

I Release

optimization

Welcome to the I release page for the O-RAN Software community.

The I release is currently in incubation; initiating the definition of the requirements

- [Non-Real-time RIC \(NONRTRIC\)](#)
- [Near-Real-time RIC X-APPs \(RICAPP\)](#)
- [Near-Real-time RAN Intelligent Controller Platform \(E2 Interface\) \(RICPLT\)](#)
- [Operation and Maintenance \(OAM\)](#)
- [O-RAN Central Unit \(OCU\)](#)
- [O-DU High \(ODUHIGH\)](#)
- [O-DU Low \(ODULOW\)](#)
- [Simulators \(SIM\)](#)
- [Service Management and Orchestration Layer \(SMO\)](#)
- [Infrastructure \(INF\)](#)
- [Integration and Test \(INT\)](#)
- [AIML Framework \(AIMLFW\)](#)
- [Documentation \(DOC\)](#)

Non-Real-time RIC (NONRTRIC)

I-Release - Highlights:

- Released first version of rApp manager service
- Started work on Service Manager service
- Improvements in RAN PM functions for DME
- Numerous improvements in Function Test environments
- Improvements in stability, 3PP vulnerability, test coverage & quality
- A1 Policy Functions now build using OpenAPI-first approach (ONAP CCSDK)
- Continued engagement with O-RAN Alliance working groups for standardization alignment

I Release - Tasks:

Count of Epics (20 [issues](#)), User Stories, Tasks, and Issues: (455 [issues](#))

Relevant Epics:

- [NONRTRIC-571](#) - Getting issue details... [STATUS](#)
- [NONRTRIC-648](#) - Getting issue details... [STATUS](#)
- [NONRTRIC-670](#) - Getting issue details... [STATUS](#)
- [NONRTRIC-725](#) - Getting issue details... [STATUS](#)
- [NONRTRIC-753](#) - Getting issue details... [STATUS](#)
- [NONRTRIC-788](#) - Getting issue details... [STATUS](#)
- [NONRTRIC-799](#) - Getting issue details... [STATUS](#)
- [NONRTRIC-818](#) - Getting issue details... [STATUS](#)
- [NONRTRIC-825](#) - Getting issue details... [STATUS](#)
- [NONRTRIC-846](#) - Getting issue details... [STATUS](#)
- [NONRTRIC-896](#) - Getting issue details... [STATUS](#)
- [NONRTRIC-912](#) - Getting issue details... [STATUS](#)
- [NONRTRIC-919](#) - Getting issue details... [STATUS](#)
- [NONRTRIC-923](#) - Getting issue details... [STATUS](#)
- [NONRTRIC-959](#) - Getting issue details... [STATUS](#)

PTL: [John Keeney](#)

Wiki: <https://wiki.o-ran-sc.org/display/RICNR>

Latest Architecture: [Release I Architecture](#)

Components: [Release I Components](#)

Tasks / Backlog / JIRA: <https://jira.o-ran-sc.org/projects/NONRTRIC/issues>

Gerrit / Source Code:

- nontric : <https://gerrit.o-ran-sc.org/r/admin/repos/nontric>
- nontric-plt-a1.policymanagementservice: <https://gerrit.o-ran-sc.org/r/admin/repos/nontric/plt/a1.policymanagementservice>
- nontric-plt-dmaapadapter: <https://gerrit.o-ran-sc.org/r/admin/repos/nontric/plt/dmaapadapter>
- nontric-plt-dmaapmediatorproducer: <https://gerrit.o-ran-sc.org/r/admin/repos/nontric/plt/dmaapmediatorproducer>
- nontric-plt-helmmanager: <https://gerrit.o-ran-sc.org/r/admin/repos/nontric/plt/helmmanager>
- nontric-plt-informationcoordinatorservice: <https://gerrit.o-ran-sc.org/r/admin/repos/nontric/plt/informationcoordinatorservice>
- nontric-plt-ranpm: <https://gerrit.o-ran-sc.org/r/admin/repos/nontric/plt/ranpm>
- nontric-plt-rappcatalogue: <https://gerrit.o-ran-sc.org/r/admin/repos/nontric/plt/rappcatalogue>
- nontric-plt-sme: <https://gerrit.o-ran-sc.org/r/admin/repos/nontric/plt/sme>
- nontric-plt-ranpm: <https://gerrit.o-ran-sc.org/r/admin/repos/nontric/plt/ranpm>
- nontric-rapp-healthcheck: <https://gerrit.o-ran-sc.org/r/admin/repos/nontric/rapp/healthcheck>
- nontric-rapp-orufhrecovery: <https://gerrit.o-ran-sc.org/r/admin/repos/nontric/rapp/orufhrecovery>
- nontric-rapp-ransliceassurance: <https://gerrit.o-ran-sc.org/r/admin/repos/nontric/rapp/ransliceassurance>
- portal/nontric-controlpanel : <https://gerrit.o-ran-sc.org/r/admin/repos/portal/nontric-controlpanel>
- sim/a1-interface : <https://gerrit.o-ran-sc.org/r/admin/repos/sim/a1-interface>

Sonar / Test Coverage Reports

- nonrtrc-plt-dmaapadapter: <https://sonarcloud.io/project/overview?id=nonrtrc-plt-dmaapadapter>
- nonrtrc-plt-informationcoordinatorservice: <https://sonarcloud.io/project/overview?id=nonrtrc-plt-informationcoordinatorservice>
- nonrtrc-plt-rappcatalogue: https://sonarcloud.io/project/overview?id=nonrtrc_plt_rappcatalogue
- nonrtrc-plt-rappcatalogue-enhanced: https://sonarcloud.io/project/overview?id=o-ran-sc_nonrtrc-plt-rappcatalogue-enhanced
- nonrtrc-plt-ranpm:
 - https://sonarcloud.io/project/overview?id=o-ran-sc_nonrtrc-plt-ranpm-pm-file-converter
 - <https://sonarcloud.io/project/overview?id=nonrtrc-plt-ranpm-influxlogger>
 - <https://sonarcloud.io/project/overview?id=nonrtrc-plt-ranpm-pmproducer>
 - <https://sonarcloud.io/project/overview?id=nonrtrc-plt-ranpm-datafilecollector>
- nonrtrc-plt-rappmanager: <https://sonarcloud.io/project/overview?id=nonrtrc-plt-rappmanager>
- nonrtrc-plt-rappmanager-participants: <https://sonarcloud.io/project/overview?id=nonrtrc-plt-participants>
- portal/nonrtrc-controlpanel:
 - nonrtrc-gateway: <https://sonarcloud.io/project/overview?id=portal-nonrtrc-controlpanel-gateway>
- sim/a1-interface: https://sonarcloud.io/project/overview?id=o-ran-sc_sim-a1-interface

Docs:

- nonrtrc : <https://docs.o-ran-sc.org/projects/o-ran-sc-nonrtrc/en/i-release/>
- nonrtrc-plt-a1policymanagementservice: <https://docs.o-ran-sc.org/projects/o-ran-sc-nonrtrc-plt-a1policymanagementservice/en/i-release>
 - nonrtrc-plt-dmaapadapter: <https://docs.o-ran-sc.org/projects/o-ran-sc-nonrtrc-plt-dmaapadapter/en/i-release>
- nonrtrc-plt-dmaapmediatorproducer: <https://docs.o-ran-sc.org/projects/o-ran-sc-nonrtrc-plt-dmaapmediatorproducer/en/i-release>
- nonrtrc-plt-helmmanager: <https://docs.o-ran-sc.org/projects/o-ran-sc-nonrtrc-plt-helmmanager/en/i-release>
- nonrtrc-plt-informationcoordinatorservice: <https://docs.o-ran-sc.org/projects/o-ran-sc-nonrtrc-plt-informationcoordinatorservice/en/i-release>
- nonrtrc-plt-ranpm: <https://docs.o-ran-sc.org/projects/o-ran-sc-nonrtrc-plt-ranpm/en/i-release>
 - nonrtrc-plt-ranpm-datafilecollector: <https://docs.o-ran-sc.org/projects/o-ran-sc-nonrtrc-plt-ranpm/en/i-release/datafilecollector>
 - nonrtrc-plt-pmlog: <https://docs.o-ran-sc.org/projects/o-ran-sc-nonrtrc-plt-ranpm/en/i-release/influxlogger>
 - nonrtrc-plt-ranpm-pm-file-converter: <https://docs.o-ran-sc.org/projects/o-ran-sc-nonrtrc-plt-ranpm/en/i-release/pm-file-converter>
 - nonrtrc-plt-pmproducer: <https://docs.o-ran-sc.org/projects/o-ran-sc-nonrtrc-plt-ranpm/en/i-release/pmproducer>
- nonrtrc-plt-rappcatalogue: <https://docs.o-ran-sc.org/projects/o-ran-sc-nonrtrc-plt-rappcatalogue/en/i-release>
- nonrtrc-plt-manager: <https://docs.o-ran-sc.org/projects/o-ran-sc-nonrtrc-plt-rappmanager/en/i-release/>
- nonrtrc-plt-sme: <https://docs.o-ran-sc.org/projects/o-ran-sc-nonrtrc-plt-sme/en/i-release>
- nonrtrc-rapp-orufhrecovery: <https://docs.o-ran-sc.org/projects/o-ran-sc-nonrtrc-rapp-orufhrecovery>
- nonrtrc-rapp-ransliceassurance: <https://docs.o-ran-sc.org/projects/o-ran-sc-nonrtrc-rapp-ransliceassurance/>
- portal/nonrtrc-controlpanel: <https://docs.o-ran-sc.org/projects/o-ran-sc-portal-nonrtrc-controlpanel/en/i-release>
- sim/a1-interface : <https://docs.o-ran-sc.org/projects/o-ran-sc-sim-a1-interface/en/i-release>

Testing:

- [Function Tests](#)

Studies

- [Release I: DME Participant](#)
- [Release I: rApp Manager](#)

Weekly Meetings:

- [Meetings](#)

Release I - Demos

- **22 Aug 2023**
I-Release: Demonstration: OSC "NONRTRIC RAN PM Function - Docker compose & Scripts"
See [Video \(HD\)](#), and [summary](#) for more information
- **21 Nov 2023**
I-Release: Demonstration: "OSC NONRTRIC rApp Manager"
See [Video \(HD\)](#), [Slides](#) and [summary](#) for more information

Release I - Container images

- [Release I - Docker Images](#)

Release I - Deployment Instructions

- [Release I - Run in Docker](#)
- [Release I - Run in Kubernetes](#)

Near-Real-time RIC X-APPs (RICAPP)

Primary Goals: Expand the community on open source xApps for O-RAN SC.

Update and maintain the existing xApps to latest releases (currently I Release).

Enhance the set of open source xApps in support of the RSAC use cases (traffic steering, network slicing) and add new xApps.

New RUST framework based xApp hw-rust will be added in I release.

New xApp to support E2SM CCC will be added in this release

I release plan:

- New HW-Rust xApp to support RUST framework.
- New ad-cell xApp to detect cell level anomaly.
- New ccc xApp to support E2SM CCC.

PTL: [SUNIL SINGH](#)

Jira: Count of Epics, User Stories, Tasks, and Issues: Total (10)

Completed Epics & Story:

[RICAPP-232](#) - hw-rust xApp for i-release

[RICAPP-230](#) - QP xApp (I-Release)

[RICAPP-229](#) - Anomaly Detection xApp (I-Release)

[RICAPP-224](#) - F1AP gnbDuConfigurationUpdate parser

[RICAPP-223](#) - Creating UE/CELL metrics hashmap based upon the KPIS supported by each E2 node

[RICAPP-222](#) - ASN decoders for kpm ran function description and asn encoders for action definition format1 and format3

Completed Tasks

[RICAPP-231](#) - Fix issue of mismatch data type when AD writes data to InfluxDB

[RICAPP-228](#) - Update RMR version and xapp frame to latest version

[RICAPP-227](#) - dynamically adding fields to influxdb and changed the UE KPI parse logic as per indications coming from VIAVI RIC-Test

[RICAPP-226](#) - Update KPM model to latest one

I release highlights/accomplishments:

- HW-Rust xApp is added to support the new xApp framework
- AD xApp is upgraded with the python version 3.11 and RMR version 4.9.0
- QP xApp is also upgraded with the python version 3.11 and RMR version 4.9.0
- KPIMON-Go functionality upgrade. (F1AP gnbDuConfigurationUpdate parser, E2SM KPM RAN function description parser, Automatic creation of action definition format1 & format3 array, UE KPI parse logic as per indications from RIC-Test tool)
- KPIMON-Go upgraded to latest RMR version and xApp framework.

I release source code, container images and deployment instructions

The list of container images for the release ([link](#)).

Code Coverage Reports : Latest reports can be found at the following Link: [Projects - O-RAN Software Community \(sonarcloud.io\)](#).

Near-Real-time RAN Intelligent Controller Platform (E2 Interface) (RICPLT)

Original primary goals based on contributions from Nokia, Samsung, Capgemini, Alexandre Huff (UTFPR), GS Lab and Abhijit G:

Contributions related to E2 interfaces

1. ~~RIC-993 (CG): Near-RT RIC conflict management~~
2. RIC-933 (CG) : Adding support for CU/DU in E2T/E2M/RNIB
3. ~~RIC-967 (CG) xApp facing interface for subscription delete required (added on 2023-08-23)~~
4. ~~RIC-994 (S): Support for E2APv3.0~~
5. ~~RIC-995 (S): Support for RIC Query~~
6. ~~RIC-996 (S) Support for Subscription modifications (Dhiraj interested as reviewer)~~
7. ~~RIC-387 = RIC-383 (S): Support for E2 reset from RIC to RAN (completes also RIC-383) (prio1) (Dhiraj interested as reviewer, but we had earlier discussion on this)~~
8. RIC-997 (N): Handling of RIC Error indication during E2 setup
9. RIC-963 (GS) modify src code to be more lenient in ordering of IEs in ASN.1

Other contributions

1. RIC-998 (S): K8S operators for deploying/undeploying xApps
2. RIC-999=RIC-972 (S): A1 alignment with A1AP (still under investigation. Minimum is using correct URL)
3. ~~RIC-954 (S): DMS Rest API support for deleting/undeploy xApps (DMS REST is 2nd ife addressing same space as dmscli)~~
4. Already late in H: RIC-985 (UTFPR) IPv6 support for RMR
5. ~~RIC-705 (H) update xappframework for c++ to change in xApp registration~~
6. ~~RIC-1000 (R): Support for only IPv6 in RIC internal interfaces~~
7. RIC-1004 (AG): Xapp Rust Framework enhancement after initial basic Xapp Framework Support
8. RIC-1027 (S) K8S operators for deploying/undeploying Near-RT RIC
9. ~~RIC-950 implement test cases for xapp frame cpp~~
10. ~~RIC-853 Implement subscription delete in Bouncer and E2Sim~~
11. RIC-1018 A single helm chart for RIC platform deployment

Support for Integration project's pairwise-testing goals

1. ODU-high with near-RT RIC: moving from RIC stub to E2 messages with actual RIC
2. RIC xApp and near-RT RIC: using KPIMon/bouncer xApp or maybe CCC xApp. Maybe xApps can also be used to demonstrate conflict detection
3. non-RT RIC and near-RT RIC: providing standalone A1 mediator for CI testing of non-RT RIC.

Link to planned Jira work items: [link](#)

Achieved I release highlights = high-level release notes (2023-06-20) below (note that the release image list is here: [link](#))

- E2 Support for disaggregated RAN, i.e., CU-UP, CU-CP, and DU as identified with gNB ID in E2Setup. E2 nodes identified in RNIB, e.g., like this: gnbnd_999_999_AAAAAAAAA_BBBBBBBBB (longest case)
- E2 subscription manager supports config parameter to ignore ordering of certain IEs if peer E2 node does not comply with spec.
- In addition to supporting deployment of RIC platform with existing "install <recipe>" script we now also support (un)deployment via (1) umbrella helm chart and (2) via Kubernetes operator.
- Kubernetes operator for deploying xApps as alternative to dms_cli
- Enhancements in xApp framework for RUST to get closer to feature parity with xApp frameworks for other languages.

The I release fixes the following two security issues: RIC-991: "CVE-2023-40997 RMR: Crashes caused by improperly formatted packets", and RIC-989: "CVE-2023-40998 RMR: Negative Packet Size Causes Crash". Additionally we fixed 9 bugs ([link](#)) and did 3 small implementation tasks ([link](#))

Filled in end-of-release checklist: [Release criteria checklist - Release I](#)

PTL: [Thoralf Czichy](#)

Status 2023-12-05: From the 20 epics planned ([link](#)) we implemented 7 ([link](#)). 13 items have been moved out of the I release, e.g, because of implementation delays ([link](#)). Incomplete items: 0 ([link](#)). Additionally we fixed 9 bugs ([link](#)) and did 3 small implementation tasks ([link](#))

I release source code, container images and deployment instructions

The list of container images for the release ([link](#)). A demo video for the I release deployment is available at the top of the [demo page](#) and shows

- how to deploy the near-RT RIC platform,
- compile connect the E2 (e2 node) simulator from the OSC simulator project and
- compile the hw-go xapp from the xapp project and use the dms_cli to deploy it and check the E2 subscriptions the xApp created.

Code coverage: [Code coverage reports](#) (current coverage and a list of components that still needs to be set up Jenkins job for auto-generation of the reports as part of CI)

Mapping of new features to O-RAN Spec

Compliance with the O-RAN specification is described in the section "External interfaces" in [Introduction and guides](#). This release advanced specification compliance in A1 (RIC-999 URL change, but still bug for maintenance release: [RIC-1031](#)). We now also support RIC-933 disaggregated RAN (CU-CP/CU-UP/DU) in E2 connections.

Operation and Maintenance (OAM)

Primary Goals:

- support of O-RAN WG10 VES message bodies
- support of O-RAN WG4 optional VES bodies
- update of OAM-Controller to ODL version Argon-SR1
- support of other O-rAN-SC projects (e.g. SMO, Non-RT-Ric, O-DU, INT) based on RSAC and other input.
- intergration of wireshark for api analysis
- integration of jenkins for test-automation

I release Feature Scope:

Please see also project wiki for further details: [I-Release](#)

PTL: [Martin Skorupski](#)

I release highlights/accomplishments (2023-12-06):

- network generation in kmz and ietf-network-topology for later contribution to AI/ML, INT, SMO O2 and SIM
- integration of new ODL version: Argon SR2

Please see release details:

- <https://jira.o-ran-sc.org/projects/OAM?selectedItem=com.atlassian.jira.jira-projects-plugin%3Arelease-page&status=unreleased>

I release source code, container images and deployment instructions (and status)

Jira: Count of Epics ([15 issues](#)), User Stories, Tasks, and Issues: [166 issues](#)

Source Code:

- [OAM master](#)
- [OAM Controller features master](#)
- [ONAP VES Collector master](#)

Integration:

- [helm charts](#)
- [docker-compose](#)

O-RAN Central Unit (OCU)

Primary Goals:

- In the absence of O-CU, Radisys commercial CU image is to be used for E2E testing

I release Feature Scope:

I Release Feature Scope:

- NA

PTL:

NA

O-DU High (ODUHIGH)

Primary Goals:

1. Alignment to the ORAN WG8 AAD specification O-RAN.WG8.AAD.0-R003-v09.00
2. Alignment to E2 interface specification O-RAN.WG3.E2AP-R003-v03.00
3. Multi UE (max=2) scheduling per TTI in scheduler
4. End-to-end integration
5. XML based input configuration

I release Feature Scope:

- Alignment to latest ORAN WG8 AAD specification O-RAN.WG8.AAD.0-R003-v09.00
 - **Status:** Completed
 - **Epic:** <https://jira.o-ran-sc.org/browse/ODUHIGH-518>
- Alignment to E2 interface specifications O-RAN.WG3.E2AP-R003-v03.00
 - **Status:** Completed
 - **Epic:** <https://jira.o-ran-sc.org/browse/ODUHIGH-516>
- Multi UE (max=2) scheduling per TTI in scheduler (DL part)
 - **Status:** Completed
 - **Epic:** <https://jira.o-ran-sc.org/browse/ODUHIGH-517>
- Integration of ODU-High with intel L1
 - **Status:** Spread over multiple releases, to be resumes once TM500 is available in NTUST lab
 - **Epic:** <https://jira.o-ran-sc.org/browse/ODUHIGH-475>
- XML based input configuration
 - **Status:** Completed
 - **Epic:** <https://jira.o-ran-sc.org/browse/ODUHIGH-538>

PTL: [Ankit Barve](#)

Status on 14 Dec 2023

I release highlights/accomplishments (14 Dec 2023):

- Alignment to the ORAN WG8 AAD specification O-RAN.WG8.AAD.0-R003-v09.00
 - Aligning to the latest WG8 AAD specification O-RAN.WG8.AAD.0-R003-v09.00, raised CR in WG8 for upcoming AAD specification
- O-RAN.WG3.E2SM-KPM-R003-v03.00.)Alignment to E2 interface specification O-RAN.WG3.E2GAP-R003-v03.00 & O-RAN.WG3.E2AP-R003-v03.00
(with basic functionalities of service model O-RAN.WG3.E2SM-KPM-R003-v03.00.)
 - support for global procedures
 - E2 Setup
 - E2 Node Configuration Update
 - RIC Service Update
 - E2 Connection Update
 - E2 Removal
 - E2 Reset
 - Error Indication
 - Support for Near RT RIC functional procedures
 - RIC Subscription
 - RIC Subscription Modification
 - RIC Subscription Modification Required
 - RIC Subscription Delete
 - RIC Subscription Delete Required
 - RIC Indication
- Multi UE (max=2) scheduling per TTI in scheduler (DL part)
 - Enhancing scheduler to schedule multiple UEs per TTI in DL part
- End-to-end integration
 - Integration stopped due to the unavailability of TM500 in the NTUST lab, to be resumed once the TM500 is available.
- XML based input configuration
 - converting from static configuration to xml file based configuration
- **I release source code, container images, and deployment instructions (and status)**

source code: <https://gerrit.o-ran-sc.org/r/gitweb?p=o-du%2Fi2.git;a=shortlog;h=refs%2Fheads%2Fi-release>
Release notes: <https://docs.o-ran-sc.org/projects/o-ran-sc-o-du-l2/en/latest/release-notes.html#i-release>
Document: <https://docs.o-ran-sc.org/projects/o-ran-sc-o-du-l2/en/latest/>
Code coverage: NA (Unit test framework not available)

O-DU Low (ODULOW)

Primary Goals:

Improve O2 DMS ETSi profile

I release Feature Scope:
PTL: Luis Farias , Alternate: @Chenxi Yue
I release highlights/accomplishments (): H release includes a patch to our previous F & G Releases with a fix for a PRACH detection bug found by LNT.
I release source code, container images, and deployment instructions (and status) source code: Release notes: Document: Code coverage:

Simulators (SIM)

Primary Goals: Keep alignment with latest O-RAN specifications (O1, E2)
I Feature Scope / Achievements: - Keep alignment with latest O-RAN specifications (O1, E2) - Provide datasets to the AI/ML team for training
Sprint Demos:
PTL: Alex Stancu
Jira: Count of Epics, User Stories, Tasks, and Issues:
I release highlights/accomplishments (): - Updated list of performance metrics in E2 setup request for E2 Simulator - Prepared dataset from TIM for usage in AI/ML training: https://nexus3.o-ran-sc.org/#browse/browse:datasets
I release source code, container images and deployment instructions Source code: O1 Simulator E2 Simulator Container images are described here . Instructions: no specific instructions. Code coverage: in progress (sonar for C/C++ code in LF repos).

Service Management and Orchestration Layer (SMO)

Primary Goals: The primary goal of SMO in the H-release is to act as glue between the different components of O-RAN.
I release Feature Scope: The scope for I-release includes enhancing the O-RAN O2 DMS ETSI NFV Profile.
PTL: Seshu Kumar Mudiganti

I release highlights/accomplishments ():

- Alignment with O-RAN O2 DMS ETSI NFV Profile.

I release source code, container images and deployment instructions (and status)

H release source code for SMO can be found in the following repositories

- [O1 repository](#)
- [O1/VES repository](#)
- [O2 repository](#)
 - For the O2 Interface OpenStack Tacker project (External repository)
 - Source code: <https://opendev.org/openstack/tacker>
 - Code coverage: [Coverage report](#) (Latest OpenStack verification results)

The container images for SMO can be found on the Nexus server, where applicable.

The container images for OpenStack Tacker can be found in OpenStack Kolla repository.

- <https://quay.io/repository/openstack.kolla/tacker-server>
- <https://quay.io/repository/openstack.kolla/tacker-conductor>

The OpenStack Tacker container can be started with the steps in the following documentation.

- <https://docs.openstack.org/tacker/latest/install/kolla.html>
- <https://docs.openstack.org/kolla-ansible/latest/user/quickstart.html>

The installation instructions for SMO can be found in the documentation page [here](#).

Status

The status of the SMO project is tracked using Jira items. For the latest status refer to the items below.

[\[SMO-132\] O2 Tacker install script raise syntax error - ORAN Jira \(o-ran-sc.org\)](#)

[\[SMO-134\] O1 stories under the I release - ORAN Jira \(o-ran-sc.org\)](#)

Infrastructure (INF)

Primary Goals:

- Implement the O-Cloud reference design, provide the real time performance to allow the O-CU, O-DU and other components running on top of it.
- Provide interaction capabilities with other components.
- Provide O2 interface and support integration with SMO.

I release Feature Scope:

- Support integration between INF as O-Cloud with other o-ran-sc components.
- Support deploy ETSI-DMS (tacker) on INF O-Cloud.
- Extend multi arch support: add support for ARM64 on Debian based OS.
- Aligned INF O2 implementation to the O-RAN Spec 4.0

PTL: [Jackie Huang](#)

I release highlights/accomplishments (15 Nov 2023):

- Verified the deployment of ETSI-DMS (tacker) on INF O-Cloud.

Jira: Status of Epics, User Stories, Tasks, and Issues:

Update at

• EPICs:

Key	Summary	T	Created	Updated	Due	Assignee	Reporter	P	Status	Resolution
INF-431	[MultiOS][Doc] documentation updates for I release		Dec 05, 2023	Jan 30, 2024		Jackie Huang	Jackie Huang		DONE	Done

1 issue

• Stories:

Key	Summary	T	Created	Updated	Due	Assignee	Reporter	P	Status	Resolution
INF-437	[O2] Update base images in pti-o2		Dec 06, 2023	Jan 19, 2024		Joshua Kraitberg	Joshua Kraitberg		DONE	Done
INF-288	[O2] Paging the response of get list API of O2 services		Sep 13, 2022	Dec 05, 2023		Jon Zhang	Bin Yang		DONE	Done

2 issues

• Tasks:

Key	Summary	T	Created	Updated	Due	Assignee	Reporter	P	Status	Resolution
INF-436	[MultiOS][Doc] release-notes.rst updates for I release		Dec 05, 2023	Dec 15, 2023		Jackie Huang	Jackie Huang		DONE	Done
INF-435	[MultiOS][Doc] installation.rst updates for I release		Dec 05, 2023	Dec 15, 2023		Jackie Huang	Jackie Huang		DONE	Done
INF-434	[MultiOS][Doc] developer-guide.rst updates for I release		Dec 05, 2023	Dec 15, 2023		Jackie Huang	Jackie Huang		DONE	Done
INF-433	[MultiOS][Doc] overview.rst updates for I release		Dec 05, 2023	Dec 15, 2023		Jackie Huang	Jackie Huang		DONE	Done
INF-432	[MultiOS][Doc] index.rst updates for I release		Dec 05, 2023	Dec 15, 2023		Jackie Huang	Jackie Huang		DONE	Done
INF-430	ETSI DMS installation on O-Cloud (Tacker)		Oct 06, 2023	Jan 30, 2024		Jon Zhang	Jon Zhang		DONE	Done
INF-429	[INF] readthedocs: Use build.os instead of build.image		Sep 01, 2023	Sep 01, 2023		Jackie Huang	Jackie Huang		DONE	Done
INF-424	[O2] Engage in WG6 TG spec contribution in the new release.		May 30, 2023	Dec 05, 2023		David Liu	David Liu		DONE	Done
INF-423	[O2] Fix the O2IMS WG6 TG spec error.		May 30, 2023	Dec 05, 2023		David Liu	David Liu		DONE	Done
INF-329	[O2] use helm lint to examine the chart for possible issues		Oct 31, 2022	Dec 05, 2023		Jackie Huang	Jackie Huang		DONE	Done

10 issues

• Bugs:

Key	Summary	T	Created	Updated	Due	Assignee	Reporter	P	Status	Resolution
INF-438	[MultiOS][Doc] failed to build the read-the-doc		Dec 18, 2023	Jan 30, 2024		Jackie Huang	Jackie Huang		DONE	Done

1 issue

Test status:**Code coverage:**

- INF platform
 - [Code coverage report: o-ran-pti-rtp - \(sonarcloud.io\)](#)
 - INF is a downstream project of [StarlingX](#) and [Yocto Project](#), the above coverage report may not reflect the real code coverage, so we also need to refer to the status from upstream projects.
- O2
 - Total coverage: 54%
 - Detail report: [cov-report_20220609.txt](#)

Release Note:

- [INF release-notes for I release](#)
- [INF O2 Release-notes for I release](#)

I release source code, images and deployment instructions

- Each repository has a branch named "i-release" that can be accessed using git:
 - For [pti/rtp](#) repo[[gitweb](#)]: `git clone --branch i-release "https://gerrit.o-ran-sc.org/r/pti/rtp"`
 - For [pti/o2](#) repo[[gitweb](#)]: `git clone --branch i-release "https://gerrit.o-ran-sc.org/r/pti/o2"`
- Images for INF project
 - ISO image for INF:
 - Yocto Based image: [inf-image-yocto-aio-x86-64.iso](#)
 - CentOS based image: [inf-image-centos-all-x86-64.iso](#)
 - Debian Based image: [inf-image-debian-all-x86-64.iso](#)
 - Container image for o2:
 - [nexus3.o-ran-sc.org:10002/o-ran-sc/pti-o2imsdms:2.0.3](#)
 - [nexus3.o-ran-sc.org:10004/o-ran-sc/pti-o2imsdms:2.0.3](#)
- Deployment instruction:
 - INF: [INF Installation Guide](#)
 - O2: [O-RAN O2 Application](#)

Integration and Test (INT)

Primary Goals:

1. Establish an E2E call session with OSC components
2. Build a CI/CD/CT pipeline for better integration and/or interoperability tests

I Feature Scope / Achievements:

1. Pairwise Tests
2. Lab interconnection
3. OSC-OAI interaction/integration

PTL: [James Li](#)

I release highlights/accomplishments:

1. 8 different pairwise test areas are defined, and 6 out of 8 are implemented and executed. Essentially it involves tests against Near RT RIC, Non RT RIC, xApps, OAM, SIM, O-DU-high, AIMLFW, and INF projects on E2/O1/A1 interfaces.
2. Test automation with POWDER testbed for integration and pairwise tests. Recently also established test accounts on Colosseum and ARA testbeds for OSC community use.
3. Demonstrated integration result between OSC O-DU with OAI FlexRIC .

I release source code, container images and deployment instructions

Most of the code was committed to the [it/test](#) repository.

AIML Framework (AIMLFW)

Primary Goals:

- Enhance AIMLFW with new features
- Align with O-RAN alliance approaches captured in WG2 specifications for model management

I release highlights/accomplishments:

- Model management services aligning with O-RAN alliance WG2.
- Dynamic selection of multiple data sources for training.
- Automatically recover AIMLFW after VM restart without need for reinstall.

EPICs considered for I-release:

AIMLFW-55 - Getting issue details...

STATUS

- AIMLFW-58 - Getting issue details...

STATUS
- AIMLFW-63 - Getting issue details...

STATUS
- AIMLFW-61 - Getting issue details...

STATUS

AIMLFW-53 - Getting issue details...

STATUS

- AIMLFW-60 - Getting issue details...

STATUS
- AIMLFW-64 - Getting issue details...

STATUS
- AIMLFW-65 - Getting issue details...

STATUS

PTL: Joseph Thaliath

Wiki: [AI/ML Framework](#)

Tasks / Backlog / JIRA: <https://jira.o-ran-sc.org/projects/AIMLFW/issues>

Gerrit / Code:

- [aiml-fw/awmf/tm](#): Training Manager : Training job and model management
- [aiml-fw/athp/tps/kubeflow-adapter](#): Adapter for Kubeflow
- [aiml-fw/athp/sdk/model-storage](#): Sdk for accessing Model storage
- [aiml-fw/athp/sdk/feature-store](#): Sdk for accessing Feature store
- [aiml-fw/athp/data-extraction](#): Retrieving features for training from Data lake
- [aiml-fw/aimlfw-dep](#): Deployment scripts aiml workflow
- [portal/aiml-dashboard](#): GUI for AIML Workflow
- [ric-app/qp-aimlfw](#): Sample ML Assist xApp for QoE prediction
- [aiml-fw/aihp/ips/kserve-adapter](#): kserve adapter for near-RT RIC
- [aiml-fw/awmf/modelmgmtservice](#): Model Management services

Sonar / Test Coverage Reports:

- https://sonarcloud.io/project/overview?id=o-ran-sc_aiml-fw-athp-tps-kubeflow-adapter
- https://sonarcloud.io/project/overview?id=o-ran-sc_aiml-fw-athp-sdk-feature-store
- https://sonarcloud.io/project/overview?id=o-ran-sc_aiml-fw-athp-sdk-model-storage
- https://sonarcloud.io/project/overview?id=o-ran-sc_aiml-fw-athp-data-extraction
- https://sonarcloud.io/project/overview?id=o-ran-sc_aiml-fw-awmf-tm

Documentation:

<https://docs.o-ran-sc.org/en/latest/projects.html#ai-ml-framework>

Installation/Demo guides:

AIMLFW: <https://docs.o-ran-sc.org/projects/o-ran-sc-aiml-fw-aimlfw-dep/en/latest/installation-guide.html>

Demo videos:

[Files for I release](#)

Release Container images:

- Training manager component: [nexus3.o-ran-sc.org:10002/o-ran-sc/aiml-fw-awmf-tm-docker:1.2.0](#)
- Data extraction component: [nexus3.o-ran-sc.org:10002/o-ran-sc/aiml-fw-athp-data-extraction-docker:1.2.0](#)
- Kubeflow adapter component: [nexus3.o-ran-sc.org:10002/o-ran-sc/aiml-fw-athp-tps-kubeflow-adapter-docker:1.1.0](#)
- AIMLFW dashboard component: [nexus3.o-ran-sc.org:10002/o-ran-sc/portal-aiml-dashboard-docker:1.2.0](#)
- AIMLFW notebook component: [nexus3.o-ran-sc.org:10002/o-ran-sc/portal-aiml-notebook-docker:1.2.0](#)
- AIMLFW Model Management service component: [nexus3.o-ran-sc.org:10002/o-ran-sc/aiml-fw-awmf-modelmgmtservice-docker:1.0.0](#)

O-RAN specification References:

- O-RAN AI/ML workflow description and requirements
- O-RAN R1 interface: General Aspects and Principles
- O-RAN Non-RT RIC Architecture
- O-RAN R1 interface: Use Cases and Requirements

Documentation (DOC)

Primary Goals: publish I release document

I release Feature Scope: publish I release document

PTL: [weichen ni](#)

I release highlights/accomplishments ():

publish I release document<https://docs.o-ran-sc.org/en/latest/>

Release Note:

<https://docs.o-ran-sc.org/en/latest/release-notes.html>

I release source code, images and deployment instructions

N/A