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R-Killer: An Email-Based Ransomware Protection Tool

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Abstract : Ransomware has become a common threat in past few years and the recent threat reports show an increase of growth in Ransomware infections. Researchers have identified different variants of Ransomware families since 2015. Lack of knowledge of the user about the threat is a major concern. Ransomware detection methodologies are still growing through the industry. Email is the easiest method to send Ransomware to its victims. Uninformed users tend to click on links and attachments without much consideration assuming the emails are genuine. As a solution to this in this paper R-Killer Ransomware detection tool is introduced. Tool can be integrated with existing email services. The core detection Engine (CDE) discussed in the paper focuses on separating suspicious samples from emails and handling them until a decision is made regarding the suspicious mail. It has the capability of preventing execution of identified ransomware processes. On the other hand, Sandboxing and URL analyzing system has the capability of communication with public threat intelligence services to gather known threat intelligence. The R-Killer has its own mechanism developed in its Proactive Monitoring System (PMS) which can monitor the processes created by downloaded email attachments and identify potential Ransomware activities. R-killer is capable of gathering threat intelligence without exposing the user's data to public threat intelligence services, hence protecting the confidentiality of user data.

Keywords : ransomware, deep learning, recurrent neural networks, email, core detection engine
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