Frameworx Specification

Trouble Ticket API REST Specification

TMF621

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NOTICE

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INTRODUCTION

The following document is the specification of the REST API for the ticket resource. It includes the model definition as well as all available operations. Possible actions are creating and retrieving a Trouble Ticket, updating the whole Trouble Ticket or only do a patch update. Furthermore the HTTP GET allows filtering.

The Trouble ticketing API provides a standardized client interface to Trouble Ticket Management Systems for creating, tracking and managing trouble tickets among partners as a result of an issue or problem identified by a customer or another system. Examples of Trouble Ticket API originators (clients) include CRM applications, network management or fault management systems, or other trouble ticket management systems (e.g. B2B).

The API supports the ability to send requests to create a new trouble ticket specifying the nature and severity of the trouble as well as all necessary related information. The API also includes mechanisms to search for and update existing trouble tickets. Notifications are defined to provide information when a ticket has been updated, including status changes. A basic set of states of a trouble ticket has been specified to handle ticket lifecycle management.

Trouble ticketing API manages Trouble ticket resource:

- A trouble ticket represents a record used for reporting and managing the resolution of resource problems
- Main trouble ticket attributes are its description, severity, type, related dates (creation, target resolution, resolution), state, sub state and related information (change reason and change date), related parties (originator, owner, reviser, etc.) and notes

Trouble ticketing API performs the following operations on trouble ticket

- Retrieval of a trouble ticket or a collection of trouble ticket depending on filter criteria
- Full update of a trouble ticket
- Partial update of a trouble ticket
- Creation of a trouble ticket
- Notification of events on Trouble Ticket:
    - Ticket state change
    - Ticket change
    - Ticket clearance request
    - Information required

SAMPLE USE CASES

Reader will find examples of use cases using Trouble Ticket API in “Open Digital Business Scenarios and Use Cases” document

RESOURCE MODEL

Managed Entity and Task Resource Models

Example of the JSON representation of a ticket:

```
{
    "id": "1",
    "correlationId": "TT53482",
    "description": "Customer complaint over last invoice.",
    "severity": "Urgent",
    "type": "Bills, charges or payment",
    "creationDate": "2013-07-23T08:16:39.0Z",
    "targetResolutionDate": "2013-07-30T10:20:01.0Z",
    "status": "In Progress",
    "subStatus": "Held",
    "statusChangeReason": "Waiting for invoicing expert.",
    "statusChangeDate": "2013-07-28T08:55:12.0Z",
    "relatedParty": [
        {
            "href": "/customer/1234",
            "role": "Originator"
        },
        {
            "href": "/operator/1234",
            "role": "Owner"
        },
        {
            "href": "Roger Collins",
            "role": "Reviser"
        }
    ],
    "relatedObject": [
        {
            "involvement": "Disputed",
            "reference": "/invoice/1234"
        },
        {
            "involvement": "Adjusted",
            "reference": "/invoice/5678"
        }
    ],
    "note": [
        {
            "date": "2013-07-24T09:55:30.0Z",
            "author": "Arthur Evans",
            "text": "Already called the expert"
        },
        {
            "date": "2013-07-25T08:55:12.0Z",
            "author": "Arthur Evans",
            "text": "Informed the originator"
        }
    ]
}
```

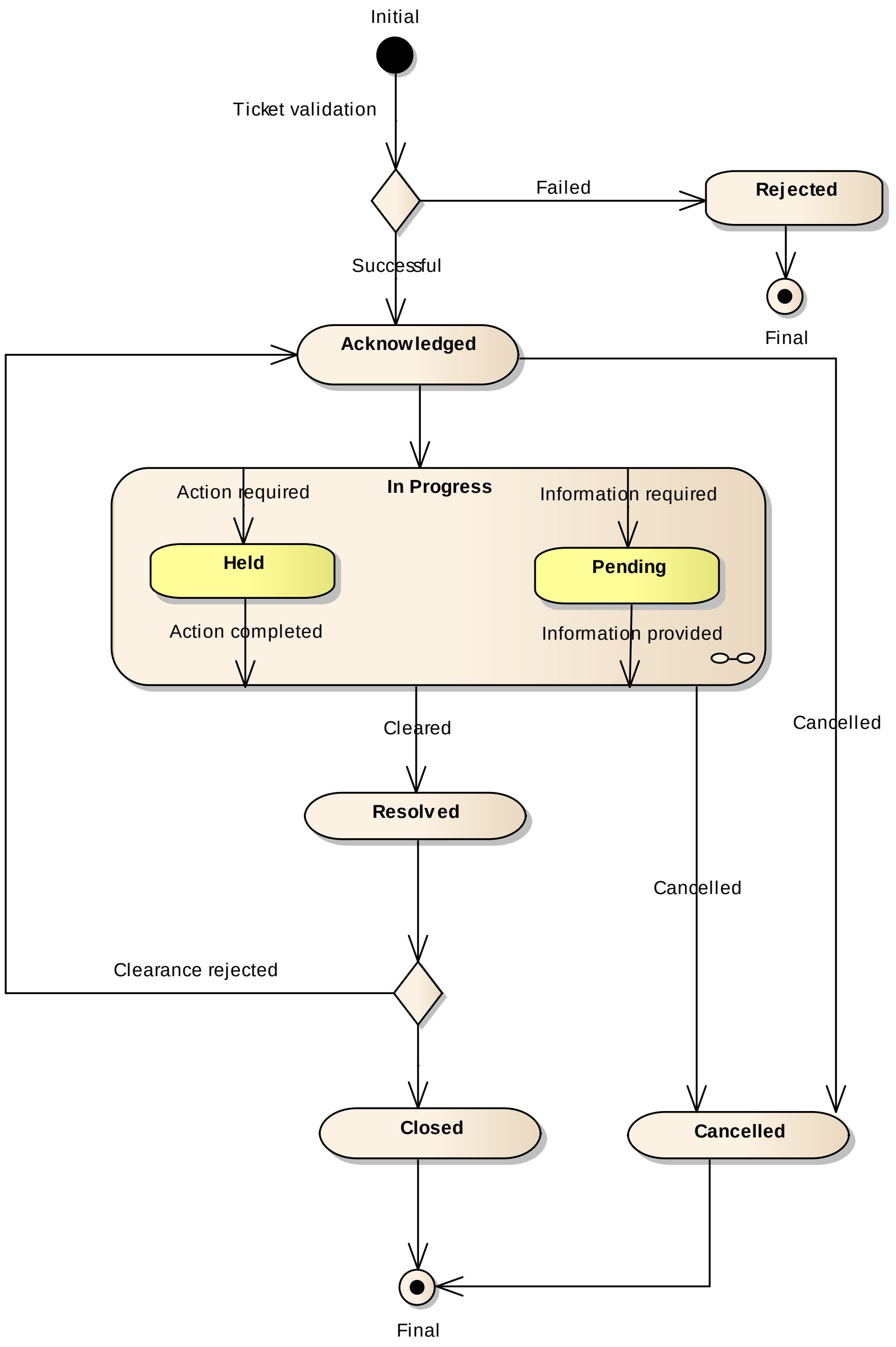
Product Order attributes description:

Field	Description
id	Unique identifier of the trouble ticket
correlationId	Additional identifier coming from an external system
description	Description of the trouble
severity	The severity of the trouble. It can be for example : minor, major, critical
type	Type of trouble ticket
creationDate	The date on which the trouble was discovered
targetResolutionDate	Foreseen trouble resolution date
status	The current status of the Trouble Ticket
subStatus	The current sub status of the Trouble Ticket
statusChangeReason	The reason of state change
statusChangeDate	The date of state change
resolutionDate	The date on which the service was brought back to its original condition
relatedParty	Party playing a role within trouble ticket
role	Role of the party
reference	Identifier of the party
relatedObject	Objects linked with trouble ticket
involvement	
reference	Identifier of the object
note	Extra-information about the trouble ticket
date	Date of the note
author	Author of the note
text	Text of the note

Trouble Ticket States

Following the available status values for a ticket are listed. The state graphic gives an overview of the allowed status changes.

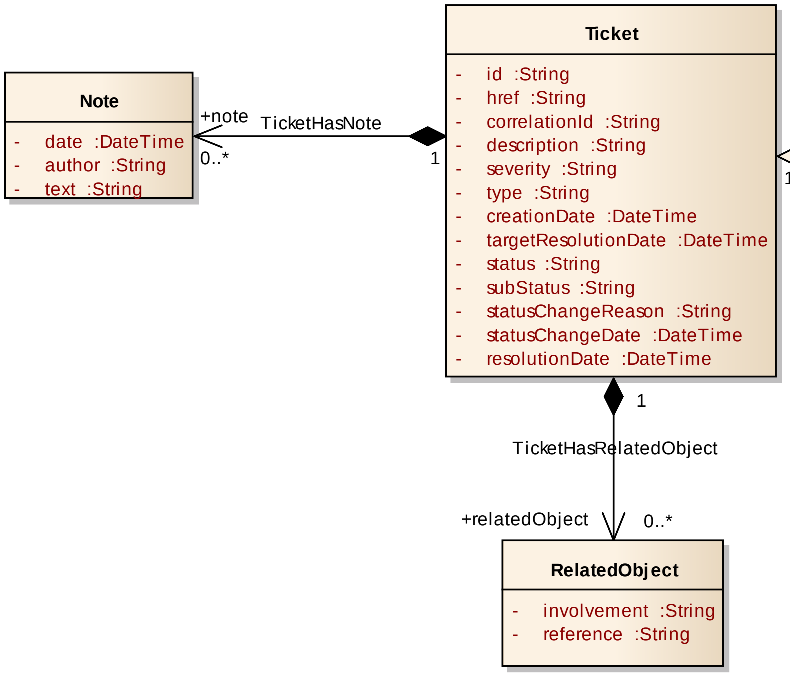
- Submitted
- Rejected
- Acknowledged
- In Progress
    - Held
    - Pending
- Resolved
- Closed
- Cancelled



State	Description
Submitted	The initial state of a Trouble Ticket when created by a TT originator.

Acknowledged	The Trouble Ticket was accepted and allocated a unique Trouble Ticket ID by the TT handler.
In Progress	The Trouble Ticket was validated by the TT handler and is being processed.
Resolved	The Fault indicated in the Trouble Ticket was corrected by the TT handler and acknowledgement is awaited from its originator.
Closed	The Trouble Ticket's originator has acknowledged the 'Resolved' state of the TT, or the timeframe for acknowledgement has passed without response from TT originator.
Rejected	The Trouble Ticket was rejected because it: • is not submitted • provides invalid information • fails to meet the Business Rules in respect of the Product which originator is raising a Trouble Ticket against • is otherwise defective
In Progress - Pending	TT handler is awaiting further confirmation on details of a Fault from originator before it can progress the Fault. An example is where Appointment information is required.
In Progress - Held	TT handler is confirming further details internally before completing a Trouble Ticket. An example is where TT handler for network infrastructure spare parts to progress with the Fault rectification.

UML model

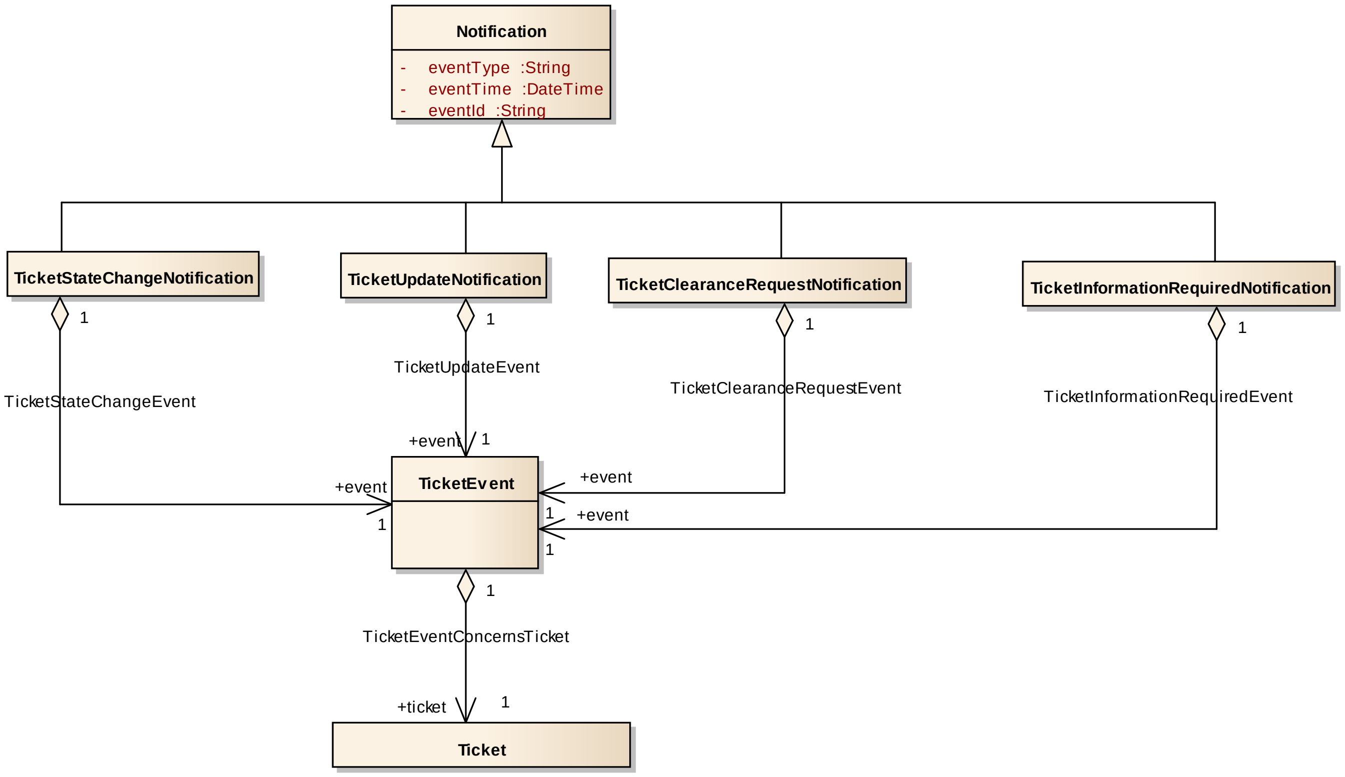

Note
- date :DateTime
- author :String
- text :String
+note
0..*
TicketHasNote
1
Ticket
- id :String
- href :String
- correlationId :String
- description :String
- severity :String
- type :String
- creationDate :DateTime
- targetResolutionDate :DateTime
- status :String
- subStatus :String
- statusChangeReason :String
- statusChangeDate :DateTime
- resolutionDate :DateTime
+relatedParty
TicketHasRelatedParty
1
0..*
RelatedPartyRef
- href :String
- role :String
- name :String
- validFor :TimePeriod
1
TicketHasRelatedObject
+relatedObject
0..*
RelatedObject
- involvement :String
- reference :String

Notification Resource Models

Following the available event types for ticketing:

TMF REST	
POST ticket	body : ticket
GET ticket	{spec attr }
HTTP response to GET	body : ticket
TicketChangedNotification	body : ticket
TicketStatusChangedNotification	body : ticket
TicketStatusChangedNotification	body : ticket
TicketStatusChangedNotification	body : ticket
TicketClearanceRequestNotification	body : ticket
PATCH on status ('resolved'->'closed')	body : ticket.status
TicketStatusChangedNotification	body : ticket
TicketStatusChangedNotification	body : ticket
PATCH ticket	body : ticket attributes
HTTP response to PATCH	body : ticket
InformationRequiredNotification	body : free text + { spec attr }

UML Model:



TICKET STATUS CHANGE NOTIFICATION

Decision was made to accept customer complaint and withdraw disputed charges.

```
{
      "eventType": "TicketStatusChangeNotification",
      "eventTime": "2014-09-27T05:46:25.0Z",
      "eventId": "92445",
      "event":
      {
            "ticket":
            {
                "id": "1",
                "correlationId": "TT53482",
                "description": "Customer complaint over last invoice.",
                "severity": "Urgent",
                "type": "Bills, charges or payment",
                "creationDate": "2013-07-23T08:16:39.0Z",
                "targetResolutionDate": "2013-07-30T10:20:01.0Z",
                "status": "Resolved",
                "subStatus": "",
                "statusChangeReason": "Waiting for invoicing expert.",
                "statusChangeDate": "2013-07-25T08:55:12.0Z",
                "relatedParty": [
                    {
                        "href": "/customer/1234",
                        "role": "Originator"
                    },
                    {
                        "href": "/operator/1234",
                        "role": "Owner"
                    },
                    {
                        "href": "Roger Collins",
                        "role": "Reviser"
                    }
                ],
                "relatedObject": [
                    {
                        "involvement": "Disputed",
                        "reference": "/invoice/1234"
                    },
                    {
                        "involvement": "Adjusted",
                        "reference": "/invoice/5678"
                    }
                ],
                "note": [
                    {
                        "date": "2013-07-24T09:55:30.0Z",
                        "author": "Arthur Evans",
                        "text": "Already called the expert"
                    },
                    {
                        "date": "2013-07-25T08:55:12.0Z",
                        "author": "Arthur Evans",
                         "text": "Informed the originator"
                     }
                 ]
             }
      }
}
```

TICKET CHANGE NOTIFICATION

Call with customer clarifies that dispute relates to another invoice than initially understood.

```
{
      "eventType": "TicketChangeNotification",
      "eventTime": "2014-09-27T05:46:25.0Z",
      "eventId": "8976",
      "event":
      {
             "ticket":
             {
                 "id": "1",
                 "correlationId": "TT53482",
                 "description": "Customer complaint over last invoice.",
                 "severity": "Urgent",
                 "type": "Bills, charges or payment",
                 "creationDate": "2013-07-23T08:16:39.0Z",
                 "targetResolutionDate": "2013-07-30T10:20:01.0Z",
                 "status": "Resolved",
                 "subStatus": "",
                 "statusChangeReason": "Wrong invoice.",
                 "statusChangeDate": "2013-07-25T13:35:12.0Z",
                 "relatedParty": [
                     {
                         "href": "/customer/1234",
                         "role": "Originator"
                     },
                     {
                         "href": "/operator/1234",
                         "role": "Owner"
                     },
                     {
                         "href": "Roger Collins",
                         "role": "Reviser"
                     }
                 ],
                 "relatedObject": [
                     {
                         "involvement": "Disputed",
                         "reference": "/invoice/1234"
                     },
                     {
                         "involvement": "Adjusted",
                         "reference": "/invoice/4518"
                     }
                 ],
                 "note": [
                     {
                         "date": "2013-07-24T09:55:30.0Z",
                         "author": "Arthur Evans",
                         "text": "Already called the expert"
                     },
                     {
                         "date": "2013-07-25T08:55:12.0Z",
                         "author": "Arthur Evans",
                         "text": "Informed the originator"
                     }
                 ]
             }
         }
}
```

TICKET CLEARANCE REQUEST NOTIFICATION

As a result of disputed charges withdrawal, ticket is assumed to be resolved. Notification asks Ticket requester to confirm resolution (by setting status to “Closed”).

```
{
      "eventType": "TicketClearanceRequestNotification",
      "eventTime": "2014-09-27T05:46:25.0Z",
      "eventId": "8976",
      "event":
      {
            "ticket":
            {
                "id": "1",
                "correlationId": "TT53482",
                "description": "Customer complaint over last invoice.",
                "severity": "Urgent",
                "type": "Bills, charges or payment",
                "creationDate": "2013-07-23T08:16:39.0Z",
                "targetResolutionDate": "2013-07-30T10:20:01.0Z",
                "status": "Resolved",
                "subStatus": "",
                "statusChangeReason": "Customer dispute resolved.",
                "statusChangeDate": "2013-07-25T13:35:12.0Z",
                "relatedParty": [
                    {
                        "href": "/customer/1234",
                        "role": "Originator"
                    },
                    {
                        "href": "/operator/1234",
                        "role": "Owner"
                    },
                    {
                        "href": "Roger Collins",
                        "role": "Reviser"
                    }
                ],
                "relatedObject": [
                    {
                        "involvement": "Disputed",
                        "reference": "/invoice/1234"
```

```
                     },
                     {
                         "involvement": "Adjusted",
                         "reference": "/invoice/4518"
                     }
                 ],
                 "note": [
                     {
                         "date": "2013-07-24T09:55:30.0Z",
                         "author": "Arthur Evans",
                         "text": "Already called the expert"
                     },
                     {
                         "date": "2013-07-25T08:55:12.0Z",
                         "author": "Arthur Evans",
                         "text": "Informed the originator"
                     }
                 ]
             }
       }
}
```

INFORMATION REQUIRED NOTIFICATION

Call with customer clarifies that dispute relates to another invoice than initially understood.

```
{
      "eventType": "InformationRequiredNotification",
      "eventTime": "2014-09-27T05:46:25.0Z",
      "eventId": "8976",
      "event":
      {
             "ticket":
             {
                 "id": "1",
                 "correlationId": "TT53482",
                 "description": "Customer complaint over last invoice.",
                 "severity": "Urgent",
                 "type": "Bills, charges or payment",
                 "creationDate": "2013-07-23T08:16:39.0Z",
                 "targetResolutionDate": "2013-07-30T10:20:01.0Z",
                 "status": "In Progress",
                 "subStatus": "Pending",
                 "statusChangeReason": " Wrong invoice reference number.",
                 "statusChangeDate": "2013-07-24T13:35:12.0Z",
                 "relatedParty": [
                     {
                         "href": "/customer/1234",
                         "role": "Originator"
                     },
                     {
                         "href": "/operator/1234",
                         "role": "Owner"
                     },
                     {
                         "href": "Roger Collins",
                         "role": "Reviser"
                     }
                 ],
                 "relatedObject": [
                     {
                         "involvement": "Disputed",
                         "reference": "/invoice/1234"
                     },
                     {
                         "involvement": "Adjusted",
                         "reference": "/invoice/xxxx"
                     }
                 ],
                 "note": [
                     {
                         "date": "2013-07-24T09:55:30.0Z",
                         "author": "Arthur Evans",
                         "text": "Already called the expert"
```

```
                     },
                     {
                         "date": "2013-07-25T08:55:12.0Z",
                         "author": "Arthur Evans",
                         "text": "Informed the originator"
                     },
                     {
                         "date": "2013-07-25T09:35:12.0Z",
                         "author": "Arthur Evans",
                         "text": "Need reference of the right invoice"
                     }
                 ]
             }
      }
}
```

API OPERATION FOR TICKETS

Operation on Entities	Uniform API Operation	Description
Query Entities	GET Resource	GET must be used to retrieve a representation of a resource.
Create Entity	POST Resource	POST must be used to create a new resource
Partial Update of an Entity	PATCH Resource	PATCH must be used to partially update a resource
Complete Update of an Entity	PUT Resource	PUT must be used to completely update a resource identified by its resource URI
Remove an Entity	DELETE Resource	DELETE must be used to remove a resource
Execute an Action on an Entity	POST on TASK Resource	POST must be used to execute Task Resources
Other Request Methods	POST on TASK Resource	GET and POST must not be used to tunnel other request methods.

Filtering and attribute selection rules are described in the TMF REST Design Guidelines.

Notifications are also described in a subsequent section.

GET /API/troubleTicket/{ID}}/?{fields=attributes}&{filtering expression}

This Uniform Contract operation is used to retrieve the representation of a ticket.

Note that collections can be retrieved via GET /API/TROUBLETICKET/ with no {ID}

Filtering is allowed on all attributes. See example below.
Attribute selection is possible for all attributes. See example below.

REQUEST

```
GET /api/troubleTicket
Accept: application/json
```

RESPONSE

```
200
Content-Type: application/json

[
{
    "id": "1",
    "correlationId": "TT53482",
    "description": "Customer complaint over last invoice.",
    "severity": "Urgent",
    "type": "Bills, charges or payment",
    "creationDate": "2013-07-23T08:16:39.0Z",
    "targetResolutionDate": "2013-07-30T10:20:01.0Z",
    "status": "In Progress",
    "subStatus": "Held",
    "statusChangeReason": "Waiting for invoicing expert.",
    "statusChangeDate": "2013-07-24T08:55:12.0Z",
    "relatedParty": [
        {
            "href": "/customer/1234",
            "role": "Originator"
        },
        {
            "href": "/operator/1234",
            "role": "Owner"
        },
        {
            "href": "Roger Collins",
            "role": "Reviser"
        }
    ],
    "relatedObject": [
        {
            "involvement": "Disputed",
            "reference": "/invoice/1234"
        },
        {
            "involvement": "Adjusted",
            "reference": "/invoice/5678"
        }
    ],
    "note": [
        {
            "date": "2013-07-24T09:55:30.0Z",
            "author": "Arthur Evans",
            "text": "Already called the expert"
        },
        {
            "date": "2013-07-25T08:55:12.0Z",
            "author": "Arthur Evans",
            "text": "Informed the originator"
        }
    ]
},
{
    "id": "2",
    "correlationId": "",
    "description": "Customer asks for information about upgrading products.",
    "severity": "Low",
    "type": "Products and Services",
    "creationDate": "2013-07-25T08:16:00.0Z",
    "targetResolutionDate": "2013-07-28T00:00:00.0Z",
    "status": "",
    "subStatus": "",
    "statusChangeReason": "",
    "statusChangeDate": "2013-07-25T08:16:00.0Z",
    "resolutionDate": "",
    "relatedParty": [
        {
            "href": "/customer/4567",
            "role": "Originator"
        }
    ],
    "relatedObject": [
    ],
    "note": [
    ]
}
]
```

Retrieving all tickets – returns an array/ a list of tickets:

- GET /api/ticket

Retrieving all tickets which were closed after 2013-05-01:

- GET /api/ticket?status=Close&statusResolutionDate.gt=2013-05-01

Retrieve ticket with specified ID – only one ticket is returned:

- GET /api/ticket/1

Retrieve ticket with ID but only the attributes status and statusChangeReason in the response, separator for attributes is comma:

- GET /api/ticket/1/status,statusChangeReason

PUT API/TROUBLETICKET/{ID}

Description :

- This Uniform Contract operation is used to completely update the representation of a ticket.
- Resource represents a managed entity.

Behavior :

- Returns HTTP/1.1 status code 201 if the request was successful.
- Returns HTTP/1.1 status code 400 (Bad request) if content is invalid (missing required attributes, …).

Updating the whole ticket – if you try to change the ticket ID itself an exception is returned. All fields with different values will be changed. If the request contains the same values like the current ticket representation, nothing is changed. If an element is empty in the request, the value of the element will be deleted. If it is a required element, an exception is returned.

REQUEST

PUT API/ troubleTicket/1
Content-type: application/json

```
{
    "id": "1",
    "correlationId": "TT53482",
    "description": "Customer complaint over last invoice.",
    "severity": "Urgent",
    "type": "Bills, charges or payment",
    "creationDate": "2013-07-23T08:16:39.0Z",
    "targetResolutionDate": "2013-07-30T10:20:01.0Z",
    "status": "In Progress",
    "subStatus": "Held",
    "statusChangeReason": "Waiting for invoicing expert.",
    "statusChangeDate": "2013-07-24T08:55:12.0Z",
    "relatedParty": [
        {
            "href": "/customer/1234",
            "role": "Originator"
        },
        {
            "href": "/operator/1234",
            "role": "Owner"
        },
        {
            "href": "Roger Collins",
            "role": "Reviser"
        }
    ],
    "relatedObject": [
        {
            "involvement": "Disputed",
            "reference": "/invoice/1234"
        },
        {
            "involvement": "Adjusted",
            "reference": "/invoice/5678"
        }
    ],
    "note": [
        {
            "date": "2013-07-24T09:55:30.0Z",
            "author": "Arthur Evans",
            "text": "Already called the expert"
        },
        {
            "date": "2013-07-25T08:55:12.0Z",
            "author": "Arthur Evans",
            "text": "Informed the originator"
        }
    ]
}
```

RESPONSE

201
Content-Type: application/json

```
{
    "id": "1",
    "correlationId": "TT53482",
    "description": "Customer complaint over last invoice.",
    "severity": "Urgent",
    "type": "Bills, charges or payment",
    "creationDate": "2013-07-23T08:16:39.0Z",
    "targetResolutionDate": "2013-07-30T10:20:01.0Z",
    "status": "In Progress",
    "subStatus": "Held",
    "statusChangeReason": "Waiting for invoicing expert.",
    "statusChangeDate": "2013-07-24T08:55:12.0Z",
    "relatedParty": [
        {
            "href": "/customer/1234",
            "role": "Originator"
        },
        {
            "href": "/operator/1234",
            "role": "Owner"
        },
        {
            "href": "Roger Collins",
            "role": "Reviser"
        }
    ],
    "relatedObject": [
        {
            "involvement": "Disputed",
            "reference": "/invoice/1234"
        },
        {
            "involvement": "Adjusted",
            "reference": "/invoice/5678"
        }
    ],
    "note": [
        {
            "date": "2013-07-24T09:55:30.0Z",
            "author": "Arthur Evans",
            "text": "Already called the expert"
        },
        {
            "date": "2013-07-25T08:55:12.0Z",
            "author": "Arthur Evans",
            "text": "Informed the originator"
        }
    ]
}
```

Example see TMF REST Design Guidelines.

PATCH API/TROUBLETICKET/{ID}

Description :

- This Uniform Contract operation is used to partially update the representation of a ticket.
- Resource represents a managed entity.

Behavior :

Patching of status is only allowed to transition :

- from “resolved” to “closed”,
- from “created”, “acknowledged” or “in progress” to “cancelled”

Patching of relatedParties[], relatedObjects[] or notes[] replaces previous value set.

Attribute name	Patchable	Rule
id	N	
correlationId	N	
description	Y	
severity	Y	
type	Y	
creationDate	N	
targetResolutionDate	Y	
status	Y	
subStatus	Y	

statusChangeReason	Y	
statusChangeDate	Y	
resolutionDate	Y	
relatedParty	Y	
relatedObject	Y	
note	Y	

Further document any rules that must be implemented when patching attributes.

Rule name	Rule/Pre Condition/Side Effects/Post Conditons
To be completed	To be completed

REQUEST

PATCH API/ troubleTicket /{ID}
Content-type: application/json

```
{
    "status": "Close",
    "statusChangeReason": "Dispute has been resolved in favor of the customer."
}
```

RESPONSE

201
Content-Type: application/json

```
{
    "id": "1",
    "correlationId": "TT53482",
    "description": "Customer complaint over last invoice.",
    "severity": "Urgent",
    "type": "Bills, charges or payment",
    "creationDate": "2013-07-23T08:16:39.0Z",
    "targetResolutionDate": "2013-07-30T10:20:01.0Z",
    "status": "Closed",
    "subStatus": "",
    "statusChangeReason": "Dispute has been resolved in favor of the customer.",
    "statusChangeDate": "2013-07-24T08:55:12.0Z",
    "relatedParty": [
        {
            "href": "/customer/1234",
            "role": "Originator"
        },
        {
            "href": "/operator/1234",
            "role": "Owner"
        },
        {
            "href": "Roger Collins",
            "role": "Reviser"
        }
    ],
    "relatedObject": [
        {
            "involvement": "Disputed",
            "reference": "/invoice/1234"
        },
        {
            "involvement": "Adjusted",
            "reference": "/invoice/5678"
        }
    ],
    "note": [
        {
            "date": "2013-07-24T09:55:30.0Z",
            "author": "Arthur Evans",
            "text": "Already called the expert"
        },
        {
            "date": "2013-07-25T08:55:12.0Z",
            "author": "Arthur Evans",
            "text": "Informed the originator"
        }
    ]
}
```

POST API/TICKET

Description :

- This Uniform Contract operation is used to create a ticket.
- Resource represents a managed entity.
- Mandatory attributes that must be provided when you create the ticket :

  Description, severity, type

Behavior :

- Returns HTTP/1.1 status code 201 if the request was successful.
- Returns HTTP/1.1 status code 400 (Bad request) if content is invalid (missing required attributes, …).

Attribute name	Mandatory	Default	Rule
Id	N		Initialized by TT handler
correlationId	N		
description	Y		
severity	Y		
type	Y		
creationDate	N	Date of the day	Initialized by TT handler
targetResolutionDate	N		
status	N	Created	Initialized by TT handler

subStatus	N		
statusChangeReason	N		
statusChangeDate	N	Date of the day	
resolutionDate	N		
relatedParty	N		
relatedObject	N		
Note	N		

Further specify any rules on the creation of the entity

Rule name	Rule
To be completed	To be completed

The requester should not provide an id – it is generated automatically by the TT handler. A correlationId can be provided, but is not mandatory.

Create a ticket only with mandatory attributes:

REQUEST

```
POST API/ troubleTicket
Content-type: application/json

{
    "description": "Customer complaint over last invoice.",
    "severity": "Urgent",
    "type": "Bills, charges or payment"
}
```

RESPONSE

```
201
Content-Type: application/json
{
    "id": "1",
    "correlationId": "TT53482",
    "description": "Customer complaint over last invoice.",
    "severity": "Urgent",
    "type": "Bills, charges or payment",
    "creationDate": "2013-07-23T08:16:39.0Z",
    "targetResolutionDate": "2013-07-30T10:20:01.0Z",
    "status": "Created",
    "subStatus": "",
    "statusChangeReason": "",
    "statusChangeDate": "2013-07-24T08:55:12.0Z",
    "resolutionDate": "",
    "relatedParty": [
    ],
    "relatedObject": [
    ],
    "note": [
    ]
}
```

API NOTIFICATION FOR TICKET

It is assumed that the Pub/Sub uses the Register and UnRegister mechanisms described in the REST Guidelines reproduced below.

REGISTER LISTENER POST /HUB

Description :

Sets the communication endpoint address the service instance must use to deliver information about its health state, execution state, failures and metrics. Subsequent POST calls will be rejected by the service if it does not support multiple listeners. In this case DELETE /api/hub/{id} must be called before an endpoint can be created again.

Behavior :

Returns HTTP/1.1 status code 204 if the request was successful.

Returns HTTP/1.1 status code 409 if request is not successful.

REQUEST

```
POST /api/hub
Accept: application/json

{"callback": "http://in.listener.com"}
```

RESPONSE

```
201
Content-Type: application/json
Location: /api/hub/42

{"id":"42","callback":"http://in.listener.com","query":null}
```

UNREGISTER LISTENER DELETE HUB/{ID}

Description :

Clears the communication endpoint address that was set by creating the Hub.

Behavior :

Returns HTTP/1.1 status code 204 if the request was successful.

Returns HTTP/1.1 status code 404 if the resource is not found.

REQUEST

```
DELETE /api/hub/{id}
Accept: application/json
```

RESPONSE

```
204
```

PUBLISH {EVENTTYPE} POST /LISTENER

Description :

Provide the Event description

Behavior :

Returns HTTP/1.1 status code 201 if the service is able to set the configuration.

REQUEST

```
POST /client/listener
Accept: application/json

{
      "eventType": "EventType",
      "eventTime": "2014-09-27T05:46:25.0Z",
      "eventId": "1562231",
      "event":
      {
  EVENT BODY
      }
}
```

RESPONSE

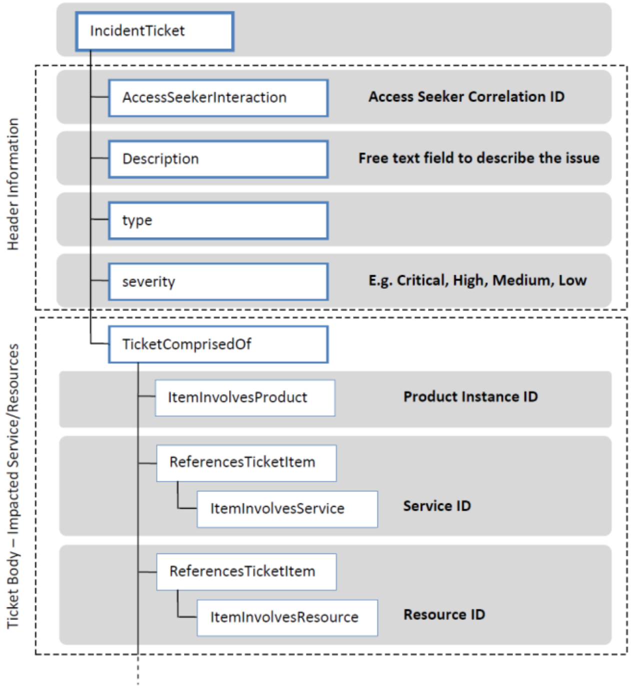
```
201
Content-Type: application/json
```

Example see TMF REST Design Guidelines.

APPENDIX A. : ALIGNMENT WITH NBN CO. SPECIFICATIONS

The following diagram From NBN Co shows the generic, high level structure for a Trouble Ticket submission message.

Unlike NBNCo, **TMF Ticket is atomic, that is it does NOT contain TicketItems**.



NBNCo	TM Forum	Comments
AccessSeekerInteraction	*correlationId*	
Description	*description*	
Type	*type*	
Severity	*severity*	
interactionDate	*creationDate*	
interactionDateComplete	**not supported**	use statusChangeDate
plannedCompletionDate	*targetResolutionDate*	
interactionStatus	*status*	
interactionSubStatus	*substatus*	
	statusChangeReason	
	statusChangeDate	
resolvedDate	*resolutionDate*	
	Ticket.relatedParties[]	Refers to end-user, CSR, …
TicketItem.InvolvesProduct/Service	*Ticket.relatedObjects[]*	Product, Service, Resource, …

The following tables list the supported/non supported processes and touchpoints as defined in

NBNCo - B2B Interaction Business Processes – Technical Specification, 02/01/2013

TT-BP001 : Assurance Ticket Proccess		**supported**
PH-TP001	requestTroubleTicketCreate	POST ticket
PH-TP002	queryTroubleTicketDetails	GET ticket
PH-TP002.1	responseTroubleTicketDetails	HTTP response to GET
PH-TP004	notifyKeepCustomerInformed	TicketChangedNotification
PH-TP005	notifyTroubleTicketAcknowledged	TicketStatusChangedNotification
PH-TP006	notifyTroubleTicketAccepted	TicketStatusChangedNotification
PH-TP007	notifyTroubleTicketRejected	TicketStatusChangedNotification
PH-TP030	requestTroubleTicketClearance	TicketClearanceRequestNotification
PH-TP030.1	responseTroubleTicketClearance	PATCH ticket.status ('resolved'->'closed')
PH-TP014	notifyTroubleTicketResolved	TicketStatusChangedNotification
PH-TP020	notifyInformationRequired	InformationRequiredNotification
PH-TP022	notifyTroubleTicketClosed	TicketStatusChangedNotification

TT-BP003 : Query Trouble Ticket History or Details		**supported (*)**
PH-TP002	queryTroubleTicketDetails	GET ticket
PH-TP002.1	responseTroubleTicketDetails	HTTP response to GET

(*) history not supported

TT-BP005 : TroubleTicketAmendment		**supported**
PH-TP011	requestTroubleTicketAmend	PATCH ticket
PH-TP011.1	responseTroubleTicketAmend	HTTP response

TT-BP006 : Trouble ticket Jeopardy		**not supported**
PH-TP004	notifyCustomerJeopardy	not supported

TT-BP007 : Planned changed / hazard		**not supported**
CM-TP001	notifyPlannedChange	not supported
CM-TP004	notifyKeepCustomerInformed	not supported

TT-BP008 : Notify Network Fault		**not supported**
PH-TP004	notifyTroubleTicketCreated	not supported

TT-BP009 : RequestMoreTime		**not supported**
PH-TP020	notifyInformationRequired	InformationRequiredNotification
PH-TP004	notifyKeepCustomerInformed	TicketChangedNotification
PH-TP025	requestMoreTime	not supported
PH-TP025.1	responseMoreTime	not supported
PH-TP026	notifyInformationRequiredReminder	not supported
PH-TP022	notifyTroubleTicketClosed	TicketStatusChangedNotification

TT-BP010 : QueryTroubleTicketAttachment		**not supported**
PH-TP029	queryTroubleTicketAttachment	not supported
PH-TP029.1	responseTroubleTicketAttachment	not supported

RELEASE HISTORY

Version Number	**Date**	**Release led by:**	**Description**
Version 1.0	04/15/2013	Pierre Gauthier TM Forum pgauthier@tmforum.org	First Release of Draft Version of the Document.
Version 1.1	07/25/2013	Christian Traxler Infonova christian.traxler@infonova.com	Spec Jam workshop results
Version 1.2	07/26/2013	Jérôme Hannebelle Orange jerome.hannebelle@orange.com	Modifications post-spec Jam, with the addition of NBNCo support appendix.
Version 1.3	2 Oct 2013	Tina O'Sullivan (TM Forum)	Minor modifications
Version 1.3.3	11 Oct 2013	Alicja Kawecki (TM Forum)	Minor fixes to cover and footer
Version 1.3.4	Sept 2014	J-L Tymen, T Ben Meriem, J Hannebelle	Re-aligned with API new template

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