RadioLAN 5.8GHz Wireless Interface

Document revision 1.1 (Fri Mar 05 08:17:04 GMT 2004)
This document applies to V2.9

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General Information

Summary

The MikroTik RouterOS supports the following RadioLAN 5.8GHz Wireless Adapter hardware:

- RadioLAN ISA card (Model 101)
- RadioLAN PCMCIA card

For more information about the RadioLAN adapter hardware please see the relevant User???s Guides and Technical Reference Manuals.

Specifications

Packages required: ***radiolan***
License required: ***level4***
Home menu level: ***/interface radiolan***
Hardware usage: ***Not significant***

Related Documents

- Package Management
- Device Driver List
- IP Addresses and ARP
- Log Management

Description

Installing the Wireless Adapter

These installation instructions apply to non-Plug-and-Play ISA cards. If You have a Plug-and-Play compliant system AND **PnP OS Installed** option in system BIOS is set to **Yes** AND you have a Plug-and-Play compliant ISA or PCI card (using PCMCIA or CardBus card with Plug-and-Play compliant adapter), the driver should be loaded automatically. If it is not, these instructions may also apply to your system.

The basic installation steps of the wireless adapter should be as follows:

1. Check the system BIOS settings for peripheral devices, like, Parallel or Serial communication ports. Disable them, if you plan to use IRQ's assigned to them by the BIOS.
2. Use the RLProg.exe to set the IRQ and Base Port address of the RadioLAN ISA card (Model 101). RLProg must not be run from a DOS window. Use a separate computer or a bootable floppy to run the RLProg utility and set the hardware parameters. The factory default values of I/O 0x300 and IRQ 10 might conflict with other devices.

Please note, that not all combinations of I/O base addresses and IRQs may work on your motherboard. As it has been observed, the IRQ 5 and I/O 0x300 work in most cases.

Wireless Interface Configuration

Home menu level: ***/interface ratiolan***

Description

To set the wireless interface for working with another wireless card in a point-to-point link, you should set the following parameters:

- The **Service Set Identifier**. It should match the sid of the other card.
- The **Distance** should be set to that of the link. For example, if you have 6 km link, use distance 4.7 km - 6.6 km.

All other parameters can be left as default. You can monitor the list of neighbors having the same sid and being within the radio range.

Property Description

name (*name*; default: **radiolanN**) - assigned interface name

mtu (*integer*; default: **1500**) - Maximum Transmission Unit

mac-address (*read-only: MAC address*) - MAC address

distance (*0-150m* | *10.2km-13.0km* | *2.0km-2.9km* | *4.7km-6.6km* | *1.1km-2.0km* | *150m-1.1km* | *2.9km-4.7km* | *6.6km-10.2km*; default: **0-150m**) - distance setting for the link

rx-diversity (*enabled* | *disabled*; default: **disabled**) - receive diversity

tx-diversity (*enabled* | *disabled*; default: **disabled**) - transmit diversity

default-destination (*ap* | *as-specified* | *first-ap* | *first-client* | *no-destination*; default: **first-client**) - default destination. It sets the destination where to send the packet if it is not for a client in the radio network

default-address (*MAC address*; default: **00:00:00:00:00:00**) - MAC address of a host in the radio network where to send the packet, if it is for none of the radio clients

max-retries (*integer*; default: **1500**) - maximum retries before dropping the packet

sid (*text*) - Service Identifier

card-name (*text*) - card name

arp (*disabled* | *enabled* | *proxy-arp* | *reply-only*; default: **enabled**) - Address Resolution Protocol, one of the:

- **disabled** - the interface will not use ARP protocol
- **enabled** - the interface will use ARP protocol
- **proxy-arp** - the interface will be an ARP proxy (see corresponding manual)
- **reply-only** - the interface will only reply to the requests originated to its own IP addresses, but neighbor MAC addresses will be gathered from /ip arp statically set table only.

Example

```
[admin@MikroTik] interface radiolan> print
Flags: X - disabled, R - running
  0  R name="radiolan1" mtu=1500 mac-address=00:A0:D4:20:4B:E7 arp=enabled
       card-name="00A0D4204BE7" sid="bbbb" default-destination=first-client
       default-address=00:00:00:00:00:00 distance=0-150m max-retries=15
       tx-diversity=disabled rx-diversity=disabled


[admin@MikroTik] interface radiolan>
```

You can monitor the status of the wireless interface:

```
[admin@MikroTik] interface radiolan> monitor radiolan1
    default: 00:00:00:00:00:00
      valid: no

[admin@MikroTik] interface radiolan>
```

Here, the wireless interface card has not found any neighbor.

```
[admin@MikroTik] interface radiolan> set 0 sid ba72 distance 4.7km-6.6km
[admin@MikroTik] interface radiolan> print
Flags: X - disabled, R - running
  0  R name="radiolan1" mtu=1500 mac-address=00:A0:D4:20:4B:E7 arp=enabled
       card-name="00A0D4204BE7" sid="ba72" default-destination=first-client
       default-address=00:00:00:00:00:00 distance=4.7km-6.6km max-retries=15
       tx-diversity=disabled rx-diversity=disabled

[admin@MikroTik] interface radiolan> monitor 0
    default: 00:A0:D4:20:3B:7F
      valid: yes

[admin@MikroTik] interface radiolan>
```

Now we'll monitor other cards with the same **sid** within range:

```
[admin@MikroTik] interface radiolan> neighbor radiolan1 print
Flags: A - access-point, R - registered, U - registered-to-us,
D - our-default-destination
      NAME                ADDRESS           ACCESS-POINT
    D 00A0D4203B7F        00:A0:D4:20:3B:7F
```

```
[admin@MikroTik] interface radiolan>
```

You can test the link by pinging the neighbor by its MAC address:

```
[admin@MikroTik] interface radiolan> ping 00:a0:d4:20:3b:7f radiolan1 \
\... size=1500 count=50
                 sent: 1
    successfully-sent: 1
            max-retries: 0
      average-retries: 0
            min-retries: 0

                 sent: 11
    successfully-sent: 11
            max-retries: 0
      average-retries: 0
            min-retries: 0

                 sent: 21
    successfully-sent: 21
            max-retries: 0
      average-retries: 0
            min-retries: 0

                 sent: 31
    successfully-sent: 31
            max-retries: 0
      average-retries: 0
            min-retries: 0

                 sent: 41
    successfully-sent: 41
            max-retries: 0
      average-retries: 0
            min-retries: 0

                 sent: 50
    successfully-sent: 50
            max-retries: 0
      average-retries: 0
            min-retries: 0

[admin@MikroTik] interface radiolan>
```

Troubleshooting

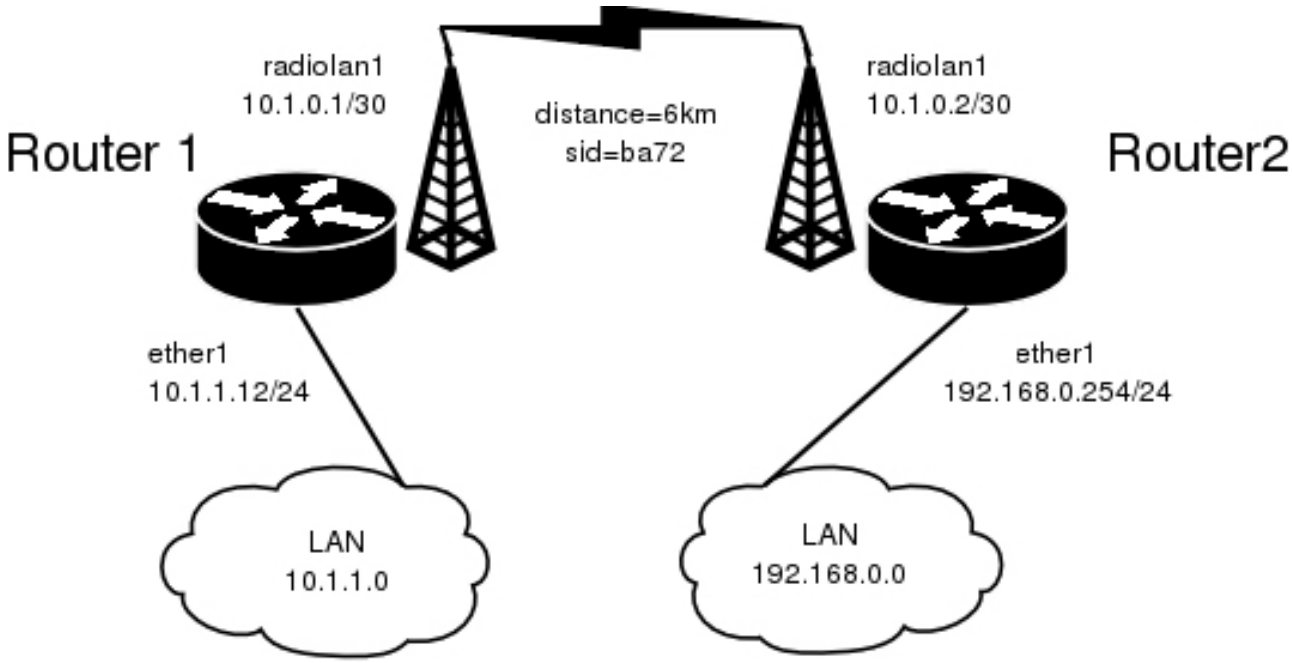
Description

- **The radiolan interface does not show up under the interfaces list**
  Obtain the required license for RadioLAN 5.8GHz wireless feature
- **The wireless card does not obtain the MAC address of the default destination**
  Check the cabling and antenna alignment

Wireless Network Applications

Point-to-Point Setup with Routing

Let us consider the following network setup:



The minimum configuration required for the RadioLAN interfaces of both routers is:

1. Setting the Service Set Identifier (up to alphanumeric characters). In our case we use SSID "ba72"
2. Setting the distance parameter, in our case we have 6km link.

The IP addresses assigned to the wireless interface of Router#1 should be from the network 10.1.0.0/30, e.g.:

```
[admin@MikroTik] ip address> add address=10.1.0.1/30 interface=radiolan1
[admin@MikroTik] ip address> print
Flags: X - disabled, I - invalid, D - dynamic
  #   ADDRESS            NETWORK         BROADCAST       INTERFACE
  0   10.1.1.12/24       10.1.1.0        10.1.1.255      ether1
  1   10.1.0.1/30        10.1.0.0        10.1.0.3        radiolan1
[admin@MikroTik] ip address>
```

The default route should be set to the gateway router 10.1.1.254. A static route should be added for the network 192.168.0.0/24:

```
[admin@MikroTik] ip route> add gateway=10.1.1.254
comment  copy-from  disabled  distance  dst-address  netmask  preferred-source
[admin@MikroTik] ip route> add gateway=10.1.1.254 preferred-source=10.1.0.1
[admin@MikroTik] ip route> add dst-address=192.168.0.0/24 gateway=10.1.0.2 \
\... preferred-source=10.1.0.1
[admin@MikroTik] ip route> print
Flags: X - disabled, I - invalid, D - dynamic, J - rejected,
C - connect, S - static, R - rip, O - ospf, B - bgp
    #    DST-ADDRESS        G GATEWAY         DISTANCE INTERFACE
    0  S 0.0.0.0/0          u 10.1.1.254      1        radiolan1
    1  S 192.168.0.0/24     r 10.1.0.2        1        radiolan1
    2 DC 10.1.0.0/30        r 0.0.0.0         0        radiolan1
    3 DC 10.1.1.0/24        r 0.0.0.0         0        ether1
[admin@MikroTik] ip route>
```

The Router#2 should have addresses 10.1.0.2/30 and 192.168.0.254/24 assigned to the radiolan and Ethernet interfaces respectively. The default route should be set to 10.1.0.1