# OWASP Top Ten 2013

## FINAL Release

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OWASP

June 2013



**The OWASP Foundation**
http://www.owasp.org/

# #whoami

## OWASP Testing Guide v3

- 4.2.1 "Spiders/Robots/Crawlers"
- 4.2.2 "Search Engine Reconnaissance"

## OWASP "Google Hacking" Project

- "Download Indexed Cache" PoC

Presented at

- .au, EU and USA OWASP Conferences
- London (.uk) Sydney (.au) and Melbourne (.au) Chapters

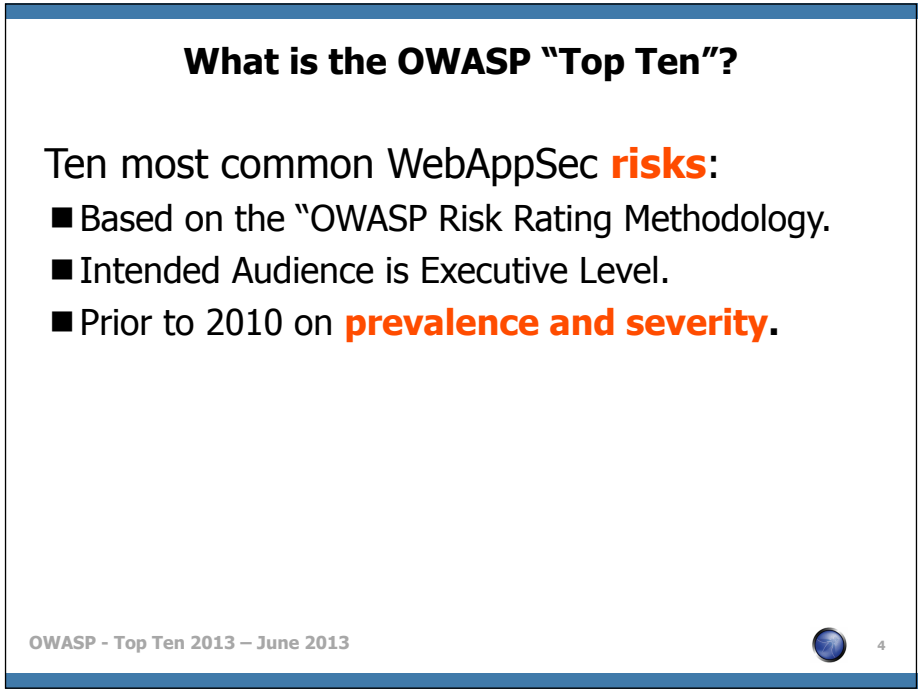
http://www.owasp.org/index.php/user:cmlh



## OWASP Top Ten 2013

1. What is the OWASP Top Ten?
2. Additions from the OWASP Top Ten 2013
   - Using Components with Known Vulnerabilities
3. OWASP Top Ten Risk Rating Methodology
4. Timeline from Release Candidate (RC) to Final
5. When **Not** to Cite the OWASP Top Ten?
   - Application Security Verification Standard (ASVS)
6. Politics of the OWASP Top Ten






By "Risk" OWASP are referring to "Severity" in my opinion.

OWASP should consider promoting ASVS over then the OWASP "Top Ten" 2013 to an Executive Level Audience in my opinion.

Prior OWASP Top 10 Releases are 2003, 2004, 2007 and 2010

## What is the OWASP "Top Ten"?

Statistics of vulnerabilities contributed by:

- Aspect Security
- MITRE
- White Hat
- Veracode
- Minded Security
- HP (Fortify and WebInspect)
- Trustwave





Quoted from "Attribution" of **https://www.owasp.org/index.php/Top_10_2013-Introduction**

## Differences between 2003 and 2004

| New Top Ten 2004 | Top Ten 2003 |
|---|---|
| A1 Unvalidated Input | A1 Unvalidated Parameters |
| A2 Broken Access Control | A2 Broken Access Control (A9 Remote Administration Flaws) |
| A3 Broken Authentication and Session Management | A3 Broken Account and Session Management |
| A4 Cross Site Scripting (XSS) Flaws | A4 Cross Site Scripting (XSS) Flaws |
| A5 Buffer Overflows | A5 Buffer Overflows |
| A6 Injection Flaws | A6 Command Injection Flaws |
| A7 Improper Error Handling | A7 Error Handling Problems |
| A8 Insecure Storage | A8 Insecure Use of Cryptography |
| A9 Denial of Service | N/A |
| A10 Insecure Configuration Management | A10 Web and Application Server Misconfiguration |



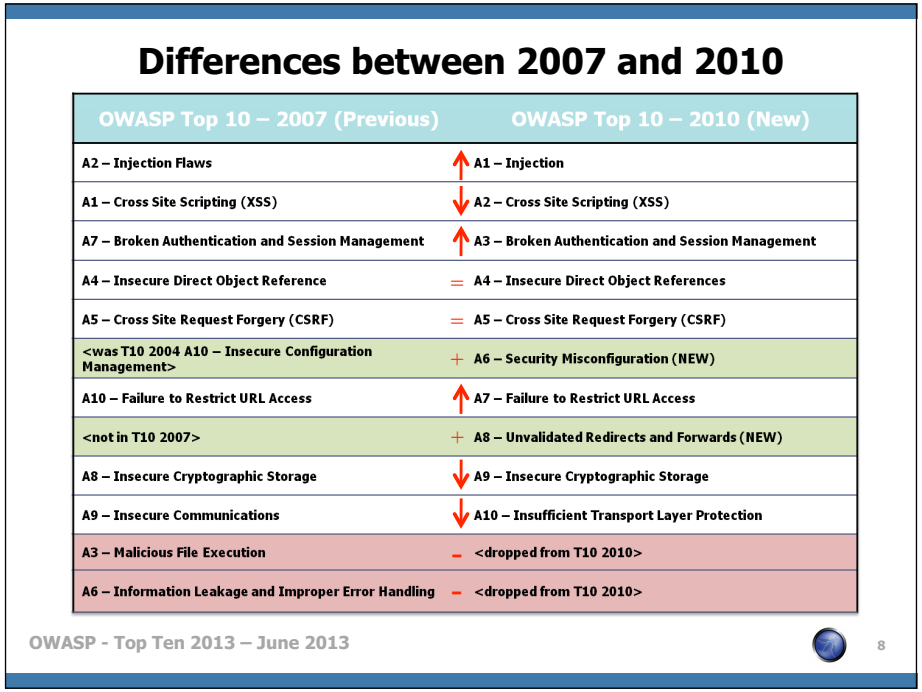
Picture exported from Table at **https://www.owasp.org/index.php/2004_Updates_OWASP_Top_Ten_Project**

## Differences between 2004 and 2007

| OWASP Top 10 2007 | OWASP Top 10 2004 |
|---|---|
| A1 - Cross Site Scripting (XSS) | A4 - Cross Site Scripting (XSS) |
| A2 - Injection Flaws | A6 - Injection Flaws |
| A3 - Malicious File Execution (NEW) | |
| A4 - Insecure Direct Object Reference | A2 - Broken Access Control (split in 2007 T10) |
| A5 - Cross Site Request Forgery (CSRF) (NEW) | |
| A6 - Information Leakage and Improper Error Handling | A7 - Improper Error Handling |
| A7 - Broken Authentication and Session Management | A3 - Broken Authentication and Session Management |
| A8 - Insecure Cryptographic Storage | A8 - Insecure Storage |
| A9 - Insecure Communications (NEW) | Discussed under A10 - Insecure Configuration Management |
| A10 - Failure to Restrict URL Access | A2 - Broken Access Control (split in 2007 T10) |
| <removed in 2007> | A1 - Unvalidated Input |
| <removed in 2007> | A5 - Buffer Overflows |
| <removed in 2007> | A9 - Denial of Service |
| <removed in 2007> | A10 - Insecure Configuration Management |



Picture exported from Table at **`http://www.owasp.org/index.php/Top_10_2007-Methodology`**



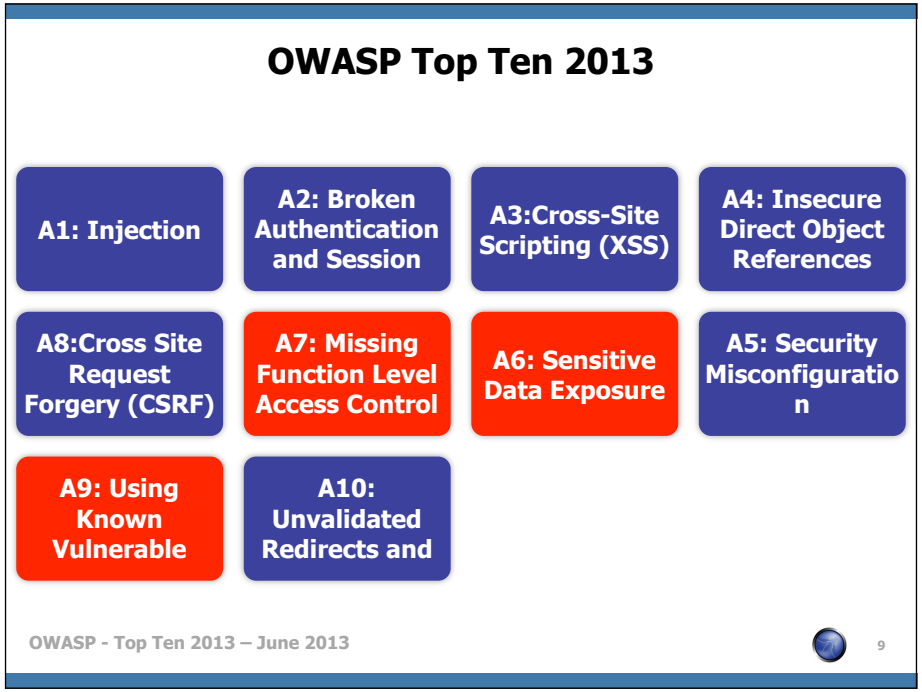

Removed A3 - Malicious File Execution
Decreasing popularity of PHP.
Considered within A6 – Security Misconfiguration post publication of the 2010 Release Candidate i.e. “I'm OK with sneaking PHP RFI back in to the Top 10 as a configuration item that is now covered under A6 - Security Misconfiguration.” quoted from “[Owasp-topten] RFI taken out” thread on OWASP Top Ten Mailing List.

Removed A6 – Information Leakage
Not considered high risk, i.e. severity, and should be mitigated by A6 – Security Misconfiguration
My thoughts are it should be consider due to errors in SQL Injection and is listed in “Additional Risks to Consider” of FINAL Release

Added A6 - Security Misconfiguration
Reintroduced from Top Ten 2004 “A.10 Insecure Configuration Management” due to residual risk

Added A8 – Unvalidatied Forwards and Redirects
Introduced as these vulnerabilities are not well known

Attribution for Image:
AppSec_DC_2009_-_OWASP_Top_10_-_2010_rc1.pptx




A9 are new and highlighted in red.

A6 through to A7 should have also been highlighted in light blue since there are merged and/or split from 2010

## Comparison with 2003, 2004, 2007 and 2010 Releases

| OWASP Top Ten Entries (Unordered) | Releases | | | | |
|---|---|---|---|---|---|
| | 2003 | 2004 | 2007 | 2010 | 2013 |
| Unvalidated Input | A1 | A1[9] | × | × | × |
| Buffer Overflows | A5 | A5 | × | × | × |
| Denial of Service | × | A9[2] | × | × | × |
| Injection | A6 | A6[3] | A2 | A1[10] | A1 |
| Cross Site Scripting (XSS) | A4 | A4 | A1 | A2 | A3 |
| Broken Authentication and Session Management | A3 | A3 | A7 | A3 | A2 |
| Insecure Direct Object Reference | × | A2 | A4[11] | A4 | A4 |
| Cross Site Request Forgery (CSRF) | × | × | A5 | A5 | A8 |
| Security Misconfiguration | A10 | A10[3][5] | × | A6 | A5 |
| Missing Functional Level Access Control | A2 | A2[1] | A10[13] | A8 | A7[16] |
| Unvalidated Redirects and Forwards | × | × | × | A10 | A10 |
| Information Leakage and Improper Error Handling | A7 | A7[14][4] | A6 | A6[8] | × |
| Malicious File Execution | × | × | A3 | A6[8] | × |
| Sensitive Data Exposure | A8 | A8[6][5] | A8 | A7 | A6[17] |
| Insecure Communications | × | A10 | A9[7] | A9 | × |
| Remote Administration Flaws | A9 | × | × | × | × |
| Using Known Vulnerable Components | × | × | × | × | A9 [18][19] |



[1] Renamed “Broken Access Control” from T10 2003
[2] Split “Broken Access Control” from T10 2003
[3] Renamed “Command Injection Flaws” from T10 2003
[4] Renamed “Error Handling Problems” from T10 2003
[5] Renamed “Insecure Use of Cryptography” from T10 2003
[6] Renamed “Web and Application Server ” from T10 2003
[7] Split “Insecure Configuration Management” from T10 2004
[8] Reconsidered during T10 2010 Release Candidate (RC)
[9] Renamed “Unvalidated Parameters” from T10 2003
[10] Renamed “Injection Flaws” from T10 2007
[11] Split “Broken Access Control” from T10 2004
[12] Renamed “Insecure Configuration Management” from T10 2004
[13] Split “Broken Access Control” from T10 2004
[14] Renamed “Improper Error Handling” from T10 2004
[15] Renamed “Insecure Storage” from T10 2004
[16] Renamed “Failure to Restrict URL Access” from T10 2010
[17] Renamed “Insecure Cryptographic Storage” from T10 2010
[18] Split “Insecure Cryptographic Storage” from T10 2010
[19] Split “Security Misconfiguration” from T10 2010

## Comparison to SANS/MITRE CVE Top 25

| OWASP Top Ten 2010 | 2011 Top 25 |
|---|---|
| A1 - Injection | CWE-89, CWE-78 |
| A2 - Cross Site Scripting (XSS) | CWE-79 |
| A3 - Broken Authentication and Session Management | CWE-306, CWE-307, CWE-798 |
| A4 - Insecure Direct Object References | CWE-862, CWE-863, CWE-22, CWE-434, CWE-829 |
| A5 - Cross Site Request Forgery (CSRF) | CWE-352 |
| A6 - Security Misconfiguration | CWE-250, CWE-732 |
| A7 - Insecure Cryptographic Storage | CWE-327, CWE-311, CWE-759 |
| A8 - Failure to Restrict URL Access | CWE-862, CWE-863 |
| A9 - Insufficient Transport Layer Protection | CWE-311 |
| A10 - Unvalidated Redirects and Forwards | CWE-601 |
| (not in 2010 OWASP Top Ten) | The following CWE entries are not directly covered by the OWASP Top Ten 2010: CWE-120, CWE-134, CWE-807, CWE-676, CWE-131, CWE-190. |



Image from http://cwe.mitre.org/top25/#AppendixD

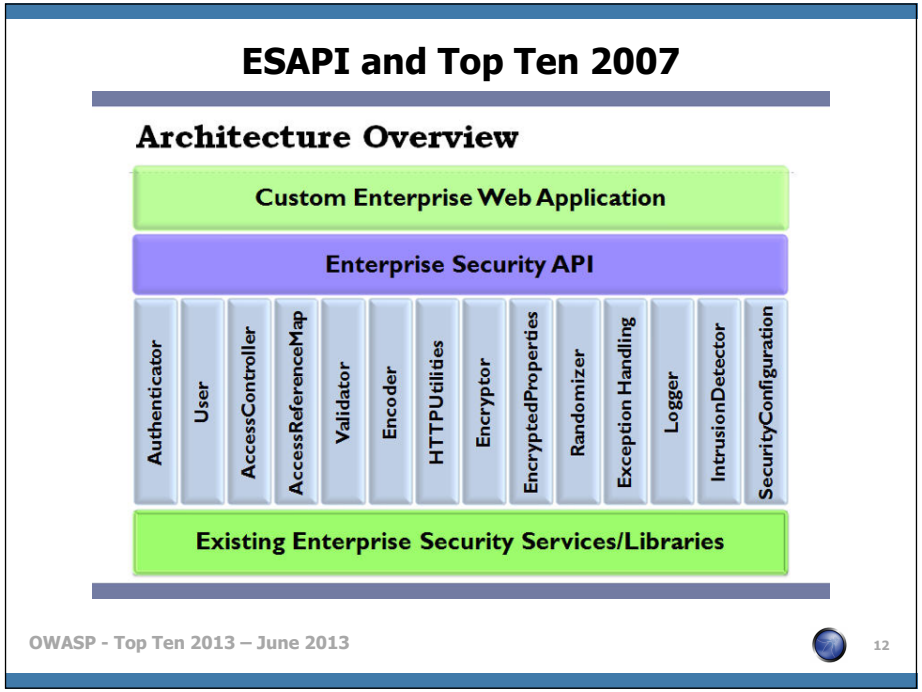
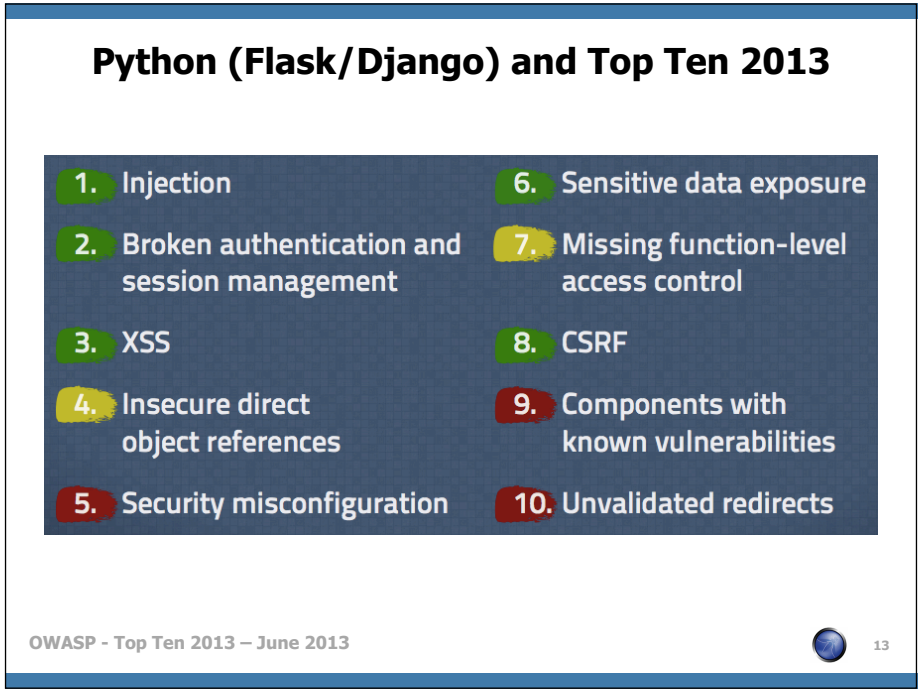
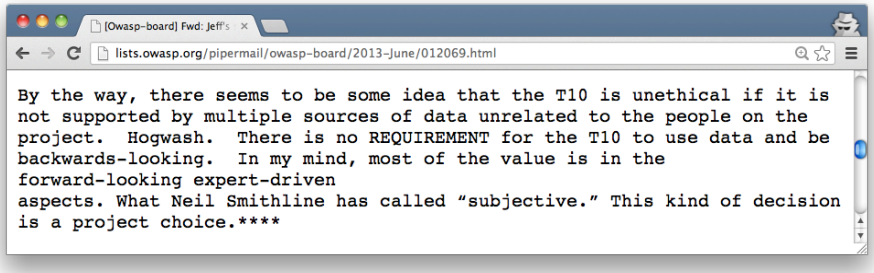



Image from `http://owasp-esapi-java.googlecode.com/svn/trunk_doc/1.4/org/owasp/esapi/doc-files/Architecture.jpg`




Quoted from **https://speakerdeck.com/jacobian/python-vs-the-owasp-top-10**

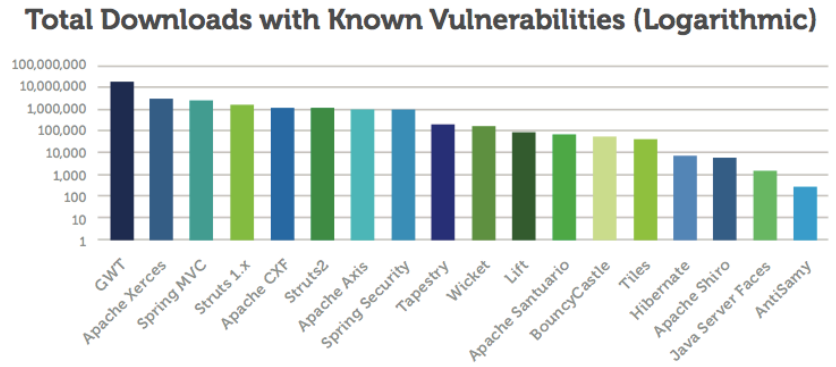
## Politics of A9






Quoted from **http://lists.owasp.org/pipermail/owasp-board/2013-June/012069.html**

## Politics of A9



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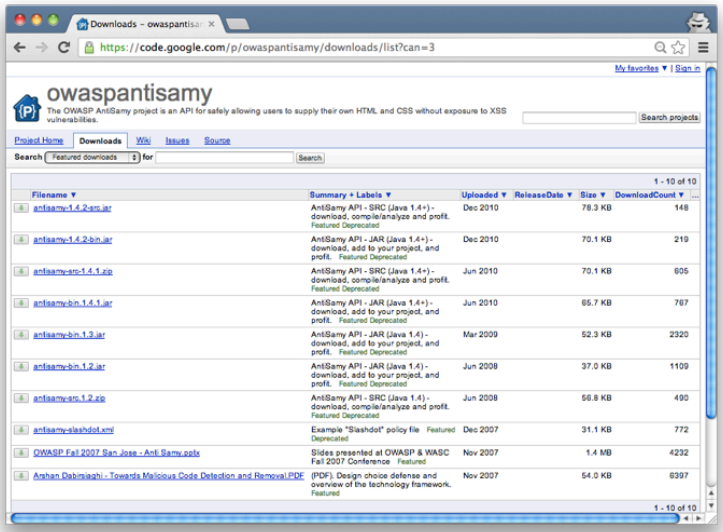
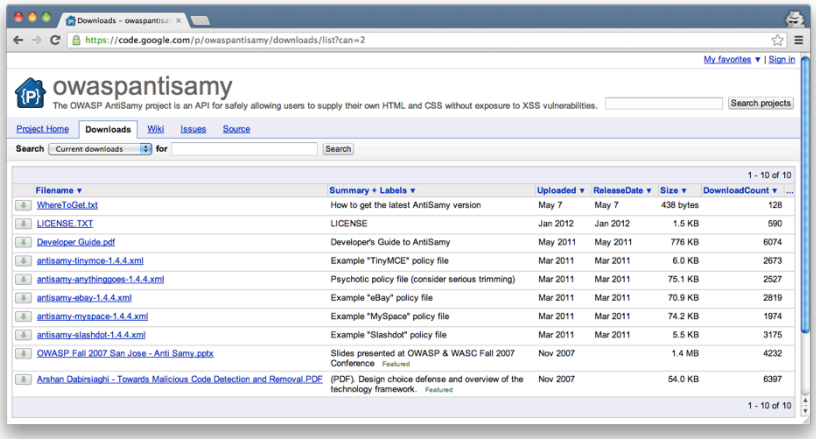
## Politics of A9

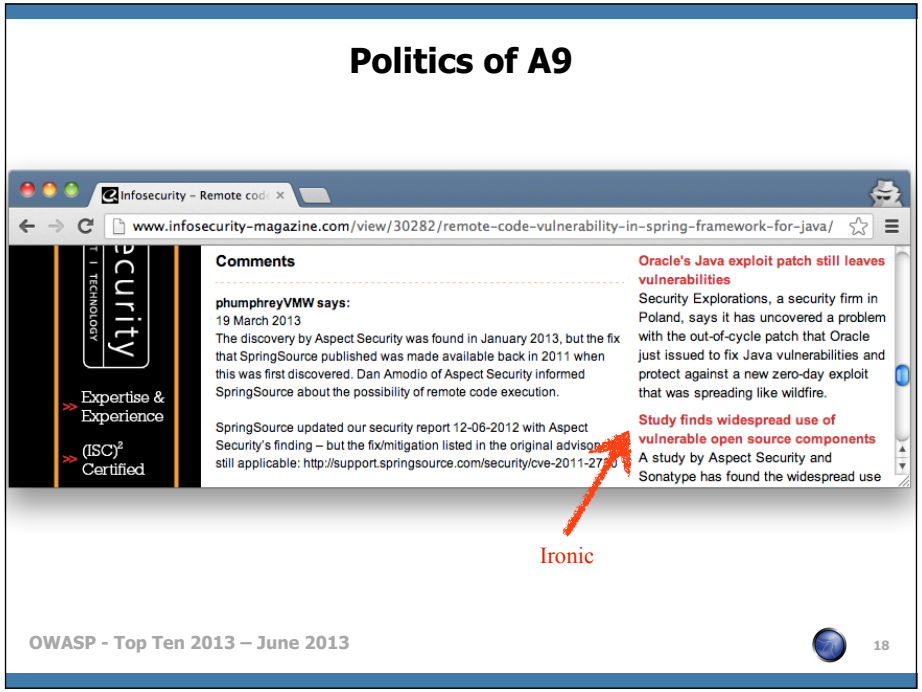




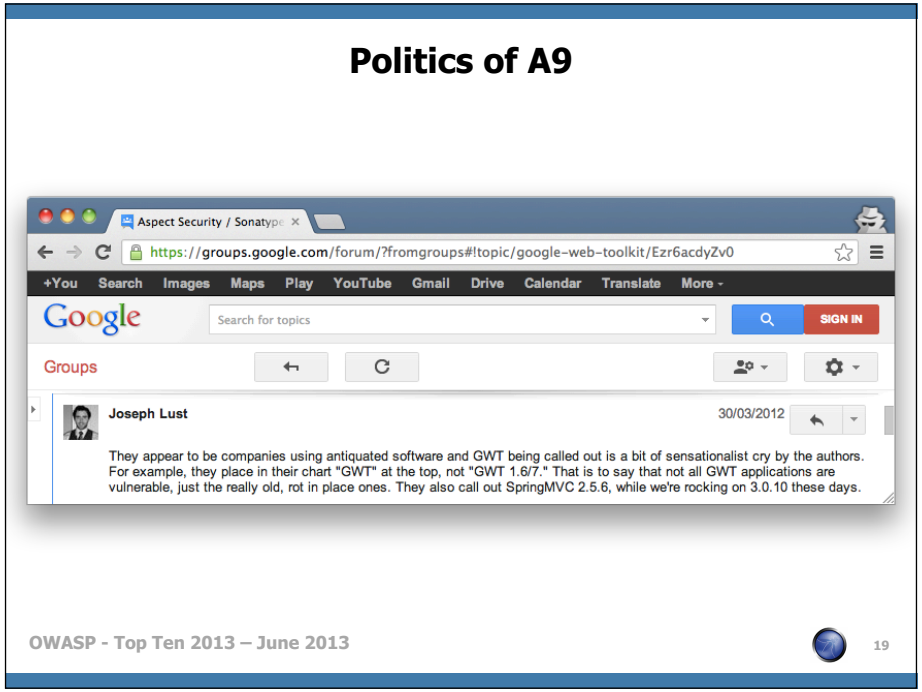

TODO - Magnify "Featured" and "Deprecated" Tags

# Politics of A9



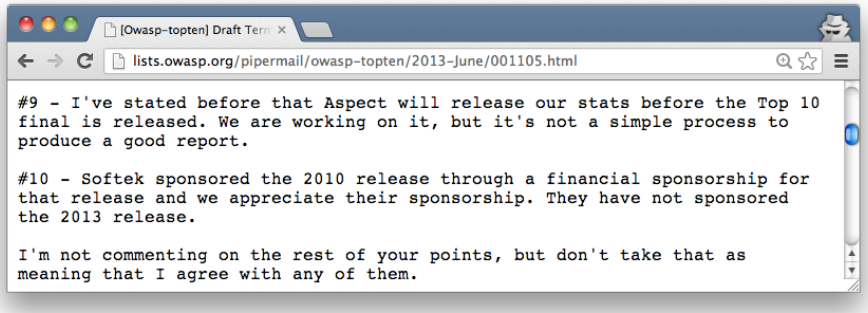



Quoted from **http://www.infosecurity-magazine.com/view/30282/remote-code-vulnerability-in-spring-framework-for-java/**




Quoted from **https://groups.google.com/forum/?fromgroups#!topic/google-web-toolkit/Ezr6acdyZv0**

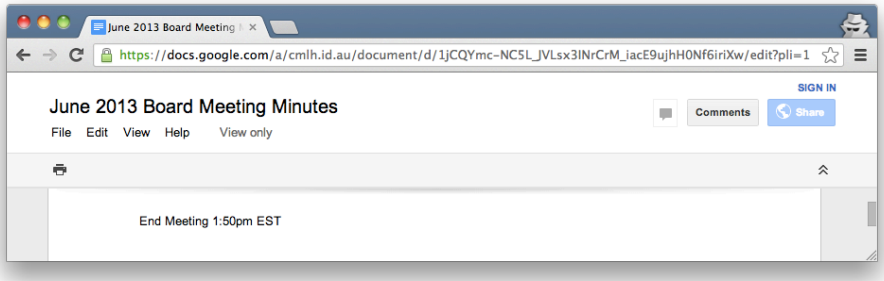
## Politics of A9

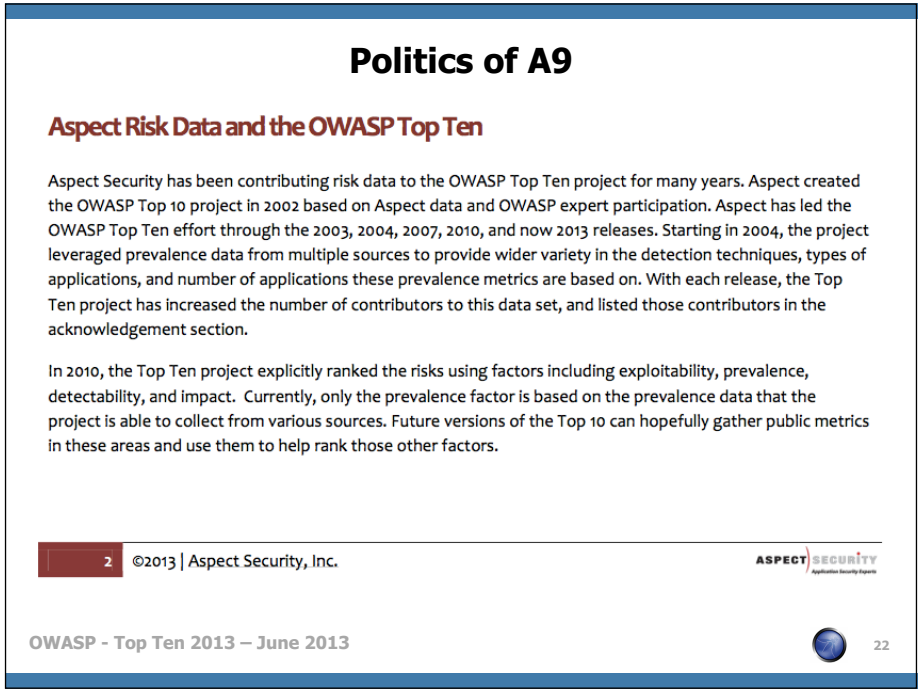





Quoted from **http://lists.owasp.org/pipermail/owasp-topten/2013-June/001105.html**

# Politics of A9






Quoted from **`Aspect-2013-Global-AppSec-Risk-Report.pdf`**

## Politics of A9

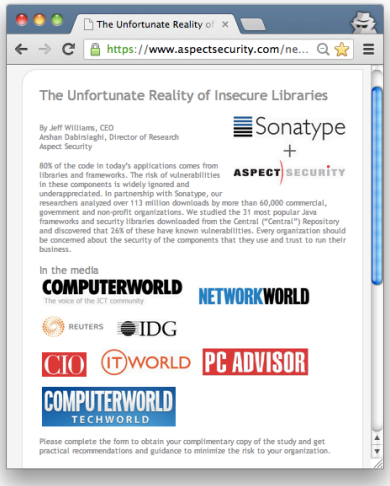
```
cmlh$ openssl sha1 Aspect-2013-Global-AppSec-Risk-Report.pdf
SHA1(Aspect-2013-Global-AppSec-Risk-Report.pdf)= e3e7e0793a311f079161d082a874042ee0bd498

cmlh$ pdfinfo Aspect-2013-Global-AppSec-Risk-Report.pdf
Title:          Global Application Security Risk Report
Author:         Jeff Williams
Creator:        Microsoft? Word 2010
Producer:       Microsoft? Word 2010
CreationDate:   Mon Jun 10 14:59:01 2013
ModDate:        Mon Jun 10 14:59:01 2013
Tagged:         yes
Form:           none
Pages:          13
Encrypted:      no
Page size:      612 x 792 pts (letter)
File size:      845806 bytes
Optimized:      no
PDF version:    1.5
```



Quoted from **http://lists.owasp.org/pipermail/owasp-topten/2013-June/001141.html**

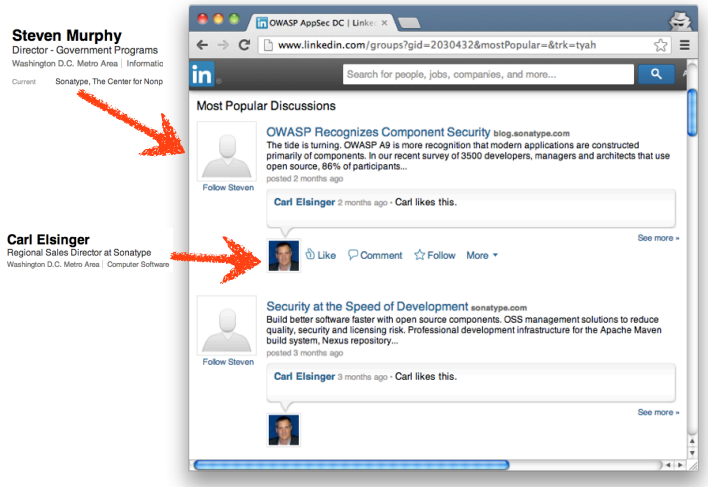
## Politics of A9






Quoted from **https://www.aspectsecurity.com/news/the-unfortunate-reality-of-insecure-libraries/**

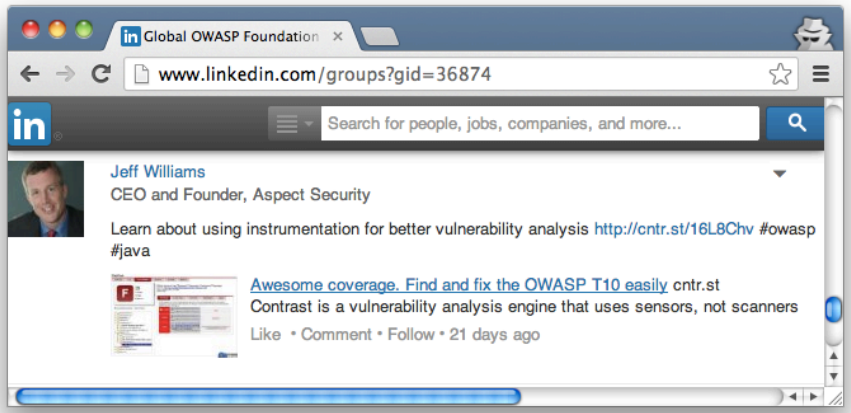
# Politics of A9






Quoted from **http://www.linkedin.com/groups?gid=2030432&mostPopular=&trk=tyah**

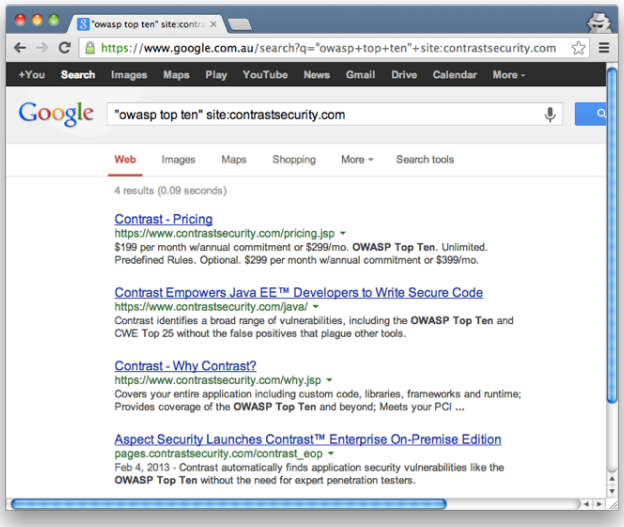
## Politics of A9





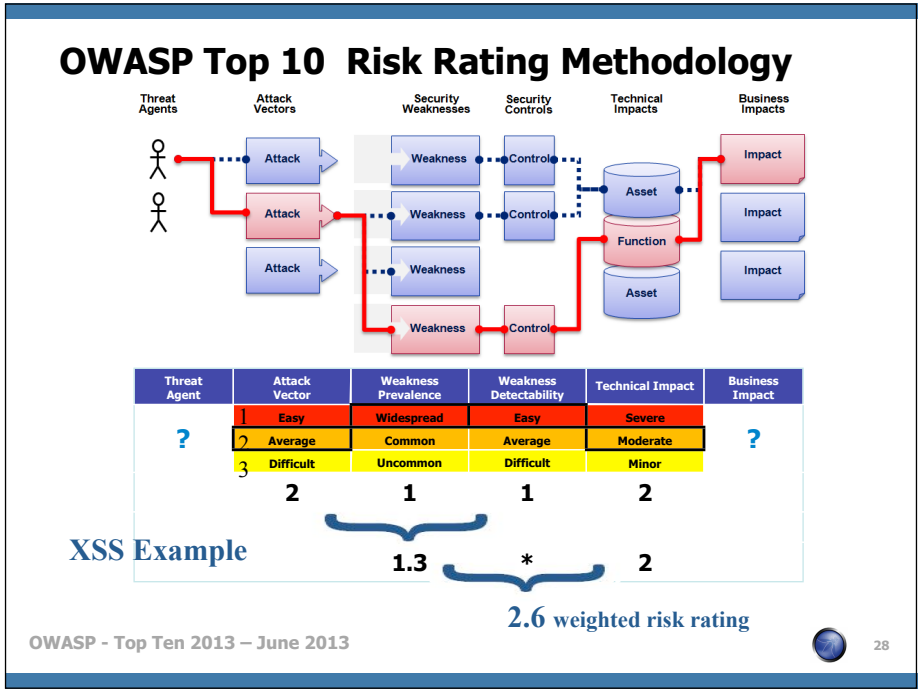

Quoted from **http://www.linkedin.com/groups?gid=36874**

## Politics of A9






Quoted from **https://www.google.com.au/search?q=%22owasp+top+ten%22+site:contrastsecurity.com** on 3 September 2013.




The OWASP Top Ten Risk Rating Methodology is slightly different from the OWASP Risk Rating Methodology.

Coincidently the OWASP Top Ten Risk Rating Methodology hasn't been updated for three (3) years.

By "Risk" OWASP are referring to "Severity" in my opinion.

"OWASP Risk Rating Methodology" is an implementation of 4360 and not CVSS in my opinion.

"Threat Agents" and "Business Impact" can only be measured by "environmental" metrics and hence do not represent "risk" but "severity".

Metrics should be grouped as per CVSSv2, i.e. "Base, Temporal and Environmental".

Listing via a residual risk was discussed for the 2007 Release.

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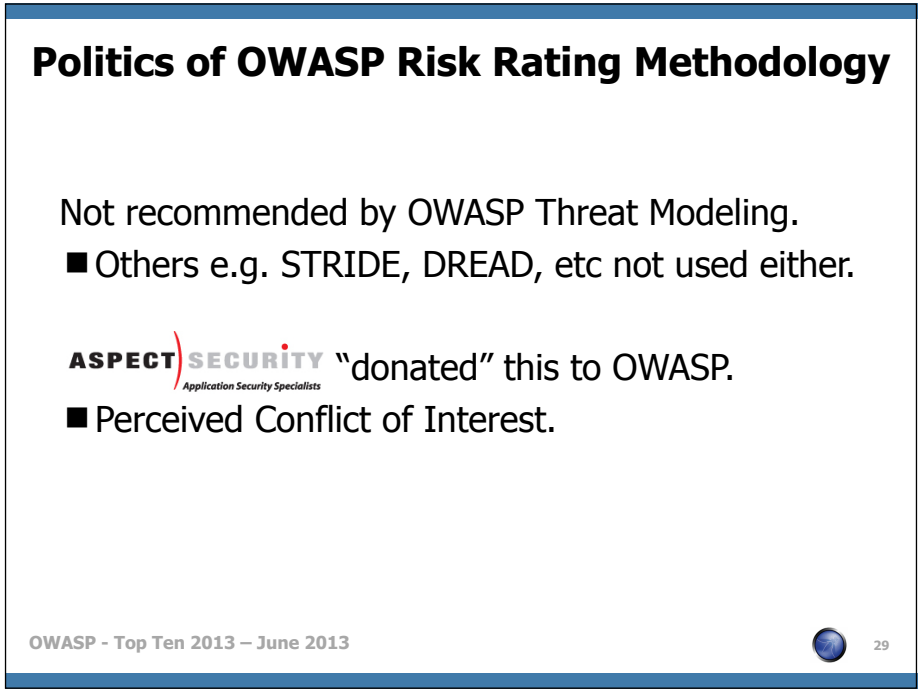



**http://www.owasp.org/index.php/Threat_Risk_Modeling**

"When Aspect uncovers a vulnerability in our client's software, we take great care to clearly describe to our client the likelihood of an attacker exploiting this vulnerability and the impact to their business. In order to help others properly analyze the risk associated with software vulnerabilities, we published a simple, yet expressive system for rating risk." Quoted from http://www.aspectsecurity.com/appsec_docs.html

The "STRIDE" acronym stands for "Spoofing Identity", "Tampering with Data", "Repudiation", "Information Disclosure", "Denial of Service" and "Elevation of Privilege" and further information is available from http://msdn.microsoft.com/en-us/library/aa302418(v=MSDN.10).aspx and http://msdn.microsoft.com/library/ms954176.aspx

The "DREAD" acronym stands for "Damage Potential", "Reproducibility", "Exploitability", "Affected Users" and "Discoverability" and further information is available from http://msdn.microsoft.com/en-us/library/aa302419.aspx and http://blogs.msdn.com/david_leblanc/archive/2007/08/13/dreadful.aspx

## When *Not* to Cite the OWASP Top Ten?

PCI DSS and PA-DSS

- Cited (incorrectly) as OWASP "Guide"
- Payment Applications (PA) are TANDEM, etc based.
  - Exception is Web Server within LPAR

"Platform Security – Facebook Developer Wiki"





**http://wiki.developers.facebook.com/index.php/Platform_Security**

## When *Not* to Cite the OWASP Top Ten?

Web Application Firewall (WAF) and other Vendors:

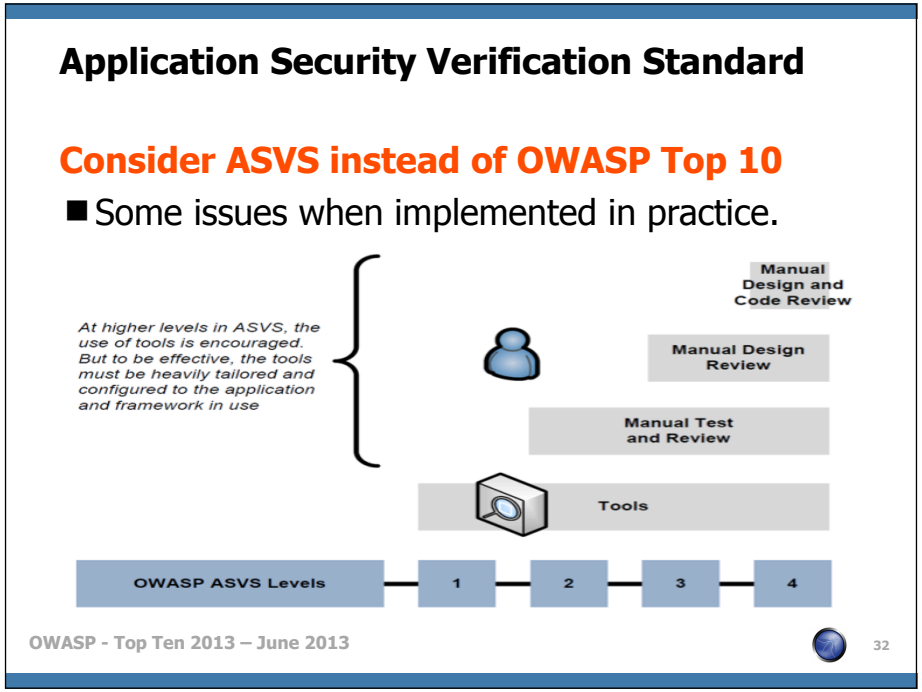
- WAF don't address root causes
- Mark Curphey (OWASP Founder) raised abuse issue.
- AvdS suggested OWASP T10 Certification Scheme

webappsec "blackbox" or "whitebox" pen testing RFTs



**http://seclists.org/webappsec/2005/q3/11** is reference for "Mark Curphey (OWASP Founder) raised abuse issue"

**https://lists.owasp.org/pipermail/owasp-topten/2006-July/000238.html** is reference for "AvdS suggested OWASP T10 Certification Scheme"




http://www.owasp.org/index.php/Category:OWASP_Application_Security_Verification_Standard_Project

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## Internal OWASP Politics of the Top Ten

Against OWASP "Builders not Breakers" Directive

Justified as "Awareness" for Executive audience

- ASPECT SECURITY Application Security Specialists generate "not for profit" revenue



"We started to see that participation in OWASP allowed Aspect to demonstrate our skills in a very constructive way, and many of our customers have contacted us after seeing our participation in OWASP." quoted from **http://www.owasp.org/index.php/User:Jeff_Williams**

# Further Information

## URLs Published by OWASP

http://www.owasp.org/index.php/Category:OWASP_Top_Ten_Project

http://lists.owasp.org/mailman/listinfo/owasp-topten

## URLs Aggregated by cmlh

http://deli.cio.us/cmlh/OWASP.Top.Ten

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