

Non-RealTime RIC (NONRTRIC)

Coordinates

- **PTL:** [John Keeney](#)
- **Wiki:** <https://wiki.o-ran-sc.org/display/RICNR>
- **JIRA:** <https://jira.o-ran-sc.org/projects/NONRTRIC/issues>
- **Code / Gerrit:**
 - nonrtric : <https://gerrit.o-ran-sc.org/r/admin/repos/q/filter:nonrtric>
 - portal/nonrtric-controlpanel : <https://gerrit.o-ran-sc.org/r/admin/repos/portal/nonrtric-controlpanel>
 - sim/a1-interface : <https://gerrit.o-ran-sc.org/r/admin/repos/sim/a1-interface>
- **Docs:**
 - nonrtric : <https://docs.o-ran-sc.org/projects/o-ran-sc-nonrtric>
 - portal/nonrtric-controlpanel : <https://docs.o-ran-sc.org/projects/o-ran-sc-portal-nonrtric-controlpanel>
 - sim/a1-interface : <https://docs.o-ran-sc.org/projects/o-ran-sc-sim-a1-interface>
- **Email List:**
 - OSC "discuss" mailing list: <https://lists.o-ran-sc.org/g/discuss>: discuss@lists.o-ran-sc.org
 - Please use hashtag **#nonrtric**
- **Meetings:** <https://wiki.o-ran-sc.org/display/RICNR/Meetings>

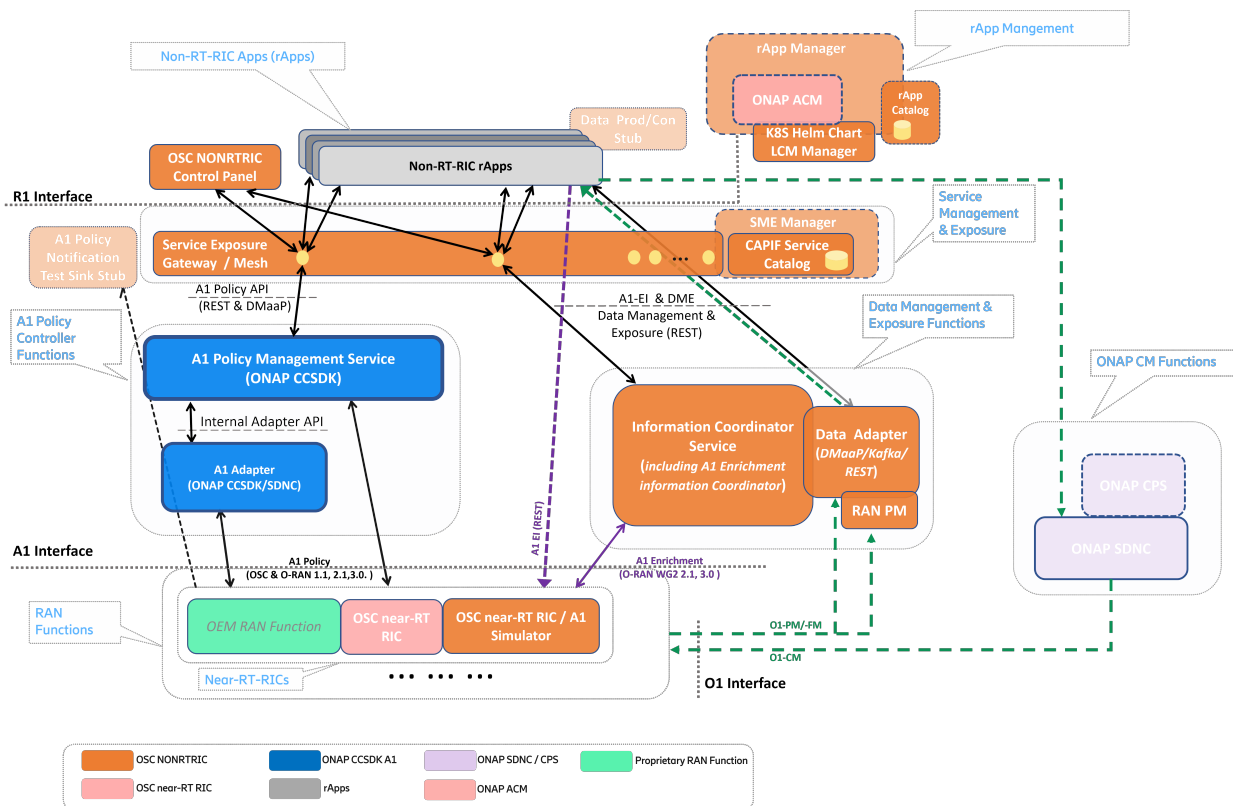
The Non-RealTime RIC (RAN Intelligent Controller) is an Orchestration and Automation function described by the [O-RAN Alliance](#) for non-real-time intelligent management of RAN (Radio Access Network) functions. The primary goal of the Non-RealTime RIC is to support non-real-time radio resource management, higher layer procedure optimization, policy optimization in RAN, and providing guidance, parameters, policies and AI/ML models to support the operation of near-RealTime RIC functions in the RAN to achieve higher-level non-real-time objectives. NONRTRIC functions include service and policy management, RAN analytics and model-training for the near-RealTime RICs. The Non-RealTime RIC project provides concepts, specifications, architecture and reference implementations as defined and described by the [O-RAN Alliance](#) architecture.

The OSC NONRTRIC implementation will communicate with near-RealTime RIC elements in the RAN via the A1 interface. Using the A1 interface the OSC NONRTRIC will facilitate the provision of A1 Policies; monitor and provide basic feedback on policy state from near-RealTime RICs; provide A1 Enrichment Information as required by near-RealTime RICs; act as a hosting platform for rApps (Non-RealTime RIC applications); host the R1 interface between rApps and the underlying SMO and Non-RT-RIC platforms; and manage the exposure towards rApps of SMO platform functions, Non-RT-RIC platform functions, and the capabilities of other rApps.

The NONRTRIC functions partly leverage and extend some existing infrastructure from [ONAP](#) to support non-realtime control of the RAN (Radio Access Network).

All implementations will be demonstrated in open community labs to prove functionalities and to give feedback to the O-RAN working groups.

Functional view of OSC NONRTRIC - Latest available functionality



The figure above shows the latest released functionality for the Non-RealTime RIC functions in OSC (F Release & ONAP Jakarta).

For more information see out [I Release Developers Guide](#)

Team

- PTL: [John Keeney](#)
- Committers: [John Keeney](#), [Aravindhan Ayyanathan](#)

JIRA

- <https://jira.o-ran-sc.org/projects/NONRTRIC>

GERRIT

- nonrtric : <https://gerrit.o-ran-sc.org/r/admin/repos/q/filter:nonrtric> (15 repos)
- portal/nonrtric-controlpanel : <https://gerrit.o-ran-sc.org/r/admin/repos/portal/nonrtric-controlpanel>
- sim/a1-interface : <https://gerrit.o-ran-sc.org/r/admin/repos/sim/a1-interface>

Overlap with ONAP / SMO

The early vision for the O-RAN Non-RealTime RIC, and OSC NONRTRIC project, did not significantly differentiate between SMO platform and Non-RT RIC platform functions, where the main SMO requirements could be partly fulfilled by using a combination of OSC OAM, OSC NONRTRIC, and ONAP functions (See [OAM Project: SMO - Service Management and Orchestration](#)).

In the NONRTRIC project we will reuse ONAP (and other open-source) functions where needed, and where necessary support changes upstream if needed. We strongly believe that open-source software should be reused where possible and appropriate, the maximize community participation and avoid community fragmentation. For example, we reuse and contribute to the [A1 Policy Management functions in ONAP](#), which emerged from a merging of related activities in both OSC and ONAP. We also reuse numerous other ONAP functions, e.g. SDNC, ACM, Policy Framework, CPS, VES & PM functions, etc..

News

- **14 Dec 2023**
NONRTRIC functions released in OSC I Release
See [Release I](#) for more information
- **21 Nov 2023**
I-Release: Demonstration: "OSC NONRTRIC rApp Manager"
See [Video \(HD\)](#), [Slides](#) and [summary](#) for more information
- **22 Aug 2023**
I-Release: Demonstration: "OSC NONRTRIC RAN PM Function - Docker compose & Scripts"
See [Video \(HD\)](#), and [summary](#) for more information
- **11 Aug 2023**
NONRTRIC functions released in OSC H Maintenance Release
See [Release H](#) for more information
- **16 Jun 2023**
NONRTRIC functions released in OSC H Release
See [Release H](#) for more information
- **18 May 2023**
NONRTRIC Status Update to TOC
See [TOC Minutes \(2023-05-18\)](#) and [Slides](#) for more information
- **17 May 2023**
H-Release: Demonstration: "LCM of ASD-based CNFs using ONAP CNFM function in Standalone mode"
See [Video \(HD\)](#), [Video \(SD\)](#) and [Slides](#) for more information
- **17 May 2023**
H-Release: Demonstration: "CAPIF for Service Registration & Service Discovery"
See [Video \(HD\)](#), [Video \(SD\)](#) and [Slides](#) for more information
- **13 Feb 2023**
NONRTRIC functions released in OSC G Maintenance Release
See [Release G](#) for more information
- **15 Dec 2022**
NONRTRIC functions released in OSC G Release
See [Release G](#) for more information
- **07 Dec 2022**
G-Release: Demonstration: "Deploying & Running NONRTRIC platform and App"
See [Demo](#) for more information
- **20 Oct 2022**
NONRTRIC Project: Update to O-RAN Face-to-face meeting in Madrid
Slides: [20221020 ORAN F2F - NONRTRIC Update - John Keeney.pdf](#)
- **19 Oct 2022**
G-Release: Demonstration: "Enforcing Service Exposure for rApps"
See [Demo](#) for more information
- **12 Oct 2022**
G-Release: Demonstration: "PM Collection & Delivery to rApps"
See [Demo](#) for more information
- **25 Aug 2022**
NONRTRIC functions released in OSC F Maintenance Release
See [Release F](#) for more information
- **04 Aug 2022**
O-RAN Alliance WG 2 Status update
WG 2 wiki: [Meeting notes](#)
Slides: [OSC-2022.08.04-WG2-I-OSC-NONRTRIC-ShortStatus-JohnKeeney-v01.pdf](#)
- **30 Jun 2022**
NONRTRIC functions released in OSC F Release
See [Release F](#) for more information
- **15 Dec 2021**
NONRTRIC functions released in OSC E Release
See [Release E](#) for more information
- **25 Nov 2021**
O-RAN Alliance WG 2 Status update
WG 2 wiki: [Meeting notes](#)
Slides: [OSC-2021.11.25-WG2-I-OSC-NONRTRIC-ShortStatus-JohnKeeney-v01.pdf](#)
- **07 Jul 2021**
NONRTRIC functions released in OSC D Release
See [Release D](#) for more information
- **13 May 2021**
O-RAN Alliance WG 2 Status update
WG 2 wiki: [Meeting notes](#)
Slides: [OSC-2021.04.29-WG2-I-OSC-NONRTRIC-ShortStatus-JohnKeeney-v01.pdf](#)
- **30 Mar 2021**
OSC NONRTRIC achieves a "Passing" grade for CII Best Practices Badging Program
[blocked URL](#)
- **04 Feb 2021**
Demo of OSC NONRTRIC & ONAP A1 functions at LFN Developer & Testing Forum - Feb 2021
Slides & Video: [2021-02-03 - ONAP: Demo: O-RAN A1 Policy & Non-RealTime-RIC automated test/demo environment](#)
- **21 Jan 2021**
O-RAN Alliance WG 2 Status update
WG 2 wiki: [Meeting notes](#)
Slides: [OSC-2021.01.21-WG2-I-OSC-NONRTRIC-ShortStatus-JohnKeeney-v01.pdf](#)

- **15 Dec 2020**
NONRTRIC functions released in OSC Cherry Release
See [Release C](#) for more information
- **04 Dec 2020**
Demo of OSC Cherry Release functionality:
Slides & Video: [2020-12-04 - OSC NONRTRIC Cherry Demo](#)
- **17 Sep 2020**
O-RAN Alliance WG 2 Status update
WG 2 wiki: [Meeting notes](#)
Slides: [OSC-2020.09.03-WG2-I-OSC-NONRTRIC-Status-JohnKeeney-v01.pdf](#)
- **01 Jul 2020**
NONRTRIC functions demonstrated in O-RAN Virtual Exhibition
"Non-RT RIC based Quality of Experience (QoE) modification"
- **01 Jul 2020**
NONRTRIC functions released in OSC Bronze Release
See [Release B](#) for more information
- **10 Jun 2020**
O-RAN Alliance WG 2 Status update
WG 2 wiki: [Meeting notes](#)
Slides: [OSC-2020.05.28-WG2-I-OSC-NONRTRIC-Status-JohnKeeney-v01.pdf](#)
- **04 Mar 2020**
Demo & Status after Amber Maintenance Release
Slides: [Amber+ NONRTRIC Function demo](#)
Demo Recording: [it-weekly-20200304-2.mp4](#)
- **03 Feb 2020**
NONRTRIC functions extended in OSC Amber Maintenance Release
See [Release A 1.1 - Maintenance](#) for more information
- **23 Jan 2020**
O-RAN Alliance WG 2 Status update
WG 2 wiki: [Meeting notes](#)
Slides: [20200123 OSC NONRTRIC Jan23 WG2 ShortStatus - John Keeney.pdf](#)
- **03 Dec 2019**
NONRTRIC functions released in OSC Amber Release
See [Release A](#) for more information
- **03 Oct 2019**
O-RAN Costa Rica F2F meeting: NONRTRIC Status Update
Slides: [20191003 WG2 ORANSC NONRTRIC Status - John Keeney.pdf](#)
- **22 Aug 2019**
O-RAN Alliance WG 2 Status update
WG 2 wiki: [Meeting notes](#)
Slides: [20190822 ORAN WG2 OSC-NONRTRIC Status 20190822.pdf](#)
- **28 Jun 2019**
First PoC Conducted
Slides & recording: [Link to PoC read-out recording](#)
- **24 Jul 2019**
Second PoC Conducted
[OOF_PCI_Dublin_POC_Demo_20190724_v_2.0.pptx](#)
- **17 Jul 2019**
Updated Project Proposal
[RICnon-RT_OSC_project_proposal.pdf](#)

Child Pages

- [Project Scopes](#)
- [NONRTRIC Development Guide](#)
- [Operations and Management](#)
- [Meetings](#)
- [NONRTRIC: Requirements](#)
- [NONRTRIC: Project events](#)
- [Benchmark tests](#)
- [Function Test](#)

Recent Changes

[\[WIP\] Simple guide how to use ICS - Information coordinator service](#)
about 5 hours ago • updated by [Francesco Davide Lapenta](#) • [view change](#)
[Meetings](#)
yesterday at 3:59 pm • updated by [John Keeney](#) • [view change](#)
[2024-05-14 Meeting notes - Joint OAM / NONRTRIC / SIM Community meeting](#)
yesterday at 3:58 pm • created by [John Keeney](#)
[\[WIP\] Service Manager](#)
Apr 23, 2024 • updated by [Denis G Noonan](#) • [view change](#)
[2024-04-16 Meeting notes - Joint OAM / NONRTRIC / SIM Community meeting](#)
Apr 17, 2024 • created by [John Keeney](#)
[Release J: Technical spikes](#)
Apr 15, 2024 • updated by [Denis G Noonan](#) • [view change](#)

[Release G - Build](#)

Apr 15, 2024 • commented by [Vineet Aggarwal](#)

[Release G - Build](#)

Apr 15, 2024 • commented by [John Keeney](#)

[Release G - Build](#)

Apr 12, 2024 • commented by [Vineet Aggarwal](#)
[pom.xml](#)

Apr 12, 2024 • attached by [Vineet Aggarwal](#)
[image-2024-4-12_23-11-49.png](#)

Apr 12, 2024 • attached by [Vineet Aggarwal](#)

[Release G - Build](#)

Apr 11, 2024 • commented by [John Keeney](#)

[Release G - Build](#)

Apr 11, 2024 • commented by [John Keeney](#)

[Release G - Build](#)

Apr 11, 2024 • updated by [John Keeney](#) • [view change](#)

[Release G - Build](#)

Apr 08, 2024 • commented by [Vineet Aggarwal](#)

[Screenshot 2024-04-04 153609.png](#)

Apr 04, 2024 • attached by [Francesco Davide Lapenta](#)

[Screenshot 2024-04-04 153528.png](#)

Apr 04, 2024 • attached by [Francesco Davide Lapenta](#)

[2024-04-02 Meeting notes - Joint OAM / NONRTRIC / SIM Community meeting](#)

Apr 02, 2024 • updated by [John Keeney](#) • [view change](#)

[20240402_Recording_960x540-lores.mp4](#)

Apr 02, 2024 • attached by [John Keeney](#)

[uml2.png](#)

Apr 02, 2024 • attached by [Francesco Davide Lapenta](#)

[2024-03-26 Meeting notes - Joint OAM / NONRTRIC / SIM Community meeting](#)

Mar 28, 2024 • created by [John Keeney](#)

[20240326_Recording_960x540-lores.mp4](#)

Mar 28, 2024 • attached by [John Keeney](#)

[uml.png](#)

Mar 27, 2024 • attached by [Francesco Davide Lapenta](#)

[demoarch.drawio \(2\).png](#)

Mar 27, 2024 • attached by [Francesco Davide Lapenta](#)

[demoarch.drawio.png](#)

Mar 27, 2024 • attached by [Francesco Davide Lapenta](#)

[Benchmark tests - 20240321](#)

Mar 26, 2024 • commented by [MANJULA SATHISH](#)

[Release J](#)

Mar 25, 2024 • updated by [John Keeney](#) • [view change](#)

[Release I](#)

Mar 25, 2024 • updated by [John Keeney](#) • [view change](#)

[flow2.drawio.png](#)

Mar 22, 2024 • attached by [Francesco Davide Lapenta](#)

[Untitled Diagram.drawio \(2\).png](#)

Mar 21, 2024 • attached by [Francesco Davide Lapenta](#)

[Benchmark tests - 20240321](#)

Mar 21, 2024 • updated by [Rohith Rajneesh](#) • [view change](#)

[FTC850.tar](#)

Mar 21, 2024 • attached by [Rohith Rajneesh](#)

[benchmark-20201009.tar](#)

Mar 21, 2024 • attached by [Rohith Rajneesh](#)

[image-2024-3-21_9-19-15.png](#)

Mar 21, 2024 • attached by [Rohith Rajneesh](#)

[Screenshot 2020-10-01 at 20.43.26.png](#)

Mar 21, 2024 • attached by [Rohith Rajneesh](#)

[2024-03-19 Meeting notes - Joint OAM / NONRTRIC / SIM Community meeting](#)

Mar 19, 2024 • updated by [John Keeney](#) • [view change](#)

[20240319_Recording_960x540-lores.mp4](#)

Mar 19, 2024 • attached by [John Keeney](#)

[ZSungW913CRnFgUO2ppUQhLi8lig5ZQ2Uu6GZJYOsgmp6Hlnxexjgc0Rlj-](#)

[VzDamMGa2SABaexc_btjoq7MCuWdDwzlv_MvmeeHoqMnTsxJD__q1IEPIQ3pVGyG4izkdw1mnwHZ8Kx0aladitGRdN89BpEDy6OgE.png](#)

Mar 14, 2024 • attached by [Francesco Davide Lapenta](#)

[\[WIP\] Simple guide how to use ICS - Information coordinator service](#)

Mar 13, 2024 • updated by [John Keeney](#) • [view change](#)

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Mar 12, 2024 • created by [John Keeney](#)

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Mar 12, 2024 • attached by [John Keeney](#)

[Non-RealTime RIC \(NONRTRIC\)](#)

Mar 11, 2024 • commented by [masumeh Tohidi](#)

[Untitled Diagram \(1\).png](#)

Mar 08, 2024 • attached by [Francesco Davide Lapenta](#)

[2024-03-05 Meeting notes - Joint OAM / NONRTRIC / SIM Community meeting](#)

Mar 05, 2024 • created by [John Keeney](#)

[20240305_Recording_960x540-lores.mp4](#)

Mar 05, 2024 • attached by [John Keeney](#)

[2024-02-27 Meeting notes - Joint OAM / NONRTRIC / SIM Community meeting](#)
Feb 27, 2024 • created by [John Keeney](#)
[20240227_Recording_960x540-lores.mp4](#)
Feb 27, 2024 • attached by [John Keeney](#)
[Release J: rApp Manager](#)
Feb 23, 2024 • updated by [Aravindhan Ayyanathan](#) • [view change](#)
[image-2024-2-23_15-22-46.png](#)
Feb 23, 2024 • attached by [Aravindhan Ayyanathan](#)
[2024-02-13 Meeting notes - Joint OAM / NONRTRIC / SIM Community meeting](#)
Feb 13, 2024 • created by [John Keeney](#)