NetMemo tutorial

Author	Mohammed Mahboubi
Version	0.0.1 (alpha)
Website	https://www.github.com/cybconv/netmemo
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License

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Context

I created NetMemo to maintain my skills; I was having in mind two things: to keep close to the Cisco world (especially all the skills acquired during my Cisco certification process) and to refresh my Java programming skills.

I developed NetMemo during winter 2011/2012 on part time between December 2011 and February 2012. It has been released as an open source project and published on GitHub on https://www.github.com/cybconv/netmemo .

For further details, I would recommend the reader to visit the project repository.

Available features

After launching NetMemo, you are going to have a main window composed of seven tabs as depicted in the figure below. The default active tab is QoS. Also, after the launch of NetMemo, the user may have the possibility to control the application from the systray taskbar (usually on the bottom right of the screen on a MicroSoft Windows system).

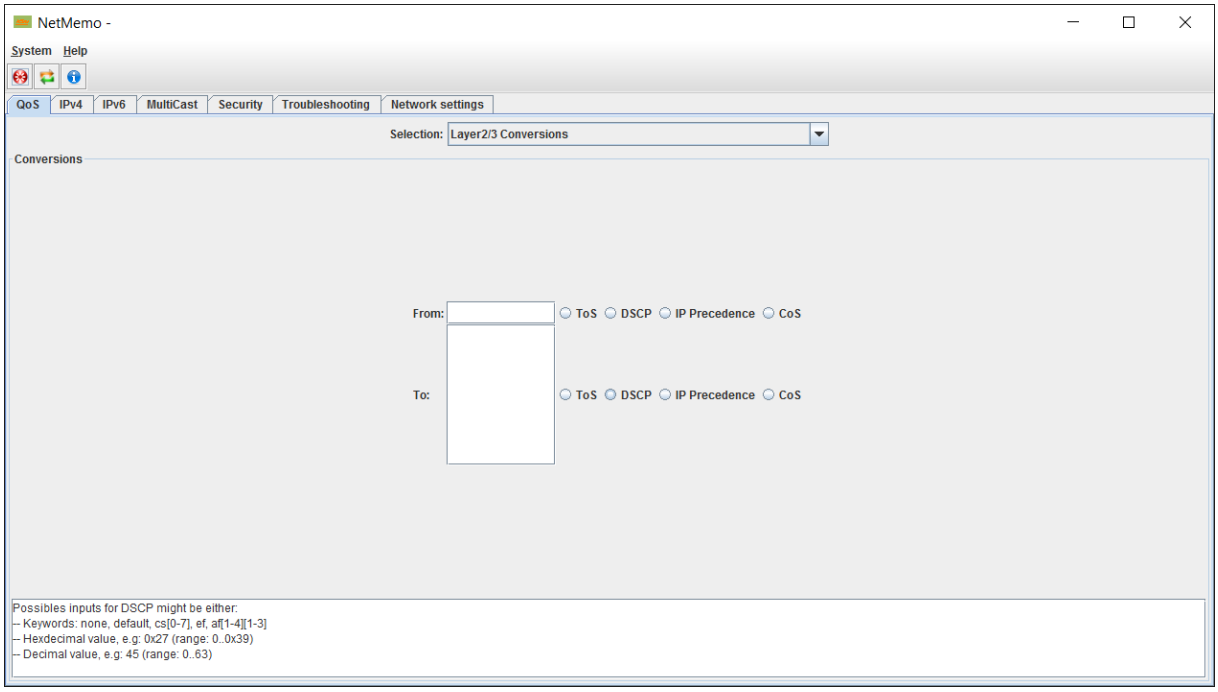

Figure 1 - A view of NetMemo on Microsoft Windows 10

In the following, I am going to discuss the seven tabs in that order: QoS, IPv4, IPv6, Multicast, Security, Troubleshooting and Network settings.

QoS

The QoS tab is the default active tab in NetMemo. When activated, the user will have three areas: the control (selection) area on the top, and the main area beneath of it.

From the control area, the user may select a view among three possible views:

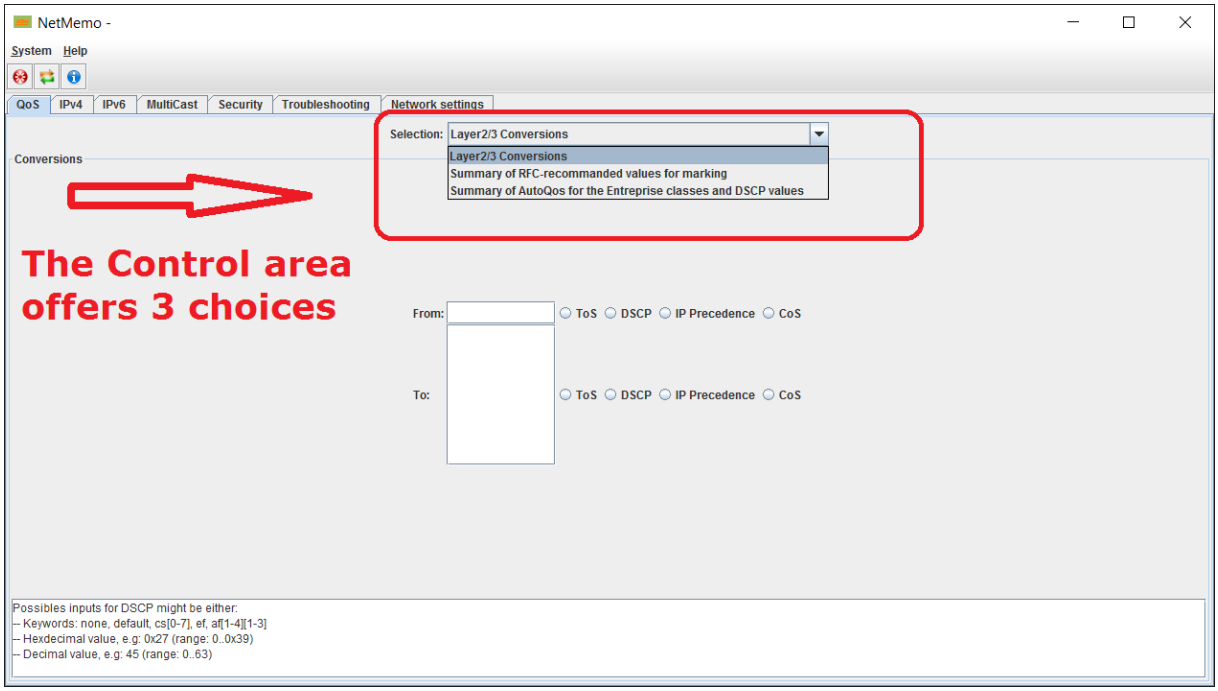

Figure 2 - QoS tab : Control area

- Layer2/3 conversions
- Summary of RFC-recommended values for marking
- Summary of AutoQoS for the Entreprise classes and DSCP values

Layer2/3 conversions

The main area is composed of two areas: the conversions area (on the top) and the hints area (on the bottom). The purpose of the conversions area is to provide a conversion tool between ToS, DS field, IP precedence and CoS field's value.

➔ When considering DSCP, input valid values are:
- Integers values between 0 and 63
- Best effort: default
- Class Selectors: cs0, cs1, cs2, cs3, cs4, cs5, cs6, cs7,
- Expedited Forwarding (real-time): ef
- Assured Forwarding:
  - Low: af11, af21, af31, af41
  - Medium: af12, af22, af32, af42
  - High: af13, af23, af33, af43

➔ When considering ToS, valid input values range from 0 to 255.
➔ When considering IP precedence or CoS, valid input values range from 0 to 7.

This configuration is depicted in the figure below:

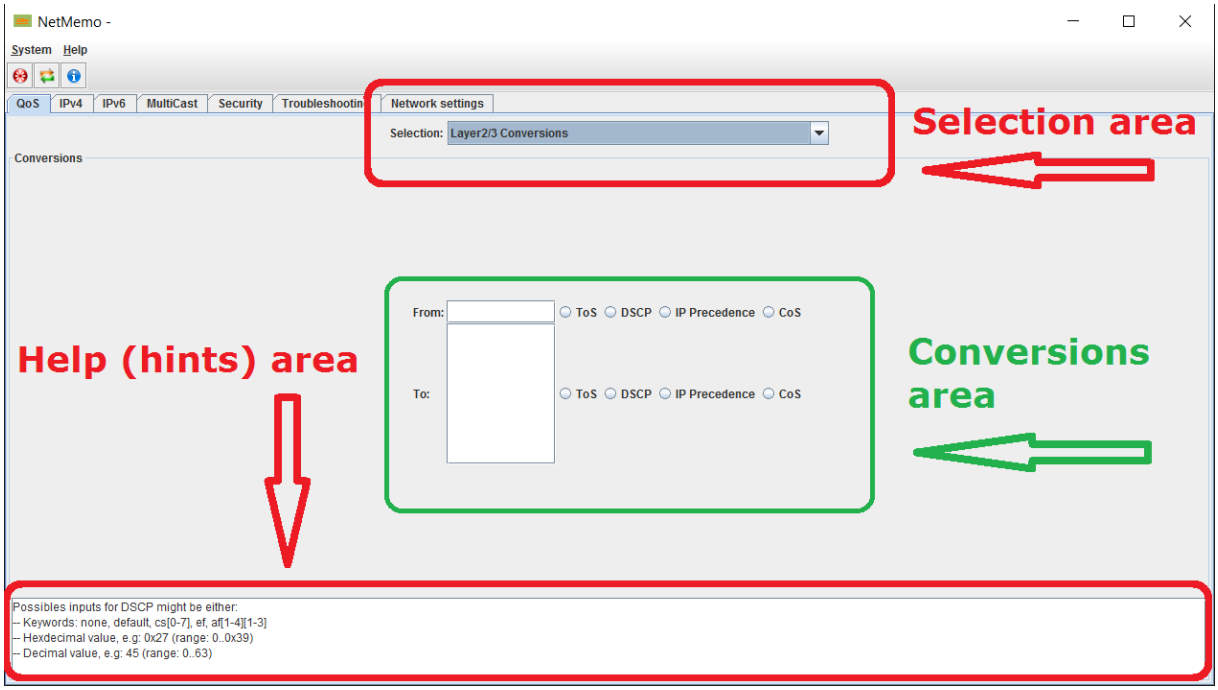

Figure 3 - Layers 2/3 QoS conversions

Summary of RFC-recommended values for marking

This is a cheat sheet based on the DiffServ model. It provides a memo regarding default settings recommended by Cisco. But it is up to the engineering teams to define the QoS templates suitable for their own needs.

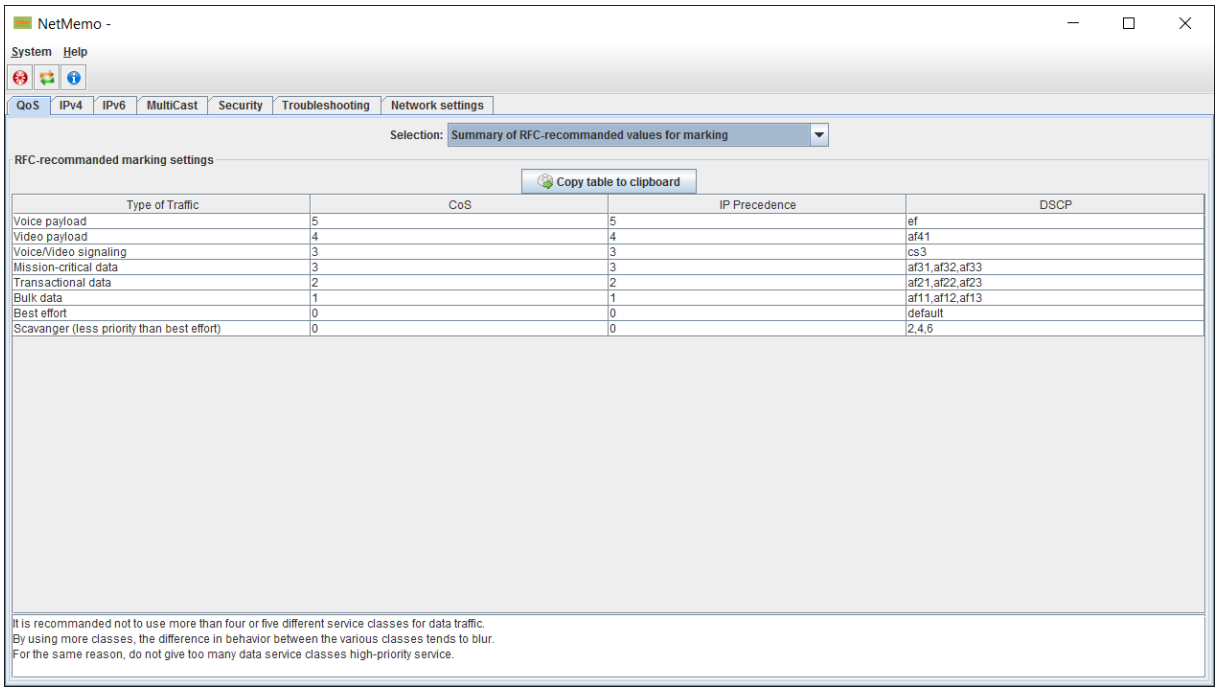

Figure 4 - Summary of RFC-recommended values for marking

Summary of AutoQoS for the Entreprise classes and DSCP values

This is a cheat sheet based on the DiffServ model. It provides a memo about default settings regarding the Cisco AutoQoS feature.

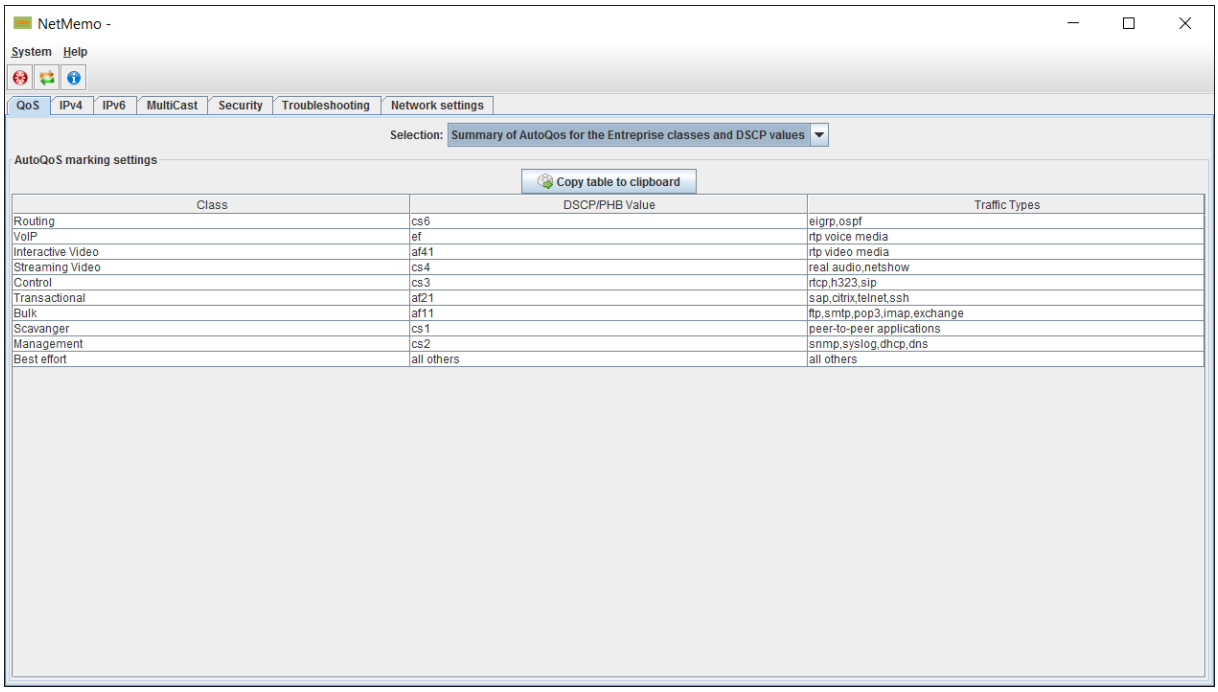

Figure 5 - Summary of AutoQoS for the Entreprise classes and DSCP values

IPv4

The IPv4 is the second tab in NetMemo. The control area allows the user to choose between either to make IPv4/decimal conversions or to make IPv4 calculations.

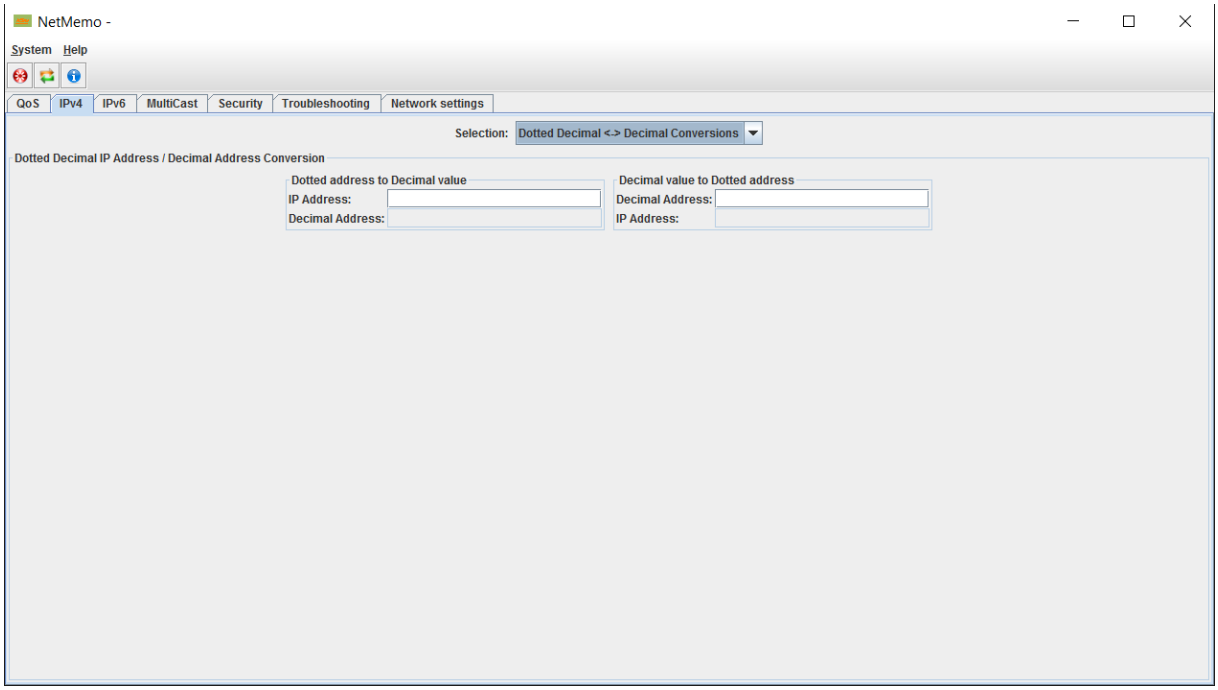

Figure 6 - A view of the IPv4/decimal conversion feature

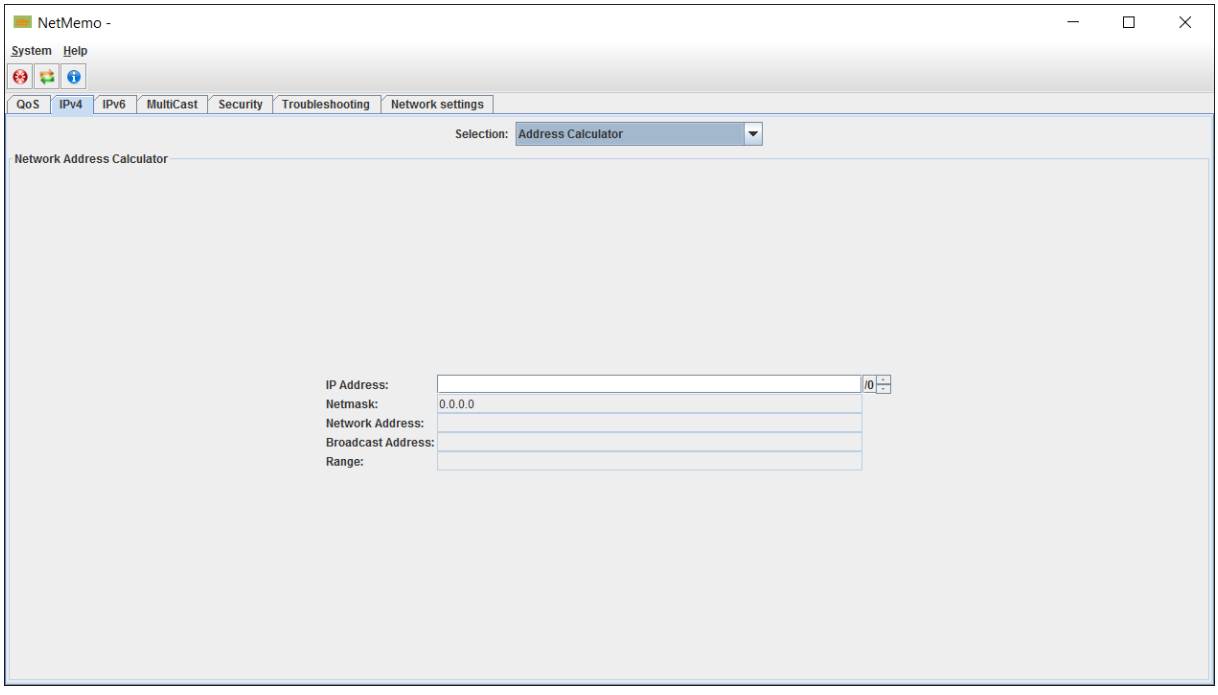

Figure 7 - A view of the IPv4 calculations feature

IPv6

The IPv4 is the third tab in NetMemo. This tab allows the user to make some IPv6 calculations.

The control area provides three features:

- EUI64 calculation: by knowing the MAC address, the user can calculate different IPv6 that match the specified MAC address
- Tunneling: by knowing the IPv6 prefix and the IPv4 address of the tunneling gateway, the user can calculates different IPv6 tunnel addresses
- Misc.: by knowing an IPv6 addresses, the user can calculates the solicited node address

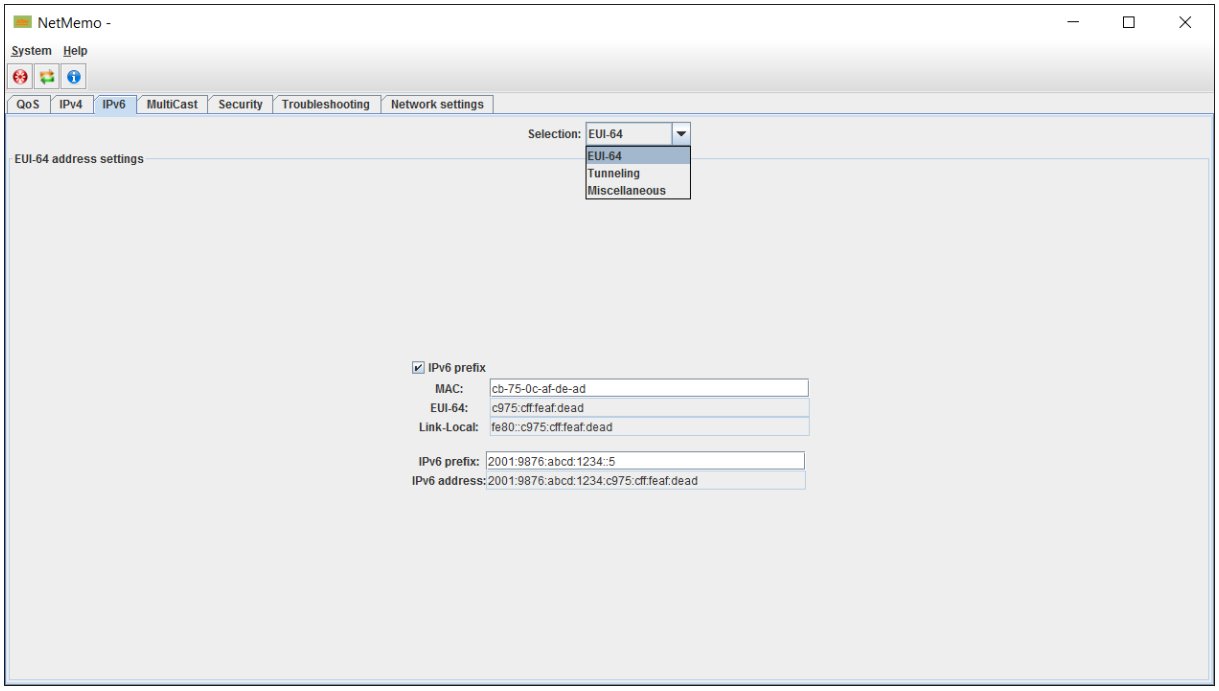

Figure 8 - A view of the IPv6 tab

Multicast

The IPv4 is the fourth tab in NetMemo. This tab provides a conversion tool between multicast IPv4/IPv6 addresses and MAC addresses.

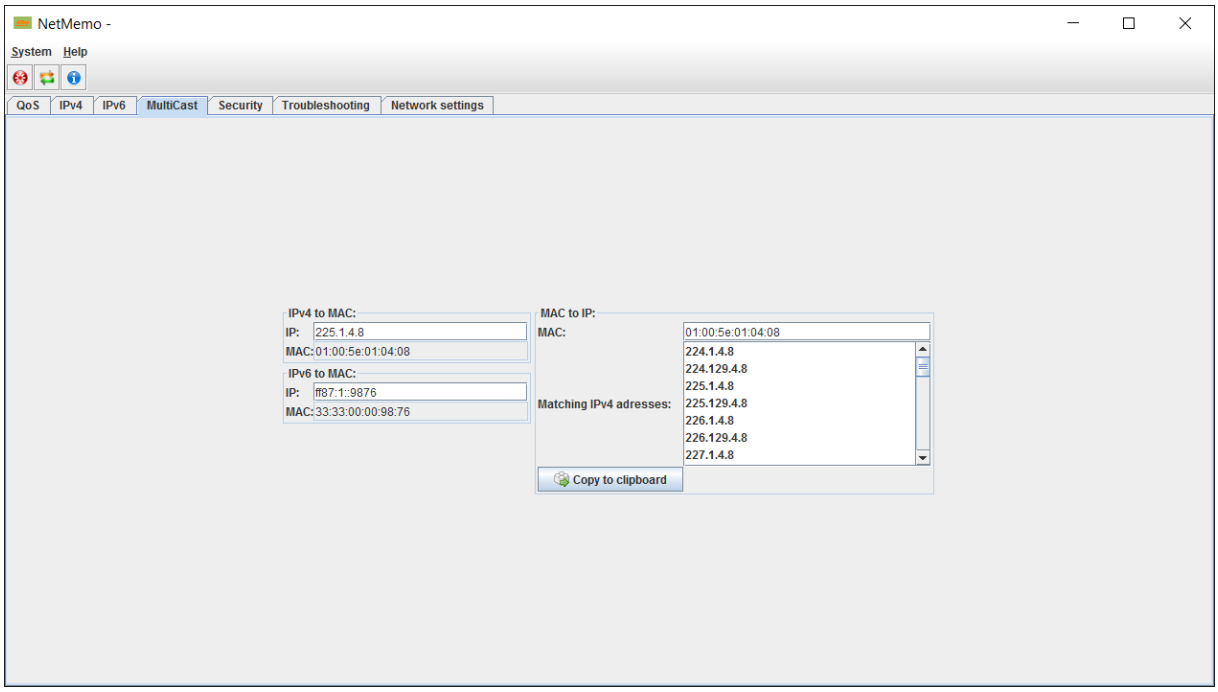

Figure 9 - conversion between multicast IPv4/IPv6 and MAC addresses

Security

The IPv4 is the fifth tab in NetMemo. It allows the user to generate up to 1000 passwords having different proprieties then it allows the user to copy the generated list the clipboard for a later use.

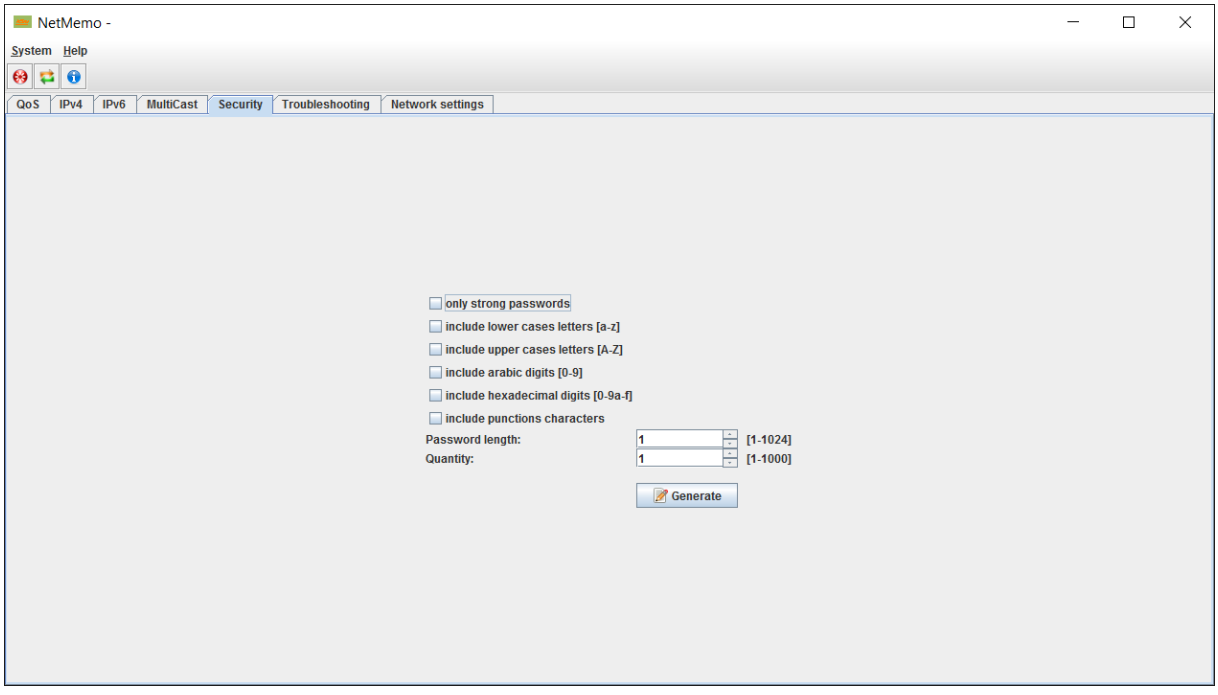

Figure 10 - The securtity tab view

Troubleshooting

The IPv4 is the sixth tab in NetMemo. On this tab, the user will have access to two features:

- A cheat sheet on values to apply on the configuration register on Cisco devices
- A summary of useful troubleshooting commands on Cisco devices

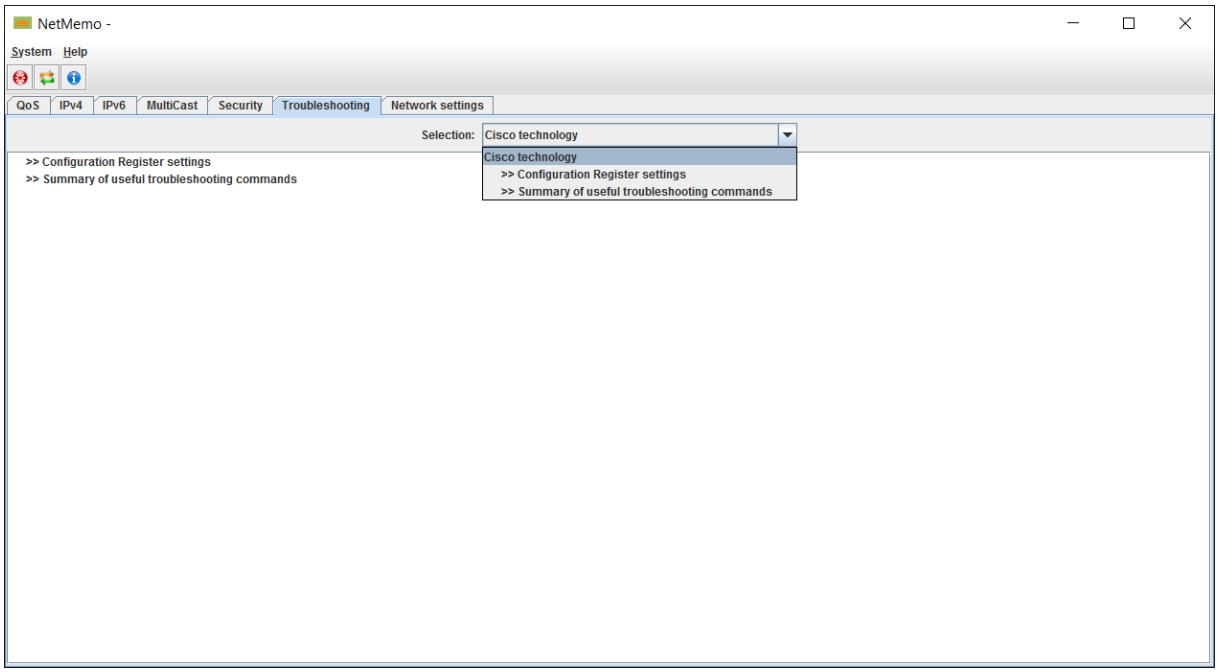

Figure 11 - A view of the Troubleshooting tab

When the user selects the troubleshooting commands feature. It will be presented with a split view:

- A navigation tree on the left to choose a topic
- A memo will become visible after choosing a subject from the navigation tree. A contextual tooltip will appears while the mouse hovers over the table

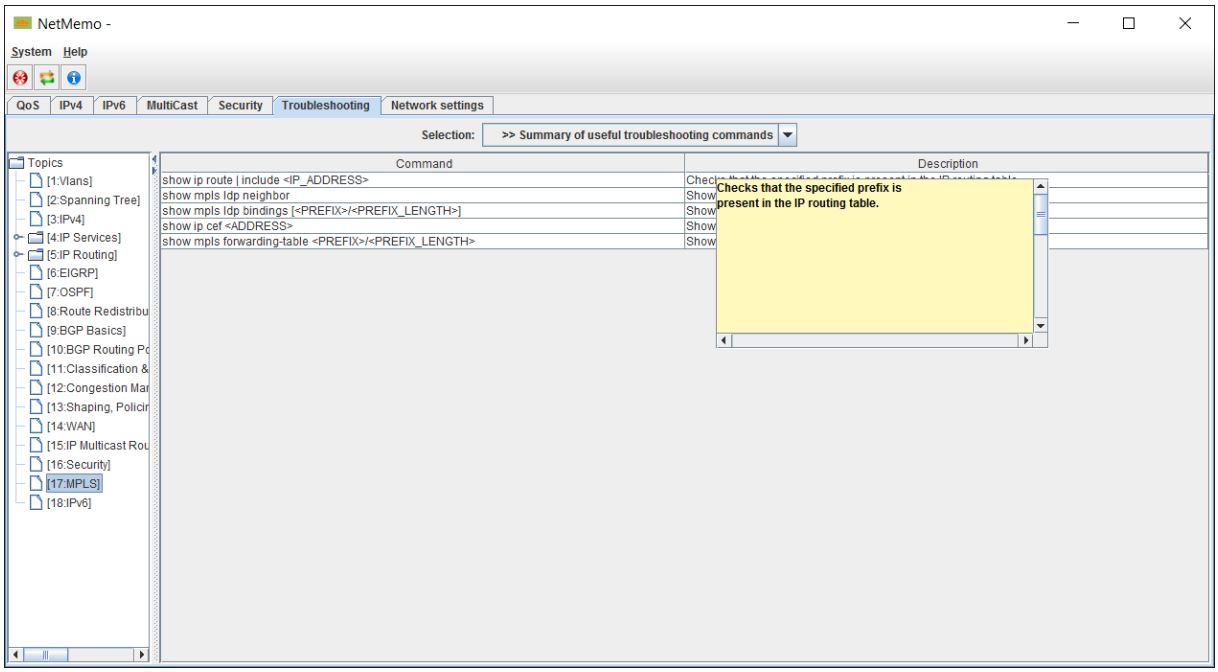

Figure 12 - A view of the Troubleshooting commands feature

Network settings

The IPv4 is the seventh tab in NetMemo. This tab provides the user with a view of the networking settings of his computer.

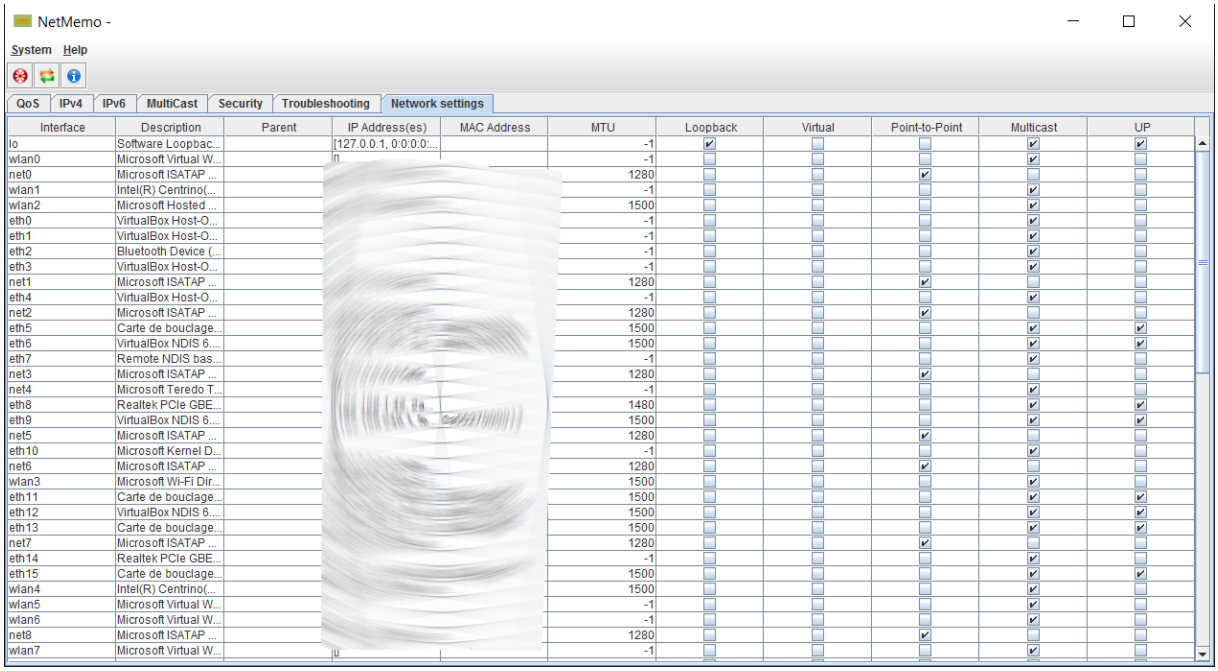

Figure 13 - A view of the Network settings tab