

# Developer Data Bites

**July 6, 2023** 



# Introduction



**Purpose:** To create space for dialogue between developers who use OSCAL and the FedRAMP® automation team.

#### **Outcomes:**

- Shared understanding of the OSCAL Rev 5
  profile and resolved profile catalog changes.
- Shared understanding of OSCAL Rev 5 SSP
   Template and other related artifact changes.
- Productive discussion around OSCAL



## Agenda:

- Welcome
- Pre-Submitted Q&A
- FedRAMP Automation
   Community Updates
- OSCAL Rev 5 Profiles and Resolved Profile Catalogs
- OSCAL Rev 5 Templates
- Open Forum
- Next Steps & Closing

# Data Bites Guiding Principles





Keep the discussion respectful



Be curious, seek understanding



Speak from your own experience



Challenge through questions



Focus on ideas



Keep it technical

# Pre-Submitted Questions

# Pre-Submitted Questions



## **Question:**

Related to GH Issue #410: AC-8 additional FedRAMP Guidance and Requirements do not have response points in baseline profiles

#### **Answer:**

These requirements currently do not have response points in Rev 4 or Rev 5 OSCAL, and the FedRAMP PMO recognizes that this is a issue from an automation standpoint. The language will need to be clarified for each Requirement to specify the intent that the requirement will need a specific response point in the OSCAL and the Word SSP templates. This will be undertaken for a future release of the baselines (profiles). For now, they will be reviewing the SSP as it is currently done via an analyst looking at the control responses to determine if the Guidance/Requirements were applied/incorporated appropriately in the part responses in the Word template.

# FedRAMP Automation Community Updates



## July 6, 2023

#### Rev. 5

- FedRAMP Rev. 5 OSCAL Templates and Guides were released on 6/30.
- The Rev 5. Profiles and resolved-profile-catalogs were released on 6/15.
- Rev 5 FedRAMP Schematron validations pending release (4-6 weeks).

#### Rev. 4

Relaxed some validation rules with PMO approval.

## **Issues/Ticket Tags**

- Closed issues/pull requests this cycle
  - o #425 Bump vite from 3.2.5 to 3.2.7.
  - #426 Add revision to the test output path for xspec.
  - #429 Fix **rev4** profile issues.
  - #430 [Snyk] Upgrade yaml from 2.2.2 to 2.3.1.
  - #364/435 Add/Update rev5 FedRAMP
     OSCAL Templates/Guides.
  - #436 Update last modified date in FR OSCAL rev5 templates.
  - #437 Added rev5 draft resources and registry files.

# OSCAL Rev 5 Profiles and

Resolved Profile Catalogs

# FedRAMP Rev. 5 Release Overview



# Overview of Changes as of 7/6/2023

- Legacy submissions (FYI):
  - Format of word templates changed for Rev 5 (see <a href="https://www.fedramp.gov/blog/">https://www.fedramp.gov/blog/</a> for more info).
  - Certain artifacts have been included within the Rev 5 templates that were not included in Rev 4 template.
- Added new properties (props) to FedRAMP OSCAL namespace (note on required/not required).
- Broke out guidance and documentation into separate folders on Github.
- Broke out of templates, resources and baselines into separate folders on Github.
- Separating of Schematron Rulesets (in process).
  - Ability to have separate rulesets between Rev 4 and Rev 5.
- Separation of Schematron Validation output verbiage and references (in process).
  - SSP template and guidance changes require separate output language.
- Removed Schematron Validation rules requiring submission of PIA/PTA and FedRAMP Laws and Regulations in OSCAL.

# FedRAMP OSCAL Rev 5 Release Overview



# Updates

- Rev 5 profiles and resolved profile catalogs released on 6/15.
  - Core controls have not been designated.
  - FedRAMP tailored response points pending.
- Rev 5 FedRAMP OSCAL Guides and Templates released on 6/30.
  - New prop for FedRAMP Schematron validations cli and web site (resolution-resource).
  - Addition of other props for FedRAMP specific requirements.
  - Adjustments made to back-matter resources to bring some of the resources in line with NIST OSCAL base (e.g. users-guide now user-guide).
  - Embedded comments in templates for items that currently don't pass FR validations (e.g. SSP template sample does not contain all MODERATE baseline controls).
- Rev 5 resources and registry.
  - Initial versions have been placed in GH however, updates are in progress to align with new FedRAMP
     Schematron validation changes for Rev 5 requirements.
  - □ **Note**: Rev 4 versions will remain as is.

# FedRAMP OSCAL Rev 5 Release Overview



# In Progress

- Currently working with PMO to adjust FedRAMP validations to align with new Rev 5 legacy templates format and requirements.
- Response points in Rev 5 currently have not been FedRAMP tailored (See GH issue #410).
  - Rev 5 assessment-objectives in FR resolved-profile-catalogs based on NIST Rev 5.
- Currently working on using FedRAMP Threat Based risk profiling data to designate core controls in profiles.
  - ☐ See <a href="https://github.com/GSA/threat-analysis">https://github.com/GSA/threat-analysis</a> for more information.
- FedRAMP Schematron validations alignment with FedRAMP Rev 5 requirements.

Note: GH Release version fedramp-2.0.0-oscal-1.0.2 will not be updated until associated resources/registry/templates have been updated to reflect rev 5 changes.

# OSCAL Rev 5 Templates



# High-Level Summary of Changes to FedRAMP OSCAL Templates

- Target OSCAL version 1.0.4 (1.0.5 and 1.0.6 are currently in pre-release)
- Addition of new props that will aid FedRAMP in processing of OSCAL documents
- Addition of new props to record information sought in new FedRAMP templates
- Removal of props no longer needed in new FedRAMP templates
- Alignment of props with core NIST OSCAL props where applicable
- Expansion of sample content in the templates to serve as examples for OSCAL documents authors
  - Minimize validation exceptions (known validation errors will be published to GitHub)
  - More sample back-matter content
  - Back-matter resource preference rlink vs base64



# Templates Deep Dive

- Addition of a new property (prop) and back-matter resource reference in the FedRAMP namespace that will enable easy determination of the associated NIST 800-53 controls catalog that FedRAMP resolved-profile-catalogs were derived from.
- Enables automation support to determine which FedRAMP validation rulesets are to be used by validation code.



# Templates Deep Dive

- New optional prop (resolution-resource) in metadata assembly for FedRAMP OSCAL submissions.
  - ☐ If not found, FedRAMP Schematron validations will assume Rev 5. ruleset.
  - ☐ If found, the specified version in the back-matter resource will be applied.

```
<system-security-plan xmlns="http://csrc.nist.gov/ns/oscal/1.0"</pre>
  uuid="8c000726-ba93-480d-a221-8cb60df10c24">
  <metadata>
     <title>FedRAMP System Security Plan (SSP) Rev 5</title>
     <published>2023-02-25T00:00:00.00-04:00/published>
     <last-modified>2021-06-09T14:27:50.591-04:00/last-modified>
     <version>fedramp2.0.0-oscal-1.0.4
     <oscal-version>1.0.4</oscal-version>
     <revisions>
        <revision> [9 lines]
     </revisions>
     <!-- BEGIN ADDITION -->
     rop, ns="https://fedramp.gov/ns/oscal" name="resolution-resource"
             value="#ace2963d-ecb4-4be5-bdd0-1f6fd7610f41" />
     <!-- END ADDITION -->
```



# SSP Template - Deep Dive

Table 6.1 Leveraged FedRAMP Authorized Services

#	CSP/CSO Name (Name on FedRAMP Marketplace)	CSO Service (Names of services and features - services from a single CSO can be all listed in one cell)	Authorization Type (JAB or Agency) and FedRAMP Package ID #	Nature of Agreement	Impact Level (High, Moderate, Low, LI- SaaS)	Data Types	Authorized Users/Authentication



# SSP Template - Deep Dive

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FedRAMP only accepts the information types defined in NIST SP 800-60, Volume 2, Revision 1. See FedRAMP's information-types.xml



## SSP Template - Deep Dive

Table 7.1 External Systems/Services, Interconnections, APIs, and CLIs Without FedRAMP Authorizations

# (either 1, 2, or 3)**	System/ Service/ API/CLI Name (Non- FedRAMP Cloud Services)	Connection Details	Nature of Agreement	Still Supported? Y or N	Data Types	Data Categorization	Authorized Users/ Authentication	Other Compliance Programs	Description	Hosting Environment	Risk/Impact/ Mitigation

<sup>\*\*1-</sup> Non-FedRAMP Authorized Cloud Services, 2- Corporate Shared Services, 3- Update Services for In-Boundary Software/Services

```
<!-- New Rev5 prop. Specify the type of interconnection (1=Non-FedRAMP authorized cloud service, 2=Corporate Shared Services, 3-update Service
<!-- New Rev5 prop. Specify the type of agreement (e.g., EULA, SLA, App License Agreement, Contract, etc.) -->
<prep ns="https://fedramp.gov/ns/oscal" name="nature-of-agreement" value="Contract"/>
<!-- New Rev5 prop. Specify if this product still supported by the manufacturer? Accepted values are "yes" or "no" -->
<prep ns="https://fedramp.gov/ns/oscal" class="fedramp" name="interconnection-data-type" value="C.3.5.1"/>
<prep ns="https://fedramp.gov/ns/oscal" class="fedramp" name="interconnection-compliance" value="ISO/IEC 27001"/>
<!-- New Rev5 prop. Describe the hosting environemnt (e.g., corporate newtork, IaaS, self-hosted, etc.) -->
<prop ns="https://fedramp.gov/ns/oscal" name="interconnection-risk" value="None"/>
```



# SSP Template - Deep Dive

#### Appendix Q <CSO Name> Encryption Implementation Status

Ref #	Source				Destinatio	Destination						
	Areas of DIT <sup>1</sup>	CMVP # <sup>2</sup>	CM Vendr	Module Name	Areas of DIT	CMVP #3	CM Vendor	Module Name	Usage	Notes <sup>4</sup>		
1	NGINX Server <use case<br="">Example - Please Delete&gt;</use>	#4271  Embedded CM Third-party CM Uses OS CM In FIPS Mode Other	Red Hat, Inc.	RHEL 8 OpenSSL	All Application Servers	#3980  Embedded CM Third-party CM Uses OS CM In FIPS Mode Other	Canonical Ltd.	Ubuntu 18.04 OpenSSH Server	Load Balancer TLS to Application Server  TLS 1.1 or earlier  TLS 1.2  TLS 1.3  Other			
2	All Application Servers <use -="" case="" delete="" example="" please=""></use>	None  Embedded CM Third-party CM Uses OS CM In FIPS Mode Other	CentOS 7.9	OpenSSL 1.0.1	PostgreSQL	#3980  Embedded CM Third-party CM Uses OS CM In FIPS Mode Other	Canonical Ltd.	Ubuntu 18.04 OpenSSH Server	Application servers to common DB  TLS 1.1 or earlier  TLS 1.2  TLS 1.3  Other	Plans to move to RHEL 8. See POA&M ID 111.		

<sup>&</sup>lt;sup>1</sup> Each entry should be the component or asset where the FIPS-140 validated cryptographic module is located.

Ref#	Areas of DAR <sup>5</sup>	CMVP # 6	CM Vendor Name	Module Name	Usage	Encryption Type	Notes <sup>7</sup>
1	PostgreSQL database <use case<br="">Example - Please Delete&gt;</use>	#3980  Embedded CM Third-party CM Uses OS CM In FIPS Mode Other	Canonical Ltd.	Ubuntu 18.04 OpenSSL Cryptographic Module	Volume encryption		
2	App server local storage <use -="" case="" delete="" example="" please=""></use>	#2931  Embedded CM Third-party CM  Uses OS CM In FIPS Mode Other	Microsoft	Windows Server 2016	OS and application binaries	☐ Full disk ☑ File ☐ Record ☐ None ☐ Other	CM is Historical, per NIST CMVP. Plans to move to Windows 2019 upon Active FIPS 140-validation achieved. See POA&M ID 123.
3	S3 buckets <use -="" case="" delete="" example="" please=""></use>	#4177   Embedded CM Third-party CM Uses OS CM In FIPS Mode Other	AWS	Key Management Service (KMS) HSM	Server-side encryption with KMS keys (SSE-KMS) used to encrypt bucket		

<sup>&</sup>lt;sup>5</sup> Each entry should be the component or asset where the FIPS-140 validated cryptographic module is located.

<sup>&</sup>lt;sup>2</sup> If using cryptography that lacks FIPS validation, state "No FIPS". If unencrypted, state "Unencrypted".

<sup>3</sup> If using cryptography that lacks FIPS validation, state "No FIPS". If unencrypted, state "Unencrypted".

<sup>&</sup>lt;sup>4</sup> For example, specify if the historical CM is used or the store lacks encryption entirely. Include the related POA&M ID, remediation plans, etc.

<sup>&</sup>lt;sup>6</sup> If using cryptography that lacks FIPS validation, state "No FIPS". If unencrypted, state "Unencrypted".

<sup>7</sup> For example, specify if the historical CM is used or the store lacks encryption entirely. Include the related POA&M ID, remediation plans, etc.



## SSP Template - Deep Dive

```
<component uuid="95beec7e-6f82-4aaa-8211-969cd7c1f1ab" type="validation">
  <title>[SAMPLE]Cryptographic Module Name</title>
    Provide a description and any pertinent note regarding the use of this CM.
    For data-at-rest modules, describe type of encryption implemented (e.g., full disk, file, record-level, etc.)
    Lastly, provide any supporting notes on FIPS status (e.g. historical) or lack of FIPS compliance (e.g., Module in Process).
 <!-- Rev 5 new props for CMs -->
       ns="https://fedramp.gov/ns/oscal" name="vendor-name" value="CM Vendor"/>
  <!-- Provide the validation type for this CM -->
  rop name="validation-reference" value="3928"/>
  <link rel="validation-details" href="https://csrc.nist.gov/projects/cryptographic-module-validation-program/Certificate/3928"/>
  <status state="operational"/>
<component uuid="1eaaabbd-b3a6-4316-a868-7b815e7c40f5" type="validation">
  <title>[SAMPLE]Cryptographic Module Name</title>
    Provide a description and any pertinent note regarding the use of this CM.
    For example, any supporting notes on FIPS status (e.g. historical) or lack of FIPS compliance (e.g., Module in Process).
  <!-- Rev5 new props for CMs -->
       ns="https://fedramp.gov/ns/oscal" name="vendor-name" value="CM Vendor"/>
  <prep ns="https://fedramp.gov/ns/oscal" name="cryptographic-module-usage" value="data-in-transit"/>
  <!-- Provide the validation type for this CM -->
  rop name="validation-reference" value="3920"/>
  <link rel="validation-details" href="https://csrc.nist.gov/projects/cryptographic-module-validation-program/certificate/3920"/>
  <status state="operational"/>
```



#### **SSP New FedRAMP Props**

- authentication-method
- authorized-users
- cryptographic-module-usage
- fully-operational-date
- impact-level
- interconnection-compliance
- interconnection-data-categorization
- interconnection-data-type
- interconnection-hosting-environment
- interconnection-risk
- interconnection-type
- login-url
- nature-of-agreement
- resolution-resource
- still-supported
- type
- vendor-name

#### **SSP deprecated FedRAMP props**

- cloud-deployment-model
  - use core OSCAL "cloud-deployment-model" propinstead
- logn-url
  - Replaced by "login-url" prop
- pta-1
- pta-2
- pta-3
- pta-4
- security-eauth-level
- sorn-id

Use the following xpath query to find an example of prop in rev5 SSP Template:

//\*/prop[@ns='https://fedramp.gov/ns/oscal' and @name='NEW-PROP-NAME']

See FedRAMP Extensions for a complete list of prop extensions.



#### **SAP New FedRAMP Props**

- assessment-type
- csp-validated
- ia-validated
- ipv4-address
- ipv4-subnet
- label
- login-url
- name
- resolution-resource
- significant-changes-scope
- sort-id
- type

Use the following xpath query to find an example of prop in rev5 SAP Template:

vendor-name

//\*/prop[@ns='https://fedramp.gov/ns/oscal' and @name='NEW-PROP-NAME']

See FedRAMP Extensions for a complete list of prop extensions.

#### **SAP deprecated FedRAMP props**

- logn-url
  - Replaced by "login-url" prop



#### **SAR New FedRAMP Props**

- discrepancies
- discrepancies-reason
- ia-manual-review
- ipv4-address
- login-url
- scan-percentage
- sort-id
- type

#### **SAR deprecated FedRAMP props**

- logn-url
  - Replaced by "login-url" prop

Use the following xpath query to find an example of prop in rev5 SAR Template:

//\*/prop[@ns='https://fedramp.gov/ns/oscal' and @name='NEW-PROP-NAME']

See FedRAMP Extensions for a complete list of prop extensions.



#### **POA&M New FedRAMP Props**

- name
- kev-catalog
- kev-due-date
- purpose
- resolution-resource
- vendor-name

#### **POA&M deprecated FedRAMP props**

- publication
  - use core OSCAL "published" prop instead
- version
  - use core OSCAL "**version**" prop instead

Use the following xpath query to find an example of prop in rev5 POA&M Template:

//\*/prop[@ns='https://fedramp.gov/ns/oscal' and @name='NEW-PROP-NAME']

See FedRAMP Extensions for a complete list of prop extensions.



# See Updated User Guides

- Guide to OSCAL-based FedRAMP Content (rev 5)
- Guide to OSCAL-based FedRAMP System Security Plans (SSP) (rev 5)
- Guide to OSCAL-based FedRAMP Security Assessment Plans (SAP) (rev 5)
- Guide to OSCAL-based FedRAMP Security Assessment Results (SAR) (rev 5)
- Guide to OSCAL-based FedRAMP Plan of Action and Milestones (POA&M) (rev 5)

# Open Forum

# Thank you

Our next Developer Data Bites virtual meeting will be on

Thursday, August 3, 2023 at 12p ET.

Submit questions and future discussion topics to OSCAL@fedramp.gov

Learn more at fedramp.gov



# How to Submit Issues with FedRAMP



Ensuring your outstanding issues or questions are received:

#### Issues can be submitted in several ways:



#### **Preferred**

Open an issue on fedramp-automation github so that it will benefit the NIST/FedRAMP community.

https://github.com/GSA/fedramp-automation/issues

#### **Alternate**

Email us at oscal@fedramp.gov

# **OSCAL** Resources



#### **NIST:**

https://pages.nist.gov/OSCAL/

Learning Resources: <a href="https://pages.nist.gov/OSCAL/learn/">https://pages.nist.gov/OSCAL/learn/</a>

Current release: <a href="https://github.com/usnistgov/OSCAL/releases">https://github.com/usnistgov/OSCAL/releases</a>

**Development version:** <a href="https://qithub.com/usnistqov/OSCAL/tree/develop">https://qithub.com/usnistqov/OSCAL/tree/develop</a>

Content repo: <a href="https://github.com/usnistgov/oscal-content">https://github.com/usnistgov/oscal-content</a>

#### FedRAMP:

**Current repo:** <a href="https://github.com/GSA/fedramp-automation">https://github.com/GSA/fedramp-automation</a>

Current issues: <a href="https://github.com/GSA/fedramp-automation/issues">https://github.com/GSA/fedramp-automation/issues</a>

Validations work: <a href="https://github.com/18F/fedramp-automation/tree/master/src/validations">https://github.com/18F/fedramp-automation/tree/master/src/validations</a>

Web based validation tool:

https://federalist-2372d2fd-fc94-42fe-bcc7-a8af4f664a51.app.cloud.gov/site/18f/fedramp-automa

tion/#/documents/system-security-plan