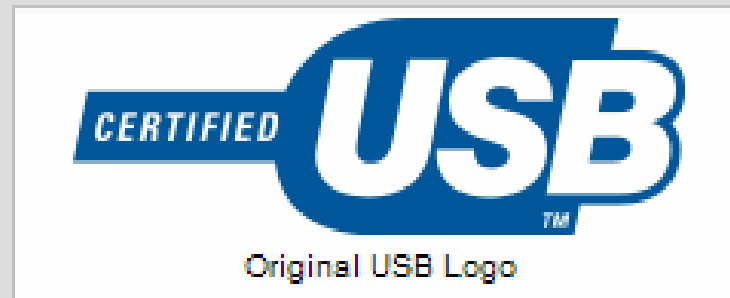


# RouterOS and USB Devices



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

Below the table, a sub-window titled 'UPS <ups1>' is open, showing the configuration for the selected device. The sub-window has three tabs: 'General', 'Model', and 'Status'. The 'General' tab is active, displaying the following fields:

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

On the right side of the sub-window, there are several buttons: OK, Cancel, Apply, Disable, Copy, Remove, and Beep.

# UPS Status

**UPS**

Find

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

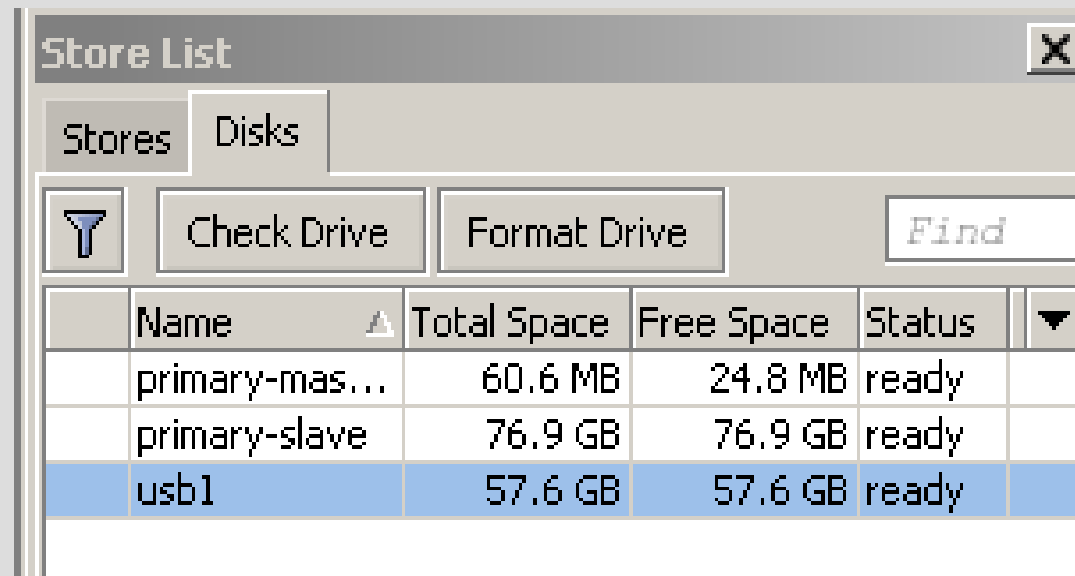


# USB Flash Disk

- 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)



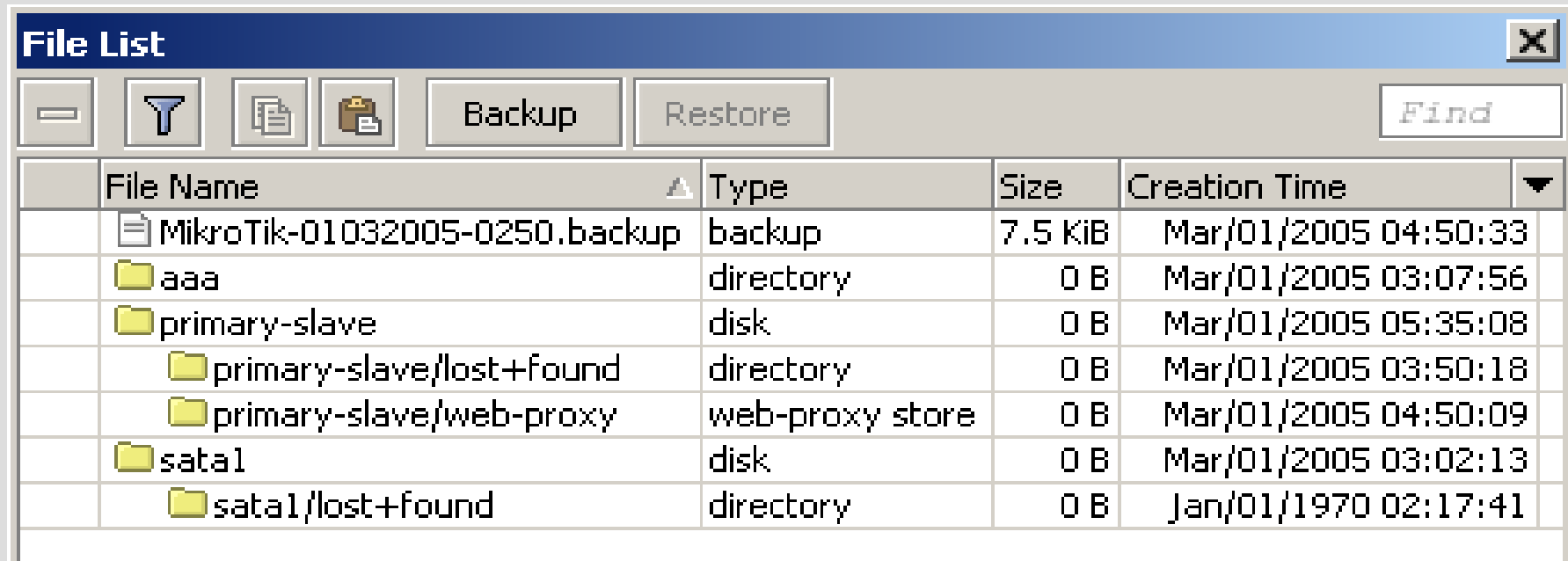
# Store Menu



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



# Accessing External Storage



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
satal	disk	0 B	Mar/01/2005 03:02:13
satal/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>**

General | **PPP** | Status | Traffic

Name:

Type:

Max MTU:

Max MRU:

MRRU:

Port:  ▼

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 'Phone' field contains '\*99\*\*\*1#'. The 'Dial Command' field contains 'ATDT'. The 'User' and 'Password' fields are empty. The 'Profile' dropdown is set to 'ppp-LMT'. At the bottom, the 'Dial On Demand' checkbox is unchecked, while 'Add Default Route' and 'Use Peer DNS' are checked. On the right side, there are buttons for 'OK', 'Cancel', 'Apply', 'Enable', 'Comment', 'Copy', 'Remove', and 'Torch'.

Interface	<ppp-lmt>		
General	PPP	Status	Traffic
Phone:	*99***1#		
Dial Command:	ATDT		
User:			
Password:			
Profile:	ppp-LMT		
<input type="checkbox"/> Dial On Demand			
<input checked="" type="checkbox"/> Add Default Route			
<input checked="" type="checkbox"/> Use Peer DNS			

Buttons: OK, Cancel, Apply, Enable, Comment, Copy, Remove, 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!