

## USE OF Rb941-2nd ROUTERBOARD MICROTIC USING ON LAN NETWORK LABORATORY

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**ABSTRACT**

The use of the Internet as a learning medium has no doubt made a good contribution in terms of getting learning references. Sometimes there are no user settings in the internet network that is built to make misuse on the internet. Not infrequently it also happens at the Royal Kisaran STMIK Computer Network Laboratory. Then you need to provide administrator settings in network management to avoid bandwidth overload, for example. Furthermore, a Network Development Life Cycle (NDLC) approach is needed in terms of design and implementation that is compatible with the concept of LAN networks. So that the configuration of the Rb941-2nD Mikrotik Routerboard will create a LAN network that already has a user administrator.

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## INTRODUCTION

The use of the internet in the world of learning is very much needed by academics to support the teaching and learning process. Like wise in learning carried out at the STMIK Royal computer network laboratory whose internet connection has been through the Rb750 microtia media with bus network topologies that are in Local Area Network (LAN) networks. On a Local Area Network, called a LAN, known as a computer network using a cable as a media liaison so that several computers can communicate with each other [1]. Local Area Network is a computer network whose network only covers a small area, such as campus, school, building, office computer networks, in the home, or smaller [2]. However, the operation has not maximally utilized the features of the proxy. So there is still a bandwidth overload that results in disproportionate internet networks.

Mikrotik is the operating system and software used to function a computer as a router [3]. Mikrotik functions to monitor connections in a computer network. Mikrotik is a vendor that provides operating systems and hardware that are useful in building a reliable router. A router is a tool that works to send data packets over the network. The way a router works is by looking at the destination address and the origin address of a data packet that passes through it and decides the route that the data packet must use to get to the destination address [4].

So here the Rb941-2nD microtia configuration is made higher than the previous microtia configuration. By making user authentication and bandwidth limits because users are required to authenticate [5]. Mikrotik routers provide functions for captive portals that can be defined as authentication and security techniques for data passing from the internal network to the external network (internet) [6].

The purpose of an Rb941-2nD microtia configuration carried out on a LAN network computer laboratory consisting of several computers connected in a network [7] to organize or regulate which networks may access and are not allowed to access, and can also limit ports which can enter and exit through the Router, to protect the network [8], can improve network performance can also increase the security side of the network [9] in supporting computer network management [10],[11].

Simply put the Rb941-2nD microtia configuration connected to the internet in the STMIK Royal Kisaran computer network laboratory can provide effective and optimal results to facilitate administrators in managing the network to remain stable and provide maximum results.

## METHOD

This research was conducted using the NDLC (Network Development Life Cycle) approach which is a method that relies on previous development processes such as the application development life cycle and data distribution analysis. In the NDLC method, the author only uses the stages of analysis, design, and implementation. The technique that the authors do:

1. Observation, which is to make observations on the computer network STMIK Royal Range to get an overview of the existing problems
2. Interview, namely conducting a question and answer with the laboratory assistant to obtain the information needed in this study
3. Literature, which is studying data that has been collected, and theories, journals relating to the proxy, LAN networks, user administrators in this study.

After the data has been collected, the authors do the network topology design needed to build data transmission patterns, then implement it with proxy settings through the *winbox application*, perform automatic addressing, user authentication, and DHCP Server settings and test to see if the internet connection is in line with user needs, if not, the improvements will be made so that the network can be used immediately.

## RESULT AND DISCUSSION

The author makes direct observations at the STMIK Royal Kisaran computer network laboratory and performs the analysis phase in the form of a series of computer networks and then designs the network topology. The results of the study of how many configurations are done in installing the proxy Windows operating system router using a DHCP network type, it requires internet protocol (IP) settings on the client computer so

that it can be connected to the local network. The client gets an IP address from the DHCP server. To find out the connection has been connected to a network server, you can use the "*ipconfig*" command in the CMD command prompt application available on the client operating system. To find out the server is connected to the internet can use the command "*ping*" website address for example "*ping google.com*" on the new terminal winbox proxy. A series of computer networks using microphones that are built can be described as follows:



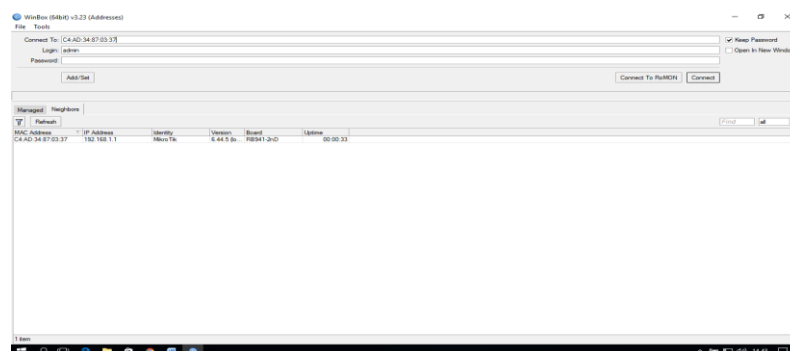
**Figure 1. Network Topology**

ISP's internet service from Telkom speedy and proxy used Rb941 series that is connected to the hub and from the hub is connected to most computers. The data used for the Mikrotik Rb941 configuration can be seen in Table 1 as follows :

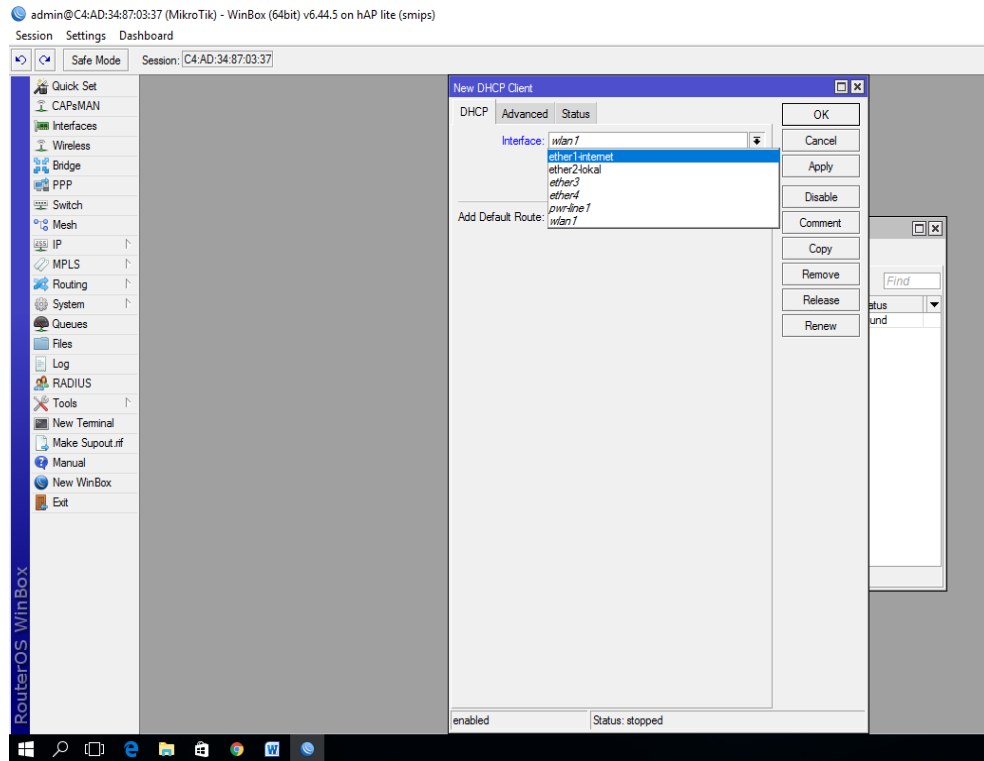
**Table 1. IP Address Data**

No	Data	IP Address	Description
1	Either1 (Internet Modem Address)	192.168.1.1/24	Can be changed
2	Either2 (User IP Address)	DHCP	Can be changed
3	Internet DNS	8.8.8.8 8.8.4.4	Can be changed

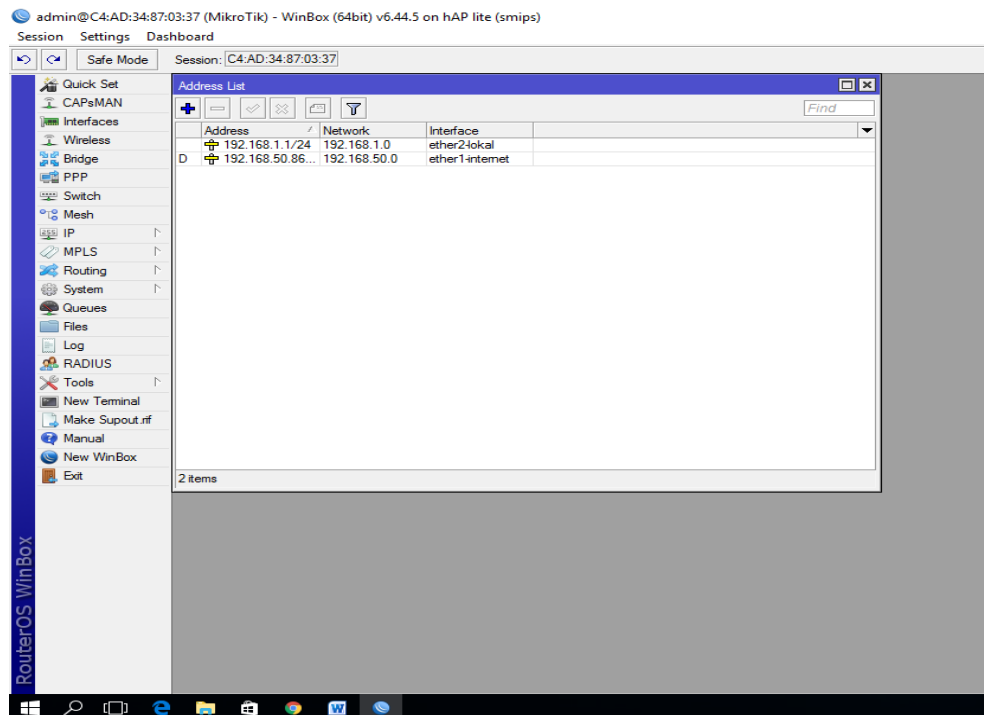
The stages of implementing IP Address data configuration through the Winbox application can be seen in Figure 2 through Figure 5 as follows :



**Figure 2. Initial Display of Winbox**



**Figure 3. Display after connecting with Mikrotik Rb941**



**Figure 4. Display IP Address Data**

Then you can set IP - DNS settings and check to Allow Remote Request, DHCP Server - DHCP Setup, IP - Routers - from either2 input IP 192.168.1.0/24 as the default gateway, IP - Firewall - NAT and reboot the system. Then the internet network connection can be accessed on all computer networks.

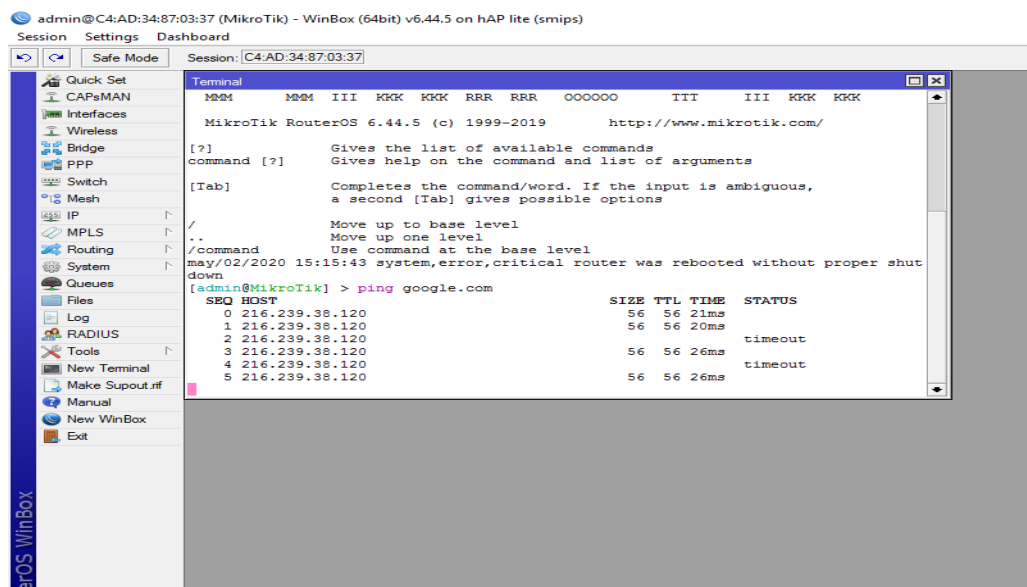


Figure 5. Successful Display of Internet Access

## CONCLUSION

The implementation of Rb941 proxy use on LAN networks with the Winbox application for configuration and the application of user authentication can be concluded that the internet network is connected from the modem to the LAN network via Rb941 proxy, internet access users cannot directly connect the internet because there is user authentication to avoid internet access that is illegal and the speed of the internet network is more stable due to bandwidth limitations that make it easier for administrators to manage computer networks.

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