

Driver Management

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Table of Contents

[Table of Contents](#)

[Summary](#)

[Loading Device Drivers](#)

[Description](#)

[Property Description](#)

[Notes](#)

[Example](#)

[Removing Device Drivers](#)

[Description](#)

[Notes on PCMCIA Adapters](#)

[Description](#)

[Notes](#)

[Troubleshooting](#)

[Description](#)

General Information

Summary

Device drivers represent the software interface part of installed network devices. Some drivers are included in the system software package and some in additional feature packages.

For complete list of supported devices and respective device driver names please consult the 'Related Documents' section.

The device drivers for PCI, miniPCI, PC (PCMCIA) and CardBus cards are loaded automatically. Other network interface cards (most ISA and PCI ISDN cards) require the device drivers to be loaded manually using the **/driver add command**.

Users cannot add their own device drivers, only drivers included in the Mikrotik RouterOS software packages can be used. If you need a support for a device, which hasn't a driver yet, you are welcome to suggest it at suggestion page on our web site.

Home menu level: */driver*

Standards and Technologies: *PCI, ISA, PCMCIA, miniPCI, CardBus*

Hardware usage: *Not significant*

Loading Device Drivers

Home menu level: */driver*

Description

In order to use network interface card which has a driver that is not loaded automatically, *exempli gratia* NE2000 compatible ISA card, you need to add driver manually. This is accomplished by issuing **add** command under the **driver** submenu level.

To see system resources occupied by the installed devices, use the **/system resource io print** and **/system resource irq print** commands.

Property Description

io (*integer*) - input-output port base address

irq (*integer*) - interrupt request number

isdn-protocol (*euro | german*; default: **euro**) - line protocol setting for ISDN cards

memory (*integer*; default: **0**) - shared memory base address

name (*name*) - driver name

Notes

Not all combinations of **irq** and **io** base addresses might work on your particular system. It is recommended, that you first find an acceptable irq setting and then try different i/o base addresses.

If you need to specify hexadecimal values instead of decimal for the argument values, put **0x** before the number.

To see the list of available drivers, issue the **/driver add name ?** command.

The resource list shows only those interfaces, which are enabled.

Typical io values for ISA cards are **0x280**, **0x300** and **0x320**

Example

To view the list of available drivers, do the following:

```
[admin@MikroTik] driver> add name ?
3c509 c101 lance ne2k-isa pc-isa
[admin@MikroTik] driver> add name
```

To see system resources occupied by the devices, use the **/system resource io print** and **/system resource irq print** commands:

```
[admin@MikroTik] system resource> io print
PORT-RANGE      OWNER
0x20-0x3F       APIC
0x40-0x5F       timer
0x60-0x6F       keyboard
0x80-0x8F       DMA
0xA0-0xBF       APIC
0xC0-0xDF       DMA
0xF0-0xFF       FPU
0x100-0x13F     [prism2_cs]
0x180-0x1BF     [orinoco_cs]
0x1F0-0x1F7     IDE 1
0x3D4-0x3D5     [cga]
0x3F6-0x3F6     IDE 1
0x3F8-0x3FF     serial port
0xCF8-0xCF9     [PCI conf1]
```

```

0x1000-0x10FF [National Semiconductor Corporation DP83815 (MacPhyter) Et...
0x1000-0x10FF ether1
0x1400-0x14FF [National Semiconductor Corporation DP83815 (MacPhyter) Et...
0x1400-0x14FF ether2
0x1800-0x18FF [PCI device 100b:0511 (National Semiconductor Corporation)]
0x1C00-0x1C3F [PCI device 100b:0510 (National Semiconductor Corporation)]
0x1C40-0x1C7F [PCI device 100b:0510 (National Semiconductor Corporation)]
0x1C80-0x1CBF [PCI device 100b:0515 (National Semiconductor Corporation)]
0x1CC0-0x1CCF [National Semiconductor Corporation SCx200 IDE]
0x4000-0x40FF [PCI CardBus #01]
0x4400-0x44FF [PCI CardBus #01]
0x4800-0x48FF [PCI CardBus #05]
0x4C00-0x4CFF [PCI CardBus #05]

```

```

[admin@MikroTik] system resource> irq print
Flags: U - unused
  IRQ OWNER
  1 keyboard
  2 APIC
U 3
  4 serial port
U 5
U 6
U 7
U 8
  9 ether1
 10 ether2
 11 [Texas Instruments PCI1250 PC card Cardbus Controller]
 11 [Texas Instruments PCI1250 PC card Cardbus Controller (#2)]
 11 [prism2_cs]
 11 [orinoco_cs]
 12 [usb-ohci]
U 13
 14 IDE 1

[admin@MikroTik] system resource>

```

Suppose we need to load a driver for a NE2000 compatible ISA card. Assume we had considered the information above and have checked available resources in our system. To add the driver, we must do the following:

```

[admin@MikroTik] driver> add name=ne2k-isa io=0x280
[admin@MikroTik] driver> print
Flags: I - invalid, D - dynamic
# DRIVER IRQ IO MEMORY ISDN-PROTOCOL
0 D RealTek 8139
1 D Intel EtherExpressPro
2 D PCI NE2000
3 ISA NE2000 280
4 Moxa C101 Synchronous C8000
[admin@MikroTik] driver>

```

Removing Device Drivers

Description

You can remove only statically loaded drivers, *id est* those which do not have the **D** flag before the driver name. The device drivers can be removed only if the appropriate interface has been disabled.

To remove a device driver use the **/driver remove** command. Unloading a device driver is useful when you swap or remove a network device - it saves system resources by avoiding to load drivers for removed devices.

The device driver needs to be removed and loaded again, if some parameters (memory range, i/o base

address) have been changed for the network interface card.

Notes on PCMCIA Adapters

Description

Currently only the following PCMCIA-ISA and PCMCIA-PCI adapters are tested to comply with MikroTik RouterOS:

- RICOH PCMCIA-PCI Bridge with R5C475 II or RC476 II chip (one or two PCMCIA ports)
- CISCO/Aironet PCMCIA adapter (ISA and PCI versions) for CISCO/Aironet PCMCIA cards only

Other PCMCIA-ISA and PCMCIA-PCI adapters might not function properly.

Notes

The Ricoh adapter might not work properly with some older motherboards. When recognized properly by the BIOS during the boot up of the router, it should be reported under the PCI device listing as "PCI/CardBus bridge". Try using another motherboard, if the adapter or the PCMCIA card are not recognized properly.

The maximum number of PCMCIA ports for a single system is equal to 8. If you will try to install 9 or more ports (no matter one-port or two-port adapters), no one will be recognized.

Troubleshooting

Description

- **My router shows that the ISA interface is invalid**
The system cannot load driver for the card. Try to specify different IO or IRQ number