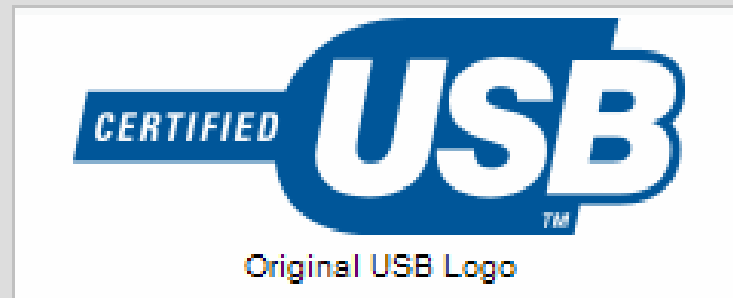


RouterOS and USB Devices



Arnis Riekstins
MikroTik

Supported USB Devices

- USB Peripheral Devices:
 - UPS
 - Ethernet Controllers
 - Flash Disks
 - HSDPA/EDGE/GPRS Modems
- USB Hosts running RouterOS:
 - Any x86 hardware (PC)
 - RouterBoard 230
 - RouterBoard 433U - new!

UPS Control

- Similar to the “old” style over serial port
- Requires the ups-3.x.npk or ups-2.9.x.npk software package installed



UPS Configuration

The screenshot displays the Mikrotik WinBox UPS configuration interface. The main window, titled "UPS", contains a table with the following data:

Name	Port	Model	Offline After	Load (%)
ups1	usb1	Back-UPS BR 800 FW:9.o2 .1 USB FW:o2		33

A secondary window titled "UPS <ups1>" is open, showing the configuration for the selected device. The configuration fields are:

- Name: ups1
- Port: usb1
- Off Line Time: 00:05:00
- Min Run Time: 00:05:00
- Alarm Setting: immediate

Control buttons on the right side of the secondary window include: OK, Cancel, Apply, Disable, Copy, Remove, and Beep.

UPS Status

UPS

Name	Port	Model	Offline After	Load (%)	On Li...
ups1	usb1	Back-UPS BR 800 FW:9.o2.1 USB FW:o2		33	yes

UPS <ups1>

General Model Status

Transfer Cause:

Run Time Left: 00:15:19

Offline After:

Battery Charge: 100 %

Battery Voltage: 27 V

Line Voltage: 27 V

Output Voltage: 230 V

Load: 33 %

Temperature: 29 C

Frequency: 50 Hz

On Line
 On Battery

Replace Battery
 Smart Boost
 Smart Trim
 Overload
 Low Battery

OK
Cancel
Apply
Disable
Copy
Remove
Beep

USB Ethernet

- RouterOS Supports:
 - Planet 10/100Base-TX USB Ethernet Adapter UE-9500
 - Linksys Instant EtherFast 10/100 USB Network Adapter USB100TX
- See the Device Driver List in the RouterOS Manual



USB Flash Disk

- Booting from Flash, if the hardware supports it
- Storage for proxy cache
- USB storage shows up under the new **/store disk** menu (since ROS V3.15)

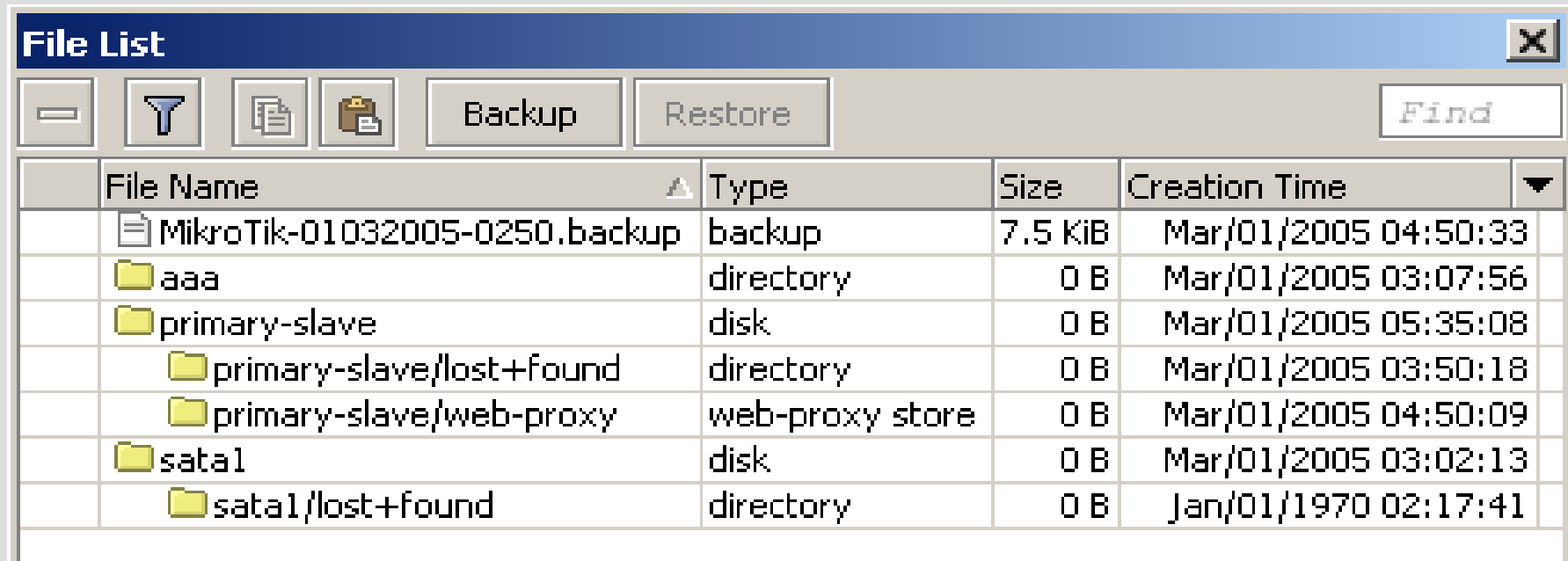


Store Menu

Name	Total Space	Free Space	Status
primary-mas...	60.6 MB	24.8 MB	ready
primary-slave	76.9 GB	76.9 GB	ready
usb1	57.6 GB	57.6 GB	ready

- USB storage shows up under the new **/store disk** menu (since ROS V3.15)

Accessing External Storage



The screenshot shows a 'File List' window with a toolbar containing icons for home, filter, print, save, Backup, and Restore, along with a 'Find' search box. The main area is a table with the following data:

File Name	Type	Size	Creation Time
MikroTik-01032005-0250.backup	backup	7.5 KiB	Mar/01/2005 04:50:33
aaa	directory	0 B	Mar/01/2005 03:07:56
primary-slave	disk	0 B	Mar/01/2005 05:35:08
primary-slave/lost+found	directory	0 B	Mar/01/2005 03:50:18
primary-slave/web-proxy	web-proxy store	0 B	Mar/01/2005 04:50:09
sata1	disk	0 B	Mar/01/2005 03:02:13
sata1/lost+found	directory	0 B	Jan/01/1970 02:17:41

- USB storage can be accessed through the **/file** menu, where it shows up as a folder

HSDPA/EDGE/GPRS Modems

- HUAWEI E220
- TELTONIKA



GSM Modem Applications

- Main link to the Internet
- Backup link
- Sending SMS from the router (V3.0rc11)
- Receiving SMS on the router and executing scripts (to be implemented)



Main Link over GSM

- Suitable for locations where WiFi or DSL cannot be used:
 - rural areas
 - public transport
 - in your car
 - hotel with overpriced Internet access



Backup Link over GSM

- In case the main link goes down router can be configured to use data connection over GSM network

Sending SMS over GSM Modem

- Signaling the network status by sending SMS text not to a SMS-to-email gateway, but through the GSM network

GSM Modem Applications



Configuring the PPP

Interface <ppp-lmt> [X]

General | **PPP** | Status | Traffic

Name:

Type:

Max MTU:

Max MRU:

MRRU:

Port: [v]

Modem Init: [^]

Null Modem

OK
Cancel
Apply
Enable
Comment
Copy
Remove
Torch

Configuring the PPP (2)

The screenshot shows the 'Interface <ppp-lmt>' configuration window in WinBox. The 'PPP' tab is selected. The configuration fields are as follows:

- Phone: *99***1#
- Dial Command: ATDT
- User: (empty)
- Password: (empty)
- Profile: ppp-LMT
- Dial On Demand
- Add Default Route
- Use Peer DNS

On the right side of the window, there are several action buttons: OK, Cancel, Apply, Enable, Comment, Copy, Remove, and Torch.

Sending SMS from Router

- Command line example to send an SMS:
 - `/tool sms send usb3 "29111222"`
`message="Help!"`
- Additional arguments can be specified:
 - `smc=<number>` is number of the SMS service center
 - `type=<value>` is for adjusting SMS properties. Currently only class 0 SMS messages are supported, thus, `type=class-0` by default
- SMS cannot be sent while the port is used by other service (PPP or terminal)

Troubleshooting GPRS

- Can you talk to the modem at all?
 - Use serial terminal on usb port and try to issue some AT commands (AT, ATI, AT+CPIN=?
- Is the SIM card requiring to enter the PIN?
 - Disable PIN request, or,
 - Include it into the modem initialization string
- Consult
 - Any GPRS AT Command Reference
 - MikroTik WIKI

Questions and Suggestions

- Ideas for more applications
 - ...
 - ...
- Additional feature suggestions
 - ...
 - ...
- Thank you!