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LANCOM 1781EF

High-performance VPN router with Gigabit Ethernet and additional SFP port for fiber connections

- Fast Internet access and professional networking for smaller companies and branch offices
- Energy-efficient Gigabit switch as per IEEE 802.3az as well as Gigabit SFP slot for fiber optics (FTTx)
- VPN site connectivity with 5 simultaneous IPsec VPN channels (25 channels optional)
- Network virtualization with up to 16 virtual networks on one device (ARF)
- Stateful-inspection firewall with intrusion detection/denial-of-service protection
- High availability with optional 3G backup via USB

The professional VPN router LANCOM 1781EF is the right choice for establishing modern company networks via fiber or copper lines. The flexible device has a WAN port and a small form-factor pluggable slot (SFP) for transceivers. With this, the LANCOM 1781EF can be deployed directly on fiber lines without additional hardware. Costs are reduced and all characteristics of the fiber line can be monitored from afar. With its extensive VPN capabilities, the device provides secure, high-performance connectivity to branch offices and remote workers. The four ports of the integrated Gigabit Ethernet switch ensure maximum performance and are also energy-efficient as per IEEE 802.3az: If no data is transmitted over an interface, its power consumption shuts down automatically. The LANCOM 1781EF supplies everything required of a modern enterprise network, such as comprehensive Quality-of-Service capabilities and an object-oriented firewall.

More Performance

The LANCOM 1781EF provides a balanced and modern hardware platform for reliable operation of enterprise networks around the clock. As a professional business router, the device meets with high standards in the areas of network virtualization, security and VPN networking. At the same time its computing power, storage capacity and the high-speed interfaces ensure excellent network performance even with heavy data traffic.

More Security.

For connecting small offices or setting up multi-national branch networks - VPN specialist LANCOM stands for fast, secure and cost-effective communications. The LANCOM 1781EF is ideal for offices or small businesses with high data volumes that want to set up a secure VPN: The router's VPN gateway supports five simultaneous IPsec channels, with support for 25 channels as an optional extra. Additionally, an object-oriented stateful-inspection firewall protects the network with intrusion prevention and Denial of Service protection. Optionally available, the LANCOM Content Filter protects up to 100 users effectively while surfing the World Wide Web. Flexible bandwidth management guarantees the availability of all applications (also in local networks) as these can be prioritized with a comprehensive range of Quality-of-Service features.

More Management.

LCMS, the LANCOM Management System, is a free software package for the LANCOM 1781EF. It caters for the configuration of the device, remote maintenance and network monitoring. The central component of LCMS, LANconfig, is used to configure the LANCOM 1781EF and other LANCOM devices on the network. The extensive range of features and the configuration wizards make the router quick to set up. LANmonitor offers detailed, real-time monitoring of parameters, it provides access to log files and statistics, and it can carry out a detailed trace-protocol analysis. Other functions in LCMS include the GUI for firewall setup, automatic backup of configurations and scripts, and the intuitive folder structure with convenient search function.

More Virtualization.

The LANCOM 1781EF helps you to use your IT resources more effectively and to save costs. The device simultaneously supports multiple independent networks. This is made possible by the powerful technology Advanced Routing and Forwarding (ARF). The ARF function on the LANCOM 1781EF provides up to sixteen virtual networks, each with its own settings for DHCP, DNS, routing and firewall. ARF allows multiple separate networks for different groups and applications to be operated on a single physical infrastructure.

More Reliability for the Future.

LANCOM products are designed for a product life of several years and are equipped with hardware dimensioned for the future. Even reaching back to older product generations, updates to the LANCOM Operating System—LCOS—are available several times a year, free of charge and offering major features. LANCOM offers unbeatable safeguarding of your investment.

| Firewall | |
|--------------------------------|---|
| Stateful inspection firewall | Incoming/Outgoing Traffic inspection based on connection information. Trigger for firewall rules depending on backup status, e.g. simplified rule sets for low-bandwidth backup lines. Limitation of the number of sessions per remote site (ID) |
| Packet filter | Check based on the header information of an IP packet (IP or MAC source/destination addresses; source/destination ports, DiffServ attribute); remote-site dependant, direction dependant, bandwidth dependant |
| Extended port forwarding | Network Address Translation (NAT) based on protocol and WAN address, i.e. to make internal webservers accessible from WAN |
| N:N IP address mapping | N:N IP address mapping for translation of IP addresses or entire networks |
| Tagging | The firewall marks packets with routing tags, e.g. for policy-based routing |
| Actions | Forward, drop, reject, block sender address, close destination port, disconnect |
| Notification | Via e-mail, SYSLOG or SNMP trap |
| Quality of Service | |
| Traffic shaping | Dynamic bandwidth management with IP traffic shaping |
| Bandwidth reservation | Dynamic reservation of minimum and maximum bandwidths, totally or connection based, separate settings for send and receive directions. Setting relative bandwidth limits for QoS in percent |
| DiffServ/TOS | Priority queuing of packets based on DiffServ/TOS fields |
| Packet-size control | Automatic packet-size control by fragmentation or Path Maximum Transmission Unit (PMTU) adjustment |
| Layer 2/Layer 3 tagging | Automatic or fixed translation of layer-2 priority information (IEEE 802.1p-marked Ethernet frames) to layer-3 DiffServ attributes in routing mode. Translation from layer 3 to layer 2 with automatic recognition of 802.1p-support in the destination device |
| Security | |
| Intrusion Prevention | Monitoring and blocking of login attempts and port scans |
| IP spoofing | Source IP address check on all interfaces: only IP addresses belonging to the defined IP networks are allowed |
| Access control lists | Filtering of IP or MAC addresses and preset protocols for configuration access and LANCAPI |
| Denial of Service protection | Protection from fragmentation errors and SYN flooding |
| General | Detailed settings for handling reassembly, PING, stealth mode and AUTH port |
| URL blocker | Filtering of unwanted URLs based on DNS hitlists and wildcard filters. Extended functionality with Content Filter Option |
| Password protection | Password-protected configuration access can be set for each interface |
| Alerts | Alerts via e-mail, SNMP-Traps and SYSLOG |
| Authentication mechanisms | PAP, CHAP, MS-CHAP and MS-CHAPv2 as PPP authentication mechanism |
| Anti-theft | Anti-theft ISDN site verification over B or D channel (self-initiated call back and blocking) |
| Adjustable reset button | Adjustable reset button for 'ignore', 'boot-only' and 'reset-or-boot' |
| High availability / redundancy | |
| VRRP | VRRP (Virtual Router Redundancy Protocol) for backup in case of failure of a device or remote station. Enables passive standby groups or reciprocal backup between multiple active devices including load balancing and user definable backup priorities |
| FirmSafe | For completely safe software upgrades thanks to two stored firmware versions, incl. test mode for firmware updates |
| UMTS backup* | Operation of an external UMTS/HSDPA USB card at the USB host port |
| ISDN backup | In case of failure of the main connection, a backup connection is established over ISDN. Automatic return to the main connection |
| Analog/GSM modem backup | Optional operation of an analog or GSM modem at the serial interface |
| Load balancing | Static and dynamic load balancing over up to 4 WAN connections. Channel bundling with Multilink PPP (if supported by network operator) |
| VPN redundancy | Backup of VPN connections across different hierarchy levels, e.g. in case of failure of a central VPN concentrator and re-routing to multiple distributed remote sites. Any number of VPN remote sites can be defined (the tunnel limit applies only to active connections). Up to 32 alternative remote stations, each with its own routing tag, can be defined per VPN connection. Automatic selection may be sequential, or dependant on the last connection, or random (VPN load balancing) |
| Line monitoring | Line monitoring with LCP echo monitoring, dead-peer detection and up to 4 addresses for end-to-end monitoring with ICMP polling |
| *) Note: | A UMTS USB modem is not supplied. Supported UMTS USB modem at www.lancom.eu/umts-support |

| VPN | |
|------------------------------------|---|
| IPSec over HTTPS | Enables IPsec VPN based on TCP (at port 443 like HTTPS) which can go through firewalls in networks where e. g. port 500 for IKE is blocked. Suitable for client-to-site connections (with LANCOM Advanced VPN Client 2.22 or later) and site-to-site connections (LANCOM VPN gateways or routers with LCOS 8.0 or later). IPSec over HTTPS is based on the NCP VPN Path Finder technology |
| Number of VPN tunnels | Max. number of concurrent active IPSec and PPTP tunnels (MPPE): 5 (25 with VPN 25 Option). Unlimited configurable connections. Configuration of all remote sites via one configuration entry when using the RAS user template or Proadaptive VPN. |
| Hardware accelerator | Integrated hardware accelerator for 3DES/AES encryption and decryption |
| Realtime clock | Integrated, buffered realtime clock to save the date and time during power failure. Assures timely validation of certificates in any case |
| Random number generator | Generates real random numbers in hardware, e. g. for improved key generation for certificates immediately after switching-on |
| 1-Click-VPN Client assistant | One click function in LANconfig to create VPN client connections, incl. automatic profile creation for the LANCOM Advanced VPN Client |
| 1-Click-VPN Site-to-Site | Creation of VPN connections between LANCOM routers via drag and drop in LANconfig |
| IKE | IPSec key exchange with Preshared Key or certificate |
| Certificates | X.509 digital multi-level certificate support, compatible with Microsoft Server / Enterprise Server and OpenSSL, upload of PKCS#12 files via HTTPS interface and LANconfig. Simultaneous support of multiple certification authorities with the management of up to nine parallel certificate hierarchies as containers (VPN-1 to VPN-9). Simplified addressing of individual certificates by the hierarchy's container name (VPN-1 to VPN-9). Wildcards for certificate checks of parts of the identity in the subject. Secure Key Storage protects a private key (PKCS#12) from theft |
| Certificate rollout | Automatic creation, rollout and renewal of certificates via SCEP (Simple Certificate Enrollment Protocol) per certificate hierarchy |
| Certificate revocation lists (CRL) | CRL retrieval via HTTP per certificate hierarchy |
| OCSP Client | Check X.509 certifications by using OCSP (Online Certificate Status Protocol) in real time as an alternative to CRLs |
| XAUTH | XAUTH client for registering LANCOM routers and access points at XAUTH servers incl. IKE-config mode. XAUTH server enables clients to register via XAUTH at LANCOM routers. Connection of the XAUTH server to RADIUS servers provides the central authentication of VPN-access with user name and password. Authentication of VPN-client access via XAUTH and RADIUS connection additionally by OTP token |
| RAS user template | Configuration of all VPN client connections in IKE ConfigMode via a single configuration entry |
| Proadaptive VPN | Automated configuration and dynamic creation of all necessary VPN and routing entries based on a default entry for site-to-site connections. Propagation of dynamically learned routes via RIPv2 if required |
| Algorithms | 3DES (168 bit), AES (128, 192 or 256 bit), Blowfish (128 bit), RSA (128 or -448 bit) and CAST (128 bit). OpenSSL implementation with FIPS-140 certified algorithms. MD-5 or SHA-1 hashes |
| NAT-Traversal | NAT-Traversal (NAT-T) support for VPN over routes without VPN passthrough |
| IPCOMP | VPN data compression based on Deflate compression for higher IPSec throughput on low-bandwidth connections (must be supported by remote endpoint) |
| LANCOM Dynamic VPN | Enables VPN connections from or to dynamic IP addresses. The IP address is communicated via ISDN B- or D-channel or with the ICMP or UDP protocol in encrypted form. Dynamic dial-in for remote sites via connection template |
| Dynamic DNS | Enables the registration of IP addresses with a Dynamic DNS provider in the case that fixed IP addresses are not used for the VPN connection |
| Specific DNS forwarding | DNS forwarding according to DNS domain, e.g. internal names are translated by proprietary DNS servers in the VPN. External names are translated by Internet DNS servers |
| Content Filter (optional) | |
| Demo version | Activate the 30-day trial version after free registration under http://www.lancom.eu/routeroptions |
| URL filter database/rating server | Worldwide, redundant rating servers from IBM Security Solutions for querying URL classifications. Database with over 100 million entries covering about 10 billion web pages. Web crawlers automatically search and classify web sites to provide nearly 150,000 updates per day: They use text classification by optical character recognition, key word searches, classification by word frequency and combinations, web-site comparison of text, images and page elements, object recognition of special characters, symbols, trademarks and prohibited images, recognition of pornography and nudity by analyzing the concentration of skin tones in images, by structure and link analysis, by malware detection in binary files and installation packages |
| HTTPS filter | Additional filtering of HTTPS requests with separate firewall entries |
| Categories/category profiles | Filter rules can be defined in each profile by collecting category profiles from 58 categories, for example to restrict Internet access to business purposes only (limiting private use) or by providing protection from content that is harmful to minors or hazardous content (e.g. malware sites). Clearly structured selection due to the grouping of similar categories. Content for each category can be allowed, blocked, or released by override |
| Override | Each category can be given an optional manual override that allows the user to access blocked content on a case-by-case basis. The override operates for a limited time period by blocking the category or domain, or a combination of both. Optional notification of the administrator in case of overrides |
| Black-/whitelist | Lists that are manually configured to explicitly allow (whitelist) or block (blacklist) web sites for each profile, independent of the rating server. Wildcards can be used when defining groups of pages or for filtering sub pages |

| Content Filter (optional) | |
|---|--|
| Profiles | Timeframes, blacklists, whitelists and categories are collected into profiles that can be activated separately for content-filter actions. A default profile with standard settings blocks racist, pornographic, criminal, and extremist content as well as anonymous proxies, weapons/military, drugs, SPAM and malware |
| Time frames | Timeframes can be flexibly defined for control over filtering depending on the time of day or weekday, e.g. to relax controls during break times for private surfing |
| Flexible firewall action | Activation of the content filter by selecting the required firewall profile that contains content-filter actions. Firewall rules enable the flexible use of your own profiles for different clients, networks or connections to certain servers |
| Individual display pages (for blocked, error, override) | Response pages displayed by the content filter in case of blocked sites, errors or overrides can be custom designed. Variables enable the inclusion of current information such as the category, URL, and rating-server categorization. Response pages can be issued in any language depending on the language set in the user's web browser |
| Redirection to external pages | As an alternative to displaying the device's own internal response pages to blockings, errors or overrides, you can redirect to external web servers |
| License management | Automatic notification of license expiry by e-mail, LANmonitor, SYSLOG or SNMP trap. Activation of license renewal at any time before expiry of the current license (the new licensing period starts immediately after expiry of the current license) |
| Statistics | Display of the number of checked and blocked web pages by category in LANmonitor. Logging of all content-filter events in LANmonitor; log file created daily, weekly or monthly. Hit list of the most frequently called pages and rating results. Analysis of the connection properties; minimum, maximum and average rating-server response time |
| Notifications | Messaging in case of content-filter events optionally by e-mail, SNMP, SYSLOG or LANmonitor |
| Wizard for typical configurations | Wizard sets up the content filters for a range of typical scenarios in a few simple steps, including the creation of the necessary firewall rules with the corresponding action |
| Max. users | Simultaneous checking of HTTP traffic for a maximum of 100 different IP addresses in the LAN |
| VoIP | |
| SIP ALG | The SIP ALG (Application Layer Gateway) acts as a proxy for SIP communication. For SIP calls the ALG opens the necessary ports on the firewall for the corresponding media packets. By using automatic address translation for devices inside the LAN, the use of STUN is no longer needed. |
| Routing functions | |
| Router | IP and NetBIOS/IP multi-protocol router |
| Advanced Routing and Forwarding | Separate processing of 16 contexts due to virtualization of the routers. Mapping to VLANs and complete independent management and configuration of IP networks in the device, i.e. individual settings for DHCP, DNS, Firewalling, QoS, VLAN, Routing etc. Automatic learning of routing tags for ARF contexts from the routing table |
| HTTP | HTTP and HTTPS server for configuration by web interface |
| DNS | DNS client, DNS server, DNS relay, DNS proxy and dynamic DNS client |
| DHCP | DHCP client, DHCP relay and DHCP server with autodetection. Cluster of several LANCOM DHCP servers per context (ARF network) enables caching of all DNS assignments at each router. DHCP forwarding to multiple (redundant) DHCP servers |
| NetBIOS | NetBIOS/IP proxy |
| NTP | NTP client and SNTP server, automatic adjustment for daylight-saving time |
| Policy-based routing | Policy-based routing based on routing tags. Based on firewall rules, certain data types are marked for specific routing, e.g. to particular remote sites or lines |
| Dynamic routing | Dynamic routing with RIPv2. Learning and propagating routes; separate settings for LAN and WAN. Extended RIPv2 including HopCount, Poisoned Reverse, Triggered Update for LAN (acc. to RFC 2453) and WAN (acc. to RFC 2091) as well as filter options for propagation of routes. Definition of RIP sources with wildcards |
| Layer 2 functions | |
| VLAN | VLAN ID definable per interface and routing context (4,094 IDs) IEEE 802.1Q |
| ARP lookup | Packets sent in response to LCOS service requests (e.g. for Telnet, SSH, SNMP, SMTP, HTTP(S), SNMP, etc.) via Ethernet can be routed directly to the requesting station (default) or to a target determined by ARP lookup |
| COM port server | |
| COM port forwarding | COM-port server for DIN and USB interfaces. For multiple serial devices connected to it, the server also manages its own virtual COM ports via Telnet (RFC 2217) for remote maintenance (works with popular virtual COM-port drivers compliant with RFC 2217). Switchable newline conversion and alternative binary mode. TCP keepalive according to RFC 1122 with configurable keepalive interval, retransmission timeout and retries |
| USB print server | |
| Print server (USB 2.0) | Host port for connecting USB printers via RAW-IP and LPD; bi-directional data exchange is possible |

| LAN protocols | |
|---------------------------------|--|
| IP | ARP, proxy ARP, BOOTP, LANCAP, DHCP, DNS, HTTP, HTTPS, IP, ICMP, NTP/SNTP, NetBIOS, PPPoE (server), RADIUS, RIP-1, RIP-2, RTP, SIP, SNMP, TCP, TFTP, UDP, VRRP |
| WAN protocols | |
| Ethernet | PPPoE, Multi-PPPoE, ML-PPP, PPTP (PAC or PNS) and IPoE (with or without DHCP), RIP-1, RIP-2, VLAN, IP |
| ISDN | 1TR6, DSS1 (Euro-ISDN), PPP, X75, HDLC, ML-PPP, V.110/GSM/HSCSD |
| WAN operating mode | |
| xDSL (ext. modem) | ADSL1, ADSL2 or ADSL2+ with external ADSL2+ modem |
| UMTS/HSDPA* (ext. module) | UMTS/HSDPA with external module at the USB interface |
| ISDN | ISDN data or voice usage via internal ISDN interface |
| Analog/GPRS (ext. modem) | Analog or GPRS operation via serial interface |
| *) Note: | A UMTS USB modem is not supplied. Supported UMTS USB modems at www.lancom.eu/umts-support |
| Interfaces | |
| WAN: Ethernet | 10/100/1000 Mbps Gigabit Ethernet |
| Ethernet ports | 4 individual 10/100/1000 Mbps Ethernet ports; up to 3 ports can be switched as additional WAN ports with load balancing. Ethernet ports can be electrically disabled within LCOS configuration. The ports support energy saving according to IEEE 802.3az |
| SFP slot | Slot for Small Form-factor Pluggable Gigabit Ethernet transceivers ('mini-GBIC'). Compatible to optional LANCOM SFP modules for fiber connections over short distances (SX) or long distances (LX). By default an additional LAN port that can be configured as a WAN port |
| Port configuration | Each Ethernet port can be freely configured (LAN, DMZ, WAN, monitor port, off). LAN ports can be operated as a switch or separately. Additionally, external DSL modems or termination routers can be operated as a WAN port with load balancing and policy-based routing. DMZ ports can be operated with their own IP address range without NAT |
| USB 2.0 host port | USB 2.0 hi-speed host port for connecting USB printers (USB print server), serial devices (COM port server), USB data storage (FAT file system) or supported 3G USB modems; bi-directional data exchange is possible* |
| ISDN | ISDN BRI port (S0 bus) |
| Serial interface | Serial configuration interface / COM port (8 pin Mini-DIN): 9,600 - 115,000 baud, suitable for optional connection of analog/GPRS modems. Supports internal COM port server and allows for transparent asynchronous transmission of serial data via TCP |
| *) Note | A UMTS USB modem is not supplied. Supported UMTS USB modems at www.lancom.eu/umts-support |
| LCMS (LANCOM Management System) | |
| LANconfig | Configuration program for Microsoft Windows, incl. convenient Setup Wizards. Optional group configuration, simultaneous remote configuration and management of multiple devices over ISDN dial-in or IP connection (HTTPS, HTTP, TFTP). A tree view of the setting pages like in WEBconfig provides quick access to all settings in the configuration window. Password fields which optionally display the password in plain text and can generate complex passwords. Configuration program properties per project or user. Automatic storage of the current configuration before firmware updates. Exchange of configuration files between similar devices, e.g. for migrating existing configurations to new LANCOM products. Detection and display of the LANCOM managed switches. Extensive application help for LANconfig and parameter help for device configuration. LANCOM QuickFinder as search filter within LANconfig and device configurations that reduces the view to devices with matching properties |
| LANmonitor | Monitoring application for Microsoft Windows for (remote) surveillance and logging of the status of LANCOM devices and connections, incl. PING diagnosis and TRACE with filters and save to file. Search function within TRACE tasks. Wizards for standard diagnostics. Export of diagnostic files for support purposes (including bootlog, sysinfo and device configuration without passwords). Graphic display of key values (marked with an icon in LANmonitor view) over time as well as table for minimum, maximum and average in a separate window, e. g. for Rx, Tx, CPU load, free memory. Monitoring of the LANCOM managed switches. Flick easily through different search results by LANCOM QuickFinder |
| Firwall GUI | Graphical user interface for configuring the object-oriented firewall in LANconfig: Tabular presentation with symbols for rapid understanding of objects, choice of symbols for objects, objects for actions/Quality of Service/remote sites/services, default objects for common scenarios, individual object definition (e.g. for user groups) |
| Automatic software update | Voluntary automatic updates for LCMS. Search online for LCOS updates for devices managed by LANconfig on the myLANCOM download server (myLANCOM account mandatory). Updates can be applied directly after the download or at a later time |
| Management | |
| WEBconfig | Integrated web server for the configuration of LANCOM devices via Internet browsers with HTTPS or HTTP. Similar to LANconfig with a system overview, syslog and events display, symbols in the menu tree, quick access with side tabs. WEBconfig also features Wizards for basic configuration, security, Internet access, LAN-LAN coupling. Online help for parameters in LCOS menu tree |
| Alternative boot configuration | During rollout devices can be preset with project- or customer-specific settings. Up to two boot- and reset-persistent memory spaces can store customized configurations for customer-specific standard settings (memory space '1') or as a rollout configuration (memory space '2'). A further option is the storage of a persistent standard certificate for the authentication of connections during rollouts |

| Management | |
|---|---|
| Automatic update from USB | Automatic upload of appropriate firmware and configuration files on insertion of USB memory (FAT filesystem) into USB interfaces of LANCOM routers with factory settings. The function can be activated to be used during operation of configured devices. The router checks the files' dates and versions against the current firmware before upload |
| Device Syslog | Syslog buffer in the RAM (size depending on device memory) to store events for diagnosis. Default set of rules for the event protocol in Syslog. The rules can be modified by the administrator. Display and saving of internal Syslog buffer (events) from LANCOM devices with LANmonitor, display only with WEBconfig |
| Access rights | Individual access and function rights for up to 16 administrators. Alternative access control on a per parameter basis with TACACS+ |
| User administration | RADIUS user administration for dial-in access (PPP/PPTP and ISDN CLIP). Support for RADSEC (Secure RADIUS) for secure communication with RADIUS servers |
| Remote maintenance | Remote configuration with Telnet/SSL, SSH (with password or public key), browser (HTTP/HTTPS), TFTP or SNMP, firmware upload via HTTP/HTTPS or TFTP |
| TACACS+ | Support of TACACS+ protocol for authentication, authorization and accounting (AAA) with reliable connections and encrypted payload. Authentication and authorization are separated completely. LANCOM access rights are converted to TACACS+ levels. With TACACS+ access can be granted per parameter, path, command or functionality for LANconfig, WEBconfig or Telnet/SSH. Each access and all changes of configuration are logged. Access verification and logging of SNMP Get and Set requests. WEBconfig supports the access rights of TACACS+ and choice of TACACS+ server at login. LANconfig provides a device login with the TACACS+ request conveyed by the addressed device. Authorization to execute scripts and each command within them by checking the TACACS+ server's database. CRON, action-table and script processing can be diverted to avoid TACACS+ to relieve TACACS+ servers. Redundancy by setting several alternative TACACS+ servers. Configurable option to fall back to local user accounts in case of connection drops to the TACACS+ servers. Compatibility mode to support several free TACACS+ implementations |
| Remote maintenance of 3rd party devices | A remote configuration for devices behind der LANCOM can be accomplished (after authentication) via tunneling of arbitrary TCP-based protocols, e.g. for HTTP(S) remote maintenance of VoIP phones or printers of the LAN. Additionally, SSH and Telnet client allow to access other devices from a LANCOM device with an interface to the target subnet if the LANCOM device can be reached at its command line interface |
| ISDN remote maintenance | Remote maintenance over ISDN dial-in with calling-number check |
| TFTP & HTTP(S) client | For downloading firmware and configuration files from a TFTP, HTTP or HTTPS server with variable file names (wildcards for name, MAC/IP address, serial number), e.g. for roll-out management. Commands for live Telnet session, scripts or CRON jobs. HTTPS Client authentication possible by username and password or by certificate |
| SSH & Telnet client | SSH-client function compatible to Open SSH under Linux and Unix operating systems for accessing third-party components from a LANCOM router. Also usable when working with SSH to login to the LANCOM device. Support for certificate- and password-based authentication. Generates its own key with sshkeygen. SSH client functions are restricted to administrators with appropriate rights. Telnet client function to login/administer third party devices or other LANCOM devices from command line interface |
| Basic HTTP(S) file server | HTML pages, images and templates for Public Spot pages, vouchers, information pages of the Content Filter can be stored on a USB memory (FAT file system) in a specific folder as an alternative for the limited internal memory |
| HTTPS Server | Option to choose if an uploaded certificate or the default certificate is used by the HTTPS server |
| Security | Access rights (read/write) over WAN or LAN can be set up separately (Telnet/SSL, SSH, SNMP, HTTPS/HTTP), access control list |
| Scripting | Scripting function for batch-programming of all command-line parameters and for transferring (partial) configurations, irrespective of software versions and device types, incl. test mode for parameter changes. Utilization of timed control (CRON) or connection establishment and termination to run scripts for automation. Scripts can send e-mails with various command line outputs as attachments |
| Load commands | LoadFirmware, LoadConfig and LoadScript can be executed conditionally in case certain requirements are met. For example, the command LoadFirmware could be executed on a daily basis and check each time if the current firmware is up to date or if a new version is available. In addition, LoadFile allows the upload of files including certificates and secured PKCS#12 containers |
| SNMP | SNMP management via SNMPv2, new unified private MIB for all most current and future LANCOM devices with LCOS. Download link in WEBconfig |
| Timed control | Scheduled control of parameters and actions with CRON service |
| Diagnosis | Extensive LOG and TRACE options, PING and TRACEROUTE for checking connections, LANmonitor status display, internal logging buffer for SYSLOG and firewall events, monitor mode for Ethernet ports |
| LANCAPI | Available for all LANCOM routers with integrated ISDN interface. LANCAPI provides CAPI 2.0 features for Microsoft Windows to utilize ISDN channels over the IP network |
| CAPI Faxmodem | Softmodem for Microsoft Windows that makes use of LANCAPI to send and receive faxes via ISDN |
| Programmable Rollout Wizard | Allows the programming of a customized wizard to simplify the rollout in projects. Support for customized templates and logos provide a way to generate a brand specific look |
| Statistics | |
| Statistics | Extensive Ethernet, IP and DNS statistics; SYSLOG error counter |
| Accounting | Connection time, online time, transfer volumes per station. Snapshot function for regular read-out of values at the end of a billing period. Timed (CRON) command to reset all counters at once |
| Export | Accounting information exportable via LANmonitor and SYSLOG |

| Hardware | |
|------------------------------------|---|
| Power supply | 12 V DC, external power adapter (230 V) with bayonet cap to protect against accidentally unplugging |
| Environment | Temperature range 5–40° C; humidity 0–95%; non-condensing |
| Housing | Robust synthetic housing, rear connectors, ready for wall mounting, Kensington lock; 210 x 45 x 140 mm (W x H x D) |
| Fans | None; fanless design without rotating parts, high MTBF |
| Power consumption (max) | 7.5 Watt |
| Declarations of conformity | |
| CE | EN 55022, EN 55024, EN 60950 |
| Package content | |
| Manual | Hardware Overview (EN, DE), Installation Guide (DE/EN/FR/ES/IT/PT/NL) |
| CD/DVD | Data medium with firmware, management software (LANconfig, LANmonitor, LANCAPI) and documentation |
| Cable | 2 Ethernet cables, 3m |
| Cable | ISDN cable, 3m |
| Power supply unit | External power adapter (230 V), NEST 12 V/1.5 A DC/S, coaxial power connector 2.1/5.5 mm bayonet, temperature range from -5 to +45° C, LANCOM item no. 110723 (EU)/LANCOM item no 110829 (UK) |
| Support | |
| Warranty | 3 years Support via Hotline and Internet KnowledgeBase |
| Software updates | Regular free updates (LCOS operating system and LANCOM Management System) via Internet |
| Options | |
| VPN | LANCOM VPN-25 Option (25 channels), item no. 60083 |
| LANCOM Content Filter | LANCOM Content Filter +10 user, 1 year subscription |
| LANCOM Content Filter | LANCOM Content Filter +25 user, 1 year subscription |
| LANCOM Content Filter | LANCOM Content Filter +100 user, 1 year subscription |
| LANCOM Content Filter | LANCOM Content Filter +10 user, 3 year subscription |
| LANCOM Content Filter | LANCOM Content Filter +25 user, 3 year subscription |
| LANCOM Content Filter | LANCOM Content Filter +100 user, 3 year subscription |
| Advance Replacement | LANCOM Next Business Day Service Extension CPE, item no. 61411 |
| Warranty Extension | LANCOM 2-Year Warranty Extension CPE, item no. 61414 |
| Public Spot | LANCOM Public Spot Option (authentication and accounting software for hotspots, incl. Voucher printing through Standard PC printer), Item no. 60642. |
| Fax Gateway | LANCOM Fax Gateway Option activates 'hardfax' within the router. Supports 2 parallel fax channels with LANCAPI ('fax group 3' without use of CAPI Faxmodem), item no. 61425 |
| Accessories | |
| 1000Base-SX SFP module | LANCOM SFP-SX-LC1, item no. 61556 |
| 1000Base-LX SFP module | LANCOM SFP-LX-LC1, item no. 61557 |
| Documentation | LANCOM LCOS Reference Manual (EN) online at http://www.lancom-systems.eu/publikationen/ |
| 19" Rack Mount | 19" Rackmount-Adapter, Art.-Nr. 61501 |
| Analog modem backup/serial adapter | LANCOM Serial Adapter Kit, item no. 61500 |
| VPN Client Software | LANCOM Advanced VPN Client for Windows XP, Windows Vista, Windows 7, single license, item no. 61600 |
| VPN Client Software | LANCOM Advanced VPN Client for Windows XP, Windows Vista, Windows 7, 10 licenses, item no. 61601 |
| VPN Client Software | LANCOM Advanced VPN Client for Windows XP, Windows Vista, Windows 7, 25 licenses, item no. 61602 |
| VPN Client Software | LANCOM Advanced VPN Client for Mac OS X (10.5 Intel only, 10.6 or higher), single license, item no. 61606 |

| Accessories | |
|---------------------|--|
| VPN Client Software | LANCOM Advanced VPN Client for Mac OS X (10.5 Intel only, 10.6 or higher), 10 licenses, item no. 61607 |
| Item numbers | |
| LANCOM 1781EF (EU) | 62018 |
| LANCOM 1781EF (UK) | 62019 |

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