

R8 A1 Adapter and Policy Management Extension

Use Case Name



A1 Adapter and Policy Management Extension (R8 Honolulu)	John Keeney Michela Bevilacqua
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Use Case Overview & Description

O-RAN has defined A1 interface specification in the context of the management of 5G RAN elements to provide intent based policies for optimization of the RAN network performance. This requirement enhances the support for Managing and Mediating O-RAN A1 Policies in ONAP. This extends work contributed in Rel 6 - Frankfurt (REQ-38) and Rel 7 - Guilin (REQ-352). A1 Adapter functionality was introduced in Frankfurt. In Guilin The A1 adapter was improved and a A1 Policy Management Service was added.

Planned enhancements for Rel 8 include: support of new A1 interface version in alignment to O-RAN alliance, common logging/audit. improved CSIT and OOM alignment, easier configuration, an improved NBI, and improved security cert management.

Use Case Key Information

TOPIC	Information
Requirements Proposal	Requirements S/C Proposal: A1 Adapter and Policy Management Extension (ORAN/ONAP/3GPP Harmonization)
Project WIKI page	O-RAN A1 Policies in ONAP & This Page
Prior Project "Base" Wiki	ONAP/3GPP & ORAN Alignment: A1 Adapter extensions (Guilin)
Meetings Register & Recordings	ONAP/O-RAN-SC/SMO Meetings
Requirements Ticket	 REQ-457 - Extend ORAN A1 support - Honolulu DONE
Key Use Case Leads & Contacts	USE CASE LEAD: John Keeney USE KEY CONTACTS: Michela Bevilacqua
CCSDK Requirement/Epic	JIRA Ticket for Epic for A1 Policy Management in Honolulu  CCSDK-2994 - A1 Adapter and A1 Policy Management Extension - Honolulu - CCSDK CLOSED

ONAP Arch Committee Review	<p>JIRA Ticket for Review in ArchCom</p> <div>  ONAPARC-642 - (Honolulu-R8) - Func - Extend ORAN A1 support CLOSED </div> <p>2020-12-01 ONAP Architecture Subcommittee Meeting - Approved</p> <p>Recording:</p> <div>  <p>A1Policy...1201.mp4</p> </div> <p>Slides:</p> <div>  <p>2020120...Com.pdf</p> </div>
Function/Integration Test environment	<p>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</p>
Integration Tests	<p>JIRA Ticket for Epic for Integration Tests</p> <div> <input checked="" type="checkbox"/> REQ-626 - Extend ORAN A1 support - Honolulu - Integration tests DONE </div>

BUSINESS DRIVER

Key Contacts : John Keeney, Michela Bevilacqua

Executive Summary:

O-RAN has defined A1 interface specification in the context of the management of 5G RAN elements to provide intent based policies for optimization of the RAN network performance. This requirement enhances the support for Managing and Mediating O-RAN A1 Policies in ONAP. This extends work contributed in Rel 6 - Frankfurt ([REQ-38](#)) and Rel 7 - Guilin ([REQ-352](#)). A1 Adapter functionality was introduced in Frankfurt. In Guilin The A1 adapter was improved and a A1 Policy Management Service was added.

Planned enhancements for Rel 8 include: support of new A1 interface version in alignment to O-RAN alliance, common logging/audit, improved CSIT and OOM alignment, easier configuration, an improved NBI, and improved security cert management.

Business Impact: Continuing the convergence between ONAP and ORAN for A1 Policy interface to used by all service providers.

Business Markets: Enhanced A1 Policy capabilities, once developed, will be usable by any service provider deploying and using ONAP.

Funding/Financial Impacts: A1 interface provides a flexible way for the operator to manage wide area RAN network optimization, reducing capex investment needs.

Organization Mgmt, Sales Strategies: There is no additional organizational management or sales strategies for this use case outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

Development Status

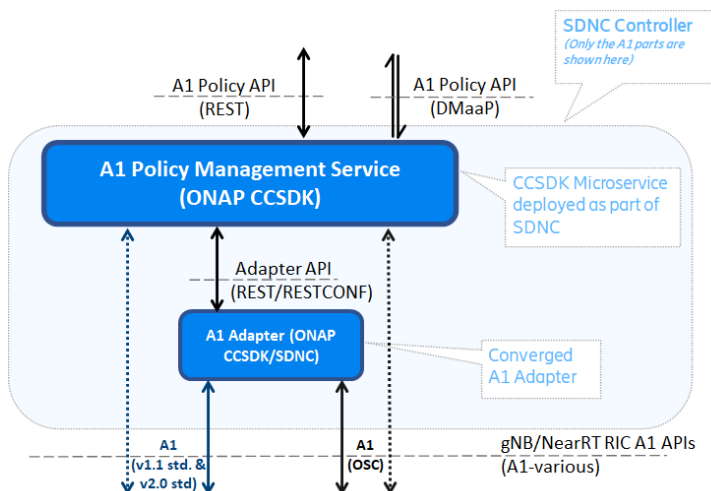
PROJECT	PTL	User Story / Epic	Requirement
A&AI	William Reehil	N/A	
AAF	Jonathan Gathman	N/A	
APPC	Takamune Cho	N/A	
CLAMP	Gervais-Martial Nguoko	N/A	
CC-SDK	Dan Timoney	Extend existing A1 Adapter and A1 Policy Management functionality in CCSDK	CCSDK-2991
DCAE	Vijay Venkatesh Kumar	N/A	
DMaaP	Mandar Sawant	N/A	
External API	Adrian OSullivan	N/A	
HOLMES	Guangrong Fu	N/A	
MODELING	Hui Deng	N/A	
Multi-VIM / Cloud	Bin Yang	N/A	
OOF	krishna moorthy	N/A	
OOM	Sylvain Desbureaux	N/A	
POLICY	Jim Hahn	N/A	
PORTAL	Sunder Tattavarada	N/A	
SDN-C	Dan Timoney	Extend existing A1 Adapter and A1 Policy Management functionality in SDNC deployments	
SDC	Christophe Closset	N/A	
SO	Seshu Kumar Mudiganti	N/A	
VID	Ikram Ikramullah	N/A	
VF-C	Yuanhong Deng	N/A	
VNFRQTS	Steven Wright	N/A	
VNF-SDK	Weitao Gao	N/A	
CDS	Yuriy Malakov	N/A	

List of PTLs: [Approved Projects](#)

*Each Requirement should be tracked by its own User Story in JIRA

USE CASE DIAGRAM

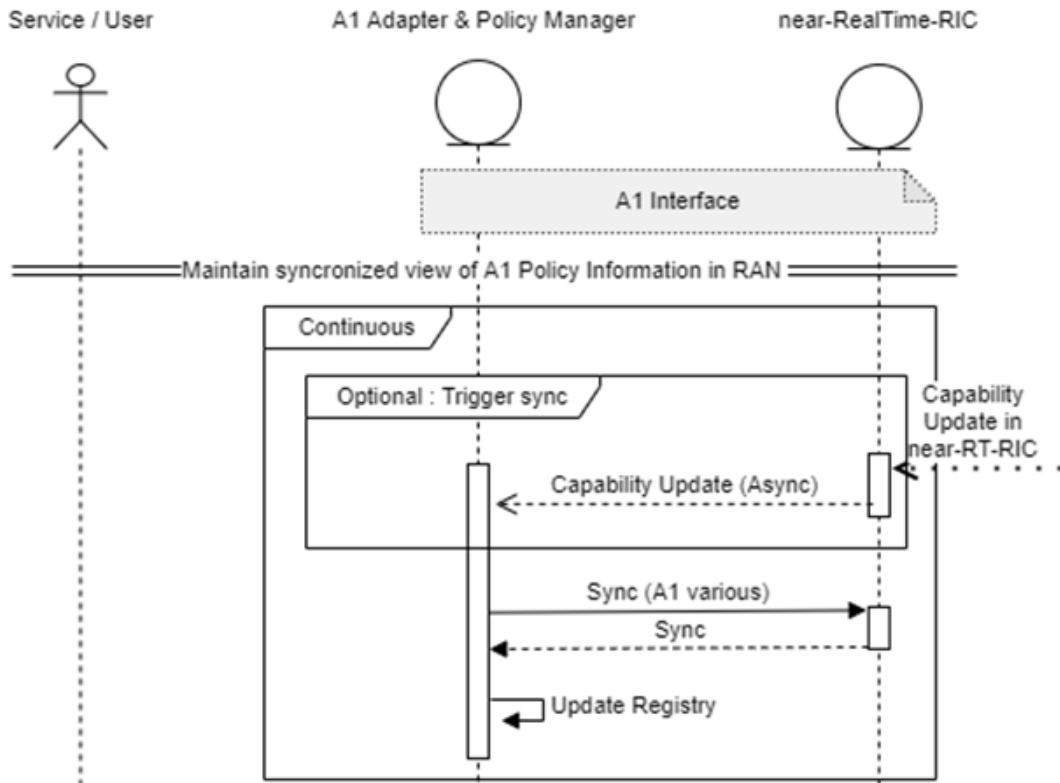
Use cases define how different users interact with a system under design.



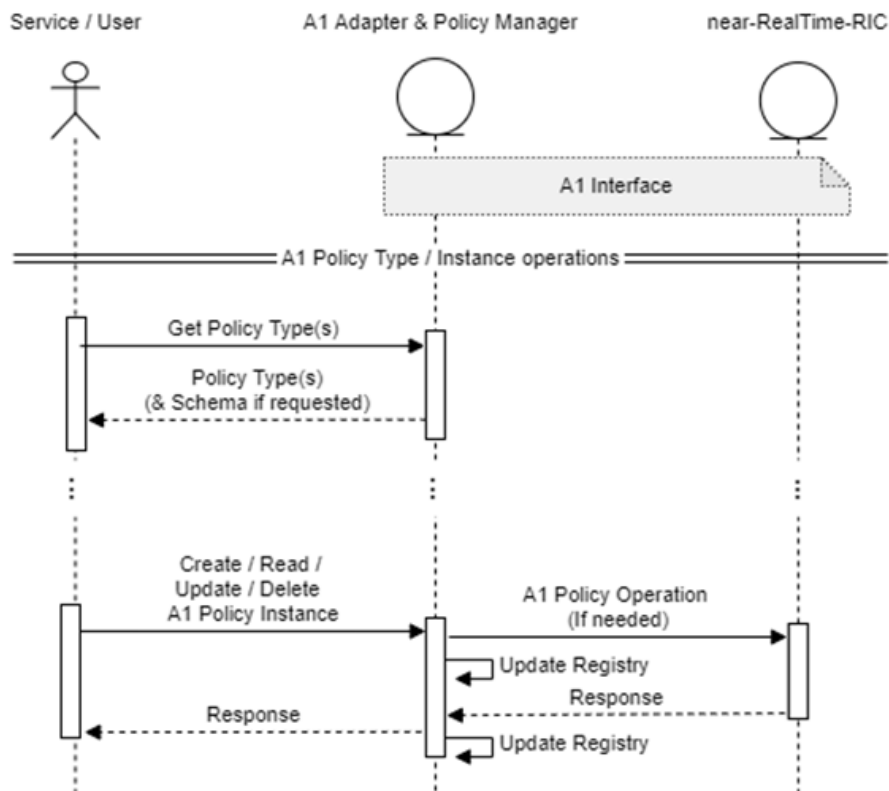
Enhancements for Honolulu Release

- Add support for O-RAN Alliance A1-AP v2.1 specification (A1 Policy only)
- Improve alignment with OOM deployment & configuration options
- Improve alignment with CSIT way of working for function tests
- New REST interface for configuration
- New A1 Policy Management NBI (REST & DMaaP)
- Improved security cert management
- Stretch: Investigate if A1 Policy manipulation can be incorporated into other use cases (e.g. Slicing, OOF) - TBC

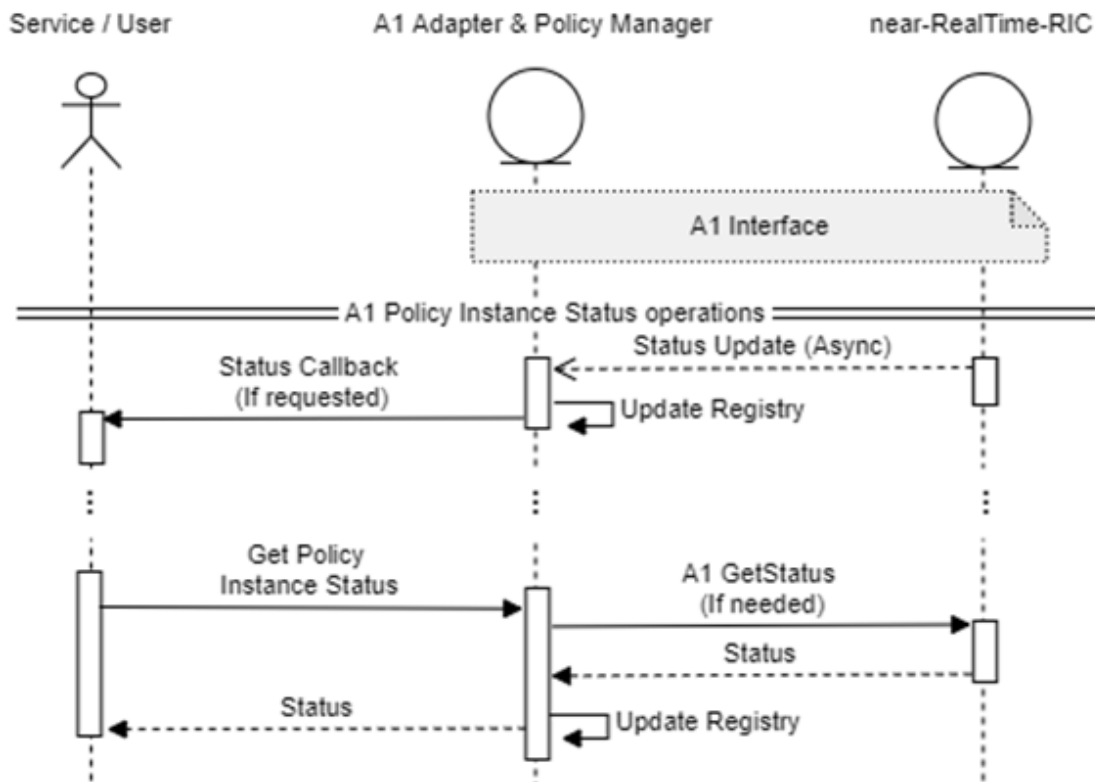
Synchronize A1 Policy Information in RAN



A1 Policy Type / Instance Operations



A1 Policy Instance Status Operations



Other Impacts

Affected ONAP Functions:

- SDNC / CCSDK only

Integration of bordering ONAP components:

- TBC

Interfaces:

- Northbound Interface
 - Add/Change CCSDK A1 Policy Management Service NBI for A1 Policy Management (REST & DMaaP)
 - The new version of the PMS REST API complies with the ONAP REST API and [Zalando](#) style guidelines and fixes some naming inconsistencies.
 - REST (New version)
 - DMaaP (New version)
 - Ref: [CCSDK-3077](#)
- Configuration
 - File based, supports dynamic refresh - including K8s ConfigMap (existing)
 - CBS/Consul (existing)
 - REST (New)
 - [CCSDK-2966](#)
- Southbound Interfaces – See earlier section
 - OSC A1 v2.1 (Existing)
 - O-RAN A1 v1.1 (Existing)
 - O-RAN A1 v2.1 (New)

Usage outside ONAP:

- Used in [O-RAN-SC NONRTRIC Project](#) (Downstream)
- Southbound Interface: O-RAN A1 Interface + Information Model is specified and maintained by O-RAN Alliance

Modelling Impacts:

- TBC

Other:

- Update Documentation with A1 interface aspects
- Update Integration & Existing Test requirements

Use Case Functional Definitions

Use Case Title	A1 Adapter and Policy Management Extension
Act ors (and System Components)	SDNC / CCSDK - A1 Adapter & A1 Policy Management Service
Description	O-RAN has defined A1 interface specification in the context of the management of 5G RAN elements to provide intent based policies for optimization of the RAN network performance. This requirement enhances the support for Managing and Mediating O-RAN A1 Policies in ONAP. This extends work contributed in Rel 6 - Frankfurt (REQ-38) and Rel 7 - Guilin (REQ-352). A1 Adapter functionality was introduced in Frankfurt. In Guilin The A1 adapter was improved and a A1 Policy Management Service was added. Planned enhancements for Rel 8 include: support of new A1 interface version in alignment to O-RAN alliance, common logging/audit. improved CSIT and OOM alignment, easier configuration, an improved NBI, and improved security cert management.

Poin ts of Con tact	John Keeney Michela Bevilacqua
Prec ondi tions	N/A
Trig gers / Beg ins when	N/A
Step s / Flo ws (suc ces s)	
Post - con diti ons	
Alte rnat e / Exc epti on Paths	
Rela ted Use Cas es	TBC
Ass ump tions	None
Tool s / Refe renc es / Artif acts	See additional information on this page

TESTING

- Test use-cases:
 - Synchronize A1 Policy Information in RAN
 - A1 Policy Type / Instance Operations
 - A1 Policy Instance Status Operations

Current Status

- None yet

End to End flow to be Tested

- Currently being defined

Test Cases and Status

- Currently being defined