MSS Lunch & Learn Series

YALE-MSS-8: Application Development Security

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What are the MSS?

- The Minimum Security Standards (MSS) are baseline requirements for securing Yale IT Systems based on risk.
- The MSS apply to any Yale IT System that uses Yale data and/or operates in support of Yale's Mission

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Understanding the MSS

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The MSS are broken down into:

- Standard Groups (YALE-MSS-X): These group standards together based on cybersecurity requirements.
- Standards (YALE-MSS-X.Y): Standards tell us we must do to meet that cybersecurity requirement at Yale.
- Controls (YALE-MSS-X.Y.Z): Controls provide details on how you can meet the cybersecurity requirement.

YALE-MSS-1:
System Classification

YALE-MSS-1.1:
Classify the IT System and meet the Minimum Security Standards

YALE-MSS-1.1.2:
Determine your system type

What MSS will we cover today?

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YALE-MSS-8: Application Development Security

Overview

YALE-MSS-8.1: Follow an appropriate secure development methodology when writing software

YALE-MSS-8.2: Test for security vulnerabilities when any changes are made to the system

YALE-MSS-8.1: Follow an appropriate secure development methodology when writing software

- Plenty of suitable methodologies!

- Generally, your process should consist of
  - Plan/Design
  - Build
  - Test
  - Deploy
  - Maintain

- Consult the OWASP Top 10 and OWASP ASVS during the Plan/Design phase

- Training Platform

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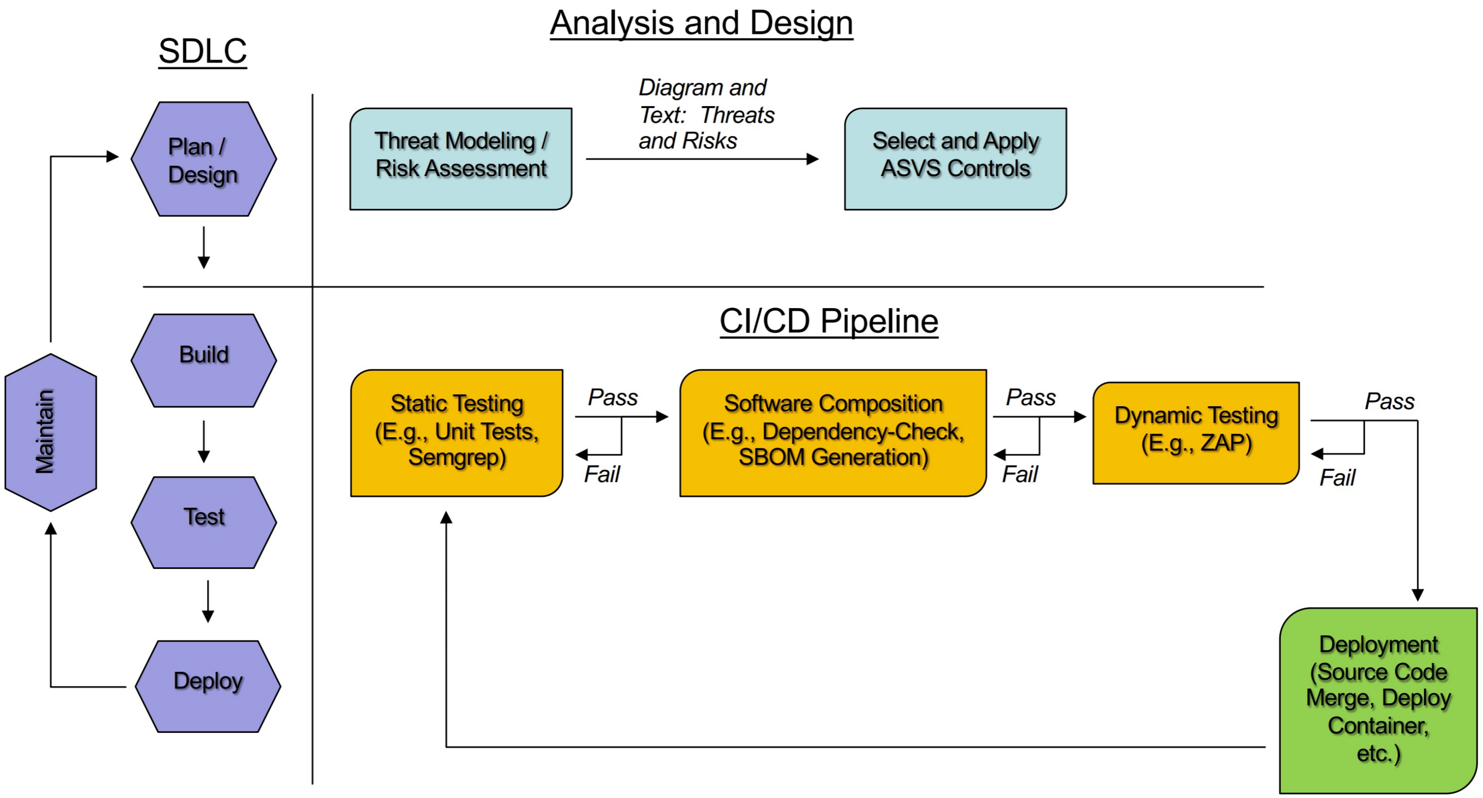

Analysis and Design
SDLC
Plan / Design
Threat Modeling / Risk Assessment
Diagram and Text: Threats and Risks
Select and Apply ASVS Controls
CI/CD Pipeline
Maintain
Build
Test
Deploy
Static Testing (E.g., Unit Tests, Semgrep)
Pass
Fail
Software Composition (E.g., Dependency-Check, SBOM Generation)
Pass
Fail
Dynamic Testing (E.g., ZAP)
Pass
Fail
Deployment (Source Code Merge, Deploy Container, etc.)

YALE-MSS-8.2: Test for security vulnerabilities when any changes are made to the system

- Deploy changes to test environment first

- Static Application Security Testing (SAST)
  - Semgrep
  - SonarQube
  - CodeQL
- Software Composition Analysis (SCA)
  - FOSSA
  - OWASP Dependency-Check
  - Github Dependabot
- Dynamic Application Security Testing (DAST)
  - ZAP
  - Burp Suite
  - Acunetix

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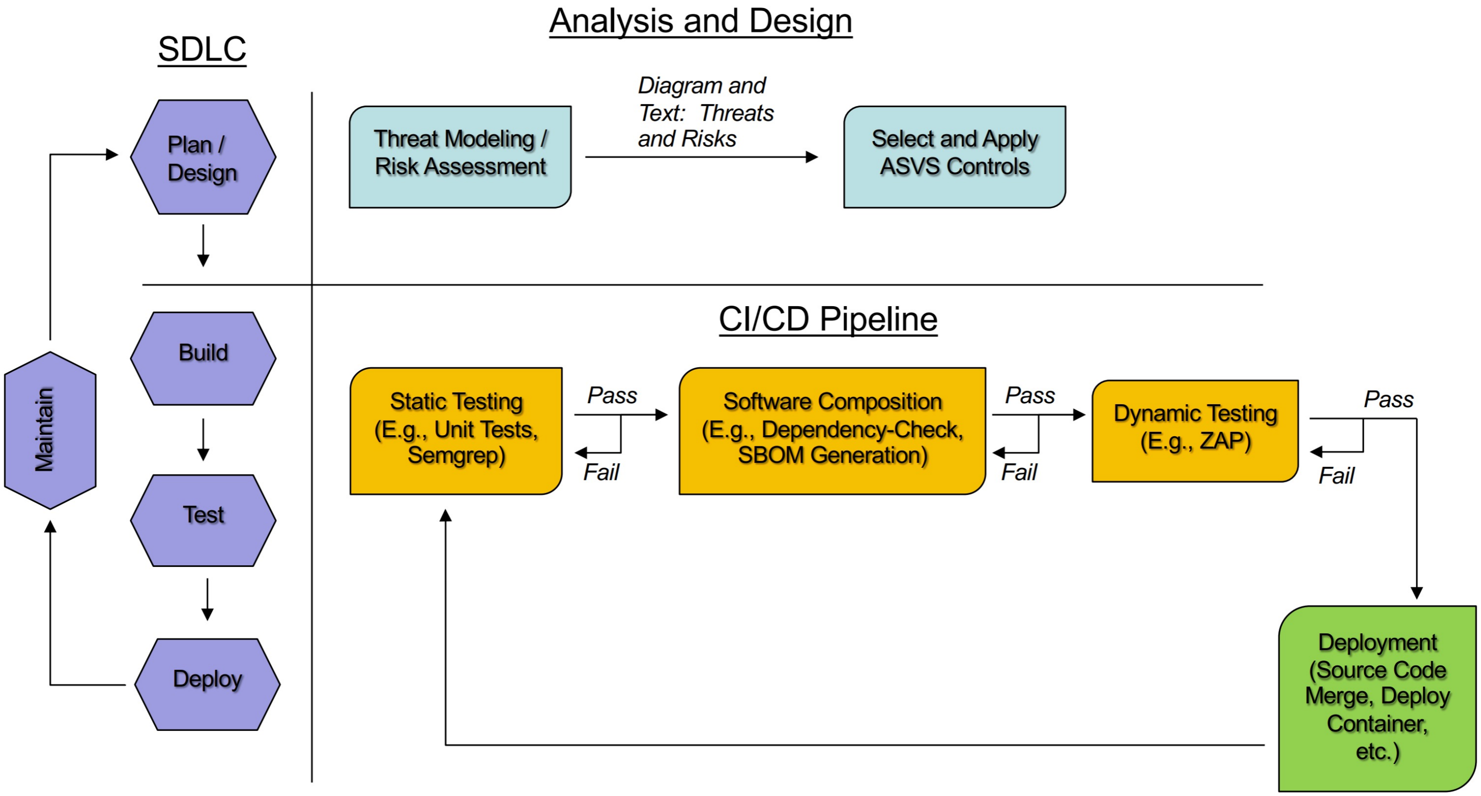

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Application Security Program

- 3-year effort to promote secure coding at Yale.
- https://yaleedu.sharepoint.com/sites/YaleApplicationSecurityProgram
- Bi-Monthly Forum Meeting

What is a SPA?

Yale's simplified process to highlight and manage this risk through compliance with the MSS. Required for all IT systems (excluding endpoints and mobile devices).

- Think through how to meet and maintain the MSS for a system
- Contribute to a registry of IT systems for security testing
- Identify and understand risk

A SPA is not:

- A detailed review of the security of an IT system
- A statement of approval from ISO about an IT system

Steps to the SPA Process

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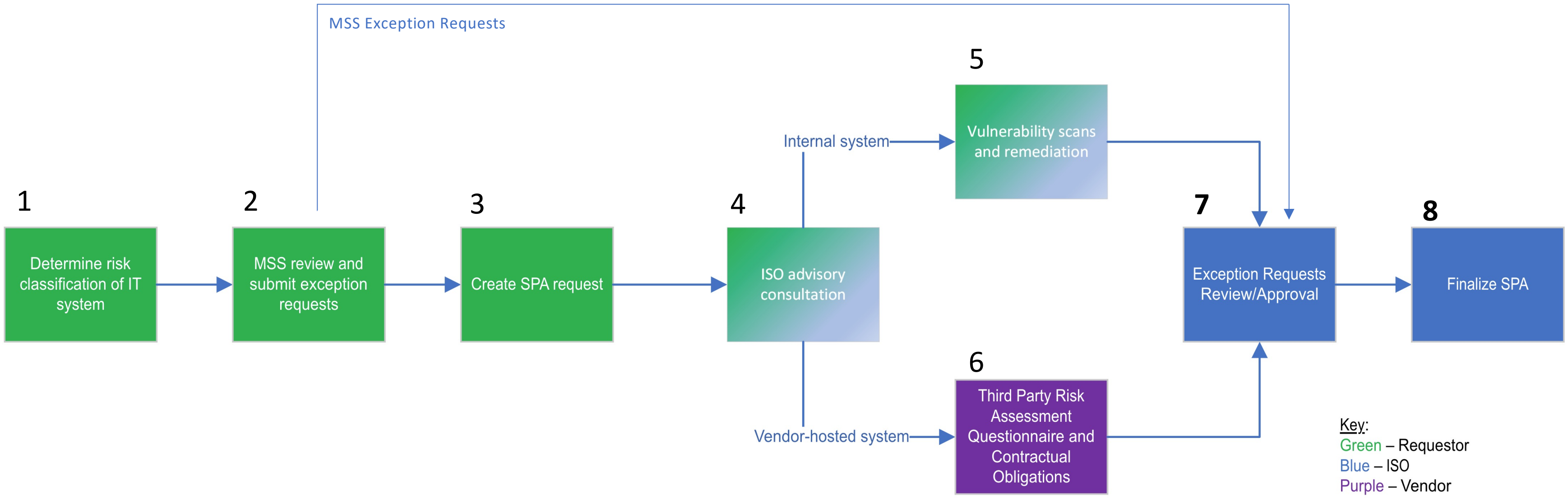

1 Determine risk classification of IT system

2 MSS review and submit exception requests

MSS Exception Requests

3 Create SPA request

4 ISO advisory consultation

Internal system

5 Vulnerability scans and remediation

Vendor-hosted system

6 Third Party Risk Assessment Questionnaire and Contractual Obligations

7 Exception Requests Review/Approval

8 Finalize SPA

Key:
Green – Requestor
Blue – ISO
Purple – Vendor

Questions and Answers

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Appendix: SPA at a Glance

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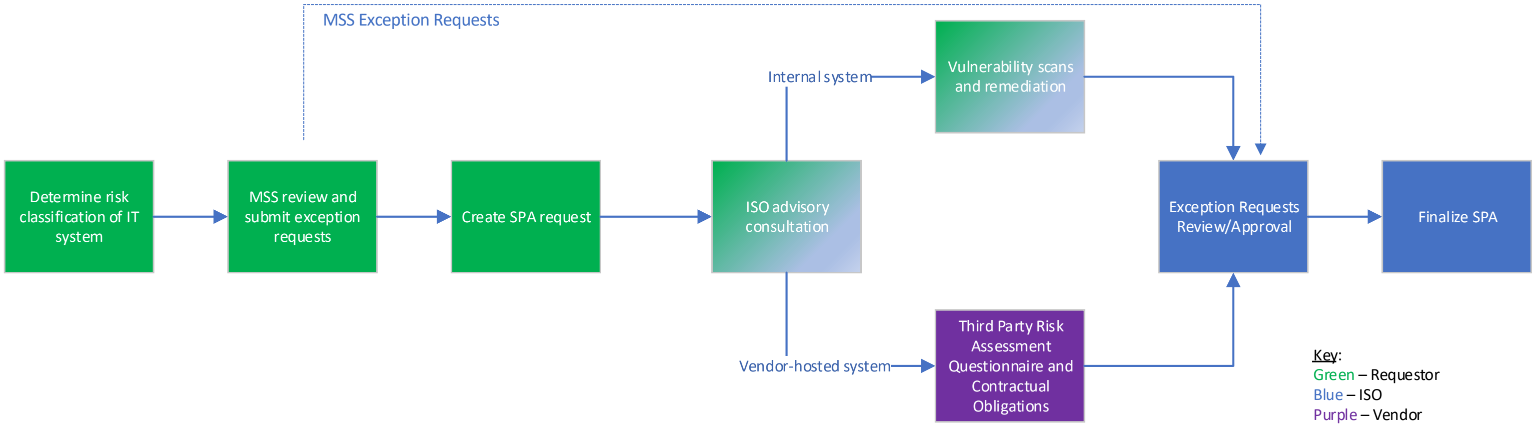

MSS Exception Requests

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The SPA is used to:

- Think through questions about how to meet and maintain the MSS for your IT system.
- Contribute to a registry of IT systems used for security testing.
- Identify and understand risk related to your IT system.

The SPA is not:

- A detailed review of the security of an IT system.
- A statement of approval from the ISO about an IT system.

Important Links:

Risk Classification
https://cybersecurity.yale.edu/risk-classification

MSS Calculator
https://cybersecurity.yale.edu/mss/calculator

Submitting a SPA
https://cybersecurity.yale.edu/spa

Submitting an Exception Request
https://cybersecurity.yale.edu/exception-request