Open Security Controls Assessment Language (OSCAL)

Assessment Plan
Assessment Results
Plan of Action and Milestones

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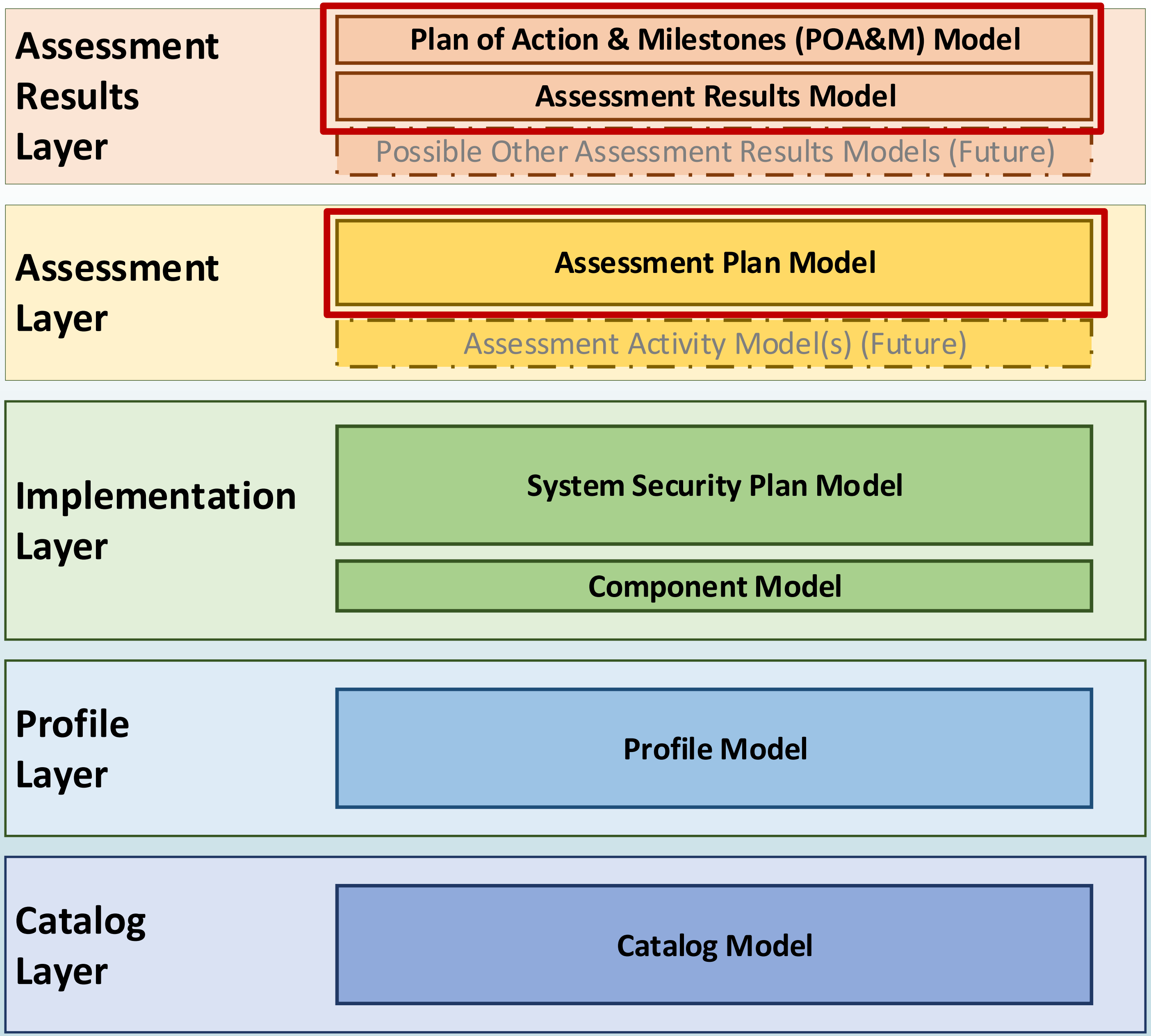
Overview

Three New Models:

- Assessment Plan
- Assessment Results
- Plan of Action and Milestones

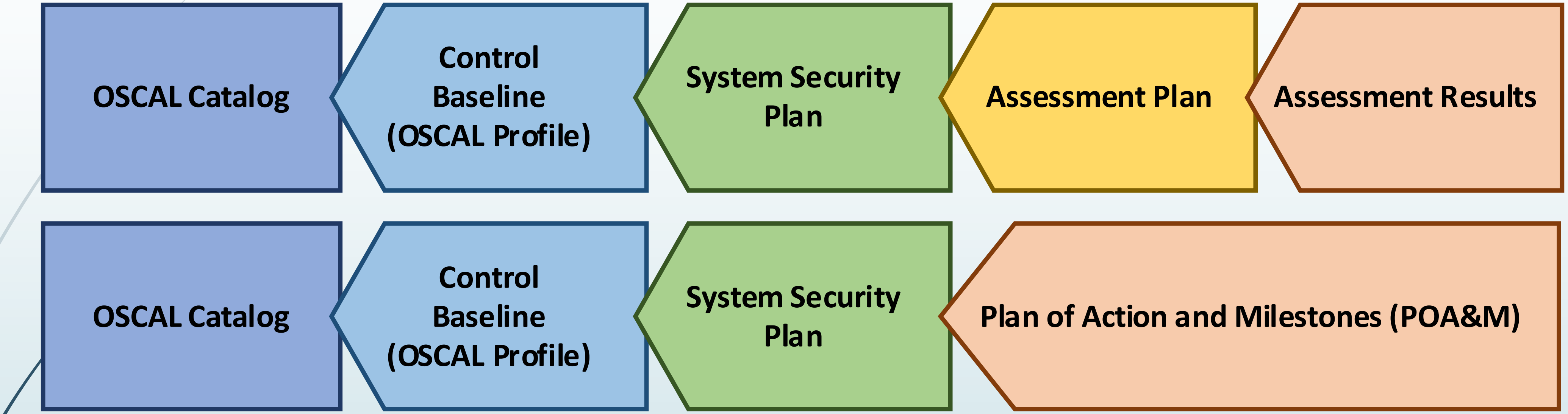


Assessment Results Layer	**Plan of Action & Milestones (POA&M) Model** **Assessment Results Model** Possible Other Assessment Results Models (Future)
Assessment Layer	**Assessment Plan Model** Assessment Activity Model(s) (Future)
Implementation Layer	**System Security Plan Model** **Component Model**
Profile Layer	**Profile Model**
Catalog Layer	**Catalog Model**

Background

- Assessment Layers were intended to be addressed in OSCAL 2.0
- FedRAMP has an immediate need to receive a complete ATO package in OSCAL
- NIST and FedRAMP agreed to expand OSCAL now to enable OSCAL modeling of FedRAMP SAP, SAR, and POA&Ms
- Developed these with FedRAMP as the focus, but also in anticipation of other uses, such as continuous assessment
- Additional assessment layer features will still be addressed in OSCAL 2.0, such as additional mechanism to automate assessment inspections and testing.

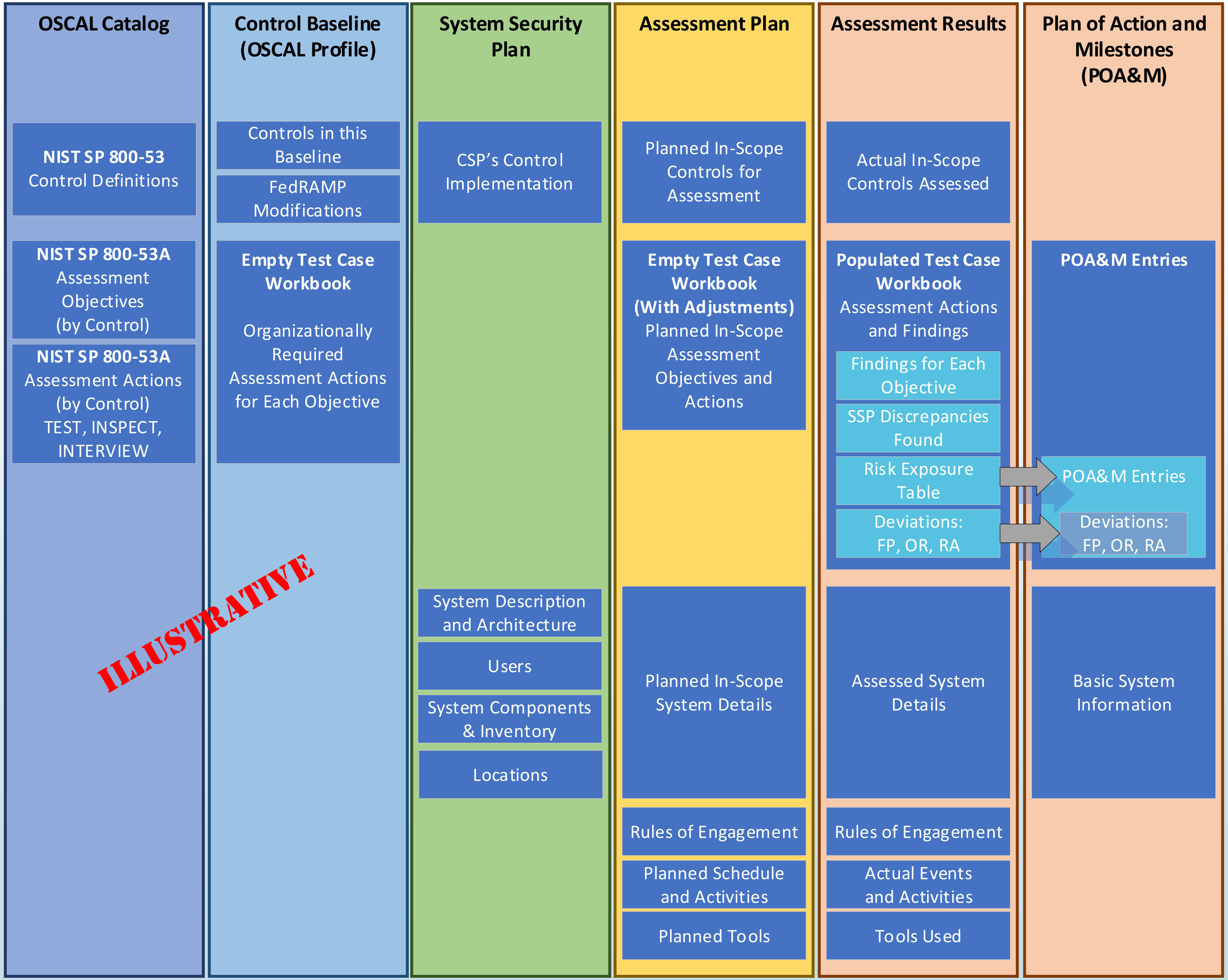
Importance of Import


OSCAL Catalog
Control Baseline (OSCAL Profile)
System Security Plan
Assessment Plan
Assessment Results
OSCAL Catalog
Control Baseline (OSCAL Profile)
System Security Plan
Plan of Action and Milestones (POA&M)

- OSCAL is designed for traceability
- In most cases:
  - Models to the right refer to content in models on the left, instead of duplicating content
  - There are a few exceptions

Importance of Import

- FedRAMP Example
  - The SSP refers to the profile and catalog for control definitions
  - The Assessment Plan and Results refer to the SSP for system description and architecture



OSCAL Catalog

NIST SP 800-53 Control Definitions

NIST SP 800-53A Assessment Objectives (by Control)

NIST SP 800-53A Assessment Actions (by Control) TEST, INSPECT, INTERVIEW

Control Baseline (OSCAL Profile)

Controls in this Baseline

FedRAMP Modifications

Empty Test Case Workbook

Organizationally Required Assessment Actions for Each Objective

System Security Plan

CSP's Control Implementation

System Description and Architecture

Users

System Components & Inventory

Locations

Assessment Plan

Planned In-Scope Controls for Assessment

Empty Test Case Workbook (With Adjustments) Planned In-Scope Assessment Objectives and Actions

Planned In-Scope System Details

Rules of Engagement

Planned Schedule and Activities

Planned Tools

Assessment Results

Actual In-Scope Controls Assessed

Populated Test Case Workbook Assessment Actions and Findings

Findings for Each Objective

SSP Discrepancies Found

Risk Exposure Table

Deviations: FP, OR, RA

Assessed System Details

Rules of Engagement

Actual Events and Activities

Tools Used

Plan of Action and Milestones (POA&M)

POA&M Entries

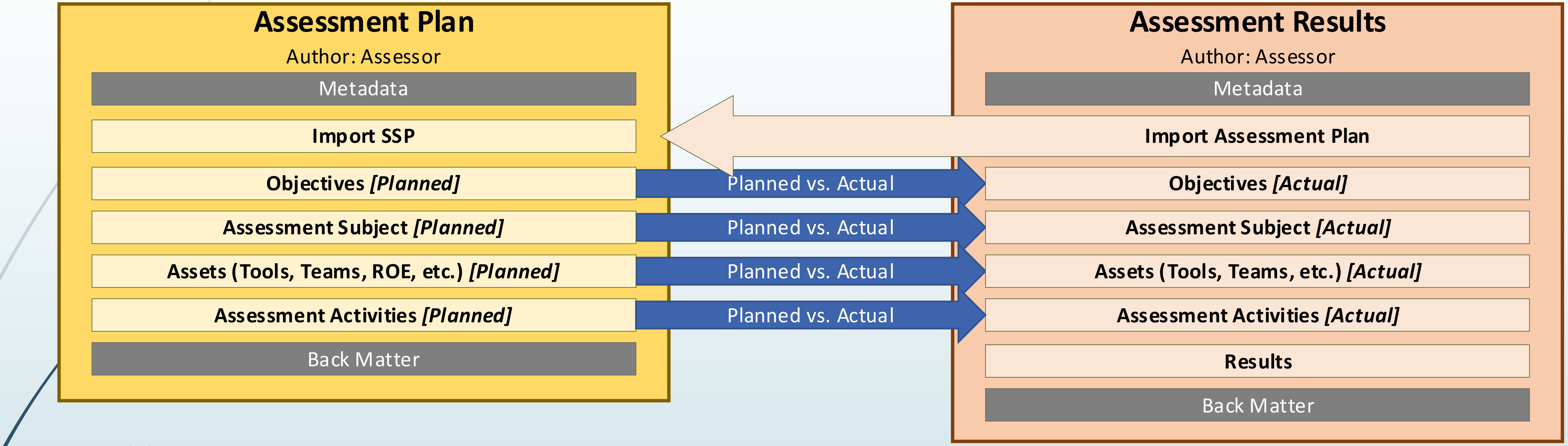
POA&M Entries

Deviations: FP, OR, RA

Basic System Information

ILLUSTRATIVE

Overlapping Syntax (AP and AR)



Traditional Snapshot Approach

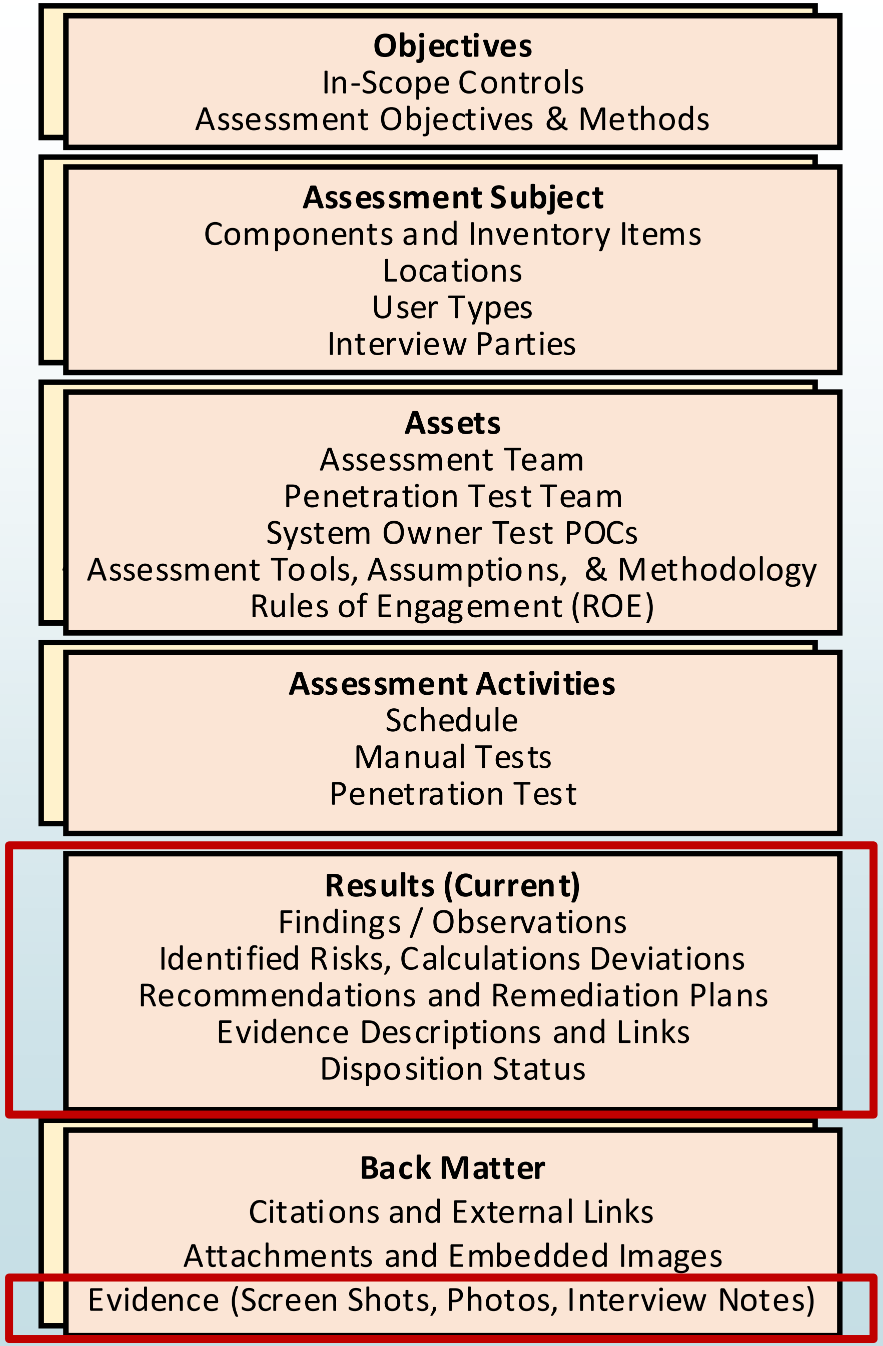
- **Assessment Plan**: What the assessor plans to do
- **Assessment Results**: What the assessor actually did

Continuous Assessment Approach

- **Assessment Plan**: What should be tested/inspected, how, and in what frequency
- **Assessment Results**: Time-slice of results

Assessment Plan and Assessment Results

- Common to AP and AR:
  - Objectives
  - Assessment Subject
  - Assets
  - Assessment Activities
  - Back Matter (general)
- Unique to AR:
  - Results
  - Evidence in Back matter



Objectives
In-Scope Controls
Assessment Objectives & Methods

Assessment Subject
Components and Inventory Items
Locations
User Types
Interview Parties

Assets
Assessment Team
Penetration Test Team
System Owner Test POCs
Assessment Tools, Assumptions, & Methodology
Rules of Engagement (ROE)

Assessment Activities
Schedule
Manual Tests
Penetration Test

Results (Current)
Findings / Observations
Identified Risks, Calculations Deviations
Recommendations and Remediation Plans
Evidence Descriptions and Links
Disposition Status

Back Matter
Citations and External Links
Attachments and Embedded Images
Evidence (Screen Shots, Photos, Interview Notes)

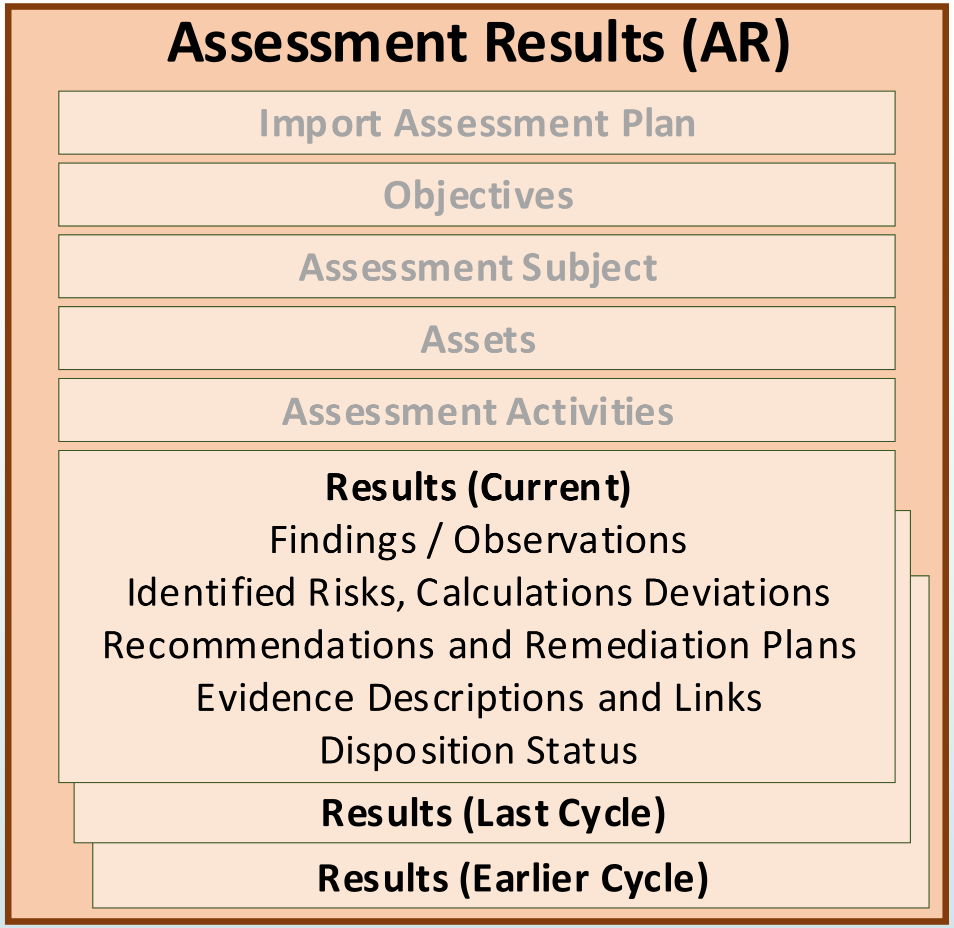
Assessment Results: Time Slices

Traditional Snapshot Approach

- Entire current assessment in one Results assembly
- Each past assessment cycle in its own results assembly

Continuous Assessment Approach

- Each Results assembly is a snapshot in time
- Example: If testing once per hour, each results assembly represents the testing for that hour



Assessment Results (AR)

Import Assessment Plan

Objectives

Assessment Subject

Assets

Assessment Activities

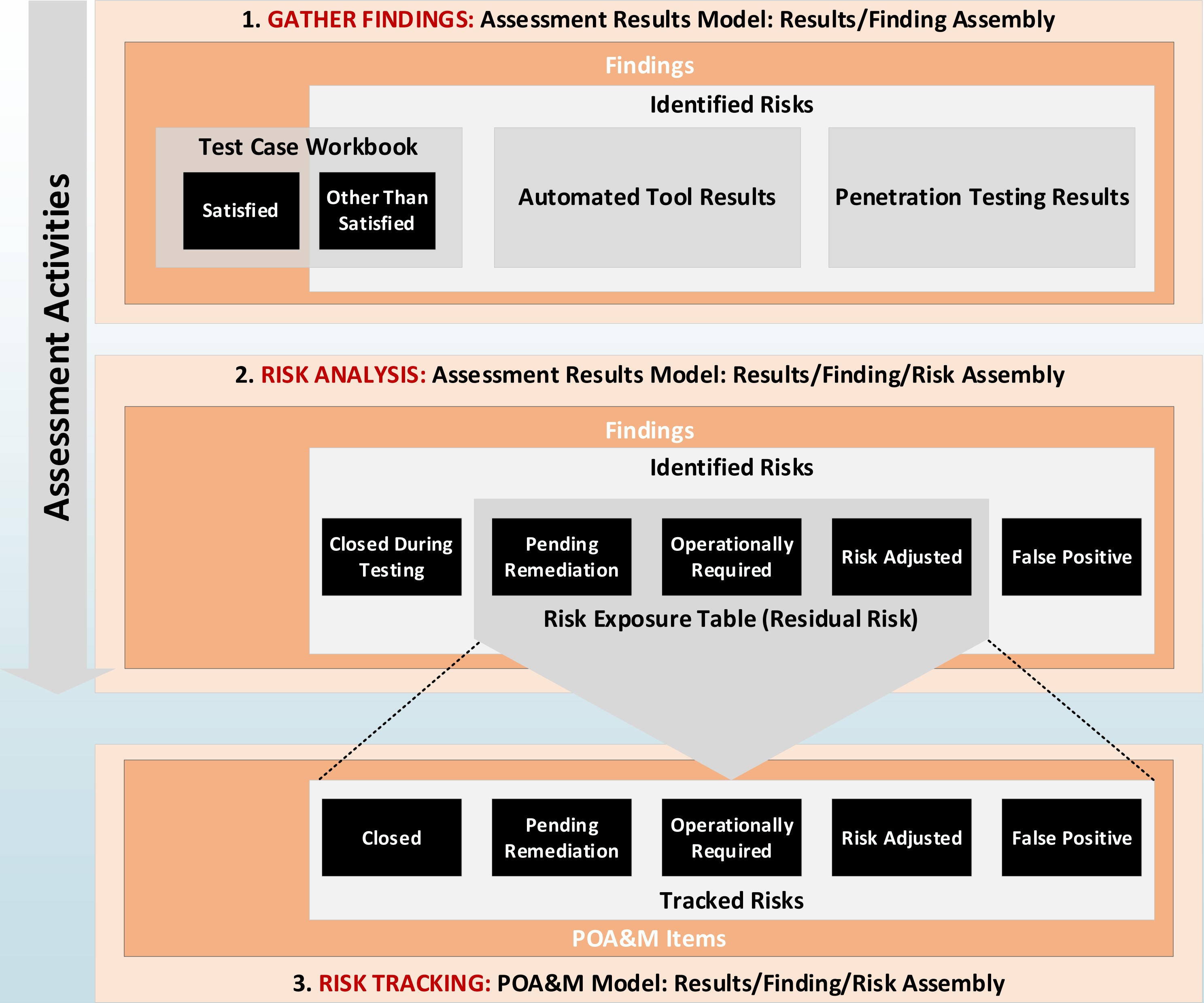
Results (Current)
Findings / Observations
Identified Risks, Calculations Deviations
Recommendations and Remediation Plans
Evidence Descriptions and Links
Disposition Status

Results (Last Cycle)

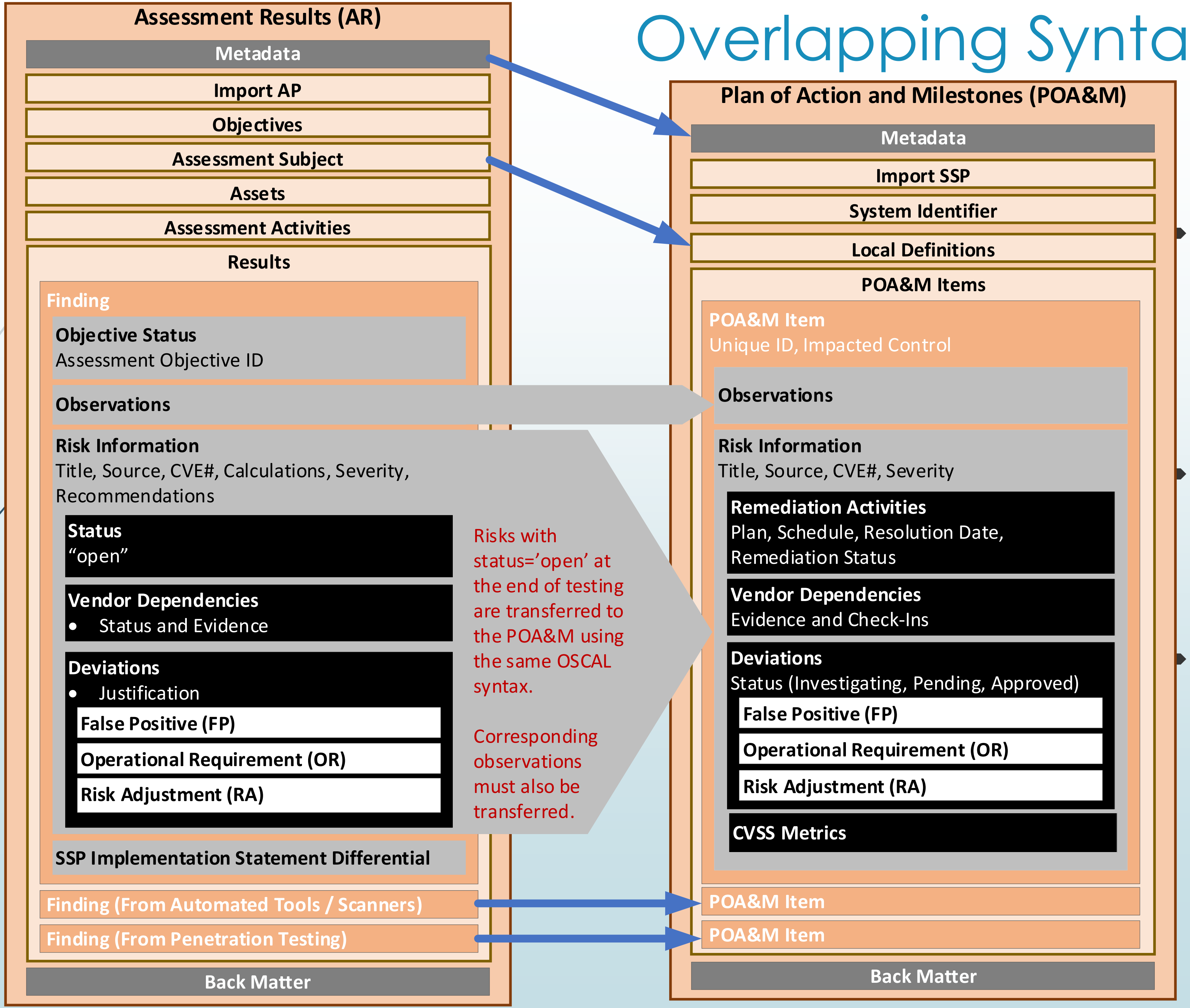
Results (Earlier Cycle)

Findings, Risks, Analysis, and Flow

1. Gather findings. Some findings demonstrate compliance. Other findings demonstrate a lack of compliance and represent a risk.
2. While performing risk analysis, some risks are closed during the assessment period. Others are identified as a false positive. Some open risks have mitigating factors, resulting in a risk adjustment. The remaining open and adjusted risks are typically populated in a risk exposure table.
3. All residual risks are typically entered into the POA&M by the system owner, where they are tracked until closure.



Overlapping Syntax (AR and POA&M)



Assessment Results (AR)

- Metadata
- Import AP
- Objectives
- Assessment Subject
- Assets
- Assessment Activities
- Results
  - Finding
    - **Objective Status**
      Assessment Objective ID
    - **Observations**
    - **Risk Information**
      Title, Source, CVE#, Calculations, Severity, Recommendations
      - **Status**
        "open"
      - **Vendor Dependencies**
        - Status and Evidence
      - **Deviations**
        - Justification
        - False Positive (FP)
        - Operational Requirement (OR)
        - Risk Adjustment (RA)
    - **SSP Implementation Statement Differential**
  - Finding (From Automated Tools / Scanners)
  - Finding (From Penetration Testing)
- Back Matter

Risks with status='open' at the end of testing are transferred to the POA&M using the same OSCAL syntax.

Corresponding observations must also be transferred.

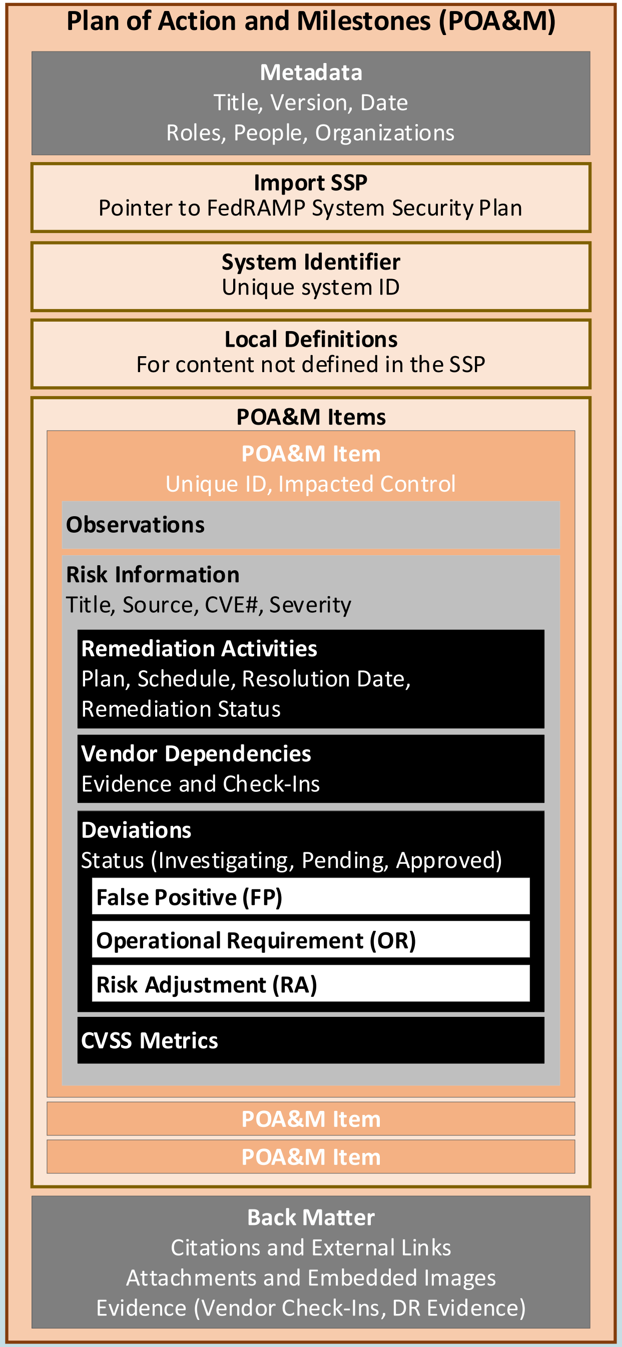
Plan of Action and Milestones (POA&M)

- Metadata
- Import SSP
- System Identifier
- Local Definitions
- POA&M Items
  - POA&M Item
    Unique ID, Impacted Control
    - **Observations**
    - **Risk Information**
      Title, Source, CVE#, Severity
      - **Remediation Activities**
        Plan, Schedule, Resolution Date, Remediation Status
      - **Vendor Dependencies**
        Evidence and Check-Ins
      - **Deviations**
        Status (Investigating, Pending, Approved)
        - False Positive (FP)
        - Operational Requirement (OR)
        - Risk Adjustment (RA)
      - **CVSS Metrics**
  - POA&M Item
  - POA&M Item
- Back Matter

- Typically all remaining assessment risks are entered into the POA&M. (not closed during testing, and not a verified FP)
- To facilitate this, the syntax the same for an individual AR finding and an individual POA&M item.
- While some detail, such as objective status, may be filtered, it can also travel to the POA&M along with the risk information if appropriate.

POA&M Model

- Ideally the POA&M imports an SSP.
- The System Identifier is used when a POA&M is delivered without its corresponding SSP
  - Example: Monthly Continuous Monitoring (ConMon) delivery of a POA&M where an SSP is only delivered annually.
  - This enables another tool to re-link the POA&M and a previously delivered SSP.
- Scanning tools and missing SSP content are defined in the Local Definitions assembly.
- The structure provides robust remediation planning and tracking activities.
- The structure also provides risk metrics and deviation management for multiple different compliance frameworks. OSCAL enables these to co-exist in a single POA&M item entry.



Plan of Action and Milestones (POA&M)

Metadata
Title, Version, Date
Roles, People, Organizations

Import SSP
Pointer to FedRAMP System Security Plan

System Identifier
Unique system ID

Local Definitions
For content not defined in the SSP

POA&M Items

POA&M Item
Unique ID, Impacted Control

Observations

Risk Information
Title, Source, CVE#, Severity

Remediation Activities
Plan, Schedule, Resolution Date, Remediation Status

Vendor Dependencies
Evidence and Check-Ins

Deviations
Status (Investigating, Pending, Approved)

False Positive (FP)

Operational Requirement (OR)

Risk Adjustment (RA)

CVSS Metrics

POA&M Item

POA&M Item

Back Matter
Citations and External Links
Attachments and Embedded Images
Evidence (Vendor Check-Ins, DR Evidence)

Questions?
Thank you!

We want your feedback!

OSCAL Repository:
https://github.com/usnistgov/OSCAL

Project Website:
https://www.nist.gov/oscal

How to Contribute:
https://pages.nist.gov/OSCAL/contribute/

FedRAMP Implementation Guides
https://github.com/gsa/fedramp-automation **(Available in July)**

Thank you

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