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Open Geospatial Consortium

OGC API FEEDBACK

STANDARD
Conceptual model

APPROVED

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CONTENTS

KEYWORDS

The following are keywords to be used by search engines and document catalogues.

ogcdoc, OGC document, API, openapi, html

PREFACE

i. Abstract

The OGC API standards family includes a set of resources that enable anyone to provide or use geospatial information. These APIs primarily describe the publication and access to data (features), although they may also reference metadata (records).

This document takes a step further by defining the OGC API — Feedback, which builds upon the concept of OGC API — Records. While OGC API — Records is designed to describe metadata associated with resources from the producer's perspective, OGC API — Feedback establishes a standardized way to provide feedback on any catalog element, whether it be data or metadata. This mechanism focuses on users, allowing them to comment, rate, describe usage, report errors or deficiencies, link related documentation, etc. Moreover, it enables the generation of statistics on these evaluations, which can inform user interactions.

Thus, in OGC API — Feedback, the feedback element is the atomic unit of information within a catalog, just as a record is in OGC API — Records. This feedback element must be described conforming to the specifications of this document.

Accordingly, we define the following set of components for OGC API — Feedback:

- a feedback item
- a feedback catalog (a collection of feedback items)
- a common set of query parameters
- the requirements and characteristics for implementing a Feedback API

Since the very nature of feedback is based on user contributions, OGC API — Feedback allows not only the GET method for queries but also adopts from OGC API — Features the capabilities for creating and modifying resources using the POST, PUT, PATCH, and DELETE methods.

The following tables lists the endpoints of the OGC API — Feedback that allow a collection of feedback to be searched or to interact with:

Table 1 — Overview of resources endpoints and responses

RESOURCE	PATH	HTTP METHOD	RESPONSE
Landing page	/	GET	API landing page
Conformance declaration	`/conformance`	GET	Declaration of conformance classes
Feature collections	`/collections`	GET	Feedback collections

RESOURCE	PATH	HTTP METHOD	RESPONSE
Feature collection	`/collections/{collectionId}`	GET	Feedback collection
Features	`/collections/{collectionId}/items`	GET	Feedbacks
Feature	`/collections/{collectionId}/items/{itemId}`	GET	Feedback
Feature	`/collections/{collectionId}/stats`	GET	Feedbacks summary

Table 2 — Other supported HTTP methods by resource

RESOURCE ENDPOINT	HTTP METHOD			
	POST	PUT	PATCH	DELETE
`/collections/{collectionId}/items`	create	n/a	n/a	n/a
`/collections/{collectionId}/items/{itemId}`	n/a	replace, create	update	delete

ii. Keywords

The following are keywords to be used by search engines and document catalogues.

ogcdoc, ogc documents, API, OGC API, user feedback, feedback summary, metadata

iii. Preface

OGC Declaration

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iv. Submitting organizations

- UAB-CREAF

The following organizations submitted this Document to the Open Geospatial Consortium (OGC):

v. Submitters

All questions regarding this submission should be directed to the editors or the submitters:

Table — Submitters

Name	Affiliation
Joan Masó	UAB-CREAF
Alaitz Zabala	UAB-CREAF
Oscar González-Guerrero	UAB-CREAF

SECURITY CONSIDERATIONS

No security considerations have been made for this document.

IV SUBMITTING ORGANIZATIONS

The following organizations submitted this Document to the Open Geospatial Consortium (OGC):

- UAB-CREAF

1 SCOPE

1 SCOPE

The OGC Feedback API Standard specifies two requirements classes for deploying descriptive information provided by users (feedback) about resources.

On one hand, this standard defines the information content of a feedback item. A feedback item is the atomic unit of information within a feedback catalog. It contains metadata provided by users about a specific resource in a data or metadata catalog. A feedback item may include user comments, questions and answers, reports of dataset issues and proposed solutions, ratings, usage reports, reproducible usage reports, citations of related datasets or publications describing usage, quality reports, relevant additional provenance information, and significant events related to the use or interpretation of a dataset.

On the other hand, since feedback items can be grouped into feedback catalogs, this standard also specifies the “stats” endpoint, which is dedicated to retrieving summary information about the feedback items contained in a feedback catalog.

The Feedback API Standard describes how feedback catalogs can be crawled or searched. Crawling a feedback collection involves following embedded links from one feedback item in a catalog to the next. Searching a collection of feedback items involves specifying query predicates that define a subset of feedback items.

Finally, the Feedback API Standard outlines how feedback items can be created, modified, and deleted.

2 CONFORMANCE

2 CONFORMANCE

2.1. Overview

Conformance with this Standard shall be checked using the tests specified in Annex A (normative) of this document. The framework, concepts, and methodology for testing, and the criteria to claim conformance, are specified in the OGC Compliance Testing Policies and Procedures and the OGC Compliance Testing web site.

The standardization target of the conformance classes:

- Feedback Item
- Feedback Collection
- Feedback Summary

is “Document model”

The standardization target of the conformance class:

- Feedback Query Parameters

is “Web APIs”.

The standardization target of the conformance class:

- JSON

is “Document encoding”.

The Conformance Classes implemented in an API are advertised through the /conformance path on the landing page. Each Conformance Class has an associated Requirements Class. The Requirements Classes define the functional requirements which will be tested through the associated Conformance Test.

2.2. Components

This standard also identifies five (5) requirements classes for common components:

- Feedback Item

- Feedback Collection
- Feedback Summary
- Feedback Query Parameters
- JSON

These components are not intended to be implemented independently but rather implemented as components of a feedback catalog.

The Feedback Item conformance class defines the schema requirements for a feedback record, which consists of properties used to share user assessments and experiences about a resource via a feedback catalog.

The Feedback Collection conformance class defines requirements for the metadata used to describe a collection of related feedbacks referred to as a feedback catalog in this Standard.

The Feedback Query Parameters conformance class defines a minimum set of query parameters that a feedback catalog should provide.

The JSONconformance class defines the requirements for a JSON representation of a feedback catalog object and a GeoJSON (see RFC 7946) representation of a standard feedback record.

2.3. Conformance testing

Conformance with this Standard shall be checked using all the relevant tests specified in Annex A of this document. The framework, concepts, and methodology for testing, and the criteria to be achieved to claim conformance are specified in the OGC Compliance Testing Policies and Procedures and the OGC Compliance Testing web site.

Table 3 — Component Conformance class URIs

CONFORMANCE CLASS	URI
Feedback Item	http://www.opengis.net/spec/ogcapi-feedback-2/2.0/conf/feedback
Feedback Collection	http://www.opengis.net/spec/ogcapi-feedback-2/2.0/conf/feedback-collection
Feedback Summary	http://www.opengis.net/spec/ogcapi-feedback-2/2.0/conf/feedback-summary
Feedback Query Parameters	http://www.opengis.net/spec/ogcapi-feedback-2/2.0/conf/feedback-query-params
JSON	http://www.opengis.net/spec/ogcapi-feedback-2/2.0/conf/json

3 NORMATIVE REFERENCES

3 NORMATIVE REFERENCES

There are no normative references in this document.

The following normative documents contain provisions that, through reference in this text, constitute provisions of this document. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references, the latest edition of the normative document referred to applies.

4 TERMS AND DEFINITIONS

4 TERMS AND DEFINITIONS

This document uses the terms defined in OGC Policy Directive 49, which is based on the ISO/IEC Directives, Part 2, Rules for the structure and drafting of International Standards. In particular, the word “shall” (not “must”) is the verb form used to indicate a requirement to be strictly followed to conform to this document and OGC documents do not use the equivalent phrases in the ISO/IEC Directives, Part 2.

This document also uses terms defined in the OGC Standard for Modular specifications (OGC 08-131r3), also known as the ‘ModSpec’. The definitions of terms such as standard, specification, requirement, and conformance test are provided in the ModSpec.

For the purposes of this document, the following additional terms and definitions apply.

4.1. Terms and Definitions

This document uses the terms defined in Sub-clause 5.3 of OGC 06-121r9 [1], which is based on the ISO/IEC Directives, Part 2, Rules for the structure and drafting of International Standards. In particular, the word “shall” (not “must”) is the verb form used to indicate a requirement to be strictly followed to conform to this standard. It also uses definitions from the second version of the conceptual model OGC OGC 23-017 [7].

For the purposes of this document, the following additional terms and definitions apply.

4.1.1. **feedback catalog; feedback collection**

a collection of related feedbacks

4.1.2. **feedback item; feedback**

atomic unit of information in a feedback catalog, used by users of a particular resource to share their usage experience (ratings, comments, etc.) with others.

4.1.3. feedback summary

An aggregation of information about feedback items contained in a feedback collection, which includes aggregated metrics and key insights from user comments and reports regarding a specific resource.

5 CONVENTIONS

5 CONVENTIONS

This section provides details and examples for any conventions used in the document. Examples of conventions are symbols, abbreviations, use of schema, or special notes regarding how to read the document.

5.1. Identifiers

The normative provisions in this Standard are denoted by the URI

http://www.opengis.net/spec/ogcapi-feedback-2/2.0

All requirements and conformance tests that appear in this document are denoted by partial URIs which are relative to this base.

5.2. Link relations

To express relationships between resources, RFC 8288 (Web Linking) is used.

The following registered link relation types [IANA] are used in this document.

- **alternate**: Refers to a substitute for this context.
- **collection**: The target IRI points to a resource which represents the feedback collection resource for the context IRI.
- **item**: The target IRI points to a feedback resource that is a member of the feedback collection represented by the context IRI.
- **next**: Indicates that the link's context is a part of a series, and that the next in the series is the link target.
- **prev**: Indicates that the link's context is a part of a series, and that the previous in the series is the link target.
- **self**: Conveys an identifier for the link's context.

In addition the following link relation types are used for which no applicable registered link relation type could be identified.

- **items**: Refers to a resource that is comprised of members of the feedback collection represented by the link's context.

- **conformance**: Refers to a resource that identifies the specifications that the link's context conforms to.

Each resource representation includes an array of links. Implementations are free to add additional links for all resources provided by the API.

5.3. Use of HTTPS

For simplicity, this OGC Standard only refers to the HTTP protocol. This is not meant to exclude the use of HTTPS. This is simply a shorthand notation for "HTTP or HTTPS". In fact, most servers are expected to use HTTPS and not HTTP.

6 OVERVIEW

6 OVERVIEW

6.1. Role of Feedback

In addition to metadata provided by the original data provider describing geospatial resources, many users report that they trust data based on information about studies conducted by their peers. An important element of that trust is not only linking datasets with relevant citations in the scholarly literature but also the desire for less formal feedback mechanisms, such as user comments. As user feedback became a key driver for providers, a standardized way to provide it became necessary.

The purpose of providing user feedback is to inform other users and data providers about use cases and experiences with a given geospatial resource (whether data or metadata). The goal is to collect requirements for resources that providers can incorporate into objective quality measures for their products, allowing them to meet the real needs of users and potentially discover new markets for their resources.

To enable simple user interfaces that accommodate different levels of expertise in geospatial data usage, the geospatial feedback element is designed to be as simple as possible while still being comprehensive enough. The following are examples of what the model allows:

- Commenting, asking questions, and providing answers.
- Rating data.
- Citing publications.
- Providing a quality measure.
- Documenting additional lineage information.
- Describing usage.
- Highlighting a significant event that affects the interpretation of a dataset.

To facilitate the interpretation of a group of feedback elements related to a resource, the need for a feedback summary became evident. The description of the feedback summary includes metrics and statistics on all the feedback elements in a feedback catalog or a subset of it, helping users and producers quickly assess a resource.

6.2. Role of OGC API — Records

OGC API — Records is a specification within the Open Geospatial Consortium (OGC) APIs that provides a standard way to manage geospatial records in web formats. It is designed to allow organizations to expose, search, and query metadata records via RESTful APIs.

Among its key features are metadata management (allowing the creation, updating, deletion, and querying of geospatial metadata records) and search and retrieval methods.

OGC API — Records defines a generic structure for record catalogs and record items, giving flexibility to producers to publish metadata associated with their resources.

As feedback can be considered a specific type of metadata produced by users, the flexibility offered by OGC API — Records can be used to define a specific type of record collection and a specific type of record item: the feedback catalog and the feedback item.

6.3. Feedback API

The OGC API — Feedback defines a feedback item as the atomic unit of information in a feedback collection.

A feedback item provides a description (metadata) of a resource based on a user experience. The feedback schema defined in this Standard includes a set of properties (such as comments, ratings, etc.) that can be used by any user of a certain resource to describe its experience.

A feedback collection is a collection of feedback items and is defined as a **record catalog** (view OGC API — Records) that conforms to the OGC API — Feedback specifications and **only** contains feedback items.

A feedback summary provides an aggregation of information about feedback items contained in a feedback collection, which includes aggregated metrics and key insights from user comments and reports regarding a specific resource.

An implementation of the Feedback API Standard enables retrieving a subset of feedbacks from a feedback catalog using a logically connected set of predicates that may include spatial and/or temporal predicates.

Table 4 summarizes the access paths and relation types defined in this Standard.

Table 4 — Feedback API Paths

PATH TEMPLATE	RELATION	RESOURCE
Common		

PATH TEMPLATE	RELATION	RESOURCE
/		Landing page
/conformance	conformance	Conformance Classes
/collections	data	Metadata describing the the feedback catalogs available from this API implementation instance
/collections/{collectionsId}	collections	Metadata describing a feedback catalog which has the unique identifier {collectionsId}
Feedback Catalog Features		
/collections/{collectionsId}/items	items	Search results based on querying the service for feedback records satisfying 0..n query parameters.
/collections/{collectionsId}/items/{itemsId}	item	Feedback element which has the unique identifier {itemsId}
/collections/{collectionsId}/stats	summary	Feedback summary of the the feedback items (or a subset of them) contained in feedback collection

Where: * {collectionsId} = An identifier for a specific feedback catalog. * {itemsId} = An identifier for a specific feedback within a feedback collection.

6.4. Components

This Standard defines the following components that may be used to deploy a feedback catalog:

1. The core schema of a feedback item.
2. The definition of a feedback collection resource that groups and describes a set of related feedback items (i.e. a feedback catalog).
3. The definition of a feedback summary that aggregates information about a set of feedback items in a feedback collection.
4. The definition of a core set of query parameters for searchable feedback catalogs.

Using these components a feedback catalog can be deployed as:

- A set of web-accessible feedback records that can be crawled by a search engine crawler, using (for example) a web browser, or by using automated tools.

- A searchable feedback catalog with feedback items accessible through an API endpoint.

6.4.1. Feedback item schema

The core set of feedback properties that may be used to point a resource include the itemIdentifier, abstract, contact, contactRole, dateInfo and target. A complete definition of a feedback can be found in clause Feedback properties.

The choice of which properties to include is based in the Geospatial User Feedback (GUF) conceptual model [7].

Although this Standard does not mandate any particular encoding for a feedback item or a feedback catalog, it does define a conformance class for JSON encoding.

Other encodings are allowed but are not described in this Standard.

6.5. Feedback collection (catalog)

A feedback collection (or a feedback catalog) is an object that groups and describes a set of related feedback items. The catalog is the primary access point from which a deployed set of feedbacks can be accessed. Having found a catalog a client can, by following the appropriate hypermedia controls contained therein, navigate to the feedbacks of the collection.

Depending on the deployment pattern, the catalog may provide a link to each individual feedback of the collection or a link to a search access point for retrieving subsets of feedbacks.

The core set of properties that may be used to describe a feedback catalog are the same properties used to describe a catalog in OGC API — Records but it SHALL be specified the property **"conformsTo"** indicating that the catalog content (the feedback items) conforms to the OGC API — Feedback.

6.5.1. Feedback Summary schema

The core set of a feedback summary that may be used resume a feedback collection include numberOfFeedbackItem, minimumRating, maximumRating, averageRating, numberOfRatings, numberOfUserComments, numberOfUsageReports, numberOfReproducibleUsageReports, numberOfCitations, numberOfAdditionalQualities, numberOfAdditionalLineages and numberOfSignificantEvents. A complete definition of a feedback summary can be found in the Feedback Summary.

The choice of which properties to include in the set of core properties is based in the Geospatial User Feedback (GUF) conceptual model [7].

Although this Standard does not mandate any particular encoding for a feedback summary, it does define a conformance class for JSON encodings.

Other encodings are allowed but are not described in this Standard.

6.5.2. Query parameters

A set of query parameters, based on the OGC API — Records, can be applied to a searchable feedback catalog endpoint. The complete list of parameters an its use is defined in Feedback Query Parameters section

7

REQUIREMENTS CLASS “FEEDBACK ITEM” (COMPONENT)

7 REQUIREMENTS CLASS "FEEDBACK ITEM" (COMPONENT)

7.1. Overview

Table 5

Requirements Class	
http://www.opengis.net/spec/ogcapi-feedback-2/2.0/req/feedback-item	
Target type	Document model

REQUIREMENTS CLASS 1	
IDENTIFIER	`http://www.opengis.net/spec/ogcapi-feedback-2/2.0/req/feedback-item`
TARGET TYPE	Document model
NORMATIVE STATEMENT	Requirement 1-1: `/req/feedback-item/feedback-item`

The Feedback item requirements class defines the data model classes that are involved in the definition of an individual user *feedback item*. A *feedback item* is the container of the actual feedback. Every item is set into a context by a *target*.

The Feedback Item requirements Class defines the requirements for a *feedback element*, which is the atomic unit of information of a *feedback collection*.

Although this Standard does not mandate any particular encoding for a feedback item or a feedback collection, a JSON encoding is defined.

Other encodings are allowed but are not described in this Standard.

7.2. Properties

Table 6 define the set of properties that may be included in a feedback item.

Table 6 — Feedback Item

PROPERTY	REQUIREMENT	DESCRIPTION	GEOJSON KEY
itemIdentifier	**required**	Identifier for the feedback item.	GUF_FeedbackItem.properties.itemIdentifier
abstract	**required**	Brief narrative description of this item, normally for display to a human.	GUF_FeedbackItem.properties.abstract
purpose	optional	Summary of the intentions with which the feedback was provided.	GUF_FeedbackItem.properties.purpose
contact	**required**	Information about the user providing feedback.	GUF_FeedbackItem.properties.contact
contactRole	**required**	User's role in the context of this feedback item.	GUF_FeedbackItem.properties.contactRole
dateInfo	**required**	Date when the feedback item was created, updated etc.	GUF_FeedbackItem.properties.dateInfo
itemIsReplyTo	optional	Identifiers of one or more items of feedback to which this item is a response.	GUF_FeedbackItem.properties.itemIsReplyTo
descriptiveKeywords	optional	Keywords that can be useful to search for this item. They are selected from controlled vocabularies.	GUF_FeedbackItem.properties.descriptiveKeywords
tag	optional	Free text word that can be useful to search for this item.	GUF_FeedbackItem.properties.tag
locale	optional	Language and character set used within the feedback item.	GUF_FeedbackItem.properties.locale
externalFeedback	optional	Link to an item in an external repository that contains the feedback (not described inline).	GUF_FeedbackItem.properties.externalFeedback
additionalQuality	optional	Structured quality assessment result.	GUF_FeedbackItem.properties.additionalQuality
userComment	optional	Text free user comment.	GUF_FeedbackItem.properties.userComment

PROPERTY	REQUIREMENT	DESCRIPTION	GEOJSON KEY
usage	optional	Structured usage report.	GUF_FeedbackItem.properties.usage
rating	optional	Rating code reflecting the satisfaction of the user with the resource used.	GUF_FeedbackItem.properties.rating
citation	optional	Citation of a published resource (e.g.: a report, a peer reviewed paper) that provides an evaluation of the usage of the resource.	GUF_FeedbackItem.properties.citation
additionalLineageSteps	optional	Additional lineage steps not included in the producer metadata.	GUF_FeedbackItem.properties.additionalLineageSteps
significantEvent	optional	Significant natural events or sensor or platform anomalies that can affect the interpretation of the data.	GUF_FeedbackItem.properties.significantEvent
target	**required**	Identifies a pre-existing resource (e.g., a dataset or a metadata record) from a catalogue.	GUF_FeedbackItem.properties.target

REQUIREMENT 1	
IDENTIFIER	`/req/feedback-item/mandatory-properties`
A	Each feedback item in a response SHALL contain all the mandatory properties listed in Table 6.

7.3. Feedback encoding

This Standard defines a requirement class for JSON encoding of a *feedback item*. See Encodings.

8

REQUIREMENTS CLASS “FEEDBACK COLLECTION” (COMPONENT)

8 REQUIREMENTS CLASS "FEEDBACK COLLECTION" (COMPONENT)

8.1. Overview

Table 7

Requirements Class	
https://www.opengis.net/spec/guf-conceptual/2.0/req/feedback-collection	
Target type	Document model

REQUIREMENTS CLASS 2	
IDENTIFIER	`https://www.opengis.net/spec/guf-conceptual/2.0/req/feedback-collection`
TARGET TYPE	Document model
PREREQUISITE	https://docs.ogc.org/DRAFTS/20-004.html#clause-record-collection
NORMATIVE STATEMENT	Requirement 2-1: `/req/feedback-collection/mandatory-properties-collection`

The Feedback Collection requirements class defines the requirements for a *feedback collection*.

A *feedback collection* is an object that provides information about and access to a set of related feedbacks.Such a collection of feedbacks is also referred to as a catalog.

The schema for the feedback catalog is a specific implementation of the record collection defined in OGC API — Records Standard.

While OGC API — Records Standard defines the property conformsTo as optional, OGC API — Feedback considers it as required and its value is fixed as "http://www.opengis.net/spec/ogcapi-feedback-2/2.0/conf/feedback" to indicate that all elements in the catalog follows the feedback item requirements.

Although this Standard does not mandate any particular encoding for a catalog, a JSON encoding is defined.

Other encodings are allowed but are not described in this Standard.

8.2. Properties

Table 8 define the set of properties that may be included in a feedback catalog.

Table 8 — Feedback Collection

PROPERTY	REQUIREMENT	DESCRIPTION
id	**required**	A unique identifier for this catalog.
created	optional	The date this collection was created.
updated	optional	The more recent date on which this collection was changed.
conformsTo	**required**	Fixed value of "http://www.opengis.net/spec/ogcapi-feedback-2/2.0/conf/feedback".
type	**required**	Fixed value of "Collection".
itemType	optional	Fixed value of "record".
title	optional	A human-readable name given to this catalog.
description	optional	A free-text description of this catalog.
extent	optional	The spatiotemporal coverage of this catalog.
crs	optional	A list of coordinate reference systems used for spatiotemporal values.
keywords	optional	A list of free-form keywords or tags associated with this collection.
themes	optional	A knowledge organization system used to classify this collection.
language	optional	The language used for textual values (i.e. titles, descriptions, etc.) of this collection object.
languages	optional	The list of other languages in which this collection object is available.
recordLanguages	optional	The list of languages in which records from the collection can be represented.
contacts	optional	A list of contacts qualified by their role(s).

PROPERTY	REQUIREMENT	DESCRIPTION
license	optional	The legal provisions under which this collection is made available.
rights	optional	A statement that concerns all rights not addressed by the license such as a copyright statement.
recordsArrayName	optional	The name of the array property in the catalog used to encode records in-line. The default value is `records`.
records	optional	An array of records encoded in-line in the catalog.
links	**required**	A list of links related to this catalog.
linkTemplates	optional	A list of link templates related to this catalog.
schemes	optional	A list of schemes related to this catalog.

REQUIREMENT 2	
IDENTIFIER	`/req/feedback-collection/mandatory-properties`
A	A feedback catalog SHALL include all the mandatory properties listed in [collection-properties-table].

8.3. Feedback Collection encoding

This Standard defines a requirement class for JSON encoding of a *feedback collection*. See Encodings.

9

REQUIREMENTS CLASS “FEEDBACK SUMMARY” (COMPONENT)

9 REQUIREMENTS CLASS "FEEDBACK SUMMARY" (COMPONENT)

9.1. Overview

Table 9

Requirements Class	
https://www.opengis.net/spec/guf-conceptual/2.0/req/feedback-summary	
Target type	Document model

REQUIREMENTS CLASS 3	
IDENTIFIER	`https://www.opengis.net/spec/guf-conceptual/2.0/req/feedback-summary`
TARGET TYPE	Document model
NORMATIVE STATEMENT	Requirement 3-1: `/req/feedback-summary/summary-model`

The Feedback-Summary requirements class defines the requirements for a *feedback summary*.

A *feedback summary* is an object that provides aggregated information about a set of feedbacks in a feedback collection that share the same *target*.

Although this Standard does not mandate any particular encoding for a feedback summary, a JSON encoding is defined.

Other encodings are allowed but are not described in this Standard.

9.2. Properties

Table 10 define the set of properties that may be included in a feedback summary.

Table 10 — Feedback Summary

PROPERTY	REQUIREMENT	DESCRIPTION	GEOJSON KEY
target	optional	Common geospatial resource the summary is about.	UFS_Feedback Summary.properties. target
numberOfFeedback Item	**required**	Number of Feedback items this summary is about	UFS_Feedback Summary.properties. numberOfFeedback Item
latestItemDate	optional	The date of the last item	UFS_Feedback Summary.properties. latestItemDate
numberOfPrimary Targets	optional	Total number of primary targets	UFS_Feedback Summary.properties. numberOfPrimary Targets
numberOfSecondary Targets	optional	Total number of secondary targets	UFS_Feedback Summary.properties. numberOfSecondary Targets
number OfSupplementary Targets	optional	Total number of supplementary targets	UFS_Feedback Summary. properties.number OfSupplementary Targets
averageUserExpertise Level	optional	Average user expertise level	UFS_Feedback Summary.properties. averageUserExpertise Level
minimumRating	**required**	Minimum rating received	UFS_Feedback Summary.properties. minimumRating
maximumRating	**required**	Maximum rating received	UFS_Feedback Summary.properties. maximumRating
averageRating	**required**	Average rating	UFS_Feedback Summary.properties. averageRating
numberOfRatings	**required**	Number of feedback items with a valid rating	UFS_Feedback Summary.properties. numberOfRatings
numberOfUser Comments	**required**	Number of feedback items with a valid comment	UFS_Feedback Summary.properties.

PROPERTY	REQUIREMENT	DESCRIPTION	GEOJSON KEY
			numberOfUser Comments
numberOfUsage Reports	**required**	Number of populated usage reports	UFS_Feedback Summary.properties. numberOfUsage Reports
number OfReproducibleUsage Reports	**required**	Number of populated reproducible usage reports	UFS_Feedback Summary. properties.number OfReproducibleUsage Reports
numberOfCitations	**required**	Number of populated citations	UFS_Feedback Summary.properties. numberOfCitations
numberOfAdditional Qualities	**required**	Number of populated quality elements	UFS_Feedback Summary.properties. numberOfAdditional Qualities
numberOfAdditional Lineages	**required**	Number of feedback items with a valid reported lineage	UFS_Feedback Summary.properties. numberOfAdditional Lineages
numberOfSignificant Events	**required**	Number of populated significant events	UFS_Feedback Summary.properties. numberOfSignificant Events
feedbackItems ByExpertiseLevel Count	optional	Number of feedback items by each level of expertise	UFS_Feedback Summary.properties. feedbackItems ByExpertiseLevel Count

REQUIREMENT 3	
IDENTIFIER	`/req/feedback-summary/mandatory-properties`
A	A feedback summary SHALL include all the mandatory properties listed in Table 10.

9.3. Feedback Summary encoding

This Standard defines a requirement class for JSON encoding of a *feedback summary*. See Encodings.

10

REQUIREMENTS CLASS "FEEDBACK QUERY PARAMETERS" (COMPONENT)

10 REQUIREMENTS CLASS "FEEDBACK QUERY PARAMETERS" (COMPONENT)

10.1. Overview

Table 11

Requirements Class	
https://www.opengis.net/spec/guf-conceptual/2.0/req/feedback-query-params	
Target type	Web API

REQUIREMENTS CLASS 4	
IDENTIFIER	`https://www.opengis.net/spec/guf-conceptual/2.0/req/feedback-query-params`
TARGET TYPE	Document model
PREREQUISITE	https://docs.ogc.org/DRAFTS/20-004.html#clause-record-core-query-parameters
NORMATIVE STATEMENTS	Requirement 4: `/req/feedback-query-params/query_params_bbox` Requirement 4-2: `/req/feedback-query-parameters/datetime` Requirement 4-5: `/req/feedback-query-parameters/ids` Requirement 6: `/req/feedback-query-parameters/limit` Requirement 7: `/req/feedback-query-parameters/q` Requirement 9: `/req/feedback-query-params/query_params_externalIds_def` Requirement 10: `/req/feedback-query-params/query_params_externalIds`

The Feedback Query Parameters requirements class defines a minimum set of query parameters that should be implemented at a searchable feedback catalog endpoint.

The parameters are inherited from OGC API — Records, although externalIds behavior has been expanded and is defined in this Standard. Moreover, the parameter type has been deprecated due to in a feedback catalog all elements are of the same type.

Table 12 — Feedback Query Parameters

PARAMETER NAME	DESCRIPTION
bbox	A bounding box. If the spatial extent of the feedback intersects the specified bounding box, then the feedback shall be presented in the response document.
datetime	A time instance or time period. If the temporal extent of the feedback intersects the specified date/time value, then the feedback shall be presented in the response document.
limit	The number of feedback to be presented in a response document.
q	A comma-separated list of search terms. If any server-chosen text field in the feedback contains 1 or more of the terms listed, then this feedback shall appear in the response set.
ids	An equality predicate consisting of a comma-separated list of feedback identifiers. Only feedback with the specified identifiers shall appear in the response set.
externalIds	An equality predicate consisting of a list of external resource identifiers. The behavior of external Ids list is different when applied to *items* or *stats* endpoint. In the case of *stats* endpoint, three different delimiters (“,”,”|” and “^”) can be used to list externalIds. The properties of these delimiters are explained in externalIds section. Only feedbacks related to the specified external identifiers SHALL appear in the response set.
prop=value	Equality predicates with any queryable not already listed in this table.

10.1.1. Query parameters

10.1.1.1. Parameter bbox

REQUIREMENT 4	
IDENTIFIER	`/req/feedback-query-params/query_params_bbox`
INCLUDED IN	Requirements class 4: `https://www.opengis.net/spec/guf-conceptual/2.0/req/feedback-query-params`
A	A searchable endpoint SHALL support the Bounding Box Search (`bbox`) parameter as defined in the OGC API — Records Standard.
B	All references to the term “record” or “local resource” in the OGC API — Records Standard SHALL be replaced by the term “feedback” as the context may indicate.

10.1.1.2. Parameter datetime

REQUIREMENT 5	
IDENTIFIER	`/req/feedback-query-params/datetime`
A	A searchable endpoint SHALL support a Temporal Searching (`datetime`) parameter as defined in the OGC API — Records Standard.
B	All references to the term “record” or “local resource” in the OGC API — Records Standard SHALL be replaced by the term “feedback” as the context may indicate.

10.1.1.3. Parameter limit

REQUIREMENT 6	
IDENTIFIER	`/req/feedback-query-parameters/limit`
INCLUDED IN	Requirements class 4: `https://www.opengis.net/spec/guf-conceptual/2.0/req/feedback-query-params`
A	A searchable endpoint SHALL support a Paging (`limit`) parameter as defined in the OGC API — Records Standard.
B	All references to the term “record” or “local resource” in the OGC API — Records Standard SHALL be replaced by the term “feedback” as the context may indicate.

10.1.1.4. Parameter q

REQUIREMENT 7	
IDENTIFIER	`/req/feedback-query-parameters/q`
INCLUDED IN	Requirements class 4: `https://www.opengis.net/spec/guf-conceptual/2.0/req/feedback-query-params`
A	A searchable endpoint SHALL support a `q` parameter as defined in the OGC API — Records Standard.
B	All references to the term “record” or “local resource” in the OGC API — Records Standard SHALL be replaced by the term “feedback” as the context may indicate.

10.1.1.5. Parameter ids

REQUIREMENT 8	
IDENTIFIER	`/req/feedback-query-parameters/type`
A	A searchable endpoint SHALL support `ids` parameter as defined in the OGC API — Records Standard.
B	All references to the term “record” or “local resource” in the OGC API — Records Standard SHALL be replaced by the term “feedback” as the context may indicate.

10.1.1.6. Parameter externalIds

REQUIREMENT 9	
IDENTIFIER	`/req/feedback-query-params/query_params_externalIds_def`
INCLUDED IN	Requirements class 4: `https://www.opengis.net/spec/guf-conceptual/2.0/req/feedback-query-params`
A	A searchable endpoint SHALL support search by External Identifiers (`externalIds`) parameter for the operation.

B	The `externalIds` parameter SHALL have the following characteristics (using an OpenAPI Specification 3.0 fragment):
	`name: externalIds`
	`in: query`
	`required: false`
	`schema:`
	`  type: array`
	`  items:`
	`  type: string`
	`  pattern: ([^:]+:)?[^:]+`
	`explode: false`

REQUIREMENT 10	
IDENTIFIER	`/req/feedback-query-params/query_params_externalIds`
INCLUDED IN	Requirements class 4: `https://www.opengis.net/spec/guf-conceptual/2.0/req/feedback-query-params`
A	Only feedbacks that have an external identifier that matches the values and conditions listed using the `externalIds` parameter SHALL be in the result set.
B	If the search value is qualified with a scheme then both the scheme and the value of the record’s external identifier SHALL match in order for the record to be in the result set.
C	If the search value is not qualified with a scheme then only the value of the record’s external identifier SHALL match in order for the record to be in the result set.

REQUIREMENT 10	
D	If the search value is only the scheme then the scheme component of the record's external identified SHALL match in order for the record to be in the result set.

In a *feedback item*, externalIds refers to the identifier of the resource we are providing feedback on (the *target*). A single feedback item can point to several externalIds.

externalIds query parameter MAY contain a list of resource ids. This list can use different delimiters depending on the endpoint:

Table 13 — Feedback Query Parameters

ENDPOINT	DELIMITER ACCEPTED	RESPONSE
/collections/{collectionsId}/items	","	Only Feedback items with one or more of the specified external identifiers on the list SHALL appear in the response.
/collections/{collectionsId}/stats	","	Returns n feedback summaries, one for each externalIds indicated on the list.
	"|"	Returns a single summary of those feedback items pointing to each one of the externalIds indicated on the list.
	"^"	Returns a single summary of those feedback items pointing at the same time to all the externalIds indicated on the list (feedback with multiple target).

11

REQUIREMENTS CLASS "JSON" (COMPONENT)

11 REQUIREMENTS CLASS "JSON" (COMPONENT)

11.1. Overview

REQUIREMENTS CLASS 5	
IDENTIFIER	`https://www.opengis.net/spec/guf-conceptual/2.0/req/json`
TARGET TYPE	Document encoding
PREREQUISITES	IETF RFC 8259: The JavaScript Object Notation (JSON) Data Interchange Format JSON Schema GeoJSON
NORMATIVE STATEMENTS	Requirement 5-1: `/req/json/fb-catalog-content` Requirement 11: `/req/json/fb-conformance` Requirement 12: `/req/json/fb-item-response` Requirement 13: `/req/json/fb-item-content` Requirement 14: `/req/json/fb-collection-response` Requirement 16: `/req/json/fb-summary-response` Requirement 17: `/req/json/fb-summary-content`

REQUIREMENT 11	
IDENTIFIER	`/req/json/fb-conformance`
INCLUDED IN	Requirements class 5: `https://www.opengis.net/spec/guf-conceptual/2.0/req/json`
A	The `conformsTo` array SHALL contain the value `http://www.opengis.net/spec/ogcapi-feedback-2/2.0/conf/json`.

11.2. Feedback encoding

GeoJSON is a commonly used format based on JSON that is simple to understand and well supported by tools and software libraries. Since most Web developers are comfortable with using a JSON-based format, supporting GeoJSON is recommended.

The following requirements apply when:

1. The API endpoint advertises conformance to the JSON Conformance Class.
2. The client negotiates that the content of the server's response be GeoJSON.

REQUIREMENT 12	
IDENTIFIER	`/req/json/fb-item-response`
INCLUDED IN	Requirements class 5: `https://www.opengis.net/spec/guf-conceptual/2.0/req/json`
A	200-responses of the server SHALL support the following media type: • `application/geo+json` for resources that include record content.
B	The `geometry` member SHALL be present and SHALL null.

REQUIREMENT 13	
IDENTIFIER	`/req/json/fb-item-content`
INCLUDED IN	Requirements class 5: `https://www.opengis.net/spec/guf-conceptual/2.0/req/json`
A	Every 200-response with the media type `application/geo+json` SHALL be • a GeoJSON FeatureCollection Object for feedback items, and • a GeoJSON Feature Object for a single feedback record.
B	The schema of all responses with the media type `application/geo+json` SHALL validate against the OpenAPI 3.0 schema document `ogcapi_feedback-item.yaml`.

NOTE 1: It should be noted that the `ogcapi_feedback-item.yaml` schema makes the `geometry` member mandatory because the GeoJSON RFC requires that the `geometry` member be present. A feedback item does not have any spatial characteristic so, as per the GeoJSON RFC the values of the `geometry` member SHALL be `null`.

NOTE 2: OGC API — Feedback uses elements of ISO 19115 to define certain properties. Since ISO 19115 does not yet have an official JSON implementation, all references to this ISO in the feedback item JSON schema are made as '19115-4-core.json'.

```
---
"$schema": https://json-schema.org/draft/2020-12/schema
"$id": https://schemas.opengis.net/gufspec/ogcapi-feedback-2/2.0/fb_v_2_0.schema.
json
title: OGC API Feedback item
description: OGC API Feedback v2.0 JSON schema
"$defs":
  GUF_FeedbackItem:
    "$anchor": GUF_FeedbackItem
    type: object
    properties:
      itemIdentifier:
        description: Identifier for the feedback item
        "$ref": 19115-4-core.json#MD_Identifier
      abstract:
        description: Brief narrative description of this item, normally for
display
          to a human
        type: string
      purpose:
        description: Summary of the intentions with which the feedback was
provided
        type: string
      contactRole:
        description: User's role in the context of this feedback item. A user may
          have several roles recorded in the GUF_UserInformation, but this is the
          one that applies for this feedback
        "$ref": "#GUF_UserRoleCode"
      dateInfo:
        description: Date when the feedback item was created, updated etc
        type: array
        items:
          "$ref": 19115-4-core.json#CI_Date
        minItems: 1
      itemsIsReplyTo:
        description: Identifiers of one or more items of feedback to which this
item
          is a response
        type: array
        items:
          "$ref": 19115-4-core.json#MD_Identifier
        minItems: 0
      descriptiveKeywords:
        description: Keywords that can be useful to search for this item. They
are
          selected from controlled vocabularies
        type: array
        items:
          "$ref": 19115-4-core.json#MD_Keywords
        minItems: 0
      tag:
        description: Free text word that can be useful to search for this item
        type: array
        items:
          type: string
```

```
        minItems: 0
      locale:
        description: Language and character set used within the feedback item
        type: array
        items:
          "$ref": 19115-4-core.json#PT_Locale
        minItems: 0
      externalFeedback:
        description: Link to an item in an external repository that contains the
feedback
          (not described inline)
        type: array
        items:
          "$ref": 19115-4-core.json#CI_Citation
        minItems: 0
      citation:
        description: 'Citation of a published resource (e.g.: a report, a peer
reviewed
          paper) that provides an evaluation of the usage of the resource'
        type: array
        items:
          "$ref": 19115-4-core.json#CI_Citation
        minItems: 0
      additionalLineageSteps:
        description: Additional lineage steps not included in the producer
metadata
        "$ref": 19115-4-core.json#LI_Lineage
      additionalQuality:
        description: Structured quality assessment result
        type: array
        items:
          "$ref": https://iso.com/19157.schema.json#DQ_DataQuality
        minItems: 0
      rating:
        description: Rating code reflecting the satisfaction of the user with the
          resource used
        "$ref": "#GUF_Rating"
      usage:
        description: Structured usage report
        type: array
        items:
          "$ref": "#GUF_UsageReport"
        minItems: 0
      contact:
        description: Information about the user providing feedback
        "$ref": "#GUF_UserInformation"
      userComment:
        description: Text free user comment
        "$ref": "#GUF_UserComment"
      significantEvent:
        description: Significant natural events or sensor or platform anomalies
that
          can affect the interpretation of the data.
        type: array
        items:
          "$ref": "#GUF_SignificantEvent"
        minItems: 0
      target:
        description: Identifies a pre-existing resource (e.g., a dataset or a
metadata
          record) from a catalogue
        type: array
        items:
```

```
          "$ref": "#GUF_FeedbackTarget"
        minItems: 1
    required:
    - itemIdentifier
    - abstract
    - contactRole
    - dateInfo
    - contact
    - target
  GUF_SignificantEvent:
    "$anchor": GUF_SignificantEvent
    type: object
    properties:
      abstract:
        description: Brief narrative description of this event, normally for
display
          to a human
        type: string
      citation:
        description: 'Citation of the event (e.g.: a report describing the event,
          or a event identifier)'
        type: array
        items:
          "$ref": 19115-4-core.json#CI_Citation
        minItems: 0
      extent:
        description: Spatio-temporal extent of the event
        "$ref": 19115-4-core.json#EX_Extent
      eventType:
        description: Type of event
        "$ref": "#GUF_SignificantEventTypeCode"
    required:
    - abstract
    - extent
  GUF_Rating:
    "$anchor": GUF_Rating
    type: object
    properties:
      rating:
        description: Rating in the form of a simple numeric code that qualifies
subjectively
          the feedback target
        "$ref": "#GUF_RatingCode"
    required:
    - rating
  GUF_UserComment:
    "$anchor": GUF_UserComment
    type: object
    properties:
      comment:
        description: Free text
        type: string
      motivation:
        description: 'Motivation of the comment: it can be a comment, a question,
          an answer or a justification (e.g. a justification for a rating)'
        "$ref": "#GUF_MotivationCode"
    required:
    - comment
  GUF_UsageReport:
    "$anchor": GUF_UsageReport
    type: object
    properties:
      reportAspect:
```

```
        description: Aspect reported
        "$ref": "#GUF_ReportAspectCode"
      usageDescription:
        description: Usage description or limitation of the target
        type: array
        items:
          "$ref": 19115-4-core.json#MD_Usage
        minItems: 0
      discoveredIssue:
        description: Discovered issue in the target resource
        type: array
        items:
          "$ref": https://schemas.opengis.net/guf/2.0/qcm_schema.json#QCM_
DiscoveredIssue
        minItems: 0
    required:
    - reportAspect
  GUF_UserInformation:
    "$anchor": GUF_UserInformation
    type: object
    properties:
      userDetails:
        description: Contact details about the user and its organization
        "$ref": 19115-4-core.json#CI_Party
      description:
        description: User short description or bio
        type: string
      applicationDomain:
        description: Application domain(s) a user works in
        type: array
        items:
          "$ref": "#GUF_ApplicationDomain"
        minItems: 1
      userRole:
        description: The roles the user can play
        type: array
        items:
          "$ref": "#GUF_UserRoleCode"
        minItems: 0
      externalUserID:
        description: User ID in an external system such as an ORCID
        type: array
        items:
          "$ref": 19115-4-core.json#MD_Identifier
        minItems: 0
    required:
    - userDetails
    - applicationDomain
  GUF_FeedbackTarget:
    "$anchor": GUF_FeedbackTarget
    type: object
    properties:
      resourceRef:
        description: Reference to a resource (e.g. a dataset or metadata record)
that
          is target of the feedback item or a superset of it
        type: array
        items:
          "$ref": 19115-4-core.json#CI_Citation
        minItems: 1
      metadataIdentifier:
        description: Identifier for a metadata record about the resource
        type: array
```

```
        items:
          "$ref": 19115-4-core.json#MD_Identifier
        minItems: 0
      scope:
        description: Describes a type of resource the feedback is about;
typically
          a dataset, a metadata record, a feature...or a subsets of a dataset or
resource
        "$ref": 19115-4-core.json#MD_Scope
      role:
        description: The role of the target with respect to the feedback item
        "$ref": "#GUF_TargetRoleCode"
      parent:
        description: Parent of the cited resource
        "$ref": "#GUF_FeedbackTarget"
      child:
        description: Child of the cited resource
        type: array
        items:
          "$ref": "#GUF_FeedbackTarget"
        minItems: 0
    required:
    - resourceRef
    - role
  GUF_ApplicationDomain:
    "$anchor": GUF_ApplicationDomain
    type: object
    properties:
      domain:
        description: An application domain a user works in
        type: string
      expertiseLevel:
        description: User’s expertise level in this particular application
domain,
          restricted by a codelist
        "$ref": "#GUF_RatingCode"
    required:
    - domain
    - expertiseLevel
  GUF_SignificantEventTypeCode:
    "$anchor": GUF_SignificantEventTypeCode
    type: string
    enum:
    - hurricaneNatural
    - volcanicEruptionNatural
    - elNinoNatural
    - droughtNatural
    - stormNatural
    - wildfireNatural
    - floodNatural
    - earthquakeNatural
    - tsunamiNatural
    - ifsEvent
    - systemEvent
    - satelliteAnomaly
    - dropsondeAnomaly
    - aircraftAnomaly
    - buoyAnomaly
    - shipAnomaly
    - landStationAnomaly
    - mobileSensorAnomaly
    - sensorAlarm
  GUF_RatingCode:
```

```
      "$anchor": GUF_RatingCode
      type: string
      enum:
      - '1'
      - '2'
      - '3'
      - '4'
      - '5'
    GUF_MotivationCode:
      "$anchor": GUF_MotivationCode
      type: string
      enum:
      - comment
      - question
      - answer
      - response
      - justification
      - resolution
      - conclusion
      - moderation
      - annotation
      - acceptedAnswer
    GUF_ReportAspectCode:
      "$anchor": GUF_ReportAspectCode
      type: string
      enum:
      - usage
      - fitnessForPurpose
      - limitation
      - alternative
      - problem
    GUF_UserRoleCode:
      "$anchor": GUF_UserRoleCode
      type: string
      enum:
      - commercialDataProducer
      - commercialAddedValue
      - researchDataProducer
      - researchEndUser
      - decisionMaker
      - generalPublic
    GUF_TargetRoleCode:
      "$anchor": GUF_TargetRoleCode
      type: string
      enum:
      - primary
      - secondary
      - supplementary
  properties:
    type:
      type: string
      const: Feature
    geometry:
      type: 'null'
      const:
    properties:
      type: object
      properties:
        GUF_FeedbackItem:
          "$ref": "#/$defs/GUF_FeedbackItem"
      required:
      - GUF_FeedbackItem
      maxProperties: 1
```

```
additionalProperties: false
required:
- type
- geometry
- properties
```

Listing 2 — Schema for a feedback item encoded as GeoJSON (ogcapi_feedback-item.yaml)

11.3. Feedback Collection encoding

JSON is an open standard file format and data interchange format that uses human-readable text to store and transmit data objects consisting of attribute–value pairs and arrays (or other serializable values). JSON is a commonly used data encoding with diverse uses in electronic data interchange, including that of web applications with servers.

The following requirements apply when:

1. The API endpoint advertises conformance to the JSON Conformance Class
2. The client negotiates that the content of the server's response be JSON.

REQUIREMENT 14	
IDENTIFIER	`/req/json/fb-collection-response`
INCLUDED IN	Requirements class 5: `https://www.opengis.net/spec/guf-conceptual/2.0/req/json`
A	200-responses of the server SHALL support the following media type: • `application/ogc-fb-catalog+json` for feedback catalog or feedback record collection resources.

REQUIREMENT 15	
IDENTIFIER	`/req/json/feedback-catalog-content`
A	The schema of all responses with the media type `application/ogc-fb-catalog+json` SHALL validate against the OpenAPI 3.0 schema document `ogcapi_feedback-catalog.schema.json`.

NOTE: The schema for the feedback catalog is a specific implementation of the record collection defined in OGC API — RecordsStandard.

While OGC API — RecordsStandard defines the property conformsTo as optional, OGC API — Feedback considers it as required and its value is fixed as "http://www.opengis.net/spec/

ogcapi-feedback-2/2.0/conf/feedback" to indicate that all elements in the catalog follows the feedback item requirements.

https://github.com/opengeospatial/ogcapi-records/blob/master/core/openapi/schemas/recordGeoJSON.yaml

11.4. Feedback Summary encoding

GeoJSON is a commonly used format based on JSON that is simple to understand and well supported by tools and software libraries. Since most Web developers are comfortable with using a JSON-based format, supporting GeoJSON is recommended.

The following requirements apply when:

1. The API endpoint advertises conformance to the JSON Conformance Class.
2. The client negotiates that the content of the server's response be GeoJSON.

REQUIREMENT 16	
IDENTIFIER	`/req/json/fb-summary-response`
INCLUDED IN	Requirements class 5: `https://www.opengis.net/spec/guf-conceptual/2.0/req/json`
A	200-responses of the server SHALL support the following media type: • `application/geo+json` for resources that include record content.
B	The `geometry` member SHALL be present and SHALL null.

REQUIREMENT 17	
IDENTIFIER	`/req/json/fb-summary-content`
INCLUDED IN	Requirements class 5: `https://www.opengis.net/spec/guf-conceptual/2.0/req/json`
A	Every 200-response with the media type `application/geo+json` SHALL be • a GeoJSON Feature Object for a feedback summary.
B	The schema of all responses with the media type `application/geo+json` SHALL validate against the OpenAPI 3.0 schema document `ogcapi_feedback-summary.yaml`.

NOTE 1: It should be noted that the `ogcapi_feedback-summary.yaml` schema makes the `geometry` member mandatory because the GeoJSON RFC requires that the `geometry` member be present.

Feedback items and, consequently, feedback summaries, does not have any spatial characteristic so, as per the GeoJSON RFC the values of the `geometry` member SHALL be `null`.

NOTE 2: OGC API — Feedback uses elements of ISO 19115 to define certain properties. Since ISO 19115 does not yet have an official JSON implementation, all references to this ISO in the feedback item JSON schema are made as '19115-4-core.json'.

```
---
"$schema": https://json-schema.org/draft/2020-12/schema
"$id": https://schemas.opengis.net/guf/2.0/ufs_v_2_0.schema.json
title: User Feedback Summary
description: User Feedback Summary v2.0 JSON schema
"$defs":
  UFS_FeedbackSummary:
    "$anchor": UFS_FeedbackSummary
    type: object
    properties:
      target:
        description: Common geospatial resource the summary is about.
        "$ref": 19115-4-core.json#CI_Citation
      numberOfFeedbackItems:
        description: Number of Feedback items this summary is about
        type: integer
      latestItemDate:
        description: The date of the last item
        "$ref": 19115-4-core.json#CI_Date
      numberOfPrimaryTargets:
        description: Total number of primary targets
        type: integer
      numberOfSecondaryTargets:
        description: Total number of secondary targets
        type: integer
      numberOfSupplementaryTargets:
        description: Total number of supplementary targets
        type: integer
      averageUserExpertiseLevel:
        description: Average user expertise level
        type: number
      minimumRating:
        description: Minimum rating received. Numeric value
        type: number
      maximumRating:
        description: Maximum rating received. Numeric value
        type: number
      averageRating:
        description: Average rating
        type: number
      numberOfRatings:
        description: Number of feedback items with a valid rating
        type: integer
      numberOfUserComments:
        description: Number of feedback items with a valid comment
        type: integer
      numberOfUsageReports:
        description: Number of populated usage reports
        type: integer
      numberOfReproducibleUsageReports:
        description: Number of populated reproducible usage reports
        type: integer
```

```
      numberOfCitatons:
        description: Number of populated citations
        type: integer
      numberOfAdditionalQualities:
        description: Number of populated quality elements
        type: integer
      numberOfAdditionalLineages:
        description: Number of feedback items with a valid reported lineage
        type: integer
      numberOfSignificantEvents:
        description: Number of populated significant events
        type: integer
      feedbackItemsByExpertiseLevelCount:
        description: Number of feedback items by each level of expertise
        type: array
        items:
          "$ref": "#UFS_ExpertiseLevelCount"
        minItems: 0
      userByRoleCount:
        description: Number of feedback items for each user role
        type: array
        items:
          "$ref": "#UFS_UserRoleCount"
        minItems: 0
      byKeywordCount:
        description: Number of feedback items for each keyword
        type: array
        items:
          "$ref": "#UFS_KeywordCount"
        minItems: 0
      byRatingCount:
        description: Number of feedback items for each rating value
        type: array
        items:
          "$ref": "#UFS_RatingCount"
        minItems: 0
      ratingByExpertiseLevelCount:
        description: Number of feedback items for each rating and level of
expertise
        type: array
        items:
          "$ref": UFS_RatingExpertiseLevelCount
        minItems: 0
      byTagCount:
        description: Number of feedback items for each tag
        type: array
        items:
          "$ref": UFS_TagCount
        minItems: 0
    required:
    - numberOfFeedbackItems
    - minimumRating
    - maximumRating
    - averageRating
    - numberOfRatings
    - numberOfUserComments
    - numberOfUsageReports
    - numberOfReproducibleUsageReports
    - numberOfCitations
    - numberOfAdditionalQualities
    - numberOfAdditionalLineages
    - numberOfSignificantEvents
  UFS_ExpertiseLevelCount:
```

```
    "$anchor": UFS_ExpertiseLevelCount
    type: object
    properties:
      expertiseLevel:
        description: A possible value of expertise level
        "$ref": https://schemas.opengis.net/gufspec/ogcapi-feedback-2/2.0/fb_v_2_
0.schema.json#GUF_RatingCode
      count:
        description: Number of feedback items that were populated by this
expertiseLevel
          code
        type: integer
    required:
    - expertiseLevel
    - count
  UFS_KeywordCount:
    "$anchor": UFS_KeywordCount
    type: object
    properties:
      keyword:
        description: A possible value of keyword
        "$ref": 19115-4-core.json#MD_Keywords
      count:
        description: Number of feedback items that were populated with this
keyword
        type: integer
    required:
    - keyword
    - count
  UFS_RatingCount:
    "$anchor": UFS_RatingCount
    type: object
    properties:
      rating:
        description: A possible value of rating
        "$ref": https://schemas.opengis.net/gufspec/ogcapi-feedback-2/2.0/fb_v_2_
0.schema.json#GUF_RatingCode
      count:
        description: Number of feedback items that were populated with this
rating
          code
        type: integer
    required:
    - rating
    - count
  UFS_RatingExpertiseLevelCount:
    "$anchor": UFS_RatingExpertiseLevelCount
    type: object
    properties:
      rating:
        description: A possible value of rating
        "$ref": https://schemas.opengis.net/gufspec/ogcapi-feedback-2/2.0/fb_v_2_
0.schema.json#GUF_RatingCode
      expertiseLevel:
        description: A possible value of expertise level
        "$ref": https://schemas.opengis.net/gufspec/ogcapi-feedback-2/2.0/fb_v_2_
0.schema.json#GUF_RatingCode
      count:
        description: Number of feedback items that were populated with this
rating-expertiseLevel
          code pair
        type: integer
    required:
```

```
    - rating
    - expertiseLevel
    - count
  UFS_TagCount:
    "$anchor": UFS_TagCount
    type: object
    properties:
      tag:
        description: A possible value of tag
        type: string
      count:
        description: Number of feedback items that were populated with this tag
value
        type: integer
    required:
    - tag
    - count
  UFS_UserRoleCount:
    "$anchor": UFS_UserRoleCount
    type: object
    properties:
      userRole:
        description: A possible value of user role
        "$ref": https://schemas.opengis.net/gufspec/ogcapi-feedback-2/2.0/fb_v_2_
0.schema.json#GUF_UserRoleCode
      count:
        description: Number of times that a feedback items was populated by a
user
          acting with this userRole code
        type: integer
    required:
    - userRole
    - count
```

Listing 3 — Schema for a feedback summary encoded as GeoJSON (ogcapi_feedback-summary.yaml)

A

ANNEX A (NORMATIVE) ABSTRACT TEST SUITE (NORMATIVE)

ANNEX A
(NORMATIVE)
ABSTRACT TEST SUITE (NORMATIVE)

A.1. Introduction

A conformant implementation of this Standard must satisfy the following system characteristics.

A.2. Conformance class: Feedback item

A.2.1. Feedback Item

A.3. Conformance class: Feedback Summary

A.3.1. Feedback Summary

A.4. Conformance class: Feedback Collection

A.4.1. Feedback Collection response

A.4.2. Feedback Collection

A.4.3. Feedback Collection response pagination

B

ANNEX B (INFORMATIVE) REVISION HISTORY

ANNEX B (INFORMATIVE) REVISION HISTORY

Table B.1 — Revision History

DATE	RELEASE	AUTHOR	PARAGRAPH MODIFIED	DESCRIPTION
2025-02-06	0.1	Oscar Gonzalez & Alaitz Zabala & Joan Masó	All	First draft of OGC API Feedback

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