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t o w n e t
WIRELESS EXPERIENCE

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Libraries and tools to manage Mikrotik boards using RouterOS API

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wispmax

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TOWNET is using mikrotik boards and routeros operating system for many of it's products.

- Competence on the use of the operating system for routing purposes
- Capability of adapting routeros machines to the customer's needs

WISPMAX is a branch of company, as an official on line Mikrotik distributor. We also carry a wide range of high quality antennas and accessories.

MikroTik
Competence and training center

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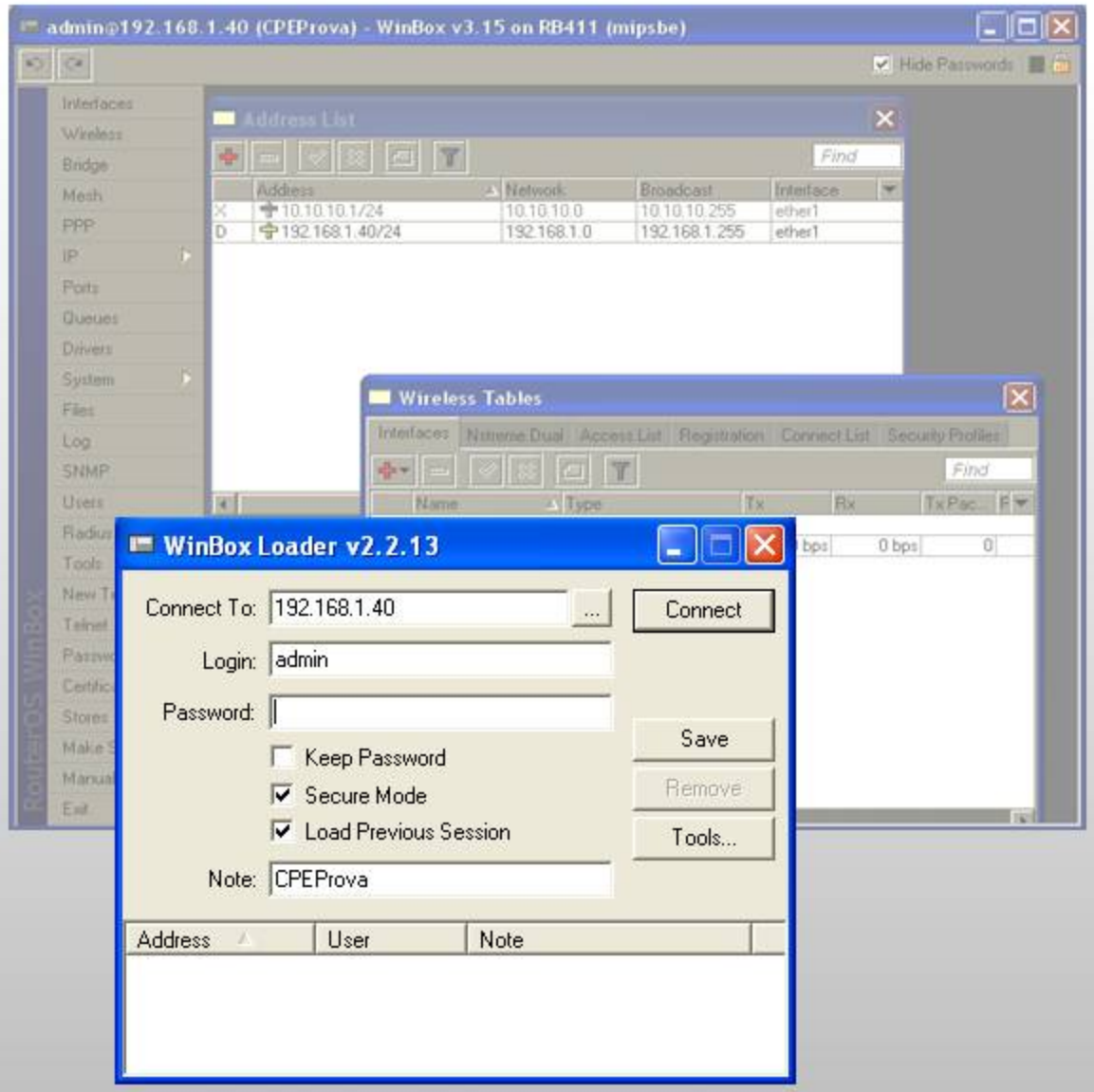
LIMITS OF ROUTEROS INTERFACE



Mikrotik interface is complete and useful for expert user, but not easy for end user.

It' s difficult to give a limited access to the end-user, giving only access to some of the configuration tools.

There isn't an error proof interface.

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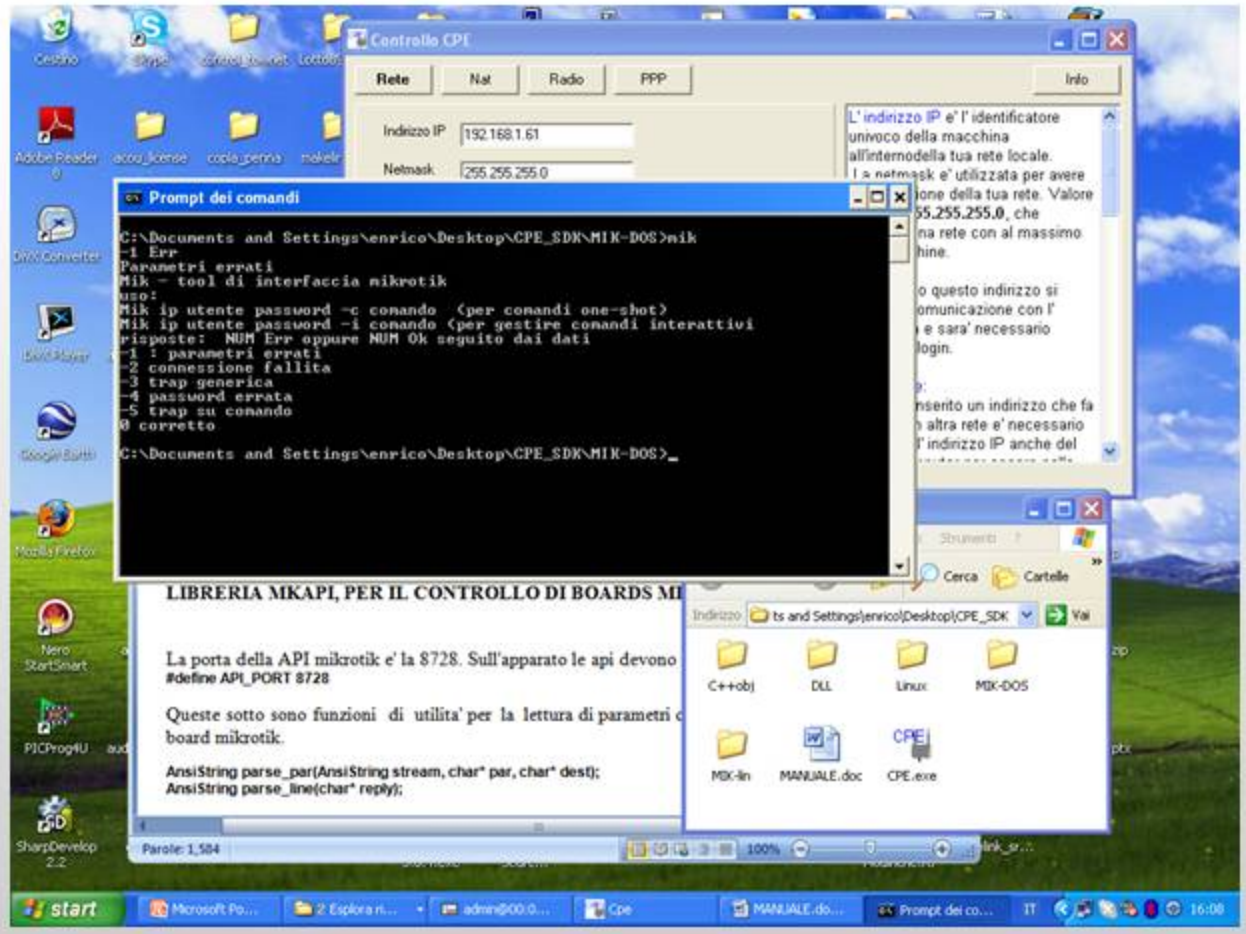
TOWNET API TOOLS



A set of instruments to support the develop of applications to control a routeros machine.

The communication is based on mikrotik API

It's possible to use a mikrotik board from differend kind of applications written under windows or linux.

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MK API LIBRARY

A **C++** class for:

- Login to a mikrotik board
- Execution of non interactive commands
- Execution of interactive commands

All with the purpose of achieving the better speed possible and to develop monolithic applications.

It manages directly, hiding the complexity of:

- mikrotik api protocol
- errors and traps
- md5 cryptography
- socket level

LIBRARY DISTRIBUTED AS

C++ object files and library header for windows
Files .o and header for linux
Dll for windows, to use with other languages

Applications:

ms-dos and linux command line tool
(to use for scripts, web applications or directly)

Graphical configuration utility for a CPE

MK API LIBRARY INTERFACE

```
class mikrotikBoard
{ public:
  AnsiString login(AnsiString remote, AnsiString user,
                                                AnsiString pass);
  AnsiString command(AnsiString text);
  AnsiString xcommand(AnsiString text);
  void start_icommand(AnsiString cmd);
  AnsiString icommand();
  AnsiString end_icommand();
};

AnsiString parse_par(AnsiString stream, char* par, char* dest);
AnsiString parse_line(char* reply);
```

Login: receive hostname or ip, username and password. The result is an empty string if correct, or an error description.

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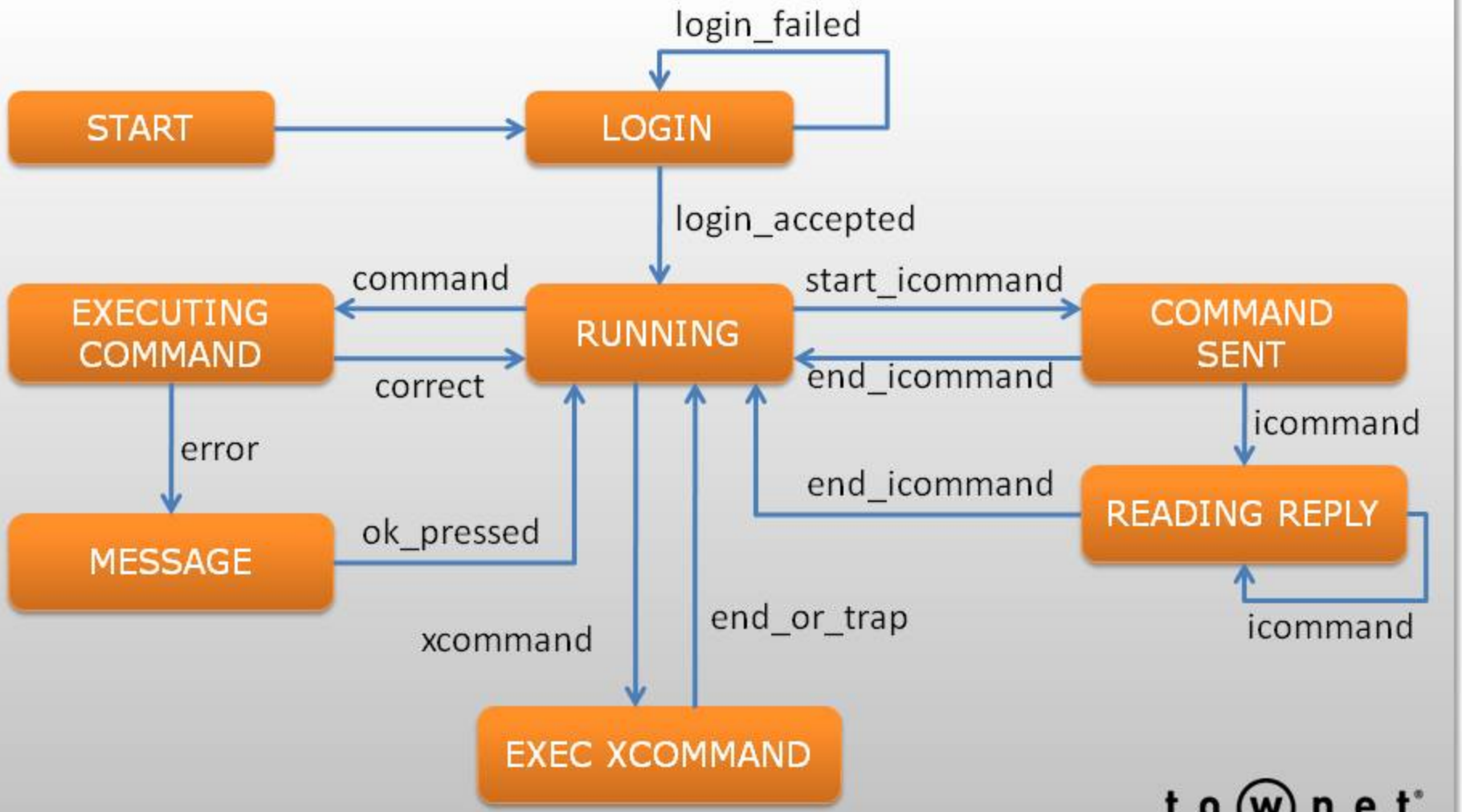
MKAPI STATE DIAGRAM



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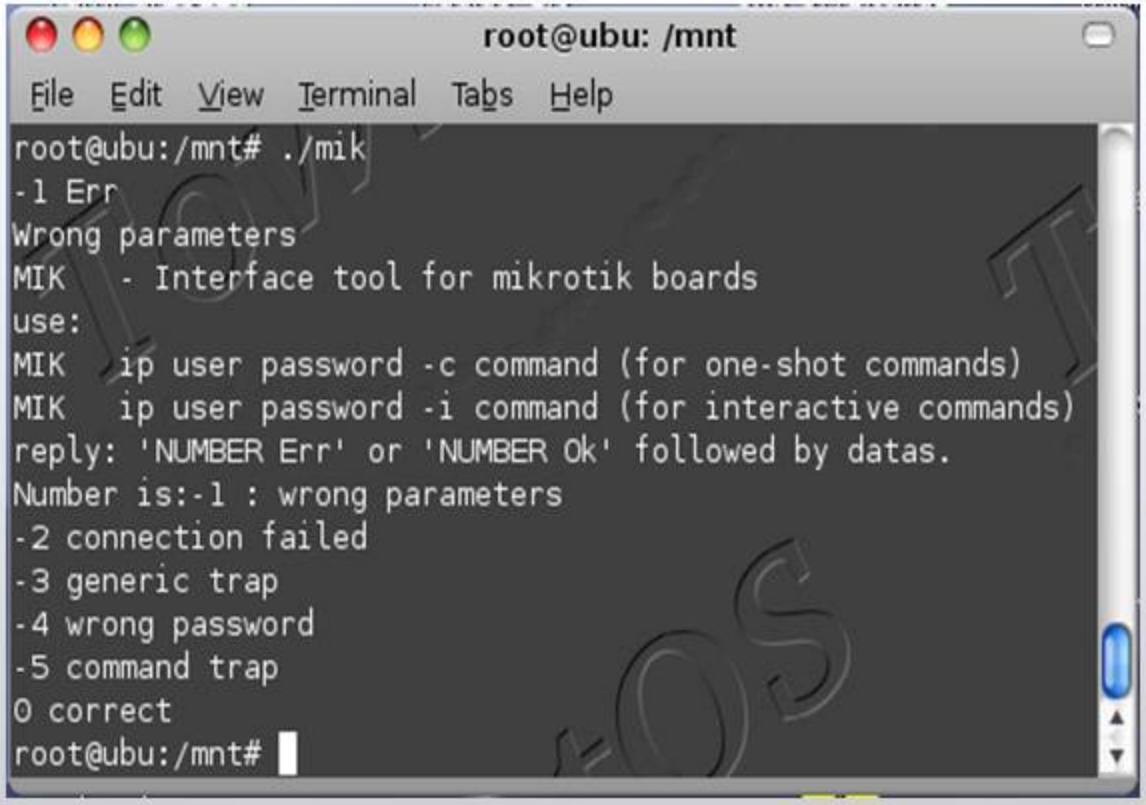
COMMAND LINE UTILITY MIK



Execute a command on a mikrotik board and write out the result

Useful:

- Directly from the command line
- From an application that uses the shell() function
- From a script, to run a command on many boards
- From a CGI of a web site

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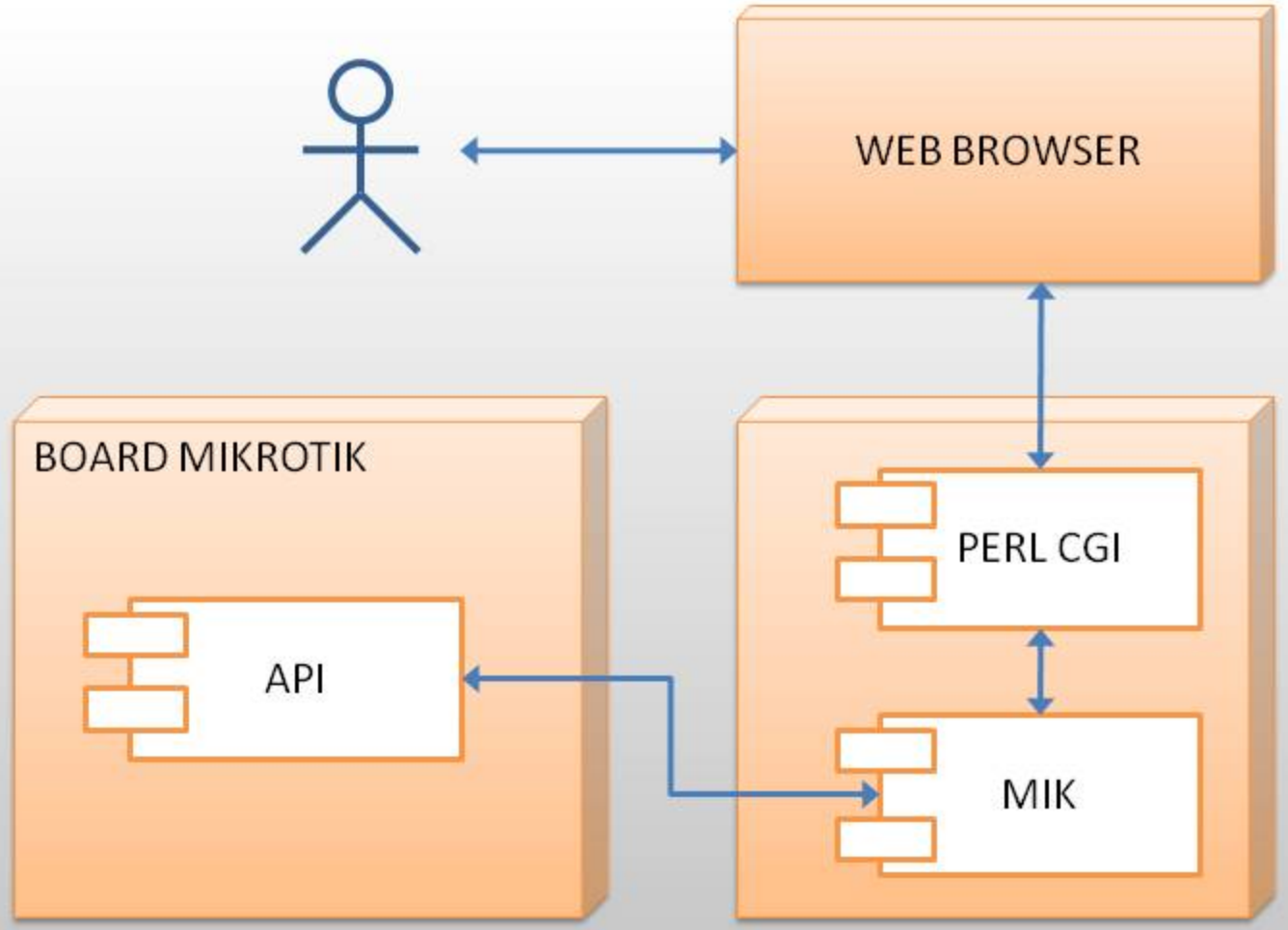
UML DEPLOYMENT DIAGRAM



Use of 'mik' program to develop a web application.

EXAMPLE USING “MIK”

This script ask all the addresses of a list of boards on my network.

```
{
for i in 1 7 32 45 101 ; do
  mik 10.0.0.$i admin mypassword -c /ip/address/print
done
} | grep "address="
```

The result is like:

address=10.0.0.1
address=81.34.23.11
address=10.0.0.2

CPE CONTROL UTILITY

A C++ application written using MkApi library
Monolithic and complete.
For an end-user that want to complete the configuration of his CPE.

Simple and intuitive.
You can have a pre-configured CPE, reducing installation costs
Real time monitor of quality of connection and signal strength to help pointing the antenna.
We can easily customize the application to meet the need of different providers.

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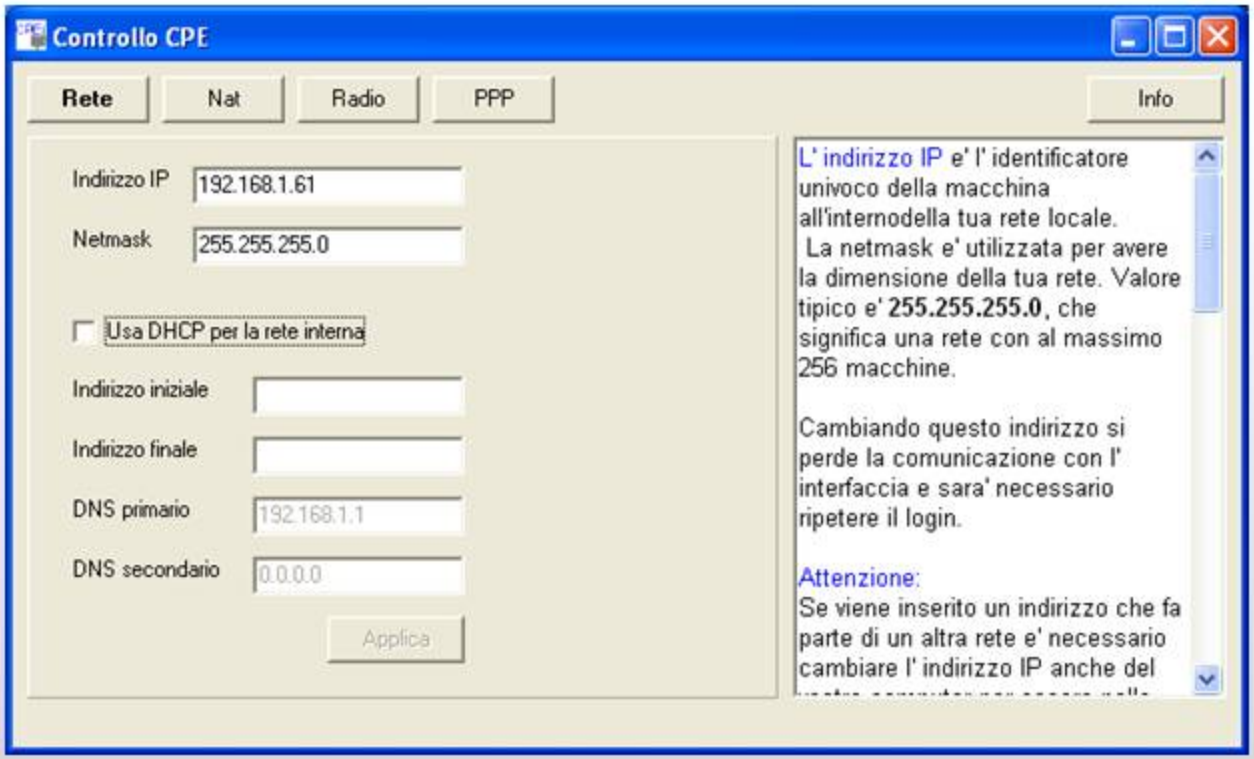
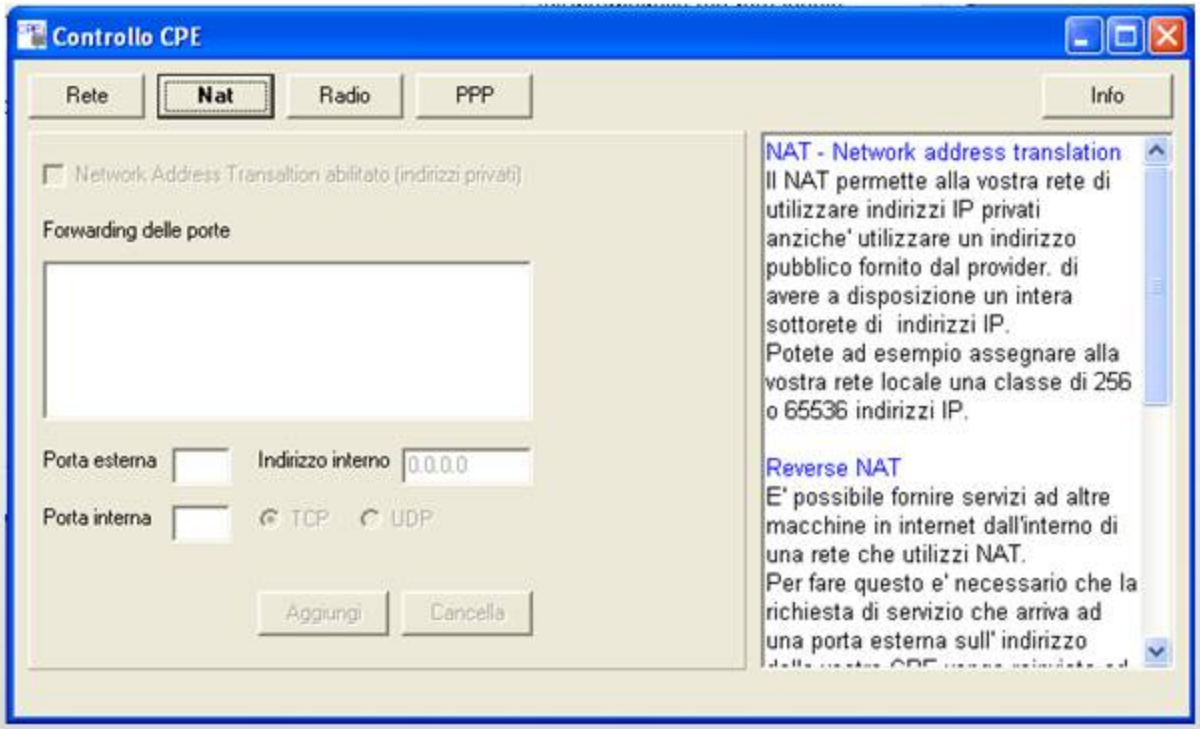
EASY NETWORK MANAGEMENT



The user can handle his own ip address and netmask

Each user can select to enable a dhcp server on his private network and can define the range of private addresses and the DNS servers to use.

EASY ADMINISTRATION FOR SERVICES



Each user that has a static ip address can manage his own port forwards, to offer services, for example publishing web sites that are in his own machine.

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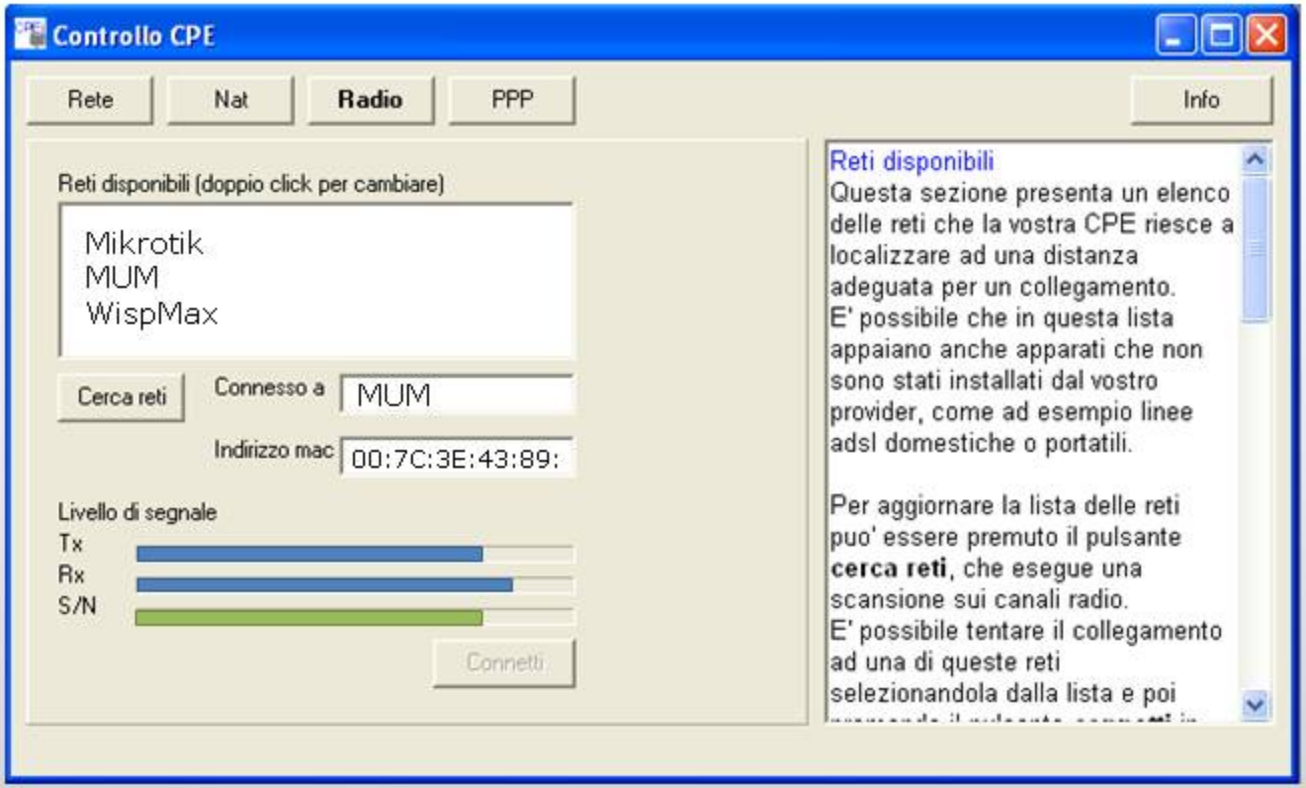
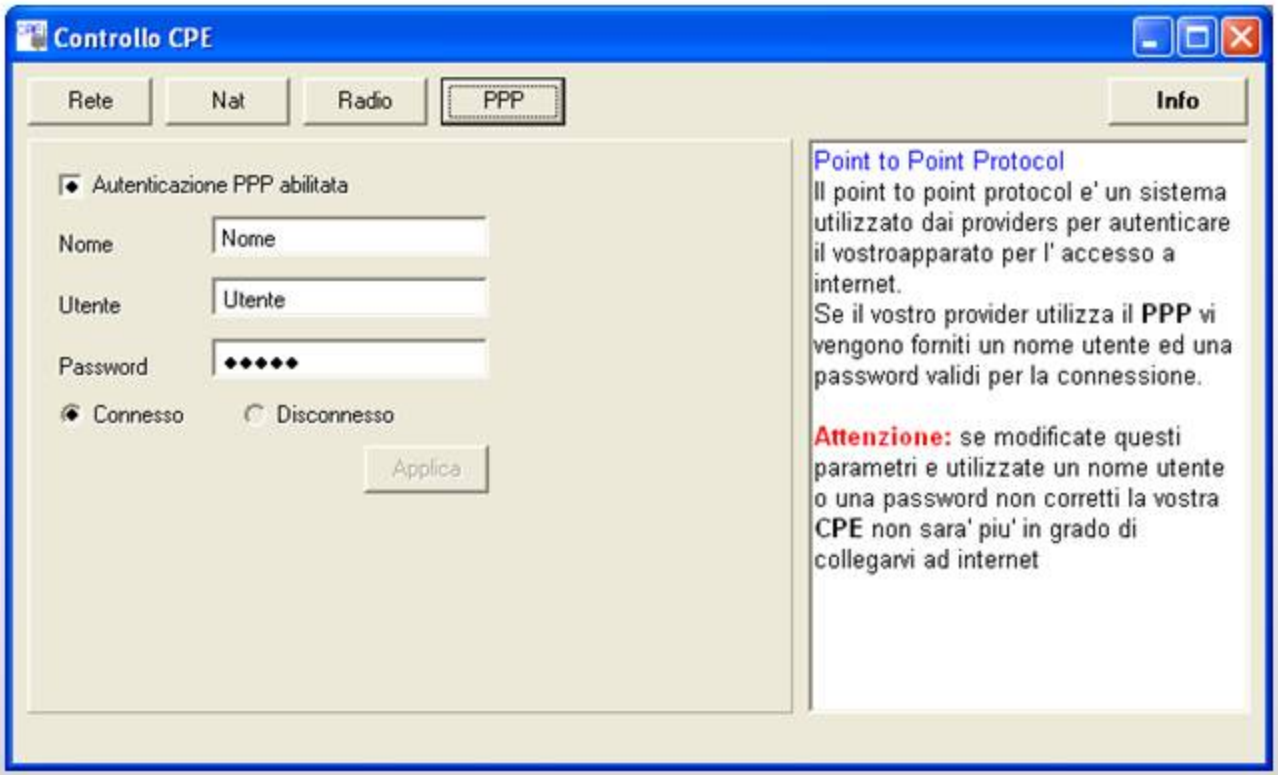
USEFUL TO POINT THE ANTENNA



The application shows in real time the signal/noise level and the tx/rx quality for the connection. It allows to find the base station and to point the antenna also without technical experience.

USEFUL TO POINT THE ANTENNA



The application permit to set the point to point connection parameters for the CPE, and show if the board is really connected to the network.

CONCLUSIONS

- Less work for the provider: the user can mount and point the CPE with a minimal help, that can be given by phone
- More security for the network: there is less risk that an error on configuring a CPE can became a problem for other users
- More friendly for the user: the user has an instrument to handle his own network . It's seen as a better quality of service
- Only few KB, More reliable and fast than C# Sample code in Mikrotik Forum
- Economic Positive effect to WISP Business Model
- Market protection for your personalized equipments.

RADIUS

Autentication PPPoE, PPtP, L2TP, PPPoA, HotSpot, MAC, 802.1

Automatic **TAP** Zero CPE Configuration

Configuretion based on Web or Terminal

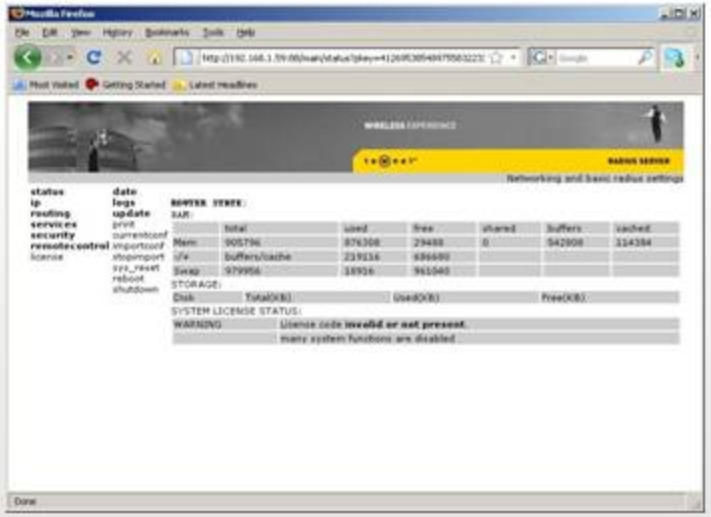
Multilevel Configuration Menu based on **MLText®**

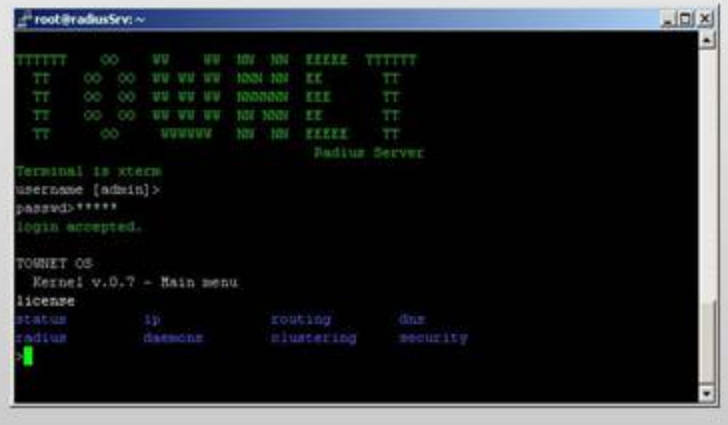
Cluster configuration

Operativ Sistem **TownetOS®** Linux Based

SMS autentication

IP POOL Centralization





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TownetOS®

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NEW IDU CARRIER GRADE and SURGE PROTECTOR

40 W **POWER SUPPLY** with DC input 12 to 48V DC, **SOURGE PROTECTOR**
POE GIGABIT ETHERNET, **UPS BATTERY CONNECTOR**, STATE LEDS

3 STAGE SOURGE PROTECTOR
POE 25+5KV
NAKED VERSION
OR IP68 OUTDOOR CASE

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NEW ENCLOSURE WX552002

The ideal solution for
professional wireless application.

Ready for Mikrotik

Add your RouterBoard and Radio

Features and Benefits

Compact waterproof IP67 enclosure
Integrated 5 GHz, 20 dBi antenna
DC ground
Includes integrated RJ45 Ethernet
Connector with cable gland and
integrated pigtail with U.Fl connector
Vertical, Horizontal and
45° polarization

802.11 n
compatible

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NEW ENCLOSURE WX552002

An integrated high performance 20dBi antenna allows long distance links and signal stability.

The antenna's ground plate has four stand-offs for an easy and fast installation of th eletronic bosrds. (fitting Mikrotik RB)

A Pigtail with U.fl connector and 14cm RG178U cable is integrated with the antenna.

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Thank You

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