# LANCOM Secure User Guidance 1.0 Rel

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# 1. General description

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

## 2. Documentation

### Device documentation

In addition to the Secure User Guide, further device documentation is available, such as the LCOS Reference Manual, the LCOS Menu Reference, and the LCOS Installation Guide.

Hardware Quick References for particular devices are available in the download section. Just enter the device name in the search field and press ENTER.

**Note:** Within this Secure User Guidance, there might be references to other documentation like the LCOS Reference Manual. In case of references to configurations accomplished by 'LANconfig', content and paths can be used for the web-based installation described in this document as well.

### Acronyms

| Acronym table | |
| --- | --- |
| CLI | Command Line Interface |
| HTTPS | Hypertext Transfer Protocol Secure |
| IP | Internet Protocol |
| ISP | Internet Service Provider |
| LAN | Local Area Network |
| LCOS | LANCOM Systems Operating System; the operating system of LANCOM routers |
| RFC | Request for Comments (IETF Standard) |
| SCP | Secure Copy |
| SNMP | Simple Network Management Protocol |
| SSH | Secure Shell |
| VPN | Virtual Private Network |
| WEBconfig | Web-based management interface |

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## 3. Configuration

### Initial configuration

To connect to the web interface of the device the administrator has to follow the steps mentioned in the 'Installation Guide -> Configuration via WEBconfig' which is being shipped with the product (or can be downloaded via the link mentioned at 'Device Documentation'). It is mandatory to do the initial configuration via a single configuration device (e.g. notebook) and with no other network or device connected. Once you are physically connected to the device, open a web browser and connect to the device configuration page via HTTPS (it is mandatory to use HTTPS whenever a web browser is used to access the device). Now you will see the startup wizard which will guide you through the first steps. Make sure to set the following values:

| Startup wizard | | |
|---|---|---|
| Device name | e.g. 1793 VAW | |
| Password | ********** | Create a strong password (i.e. at least 8 characters containing alphabetic, numeric and special characters). |
| Device access | Local networks | Set access to 'Local networks' or 'Local and remote networks (only via VPN)'. |
| DHCP | Server | Keeping 'server' is recommended to most customers. |
| IP address | e.g. 172.16.1.1 | Enter designated IP address for the device. |
| Netmask | eg. 255.255.255.0 | Enter designated net mask for the device. |
| Time configuration | Time zone / Summer time / Time server | It is recommended to use the predefined values. If necessary, please change accordingly. |
| LCOS auto update | Installs FW updates automatically | Leave at 'Look for and install new LCOS versions' to stay up to date with latest firmware updates. |
| LANCOM Management Cloud | Enable | If you wish to manage the device via the LANCOM Management Cloud, leave the checkbox enabled. |

### Internet access configuration

To set up an Internet connection, please use the Internet configuration wizard (part of 'Setup Wizards' in the menu tree) and follow the steps:

| Internet configuration wizard | | |
|---|---|---|
| New connection | 'IPv4 & IPv6' | Configure either an IPv4 only or IPv4 & IPv6 (Dual Stack) connection<br>Note: Common providers use IPv4 & IPv6 based connections nowadays |
| Interface | e.g. 'VDSL' | Determine the interface on which the connection should be established (e.g.VDSL) |
| Country | e.g. 'Germany' | Select the preferred country |
| Provider | e.g. 'Deutsche Telekom' | Select the preferred ISP |
| Access mode | e.g. 'Native IPv4 & IPv6 (Dual stack)' | Select the preferred access mode |
| Connection name | 'INTERNET' | The connection name will be 'INTERNET' by default |
| Login credentials | e.g. Access number, password, terminal identification and shared user ID | Type in the user credentials provided through your ISP |
| IPv6 parameters | Automatically | Let the device handle the IPv6 parameters automatically |

### Configuration export

Configuration scripts or files must be secured with a strong password (i.e. at least 8 characters containing alphabetic, numeric and special characters).

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## 4. Network interfaces and services

The device contains several interfaces and services which can be activated during the device initialization or by user customization. Please refer to the following tables to get an overview:

### Private network interfaces and services

| Interface | Status | Services | Port / protocol | Description |
|---|---|---|---|---|
| LAN | Factory default, initialized | DHCP<br>DHCPv6<br>DNS<br>HTTP<br>HTTPS<br>ICMPv6<br>SNMPv3<br>SSH | 67 / UDP<br>547 / UDP<br>53 / UDP<br>80 / TCP<br>443 / TCP<br>-<br>161 / UDP<br>22 / TCP | DHCP server<br>DHCPv6 server<br>DNS forwarder, DNS server<br>Only automatic redirect to HTTPS<br>Web server (WEBconfig)<br>ICMPv6 messages<br>SNMP agent<br>SSH server, SFTP server |
| LAN, WLAN | User customized | SIP<br>SIPS<br>SIP-ALG<br>SNTP | 5060 / TCP/UDP<br>5061 / TCP<br>65060 / UDP<br>123 / UDP | VoIP<br>VoIP<br>VoIP<br>Time server |

### Private network interfaces and client software

| Interface | Status | Client software | Description |
|---|---|---|---|
| LAN | Factory default | DHCP Client | |
| WLAN | User customized | DHCP Client | |
| LAN, WLAN | User customized | SMTP Client | E-mail notification |
| LAN, WLAN | User customized | Syslog Client | |

### Public network interfaces and services

| Interface | Status | Services | Port / protocol | Description |
|---|---|---|---|---|
| WAN | Factory default | CWMP | 7547 / TCP | TR-069 (only LANCOM R883+ and R884VA) |
| WAN | Initialized | ICMPv6 | | ICMPv6 messages |
| WAN | User customized | CWMP<br>HTTP<br>HTTPS<br>SNMPv3<br>SSH<br>VPN | 7547 / TCP<br>80 / TCP<br>443 / TCP<br>161 / UDP<br>22 / TCP<br>500, 4500 / UDP | TR-069<br>Only automatic redirecting to HTTP<br>Web server (WEBconfig)<br>SNMP agent<br>SSH server, SFTP server<br>IKE / IPSec server |

### Public network interfaces and client software

| Interface | Status | Client software | Description |
|---|---|---|---|
| WAN | Factory default | CWMP | TR-069 (only LANCOM R883+ and R884VA) |
| | Initialized | DHCP client | If WAN is a DHCPoE connection |
| | Initialized | DNS client | |
| | Initialized | AutoUpdater | Firmware updates download |
| | Initialized | SNTP client | |
| | User customized | SMTP client | E-mail notifications |
| | User customized | CWMP | TR-069 |
| | User customized | SIP / SIPS client | VoIP |
| | User customized | IKE / IPSec | VPN |

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## 5. Events

### Event log

The event log contains messages about device logins. It is mandatory to check it on a regular basis. It is accessible via WEBconfig under 'LCOS Menu Tree > Status > Config > Event-Log'.

### Syslog events

The syslog contains information about system events (e.g. connection establishments). It is mandatory to check it on a regular basis. It is accessible via WEBconfig under 'LCOS Menu Tree > Status > TCP-IP > Syslog > Last-Messages'.

### Firewall events

The firewall log table contains messages about firewall events. It is mandatory to check it on a regular basis. It is accessible via WEBconfig under 'LCOS Menu Tree > Status > IP-Router > Log-Table'.

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