



Cisco Crosswork Workflow Manager 1.2 Release Notes

First Published: 2024-09-27

Last Modified: 2024-09-27

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CHAPTER 1

Release Notes CWM 1.2

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CWM v1.2 Release Notes

Intro

This document provides information about Cisco Crosswork Workflow Manager 1.2, including new features, API changes, and a list of bug fixes and system requirements.

Version history

Release date	Version	Release notes
9/Jun/2023	Cisco Crosswork Workflow Manager 1.0	Cisco Crosswork Workflow Manager 1.0 Release Notes
29/Feb/2024	Cisco Crosswork Workflow Manager 1.1	Cisco Crosswork Workflow Manager 1.1 Release Notes
29/Jun/2024	Cisco Crosswork Workflow Manager 1.2	Current ones

What's new

Feature	Description
Human interaction in workflows	Workflows can now include decision points for human operators that are displayed as guided tasks in as simple as approving or rejecting a piece of configuration, verifying an action, displaying difference additional information required for an order to proceed, or asking a user what action to take. To implement this, you create a form using a drag and drop editor in the CWM UI. Then, inside the workflow definition, you define variables to be used inside the form when the task is prompted and use the callback state to define what is conducted. When the workflow definition is being executed and the callback state is reached, the task prompts the operator for input.

Feature	Description
Support for Callback state	The Callback state (as per Serverless workflow specification) can now be used as part of a workflow to 1.2. See a detailed description of the callback state in the Serverless Workflow Specification.
Input schema validation	Added support for input schema validation for a workflow definition and for ensuring that when a new job is created against an inputDataSchema. If input data for a job is not valid, the API returns an error. Input schema for the entities that interact with them. If data that is provided to a workflow does not conform to the input schema, errors during execution. Validating this means the operator can be informed upfront and get immediate feedback on potential issues due to invalid data input.
Migration of CWM UI to Harbor library	Updated the Admin, Workflows and Job Manager views and UI elements (navigation, footer, header) using the Harbor library to improve user experience and improved the functionality of the following views: Job execution logs, Job details, Admin details and Code view.
Updated NxF platform to v2.1-317	CWM 1.2 has been upgraded to the latest NxF version: 2.1-317 build.
System-defined utilities	Added four pre-packaged system-defined utilities that expose activities to be used by workflow designers. The workflow helps fulfil basic tasks without the need to create custom adapters. The utilities include: <code>FailJob</code> - explicitly fail a workflow with a code and message when certain conditions are met, which currently is not supported in the workflow specification. <code>system.function.@latest.common.FailJobGetResourceType</code> - returns the resource type for a given ID. <code>system.function.@latest.resource.GetResourceTypeNoOp</code> - the Callback state for human interaction before the callback state waits for an event. It is perfectly valid for a callback state not to execute an action, capturing data from the user. The NoOp function will bypass the action and just wait for the defined event. <code>system.function.@latest.common.NoOpWaitUntil</code> - introduces a pause in workflow execution based on a timestamp. <code>system.function.@latest.common.WaitUntil</code>
Expression functions	Added support for expression functions for workflows. They are used to evaluate specific conditions or perform actions during execution. Expression functions are defined within a workflow and can be referenced and executed as part of filters in various workflow data operations. Read more about expression functions in the Serverless Workflow Specification.
Subworkflow tags	Subworkflows (Child workflows) can now inherit tags from workflows that have spawned them. They can be controlled by the <code>subFlowTags</code> field under the state metadata. The field should contain a list of JQ expressions.
Workflow Error and Timeouts handling improvements	The <code>onError</code> can now refer to nested errors in the stack. E.g. NSO adapter can raise NSO error, caused by a workflow error. On errors can refer to any of the error types to capture the error, and take relevant actions. Adapter errors handle error types/codes which allows for differentiating between 4XX errors as well. We have also added support for a few timeout types that can be caught: <code>ActivityTimeoutError</code> , <code>ChildWorkflowTimeoutError</code> , <code>ProducedEventTimeoutError</code> , <code>ConsumerTimeoutError</code> - generic timeout error which wraps the above errors. The above timeouts are retryable and could be caught by the <code>onError</code> field.
API for Resource import/export	Added support to load resources list in CWM using new API endpoints. This enables users to load all resources in a workflow definition.
Job execution logs decoded	The workflow data displayed in the Job execution details is now decrypted to simplify debugging and troubleshooting.

Adapter changes

New adapters

Generic DB adapter - the Generic Database adapter provides the ability to interact with SQL databases. It allows for sharing user data between workflow executions by connecting to a persistent storage that is external to CWM. The adapter implements the SQL query and the SQL exec commands.

Adapter XDK changes

Support for JSON key specification in protobuf field annotations We have introduced support for specifying JSON keys in protobuf field annotations, enabling field names in generated activities to match the source specifications (YANG files or Open API Specification). This simplifies user experience by ensuring consistency between input field names and their corresponding JSON keys.

Support for NSO actions generation We have introduced support for auto-generating activities for NSO actions using YANG action definitions. Actions are the most common way to implement non-configuration automation in NSO. They represent a task or an operation that a user of the system can invoke on demand, such as downloading a file, resetting a device, or performing a test.

Adapter SDK changes

Updated JSON schema generation For Cisco NSO, Generic CLI, Generic Email and Generic REST adapters, we have updated the JSON schema generation so that it uses the <https://github.com/pubg/protoc-gen-jsonschema> plugin when executing the 'cwm-sdk create-installable' command. The plugin is now a prerequisite for creating a new installable files for the adapters.

Removed restriction to have both Resource and Secret in adapter proto We have removed the enforcement of the adapter configuration to require the Secret field whenever there is a Resource field present.

API changes

Table keys

- ✓ - indicates that an endpoint exists for given version.
- x - indicates there is no such endpoint for given version.
- /example/api/path - shows how existing endpoint path changed from version to version.

New API endpoints

Forms API

Endpoint	v1	v1.2 path
GET/form	x	✓
POST/form	x	✓
GET/form/{formId}	x	✓

Endpoint	v1	v1.2 path
DELETE/form/{formId}	x	✓
PATCH/form/{formId}	x	✓

Event API

Method	v1	v1.2 path
POST	x	/event/http

EventType API

Method	v1.1	v1.2 path
POST	/eventType/{name}/{action}	/eventType/{type}/{action}
GET	/eventType/{name}	/eventType/{type}/{kind}
DELETE	/eventType/{name}	/eventType/{type}/{kind}
PUT	/eventType/{name}	/eventType/{type}/{kind}

Resources API

Method	v1	v1.2 path
GET	x	/resourceExport
POST	x	/resourceImport

Bug fixes

Backend bug fixes

CDETS ID	Title	Description
N/A	Postgres backups stored in MinIo not cleaned up from disk space	We have updated the default backup configuration. Previously, full backups were done once a week, and a total of 10 backups were retained before older backups were cleaned. As a result, if the allocated disk space was not enough for 10 weeks of backups, the system would crash due to lack of disk space. New backup parameters are as follows: Full backup - weekly. Incremental backup - daily. Number of full backups to retain: 4. After 4 weeks, old backups would be removed.
CSCwj17429	Concurrent map writes error	We have resolved the issue where multiple activities (where parallel state or async activity execution may be used) are running in parallel and each activity is trying to update the workflow data. The issue caused the workflow worker pod to crash and restart.

CDETS ID	Title	Description
CSCwj44766	ForEach state in parallel mode locks executions if at least one of the iterations times out.	We have fixed the way results from async calls are collected so that it's not blocking the workflow execution.
CSCwj75547	Event listener not stopped automatically when deleting EventType	We have fixed a bug that caused event listener keep running even after deleting the event type associated with it. Now, when creating a new event type with the same name, there is no existing listener running and the user needs to start a new listener.
CSCwj40378	Workflow execution fails when event resource is unreachable	We have introduced better error handling in cases when resource created for an event is not available, instead of being forced to restart event manager and API service.
CSCwj23736	Possibility to delete resource used in an event type	We have fixed a bug where a resource linked to an event could be deleted.
CSCwj23042	Confusing error message when wrong version of child workflow is referenced from the parent workflow	We have improved the error message for specifying the wrong version of a child workflow to be invoked by parent workflow.

Frontend bug fixes

CDETS ID	Title	Description
CSCwj38677	Navigating away from produce' type event always triggers "Unsaved changes" dialog	Now, if the user tries to navigate to a different page from the details page of an event with the Produce type, the "Unsaved changes" dialog box is not shown if there are no changes.
CSCwj34050	UI starts lagging when loading more than 500 jobs	We have fixed the issue with the Job Manager becoming irresponsive as the number of jobs increase.
CSCwj08097	"Unsaved changes" dialog keeps appearing when leaving resource details page	We have fixed the incorrect behavior of the "Unsaved changes" dialog box appearing each time upon leaving the resource details page.
CSCwj06430	Start Listener disable/enable button not working as expected	We have corrected the behavior of the Start Listener button. When there is an unsaved change in event type details page, the Start Listener button is now enabled.
CSCwk76145	Stop listener button keeps showing after the listener is stopped	We have restored the expected behaviour of the Stop listener so that the button changes to Start listener each time the listener is stopped.
CSCwj60679	No possibility to show Job Event Log for consecutive jobs in the Job Manager	Using the 'back' button in the browser to get back to the previous view of the Job Manager is now possible.
CSCwm08962	Job Manager shows a maximum of 1000 jobs	We have improved the Job Manager pagination so that the maximum number of jobs that can be displayed in the CWM UI is 5000 jobs with 3 pagination sizes: 30, 50 and 100.

Minimum system requirements

Component	Minimum value
CPU	16 core
RAM	64 GB
Storage	100 GB