Abstract

The task of developing Intrusion Detection System (IDS) crucially depends on the preprocessing along with selecting important data features of it. Another crucial factor is design of efficient learning algorithm that classify normal and anomalous patterns. The objective of this research work is to propose a new and better version of the Naive Bayes classifiers that improves the accuracy of intrusion detection in IDS. The proposed classifier is also supposed to take less time as compared with the existing classifiers. To gain better accuracy and fast processing of network traffic, this study applied three standard methods of feature selection. This study tested the performance of the new proposed classifier algorithm with existing classifiers, namely Naïve bayes, J48 and REPTree thereby measuring different performance parameters using 10-fold cross validation. This study evaluates the performance of the new proposed classifier algorithm by using NSL-KDD data set. Empirical results of our study show that the proposed updated version of the Naive Bayes classifiers gives better results in terms of intrusion detection and false alarm rate.
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Index Terms

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Keywords

Machine learning; Intrusion Detection System (IDS); Naïve Bayes algorithm; Feature selection; NSL KDD data set