

# APPC OAM Improvements



Sharon Chisholm  
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# Problem Statement

APP-C had no OAM functions beyond what an ODL cluster provides.

The APP-C configuration stored in an XML file, meaning that any change to APP-C requires editing the file manually and restart of the cluster.

Currently APP-C doesn't provide any external OAM actions for other systems to manage an APP-C instance, and this feature should implement some of these actions

# Proposed Solution

- We should try to implement some of the actions defined in the LCM API in the area of self-management.
- E.g. commands to configure APPC parameters, when now we only have a XML file
- Other commands : Restart. Shutdown, scale, etc.
- These commands will allow ECOMP to build open loop / closed loop actions to manage APP-C, e.g. an APP-C console UI for operations.
- Examples of APP-C API actions to implement:
  - Configure – set APP-C instance parameters
  - Get Config – get APP-C instance parameters
  - Start – Start APP-C instance
  - Stop – Stop APP-C instance
  - Health check – check APP-C instance health
  - Restart – restart APP-C instance
  - Get APP-C status and KPIs

# Overview of Changes

1707

APP-C OAM - Lifecycle operations

APP-C OAM - Reports

1710

APP-C OAM - Lifecycle operations (continued)

Future

APP-C OAM – Configuration

# OAM – Reports (1707)

As ECOMP TechOps, I would like APP-C to expose APIs to KPIs

- [https://\[appc-host\]:8443/restconf/operations/appc-oam:get-metrics](https://[appc-host]:8443/restconf/operations/appc-oam:get-metrics)

Request

Empty Body

Response

```
{
  "output": {
    "metrics": [{
      "kpi-name": "UEB_KPI",
      "kpi-values": [{
        "name": "Total Received messages - UEB ",
        "value": "0"
      }],
      {
        "name": "Last Reset Time",
        "value": "2017-03-09:12:47:34"
      },
      {
        "name": "Total Published messages - UEB ",
        "value": "0"
      }
    ]
  },
  {
    "kpi-name": "DISPATCH_FUNCTION",
    "kpi-values": [{
      "name": "Total Received messages - Dispatcher",
      "value": "1"
    }],
    {
      "name": "Last Reset Time",
      "value": "2017-03-09:12:47:34"
    },
    {
      "name": "Total Rejected messages - Dispatcher",
      "value": "0"
    }
  ]
}
}
```

# OAM – Lifecycle Operations (1710)

- OAM API to get the Current State of APP-C - Non-cluster
- State Transition Validation for graceful stop and start
- Test State Transition Validation for OAM Start API to start newly deployed APP-C
- State Transition Validation for restart
- Enhance OAM restart API to restart Karaf Bundle
- Introduce an API to Force Stop APP-C
- Enhance Start API to start the APP-C bundle if not started
- OAM Operations (Start/Stop) Timeout and Error State
- State Transition Validation for force stop and start (after forcestop)
- APP-C to support OAM APIs to restart APP-C instance
- Test OAM Start API to start a newly deployed APP-C Instance

# Graceful Stop/Maintenance Mode

[https://\[appc-host\]:8443/restconf/operations/appc-oam:maintenance-mode](https://[appc-host]:8443/restconf/operations/appc-oam:maintenance-mode)

Request

```
{
  "input": {
    "common-header" : {
      "originator-id" : "ecompcController",
      "request-id" : "maintenance-mode-id#1"
    }
  }
}
```

Response (Synchronous)

```
{
  "output": {
    "status": {
      "code": 100,
      "message": "ACCEPTED - request accepted"
    },
    "common-header": {
      "request-id": "maintenance-mode-id#1",
      "originator-id": "ecompcController"
    }
  }
}
```

Response (Asynchronous Once Completed)

[http://\[ueb-host\]:3904/events/APPC-TEST-OAM-WRITE/name1/0](http://[ueb-host]:3904/events/APPC-TEST-OAM-WRITE/name1/0)

```
[
  "{\\"body\\":{\\"output\\":{\\"common-header\\":{\\"originator-id\\":\\"ecompcController\\",\\"request-id\\":\\"maintenance-mode-id#2\\"},\\"status\\":{\\"code\\":400,\\"message\\":\\"SUCCESS - request has been processed successfully\\"}},\\"cambria.partition\\":\\"MSO\\",\\"correlation-id\\":\\"maintenance-mode-id#2\\"},\\"rpc-name\\":\\"stop\\",\\"type\\":\\"response\\"}"
]
```



# Start

[https://\[appc-host\]:8443/restconf/operations/appc-oam:start](https://[appc-host]:8443/restconf/operations/appc-oam:start)

## Request

```
{
  "input": {
    "common-header" : {
      "originator-id" : "ecompController",
      "request-id" : "start-id#1"
    }
  }
}
```

## Response (Synchronous)

```
{
  "output": {
    "status": {
      "code": 100,
      "message": "ACCEPTED - request accepted"
    },
    "common-header": {
      "request-id": "start-id#1",
      "originator-id": "ecompController"
    }
  }
}
```

## Response (Asynchronous Once Completed)

[http://\[ueb-host\]:3904/events/APPC-TEST-OAM-WRITE/name1/0](http://[ueb-host]:3904/events/APPC-TEST-OAM-WRITE/name1/0)

```
[
  {"body":{"output":{"common-header":{"originator-id":"ecompController","request-id":"start-id#2"},"status":{"code":400,"message":"SUCCESS - request has been processed successfully"},"cambria.partition":"MSO","correlation-id":"start-id#2","rpc-name":"stop","type":"response"}}}
```





# Get Status

[https://\[appc-host\]:8443/restconf/operations/appc-oam:get-appc-state](https://[appc-host]:8443/restconf/operations/appc-oam:get-appc-state)

## Request

No input body

## Response (Synchronous)

```
{  
  "output": {  
    "state": "Started"  
  }  
}
```

# OAM – Configuration (Future)

As ECOMP TechOps, I would like APP-C to expose APIs to set and retrieve APP-C configuration.

- Model all of APP-C's Configuration Parameters
- Give APP-C the Capability to Rescan the Properties Files and use new Configurable Values
- Create an OAM API to Set Configuration Parameters
- Create an OAM API to Retrieve All Configuration Parameters

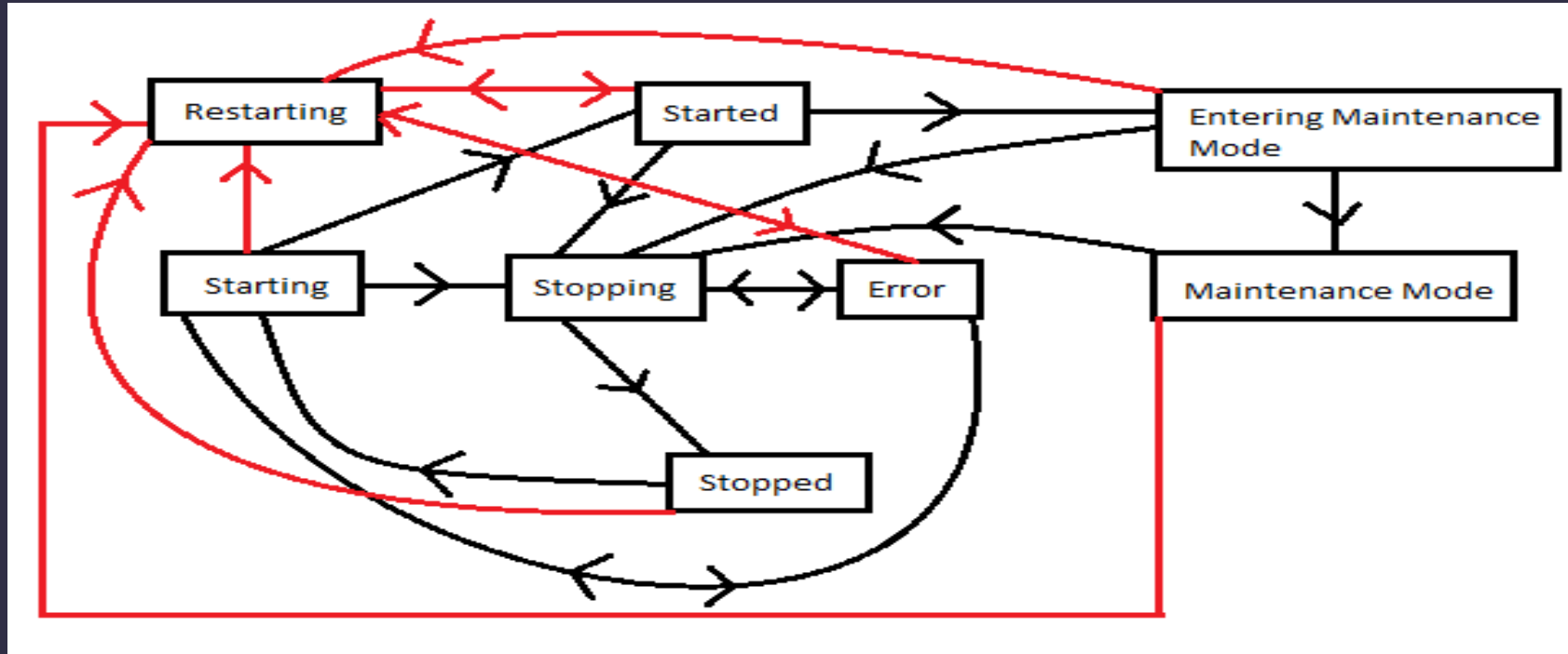


Thank you

# Mapping of Acceptable Operations to Current State

OAM API/APP-C Status	Started	In Maintenance Mode	Stopped	Starting	Entering Maintenance Mode	Force Stopping	Restarting
Start	Reject	Accept	Accept	Reject	Reject	Reject	Reject
Enter Maintenance Mode	Accept	Reject	Reject	Reject	Reject	Reject	Reject
Force Stop	Accept	Accept	Reject	Accept	Accept	Reject	Reject
Restart	Accept	Accept	Accept	Accept	Accept	Reject	Reject

# APPC States



*Note: The red lines represent state transitions to/from the Restarting state*

# More Detailed OAM API Examples



Microsoft Word  
Document

