RUT950 WAN (legacy WebUI)

The information in this page is updated in accordance with firmware version **RUT9XX_R_00.06.09.5**.

***Note**: this user manual page is for RUT950's old WebUI style available in earlier FW versions. **Click here** for information based on the latest FW version.*

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Contents

- 1 Summary
- 2 Operation Modes
- 3 Common Configuration
  - 3.1 Static
    - 3.1.1 General
    - 3.1.2 Advanced
  - 3.2 DHCP
    - 3.2.1 General
    - 3.2.2 Advanced
  - 3.3 PPPoE
    - 3.3.1 General
    - 3.3.2 Advanced
- 4 IP Aliases
  - 4.1 General setup
  - 4.2 Advanced Settings
- 5 Failover Configuration
- 6 UDP Broadcast Relay

Summary

A wide area network (WAN) is a telecommunications network or computer network that extends over a large geographical distance. For example, the Internet is a wide area network. This chapter is an overview of RUT950 routers' WAN section.

Operation Modes

The Operation Modes window lets you determine how the router will be connecting to the internet. You can chose between three types of WAN – Mobile, Wired and Wi-Fi. You can also setup backup WAN options in case your main connection goes down.

You can choose one main WAN and one or two (or none) backup WAN options. To choose your main

WAN just check the desired option (wired, mobile or Wi-Fi) in the **Main WAN** column (first from the left), to choose a backup WAN(s), check the desired option(s) in the Backup WAN column (second from the left). Above is an example of a configuration that uses wired as Main WAN and mobile as Backup WAN. The Operation Modes tab also displays each interfaces name, WAN IP address and Protocol in use. To configure a WAN interface more in depth, click the **Edit** button located to the right of the desired interface. Each interface configures separately, to avoid redundancy this chapter will only overview the configuration of the wired WAN interface, since mobile contains less information and Wi-Fi is basically the same.

Common Configuration

The Common Configuration section is used to configure different protocols for WAN interfaces.

Static

The Static protocol is used when the source of your internet doesn't have a DHCP server enabled. Therefore, in order to connect to the internet, you have to make configurations in accordance to that source.

General

Field	Value	Description
Protocol	Static | DHCP | PPPoE; default: **DHCP**	The protocol used by the WAN interface
IPv4 address	ip; default: **none**	Your router's address on the WAN network
IPv4 netmask	ip; default: **255.255.255.0**	Netmask defines how "large" a network is
IPv4 gateway	ip; default: **none**	The address where the router will send all the outgoing traffic
IPv4 broadcast	ip; default: **none**	IP broadcasts are used by BOOTP and DHCP clients to find and send requests to their respective servers
Use custom DNS servers	ip; default: **none**	When the router needs to resolve a hostname ("www.google.com", "www.cnn.com", etc.) to an IP address, it will forward all the DNS requests to the gateway. By entering custom DNS servers the router will take care of the host name resolution. You can enter multiple DNS servers to provide redundancy in case one of the servers fails

Advanced

The Advanced Settings tab will change in accordance to which network protocol is selected. For the Static protocol you can turn NAT on or off, override the router's MAC address, MTU and define the

gateway's metric.

Field	Value	Description
Disable NAT	yes | no; default: **no**	Toggles Network Address Translation (NAT) on or off for the selected network interface
Override MAC address	mac; default: **router's mac**	Override MAC address of the WAN interface. For example, your ISP (Internet Service Provider) gives you a static IP address and it might also bind it to your computers MAC address (i.e., that IP will only work with your computer but not with your router). In this field you can enter your computer's MAC address and fool the gateway in to thinking that it is communicating with your computer
Override MTU	integer [0..1500]; default: **1500**	Maximum Transmission Unit (MTU) – specifies the largest possible size of a data packet
Use gateway metric	integer; default: **0**	The WAN configuration by default generates a routing table entry. In this field you can alter the metric of that entry. Higher metric means higher priority

DHCP

The DHCP protocol should be used when the source of your internet has a DHCP server enabled. If that is the case, when you select the DHCP protocol you can use it as is, because most networks will not require any additional advanced configuration.

General

Field	Value	Description
Protocol	Static | DHCP | PPPoE; default: **DHCP**	The protocol used by the WAN interface
Hostname to send when requesting DHCP	ip | hostname; default: **router's hostname**	Host name to which the DHCP request will be sent to

Advanced

For the DHCP protocol you can turn NAT on or off, specify custom DNS servers, define the gateway metric, override the router's MAC address, set MTU and more.

Field	Value	Description

Disable NAT	yes | no; default: **no**	Toggles Network Address Translation (NAT) on or off for the selected network interface
Use broadcast flag	yes | no; default: **no**	Required for certain ISPs (Internet Service Providers), e.g. Charter with DOCSIS 3
Use default gateway	yes | no; default: **yes**	Uses the default gateway obtained through DHCP. If left unchecked, no default route is configured
Use DNS servers advertised by peer	yes | no; default: **yes**	Uses DNS servers obtained from DHCP. If left unchecked, the advertised DNS server addresses are ignored
Use custom DNS servers	ip; default: **none**	Lets you chose your own preferred DNS servers. This field only becomes visible if **Use DNS servers advertised by peer** field is unchecked
Use gateway metric	ip; default: **none**	The WAN configuration by default generates a routing table entry. In this field you can alter the metric of that entry. Higher metric means higher priority
Client ID to send when requesting DHCP	string; default: **none**	Client ID which will be sent when requesting a DHCP lease
Vendor class to send when requesting DHCP	string; default: **none**	Vendor class which will be sent when requesting a DHCP lease
Override MAC address	mac; default: **router's mac**	Override MAC address of the WAN interface. For example, your ISP (Internet Service Provider) gives you a static IP address and it might also bind it to your computers MAC address (i.e., that IP will only work with your computer but not with your router). In this field you can enter your computer's MAC address and fool the gateway in to thinking that it is communicating with your computer
Override MTU	integer [0..1500]; default: **1500**	Maximum Transmission Unit (MTU) – specifies the largest possible size of a data packet

PPPoE

The PPPoE protocol is mainly used if you have a DSL internet provider.

General

The General configuration tab for the PPPoE protocol is mainly used to specify your PAP/CHAP login information, but you can also configure some additional, more specific settings.

Field	Value	Description
Protocol	Static | DHCP | PPPoE; default: **DHCP**	The protocol used by the WAN interface
PAP/CHAP username	string; default: **none**	The username that you use to connect to your carrier's network
PAP/CHAP password	string; default: **none**	The password that you use to connect to your carrier's network

Access concentrator	string; default: **none**	The name of the access concentrator. Leave empty to auto detect
Service name	string; default: **none**	The name of the service. Leave empty to auto detect

Advanced

For the PPPoE protocol you can turn NAT on or off, specify custom DNS servers, define the gateway metric, configure LCP echo settings and more.

Field	Value	Description
Disable NAT	yes | no; default: **no**	Toggles Network Address Translation (NAT) on or off for the selected network interface
Use default gateway	yes | no; default: **yes**	Uses the default gateway obtained through DHCP. If left unchecked, no default route is configured
Use gateway metric	integer; default: **0**	The WAN configuration by default generates a routing table entry. In this field you can alter the metric of that entry. Higher metric means higher priority
Use DNS servers advertised by peer	yes | no; default: **yes**	Uses DNS servers obtained from DHCP. If left unchecked, the advertised DNS server addresses are ignored
Use custom DNS servers	ip; default: **none**	Lets you chose your own preferred DNS servers. This field only becomes visible if **Use DNS servers advertised by peer** field is unchecked
LCP echo failure threshold	integer; default: **0**	Presumes peer to be dead after given amount of LCP echo failures. Leave it at 0 to ignore failures
LCP echo interval	integer; default: **5**	Sends LCP echo requests at the given interval in seconds. This function is only effective in conjunction with failure threshold
Inactivity timeout	integer; default: **0**	Close inactive connection after the given amount of seconds. Leave it at 0 to persist connection

IP Aliases

IP Aliases are a way of defining or reaching a subnet that works in the same space as the regular network. This is useful if you need to reach the router that is located in the same network but in a different subnet. If you have a static IP configuration on your computer and don’t want to change it every time you need to reach a router in a different subnet, you can configure an IP alias in order to do so.

General setup

Field	Value	Description

IP address	ip; default: **none**	An alternate IP address used to reach the router by a device(s) that resides in the router's LAN but has a different subnet
Netmask	ip; default: **255.255.255.0**	Netmask defines how "large" a network is
Gateway	ip; default: **none**	A gateway is a network node that connects two networks using different protocols together

As you can see, the configuration is very similar to the static protocol; in the example above an IP address with a 99th subnet is defined. In this case, if some device has an IP in the 99th subnet (e.g., 192.168.99.xxx) and the subnet's gateway metric is "higher" and the device is trying to reach the internet it will reroute it's traffic not to the gateway that is defined in common configurations but through the one that is specified in IP aliases.

Advanced Settings

You may also define a broadcast address and a custom DNS server for your IP Aliases in the Advanced Settings tab.

Field	Value	Description
IP Broadcast	ip; default: **none**	IP broadcasts are used by BOOTP and DHCP clients to find and send requests to their respective servers
DNS	ip; default: **none**	A separate DNS server to be used by the IP Alias address

Failover Configuration

Backup WAN is a function that allows you to back up your primary connection in case it goes down. There can be up to two backup connections selected at one time. In that case, when the primary connection fails, the router tries to use the backup with the higher priority and if this one is unavailable or fails too, then the router tries the backup with the lower priority.

Field	Value	Description
Health monitor interval	Disable | 5 sec. | 10 sec. | 20 sec. | 30 sec. | 60 sec. | 120 sec.; default: **5 sec.**	The interval at which health checks are performed.
Health monitor ICMP host(s)	ip | hostname | 8.8.4.4 | Disable | DNS server(s) | WAN gateway | --custom--; default: **8.8.8.8**	Indicate where to send ping requests for a health check. As there is no definitive way to determine when the connection to internet is down for good, it is best to define a host whose availability is that of the internet as a whole (e.g., 8.8.8.8, 8.8.4.4).
Health monitor ICMP timeout	1 sec. | 2 sec. | 3 sec. | 4 sec. | 5 sec. | 10 sec.; default: **1 sec.**	The frequency at which ICMP requests will be sent. It is advised to set a higher value if your connection has high latency or high jitter (latency spikes).
Attempts before failover	1 | 3 | 5 | 1 | 15 | 20; default: **3**	The number of failed ping attempts before the connection is to be declared as "down".

Attempts before recovery	1 | 3 | 5 | 1 | 15 | 20; default: **3**	The number of successful ping attempts before the connection is to be declared as "up".
Execute command	yes | no; default: **no**	Executes a user specified command when the WAN fails over to this interface.
Command	string; default: **none**	A command that will executed when the WAN fails over to this interface.

Additional notes:

- Failover configuration field's default values may differ based on WAN type.
- The majority of the options consist of timing and other important parameters that help determine the health of your primary connection. Regular health checks are constantly performed in the form of ICMP packets (Pings) on your primary connection. When the connections state starts to change (READY->NOT READY and vice versa) a necessary amount of failed or passed health checks has to be reached before the state changes completely. This delay is instituted so as to mitigate “spikes” in connection availability, but it also extends the time before the backup link can be brought up or down.

UDP Broadcast Relay

The **UDP Broadcast Relay** will listen for broadcast traffic on the specified port and relay that traffic to the specified interface(s).

Field	Value	Description
Enable	on | off; default: **off**	Turns UDP Broadcast Relay on or off.
Port	integer [0..65535]; default: **none**	UDP port to listen for broadcast traffic.
Interfaces	network interface(s); default: **none**	The interface(s) to which the traffic will be redirected to.