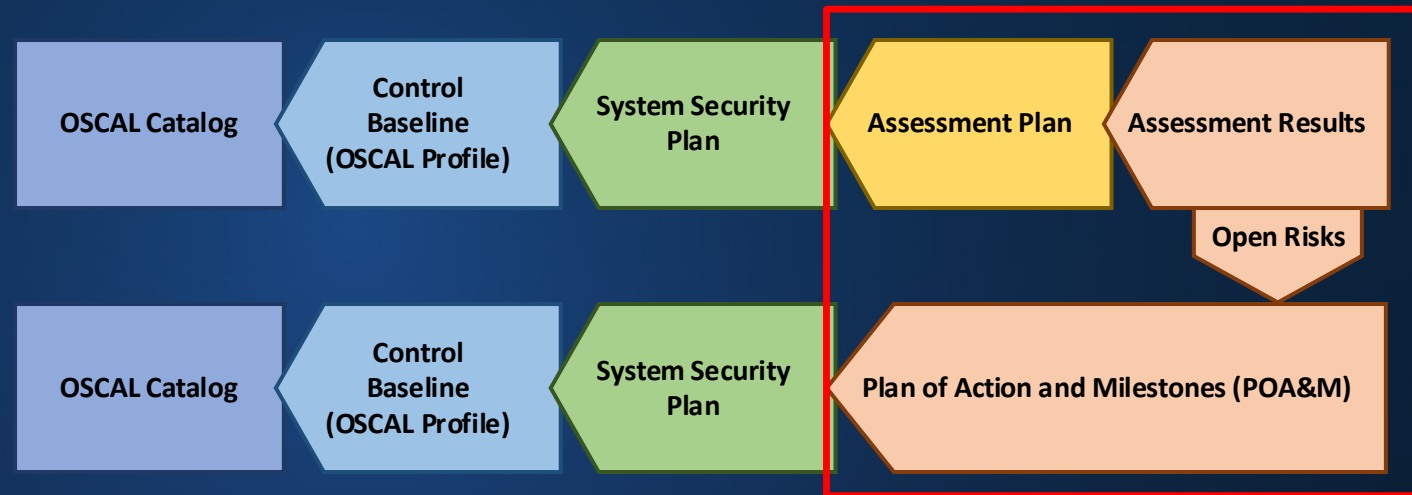




OSCAL Assessment Layers

Assessment Plan, Assessment Results, and POA&M Models

OSCAL Assessment Models



Reworked from Milestone 3

- Greater syntax consistency across OSCAL models
- More emphasis on continuous assessment
- More flexibility for different assessment approaches
- Added syntax in support of assessment templates
- Risk Metrics are now Characterizations and Facets

All Assessment Models are designed to be used

- In the context of a system (via a linked OSCAL SSP)
- In the context of a control baseline (via the SSP's linked OSCAL Profile)

OSCAL Assessment Plan (AP) Model

- **Import SSP:** Identifies the OSCAL SSP
- **Local Definitions:** Missing or incorrect SSP or Profile information
- **Terms and Conditions:** Legal statements, disclaimers, and methodologies
- **Reviewed Controls:** In-scope controls, control objectives, and methods
- **Assessment Subject:** In-scope system elements to be assessed
- **Assessment Assets:** tools and platforms used to perform the assessment
- **Assessment Action:** which *activity* to perform on which *assessment subjects* by which *role* based on what timing?
- **Task:** Assessment schedule with milestones

Assessment Plan (AP)

Metadata

Title, Version, Date, Document Labels, Revision History, Prepared By/For Roles, People, Teams, Locations

Import SSP

URI pointing to an SSP

Local Definitions

When information in the linked SSP is missing or inaccurate, assessors may define it here

Terms and Conditions

Rules of Engagement, Disclosures, Limitation of Liability, Assumption Statements, and Methodology

Reviewed Controls

Controls to include in the assessment as well as associated Control Objectives and Assessment Methods

Assessment Subject

Identifies what will be assessed, including: Components, Inventory Items, Locations, and User Types, as well as Parties to be Interviewed

Assessment Assets

Tools used to perform the assessment

Assessment Action

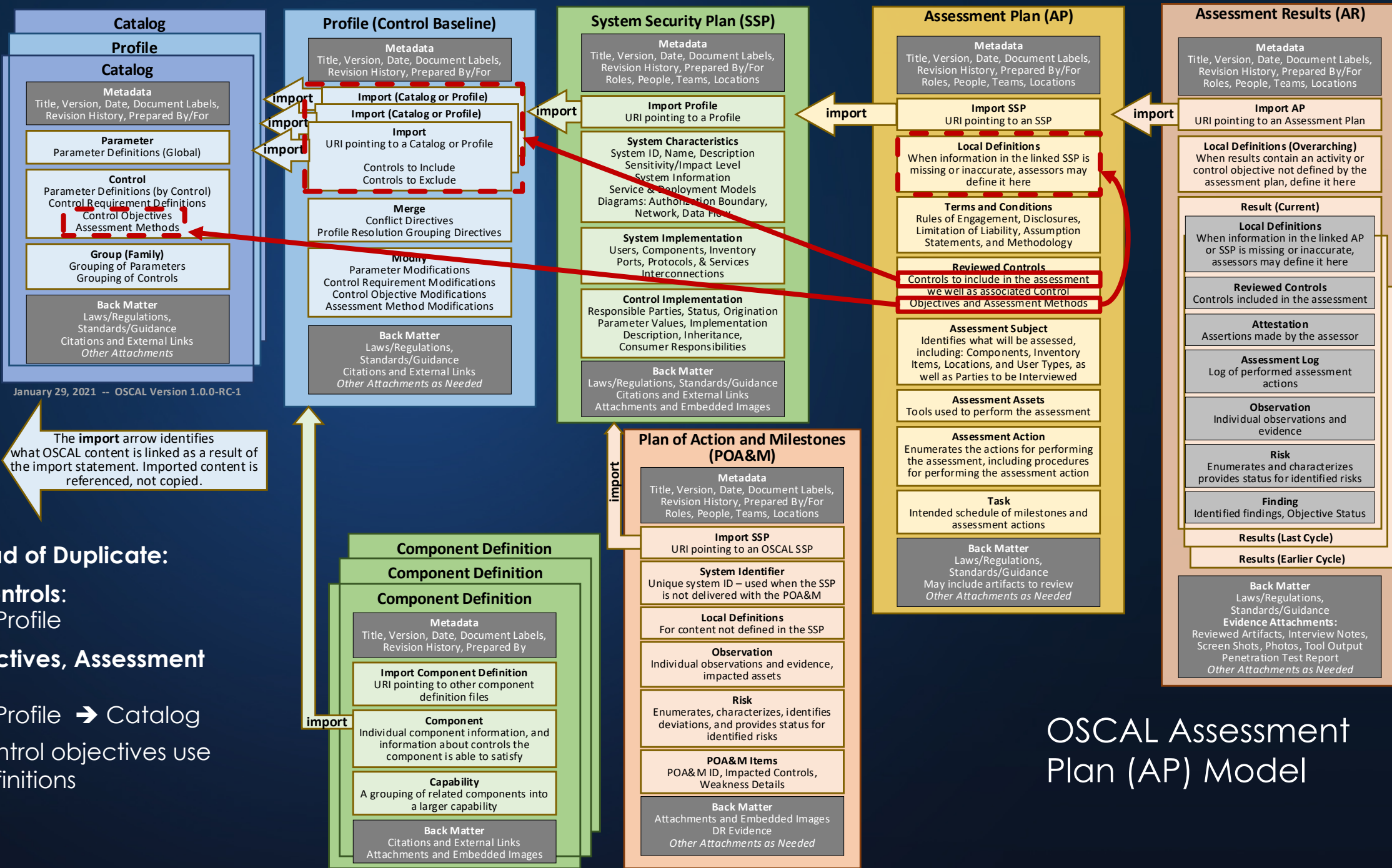
Enumerates the actions for performing the assessment, including procedures for performing the assessment action

Task

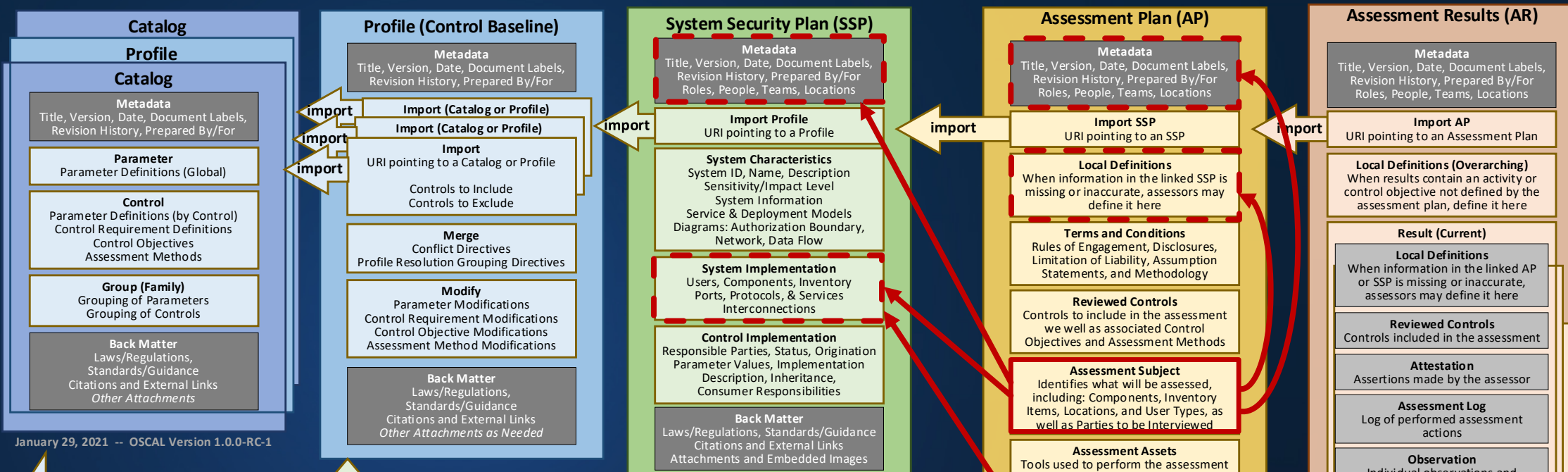
Intended schedule of milestones and assessment actions

Back Matter

Laws/Regulations, Standards/Guidance
May include artifacts to review
Other Attachments as Needed



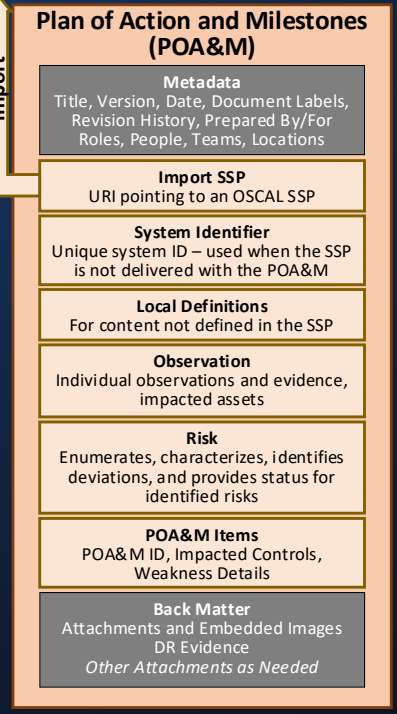
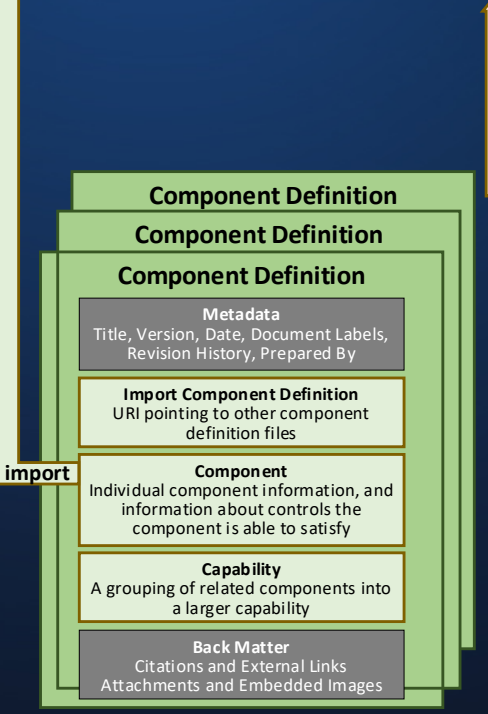
OSCAL Assessment Plan (AP) Model



The **import** arrow identifies what OSCAL content is linked as a result of the import statement. Imported content is referenced, not copied.

Reference instead of Duplicate:

- **Assessment Subject:**
 - AP → SSP: Metadata for party and location
 - If missing or inaccurate, use AP: Metadata
 - AP → SSP: System Implementation for component and inventory item
 - If missing or inaccurate, use AP: Local Definitions



OSCAL Assessment Plan (AP) Model

OSCAL Assessment Plan (AP) Model

Actions, Activities, and Tasks

Assessment Plan (AP) Activities, Actions & Tasks

Local Definitions

Activity

Identifies an assessment activity, including the steps to perform the activity.

Assessment Action

Identifies an *activity* to be performed on specific subjects by specific assessors using specific assessment assets.

Task

Identifies the schedule and/or sequencing for *assessment actions*, as well as assessment milestones

Assessment Plan (AP) Activities, Actions & Tasks **EXAMPLE**

Local Definitions

Activity: Discovery Scan
Step: identify subnet to scan
Step: etc.

Activity: Authenticated Scan
Step: identify assets to scan
Step: etc.

Assessment Action: Scan Subnets A & B
Activity: Discovery Scan
Activity: Authenticated Scan

Assessment Action: Scan Subnets C & D
Activity: Discovery Scan
Activity: Authenticated Scan

Task: Notify SOC – Start of Scanning
Start/End: March 1, 2021

Task: Network Scanning
Start: March 1, 2021 **End:** March 3, 2020
Related-Action: Scan Subnets A & B
Related-Action: Scan Subnets C & D

Task: Notify SOC – End of Scanning
Start/End: March 3, 2020

Assessment Action

title: Scan Subnets A & B
description: Discovery and Detailed Scan of Primary Data Center

assessment-subject:
include-subject: Location UUID of Primary Data Center
include-subject: Component UUID of Subnet A
include-subject: Component UUID of Subnet B

associated-activity: Discovery Scan
associated-activity: Authenticated Scan

responsible-role: assessment-team

Assessment Action

title: Scan Subnets C & D
description: Discovery and Detailed Scan of Alternate Data Center

assessment-subject:
include-subject: Location UUID of Alternate Data Center
include-subject: Component UUID of Subnet C
include-subject: Component UUID of Subnet D

associated-activity: Discovery Scan
associated-activity: Authenticated Scan

responsible-role: assessment-team

OSCAL Assessment Results (AR) Model

- **Import AP:** Identifies the OSCAL AP
- **Local Definitions:** When AP information is missing or incorrect
- **Result:** A set of assessment results
 - **Local Definitions:** When SSP or Profile information is missing or incorrect
 - **Reviewed Controls:** Controls actually reviewed
AR → AP → SSP → Profile
 - **Attestation:** Any overall statements the assessor asserts
 - **Assessment Log:** Who did what, when?
Activities, Actions, Task: AR → AP
 - **Observation:** A citation of evidence collected
Assessor, Asset AR: → AP Assessment Subject: AR → AP → SSP
 - **Origin/Actor:** Who or what generated the observation
 - **Risk:** An identified risk (as supported by unfavorable observations)
 - **Characterization/Facet:** Initial and Residual Risk values, CVSS, etc.
 - **Finding:** A conclusion of control satisfaction as supported by observations

Assessment Results (AR)

Metadata

Title, Version, Date, Document Labels, Revision History, Prepared By/For Roles, People, Teams, Locations

Import AP

URI pointing to an Assessment Plan

Local Definitions (Overarching)

When results contain an activity or control objective not defined by the assessment plan, define it here

Result (Current)

Local Definitions

When information in the linked AP or SSP is missing or inaccurate, assessors may define it here

Reviewed Controls

Controls included in the assessment

Attestation

Assertions made by the assessor

Assessment Log

Log of performed assessment actions

Observation

Individual observations and evidence

Risk

Enumerates and characterizes provides status for identified risks

Finding

Identified findings, Objective Status

Results (Last Cycle)

Results (Earlier Cycle)

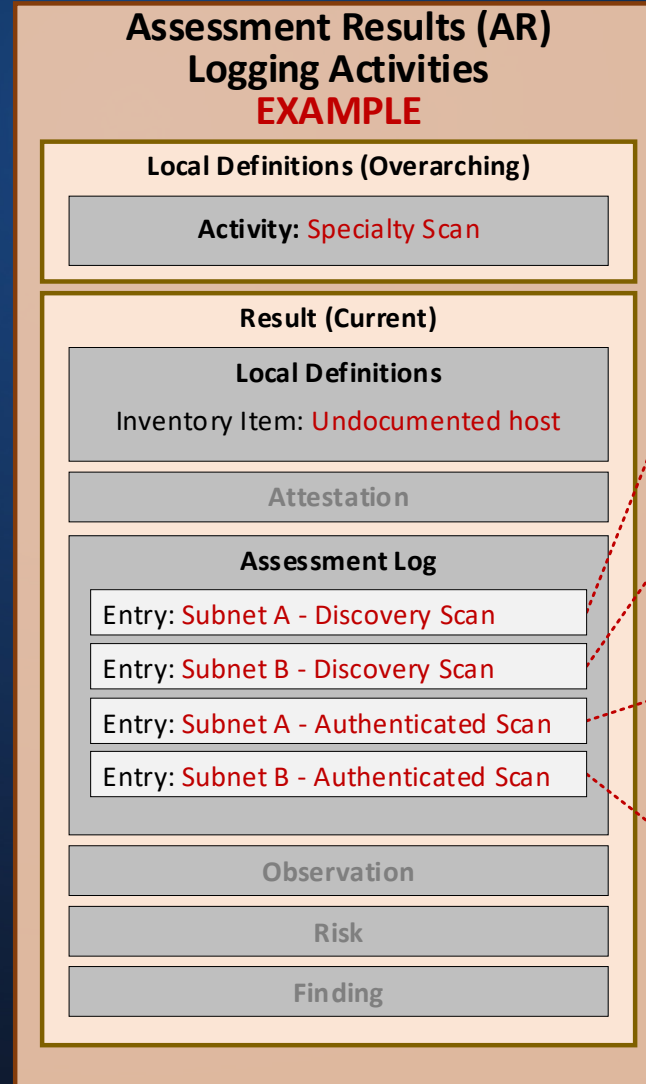
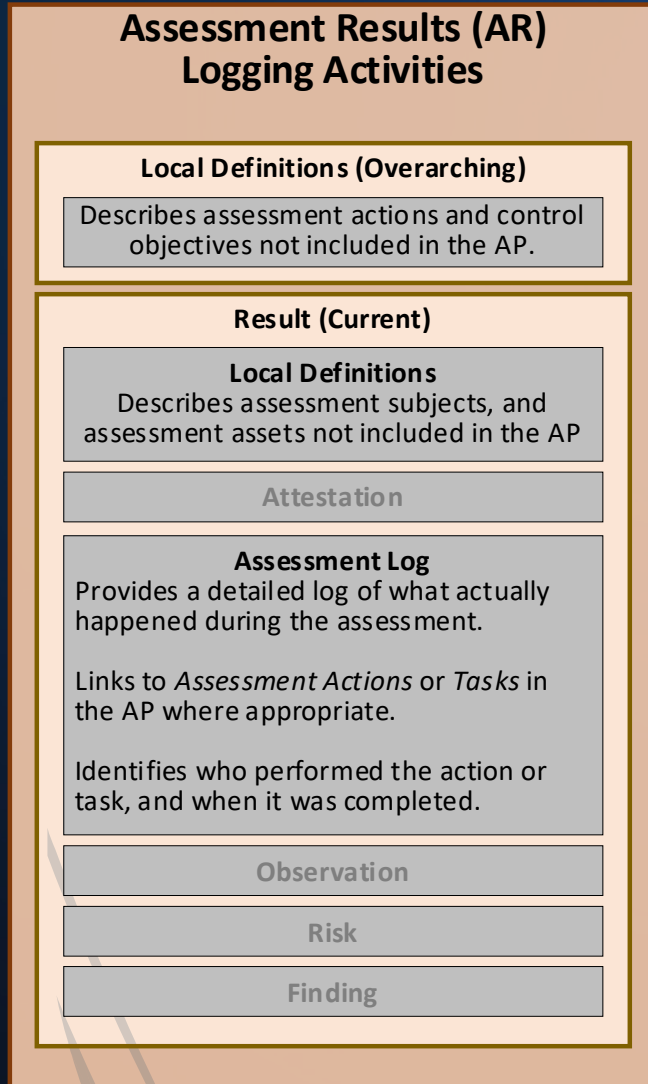
Back Matter

Laws/Regulations, Standards/Guidance

Evidence Attachments:

Reviewed Artifacts, Interview Notes, Screen Shots, Photos, Tool Output
Penetration Test Report
Other Attachments as Needed

OSCAL Assessment Results (AR) Model Activities and Log Items



Entry
title: Subnet A - Discovery Scan
start: Jan 1, 2021 at 9:00 AM
end: Jan 1, 2021 at 10:30 AM
logged-by: uuid-of-assessor
related-action: uuid-of-action-in-AP
related-task: uuid-of-task-in-AP

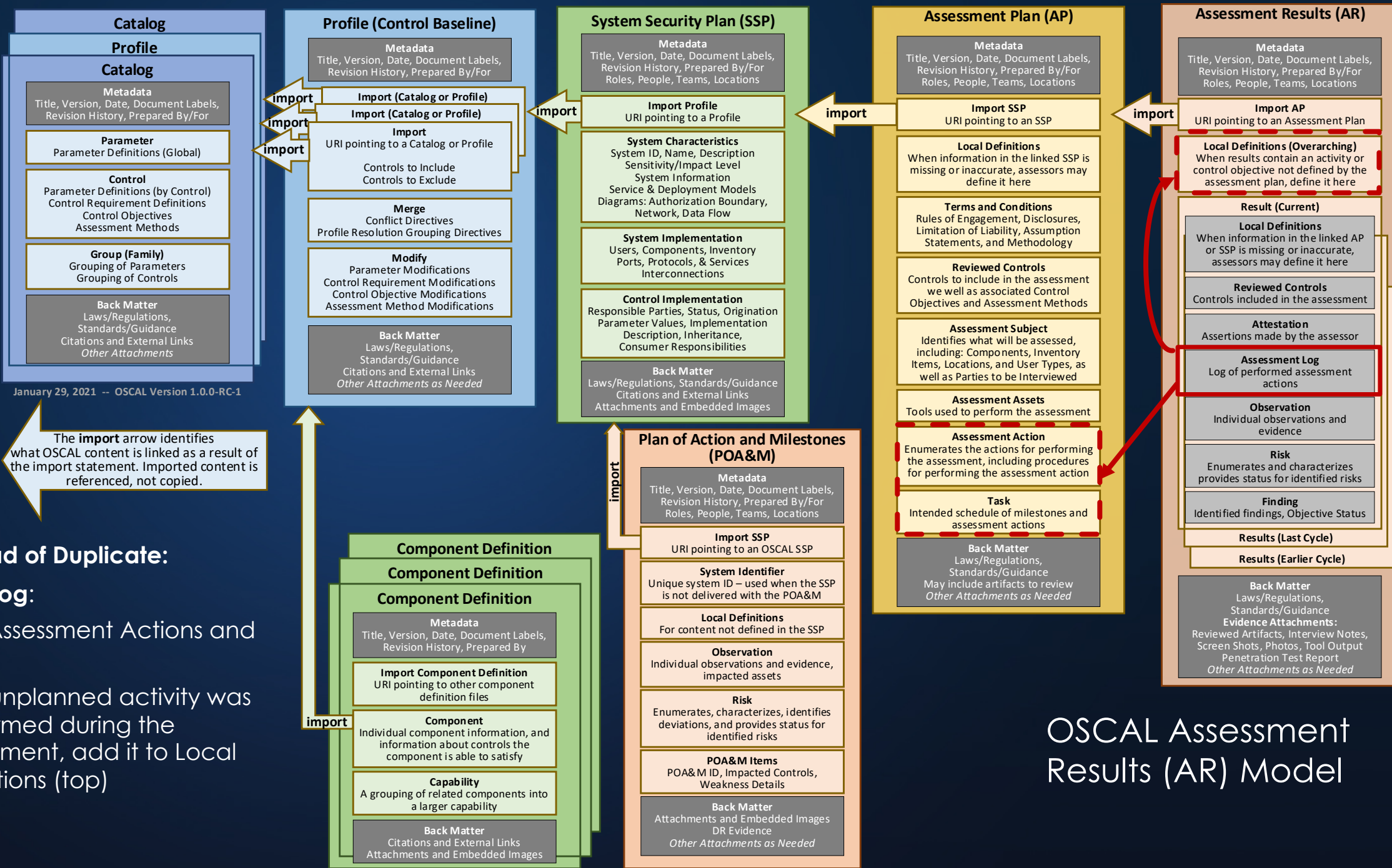
Entry
title: Subnet B - Discovery Scan
start: Jan 1, 2021 at 10:30 AM
end: Jan 1, 2021 at 12:00 PM
logged-by: uuid-of-assessor
related-action: uuid-of-action-in-AP
related-task: uuid-of-task-in-AP

Entry
title: Subnet A - Authenticated Scan
start: Jan 1, 2021 at 12:00 PM
end: Jan 1, 2021 at 3:30 PM
logged-by: uuid-of-assessor
related-action: uuid-of-action-in-AP
related-task: uuid-of-task-in-AP

Entry
title: Subnet B - Authenticated Scan
start: Jan 1, 2021 at 3:30 PM
end: Jan 1, 2021 at 7:00 PM
logged-by: uuid-of-assessor
related-action: uuid-of-action-in-AP
related-task: uuid-of-task-in-AP

Identifies:

- What assessment action or activity was performed
- When
- Who made the log entry



OSCAL Assessment Results (AR) Model

OSCAL Assessment Results (AR)

Model: Finding Scenario 1

Scenario: An inspection confirms that a control is satisfied (Positive Finding)

➤ Result:

➤ Observation (UUID Value):

- Origin/Actor: The assessor who performed the inspection
- Subject: Host 1
- Collected: Date/time of inspection
- Relevant Evidence: Link to screen shot

➤ Finding (UUID Value)

- **Objective Status:** Control or Control Objective
 - **Status:** Satisfied
- **Related Observation:** UUID of observation above

Assessment Results (AR)

Metadata

Title, Version, Date, Document Labels, Revision History, Prepared By/For Roles, People, Teams, Locations

Import AP

URI pointing to an Assessment Plan

Local Definitions (Overarching)

When results contain an activity or control objective not defined by the assessment plan, define it here

Result (Current)

Local Definitions

When information in the linked AP or SSP is missing or inaccurate, assessors may define it here

Reviewed Controls

Controls included in the assessment

Attestation

Assertions made by the assessor

Assessment Log

Log of performed assessment actions

Observation

Individual observations and evidence

Risk

Enumerates and characterizes provides status for identified risks

Finding

Identified findings, Objective Status

Results (Last Cycle)

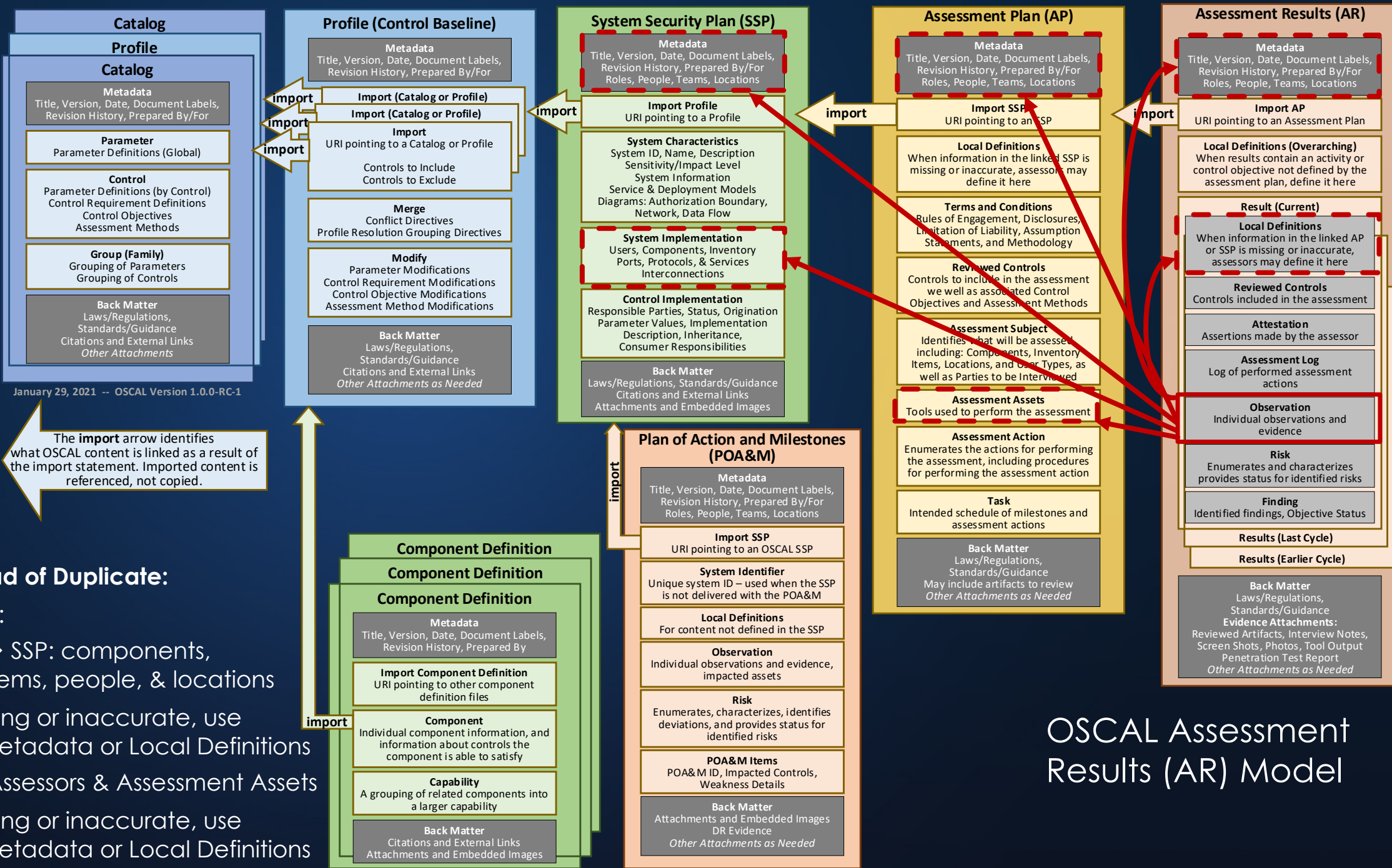
Results (Earlier Cycle)

Back Matter

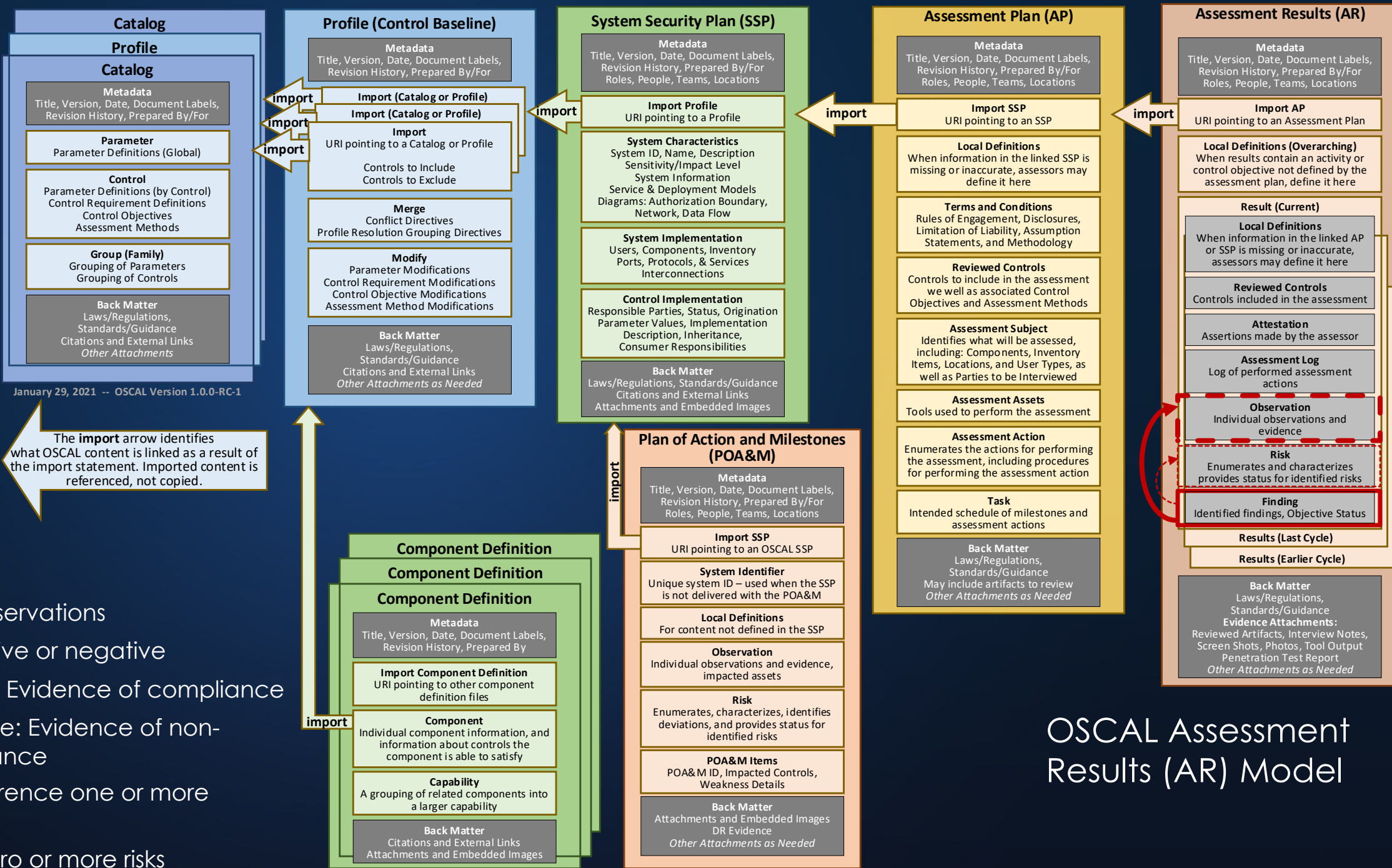
Laws/Regulations, Standards/Guidance

Evidence Attachments:

Reviewed Artifacts, Interview Notes, Screen Shots, Photos, Tool Output Penetration Test Report
Other Attachments as Needed



OSCAL Assessment Results (AR) Model



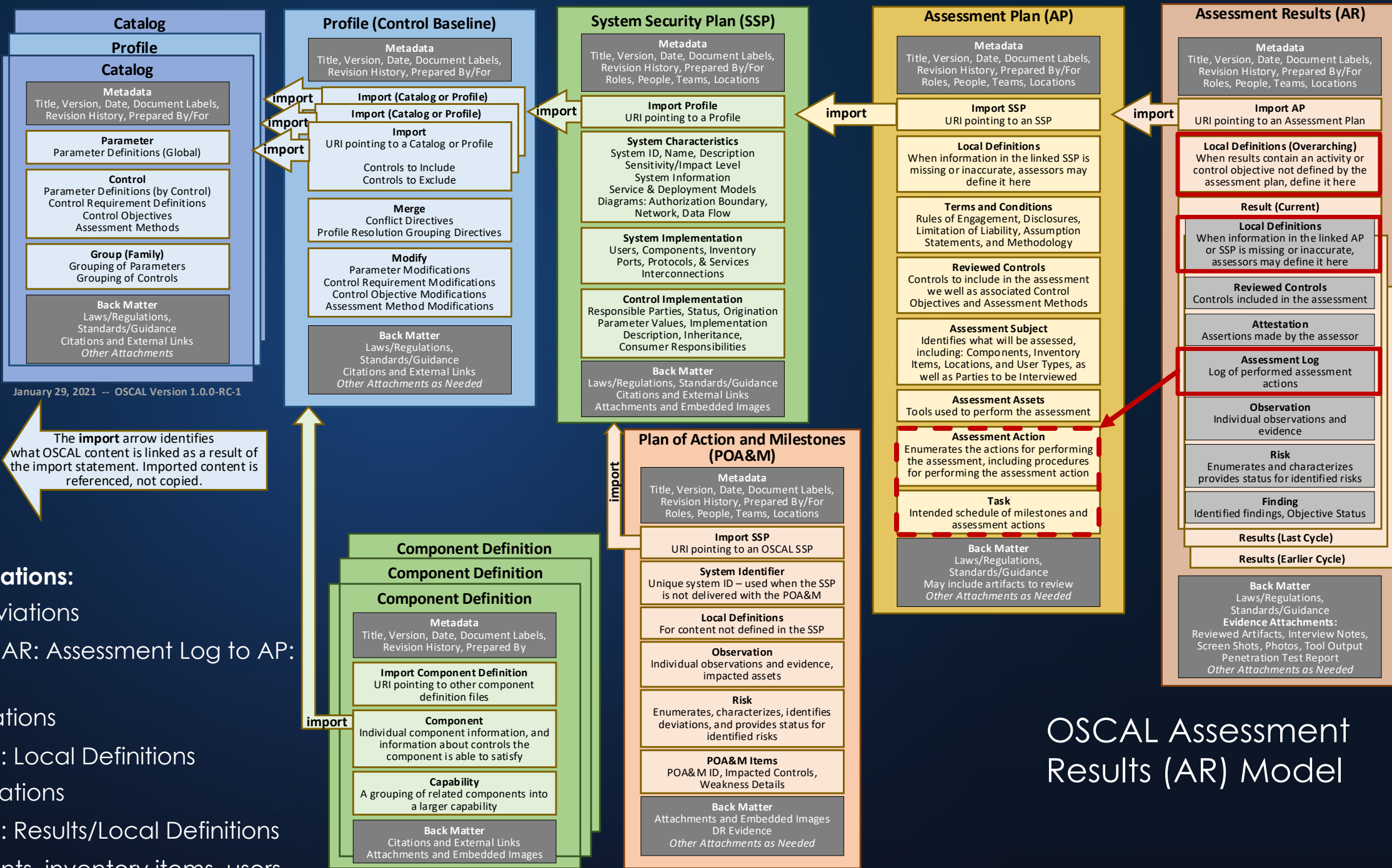
January 29, 2021 -- OSCAL Version 1.0.0-RC-1

The **import** arrow identifies what OSCAL content is linked as a result of the import statement. Imported content is referenced, not copied.

Findings:

- Tie risks to observations
- May be positive or negative
 - Positive: Evidence of compliance
 - Negative: Evidence of non-compliance
- Typically reference one or more observations
- Reference zero or more risks

OSCAL Assessment Results (AR) Model



The **import** arrow identifies what OSCAL content is linked as a result of the import statement. Imported content is referenced, not copied.

Assessment Deviations:

- Schedule Deviations
- Compare AR: Assessment Log to AP: Tasks
- Activity Deviations
- Look in AR: Local Definitions
- All other deviations
- Look in AR: Results/Local Definitions
- Components, inventory items, users

OSCAL Assessment Results (AR) Model

OSCAL Assessment Results (AR)

Model: Finding Scenario 2

Scenario: Authenticated scan on subnet A finds the same vulnerability on two Linux hosts (Negative Finding)

➤ Result:

➤ Observation (UUID Value):

- **Origin/Actor:** The scanning tool
- **Origin/Actor:** The person operating the tool
- **Collected:** Date/Time Stamp from Scan
- **Subject:** Linux Host 1
- **Subject:** Linux Host 2
- **Relevant Evidence:** Link to raw scanner tool output file

➤ Risk (UUID Value)

➤ Finding (UUID Value)

Assessment Results (AR)

Metadata

Title, Version, Date, Document Labels, Revision History, Prepared By/For Roles, People, Teams, Locations

Import AP

URI pointing to an Assessment Plan

Local Definitions (Overarching)

When results contain an activity or control objective not defined by the assessment plan, define it here

Result (Current)

Local Definitions

When information in the linked AP or SSP is missing or inaccurate, assessors may define it here

Reviewed Controls

Controls included in the assessment

Attestation

Assertions made by the assessor

Assessment Log

Log of performed assessment actions

Observation

Individual observations and evidence

Risk

Enumerates and characterizes provides status for identified risks

Finding

Identified findings, Objective Status

Results (Last Cycle)

Results (Earlier Cycle)

Back Matter

Laws/Regulations, Standards/Guidance

Evidence Attachments:

Reviewed Artifacts, Interview Notes, Screen Shots, Photos, Tool Output Penetration Test Report
Other Attachments as Needed

OSCAL Assessment Results (AR)

Model: Finding Scenario 2 (continued)

Scenario: Authenticated scan on subnet A finds the same vulnerability on two Linux hosts (Negative Finding)

➤ Result:

➤ **Observation (UUID Value)**

➤ **Risk (UUID Value):**

➤ **Status:** Open

➤ **Characterization**

➤ **Facet:** Likelihood = moderate

➤ **Facet:** Impact = high

➤ **Origin:** UUID of scanner tool

➤ **Finding (UUID Value):**

➤ **Related Observation:** UUID of Observation

➤ **Associated Risk:** UUID of Risk

Assessment Results (AR)

Metadata

Title, Version, Date, Document Labels, Revision History, Prepared By/For Roles, People, Teams, Locations

Import AP

URI pointing to an Assessment Plan

Local Definitions (Overarching)

When results contain an activity or control objective not defined by the assessment plan, define it here

Result (Current)

Local Definitions

When information in the linked AP or SSP is missing or inaccurate, assessors may define it here

Reviewed Controls

Controls included in the assessment

Attestation

Assertions made by the assessor

Assessment Log

Log of performed assessment actions

Observation

Individual observations and evidence

Risk

Enumerates and characterizes provides status for identified risks

Finding

Identified findings, Objective Status

Results (Last Cycle)

Results (Earlier Cycle)

Back Matter

Laws/Regulations, Standards/Guidance

Evidence Attachments:

Reviewed Artifacts, Interview Notes, Screen Shots, Photos, Tool Output
Penetration Test Report
Other Attachments as Needed

OSCAL Plan of Action and Milestones (POA&M) Model

- **Import SSP:** Identifies the OSCAL SSP
- **System Identifier:** When POA&M is delivered without an SSP
- **Local Definitions:** When SSP information is missing or incorrect
- **Observation:** A citation of evidence collected
Subject: POA&M → SSP
- **Risk:** An identified risk (as supported by unfavorable observations) and associated remediation activities
 - **Remediation Activities:** Plans and activities to resolve the risk
 - **Deviations:** Identify and track changes to the risk finding itself
- **POA&M Items:** POA&M entries, each linking risks, observations, and impacted controls

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
Used when the POA&M is delivered without the SSP

Local Definitions

For content not defined in the SSP

Observation

Individual observations, evidence,
and impacted assets

Risk

Title, Source, CVE#, Severity, Disposition

Remediation Activities

Plan, Dependencies, Schedule, Resolution Date,
Remediation Status

Deviations

Status (Investigating, Pending, Approved)

False Positive (FP)

Accepted Risk / Operational Requirement (OR)

Risk Adjustment (RA)

CVSS Metrics

POA&M Item

POA&M ID, Impacted Controls, Weakness Details
*Links relevant **Observations** and **Risks**.*

Back Matter

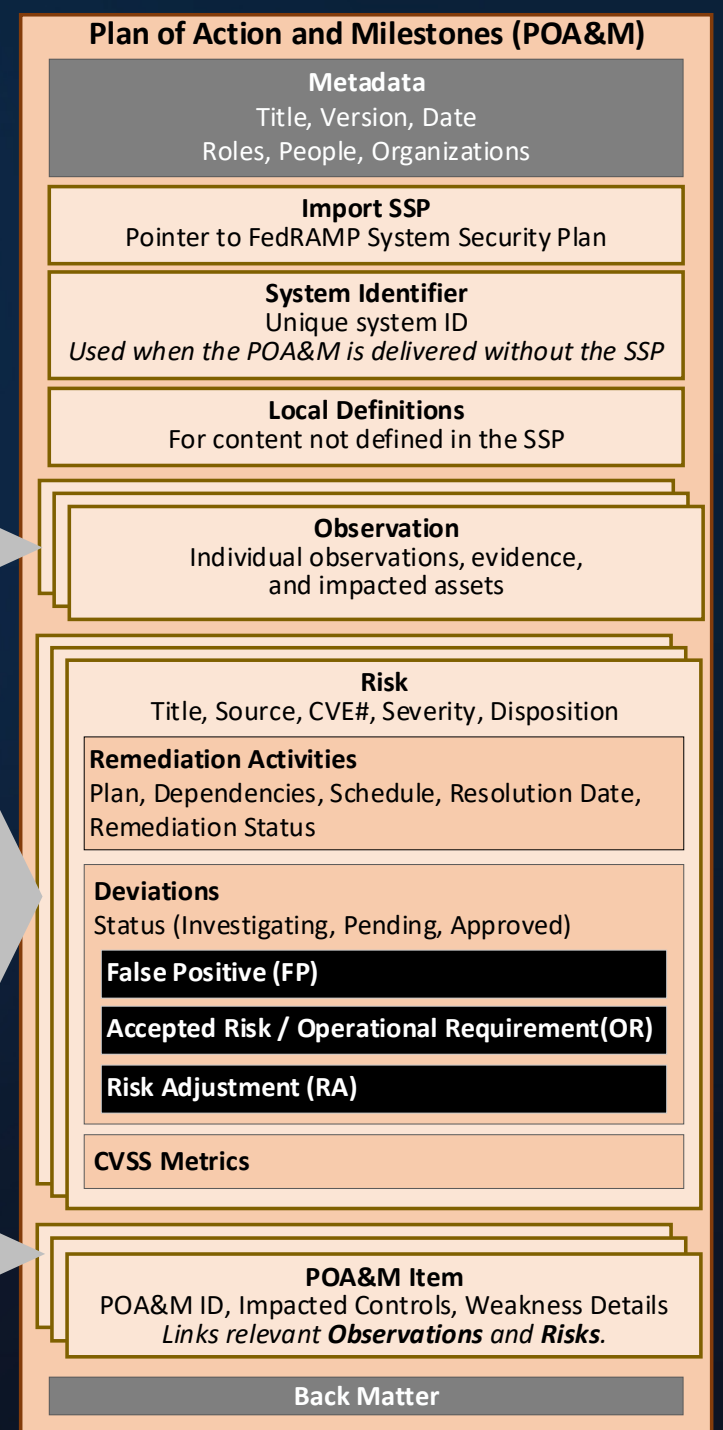
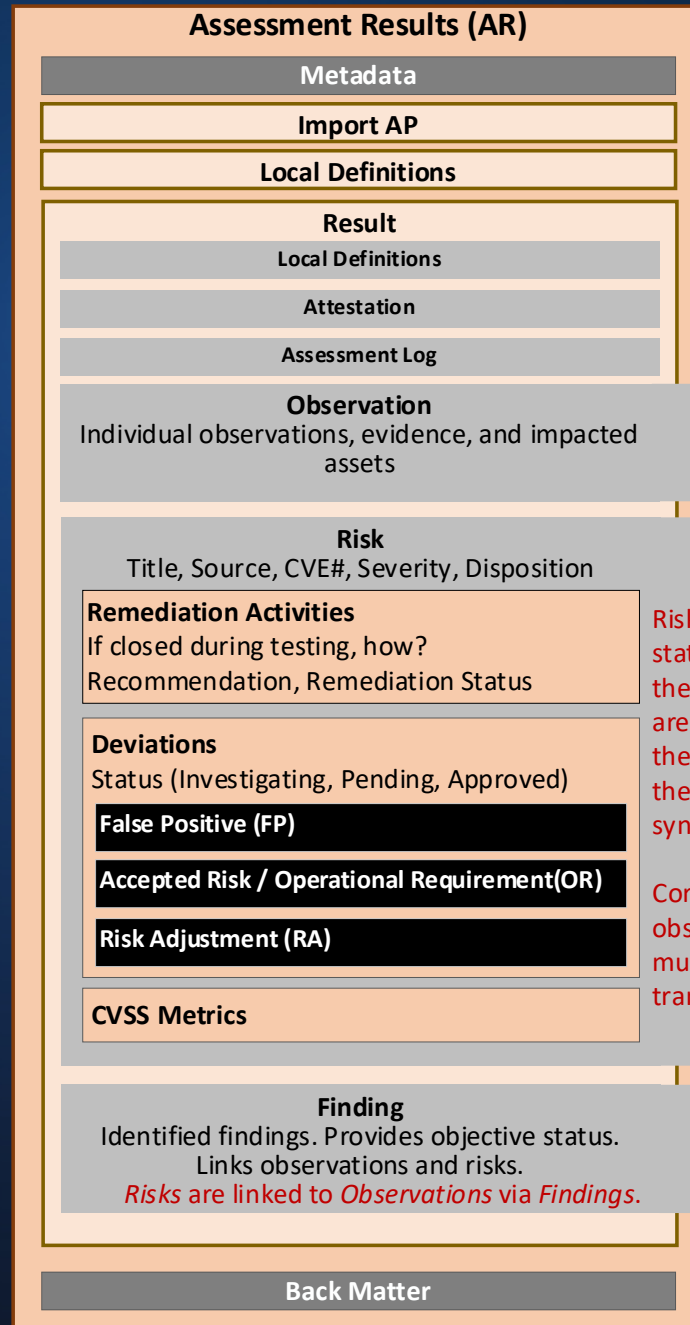
OSCAL AR to POA&M

At the end of an assessment:

- Copy all "open" risks from AR to POA&M
- For every risk, also copy all related observations
- Risks are linked to observations in the Finding

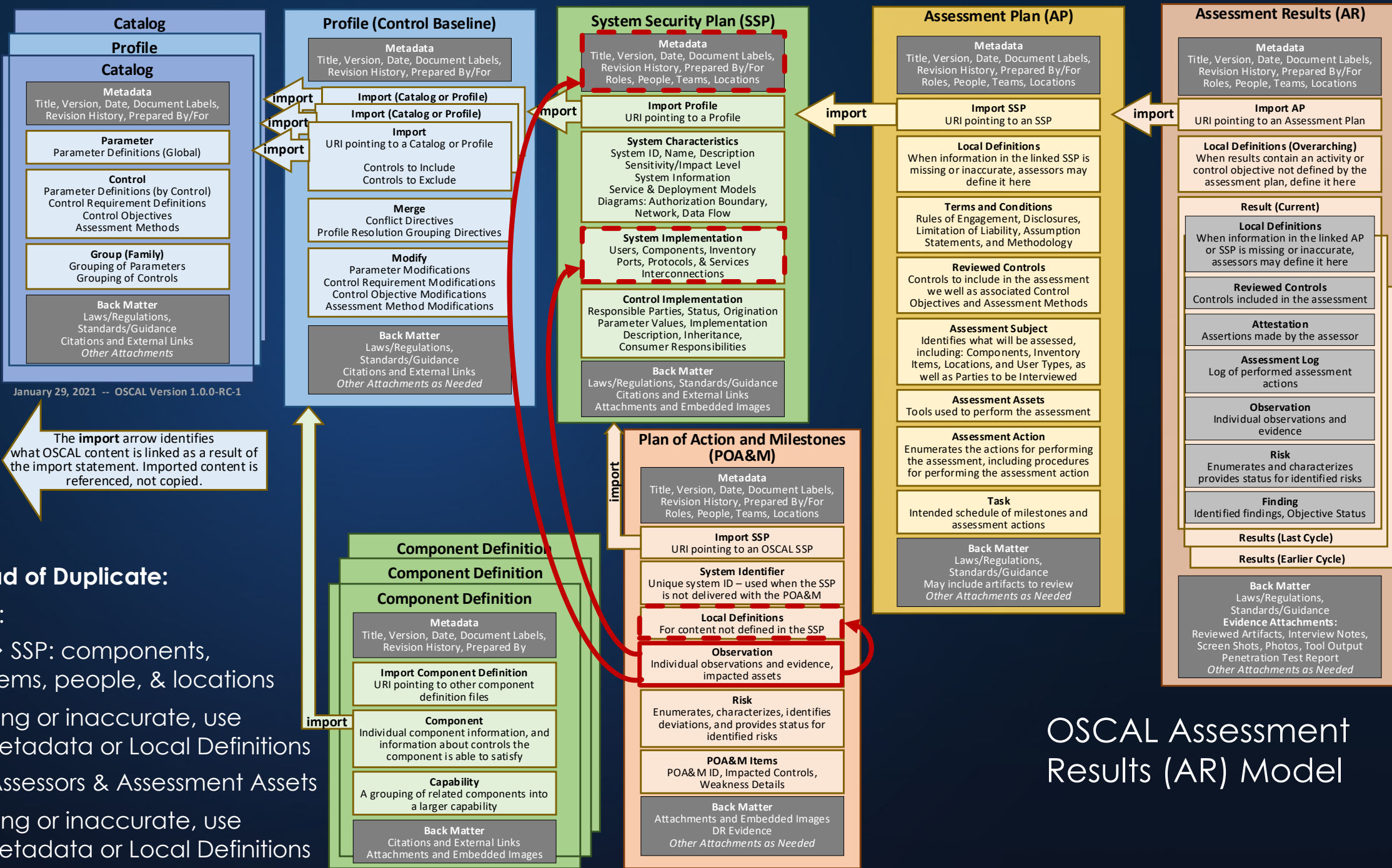
It may also be necessary to copy content from the AP or AR into the POA&M's Local Definitions.

- Typically to ensure Observation/Origin references remain valid
- Example: A scanner tool defined in AP: Assessment Assets



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.



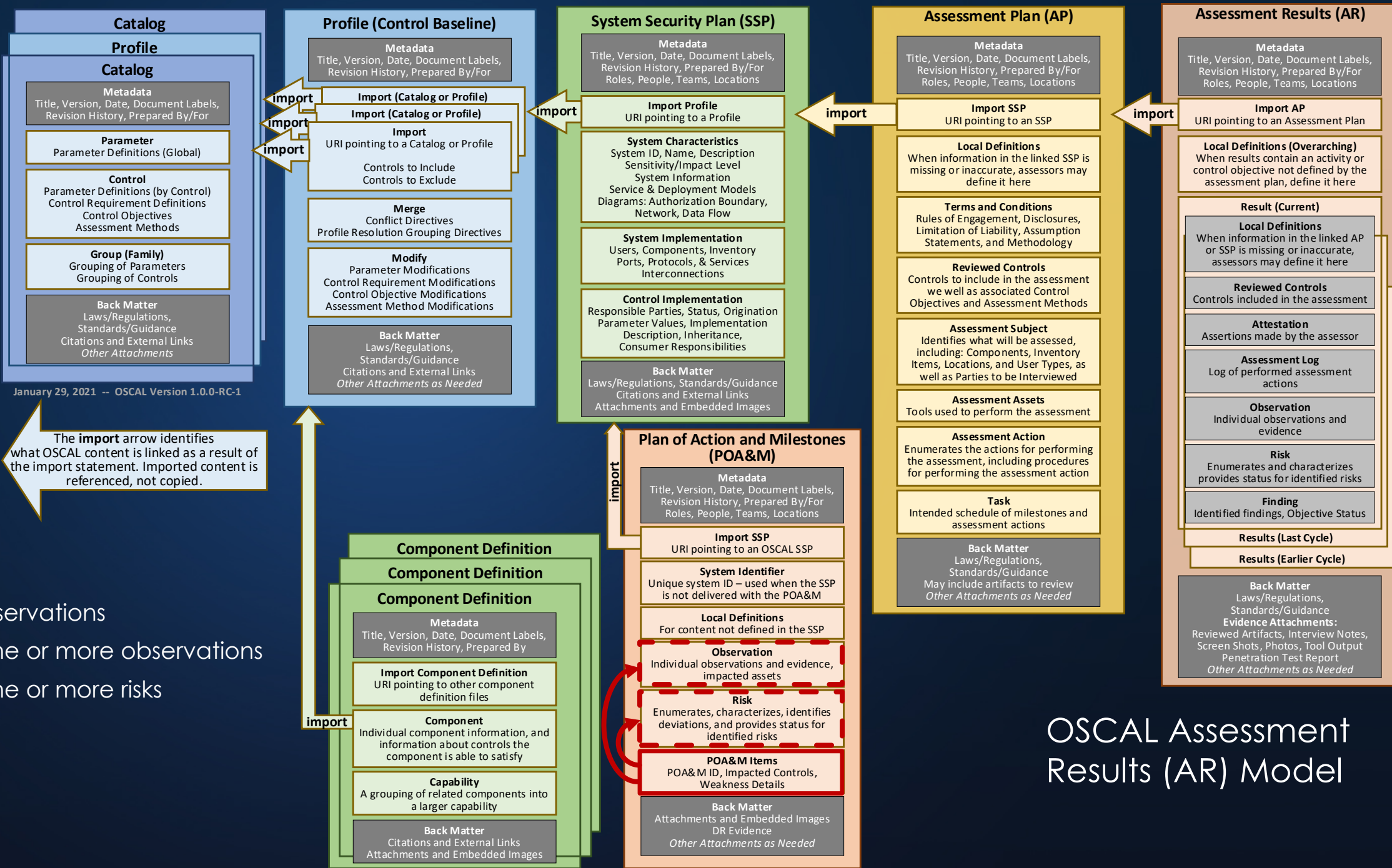
January 29, 2021 -- OSCAL Version 1.0.0-RC-1

The **import** arrow identifies what OSCAL content is linked as a result of the import statement. Imported content is referenced, not copied.

Reference instead of Duplicate:

- **Observations:**
 - AR → AP → SSP: components, inventory items, people, & locations
 - If missing or inaccurate, use AR: Metadata or Local Definitions
 - AR → AP: Assessors & Assessment Assets
 - If missing or inaccurate, use AR: Metadata or Local Definitions

OSCAL Assessment Results (AR) Model



The **import** arrow identifies what OSCAL content is linked as a result of the import statement. Imported content is referenced, not copied.

POA&M Items:

- Tie risks to observations
- Reference one or more observations
- Reference one or more risks

OSCAL Assessment Results (AR) Model