SSL Security in Browser plug-in: Managing the list of CAs

Nikhil Khatu, Yuri Kolesnikov {ngkhatu, ykolesn}@ncsu.edu

3/5/2013

Abstract

Write a brief overview of your project idea here.

1 Related Work

Certified lies: Detecting and defeating government interception attacks against ssl (short paper) - [24] Improved Approach on Modeling and Reasoning about PKI/WPKI - [30] Ten risks of PKI: What you're not being told about public key infrastructure - [5] The Web Accessibility Crisis of the Korea's Electronic Government: Fatal Consequences of the Digital Signature Law and Public Key Certificate - [17] Evaluating certification authority security - [12] Public Key Superstructure - [26] Introduction to public key technology and the federal PKI infrastructure - [13] Finding the PKI needles in the Internet haystack - [16] PKI scalability issues - [23] Trusted paths for browsers - [29] PKI seeks a trusting relationship - [8] Why phishing works - [4] Do security toolbars actually prevent phishing attacks? - [28] Client-side defense against webbased identity theft - [3] Browser interfaces and extended validation SSL certificates: an empirical study - [2] Phishing forbidden - [1] Building anti-phishing browser plugins: An experience report - [18] A Scheme to improve security of SSL - [7] Network security: private communication in a public world - [11] Access control meets public key infrastructure, or: Assigning roles to strangers - [6] Mitigating Man in the Middle Attack over Secure Sockets Layer - [9] Trust Darknet:Control and Compromise in the Internet's Certificate Authority Model - [19] Stronger Password Authentication Using Browser Extensions - [20] Do Security Toolbars Actually Prevent Phishing Attacks - [27] PhishGuard: A Browser Plugin-in for protection from Phishing - [10] Learning of Personalized Security Settings - [22] VeriKey: A Dynamic Certificate Verification System for Public Key Exchanges - [21] Design of a plug in for browser against phishing and spoofing attacks - [25] A Solution to Phishing and Pharming Attacks - [14] Shining Chrome: Using Web Browser Personas to Enhance SSL Certificate Visualization [15]

References

- [1] N. Agarwal, S. Renfro, and A. Bejar. Phishing forbidden. *Queue*, 5(5):28–32, 2007.
- [2] R. Biddle, P. Van Oorschot, A. S. Patrick, J. Sobey, and T. Whalen. Browser interfaces and extended validation ssl certificates: an empirical study. In *Pro*ceedings of the 2009 ACM workshop on Cloud computing security, pages 19–30. ACM, 2009.
- [3] N. Chou, R. Ledesma, Y. Teraguchi, D. Boneh, and J. C. Mitchell. Client-side defense against webbased identity theft. In 11th Annual Network and Distributed System Security Symposium (NDSS04). San Diego, USA, 2004.

- [4] R. Dhamija, J. D. Tygar, and M. Hearst. Why phishing works. In *Proceedings of the SIGCHI conference on Human Factors in computing systems*, pages 581–590. ACM, 2006.
- [5] C. Ellison and B. Schneier. Ten risks of pki: What you're not being told about public key infrastructure. *Comput Secur J*, 16(1):1–7, 2000.
- [6] A. Herzberg, Y. Mass, J. Mihaeli, D. Naor, and Y. Ravid. Access control meets public key infrastructure, or: Assigning roles to strangers. In Security and Privacy, 2000. S&P 2000. Proceedings. 2000 IEEE Symposium on, pages 2–14. IEEE, 2000.
- [7] Z. Huawei and L. Ruixia. A scheme to improve security of ssl. In *Circuits, Communications and Sys*tems, 2009. PACCS'09. Pacific-Asia Conference on, pages 401–404. IEEE, 2009.
- [8] A. Jøsang, I. Pedersen, and D. Povey. Pki seeks a trusting relationship. In *Information Security and Privacy*, pages 191–205. Springer, 2000.
- [9] Y. Joshi, D. Das, and S. Saha. Mitigating man in the middle attack over secure sockets layer. In *Internet Multimedia Services Architecture and Applications* (IMSAA), 2009 IEEE International Conference on, pages 1–5, Dec.
- [10] Y. Joshi, S. Saklikar, D. Das, and S. Saha. Phishguard: A browser plug-in for protection from phishing. In *Internet Multimedia Services Architecture* and Applications, 2008. *IMSAA* 2008. 2nd International Conference on, pages 1–6, Dec.
- [11] C. Kaufman, R. Perlman, and M. Speciner. *Network security: private communication in a public world*. Prentice Hall Press, 2002.
- [12] S. Kent. Evaluating certification authority security. In *Aerospace Conference*, *1998 IEEE*, volume 4, pages 319–327. IEEE, 1998.
- [13] D. R. Kuhn, V. C. Hu, W. T. Polk, and S.-J. Chang. Introduction to public key technology and the federal pki infrastructure. Technical report, DTIC Document, 2001.
- [14] O. MahMood. Custom plugin a solution to phishing and pharming attacks. In *Proceedings of the 2006 World Congress in Computer Science, Computer Engineering, and Applied Computing*, pages 32–38. World Congress In Computer Science, 2006.
- [15] M. Maurer, A. Luca, and T. Stockinger. Shiningchrome: Using web browser personas to enhance ssl certificate visualization. In *Human-Computer Interaction*, pages 44–51, 2011.

- [16] M. Pala and S. W. Smith. Finding the pki needles in [29] Z. E. Ye, S. Smith, and D. Anthony. Trusted paths the internet haystack. Journal of Computer Security, 18(3):397–420, 2010.
- [17] H. M. Park. The web accessibility crisis of the korea's electronic government: Fatal consequences of the digital signature law and public key certificate. In System Science (HICSS), 2012 45th Hawaii International Conference on, pages 2319-2328. IEEE, 2012.
- [18] T. Raffetseder, E. Kirda, and C. Kruegel. Building anti-phishing browser plug-ins: An experience report. In Proceedings of the Third International Workshop on Software Engineering for Secure Systems, page 6. IEEE Computer Society, 2007.
- [19] S. Roosa and S. Schultze. Trust darknet: Control and compromise in the internet and certificate authority model. volume PP, pages 1–1.
- [20] B. Ross, C. Jackson, N. Miyake, D. Boneh, and J. Mitchell. Stronger password authentication using browser extensions. page 15. Stanford Crypto, 2005.
- [21] M. Sharifi, E. Fink, and J. Carbonell. Verikey: A dynamic certificate verification system for public key exchanges. In Detections of Intrusions and Malware, and Vulnerability Assessment, pages 44-63, Jul 2008.
- [22] M. Sharifi, E. Fink, and J. Carbonell. Learning of personalized security settings. In Systems Man and Cybernetics (SMC), 2010 IEEE International Conference on, pages 3428–3432, Oct.
- [23] A. J. Slagell and R. Bonilla. Pki scalability issues. arXiv preprint cs/0409018, 2004.
- [24] C. Soghoian and S. Stamm. Certified lies: Detecting and defeating government interception attacks against ssl (short paper). Financial Cryptography and Data Security, pages 250-259, 2012.
- [25] A. Upadhyaya. Design of a plugin for a browser against phishing and spoofing attacks. World Journal of Science, 2:30-33, 2012.
- [26] S. Wilson. Public key superstructure. 2008.
- [27] M. Wu, R. Miller, and S. Garfinkel. Do security toolbars actually prevent phishing. 2006.
- [28] M. Wu, R. C. Miller, and S. L. Garfinkel. Do security toolbars actually prevent phishing attacks? In Proceedings of the SIGCHI conference on Human Factors in computing systems, pages 601-610. ACM, 2006.

- for browsers. ACM Transactions on Information and System Security (TISSEC), 8(2):153–186, 2005.
- [30] M. Zhang, X. Zheng, S. Lv, and Y. Yu. Improved approach on modeling and reasoning about pki/wpki. In Wireless Communications Networking and Mobile Computing (WiCOM), 2010 6th International Conference on, pages 1-4. IEEE, 2010.