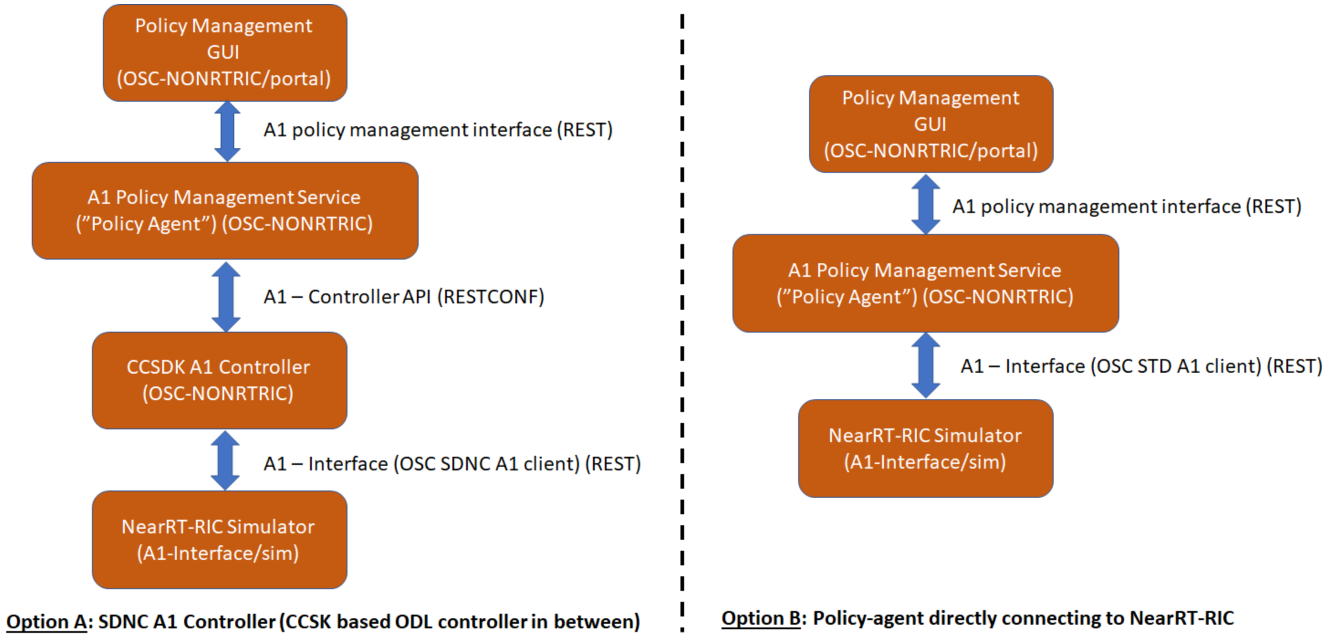
Testing End to End call in release A

This page describes how to demonstrate the entire flow from Non-Rt RIC Controlpanel -> Policy Agent -> (A1 controller in SDNC) -> Near Realtime Ric Simulator. Optionally A1 controller can be left out.

Overview of the End to End call

Details of the architecture can be found from the following link: Release A



Policy Management GUI (OSC-NONRTRIC/portal)
A1 policy management interface (REST)
A1 Policy Management Service ("Policy Agent") (OSC-NONRTRIC)
A1 – Controller API (RESTCONF)
CCSDK A1 Controller (OSC-NONRTRIC)
A1 – Interface (OSC SDNC A1 client) (REST)
NearRT-RIC Simulator (A1-Interface/sim)
Option A: SDNC A1 Controller (CCSK based ODL controller in between)
Policy Management GUI (OSC-NONRTRIC/portal)
A1 policy management interface (REST)
A1 Policy Management Service ("Policy Agent") (OSC-NONRTRIC)
A1 – Interface (OSC STD A1 client) (REST)
NearRT-RIC Simulator (A1-Interface/sim)
Option B: Policy-agent directly connecting to NearRT-RIC

End to End call from Dashboard to NearRT-RIC simulator

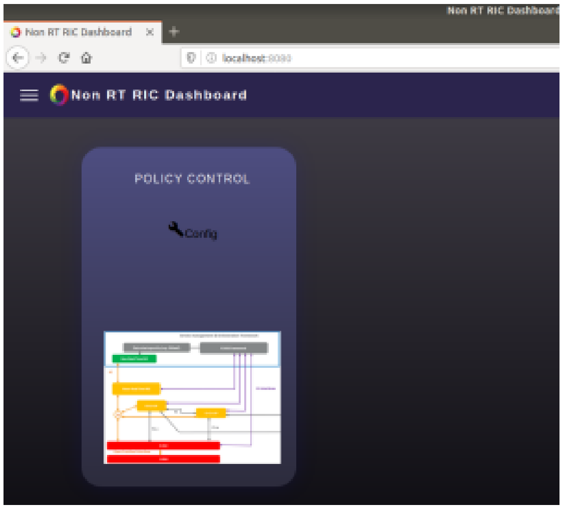
Preparation

See Release A - Build/Run for building and starting the environment.

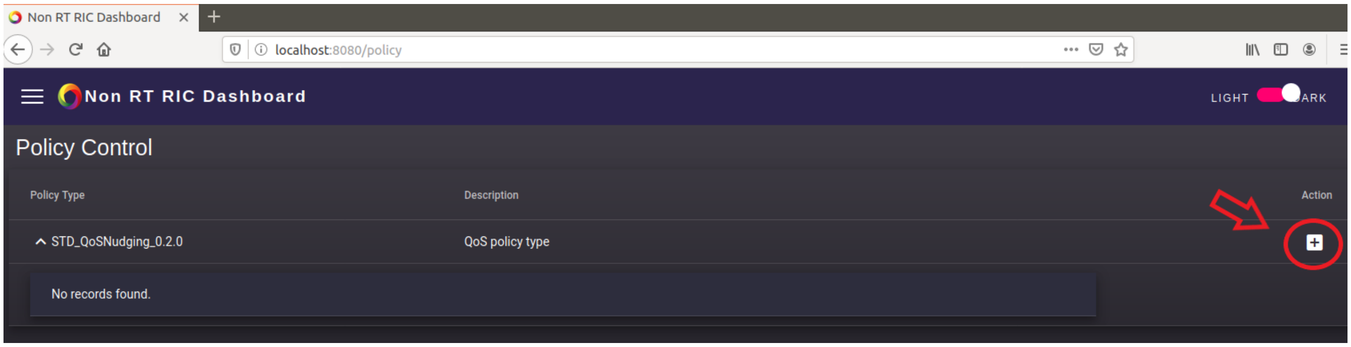
Either option A or B can be setup and all end to end actions from Dashboard should work same way.

Perform Policy Operations via Dashboard

- Open Dashboard UI at http://localhost:8080/



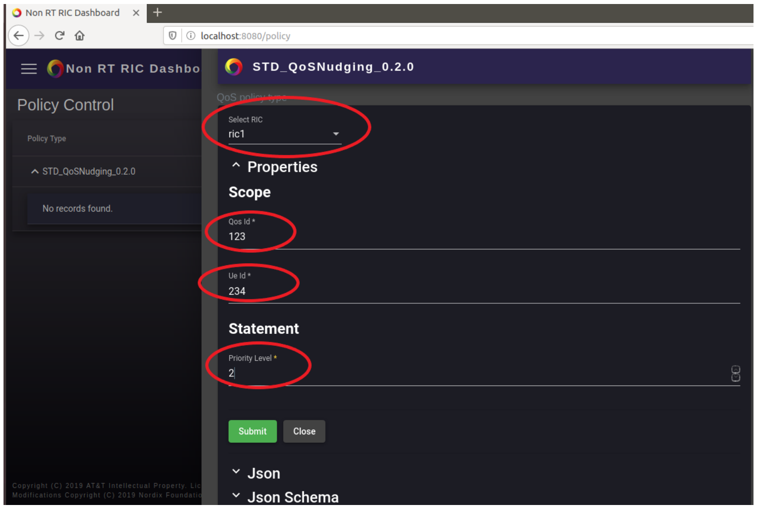
- Click on Config and the screen below with STD_QosNudging_0.2.0 policy type should open



Policy Control

Policy Type	Description	Action
STD_QoSNudging_0.2.0	QoS policy type	+
No records found.		

- Click on '+' icon to create new policy



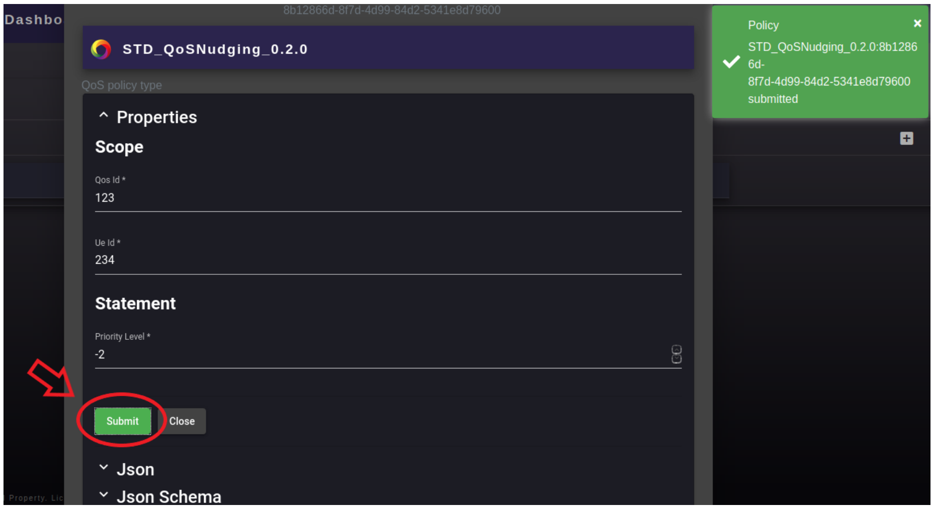
Select RIC: ric1

Qos Id *: 123

Ue Id *: 234

Priority Level *: 2

- Choose your ric (ric1 or ric2) from drop-down menu and provide any arbitrary values for QoS Id, Ue Id and Priority



STD_QoSNudging_0.2.0

QoS policy type

Properties

Scope

Qos Id *
123

Ue Id *
234

Statement

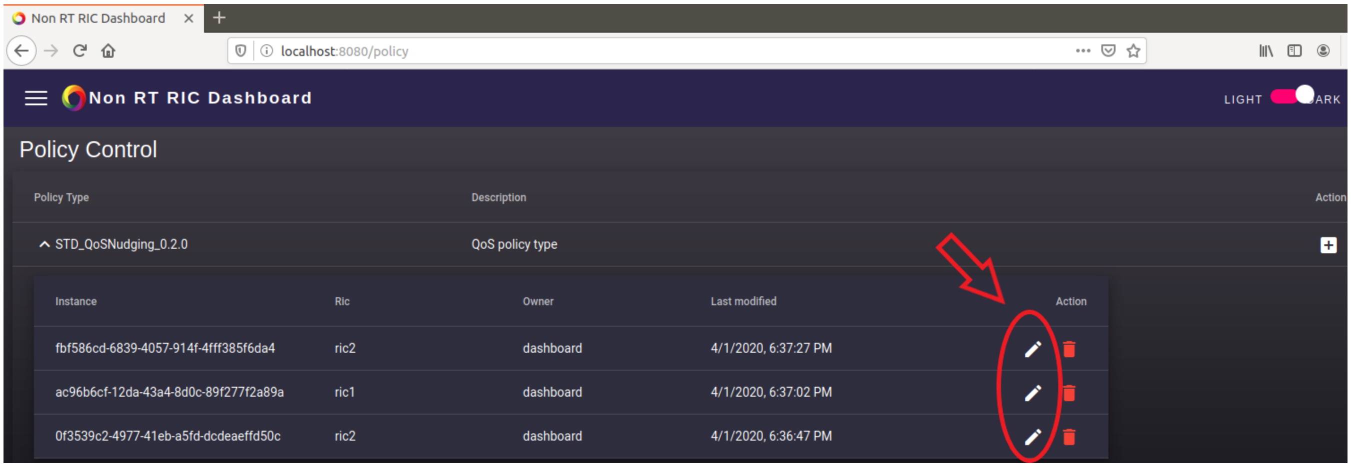
Priority Level *
-2

Policy
STD_QoSNudging_0.2.0:8b12866d-8f7d-4d99-84d2-5341e8d79600 submitted

- Submit the policy (you then need to also press Close to return from creation view)
- An entry to the chosen nearRT-RIC simulator console/log should appear (see, for example, **docker logs ric1** in case ric1 policy was created):

```
172.18.0.3 - - [02/Apr/2020 07:33:57] "PUT /A1-P/v1/policies/ac3e914a-b39c-4d93-b77c-d2ebac756267?
policyTypeId=STD_QoSNudging_0.2.0 HTTP/1.1" 201 -
```

- You may repeat the creation process a few times for different rics - below we see one policy created to ric1 and two to ric2

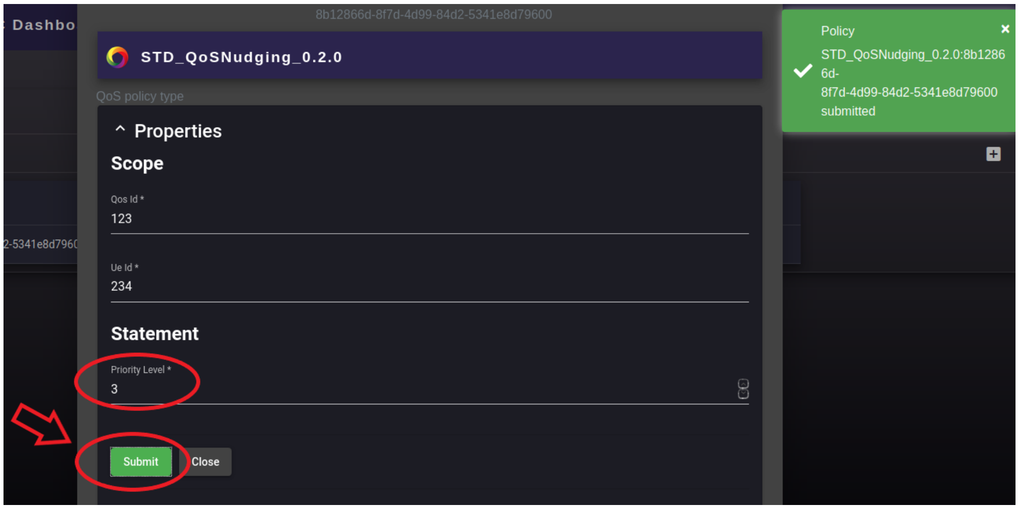


Policy Control

Policy Type	Description	Action
STD_QoSNudging_0.2.0	QoS policy type	

Instance	Ric	Owner	Last modified	Action
fbf586cd-6839-4057-914f-4fff385f6da4	ric2	dashboard	4/1/2020, 6:37:27 PM	
ac96b6cf-12da-43a4-8d0c-89f277f2a89a	ric1	dashboard	4/1/2020, 6:37:02 PM	
0f3539c2-4977-41eb-a5fd-dcdeaeffd50c	ric2	dashboard	4/1/2020, 6:36:47 PM	

- Click the pen icon to modify any policy



STD_QoSNudging_0.2.0

QoS policy type

Properties

Scope

Qos Id *
123

Ue Id *
234

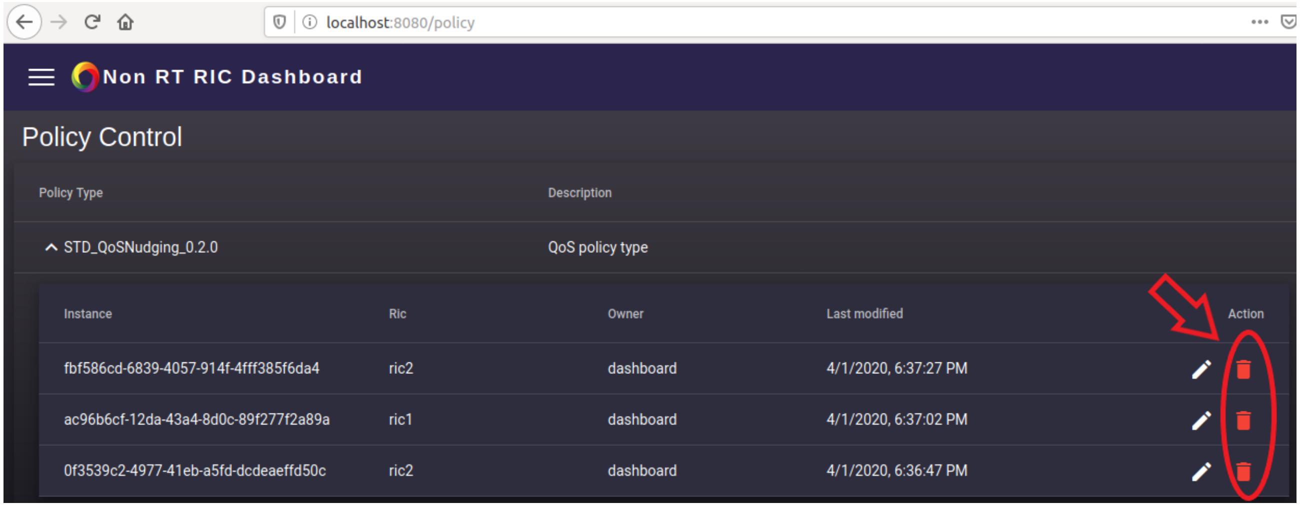
Statement

Priority Level *
3

Policy
STD_QoSNudging_0.2.0:8b12866d-8f7d-4d99-84d2-5341e8d79600 submitted

- Even though the dashboard allows changing any value, the simulator will only accept Priority changes
- Modifications are submitted in the same way as in creation, and the resulting simulator log should also be identical to the one we saw in creation

```
172.18.0.3 - - [02/Apr/2020 07:51:19] "PUT /A1-P/v1/policies/ac3e914a-b39c-4d93-b77c-d2ebac756267?
policyTypeId=STD_QoSNudging_0.2.0 HTTP/1.1" 201 -
```



localhost:8080/policy

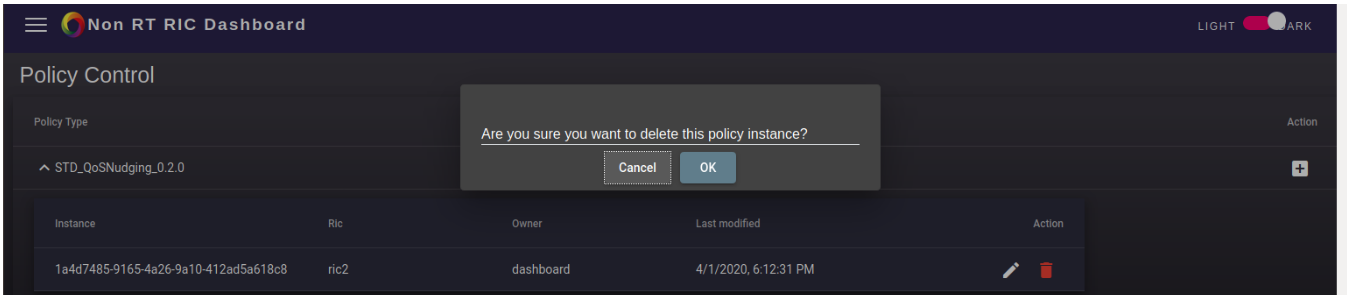
Non RT RIC Dashboard

Policy Control

Policy Type	Description
STD_QoSNudging_0.2.0	QoS policy type

Instance	Ric	Owner	Last modified	Action
fbf586cd-6839-4057-914f-4fff385f6da4	ric2	dashboard	4/1/2020, 6:37:27 PM	
ac96b6cf-12da-43a4-8d0c-89f277f2a89a	ric1	dashboard	4/1/2020, 6:37:02 PM	
0f3539c2-4977-41eb-a5fd-dcdeaeffd50c	ric2	dashboard	4/1/2020, 6:36:47 PM	

- Delete any policy by clicking the red trashcan icon



Policy Control

Policy Type	Action
STD_QoSNudging_0.2.0	

Are you sure you want to delete this policy instance?

Instance	Ric	Owner	Last modified	Action
1a4d7485-9165-4a26-9a10-412ad5a618c8	ric2	dashboard	4/1/2020, 6:12:31 PM	

- Confirm deletion and verify the log on simulator side:

```
172.18.0.3 - - [02/Apr/2020 08:02:21] "DELETE /A1-P/v1/policies/ac3e914a-b39c-4d93-b77c-d2ebac756267 HTTP/1.1"
204 -
```

Call from CCSDK A1 Controller to NearRT-RIC simulator

Limited tests to verify just OSC CCSDK A1 Controller calls towards NearRT-RIC simulator can be done by using ODL GUI. Dashboard and policy-agent are not needed in this case.

Preparation

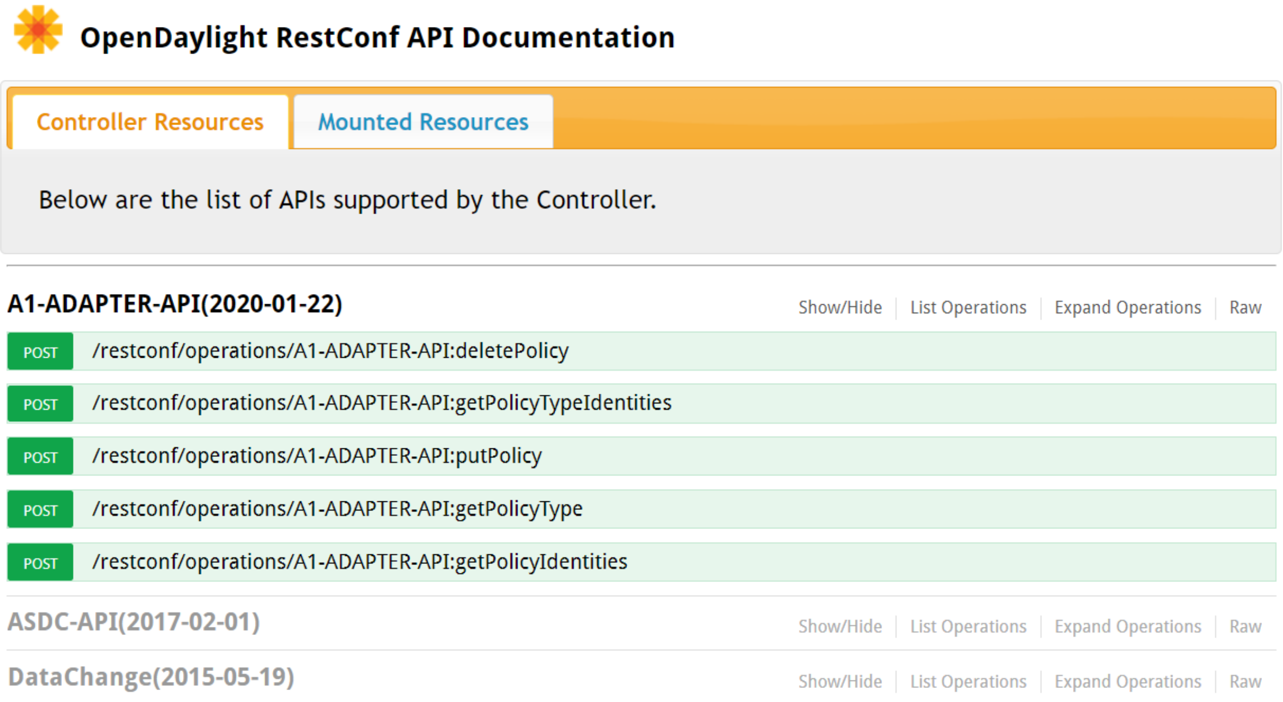
See Release A - Build/Run for building and starting the environment. If following those instructions, just **skip the following steps**:

- Release A - Build/Run#RunPolicy-agentDockerContainer
- Release A - Build/Run#RunNon-RT-RICDashboardDockerContainer

Now only "**a1-controller-container**" and "**sdnc_db_container**" and simulators are running.

Perform Policy Operations via Open Daylight GUI

- Open GUI: Release A - Build/Run#OpenDaylightGUI
- Click Sub API:
  A1-ADAPTER-API(2020-01-22)



OpenDaylight RestConf API Documentation

Below are the list of APIs supported by the Controller.

A1-ADAPTER-API(2020-01-22)

POST /restconf/operations/A1-ADAPTER-API:deletePolicy

POST /restconf/operations/A1-ADAPTER-API:getPolicyTypeIdentities

POST /restconf/operations/A1-ADAPTER-API:putPolicy

POST /restconf/operations/A1-ADAPTER-API:getPolicyType

POST /restconf/operations/A1-ADAPTER-API:getPolicyIdentities

ASDC-API(2017-02-01)

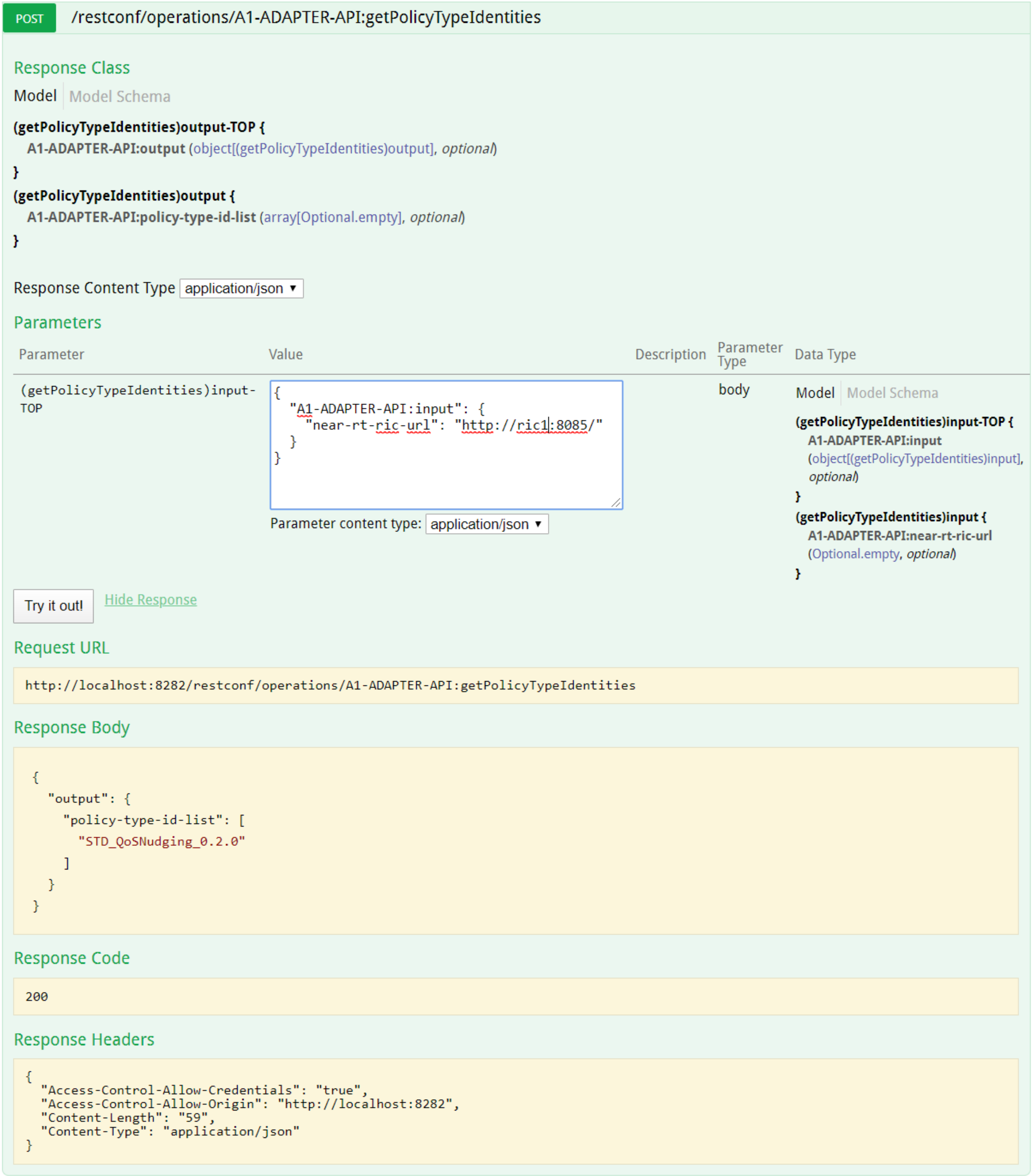
DataChange(2015-05-19)

Get policy types

Payload

POST /restconf/operations/A1-ADAPTER-API:getPolicyTypeIdentities

```
{
  "A1-ADAPTER-API:input": {
    "near-rt-ric-url": "http://ric1:8085/"
  }
}
```


POST /restconf/operations/A1-ADAPTER-API:getPolicyTypeIdentities

Response Class

Model | Model Schema

(getPolicyTypeIdentities)output-TOP {
 A1-ADAPTER-API:output (object[(getPolicyTypeIdentities)output], *optional*)
}
(getPolicyTypeIdentities)output {
 A1-ADAPTER-API:policy-type-id-list (array[Optional.empty], *optional*)
}

Response Content Type: application/json ▾

Parameters

Parameter	Value	Description	Parameter Type	Data Type

(getPolicyTypeIdentities)input-TOP	`{ "A1-ADAPTER-API:input": { "near-rt-ric-url": "http://ric1:8085/" } }`
	Parameter content type: application/json ▾
			body	Model | Model Schema
				(getPolicyTypeIdentities)input-TOP {
				A1-ADAPTER-API:input (object[(getPolicyTypeIdentities)input], *optional*)
				}
				(getPolicyTypeIdentities)input {
				A1-ADAPTER-API:near-rt-ric-url (Optional.empty, *optional*)
				}

Value:

```
{
  "A1-ADAPTER-API:input": {
    "near-rt-ric-url": "http://ric1:8085/"
  }
}
```

Request URL

```
http://localhost:8282/restconf/operations/A1-ADAPTER-API:getPolicyTypeIdentities
```

Response Body

```
{
  "output": {
    "policy-type-id-list": [
      "STD_QoSNudging_0.2.0"
    ]
  }
}
```

Response Code

```
200
```

Response Headers

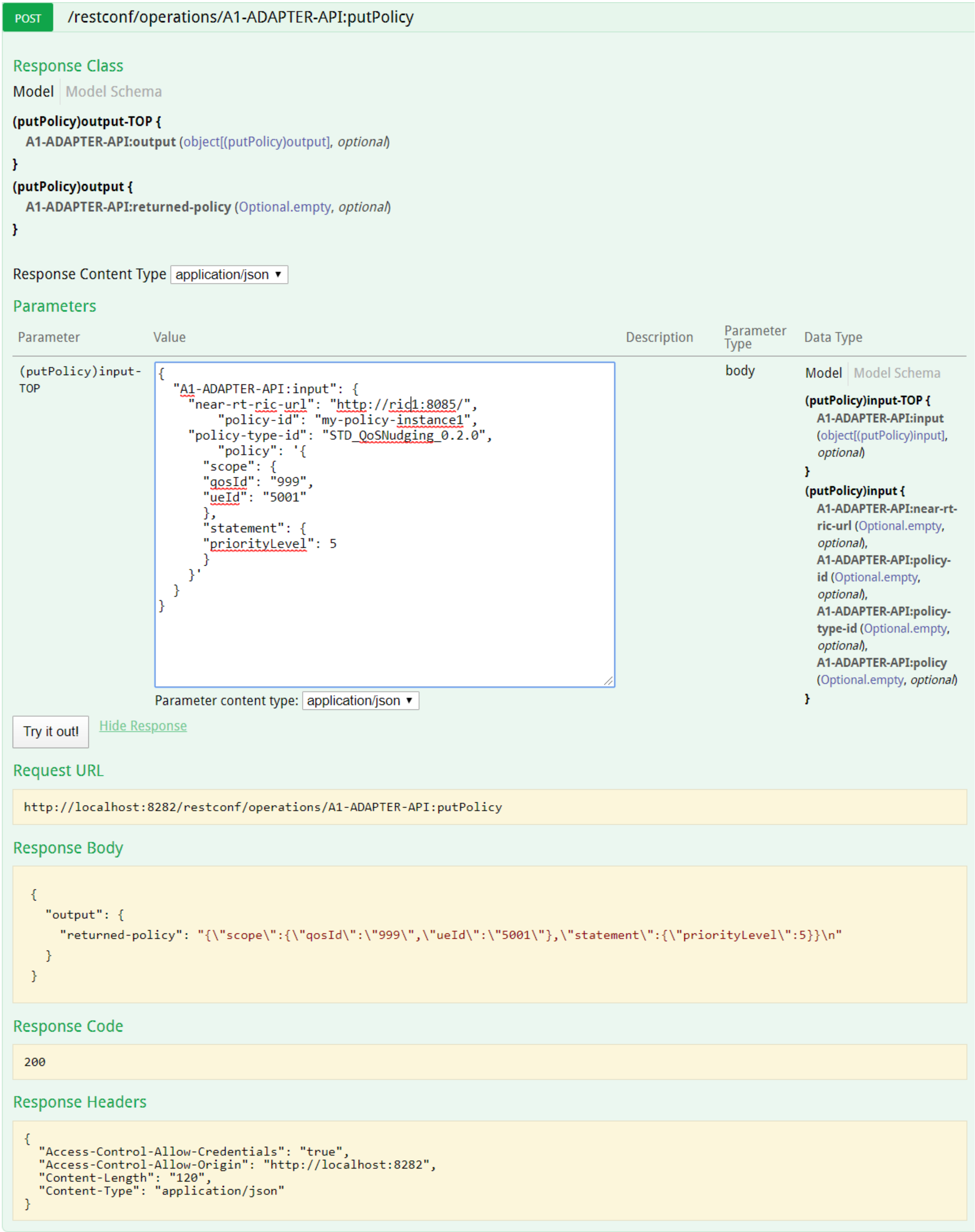
```
{
  "Access-Control-Allow-Credentials": "true",
  "Access-Control-Allow-Origin": "http://localhost:8282",
  "Content-Length": "59",
  "Content-Type": "application/json"
}
```

Create policy

Payload

POST /restconf/operations/A1-ADAPTER-API:putPolicy

```
{
  "A1-ADAPTER-API:input": {
    "near-rt-ric-url": "http://ric1:8085/",
        "policy-id": "my-policy-instance1",
    "policy-type-id": "STD_QoSNudging_0.2.0",
        "policy": '{
      "scope": {
      "qosId": "999",
      "ueId": "5001"
      },
      "statement": {
      "priorityLevel": 5
      }
    }'
  }
}
```



/restconf/operations/A1-ADAPTER-API:putPolicy

Response Class

(putPolicy)output-TOP {
A1-ADAPTER-API:output (object[(putPolicy)output], *optional*)
}
(putPolicy)output {
A1-ADAPTER-API:returned-policy (Optional.empty, *optional*)
}

Response Content Type: application/json

Parameters

Parameter	Value	Description	Parameter Type	Data Type
(putPolicy)input-TOP	(see below)		body	**(putPolicy)input-TOP {** **A1-ADAPTER-API:input** (object[(putPolicy)input], *optional*) **}** **(putPolicy)input {** **A1-ADAPTER-API:near-rt-ric-url** (Optional.empty, *optional*), **A1-ADAPTER-API:policy-id** (Optional.empty, *optional*), **A1-ADAPTER-API:policy-type-id** (Optional.empty, *optional*), **A1-ADAPTER-API:policy** (Optional.empty, *optional*) **}**

```
{
  "A1-ADAPTER-API:input": {
    "near-rt-ric-url": "http://ric1:8085/",
        "policy-id": "my-policy-instance1",
    "policy-type-id": "STD_QoSNudging_0.2.0",
        "policy": '{
      "scope": {
      "qosId": "999",
      "ueId": "5001"
      },
      "statement": {
      "priorityLevel": 5
      }
    }'
  }
}
```

Parameter content type: application/json

Request URL

```
http://localhost:8282/restconf/operations/A1-ADAPTER-API:putPolicy
```

Response Body

```
{
  "output": {
    "returned-policy": "{\"scope\":{\"qosId\":\"999\",\"ueId\":\"5001\"},\"statement\":{\"priorityLevel\":5}}\n"
  }
}
```

Response Code

```
200
```

Response Headers

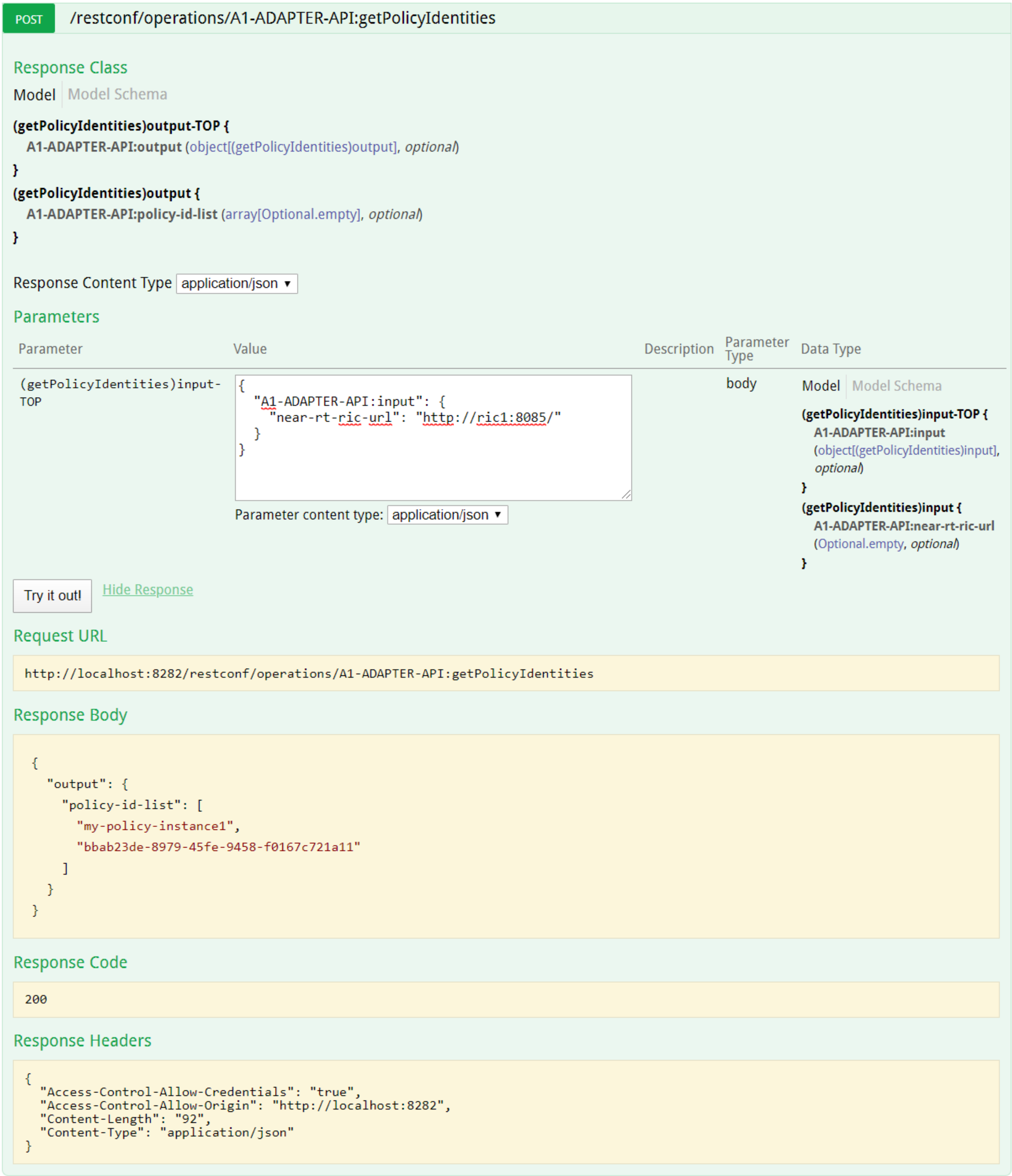
```
{
  "Access-Control-Allow-Credentials": "true",
  "Access-Control-Allow-Origin": "http://localhost:8282",
  "Content-Length": "120",
  "Content-Type": "application/json"
}
```

Get policy instances

Payload

POST /restconf/operations/A1-ADAPTER-API:getPolicyIdentities

```
{
  "A1-ADAPTER-API:input": {
    "near-rt-ric-url": "http://ric1:8085/"
  }
}
```



/restconf/operations/A1-ADAPTER-API:getPolicyIdentities

Response Class

```
(getPolicyIdentities)output-TOP {
  A1-ADAPTER-API:output (object[(getPolicyIdentities)output], optional)
}
(getPolicyIdentities)output {
  A1-ADAPTER-API:policy-id-list (array[Optional.empty], optional)
}
```

Response Content Type application/json

Parameters

Parameter	Value	Description	Parameter Type	Data Type

(getPolicyIdentities)input-TOP	{
	  "A1-ADAPTER-API:input": {
	    "near-rt-ric-url": "http://ric1:8085/"
	  }
	}
	Parameter content type: application/json
			body	(getPolicyIdentities)input-TOP {
				A1-ADAPTER-API:input (object[(getPolicyIdentities)input], optional)
				}
				(getPolicyIdentities)input {
				A1-ADAPTER-API:near-rt-ric-url (Optional.empty, optional)
				}

Request URL

```
http://localhost:8282/restconf/operations/A1-ADAPTER-API:getPolicyIdentities
```

Response Body

```
{
  "output": {
    "policy-id-list": [
      "my-policy-instance1",
      "bbab23de-8979-45fe-9458-f0167c721a11"
    ]
  }
}
```

Response Code

```
200
```

Response Headers

```
{
  "Access-Control-Allow-Credentials": "true",
  "Access-Control-Allow-Origin": "http://localhost:8282",
  "Content-Length": "92",
  "Content-Type": "application/json"
}
```