

A Review of Information Security Ontology

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Abstract

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The research community realize the need for a standard and formal specification of the domain Information Security in order to ensure a clear understanding amongst the researchers in different areas of the domain Information Security. Thus, the need for Information Security Ontology which has over the years evolved from merely providing domain definitions and classifications to enabling sophisticated decision-making and automation. This paper is a review of some of the work done in developing and supporting the ontology for the domain of Information Security. The review highlights the definitions, concepts, relationships, methodologies, tools, applications and issues related to Information Security Ontology.

1. Introduction

The most basic concept in Information Security can be stated as safeguarding of information as an asset and its confidentiality, integrity and availability. This concept and more can be specified in detail and their relations shown with the use of an ontology for Information Security. The domain of Information Security is an interesting, albeit a vast one which include the areas of incident handling [], risk assessment [], cryptography [] and disaster recovery [] to name a few. These areas can be detailed further which include terms such as threats, vulnerabilities, attacks, encryption, denial of service, root-kits, virus, malicious code and many more []. As is clear with these examples, their existence is acknowledged but without any relationships or classifications between them.

An ontology recognizes and classifies these areas and terms as concepts [] or classes [] as well as the relationships between them. The detailed description of a concept is known as its properties or slots []. With the use of reasoning tools and an ontology, inferences can be made to automatically discover knowledge or solutions to support decision-making and problem-solving tasks. The Web Ontology Language (OWL) is available for developing the ontology and there are tools also available for reasoning and querying.

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2. Conclusion

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Acknowledgment

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References

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