can select the metric values of the required metrics from the dropdown menus in the enhance CVSS v2 calculator. This will show the remaining choices of possible user environments to reduce the severity of the vulnerability.

6. Conclusion

Mitigation of the affects of vulnerabilities is the foremost objective of the security management of an organization. Due to the large number of possible combinations of values of temporal and environmental metric values, the selection of optimum environmental characteristics has been a difficult and time consuming process. Time plays a very important role in vulnerabilities mitigation. Accurate and timely mitigation of the vulnerabilities can not only reduce the severity of the vulnerabilities, but can also help organizations to meet certain business standards. The practical software tool expands the functionality of available CVSS calculators in the way that makes the estimation of possible overall CVSS scores manageable, and is expected to assist organizations in making informed risk management decisions. This software application will be freely available to organizations.

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8. References

[1] Assad Ali, Pavol Zavarsky, Dale Lindskog, Ron Ruhl, "A Software Application to Analyze the Effects of Temporal and Environmental Metrics on Overall CVSS v2 Score," in Proceeding of WorldCIS-2011 Conference. London, UK, 2011, pp. 123-127.

[2] K. Scarfone and P. Mell, "An Analysis of CVSS Version 2 Vulnerability Scoring," National Institute of Standards and Technology (NIST), Oct. 2009.

[3] P. Mell, K. Scarfone, S. Romanosky, "CVSS: A Complete Guide to the Common Vulnerability Scoring System Version 2.0", National Institute of Standards and Technology, June 2006.

[4] National Vulnerability Database version 2.2, National Institute of Standards and Technology (NIST), http://nvd.nist.gov/home.cfm (27 November, 2010).

[5] Payment Card Industry Data Security Standard (PCI DSS): Technical and Operational Requirements for Approved Scanning Vendors, Sept. 2006, https:// www.pcisecuritystandards.org/pdfs/pci_dss_technical _and_operational_requirements_for_approved_scanni ng_vendors_ASVs_v1-1.pdf, (27 November, 2010).

[6] Ch. Frühwirth and T. Männistö, "Improving CVSS-based vulnerability prioritization and response with context information," Helsinki University of Technology, Finland, Oct. 2009.

[7] M. R. Chandramouli, T. Grance, R. Kuhn, and S. Landau," Common Vulnerability Scoring System," IEEE Computer Society, November 2006.

[8] S. H. Houmb and V. N. L. Franqueira, "Estimating ToE Risk Level using CVSS," Information Systems Group, CTIT, University of Twente, Drienerlolaan, Enschede, The Netherlands, March 2009.

[9] L. Gallon, "On the impact of environmental metrics on CVSS score," The Second IEEE International Conference on Privacy, Security, Risk and Trust, August 2010, Minneapolis, Minnesota, USA.

[10] M. Terada, "Recurring decimal issue in CVSS v2.0 calculator", Information-Technology Promotion Agency, Japan, January 2010.

[11] Payment Card Industry (PCI) Data Security Standard, Technical and Operational Requirements for Approved Scanning Vendors (ASVs), Version 1.1, September 2006 https://www. pcisecurit ystandards. org/pdfs/pci_dss_technical_and_operational_requirem ents_for_approved_scanning_vendors_ASVs_v1-1.pdf.

[12] Payment Card Industry (PCI) Data Security Standard, Requirements and Security Assessment Procedures, Version 2.0, October 2010, https://www. Pcisecurity standards.org/documents/pci_dss_v2.pdf, (27 March, 2011).

[13] National Vulnerability Database, "Vulnerability Summary for CVE-2010-0111," http://web.nvd .nist. gov/view/vuln/detail?vulnId=CVE-2010-0111, (27 March, 2011).

[14] Security Tracker Archives, Security Tracker Alert ID: 1024997, http://securitytracker.com/id/1024997, (27 March, 2011).

