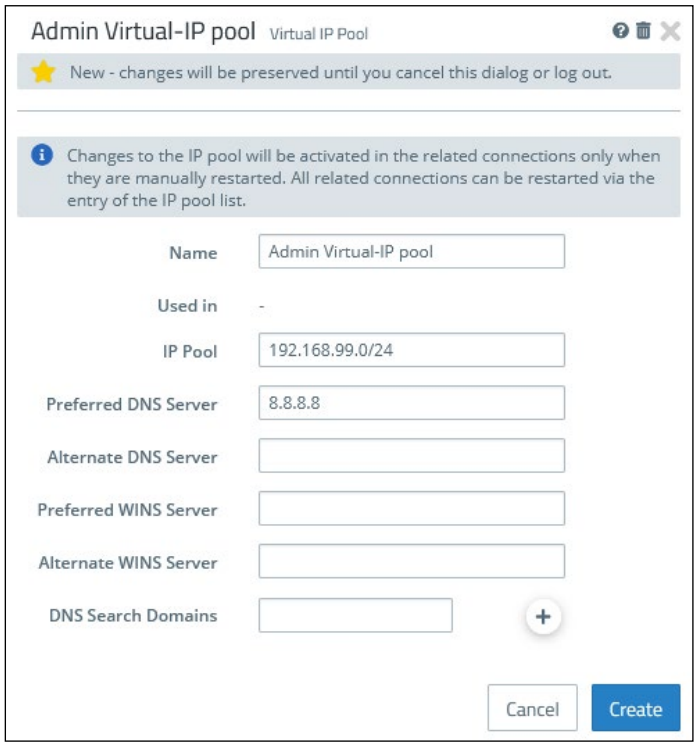


2 Secure passwords and certificates with a secure key length (see BSI technical guideline) must be used in the Authentication tab.

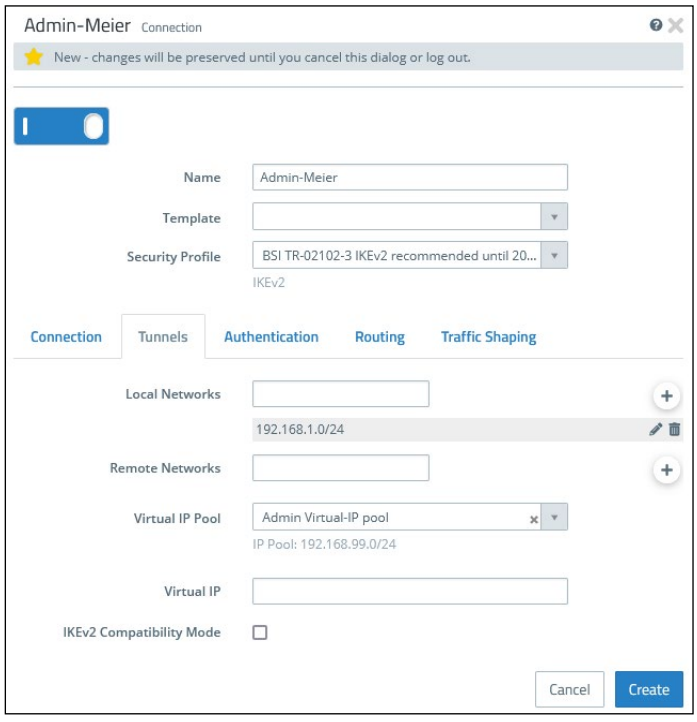


6.18.1 Access to the Administration Client via IPSec

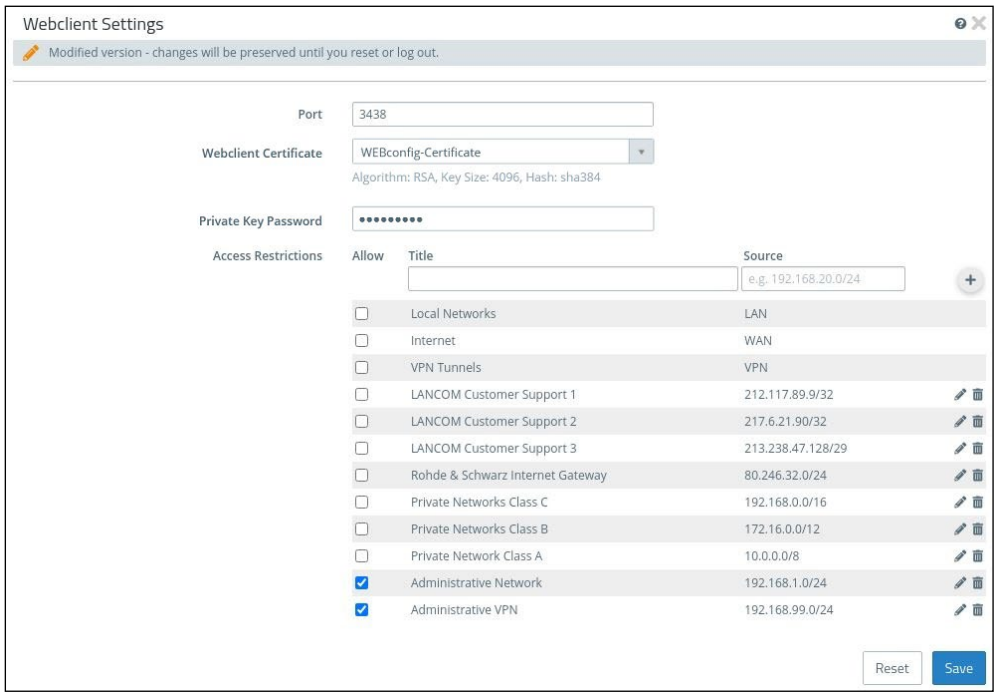
1 In the menu ‘VPN → IPSec → Virtual IP Pools’ create a new virtual IP pool with a network that is not used anywhere else in the network.



2 Go to the menu ‘VPN → IPSec → Connections’ and create a dedicated IPSec connection for an administrator using the new virtual IP pool. Please also refer to chapter 6.18 regarding the creation of IKEv2 connections.



3 Finally, add the Virtual IP pool in the menu ‘Firewall → Firewall Access → Webclient Settings’.



6.19 Menu “Certificate Management”

1 Let’s Encrypt must not be used for BSI-compliant operation of the Unified Firewall.

2 There are no restrictions on the use of the other functions in this configuration menu.

2a Always use strong passwords.

2b Use a key length according to BSI technical guideline.

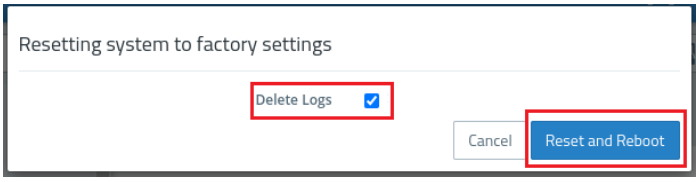
6.20 Menu “Diagnostics”

There are no restrictions on the use of the functions in this configuration menu.

7. DECOMMISSIONING

To decommission a LANCOM R&S®Unified Firewall, the following steps must be carried out:

1 Perform a factory reset and make sure, the option “Delete Logs” is checked.



2 If the LANCOM R&S®Unified Firewall is to be scrapped, please open the unit and destroy the built-in hard disk or have it destroyed by a specialist data destruction company. No logs or configuration data are stored outside the hard disk.