# OWASP Testing Guide

Martin Knobloch
martin.knobloch@owasp.org

OWASP NL Chapter Board

OWASP Global Education Committee
OWASP Education Project

OWASP



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

# Welcome to the OWASP Testing Guide v3!

- July 14, 2004, Version 1.0

  "OWASP Web Application Penetration Checklist"

- December 25, 2006

  "OWASP Testing Guide", Version 2.0

- November, 2008

  "OWASP Testing Guide" , Version 3.0

- January, 2011

  "OWASP Testing Guide" , Version 4.0

# Testing Guide v3.0 Project Roadmap

- 26th April 2008: start the new project
  - OWASP Leaders brainstorming
  - Call for participation → 21 authors
  - Index brainstorming
  - Discuss the article content
- 20th May 2008 →New draft Index
- 1st June 2008 → Let's start writing!
- 27th August 2008 → started the reviewing phase
- October 2008 → Review all the Guide
- End of November 2008 →Published the Guide! (347pages +80!)

OWASP Summer of Code 2008

# Objectives for version 3.0

- Improve, update, complete v2
- Create a complete new project focused on Web Application Penetration Testing
- Create a reference for application testing
- Describe the OWASP Testing methodology

# Testing Guide v3: Index



# What's new?

- V2→ 8 sub-categories (for a total amount of 48 controls)
- V3 →10 sub-categories (for a total amount of 66 controls)
- 36 new articles!

- Information Gathering
- Business Logic Testing
- Authentication Testing
- Session Management Testing
- Data Validation Testing
- Denial of Service Testing
- Web Services Testing
- Ajax Testing

- Information Gathering
- **Config. Management Testing**
- Business Logic Testing
- Authentication Testing
- **Authorization Testing**
- Session Management Testing
- Data Validation Testing
- Denial of Service Testing
- Web Services Testing
- Ajax Testing
- **Encoded Appendix**

# Status and Future Steps

- Discuss how to integrate the Develop, Code Review, Testing, ASVS and ASDR Guide

Building Guide

Code Review Guide

Testing Guide

ASVS

Application Security Desk Reference (ASDR)

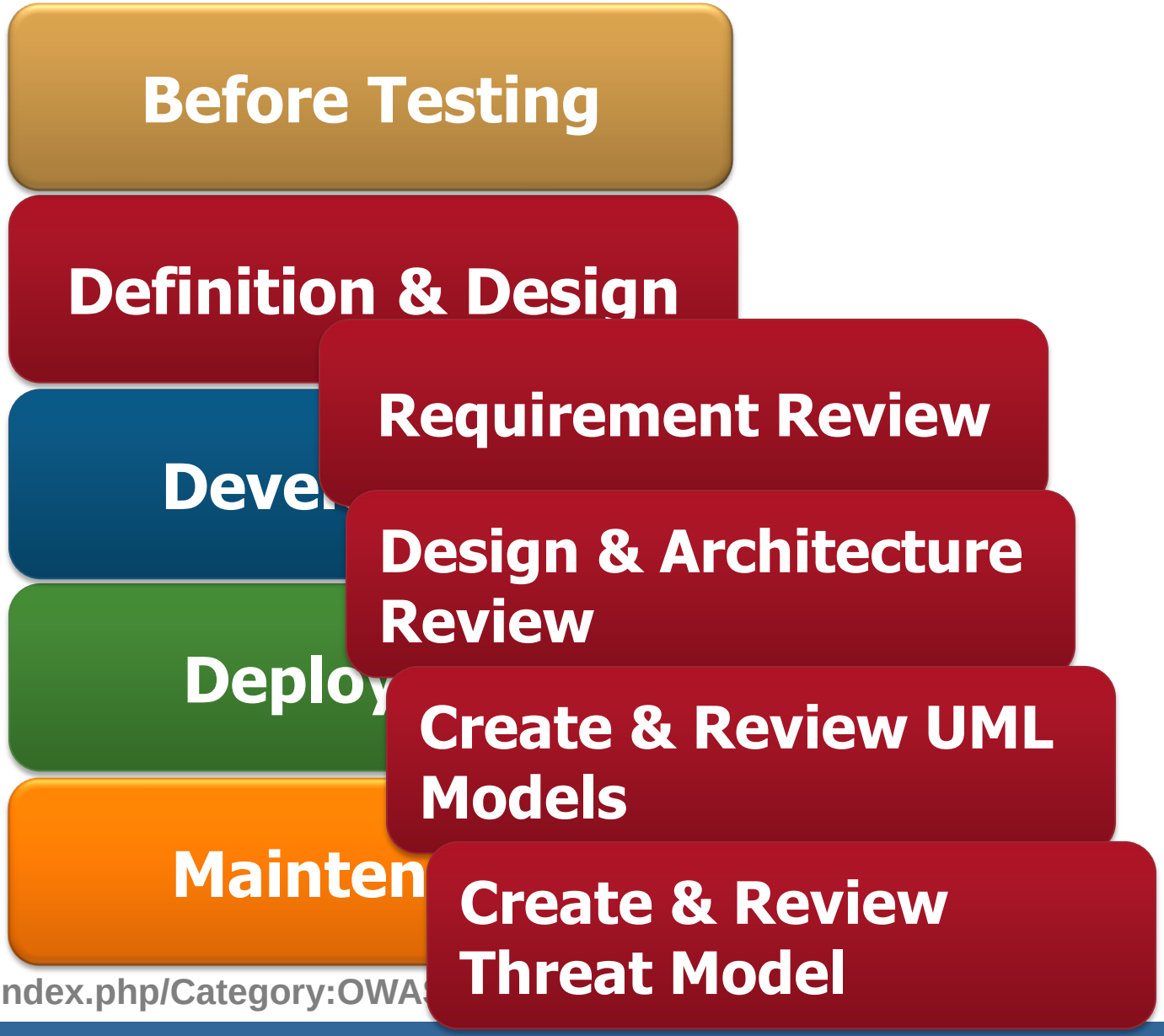
- Improve Client Side Security
- Let's talk at the WORKING SESSION!

# OWASP Testing Framework Workflow


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

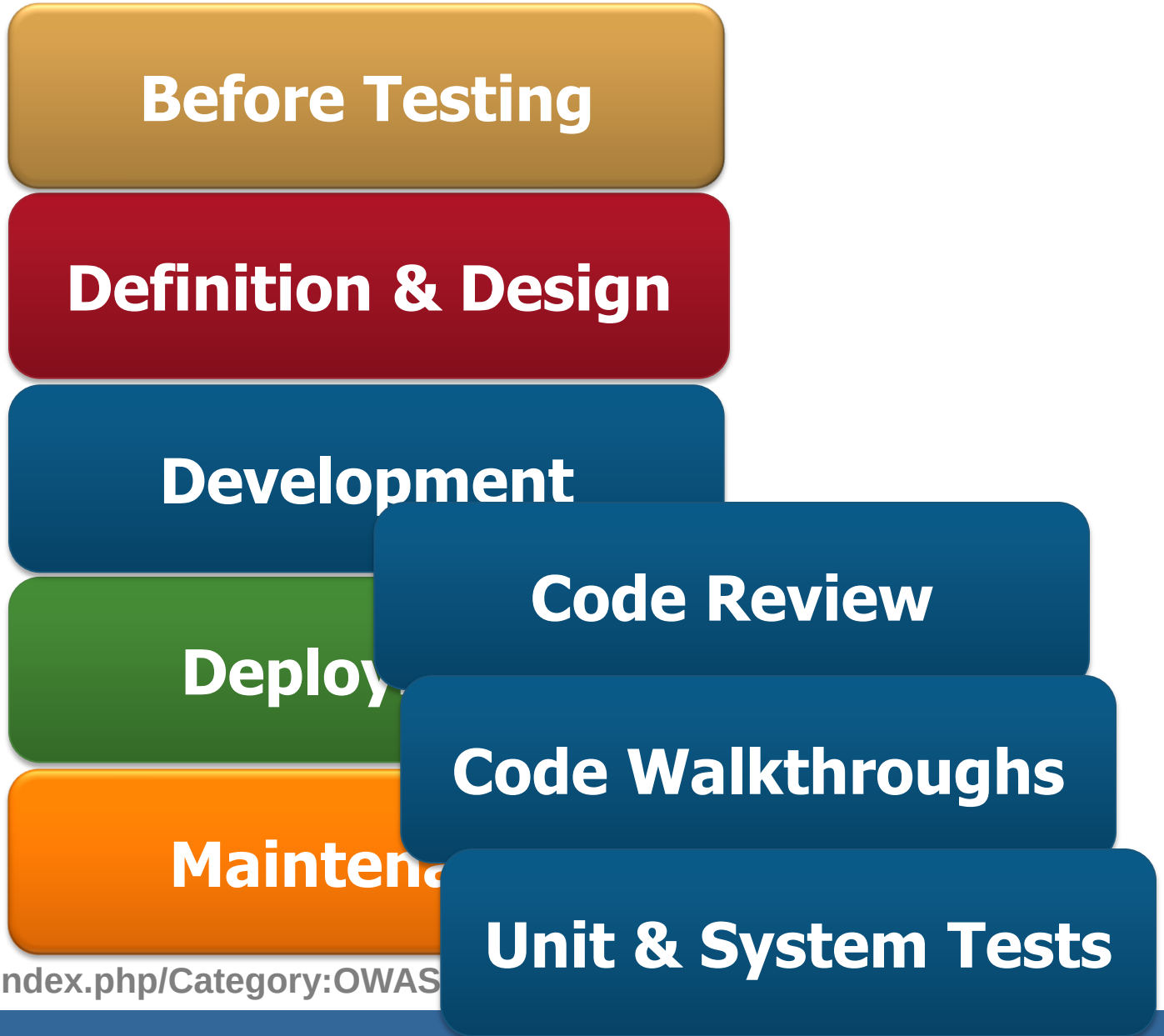
OWASP

# OWASP Testing Framework Workflow



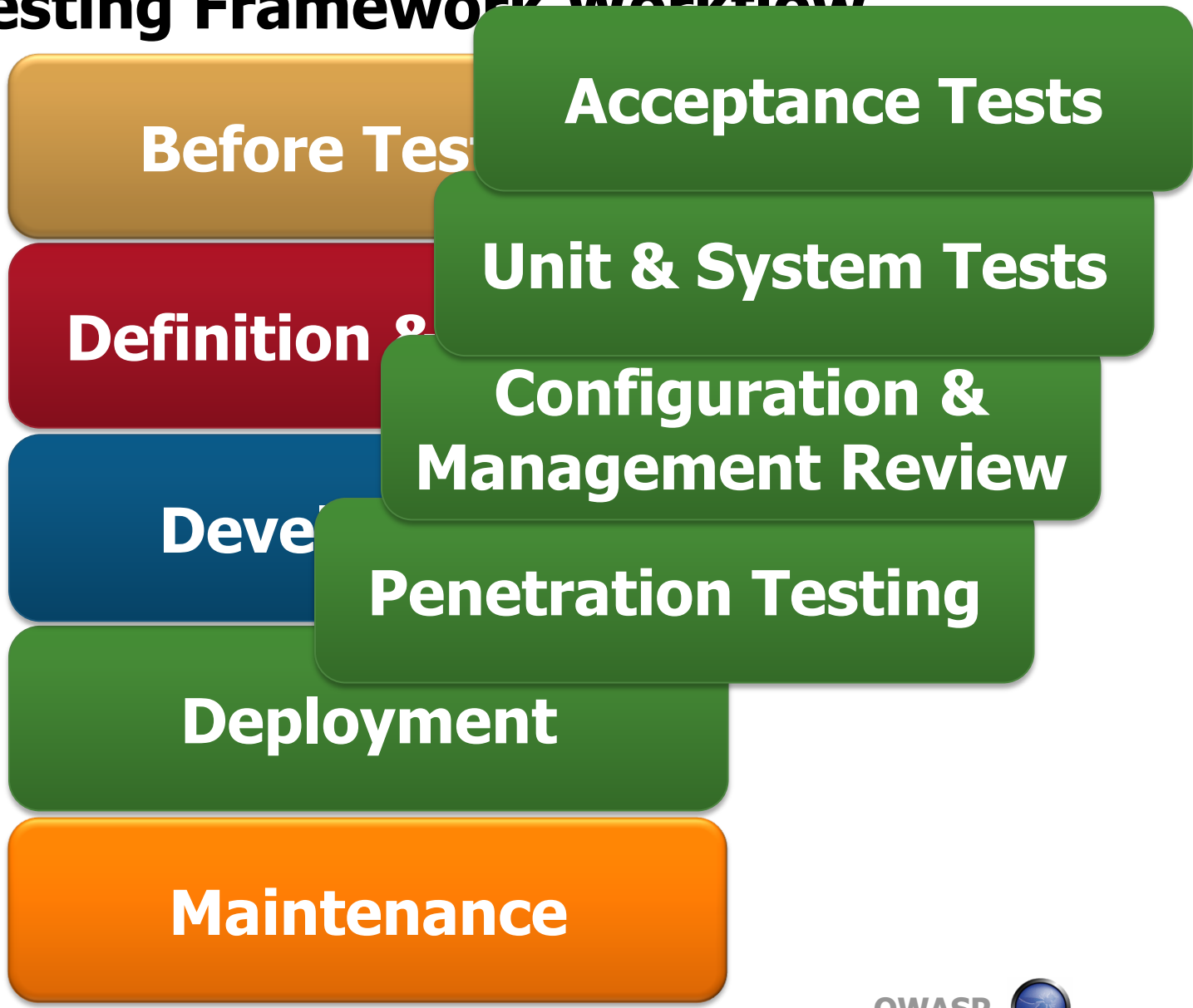

http://www.owasp.org/index.php/Category:OWAS

# OWASP Testing Framework Workflow




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

# OWASP Testing Framework Workflow



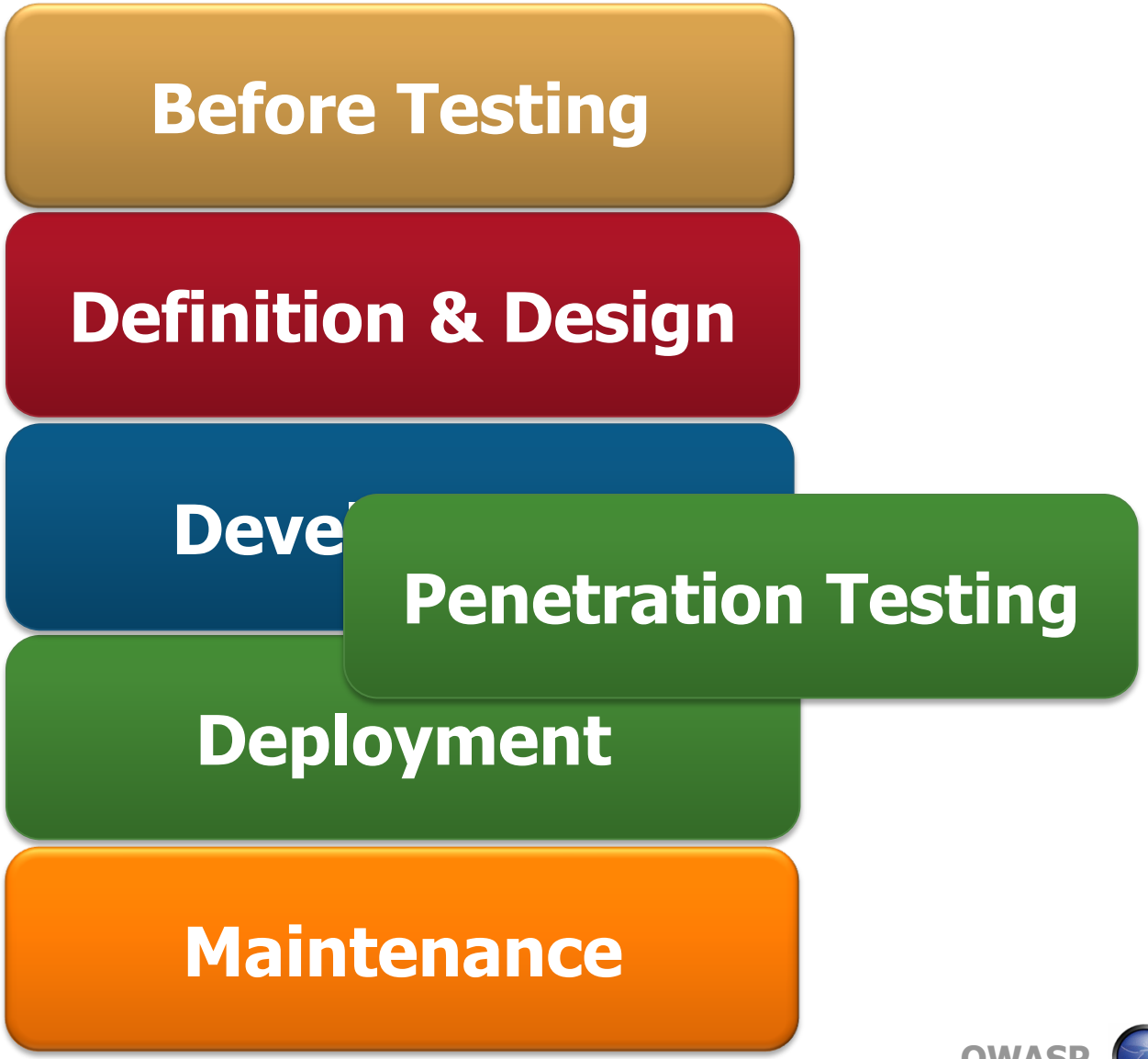

http://www.owasp.org/index.php/Category:OWASP_Testing_Project

# OWASP Testing Framework Workflow


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

OWASP

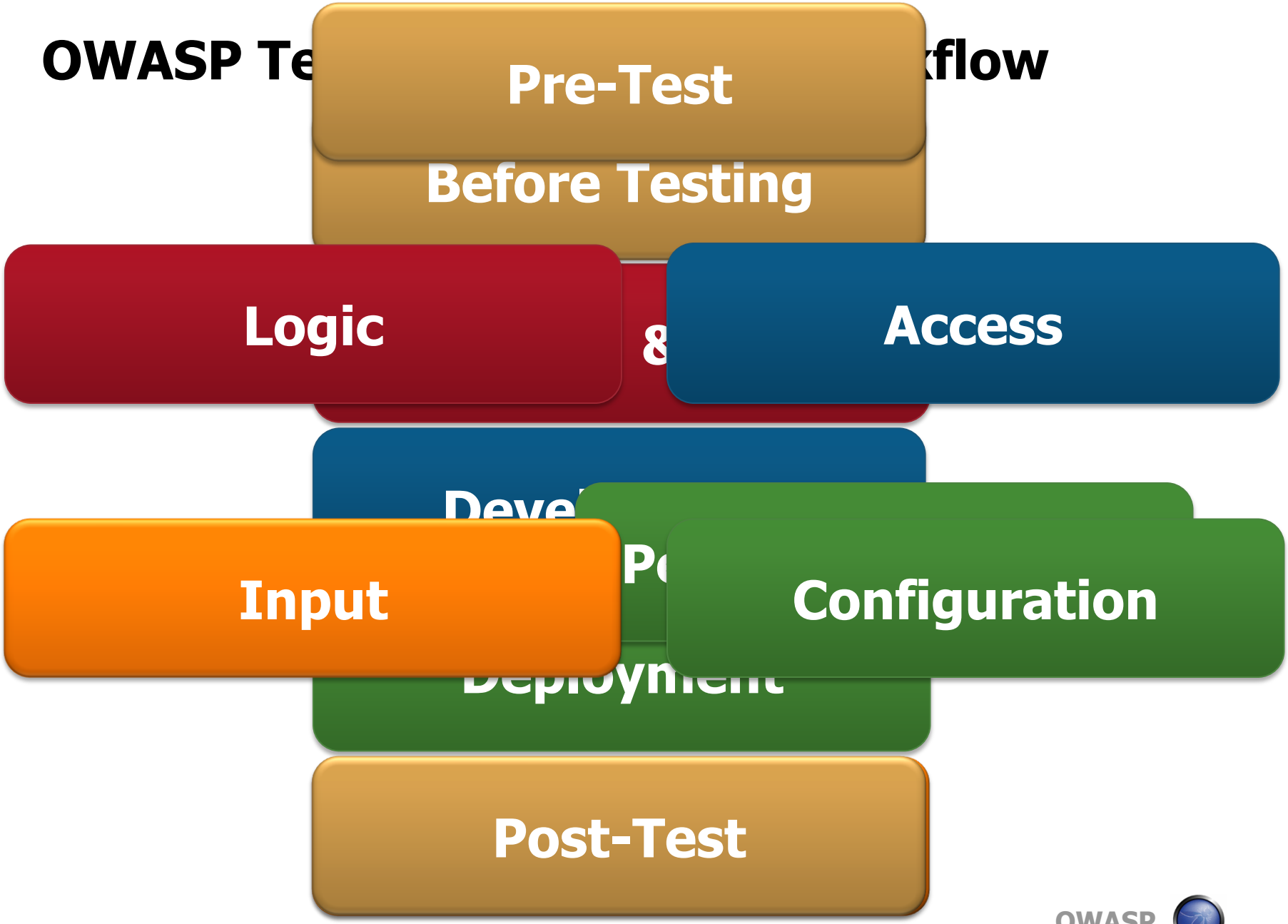
# OWASP Testing Framework Workflow




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

OWASP

# OWASP Te xflow




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

OWASP

## Pre-Test

1. Information Gathering
2. Application mapping

## Logic

3. Client side controls
9. Logical Error

## Access

4. Authentication
5. Session management
6. Access

## Input

7. Input validation
8. Functional Input

## Configuration

10. Environment
11. Server

## Post-Test

12. Filtering
13. Reporting

1. Information Gathering

2. Application mapping

3. Client side controls

9. Logical Error

4. Authentication

5. Session management

6. Access

7. Input validation

8. Functional Input

10. Environment

11. Server

12. Filtering

13. Reporting

# 4 Web Application Penetration Testing

4.1 Introduction and objectives

4.2 Information Gathering

4.2.1 Testing: Spiders, robots, and Crawlers

4.2.2 Search engine discovery/Reconnaissance

4.2.3 Identify application entry points

4.2.4 Testing for Web Application Fingerprint
OWASP Testing Guide v3.0

4.2.5 Application Discovery

4.2.6 Analysis of Error Codes

1. Information Gathering

2. Application mapping

3. Client side controls

9. Logical Error

4. Authentication

5. Session management

6. Access

7. Input validation

8. Functional Input

10. Environment

11. Server

12. Filtering

13. Reporting

# 4.3 Configuration Management Testing

4.3.1 SSL/TLS Testing

4.3.2 DB Listener Testing

4.3.3 Infrastructure configuration management testing

4.3.4 Application configuration management testing

4.3.5 Testing for File extensions handling

4.3.6 Old, backup and unreferenced files

4.3.7 Infrastructure and Application Admin Interfaces

4.3.8 Testing for HTTP Methods and XST

1. Information Gathering

2. Application mapping

3. Client side controls

9. Logical Error

4. Authentication

5. Session management

6. Access

7. Input validation

8. Functional Input

10. Environment

11. Server

12. Filtering

13. Reporting

# 4.4 Authentication Testing

4.4.1 Credentials transport over an encrypted channel

4.4.2 Testing for user enumeration

4.4.3 Default or guessable (dictionary) user account

4.4.4 Testing For Brute Force

4.4.5 Testing for Bypassing authentication schema

4.4.6 Testing for Vulnerable remember password and pwd reset

4.4.7 Testing for Logout and Browser Cache Management

4.4.8 Testing for Captcha

4.4.9 Testing for Multiple factors Authentication

4.4.10 Testing for Race Conditions

1. Information Gathering

2. Application mapping

3. Client side controls

9. Logical Error

4. Authentication

5. Session management

6. Access

7. Input validation

8. Functional Input

10. Environment

11. Server

12. Filtering

13. Reporting

# 4.5 Session Management Testing

4.5.1 Testing for Session Management Schema

4.5.2 Testing for Cookies attributes

4.5.3 Testing for Session Fixation

4.5.4 Testing for Exposed Session Variables

4.5.5 Testing for CSRF

1. Information Gathering

2. Application mapping

3. Client side controls

9. Logical Error

4. Authentication

5. Session management

6. Access

7. Input validation

8. Functional Input

10. Environment

11. Server

12. Filtering

13. Reporting

# 4.6 Authorization testing

4.6.1 Testing for path traversal

4.6.2 Testing for bypassing authorization schema

4.6.3 Testing for Privilege Escalation

1. Information Gathering

2. Application mapping

3. Client side controls

9. Logical Error

4. Authentication

5. Session management

6. Access

7. Input validation

8. Functional Input

10. Environment

11. Server

12. Filtering

13. Reporting

# 4.7 Business logic testing

1. Information Gathering

2. Application mapping

3. Client side controls

9. Logical Error

4. Authentication

5. Session management

6. Access

7. Input validation

8. Functional Input

10. Environment

11. Server

12. Filtering

13. Reporting

# 4.8 Data Validation Testing

4.8.1 Testing for Reflected Cross Site Scripting
4.8.2 Testing for Stored Cross Site Scripting
4.8.3 Testing for DOM based Cross Site Scripting
4.8.4 Testing for Cross Site Flashing
4.8.5 SQL Injection
4.8.5.1 Oracle Testing
4.8.5.2 MySQL Testing
4.8.5.3 SQL Server Testing
4.8.5.4 MS Access Testing
4.8.5.5 Testing PostgreSQL
4.8.6 LDAP Injection
4.8.7 ORM Injection
4.8.8 XML Injection
4.8.9 SSI Injection
4.8.10 XPath Injection
4.8.11 IMAP/SMTP Injection
4.8.12 Code Injection
4.8.13 OS Commanding
4.8.14 Buffer overflow Testing
4.8.14.1 Heap overflow OWASP
4.8.14.2 Stack overflow
4.8.14.3 Format string
4.8.15 Incubated vulnerability testing
4.8.15 Testing for HTTP Splitting/Smuggling

1. Information Gathering

2. Application mapping

3. Client side controls

9. Logical Error

4. Authentication

5. Session management

6. Access

7. Input validation

8. Functional Input

10. Environment

11. Server

12. Filtering

13. Reporting

# 4.9 Denial of Service Testing

4.9.1 Testing for SQL Wildcard Attacks

4.9.2 Locking Customer Accounts

4.9.3 Buffer Overflows

4.9.4 User Specified Object Allocation

4.9.5 User Input as a Loop Counter

4.9.6 Writing User Provided Data to Disk

4.9.7 Failure to Release Resources

4.9.8 Storing too Much Data in Session

1. Information Gathering

2. Application mapping

3. Client side controls

9. Logical Error

4. Authentication

5. Session management

6. Access

7. Input validation

8. Functional Input

10. Environment

11. Server

12. Filtering

13. Reporting

# 4.10 Web Services Testing

4.10.1 WS Information Gathering

4.10.2 Testing WSDL

4.10.3 XML Structural Testing

4.10.4 XML Content-level Testing

4.10.5 HTTP GET parameters/REST Testing

4.10.6 Naughty SOAP attachments

4.10.7 Replay Testing

1. Information Gathering

2. Application mapping

3. Client side controls
9. Logical Error

4. Authentication
5. Session management
6. Access

7. Input validation
8. Functional Input

10. Environment
11. Server

12. Filtering

13. Reporting

# 4.11 AJAX Testing

4.11.1 AJAX Vulnerabilities
4.11.2 Testing For AJAX

1. Information Gathering

2. Application mapping

3. Client side controls

9. Logical Error

4. Authentication

5. Session management

6. Access

7. Input validation

8. Functional Input

10. Environment

11. Server

12. Filtering

13. Reporting

# 5. Writing Reports: value the real risk

5.1 How to value the real risk

5.2 How to write the report of the testing

# OWASP Testing Framework Workflow

Appendix A: Testing Tools
Appendix B: Suggested Reading
Appendix C: Fuzz Vectors
Appendix D: Encoded Injection

# That’s it…

http://www.owasp.org/index.php/OWASP_Testing_Project

**..thank you!**

**martin.knobloch@owasp.org**