Training Catalog

Revision

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SME

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Abstract

This document describes the methodology to develop a training catalog needed in the creation of an autonomous vehicle.

Group / Owner

Security / Cybersecurity Instructor

Motivation

This document is motivated by the need to have formal processes in place for the training of individuals involved in creation of safety-critical, cyber-physical systems for certification of compliance to standards such as **ISO 21434 ('434)** and **ISO 26262 ('262)**.
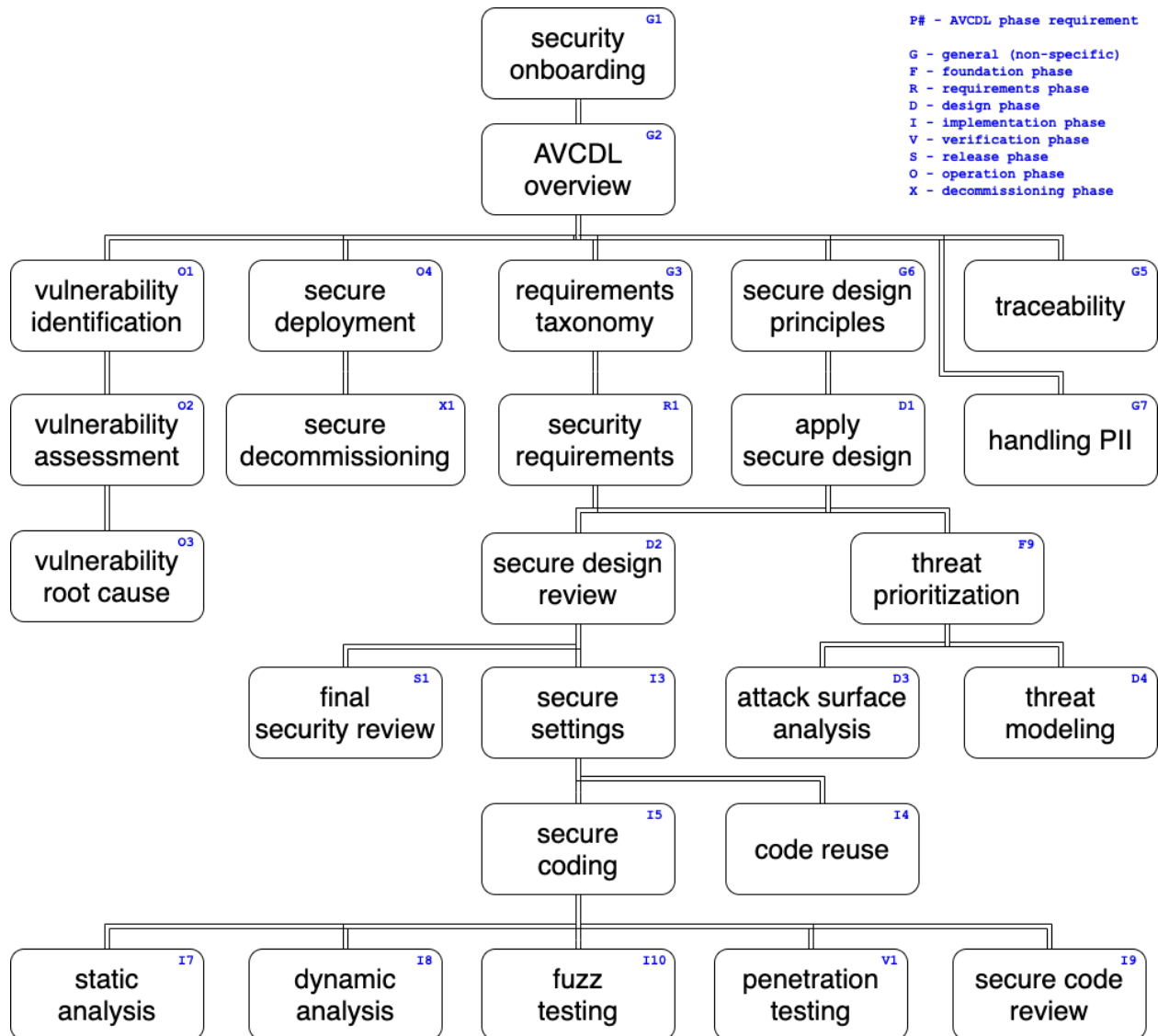
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Overview

The following diagram shows the cybersecurity development training path.

```
                        ┌─────────────────┐ G1
                        │    security     │
                        │   onboarding    │
                        └─────────────────┘
                        ┌─────────────────┐ G2
                        │     AVCDL        │
                        │    overview      │
                        └─────────────────┘
```

P# - AVCDL phase requirement

G - general (non-specific)
F - foundation phase
R - requirements phase
D - design phase
I - implementation phase
V - verification phase
S - release phase
O - operation phase
X - decommissioning phase

O1 vulnerability identification	O4 secure deployment	G3 requirements taxonomy	G6 secure design principles	G5 traceability
O2 vulnerability assessment	X1 secure decommissioning	R1 security requirements	D1 apply secure design	G7 handling PII
O3 vulnerability root cause		D2 secure design review	F9 threat prioritization	
	S1 final security review	I3 secure settings	D3 attack surface analysis	D4 threat modeling
		I5 secure coding	I4 code reuse	
I7 static analysis	I8 dynamic analysis	I10 fuzz testing	V1 penetration testing	I9 secure code review

Target Audience

Each training targets one or more of the following audiences:

- Organization
- Management
- Compliance
- Security
- Development

Areas of Focus

There should be a general security awareness training covering the motivation for cybersecurity and its relationship to safety.

There are five distinct areas of training specified in **MSSDL** P1 [1]:

- Secure design
- Threat modeling
- Secure coding
- Security testing
- Privacy

Two additional areas are considered:

- Compliance
- Other

Delivery Format

The delivery format for each training is determined by the audience, material and need for interaction. Three formats are currently considered:

- Recorded Video
- Live (in-person / teleconference)
- On-line

Timeliness

Trainings should be taken in the sequence called out in the training path diagram. Ideally, they should be presented prior to the **AVCDL** phase to which they apply.

Refresh Frequency

There should be an annual limited-scope refresher for each training based on area of focus.

Management

Management of the training catalog is done in coordination between cybersecurity and corporate training.

Tracking

Tracking of courses taken by employees is managed via the corporate training tracking system.

Content Creation

The individual training course content is created and periodically updated by cybersecurity SMEs.

References

1. **Essential Software Security Training for the Microsoft SDL**