
O-RAN Working Group 2 (Non-RT RIC and A1 interface WG)

A1 interface: Use Cases and Requirements

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Foreword

This Technical Specification (TS) has been produced by O-RAN Alliance Working Group 2 (Non-RT RIC and A1 interface WG). It is part of a TS-family covering the A1 interface as identified below:

- "A1 interface: General Aspects and Principles";
- "A1 interface: Use Cases and Requirements";
- "A1 interface: Transport Protocol";
- "A1 interface: Application Protocol";
- "A1 interface: Type Definitions"; and
- "A1 interface: Test Specification".

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the O-RAN Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in O-RAN deliverables except when used in direct citation.

1 Scope

The contents of the present document are subject to continuing work within O-RAN and may change following formal O-RAN approval. Should the O-RAN Alliance modify the contents of the present document, it will be re-released by O-RAN with an identifying change of version date and an increase in version number as follows:

version xx.yy.zz

where:

xx: the first digit-group is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc. (the initial approved document will have xx=01). Always 2 digits with leading zero if needed.

yy: the second digit-group is incremented when editorial only changes have been incorporated in the document. Always 2 digits with leading zero if needed.

zz: the third digit-group is included only in working versions of the document indicating incremental changes during the editing process. External versions never include the third digit-group. Always 2 digits with leading zero if needed.

The present document specifies the use cases and requirements for the A1 interface.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, O-RAN cannot guarantee their long-term validity.

The following referenced documents are necessary for the application of the present document.

- [1] O-RAN TS: "A1 interface: General Aspects and Principles" ("A1GAP")
- [2] O-RAN TS: "A1 interface: Transport Protocol" ("A1TP")
- [3] O-RAN TS: "A1 interface: Application Protocol" ("A1AP")
- [4] O-RAN TS: "A1 interface: Type Definitions" ("A1TD")
- [5] O-RAN TS: "Non-RT RIC Architecture"
- [6] O-RAN TS: "Near-RT RIC Architecture"
- [7] ITU-T: "Recommendation ITU-T M.3020, Management interface specification methodology"
- [8] OMG: "Unified Modeling Language (OMG UML) version 2.5.1"

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, O-RAN cannot guarantee their long-term validity.

The following referenced documents are not necessary for the application of the present document, but they assist the user with regard to a particular subject area.

3 Definition of terms, symbols, abbreviations and conventions

3.1 Terms

For the purposes of the present document, the terms given in A1GAP [1] apply.

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in A1GAP [1] apply.

3.4 Conventions

3.4.1 General

For the purposes of the present document, the conventions in the following clauses apply.

3.4.2 Requirements

The requirements and solutions for use cases are based on the methodology specified in ITU-T M.3020 [7] clause A.1.2.

3.4.3 UML diagrams

The sequence diagrams for the messages that are exchanged between use case actors are based on the OMG UML [8] clause 17.4.4.1 and an example is illustrated in figure 3.4.3-1.

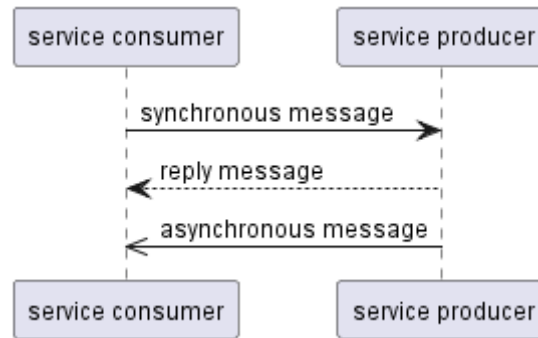


Figure 3.4.3-1 Example of UML messages.

For each message in the present document, the following information is indicated:

- interface name and procedure name;
- type of message (e.g. request or response); and
- transferred information (if applicable).

An example is illustrated in figure 3.4.3-2.

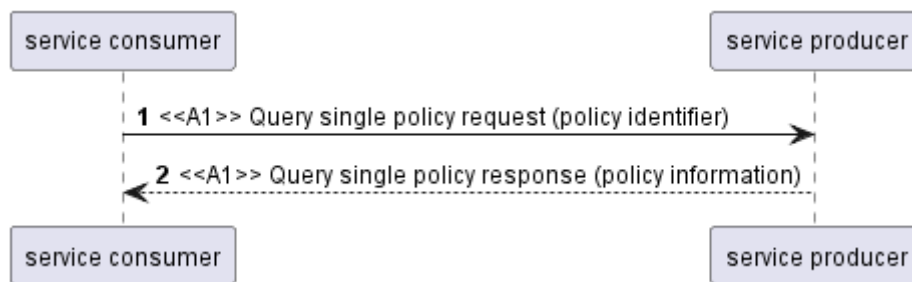


Figure 3.4.3-2 Example of message labels used in the present document.

4 General

Non-RT RIC with A1 termination function and A1 related functions in the SMO / Non-RT RIC framework is defined in Non-RT RIC Architecture [5].

Near-RT RIC with A1 Termination and internal functions is defined in Near-RT RIC Architecture [6].

The A1 policy management service (A1-P) and the A1-P procedures are defined in A1GAP [1], the service operations and the API are defined in A1AP [3] and policy types are defined in A1TD [4].

The A1 enrichment information service (A1-EI) and the A1-EI procedures are defined in A1GAP [1], the service operations and the API are defined in A1AP [3] and EI types are defined in A1TD [4].

5 Requirements

5.1 Functional requirements

For the A1 policy management service, the functional requirements are included in Table 5.1-1.

Table 5.1-1 A1 Policy management functional requirements

REQ	Description	Note
REQ-A1-P-FUN1	It shall be possible to discover policy type identifiers	
REQ-A1-P-FUN2	An A1 policy type shall be identified by a policy type identifier	
REQ-A1-P-FUN3	It shall be possible to retrieve information about A1 policy types	
REQ-A1-P-FUN4	It shall be possible to retrieve status information related to an A1 policy type	
REQ-A1-P-FUN5	It shall be possible to subscribe to, and be notified about, changes in status information related to an A1 policy type	
REQ-A1-P-FUN6	It shall be possible to request policy enforcement related to an A1 policy type by managing an A1 policy	
REQ-A1-P-FUN7	It shall be possible to discover policy identifiers	
REQ-A1-P-FUN8	It shall be possible to retrieve information about an A1 policy	
REQ-A1-P-FUN9	It shall be possible to retrieve status information related to an A1 policy	
REQ-A1-P-FUN10	It shall be possible to subscribe to, and be notified about, changes in status information related to an A1 policy	

For the A1 enrichment information service, the functional requirements are included in Table 5.1-2.

Table 5.1-2 A1 enrichment information functional requirements

REQ	Description	Note
REQ-A1-EI-FUN1	It shall be possible to discover EI type identifiers	
REQ-A1-EI-FUN2	An EI type shall be identified by an EI type identifier	
REQ-A1-EI-FUN3	It shall be possible to retrieve information about EI types	
REQ-A1-EI-FUN4	It shall be possible to retrieve status information related to an EI type	
REQ-A1-EI-FUN5	It shall be possible to subscribe to, and be notified about, changes in status information related to an EI type	
REQ-A1-EI-FUN6	It shall be possible to request enrichment information related to an EI type by managing an EI job	
REQ-A1-EI-FUN7	It shall be possible to discover EI job identifiers	
REQ-A1-EI-FUN8	It shall be possible to retrieve information about an EI job	
REQ-A1-EI-FUN9	It shall be possible to retrieve status information related to an EI job	
REQ-A1-EI-FUN10	It shall be possible to subscribe to, and be notified about, changes in status information related to an EI job.	
REQ-A1-EI-FUN11	It shall be possible to deliver enrichment information over the A1 interface	

6 Use cases for A1 policy management

6.1 Policy type discovery use cases

6.1.1 Background and goal of the use cases

The policy type discovery use cases define how Non-RT RIC can detect which A1 policy types are available in a Near-RT RIC and how Non-RT RIC can retrieve information about one or more A1 policy types.

Policy type information is provided by the Near-RT RIC and is used by Non-RT RIC for creating and by Near-RT RIC for validating A1 policies. When policy type identifier and policy type information are known, the Non-RT RIC can create A1 policies in a Near-RT RIC as described by policy creation use cases.

6.1.2 Entities/resources involved in the use cases

- 1) Non-RT RIC:
 - a) Discovers A1 policy types available in Near-RT RIC.
- 2) Near-RT RIC:
 - b) Makes A1 policy types available to Non-RT RIC for which it can support A1 policies.

6.1.3 Solutions

6.1.3.1 Query all policy type identifiers

Table 6.1.3.1-1 Query all policy type identifiers use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Non-RT RIC to discover policy type identifiers for A1 policy types that are available in Near-RT RIC	
Actors and Roles	Non-RT RIC as A1-P Consumer Near-RT RIC as A1-P Producer	
Assumptions	A1 policy types are available in Near-RT RIC	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-P service	
Begins when	Non-RT RIC initiates A1 policy type identifiers query	
Step 1 (M)	Non-RT RIC sends Query policy type identifiers request	
Step 2 (M)	Near-RT RIC sends Query policy type identifiers response containing policy type identifiers	
Ends when	Non-RT RIC has received policy type identifiers for all available A1 policy types	
Exceptions		
Post-conditions	Policy type identifiers are known to Non-RT RIC	
Traceability	REQ-A1-P-FUN1	

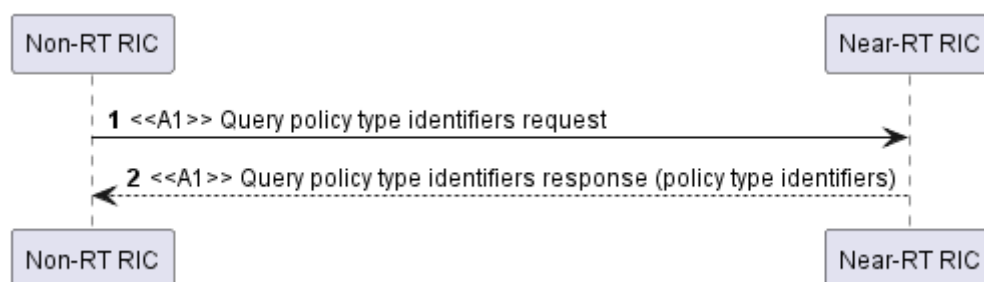


Figure 6.1.3.1-1 Query all policy type identifiers.

6.1.3.2 Query single policy type

Table 6.1.3.2-1 Query single policy type use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Non-RT RIC to retrieve policy type information about an A1 policy type	
Actors and Roles	Non-RT RIC as A1-P Consumer Near-RT RIC as A1-P Producer	
Assumptions	The policy type identifier known to the Non-RT RIC corresponds to an available A1 policy type	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-P service. The policy type identifier is known to the Non-RT RIC.	
Begins when	Non-RT RIC initiates A1 policy type query	
Step 1 (M)	Non-RT RIC sends Query single policy type request containing the policy type identifier of the policy type being queried	
Step 2 (M)	Near-RT RIC sends Query single policy type response containing policy type information	
Ends when	Non-RT RIC has received the A1 policy type information	
Exceptions		
Post-conditions	A1 policy type information is known to Non-RT RIC	
Traceability	REQ-A1-P-FUN2, REQ-A1-P-FUN3	

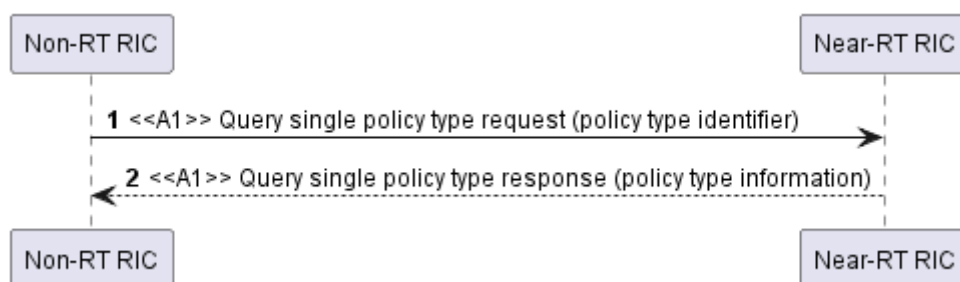


Figure 6.1.3.2-1 Query single policy type.

6.1.3.3 Query multiple policy types

Table 6.1.3.3-1 Query multiple policy types use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Non-RT RIC to retrieve policy type information for a selection of A1 policy types it is interested in	
Actors and Roles	Non-RT RIC as A1-P Consumer Near-RT RIC as A1-P Producer	
Assumptions	The policy type identifiers known to the Non-RT RIC correspond to available A1 policy types	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-P service. The policy type identifiers are known to the Non-RT RIC.	
Begins when	Non-RT RIC initiates A1 policy types query	
Step 1 – ref (M)	Non-RT RIC queries for information about a single policy type	6.1.3.2
Step 2 – loop (M)	Non-RT RIC repeats Step 1 for the policy type identifiers it is interested in	
Ends when	Non-RT RIC has received information about multiple available A1 policy types	
Exceptions		
Post-conditions	Information about multiple A1 policy types is known to Non-RT RIC	
Traceability	REQ-A1-P-FUN2, REQ-A1-P-FUN3	

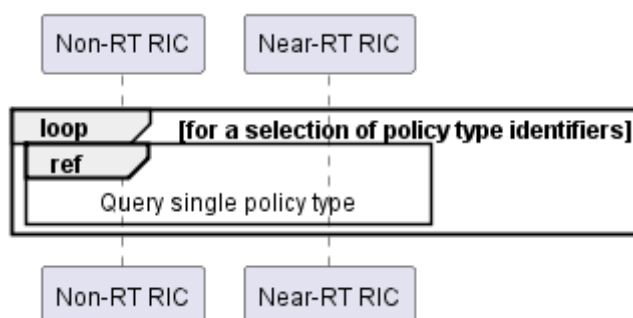


Figure 6.1.3.3-1 Query multiple policy types.

6.1.3.4 Query all policy type information

Table 6.1.3.4-1 Query all policy type information use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Non-RT RIC to retrieve policy type information for all A1 policy types that are available in Near-RT RIC	
Actors and Roles	Non-RT RIC as A1-P Consumer Near-RT RIC as A1-P Producer	
Assumptions	The policy type identifiers known to the Non-RT RIC correspond to all available A1 policy types.	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-P service. All policy type identifiers are known to the Non-RT RIC.	
Begins when	Non-RT RIC initiates A1 policy types query	
Step 1 – ref (M)	Non-RT RIC queries for information about a single policy type	6.1.3.2
Step 2 – loop (M)	Non-RT RIC repeats Step 1 for all policy type identifiers	
Ends when	Non-RT RIC has received information about all available A1 policy types	
Exceptions		
Post-conditions	Information about all available A1 policy types is known to Non-RT RIC	
Traceability	REQ-A1-P-FUN2, REQ-A1-P-FUN3	

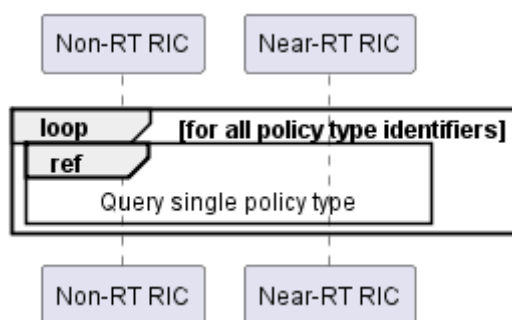


Figure 6.1.3.4-1 Query all policy types.

6.1.4 Required data

An A1 policy type is identified by a policy type identifier. A list of policy type identifiers is provided by Near-RT RIC corresponding to available A1 policy types. The Non-RT RIC provides a policy type identifier when querying for information about a single A1 policy type. The Near-RT RIC includes policy type information in response to a query for information about an A1 policy type.

6.2 Policy type status use cases

6.2.1 Background and goal of the use cases

The policy type status use cases define how Non-RT RIC can detect status of an A1 policy type and subscribe to notifications for changes in availability and state of policy types.

Policy type status information is provided by the Near-RT RIC and is used by Non-RT RIC when managing A1 policies.

6.2.2 Entities/resources involved in the use cases

- 1) Non-RT RIC:
 - a) Requests policy type status.
 - b) Subscribes to notifications for changes in policy type status.
- 2) Near-RT RIC:
 - a) Responds to queries for policy type status.
 - b) Handles subscriptions and notifies Non-RT RIC about changes in availability and state of policy types.

6.2.3 Solutions

6.2.3.1 Query policy type status

Table 6.2.3.1-1 Query policy type status use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Non-RT RIC to retrieve policy type status information for an A1 policy type	
Actors and Roles	Non-RT RIC as A1-P Consumer Near-RT RIC as A1-P Producer	
Assumptions	The policy type identifier known to the Non-RT RIC corresponds to an available policy type	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-P service. The policy type identifier is known to the Non-RT RIC.	
Begins when	Non-RT RIC initiates A1 policy type status query	
Step 1 (M)	Non-RT RIC sends Query policy type status request containing the policy type identifier of the policy type being queried for status	
Step 2 (M)	Near-RT RIC sends Query policy type status response containing policy type status information	
Ends when	Non-RT RIC has received the A1 policy type status information	
Exceptions		
Post-conditions	Policy type status information is known to Non-RT RIC	
Traceability	REQ-A1-P-FUN4	

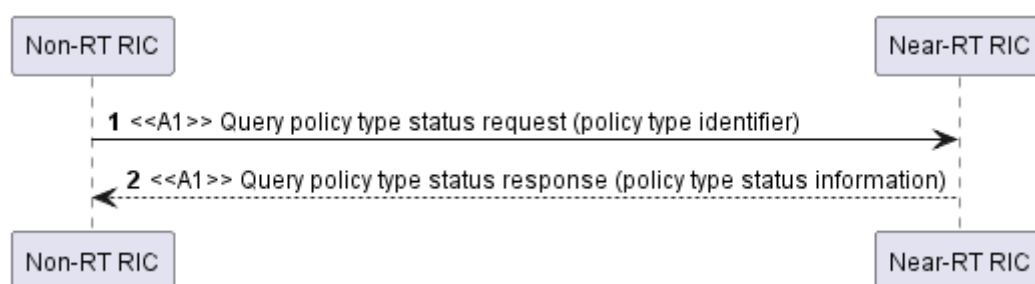


Figure 6.2.3.3-1 Query policy type status.

6.2.3.2 Subscription for policy type status notification

Table 6.2.3.2-1 Subscribe policy type status use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Non-RT RIC to subscribe to notifications for policy type status information for A1 policy types	
Actors and Roles	Non-RT RIC as A1-P Consumer Near-RT RIC as A1-P Producer	
Assumptions	Non-RT RIC is interested in notifications of policy types that are made available or unavailable, and/or notifications of state changes of a policy type	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-P service. Policy type identifiers are known to the Non-RT RIC when subscribing for notifications on type state changes.	
Begins when	Non-RT RIC initiates A1 Policy type status subscribe	
Step 1 (M)	Non-RT RIC sends Subscribe policy type status request containing the policy type status subscription information including policy type identifier(s) if type state changes are requested.	
Step 2 (M)	Near-RT RIC sends Subscribe policy type status response	
Ends when	Policy type status subscription has been created	
Exceptions		
Post-conditions	Non-RT RIC is subscribed to policy type status notifications	
Traceability	REQ-A1-P-FUN5	

Table 6.2.3.2-2 Update policy type status subscription use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Non-RT RIC to update its subscription to notifications for policy type status information for A1 policy types	
Actors and Roles	Non-RT RIC as A1-P Consumer Near-RT RIC as A1-P Producer	
Assumptions	Non-RT RIC is interested in notifications of policy types that are made available or unavailable, and/or notifications of state changes of a policy type	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-P service. Policy type status notifications has been been subscribed to.	
Begins when	Non-RT RIC initiates A1 Policy type status subscribe	
Step 1 (M)	Non-RT RIC sends Subscribe policy type status request containing the updated policy type status subscription information	
Step 2 (M)	Near-RT RIC sends Subscribe policy type status response	
Ends when	Policy type status subscription has been updated	
Exceptions		
Post-conditions	Non-RT RIC is subscribed to policy type status notifications	
Traceability	REQ-A1-P-FUN5	

Table 6.2.3.2-3 Unsubscribe policy type status use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Non-RT RIC to unsubscribe from notifications for policy type status information for A1 policy types	
Actors and Roles	Non-RT RIC as A1-P Consumer Near-RT RIC as A1-P Producer	
Assumptions	Non-RT RIC is no longer interested in notifications of policy types status	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-P service. Policy type status notifications has been been subscribed to.	
Begins when	Non-RT RIC initiates A1 Policy type status unsubscribe	
Step 1 (M)	Non-RT RIC sends Subscribe policy type status request containing policy type status subscription information with no content	
Step 2 (M)	Near-RT RIC sends Subscribe policy type status response	
Ends when	Policy type status subscription has been deleted	
Exceptions		
Post-conditions	Non-RT RIC is not subscribed to policy type status notifications	
Traceability	REQ-A1-P-FUN5	

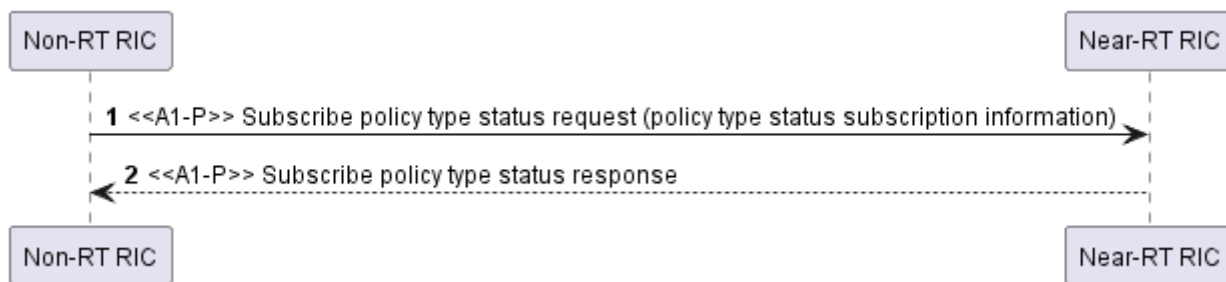


Figure 6.2.3.2-1 Subscription for policy type status notifications.

6.2.3.3 Notify policy type status

Table 6.2.3.3-1 Notify policy type status use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Non-RT RIC to receive policy type status information for an A1 Policy type	
Actors and Roles	Non-RT RIC as A1-P Consumer Near-RT RIC as A1-P Producer	
Assumptions		
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-P service. Non-RT RIC has subscribed to policy type status notifications and provided a callback URI.	
Begins when	Event occurs in Near-RT RIC related to the status of an A1 Policy type, either a change in availability or of the type state	
Step 1 (M)	Near-RT RIC sends Notify policy type status message containing the policy type status information	
Ends when	Non-RT RIC has received the policy type status information	
Exceptions		
Post-conditions	Policy type status information is known to Non-RT RIC	
Traceability	REQ-A1-P-FUN5	



Figure 6.2.3.3-1 Notify policy type status.

6.2.4 Required data

The policy type status information includes policy type availability change information (i.e., if A1 policy type has been made available or unavailable) and/or state change information related to an A1 policy type.

The state of the A1 policy type indicates if A1 policies can be created for the policy type or not, and if A1 policies for the policy type would be enforced or not enforced.

The policy type status subscription information includes details on whether notifications are requested for changes in A1 policy type availability and/or changes in state of the A1 policy type for which policy type identifiers were provided.

6.3 Create policy use cases

6.3.1 Background and goal of the use cases

The create policy use cases define how Non-RT RIC can create an A1 policy for an A1 policy type and subscribe to notifications for changes in policy status.

6.3.2 Entities/resources involved in the use cases

- 1) Non-RT RIC:
 - a) Creates A1 policy in Near-RT RIC.
- 2) Near-RT RIC:
 - b) Enforces A1 policies for available A1 policy types.

6.3.3 Solutions

6.3.3.1 Create single policy

Table 6.3.3.1-1 Create single policy use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Non-RT RIC to create A1 policy for an A1 policy type	
Actors and Roles	Non-RT RIC as A1-P Consumer Near-RT RIC as A1-P Producer	
Assumptions	The policy type information known to the Non-RT RIC corresponds to an available A1 policy type. Non-RT RIC has the schema for formulating A1 policy information.	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-P service. The policy type information is known to the Non-RT RIC.	
Begins when	Non-RT RIC initiates A1 policy creation	
Step 1 (M)	Non-RT RIC sends Create policy request containing the policy identifier and the policy information	
Step 2 (M)	Near-RT RIC sends Create policy response	
Ends when	A1 policy has been created	
Exceptions		
Post-conditions	The A1 policy exists	
Traceability	REQ-A1-P-FUN6	

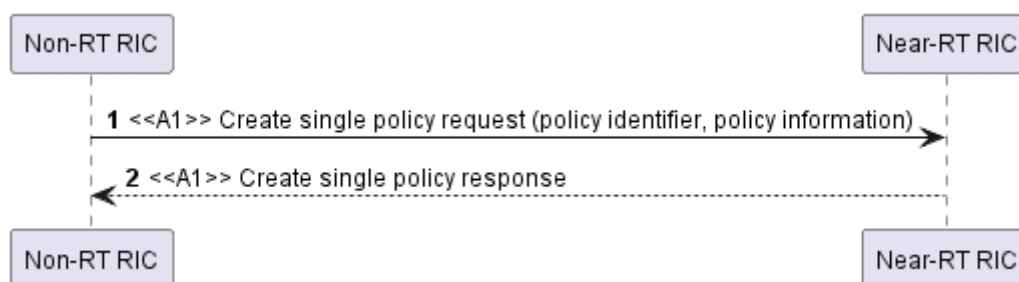


Figure 6.3.3.4-1 Create single policy.

6.3.4 Required data

For creating an A1 policy of a certain policy type, the Non-RT RIC provides the policy identifier and the policy information, the callback URI for policy result delivery, and optionally the callback URI for policy status notifications.

6.4 Query policy use cases

6.4.1 Background and goal of the use cases

The query policies use cases define how Non-RT RIC can query for information on existing A1 policies.

6.4.2 Entities/resources involved in the use cases

- 1) Non-RT RIC:
 - a) Discovers A1 policies that exist in the Near-RT RIC.
 - b) Retrives policy information.
- 2) Near-RT RIC:
 - a) Handles A1 policies.
 - b) Responds to queries for policy identifiers and policy information.

6.4.3 Solutions

6.4.3.1 Query policy identifiers

Table 6.4.3.1-1 Query policy identifiers use case.

Use case stage	Evolution / specifiction	<<Uses>> Related use
Goal	Non-RT RIC to discover policy identifiers for A1 policies that exist in Near-RT RIC	
Actors and Roles	Non-RT RIC as A1-P Consumer Near-RT RIC as A1-P Producer	
Assumptions	A1 policies exist in Near-RT RIC	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-P service	
Begins when	Non-RT RIC initiates A1 policy identifiers query	
Step 1 (M)	Non-RT RIC sends Query policy identifiers request	
Step 2 (M)	Near-RT RIC sends Query policy identifiers response containing policy identifiers	
Ends when	Non-RT RIC has received policy identifiers for existing A1 policies	
Exceptions		
Post-conditions	Policy identifiers are known to Non-RT RIC	
Traceability	REQ-A1-P-FUN7	

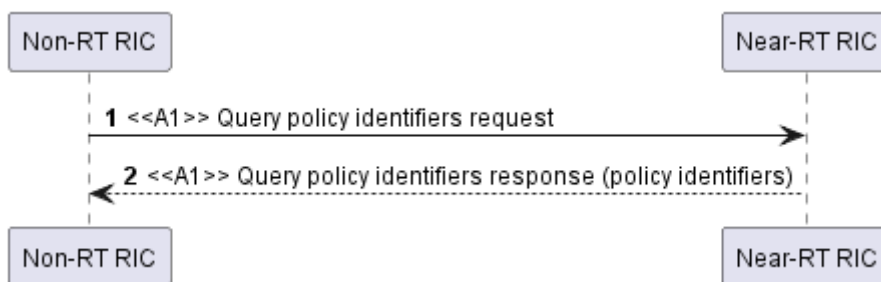


Figure 6.4.3.1-1 Query policy identifiers.

6.4.3.2 Query single policy

Table 6.4.3.2-1 Query single policy use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Non-RT RIC to retrieve information about an A1 policy	
Actors and Roles	Non-RT RIC as A1-P Consumer Near-RT RIC as A1-P Producer	
Assumptions	The A1 policy identifier known to the Non-RT RIC corresponds to an existing A1 policy. Non-RT RIC has the schema for interpreting policy information.	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-P service. The policy identifier is known to the Non-RT RIC.	
Begins when	Non-RT RIC initiates A1 policy query	
Step 1 (M)	Non-RT RIC sends Query policy request containing the policy identifier	
Step 2 (M)	Near-RT RIC sends Query policy response containing policy information	
Ends when	Non-RT RIC has received the policy information about the A1 policy	
Exceptions		
Post-conditions	Policy information is known to Near-RT RIC	
Traceability	REQ-A1-P-FUN8	



Figure 6.4.3.2-1 Query single policy.

6.4.4 Required data

For querying policy identifiers, the Non-RT RIC optionally provides a policy type identifier as filter parameter.

For querying an A1 policy, the Non-RT RIC provides a policy identifier.

The policy information includes the A1 policy definition.

6.5 Update policy use cases

6.5.1 Background and goal of the use cases

The update policy use cases define how Non-RT RIC can update an existing A1 policy.

Non-RT RIC provides updated policy information. The reason for the update can be related to state of the A1 policy type and received policy status information.

6.5.2 Entities/resources involved in the use cases

- 1) Non-RT RIC:
 - a) Updates A1 policy in Near-RT RIC that it has created.
- 2) Near-RT RIC:
 - b) Handles A1 policies for available policy types.

6.5.3 Solutions

6.5.3.1 Update single policy

Table 6.5.3.1-1 Update single policy use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Non-RT RIC to update an existing A1 policy	
Actors and Roles	Non-RT RIC as A1-P Consumer Near-RT RIC as A1-P Producer	
Assumptions	The policy identifier known to the Non-RT RIC corresponds to an existing A1 policy that was created by the Non-RT RIC	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-P service. The A1 policy exists.	
Begins when	Non-RT RIC initiates A1 policy update	
Step 1 (M)	Non-RT RIC sends Update policy request containing the updated policy information	
Step 2 (M)	Near-RT RIC sends Update policy response	
Ends when	A1 policy has been updated	
Exceptions		
Post-conditions	The A1 policy exists	
Traceability	REQ-A1-P-FUN6	



Figure 6.5.3.4-1 Update single policy.

6.5.4 Required data

For updating an A1 policy, the Non-RT RIC provides the policy identifier and updated policy information and/or callback URI for policy status notifications.

6.6 Delete policy use cases

6.6.1 Background and goal of the use cases

The delete policy use cases define how Non-RT RIC can delete an A1 policy.

The reason for the deletion can be related to the state of the A1 policy type and received policy status information.

6.6.2 Entities/resources involved in the use cases

- 1) Non-RT RIC:
 - a) Deletes A1 policy in Near-RT RIC that it has created.
- 2) Near-RT RIC:
 - b) Handles A1 policies for available policy types.

6.6.3 Solutions

6.6.3.1 Delete single policy

Table 6.6.3.1-1 Delete single policy use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Non-RT RIC to delete an existing A1 policy	
Actors and Roles	Non-RT RIC as A1-P Consumer Near-RT RIC as A1-P Producer	
Assumptions	The policy identifier known to the Non-RT RIC corresponds to an existing A1 policy that was created by the Non-RT RIC	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-P service. The A1 policy exists.	
Begins when	Non-RT RIC initiates A1 policy deletion	
Step 1 (M)	Non-RT RIC sends Delete policy request containing the policy identifier	
Step 2 (M)	Near-RT RIC sends Delete policy response	
Ends when	A1 policy has been deleted	
Exceptions		
Post-conditions	The A1 policy does not exist	
Traceability	REQ-A1-P-FUN6	

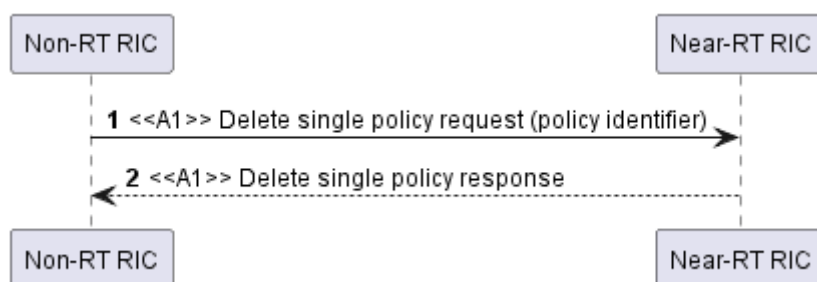


Figure 6.6.3.1-1 Delete single policy.

6.6.4 Required data

For deleting an A1 policy, the Non-RT RIC provides the policy identifier.

6.7 Status of policy use cases

6.7.1 Background and goal of the use cases

The policy status use cases define how Non-RT RIC can detect status, and changes in status, of an A1 policy.

Policy status information is provided by the Near-RT RIC and is used by Non-RT RIC when managing A1 policies.

6.7.2 Entities/resources involved in the use cases

- 1) Non-RT RIC:

- a) Requests A1 policy status.
 - b) Receives notifications about changes in policy status.
- 2) Near-RT RIC:
- a) Handles A1 policy and responds to queries for policy status.
 - b) Notifies Non-RT RIC about changes in policy status.

6.7.3 Solutions

6.7.3.1 Query policy status

Table 6.7.3.1-1 Query policy status use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Non-RT RIC to retrieve policy status information for an existing A1 policy	
Actors and Roles	Non-RT RIC as A1-P Consumer Near-RT RIC as A1-P Producer	
Assumptions	The policy identifier known to the Non-RT RIC corresponds to an existing A1 policy that was created by the Non-RT RIC. Non-RT RIC has the schema for interpreting policy status information.	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-P service. The policy identifier is known to the Non-RT RIC.	
Begins when	Non-RT RIC initiates A1 policy status query	
Step 1 (M)	Non-RT RIC sends Query policy status request containing the policy identifier of the A1 policy being queried for status	
Step 2 (M)	Near-RT RIC sends Query policy status response containing policy status information	
Ends when	Non-RT RIC has received the A1 policy status information	
Exceptions		
Post-conditions	Policy status information is known to Non-RT RIC	
Traceability	REQ-A1-P-FUN9	



Figure 6.7.3.1-1 Query policy status policy.

6.7.3.2 Notify policy status

Table 6.7.3.2-1 Notify policy status use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Non-RT RIC to receive policy status information for an existing A1 policy	
Actors and Roles	Non-RT RIC as A1-P Consumer Near-RT RIC as A1-P Producer	
Assumptions	Non-RT RIC has the schema for interpreting policy status information.	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-P service. A callback URI for policy status notifications has been provided when creating and/or updating the A1 policy.	
Begins when	Event occurs in Near-RT RIC related to the status of the A1 policy	
Step 1 (M)	Near-RT RIC sends Notify policy status request containing the policy status information	
Ends when	Non-RT RIC has received the A1 policy status information	
Exceptions		
Post-conditions	Policy status information is known to Non-RT RIC	
Traceability	REQ-A1-P-FUN10	

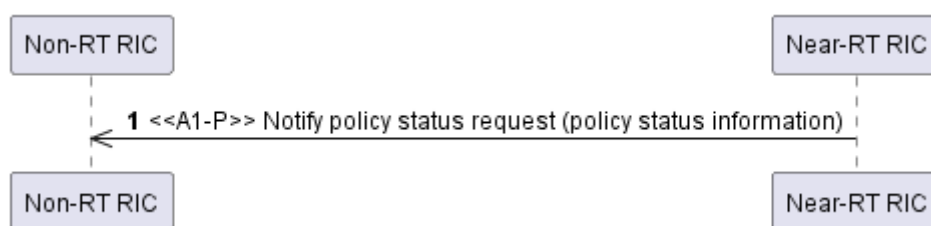


Figure 6.7.3.2-1 Notify policy status policy.

6.7.4 Required data

The policy status information includes the A1 policy status that is formulated based on, and validated against, the policy status schema.

The policy status information includes indication if A1 policy is enforced or not enforced.

7 Use cases for A1 enrichment information

7.1 EI discovery use cases

7.1.1 Background and goal of the use cases

The EI discovery use cases define how Near-RT RIC can detect which EI types are available in Non-RT RIC and how Near-RT RIC can retrieve information about EI types.

EI type information is provided by Non-RT RIC and is used by Near-RT RIC for creating, and by Non-RT RIC for validating, EI jobs. EI type information is also used by Non-RT RIC for creating, and by Near-RT RIC for validating, EI job results.

When EI type identifier and EI type information are known, the Near-RT RIC can create EI jobs in a Non-RT RIC as described by EI job creation use cases, and the Non-RT RIC can deliver EI job results to Near-RT RIC as described by EI delivery use cases.

EI job constraints information is provided by Non-RT RIC and used by Near-RT RIC when formulating EI job definitions based on the EI type information.

7.1.2 Entities/resources involved in the use cases

- 1) Non-RT RIC:
 - a) Makes EI types available to Near-RT RIC for which it can support EI jobs and deliver EI job results.
 - b) Provides information on EI types and constraints for EI jobs.
- 2) Near-RT RIC:
 - a) Discovers EI types available in Non-RT RIC.
 - b) Retrieves EI type information.

7.1.3 Solutions

7.1.3.1 Query EI type identifiers

Table 7.1.3.1-1 Query EI type identifiers use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Near-RT RIC to discover EI type identifiers for EI types that are available in Non-RT RIC	
Actors and Roles	Non-RT RIC as A1-EI Producer Near-RT RIC as A1-EI Consumer	
Assumptions	EI types are available in Non-RT RIC	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-EI service	
Begins when	Near-RT RIC initiates EI type identifiers query	
Step 1 (M)	Near-RT RIC sends Query EI type identifiers request	
Step 2 (M)	Non-RT RIC sends Query EI type identifiers response containing EI type identifiers	
Ends when	Near-RT RIC has received EI type identifiers for available EI types	
Exceptions		
Post-conditions	EI type identifiers are known to Non-RT RIC	
Traceability	REQ-A1-EI-FUN1	

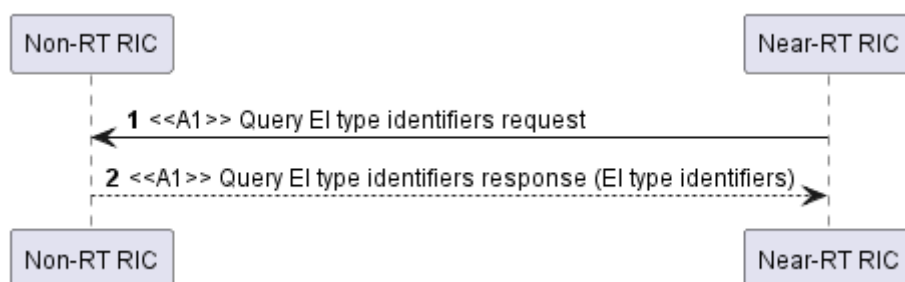


Figure 7.1.3.1-1 Query EI type identifiers.

7.1.3.2 Query EI type

Table 7.1.3.2-1 Query EI type use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Near-RT RIC to retrieve EI type information about an EI type	
Actors and Roles	Non-RT RIC as A1-EI Producer Near-RT RIC as A1-EI Consumer	
Assumptions	The EI type identifier known to the Near-RT RIC corresponds to an available EI type	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-EI service. The EI type identifier is known to the Near-RT RIC.	
Begins when	Near-RT RIC initiates EI type query	
Step 1 (M)	Near-RT RIC sends Query EI type request containing the EI type identifier of the EI type being queried	
Step 2 (M)	Non-RT RIC sends Query EI type response containing EI type information and EI job constraints information	
Ends when	Near-RT RIC has received the EI type information	
Exceptions		
Post-conditions	EI type information is known to Near-RT RIC	
Traceability	REQ-A1-EI-FUN2, REQ-A1-EI-FUN3	

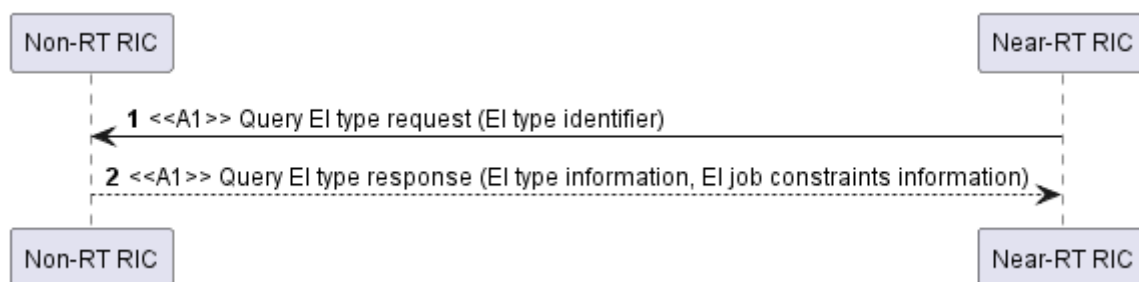


Figure 7.1.3.2-1 Query EI type.

7.1.4 Required data

An EI type is identified by an EI type identifier. A list of EI type identifiers is provided by Non-RT RIC corresponding to available EI types. The Near-RT RIC provides an EI type identifier when querying for information about an EI type. In response to a query for information about an EI type, the Non-RT RIC includes EI type information and optionally also EI job constraints information.

The EI type information includes the schemas for EI job definition, EI job status, EI job result and EI job constraints. The EI job constraints information includes information on how EI job can be created and how EI job results can be produced and delivered.

7.2 EI type status use cases

7.2.1 Background and goal of the use cases

The EI type status use cases define how Near-RT RIC can detect status of an EI type and subscribe to notifications for changes in availability and status of EI types.

EI type status information is provided by the Non-RT RIC and is used by Near-RT RIC when managing EI jobs.

7.2.2 Entities/resources involved in the use cases

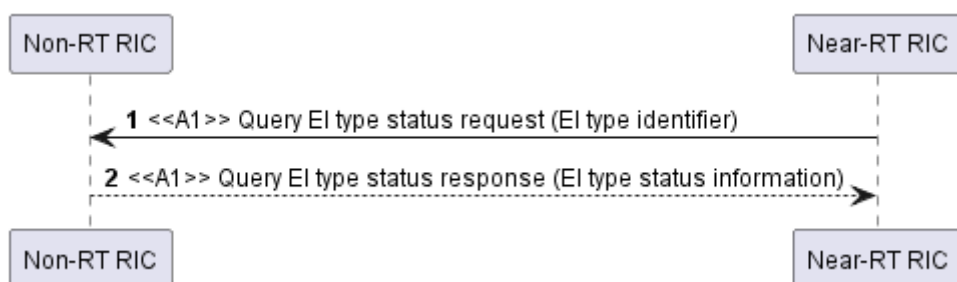
- 1) Non-RT RIC:
 - a) Responds to queries for EI type status.
 - b) Handles subscriptions and notifies Near-RT RIC about changes in availability and state of EI types.
- 2) Near-RT RIC:
 - a) Requests EI type status.
 - b) Subscribes to notifications for changes in EI type status.

7.2.3 Solutions

7.2.3.1 Query EI type status

Table 7.2.3.1-1 Query EI type status use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Near-RT RIC to retrieve EI type status information for an EI type	
Actors and Roles	Non-RT RIC as A1-EI Producer Near-RT RIC as A1-EI Consumer	
Assumptions	The EI type identifier known to the Near-RT RIC corresponds to an available EI type	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-EI service. The EI type identifier is known to the Near-RT RIC.	
Begins when	Near-RT RIC initiates EI type status query	
Step 1 (M)	Near-RT RIC sends Query EI type status request containing the EI type identifier of the EI type being queried for status	
Step 2 (M)	Non-RT RIC sends Query EI type status response containing EI type status information	
Ends when	Near-RT RIC has received the EI type status information	
Exceptions		
Post-conditions	EI type status information is known to Near-RT RIC	
Traceability	REQ-A1-EI-FUN4	



7.2.3.2 Subscription for EI type status notification

Table 7.2.3.2-1 Subscribe EI type status use case.

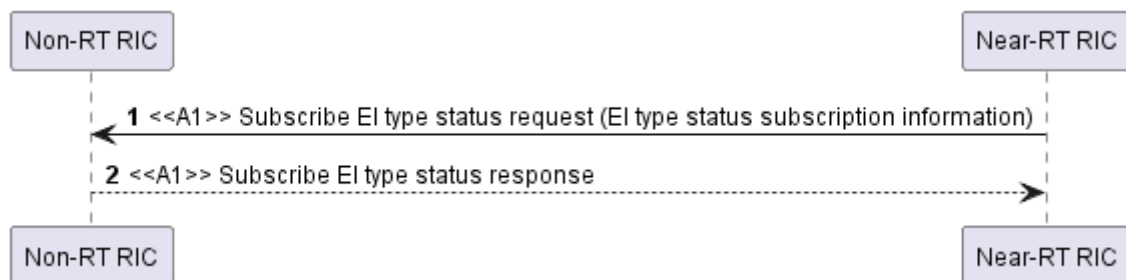
Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Near-RT RIC to subscribe to notifications for EI type status information	
Actors and Roles	Non-RT RIC as A1-EI Producer Near-RT RIC as A1-EI Consumer	
Assumptions	Near-RT RIC is interested in notifications of EI types that are made available or unavailable, and/or notifications of state changes of a policy type	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-EI service. EI type identifiers are known to the Near-RT RIC when subscribing for notifications on type state changes.	
Begins when	Near-RT RIC initiates EI type status subscribe	
Step 1 (M)	Near-RT RIC sends Subscribe EI type status request containing the EI type status subscription information including EI type identifier(s) if type state changes are requested.	
Step 2 (M)	Non-RT RIC sends Subscribe EI type status response	
Ends when	EI type status subscription has been created	
Exceptions		
Post-conditions	Near-RT RIC is subscribed to EI type status notifications	
Traceability	REQ-A1-EI-FUN5	

Table 7.2.3.2-2 Update type status subscription use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Near-RT RIC to update its subscription to notifications for EI type status information	
Actors and Roles	Non-RT RIC as A1-EI Producer Near-RT RIC as A1-EI Consumer	
Assumptions	Near-RT RIC is interested in notifications of EI types that are made available or unavailable, and/or notifications of state changes of a policy type	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-EI service. EI type status notifications has been been subscribed to.	
Begins when	Near-RT RIC initiates EI type status subscribe	
Step 1 (M)	Near-RT RIC sends Subscribe EI type status request containing the updated EI type status subscription information	
Step 2 (M)	Non-RT RIC sends Subscribe EI type status response	
Ends when	EI type status subscription has been updated	
Exceptions		
Post-conditions	Near-RT RIC is subscribed to EI type status notifications	
Traceability	REQ-A1-EI-FUN5	

Table 7.2.3.2-3 Unsubscribe EI type status use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Near-RT RIC to unsubscribe from notifications for EI type status information	
Actors and Roles	Non-RT RIC as A1-EI Producer Near-RT RIC as A1-EI Consumer	
Assumptions	Near-RT RIC is no longer interested in notifications of EI types status	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-EI service. EI type status notifications have been been subscribed to.	
Begins when	Near-RT RIC initiates EI type status unsubscribe	
Step 1 (M)	Near-RT RIC sends Subscribe EI type status request containing the EI type status subscription information with no content	
Step 2 (M)	Non-RT RIC sends Subscribe EI type status response	
Ends when	EI type status subscription has been deleted	
Exceptions		
Post-conditions	Near-RT RIC is not subscribed to EI type status notifications	
Traceability	REQ-A1-EI-FUN5	


Figure 7.2.3.2-1 Subscribe EI type status.

7.2.3.3 Notify EI type status

Table 7.2.3.3-1 Notify EI type status use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Near-RT RIC to receive EI type status information for an EI type	
Actors and Roles	Non-RT RIC as A1-EI Producer Near-RT RIC as A1-EI Consumer	
Assumptions		
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-EI service. Near-RT RIC has subscribed to EI type status notifications and provided a callback URI.	
Begins when	Event occurs in Non-RT RIC related to the status of an EI type, either a change in availability or of the type state	
Step 1 (M)	Non-RT RIC sends Notify EI type status request containing the EI type status information	
Ends when	Near-RT RIC has received the EI type status information	
Exceptions		
Post-conditions	EI type status information is known to Near-RT RIC	
Traceability	REQ-A1-EI-FUN5	

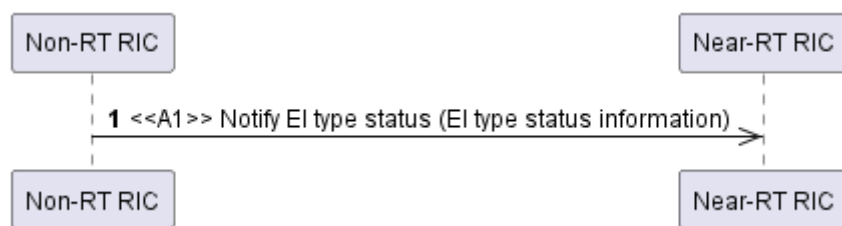


Figure 7.2.3.3-1 Notify EI type status.

7.2.4 Required data

The EI type status information includes EI type availability change information (i.e., if EI type has been made available or unavailable) and/or state change information related to an EI type.

The state of the EI type state indicates if EI jobs can be created for the EI type or not, and if EI jobs for the EI type would be enabled or disabled.

The EI type status subscription information includes details on if notifications are requested for changes in EI type availability and/or changes in state of the EI type for which EI type identifiers were provided.

7.3 Create EI job use cases

7.3.1 Background and goal of the use cases

The create EI job use cases define how Near-RT RIC can create an EI job for an EI type and subscribe to notifications for changes in EI job status.

Near-RT RIC provides EI job definition information based on EI type information and considering the EI job constraints.

7.3.2 Entities/resources involved in the use cases

- 1) Non-RT RIC:
 - a) Handles EI jobs for available EI types.
- 2) Near-RT RIC:
 - b) Creates EI job in Non-RT RIC.

7.3.3 Solutions

7.3.3.1 Create EI job

Table 7.3.3.1-1 Create EI job use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Near-RT RIC to create EI job for an EI type	
Actors and Roles	Non-RT RIC as A1-EI Producer Near-RT RIC as A1-EI Consumer	
Assumptions	The EI type information known to the Near-RT RIC corresponds to an available EI type. Near-RT RIC has the schema for formulating EI job definition.	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-EI service. The EI type information is known to the Near-RT RIC.	
Begins when	Near-RT RIC initiates EI job creation	
Step 1 (M)	Near-RT RIC sends Create EI job request containing the EI job identifier and the EI job definition	
Step 2 (M)	Non-RT RIC sends Create EI job response	
Ends when	EI job has been created	
Exceptions		
Post-conditions	EI job exists	
Traceability	REQ-A1-EI-FUN6	

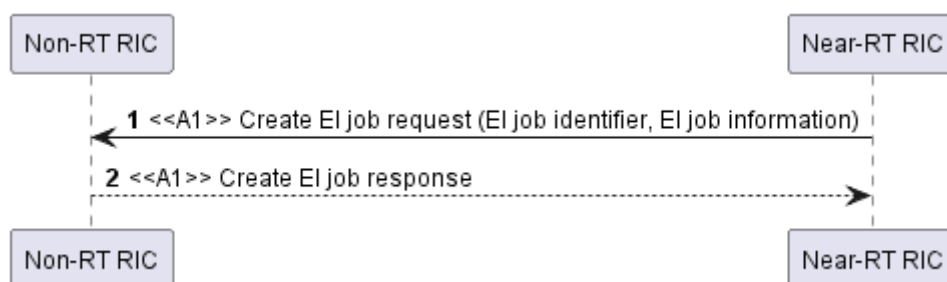


Figure 7.3.3.3-1 Create EI job.

7.3.4 Required data

For creating an EI job of a certain EI type, the Near-RT RIC provides the EI job identifier and the EI job information, the callback URI for EI job result delivery, and optionally the callback URI for EI job status notifications.

El job information includes the El job definition that is formulated based on, and validated against, the El job definition schema. The El job definition can be formulated considering the El job constraints information if provided.

7.4 Query El jobs use cases

7.4.1 Background and goal of the use cases

The query El jobs use cases define how Near-RT RIC can query for information on existing El jobs.

7.4.2 Entities/resources involved in the use cases

- 1) Non-RT RIC:
 - a) Handles El job.
 - b) Responds to queries for El job identifiers and El job information.
- 2) Near-RT RIC:
 - a) Discovers El jobs available in Non-RT RIC.
 - b) Retrieves El job information.

7.4.3 Solutions

7.4.3.1 Query El job identifiers

Table 7.4.3.1-1 Query El job identifiers use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Near-RT RIC to discover job identifiers for El jobs that exist in Non-RT RIC	
Actors and Roles	Non-RT RIC as A1-El Producer Near-RT RIC as A1-El Consumer	
Assumptions	El jobs exist in Non-RT RIC	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-El service	
Begins when	Near-RT RIC initiates El job identifiers query	
Step 1 (M)	Near-RT RIC sends Query El job identifiers request	
Step 2 (M)	Non-RT RIC sends Query El job identifiers response containing El job identifiers	
Ends when	Near-RT RIC has received El job identifiers	
Exceptions		
Post-conditions	El job identifiers are known to Non-RT RIC	
Traceability	REQ-A1-El-FUN7	

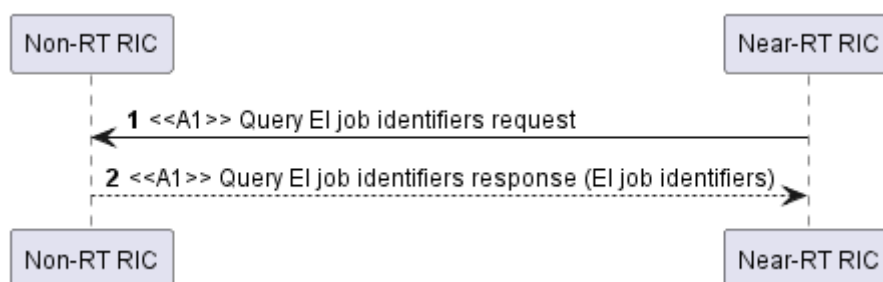


Figure 7.4.3.1-1 Query EI job identifiers.

7.4.3.2 Query EI job

Table 7.4.3.2-1 Query EI job use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Near-RT RIC to retrieve information about an EI job	
Actors and Roles	Non-RT RIC as A1-EI Producer Near-RT RIC as A1-EI Consumer	
Assumptions	The EI job identifier known to the Near-RT RIC corresponds to an existing EI job. Near-RT RIC has the schema for interpreting EI job information.	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-EI service. The EI job identifier is known to the Near-RT RIC.	
Begins when	Near-RT RIC initiates EI job query	
Step 1 (M)	Near-RT RIC sends Query EI job request containing the EI job identifier	
Step 2 (M)	Non-RT RIC sends Query EI job response containing EI job information	
Ends when	Near-RT RIC has received the EI job information	
Exceptions		
Post-conditions	EI job information is known to Near-RT RIC	
Traceability	REQ-A1-EI-FUN8	

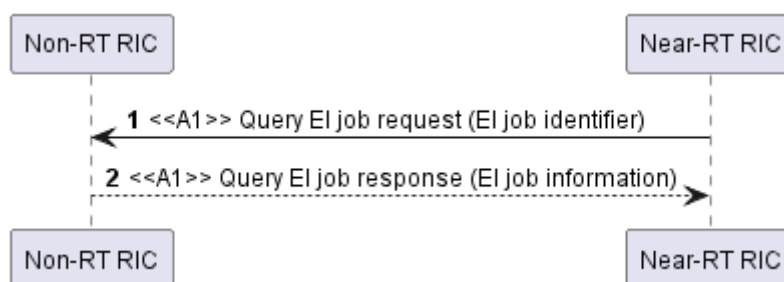


Figure 7.4.3.3-1 Query EI job.

7.4.4 Required data

For querying EI job identifiers, the Near-RT RIC provides optionally an EI type identifier as filter parameter.

For querying EI job, the Near-RT RIC provides an EI job identifier.

EI job information includes the EI job definition.

7.5 Update EI job use cases

7.5.1 Background and goal of the use cases

The update EI job use cases define how Near-RT RIC can update an existing EI job.

Near-RT RIC provides updated EI job definition information. The reason for the update can be related to state of the EI type, EI job status and previously received EI job results.

7.5.2 Entities/resources involved in the use cases

- 1) Non-RT RIC:
 - a) Handles EI jobs for available EI types.
- 2) Near-RT RIC:
 - b) Updates EI job in Non-RT RIC that it has created.

7.5.3 Solutions

7.5.3.1 Update EI job

Table 7.5.3.1-1 Update EI job use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Near-RT RIC to update an existing EI job	
Actors and Roles	Non-RT RIC as A1-EI Producer Near-RT RIC as A1-EI Consumer	
Assumptions	The EI job identifier known to the Near-RT RIC corresponds to an existing EI job that was created by the Near-RT RIC	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-EI service. The EI job exists.	
Begins when	Near-RT RIC initiates EI job update	
Step 1 (M)	Near-RT RIC sends Update EI job request containing the updated EI job information	
Step 2 (M)	Non-RT RIC sends Update EI job response	
Ends when	EI job has been updated	
Exceptions		
Post-conditions	EI job exists	
Traceability	REQ-A1-EI-FUN6	

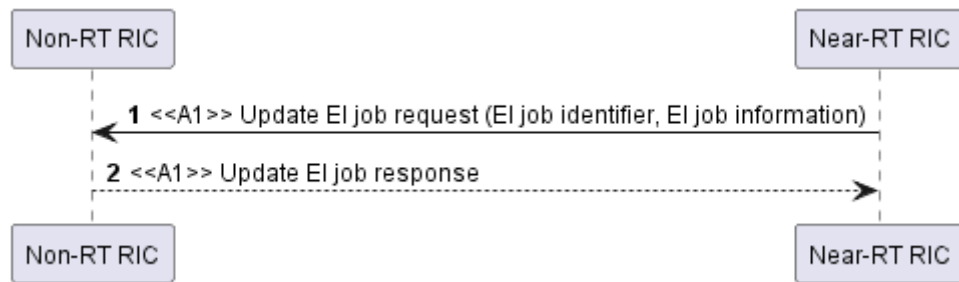


Figure 7.5.3.3-1 Update EI job.

7.5.4 Required data

For updating an EI job, the Near-RT RIC provides the EI job identifier and updated EI job information and/or callback URI for EI job status notifications.

7.6 Delete EI job use cases

7.6.1 Background and goal of the use cases

The delete EI job use cases define how Near-RT RIC can delete an EI job.

The reason for the deletion can be related to the state of the EI type, EI job status and previously received EI job results.

7.6.2 Entities/resources involved in the use cases

- 1) Non-RT RIC:
 - a) Handles EI jobs for available EI types.
- 2) Near-RT RIC:
 - b) Deletes EI job in Non-RT RIC that it has created.

7.6.3 Solutions

7.6.3.1 Delete EI job

Table 7.6.3.1-1 Delete EI job use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Near-RT RIC to delete an existing EI job	
Actors and Roles	Non-RT RIC as A1-EI Producer Near-RT RIC as A1-EI Consumer	
Assumptions	The EI job identifier known to the Near-RT RIC corresponds to an existing EI job that was created by the Near-RT RIC	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-EI service. The EI job exists.	
Begins when	Near-RT RIC initiates EI job deletion	
Step 1 (M)	Near-RT RIC sends Delete EI job request containing the EI job identifier	
Step 2 (M)	Non-RT RIC sends Delete EI job response	
Ends when	EI job has been deleted	
Exceptions		
Post-conditions	EI job does not exists	
Traceability	REQ-A1-EI-FUN6	



Figure 7.6.3.3-1 Delete EI job.

7.6.4 Required data

For deleting an EI job, the Near-RT RIC provides the EI job identifier.

7.7 EI job status use cases

7.7.1 Background and goal of the use cases

The EI job status use cases define how Near-RT RIC can detect status, and changes in status, of an EI job.

EI job status information is provided by the Non-RT RIC and is used by Near-RT RIC when managing EI jobs.

7.7.2 Entities/resources involved in the use cases

- 1) Non-RT RIC:
 - a) Handles EI job and responds to queries for EI job status.

- b) Notifies Near-RT RIC about changes in EI job status.
- 2) Near-RT RIC:
 - a) Requests EI job status.
 - b) Receives notifications about changes in EI job status.

7.7.3 Solutions

7.7.3.1 Query EI job status

Table 7.7.3.1-1 Query EI job status use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Near-RT RIC to retrieve EI job status information for an existing EI job	
Actors and Roles	Non-RT RIC as A1-EI Producer Near-RT RIC as A1-EI Consumer	
Assumptions	The EI job identifier known to the Near-RT RIC corresponds to an existing EI job that was created by the Near-RT RIC. Near-RT RIC has the schema for interpreting EI job status information.	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-EI service. The EI job identifier is known to the Near-RT RIC.	
Begins when	Near-RT RIC initiates EI job status query	
Step 1 (M)	Near-RT RIC sends Query EI job status request containing the EI job identifier of the EI job being queried for status	
Step 2 (M)	Non-RT RIC sends Query EI job status response containing EI job status information	
Ends when	Near-RT RIC has received the EI job status information	
Exceptions		
Post-conditions	EI job status information is known to Near-RT RIC	
Traceability	REQ-A1-EI-FUN9	



Figure 7.7.3.1-1 Query EI job status.

7.7.3.2 Notify EI job status

Table 7.7.3.2-1 Notify EI job status use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Near-RT RIC to receive EI job status information for an existing EI job	
Actors and Roles	Non-RT RIC as A1-EI Producer Near-RT RIC as A1-EI Consumer	
Assumptions	Near-RT RIC has the schema for interpreting EI job status information.	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-EI service. A callback URI for EI job status notifications has been provided when creating and/or updating the EI job.	
Begins when	Event occurs in Non-RT RIC related to the status of the EI job	
Step 1 (M)	Non-RT RIC sends Notify EI job status request containing the EI job status information	
Ends when	Near-RT RIC has received the EI job status information	
Exceptions		
Post-conditions	EI job status information is known to Near-RT RIC	
Traceability	REQ-A1-EI-FUN10	

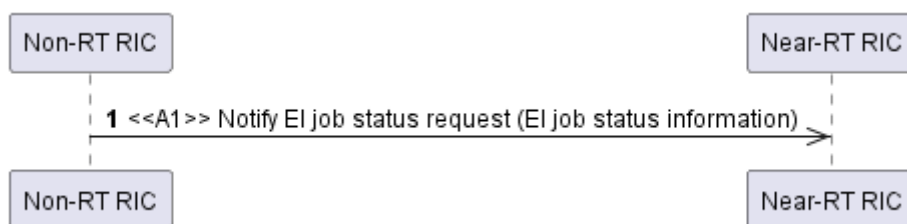


Figure 7.7.3.2-1 Notify EI job status.

7.7.4 Required data

EI job status information includes the EI job status that is formulated based on, and validated against, the EI job status schema.

The EI job status information includes indication if EI job is enabled or disabled.

7.8 EI delivery use cases

7.8.1 Background and goal of the use cases

The EI delivery use cases define how Non-RT RIC delivers EI job results to Near-RT RIC based on an EI job.

Depending on the EI job definition, the EI job result can be delivered in one delivery message or in repeated delivery messages.

7.8.2 Entities/resources involved in the use cases

- 1) Non-RT RIC:
 - a) Handles EI job and delivers EI job results.

2) Near-RT RIC:

b) Receives EI job result related to an EI job it has created.

7.8.3 Solutions

7.8.3.1 Deliver EI job result

Table 7.8.3.1-1 Deliver EI job result use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Non-RT RIC to deliver EI job result based on an EI job	
Actors and Roles	Non-RT RIC as A1-EI Producer Near-RT RIC as A1-P Consumer	
Assumptions	There is enrichment information based on the EI job definition that is to be delivered	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-EI service. EI job exists and is enabled.	
Begins when	Non-RT RIC initiates EI job result delivery	
Step 1 (M)	Non-RT RIC sends push request with EI job result to be delivered	
Step 2 (M)	Near-RT RIC validates the received information and sends push response	
Ends when	Near-RT RIC has received enrichment information	
Exceptions		
Post-conditions	EI job result for the EI job has been delivered	
Traceability	REQ-A1-EI-FUN11	

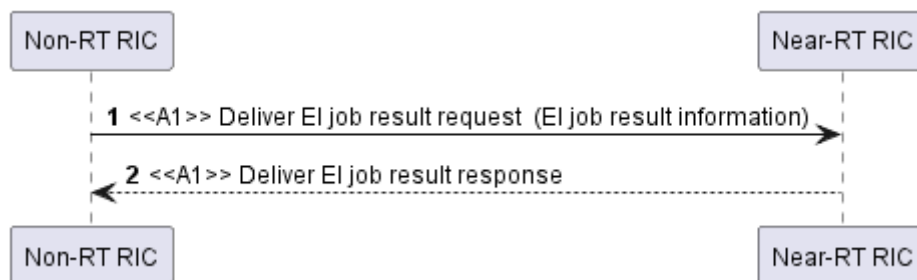


Figure 7.8.3.1-1 Deliver EI job result.

7.8.3.2 Deliver EI job results

Table 7.8.3.2-1 Deliver EI job results use case.

Use case stage	Evolution / specification	<<Uses>> Related use
Goal	Non-RT RIC to deliver EI job results based on an EI job	
Actors and Roles	Non-RT RIC as A1-EI Producer Near-RT RIC as A1-P Consumer	
Assumptions	There is enrichment information based on the EI job definition that is to be delivered in more than one delivery message	
Pre-conditions	A1 interface is established, and the actors are authorized for using the A1-EI service. EI job exists and is enabled.	
Begins when	Non-RT RIC initiates EI job result delivery	
Step 1 – ref (M)	Non-RT RIC delivers EI job result	
Step 2 – loop (M)	Non-RT RIC repeats Step 1 as per the EI job definition	
Ends when	The EI job is completed or deleted.	
Exceptions		
Post-conditions	EI job result for the EI job has been delivered	
Traceability	REQ-A1-EI-FUN11	

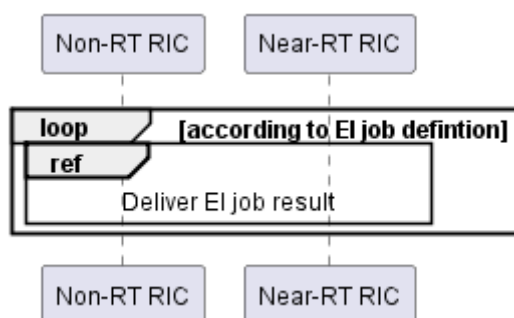


Figure 7.8.3.2-1 Deliver EI job results.

7.8.4 Required data

EI job result information contains the enrichment information requested in the EI job definition. It is formulated based on, and validated against, the EI job result schema.

History

Date	Revision	Description
2022.11.17	01.01	Aligning to O-RAN drafting rules
2022.07.30	01.00	First version