Security Toolbox for .NET Development and Testing

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OWASP

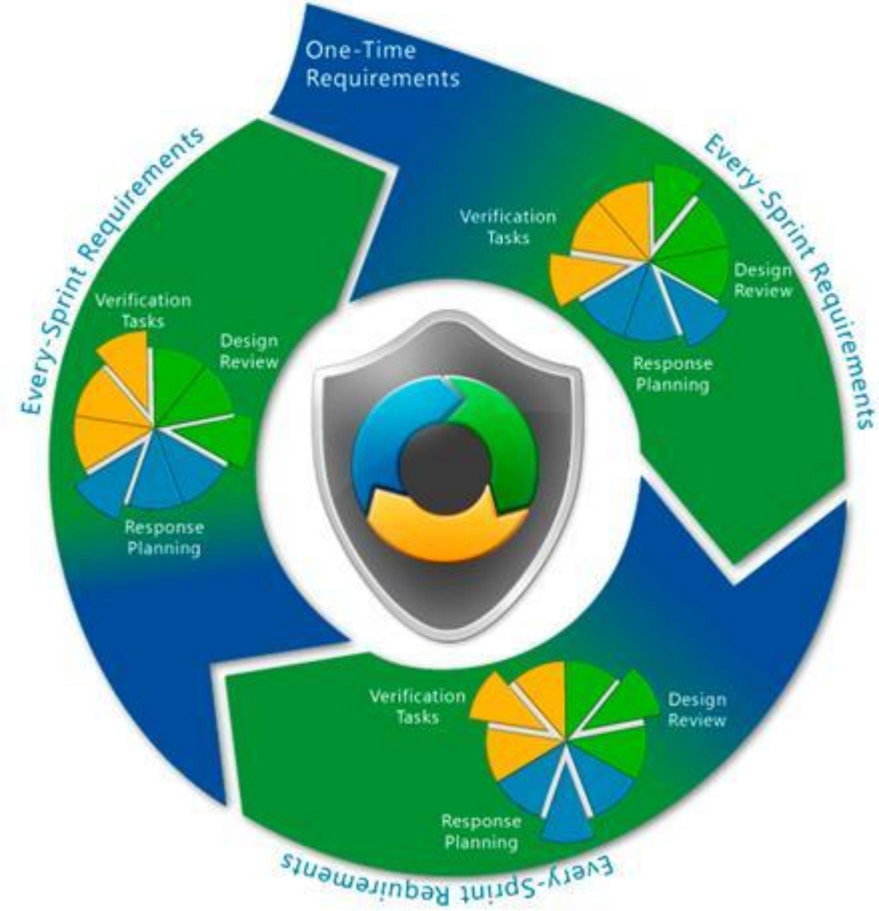
The OWASP Foundation
http://www.owasp.org

Security: When and what?

- Design
- Development
- Testing
- Secure by design
- Secure by default

MSF Agile + SDL 5.0
in
Team Foundation Server

+ SDL Threat Modeling Tool


One-Time Requirements
Every-Sprint Requirements
Verification Tasks
Design Review
Response Planning
Every-Sprint Requirements
Verification Tasks
Design Review
Response Planning
Every-Sprint Requirements
Verification Tasks
Design Review
Response Planning

WPL

- Web Protection Library
- AntiXSS
  - White Lists
  - Secure Globalization
- Security Runtime Engine
  - Cross Site Scripting
  - SQL Injections

Static Code Analysis

- FxCop
  - Analysis of performance, design and security issues
  - Primarily focused on Code Access Security

″Have you used security features the right way?″

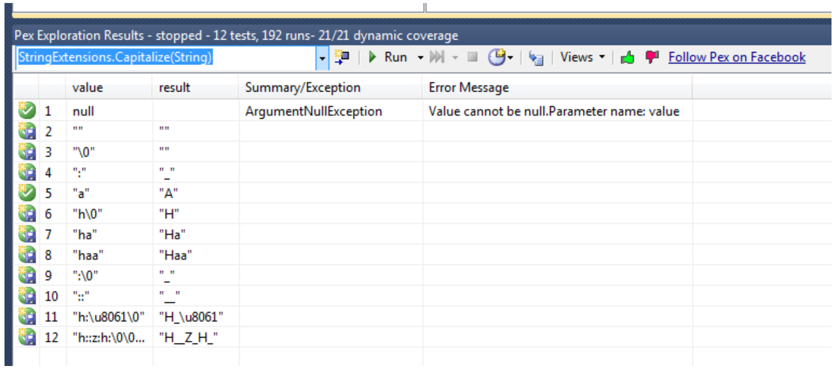
- CAT.NET - Code Analysis Tool
  - Previously only and internal tool

″Have you written your other features securely?″

Pex and Moles

- Pex automatically generates test suites
  - High code coverage
  - Interesting input/output values

- Moles allows to replace .NET methods with delegates

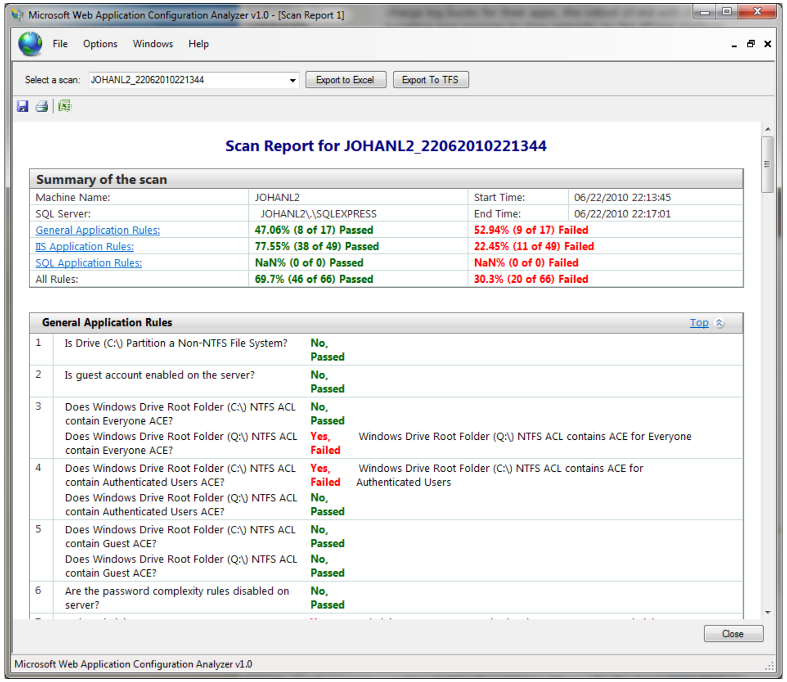


Pex Exploration Results - stopped - 12 tests, 192 runs- 21/21 dynamic coverage

		value	result	Summary/Exception	Error Message
✓	1	null		ArgumentNullException	Value cannot be null.Parameter name: value
	2	""	""		
	3	"\0"	""		
	4	":"	"_"		
✓	5	"a"	"A"		
	6	"h\0"	"H"		
	7	"ha"	"Ha"		
	8	"haa"	"Haa"		
	9	":\0"	"_"		
	10	"::"	"__"		
	11	"h:\u8061\0"	"H_\u8061"		
	12	"h::z:h:\0\0...	"H__Z_H_"		

WACA

- Web Application Configuration Analyzer
  - CAT.NET 2.0
  - IIS and .NET Framework
  - SQL Server
  - Windows Permissions
- Export report
  - Excel, HTML, TFS
- Remote scans


Microsoft Web Application Configuration Analyzer v1.0 - [Scan Report 1]
File
Options
Windows
Help
Select a scan: JOHANL2_22062010221344
Export to Excel
Export To TFS
Close
Microsoft Web Application Configuration Analyzer v1.0

Scan Report for JOHANL2_22062010221344

Summary of the scan			
Machine Name:	JOHANL2	Start Time:	06/22/2010 22:13:45
SQL Server:	JOHANL2\.\SQLEXPRESS	End Time:	06/22/2010 22:17:01
General Application Rules:	47.06% (8 of 17) Passed	52.94% (9 of 17) Failed	
IIS Application Rules:	77.55% (38 of 49) Passed	22.45% (11 of 49) Failed	
SQL Application Rules:	NaN% (0 of 0) Passed	NaN% (0 of 0) Failed	
All Rules:	69.7% (46 of 66) Passed	30.3% (20 of 66) Failed	

General Application Rules — Top

1	Is Drive (C:\) Partition a Non-NTFS File System?	No, Passed	
2	Is guest account enabled on the server?	No, Passed	
3	Does Windows Drive Root Folder (C:\) NTFS ACL contain Everyone ACE?	No, Passed	
	Does Windows Drive Root Folder (Q:\) NTFS ACL contain Everyone ACE?	Yes, Failed	Windows Drive Root Folder (Q:\) NTFS ACL contains ACE for Everyone
4	Does Windows Drive Root Folder (C:\) NTFS ACL contain Authenticated Users ACE?	Yes, Failed	Windows Drive Root Folder (C:\) NTFS ACL contains ACE for Authenticated Users
	Does Windows Drive Root Folder (Q:\) NTFS ACL contain Authenticated Users ACE?	No, Passed	
5	Does Windows Drive Root Folder (C:\) NTFS ACL contain Guest ACE?	No, Passed	
	Does Windows Drive Root Folder (Q:\) NTFS ACL contain Guest ACE?	No, Passed	
6	Are the password complexity rules disabled on server?	No, Passed	

CodeContracts

- Express coding assumptions
  - Pre-conditions
  - Post-conditions
  - Object invariants

- Static and runtime checking

- Documentation Generation

How to keep updated!

blogs.msdn.com/securitytools

msdn.microsoft.com/security

msdn.microsoft.com/practices

www.codeplex.com

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