Initial debugging steps in RouterOS

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“Am I the only one who can be responsible for this?”

- Router is not accessible
- Lost license key
- Debugging by using Log
- Upgrade
- support@mikrotik.com

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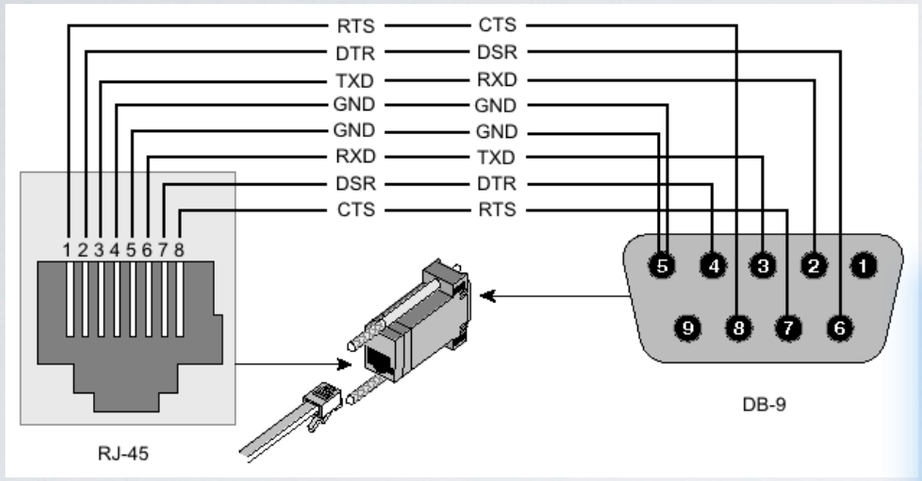
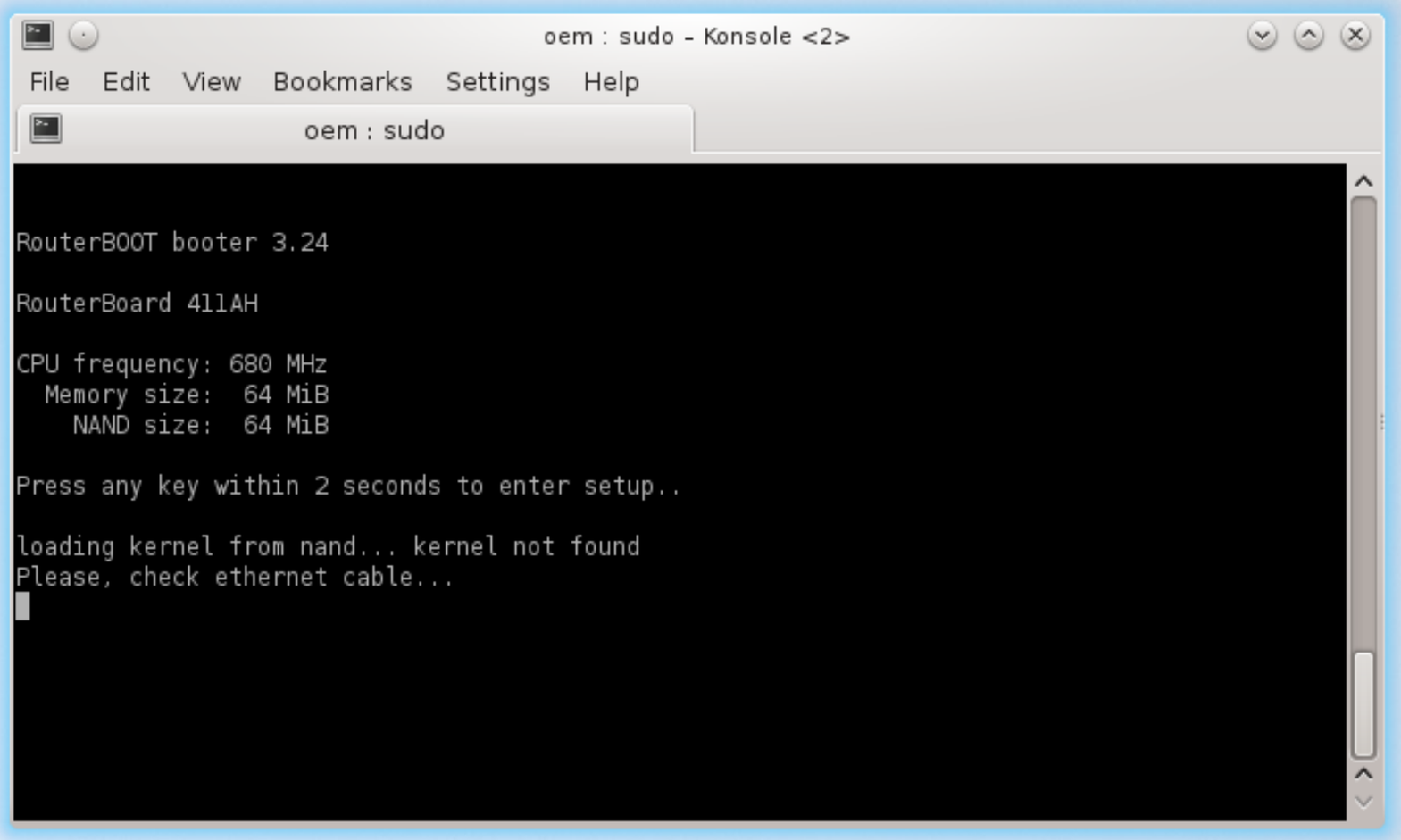
Serial access





http://wiki.mikrotik.com/wiki/Manual:System/Serial_Console

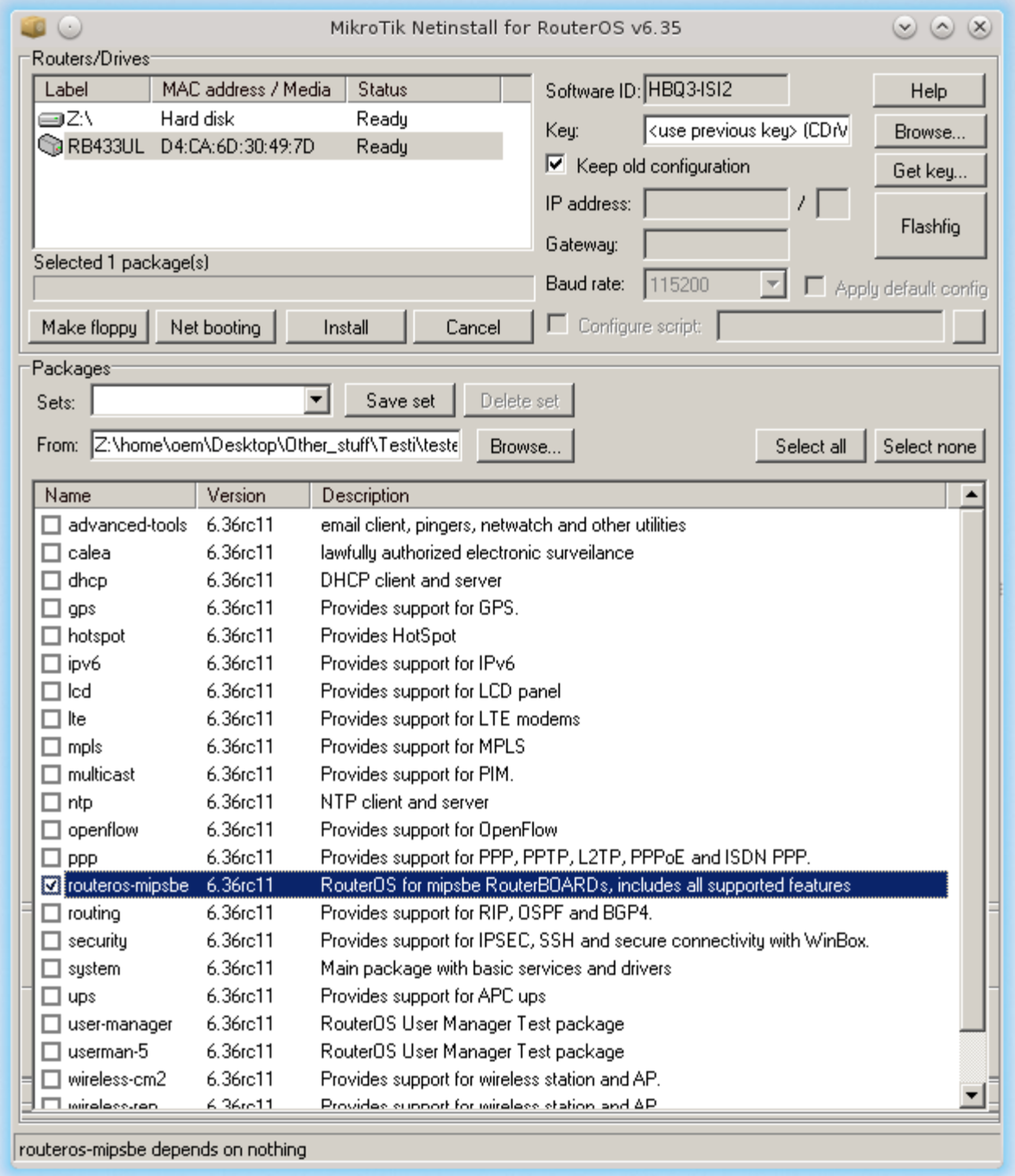
Backup bootloader

- Power off the router
- Press and hold reset button
- Power on the router
- Release reset button after 1-2 seconds
- Perform “/system routerboard upgrade”

```
RouterBOOT backup booter 2.39
```

http://wiki.mikrotik.com/wiki/Manual:RouterBOOT

Netinstall



http://wiki.mikrotik.com/wiki/Manual:Netinstall

Netinstall

- Use latest Netinstall
- Firewall must be turned off
- IP of computer and Netinstall must be on same subnet
- If you use Windows, then gateway IP must be specified
- Other DHCP servers must not be involved
- Router must be connected on boot interface

http://wiki.mikrotik.com/wiki/Manual:Netinstall

Netinstall

- To start installation you must power on the router with pressed reset button and wait until it shows up in Netinstall
- If you use bootloader, then under “o - boot device” select “1 – boot Ethernet once, then NAND”

http://wiki.mikrotik.com/wiki/Manual:Netinstall

Configuration reset

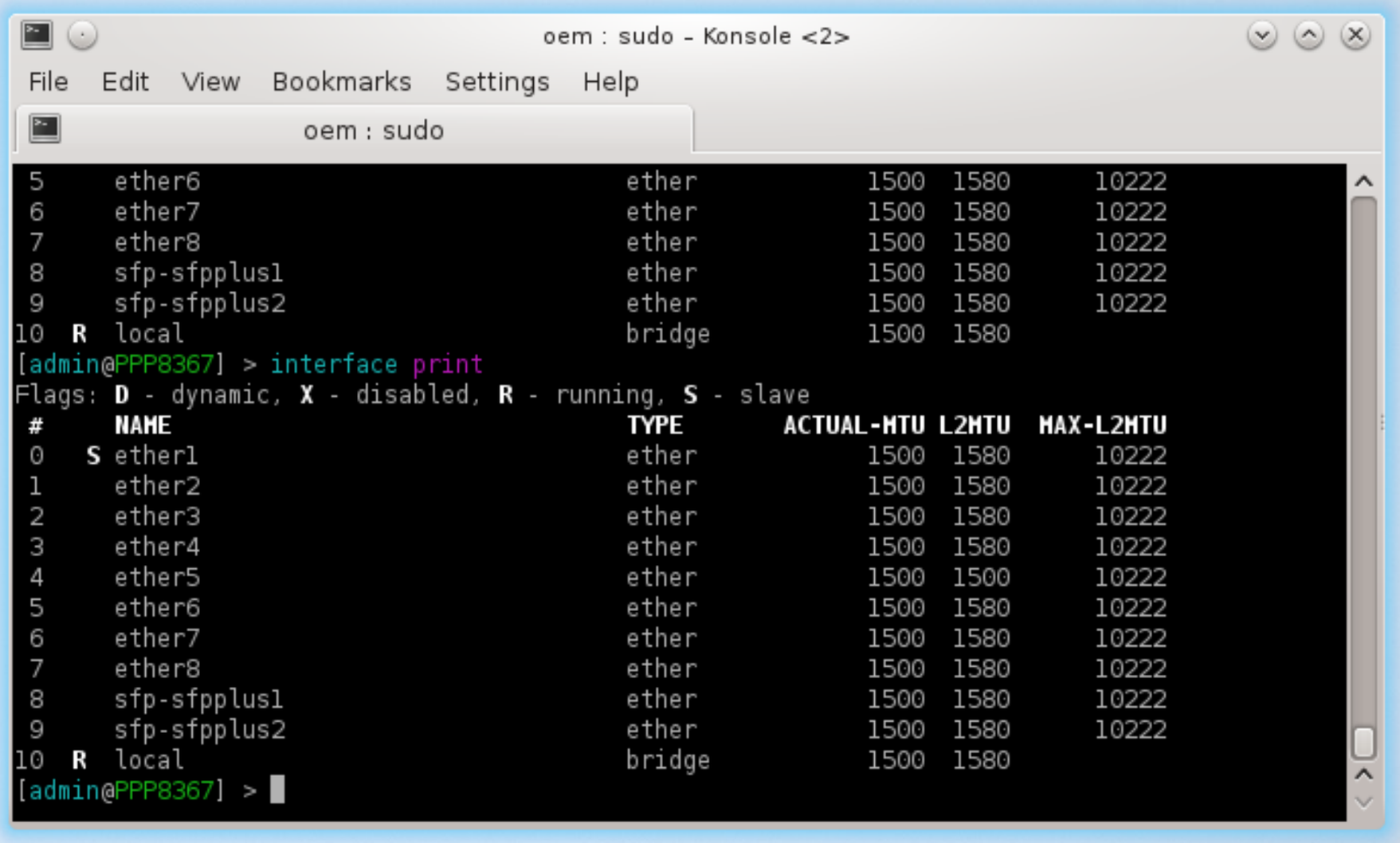
Power on the router with pressed reset button and wait until USER LED starts flashing. Now release the button.

http://wiki.mikrotik.com/wiki/Manual:Reset

Interface is down

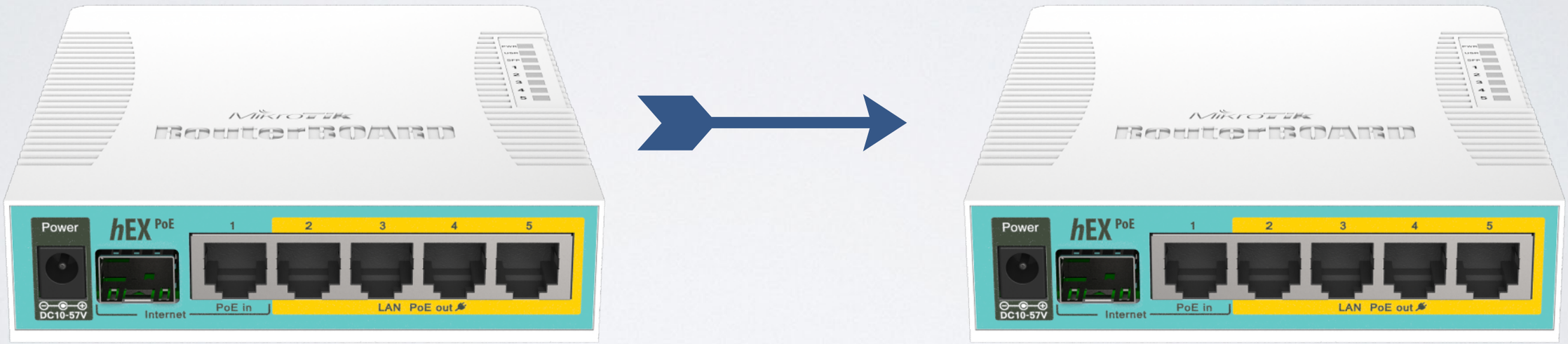
Router is working but there is no link on any of interfaces

- Cable?
- PoE?
- Hardware?
- Software?



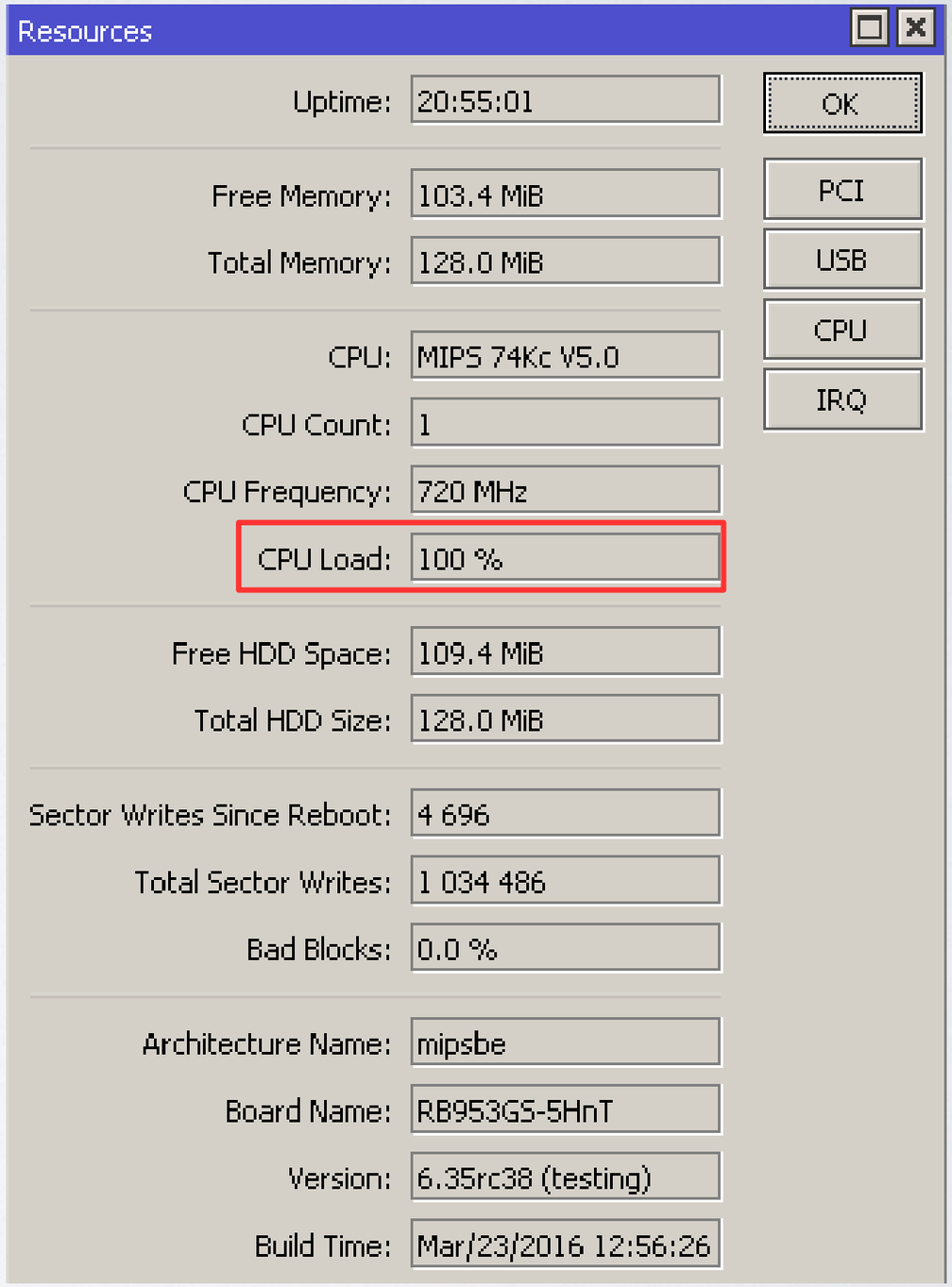
Exchange device

Swap device to be sure that hardware is not faulty



Overloaded router

If we talk about CPU, then there is no >100% load...



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x86

Request replacement key which costs $10

For already created software keys

- all keys **or** *try search*
- replacement key *(0)*
- request key from another account

What to do if I need replacement key?

Please send us e-mail with following information:

- your username
- old software ID
- include detailed information about how that happened.

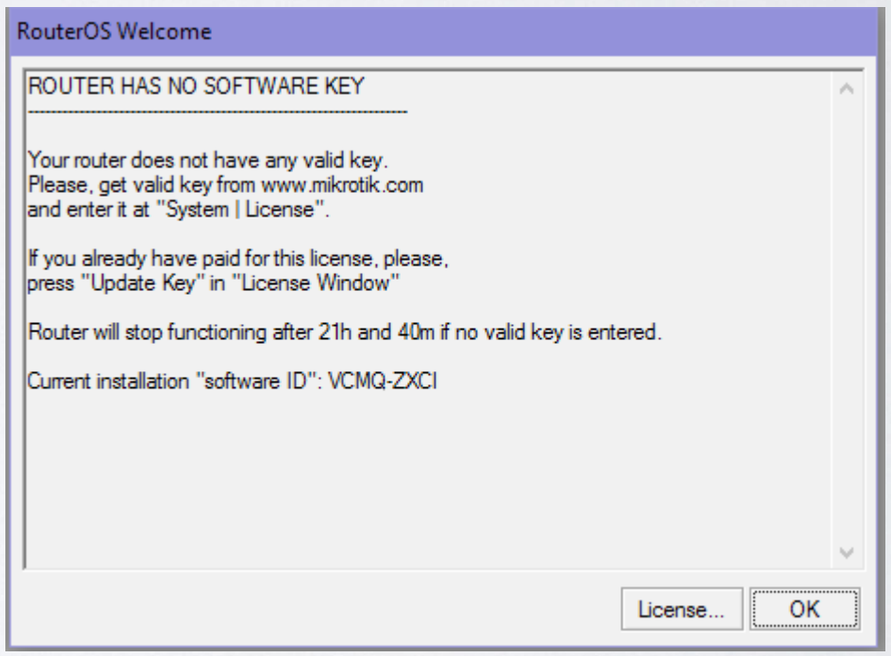
We will write you with further instructions.

Each replacement key costs $10,-

http://wiki.mikrotik.com/wiki/Manual:License

Router

- Upgrade RouterOS to the latest version
- Upgrade firmware “/system routerboard upgrade”
- Generate supout file and send it to MikroTik with explanation how it happened



http://wiki.mikrotik.com/wiki/Manual:Upgrading_RouterOS

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Standard Log

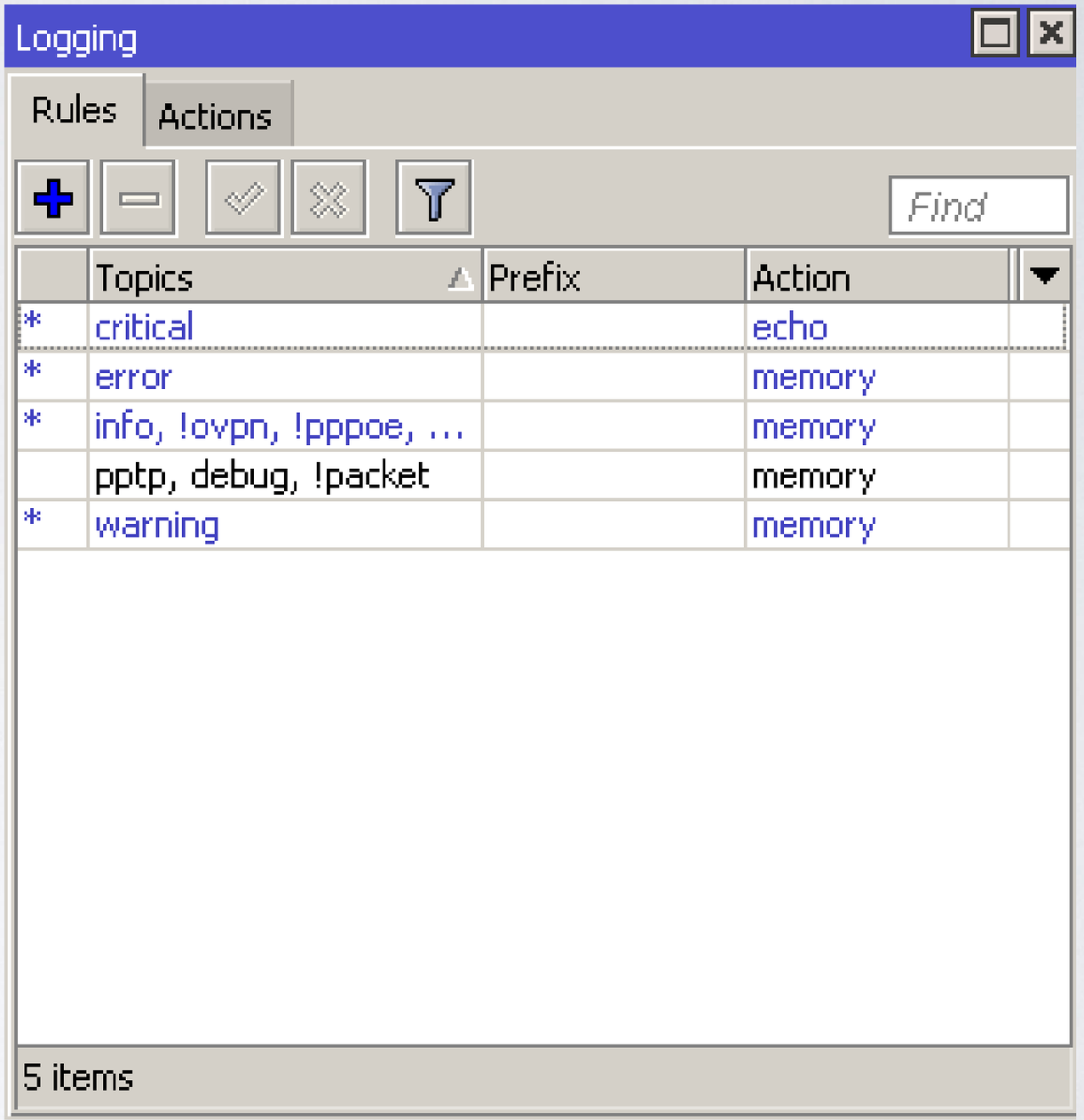
Log shows all actions which are enabled under System/Logging

memory	system, info, account	user admin logged in from 10.5.114.253 via telnet
memory	system, info, account	user admin logged out from 10.5.114.253 via telnet
memory	system, info	device changed by admin

http://wiki.mikrotik.com/wiki/Manual:System/Log

Add new debug Log rule

System/Logging



http://wiki.mikrotik.com/wiki/Manual:System/Log

Check new Log messages

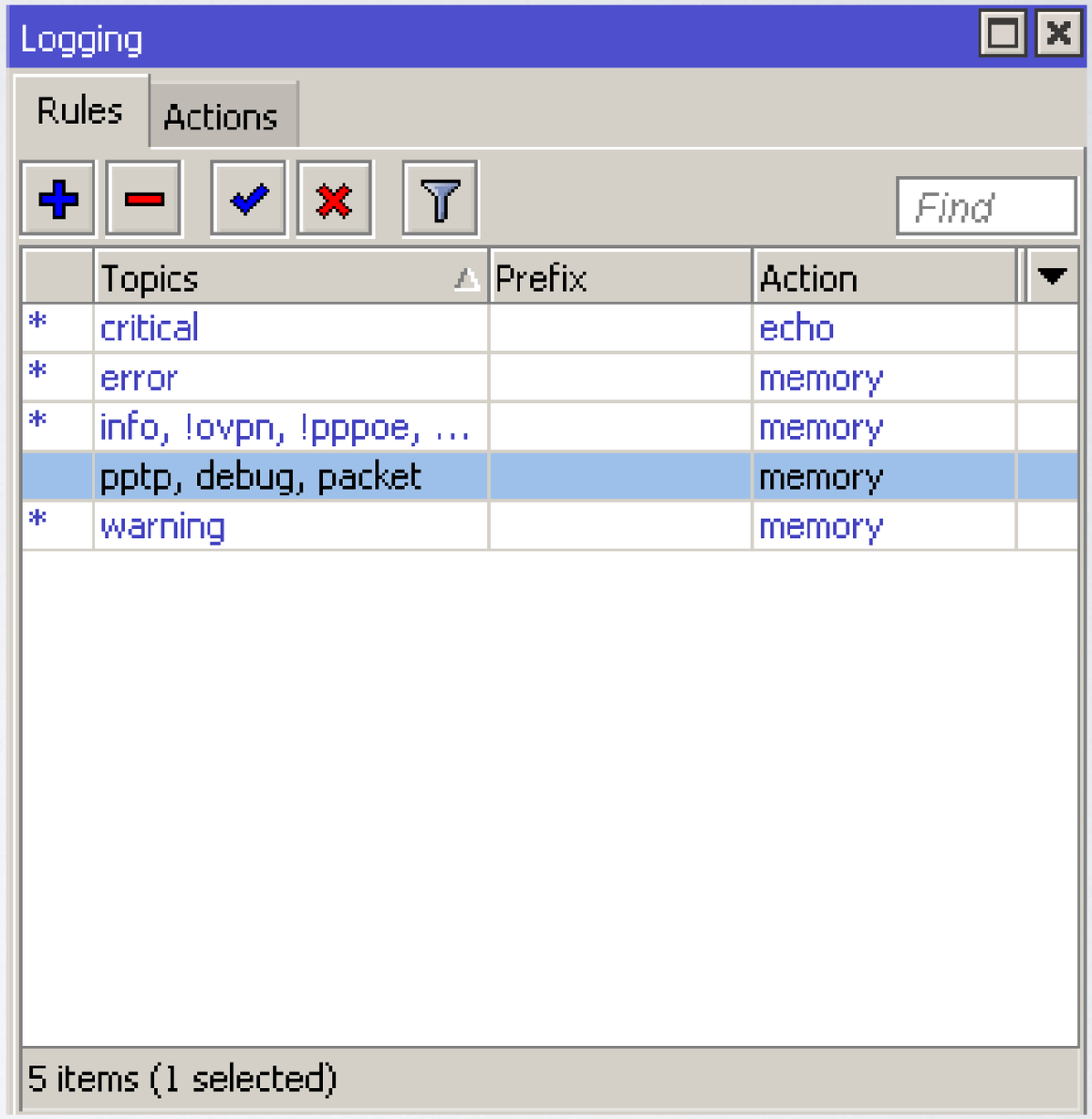
Log now shows also pptp,debug messages

memory	pptp, ppp, debug	pptp_test: LCP open
memory	pptp, ppp, debug	pptp_test: LCP opened
memory	pptp, ppp, debug	pptp_test: CHAP received challenge in initial state, dropping
memory	pptp, ppp, debug	pptp_test: LCP close
memory	pptp, ppp, debug	pptp_test: LCP closed
memory	pptp, ppp, debug	pptp_test: LCP lowerdown
memory	pptp, ppp, debug	pptp_test: LCP lowerdown
memory	pptp, ppp, debug	pptp_test: LCP down event in starting state
memory	pptp, ppp, debug	pptp_test: LCP lowerup
memory	pptp, ppp, debug	pptp_test: LCP open

http://wiki.mikrotik.com/wiki/Manual:System/Log

Extend Logging

Enable packet logging



http://wiki.mikrotik.com/wiki/Manual:System/Log

Use new Log messages

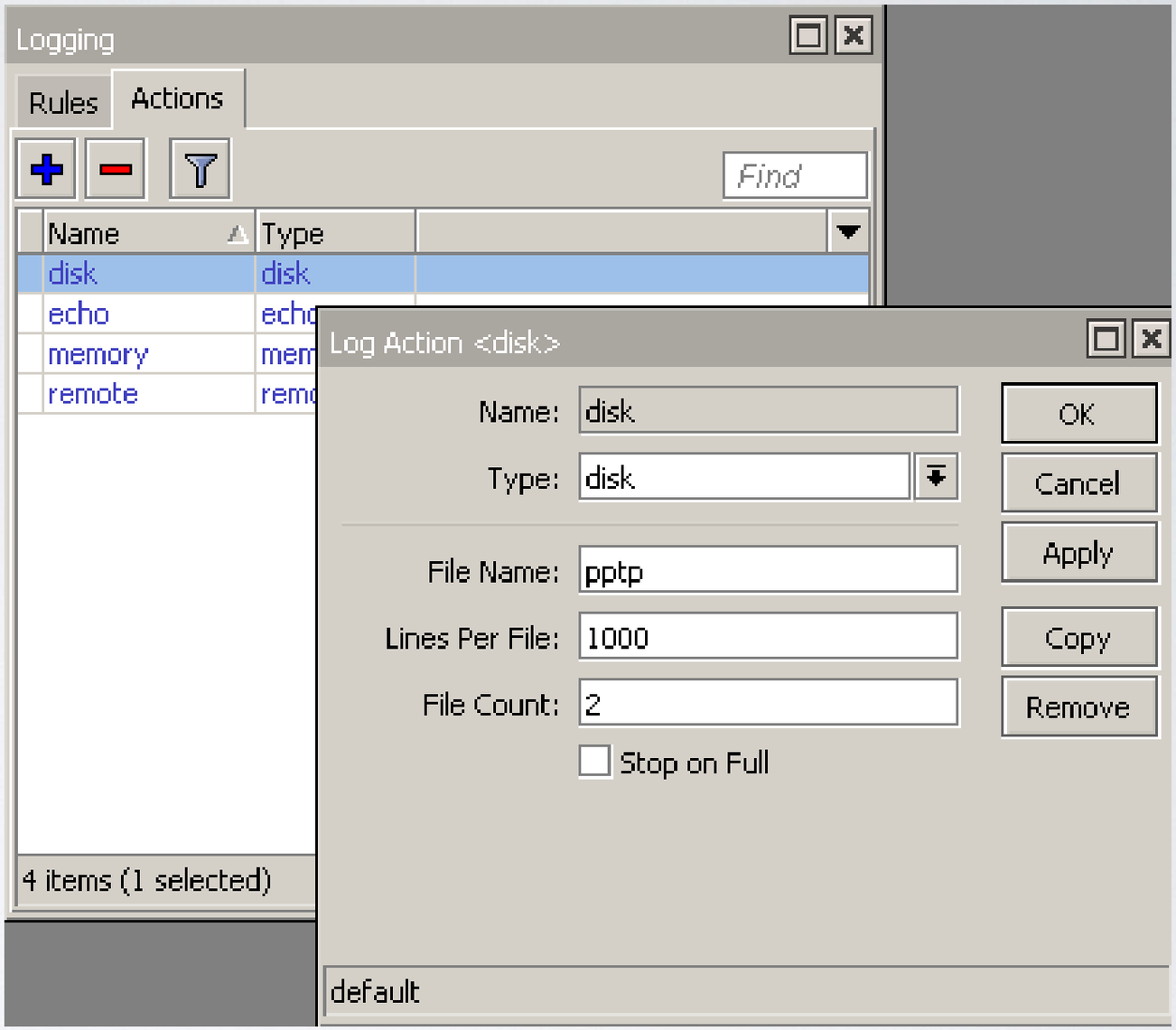
Log now shows also pptp,debug,packet messages

memory	pptp, ppp, debug, p...	<response len=49>
memory	pptp, ppp, debug, p...	<name pptp_test>
memory	pptp, ppp, debug, p...	pptp_test: rcvd CHAP Failure id=0x1
memory	pptp, ppp, debug, p...	E=691 R=0 C=B233773DC54093DD1A469F39A8030171 V=3 M=bad username or password
memory	pptp, ppp, debug, p...	pptp_test: sent LCP TermReq id=0x54
memory	pptp, ppp, debug, p...	failed to authenticate ourselves to peer
memory	pptp, ppp, debug, p...	pptp_test: rcvd LCP TermReq id=0x2
memory	pptp, ppp, debug, p...	user pptp_test authentication failed
memory	pptp, ppp, debug, p...	pptp_test: sent LCP TermAck id=0x2
memory	system, info	device changed by admin

http://wiki.mikrotik.com/wiki/Manual:System/Log

Log to file

System/Logging/Action



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Select version

- Legacy – RouterOS v5 latest version (5.26)
- Bugfix only – RouterOS v6 release which is considered as the most stable one (6.34.6)
- Current – RouterOS v6 latest full and tested release (6.35.4)
- Release candidate – RouterOS v6 version with all changes and fixes included (6.36rc)

http://www.mikrotik.com/download

Check changelog

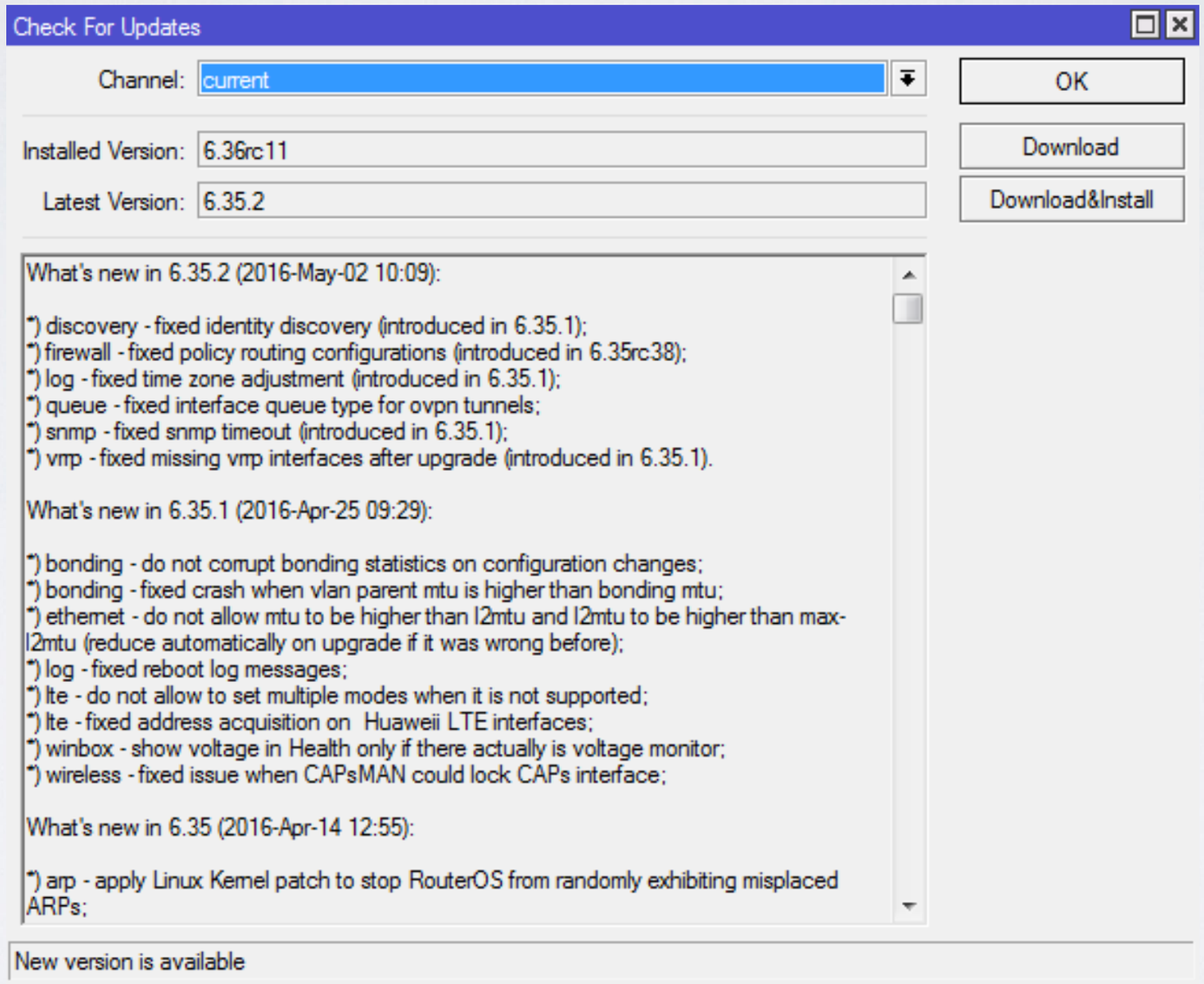
What's new in 6.35.4 (2016-Jun-09 12:02):

*) address-list - make "dynamic=yes" as read-only option;
*) bonding - fixed 802.3ad load balancing mode over tunnels ;
*) bonding - fixed bonding primary slave assignment for ovpn interfaces after startup;
*) bonding - fixed crash on RoMON traffic transmit;
*) dhcpv6 client - fixed ia lifetime validation when it is set by dhcpv6 client;
*) disk - added support for Plextor PX-G128M6e(A) SSD on CCR1072;
*) ethernet - fixed memory leak when setting interface without changing configuration;
*) firewall - do not show disabled=no in export;
*) health - fixed broken factory voltage calibration data for some hAP ac boards;
*) health - fixed incorrect voltage after reboot on RB2011UAS;
*) ipsec - fixed mode-config export;
*) ipsec - fixed route cache overflow when using ipsec with route cache disabled;
*) lte - use only creg result codes as network status indications;
*) ovpn - enable perfect forwarding secrecy support by default;
*) rb3011 - fixed port flapping on ether6-ether10;
*) rb3011 - fixed reset button functionality;
*) rb3011 - improved performance on high cpu usage;

http://www.mikrotik.com/download

Perform upgrade

System/Package/Check For Updates



http://wiki.mikrotik.com/wiki/Manual:Upgrading_RouterOS

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All is bad and you need help

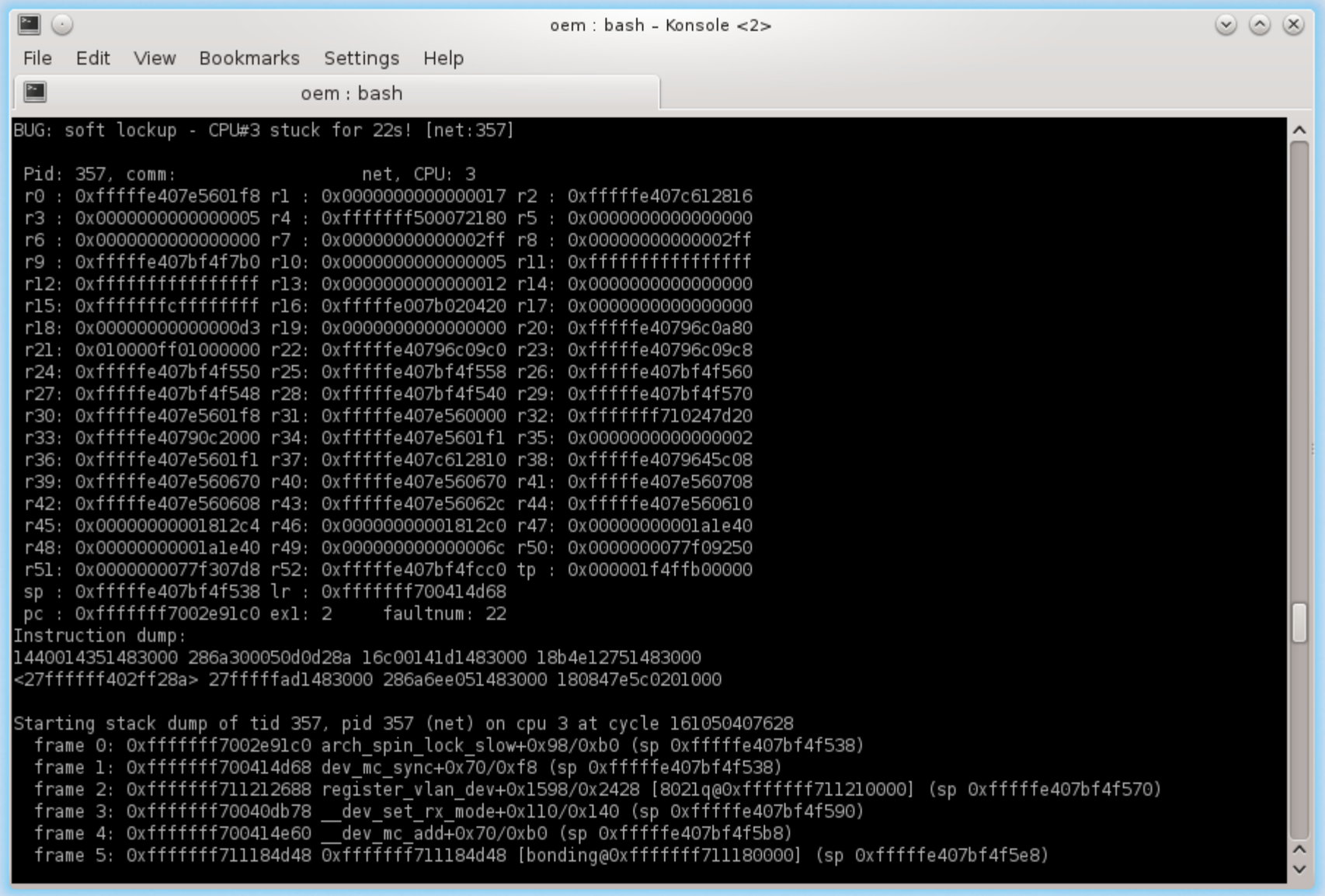
http://www.mikrotik.com/support.html

Router is rebooting itself

- Reboot because of power outage or without proper shutdown usually is caused by **hardware** issues or bad powering
- Reboot because of kernel failure or watchdog timeout usually is caused by **software**

Serial output

Upgrade device to the latest version!



Supout file

- Upgrade device to the latest version!
- Reproduce problem
- Generate supout file after crash no matter what
- Wait until file generation process is complete
- Download file from router (and autosupout.rif if you have one)
- Do not reboot device in the middle

Memory leak

- Upgrade device to the latest version
- Reboot router
- Wait for a while and generate supout file
- Monitor free RAM memory
- When it is low generate another file
- Do not reboot device in the middle

Configuration issue

- Upgrade device to the latest version
- Enable debug logs to file
- Reproduce problem so Log would be correct
- Generate supout file or files if multiple devices are involved

What to tell?

Please, Please, Please!!!

Make this your priority!!!

!!!!:@:@:@:@

ASAP?

URGENT!

Give me full configuration

I have 25 years of experience

RouterOS is full of BUGS

What to tell?

- Briefly explain what has happened
- When it happens
- What did you do to make it happen

What to send?

- Supout files (always)
- Log files (always)
- Pictures and videos (always)
- Serial output (in case of reboot)
- Networking topology (configuration issue)

Automated reply

Hello,

Thanks for writing to support. We will try to help you as soon as possible. To receive an answer quicker, please make sure you have:

1) attempted to re-set your configuration and started from the beginning, following steps in the documentation
2) the latest RouterOS version installed on the router
http://www.mikrotik.com/download.html
3) attached the supout.rif file from the router in question
http://wiki.mikrotik.com/wiki/Manual:Support_Output_File
4) included a precise description of the problem - use network diagrams, screenshots, videos if necessary

If something from above is incomplete in your current email, please, send all additional information as a reply to this email.

While waiting for the reply of our support specialist you can:
1) search or ask in our forum for your problem solution
http://forum.mikrotik.com
2) recheck your configuration against examples in our manual:
http://wiki.mikrotik.com
3) If you have purchased your MikroTik product from a DEALER or RESELLER, please, contact them for support

This is an automated reply.

Thanks,
MikroTik Support

Reply with **same ticket number** in subject

Read and execute

- Do everything what is asked, if it is possible
- Make notes and document results
- Make new files after configuration changes
- Reply within same ticket and provide new information

Tips and Tricks

http://wiki.mikrotik.com/wiki/Tips_and_Tricks_for_Beginners_and_Experienced_Users_of_RouterOS

Enjoy the MUM!

MikroTik