
ABSTRACT

The continued development of technology in the computer network, resulting in things that unreasonably interfere with computer network security becomes increasingly higher. Therefore, it is necessary network security management. One of the concepts of network security management that can detect attacks or intrusions as early as possible with a systematic detection is the Intrusion Detection System. IDS (Intrusion Detection System) is a network security system that monitoring the network traffic and monitoring of suspicious activities or illegal acts within a network system.

In this final project, designed and simulated an Intrusion Detection System application system which is equipped with an adaptive learning capabilities by applying the method of Multilayer Perceptron. Intrusion dataset from NSL-KDD is used as input data for training and simulation. Training is done with two strands, namely with the overall training data and with reduced training dataset. The process of training using Levenberg-Marquardt Backpropagation algorithm. While the process simulation using a test dataset.

Multilayer Perceptron final topology to the whole training dataset is 25 neurons in a hidden layer with mse 0.00362, and for reduced training datasets are 2 hidden layers with 40 neurons and 10 neurons with mse 0.00297. In the test of topology as result from overall training dataset training, the accuracy for the normal class is 82.5% and for the accuracy of the attack is 77.3%. As for the testing topology of reduced training dataset of training results, the accuracy for the normal class is 93.5% and for the accuracy of the attack is 92.56%.

Keywords: Intrusion Detection System, Network Security, Neural Networks, Multilayer Perceptron.