

Oracle® Active Topology Automation

Asynchronous Events Guide



Release 7.8
G26989-01
April 2025

ORACLE®

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Preface

This document outlines the events available in the Active Topology Automation (ATA) service for asynchronous processing.

Audience

This document is for system administrators, database administrators, and developers who install and configure Unified Inventory and Topology.

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1

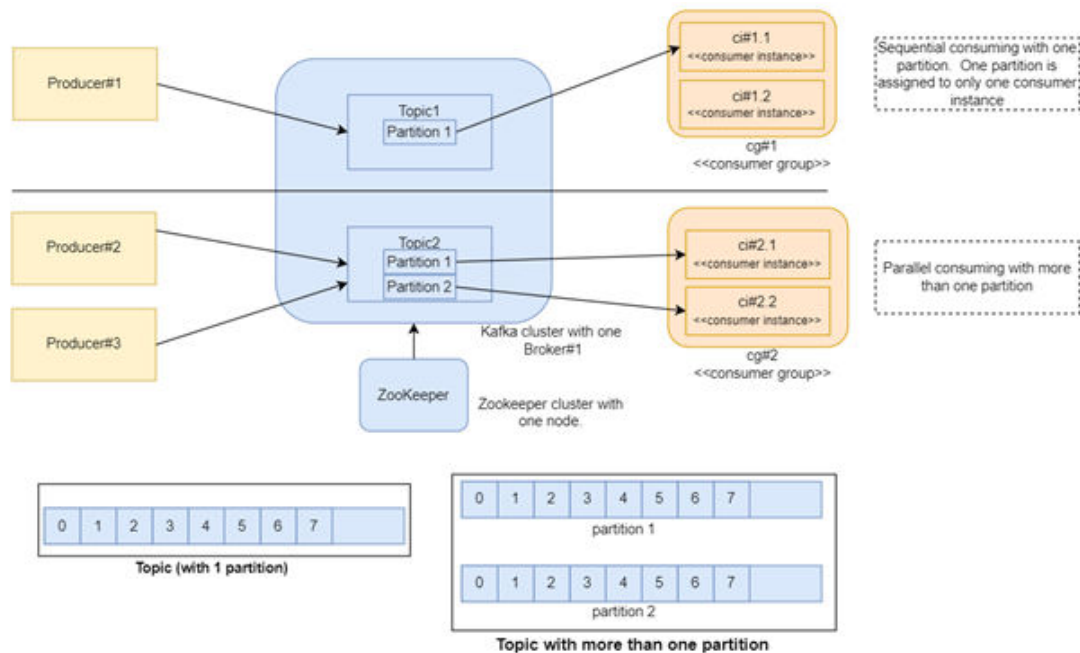
About ATA Asynchronous Events

Active Topology Automation (ATA) uses the Oracle Communications Unified Operations Message Bus (UOMB) for processing these events.

The UOMB service is a distributed event store and stream-processing platform service. The Message Bus client sends/receives events (or messages) to/from the Message Bus service from a specific channel called a Topic, so that the source and target clients (or services) are loosely coupled and asynchronous. The Message Bus uses Apache Kafka in its platform to support the event store and stream-processing.

Apache Kafka is a distributed publish-subscribe messaging system that receives data from disparate source systems and makes the data available to target systems in real time. Similar to other message brokers systems, Kafka facilitates the asynchronous data exchange between processes, applications and servers.

The following figure illustrates the architecture diagram of Apache Kafka.



2

ATA Events and Definitions

This chapter describes ATA events and definitions.

The types of events in ATA are Topology events and Performance or Fault events. The Topology events provide an event-driven architecture for creating, updating, and deleting Topology Vertices and Edges. The Topology events are listed as follows and are available as messages in the **ora-uim-topology** topic.

Table 2-1 Topology Events

Topology Event	Definition
TopologyEdgeCreate	This event supports the creation of all types of Topology Edges except Profile Edges.
TopologyEdgeDelete	This event supports the deletion of all types of Topology Edges except Profile Edges.
TopologyEdgeUpdate	This event supports updates of all types of Topology Edge except Profile Edges.
TopologyNodeCreate	This event supports the creation of all types of Topology Vertices except Profile Vertices.
TopologyNodeDelete	This event supports the deletion of all types of Topology Vertices except Profile Vertices.
TopologyNodeUpdate	This event supports updates of all types of Topology Vertices except Profile Vertices.
TopologyProfileCreate	This event supports the creation of Topology Profiles which represent an end-to-end trail of nodes and edges. For example, Service Topology is a Topology profile.
TopologyProfileDelete	This event supports the deletion of Topology Profiles.
TopologyProfileDelete	This event supports the deletion of Topology Profiles.
TopologyProfileUpdate	This event supports updates Topology Profiles.

TopologyEdgeCreate

The following table provides the TopologyEdgeCreate event details and the corresponding values:

Table 2-2 TopologyEdgeCreate

Event Details	Value
Summary	Receives messages for creating Topology Edges.
Message Header (with examples)	eventType: "TopologyEdgeCreate" sourceSystemId: "UIM" transactionId: "uim-topology-nnnnnn"
Topic	ora-uim-topology

Table 2-2 (Cont.) TopologyEdgeCreate

Event Details	Value
Producer	UIM, any External System, typically an Inventory System.
Consumer	ATA
URL	Provided during the deployment.
Schemas	Edge

Example Payload:

```
{
  "businessObjectClass": "PacketConnectivityDAO",
  "inventoryStatus": "INSTALLED",
  "name": "ELCN01PR.SR-1 / WSHN01DC.SR-1 / 40GigE / GE10 / 1",
  "referenceId": 1579678,
  "specName": "INNI Connectivity",
  "technology" : "Ethernet",
  "ratecode" : "10GigE",
  "fromNodeReferenceId" : "655350",
  "fromNodeBusinessObjectClass" : "LogicalDeviceDAO",
  "toNodeReferenceId" : "218472",
  "toNodeBusinessObjectClass" : "LogicalDeviceDAO",
  "edgeType" : "COMMUNICATES_WITH"
}
```

TopologyEdgeDelete

The following table provides the TopologyEdgeDelete event details and the corresponding values:

Table 2-3 TopologyEdgeDelete

Event Details	Value
Summary	Receives messages for deleting Topology Edges.
Message Header (with examples)	eventType: "TopologyEdgeDelete" sourceSystemId: "UIM" transactionId: "uim-topology-nnnnnn"
Topic	ora-uim-topology
Producer	UIM, any External System, typically an Inventory System.
Consumer	ATA
URL	Provided during the deployment.
Schemas	Edge

Example Payload (using Edge entityID):

```
{
    "entityId" : 1356
}
```

Example Payload (using businessObjectClass, referenceId and edgeType):

```
{
    "businessObjectClass": "PacketConnectivityDAO",
    "referenceId": 1579678,
    "edgeType" : "COMMUNICATES_WITH"
}
```

Example Payload (using fromNode, toNode and edgeType):

```
{
    "businessObjectClass": "TopologyOnly",
    "fromNode" : 1354,
    "toNode" : 1355,
    "edgeType" : "PARENT_DEVICE"
}
```

TopologyEdgeUpdate

The following table provides the TopologyEdgeUpdate event details and the corresponding values:

Table 2-4 TopologyEdgeUpdate

Event Details	Value
Summary	Receives messages for updating Topology Edges.
Message Header (with examples)	eventType: "TopologyEdgeUpdate" sourceSystemId: "UIM" transactionId: "uim-topology-nnnnnn"
Topic	ora-uim-topology
Producer	UIM, any External System, typically an Inventory System.
Consumer	ATA
URL	Provided during the deployment.
Schemas	Edge

Example Payload (Communication Edge):

```
{
    "entityId" : 1356,
    "businessObjectClass": "PacketConnectivityDAO",
    "inventoryStatus": "INSTALLED",
    "name": " ELCN01PR.SR-1 / WSHN01DC.SR-1 / 40GigE / GE10 / 1",
}
```

```

    "referenceId": 1579678,
    "specName": "INNI Connectivity",
    "technology" : "Ethernet",
    "ratecode" : "10GigE",
    "fromNode" : 4889,
    "fromNodeBusinessObjectClass" : "LogicalDeviceDAO",
    "toNode" : 6584,
    "toNodeBusinessObjectClass" : "LogicalDeviceDAO",
    "edgeType" : "COMMUNICATES_WITH"
  }

```

Example Payload (Topological Edge with Edge Label = PARENT_DEVICE):

```

{
  "businessObjectClass": "TopologyOnly",
  "inventoryStatus": "INSTALLED",
  "name": "EquipmentShelfI-PhysicalDeviceI",
  "fromNodeReferenceId" : "675001",
  "fromNodeBusinessObjectClass" : "EquipmentDAO",
  "toNodeReferenceId" : "600001",
  "toNodeBusinessObjectClass" : "PhysicalDeviceDAO",
  "edgeType" : "PARENT_DEVICE",
  "properties" : {
    "propertyOne" : "newValueOne",
    "propertyTwo" : "newValueTwo"
  }
}

```

TopologyNodeCreate

The following table provides the TopologyNodeCreate event details and the corresponding values:

Table 2-5 TopologyNodeCreate

Event Details	Value
Summary	Receives messages for creating Topology Nodes and Vertices.
Message Header (with examples)	eventType: "TopologyNodeCreate" sourceSystemId: "UIM" transactionId: "uim-topology-nnnnnn"
Topic	ora-uim-topology
Producer	UIM, any External System, typically an Inventory System.
Consumer	ATA
URL	Provided during the deployment.
Schemas	Vertex

Example Payload:

```
{
    "businessObjectClass": "LogicalDeviceDAO",
    "inventoryStatus": "INSTALLED",
    "name": "BDFR01TX.T-1.LD",
    "id" : "BDFR01TX.T-1",
    "referenceId": 3375004,
    "specName": "Cisco ASR 920 LD"
}
```

TopologyNodeDelete

The following table provides the TopologyNodeDelete event details and the corresponding values:

Table 2-6 TopologyNodeDelete

Event Details	Value
Summary	Receives messages for deleting Topology Nodes or Vertices.
Message Header (with examples)	eventType: "TopologyNodeDelete" sourceSystemId: "UIM" transactionId: "uim-topology-nnnnnnn"
Topic	ora-uim-topology
Producer	UIM, any External System, typically an Inventory System.
Consumer	ATA
URL	Provided during the deployment.
Schemas	Vertex

Example Payload (using entityID):

```
{
    "entityId" : 1354
}
```

Example Payload (using businessObjectClass, referenceId):

```
{
    "businessObjectClass": "LogicalDeviceDAO",
    "referenceId": 999997
}
```

TopologyNodeUpdate

The following table provides the TopologyNodeUpdate event details and the corresponding values:

Table 2-7 TopologyNodeUpdate

Event Details	Value
Summary	Receives messages for updating Topology Nodes and Vertices.
Message Header (with examples)	eventType: "TopologyNodeUpdate" sourceSystemId: "UIM" transactionId: "uim-topology-nnnnnnn"
Topic	ora-uim-topology
Producer	UIM, any External System, typically an Inventory System.
Consumer	ATA
URL	Provided during the deployment.
Schemas	Vertex

Example Payload:

```
{
  "businessObjectClass": "LogicalDeviceDAO",
  "inventoryStatus": "INSTALLED",
  "name": "BDFR01TX.T-1.LD",
  "nodeCategory": "Access",
  "id" : "BDFR01TX.T-1",
  "referenceId": 3375004,
  "specName": "Cisco ASR 920 LD"
}
```

TopologyProfileCreate

The following table provides the TopologyProfileCreate event details and the corresponding values:

Table 2-8 TopologyProfileCreate

Event Details	Value
Summary	Receives messages for creating Topology Profiles.
Message Header (with examples)	eventType: "TopologyProfileCreate" sourceSystemId: "UIM" transactionId: "uim-topology-nnnnnnn"
Topic	ora-uim-topology
Producer	UIM, any External System, typically an Inventory System.
Consumer	ATA
URL	Provided during the deployment.
Schemas	Profile, ProfileEdge, ProfileVertex

Example Payload:

```
{
  "entityId": 0,
  "entityVersion": 0,
  "businessObjectClass": "ServiceConfigurationVersionDAO",
  "id": "5100001:1",
  "name": "dev_service:dev_service - 1",
  "referenceId": 118500001,
  "zoomLevel": 0,
  "refresh": false,
  "profileVertices": [
    {
      "entityId": 0,
      "entityVersion": 0,
      "businessObjectClass": "LogicalDeviceDAO",
      "id": "5475001",
      "exclude": false,
      "device": 100155338,
      "name": "dev_device",
      "imageName":
"oracle.communications.platform.entity.impl.MediaDAO-1381575223.png",
      "xPos": 0,
      "yPos": 0,
      "profile": 0,
      "createdDate": "2023-03-06T15:41:17.076Z",
      "lastModifiedDate": "2023-03-06T15:41:17.076Z"
    },
    {
      "entityId": 0,
      "entityVersion": 0,
      "businessObjectClass": "LogicalDeviceDAO",
      "id": "5475003",
      "exclude": false,
      "device": 100155343,
      "name": "dev_zdevice",
      "imageName":
"oracle.communications.platform.entity.impl.MediaDAO-1381575223.png",
      "xPos": 0,
      "yPos": 0,
      "profile": 0,
      "createdDate": "2023-03-06T15:41:17.076Z",
      "lastModifiedDate": "2023-03-06T15:41:17.076Z"
    },
    {
      "entityId": 0,
      "entityVersion": 0,
      "businessObjectClass": "LogicalDeviceDAO",
      "id": "5475002",
      "exclude": false,
      "device": 100155341,
      "name": "dev_ydevice",
      "imageName":
"oracle.communications.platform.entity.impl.MediaDAO-1381575223.png",
      "xPos": 0,
```

```
        "yPos": 0,
        "profile": 0,
        "createdDate": "2023-03-06T15:41:17.076Z",
        "lastModifiedDate": "2023-03-06T15:41:17.076Z"
    }
],
"profileEdges": [
    {
        "entityId": 0,
        "entityVersion": 0,
        "businessObjectClass": "PacketConnectivityDAO",
        "id": "5250001",
        "communication": 100155339,
        "name": "YYY / ZZZ / 1GigE / GE1 / 23",
        "exclude": false,
        "profileNode": {
            "entityId": 0,
            "entityVersion": 0,
            "businessObjectClass": "LogicalDeviceDAO",
            "id": "5475002",
            "exclude": false,
            "device": 100155341,
            "name": "dev_ydevice",
            "imageName":
"oracle.communications.platform.entity.impl.MediaDAO-1381575223.png",
            "xPos": 0,
            "yPos": 0,
            "profile": 0,
            "createdDate": "2023-03-06T15:41:17.076Z",
            "lastModifiedDate": "2023-03-06T15:41:17.076Z"
        },
        "toProfileNode": {
            "entityId": 0,
            "entityVersion": 0,
            "businessObjectClass": "LogicalDeviceDAO",
            "id": "5475003",
            "exclude": false,
            "device": 100155343,
            "name": "dev_zdevice",
            "imageName":
"oracle.communications.platform.entity.impl.MediaDAO-1381575223.png",
            "xPos": 0,
            "yPos": 0,
            "profile": 0,
            "createdDate": "2023-03-06T15:41:17.076Z",
            "lastModifiedDate": "2023-03-06T15:41:17.076Z"
        },
        "profile": 0,
        "createdDate": "2023-03-06T15:41:17.161Z",
        "lastModifiedDate": "2023-03-06T15:41:17.161Z"
    }
],
"createdDate": "2023-03-06T15:41:16.865Z",
"lastModifiedDate": "2023-03-06T15:41:16.865Z"
}
```

TopologyProfileDelete

The following table provides the TopologyProfileDelete event details and the corresponding values:

Table 2-9 TopologyProfileDelete

Event Details	Value
Summary	Receives messages for deleting Topology Profiles.
Message Header (with examples)	eventType: "TopologyProfileDelete" sourceSystemId: "UIM" transactionId: "uim-topology-nnnnnn"
Topic	ora-uim-topology
Producer	UIM, any External System, typically an Inventory System.
Consumer	ATA
URL	Provided during the deployment.
Schemas	Profile, ProfileEdge, ProfileVertex

Example Payload:

```
{
  "entityId": 100155358
}
```

TopologyProfileUpdate

The following table provides the TopologyProfileUpdate event details and the corresponding values:

Table 2-10 TopologyProfileUpdate

Event Details	Value
Summary	Receives messages for updating Topology Profiles.
Message Header (with examples)	eventType: "TopologyProfileUpdate" sourceSystemId: "UIM" transactionId: "uim-topology-nnnnnn"
Topic	ora-uim-topology
Producer	UIM, any External System, typically an Inventory System.
Consumer	ATA
URL	Provided during the deployment.
Schemas	Profile, ProfileEdge, ProfileVertex

Example Payload:

```
{
  "businessObjectClass": "ServiceConfigurationVersionDAO",
  "createdDate": "2023-03-06T15:55:47.892Z",
  "entityId": 100155358,
  "entityVersion": 0,
  "id": "5100001:3",
  "lastModifiedDate": "2023-03-06T15:55:47.892Z",
  "name": "dev_service:dev_service - 3",
  "profileEdges": [
    {
      "businessObjectClass": "PacketConnectivityDAO",
      "communication": 100155339,
      "createdDate": "2023-03-06T15:55:48.180Z",
      "entityId": 100155362,
      "entityVersion": 0,
      "exclude": false,
      "id": "5250001",
      "lastModifiedDate": "2023-03-06T15:55:48.180Z",
      "name": "YYY / ZZZ / 1GigE / GE1 / 23",
      "profile": 100155358,
      "profileNode": {
        "businessObjectClass": "LogicalDeviceDAO",
        "device": 100155341,
        "entityId": 100155350,
        "entityVersion": 1,
        "exclude": false,
        "id": "5475002",
        "imageName":
"oracle.communications.platform.entity.impl.MediaDAO-1381575223.png",
        "location": 0,
        "name": "dev_ydevice",
        "nec": 0,
        "network": 0,
        "profile": 100155347,
        "xPos": 0,
        "yPos": 0
      },
      "toProfileNode": {
        "businessObjectClass": "LogicalDeviceDAO",
        "device": 100155343,
        "entityId": 100155349,
        "entityVersion": 1,
        "exclude": false,
        "id": "5475003",
        "imageName":
"oracle.communications.platform.entity.impl.MediaDAO-1381575223.png",
        "location": 0,
        "name": "dev_zdevice",
        "nec": 0,
        "network": 0,
        "profile": 100155347,
        "xPos": 0,
        "yPos": 0
      }
    }
  ]
}
```



```
    }  
  }  
],  
"profileVertices": [  
  {  
    "businessObjectClass": "LogicalDeviceDAO",  
    "createdDate": "2023-03-06T15:55:48.105Z",  
    "device": 100155338,  
    "entityId": 100155359,  
    "entityVersion": 0,  
    "exclude": false,  
    "id": "5475001",  
    "imageName":  
"oracle.communications.platform.entity.impl.MediaDAO-1381575223.png",  
    "lastModifiedDate": "2023-03-06T15:55:48.105Z",  
    "name": "dev_device",  
    "profile": 100155358,  
    "xPos": 0,  
    "yPos": 0  
  },  
  {  
    "businessObjectClass": "LogicalDeviceDAO",  
    "createdDate": "2023-03-06T15:55:48.107Z",  
    "device": 100155343,  
    "entityId": 100155360,  
    "entityVersion": 0,  
    "exclude": false,  
    "id": "5475003",  
    "imageName":  
"oracle.communications.platform.entity.impl.MediaDAO-1381575223.png",  
    "lastModifiedDate": "2023-03-06T15:55:48.107Z",  
    "name": "dev_zdevice",  
    "profile": 100155358,  
    "xPos": 0,  
    "yPos": 0  
  },  
  {  
    "businessObjectClass": "LogicalDeviceDAO",  
    "createdDate": "2023-03-06T15:55:48.108Z",  
    "device": 100155341,  
    "entityId": 100155361,  
    "entityVersion": 0,  
    "exclude": false,  
    "id": "5475002",  
    "imageName":  
"oracle.communications.platform.entity.impl.MediaDAO-1381575223.png",  
    "lastModifiedDate": "2023-03-06T15:55:48.108Z",  
    "name": "dev_ydevice",  
    "profile": 100155358,  
    "xPos": 0,  
    "yPos": 0  
  }  
],  
"referenceId": 118500005,  
"refresh": false,  
"zoomLevel": 0,
```

```
"status": "CANCELLED"  
}
```

3

TMF 642 Alarm Events and Definitions

This chapter provides information on TMF 642 alarm events.

The Process TMF 642 alarm events provide an event-driven architecture for creating, updating, and deleting alarm and threshold crossing alarms on devices maintained by ATA.

The TMF 642 alarms events are listed here and are available as Kafka message in the **ora-alarm-topology** topic.

TMF 642 Alarm

This section provides the list of TMF 642 Alarm events.

AlarmCreateEvent

The following table provides the AlarmCreateEvent event details and the corresponding values:

Table 3-1 AlarmCreateEvent

Event Details	Value
Summary	TMF 642 AlarmCreateEvent message
Message Header (with Examples)	eventType: "AlarmCreateEvent"
Topic	ora-alarm-topology
Producer	Any Assurance System or Alarm Management System
Consumer	ATA
URL	Provided during Deployment
Schemas	TMF-642 Version 5.0

Example Payload:

```
{
  "@type": "AlarmCreateEvent",
  "event": {
    "alarm": {
      "@type": "OracleAlarm",
      "ackState": "unacknowledged",
      "ackSystemId": "",
      "ackUserId": "",
      "affectedService": [
        {
          "@type": "ServiceRef",
          "id": "OT_EQUIPMENT"
        }
      ]
    },
    "alarmChangedTime": "2024-06-19T09:45:26.495Z",
    "alarmDetails": "Details in string format",
  }
}
```

```
"alarmedObject": {
  "@referredType": "",
  "@type": "AlarmedObjectRef",
  "id": "ARLN02TXAW.P01:MS_BG-40_81/51118",
  "name": ""
},
"alarmedObjectType": "",
"alarmEscalation": true,
"alarmRaisedTime": "",
"alarmReportingTime": "2024-06-19T05:41:02.000Z",
"alarmType": "processingErrorAlarm",
"comment": [
  {
    "@type": "Comment",
    "comment": "Manual: Event List Edit (API)"
  }
],
"customAttributes": [
  {
    "name": "Category",
    "type": "",
    "value": "category"
  },
  {
    "name": "TestEventField",
    "type": "",
    "value": "End-to-end-UA-UIM Test Field Value"
  },
  {
    "name": "SubCategory",
    "type": "",
    "value": "sub-category"
  }
],
"externalAlarmId": "3743573",
"id": "3456",
"isRootCause": false,
"parentAlarm": [
  {
    "@type": "AlarmRef",
    "id": "0"
  }
],
"perceivedSeverity": "major",
"place": [
  {
    "@type": "RelatedPlace",
    "name": ""
  }
],
"probableCause": "ECI_ALARM_UC05 Ext-Alm2 (Battery Discharge)",
"reportingSystemId": "pg-
naparchu1.ua6.gbucdsint02phx.oraclevcn.com",
"serviceAffecting": false,
"specificProblem": "",
"state": "raised"
```

```

    }
  },
  "eventId": "3456",
  "eventTime": "2024-07-16T08:53:43.608Z",
  "eventType": "AlarmCreateEvent"
}

```

AlarmAttributeValueChangeEvent

The following table provides the AlarmAttributeValueChangeEvent event details and the corresponding values:

Table 3-2 AlarmAttributeValueChangeEvent

Event Details	Value
Summary	TMF 642 AlarmAttributeValueChangeEventmessage
Message Header (with Examples)	eventType: "AlarmAttributeValueChangeEvent"
Topic	ora-alarm-topology
Producer	Any Assurance System or Alarm Management System
Consumer	ATA
URL	Provided during Deployment
Schemas	TMF-642 Version 5.0

Example Payload:

```

{
  "@type": "AlarmAttributeValueChangeEvent",
  "event": {
    "alarm": {
      "@type": "OracleAlarm",
      "ackState": "unacknowledged",
      "ackSystemId": "",
      "ackUserId": "",
      "affectedService": [
        {
          "@type": "ServiceRef",
          "id": "OT_EQUIPMENT"
        }
      ],
      "alarmChangedTime": "2024-06-19T09:45:26.495Z",
      "alarmDetails": "Alarm details",
      "alarmedObject": {
        "@referredType": "",
        "@type": "AlarmedObjectRef",
        "id": "ARLN02TXAW.P01:MS_BG-40_81/51118",
        "name": ""
      },
      "alarmedObjectType": "",
      "alarmEscalation": true,
      "alarmRaisedTime": "",
      "alarmReportingTime": "2024-06-19T05:41:02.000Z",
      "alarmType": "processingErrorAlarm",
      "comment": [

```

```

        {
            "@type": "Comment",
            "comment": "Manual: Event List Edit (API)"
        }
    ],
    "customAttributes": [
        {
            "name": "TestEventField",
            "type": "",
            "value": "End-to-end-UA-UIM Test Field Value"
        }
    ],
    "externalAlarmId": "3743573",
    "id": "1234",
    "isRootCause": false,
    "parentAlarm": [
        {
            "@type": "AlarmRef",
            "id": "0"
        }
    ],
    "perceivedSeverity": "critical",
    "place": [
        {
            "@type": "RelatedPlace",
            "name": ""
        }
    ],
    "probableCause": "ECI_ALARM_UC05 Ext-Alm2 (Battery Discharge)",
    "reportingSystemId": "pg-
naparchu1.ua6.gbucdsint02phx.oraclevcn.com",
    "serviceAffecting": false,
    "specificProblem": "",
    "state": "updated"
    }
},
"eventId": "1234",
"eventTime": "2024-07-16T09:12:31.544Z",
"eventType": "AlarmAttributeValueChangeEvent"
}

```

ClearAlarmCreateEvent

The following table provides the ClearAlarmCreateEvent event details and the corresponding values:

Table 3-3 ClearAlarmCreateEvent

Event Details	Value
Summary	TMF 642 ClearAlarmCreateEvent message
Message Header (with Examples)	eventType: "ClearAlarmCreateEvent"
Topic	ora-alarm-topology
Producer	Any Assurance System or Alarm Management System

Table 3-3 (Cont.) ClearAlarmCreateEvent

Event Details	Value
Consumer	ATA
URL	Provided during Deployment
Schemas	TMF-642 Version 5.0

Example Payload:

```
{
  "@type": "ClearAlarmCreateEvent",
  "event": {
    "clearAlarm": {
      "@type": "ClearAlarm",
      "alarmClearedTime": "2024-08-08T10:09:25.000Z",
      "alarmPattern": [
        {
          "@type": "AlarmRef",
          "id": "421044"
        }
      ],
      "clearedAlarm": [
        {
          "@type": "OracleAlarm",
          "ackState": "unacknowledged",
          "ackSystemId": "",
          "ackUserId": "",
          "affectedService": [
          ],
          "alarmChangedTime": "2024-08-08T10:10:06.648Z",
          "alarmDetails": "Alarm details",
          "alarmedObject": {
            "@referredType": "OT_PHYSICAL_TERMINATION_POINT",
            "@type": "AlarmedObjectRef",
            "id": "ARLN02TXAW.P01:MS_BG-40_81/51118",
            "name": ""
          },
          "alarmedObjectType": "OT_PHYSICAL_TERMINATION_POINT",
          "alarmEscalation": false,
          "alarmRaisedTime": "",
          "alarmReportingTime": "2024-08-08T10:08:35.000Z",
          "alarmType": "processingErrorAlarm",
          "comment": [
            {
              "@type": "Comment",
              "comment": "SQL Tool: Clear"
            }
          ],
          "externalAlarmId": "3745195",
          "id": "1234",
          "isRootCause": false,
          "parentAlarm": [
            {

```

```
        "@type": "AlarmRef",
        "id": "0"
      }
    ],
    "perceivedSeverity": "cleared",
    "place": [
    ],
    "probableCause": "ECI_ALARM_UC05 Ext-Alm2 (Battery
Discharge)",
    "reportingSystemId": "pg-
naparchu1.ua6.gbucdsint02phx.oraclevcn.com",
    "serviceAffecting": false,
    "specificProblem": "ECI_ALARM_UC01 Communication-Fail",
    "state": "cleared"
  }
},
"clearSystemId": "pg-naparchu1.ua6.gbucdsint02phx.oraclevcn.com",
"clearUserId": "admin",
"state": "done"
}
},
"eventId": "1234",
"eventTime": "2024-08-08T10:10:06.673Z",
"eventType": "ClearAlarmCreateEvent"
}
```

AlarmDeleteEvent

The following table provides the AlarmDeleteEvent event details and the corresponding values:

Table 3-4 AlarmDeleteEvent

Event Details	Value
Summary	TMF 642 AlarmDeleteEventmessage
Message Header (with Examples)	eventType: "AlarmDeleteEvent"
Topic	ora-alarm-topology
Producer	Any Assurance System or Alarm Management System
Consumer	ATA
URL	Provided during Deployment
Schemas	TMF-642 Version 5.0

Example Payload:

```
{
  "@type": "AlarmDeleteEvent",
  "event": {
    "alarm": {
      "@type": "Alarm",
      "ackState": "unacknowledged",
      "ackSystemId": "",
      "ackUserId": "",
      "affectedService": [
        {
```



```

        "@type": "ServiceRef",
        "id": "OT_EQUIPMENT"
    },
    ],
    "alarmChangedTime": "2024-06-19T09:45:26.495Z",
    "alarmDetails": "Alarm details",
    "alarmedObject": {
        "@referredType": "",
        "@type": "AlarmedObjectRef",
        "id": "ARLN02TXAW.P01:MS_BG-40_81/51118",
        "name": ""
    },
    "alarmedObjectType": "",
    "alarmEscalation": true,
    "alarmRaisedTime": "",
    "alarmReportingTime": "2024-06-19T05:41:02.000Z",
    "alarmType": "processingErrorAlarm",
    "comment": [
        {
            "@type": "Comment",
            "comment": "DeleteExpired"
        }
    ],
    "externalAlarmId": "3743573",
    "id": "1234",
    "isRootCause": false,
    "parentAlarm": [
        {
            "@type": "AlarmRef",
            "id": "0"
        }
    ],
    "perceivedSeverity": "major",
    "place": [
        {
            "@type": "RelatedPlace",
            "name": ""
        }
    ],
    "probableCause": "ECI_ALARM_UC05 Ext-Alm2 (Battery Discharge)",
    "reportingSystemId": "pg-
naparchu1.ua6.gbucdsint02phx.oraclevcn.com",
    "serviceAffecting": false,
    "specificProblem": "",
    "state": "updated"
    },
    "eventId": "1234",
    "eventTime": "2024-07-16T12:14:22.845Z",
    "eventType": "AlarmDeleteEvent"
}

```

TMF 642 ThresholdCrossing Alarm

This section provides the list of TMF 642 ThresholdCrossing Alarm events.

AlarmCreateEvent

The following table provides the AlarmCreateEvent event details and the corresponding values:

Table 3-5 AlarmCreateEvent

Event Details	Value
Summary	TMF 642 AlarmCreateEvent message
Message Header (with Examples)	eventType: "AlarmCreateEvent"
Topic	ora-alarm-topology
Producer	Any Assurance System or Alarm Management System
Consumer	ATA
URL	Provided during Deployment
Schemas	TMF-642 Version 5.0

Example Payload:

```
{
  "@type": "AlarmCreateEvent",
  "event": {
    "alarm": {
      "@type": "OracleAlarm",
      "ackState": "unacknowledged",
      "ackSystemId": "",
      "ackUserId": "",
      "affectedService": [
      ],
      "alarmChangedTime": "2024-08-07T08:29:59.000Z",
      "alarmDetails": "Alarm details",
      "alarmedObject": {
        "@referredType": "OT_AID",
        "@type": "AlarmedObjectRef",
        "id": "ARLN02TXAW.P01",
        "name": ""
      },
      "alarmedObjectType": "OT_AID",
      "alarmEscalation": false,
      "alarmRaisedTime": "",
      "alarmReportingTime": "2024-08-07T08:29:59.000Z",
      "alarmType": "qualityOfServiceAlarm",
      "comment": [
      ],
      "crossedThresholdInformation": {
        "direction": "up",
        "granularity": "15min",
        "indicatorName": " ECI_TCA_UC05_LSNEXT_PKTS_ERROR : TWM_HIGH",
        "indicatorUnit": "",
        "observedValue": "-32768.0"
      },
      "externalAlarmId": "3731539",
      "id": "1111",
```

```

        "isRootCause": false,
        "parentAlarm": [
            {
                "@type": "AlarmRef",
                "id": "0"
            }
        ],
        "perceivedSeverity": "minor",
        "place": [
        ],
        "probableCause": "ECI_TCA_UC05_LSNEXT_PKTS_ERROR",
        "reportingSystemId": "pg-
naparchu1.ua6.gbucdsint02phx.oraclevcn.com",
        "serviceAffecting": false,
        "specificProblem": "TWM_HIGH",
        "state": "raised"
    }
},
"eventId": "1111",
"eventTime": "2024-08-07T08:29:59.407Z",
"eventType": "AlarmCreateEvent"
}

```

AlarmAttributeValueChangeEvent

The following table provides the AlarmAttributeValueChangeEvent event details and the corresponding values:

Table 3-6 AlarmAttributeValueChangeEvent

Event Details	Value
Summary	TMF 642 AlarmAttributeValueChangeEventmessage
Message Header (with Examples)	eventType: "AlarmAttributeValueChangeEvent"
Topic	ora-alarm-topology
Producer	Any Assurance System or Alarm Management System
Consumer	ATA
URL	Provided during Deployment
Schemas	TMF-642 Version 5.0

Example Payload:

```

{
  "@type": "AlarmAttributeValueChangeEvent",
  "event": {
    "alarm": {
      "@type": "OracleAlarm",
      "ackState": "unacknowledged",
      "ackSystemId": "",
      "ackUserId": "",
      "affectedService": [
      ],
      "alarmChangedTime": "2024-08-07T08:30:25.000Z",
      "alarmDetails": Alarm detials",
    }
  }
}

```

```

    "alarmedObject": {
      "@referredType": "OT_AID",
      "@type": "AlarmedObjectRef",
      "id": "LSN/EMS_XDM_33/9489:73:12295",
      "name": ""
    },
    "alarmedObjectType": "OT_AID",
    "alarmEscalation": false,
    "alarmRaisedTime": "",
    "alarmReportingTime": "2024-08-07T08:29:59.000Z",
    "alarmType": "qualityOfServiceAlarm",
    "comment": [
    ],
    "crossedThresholdInformation": {
      "direction": "up",
      "granularity": "15min",
      "indicatorName": " ECI_TCA_UC05 LSNEXT_PKTS_ERROR : TWM_HIGH",
      "indicatorUnit": "",
      "observedValue": "-32768.0"
    },
    "externalAlarmId": "3731539",
    "id": "1111",
    "isRootCause": false,
    "parentAlarm": [
      {
        "@type": "AlarmRef",
        "id": "0"
      }
    ],
    "perceivedSeverity": "major",
    "place": [
    ],
    "probableCause": "ECI_TCA_UC05 LSNEXT_PKTS_ERROR",
    "reportingSystemId": "pg-
naparchu1.ua6.gbucdsint02phx.oraclevcn.com",
    "serviceAffecting": false,
    "specificProblem": "TWM_HIGH",
    "state": "updated"
  }
},
"eventId": "1111",
"eventTime": "2024-08-07T08:30:25.347Z",
"eventType": "AlarmAttributeValueChangeEvent"
}

```

ClearAlarmCreateEvent

The following table provides the ClearAlarmCreateEvent event details and the corresponding values:

Table 3-7 ClearAlarmCreateEvent

Event Details	Value
Summary	TMF 642 ClearAlarmCreateEvent message

Table 3-7 (Cont.) ClearAlarmCreateEvent

Event Details	Value
Message Header (with Examples)	eventType: "ClearAlarmCreateEvent"
Topic	ora-alarm-topology
Producer	Any Assurance System or Alarm Management System
Consumer	ATA
URL	Provided during Deployment
Schemas	TMF-642 Version 5.0

Example Payload:

```

{
  "@type": "ClearAlarmCreateEvent",
  "event": {
    "clearAlarm": {
      "@type": "ClearAlarm",
      "alarmClearedTime": "2024-08-07T08:30:25.000Z",
      "alarmPattern": [
        {
          "@type": "AlarmRef",
          "id": "33"
        }
      ],
      "clearedAlarm": [
        {
          "@type": "OracleAlarm",
          "ackState": "unacknowledged",
          "ackSystemId": "",
          "ackUserId": "",
          "affectedService": [
          ],
          "alarmChangedTime": "2024-08-07T08:31:04.742Z",
          "alarmDetails": "Alarm Details",
          "alarmedObject": {
            "@referredType": "OT_AID",
            "@type": "AlarmedObjectRef",
            "id": "LSN/EMS_XDM_33/9489:73:12295",
            "name": ""
          },
          "alarmedObjectType": "OT_AID",
          "alarmEscalation": false,
          "alarmRaisedTime": "",
          "alarmReportingTime": "2024-08-07T08:29:59.000Z",
          "alarmType": "qualityOfServiceAlarm",
          "comment": [
            {
              "@type": "Comment",
              "comment": "SQL Tool: Clear"
            }
          ],
          "crossedThresholdInformation": {
            "direction": "up",

```

```

        "granularity": "15min",
        "indicatorName": " ECI_TCA_UC05 LSNEXT_PKTS_ERROR :
TWM_HIGH",
        "indicatorUnit": "",
        "observedValue": "-32768.0"
    },
    "externalAlarmId": "3731539",
    "id": "1111",
    "isRootCause": false,
    "parentAlarm": [
        {
            "@type": "AlarmRef",
            "id": "0"
        }
    ],
    "perceivedSeverity": "cleared",
    "place": [
    ],
    "probableCause": "ECI_TCA_UC05 LSNEXT_PKTS_ERROR",
    "reportingSystemId": "pg-
naparchu1.ua6.gbucdsint02phx.oraclevcn.com",
    "serviceAffecting": false,
    "specificProblem": "TWM_HIGH",
    "state": "cleared"
    }
    ],
    "clearSystemId": "pg-naparchu1.ua6.gbucdsint02phx.oraclevcn.com",
    "clearUserId": "admin",
    "state": "done"
    }
    },
    "eventId": "1111",
    "eventTime": "2024-08-07T08:31:04.767Z",
    "eventType": "ClearAlarmCreateEvent"
}

```

AlarmDeleteEvent

The following table provides the AlarmDeleteEvent event details and the corresponding values:

Table 3-8 AlarmDeleteEvent

Event Details	Value
Summary	TMF 642 AlarmDeleteEventmessage
Message Header (with Examples)	eventType: "AlarmDeleteEvent"
Topic	ora-alarm-topology
Producer	Any Assurance System or Alarm Management System
Consumer	ATA
URL	Provided during Deployment
Schemas	TMF-642 Version 5.0

Example Payload:

```

{
  "@type": "AlarmDeleteEvent",
  "event": {
    "alarm": {
      "@type": "Alarm",
      "ackState": "unacknowledged",
      "ackSystemId": "",
      "ackUserId": "",
      "affectedService": [
      ],
      "alarmChangedTime": "2024-08-07T08:33:01.567Z",
      "alarmDetails": "Alarm details",
      "alarmedObject": {
        "@referredType": "OT_AID",
        "@type": "AlarmedObjectRef",
        "id": "LSN/EMS_XDM_33/9489:73:12295",
        "name": ""
      },
      "alarmedObjectType": "OT_AID",
      "alarmEscalation": false,
      "alarmRaisedTime": "",
      "alarmReportingTime": "2024-08-07T08:29:59.000Z",
      "alarmType": "qualityOfServiceAlarm",
      "comment": [
        {
          "@type": "Comment",
          "comment": "DeleteExpired"
        }
      ],
      "crossedThresholdInformation": {
        "direction": "up",
        "granularity": "15min",
        "indicatorName": " ECI_TCA_UC05 LSNEXT_PKTS_ERROR : TWM_HIGH",
        "indicatorUnit": "",
        "observedValue": "-32768.0"
      },
      "externalAlarmId": "3731539",
      "id": "1111",
      "isRootCause": false,
      "parentAlarm": [
        {
          "@type": "AlarmRef",
          "id": "0"
        }
      ],
      "perceivedSeverity": "cleared",
      "place": [
      ],
      "probableCause": "ECI_ALARM_UC05 Ext-Alm2(Battery Discharge)",
      "reportingSystemId": "pg-
naparchul.ua6.gbucdsint02phx.oraclevcn.com",
      "serviceAffecting": false,
      "specificProblem": "TWM_HIGH",

```

```
        "state": "updated"
    },
    "eventId": "1111",
    "eventTime": "2024-08-07T08:33:01.613Z",
    "eventType": "AlarmDeleteEvent"
}
```


4

SmartSearch Consumer Events and Definitions

This chapter provides information on SmartSearch consumer events and definitions

The events in SmartSearch provide an event-driven architecture for creating, updating, and deleting Topology Vertices and Edges. These are listed as follows and are available as messages in the **ora-uim-topology** topic.

Table 4-1 SmartSearch Events

SmartSearch Event	Definition
TopologyEdgeCreate	This event supports the creation of all types of Topology Edges except Profile Edges.
TopologyEdgeDelete	This event supports the deletion of all types of Topology Edges except Profile Edges.
TopologyEdgeUpdate	This event supports updates of all types of Topology Edge except Profile Edges.
TopologyNodeCreate	This event supports the creation of all types of Topology Vertices except Profile Vertices.
TopologyNodeDelete	This event supports the deletion of all types of Topology Vertices except Profile Vertices.
TopologyNodeUpdate	This event supports updates of all types of Topology Vertices except Profile Vertices.

TopologyEdgeCreate

The following table provides the TopologyEdgeCreate event details and the corresponding values:

Table 4-2 TopologyEdgeCreate

Event Details	Value
Summary	Receives messages for creating Topology Edges.
Message Header (with examples)	eventType: "TopologyEdgeCreate" sourceSystemId: "UIM" transactionId: "uim-topology-nnnnnnn"
Topic	ora-uim-topology
Producer	UIM, any External System, typically an Inventory System.
Consumer	SmartSearch
URL	Provided during the deployment.
Schemas	Edge

Example Payload:

```

{
  "entityId": 0,
  "entityVersion": 0,
  "businessObjectClass": "PipeDAO",
  "technology": "WDM",
  "id": "P67336P3",
  "name": "PLANO / DALLAS / 7675",
  "edgeType": "COMMUNICATES_WITH",
  "fromNode": 2997853,
  "fromNodeBusinessObjectClass": "LogicalDeviceDAO",
  "fromNodeData":
"oracle.communications.platform.entity.impl.PipeTerminationPointDAO-135000054"
,
  "isPipeInterfaceTerminated": true,
  "toNode": 2997849,
  "toNodeBusinessObjectClass": "LogicalDeviceDAO",
  "toNodeData":
"oracle.communications.platform.entity.impl.PipeTerminationPointDAO-135000056"
,
  "referenceId": 135000053,
  "inventoryStatus": "INSTALLED",
  "createdDate": "2024-11-15T08:25:42.456Z",
  "createdUser": "inv",
  "lastModifiedDate": "2024-11-15T08:25:42.456Z",
  "properties": {
    "SmartSearchProperties.aTerminationPoint": "8475001",
    "SmartSearchProperties.zLocation":
"[{"id":"8250005","name":"DALLATEST1034"}]",
    "SmartSearchProperties.zTerminationPoint": "8475002",
    "SmartSearchProperties.zTerminationDevice":
"[{"id":"L4801024","name":"DALLATEST1034.P01.LD","businessObjectType":"LogicalDeviceDAO"}]",
    "SmartSearchProperties.isNameOverridden": "false",
    "SmartSearchProperties.aLocation":
"[{"id":"8250002","name":"PLANOTEST1034"}]",
    "SmartSearchProperties.aTerminationDevice":
"[{"id":"L4726027","name":"PLANOTEST1034.P01.LD","businessObjectType":"LogicalDeviceDAO"}]",
    {"id":"5325003","name":"PLANOTEST1034.P01.EQP","businessObjectType":"EquipmentDAO"}]
  },
  "maxBandwidth": 0,
  "totalCapacity": 0,
  "availableCapacity": false,
  "isChannelized": false,
  "capacities": [],
  "specName": "CWDM_Optical_Fiber",
  "fromNodeReferenceId": "133500015",
  "toNodeReferenceId": "133500016",
  "trailPaths": 0
}

```

TopologyEdgeUpdate

The following table provides the TopologyEdgeUpdate event details and the corresponding values:

Table 4-3 TopologyEdgeUpdate

Event Details	Value
Summary	Receives messages for updating Topology Edges.
Message Header (with examples)	eventType: "TopologyEdgeUpdate" sourceSystemId: "UIM" transactionId: "uim-topology-nnnnnn"
Topic	ora-uim-topology
Producer	UIM, any External System, typically an Inventory System.
Consumer	SmartSearch
URL	Provided during the deployment.
Schemas	Edge

Example Payload:

```
{
  "entityId": 2997901,
  "entityVersion": 1,
  "businessObjectClass": "PipeDAO",
  "technology": "WDM",
  "id": "P67336P3",
  "name": "PLANO / DALLAS / 7675",
  "edgeType": "COMMUNICATES_WITH",
  "isPipeInterfaceTerminated": true,
  "referenceId": 135000053,
  "inventoryStatus": "INSTALLED",
  "createdDate": "2024-11-15T02:55:42.000Z",
  "createdUser": "inv",
  "lastModifiedDate": "2024-11-15T02:55:42.000Z",
  "lastModifiedUser": "inv",
  "properties": {
    "SmartSearchProperties.zLocation": "[]",
    "SmartSearchProperties.zTerminationDevice": "[]",
    "SmartSearchProperties.aLocation":
      "[{\\"id\\":\\"8250002\\",\\"name\\":\\"PLANOTEST1034\\"}]",
    "SmartSearchProperties.aTerminationDevice":
      "[{\\"id\\":\\"L4726027\\",\\"name\\":\\"PLANOTEST1034.P01.LD\\",\\"businessObjectType\\":\\"LogicalDeviceDAO\\"},
      {\\"id\\":\\"5325003\\",\\"name\\":\\"PLANOTEST1034.P01.EQP\\",\\"businessObjectType\\":\\"EquipmentDAO\\"}]"
  },
  "maxBandwidth": 0,
  "totalCapacity": 0,
  "availableCapacity": false,
  "isChannelized": false,
```

```

    "capacities": [],
    "specName": "CWDM_Optical_Fiber",
    "trailPaths": 0
  }

```

TopologyEdgeDelete

The following table provides the TopologyEdgeDelete event details and the corresponding values:

Table 4-4 TopologyEdgeDelete

Event Details	Value
Summary	Receives messages for deleting Topology Edges.
Message Header (with examples)	eventType: "TopologyEdgeDelete" sourceSystemId: "UIM" transactionId: "uim-topology-nnnnnnn"
Topic	ora-uim-topology
Producer	UIM, any External System, typically an Inventory System.
Consumer	SmartSearch
URL	Provided during the deployment.
Schemas	Edge

Example Payload:

```

{
  "entityVersion": 0,
  "businessObjectClass": "PipeDAO",
  "edgeType": "COMMUNICATES_WITH",
  "referenceId": 135000053
}

```

TopologyNodeCreate

The following table provides the TopologyNodeCreate event details and the corresponding values:

Table 4-5 TopologyNodeCreate

Event Details	Value
Summary	Receives messages for creating Topology Nodes and Vertices.
Message Header (with examples)	eventType: "TopologyNodeCreate" sourceSystemId: "UIM" transactionId: "uim-topology-nnnnnnn"
Topic	ora-uim-topology
Producer	UIM, any External System, typically an Inventory System.

Table 4-5 (Cont.) TopologyNodeCreate

Event Details	Value
Consumer	SmartSearch
URL	Provided during the deployment.
Schemas	Vertex

Example Payload:

```
{
  "entityId": 0,
  "entityVersion": 0,
  "businessObjectClass": "LogicalDeviceDAO",
  "id": "L4726024",
  "name": "PLANO.LD",
  "specName": "Ciena 6500",
  "inventoryStatus": "INSTALLED",
  "deviceIdentifier": "PLANO.LD",
  "referenceId": 133500012,
  "relationships": {
    "vendor": "Ciena",
    "locationReference": "18000003"
  },
  "properties": {
    "SmartSearchProperties.locationId": "750002",
    "SmartSearchProperties.isNameOverridden": "false"
  },
  "createdDate": "2024-11-15T08:14:24.482Z",
  "createdUser": "inv",
  "lastModifiedDate": "2024-11-15T08:14:24.482Z"
}
```

TopologyNodeUpdate

The following table provides the TopologyNodeUpdate event details and the corresponding values:

Table 4-6 TopologyNodeUpdate

Event Details	Value
Summary	Receives messages for updating Topology Nodes and Vertices.
Message Header (with examples)	eventType: "TopologyNodeUpdate" sourceSystemId: "UIM" transactionId: "uim-topology-nnnnnn"
Topic	ora-uim-topology
Producer	UIM, any External System, typically an Inventory System.
Consumer	SmartSearch

Table 4-6 (Cont.) TopologyNodeUpdate

Event Details	Value
URL	Provided during the deployment.
Schemas	Vertex

Example Payload:

```
{
  "entityId": 0,
  "entityVersion": 0,
  "businessObjectClass": "LogicalDeviceDAO",
  "id": "L4726024",
  "name": "PLANO.P01.LD",
  "specName": "Ciena 6500",
  "inventoryStatus": "INSTALLED",
  "deviceIdentifier": "PLANO.LD",
  "referenceId": 133500012,
  "relationships": {
    "childDeviceReference": "",
    "vendor": "Ciena",
    "locationReference": "18000003",
    "necReference": "",
    "parentDeviceReference": ""
  },
  "properties": {
    "SmartSearchProperties.locationId": "750002",
    "SmartSearchProperties.isNameOverridden": "false"
  },
  "createdDate": "2024-11-15T08:16:19.359Z",
  "lastModifiedDate": "2024-11-15T08:16:19.359Z",
  "lastModifiedUser": "inv"
}
```

TopologyNodeDelete

The following table provides the TopologyNodeDelete event details and the corresponding values:

Table 4-7 TopologyNodeDelete

Event Details	Value
Summary	Receives messages for deleting Topology Nodes or Vertices.
Message Header (with examples)	eventType: "TopologyNodeDelete" sourceSystemId: "UIM" transactionId: "uim-topology-nnnnnn"
Topic	ora-uim-topology
Producer	UIM, any External System, typically an Inventory System.
Consumer	SmartSearch

Table 4-7 (Cont.) TopologyNodeDelete

Event Details	Value
URL	Provided during the deployment.
Schemas	Vertex

Example Payload:

```
{
  "entityVersion": 0,
  "businessObjectClass": "LogicalDeviceDAO",
  "referenceId": 133500012
}
```

5

Schemas, Valid Values, and Authorization

This chapter provides information on schemas, valid values, and authorization.

Schemas

For more information on the Vertex, Edge, Event, Profile, ProfileEdge, and ProfileVertex schemas, see *ATA REST API Guide*.

Valid Values

For more information on data valid values, see *ATA Model Documentation*.

Authorization

For more information on Client Access, see the "Client Access" section in *Unified Inventory and Topology Deployment Guide*.