

Industrial Security Router / Firewall

IE-SR-2GT-LAN IE-SR-2GT-UMTS/3G



Manual

Version 1.2.4 September 2013

Important notes:

This document continously will be updated and completed step-by-step.

This version refers to Router firmware version 2.3.1 and above.

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- 1. Open http://www.weidmueller.com/IE
- 2. Select section "Industrial Ethernet" → "Documents"
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Industrial Security Router / Firewall IE-SR-2GT-LAN IE-SR-2GT-UMTS/3G

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Contact Information

Weidmüller Interface GmbH & Co. KG PO box 3030 32760 Detmold Klingenbergstrasse 16 32758 Detmold Germany

Phone +49 (0) 5231 14-0 Fax +49 (0) 5231 14-2083 E-Mail info@weidmueller.com Internet www.weidmueller.com



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|---------|---|
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Proper and intended usage

The Router is intended for use in industrial (IP20) environments. It is equipped with Ethernet interface ports and is used solely for connecting components within a network.

By connecting network components, the Router enables network nodes to exchange data. The Router also allows an industrial IP network to access the Internet via an external DSL modem (via PPPoE). The Router is responsible for routing IP packets between an industrial network and an external network (such as the Internet). Internet access is automatically activated when needed. The Router can be configured on-site using an IP network on both Ethernet ports (LAN or WAN).

The Router has implemented extensive security standards to enable different networks to work together smoothly

Additionally VPN (virtual private network) connections can be used to connect the Router as a VPN-Client or a VPN-Server with other VPN devices.

2. Package Checklist

Models IE-SR-2GT-LAN and IE-SR-2GT-UMTS/3G

- 1 x Industrial Security Router (IE-SR-2GT-LAN or IE-SR-2GT-UMTS/3G)
- 1 x 3-pin connector for power supply
- 2 x 4-pin connectors for special digital inputs and output signals (Alarm, CUT, VPN)
- 1 x Ethernet cable (Length 1 m, Color red)
- 1 x Hardware Installation Guide

Additional for model IE-SR-2GT-UMTS/3G (with an additional 3G modem)

1 x antenna for mobile connection

If any of these items are missing or damaged, please contact your customer service representative for assistance.

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3. Safety instructions

| Warning |
|--|
| - Using the selected device for purposes other than those specified or failure to observe the operating instructions and warning notes can lead to serious malfunctions that may result in personal injury or damage to property. |
| - If this product malfunctions, it is no longer possible to predict the behaviour of neighbouring networked facilities and their connected devices. Personal injury and property damage can occur as a result of malfunctions. Only carry out changes to the settings when you are certain of the consequences such changes will have on all connected networks, facilities and devices. |
| - Personal injury and property damage can occur as a result if this product is used improperly. Adjustments and setting changes to this product should only be carried out by sufficiently qualified personnel. |
| Caution |
| - This device is designed only for an operating voltage range from 7 to 36 V DC. Do not use a higher voltage; this could destroy the Router and other devices. |
| - The Security Router does not have an on/off switch. The operating voltage must be switched on by the facility in which the device is integrated. |

| Caution |
|--|
| You should activate and synchronise the time server or set the system time manu- ally if you are using certificates in virtual private networks (VPNs) or simple network management protocol (SNMP). An inaccuracy in the system time can cause the virtual private network (VPN) to malfunction. |
| You should synchronise the system time with a time server after each Router re- boot and after you load the default settings. Or you can set the system time manu- ally. |
| Caution |
| - The default system access information for the Security Router is included in this document. Unauthorized individuals can use this access data to gain access to the Router's web browser and cause damage. Be sure to change these system default access settings. |
| - Some services may be blocked by a firewall. You may need to deactivate the firewall. By deactivating the firewall, the PC is no longer protected against viruses or other attacks. Only deactivate the firewall when your PC is sufficiently protected by other measures. |
| - A single port can only properly execute one service. If multiple services are as- signed to a port, the port can no longer execute any service. Be sure to assign only one service to any port. |



| Note |
|---|
| - The IP protocol reserves certain IP address ranges for special purposes (such as multicasting). Do not assign IP addresses in the range from 127.0.0.0 – 127.255.255.255 or 224.0.0.0 – 255.255.255.255. |
| - This device is intended for use in applications as described in the operating in- structions only. Using this device in non-approved applications will lead immedi- ately to the expiration of all guarantee and warranty claims on the part of the op- erator against the manufacturer. |

4. Mounting the device

| Caution |
|---|
| - This device is designed only for a operating voltage range from +7 to 36 VDC. Do not use a higher voltage; this could destroy the Router and other devices. |
| - Connecting plugs should never be connected or disconnected from electrical devices if they are carrying a live load. Be sure to first disconnect all poles of the plug. Remember to disconnect all plugs from the Router before it is installed or removed. |
| - Electrical devices should not be installed or removed during operations. Never install or remove the Router while it is running. |

| Caution |
|--|
| - It is important to provide sufficient clearance between devices which cause strong electromagnetic interference (such as frequency converters, transformers or motor regulators). The clearance gap between such devices and the Router should be as wide as possible. The Router can be further shielded by using a mu-metal partition. |
| - The Router is designed to be mounted on a top-hat rail that is compliant with the EN 50022 standard. This Router will not have a secure mount if any other type of rail is used. Use a top-hat rail that complies with the EN 50022 standard. Be sure to observe the mounting information provided by the manufacturer. |

| Note |
|---|
| - A minimum of 2 inch (5 cm) gap should be kept between the Router and neighbouring devices from the top and bottom. This will ensure that the Router is sufficiently ventilated and prevent induction from developing. |
| - The top-hat rail should be located in a horizontal position along the vertical rear wall of the electrical cabinet. This ensures that the Router can be adequately venti- lated from below to above. |



DIN-rail mounting:

Insert the top of the DIN-rail clip behind the upper edge of the DINrail (1). Then open the latch at bottom of the device by using a flatbladed screwdriver and fix the device on the DIN-rail by gently pressing on the bottom (2).

To remove the Router from the DIN-Rail, simply reverse the steps as described above.



5. Technical data

| Operation mode | |
|--------------------|--|
| IP-Router | Static or dynamic routing according to RIPv2 or OSPF protocol |
| Transparent Bridge | 2-Port-Switch with additional Layer-2 fil- ter |
| Network Services | DHCP Server / DHCP Relay DNS-Relay NTP-Client DynDNS (DHCP-Client nach RFC 2136) |
| Firewall | IPv4 Stateful inspection Firewall NAT-Masquerading, 1:1 NAT, Portforwarding Layer-2/3-Filter (VLAN ID, VLAN QoS Tag, MAC adddress based, Ethertype Frame) "Auto-Learning"-function to create new packet filter rules (Analysis of the net- work traffic) Layer 2/3 packet priorizitation (Ethernet Frame, IP Header, VLAN Tag) |
| VPN | |

| OpenVPN | Configurable as OpenVPN server or client (Layer 2 and Layer 3) Authentication with X.509 Certificates Tunnel support via HTTP-Proxy A maximum of 10 different server configurations Unlimited number of client connections in server mode |
|---------|---|

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| | Can be configured as an IPsec server or client |
|-------|--|
| | Authentication with PSK (user ID, pass- word) or X.509 certificates |
| IPsec | Hardware encryption for faster data flow rate |
| | A maximum of 64 simultaneous connec- |
| | tions (subnet with subnet or as IPsec server) |
| | Encryption algorithms DES-56, 3DES- 168, AES 128, AES 192, AES-256 |

| Other features | |
|----------------|--|
| Modbus/TCP | The Modbus/TCP interface enables the control of the Router by a PLC. Following functions are imaged in the registers: Cut & Alarm, status request & acknowledgment IPsec, on/off switchable generally OpenVPN, separate status request and activation / deactivation of the 10 possible OpenVPN connections |
| Diagnosis | "Remote Capture"- feature for network diagnostics via a connected PC (Wire- shark) |
| Monitoring | Client monitoring via ICMP protocol (ping request) with alarm function in case of er- ror |

| Interfaces | |
|-----------------|---|
| RJ45-Ports | • 2 * 10/100/1000BaseT(X) |
| USB-Port | option for future expansion |
| SCM card Reader | Save and restore the configuration using a smart card (SIM card without mobile provider data, only the storage capacity of the chip will be used) |
| LED display | Signaling the status for power, device status, Cut, Alarm, active VPN connec- tion and an active 3G connection |
| Digital Outputs | "Alarm" -> Indicates a configurable net- work status or error (24V out) |

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| | "VPN-active" -> Indicates an active VPN connection (24 V out) |
|----------------|---|
| Digital Inputs | "Cut" -> Disconnects physically (link down) the WAN port (24 V In) "VPN-initiate" -> Enables a pre-configured VPN connection (24 V In) |
| Reset-Button | Restore to the factory settings |

| Power | |
|---------------------|-----------------------------|
| Input Voltage | • 1* 24 VDC (7 bis 36 Volt) |
| Current consumption | • max. 600mA @ 24 VDC |

| Technical data (housing) | |
|-----------------------------------|--|
| Housing | Metal, protection IP20 |
| Dimensions (width, height, depth) | 35 * 159 * 134 mm (without antenna) 35 * 255 * 134 mm (with 3G antenna) |
| Mounting | TS35 (DIN rail) |

| Environmental conditions | |
|--------------------------|-------------------------------------|
| Operating Temperature | -20°C to +70°C |
| Storage Temperature | -20°C to + 85°C |
| Ambient Humidity | • 6 to 90% noncondensing |

| DSL and 3G/HSDPA | |
|---|--|
| DSL | DSL Internet access by connecting an external DSL modem via LAN or WAN port Free configuration of the PPPoE login |
| DynDNS | Support for automatic registration |
| UMTS/3G (Only model IE-SR-2GT-UMTS/3G) | Built-in quad-band 3G / HSPA modem 21.1 Mbps peak downlink 5.8 Mbps peak uplink GSM, GPRS, EDGE: 850 MHz, 900 MHz, 1800 MHz, 1900 MHz UMTS, WCDMA, HSDPA, HSUPA: 850 MHz, 900 MHz, 1900 MHz, 2100 MHz FCC, CE, FCC, IC, NCC, PTCRB, Bell, AT&T |

| Approvals | |
|-----------|--|
| Security | • cULus (UL508) |
| EMC | FCC Part 15 Class A, EN 55022 Class A EN61000-4-2 (ESD) EN61000-4-3 (RS), EN61000-4-4 (EFT) EN61000-4-5 (Surge) EN61000-4-6 (CS) |

| Shock | • DIN EN 60068-2-29 |
|-----------|---------------------|
| Vibration | • DIN EN 60068-2-6 |

| Warranty | |
|----------------|---------|
| Period of time | 3 years |

| Order data | Model name / Order number |
|--|--|
| LAN/WAN Router | IE-SR-2GT-LAN / 1345270000 |
| LAN / WAN Router with integrated modem UMTS/3G | • IE-SR-2GT-UMTS/3G / 1345250000 |

6. Hardware related functional descriptions

| | Weidmüller 32 |
|---|----------------|
| 1 | PWR • • Status |
| I | VPN O UMTS/ |
| | |
| | |
| I | |
| | |
| | N write D |
| | |
| l | 3 |
| | Router |
| 4 | 24 V GND PE |

| Description of LED status indicators | | | |
|--------------------------------------|-----------------------|---|--|
| | | | |
| LED | Signal | Meaning | |
| PWR | off | The device is not powered | |
| | Flashing green | Device is turned on, the boot process is running | |
| | green | Device is turned on and ready to run | |
| Status | off | The device is not powered | |
| | red | Error after boot process or recovering an image | |
| Cut | off | CUT Input is not powered | |
| | red | A Cut event is triggered. LED lights up and the WAN port is disabled | |
| Alarm | off | No Alarm | |
| | red | An Alarm event is triggered | |
| VPN active | off | No activated VPN tunnel. | |
| | green | Active VPN tunnel (triggered by external VPN key) | |
| Only model | IE-SR-2GT- UMTS/3G | | |
| 3G (UMTS) | off | No active GSM / 3G / UMTS connection | |
| | Flashing yellow | Searching wireless network | |
| | yellow | Connected to a network provider but no active data connection (Offline) | |
| | Flashing green | Connected to a network provider. Router activates the connection on data flow (Standby) | |







Description of device interfaces at rear side

SCM slot / socket SIM memory card reader for external backup and restore of the Router configuration

3G slot / socket Slot for mobile SIM card (only 3G/UMTS model)



Connector for UMTS / 3G antenna of type SMA female



Any external antenna can be used which is compliant to following parameters:

Diversity Support: 900/1900/2100 MHz

Antenna Connector:50 Ohm compatible

Pin assignment of power supply connector

Note: Allowed input voltage range from 7 to 36 VDC (24 VDC typical)

| Pin number | SIGNAL NAME |
|------------|-------------|
| 1 | 24V DC |
| 2 | GND |
| 3 | PE |



Pin assignment of RJ45 Ethernet ports (LAN and WAN)

| Pin number | SIGNAL NAME (MDI) | | |
|------------|-------------------|------------|--|
| | 10/100Base T(x) | 1000Base T | |
| 1 | TX + | BI_DA+ | |
| 2 | TX - | BI_DA- | |
| 3 | RX + | BI_DB+ | |
| 4 | NC | BI_DC+ | |
| 5 | NC | BI_DC- | |
| 6 | RX - | BI_DB- | |
| 7 | NC | BI_DD+- | |
| 8 | NC | BI_DD- | |



Pin assignment of 4-pin connector for "VPN initiate" and "VPN active"

| Pin number | SIGNAL NAME |
|------------|------------------------|
| 1 | 24V DC (VCC) |
| 2 | Initiate VPN (24 V In) |
| 3 | VPN active (24 V Out) |
| 4 | GND |



Pin assignment of 4-pin connector for "Cut WAN port" and "Signalize Alarm"

| Pin number | SIGNAL NAME |
|------------|--------------------------------------|
| 1 | 24V DC (VCC) |
| 2 | Cut (Disabling WAN-Port, 24 V In) |
| 3 | Signalize Alarm (24 V Out) |
| 4 | GND |





Pin assignment of USB 2.0 connector

The USB interface is intended for connecting peripheral devices (USB 2.0). The connector is without function in the current firmware version, but is optional for future planned applications.

| Pin number | SIGNAL NAME |
|------------|-------------|
| 1 | VDC |
| 2 | D - |
| 3 | D+ |
| 4 | GND |



Pin assignment of Smartcard Reader (ISO 7816 Standard)

The integrated SIM card reader is intended for saving and restoring the configuration data.

| Pin number | SIGNAL NAME | | |
|------------|-------------|-------|-------------|
| 1 | VCC 5 Volt | | |
| 2 | RESET | | \square |
| 3 | CLOCK | | MAR 1 |
| 4 | n/c | | |
| 5 | GND | 3 7 7 | Charles (V) |
| 6 | n/c | 4 8 | |
| 7 | I/O | | |
| 8 | n/c | | |

7. Initial start-up / Getting Started

Configuration of the Router by using an Internet browser

| Note |
|---|
| The configuration of the device can be done either via LAN or WAN RJ45 ports. |

Connect the unit to a 24V DC (3-pin plug) power source. The corresponding plug is included.

During the initial boot phase, the PWR LED is flashing. The Router is ready when the PWR LED is lit constantly (after about 30 seconds).

Connect the Router to the Ethernet interface of a configuration PC using a RJ45 network cable.

It is possible to use a standard Ethernet patch cable or a crossed network cable. By default both Ethernet ports are configured with autonegotiation.



The configuration and control of the Router is to done via the integrated Web server. Any Internet browser (Microsoft Internet Explorer or Mozilla Firefox) can be used.

When delivered, the Web interface of the Router can be achieved from both LAN and WAN port.

To access the Web interface of the Router the IP address of the connected PC has to be in the same logical network (IP address range) as the Router.

The default IP addresses and net masks of the Router are:

| LAN port : | 192.168.1.110 | / | 255.255.255.0 |
|------------|---------------|---|---------------|
| WAN port : | 192.168.2.110 | / | 255.255.255.0 |

Starting the Web interface

| | Important note | | | |
|---|---|--|--|--|
| | The Router's Web server partly is using <u>Java script</u> for parameter settings (e.g. if you want to apply or deleting a configured Open VPN session). | | | |
| | Please ensure that the Web browser your a using is allowed to run <u>Java script</u> . For Router configuration you do NOT need to install Java runtime software (for executable <u>Java applets</u>) because only Java script will be used. Standard Web browsers by default are able to run <u>Java script</u> code. | | | |
| | If some "Apply" buttons are not working (seems to be without function) and if you are using Internet Explorer 10 please verify that you are using <u>Bowser Mode IE10</u> to ensure that Java script is running properly. To validate the browser mode press key F12 and activate – if not set – mode <u>Internet Explorer 10</u> as shown in the screenshot below. | | | |
| 0 | C Set http://172361254/pm/pm/pm/pm/pm/pm/pm/pm/pm/pm/pm/pm/pm/ | | | |
| | IE-SR-2GT-UMTS/3G Configuration VEN1 VPN2 VPN3 VPN4 VPN5 VPN6 VPN7 Diagnostics VEN1 VEN2 VEN3 VEN4 VEN5 VEN6 VEN7 | | | |
| | | | | |
| | SecureIxouf Basic settings Packet filer | | | |
| | Cut & Alarm Enable VPN instance: ☑ Interface mode: Server ☑ ⑦ | | | |
| | ▶ Access control Permanent connection: ☑ ⑨ ▶ Network Layer: Layer? ☑ ⑨ | | | |
| | | | | |
| | IPsec Certificate: Server_RNetwork_cl.pem 🗸 🎯 | | | |
| | Services Crient computation and autoentucation: Prioritzation First IP address track The services | | | |
| | ▶ System Lists IP address of pool: 172.16.1.210 | | | |
| | File Find Disable View Images Cache Tools Va date Browser Mode: IEI0 Document Mode: Standards HTIML CSS Console Script Profiler Network ✓ Internet Explorer 10 | | | |
| | Image: State of the s | | | |
| | B - chtal> Internet Explore 8 Internet Explore 8 | | | |
| | | | | |
| | | | | |

Start your Web browser and enter the IP address of the connected Router port into the browser's address line.

| Weidmuller 🜫 | Weid | müller | Æ |
|--------------|------|--------|---|
|--------------|------|--------|---|

| 🖉 Blank Page - Windows Internet Explorer | | |
|--|---|----------|
| International States (198) | × | →× |
| <u>File E</u> dit <u>V</u> iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp | | |
| 🖕 Favorites 🖉 Blank Page | | <u>.</u> |
| | | |

Now the login prompt of the Router should appear for input "User name" and "Password".

Default values (factory settings) for Login:

User name : admin Password : Detmold

Confirm your input by pressing the OK button.

| Verbindung zu | 192.168.0.100 herstellen 🛛 🛛 |
|---------------|------------------------------|
| | GK |
| Benutzername: | 🛿 admin 💌 |
| Kennworc: | Kennwort speichern |
| | OK Abbrechen |

 Note

 If the login prompt does not appear, please check the network LED's, if the devices are connected to the network correctly. If problems still persist, please check the proxy and firewall settings of the local PC

Now the Router homepage is displayed. This page corresponds to the menu item "Diagnostic System \rightarrow Status." On this page the most important configuration and status informations are summarized.

Note: Some fields are linked with a hyperlink to jump directly into the corresponding menu item.

| avorites Avorites | -UMTS/3G-AX00687399 - System State > | | | | | Live Search | |
|-----------------------|--|--|-------------------|----------------|-------------------------------|--------------------------|------------|
| Weidmülle IE-SR-2G | er Router Configura T-UMTS/3G | ation | | | | Wei | dmüller |
| SR-2GT-UMTS/3G | System data | | System | etata | | | |
| System State | System name: | IE-SR-2GTJ IMTS/3G-4X00687399 | Date & tin | 51410 | Monday, 03 Jan 2000, 19 | 35/Europe/Berlin) | |
| Eventlog | Device type: | IE-SR-2GT-IMTS/3G | Untime: | ie. | 19:35:04 up 31 min. load | average: 0.08.0.01.0.0 | 10 |
| WAN | Serial-No : | AV00687399 | optime. | | to solve up of min, roud | average: 0.00, 0.01, 0.0 | |
| LAN | Einningen | 2 2 2 (Ruild 64020) | OpenVPN | sessions: | wasters: active U, listenin | ig u, clients: u | |
| 3G | Firmware version: | 2.2.3 (Build 61039) | IPsec tuni | nels: | 0 | | |
| Ping test | MAC-Address WAN: | 00:18:92:01:DF:78 | C | | | | |
| Remote capture | MAC-Address LAN: | 00:18:92:01:DF:77 | System | usage | 199/ | Correction | |
| Configuration | Device mode: | IP router | Momony: | | 22% | Screensi | 10t Of |
| System | | | opu. | | 2370 | the Login | page |
| Information | | | CPU: | | 1% | Ŭ | |
| | Network statistic | | Interface | e state | | | |
| User: admin 🗄 | Interface: | | Interface | State | IP/Netmask | IP Assignment | DHCP Serve |
| | WAN Receive | 1000 Mb /s | WAN | enabled | 192.168.2.110 / 255.255.255.0 | static | disabled |
| | | 108 P6b /s | LAN | enabled | 192.168.1.110 / 255.255.255.0 | static | disabled |
| | | 10 kb /s | 3G | disabled | | | |
| | WAN Transmit | 1000 Mb /s | | | | | |
| | | 1 Hib /s | | | | | |
| | | 10 kb /s | | | | | |
| | I | | I. | | | | |
| | Latest five messages | | | | | | |
| | Eventiog | ITE AV00697200 config db: 'l onguege' = 'en' | | | | | |
| | Jan 3 19:15:54 IE-SR-2GT-0W | ITS AV00007395 coning.db. Language – en | Inducial frame as | une et Strek i | ato da o o' | | |
| | Jan 3 19:02:41 IE SR 201-01 | TS AV00607399 coning.db. Settings change by. | aumin, irom se | urce. web i | ntenace | | |
| | an 3 19:03:41 IE-SR-2G1-0W | ITS AV00687399 statusd. Inselted Card Carnot b | 3 SV/N D6100 E | 61039 | tom roadul | | |
| | lan 3 19:03:33 IE SD 2CT UN | TS AV00687399 adeded: Starting docmon for at | bornet connecti | -01035, SYS | nem ready: | | |
| | Outotional Control Con | ausopo, organization for eti | nemet connecti | una | | | Telead |
| | Quicklinks: Se | curenow: | | | | | reioad |



8. Reset to factory default settings by external push button

By pressing the push button "Factory Default" the security Router can be reset at any time and regardless of the configuration to the default settings (factory settings).

How to set the factory settings:

- 1. Power off the Router
- 2. Press the button "Factory Default" and keep it hold down
- 3. Power on the Router and keeping button "Factory Default" pressed while Router is booting
- 4. Release button "Factory Default" when Power LED starts flashing fast (around 10 seconds after power on)
- 5. Wait until Power LED is glowing constantly green

\rightarrow Now the Router is ready to run with factory default settings.

Default factory settings of the Router:

| Language: | Englisch user interface |
|---------------------------------|--|
| Operation mode : | IP Router |
| IP address LAN port: | 192.168.1.110 (static value) |
| Subnet mask: | 255.255.255.0 |
| NAT (Masquerading) on LAN port: | Not activated |
| IP address WAN port: | 192.168.2.110 (static value) |
| Subnet mask: | 255.255.255.0 |
| NAT (Masquerading) on WAN port: | Not activated |
| Default gateway: | No entry |
| DNS: | DNS relay not activated |
| Firewall (Packet filter): | By default, data traffic in both directions between LAN and WAN is allowed on both level Layer 2 and Layer 3. For that the packet filter contains two default rules, called "Allow_L2" and "Allow_L3" (allow traffic at Layer 2 and 3) which allows as "white lists" all network traffic. |

| IP routing | \rightarrow No static routes |
|------------|---|
| | \rightarrow Dynamic routing (OSPE RIP) disabled |

| SNMP / DHCP / DNS | Disabled |
|---------------------|----------|
| VPN: | Disabled |
| Data prioritization | Disabled |

| Only model IE-SR-2GT-UMTS/3G | |
|------------------------------|----------|
| 3G Modem | Disabled |



9. Using the Weidmüller Router-Search-Utility

The software tool Weidmüller Router- Search-Utility can be used to find Weidmüller Routers and detect theirs IP addresses within a switched network. This software is very helpful if you don't know the current IP address of a Router. This can e.g. happen in cases that you have forgotten the current IP configuration or you have lost the Router access in case of configuring an unintended IP address. The main features of the software are

- → Detecting a Router and displaying parameters like Device name, MAC address and IP address with Subnet mask
- → Change the IP address of a detected Router
- \rightarrow Open the web interface of a detected Router

| We | Weidmüller Router Search Utility 🛛 🔯 | | | | | | | | |
|----|---|---------------------------------------|------------------|------------------------|------------------------|-----------------------------|----------------------------------|--|--|
| F | Router Search Utility Weidmüller 3 | | | | | | | | |
| | Utility to detect Weidmüller Routers connected to PC's LAN network. Version 2.01 / Buil Search Router Change IP address | | | | | | | | |
| | IP address | Subnet mask | MAC address | Serial number | Device name | Location | Firmware | | |
| | 192.168.1.110 | 255.255.255.0 | 00157EFE010A | AX00911135 | IE-SR-2GT-UMTS | Buero_PN48 | 2.3.0 | | |
| | 192.168.1.114 | 255.255.255.0 | 00189201E0AD | AX00711578 | Router AX00711578 | | 2.3.1 | | |
| (| PC network inter LAN-Verbindung: Information | face to communi 192.168.1.99 / 255 | cate with Router | : rk adapter 'Broad | dcom NetXtreme Gigabit | Ethernet Driver' on local 👻 | Refresh Network Interfaces | | |

You may download the <u>Weidmüller Router-Search-Utility</u> from the Weidmüller web site using the following path:

- 1. Open www.weidmueller.com/IE
- 2. Select section "Industrial Ethernet" → "Software"
- 3. Select category "Additional Software (Configuration utilities, Drivers and MIB-files)"
- 4. Select category "Industrial Security Router (IE-SR-2GT-LAN, ...3G/UMTS)"
- 5. Download "Weidmueller_Router_Search_Utility.zip"

Alternatively you can download this software from this web page:

- 1. Open www.weidmueller.com
- 2. Select Downloads
- 3. Select Software
- 4. Select Industrial Ethernet
- 5. Download from section Industrial Security Router (Firmware and Software for IE-SR-2GT-LAN/3G/UMTS)



10. Basic description of the configuration interface (menu items)

The menu structure of the web Interface is divided into 4 main sections:

Section Diagnostics

- Displays system status data
- Display of logging information
- Displays current interface parameters (LAN/WAN/3G)
- Feature for testing the data communication between the Router and other Ethernet devices (Ping test)

Section Configuration

- Setting of operation mode (eg "IP Router") and basic network parameters (IP addresses, Default gateway)
- Setting of firewall rules (Packet filter and an additional auto learning feature called "SecureNow" to assist the creation of packet filtering rules)
- Configuration of general system data (name, location, contact person, date / time, language interface, etc.)
- Certificate Management for VPN connections
- User administration (assignment of rights)
- IP-Routing (static, dynamic) and IP address management (Masquerading, 1:1 NAT, Portforwarding)
- Configuration of VPN connections (OpenVPN, IPsec)
- ► Configuration of general network services (e.g. DHCP, DBS, SNMP)
- Prioritization of network traffic (Layer-2 and Layer-3 level)

Section System

Backup and restore of device configuration, Update firmware, Reboot)

Section Informations

• Display of technical data and hardware information (eg serial number and MAC address)



11. Explanation of the menu items of web interface in chronological order

| ⁷ Diagnostics | System data | | System s | tate | | | |
|--------------------------|--|---|--------------------------|-----------|------------------------------------|--|-------------|
| System State | System name: | IE-SR-2GT-UMTS/3G-AX00711578 | Date & time | | Friday, 08 Mar 2013, 07:14(Euro | pe/Berlin) | |
| Eventlog | Device type: | IE-SR-2GT-UMTS/3G | Uptime: | | 07:14:41 up 0 min, load average | 0.46, 0 10, 0.03 | |
| WAN | Serial-No. | AX00711578 | OpenVPN s | essions; | Masters: active 0, listening 0, CI | ents 0 | |
| LAN | Firmware version: | 2.3.0 (Build 63904) | IPsec tunne | la: | 0 | | |
| 30 | MAC-Address WAN | 00 18 92 01 E0 AF | | | | | |
| Ping test | MAC-Address LAN: | 00 18 92 01 E0 AD | System u | sage | | | |
| Remote capture | Device mode: | IP router | Flash | 1007.1 | 19% | | |
| Configuration | | | Memory. | | 22% | | |
| System | | | CPU: | | 56% | | |
| Information | | | | | | | |
| | Network statistic | | Interface | state | | 12-12-12-12-12-12-12-12-12-12-12-12-12-1 | |
| user aprici (g | Interface: WAN . | | Interface | State | IP/Network mask | IP Assignment | DHCP Server |
| | WAN Receive | | TYPAN | enabled | 192.100.2.110/200.200.200.0 | static | disabled |
| | 1964 | | 30 | disabled | 192,160,1,1107,255,255,255,0 | STADC | drsabled |
| | | | 30 | UIS-EDIPU | | | |
| | WAN transmit seemay | | | | | | |
| | 1.00.0 | | | | | | |
| | | | | | | | |
| | Latest five messages | | | | | | |
| | Mar 8 07:14:35 IE-SR-2GT-UMTS-AX00711578 | system: IE-SR-2GT-UMTS 2.3.0 SVN-R8095.B-639/ | 04. system ready! | | | | |
| | Mar 8 07:14:33 IE-SR-2GT-UMTS-AX00711578 | statusd: SCM memory card insertion detected! | | | | | |
| | Mar 8 07 14:28 IE-SR-2GT-UMTS-AX00711578 | adsdpd: Starting daemon for ethemet connections | | | | | |
| | Mar 8 07:14:21 IE-SR-2GT-UMTS-AX00711578 : | system: successfully reset SIM card config to firmwar | re version: 2.3.0 defaul | ts | | | |
| | | | | | | | |

Startup screen of the web interface after login. Displays current configuration and status data.

🦝 « 12-эк-2/ат-онттэ) э/а-млоовол эмм - Evendoy » Weidmüller 🏵 Weidmüller Router Configuration IE-SR-2GT-UMTS/3G IE-SR-2GT-UMTS/3G State Configuration System State Eventlog Eventiog Jan 3 19:15:54 IE-SR-2GT-UMIS-AX00687399 config.db: 'Language' = 'en' Jan 3 19:15:54 IE-SR-2GT-UMIS-AX00687399 config.db: Settings change by: 'admin', from source: 'web interface' Jan 3 19:03:41 IE-SR-2GT-UMIS-AX00687399 statued: Inserted card cannot be read! Jan 3 19:03:40 IE-SR-2GT-UMIS-AX00687399 system: IE-SR-2GT-UMIS 2.2.3 SVN-R61039.B-61039, system ready! Jan 3 19:03:33 IE-SR-2GT-UMIS-AX00687399 adsdpd: Starting daemon for ethernet connections WAN ۸ LAN 3G Ping test Remote capture Configuration System Information User: admin 📑 ▼ ▶ • Clear Reload Figure 2: Diagnostics \rightarrow Eventlog \rightarrow Tab State Display events and error messages that have occurred.



| -SR-2GT-UMTS/3G | State Configuratio | on |
|--------------------------|----------------------------|-------------------------------|
| ⁷ Diagnostics | | |
| System State | Evention | |
| Eventlog | Lyendog | |
| WAN | Enable remote system: | |
| LAN | Endore remote systog. | |
| 3G | Address of syslog server: | example-syslogserver.intranet |
| Ping test | UDP port of syslog server: | 514 |
| Remote capture | | |
| Configuration | Enable syslog to e-mail: | |
| System | E-mail server: | example-emailserver intranet |
| Information | E-mail address: | admin@example.intranet |
| | Line threshold: | 20 |
| | Apply settings Res | set changes |

| Weidmüller | Router Configurat | Weidmüller 🏵 | | |
|---------------------------|------------------------------|-------------------|--|--|
| | | | | |
| E-SR-2GT-UMTS/3G | State | | | |
| ^{or} Diagnostics | | | | |
| System State | WAN | | | |
| Eventlog | WAIN | | | |
| WAN | MAC address of interface: | 00-18-02-01-05-78 | | |
| LAN | mac douress or interrace. | 0110.92.01.07.70 | | |
| 3G | Link: | no | | |
| Ping test | Speed: | 10Mb/s | | |
| Remote capture | Duplex: | Half | | |
| Configuration | Received packets: | 0 | | |
| ▶ System | Received dropped packets: | 0 | | |
| Information | Received overrun packets: | 0 | | |
| s morning on | Transmitted packets: | 0 | | |
| liber atmin D | Transmitted overrun packets: | 0 | | |
| oser summ La | Collisions: Reload | 0 | | |
| aure 4: Diagno | ostics \rightarrow WAN | | | |
| gale i biagin | | | | |

| IE-SR-2GT-U | UMTS/3G | | |
|------------------|------------------------------|-------------------|----|
| | | | |
| E-SR-2GT-UMTS/3G | State | | |
| Tiagnostics | | | æ. |
| System State | LAN | | |
| Eventlog | LAN | | |
| WAN | MAC address of interfaces | 00.19.02.01.05.77 | |
| LAN | mine address of interrace. | 0.10.92.01.01.77 | |
| 3G | Link: | yes | |
| Ping test | Speed: | 1000Mb/s | |
| Remote capture | Duplex: | Full | |
| Configuration | Received packets: | 1232 | |
| System | Received dropped packets: | 0 | |
| Information | Received overrun packets: | 0 | |
| | Transmitted packets: | 1078 | |
| User, admin 🛱 | Transmitted overrun packets: | 0 | |
| | Collisions: | 0 | |
| | Reload | | |
| | | | |
| aure 5: Diaan | ostics → LAN | | |



| ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← | 10/pni/phi/php?id=UMTSST/ jde - Sigherheit - Eques - Router Config JMTS/3G | אונג | | ₩eidmüller Э |
|---|---|---|--|--------------|
| To Diagnostics | State | | | |
| Eventlog | 3G state | | | |
| WAN LAN 3G Ping test | State: Registration state: Active network provider | online Registered to home network ② "Vodafone.de" | Screenshot of a 3G-Router with inserted SIM Card. | |
| Remote capture Configuration System Information | Signal quality: Network mode: | aff -93 dBm 3G (WCDMA) | The Router is connected to the Internet by provider Vodafone. | |
| User: admin 📑 | IP Information: Local IP: Remote IP: | 172.20.109.1 10.64.64.65 | | |
| | PPP statistics: ⑦ | IN PACK VJCOMP VJUNC VJER 205 14 0 0 0 OUT PACK VJCOMP VJUNC NON-1 353 15 0 0 15 Disconnect | R V) | |
| Figure 6: Dia | agnostics | → 3G | | I |
| Displays the | current st | tatus of the 3G mobile of | connection. | |

| e « IE-SR-2GT-UMTS/3G-AX00 | 87399 - Ping test » - Windows Internet Explorer | | _ 8 × |
|-------------------------------|---|------------------------------|---------------|
| 🗿 🕘 🔻 🙋 http://192.168.1 | .110/priv/priv.php?id=PINGTEST | 💌 🗟 😝 🗙 🧗 Live Search | · 9 |
| 🍃 Favorites 🛛 🄏 « IE-SR-2GT-U | ITS/3G-AX00687399 - Ping test > | | |
| Weidmüller IE-SR-2GT- | Router Configuration UMTS/3G | Weid | lmüller ≆ |
| IE-SR-2GT-UMTS/3G | State | | |
| Diagnostics ■ | | | |
| System State | Ping test | | |
| Eventlog | | | |
| WAN | IP address or hostname: | | |
| 3G | Number of ping messages: | | |
| Ping test | | | |
| Remote capture | Apply settings Reset changes | | |
| Configuration | | | |
| System | | | |
| Information | | | |
| User: admin 💽 | | | |
| igure 7: Diagr | ostics \rightarrow Ping-Test | | |
| llows sending evices. | of ICMP packets (ping) to test network connecti | ons between the Router and o | ther Ethernet |

| Weidmüll | er Router Config | ration | | Weidmüller 32 |
|------------------|---------------------------|--------------------|-------------------------------|---------------------|
| 🖞 IE-SR-2G | T-UMTS/3G | | | |
| | | | | |
| SR-2GT-UMTS/3G 📕 | Configuration | | | |
| Diagnostics | Conngulation | | | |
| System State | Remote capture | | | |
| Eventiog | | | | |
| WAN | Enable remote canture | erver: | | |
| LAN | Client address: | 0 | | |
| 3G | Verbose logging: | | | |
| Ping test | | | | |
| Remote capture | Apply settings | eset changes | | |
| Configuration | | | | |
| System | | | | |
| ure 8: Diag | $nostics \rightarrow Rer$ | ote-Capture | | |
| | | | | |
| using the | "remote capt | ire" function data | a packets on both the LAN and | the WAN port of the |
| | Tornoto oupt | | | |

| Http://192.168.1.110 | //priv/priv.php?id=IPCONF | ,Ω ≠ 2 C × 🧭 «IE-SR-2GT-UMTS/3G-AX0 × | |
|----------------------|---------------------------------|---------------------------------------|--|
| r 🛐 👻 🖃 🖶 🕶 Sejti | e 🕶 Sigherheit 🕶 Extras 🕶 🔞 🕶 🚉 | | |
| | | | |
| -2GT-UMTS/3G | Configuration | | |
| ignostics | | | |
| nfiguration | IP configuration | | |
| configuration | ar configuration | | |
| cureNow! | Operational mode: | IP router 💽 🕐 | |
| acket filter | | | |
| it & Alarm | | | |
| General settings | WAN: | | |
| Access control | IP assignment: | static 💌 🕐 | |
| Network | IP address: | 192 168 2 110 | |
| VPN | Subnet mask: | 255 255 255 0 | |
| Services | NAME (No. 1997) | | |
| Phone2ation | NAT (Masquerading): | | |
| stem | LAN: | | |
| ormation | | | |
| | IP assignment: | static 💌 🕐 | |
| User: admin 📑 | IP address: | 192.168.1.110 | |
| | Subnet mask: | 255 255 255 0 | |
| | NAT (Masquerading): | | |
| | 36: | | |
| | Dialmode: | permanent 💌 🕐 | |
| | PIN: | 7553 | |
| | Provider APN: | cda.vodafone.de | |
| | Username: | m0051017@mdex.de | |
| | Password: | fw4cyknzp3 | |
| | DNS via 3G: | | |
| | NAT (Masquerading): | | |
| | Gateway via 3G: | | |
| | Default gateway: | | |
| | IP address: | 0 | |
| | | | |

Figure 9: Configuration \rightarrow IP Configuration

This is the basic configuration window of the Router for assignment of IP addresses on the LAN and WAN port. Each of the two interfaces can be configured with static or dynamic (DHCP) IP addresses. For models of type IE-SR-3GT-UMTS/3G (as shown above) additionally a section "3G" will be displayed to configure the 3G connection.



| Image: 10 100 100 100 100 100 100 100 100 100 | | | | Live Search |
|---|----------------------------------|----------------------------|--|--|
| avorites 🏾 🏀 « IE-SR-2GT-UN | MTS/3G-AX00687399 - SecureNow! » | | | |
| 🖣 Weidmüller | r Router Configu | ation | | Weidmüller 🕃 |
| E-SR-2GT- | UMTS/3G | | | |
| | | | | |
| SR-2GT-UMTS/3G 📕 | Configuration | | | |
| Diagnostics | | | | |
| Configuration | SecureNow | | | |
| IP configuration | becarertorn | | | |
| SecureNow! | | | | On this page you can start the |
| Packet filter | | | | automatic network traffic analysis. Click on the clouds to assign |
| Cut & Alarm | | | | security zones to network areas. |
| General settings | | 🤄 wan 🌛 | E LAN 3 | follows: |
| Access control | | | AND I WE | green: high security. Example: |
| P Network | | | | production network. |
| P VPN | | | | yellow: moderate security. |
| P Services | | | | Compromise between moderate security requirement and |
| P Prioritisation | | | | unrestricted data flow. Example: |
| System | | | | office network. |
| Information | | | | red: low security. The zone has |
| | | | | internet |
| User: admin 📑 | | Click on a cloud to change | security setting. | I |
| | | | | |
| | | capture mode: la | ayer 3 💌 🕐 | |
| | start analysis | | | |
| | start analysis | | | |

This is an auxiliary function for "independent learning" firewall rules based on temporary recording of data traffic. By pressing the button "Start Analysis" button the Router begins to analyze the network traffic (ports LAN, WAN and possibly UMTS/3G). As a result, the Router will provide a table showing the recorded TCP packets and protocols as well as a proposal for the setting of firewall filtering rules.



| worites 🏉 « IE-SR-2GT-L | JMT5/3G-AX00687399 - SecureNow! > | » | | |
|-------------------------|-----------------------------------|--|--|-------------------------|
| Weidmülle IE-SR-2GT | r Router Configu -UMTS/3G | iration | | Weidmüller 3 |
| SR-2GT-UMTS/3G 📕 | Configuration | | | |
| Diagnostics | · · | | | |
| Configuration | CoguraNoud | | | |
| IP configuration | Securentow | | | |
| SecureNow! | Results from: Mon Jan 3, 2 | 20:14:13 CET 2000 | | |
| Packet filter | | | | |
| Cut & Alarm | There was no network | traffic to generate rules from. | all is properly configured to bandle all existing traffic or there | was no traffic at all |
| General settings | Tranic that matches any a | cave rale is not considered for analysis. Thus, earler your thew | and sproperty configured to handle an existing drame of there | was no a ame at an. |
| Access control | Applied rules are available | at the Filter wizard page for further configuration. | | |
| Network | | | | |
| ▶ VPN | new analysis | apply rules | | |
| P Services | | | | |
| P Prioritisation | | | | |
| System | | | | |
| nformation | | | | |
| | | | | |
| User: admin 🗗 | | | | |
| - | | | l" | |

Window after exiting the network analysis with a proposed indication of firewall filtering rules. If you click the button "apply rules", the firewall will be updated with the proposed rules and immediately activated. The changes are not saved automatically, so that e.g. "wrong" filter rules can be removed by a Router restart. Then previous filter rules would be valid again.

| • | 8.1.110/priv/priv.php?id=FIL | TERCONF_L3 | | | | - 🖻 | 🔸 🗙 💐 Live Search | | P - |
|------------------------|-------------------------------------|----------------------------------|---|-------------|----------|-------|--------------------|-----------|------|
| avorites 🄏 « IE-SR-2GT | -UMTS/3G-AX00687399 - Lay | er 3 Filter » | | | | | | | |
| Weidmülle | er Router Cor I-UMTS/3G | nfigurati | ion | | | | | Weidmülle | er æ |
| -SR-2GT-UMTS/3G 📕 | Layer 3 L | ayer 2 | Status | | | | | | |
| Diagnostics | | | | | | | | | |
| Configuration | Laver 3 Filter | 2 | | | | | | | |
| IP configuration | Layer 5 Filter Q | 9 | | | | | | | |
| SecureNow! | | | | | | | | | |
| Packet filter | 1 ruleset (?) | | | | | | | | |
| Cut & Alarm | | * (1 rule) 3 traffic | | | | | | | 8 |
| General settings | Position 1 | Name 🔼 | Source | Destination | Protocol | Extra | Connection control | Action 🛸 | |
| Access control | 1 a | ilow_al | • | • | • | | automatic | ACCEPT | |
| Network | | | | | | | | | |
| ▶ VPN | | | | | | | | | |
| Services | By using the plus | s set s symbol you ca | in add new rulesets | | | | | | * |
| Prioritisation | Show rulesets only rules affecti | for following ng the selected | interfaces d network interfaces will be | displayed | | | from: * | 💌 to: * 💌 | C |
| System | | | | | | | | | |
| Information | | | | | | | | | |
| | | | | | | | | | |

Figure 13: Configuration \rightarrow Packet filter \rightarrow Tab "Layer 3"

This is the window for the manual configuration of firewall filter rules based on Layer 3 (IP layer). The screenshot shows the firewall settings as delivered with the default rule "Allow_L3*". This rule says that any IP protocol (*) and any traffic regardless the direction (source and destination=*) is allowed. The result is that - on delivery - the firewall is "open" on layer 3.

Fore more detailed information about using the packet filter please refer to Appendix A3.



| 🕽 () 🗢 🛛 🙋 http://192.168.: | .110/priv/priv.php?id= | FILTERCONF_L2 | | | | 💌 🗟 😽 🗙 ಶ Live Search | | . م |
|------------------------------|------------------------------|---|---|---------------|------------|-----------------------|----------------|-------|
| Favorites 🔏 « IE-SR-2GT-U | 4T5/3G-AX00687399 - | Layer 2 Filter » | 1 | | | | | |
| Weidmüller IE-SR-2GT- | Router C UMTS/3G | onfiguratio | 'n | | | | Weidmül | ler Œ |
| E-SR-2GT-UMTS/3G 🗟 | Layer 3 | Layer 2 | Status | | | | | |
| Diagnostics | | | | | | | | |
| Configuration | Layer 2 Filte | r 🕐 | | | | | | |
| SecureNow! | 2 rulesets (| D | | | | | | |
| Cut & Alarm | | (1 rule) ddress resolution | | | | | | 2 8 |
| General settings | Position 🔼 | Name 🔼 | Source 🔼 | Destination 🔨 | Protocol 🔨 | Extra | Action 🔼 | |
| Access control | 1 | allow_all_arp | * | 8 | ARP | | ACCEPT | |
| Network | | L2* (1 rule) | | | | | \land \lor | » 8 |
| ▶ VPN | Position 🔼 | Name 🔼 | Source 🔨 | Destination 🔼 | Protocol 🔨 | Extra | Action 🔼 | |
| Services | 1 | allow_all | * | * | * | • | ACCEPT | |
| Prioritisation | | | | | | | | |
| System | Add a new | ruleset | | | | | | -lle |
| Information | By using the | plus symbol you can | add new rulesets | | | | | - P |
| | Show rules only rules aff | ets for following in ecting the selected n | t erfaces etwork interfaces will be (| displayed | | from: * | 💌 to: * 💌 | C |
| User: admin 🗗 | | - | | | | | | |
| | | _ | | | | | | |

This is the window for the manual configuration of firewall filter rules based on Layer 2 (MAC layer). The screenshot shows the firewall settings as delivered with the 2 default rules "Allow_L2*" and "ARP*" (Address resolution protocol). The rule **Allow_L2*** allows transmitting any Ethernet frame type (*) and any traffic regardless the direction (source and destination mac address =*). The result is that - on delivery - the firewall is "open" for layer 2.

| * IE-SR-2GT-UMTS/3G-AX0068 | 87399 - Packet filter » - Windows Internet Explo | rer | | _ 8 × |
|----------------------------------|--|--|--|-----------------------|
| 🔾 🗢 🙋 http://192.168.1.1 | 10/priv/priv.php?id=FILTERCONF | | 💌 💀 😽 🗙 🧗 Live Search | P - |
| Favorites 🌈 « IE-SR-2GT-UMT: | r5/3G-AX00687399 - Packet filter » | | | |
| Weidmüller I IE-SR-2GT-U | Router Configuration JMTS/3G | | Weidr | nüller 3 E |
| IE-SR-2GT-UMTS/3G | Layer 3 Layer 2 Status | | | |
| Diagnostics | | | | |
| | Packet filter | | | |
| SecureNowl | | | | |
| Packet filter | Traffic history | | Related links | |
| Cut & Alarm | | | | |
| General settings | LAN Receive 1000 | Ab/a LAN Transmit 1990 | Mb/s Layer 2 rulesets | |
| Access control | 11 | theys and they are a second se | mb/s Layer 3 rulesets | |
| Network | WAN Receive | WAN Transmit 199 | Layer 2 Hardware groups | |
| P VPN | 100 | 16 /s 10 | mb/s Layer 3 Network groups | |
| Prioritisation | 0 Bit | s | Web access | |
| System | | | Port forwarding | |
| Information | | | | |
| User: admin 🗗 | Filter log | | | |
| | There are currently no log entries. | | | |
| | Reload | | | |
| igure 15: Confi | guration \rightarrow Packet filt | er → Tab "Status" | | |
| verview of tran displayed und | nsmit and receive active lactive is a constructed and receive active laction and the second second second second | vities of the Ethernet in Loa". | terfaces. In addition, firewall-relate | d informatic |

| IE-SR-2GT-UMT5/3G-AX0068 | 7399 - Cut & Alarm » - Windows Internet E | Explorer | | <u>_8×</u> |
|---|--|----------------------------|-----------------------|------------------|
| • [2] http://192.168.1.1 | 10/priv/priv.php?id=CUTALARMSETT | | 🔳 🗟 🐓 🗙 ಶ Live Search | P • |
| avorites 🏾 🄏 « IE-SR-2GT-UMT | 5/3G-AX00687399 - Cut & Alarm > | | | |
| Weidmüller IE-SR-2GT-U | Router Configuration IMTS/3G | | Weid | lmüller ≆ |
| -SR-2GT-UMTS/3G | Configuration State | | | |
| Diagnostics | | | | |
| Configuration | Cut & Alarm | | | |
| SecureNow! Packet filter Cut & Alarm | Internal cut acknowledgement: Internal cut timeout: | Manual 💌 🕐 | | |
| General settings Access control Network | Alarm acknowledgement: Alarm timeout: | Manual V 🕐 | | |
| VPN Services | Enable automatic client monitoring | recovery acknowledgement 🔞 | | |
| Prioritisation | Apply settings Reset changes | 5 | | |
| * System * Information User: admin () | | | | |

In this menu it can be configured how the events "Cut" and "Alarm" - after they have occurred – will be reset (either manually by clicking on a button on the tab "State" or automatically after an elapsed time). For more information please refer to Appendix C2 (Method 2).

| 🔊 🔻 🙋 http://192.168.1 | .110/priv/priv.php?id=CUTALARMVIEW | 🗾 🔁 😚 🗙 🧗 Live Search | P - |
|--|--|--|--------------------|
| vorites 🄏 « IE-SR-2GT-U | 1T5/3G-AX00687399 - Cut & Alarm » | | |
| Weidmüller IE-SR-2GT- | Router Configurat | ion Weidm | üller X |
| SR-2GT-UMTS/3G | Configuration State | | |
| Configuration | Cut & Alarm | | |
| IP configuration SecureNow! | Cut & alarm configuration: 🕐 | | |
| Packet filter Dut & Alarm | Alarm mode: | Manual acknowledgement | |
| General settings Access control | Internal cut mode: | Manual acknowledgement | |
| Network | Cut & alarma states | | |
| Services | Cut & alarm state: | | |
| Prioritisation | Int. cut event: | on off | |
| nformation | Ext. cut event: Reset cut signal | 017 Reset alarm sinnal | |
| User: admin () ure 17: Conf | figuration \rightarrow Cut | & Alarm \rightarrow Tab "State" | |
| plays the cu "Internal C "External C "Alarm" → | rrent status of the ut" \rightarrow triggered e Cut" \rightarrow Input of 24 \rightarrow triggered eg b | e events g by a special firewall rule 4 VDC at 4-pin connector (at front side of the Router) y a special firewall rule or by the function "Client monitoring" | |
| clicking on t | he buttons "Rese | et Cut signal" and "Reset alarm signal" you can manually reset th External Cut" will automatically be reset if the 24 VDC at the 4-r | ie events |

| 🕑 🔻 🙋 http://192.168. | 1.110/priv/priv.php?id=SYSTEMINFO | | 🗾 🗟 😏 🗙 🌠 Live Search | P - |
|-----------------------------------|--|-------------------------------------|----------------------------|---------------------------|
| avorites 🏾 🏀 « IE-SR-2GT-U | /MT5/3G-AX00687399 - System data » | | | |
| Weidmülle IE-SR-2GT | r Router Configura -UMTS/3G | tion | | Veidmüller 3 2 |
| -SR-2GT-UMTS/3G 📕 | Configuration | | | |
| Diagnostics | Comiguation | | | |
| Configuration | System data | | | |
| SecureNow! Packet filter | System name: Serial no. as system name: | IE-SR-2GT-UMTS ₽ ⑦ | | |
| ⊂ut & Alarm ▼ General settings | System location: | | | |
| System data Date & time | Contact name: | | | |
| User interface Certificates | Contact e-mail: | | | |
| SCEP | Apply settings Rese | changes | | |
| Access control | | | | |
| Network | | | | |
| VPN | | | | |
| Services | | | | |
| Prioritisation | | | | |
| > System | | | | |
| Information | | | | |
| | | | | |
| User: admin 📑 | | | | |
| gure 18: Con | figuration \rightarrow Ge | neral settings \rightarrow System | data → Tab "Configuration" | |
| • | 8 | 0, | <i>"</i> 0 | |

| C « IE-SR-2GT-UMT5/3G-AX00 | 687399 - Date & time » - Windows Internet Expl | prer | | |
|---|--|---|--|--|
| | 1.110/priv/priv.php?id=SNTP | | 💌 🗟 🐓 🗙 🦉 Live Search | P - |
| 🚖 Favorites 🛛 🌈 « IE-SR-2GT-U | MT5/3G-AX00687399 - Date & time > | | | |
| Weidmüller IE-SR-2GT- | r Router Configuration UMTS/3G | | Weidr | nüller X |
| E-SR-2GT-UMTS/3G | Configuration | | | |
| Configuration | Date & time | | | |
| SecureNow! Packet filter | Date & time: | Wed Apr 18 18:36:47 CEST 2012 | | |
| Cut & Alarm ❤ General settings System data Date & time | Time zone: | Region: Europe 🗴 City: Berlin 💌 | Note: | |
| User interface Certificates SCEP Access control Network | Enable timeserver synchronisation (NTP): Primary NTP server: Secondary NTP server: Tertiary NTP server: | Image: pool.ntp.org de.pool.ntp.org ptbttme1.ptb.de | The Router has no battery- a capacity-buffered system Router is powered-off more minutes, the date and time | ouffered, but clock. If the than 30 values will |
| Services Prioritisation System Information | Manual setting of date & time : Date (day/month/year): Time (hour/minute/second): | 18 v/ 04 v/ 2012 v 18 v/ 36 v/ 47 v | be reset to factory default s = date of production e.g. 01 Time 00:00). | ettings (Date /01/2012, |
| User: admin 🗗 | Apply settings Reset changes | | | |
| Figure 19: Con | figuration $ ightarrow$ General s | settings \rightarrow Date & time $-$ | Tab "Configuration" | |
| Setting of date, work Time Prot | time and time zone. A cocol" and accessing a | Alternatively, the date/tim n external NTP server. | e setting can be configured via us | sing the "Net- |



| A http://192.168 | 1.110/priv/priv.php?id=US8 | RINTFW | 💌 🗟 🏘 🗶 🌆 Live Search | |
|--|----------------------------|-------------------------------------|---------------------------|--------------------|
| avorites 🏀 « IE-SR-2GT-I | JMT5/3G-AX00687399 - Lise | interface » | | |
| Weidmülle IE-SR-2GT | r Router Cor -UMTS/3G | figuration | We | eidmüller ≆ |
| -SR-2GT-UMTS/3G | Configuration | | | |
| Diagnostics | | | | |
| ⁷ Configuration | User interface | | | |
| IP configuration | User interface | | | |
| SecureNow! | Choose language | e and apply mode: | | |
| Packet filter | | | | |
| Cut & Alarm | Language: | English 💌 | | |
| Image: Section Sec | Save and apply: | apply immediately & do not save 💌 🕐 | | |
| System data | | | | |
| Date & time | Apply settings | Reset changes | | |
| User interface | | | | |
| Certificates | | | | |
| SCEP | | | | |
| Access control | | | | |
| ure 20: Con | figuration - | → General settings → User interfa | ce → Tab "Configuration" | |
| | | | | |
| | | | | |
| 00000 | | ng the language (German or Engl | (sh) of the Web interface | |

<u>Save and apply</u> \rightarrow Setting the behaviour of the button "Activate" respectively "Save" in the configuration windows. If you chose the entry "Apply immediately and do not save" then configuration changes will be immediately activated but not saved. If you chose the entry "Save only and do not apply" then the button named "Apply" in the configuration windows will be changed to a button named "Saved". In this case all done changes will be only saved and not activated. Saved changes come into effect after a restart.

| vorites 🌈 « IE-SR-2GT-UM | | | | 2 |
|--------------------------|--|----------------|------------|---|
| | 'S/3G-AX00687399 - Certificates » | | | |
| Weidmüller IE-SR-2GT- | Router Configuration JMTS/3G | | Weidmüller | Y |
| BR-2GT-UMTS/3G 📕 | Configuration | | | |
| Configuration | Certificates | | | |
| SecureNow! | Current CA certificate table: | | | |
| Packet filter | Certificate | CRI status @ | validity | 9 |
| Cut & Alarm | | CRL not found | valid | |
| System data | * DEMO-CN (demoCA.pem) | cite not round | Valia | |
| Date & time | | | | |
| User interface | Current client certificate table: | | | |
| Certificates | current cient certificate table. | | | |
| SCEP | Certificate | | validity | 8 |
| Access control | DEMO-CN1 (demo-client1.pem) | | valid | |
| Network | DEMO-CN2 (demo-client2.pem) | | valid | |
| ▶ Services | DEMO-CN3 (demo-client3.pem) | | valid | |
| Prioritisation | DEMO-CN4 (demo-client4.pem) | | valid | |
| System | DEMO-CN5 (demo-client5.pem) | | valid | |
| User: admin 💽 | | | | |
| | Upload local certificate file for authentication or CRL: | | | |
| | Filename (*.n12 / *.nfx / *.nem): | Browse | | |
| | Certificate password for validation: | | | |
| | | | | |
| | Unload certificate Apply settings Reset changes | | | |
| | in wation > Concercil pattings > Contification > Tab | Configuration" | | |
| 110 71 1 000 | iguration \rightarrow General settings \rightarrow Certificates \rightarrow 1 ab | "Configuration | | |

| works 🖉 • IE-SR-2GT-UMTS/3G-AU00687399 - SCEP » | | |
|---|----------|----------|
| Weidmüller Router Configuration | | |
| E-SR-2GT-UMTS/3G | Weid | müller ≆ |
| -SR-2GT-UMTS/3G III Configuration State | | |
| Diagnostics | | |
| Configuration | | |
| IP configuration | | |
| SecureNow! Simple Certificate Enrollment Protocol | | |
| Packet filter | | |
| Cut & Alarm Enable SCEP: | | |
| ✓ General settings Server URL: | | |
| System data Client Certificate details | | |
| Date & time Challenge Password: | | |
| User interface Auto-renew period: (days) 🕐 | | |
| Certificates CRL download: | | |
| Access control Apply settings Reset changes | | |
| ▶ Network | | |
| ▶ VPN | | |
| ▶ Services | | |
| Prioritisation | | |
| System | | |
| Information | | |
| | | |
| User: admin 🗗 | | |
| | c | |

Configuration of the Router for online access to certificates which are stored on a centralized online certificate server (SCEP Simple Certification Enrollment Protocol). When setting up certificate-based VPN connections, the necessary certificates can be obtained directly from a SCEP server.

| 💋 « IE-SR-2GT-UMTS/3G-AX0068 | 37399 - User accounts » | - Windows Internet Explorer | | | | |
|---------------------------------|----------------------------|-----------------------------|--------------------------|----------------|-----------------------|--------------|
| 💽 🗢 🖉 http://192.168.1.: | 110/priv/priv.php?id=PASSW | ORD | | | 💌 🗟 😽 🗙 杉 Live Search | P - |
| 🔶 Favorites 🏾 🏉 « IE-SR-2GT-UM1 | [5/3G-AX00687399 - User ac | counts » | | | | |
| Weidmüller IE-SR-2GT-U | Router Conf JMTS/3G | guration | | | | Weidmüller 🌫 |
| IE-SR-2GT-UMTS/3G | Configuration | | | | | |
| Configuration | User accounts | | | | | |
| SecureNow! | User accounts | | | | | |
| Packet filter | Login user name | Astivate assount | Delete account | | | |
| | admin | Minim | | | | |
| ✓ Access control | guest | | Π | | | |
| liser accounts | | | | | | |
| Permissions | | | | | | |
| Web access | Change password | | | | | |
| Not dood of | | | | | | |
| P Network | Username Enter o | old password Enter ne | w password 🕐 Confir | m password | | |
| P VPN | guest 💌 | | | | | |
| Services | | | | | | |
| Prioritisation | | | | | | |
| System | Add now year a sec | | | | | |
| Information | Add new user acco | ounc | | | | |
| User: admin 🗗 | Username | Enter new password | Confirm password | | | |
| | Apply settings | Reset changes | | | | |
| Figure 23: Confi | guration \rightarrow | Access cont | rol \rightarrow User a | accounts → Tab | "Configuration" | |
| Create and dele | te other us | er accounts | | | | |



| nostics | 5/3G-AX00687399 - Permissions » | | | |
|-----------------------|---|-----------------------------|----------|------------------|
| nostics | Contiguration | | | |
| | Comgutation | | | |
| iguration | Permissions | | | |
| ureNow! ket filter | Editing variable permissions for user : guest | Default Write Permission: 🗌 | | |
| & Alarm | Page name | | | |
| eneral settings | ^b 36 modem state | | | |
| Jser accounts | 3G prioritisation | | | |
| Permissions | ▼ Backup settings | | | |
| veb access | Variable name | | | Write Permission |
| letwork | Download settings | | | |
| ervices | Restore settings | | | |
| rioritisation | Certificates | | | |
| em | ✓ Client monitoring | | | |
| madon | Variable name | | | Write Permission |
| User: admin 💽 | Add entry to client monitoring | | | |
| | E-mail address | | | |
| | E-mail server | | | |
| | Client monitoring list | | | |
| | Cut & Alarm settings | | | |
| | Cut & Alarm state | | | |
| | DHCP server | | | |
| | [▷] DNS | | | |
| | [▶] Date & time | | | |
| | Dynamic DNS | | | |
| | Ethernet configuration | | | |
| | l ħ | | Internet | √2 + € 100% + |

Detailed assignment of individual rights for the created user accounts. Note: The Administrator account always has full access. It cannot be deleted.

| C () () http://192.168. | 1.110/priv/priv.php?id=WEBACCESS 우 국 월 Ĉ × (26 - IE-SR-2GT-U) | MT5/3G-AX0 × | |
|-------------------------------------|--|--|-------------------|
| Weidmülle IE-SR-2GT | r Router Configuration -UMTS/3G | | |
| IE-SR-2GT-UMTS/3G | Configuration | | |
| Diagnostics | | | |
| ✓ Configuration IP configuration | Web access | | |
| SecureNow! | Allow protocol access on interface | LAN | WAN 3G |
| Packet filter | HTTP: | | |
| Cut & Alarm | HTTPS: | 7 | |
| General settings | | | |
| | | | |
| User accounts | | | |
| Permissions | Report access violations using syslog | V | |
| Web access | Apply settings Reset changes | | |
| Network | | | |
| ▶ VPN | | | |
| Services | | | |
| gure 25: Co | nfiguration \rightarrow Access control \rightarrow W | eb access $ ightarrow$ Tab "Configuration" | |
| elect the pos | sible access modes of the web int | erface (via http and / or https). For mode | Is of type IE-SR- |

3GT-UMTS/3G additionally section "3G" (as shown above) will be displayed to allow access to the Webinterface via 3G connection.

| 💽 🗢 🙋 http://192.168.1 | 1.110/priv/priv.php?id=DNSSERV | | | 💌 🗟 😏 🗙 🦉 Live Search | P - |
|--------------------------|-----------------------------------|----------------|-------------|-----------------------|---------------------|
| avorites 🄏 « IE-SR-2GT-U | MT5/3G-AX00687399 - DN5 > | | | | |
| Weidmüller IE-SR-2GT- | r Router Configuratior UMTS/3G | I | | | Weidmüller ≆ |
| -SR-2GT-UMTS/3G | Configuration State | | | | |
| Diagnostics | | | | | |
| Configuration | DNS | | | | |
| IP configuration | | | | | |
| SecureNow! | | | | | |
| Packet filter | Hostname: | IE-SR-2GT-UMTS | 6 () | | |
| Cut & Alarm | Serial no. as hostname: | ፼ ₪ | | | |
| General settings | Domainname (search suffix): | | 0 | | |
| Access control | 1st DNS server: | | 0 | | |
| Network | 2nd DNS server: | | | | |
| DNS | 3rd DNS server: | | | | |
| IP routing | | | | | |
| Port forwarding | Register hostname at DHCP server: | (i) | | | |
| 1:1 NAT | Use all servers concurrently: | | | | |
| Network groups | | | | | |
| Hardware groups | Apply settings Reset chang | es | | | |
| Ethernet | | | | | |
| ▶ VPN | | | | | |
| Services | | | | | |
| | | | | | |

Registration of up to 3 DNS servers for name resolution. The Router acts as a DNS relay server.

| E-SR-2GT-UMTS/3G-AX006 | 87399 - IP routing » - Win | dows Internet Explorer | | | | | X |
|----------------------------|-------------------------------|-------------------------|---------------------------------------|-------------------------------|--------------------|------------|---------------------------------------|
| v | .110/priv/priv.php?id=STATICF | ROUTING | | | 💌 🗟 🐓 🗙 🌠 Live Sea | rch | ₽ - |
| vorites 🏾 🄏 « IE-SR-2GT-UN | 1T5/3G-AX00687399 - IP routin | ig » | | | | | |
| * | | | | | | | - |
| | | | | | | | |
| SR-2GI-UMIS/3G III | Configuration State | 9 | | | | | |
| Diagnostics | | | | | | | |
| Configuration | IP routing | | | | | | |
| IP configuration | | | | | | | |
| Securenow! | Dynamic routing: | | | | | | |
| Cut & Alarm | LAND | Tunor | Disphad - | | | | |
| | LAN. | Type. | | 2 | | | |
| Access control | | Active interface | | U | | | |
| ✓ Network | | Active Interrace | | | | | |
| DNS | WAN: | Type: | Disabled 💌 🕐 | | | | |
| IP routing | | Simple passwo | rd: | D | | | |
| Port forwarding | | Active interface | · · · · · · · · · · · · · · · · · · · | | | | |
| 1:1 NAT | | - | | | | | |
| Network groups | Redistribute static rou | ites: | _ | | | | |
| Hardware groups | Log level: | none 💌 (| D | | | | |
| Ethernet | Enable Multicast Rout | ing: 🗆 🗘 | | | | | |
| ▶ VPN | | | | | | | |
| Services | Static routing table | : | | | | | |
| Prioritisation | | | | | | | - |
| System | Active D | estination | Subnet mask | Gateway | Interface | Metric | a a a a a a a a a a a a a a a a a a a |
| nformation | | | | Static Routing table is empty | | | |
| | | | | | | | |
| User: admin 🕒 | | | | | | | |
| | Add new static rout | te: 🕐 | | | | | |
| | Destination | | 0 | | | | |
| | Subpot macks | | U | | | | |
| | Catowawi | | 0 | | | | |
| | Matric: | | 0 | | | | |
| | Interface: | | U | | | | |
| | interface. | | | | | | |
| | Add ontry | Apply softings | leset changes | | | | |
| | Audentry | Apply setungs | | | " | | - |
| ure 27: Conf | iguration \rightarrow | Network \rightarrow I | P Routing \rightarrow T | ab "Configuratio | n" | | |
| gistration of | static IP rout | tes and activation | ating/deactivati | ng of dynamic r | outing. For dyr | namic rout | ting both c |
| - | | 0005 | 1 ⁻ 11 - 10 | | | | - |

| SR-2GT-UMTS/3G 📕 | Configuration State | |
|------------------|--|--|
| Diagnostics | | |
| Configuration | IP routing | |
| P configuration | IF Fodding | |
| ecureNow! | Active routing table: | |
| acket filter | | |
| Cut & Alarm | default via 192.168.2.253 dev WAN proto static | |
| General settings | 192.108.1.0/24 dev LAN proto kernel scope link src 192.108.1.110 192.168.2.0/24 dev WAN proto kernel scope link src 192.168.2.110 | |
| Access control | | |
| Network | | |
| DNS | Reload | |
| IP routing | | |
| Port forwarding | | |
| 1:1 NAT | | |
| Network groups | | |
| ure 28: Con | figuration \rightarrow Network \rightarrow IP Routing \rightarrow Tab "State" | |
| | | |

| 📕 Weidmüll | er Router Con | figuration | | | | | | Wei | dmüller 🕉 |
|---------------------------------|----------------|---------------|-------|------------|------------------------------|----------|--|-------|--------------------|
| E-SR-2G | T-UMTS/3G | | | | | | | | |
| | | | | | | | | | |
| -SR-2GT-UMTS/3G | Configuration | | | | | | | | |
| Configuration | | | | | | | | | |
| IR configuration | Forwarding (2) | | | | | | | | |
| Pacurahinul | | | | | | | | | |
| Darket filer | Public | Protocol | Local | Local | Target | Target | SNAT Source | Enabl | ed Position Delete |
| Cut & Alarm | Interface ② | 0 | Ø | Dort | 0 | (D) | () () () () () () () () () () () () () (| Ø | Ø |
| P General settings | | • | • | Ũ | (No data available in table) | • | | Ŭ | • |
| Access control | • | | | | | | | | |
| ▼ Network | - | | | | | | | | |
| | Apply settings | Reset changes | | | | | | | |
| DNS | | | | | | | | | |
| DNS IP routing | | | | | | _ | | | |
| DNS IP routing Forwarding | | | | Factory of | lefault configu | ration w | ithout any entry | | |

Figure 29: Configuration \rightarrow Network \rightarrow Forwarding \rightarrow Tab "Configuration"

Configuring standard port forwardings (IP address with port) and pure IP address forwardings. Additionally for each forwarding the feature SNAT (Source network address translation) can be activated to hide the original source.

"IP address forwarding" can be configured using an IP address and a wildcard port number (*) instead of a fixed port number. With this features it is possible to get access to an Ethernet device behind a masqueraded interface only by IP address. From the behavior this fea-ture is similar to a virtual mapping giving an Ethernet device a second public IP address.

| • 🖾 • 🖃 🖷 • | Sejte • Sigherheit • Ex | tras 🕶 🔞 🕶 🚉 | | | | | | | | |
|----------------------|----------------------------|---------------|---------------|--------|---------------|--------|--------------------|------|------------------|--------|
| Weidmüll IE-SR-2G | er Router Con T-UMTS/3G | figuration | | | | | | Wei | idmüll | er 3 |
| R-2GT-UMTS/3G 📕 | Configuration | | | | | | | | | |
| iagnostics | | | | | | | | | | |
| onfiguration | Forwarding @ | | | | | | | | | |
| configuration | Forwarding @ | | | | | | | | | |
| scureNowl | Dublin | Bentraul | t and | tand | Toront | T1 | CHAT Course | Fuch | ad participation | - 0-1 |
| cket filter | Interface | Protocol | IP | Port | IP | Port | Network | Enab | eu Positio | ai Dei |
| it & Alarm | 0 | 0 | 0 | 0 | 0 | 0 | 0 0 | Ø | ۲ | |
| General settings | WAN 🕑 | TCP 🗹 | 192.168.2.150 | 5555 🖬 | 192.168.1.200 | 5555 🖬 | V 192.168.2.0/24 🗹 | 1 | $\land = $ | Û |
| Access control | WAN 🗹 | - 🕅 | 192.168.2.151 | B. | 192.168.1.201 | B. | I92.168.2.0/24 2 | V | $\land = $ | Û |
| Network | + | | | | | | | | | |
| DNS | | | | | | | | | | |
| IP routing | Apply settings | Reset changes | | | | | | | | |
| Francisco | rippi) seconds | | | | | | | | | |
| Porwarding | | | | | | | | | | |



| 💽 🗢 🙋 http://192.168. | 1.110/priv/priv.php?id=NETMAP | | 🔽 🐼 🐓 🗙 ಶ Live Search | P - |
|-----------------------------|--|--------------------|-----------------------|-----------------------|
| Favorites 🔏 « IE-SR-2GT-L | JMT5/3G-AX00687399 - 1:1 NAT » | | | |
| Weidmülle IE-SR-2GT | r Router Configuration -UMTS/3G | | We | idmüller X |
| -SR-2GT-UMTS/3G 📕 | Configuration | | | |
| Diagnostics | , in the second se | | | |
| Configuration | 1:1 NAT - network mapping | | | |
| SecureNow! Packet filter | WAN: | | | |
| Cut & Alarm | Public IP address/subnet mask: | 192.168.2.110/24 🕐 | | |
| General settings | Enable 1:1 NAT: | | | |
| Access control | Private IP address/subnet mask: | 0 | | |
| ✓ Network | ✓ Advanced settings | | | |
| DNS | Enable double sided network mapping: | | | |
| IP routing | Substitute with IP address/subnet mask: | | | |
| Port forwarding | LAN | | | |
| 1:1 NAT | | | | |
| Network groups | Public IP address/subnet mask: | 192.168.1.110/24 🕐 | | |
| Ethernet | Enable 1:1 NAT: | | | |
| Luiemer | Private IP address/subnet mask: | 0 | | |
| V VPN | ✓ Advanced settings | | | |
| Prioritication | Enable double sided network mapping: | | | |
| r Frionusadion | Substitute with IP address/subnet mask: | | | |
| P System | Apply settings Reset changes | | | |
| Information | Apply sounds Read changes | | | |

Configuration of the mapping (assignment) of IP address ranges between LAN and WAN port, and vice-versa.

For more detailed information please refer to Appendix A2.

| R2-07-UNTS93 Configuration Secondiguration Network groups P configuration Network groups P configuration Network groups V A Arian 192.168.1.20/32 10 Constrainting 192.168.1.20/32 10 Pouling 192.168.2.0/24 10 Pouling 1100.100 11 Nat Croup name: 1000.100 12 Pouling Reset changes 1000.100 12 Pouling </th <th>IE-SR-2G</th> <th>-UMTS/3G</th> <th></th> <th>weidmulier</th> | IE-SR-2G | -UMTS/3G | | weidmulier |
|---|------------------|-------------------------------------|--|-------------------------------|
| Augustation Metwork groups ordiguation Metwork groups curvelouid MachineGrep1 used in 0 rules scient filter 192.168.1.20/32 Image: Constraint of the constrai | -2GT-UMTS/3G | Configuration | | |
| onliguration verdegration courselowing verdegration courselowing verdegration verdegration verdegration | agnostics | oungunnon | | |
| excertional • Machine/Grpin acket file 192.168.1.20/32 i 8.4 arm 192.168.1.20/32 i 92.168.1.20/32 iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii | nfiguration | Network groups | | |
| accent left 192.168.1.20/32 192.168.1.20/32 Image: Consent left 192.168.1.20/32 Image: Consent left Accent consent left 192.168.1.20/32 Network Yeak Verson Image: Consent left 192.168.1.20/32 Image: Consent left Network Yeak 192.168.1.20/32 Image: Consent left 11.11A.7 Image: Consent left Aberting Image: Consent left Image: Consent left 11.11A.7 Image: Consent left< | ecureNowl | ♥ MachineGrp1 | used in 0 rules | 9 |
| uit & Alam Ip2:108.1.21/32 Image: Comparing lefting | acket filter | 192.168.1.20/32 | | |
| Candral antingia 192.168.1.22/32 Image: Candral antingia Image: Candra antingrad antingia Image: Candral antin | ut & Alarm | 192.168.1.21/32 | | E |
| Access comma • MachineNetwrk2 used in 0 rules • DNS 192.168.2.0/24 • • Proving • • • Forwards • • • 11AAT Group name: • • • Network address: • • • • Broward groups • • • • • Network address: • <t< td=""><td>General settings</td><td>192.168.1.22/32</td><td></td><td></td></t<> | General settings | 192.168.1.22/32 | | |
| Instant Contract Decomposition DNS 192:68.2.0/24 Providing 1:1 NAT Croup name: O Network address: O Hardware groups Ethernet Apply settings Reset changes | Access control | MachineNetwerk2 | used in 0 rules | 3 |
| In Produce of the first of the | DNS | 102 168 2 0/24 | asea in o rares | 3 |
| Forwarding 11 Na/T Croup name: Harboxing roups Network address: Harboxing roups Network address: Ethernel Apply settings Reset changes | IP routing | 172-100-2-0/24 | | |
| Linkarg Circup name: Image: Circup name: Nativork groups Network address: Image: Circup name: Hardware groups Apply settings Reset changes Ethernel Apply settings Reset changes Services Services Services | Ennvarding | | | |
| Network goups Network address: Image: Comparison of the sector of the s | 1:1 NAT | Group name: | 0 | |
| Hardware grups Ehennel Apply settings Reset changes VPN services Products vation | Network groups | Network address: | 0 | |
| Ethernel Apply settings Reset changes VPN Services Provideation | Hardware groups | | | |
| VPN Services Provelopment | Ethernet | Apply settings Reset changes | | |
| | VPN | | | |
| | Services | | | |
| A COLOR (In the Color of Color of Color of Color (Internet) and (Internet) | Prioritization | | | |
| Inc. 32. Contiduiration \rightarrow Network \rightarrow Network droups \rightarrow Lap. Contiduiration. | ire 32. (| $Configuration \rightarrow Network$ | \rightarrow Network groups \rightarrow Tab. Confid | uration" |
| | | | | |
| | - | | on for ranges of ID addresses (La | wor 2) A potwork group always |
| | - 1: | | | |

| IE-SR-2GT-UMT5/3G-AX0 | 0687399 - Hardware groups » - Windows Internet Explorer | | - 8 × |
|---------------------------|---|-----------------------|-------|
| 🔊 🗢 🙋 http://192.168 | .1.110/priv/priv.php?id=NETGROUPS_MAC | 🗾 🗟 🐓 🗙 🌠 Live Search | ρ- |
| Favorites 🏀 « IE-SR-2GT-I | JMTS/3G-AX00687399 - Hardware grou | | |
| Weidmülle IE-SR-2GT | r Router Configuration -UMTS/3G | Weidmüller | € |
| E-SR-2GT-UMTS/3G 🔚 | Configuration | | |
| Diagnostics | | | _ |
| ✓ Configuration | Hardware groups | | |
| IP configuration | Hardware groups | | |
| SecureNow! | | | |
| Packet filter | no groups have been stored yet | 8 | |
| Cut & Alarm | | _ | |
| General settings | add groups by using the form below | | |
| Access control | | | |
| ✓ Network | Group name: | | |
| DNS | Hardware address: | | |
| IP routing | | | |
| Port forwarding | Apply settings Reset changes | | |
| 1:1 NAT | | | |
| Network groups | | | |
| Hardware groups | | | |
| Ethernet | | | |
| ▶ VPN | | | |
| Services | | | |
| | | | |

Creating groups with "speaking" names based on MAC addresses (layer 2). A hardware group can contain any number of MAC addresses (for example, 00:15:7E:D9:09:00). Hardware groups can be used for better readability than individual MAC addresses if you will create firewall filtering rules (See menu Configuration \rightarrow Packet filters \rightarrow Layer 2).



| • 🖸 • 🖬 🖶 • S | Sejte • Sigherheit • | Extras • 🔞 • 🛍 | , | ··· · · · · · · · · · · · · · · · · · | n-201-0m/15/30-AA | | | | | | | | | |
|--|--|--|----------------|---------------------------------------|-------------------|------------------------|------------------------------|--------------------|--------------------|----------------|--------------|--------------------------|-----------------|------|
| Weidmüller IE-SR-2GT- | r Router Co UMTS/3G | onfiguratio | on | | | | | | | | | | Weidmülle | er 3 |
| R-2GT-UMTS/3G | Configuration | VPN1 | VPN2 | VPN3 | VPN4 | VPN5 | VPN6 | VPN7 | VPN8 | VPN9 | VPN | 10 State | | |
| Configuration | OpenVPN | | | | | | | | | | | | | |
| SecureNowl Packet filter | Current Open | VPN server tabl | e: | | | | | | | | | | | |
| Cut & Alarm | Device | Certificate | | | | | | | IP Info | P | rotocol | Local server port | | 1 |
| Access control Network VPN | Current OpenVPN client table: Device Certificate IP Info Protocol Server address Server | | | | | | | | | | | | ſ | |
| OpenVPN | | | | | | max also as solds to | | | | | | | port | |
| Prioritization | HTTP/HTTPS | proxy settings f | ior clients: @ | | Open | vrnv client table is i | empty. Use the VP | n taos ir you wani | : to add a new Col | inection. | | | | |
| 9 System 9 Information User: admin 📑 | HTTP proxy IP a HTTP proxy TCP HTTP proxy aut HTTP proxy use HTTP proxy pas | port: hentication methorname: sword: | od: none • (| 9 | | Scr with | eensho h factor sions) | t of Op y defau | enVPN Ilts (wit | menu hout o | tab confi | "Configura igured Ope | ation" enVPN | |
| | Additional set | tings: controller: | disabled . | 0 | | 303 | 010113) | | | | | | | |

Figure 35: Configuration \rightarrow VPN \rightarrow OpenVPN \rightarrow Tab "Configuration"

The OpenVPN menu allows to create and establish virtual private network connections based on the OpenVPN implementation. The Router can be configured both as OpenVPN client and OpenVPN server either based on Layer 2 (Bridging) or on Layer 3 (Routing). A maximum of 10 OpenVPN connections (either as client or as server) can be configured and started at the same time. Each VPN connection can be configured individually at Tab's VPN1...VPN10.

Note: OpenVPN connections can only be used with encryption based on certificates.

On each configured OpenVPN server connection theoretically any number of remote OpenVPN clients can be connected (only limited by the hardware performance of the Router).

| C () (2 http://192.168.1.1 | 10/priv/priv.php?id=VPN-1CFG | ନ + ଛ୯× 💋 • E-SR- | 2GT-UMTS/3G-AX0. | . × | | | | | | | | |
|----------------------------|--------------------------------------|-------------------|------------------|-------------------|----------|------|------|------|-------|-------|-------------------------|---|
| 🗄 = 🖾 = 🖬 = Se | ejte 🔻 Sigherheit 🕶 Extras 🕶 🔞 🕶 📖 | | | | | | | | | | | |
| Weidmüller IE-SR-2GT-U | Router Configuration UMTS/3G | | | | | | | | | | Weidmüller 3 | |
| E-SR-2GT-UMTS/3G | Configuration VPN1 VPN2 | 2 VPN3 | VPN4 | VPN5 | VPN6 | VPN7 | VPN8 | VPN9 | VPN10 | State | | |
| Configuration | | | | | | | | | | | | |
| IP configuration | VPN1 | | | | | | | | | | | |
| SecureNowl | Parts antilana | | | | | | | | | | | |
| Packet filter | basic settings | | | | | | | | | | | |
| Cut & Alarm | Enable VPN instance: | V | | | | | | | | | | |
| General settings | Interface mode: | Client 💌 🕐 | | | | | | | | | | |
| Access control | Permanent connection: | 0 | | | | | | | | | | |
| Network | Layer: | Layer 3 💌 🕐 | | | | | | | | | | |
| ♥ VPN | OpenVPN device type: | 46 16 217 213 | | 0 | | | | | | | | |
| OpenVPN | Server address: | 1194 | | U | | | | | | | | |
| Insec | Protocol: | TCP | | | | | | | | | | |
| P Services | Certificate: | OpenVPN_Cli | ent1_cl.pem 💌 🖪 |) | | | | | | | | |
| P Prioritization | Authenticate with username and passw | ord: 🔳 🕐 | | , , | | | | | | | | |
| P System | Username: | | | | | | | | | | | |
| P Information | Password: | | | hide | | | | | | | | |
| User atmin D | Pull routes from server: | 2 (2) | | | | | | | | | | |
| | Use HTTP proxy: | | | | | | | | | | | |
| | Additional settings | | | | | | | | | | | |
| | Log level: | info 💌 | | | | | | | | | | |
| | LZO compression: | adaptive 🔳 🚺 | 0 | | | | | | | | | |
| | Cipher: | BF-CBC | • 🕐 | | | | | | | | | |
| | Apply settings Reset changes | | | | | | | | | | | |
| | | | | | | | | | | | | I |
| igure 36: C | configuration \rightarrow | vpn → O | penVP | $N \rightarrow 1$ | I ab "VF | 2N1" | | | | | | |
| croonshot | of a configured | | - Cliont | at tak | | | | | | | | |
| | or a configured | Chennell | Cliefit | מנומו | | | | | | | | |
| | Configuration VPN1 VPN2 | VPN3 | VPN4 | VPN5 | VPN6 | VPN7 | VPN8 | VPN9 | VPN10 | State | |
|--------------------|--|----------------|-------------|------|------|------|------|------|-------|-------|--|
| Diagnostics | And the second s | 10000000 | | | | | | | | | |
| Configuration | VPN2 | | | | | | | | | | |
| IP configuration | | | | | | | | | | | |
| SecureNowl | Basic settings | | | | | | | | | | |
| Packet filter | | | | | | | | | | | |
| Cut & Alarm | Enable VPN instance: | 191 | | | | | | | | | |
| P General settings | Interface mode: | Server . O | | | | | | | | | |
| Access control | Permanent connection: | N.G. | | | | | | | | | |
| P Network | Layer: | Layer 3 . O | | | | | | | | | |
| ▼ VPN | OpenVPN device type: | TAP CO | | | | | | | | | |
| OpenVPN | Server port: | 443 () | | | | | | | | | |
| IPsec | Protocol: | TICP • O | | 0 | | | | | | | |
| P Services | Certificate: | OpenVPN_Se | weri_ci.pem | 0 | | | | | | | |
| Prioritization | Crent configuration and authentication: | Thom IP addres | 18 pool | | | | | | | | |
| System | Hirst IP address of pool: | 10.8.0.50 | 0 | | | | | | | | |
| information | Last IP address of pool: | 10.0.00 | | | | | | | | | |
| | Anow cient-to-client communication: | N O | | | | | | | | | |
| User admin 🗗 | Routing configuration | | | | | | | | | | |
| | Push OpenVPN server as default gateway: | 0 | | | | | | | | | |
| | Push route for LAN interface: | 1 | | | | | | | | | |
| | Push routes in static routing table: | | | | | | | | | | |
| | Additional settings | | | | | | | | | | |
| | Log level: | info 💌 | | | | | | | | | |
| | LZO compression: | adaptive . |) | | | | | | | | |
| | Cipher: | BF-CBC | -0 | | | | | | | | |

Screenshot of a configured OpenVPN-Server at tab VPN2.

| PNS VPN9 | VPN10 | State | L |
|----------|-------|-------|---|
| | | No. | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
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Figure 38: Configuration \rightarrow VPN \rightarrow OpenVPN \rightarrow Tab "State"

This screenshot is displaying the status of a configured OpenVPN-Client session (L3, VPN1, currently disconnected) and an OpenVPN-Server session (L3, VPN2, currently no connected remote clients).

| liagnostics | Configuration | VPN1 | VPN2 | VPN3 | VPN4 | VPN5 | VPN6 | VPN7 | VPN8 | VPN9 | VPN | 10 | State | | |
|--|--|-------------------------------|------------------|-------------------|------|------|-------------|-------|--------------|------|----------|----------|------------|--------|---|
| Configuration IP configuration | OpenVPN | | | | | | | | | | | | | | |
| SecureNow! | Current OpenV | Current OpenVPN server table: | | | | | | | | | | | | | |
| Cut & Alarm | Device | Certificate | | | | | | | IP Info | | Protocol | Local se | erver port | | 2 |
| General settings Access control | L3-VPN2 DpenVPN_Server1 (OpenVPN_Server1_cl.pem) | | | | | | 10.8.0.1/24 | | тср | 443 | | | | | |
| Network | Current OpenV | Surrent OpenVPN client table: | | | | | | | | | | | | | |
| OpenVPN | Device | Certificate | | | | | | | IP Info | | Protocol | Server a | address | Server | 8 |
| IPsec | L3-VPN1 | P OpenVPI | N_Client1 (OpenV | PN_Client1_cl.pen | n) | | | | OpenVPN/DHCP | | тср | 46.16.21 | 7.213 | 1194 | |
| Prioritization System Information User admin (); | L3-VPN1 | | | | | | | tion" | | | | | | | |
| | | | | | | | | | | | | | | | |
| | Apply settings | Reset ch | langes | | | | | | | | | | | | |

After configuration of OpenVPN sessions the configured connected will be displayed at a glance in this menu.

How to configure OpenVPN connections please refer to Appendix B (Link to technical documents about OpenVPN based remote access scenarios).

| 😪 Havorites 🏀 « IE-SR-2GT-UMT | S/3G-AX00687399 - IPsec » Contiguration State | | | - |
|---|--|--|--|---------------------------------------|
| Diagnostics | | | | |
| Configuration | IPsec | | | |
| SecureNow! | Fuchia Theory | | | |
| Packet filter | Enable IPsec: | | | |
| Cut & Alarm | Limit MTU: | | | |
| General settings | Enable PFS: | 8 | | |
| Access control | Allow weak encryption: | | | |
| Network | Local interface: | | | |
| ✓ VPN OpenI/RN | Local nexthop: | | | |
| IPsec | Level estrate | Use derault route (?) | | |
| Services | Authentication method: | C PSK Certificate | | |
| Prioritisation | PSK: | 0 | | |
| System | Certificate: | demo-client1.pem 💌 🕜 | | |
| ▶ Information | Send certificates: | if asked 💌 🕐 | | |
| | Log level: | info 💌 🕐 | | |
| User: admin 📑 | | | | |
| | | | | |
| | Current IPsec connections: | | | |
| | Active Connection name Operation | al mode Local ID Remote IP address | CA certificate Remote I | D Remote subnet 🗑 |
| | | No connections defined | | |
| | | | | |
| | | | | |
| | Add new connection: | | | |
| | Operational mode: | Active 🗾 🕐 | | |
| | Local ID: | | 0 | |
| | Remote IP address: | 0 | | |
| | CA certificate: | demoCA.pem 🗾 🕐 | _ | |
| | Remote ID: | | 0 | |
| | Remote subnet: | 0 | | |
| | Add entry Apply settings Re | set changes | | |
| Done | | | The Interview of the In | rnet 🖗 • 🐮 100% • |
| Figure 40: Confi | $quration \rightarrow VPN \rightarrow IPsec$ | $r \rightarrow Tab Configuration"$ | , , , , , , , , , , , , , , , , , | j m j ••••• //2 |
| | | | | |
| The IPsec menu IPsec implemen | allows to create and est tation. The Router can be | ablish virtual private netwo e configured both as IPsec | ork connections back client and IPsec s | ased on the standard server. |
| IPsec allows the level. IPsec prov | encryption of the comple vides encryption of subne | ete communication flow be ets, which are located behin | tween the Router nd the respective | and a remote site on IF VPN peers. |
| IPsec connection as well as certific Implemented IPs | ns can be used with both cate based encryption. sec features: | PSK encryption (pre-shar | ed key using user | name and password) |
| Key exchange: | IKE (Internet Key Exch Management Protocol) | ange) basedon ISAKMP (I | nternet Security A | ssociation and Key |
| IKE-Phases: Authentication: | Main-Mode (Phase 1) a X.509-certificates or Pi | and Quick-Mode (Phase 2) e-shared-key | | |
| DH groups: Data integrity: Encoding: Integrated hardv Ipsec mode: | DH group 1 MODP 768 MD5 (128bit), SHA1 (1 DES (64bit), 3DES (19 vare-based encoding ESP tunnel | 3, DH group 2 MODP 1024 60bit) 2bit), AES (128bit), AES (1 | , DH group 5 MOI 192bit), AES (256ł | DP 1536 bit) |
| Maximum numb NAT-Traversal: Dead-Peer-Dete | er of Ipsec connections: Yes ection: Yes | 64 | | |
| Noto: By dofa | ult the Pouter uses the | parameters AES128 M | | or Main-Mode and |

Note: By default the Router uses the parameters AES128, MD5, DH group 2 for Main-Mode and AES128, SHA1 for Quick-Mode. Authentication by "Aggressive-Mode is due to security reasons not supported!

| Image: Provide the state of | 110/priv/priv.php?id=DHCPSERVER | | 🔟 🖻 🤸 📈 | Live Search |
|--|-----------------------------------|-------------|---------|-------------------------------|
| worites 🏾 🏉 « IE-SR-2GT-UM | TS/3G-AX00687399 - DHCP server > | | | |
| Weidmüller IE-SR-2GT-I | Router Configuratio JMTS/3G | n | | Weidmüller 🟵 |
| SR-2GT-UMTS/3G 📙 | Configuration State | | | |
| Diagnostics | | | | |
| 7 Configuration | DHCP server | | | |
| IP configuration | | | | |
| SecureNow! | Activate DHCP server: | | | |
| Packet filter | Activate DHCP relaw | | | |
| Cut & Alarm | Activate processing. | | | |
| P General settings | On following interfaces: | LAN L WAN | | |
| P Access control | DHCP server: | | | |
| | | | | |
| ▼ Senices | Interface: LAN | | | |
| DHCP server | Starting IP address: | | | |
| Dynamic DNS | Ending IP address: | (seconds) | | |
| Web server | Drice lease time. | (occorrect) | | |
| SNMP | | | | |
| Modbus TCP | Interface: WAN | | | |
| Client monitoring | Starting IP address: | | | |
| Prioritisation | Ending IP address: | | | |
| System | DHCP lease time: | (seconds) | | |
| Information | | | | |
| | DHCP relay: | | | |
| User: admin 📑 | Automatic relay IP: | | | |
| | DHCP Relay 1st server IP address: | | | |
| | DHCP Relay 2nd server IP address: | | | |
| | | | | |
| | Apply settings Reset chan | ges | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | 🌏 Internet 🛛 🖓 🔹 🕅 🐳 🖓 100% 👻 |

In operating mode "IP Router", the built-in DHCP server can be used for allocating IP addresses on both LAN-side and WAN side. By default (factory settings) the DHCP server is switched off.

Note:

The range of the IP addresses – which will be allocated to connecting DHCP clients - must be in the same range as the IP address of the Router interface (LAN or WAN).

Alternatively, the Router can be configured as a DHCP relay. DHCP requests from clients which require an IP address are then forwarded to the "real" DHCP server.

| « IE-SR-2GT-UMTS/3G-AX006 | 587399 - Dynamic DNS » - Windows Ir | nternet Explorer | | | _8× |
|------------------------------|-------------------------------------|----------------------------|------------------|-----------------------|--------------|
| 🖉 🗢 🙋 http://192.168.1 | .110/priv/priv.php?id=DYNDNSSERV | | | 💌 🗟 🐓 🗙 🎝 Live Search | P - |
| Favorites 🏾 🏀 « IE-SR-2GT-UN | 4TS/3G-AX00687399 - Dynamic DNS » | | | | |
| Weidmüller IE-SR-2GT- | r Router Configurat UMTS/3G | ion | | | Weidmüller 🗲 |
| E-SR-2GT-UMTS/3G | Configuration | | | | |
| Diagnostics | oomgaration | | | | |
| Configuration | Dynamic DNS | | | | |
| SecureNow! Packet filter | Enable Dynamic DNS: | | | | |
| Cut & Alarm General settings | www.dvndns.org.username.pas | ssword and dynamic domain: | | | |
| Access control | User name: | | 0 | | |
| P Network | User password: | | 0 | | |
| V VPIN | Dyndns.org registered domain: | | 0 | | |
| - Services | Network Interface: | WAN (DSL) - 0 | | | |
| Druce Server | | | | | |
| Web server | Apply settings Reset of | hanges | | | |
| SNMP | | | | | |
| Modbus TCP | | | | | |
| Client monitoring | | | | | |
| Prioritisation | | | | | |
| System | | | | | |
| Information | | | | | |
| | | | | | |
| User: admin 📑 | | | | | |
| | | | | | |
| gure 42: Conf | figuration → Serv | rices → Dynamic DN | S → Tab "Configu | uration" | |
| | - | - | | | |

This feature allows the Router - if connected to the Internet using dynamic IP address allocation - to be accessed by a "speaking" name via the public Dynamic DNS service of provider "DynDNS.org".





| vorites 🤗 « IE-SR-2GT-UM | 1T5/3G-AX00687399 - SNMP > | | | | |
|--------------------------|-------------------------------|------------|----------|--------------|---|
| 12-510-201- | 01113/30 | | | | |
| R-2GT-UMTS/3G 📕 | Configuration | | | | |
| Diagnostics | 5 | | | | |
| Configuration | SNMP | | | | |
| P configuration | | | | | |
| SecureNow! | Enable SNMP: | | | | |
| Packet filter | | | | | |
| Cut & Alarm | | | | | |
| General settings | SNMPv1/v2: | | | | |
| Notwork | SNMPv3: | | | | |
| | | | | | |
| 7 Services | SNMP read only access: | | | | |
| DHCP server | Community Name: | | 0 | | |
| Dynamic DNS | Community IP: | 0 |) | | |
| Web server | Community network mask: | 0 | | | |
| SNMP | SNMP read/write access: | | | | |
| Modbus TCP | Community Name: | | 0 | | |
| Client monitoring | Community IP: | 0 |) | | |
| Prioritisation | Community network mask: | 0 | | | |
| retern | | | | | |
| formation | SNMPv3 username and encry | ption: | | | |
| loinidaon | User name read only: | | 0 | | |
| User: admin 📑 | Password: | | 0 | | |
| | User name read/write: | | U O | | |
| | Password: | | <i>v</i> | | |
| | Preshared Key for encryption: | | 0 | Generate PSK | |
| | SNMP traps: | | | | |
| | Enable SNMP Trap Generation | n: 🔲 🕐 | | | |
| | SNMP Trap Community Name | : | 0 | | |
| | SNMP Trap Receiver IP: | | 0 | | |
| | | | | | |
| | Apply settings Rese | et changes | | | _ |

Activation / deactivation of the SNMP protocol (Simple Network Management Protocol). Versions v1/v2/v3 are supported. Router data can be requested using Standard MIB-II. **Note: Currently no SNMP-traps are implemented.**

| 🔊 💌 🔊 http://192.168.1.110/priv/priv.php?id=MCOBUSTCP | |
|--|---|
| Favorites 👩 « IE-SR-2GT-LMT5/3G-AX00687399 - Modbus TCP » | |
| Weidmüller Router Configuration Weidmüller ≆ IE-SR-2GT-UMTS/3G | |
| SR-2GT-UMTS/3G H Configuration | |
| Diagnostics | |
| Configuration Modbus TCP | |
| SecureNowl Enable Modbus TCP server: Packet filter Server port: Server port: OO Cut & Alarm Client address: Client address: O Access control Password: Ox O Network: Verbose logging: Verbose logging: O ShiMP ShiMP | |
| Client monitoring | |
| gure 45: Configuration \rightarrow Services \rightarrow Modbus TCP \rightarrow Tab "Configuration" | |
| tivation / deactivation of the integrated ModbusTCP-Server. Allows external Ethernet controllers that und- stand the ModbusTCP protocol to query Router states and control information. Using the ModbusTCP otocol e.g. VPN connections (IPsec and OpenVPN) can be activated and deactivated. Additionally events e "Cut" or "Alarm" can be monitored and reset (acknowledged). | - |

| E-SR-2GT- | UMT5/3G | | | | |
|-------------------|---------------------------|---------------|---------------------------|---------|-------|
| SR-2GT-UMTS/3G | Configuration | | | | |
| Diagnostics | | | | | |
| Configuration | Client monitoring | | | | |
| IP configuration | | | | | |
| SecureNow! | Current monitoring table: | | | | |
| Packet filter | | | | | |
| Cut & Alarm | IP address | Delay(ms) | Packet loss(%) | Action | State |
| General settings | a nuoress | Den y(may | Monitoring table is empty | Piction | State |
| Access control | | | Monitoring table is empty | | |
| Network | E-mail server: | | | | |
| ▶ VPN | | | | | |
| Services | E-mail address: | | | | |
| DHCP server | | | | | |
| Dynamic DNS | Add new entry: | | | | |
| Web server | rad new energy | | | | |
| SNMP | IP address: | Delay: | Packet loss: | Action: | |
| Modbus TCP | 1 | ms | 96 | none 💌 | Ø |
| Client monitoring | | | | Alarm | |
| Prioritisation | Add entry Apply settings | Reset changes | | Cut | |
| System | | | | | |
| Information | | | | | |
| | | | | | |
| | | | | | |

Allows the monitoring (still alive?) of network devices via a cyclic query using the ICMP protocol (ping request). As an action if a monitored Ethernet device is no longer available an "Alarm" or a "Cut" event can be triggered. Additionally the connection to a mail server and a target mail address can be configured to send the information about a lost connection of a monitored device by (faith a L2).

Fore more detailed information please refer to Appendix C2 (Method 3).

| IE-SR-2GT-UNT\$/3G Configuration Plagnostics Configuration Pioritisation Prioritisation WAN SecureNowl Enable prioritisation table: Packet filter Interface bitrate limit: 1024000 KBI/S @ Current prioritisation table: Potentiation Image: Configuration table: Potontisation Image: Configuration table: Potentiation Image: Configuration table: Pointisation Image: Configuration table: Pointisation Image: Configuration table: Pointisation Image: Configuration table: Pointisation Image: Configuration table: | Œ |
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| ISBR-20T-UMTS/3C ▶ Diagnostics ▼ Configuration ♥ configuration Becureflowi Packet filter Packet filter Cut & Alam ▶ General settings ▶ Access control ▶ Network ▶ VPN ▶ Istwork ▶ VPN > Swinelss ♥ Prioritisation class: ② LAN 3G ▶ System ▶ letwork ▶ Istrate ② ▶ Information Utter semine Prioritisation class: ③ Lan Lan Lan Lan Lan Lan Lan La | |
| ▶ Diagnostics ▼ Configuration IP configuration SecureNowl BacketTilter Interface bitrate limit: Cut & Alarm P General settings Current prioritisation table: ▶ Access control ▶ Access control ▶ Access control ▶ Access control ▶ Network: ▶ Access control ▶ Network: ▶ Configuration cass: ③ ✓ Prioritisation WAN Add new prioritisation class: ③ Shaping criteria: P: ☑ MAC: Ethernet: VLAN: ③ ③ ▶ System ▶ Description ④ Bitrate ④ ▶ KBit/s ○▼ P priority ④ ▶ Information KBit/s ○▼ Use: admine Direction MAC address ④ IP address ③ Source: □ | |
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| ▶ General settings Current prioritisation table: ▶ Access control ▶ T Direction MAC address IP address Subnet mask TCP/UDP port ▶ Network ▶ VPN The prioritisation table is empty. The prioritisation table is empty. Add new prioritisation class: ③ ▶ VPN Add new prioritisation class: ④ Add new prioritisation class: ④ Ethernet: □ VLAN: □ ④ ₩AN Add new prioritisation class: ④ Discription ④ Bitrate ④ Priority ④ IP protocol ④ Ethernet protocol ④ IP Type of Service ④ VLAN ID ④ VLAN Qos ▶ system Description ④ Bitrate ④ Priority ④ IP address ⑦ Subnet mask ② TCP/UDP port ④ User: admin ⊕ Direction MAC address ② IP address ⑦ Subnet mask ② TCP/UDP port ④ | |
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| ▶ Services ▼ Prioritisation WAN Add new prioritisation class: ③ LAN 3G > Shaping criteria: IP: ♥ MAC: Ethernet: VLAN: ③ Description ③ Bitrate ③ Priority ③ IP protocol ③ IP Type of Service ③ VLAN ID ③ VLAN QOS Description ④ Bitrate ③ Priority ③ IP address ④ Source: Source: | |
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| WAN Add new prioritisation class: ③ LAN 3G 3G Shaping criteria: P system Description ③ Bitrate ③ Priority ③ IVer admin IP User admin Direction MAC address ③ IP address ③ Source: IP | |
| Shaping criteria: JP: F MAC: Ethernet: VLAN: © System Description ② Bitrate ③ Priority ③ IP protocol ③ IP Type of Service ③ VLAN ID ③ VLAN QoS Information KBit/s O = Image: Signature and the signatetee and the signature and the signature and the signat | |
| > System Description (?) Bitrate (?) Priority (?) IP protocol (?) Ethernet protocol (?) IP Type of Service (?) VLAN ID (?) VLAN QOS Imformation Image: service (?) Image: service (?) Image: service (?) Image: service (?) VLAN QOS User admin Direction MAC address (?) Image: service (?) Image: servic | |
| Direction MAC address ? IP address ? Subnet mask ? TCP/UDP port ? Source: | 3 |
| Uter admin Direction MAC address () IP address () Subnet mask () TCP/UDP port () Source: | |
| Source: | |
| | _ |
| Destination: / | |
| | |
| Add entry Apply settings Reset changes | |
| gure 47: Configuration \rightarrow Prioritization \rightarrow WAN \rightarrow Tab "Configuration" | |
| /ith this feature outgoing traffic on the WAN interface can be classified and prioritized. The prioritize | atio |

addresses and protocols).

| 🔊 🗢 🖉 http://192.168.1.: | 110/priv/priv.php2id=PRTOLAN | | | | 🔽 💀 🆛 🗙 ಶ live Se | sarch | Q - |
|---|---|---|---|---|--|---------------------------------|-----------------|
| Favorites A KE-SR-2GT-UM1 | T5/3G-AX00687399 - Prioritisation LA | 1 | | | | arar | |
| Weidmüller IE-SR-2GT-L | Router Configurati UMTS/3G | on | | | | Weidmü | ller ≆ |
| IE-SR-2GT-UMTS/3G | Configuration | | | | | | |
| Diagnostics | | | | | | | |
| Configuration | Prioritisation LAN | | | | | | |
| SecureNow! Packet filter Cut & Alarm | Enable prioritisation: 🔽 🕐 Interface bitrate limit: 1024000 | KBit/s 🕐 | | | | | |
| General settings Access control | Current prioritisation table: | | | | | | |
| Network | 🔺 💌 🔒 Directio | on MAC addre | 255 | IP address | Subnet mask | TCP/UDP port | |
| VPN ▶ Services ▼ Prioritisation | | | The pric | ritisation table is empty. | | | |
| WAN | Add new prioritisation class: | 0 | | | | | |
| 3G | Shaping criteria: IP: 🔽 | MAC: 🗖 Ethernet: 🗖 VLA | N:□ (2) | | | | |
| System Information | Description ⑦ Bitra | te ⑦ Priority ⑦ KBit/s 0 • | IP protocol (?) | Ethernet protocol (?) | IP Type of Service ⑦ | VLAN ID ⑦ VLAN | QoS () |
| User: admin 🗗 | Direction MAC ad Source: Destination: | dress () | IP address (?) | | bnet mask ⑦ | TCP/UDP port ⑦ | |
| | Add entry Apply s | ettings Reset chang | es | | | | |
| gure 48: Confi /ith this feature traffic shaping | iguration → Prior e outgoing traffic ") can be configu | itization \rightarrow L/ c on the LAN red on both L | AN → Tab , interface c .aver 2 (bas | ,Configuratio an be classifi sed on MAC | n" ed and prioritiz addresses) and | ed. The prior I at Laver 3 (| itizatior IP |

addresses and protocols).

| * IE-SR-2GT-UMTS/3G-AX0068 • Image: http://192.168.1.1 | 7399 - Prioritisation 3G » - Wind 10/priv/priv.php?id=PRIOUMTS | ows Internet Explorer | | | 🗴 🗟 🍕 🗙 🌠 Live S | earch | |
|--|--|---|--|---|---|------------------------------------|------------------|
| Weidmüller IE-SR-2GT-U | Syde-Ax00687399 - Prioritisation 3G * Router Configura IMTS/3G | ation | | | | Weidmüll | er æ |
| IE-SR-2GT-UMTS/3G Diagnostics Configuration IP configuration SecureNow! Packet filter Cut & Alarm | Configuration Prioritisation 3G Enable prioritisation: C () Interface bitrate limit: 7200 | KBit/s 🕐 | Note: This optic UMTS/30 | n is only ava which is equ | ilable for Route uipped with an i | r model IE-SR ntegrated 3G r | -2G- nodem. |
| General settings Access control Network VPN Services Priortitisation | Current prioritisation table | e: ction MAC add | tress The pr | IP address oritisation table is empty. | Subnet mask | TCP/UDP port | - |
| WAN LAN 3G P System | Add new prioritisation cla Shaping criteria: IP: Description (?) Bit | ss: ⑦ MAC: Ethernet: Vi | AN: ⑦ IP protocol ⑦ | Ethernet protocol ③ | IP Type of Service (2) | VLAN ID ③ VLAN Q | os () |
| V information User: admin 🗗 | Direction MAC Source: Destination: | address () | IP address (? | s / | aubnet mask (?) | TCP/UDP port (?) | _ |
| Figure 49: Confi With this feature prioritization ("tra (IP addresses an | addentry App guration → Price outgoing traff affic shaping") nd protocols). | Ny settings Reset cha oritization → 3 fic on the 3G can be config | ^{nges} }G → Tab " wireless in ured on bot | Configuratior t erface can b h Layer 2 (ba | n" be classified and ased on MAC ac | d prioritized. Ti Idresses) and | ne at Layer 3 |



| R-2GT-UMTS/3G | System |
|-----------------|--|
| iagnostics | |
| onfiguration | Backup settings |
| ystem | normality accounter |
| Backup settings | Manually save the system settings |
| Software update | Backup the current system settings of the device to a file on your local machine with "Download settings". |
| actory defaults | |
| lave | |
| Reboot | Restore the device settings |
| formation | Backup file: Drowse |
| User admin 🗗 | Download settings Restore settings |
| | |
| | |

connected computer. The exported configuration file is of extension type <name>.cf2 and encrypted. **Note**: For creating a configuration backup file (.cf2) always the configuration currently stored in the Flash memory will be used. Please save the configuration to Flash memory before creating a backup file.

| Weidmüller IE-SR-2GT-L | Router Configuration Weidmüller . IMTS/3G |
|--|---|
| IE-SR-2GT-UMTS/3G | Svistem |
| Diagnostics | o juur |
| Configuration | Coffeence undeb |
| ▽ System | Software update |
| Backup settings | Warning: |
| Software update | The firmware update may take several minutes. |
| Factory defaults | Please do not turn off the power or press the reset button. |
| Save | The update MUST NOT be interrupted! |
| Reboot | |
| Uter soming | Update from firmware server () Update protocol: Server address: Pilename and location: Update by browser upload () Browse Set the 'factory defaults' of the new firmware. () Set the 'factory defaults' of the new firmware. () Start Update em → Software update → Tab "System" |
| | |
| /ith this menu i | tem a firmware update can be carried out. |
| he firmware up are file directly he easiest wa pload". | date can be done via a FTP, TFTP or HTTP server or by a browser upload getting the firm from the connected configuration PC. y to update the Router with a new firmware is to use the function "Update by browse |

Additionally it can be determined whether the Router should be reset to factory default settings after the firmware update. If not set then the Router will use current configuration after firmware update.

| A 1E-SR-2GT-LIMT5/3G-AX005873 | 99 - Factory defaults » - Windows I | stenet Fulierer | | X |
|--|--|--|------------------------------|-----------|
| () • (2) http://192.168.1.110 | /priv/priv.php?id=FACTORYDEFAULTS | | 🗾 🗟 🍜 🗶 ಶ Live Search | P - |
| 🙀 Favorites 🏾 🏀 « IE-SR-2GT-UMTS/: | 3G-AX00687399 - Factory defaults > | 1 | | |
| Weidmüller R IE-SR-2GT-U | outer Configuratio | n) | Wei | dmüller Œ |
| IE-SR-2GT-UMTS/3G ini Diagnostics Configuration System Backup settings Software update Factory defaults Save Reboot Information | ystem Factory defaults Warning: Resetting the device to its fa cause all changes that have The unit will reboot once thi Reset to factory defaults | ctory default configuration will seen made to the unit to be permanently lost. s function is executed. | | |
| Figure 52: Syster | n → Factory def | aults → Tab "System" | | |
| With this menu ite | em the Router ca | an be set to factory default settir | ngs. | |
| Please note that between the Rou | doing a reset to ter and the confi | factory values the IP addresses guration PC can be lost. | s will be changed and the co | nnection |
| Basic factory sett IP address LAN p IP address WAN User name : Password : | ings: port : 192.16 port : 192.16 admin Detmo | 8.1.110 8.2.110 Id | | |

| IE-SR-2GT-U | And activated but not saved. Clicking on the icon the web interface jumps into this menu item (regardless the window which currently is displayed) | iller ≯ |
|-----------------------------|---|---------|
| Diagnostics | | |
| Configuration | free contract of the second | |
| System | Save | |
| Backup settings | | |
| Software update | Jaar or you current comingination. Changes made | |
| Factory defaults | State of configuration on rard in SCM slot- | |
| Save | International and the second | |
| Reboot | | |
| nformation User: admin 🕞 | Save the currently active changes you've made to the non-volatile flash memory of the device (and on a potentially inserted card in the SCM slot). Save settings | |
| | | |

Save the configuration into flash memory of the device. If a SIM memory card is inserted in the memory card slot (SCM) at the rear side of the Router then additionally the device configuration will be stored on the SIM memory card.

| ile Edit View Favorites Tools Help | | |
|---|---|--------------|
| } • ⊠ • ⊡ ⊕ • | Page ≠ Safety ≠ Tools ≠ @ ≠ 🛍 | |
| Weidmül IE-SR-2G | er Router Configuration T-LAN | Weidmüller 🕉 |
| IE-SR-2GT-LAN | System | |
| Diagnostics | | |
| Configuration | - Course | |
| | Save | |
| | | |
| System Backup settings | State of your current configuration: no changes made | |
| Software update | State of your current configuration: no changes made | |
| System Backup settings Software update Factory defaults | State of your current configuration: no changes made State of configuration on card in SCM slot: no card in SCM slot | |
| System Backup settings Software update Factory defaults Save | State of your current configuration: no changes made State of configuration on card in SCM slot: no card in SCM slot: Save settings Save settings | |
| System Backup settings Software update Factory defaults Save Reboot | State of your current configuration: no changes made State of configuration on card in SCM slot: no card in SCM slot: Save settings Save settings | |

| A USE OF SEX LINES /SE ANO | | | | | |
|-------------------------------|---|------------------------|--------------|--|--|
| C « IE-SR-2GT-UMTS/3G-AX00 | 687399 - Reboot » - Windows Internet Explorer | | | | |
| G ♥ Ø ♥ Ø http://192.168. | 1.110/priv/priv.php?id=REBOOTBUT | 💌 😸 🤧 🗶 My Live Search | | | |
| 🔶 Favorites 🛛 🌈 « IE-SR-2GT-L | MTS/3G-AX00687399 - Reboot > | | | | |
| Weidmülle | r Router Configuration | | Weidmüller 🏵 | | |
| | IMTE/2C | | | | |
| IE-SR-2GT | UWI 5/30 | | | | |
| | | | | | |
| IE-SR-2GT-UMTS/3G | System | | | | |
| Diagnostics | | | | | |
| Configuration | Reboot | | | | |
| ✓ System | Nebool . | | | | |
| Backup settings | State of your current configuration: changes made | | | | |
| Software update | some of your current configuration. changes made | | | | |
| Factory defaults | | | | | |
| Save | | | | | |
| Reboot | Discard the changed settings by rebooting the device. | | | | |
| Information | Kebool | | | | |
| | | | | | |
| User: admin 📑 | | | | | |
| | | | | | |
| Figure 55: Syste | em → Reboot → Tab "System" | | | | |
| ga. e ee. ejer | | | | | |
| Eoroing a roboc | at of the Poutor | | | | |
| i ording a report | | | | | |
| | | | | | |
| The status mes | sage indicates whether the current configuration is s | aved or not. | | | |
| | | | | | |

A. Application scenarios (Uses cases) for Routing, NAT and Firewalling

A1 - Configuring the Router to connect 2 networks with different IP address ranges

This Technical Note applies to the Weidmüller Industrial Router IE-SR-2GT-LAN and IE-SR-2GT-UMTS/3G

Application requirements:

There are 2 industrial Ethernet networks which shall be connected by the Router. Each network has its own IP address range. Every Ethernet node in both networks shall have the possibility to communicate with each other. No special firewall filter rules shall be configured.

In this example the IP address ranges are set to

192.168.**10**.0 / 255.255.255.0 for Network 1 and 192.168.**20**.0 / 255.255.255.0 for Network 2

The Router interfaces will be set to

| 192.168. 10 .254 / 255.255.255.0 | for LAN interface and |
|---|-----------------------|
| 192.168. 20 .254 / 255.255.255.0 | for WAN interface |

Network diagram of below described application scenario



How to configure the Router

Starting situation

The Router is set with factory default values and can be accessed either using the LAN port by IP address 192.168.1.110 or using the WAN port by IP address 192.168.2.110.

1. Connect the configuration PC to the Router using the LAN Port (this port will be used in the example). Note: Use autonegotiation on the Ethernet Interface of the PC

2. Change the IP address of the PC to one of the range 192.168.1.0 / 24 $\,$

| → e.g. | IP address | 192.168.1.99 |
|--------|-----------------|--|
| | Subnet mask | 255.255.255.0 |
| | Standardgateway | can be left blank due to direct cable connection |

3. Start a web browser and login into the web Interface of Router (http://192.168.1.110)

| User: | admin |
|-----------|---------|
| Password: | Detmold |

| Image: Section of the sectin of the section of the section of the sect | s IF-SR-2CT-LAN-AX00730692 - System State » - Windows Internet Explorer | | | | | | | |
|---|---|---|---|-----------------|---------|---------------------------------------|------------------|---------------------------|
| Date Beacheter Andoh Feveraten Edites ? Prover Configuration System data Sys | 🕒 🗢 🖉 http://192. | y 😔 💌 😰 http://192.168.1.110/priv/priv.php?id=STARTPAGE | | | | | P - | |
| Partner Partner Status Partner Watchmüller Router Configuration Watchmüller Router Loure Watchmüller Router Configuration Base Status | Datei Bearbeiten Ansicht | Favoriten Extras ? | | | | | | |
| Notice Status Status Exact LAN Status Diagonalis Oits Status Diagonalis Status Diagonalis Status | 🚖 Favoriten 🛛 🏀 « IE-SR-2 | GT-LAN-AX00730692 - System State > | | | | 🙆 • 🗟 - | 📑 🖶 🔹 Seite 🗸 | Sicherheit 🔹 Extras 🔹 🔞 🕶 |
| IBERGENE System fails System fails System fails System fails System fails East file Data fails Data | Weidmüller IE-SR-2GT- | Router Configuration | | | | | | Weidmüller 🏵 |
| Vision System data System data System data Exercisor E-SR-20T-LAH-AX00730822 Data time: 0.43156 up 0 mil, losd average: 0.23, 0.06, 0.01 WAN Sensitio: A300730822 Data time: 0.43156 up 0 mil, losd average: 0.23, 0.06, 0.01 WAN Sensitio: 2.23, Guid 61303) Pace tunnels: 0 MacAddress UAN: 0.01575 FE 00.01 MacAddress LAI: 0.01575 FE 00.01 MacAddress LAI: 0.01575 FE 00.01 Berlow System usage Provider Provider Provider Pace tunnels: 0 View new Network statistic Internation System data Network statistic WAN Receive | IE-SR-2GT-LAN | | | | | | | |
| Bystem State System name: E-SR-20T-LAI-X00730692 Date & tim:: Staturdsy, 08 Jan. 2000, 04.31 (EuropeBerlin) WAAA Device type: E-SR-20T-LAI Uptime: 04.31 56 up 0 mn, load average: 0.23, 0.6, 0.01 WAAA LAI Device type: E-SR-20T-LAI Uptime: 04.31 56 up 0 mn, load average: 0.23, 0.6, 0.01 WAAA LAI Dopt/VPI seasion: Matter: active 0, listening 0, Clents: 0 Ping seti Bencis capture Network statistic 01.57 7E 50.001 MAC-Address VAII: 00.157 7E 50.001 Mac-Address VAII: 01.57 7E 50.001 Mac-Address VAII: 01.57 7E 50.001 System usage Past: Pindermation Pinder 180 Item res 180 Usa: mode Wain Secole Pinder 180 Item res Win Receive Wain Secole Wain Secole WAN Item res 192.168.1.110 / 255.255.255.0 static disabled WAN Transme Max Max Secole and clear c | | System data | | System sta | ite | | | |
| Eventog Device type: E.S.R.20T-LAN WAN AX00730692 WAN Serial-No:: AX00730692 Optime:: Prigital MacA-address VAN: ACA-ddress VAN: O1:57EF0:001 MacA-address LAN: O1:57EF0:000 Device mode: Proter Proter Prote | System State | System name: | E-SR-2GT-LAN-AX00730692 | Date & time: | | Saturday, 08 Jan 2000, 04:31(Eur | ope/Berlin) | |
| Seria: No.: AX00730892 Ping test 2.3 (Buld 61039) Ping test 0:57:EF:0:00 Mc.Caddress VAN: 0:157:EF:0:00 Bevice mode: Prouter Poing test Match address VAN: Device mode: Prouter Bevice mode: Prouter Network statistic Interface: WAN Receive Interface: Interface | Eventlog | Device type: | E-SR-2GT-LAN | Uptime: | | 04:31:56 up 0 min, load average: 0 | 0.23, 0.06, 0.01 | |
| Latest five messages Ventions Ventions Latest five messages Ventions Statistic Image to the statistic | WAN | Serial-No.: | AX00730692 | OpenVPN se | ssions: | Masters: active 0, listening 0, Clier | nts: 0 | |
| Premie service Remote sorture Configuration Perice mode: Proder Proder <td>LAN</td> <td>Firmware version:</td> <td>2.2.3 (Build 61039)</td> <td>IPsec tunnels</td> <td>c.</td> <td>0</td> <td></td> <td></td> | LAN | Firmware version: | 2.2.3 (Build 61039) | IPsec tunnels | c. | 0 | | |
| Vectoringuration P Configuration P option derivation Device mode: P router P router Device mode: P router </td <td>Ping test</td> <td>MAC-Address WAN:</td> <td>00:15:7E:FE:00:01</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> | Ping test | MAC-Address WAN: | 00:15:7E:FE:00:01 | 1 | | | | |
| P configuration Device mode: P router P bysiem Device mode: P router Internation Network statistic CPU: 24% WAR Receive WAR Interface state Netransmin WAR Receive Interface P Assignment DKCP Server WAR Receive Interface Network statistic Network statistic WAR Receive Interface Interface state Network statistic WAR Receive Interface Network statistic Use statistic Use statistic Interface state Network statistic Use statistic WAR Receive Interface state Network statistic Use statistic WAR Receive Interface state Network statistic Use statistic WAR Receive Interface state Network statistic Use statistic Use statistic Interface state Interface state Network statistic Use statistic Use statistic Interface state Interface state Interface state Network statistic Interface state Interface state Interface state Interface state Network statistic< | Remote capture | MAC-Address LAN: | 00:15:7E:FE:00:00 | System us | age | | | |
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| Internation CPU: 24% user some T Network statistic Interface: WAIN Interface state WAIN Receive interview | [▶] System | | | Memory: | | 21% | | |
| uer:norm? Network statistic Interface: WAIN Interface state | P Information | | | CPU: | | 24% | | |
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| WAN Receive immunic WAN enabled 192:168.2110/255.255.0 static disabled WAN enabled 192:168.1110/255.255.255.0 static disabled Latest five messages Eventog Jan 8 04:31:45 E-SR-2GT-LAN-AX00730692 system: E-SR-2GT-LAN 2.2.3 SVH-R6 199.B-61039, system ready! Jan 8 04:31:45 E-SR-2GT-LAN-AX00730692 system: E-SR-2GT-LAN 2.2.3 SVH-R6 199.B-61039, system ready! Jan 8 04:31:36 E-SR-2GT-LAN-AX00730692 stating daemon for etherned connections Reload | | Interface: WAN | | Interface | State | IP/Netmask | IP Assignment | DHCP Server |
| Image Image <t< td=""><td></td><td>WAN Receive</td><td>Mbjs</td><td>WAN</td><td>enabled</td><td>192.168.2.110 / 255.255.255.0</td><td>static</td><td>disabled</td></t<> | | WAN Receive | Mbjs | WAN | enabled | 192.168.2.110 / 255.255.255.0 | static | disabled |
| tig | | 100 | Mb/s Mb/s | LAN | enabled | 192.168.1.110 / 255.255.255.0 | static | disabled |
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| tage trig to the set of the set | | | | | | | | |
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| vuicklinks: Securettowt Reload | | Jan 8 04:31:36 IE-SR-2GT-LAN-AX0073069 | 2 adsdpd: Starting daemon for ethernet connection | s | | | | |
| stig | | Quicklinks: SecureNow! | | | | | | Reload |
| atbg | | | | | | | | |
| | Fertia | | | | | 🔂 🔂 Internet | | Va • • 85% • · |

Figure A1-1: Login page of the Router (equivalent with menu Diagnostics \rightarrow System State)

4. Set the basic IP configuration

► Select menu Configuration → IP configuration

| 🥖 « IE-SR-2GT-LAN-AX007 | 30692 - IP configuration > | - Windows Intern | et Explorer | | 8 <u>- D ×</u> |
|-------------------------------------|--|------------------|-------------|----------------------------|-----------------------|
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| Weidmüller IE-SR-2GT- | ^r Router Configu LAN | iration | | We | idmüller ≆ |
| IE-SR-2GT-LAN ▶ Diagnostics | Configuration | | | | |
| ♥ Configuration IP configuration | IP configuration | | | | |
| SecureNow! Packet filter | Operational mode: | IP router | • (? | | |
| Cut & Alarm General settings | WAN: | | | | |
| P Access control | IP assignment: | static | • ? | | |
| Network | IP address: | 192.168.2.110 | | | |
| Services | Subnet mask: | 255.255.255.0 | | Screenshot of the defa | ault IP |
| Prioritisation | NAT (Masquerading): | | | configuration of the Ro | outer |
| [▶] System | LAN: | | | | Sator |
| Information | | | | | |
| | IP assignment: | static | • ⑦ | | |
| User: admin 📑 | IP address: | 192.168.1.110 | | | |
| | Subnet mask: | 255.255.255.0 | | | |
| | NAT (Masquerading): | | | | |
| | Default gateway: IP address: | | 0 | | |
| | Apply settings R | leset changes | | | |
| ttp://www.weidmueller.com/ie | | | | 👩 🚱 Internet | √4 + € 85% + |

Figure A1-2: Default values of menu IP configuration

► Configure the menu entries as following shown

| Operational mode: IP address parameters WAN Port: | IP Router static 192.168. 20 .254 255.255.255.0 (Class C) |
|---|---|
| | NAT (masquerading) not set (leave checkbox empty) |
| IP address parameters LAN Port: | static 192.168. 10 .254 |
| | 255.255.255.0 (Class C) |
| | NAT (masquerading) not set (leave checkbox empty) |
| Default gateway C | an be left blank because there exists no further target network |

► Click button "Apply settings" to activate the new settings.

Now the configured parameters will be **activated (but not saved)**. After a few seconds the web interface displays the new IP addresses as shown in Figure 3. Please keep in mind that you now have lost the Router connection due to changing the IP address range of your connected LAN port.

| 🖉 « IE-SR-2GT-UMTS/3G | AX00711578 » - Windows Internet Explorer | | 8_0> |
|----------------------------------|---|---|-----------------------|
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| Weidmülle IE-SR-2GT | r Router Configuration -UMTS/3G | Weidn | nüller 3 E |
| IE-SR-2GT-UMTS/3G Diagnostics | Please wait, loading | | |
| Configuration | | The network settings are changed. | |
| System | 11 | your connection is interrupted click on the respective link below. Choose the interface you are connected at. | |
| P Information | If no connection can be established pl | ease check the IP configuration of your computer and the cabling. In some cases it may be necessary to delete the ARP cache of your compute | er. |
| | | IP address LAN: (192.168.10.254) | |
| User: admin 🗗 | | IP address WAN: (192.168.20.254) | |
| | | Screenshot of Router showing the changed IP addres | ses |

Figure A1-3: Display of activated new IP addresses of LAN and WAN port

4. Change the IP address of the configuration PC according to the connected network 192.168.10.0 / 24

► To reconnect to the Router now set the IP address of the PC to the new values

| IP address: | 192.168.10.99 |
|-------------------|----------------|
| Subnet mask: | 255.255.255.0 |
| Standard-Gateway: | 192.168.10.254 |

► Again login into the Web interface of the Router using a Web browser

Use IP address 192.168.10.254 (<u>http://192.10.1.254</u>) on LAN port

| User: | admin |
|-----------|---------|
| Password: | Detmold |

| 💽 🗢 🖉 http://192. | 168.10.254/#Confi | guration | | | | 💌 🐓 🗙 🕞 Bing | | <u>۹</u> |
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| IE-SR-2GT-UMTS/3G | | | | | | | | |
| ♥ Diagnostics | System data | | | System s | ate | | | |
| System State | System name: | | IE-SR-2GT-UMTS/3G-AX00711578 | Date & time | | Tuesday, 29 May 2012, 12:45 | (Europe/Berlin) | |
| Eventlog | Device type: | | IE-SR-2GT-UMTS/3G | Uptime: | | 12:45:34 up 3:00, load averag | e: 0.23, 0.08, 0.01 | |
| WAN | Serial-No.: | | AX00711578 | OpenVPN s | essions: | Masters: active 0, listening 0, | Clients: 0 | |
| LAN | Firmware versio | n: | 2.2.3 (Build 61298) RETA VEDSIONIII | IPsec tunne | ls: | 0 | | |
| 36 | MAC-Address W | AN: | 00:18:92:01:E0:AF | i. | | | | |
| Ping test | MAC-Address L | AN: | 00:18:92:01:E0:AD | System u | sage | | | |
| Remote capture | Device mode: | | IP router | Flash: | | 18% | | |
| | | | | Memory: | | 26% | | |
| IP configuration | | | | CPU: | | 3% | | |
| SecureNow! | | | | | | | | |
| Packet filter | Network stati | stic | | Interface | state | | | |
| Cut & Alarm | Interface: | WAN - | | Interface | State | IP/Network mask | IP Assignment | DHCP Server |
| General settings | WAN Receive | E 1000 Mb) 100 Mb) | 5 | WAN | enabled | 192.168.20.254 / 255.255.255.0 | static | disabled |
| Access control | | 1 Mb | | LAN | enabled | 192.168.10.254 / 255.255.255.0 | static | disabled |
| P Network | L | | - | 3G | disabled | • | | |
| P VPN | WAN Transm | 1000 Mb) 200 Mb) | 1 | | | N | | |
| P Services | | 1 Mb) 10 kb) | | | | | | |
| P Prioritization | | | - | | | | | |
| System | 1 | | | | | | | |
| Information | Latest five m | essages | | | | | | |
| | May 29 12:44:50 | E-SR-2GT-UMTS-AX007115 | 78 config.db: 'WAN IP address' = '192.168. | 20.254' | | | (| |
| User: admin 📑 | User admin May 29 12:44:50 IE-SR-2GT-UMTS-AX00711578 config.db: 'LAN IP address' = '192.168.10.254' | | | 0.254' | | Screenshot | of the Rou | uter |
| | May 29 12:44:50 | IE-SR-2GT-UMTS-AX007115 | - 78 config.db: 'DNS via DHCP' = " | | | showing ne | w IP addre | SSAS |
| | May 29 12 44 50 E-SR-2GT-UNTS-AX00711578 config.db 'Gateway via DHCP' = " | | | | | | | |
| | May 29 12:44:50 | E-SR-2GT-UMTS-AX007115 | - 78 config.db: Settings change by: 'admin'. 1 | rom source: 'web inte | rface' | | | |
| | Ouicklinks: | Securellow | , , , , , , , , , , , , , , , , , , , | | | | | Reload |
| | £30000000 | Second and Second | | | | | | |

Figure A1-4: Web interface after Login with change IP addresses



5. Monitoring the currently active "routes"

► Select menu Configuration → Network → IP routing → Tab "State"

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| IE-SR-2GT-UMTS/3G | nfiguration State | | |
| Diagnostics | | | |
| Configuration Tr | i souting | | |
| IP configuration | Touring | | |
| SecureNow! | ctive routing table: | | |
| Packet filter | | | |
| Cut & Alarm 19 | 92.168.10.0/24 dev LAN proto kernel scope link src 192.168.10.254 | Currently active routing table | |
| General settings | 32.168.20.0/24 dev WAN proto kernel scope link src 192.168.20.254 | Currently delive redding table | |
| Access control | | | |
| Thetwork | Reload | | |
| DNS | | | |
| IP routing | | | |
| Forwarding | | | |
| 1:1 NAT | | | |
| Network groups | | | |
| Hardware groups | | | |

Figure A1-5: Menu IP routing (Tab State) showing the new active routing table

6. Saving the new configuration

► Select menu System → Save or Click on the Disk icon in the upper left corner of the web interface

| C 🖉 🧭 http://192.168.1 | 110/priv/priv.php?id=GENERALSAVE 🔎 🛪 🗟 🛪 🖉 🛪 IE-SR-2GT-UMTS/3G-AX0 🛪 | < | |
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| IE-SR-2GT-UMTS/3G | System | | |
| Configuration | Sauo | | |
| | 2046 | | |
| Backup settings | State of your current configuration: | changes made | |
| Software update | | changes made | |
| Factory defaults | State of configuration on card in SCM slot: | not saved | |
| Save | - | | |
| Reboot | | | |
| Information | Save the currently active changes you've made to the non-volatile flash memory of the c | device (and on a potentially inserted card in the SCM slot). | |
| | Save settings | | |
| User: admin 🗗 | | | |
| | | | |

Figure A1-6: Menu System → Save before saving the configuration

► Click on button "Save settings" to save the current configuration to the non-volatile flash memory of the Router. If a SIM memory card is installed the configuration automatically willbe stored on the SIM memory card.

Additionally the configuration can be stored on the file system of the PC.

► Select menu System → Backup settings

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| E-SR-2GT-UMTS/3G Diagnostics | System | | |
| | | | |
| Configuration | Backup settings | | |
| P Configuration ♥ System | Backup settings | | |
| Configuration System Backup settings | Backup settings Manually save the system settings | | |
| Configuration System Backup settings Software update | Backup settings Hanually save the system settings Backup the current system settings of the device to a file on your local machine with "Download settings". | | |
| Configuration System Backup settings Software update Factory defaults | Backup settings Manually save the system settings Backup the current system settings of the device to a file on your local machine with "Download settings". | | |
| Configuration System Backup settings Software update Factory defaults Save | Backup settings Manually save the system settings Backup the current system settings of the device to a file on your local machine with "Download settings". | | |
| Configuration System Backup settings Software update Factory defaults Save Reboot | Backup settings Manually save the system settings Backup the current system settings of the device to a file on your local machine with "Download settings". Restore the device settings | | |
| Configuration System Backup settings Software update Factory defaults Save Reboot Information | Backup settings Manually save the system settings Backup the current system settings of the device to a file on your local machine with "Download settings". Restore the device settings Backup file: Durchsuchen. | | |

Figure A1-7: Menu System → Backup settings after saving the configuration

Click on button "Download settings" to write the configuration file to the PC hard disk (Backup file has the default extension *.cf2")

Now the configuration of the Router is finished!

Testing the accessibility between Ethernet Devices of both networks

1. Run 3 Ping commands from a device of Ethernet network **1** (192.168.10.0/24) using below described addresses (members of network 2)

- → ping 192.168.20.100
- → ping 192.168.20.101
- → ping 192.168.20.102

Result: All sent "pings" should be answered by the requested IP addresses correctly.

2. Run 3 Ping commands from a device of Ethernet network **2** (192.168.20.0/24) using below described addresses (members of network 1)

- → ping 192.168.10.100
- → ping 192.168.10.101
- → ping 192.168.10.102

Result: All sent "pings" should be answered by the requested IP addresses correctly.

Note:

1. If you perform the ping test using PC's please check your firewall configuration to ensure that ping requests and echoes are allowed.

2. Keep in mind that every device which will be used for ping testing needs an entry for the standard gateway (IP address is pointing to the Router of the PC's network)



A2 - Connecting 2 Ethernet networks with activated NAT masquerading and using IP address forwarding

This Technical Note applies to the Weidmüller Industrial Router IE-SR-2GT-LAN and IE-SR-2GT-UMTS/3G

Application requirements:

There are 2 industrial Ethernet networks which are connected by the Router. Each network has its own IP address range. For security reasons the IP addresses of network 1 shall be hidden against devices of network 2. As an exception 2 devices (C and D) of network 1 should be accessible directly from devices of network 2. No special firewall filter rules shall be configured.

Solution:

- 1. Activating "NAT masquerading" at **WAN** port of the Router which is connected to network 2. As result the sender IP addresses of any outgoing traffic at WAN port initiated by devices of network 1 connect to LAN port will be translated to the IP address of the Router's WAN port. From the perspective of the receivers the sender is always the Router WAN port. The IP addresses of devices connected to the LAN port will be hidden and are not visible.
- 2. To get access to the devices C and D of the hidden network 1 the Router's "IP address forwarding" feature can be used, which assigns devices C and D an additional and unused IP address from the range of network 2. Effectively the Router will have 3 IP addresses at WAN port (Physical WAN IP address and 2 virtual IP addresses). This feature acts as a special kind of "port forwarding" using only IP addresses and omitting the ports.
- **Note:** Generally "masquerading" only hides a sender IP address (e.g. outgoing from LAN to WAN) but does NOT block the access to this LAN IP address from WAN network. This explicitly has to be done by a firewall rule.

| In this example the IP address range | es are set to |
|--|-----------------------|
| 192.168. 10 .0 / 255.255.255.0 fc | or network 1 and |
| 192.168. 20 .0 / 255.255.255.0 fc | or network 2 |
| The Router interfaces will be set to | |
| 192.168. 10 .254 / 255.255.255.0 | for LAN interface and |
| 192 168 20 254 / 255 255 255 0 | for WAN interface |

Network diagram of below described application scenario





How to configure the Router

Starting situation

The Router is set with factory default values and can be accessed either using the LAN port by IP address 192.168.1.110 or using the WAN port by IP address 192.168.2.110.

- 1. Connect the configuration PC to the Router using the LAN Port (this port will be used in the example). Note: Use autonegotiation on the Ethernet Interface of the PC
- 2. Change the IP address of the PC to one of the range 192.168.1.0 / 24

→ e.g. IP address 192.168.1.99
 Subnet mask 255.255.255.0
 Standardgateway can be left blank due to direct cable connection

3. Start a Web browser and login into the Web Interface of Router (http://192.168.1.110)

| User: | admin |
|-----------|---------|
| Password: | Detmold |

🖉 « IE-SR-2GT-LAN-AX00730692 - System State » - Windows Inte 8 <u>- 0 ×</u> 💌 🐓 🗙 🔽 Bing 🕒 🕘 🗢 🙋 http://192.168.1.110/priv/priv.php?id p. STARTRAGE Datei Bearbeiten Ansicht Favoriten Extras ? 🏠 🔹 🔝 👻 🖶 🔹 Seite 🔹 Sicherheit 👻 Extras 🔹 🔞 Favoriten 🏾 🄏 « IE-SR-2GT-LAN-AX00730692 - System State » eidmüller 32 Weidmüller Router Configuration **IE-SR-2GT-LAN** IE-SR-2GT-LAN System data System state System State E-SR-2GT-LAN-AX00730692 Saturday, 08 Jan 2000, 04:31(Europe/Berlin Date & time: System name Eventlog Device type: E-SR-2GT-LAN 04:31:56 up 0 min, load average: 0.23, 0.06, 0.01 Uptime: WAN Serial-No.: AX00730692 OpenVPN sessions Masters: active 0, listening 0, Clients: 0 LAN Firmware version: 2.2.3 (Build 61039) Psec tunnels Ping test MAC-Address WAN: 00:15:7E:FE:00:01 Remote capture MAC-Address LAN: 00:15:7E:FE:00:00 System usage Configuration 18% Device mode IP router Flash: System Memory: 21% Information CPU: 24% User: admin 📑 Network statistic Interface state DHCP Server Interface State WAN 💌 IP/Netmask IP Assignment Interface 192.168.2.110 / 255.255.255.0 NAN Re WAN enabled static disabled 192.168.1.110 / 255.255.255.0 LAN statio disabled WAN Transmit Latest five message Jan 8 04:31:43 IE-SR-2GT-LAN-AX00730692 system: IE-SR-2GT-LAN 2.2.3 SVN-R6199.B-61039, system ready Jan 8 04:31:40 IE-SR-2GT-LAN-AX00730692 statusd: Inserted card cannot be read Jan 8 04:31:36 IE-SR-2GT-LAN-AX00730692 adsdpd: Starting daemon for ethernet connections Reload 🖓 🔹 🔍 85% a loternet Figure A2-1: Login page of the Router (equivalent with menu Diagnostics → System State)



4. Set the basic IP configuration and activate NAT masquerading

► Select menu Configuration → IP configuration

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| Diagnostics | | | | | |
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| SecureNow! | Operational mode: | IP router | • ? | | |
| Packet filter | | | | | |
| General settings | WAN: | | | | |
| Access control | | [| | | |
| Network | IP assignment: | static | • 0 | | |
| ♦ VPN | IP address: | 192.168.2.110 | | | |
| Services | Subnet mask: | 200.200.200.0 | | Screenshot of the default | IP |
| Prioritisation | NAT (Masquerading): | | | configuration of the Route | r |
| System | LAN: | | | . | |
| Information | | | | | |
| | IP assignment: | static | • 7 | | |
| User: admin 📑 | IP address: | 192.168.1.110 | | | |
| | Subnet mask: | 255.255.255.0 | | | |
| | NAT (Masquerading): | | | | |
| | Default gateway: IP address: | | 0 | | |
| | Apply settings F | leset changes | | | |
| | | | | | |
| ttp://www.weidmueller.com/ie | | | | 😜 Internet 🛛 🖓 🕶 | 🔍 85% 👻 |

Figure A2-2: Default factory settings of menu IP configuration

► Configure the menu entries as below described

| Operational mode: | IP Router |
|---------------------------------|--|
| IP address parameters WAN Port: | static |
| | 192.168. 20 .254 |
| | 255.255.255.0 (Class C) |
| | Click and Set the checkbox NAT (masquerading) |
| IP address parameters LAN Port: | static |
| | 192.168 .10 .254 |
| | 255.255.255.0 (Class C) |
| | NAT (masquerading) not set (leave checkbox empty) |
| | |
| Default gateway 0 | Can be left blank because there exists no further target network |

Click button "Apply settings" to activate the new settings.

Now the configured parameters will be **activated (but not saved)**. After a few seconds the web interface displays the new IP addresses as shown in Figure A2-3.



Please keep in mind that you now have lost the Router connection due to changing the IP address range of your connected LAN port.

| 💋 « IE-SR-2GT-UMTS/3G | -AX00711578 » - Windows Internet Explorer | | 8 <u>- </u> |
|-------------------------|--|---|---|
| 💽 🗢 🖉 http://17 | 72.16.1.252/priv/updateinfo.php?session=18script=/priv | /priv.php?id=IPCONF&info=ipinfo:YToyOntpOjA7YToxOntzOjM6ImJyMCI7czoxNDo 💌 ఈ 🔀 🔀 Bing | ₽ • |
| Datei Bearbeiten Ansich | nt Favoriten Extras ? | | |
| 🔶 Favoriten 🔘 < IE-SR | 2-2GT-UMTS/3G-AX00711578 > | 🏠 🕶 🗟 👻 🖻 🍓 🕶 Sicherheit 🕶 I | Extras 👻 🔞 🕶 |
| Weidmülle IE-SR-2GT | er Router Configuration F-UMTS/3G | Weidmü | ller Œ |
| IE-SR-2GT-UMTS/3G | Please wait, loading | | |
| ▶ Diagnostics | | The network settions are channed | |
| Configuration | | | |
| System | 11 | your connection is interrupted dick on the respective link below. Choose the interface you are connected at. | |
| Information | If no connection can be established pl | ease check the IP configuration of your computer and the cabling. In some cases it may be necessary to delete the ARP cache of your computer. | |
| | | IP address LAN: (192.168.10.254) | |
| User: admin 📑 | | IP address WAN: (192.168.20.254) | |
| | | Screenshot of Router show the changed IP addresses | ng |

Figure A2-3: Display of activated new IP addresses of LAN and WAN port

5. Change the IP address of the configuration PC according to the connected network 192.168.10.0 / 24

► To reconnect to the Router now set the IP address of the PC to the new values

| IP address: | 192.168.10.99 |
|-------------------|----------------|
| Subnet mask: | 255.255.255.0 |
| Standard-Gateway: | 192.168.10.254 |

6. Again login into the Web interface of the Router using a Web browser

Use IP address 192.168.10.254 (<u>http://192.10.1.254</u>) on LAN port User: admin Password: Detmold

7. Verify that configured parameters are valid

► Select menu Configuration → IP configuration

| 🔏 « IE-SR-2GT-UMTS/3G-4 | AX00687399 - IP configuration » - Windows In | ternet Explorer | | <u> a _ o ×</u> |
|--|---|--|------------------------------------|-----------------|
| | 168.10.254/priv/priv.php?id=IPCONF | | 💌 😽 🗙 🔁 Bing | P • |
| Datei Bearbeiten Ansicht | Favoriten Extras ? | | | |
| 🔆 Favoriten 🏾 🌈 « IE-SR-2 | GT-UMTS/3G-AX00687399 - IP configuration > | | 🏠 • 🗋 - 🖃 👼 • Seite • Sicherheit • | • Extras • 🔞 • |
| Weidmüller IE-SR-2GT- | Router Configuration | | Weidm | ıüller ≆ |
| IE-SR-2GT-UMTS/3G | Configuration | | | |
| Diagnostics | | | | |
| [™] Configuration IP configuration | IP configuration | | | |
| SecureNow! Packet filter | Operational mode: | IP router 💌 🕐 | | |
| Cut & Alarm General settings | WAN: | | | |
| Access control Network VPN Services Prioritization | IP assignment: IP address: Subnet mask: NAT (Masquerading): | Instance Image: Constraint of the second state of the se | | |
| System | LAN: | | | |
| Information | | | | |
| User komm (# | IP assignment: IP address: Subnet mask: NAT (Masquerading): 3G: | 1925 255 255 0 New IP address | | |
| | Dialmode: | deabled 💌 🕐 | | |
| | Default gateway: IP address: | 0 | | |
| | Apply settings Reset changes | | | |

Figure A2-4: Changed settings of menu IP configuration

8. Configuring the accessibility of devices C and D of hidden network 1

► Select menu Configuration → Forwarding

| Market (192.168) Market (192.168) Market (192.168) Market (192.168) | 1.110/priv/priv.php?id=PC Sejte + Sigherheit + E | DRTFORWDR | .୦ - ଅ୯× 🍯 ାE-SR-2GT-U | MT\$/3G-AX0 × | | | | |
|--|---|---------------|------------------------|---------------|--------------------|-----------------|------------------------|-------------------------|
| Weidmülle IE-SR-2GT | er Router Cor -UMTS/3G | nfiguration | | | | | | Weidmüller 🗲 |
| IE-SR-2GT-UMTS/3G | Configuration | | | | | | | |
| IP configuration | Forwarding (2) | | | | | | | |
| SecureNow! Packet filter | Public Interface | Protocol | Local IP | Local Port | Target IP | Target Port | SNAT Source Network | Enabled Position Delete |
| Cut & Alarm | 0 | 0 | 0 | Ø | (No data available | () in table) | 00 | 0 0 |
| Access control | + | | | | | | | |
| ✓ Network | Annhu settings | Deept shannes | | | | | | |
| IP routing | Apply settings | Reset changes | | | | | | |
| Forwarding | | | | | | | | |
| 1:1 NAT Network groups | | | | | | | | |

Figure A2-5: Empty Forwarding table of menu Forwarding

- Click icon + to add a new line to enter IP forwarding values
- ► Select or fill the values as shown in the upper entry of figure 6.

 \rightarrow Ensure that each input will be completed by clicking the icon \boxdot .

- ► Click again icon + to add a second line to enter the next IP forwarding values.
- ► Select or fill the values as shown in the lower entry of figure 6.
 - \rightarrow Ensure that each input will be completed by clicking the icon \square .
- ▶ Now click button "Apply settings" to activate the "IP address forwarding table"

| C C C C C C C C C C C C C C C C C C C | | | | | | | | |
|---------------------------------------|---------------------------|---------------|------------------|--------------------|-------------------|---------------------|-------------------------------|-------------------------|
| Weidmülle IE-SR-2GT | er Router Co I-UMTS/3G | nfiguration | | | | | | Weidmüller 🏵 |
| IE-SR-2GT-UMTS/3G | Configuration | | | | | | | |
| SecureNow! Packet filter | Public Interface | Protocol | Local IP ⑦ | Local Port ⑦ | Target IP ⑦ | Target Port ⑦ | SNAT Source Network ⑦ ⑦ | Enabled Position Delete |
| General settings | WAN 🗹 | - B. | 192.168.20.202 | B | 192.168.10.102 | B | 192.168.20.0/24 | |
| Access control | WAN 🕈 | - B. | 192.168.20.203 | ß | 192.168.10.103 | B, | 192.168.20.0/24 If | V A V 🗊 |
| Thetwork | + | | | | | | | |
| DNS | | | | | | | | |
| IP routing | Apply settings | Reset changes | | | | | | |
| Forwarding | | | | | | | | |
| Network groups | | | | | | | | |



Now the configuration of the Router is finished!

Note: Don't forget to save the configuration after testing.

Testing the NAT masquerading feature

To test the NAT masquerading function you must use the tool Wireshark on the PC which receives the ping request.

1. Run Wireshark on PC (connected to WAN port) with e.g. IP address 192.168.20.100

2. Start an new live capture session to display sent and received Ethernet packets

3. Run a "ping" request from a device of Ethernet network **1** (e.g. 192.168.10.100) with destination address 192.168.20.100

4. Stop the Wireshark live capture session when the packets have been received and displayed.

Results showing in the Wireshark window:

The original sender of the ping request with IP address 192.168.10.100 is displayed as IP address 192.168.20.254 which is translated (masqueraded) by the Router.

If you disable NAT masquerading at WAN port and repeat the test then the original sender address 192.168.10.100 will be shown.

Testing the configured IP address forwardings

1. Run a "ping" request from a device of Ethernet network **2** (e.g. 192.168.20.100) with destination address 192.168.20.202 (Note: Real IP address is 192.168.**10**.102)

Result: The sent "ping" request should be answered correctly (displayed return address: 192.168.20.202)

2. Run a "ping" request from a device of Ethernet network **2** (e.g. 192.168.20.100) with destination address 192.168.20.203 (Note: Real IP address is 192.168.**10**.103)

Result: The sent "ping" request should be answered correctly (displayed return address: 192.168.20.203)

Note:

1. If you perform the ping test using PC's please check your firewall configuration to ensure that ping requests and echoes are allowed.

A3 - Configuring the Router to connect 2 networks with different IP address ranges and additional firewall rules

This Technical Note applies to the Weidmüller Industrial Router IE-SR-2GT-LAN and IE-SR-2GT-UMTS/3G

Application requirements:

There are 2 industrial Ethernet networks which are connected by a Router. Each network has its own IP address range. All Ethernet nodes in both networks shall have the possibility to communicate with each other except that devices B and C of network 1 cannot be accessed by a ping request (ICMP protocol).

Solution:

Configure firewall rules to prohibit ping requests from devices of network 2 to devices B and C of network 1.

In this example the IP address ranges are set to

192.168.**10**.0 / 255.255.255.0 for Network 1 and 192.168.**20**.0 / 255.255.255.0 for Network 2

The Router interfaces will be set to

| 192.168. 10 .254 / 255.255.255.0 | for LAN interface and |
|---|-----------------------|
| 192.168. 20 .254 / 255.255.255.0 | for WAN interface |

Network diagram of below described application scenario



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How to configure the Router

Starting situation

The Router is set to factory default values and can be accessed either using the LAN port by IP address 192.168.1.110 or using the WAN port by IP address 192.168.2.110.

- **1. Connect the configuration PC to the Router using the LAN Port** (this port will be used in the example). Note: Use autonegotiation on the Ethernet Interface of the PC
- 2. Change the IP address of the PC to one of the range 192.168.1.0 / 24

| → e.g. | IP address | 192.168.1.99 |
|--------|-----------------|--|
| | Subnet mask | 255.255.255.0 |
| | Standardgateway | can be left blank due to direct cable connection |

3. Start a Web browser and login into the Web interface of Router (http://192.168.1.110)

| User: | admin |
|-----------|---------|
| Password: | Detmold |

| 🖉 « IE-SR-2GT-LAN-AX007: | 30692 - System State » - Windows Inte | rnet Explorer | | | | | a _ 🗆 × | |
|--|---------------------------------------|-------------------------|---------------|---------|---------------------------------------|------------------|---------------------------|--|
| 🕒 🗢 🖉 http://192. | 168.1.110/priv/priv.php?id=STARTPAGE | | | | 💌 🛃 🗙 🔁 Bir | ng | P - | |
| Datei Bearbeiten Ansicht | Favoriten Extras ? | | | | | | | |
| 🔆 Favoriten 🏾 🏉 « IE-SR-2 | GT-LAN-AX00730692 - System State » | | | | 🟠 • 🗟 • | 🖃 🚔 🔹 Seite 🕶 | Sicherheit 🔹 Extras 🔹 🔞 🕶 | |
| Weidmüller IE-SR-2GT- | Router Configuration | | | | | | Weidmüller 🌫 | |
| IE-SR-2GT-LAN | 1 | | 1 | | | | | |
| V Diagnostics | System data | | System sta | ate | | | | |
| System State | System name: | E-SR-2GT-LAN-AX00730692 | Date & time: | | Saturday, 08 Jan 2000, 04:31(Eur | ope/Berlin) | | |
| Eventiog | Device type: | IE-SR-2GT-LAN | Uptime: | | 04:31:56 up 0 min, load average: (| 0.23, 0.06, 0.01 | | |
| LAN | Serial-No.: | AX00730692 | OpenVPN se | ssions: | Masters: active 0, listening 0, Clier | nts: 0 | | |
| | Firmware version: | 2.2.3 (Build 61039) | IPsec tunnels | e. | 0 | | | |
| Remote centure | MAC-Address WAN: | 00:15:7E:FE:00:01 | | | | | | |
| | MAC-Address LAN: | 00:15:7E:FE:00:00 | System us | age | | | | |
| P Configuration | Device mode: | IP router | Flash: | | 18% | | | |
| V System | | | Memory: | | 21% | | | |
| ^P Information | | | CPU: | | 24% | | | |
| User: admin 📑 | Network statistic | | Interface s | tate | | | | |
| | Interface: WAN • | | Interface | State | IP/Netmask | IP Assignment | DHCP Server | |
| | WAN Receive | 0. Mb / s | WAN | enabled | 192.168.2.110 / 255.255.255.0 | static | disabled | |
| | 10 | 0 Mb/s 1 Mb/s | LAN | enabled | 192.168.1.110 / 255.255.255.0 | static | disabled | |
| | | o bb (n | | | | | | |
| | WAN Transmit | D Mb / s | | | | | | |
| | | 1. Mb (s | | | | | | |
| | | \$\$\$/s | | | | | | |
| | Latest five messages | | | | | | | |
| | Latest ruve messages Fvention | | | | | | | |
| Jan 8 04:31:43 E-SR-2GT-LAN-AX00730692 system: E-SR-2GT-LAN 2.2.3 SVII-R6199.B-61039, system ready | | | | | | | | |
| | Jan 8 04:31:40 IE-SR-2GT-LAN-AX007306 | | | | | | | |
| Jan 8 04:31:36 E-SR-2GT-LAN-AX00730692 adadpd: Starting daemon for ethernet connections | | | | | | | | |
| | Quicklinks: SecureNow! | | | | | | Reload | |
| | | | | | | | | |
| Fertig | | | | | 😡 🌍 Internet | | 🐴 • 🔍 85% • / | |

Figure A3-1: Login page of the Router (equivalent with menu Diagnostics \rightarrow System State)

4. Set the basic IP configuration (Preparing the Router)

► Select menu Configuration → IP configuration



| A IE-SR-2GT-LAN-AXUU | -168.1.110/priv/priv.php?id=1 | » - Windows Intern | et Explorer | | |
|--------------------------|---|--------------------|-------------|-----------------------|-------------------------|
| | Eavoritan Extrac 2 | | | | |
| | | | 1 | 🖄 - 🖸 - 🗖 🖶 - Saite - | Sicherheit - Extrac - 🥥 |
| - avoncen Ce « IE-SK-2 | 2G1-LAN-AX00730692 - IP COP | inguration » | | | |
| Weidmüller IE-SR-2GT- | r Router Configu LAN | uration | | | Neidmüller X |
| IE-SR-2GT-LAN | Configuration | | | | |
| Diagnostics | , in the second s | | | | |
| | IP configuration | | | | |
| IP configuration | 1P configuration | | | | |
| SecureNow! | Operational mode: | IP router | • @ | | |
| Packet filter | | | -0 | | |
| Cut & Alarm | | | | | |
| General settings | WAN: | | | | |
| Access control | IP assignment: | static | • @ | | |
| Network | IP address: | 192 168 2 110 | | | |
| ♦ VPN | Subnet mask: | 255.255.255.0 | | Coreenabet of the d | |
| Services | | | | Screenshot of the d | |
| Prioritisation | INAT (Masquerauing): | | | configuration of the | Router |
| System | LAN: | | | | |
| Information | | | | | |
| | IP assignment: | static | • ? | | |
| User: admin 📑 | IP address: | 192.168.1.110 | | | |
| | Subnet mask: | 255.255.255.0 | | | |
| | NAT (Masquerading): | | | | |
| | Default gateway: IP address: | | _ @ | | |
| | Apply settings F | Reset changes | | | |
| | | | | Takawa ak | |

Figure A3-2: Default values of menu IP configuration

► Configure the menu entries as following shown

| Operational mode: | IP Router |
|---------------------------------|---|
| IP address parameters WAN Port: | static |
| | 192.168. 20 .254 |
| | 255.255.255.0 (Class C) |
| | NAT (masquerading) not set (leave checkbox empty) |
| IP address parameters LAN Port: | static |
| | 192.168. 10 .254 |
| | 255.255.255.0 (Class C) |
| | NAT (masquerading) not set (leave checkbox empty) |
| Default gateway Ca | in be left blank because there exists no further target network |

► Click button "Apply settings" to activate the new settings.

Now the configured parameters will be **activated (but not saved)**. After a few seconds the web interface displays the new IP addresses as shown in Figure 3.

Please keep in mind that you now have lost the Router connection due to changing the IP address range of your connected LAN port.

| 🧟 « IE-SR-2GT-UMT5/3G-AX00711578 » - Windows Internet Explorer | en e |
|---|--|
| 🚱 🗢 🕖 http://172.16.1.252/priv/updateinfo.php?session=18script=/priv/priv.php | ?id=IPCONF&info=ipinfo:YToyOntpOjA7YToxOntzOjM6ImJyMCI7czoxNDo 🗾 🍫 🗙 🔽 Bing |
| Datei Bearbeiten Ansicht Favoriten Extras ? | |
| | 🦄 🕶 🗟 👻 🖃 🖶 🗸 Seite 🗸 Sicherheit 👻 Extras 🗸 🔞 |
| Weidmüller Router Configuration IE-SR-2GT-UMTS/3G | Weidmüller 3 ∑ |
| IE-SR-2GT-UMTS/3G Please wait, loading | |
| ▹ Onfiguration | The network settings are changed. |
| System If your control | nection is interrupted click on the respective link below. Choose the interface you are connected at. |
| Information If no connection can be established please check | k the IP configuration of your computer and the cabling. In some cases it may be necessary to delete the ARP cache of your computer. |
| | IP address LAN: (192. 168. 10.254) |
| User: aomin 😝 | IP address WAN: (192.168.20.254) |
| | Screenshot of Router showing the changed IP addresses |
| igure A3-3: Display of activated new IP ad | ddresses of LAN and WAN port |

4. Change the IP address of the configuration PC according to the connected network 192.168.10.0 / 24

► To reconnect to the Router now set the IP address of the PC to the new values

| IP address: | 192.168.10.99 |
|-------------------|----------------|
| Subnet mask: | 255.255.255.0 |
| Standard-Gateway: | 192.168.10.254 |

► Again login into the Web interface of the Router using a Web browser

| Use IP addre | ss 192.168.10.254 (<u>http://192.10.1.254</u>) on LAN port |
|--------------|--|
| User: | admin |
| Password: | Detmold |



Figure A3-4: Web interface after login with changed IP addresses

5. Step-by-step description of creating a new packet filter (firewall rules) to prohibit ping requests from devices of network 2 to devices B and C of network 1

General description of the Packet filter

The feature "Packet filter" can be used to create firewall rules for IP address (Layer 3) and MAC address level (Layer 2). The packet filter is organized hierachical by using **rule-sets** which contains several single **rules**.

To define new firewall rules you first have to create a rule-set or you have to add the rule to an existing rule-set. A ruleset can contain up to 10 firewall rules.

The manner how to configure rule-sets or rules is the same for Layer 2 and Layer 3 packet filters. All created rule-sets are displayed in menu windows "Packet filter". By clicking on the triangle icon (►) on the left side of a displayed rule-set the belonging rules additionally will be displayed.

By default the Router contains 1 **rule-set** called **Allow_L3*** which is acting as a general permission to allow inbound and outbound traffic without any limitation.

Application method of defined rule-sets

Several configured rule-sets will be applicated top-down. That means every data traffic will first be checked by the topmost displayed rule-set with its containing rules.

If a defined rule match the inspected data the filter rule will be applicated. After that the packet filter function immediately will be left and no further defined rules and rule-sets will be applied.

If a defined rule do **not** match the inspected data the current filter rule will be skipped and the data will be checked by the next filter rule (from top to down). This method will be conducted step-by-step with each defined rule-set (and belonging rules) until a valid rule will be found and applied or no further rule exists.

6. Setup the firewall rules

► Select menu Configuration → Packet filter → Tab "Layer 3"



Figure A3-5: Menu Packet filter (Tab Layer 3) showing the factory default settings

Click on the icon + (right side of line "Add a new rule set") to create a new rule-set and follow the below described steps (Figure 5)

Weidmüller 🗲

| ayer 3 Filter 🕐 | Creating a new Layer-3 ru embedded rules | le-set with | |
|--|---|--|---|
| | to prohibit ping requests fro | <mark>m network 2</mark> | |
| rule se | to devices B and C of ne | etwork 1 | |
| Add a r By using Show r only rule | existing rule set or create a new one Step 2: Type in the name Name of the rule setof the rule-set Block_Ping | Here you can select an existing rule set or create a new one. Further on, you can delete existing self defined rule sets. Predefined rule sets can be modified after copying a selected rule set with the copy button. A rule set may have up to 10 filter rules. Currently active rule sets | ▲ |
| Packet fi tep 1: Click on the | Block ping requests to | are grayed out and cannot be selected. | |
| narked entry to create new rule-set | Device B and C | | |

Figure A3-6: Define a new rule-set according described steps 1 to 4



Figure A3-7: Define additional parameters of the new rule-set according described steps 5 to 7



Figure A3-8: Define the first rule according described steps 8 to 12





Figure A3-9: Define additional parameters of the first rule according described steps 13 to 15

Figure A3-10: Define additional parameters of the first rule according described steps 16 to 22

| | | | | Weidmüller |
|---|--|---------------------|------|--|
| × | | | | Here you can edit the name of the 🔳 |
| | All rules in th | e current rule set | | rule set, re-sort rules (by using the arrow buttons), edit, insert or |
| Overview of rule set: | | Block_Ping | | delete rules. |
| Inbound interface: | == 💌 | WAN 💌 | | |
| Outbound interface: | == 💌 | LAN | | im: |
| BlkPingDevB | | | | |
| Now the rule-set "B Blk Ping Dev B (Bloc | lock_Ping [*] conta k Ping to Device | ains the first rule | Λ | |
| Dikt nige eve (bios | kt ing to berie | | V | |
| | | | | |
| | C-dia | Delete | Neut | |
| Add | Edit | Delete | Next | |

Figure A3-11: Creation of first rule completed



Figure A3-12: Define of second rule according described steps 24 to 28



Figure A3-13: Define additional parameters of the second rule according described steps 29 to 31

| se | | | | Creating rule BlkPingDe | vC |
|------------|-----------------|---|---|--|--------|
| | X | | | Window 3 | |
| A | | Action and name of the rule | Action: Tells how to that passed a | handle a packet all criteria. | I |
| | Action: | Reject Step 32: Define the action | on what the rule should do | | |
| a r | | | The packet w | vill be forwarded. | |
| ng | Reject reason: | host-prohibited Step 33: Define the answ | verwhich will be sent to the | ping requester | |
| v r ule | Log: | Step 34: If you set this check box then an ap conditions) will be displayed in the section "fil | plied rule (because it fits the ter log" on the tab "Status" c | configured of the packet filter | om |
| | Alarm: | Step 35: If you set this check box the conditions) will trigger an alarm event | n an applied rule (because i | t fits the configured | |
| сп | Max. packets/s: | Step 36: If you set a value then the de rule has detected at least "Max. packe | efined action (e.g. drop or re ets/s" of data packets which | ject) only will be applied if this fits the configured conditions | s s |
| se | Rule name: | Blk Ping DevC Step 37: Enter the name of | of the rule the send | ar will be notified | |
| | | <u></u> | The message | e can be defined | |
| | | | via "Reject R | eason". | |
| | Back | , | Next Additionally | a log entry could | _ |
| | | Ste | p 38: Click on button Next to | o complete the rule definition | |

Figure A3-14: Define additional parameters of the second rule according described steps 32 to 38

| | All rules in the | e current rule set | | Here you can edit the name of the rule set, re-sort rules (by using the arrow buttons), edit, insert or delete | <u> </u> |
|----|--|---|------|--|----------|
| ok | Overview of rule set: | Block_Ping | | Tules. | |
| fo | Inbound interface: == 💌 | WAN 💌 | | | |
| 16 | Outbound interface: == 💌 | LAN | | | |
| m | BlkPingDevB BlkPingDevC | 0 | | | |
| | Now the rule-set "Block_Ping" co defined rules BlkPingDevB (Blocl and BlkPingDevC (Block Ping to | ntains the both v k Ping to Device B) Device C) | | | |
| | | | | Step 39: Click on button Next | |
| | Add Edit | Delete | Next | to the next window to complete the rule-set | - |

Figure A3-15: Creation of second rule completed



Figure A3-16: Setting optional date and time limitations of the rule-set

| 🗿 « IE-SR-2GT-UMTS/3G-A | X00687399 - Layer 3 Filter » - Windows Internet Explorer | | 8 <u>-</u> 0 × |
|-----------------------------|--|---|------------------------|
| 🕒 🗢 🖉 http://192.1 | 168.10.254/priv/priv.php?id=FILTERCONF_L3 | 💌 🐓 🗙 🔁 Bing | P - |
| Datei Bearbeiten Ansicht | Favoriten Extras ? | | |
| Favoriten 🏾 🄏 « IE-SR-20 | GT-UMTS/3G-AX00687399 - Layer 3 Filter » | han - Seite - Sic | herheit + Extras + 🔞 • |
| Weidmüller IE-SR-2GT- | Router Configuration UMTS/3G | W | eidmüller ∑ |
| IE-SR-2GT-UMTS/3G | Layer 3 Layer 2 Status | | |
| Diagnostics | | | |
| ♥ Configuration | | | |
| IP configuration | Layer 3 Filter @ | | |
| SecureNow! | Now the ne | w rule-set Block, Ping is added to the rule-set list | |
| Packet filter | 2 rule sets () | Wilde-set block_ring is added to the fulle-set list | |
| Cut & Alarm | B Allow_L3* (1 rule) | | |
| General settings | Allow all LS traffic | Step 41: Due to the fact that the rule-sets will be applied | |
| Access control | Block ping requests to Devices B and C | top-down the new rule-set Block_Ping has to be moved | |
| Network | | up. Otherwise the standard rule "Allow_L3*", which | 7 |
| VPN | | allows transmission of data without limitations, always | / |
| Services | Add a new rule set | will be used and the new rule at no time will be applied. | 4 |
| Prioritization | Show rule sets for following interfaces only rule sets for following interfaces | Click on triangle icon ▲ to move the new rule to the first | to: • • @ |
| System | only roles anecong the selected methods, interfaces the be displayed | position. | |
| Information | Packet filter has been modified. Please click on ' Apply settings' to a | ctivate your changes! | |
| User, admin 🗗 | Apply settings | | |
| tp://www.weidmueller.com/ie | | internet | · • • • • |

Figure A3-17: Creation of new rule-set is completed and added to the rule-set list. Move the new rule-set to top position

| 🏉 « IE-SR-2GT-UMTS/3G-A | X00687399 - Layer 3 Filter » - Windows Interr | net Explorer | 8_0 |
|---------------------------|--|---|------------|
| 🕒 🗢 🔊 🖉 http://192. | 168.10.254/priv/priv.php?id=FILTERCONF_L3 | 💌 🐓 🗙 💽 Bing | P |
| Datei Bearbeiten Ansicht | Favoriten Extras ? | | |
| 🔆 Favoriten 🛛 🔏 « IE-SR-2 | GT-UMTS/3G-AX00687399 - Layer 3 Filter > | han - Seite - Sicherheit - | Extras 🗸 👔 |
| Weidmüller IE-SR-2GT- | Router Configuration UMTS/3G | Weidm | üller Đ |
| IE-SR-2GT-UMTS/3G | Layer 3 Layer 2 Status | | |
| Diagnostics | | | |
| ♥ Configuration | Laver 3 Filter @ | | |
| IP configuration | | | |
| SecureNow! | 2 mile sets @ | | |
| Packet filter | 2 Hole sees () | Now the new rule-set Block. Ping is at the first position | |
| Cut & Alarm | 8 Block_Ping from WAN to LAN (2 rules) 4 Block ping requests to Devices B and C | A now the new rule bet block_r highs at the inst position | ⊽ 🏂 😫 |
| General settings | 9 Allow 12* (1 c/a) | | |
| Access control | Allow all L3 traffic | | × 10 B |
| Network | | | |
| VPN | | | |
| Services | Add a new rule set | N | ÷. |
| Prioritization | Show rule sets for following interfaces | from: * . to: * | • @ |
| System | only rules affecting the selected network interfaces | wii be displayed | |
| Information | Packet filter has been modified. Please click on &apo | os:Apply settingsRapos; to activate your changed Now the task is finished and the defined firewall rules should | Ð |
| User, admin 🗗 | Apply settings Step 42: Click on the new packet filt | ter settings | |

Figure A3-18: Activate the changes

Now the firewall configuration (packet filter) is finished!



Testing the result that Ethernet Devices B (192.168.10.101) and C (192.168.10.102) of network 1 cannot be "pinged" by devices of network 2

Run 3 Ping commands from a device of Ethernet network 2 (192.168.20.0/24) using below described addresses (members of network 1)

- → ping 192.168.10.100 (Device A)
- \rightarrow ping 192.168.10.101 (Device B)
- → ping 192.168.10.102 (Device C)

Results:

- 1. Sent "Ping" to IP address 192.168.10.100 should be answered by the requested IP addresses correctly.
- 2. Sent "Ping" to IP addresses 192.168.10.101 and 192.168.10.102 should be answered by the requested IP addresses as "Destination host unreachable".

Note:

1. If you perform the ping test using a PC please check the PC's firewall configuration to ensure that ping requests and echoes are allowed.

2. Keep in mind that every device which will be used for ping testing needs an entry for the standard gateway (IP address is pointing to the Router of the PC's network)

A4 - Connecting 2 Ethernet networks with the same IP address range to another network using 1:1 NAT address translation

This Technical Note applies to the Weidmüller Industrial Router IE-SR-2GT-LAN and IE-SR-2GT-UMTS/3G

Application scenario:

There are 2 machine networks and one upper-level production network. Each machine network is connected to the production network by a security Router. The production network itself is connected to the corporate network via its own Router. Both machine networks have the same IP address range 192.168.1.0 of type class C: The production network uses the IP address range 172.16.1.0 of type class B.

Task and solution:

Each Ethernet device of all 3 networks shall have the possibility to communicate with each other. For this reason it is necessary that each of the machine networks – both configured with the same IP address range - must be translated to unique IP addresses. This can be done by using the network IP address translation feature "1:1 NAT" of the Router.

1:1 NAT means that IP addresses (**private**) of devices connected to the LAN port, internally will be translated to a new IP address (**public**) if they communicate with IP addresses connected to the WAN network. From the perspective of the WAN network each device of the LAN network is only known and addressable by its **public** IP address. In the case of incoming data from WAN network (outgoing to LAN) the destination IP addresses (public) of LAN network automatically will be translated from their **public** into their **private** IP address.



Machine networks 1 and 2 uses the same IP address range

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This document describes an application scenario using 3 Routers. But for a simple test of the feature "1:1 NAT" you only need 1 Router (configured as Router 1 of machine network 1). In this case use 2 devices (PC's or whatever) to simulate one member of "machine network" and one member of the "production network".

Short description how to solve the task by using 1:1 NAT:

Both Routers of machine network 1 and 2 have to be connected by WAN port to the production network 172.16.1.0. The IP addresses of the WAN ports will be set to

172.16.1.252 / 255.255.0.0 for Router 1 and

172.16.1.253 / 255.255.0.0 for Router 2

The LAN port of each Router is to be connected to their corresponding machine network. Due to the fact that each machine network uses the same IP address range each LAN port of the Routers is to be configured with 2 IP addresses, one as a **public** and one as **private** address.

In this example - using the feature 1:1 NAT at LAN port -

the public IP addresses will be set to

and

| 192.168. 20 .254 / 255.255.255.0 | for Router 1 and |
|---|---------------------|
| 192.168. 21 .254 / 255.255.255.0 | for Router 2 |
| the private IP addresses (both the s | ame) will be set to |
| 192.168. 1 .254 / 255.255.255.0 | for Router 1 and |
| 192.168.1.254 / 255.255.255.0 | for Router 2 |

By assigning the **private** IP address (192.168.1.254) at the Router's LAN port automatically the complete IP address range 192.168.1.0 / 255.255.255.0 is defined as local network IP range for devices connected to the LAN port.

"1:1 NAT" means that for each communication between devices of LAN and WAN network the **public** IP addresses of LAN devices have to be used.

| Examp | Examples of IP address mapping (private / public) using 1:1 NAT at LAN port | | | | | | |
|--|---|--|--|--|--|--|--|
| IP address and subnet of a device connected to LAN port (used as private IP address) | Configured Private IP address and subnet of Router's LAN port | Configured Public IP address and subnet of Router's LAN port | Resulting Public IP address and subnet of device connected to LAN port (1:1 NAT) | | | | |
| | Subnets of private and pub | lic network must be the same | This IP address is known by devices of WAN network | | | | |
| 192.168.1. 100 / 255.255.255.0 | 102 169 1 254 / 255 255 255 0 | 102 168 21 254 / 255 255 255 0 | 192.168.21. 100 / 255.255.255.0 | | | | |
| 192.168.1. 101 / 255.255.255.0 | 192.100.1.2047205.205.205.0 | 192.100.21.2047205.205.205.0 | 192.168.21. 101 / 255.255.255.0 | | | | |
| 172.16.1. 101 / 255.255.255.0 | 172.16.1.1 / 255.255.255.0 | 192.168.100.1 / 255.255.255.0 | 192.168.100. 101 / 255.255.255.0 | | | | |
| 10.8. 1.10 / 255.255.0.0 | | 172 16 1 264 / 266 266 0 0 | 172.16. 1.10 / 255.255.0.0 | | | | |
| 10.8. 2.10 / 255.255.0.0 | 10.8.1.17 233.233.0.0 | 172.10.1.2347 233.233.0.0 | 172.16. 2.10 / 255.255.0.0 | | | | |
| Note: In a class C network with subne | t mask 255.255.255.0 only the last segm | nent of an IP address is translated | | | | | |
| Note: In a class B network with subne | t mask 255.255.0.0 the last 2 segments o | of an IP address are translated | | | | | |

How to configure Router 1 (Machine network 1), Router 2 (Machine network 2) and Router 3 (Production network)

General note:

The configuration of all Routers is very similar and will be described below together for the Routers of both machine networks and the production network. Different configuration parameters between the Routers are marked individually.



In this example Router 3 of the production network is to be configured with 2 static IP routes pointing to networks 1 and 2 that Ethernet devices behind Router 1 and Router 2 (connected at LAN port) can find each other. As an alternative all Routers can be configured to use dynamic IP routing (either RIP or OSPF or both) to announce their connected networks to the other Routers automatically without configuring static routes at Router 3 manually. Using dynamic routing is more convenient if it is planned to extend the Ethernet network with additional machine networks. Then you don't have to add a new static route to Router 3 in the case of connecting a further machine network to the production network. This would be automatically done by RIP- or OSPF-based dynamic IP routing.

 \rightarrow The alternative method using dynamic routing is described at the end of this document in chapter A5.

Starting situation

All Routers have the factory default configuration and can be accessed either using the LAN port by IP address 192.168.1.110 or using the WAN port by IP address 192.168.2.110.

Due to the fact that the machine network Routers 1 and 2 have to be configured on the LAN port with 1:1 NAT (with a private and a public IP address), which means setting two times new IP addresses (private and a public) on this port during the configuration process, it is more comfortable to connect the Configuration PC to the WAN port of the Routers. Then the IP address of the PC has only one time to be changed after setting the new WAN port IP address.

1. Connect the configuration PC to the Router using the WAN Port

→ Use autonegotiation on the Ethernet Interface of the PC

2. Change the IP address of the PC to one of the range 192.168.2.0

→ e.g. IP address 192.168.2.100
 Subnet mask 255.255.255.0
 Standardgateway can be left blank due to direct cable connection

3. Start a Web browser and login into the Web server of Router (<u>http://192.168.2.110</u>)

| User: | admin |
|-----------|---------|
| Password: | Detmold |

| 🚖 Favoriten 🛛 🏀 « IE-SR- | 2GT-LAN-AX00730 | 0692 - System St | ate » | | | | 🗿 • 🗟 | - 🖃 🖶 - Seite - | Sicherheit 🔹 Extras 👻 🕢 |
|--------------------------|--------------------|------------------|----------------------|--|--------------------|----------|------------------------------------|--------------------|-------------------------|
| Weidmüller IE-SR-2GT | r Router (-LAN | Configura | ation | | | | | 1 | Veidmüller ∑ |
| IE-SR-2GT-LAN | | | | | | | | | |
| ♥ Diagnostics | System dat | ta | | | System st | ate | | | |
| System State | System name: | | | IE-SR-2GT-LAN-AX00730692 | Date & time: | | Saturday, 08 Jan 2000, 04:31(E | urope/Berlin) | |
| Eventiog | Device type: | | | IE-SR-2GT-LAN | Uptime: | | 04:31:56 up 0 min, load average | : 0.23, 0.06, 0.01 | |
| WAN | Serial-No.: | | | AX00730692 | OpenVPN se | essions: | Masters: active 0, listening 0, Cl | ients: 0 | |
| LAN | Firmware ven | sion: | | 2.2.3 (Build 61039) | IPsec tunnel | S: | 0 | | |
| Ping test | MAC-Address | s WAN: | | 00:15:7E:FE:00:01 | 1 | | | | |
| Remote capture | MAC-Address | s LAN: | | 00:15:7E:FE:00:00 | System us | age | | | |
| Configuration | Device mode: | | | IP router | Flash: | | 18% | | |
| System | | | | | Memory: | | 21% | | |
| Information | | | | | CPU: | | 24% | | |
| User: admin 🗗 | Network et | atistic | | | Interface | etato | | | |
| | Interferen | WAN | | | Interface | State | IP/Netmask | IP Assignment | DHCP Server |
| | IWAN Rece | eive | 1000 Mb/ | | WAN | enabled | 192.168.2.110 / 255.255.255.0 | static | disabled |
| | | | 200 Mb /: 2 Mb /: | | LAN | enabled | 192.168.1.110 / 255.255.255.0 | static | disabled |
| | | | 10 kb / | | | | | | |
| | LWAN Tran | smit | 1000 Mb / | | | | | | |
| | | ionin. | 200 Mb / | | | | | | |
| | | | 10 kb / | | | | | | |
| | 1 | | | | I | | | | |
| | Latest five | messages | | | | | | | |
| | Eventlog | | | | | | | | |
| | Jan 8 04:31:4 | 3 IE-SR-2GT-LAI | N-AX00730692 s | system: IE-SR-2GT-LAN 2.2.3 SVN-R6199.B | -61039, system rea | dy! | | | |
| | Jan 8 04:31:4 | 0 IE-SR-2GT-LAI | N-AX00730692 s | statusd: Inserted card cannot be read! | | | | | |
| | Jan 8 04:31:3 | 6 IE-SR-2GT-LAI | N-AX00730692 a | idsdpd: Starting daemon for ethernet conne | ctions | | | | |
| | Quicklinks: | Se | cureNow! | | | | | | Reload |
| | | | | | | | | | |
| | | | | | | | | | |

Figure A4-1: Login page of the Router (equivalent with menu Diagnostics \rightarrow System State)


4. Set the basic IP configuration

► Select menu Configuration → IP configuration

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|------------------------------|----------------------------|---------------|---|
| Weidmüller IE-SR-2GT-I | Router Configu LAN | iration | Weidmüller 🌫 |
| ▶ Diagnostics | Comguration | | |
| | I | | |
| IP configuration | IP configuration | | |
| SecureNow! | Operational mode: | | |
| Packet filter | operational mode. | | |
| Cut & Alarm | | | |
| General settings | WAN: | | |
| Access control | IP assignment: | static . | |
| Network | ID addresses | 192 169 2 110 | |
| VPN | Subnet mask: | 255 255 255 0 | |
| Services | | | |
| Prioritisation | NAT (Masquerading): | l () | |
| System | LAN: | | |
| Information | | | |
| | IP assignment: | static 🔹 🕐 | Screenshot of the default IP |
| User: admin 📑 | IP address: | 192.168.1.110 | configuration of the Routers |
| | Subnet mask: | 255.255.255.0 | |
| | NAT (Masquerading): | | |
| | Default gateway: | | |
| | IP address: | Ø | |
| | Apply settings R | leset changes | |
| ttp://www.weidmueller.com/ie | | | 🔞 😜 Internet 🛛 🖓 🔹 🔍 85% 🔹 |

Figure A4-2: Default values of menu IP configuration

Configure the menu entries as following shown

| Only for Router 1 | | | | |
|--|---|--|--|--|
| Operational mode: | IP Router | | | |
| IP address parameters WAN Port: | static | | | |
| | 172.16.1.252 | | | |
| | 255.255.0.0 (Class B) | | | |
| | NAT (masquerading) not set (leave checkbox empty) | | | |
| IP address parameters LAN Port: | static | | | |
| | 192.168.20.254 | | | |
| Leave Default gateway" empty if you test | 255.255.255.0 (Class C) | | | |
| the "simple scenario" with only 1 Router | NAT (masquerading) not set (leave checkbox empty) | | | |
| Default gateway | 172.16.1.254 (Router of the production network) | | | |
| Only for Router 2 | | | | |
| Operational mode: | IP Router | | | |
| IP address parameters WAN Port: | static | | | |
| | 172.16.1.253 | | | |
| | 255.255.0.0 (Class B) | | | |
| | NAT (masquerading) not set (leave checkbox empty) | | | |
| IP address parameters LAN Port: | static | | | |



| | 192.168.21.254 |
|---------------------------------|---|
| | 255.255.255.0 (Class C) |
| | NAT (masquerading) not set (leave checkbox empty) |
| | |
| Default gateway | 172.16.1.254 (Router of the production network) |
| | |
| Only for Router 3 | |
| Operational mode: | IP Router |
| IP address parameters WAN Port: | static |
| | 10.1.1.254 |
| | 255.255.0.0 (Class B) |
| | NAT (masquerading) not set (leave checkbox empty) |
| | |
| IP address parameters LAN Port: | static |
| | 172.16.1.254 |
| | 255.255.0.0 (Class B) |
| | NAT (masquerading) not set (leave checkbox empty) |
| | |
| Default gateway | leave field empty (not necessary in this example) |

► Click button "Apply settings" to activate the new settings.

Now the configured parameters will be **activated (but not saved)**. After a few seconds the web interface displays the new IP addresses as shown in Figure 3. Please keep in mind <u>that now the Router connection is lost</u> due to changing the IP address range of your connected WAN port.



Figure A4-3: Display of activated new IP addresses of LAN and WAN port

5. Change the IP address of configuration PC

To reconnect to the Router now change the IP address of the PC to an IP address of the new IP address range 172.16.1.0/16

For re-connecting to Routers 1 and 2 chose e.g. IP address 172.16.1.100 and subnet mask 255.255.0.0. The input field "Standard-Gateway" can be left empty.



► Again login into the web interface of the Router using a web browser

Only for Router 1 : Use IP address 172.16.1.252 (http://172.16.1.252) on WAN port

Only for Router 2 : Use IP address 172.16.1.253 (http://172.16.1.253) on WAN port

Only for Router 3 : Use IP address 172.16.1.254 (http://172.16.1.254) on LAN port

User: admin Password: Detmold

| 🏠 Favoriten 🛛 🌈 « IE-SR- | 2GT-LAN-AX00730692 - System Stat | e » | | | 🏠 • 🔊 • | 🖃 🖶 👻 Seite 🕶 Si | icherheit 🔹 Extras 👻 🔞 |
|--------------------------|----------------------------------|---|-------------|----------|--------------------------------|-----------------------|------------------------|
| Weidmülle IE-SR-2GT | r Router Configurat ·LAN | ion | | | | We | idmüller ≆ |
| | System data | | Systems | tato | | | |
| System State | System name: | IE-SR-2GT-LAN-AX00730692 | Date & time | | Saturday, 08 Jan 2000, 04:52 | (Europe/Berlin) | |
| Eventlog | Device type: | IE-SR-2GT-LAN | Uptime: | | 04:52:15 up 20 min, load aver | age: 0.00, 0.00, 0.00 | |
| WAN | Serial-No.: | AX00730692 | OpenVPN s | essions: | Masters: active 0, listening 0 | Clients: 0 | |
| LAN | Firmware version: | 2.2.3 (Build 61039) | IDeee turne | le: | | | |
| Ping test | MAC-Address WAN: | 00:15:7E:FE:00:01 | Insectatine | 13. | v | | |
| Remote capture | MAC-Address LAN: | 00:15:7E:FE:00:00 | System u | sage | | | |
| Configuration | Device mode: | IP router | Flash: | 0 | 18% | | |
| [▶] System | | | Memory: | | 26% | | |
| Information | | | CPU: | | 2% | | |
| User: admin 💽 | Network statistic | | Interface | stato | | | |
| | Interface: WAN | | Interface | State | IP/Netmask | IP Assignment | DHCP Server |
| | WAN Receive | 1000 Mb /s | WAN | enabled | 172.16.1.252 / 255.255.0.0 | static | disabled |
| | | 100 Mb/s | LAN | enabled | 192.168.20.254 / 255.255.255.0 | static | disabled |
| | | 10 kb/s | | | | | |
| | WAN Transmit | 1000 Mb/s | | | | | |
| | | 1.000/0 | | | | | |
| | | 2.0 x8/5 | | | k | | |
| | Latest five messages | | | | | | |
| | Ian 8 04:39:21 IE-SR-2GT-LAN- | X00730692 config db: "WAN IP address' = '172 | 16 1 252' | | | | |
| | Jan 8 04:39:21 IE-SR-2GT-I AN-A | 4X00730692 config.db: 'LAN IP address' = '192 | 168.20.254 | | \backslash | | |
| | Jan 8 04:39:21 IE-SR-2GT-LAN- | AX00730692 config.db: 'WAN Subnet mask' = '2 | 55.255.0.0' | | | | |
| | Jan 8 04:39:21 IE-SR-2GT-LAN-/ | AX00730692 config.db: 'DNS via DHCP' = " | | | Screenshot of | Router 1 | |
| | Jan 8 04:39:21 IE-SR-2GT-LAN-/ | AX00730692 config.db: 'Gateway via DHCP' = " | | | chowing new | Doddrage | ~~ |
| | Quicklinks: Secu | reNow! | | | showing new l | ress | es |
| | | | | | | | |

Figure A4-4: Web interface after login with changed IP addresses

► Select menu Configuration → IP configuration to verify that IP parameters are configured correctly

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| SR-2GT-LAN-AX0073 | 0692 - IP configuration » - Windows II | nternet Explorer | | 8 <u>- D ×</u> |
|------------------------------------|--|------------------|-------------------------|-----------------------|
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| Datei Bearbeiten Ansicht | Favoriten Extras ? | | | |
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| Weidmüller IE-SR-2GT-L | Router Configuration AN | | W | eidmüller |
| IE-SR-2GT-LAN | Configuration | | | |
| Configuration IP configuration | IP configuration | | | |
| SecureNow! Packet filter | Operational mode: | IP router | | |
| Cut & Alarm General settings | WAN: | | | _ |
| Access control | IP assignment: | static 🗾 🕐 | Screenshot of Router 1 | |
| [₽] VPN | IP address: | 172.16.1.252 | | |
| Services | Subriet mask: | 235.255.0.0 | | - |
| Prioritisation | NAT (Masquerading): | | | |
| System | LAN: | | | |
| ✓ Information | IP assignment: | static 💽 🕐 | | |
| User: admin 📑 | IP address: | 192.168.20.254 | | |
| | Subnet mask: | 255.255.255.0 | | |
| | NAT (Masquerading): | | | |
| | Default gateway: | | | |
| | IP address: | 172.16.1.254 | | |
| | Apply settings Reset changes | | | |
| Fertig | | | 📃 📄 🔯 💽 Internet | √a • € 85% • // |

Figure A4-5: New values of menu IP configuration

6. Configuring 1:1 NAT address translation (Do this only for Routers 1 and 2)

► Select menu Configuration → Network → 1:1 NAT

| 🖉 « IE-SR-2GT-LAN-AX00 | 730692 - 1:1 NAT » - Windows Internet Exp | lorer | | 8 <u>- o x</u> |
|-------------------------|---|---------------------|----------------------------|--------------------------|
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| Datei Bearbeiten Ansich | t Favoriten Extras ? | | | |
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| Weidmülle IE-SR-2GT | r Router Configuration -LAN | | We | aidmüller 3 £ |
| IE-SR-2GT-LAN | Configuration | | | |
| Diagnostics | | | | |
| | 1.1 NAT - potwork mapping | | | |
| IP configuration | 1.1 NAT - network mapping | | | |
| SecureNow! | WAN: | | | |
| Packet filter | | | | |
| Cut & Alarm | Public IP address/subnet mask: | 1/2.16.1.252/16 | | |
| General settings | Enable 1:1 NAT: | | | |
| Access control | Private IP address/subnet mask: | G | | |
| ✓ Network | Advanced settings | | Screenshot of Ro | uter 1 |
| DNS | LAN: | | | |
| IP routing | | | | |
| Port forwarding | Public IP address/subnet mask: | 192.168.20.254/24 🕐 | | |
| 1:1 NAT | Enable 1:1 NAT: | | | |
| Network groups | Private IP address/subnet mask: | (?) | | |
| Hardware groups | Advanced settings | | | |
| Ethernet | Apply settings Reset obanges | | | |
| VPN | Apply settings Reset changes | | | |
| Services | | | | |
| Prioritisation | | | | |
| System | | | | |
| Information | | | | |
| | | | | |
| User: admin 🗗 | | | | |
| | | | | |

Figure A4-6: Default values of menu 1:1 NAT configuration

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Configure below described entries on **both Routers 1 and 2** in the section **LAN:** of the "1:1 NAT configuration menu".

- ► Activate parameter "Enable 1:1 NAT" → Click on checkbox
- Private IP address/subnet mask: 192.168.1.254/24 Note: No further settings have to be done (Do not activate checkbox "Advanced settings")
- Click button "Apply settings" to activate the new settings.



Figure A4-7: Changed values of menu 1:1 NAT configuration

Note:

The **private** IP address 192.168.1.254 now is the new IP address of the Router from the perspective of connected devices at the LAN port. All devices connected to the LAN port have to be configured in the private IP range 192.168.1.0 with subnet mask 255.255.255.0.

The 1:1 NAT (address translation) is working in that way that every address of the private Class C network will be changed to the corresponding public address.

Exemplary result of IP address mapping of configured 1:1 NAT of Router 1:

Machine 1 of network 1 (IP 192.168.1.1) can be accessed by public IP 192.168.20.1 from production network

Machine 2 of network 1 (192.168.1.2) can be accessed by public IP 192.168.20.2 from production network

Machine N of network 1 (192.168.1.n) can be accessed by public IP 192.168.20.n from production network

Exemplary result IP address mapping of configured 1:1 NAT of Router 2:

Machine 1 of network 1 (IP 192.168.1.1) can be accessed by public IP 192.168.21.1 from production network

Machine 2 of network 1 (192.168.1.2) can be accessed by public IP 192.168.21.2 from production network

Machine N of network 1 (192.168.1.n) can be accessed by public IP 192.168.21.n from production network



From the perspective of an addressed receiver in the production network the sender has always the **public** IP address.

7. Configuring static routes (Only for Router 3, skip if you test the"Ssimple scenario" with only 1 Router)

Next 2 static routes have to be configured on Router 3 that all Ethernet devices of machine networks networks 1 and 2 (behind LAN port of Routers 1 and 2) can get access to each other.

► Select menu Configuration → Network → IP routing → Tab "Configuration"

| 🙋 « IE-SR-2GT-LAN-AX0073 | 30692 - IP routing » - Windows | Internet Explorer | | | | 8 <u>- 0 ×</u> |
|----------------------------|-----------------------------------|---------------------|--------------|----------------------|--------------|---------------------------------------|
| 🕒 🗢 🔊 🖉 http://172.1 | 16.1.252/priv/priv.php?id=STATICR | OUTING | | | 💌 👉 🗙 🔁 Bing | P - |
| Datei Bearbeiten Ansicht | Favoriten Extras ? | | | | | |
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| Weidmüller IE-SR-2GT-I | Router Configurati LAN | on | | | | Weidmüller ℈ |
| IE-SR-2GT-LAN | Configuration State | | | | | |
| Diagnostics | | | | | | |
| ♥ Configuration | IP routing | | | | | |
| IP configuration | | | | | | |
| SecureNow! | Dynamic routing: | | | | | |
| Packet filter | | - | | | | |
| Cut & Alarm | LAN: | Type: | Uisabled 💌 🕐 | • | | |
| P General settings | | Active interfaces | E Ø | 0 | | |
| P Access control | | Acove interroce. | | | | |
| * Network | WAN: | Type: | Disabled • 🕐 | | | |
| DNS ID as dias | | Simple password: | | 0 | | |
| Part forwarding | | Active interface: | ■ ⑦ | | | |
| 1-1 NAT | | | | | | |
| Network groups | Redistribute static routes: | O O | | | | |
| Hardware groups | Log level: | Inone I () | | | | |
| Ethernet | Enable Multicast Routing: | | | | | |
| ▶ VEN | | | | | | |
| P Services | Static routing table: | | | | | |
| Prioritisation | Active Destinat | ion | Subnet mask | Gateway | Interface | Metric 🔐 |
| System | | | | Static Routing table | is empty | |
| Information | | | | | | |
| | | | | | | |
| User: admin 🗗 | Add new static route: (?) | | | | | |
| | Destination: | 0 | | | | |
| | Subnet mask: | 0 | | | | |
| | Gateway: | 0 | | | | |
| | Metric: | () | | | | |
| | Interface: | . 3 | | | | |
| | Add entry Apply a | ettings Reset chara | | | | |
| | Add entry Apply 5 | eaings Reset char | iges | | | |
| ertig | | | | | 🙀 🌍 Internet | <i>√</i> 2 • € 85% • |

Figure A4-8: Default values of menu IP routing (Tab Configuration)

Configure below described entries in the area <u>Add new static route</u> of the menu:

| Only for Router 3 (This | Only for Router 3 (This Router has 2 static routes) | | | | | |
|--|--|--|--|--|--|--|
| Values for the first route: | | | | | | |
| Destination network: | 192.168.20.0 (Public address range of machine network 1 at LAN port of Router 1) | | | | | |
| Subnet mask : | 24 (Class C) | | | | | |
| Gateway: | 172.16.1.252 (Public address of WAN port of Router 1) | | | | | |
| Metric: | Can be left blank (only one route, therefore no need for prioritization) | | | | | |
| Interface: | LAN (Router 1 can be reached by LAN port) | | | | | |



Click button "Add entry" to add the new static route to the routing table.

| Values for the second route: | | | | | | |
|--|-------------------|---|--|--|--|--|
| Destination network: | 192.168.21.0 | (Public address range of machine network 2 at LAN port of | | | | |
| | | Router 2) | | | | |
| Subnet mask: | 24 (Class C) | | | | | |
| Gateway: | 172.16.1.253 (F | Public address of WAN port of Router 2) | | | | |
| Metric: | Can be left blank | (only one route, therefore no need for prioritization) | | | | |
| Interface: | LAN (Router 2 ca | an be reached by LAN port) | | | | |
| | | | | | | |

- Click button "Add entry" to add the new static route to the routing table.
- ► Then click button "Apply settings" to activate the new settings.

| Weidmüller IE-SR-2GT-L | Router Config JMTS/3G | guration | | | | | | We | idmüller € |
|--|--|----------------|---|--------------|---|--------------|-----------------|------------|------------|
| IE-SR-20T-LIMTS/90 | Configuration State | | | | | | | | |
| Diagnostics Configuration Econfiguration | IP routing | | | | | | | | |
| SecureNow1 Packet filter | Dynamic routing: | | | | | | | | |
| Cut 8. Alarm P General settings | LAN: | | Type: Simple password: | Disabled 💌 🕐 | | | | | |
| Access control Whetwork DNS Prouting Frounding | WANE | | Active interface: Type: Simple password: Active interface: | Disabled V @ | | | | | |
| 1:1 NAT Network groups Hardware groups Ethernet | Redistribute static ro. Log level: Enable Multicast Rout | utes: ing: | none 💌 🕐 | | | Configu | ed static route | s of Route | r 3 |
| ▶ VPN ▶ Services | Static routing table | | | | / | | | | |
| * Prioritization | Active | Destination | | Subnet mask | | Gateway | Interface | Metric | 8 |
| bystem Information | 2 | 192.168.20.0 | | /24 | | 172.16.1.252 | LAN | | |
| User: admin 🕞 | M | 192.168.21.0 | | 724 | | 172.16.1.253 | LAN | | |
| | Add new static rou | te: Ø | | | | | | | |
| | Destination: | | 0 | | | | | | |
| | Subnet mask: | | | | | | | | |
| | Gateway: | | | | | | | | |
| | Interface: | | • • • | | | | | | |
| Faction | Add entry | Apply settings | Reset changes | | | | | | - |

Figure A4-9: Changed values of menu IP routing (Tab Configuration) displaying 2 new static routes

8. Monitoring the new activated "routes" at Router 3

Select menu Configuration → Network → IP routing → Tab "State"



Figure A4-10: Menu IP routing (Tab State) showing the new active routing table



9. Saving the new configuration

| Weidmüller IE-SR-2GT-I | Router Configu LAN | Weidmüller |
|------------------------------------|------------------------------|--|
| IE-SR-2GT-LAN | System | |
| Diagnostics | | |
| P Configuration | Save | |
| Backup settings Software update | State of your currently us | This symbol starts flashing if the configuration has been changed and |
| Factory defaults | State of configuration on S | activated but not saved. Clicking on the icon the web interface jumps |
| Reboot | | into this menu item (regardless which window is currently displayed) |
| Information | Save the currently active of | hanges you've made to the non-volatile flash memory of the device save settings to SIM card, too: |
| User, sömin 🗗 | Save settings | |

Figure A4-11: Menu System → Save before saving the configuration

► Click on button "Save settings" to save the current configuration to the non-volatile flash memory of the Router. If a SIM memory card is installed the configuration additionally will be stored on the SIM memory card.

| Weidmüller | Router Configuration | Weidmüller 🟵 | |
|----------------------------|--|---|--|
| IE-SR-2GT- | LAN | | |
| IE-SR-2GT-LAN | System | | |
| b Diagnostics | | | |
| ^b Configuration | 1000 | | |
| ♥ System | Save | | |
| Backup settings | Chate of your overently used configuration: | | |
| Software update | state of your currency used comparation. | saved | |
| Factory defaults | State of configuration on STM cards | an CD4 and multiple | |
| Save | state of configuration on strictery. | ho SIM Card available | |
| Reboot | G | | |
| Information | Save the currently active changes you've made to | o the non-volatile flash memory of the device | |
| Usar aonin () | save settings to our | - Card, 100. 1 | |
| | Save settings | | |

Figure A4-12: Menu System → Save after saving the configuration

Additionally the configuration can be stored on the file system of the PC.

► Select menu System → Backup settings

| Weidmüller | Router Configuration | Weidmüller 🏵 |
|------------------|--|--------------|
| 12-5K-201-1 | -Ain | |
| IE-SR-2GT-LAN | System | |
| Configuration | Backup settings | |
| Backup settings | Hanually save the system settings | |
| Factory defaults | backup the current system settings of the device to a file on your local machine with "Download settings". | |
| Save | | |
| Reboot | Restore the device settings | |
| Information | Badup file: Durchsuchen ① | |
| User: admin 🔂 | Download settings Restore settings | |

Figure A4-13: Menu System → Backup settings after saving the configuration

Click on button "Download settings" to write the configuration file to the PC hard disk (Backup file has the default extension *.cf2")

| Now Router configuration is finished! | Now Router | configuration is finished! | |
|---------------------------------------|-------------------|----------------------------|--|
|---------------------------------------|-------------------|----------------------------|--|



Testing the configured feature 1:1 NAT

1. Testing the accessibility between an Ethernet device of machine network 1 and an Ethernet device of production network ("Simple scenario" if you have only 1 Router for testing)

Note: You can use a PC for simulating an Ethernet device (machine) of networks 1. Use a second PC to be a member of the production network.

Ensure that the PC simulating machine 1 of network 1 is configured using following parameters:

→ IP: 192.168.1.100, net mask: 255.255.255.0, Standard Gateway: 192.168.1.254

Ensure that the PC of production network is configured using following parameters:

→ IP: 172.16.1.20, net mask: 255.255.255.0, Standard Gateway: 172.16.1.252 (pointing to WAN port of your Router)

- 1.1 Try to to send a ping request from machine **1** (192.168.1.100) of network **1** to PC of production network (172.16.1.20).
 - **Result:** PC of production network should reply the "ping request" with original reply IP address 172.16.1.20.
- Try to to send a ping request from PC of production network (172.16.1.20) to machine 1 (192.168.1.100) of network 1 by using the public IP address 192.168.20.100.
 - **Result:** Machine 1 of network 2 should reply the "ping request" with reply IP address 192.168.**20**.100 (due to configured 1:1 NAT).

2. Testing the accessibility between Ethernet devices of machine networks 1 and 2 according to the described application scenario (using 3 Routers)

- **Note:** You can use PC's for simulating the Ethernet devices (machines) of networks 1 and 2. Ensure that the Ethernet devices of both machine networks are configured using following parameters: IP: 192.168.1.100, net mask: 255.255.255.0, Standard Gateway: 192.168.1.254
- 2.1 Try to send a ping request from machine 1 (192.168.1.100) of network 1 to machine 1 (same IP 192.168.1.100) of network 2 by using the public IP address 192.168.21.100.
 - Result: Machine 1 of network 2 should reply the "ping request" with reply IP address 192.168.21.100 (due to configured 1:1 NAT).
- 2.2 Try to send a ping request from machine 1 (192.168.1.100) of network 2 to machine 1 (same IP 192.168.1.100) of network 1 by using the public IP address 192.168.20.100.
 - Result: Machine 1 of network 2 should reply the "ping request" with reply IP address 192.168.20.100 (due to configured 1:1 NAT).

Note: If you perform the "ping" test please ensure that the firewall configuration of the PC is not blocking the test.



A5 - Using dynamic IP routing as an alternative for manually configuring static routes

Instead of configuring static routes on Router 3 it is more comfortable to use the "dynamic IP routing" feature to announce the routes of all Router network interfaces to each Router. For announcing the routing information the protocols RIP or OSPF can be used.

Note:

If dynamic routing is activated but e.g. only the industrial Routers of the machine networks and the production network should participate, this can be done by assigning additionally a password to the used Router information protocol (RIP or OSPF). The result is that only the Routers with the same password exchange their routing tables. With this method you can avoid that routing tables of the industrial networks will be announced also in an upper-level corporate network.

Configuring dynamic IP routing

In this example the protocol RIP (Router information protocol) is set for dynamic IP routing. You can chose alternatively the "newer" protocol OSPF (Open shortest path first). Both are working properly.

► Select menu Configuration → Network → IP routing → Tab "Configuration"

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| Weidmüller IE-SR-2GT-U | Router Configuratio JMTS/3G | on | | | | | Weidr | nüller 3 E |
| IE-SR-2GT-UMTS/3G | Configuration State | | | | | | | |
| P Diagnostics | | | | | | | | |
| Configuration | IP routing | | | | | | | |
| SecureNowl | | | | | | | | |
| Packet filter | Dynamic routing: | | | | | | | |
| Cut & Alarm | LAN: | Type: | Disabled 💌 🕐 | | | | | |
| General settings | | Simple password: | | 0 | | | | |
| Access control | | Active interface: | □ ⑦ | | | | | |
| ✓ Network | | - | Disabled | | | | | |
| DNS | WAN: | Type: | | a | | | | |
| IP routing | | Active interface: | E Ø | | | | | |
| Port forwarding | | | - 0 | | | | | |
| 1:1 NAT | Redistribute static routes: | | | | | | | |
| Network groups | Log level: | none 💌 🕐 | | | | | | |
| Ethernet | Enable Multicast Routing: | | | | | | | |
| ♦ VPN ♦ Services | Static routing table: | | | | | | | |
| Prioritisation | Active Destinati | on | Subnet mask | Gatew | vay | Interface | Metric | 8 |
| System | | | | Static Routing t | able is empty | | | |
| ▶ Information | | | | | | | | |
| | | | | | | | | |
| User: admin 📑 | Add new static route: ⑦ | | | | | | | |
| | Destination: | 0 | | | | | | |
| | Subnet mask: | 0 | | | | | | |
| | Gateway: | 0 | | | | | | |
| | Metric: | 0 | | | | | | |
| | Interface: | · • ⑦ | | | | | | |
| | Add entry Apply se | ttings Reset chang | es | | | | | |
| http://www.weidmueller.com/ie | | | | | | 👩 😜 Internet | A • | • 🔍 85% • // |

Figure A5-1: Default values of menu IP routing (Tab Configuration) → Dynamic routing is disabled



Configure below described entries in the section <u>Dynamic routing</u> of the menu:

→ Configure the below described parameters for all Routers 1, 2 and 3

| LAN: • Type: | Select "RIP" |
|---------------------------------------|---|
| Simple password: | Free text |
| | Note: If there are several Routers with activated RIP but only the Routers 1, 2 and 3 |
| | should exchange their routing tables, then you have to use the same password for each Router. |
| Active interface: | Activate the checkbox if the Router shall send the routing table to the LAN port (to |
| | other Routers) |
| | |
| WAN: • Type: | Select "RIP" |
| Simple password: | \rightarrow see explanation above |
| Active interface: | Activate the checkbox if the Router shall send the routing table |

Note:

You should always use the same value for "Type" on both ports (LAN and WAN). For example if you leave Type=disabled on LAN port and you activate only the parameters Type=RIP and Active interface=set on WAN port, then the Router will **not** announce (outgoing WAN port) the configured network connected to its LAN port.

to the WAN port (to other Routers)

The checkbox "Redistribute static routes" can be left blank because we don't use static routes. As log level you can chose how detailed information about RIP will be shown in the menu Eventlog.

► Click button "Apply settings" to activate the new settings.

| | | | | | | [|
|--|--|--|-------------|-------------------------|---------------|-------------------------------------|
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| Weidmüller IE-SR-2GT-I | Router Configuratio | on | | | | Weidmüller 🗲 |
| IE-SR-2GT-UMTS/3G | Configuration State | | | | | |
| ✓ Configuration IP configuration | IP routing | | | | | |
| SecureNow! | Dynamic routing: | | | | | |
| Cut & Alarm General settings Access control | LAN: | Type: Simple password: Active interface: | RIP • @ | _ @ | | |
| Vetwork DNS IP routing Port forwarding | WAN: | Type: Simple password: Active interface: | RIP . @ | - ® | | |
| 1:1 NAT Network groups Hardware groups Ethernet | Redistribute static routes: Log level: Enable Multicast Routing: | □ ② verbose • ③ □ ② | | | | |
| VPN Services | Static routing table: | | | | | |
| Prioritisation | Active Destination | on | Subnet mask | Gateway | Interface | Metric 🔒 |
| System Information | | | | Static Routing table is | empty | |
| User: admin 🗗 | Add new static route: 🕖 | | | | | |
| | Destination: Subnet mask: Gateway: | 0 | | | | |
| | Interface: | ••• | | | | |
| | Add entry Apply set | tings Reset chang | ges | | | |

Figure A5-2: Configured dynamic IP routing



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| Weidmülle IE-SR-2G1 | er Router Configuration F-UMTS/3G | Weidmüller 🌫 |
| IE-SR-2GT-UMTS/3G | Configuration State | |
| Diagnostics | | |
| ♥ Configuration | TP routing | |
| IP configuration | 1. Fooding | |
| SecureNow! | Active routing table: | |
| Packet filter | | |
| Cut & Alarm | default via 172.16.1.254 dev WAN proto static | |
| General settings | 172.16.0.0/16 dev WAN proto kernel scope link src 172.16.1.252 | |
| Access control | 192.168.20.0/24 dev LAN proto kernel scope link src 192.168.20.254 | |
| ™ Network | | |
| DNS | Reload | |
| IP routing | | |
| Port forwarding | | |
| 1:1 NAT | | |
| Network groups | | |
| Hardware groups | | |
| Ethernet | | |

Figure A5-3: Menu IP routing (Tab State) showing the new active routing table

Testing the accessibility between Ethernet Devices of network 1 and 2

- 1. Send a ping request from Machine 1 of Network 1 to Machine 1 of Network 2

 Send "ping 192.168.21.100"
 (this ist the public IP address of Machine 1 of Network 2, translated by 1:1 NAT from 192.168.1.100 to from 192.168.21.100)
- 1. Send a ping request from Machine 1 of Network 2 to Machine 1 of Network 1

 Send "ping 192.168.20.100"
 (this ist the public IP address of Machine 1 of Network 1, translated by 1:1 NAT from 192.168.1.100 to from 192.168.20.100)

Result: All sent "pings" should be answered by the requested IP addresses correctly.

Note:

- 1. If you perform the ping test using PC's please check your firewall configuration to ensure that ping requests and echoes are allowed.
- 2. Keep in mind that every device which will be used for ping testing needs an entry for the standard gateway (IP address is pointing to the Router of the PC's network).



B. Application scenarios (Uses cases) for VPN (Virtual private networks)

B1 - OpenVPN based remote access application via "Meeting Point"

Description of a remote access application to allow a communication between protected, not directly accessible machine networks and remote Service-PC's by using a public OpenVPN-Server as "Meeting-Point"

Please **download** this technical note from the Weidmüller website using the following path:

- 1. Open http://www.weidmueller.com/IE
- 2. Select section "Industrial Ethernet" \rightarrow "Documents"
- 3. Scroll down to section "Technical Notes"
- 4. Download the file "TechNote-RemoteAccess_via_Router_and_MeetingPoint_V1_??.pdf"

B2 - Configuring an OpenVPN remote access scenario using a Weidmüller Router as OpenVPN-Server

Please **download** this technical note from the Weidmüller website using the following path:

- 1. Open http://www.weidmueller.com/IE
- 2. Select section "Industrial Ethernet" → "Documents"
- 3. Scroll down to section "Technical Notes"
- 4. Download the file "TechNote-RemoteAccess_via_Router_as_OpenVPN_Server_V1_??.pdf"

B3 - Configuring an IPsec scenario between 2 Routers (Client and Server)

This document is currently in preparation. Please check if this technical note is available from the Weidmüller website using the following path:

- 1. Open http://www.weidmueller.com/IE
- 2. Select section "Industrial Ethernet" → "Documents"
- 3. Scroll down to section "Technical Notes"



C. Additional application notes

C1- How to start and stop a pre-defined OpenVPN connection by external 24 VDC input

In this example a pre-defined OpenVPN client connection (at tab VPN1) will be configured to be started and stopped by external 24 VDC input.

- C1.1 Go into the Web-Interface and select OpenVPN menu.
- C1.2 Select the configured VPN session (here tab VPN1 as shown below).

| A ttp://192.168. | 10.254/priv/priv.php?id=VPN-1CFG 🔎 🗸 🗟 | * 🧟 « IE-SR-2GT-UMTS/3G-AX0 × | |
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| 📕 Weidmülle | r Router Configuration | | |
| IF-SR-2GT | -UMTS/3G | | |
| | | | |
| | | | |
| E-SR-2GT-UMTS/3G | Configuration VPN1 VPN2 | VPN3 VPN4 VPN5 | VPN6 VPM |
| Diagnostics | | | |
| Configuration | VPN1 | | |
| IP configuration | | | |
| SecureNow! | Basic settings | | |
| Packet filter | | _ | |
| Cut & Alarm | Enable VPN instance: | | |
| General settings | Interface mode: | Client 🔽 🕜 | |
| Access control | Permanent connection: | V () | |
| Network | Layer: | Laye If enabled on a server | |
| ▼ VPN | OpenVPN device type: | TAP instance the server will always be up. If enabled on | is the tooltip |
| OpenVPN | Server address: | 46.16 a client instance the client will always try to reconnect | h will be |
| IPsec | Server port: | 1194 if the connection gets lost. | laved if you move |
| Services | Protocol: | TCP connection can be switched | |
| Prioritization | Certificate: | Oper or ALARM triggers, Modbus | nouse cursor to |
| System | Authenticate with username and password: | Chec | kbox "Permanent |
| | Username: | conr | nection" |
| · momuton | Password: | sho | |
| User admin 🖬 | Pull routes from server: | ☑ (?) | |
| | Use HTTP proxy: | | |
| | Additional settings | | |
| | Log level: | info 💌 | |
| | LZO compression: | adaptive 🔽 🕐 | |
| | Cipher: | BF-CBC | |
| | Apply settings Reset changes | | |

- C1.3 Disable (Clear) checkbox "Permanent connection".
 → Now the OpenVPN-Client configuration will not automatically try to connect an OpenVPN-Server but it will start a connection by external 24 VDC input (connector "VPN initiate"). A connected OpenVPN tunnel will be stopped by removing the external 24 VDC input.
- C1.4 Click "Apply settings".
- C1.5 If a connected OpenVPN tunnel shall be signalized by LED "VPN" and digital output connector "VPN active", select tab "Configuration" of OpenVPN menu, goto field "VPN LED / Output Controller" and select the desired VPN tunnel (below screenshot shows selected L3-VPN1 session).



| N-201-OMT8/30 III | Configuration | VPN1 | VPN2 | VPN3 | VPN4 | VPN5 | VPN6 | VPN7 | VPN8 | VPN9 | VPN | 10 State | • | | |
|-------------------|---------------|------------------|----------------------|--|-------------------|------|------|------|--------------|------|----------|----------------|-----|------|---|
| Diagnostics | | | | | | | | | | | | | | | |
| Configuration | OpenVPN | | | | | | | | | | | | | | |
| P configuration | | | | | | | | | | | | | | | |
| Packet filter | Current Open | VPN server ta | ble: | | | | | | | | | | | | |
| Out & Alarm | Device | Certificate | | | | | | | IP Info | | Protocol | Local server p | ort | | 8 |
| General settings | L3-VPN2 | P OpenVI | PN Servert (Oner | VPN Servert d | nem) | | | | 10.8.0.1/24 | | TCP | 443 | | | |
| Access control | | openvi | -in_pervent (open | ivin_perveri_ci. | pemy | | | | | | | | | | |
| Network | Current Open | VPN client tab | le: | | | | | | | | | | | | |
| VPN | - | | | | | | | | | | | | | | |
| OpenVPN | Device | Certificate | | | | | | | IP Info | | Protocol | Server addres | 15 | port | 8 |
| IPsec | L3-VPN1 | P OpenVi | N Client1 (Onen) | VPN Client1 cl.n | (m) | | | | OpenVPN/DHCP | | TCP | 46.16.217.213 | | 1194 | |
| Services | | openti | | trin_contrin_cop | , | | | | | | | | | | |
| Prioritization | UTTO/UTTOE | provo cotting | for diants: @ | | | | | | | | | | | | |
| ystem | HTTP prove IP | address: | Tor clients. | | | | | | | | | | | | |
| formation | HTTP proxy TC | P port: | | 1 | | | | | | | | | | | |
| | HTTP proxy au | thentication met | hod: none . | 0 | | | | | | | | | | | |
| User: admin 🗗 | HTTP proxy us | emame: | | | | | | | | | | | | | |
| | HTTP proxy pa | ssword: | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | Additional se | ttings: | Frank and the second | | | | | | | | | | | | |
| | VPN LED/outpu | it controller: | disabled | Here and the second sec | | | | | | | | | | | |
| | Apply setting | s Result | hanges L3-VPN | The selecte | d device | | | | | | | | | | |
| | report second | | | VPN LED a | nd of the digital | | | | | | | | | | |
| | | | | Possible st | ates of the LED | | | | | | | | | | |
| | | | | off: connect | tion disabled | | | | | | | | | | |
| | | | | on: connec | ted. | | | | | | | | | | |

- C1.6 Click "Apply settings"
- C1.7 To activate the "not permanent" configured OpenVPN connection provide 2 pins of the 4-pin con nector named "VPN initiate / VPN active" with 24 VDC. If you disconnect the power then the VPN tunnel will be closed.

See below described pin assigment.





Pin assignment of 4-pin connector for "VPN initiate" and "VPN active"

| Pin number | SIGNAL NAME |
|------------|------------------------|
| 1 | 24V DC (VCC) |
| 2 | Initiate VPN (24 V In) |
| 3 | VPN active (24 V Out) |
| 4 | GND |



C2- Description how to disable the Ethernet connection at WAN port

The Ethernet WAN port can physically disabled using several methods:

Method 1: Hardware-based disconnection (Cut) by external digital input

Method 2: Software-based disconnection by a Firewall-rule

Method 3: Software-based disconnection by feature "Client monitoring"

Method 1: Hardware-based disconnection of WAN port by external digital input

To disconnect the WAN port provide 2 pins of the 4-pin connector named "CUT Wan port / Signalize Alarm" with 24 VDC. If you disconnect the power then the WAN port will be activated again. See below described pin assigment.

Note: Disconnecting the WAN port by digital input overrules the software-based CUT events.





| Pin number | SIGNALNAME |
|------------|--------------------------------------|
| 1 | 24V DC (VCC) |
| 2 | Cut (Disabling WAN-Port, 24 V In) |
| 3 | Signalize Alarm (24 V Out) |
| 4 | GND |



Method 2: Software-based disconnection of WAN port by Firewall-rule

Inside of a Firewall-rule it can be configured that the WAN port will be disconnected if this Firewall-rule matches.

As an example below we create a Firewall-rule which will deactivate the WAN port if a device is sending a ping request incoming into the WAN port and outgoing to a device connected at the LAN port.

- C2.1 Goto menu Configuration \rightarrow Packet filter
- C2.2 Click the "+" icon (Add a new rule-set)
- C2.3 Mark Define a new rule-set and enter the name and the description of the rule-set as shown below

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C2.4 Click button "Next"

| La | | All rules in th | he current rule set | | Here you can edit the name of the rule set, re-sort rules (by using the arrow buttons) add inset or | |
|------------|-----------------|-----------------|---------------------|-------|---|--|
| 1 Overv | iew of rule set | | Disconnect_V | | delete rules. | |
| Inbou | nd interface. | • | WAN 🗖 | | | |
| Outbo | iund interface. | 88. 9 | 1 | | | |
| | | | | [[A]] | | |
| | | | | V. | | |

C2.5 Select Inbound Interface = WAN

C2.6 Click button "Add" to create the first rule of the rule-set "Disconnect_WAN"

| IP addresses and | IP protocol of the rule | You can specify a source and destination IP address. If a subnet mask other than * or 255 255 255 255 is supplied, a | ^ |
|--|-------------------------|--|---|
| Source IP address/mask: Use network groups 🔲 🕐 | * | network area will be used for the / filter rule (e.g. 192.168.0.0/255.255.255.0). * means any IP address and 255.255.255.255.255.255.255.255.255.255 | |
| Destination IP address/mask: Use network groups 🔲 🔞 | * | / In addition, you may select the IP protocol.* means any protocol. | |
| IP protocol: | • ICMP • | | |

- C2.7 Enter * in both fields "Source IP address" and "Destination IP address"
- C2.8 Select IP protocol = ICMP





C2.10 Leave "ICMP type" as default (any) C2.11 Click button "Next"



| war 3 Eiltar 🔿 | | | | |
|-------------------------------|-----------------------------|--|---|---|
| | Action and name of the rule | Action: Tells how to handle a packet that passed all criteria. | - | * |
| Action: Reject reason: | Cut + Drop | Allow: The packet will be forwarded. Drop: The packet will be silently | ш | |
| Log: Alarm: | N. | discarded. Cut: The network link will be cut at | | |
| Max. packets/s: Rule name: | LinkDownByPing | hardware level. Reject: The packet will be discarded and the sender will be potified. | | |
| | | The message can be defined via "Reject Reason". | | |

- C2.12 Select "Action" = Cut + Drop
- C2.13 Enable checkboxes Log and Alarm to signalize a CUT in the Event-Log and to switch-on the Alarm-LED at frontside of the Router
- C2.14 Enter the name of the rule (max. 15 characters)
- C2.15 Click button "Next"

| All rules in the current rule set All rules in the current rule set All rules in the current rule set Overview of rule set: Disconnect_W Inbound interface: Inbound interface: Inbound interface: Inbound interface: Inbound interface: Inbound interface: Inbound Interface: Inbo | Lay | er 3 Layer 2 | Status | | | | | |
|--|-----|--|--------------------|------------------|------|--|---|--|
| Overview of rule set Disconnect_W Inbound interface: | La | | All rules in the c | current rule set | | Here you can edit the name of the rule set, re-sort rules (by using the arrow buttons), edit, insert or delete rules. | * | |
| LinkDownByPing Add Edit Delete Next | ľ | Overview of rule set: Inbound interface: Outbound interface: | | WAN | | | | |
| Add Edit Delete Next | | LinkDownByPing | | | ٨ | | | |
| Add Edit Delete Next | | | | | V | | | |
| | | Add | Edit | Delete | Next | | | |

Now the rule "LinkDownByPing" is created. We do not need any further rules.

C2.16 Click button Next to finish creating the rule-set

| Layer 3 | Layer | 2 | Status | | | | | | |
|---------|------------------------------------|--------|-----------------|----------------|------------|----------|--------|---|---|
| La | | | Activity of the | he rule set | | | | Here you may define wheth * activity of the rule set shoul restricted to a certain time window. | |
| | Limit activity: From: Until: | | | | | | | Starting and ending time mi in HH:MM format. You mus select the days of week on the rule set is supposed to active. | |
| | At | Monday | Tuesday Wedne | esday Thursday | y Friday S | Saturday | Sunday | Caution: If you do not chec least one day the rule set w be activated at all! | 6 |
| | Rack | | | | | | nĸ | | |

C2.17 Click button "OK" cause we do not set any time limits



| Layer 3 | Layer 2 | Status | |
|---------|------------------------|---|--|
| La | Inf The rule set is | ormation state of the rule set s prepared. | |
| | | Close | |

C2.18 Click button "Close" to finish the rule-set creation

| Diagnostics | | | | | |
|------------------|---|-----|----------|------|----|
| Configuration | Laver 3 Filter | | | | |
| IP configuration | Layer 5 miler | | | | |
| SecureNow! | | | | | |
| Packet filter | 2 rule sets () | | | | |
| Cut & Alarm | 1 Allow_L3* (1 rule) Allow all L3 traffic | | ∇ | 32 | 8 |
| General settings | 2 Disconnect WAN from WAN (1 min) | | _ | 10.0 | 18 |
| Access control | Disconnects WAN Port if Router receives a Ping request at WAN port | | ∇ | 32 | ŋ |
| Network | | | | | |
| VPN | | | | | |
| Services | Add a new rule set By using the plus symbol you can add new rule sets | | | - | þ. |
| Prioritization | Show rule sets for following interfaces from: | to: | × | 6 | |
| System | only tone energies of energies while depayed | | | | - |
| nformation | Packet filter has been modified. Please click on 8apos;Apply settings8apos; to activate your changes! | | | | |
| User: admin 🖪 | Apply settings | | | | |

Now the new rule-set Disconnect_WAN will be displayed in the Layer3-Filter-table. We need to change the position of the new rule-set to top-most cause the Packet filter (Firewall) checks the rules from top to bottom. Due to the fact that the default filter rule "Allow_L3" is always matching for each traffic the new rule-set never would be used.

| Diagnostics | | | | | | | | | _ |
|------------------|---------------------|--|---|-------------------------|------------------|-------------------------------|--------|----|----|
| Configuration | Lavor 24 | Eilter O | | | | | | | |
| IP configuration | Layer 5 r | litter @ | | | | | | | |
| SecureNow! | | | | | | | | | |
| Packet filter | 2 rule se | its (I) | | | | | | | |
| Cut & Alarm | ▼ 1 D | isconnect_WAN from isconnects WAN Port if | n WAN (1 rule) Router receives a Ping re | equest at WAN port | | | | 30 | 8 |
| General settings | Position | Name | Source | Destination | Protocol | Extra Connection control | Action | | |
| Access control | 1 | LinkDownByPing | - | | ICMP | automatic | CUTAL | | |
| Network | ▶ 2 A | llow_L3* (1 rule) | | | | | | 32 | f |
| ▶ VPN | | | | | | | | | |
| Services | | | | | | | | | |
| Prioritization | Add a r By using | new rule set | an add new rule sets | | | | | - | į. |
| System | Show r | ule sets for following | interfaces | | | 6 m . | | | _ |
| Information | only rule | is affecting the selecte | d network interfaces will | be displayed | | from: [* | to: • | | ÿ. |
| User: admin [| Packet fi | iter has been modified. | Please click on 'Ap | ply settings' to activa | te your changes! | | | | |

C2.19 Change the position of rule-set "Disconnect_WAN" to be the topmost by clicking the arrow-icon

C2.20 Click button "Apply settings" to activate the new firewall-filter

Important:

Before testing the CUT function we have to determine how to re-activate a disconnected WAN port. This has to be done in the menu Cut & Alarm.

C2.21 Select menu Configuration → Cut & Alarm

By default a triggered CUT or Alarm event has to be **re-set** manually as shown below left. To re-set manually triggered events change to tab State and click buttons "Reset cut signal" and/or "Reset alarm signal"

Tab "Configuration"

| Tab "Configuration" | Tab "State" | | | | | | |
|--|--|--|--|--|--|--|--|
| 🔏 « IE-SR-2GT-UMTS/3G-AX00687399 - Cut & Alarm » - Windows Internet Explorer | 💋 « IE-SR-2GT-UMTS/3G-AX00687399 - Cut & Alarm » - Windows Internet Explorer | | | | | | |
| C v ktp://172161.20/priv/priv.php?id=CUTALARMSETT | COO - E http://172.16.1.20/priv/priv.phpTid=CUTALARMVIEW | | | | | | |
| 🚖 Favorites 🛛 🙀 🔊 Suggested Sites 🔹 🔊 Web Slice Gallery 👻 | 🖕 Favorites 🛛 🎪 🔊 Suggested Sites 🔻 🔊 Web Slice Gallery 🕶 | | | | | | |
| | 6 x IE-SR-2GT-UMT5/3G-AX00687399 - Cut & Alar | | | | | | |
| Weidmüller Router Configuration IE-SR-2GT-UMTS/3G | Weidmüller Router Configuration IE-SR-2GT-UMTS/3G | | | | | | |
| IE-SR-2GT-UIIT9/3G ini P Diagnostics | IE-SR-2GT-UMTS/3G ini Configuration State | | | | | | |
| IP configuration Cut & Alarm | Configuration Cut & Alarm | | | | | | |
| SecureNow! Internal cut acknowledgment: Manual | SecureNow! Cut & alarm configuration: () | | | | | | |
| Cut & Alarm | Cut& Alarm Alarm mode: Manual acknowledgment | | | | | | |
| General settings Alarm acknowledgment: Manual | General settings Internal cut mode: Manual acknowledgment | | | | | | |
| P Access control Alarm timeout: | P Access control | | | | | | |
| P Network | P Network | | | | | | |
| Enable automatic client monitoring recovery acknowledgment () | Cut & alarm state: | | | | | | |
| Periordization Apply settings Reset changes | Perioritzation Alarm event: off | | | | | | |
| h management | Int. cut event: off | | | | | | |
| P System | System Ext. cut event: off | | | | | | |
| user admin [3 | r morrnatom reser.cur syntat Neset aarm signat | | | | | | |
| Done | Done | | | | | | |

Alternatively the **re-set** of events can be configured automatically with a selectable time-delay. The 2 screenshots below show a configured "automatic mode"



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C2.22 Set the modes for CUT and Alarm acknowledgement to Automatic

After finishing configuration and applying (don't forget) of the behaviour how to re-set the event, a test of the configured CUT-Firewall-rule can be started.

- C2.23 Connect a PC at WAN-Port of the Router.
- C2.24 Connect a second PC at LAN-Port of the Router to check what happens when the CUT-event is triggered.
- C2.25 Send a Ping request from PC-WAN to PC-LAN.

As result the WAN port should be disabled immediately. In automatic mode you have to wait the delay time until the WAN port is re-activating. In manual mode goto to Routers Web-Interface with PC-LAN, select menu Cut & Alarm, change to tab "State" and click buttons "Reset cut signal" and/or "Reset alarm signal".

Note: Please keep in mind that "pinging" the **IP address of Router's LAN-Port from WAN-network** will **not** trigger the configured Firewall-rule. The Layer-3-Firewall is only working for data packets which have to be transmitted from Router's inbound to outbound interfaces to an external device.

Method 3: Software-based WAN port disconnection by feature "Client monitoring"

The Router has a builtin feature named "Client monitoring" which can be used to test if a connected device is still alive. This will be done by periodically sending a block of 5 ping requests every 50 seconds. If a monitored device is no longer answering then either an internal CUT (disconnect WAN port) or an Alarm (24 VDC digital output) can be triggered.

As an example (as shown in the screenshot below) we create an entry to monitor a device with the IP address 192.168.10.11.

C3.1 Goto menu Configuration \rightarrow Services \rightarrow Client monitoring

C3.2 Enter into the line of section "Add a new entry" the parameters to monitor a device

- IP address → Device which will be monitored
- Delay (ms) → The Router sends every 50 seconds a block of 5 ping requests to the monitored device. If the average response time (based on 5 ping requests) is longer than the configured Delay-time then this trigger condition will match.
- Packet loss(%) → If the lost share (no response) of 5 ping requests is greater than this configured value then this trigger condition will match.
- Action → As an action "CUT"-WAN-Port or an "Alarm" can be defined. An action will be triggered if one of the parameters *Delay (ms)* or *Packet loss(%)* exceeds the configured values.
- Note: If you select the action "CUT" it makes only sense to monitor devices at LAN port due to the fact that the WAN port will be disabled in case of a lost connection.



| Diagnostice | Comparation | | | |
|------------------------------|---------------------------|---------------|---------------------------|--------------|
| 7 Configuration | | | | |
| - Configuration | Client monitoring | | | |
| P configuration | | | | |
| SecureNow | Current monitoring table: | | | |
| Packet filter | | | | |
| Cut & Alarm | IP address | Delay(ms) | Packet loss(%) | Action State |
| General settings | 3 | | | |
| Access control | | M | ionitoring table is empty | |
| Network | | | | |
| VPN | E-mail server: | | | |
| ✓ Services | E-mail address: | | | |
| DHCP server | | | | |
| Dynamic DNS | Add new entry | | | |
| Web server | Add new entry. | | | |
| SNMP | IP address: | Delay: | Packet loss: | Action: |
| Modbus TCP | 192.168.10.11 | 100 ms | 100 % | Cut 💽 🕐 |
| Client monitoring | | | | Alarm |
| b c c c c c c c c c c | Add entry Apply settings | Reset changes | | Cut |

C3.3 Click button "Add entry"

C3.4 Click button "Apply settings" to activate the new entry

| Diagnostics | | | | | | |
|----------------------------|---------------------------|------------|----------------|----------|-------|--|
| ⁷ Configuration | Client monitoring | | | | | |
| IP configuration | Client monitoring | | | | | |
| SecureNow! | Current monitoring table: | | | | | |
| Packet filter | | | | | | |
| Cut & Alarm | C ID address | Delau(me) | Dacket loss(%) | Action | Chata | |
| General settings | H IP address | Delay(Ins) | Packet loss(%) | ACCON | state | |
| Access control | 192.168.10.11 | 100 | 100 | Cut | • | |
| Network | | | | | | |
| ▶ VPN | E-mail server: | | | | | |
| ▼ Services | E-mail address: | | | | | |
| DHCP server | | | | | | |
| Dynamic DNS | Add new entry: | | | | | |
| Web server | Add new endy. | | | | | |
| SNMP | IP address: | Delay: | Packet loss: | Action: | | |
| Modbus TCP | | ms | 96 | none 💌 🕐 | | |
| | | | | | | |

Note: The behaviour of re-setting a triggered (CUT or Alarm) depends on the configuration of the menu Configuration \rightarrow Cut & Alarm.

Additionally, if the parameter "Enable automatic client monitoring recovery acknowledgment" is activated then the Router will automatically re-activate the WAN port if the monitored device (at LAN port) is accessible again (cause the Router is still checking every 50 seconds by ping request).

| SR-2GT-UMTS/3G | Configuration State | |
|------------------|-------------------------------------|------------------------------|
| Diagnostics | | |
| Configuration | Cut & Alarm | |
| IP configuration | | |
| SecureNow! | Internal cut acknowledgment: | Automatic |
| Packet filter | Internal out timeouts | |
| Cut & Alarm | internal cut uneout: | 20 940 |
| General settings | Alarm acknowledgment: | Automatic T |
| Access control | Alarm timeout: | 20 sec |
| Network | Admin diffeode. | 20 000 |
| ▶ VPN | F Enable automatic client monitorin | ig recovery acknowledgment 🕜 |
| Services | | |
| Prioritization | Apply settings Reset chang | Jes . |



The function "Remote Capture" can be used to record the traffic at Router's LAN- or WAN port using a remote connected PC running Wireshark. The PC is located somewhere in the network and must be able to access one of the IP addresses of the Router.

Step-by-step guidance

- C3.1 Activate the "Remote capture" feature of the Router as shown below (Menu Diagnostics → Remote Capture)
- Note: Only one Wireshark-Client-PC (here 172.16.1.10) can be used at the same time record the traffic by Wireshark. Please deactive this feature if you no longer need to analyze the traffic because it has an impact on the performance of the Router.



C3.2 Start Wireshark at your PC

C3.3 Click "Interface list" or alternatively select in the menu "Capture" \rightarrow "Interfaces"

| Im Wireshark Network Analyzer [Wireshark 18.2 (SWN Rev 44320 from /zuruk Elle [de View So Capture Analyzer Justistics Telephony Tools Int Im de View So Capture Analyzer [Wireshark 18.2 (SWN Rev 44320 from /zuruk Filter Filter WIRESHARK The World's Most Popular N Version 18.2 (SWN Rev 44520 from / | 1.1)) ennis 社ep 圖[]] @ @ @ @ 译 图 题 读 算 Expression Clear Apply Save etwork Protocol Analyzer trunk-1.8) | |
|---|---|--|
| Capture Interface List Use for of register interface (the second | Files Open Open species Open Recent: Image: Complex Captures Image: Complex Capture files on the will | Online Website Vatima projecti website |

The local Ethernet Interfaces of the computer will be displayed.

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| ſ | 📶 Wireshark: Capture Interfaces | | 8 | b | |
|---|---|-----------------------------|----------------|----------|---------------|
| | Description | IP | Packets | Packets | ;/s |
| | Microsoft | fe80::48e3:6f02:82b4:1734 | 0 | 0 | Details |
| | 📄 🔊 Broadcom NetXtreme Gigabit Ethernet Drive | r fe80::2ddc:1ed1:80ba:2da0 | 46 | 0 | Details |
| | 🔲 😥 TAP-Win32 Adapter V9 | fe80::1560:7712:ad69:4366 | 0 | 0 | Details |
| | | | | | |
| | <u>H</u> elp | rt S <u>t</u> op | <u>O</u> ption | s I | <u>C</u> lose |

C3.4 Click button "Options"

| 🗖 Wireshark: Cap | ture Options | | | | 8 | | × |
|-----------------------------------|---|------------------------|-----------|--------------------------|----------------------|----------------|-----|
| Capture | | | | | | | |
| Capture | Interface | Link-lay | er header | Prom. Mode | Snaplen [B] B | Buffer [MB] | * |
| Microso fe80:48e3 fe80:48e3 | oft: \Device\NPF_ ::6f02:82b4:1734 ::6f02:82b4:1734 | {E2BA0 Etherne | | enabled | default | | |
| Fe80:2dd 17216.11 | om NetXtreme G c:led1:80ba:2da0 0 | iigabit Et Ethernet | t | enabled | default | 1 | = |
| TAP-W fe80:1560 10.8.0.1 | in32 Adapter V9: 07712:ad69:4366 | \Device Ethernet | t | enabled | default | 1 | - |
| • | | III | | | | Þ | |
| Capture on a | all interfaces n promiscuous mo | ode | | | Mana | ige Interfaci | es |
| Capture File(s) | | | | _⊢ Display Opt | tions | | |
| File: | | Br | owse | Update | list of packe | ts in real tin | ne |
| Use <u>m</u> ultiple | files | 🔽 Use pcap-ng | format | | | | |
| ✓ Next file ever | y 1 | megabyte(s) | - | ✓ <u>A</u> utom | atic scrolling | in live capt | ure |
| Next file ever | y 1 | minute(s) | - | ✓ <u>H</u> ide ca | apture info di | ialog | |
| 🗌 Ring buffer w | /ith 2 | files | | | | | |
| Stop capture | after 1 | 🗍 file(s) | | -Name Keso | lution | | |
| Stop Capture | | | | V Enable | MAC name i | resolution | |
| 🔲 after | 1 | → packet(s) | | Enable | network nan | ne resolutio | n |
| 🔲 after | 1 | megabyte(s) | - | | | | |
| 🔲 after | 1 | minute(s) | - | Enable | <u>t</u> ransport na | me resolutio | on |
| <u>H</u> elp | | | | | <u>S</u> tart | <u>C</u> lose | |



| Add new interfaces | s - • 💌 | Add new interfaces | | <u>a</u> - • × |
|--|----------------|---|----------------|---------------------------|
| Pipes Local Interfaces Remote Interfaces | | Pipes Local Interfa Remote Interfaces- Host | ote Interfaces | |
| Delete Pipe | <u>B</u> rowse | | | |
| Save | | <u>A</u> dd <u>D</u> elete | | <u>Apply</u> <u>Close</u> |



C3.6 Click button "Add"

| 🗖 Wire | shark: Ren 📇 🗔 💷 💌 | | | | |
|---------------|-------------------------|--|--|--|--|
| Host: | 172.16.1.20 | | | | |
| Port: | 2002 | | | | |
| Auther | ntication | | | | |
| N N N | Null authentication | | | | |
| 🔘 Pa | Password authentication | | | | |
| Userna | ame: | | | | |
| Passw | ord: | | | | |
| | OK <u>C</u> ancel | | | | |

- C3.7 Enter into field "Host" the IP address of the Router
- Note: You can enter either the IP address of LAN or WAN port. The import fact is that the Routers IP address is accessible by the Wireshark-PC.
- C3.8 Enter into field "Port" the value 2002 (will be filled automatically if you enter an IP address)
- C3.9 Click button OK

Now both Interfaces of the Router (= Host 172.16.1.20) should be displayed.

| Pipes Local Interface | Remote Interfaces | |
|-----------------------|--------------------------|-------------|
| Host | Name | ▲ Hid |
| □ 172.16.1.20 | | |
| | rpcap://[172.16.1.20]:20 | 02/LAN |
| | rpcap://[172.16.1.20]:20 | 02/WAN |
| | | |
| | | |
| | | |
| | | |
| Add | elete | Apply Close |

C3.10 Click button Close

The "remote capture interfaces" will be displayed in the list of selectable interfaces.



| Capture | | | | | | | | |
|--|--|---|---------------|---|---|--|---|----------------------------|
| Capture | | Interfac | e | Link-layer head | ler Prom. Mod | le Snaplen [B] | Buffer [N | 1B] (📩 |
| | Microsoft: \E fe80::48e3:6f02:8 fe80::48e3:6f02:8 |)evice\f 2b4:1734 2b4:1734 | NPF_{E2BA0. | Ethernet | enabled | default | 1 | |
| | Broadcom N fe80:2ddc:led13 172.16.1.10 | etXtren 80ba:2da0 | ne Gigabit Et | Ethernet | enabled | default | 1 | |
| | TAP-Win32 / fe80::1560:7712:a 10.8.0.1 | Adapter | V9: \Device | Ethernet | enabled | default | 1 | = |
| | rpcap://[172 | .16.1.20 |]:2002/LAN | Ethernet | enabled | default | 1 | |
| | rpcap://[172 172.16.1.20 | .16.1.20 |]:2002/WAN | Ethernet | enabled | default | 1 | |
| ∢ □ Cap | ture on all inte | erfaces | | III | | Man | iage Inter | ► faces |
| ✓ Cap ✓ Cap ✓ Cap Capture I | ture on all inte ture all in pror File(s) | erfaces miscuou: | s mode | | Display C | Man | age Inter | ► faces |
| Cap Cap Capture File: | ture on all inte ture all in pror File(s) | erfaces miscuou: | s mode | III | Display C | Man Potions ate list of pack | age Inter | F faces |
| Cap Cap Capture I File: | ture on all inte ture all in pror File(s) <u>m</u> ultiple files | erfaces miscuou: | s mode | III Browse Jse pcap-ng forma | Display C | Man Pptions ate list of pack | age Inter | ► faces |
| Cap Cap Cap Capture File: Use V Next | ture on all inte ture all in pror File(s) <u>m</u> ultiple files file every | erfaces niscuou: | s mode V L | III Browse Jse pcap-ng forma abyte(s) | Display C V Upda t V Auto | Man Potions ate list of pack matic scrollin | age Inter ets in rea g in live o | faces I time |
| Cap Cap Capture File: Vse Vext Next | ture on all inte ture all in pror File(s) multiple files file every file every | infaces niscuous | s mode | III Browse Jse pcap-ng forma abyte(s) ute(s) V | Display C V Upda t V Auto | Man Pptions ate list of pack matic scrollin capture info o | age Inter ets in rea g in live o dialog | faces I time |
| Cap Cap Capture File: Use Next Ring Stop | ture on all inte ture all in pror File(s) multiple files file every buffer with capture after | erfaces niscuous 1 1 2 1 | s mode | III Browse Jse pcap-ng forma abyte(s) ute(s) | Display C Upda t Auto V Hide Name Re | Man options ate list of pack matic scrollin capture info o solution | ets in rea g in live o dialog | faces I time |
| Cap Cap Capture File: Vose Ring Stop Captop Cap | ture on all inte ture all in pror File(s) <u>multiple files</u> file every file every buffer with capture after ture | 1 1 1 1 | s mode | III Browse Jse pcap-ng forma abyte(s) ute(s)) | Display C U Upda t V Auto V Hide Name Re V Enab | Man options ste list of pack matic scrollin capture info o solution le <u>M</u> AC name | ets in rea g in live o dialog | faces I time capture |
| Capture I File: Use J Next Next Ring Stop Cap | ture on all inte ture all in pror File(s) multiple files file every buffer with capture after ture ter | 1 1 2 1 | s mode | III Browsen Jse pcap-ng forma abyte(s) v ute(s) v et(s) | Display C V Upda t V Auto V Hide V Enab | Man options ate list of pack matic scrollin capture info o solution le <u>M</u> AC name le <u>n</u> etwork na | age Inter ets in rea g in live o dialog e resolutio me resolutio | faces I time capture |
| Cap Capture I File: Vext Next Ring Stop Cap aff aff | ture on all inte ture all in pror File(s) multiple files file every buffer with o capture after ture ter 1 1 | 1 1 2 1 | s mode | III Browse Jse pcap-ng forma abyte(s) ute(s) et(s) abyte(s) | Display C V Upda t V Auto V Hide Name Re V Enab | Man hptions ate list of pack matic scrollin capture info o solution le <u>M</u> AC name le <u>m</u> AC name | age Inter ets in rea g in live o dialog resolutio me resolu | faces I time capture |

In this example we want to capture the traffic at WAN port.

C3.11 Double-Click the line rpcap//[172.16.1.20]:2002/WAN

| Edit Interface Settings | 🗖 Remote Capture Se 👝 💷 🞫 |
|---|--|
| Capture Interface: rpcap://[172.16.1.20]:2002/WAN IP address: 172.16.1.20 Link-layer header type: Ethernet Capture packets in promiscuous mode Limit each packet to 65535 Uireless Settings Wireless Settings Uireless Settings Uireless Settings Capture Filter: Limit each packet to 65535 Capture Filter: Compile BPF Limit each | Capture Options Do not capture own RPCAP traffic Use UDP for data transfer Sampling Options None 1 of 1 packets 1 every 1 QK Cancel |

- C3.12 Click button "Remote Settings"
- C3.13 Clear the checkbox "Do not capture own RPCAP traffic"
- C3.14 Click button "OK"
- C3.15 Again click button "OK" to close the window "Edit Interface Settings"



| 🔼 Wiresha | ark: Capture C |)ptions | | | | | | | × |
|--------------|---|--|--------------|-----------------|---------|-----------------|----------------------|----------------|------|
| Capture- | | | | | | | | | |
| Capture | | Interface | | Link-layer head | er Prom | . Mode | Snaplen [B] | Buffer [MB] | A 1 |
| | Microsoft: \D fe80::48e3:6f02:83 fe80::48e3:6f02:83 | Device\NPF_{E 264:1734 264:1734 | 2BA0 | Ethernet | ena | bled | default | 1 | |
| | Broadcom No fe80::2ddc:1ed1: 172.16.1.10 | etXtreme Gig 80ba:2da0 | jabit Et | Ethernet | ena | bled | default | 1 | |
| | TAP-Win32 A fe80::1560:7712:a 10.8.0.1 | Adapter V9: \[ad69:4366 | Device | Ethernet | ena | bled | default | 1 | Е |
| | rpcap://[172. | .16.1.20]:2002 | 2/LAN | Ethernet | ena | bled | default | 1 | |
| | rpcap://[172 . 172.16.1.20 | .16.1.20]:2002 | 2/WAN | Ethernet | ena | bled | default | | |
| Capt | Capture on all interfaces Manage Interfaces | | | | | | es | | |
| Capt | ure all in pror | miscuous mod | e | | | | | | |
| Capture F | ile(s) | | | | Disp | olay Opt | ions | | |
| File: | | | | <u>B</u> rowse | | <u>U</u> pdate | list of pack | ets in real ti | me |
| Use <u>n</u> | <u>n</u> ultiple files file every | 1 | Use megab | pcap-ng format | 🔽 | <u>A</u> utom | atic scrolling | g in live cap | ture |
| Next 1 | file every | 1 | minute | e(s) 📼 | Í ₪ | <u>H</u> ide ca | apture info d | lialog | |
| Stop | capture after | 1 | file(s) | | Nan | ne Reso | lution | | |
| -Stop Cant | ture | - | () | | | Enable | MAC name | resolution | |
| 🔲 afte | er 1 | Å | packet(| 5) | | Enable | network na | me resolutiv | on |
| 🔲 afte | er 1 | Å | megab | yte(s) 📼 | 1 | | | | |
| 🔲 afte | er 1 | | minute | (s) v |] | Enable | <u>t</u> ransport na | ime resolut | ion |
| <u>H</u> elp | | | | | | | <u>S</u> tart | <u>C</u> lose | 2 |

C3.16 Activate the checkbox in line rpcap//[172.16.1.20]:2002/WAN

C3.17 Click button "Start" to record the traffic at Routers WAN port

| 🗖 rpc | 📶 rpcapi/(172161.20):2002/WAN [Wireshark 18.2 (SVN Rev 44520 from /trunk-1.8)] | | | | | | | |
|---------|---|--|--|---------------|-----------------------------|---------------|--------------------------------------|-----------|
| Eile | Eile <u>E</u> dit <u>V</u> iew <u>G</u> o <u>C</u> apture <u>A</u> nalyze <u>S</u> tatistics Telephony <u>T</u> ools <u>I</u> nternals <u>H</u> elp | | | | | | | |
| EV 2 | പകകക | | 0 4 4 7 7 1 | | | 1.958 | | |
| - | | |) ~ ~ ~ ~ ~ ~ ~ | | | 1 954 | | |
| Filter: | | | - | Expression | Clear Apply Save | | | |
| No. | Time | Source | Destination | Protocol I | ength Info | | | |
| | 00 76 4959 | 40 173 16 1 10 | 172 16 1 255 | NONC | OZ NAMO GUORU NE TEATAD O | 0. | | |
| 1 | 10 77 04921 | 20172.16.1.11 | 230 255 255 250 | SSDR | 175 M-SEARCH * HTTP/1 1 | J> | | |
| 1 | 11 77 2493/ | 80172 16 1 10 | 172 16 1 255 | NBNS | 92 Name QUERY NE TSATAR-O | 0> | | |
| 1 | 12 78 0138 | 20172 16 1 10 | 172.16.1.255 | NBNS | 92 Name query NB ISATAP<0 | 0> | | |
| 1 | 13 78, 78010 | 10 fe80::2ddc:1ed1 | :80bff02::1:3 | LLMNR | 86 Standard query 0x04b0 | A isatan | | |
| 1 | 14 78,78020 | 520 172, 16, 1, 10 | 224.0.0.252 | LLMNR | 66 Standard guery 0x04b0 | A isatap | | |
| 1 | 15 78.88774 | 20 fe80::2ddc:1ed1 | :80bff02::1:3 | LLMNR | 86 Standard query 0x04b0 | A isatap | | |
| 1 | 16 78.88784 | 50 172.16.1.10 | 224.0.0.252 | LLMNR | 66 Standard query 0x04b0 | A isatap | | |
| 1 | 17 79.0906 | 530 172.16.1.10 | 172.16.1.255 | NBNS | 92 Name query NB ISATAP<0 | 0> | | |
| 1 | 18 79.85444 | 30 172.16.1.10 | 172.16.1.255 | NBNS | 92 Name query NB ISATAP≺0 | 0> | | |
| 1 | 19 80.05757 | 700 172.16.1.11 | 239.255.255.250 | SSDP | 175 M-SEARCH * HTTP/1.1 | | | |
| 1 | 20 80.3911 | 40 172.16.1.10 | 172.16.1.255 | BROWSEF | 243 Local Master Announcem | ent USER1-PC, | Workstation, Server, NT Workstation, | Potential |
| 1 | 21 80.61890 | 030 172.16.1.10 | 172.16.1.255 | NBNS | 92 Name query NB ISATAP<0 | 0> | | |
| 1 | 22 81.38561 | L40 fe80::2ddc:1ed1 | :80bff02::1:3 | LLMNR | 86 Standard query 0xdc5c | A isatap | | |
| 1 | 23 81.38581 | 160 172.16.1.10 | 224.0.0.252 | LLMNR | 66 Standard query 0xdc5c | A isatap | | |
| 1 | 24 81.49291 | L40 fe80::2ddc:1ed1 | :80bff02::1:3 | LLMNR | 86 Standard query Oxdc5c | A isatap | | |
| 1 | 25 81.49299 | 960 172.16.1.10 | 224.0.0.252 | LLMNR | 66 Standard query 0xdc5c | A isatap | | |
| 1 | L26 81.69608 | 860 172.16.1.10 | 172.16.1.255 | NBNS | 92 Name query NB ISATAP<0 | 0> | | |
| 1 | 127 82.45958 | 810 172.16.1.10 | 172.16.1.255 | NBNS | 92 Name query NB ISATAP<0 | 0> | | |
| 1 | 28 83.06832 | 220 172.16.1.11 | 239.255.255.250 | SSDP | 175 M-SEARCH * HTTP/1.1 | | | |
| 1 | 29 83.2241 | 330 172.16.1.10 | 172.16.1.255 | NBNS | 92 Name query NB ISATAP<0 | 0> | | |
| 1 | 30 83.99044 | 190 fe80::2ddc:1ed1 | :80bff02::1:3 | LLMNR | 86 Standard query 0x122a | A isatap | | |
| 1 | 31 83.9906 | 550 172.16.1.10 | 224.0.0.252 | LLMNR | 66 Standard query 0x122a | A isatap | | |
| 1 | 32 84.09810 | 040 fe80::2ddc:1ed1 | :8067702::1:3 | LLMNR | 86 Standard query 0x122a | A isatap | | = |
| 1 | 133 84.09820 | 0901/2.16.1.10 | 224.0.0.252 | LLMNR | 66 Standard query 0x122a | A isatap | | |
| 1 | 34 84.30118 | 820172.16.1.10 | 1/2.10.1.255 | NBNS | 92 Name query NB ISATAP<0 | J> | | |
| 1 | 135 85.0048: | 3001/2.16.1.10 | 1/2.10.1.255 | NBNS | 92 Name query NB ISATAP<0 | J> | | ÷ |
| < | | | | | | | | • |
| E Er | ame 1: 139 | bytes on wire (111 | 2 bits), 139 bytes car | otured (11 | 12 bits) on interface 0 | | | |
| Et Et | hernet II, | Src: MoxaTech_20:9 | 6:46 (00:90:e8:20:96:4 | (6), Dst: | LLDP_Multicast (01:80:c2:00 | :00:0e) | | |
| 🗉 Li | nk Layer Di | iscovery Protocol | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 0000 | 01 00 5 | ~ ~ ~ ~ ~ ~ ~ | 20.00.40.00.00.00.00 | | - | | | |
| 0000 | 01 80 C2 | 00 00 0e 00 90 e8 e8 20 96 46 04 02 | 20 96 46 88 CC 02 07 07 35 06 02 00 78 08 | | F 5 v | | | ~ |
| 0020 | Ob 31 30 | 30 54 58 2c 52 4a | 34 35 2e 0a 11 56 61 | .100TX. | R J45Va | | | = |
| 0030 | 6c 75 65 | 5f 4c 69 6e 65 5f | 53 77 69 74 63 68 Oc | lue_Lin | e _Switch. | | | |
| 0040 | 10 49 45 | 2d 53 57 2d 56 4c | 30 38 4d 54 2d 38 54 | .IE-SW- | V LOSMT-ST | | | - |
| O File | e: "C:\Users\use | r1\AppData\Local\Temp\wi | Packets: 135 Displayed: 135 Ma | rked: 0 Dropp | ed: 0 | | Profile: Default | |
| | | and the second sec | | | | | | |

C4- Description how to configure the Internet access of a PC via a 3G Router

This description applies to the Weidmüller Industrial Router IE-SR-2GT-UMTS/3G

Illustration of the application scenario



Note: If the 3G connection is online then the default gateway automatically is set to 3G provider. As long as the Router is connected to the Internet a manually configured default gateway will be not used.

Starting situation

-

- The Router has inserted a SIM card of your local Internet provider (slot labeled 3G at rear side of the Router).
- The Router is set to factory default configuration and connected to the PC via Router's LAN port (IP address 192.168.1.110).

C4.1 Connect the Configuration-PC to Router's LAN port

→ Use autonegotiation on the Ethernet Interface of the PC

C4.2 Change the IP address of the PC to one out of the range 192.168.1.0

| | Preferred DNS-Se | rver 192.168.1.110 |
|--------|------------------|--------------------|
| | Standardgateway | 192.168.1.110 |
| | Subnet mask | 255.255.255.0 |
| → e.g. | IP address | 192.168.1.88 |

(Do not forget to enter the Router IP address as preferred DNS-Server, otherwise you cannot access Web pages by DNS name, Router is acting as DNS forwarder)

| Internet Protocol Version 4 (TCP/IPv4) Properties | | | | | | |
|---|---------------|--|--|--|--|--|
| General | | | | | | |
| You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings. | | | | | | |
| Obtain an IP address automatical | y | | | | | |
| • Use the following IP address: | | | | | | |
| IP address: | 192.168.1.88 | | | | | |
| Subnet mask: | 255.255.255.0 | | | | | |
| Default gateway: | 192.168.1.110 | | | | | |
| Obtain DNS server address autom | natically | | | | | |
| • Use the following DNS server add | resses: | | | | | |
| Preferred DNS server: | 192.168.1.110 | | | | | |
| Alternate DNS server: | · · · | | | | | |
| Validate settings upon exit | | | | | | |
| | OK Cancel | | | | | |

Figure C1: IP settings of PC's LAN interface



C4.3 Start a Web browser and login into the Router Web interface (http://192.168.1.110)

| User: | admin | | | | | | |
|------------------|--------------------------------------|---|---------------------|----------|-----------------------------------|---------------------|-------------|
| Passwo | rd: Detmold | | | | | | |
| - | | | | | | | |
| IE-SR-2GT-LAN | | | | | | | |
| ♥ Diagnostics | System data | | System st | ate | | | |
| System State | System name: | E-SR-2GT-LAN-AX00730692 | Date & time: | | Saturday, 08 Jan 2000, 04:31(| Europe/Berlin) | |
| Eventlog | Device type: | E-SR-2GT-LAN | Uptime: | | 04:31:56 up 0 min, load averag | e: 0.23, 0.06, 0.01 | |
| WAN | Serial-No.: | AX00730692 | OpenVPN se | essions: | Masters: active 0, listening 0, 0 | Clients: 0 | |
| LAN Dias test | Firmware version: | 2.2.3 (Build 61039) | IPsec tunnel | s: | 0 | | |
| Ping test | MAC-Address WAN: | 00:15:7E:FE:00:01 | 1 | | | | |
| Remote capture | MAC-Address LAN: | 00:15:7E:FE:00:00 | System us | sage | | | |
| P Configuration | Device mode: | P router | Flash: | | 18% | | |
| ▶ System | | | Memory: | | 21% | | |
| Information | | | CPU: | | 24% | | |
| Liter string D | ing a same | | 1 | | | | |
| Ober. aufini (e | Network statistic | | Interface | state | ID/lintersols | ID Assistment | DUCD Server |
| | Interface: WAN | toos alk of | WAN | enabled | 192 168 2 110 / 255 255 255 0 | etatic | disabled |
| | WAN Receive | 100 Mb/s | LAN | enabled | 192 168 1 110 / 255 255 255 0 | etatic | disabled |
| | | _ 2 Mb/s _ 10 bb/s | CAN | chaolou | 132.100.1.1107233.233.233.0 | Status | uladolou |
| | | tana seb re | | | | | |
| | WAN Iransmt | 100 Mb/s | | | | | |
| | | 2.04b/s | | | | | |
| | | | I | | | | |
| | Latest five messages | | | | | | |
| | Eventlog | | | | | | |
| | Jan 8 04:31:43 IE-SR-2GT-LAN-AX00730 | 0692 system: IE-SR-2GT-LAN 2.2.3 SVN-R6199.E | 3-61039, system rea | dy! | | | |
| | Jan 8 04:31:40 IE-SR-2GT-LAN-AX00730 | 0692 statusd: Inserted card cannot be read! | | | | | |
| | Jan 8 04:31:36 IE-SR-2GT-LAN-AX00730 | 0692 adsdpd: Starting daemon for ethernet conne | ections | | | | |
| | Quicklinks: SecureNow! | | | | | | Reload |
| | | | | | | | |

Figure C2: Login page of the Router (equivalent with menu Diagnostics → System State)

C4.4 Configure the 3G connection

- ► Select menu Configuration → IP configuration
- ► Configure the 3G connection according to the data provided by Internet provider (normally PIN and APN)

Note: In many cases you don't need to fill values into fields "username" and "password". If your provider does not use "username" and "password" please leave them blank.

You don't have to configure a Default gateway because the default gateway automatically is set to 3G provider if the 3G connection is online. As long as the Router is connected to the Internet (Status = online) a manually configured default gateway will be not used.



Figure C3: Screenshot of menu IP configuration



► Click button "Apply settings" to activate the new settings.

Now the Router tries to connect to the Internet. Please wait some seconds.

C4.5 Evaluating a successful Internet connection

► Select menu Diagnostics → Event

The event log displays the result of initiating the 3G Internet connection.

| C () (2 http://192.168.1 | 1110/priv/priv/priv/priv/priv/priv/priv/priv |
|--------------------------|--|
| ⊡ • ⊡ - □ - ⊕ • | Sejte + Sigherhet + Equa + 😥 |
| Weidmülle IE-SR-2GT | er Router Configuration Weidmüller ≆ -UMTS/3G |
| IE-SR-2GT-UMTS/3G | State Configuration |
| ✓ Diagnostics | |
| System State | Evention |
| Eventiog | |
| WAN | Jul 25 00:50:21 IE-5R-267-UNTS-AX00911135 pppd(27470): remote IP address 10.64.64.65 |
| LAN | Jul 25 00:50:21 IE-5R-207-UMT5-AX00911135 pppd[27470]: local IP address 1/2,20.109.0 Jul 25 00:50:21 IE-5R-207-UMT5-AX00911135 pppd[27470]: Could not determine remote IP address: defaulting to 10.64.64.65 |
| 3G | Jul 25 00:50:15 II-5R-2GT-DMTS-AX00911135 pppd[27470]: CHAP authentication succeeded |
| Ping test | Jul 25 OpiSpii II-SR-201-UNIS-AUODIS-AUODIS-SAUDIS pppa[2470]: Law automatication |
| Remote capture | Jul 25 00:50:11 IT-SR-267-UMTS-AX00911135 config.db: '36 modem service activation' = 'enabled' Jul 25 00:50:11 IT-SR-267-UMTS-AX00911135 config.db: '36 modem service activation' = 'enabled' |
| Configuration | Jul 25 00:50:11 IE-SR-2GT-UNTS-AX00911135 config.db: Settings change by: 'admin', from source: 'web interface' |
| System | |
| Information | |
| | |
| User: admin 📑 | |
| | |
| | |

Figure C4: Screenshot of event log

► Select menu Diagnostics → 3G

This menu shows the current status of the 3G connection.

| Weidmüller Router Configuration IE-SR-2GT-UMTS/3G | Important note: |
|--|---|
| SACT-MARSIO IN State Sta | If the Router is connected to the Internet then the Web interface is displaying IP addresses (Local IP and Remote IP) which have bee assigned dynamically by the Internet provider. If you use standard SIM cards (with Internet flatrate) like typically used in smart phones then no one of these diplayed IP addresses can be used to access the Router from the Internet (e.g. by ping). The reason is that mobile Internet provider by standard use NAT (Network address trans lation) between their own "mobile" Internet and the "public" Internet The result is that the assigned IP addresses are internal provider IP's and not <u>visible/accessible</u> by "public" Internet. Conclusion: Only outgoing Internet connections are allowed from the Router if you use standard SIM cards (like typical used in smar phones). If the 3G-Router needs to be accessed from the Internet (eg. beeing a VPN server) then you have to use a SIM Card which explicitly is assigned with a <u>static and public accessible IP addresse</u> by the provider (eg. m2m SIM cards for machine-to-machine communication). Please clarify with your local mobile providers what they are offering regarding data SIM cards with a static and public accessible IP address. |

If the Router successfully is connected to the Internet (online) you now can try to open any Internet Web page by the connected PC.