

## ABSTRACT

The increasing usage of internet network had an impact in decreasing the number of registered Internet Protocol (IP) in the internet. With Network Address Translation (NAT) method that had been implemented in many Internet Service Provider (ISP), Small Office Home Office (SOHO) and middle up company, the usage of registered Internet Protocol in the internet can be efficiently used. NAT works in the way by modifying the IP header so that the private network that use the unregistered Internet Protocol can communicates with the internet network. This technology had been a barrier for the use of security mechanism in the IP layer, in this case is Internet Protocol Security (IPsec), which has the main goals to protect the data integrity and confidentiality in the IP layer. To fulfil the needs of security in te IP layer in the computer network that implemented NAT, it require changes in IPsec work mechanism so it is not necessary to changes the NAT work mechanism that had been implemented.

Keywords : NAT, IPsec, IP layer security, work mechanism