

# 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:**
  - nonrtrc : <https://gerrit.o-ran-sc.org/r/admin/repos/q/filter:nonrtrc>
  - portal/nonrtrc-controlpanel : <https://gerrit.o-ran-sc.org/r/admin/repos/portal/nonrtrc-controlpanel>
  - sim/a1-interface : <https://gerrit.o-ran-sc.org/r/admin/repos/sim/a1-interface>
- **Docs:**
  - nonrtrc : <https://docs.o-ran-sc.org/projects/o-ran-sc-nonrtrc>
  - portal/nonrtrc-controlpanel : <https://docs.o-ran-sc.org/projects/o-ran-sc-portal-nonrtrc-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](mailto:discuss@lists.o-ran-sc.org)
  - Please use hashtag **#nonrtrc**
- **Meetings:** <https://wiki.o-ran-sc.org/display/RICNR/Meetings>

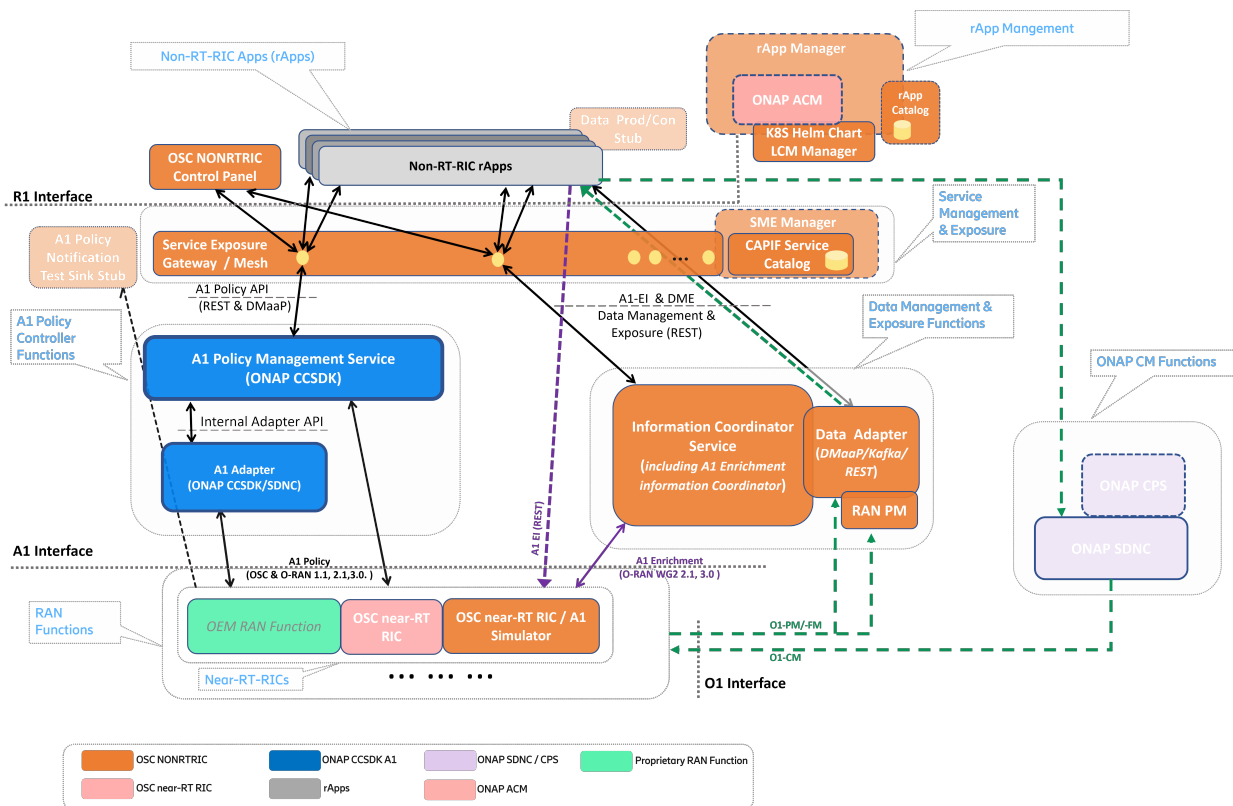
The Non-RealTime RIC (RAN Intelligent Controller) is an Orchestration and Automation function described by the [O-RAN Alliance](#) for non-real-time intelligent management of RAN (Radio Access Network) functions. The primary goal of the Non-RealTime RIC is to support non-real-time radio resource management, 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

### Meetings

about 4 hours ago • updated by [John Keeney](#) • [view change](#)  
[2024-05-14 Meeting notes - Joint OAM / NONRTRIC / SIM Community meeting](#)  
 about 4 hours ago • 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](#)

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

Apr 04, 2024 • updated by [Francesco Davide Lapenta](#) • [view change](#)  
[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](#)  
[2024-03-12 Meeting notes - Joint OAM / NONRTRIC / SIM Community meeting](#)

Mar 12, 2024 • created by [John Keeney](#)  
[20240312\\_Recording\\_960x540-lores.mp4](#)

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](#)