Approval API

Description

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Introduction

Approval provides an API that allows accessing trade item information directly via REST calls, outside of the GDSN orchestration. This allows a recipient instant retrieval of trade item hierarchies instead of going through with the normally required GDSN message exchange. The API is designed *read-only,* i.e. it is only possible to *retrieve* information, not to *update* it.

atrify provides a single gateway for the API for all recipients, that provides the data stored in the respective Approval systems transparently. As only authorized clients are allowed to access the trade item data, this central gateway will also *authenticate* incoming requests. So, the high-level purpose of the authentication and distribution framework described below is:

- Authentication of the calling agent
- Identification of the matching Approval instance
- Forward and execute the call on the corresponding Approval instance

The Approval API is no longer available. It was replaced by the Receivers API (see https://eu.api.atrify.com/v1/api-reference/receivers.html). Please consider using the Receivers API.

Architecture

Overview

The following figure shows the overall structure of the API implementation:

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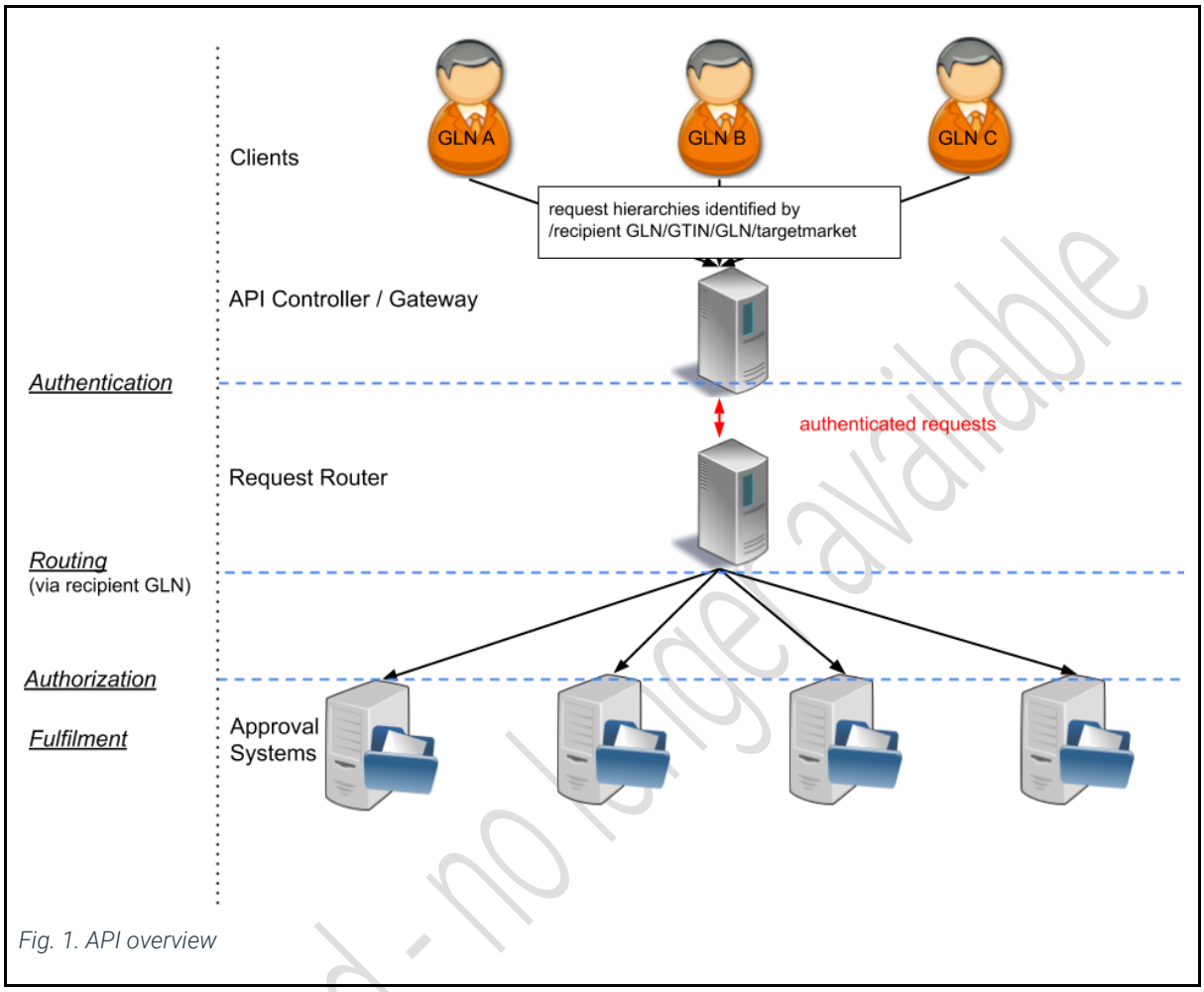

Fig. 1. API overview

The system is arranged in different *layers* that provide the functionality: The client access the central API gateway, that *authenticates* the user. Based on the *identity* of the requesting client the actual target Approval system is selected and the request is transparently *routed* to this system. The selected Approval *authorizes* the request, i.e. it is validated that the requesting user is allowed to access the trade item data. If the request is valid, the trade item information is returned.

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Detailed Description

Clients

Any party requesting data from the system is considered a "client" in the context of this architecture. This may either be interactive clients, e.g. a web browser, or automatic services, e.g. a m2m client. The API is designed to handle both use cases. The data is returned either in XML or JSON syntax (see below for details).

The client addresses the desired data using the tuple (*recipient GLN, GTIN, GLN, Targetmarket)* as supported by Approval. The recipient GLN is defined *implicitly* by the *identity* of the user.

API Controller / Gateway

A central instance that controls the access to the backend Approval systems. The clients *never* access the backend systems directly but via the gateway exclusively. The primary tasks of the gateway are:

- Authentication of incoming requests: This done with support by an additional *authentication server.*
- Limiting of the incoming requests: As the gateway is exposed to the internet, this measure protects the system from denial of server attacks.
- Forwarding the requests to the *Request Router.*

Request Router

Performs the routing of requests: The requests are internally forwarded to the backend systems. The identity of the requesting client transparently selects the backend system to forward the request to. For this reason, the API controller contains a mapping *recipient GLN -> Approval instance.* The identity of the requesting client has be verified by the API controller.

Approval

The backend system for the actual request processing. Based on the identity of the client, the request is *authorized.* Consequently, the requesting client *must be a valid user* in the targeted Approval system.

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Representation format

The trade item hierarchy information is returned in a *CatalogueItemNotification* fragment: Only the actual catalogue item hierarchy information (actual item data and hierarchy information) is returned. The non-essential parts, as e.g. the document header etc. is omitted. As a consequence, the information is returned in XML format[1].

Authentication & Authorization

All requests to the API must be *authenticated,* i.e. the identity of the requesting user, resp. system must be established. The identity is passed to the backend systems using a JSON web token that identifies the user. Therefore, the user must perform an initial authentication to retrieve such a token before the API may be used. An invalid resp. missing authentication is rejected with an HTTP status 401.

After successful authentication, the API may be accessed. Based on the identity of the requesting user, the API gateway internally forwards the call to the target system for fulfillment. The target system will perform additional *authorization:* Based on the identity of the requesting user it is determined, if the requested item data may be accessed.

A failed authorization is rejected with HTTP status 403.

[1] The API is able to return the same information in a non-standard JSON format. This JSON format is defined by mapping XML elements and attributes to correspondingly named JSON keys.

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API Description

Client API

Get Trade Item Hierarchy Data

Description

Retrieves hierarchy information for a trade item. The identified item and all lower items from the selected hierarchy will be returned. The item data is sent in an XML format conforming to a catalogue_item_notification:CatalogueItemType as defined in http://www.gs1globalregistry.net/3.1/schemas/gs1/gdsn/CatalogueItemNotification.xsd, i.e. the data is returned as a CatalogueItemNotificationMessage fragment with the unnecessary metadata removed.

The requested trade item is selected via the URL as *path parameters*. It is important to note the order of the attributes, which is different than the conventional order. The used order however allows addressing the requested trade item in a REST conforming way[2].

Currently, only a single item may be requested per API call. Later versions of the API may be extended to support retrieval of multiple hierarchies.

Path

```
/api/tradeitems/{recipient}/{tm}/{owner}/{gtin}:
```

Parameters

Name	Type	Description

[2]The REST implies a hierarchical order of the addressed "resources". In this case, a "targetmarket" contains multiple "owner GLNs", which in turn own multiple "trade items". The structure of the "resource address", i.e. the URL path, should reflect this order.

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recipient	path	A valid GLN including checksum. This identifies the recipient party of the trade item information, i.e. the requesting client
tm	path	The target market identifier
gtin	path	A valid GTIN including checksum. This identifies the root of the hierarchy
owner	path	A valid GLN including checksum. This identifies the owner of the trade item information, i.e. the supplier

Responses

Code	Description
200	The call succeeded and trade item hierarchy data is returned in XML format.
400	The client sent an incomplete request.
401	The request was not authenticated.
403	The request attempted to retrieve not authorized data.
404	The identified trade item was not found.
500	The service failed.

Administration API

Undisclosed internal API. Not accessible from the outside.

The administration API allo defining forwarding rules. It is not intended for external usage.

Technical Implementation Aspects

The system will be deployed on the Google cloud infrastructure. Therefore the following constraints currently exists for the system:

- Authentication is done via OAuth2 (based on the the Google infrastructure)
- The authentication of the approval API requires an identity known to the Google infrastructure. For now this requires a valid GMail account or similar. Given this identity the service clients are authenticated via an internal service account.
- Upon successful authentication a JSON web token is issued. This must be passed as *bearer token* in the *Authentication* http header to the service.

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Appendix A: API Reference


```
{
    "swagger": "2.0",
    "info": {
        "version": "1.0.0-SNAPSHOT"
    },
    "host": "localhost:8080",
    "basePath": "/approval/v1/api",
    "tags": [
        {
            "name": "tradeitems"
        }
    ],
    "schemes": [
        "http"
    ],
    "paths": {
        "/tradeitems/{recipient}/{tm}/{owner}/{gtin}": {
            "get": {
                "tags": [
                    "tradeitems"
                ],
                "summary": "Retrieves a tradeitem hierarchy.",
                "description": "Returns the tradeitem hierarchy information in form of a
CatalogueItemNotificationType. **Important: ** Please not the order of the parameters: The
standard order *gtin/gln/tm/recipient gln* has been changed to **recipient/tm/owner/gtin**
in order to make it REST conforming",
                "operationId": "retrieve",
                "produces": [
                    "application/xml"
                ],
                "parameters": [
                    {
                        "name": "recipient",
                        "in": "path",
```


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```
                        "description": "The recipient GLN. A valid GLN including checksum.
This identifies the recipient party of the trade item information, i.e. the requesting
client",
                        "required": true,
                        "type": "string"
                    },
                    {
                        "name": "owner",
                        "in": "path",
                        "description": "The owner GLN. A valid GLN including checksum. This
identifies the owner of the trade item information, i.e. the supplier",
                        "required": true,
                        "type": "string",
                        "x-example": "1234567890128"
                    },
                    {
                        "name": "tm",
                        "in": "path",
                        "description": "The target market. The target market identifier",
                        "required": true,
                        "type": "string",
                        "x-example": "276"
                    },
                    {
                        "name": "gtin",
                        "in": "path",
                        "description": "The item GTIN.A valid GTIN including checksum. This
identifies the root of the hierarchy",
                        "required": true,
                        "type": "string",
                        "x-example": "12345678901231"
                    }
                ],
                "responses": {
                    "200": {
                        "description": "The call succeeded and trade item hierarchy data is
returned in XML format.",
                        "examples": {
                            "application/xml": "<?xml version=\"1.0\" encoding=\"UTF-
8\"?>\n        <catalogueItem>\n          <dataRecipient>4711471147111123</dataRecipient>\n
<sourceDataPool>4711471147111123</sourceDataPool>\n          <catalogueItemState>\n
```

```
<catalogueItemStateCode>REGISTERED</catalogueItemStateCode>\n
</catalogueItemState>\n          <tradeItem>\n            <gtin>95885913277880</gtin>\n
<additionalTradeItemIdentification
additionalTradeItemIdentificationTypeCode=\"SUPPLIER_ASSIGNED\">449648</additionalTradeItem
Identification>\n            <additionalTradeItemIdentification
additionalTradeItemIdentificationTypeCode=\"INDUSTRY_ASSIGNED\">449648</additionalTradeItem
Identification>\n            <isTradeItemABaseUnit>true</isTradeItemABaseUnit>\n
<isTradeItemAConsumerUnit>true</isTradeItemAConsumerUnit>\n
<isTradeItemADespatchUnit>true</isTradeItemADespatchUnit>\n
<isTradeItemAnInvoiceUnit>true</isTradeItemAnInvoiceUnit>\n
<isTradeItemAnOrderableUnit>true</isTradeItemAnOrderableUnit>\n
<tradeItemUnitDescriptorCode>BASE_UNIT_OR_EACH</tradeItemUnitDescriptorCode>\n
<informationProviderOfTradeItem>\n              <gln>4711471147111234</gln>\n
<partyName>Something</partyName>\n            </informationProviderOfTradeItem>\n
<manufacturerOfTradeItem>\n              <gln>4711471147111235</gln>\n
<partyName>Something</partyName>\n            </manufacturerOfTradeItem>\n
<gdsnTradeItemClassification>\n              <gpcCategoryCode>10002429</gpcCategoryCode>\n
<gpcCategoryDefinition>Wall Coverings - Rolls</gpcCategoryDefinition>\n
<gpcCategoryName>Wall Coverings - Rolls</gpcCategoryName>\n
</gdsnTradeItemClassification>\n            <targetMarket>\n
<targetMarketCountryCode>276</targetMarketCountryCode>\n            </targetMarket>\n
<tradeItemInformation>\n            </tradeItemInformation>\n
<tradeItemSynchronisationDates>\n              <lastChangeDateTime>2017-10-
23T05:20:26.276+02:00</lastChangeDateTime>\n              <effectiveDateTime>2017-01-
13T00:00:00+00:00</effectiveDateTime>\n            <publicationDateTime>2017-01-
13T00:00:00+00:00</publicationDateTime>\n            </tradeItemSynchronisationDates>\n
</tradeItem>\n        </catalogueItem>\n"

                        }

                    },

                    "402": {

                        "description": "The identified trade item was not found."

                    },

                    "400": {

                        "description": "The client sent an incomplete request."

                    },

                    "401": {

                        "description": "The request was not authenticated."

                    },

                    "403": {

                        "description": "The request attempted to retrieve not authorized
data."

                    },

                    "500": {

                        "description": "The service failed."

                    }

                }

            }

        },
```


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```
        "/tradeitems/status": {
            "get": {
                "tags": [
                    "tradeitems"
                ],
                "summary": "Returns the current state of the application.",
                "description": "",
                "operationId": "getStatus",
                "produces": [
                    "text/plain"
                ],
                "parameters": [],
                "responses": {
                    "200": {
                        "description": "The service is available."
                    },
                    "400": {
                        "description": "The client sent an incomplete request."
                    },
                    "401": {
                        "description": "The request was not authenticated."
                    },
                    "403": {
                        "description": "The request attempted to retrieve not authorized
data."
                    },
                    "500": {
                        "description": "The service failed."
                    }
                }
            }
        }
    },
    "securityDefinitions": {
      "approval-api": {
        "type": "oauth2",
        "authorizationUrl": "",
        "flow": "implicit",
```

```
        "x-google-issuer": "approval-api@nomorebarcode.iam.gserviceaccount.com",
        "x-google-jwks_uri": "https://www.googleapis.com/robot/v1/metadata/x509/approval-
api@nomorebarcode.iam.gserviceaccount.com"
    }


}
```