

OGC Testbed-21 Request for Information (RFI)

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1. Introduction

The Open Geospatial Consortium (OGC) is seeking information about technologies, platforms, and other resources that might be available for integration into the OGC Testbed-21 Initiative. OGC is releasing this Request for Information (RFI) to solicit information for the OGC Testbed-21 Initiative. This RFI is in preparation for an OGC Call for Participation (CFP), which will be released once the RFI responses are analyzed. If you are interested in influencing the design of the testbed, please submit a response to the RFI as described in Section 2.5.

1.1. Background

The OGC Testbed series is an annual research and development program that explores geospatial technology while taking current and potential future OGC Standards into account. The Testbeds integrate requirements and ideas from various sponsors to bring out symbiotic effects. These initiatives also bring sponsors together with several participants and thus offer a unique opportunity to tackle location data and processing challenges together, as a community of the world's leading geospatial IT experts.

1.2. Emerging topics

Recent discussions with Strategic and Principal members have highlighted the following topics being of high interest:

- **Advancement of GeoDataCubes:** Further prototyping of GeoDataCubes, with input from the user community as a priority, and clearer separation of the definition of GeoDataCubes from those of other closely related concepts.
- **Analysis Ready Data:** Experimentation with existing standards to facilitate the description and publication of Analysis Ready Data (ARD), as well as clearly defining the scope and levels of readiness.
- **Artificial Intelligence (AI) for Geoinformatics:** Wide ranging interest, from prototyping of AI-focused extensions of existing OGC Standards (e.g., facilitating query); to prototyping of new AI-focused OGC Standards.
- **Building Blocks for Geospatial Ecosystems:** Examine how Standards Building Blocks could facilitate the implementation of geospatial ecosystems and the spatial data infrastructure that underpins them.
- **Citizen-centric data:** making information more available and understandable to the citizen, not just the expert.
- **Digital Object Identifier (DOI) usage for geospatial resources:** Prototype association of geographic information with DOI in support of geospatial query of scientific publications and datasets.
- **GEOINT Imagery Media for ISR (GIMI):** Further benchmarking of compression algorithms, geo-enabled HEIF drivers against COG drivers, and video metadata handling.
- **Integrity, Provenance, and Trust (IPT):** Validating resource integrity, and building trust, as well as ensuring provenance verification through the implementation of metadata and OGC API Standards.
- **Metadata and data infrastructures:** Modernization of metadata and data models to support JSON encoding (e.g., leveraging JSON-FG).
- **Policy and Standards:** what Standards enable policy decisions, particularly on climate change.
- **Representation of triaxial bodies (e.g., asteroids, moons, comets) in the context of the solar system:** The modeling and visualization of celestial bodies in the solar system often involve complex three-dimensional (3D) shapes; therefore, there is a need for standardized methods for representing their geometries.

- Semantics and data integration challenges: Towards greater automation of data integration through standards-based semantic information in multilingual datasets.
- Space Situational Awareness: Demonstrate the potential role of OGC Standards in the location, modeling and representation space objects, space debris and space weather phenomena.

Additional topics that have featured in recent discussions across the OGC have been:

- 3D data access and seamless 2D/3D/4D transitions
- Big Data Analytics
- Cloud-native geospatial
- Data-Centric Security
- Digital Twins
- Distributed data processing and data processing pipelines
- Event driven approaches and Publish/Subscribe workflows
- Feature extraction and modeling from Full Motion Video
- Federated Security
- Geospatial for the Metaverse
- High-Performance Geospatial Computing
- New Space; the combination of technology and market advances from rocket launches, small satellites, orbital planes, evolving sensor modalities and new ground infrastructures, and the uptake of agile thinking and new business models
- OGC API Standards coordination effort and building of resource models

1.3. Main Schedule

The design of Testbed-21 will follow a process involving the stages identified in Figure 1. The first stage is the development and issuing of this RFI. The second stage is development and issuing of the Call for Sponsors (CFS). The third, and final stage ahead of the Testbed Kick-off, is the development and issuing of the Call for Participation (CFP).



Figure 1. Key stages in the design of the testbed

The following table details the major events associated with this RFI and the follow-on testbed. Please note that the dates are subject to change.

Table 1. Main Schedule

Milestone/Activity	Date
Request for Information (RFI) is released	2025-01-24
RFI Responders Q&A; online answers will be provided as questions are submitted	2025-01-29
RFI responses due	2025-02-07
Call for Sponsors (CFS) is released	2025-02-12
Sponsor commitments due	2025-03-21
Call for Participation (CFP) is released	2025-03-31
Sponsor contracts due	2025-04-15
CFP Responses due	2025-05-15
Participants selected	2025-06-02
Testbed Kick-off meeting	2025-06-27
Initial Draft Reports due	2025-11-15
Final demonstrations	2025-12-15
Final Draft Reports due	2026-01-15
Final deliverables due	2026-02-27

2. Request for Information

2.1. RFI Goal

The goal of this RFI is to aid in understanding the technological and capability landscape of potential participants that could address technical challenges identified by Testbed sponsors.

2.2. RFI Objectives

The key objectives of the RFI are to help determine how OGC Staff should develop the Testbed and what organizations and components could be included, as well as what interconnections are missing or might need to be adapted. Additionally, the RFI will help OGC Staff understand which role or roles your organization could participate in.

RFI responses will be used to define the scope of the Testbed and create a clear and focused Call for Participation.

Response information is covered in the Section 2.5.

2.3. RFI Questionnaire

Please address only the questions that are relevant to your type of participation, it is not necessary to answer every question. If appropriate, please reference the relevant emerging topics (section 1.2) when describing the platforms or resources that you might offer to the testbed.

Organization

- Organization Name and address
- Organization Point of Contact (POC)
- POC email and phone
- Organization Type: (Government, Industry, Academia Non-Profit, Other)
- Is your organization willing to be a (add all that apply):
 - Platform Provider
 - Resource Provider
 - Use Case Provider
 - Developer

- Sponsor
- What in-kind services could your organization provide?
- Organization Achievement: What is your organization trying to achieve with the infrastructure component(s) you anticipate providing?
- Organization Success: What would your organization's success criteria be?

Platform and/or Resource Provider

- What specific platforms / products/datasets/resources would your organization offer?
- How would your infrastructure or components fit into a multi-tier architecture?
- What is missing or should be restated as an emerging topic in Section 1.2 of this RFI?
- What infrastructure pieces should be prioritized?

If selected for the testbed, how long do you anticipate providing infrastructure/products/datasets/resources? (Note: We prefer a commitment to the full period of performance (12 months) of the project or longer).

- How would your capabilities interoperate and integrate with everyone else's (will you adapt your capabilities to work with others)?
- What types of APIs, standards, and interoperability do you currently use?
- How would your organization's components be accessible?
- Additional Comments -

Use Case Provider

- What specific use cases will your organization offer?
- What kind of data/ resource/infrastructure/component/capability would the use cases need access to?
- What types of APIs, standards, and interoperability do you use to enable platforms to support the use cases?
- Additional Comments -

Developer

- In which domain are you interested in developing?
- On which software stack; Open source or commercial?
- Are you familiar with the agile software development process?
- What types of APIs, standards, and interoperability will you use in your development(s)?

- Additional Comments -

Sponsor

- Is your organization interested in becoming a sponsor / funder of this initiative?

2.4. RFI Evaluation Criteria

This RFI data will be gathered and assessed by OGC and potential sponsors. The inputs will aid in the design of the Testbed and the follow-on CFP. There are no strict evaluation criteria as this RFI is to advance the design of the testbed itself.

No responder will be prevented from responding to the Call for Participation, nor will any responder be considered automatically included. Response to this RFI does not obligate the responder to provide the services that organization has detailed.

2.5. RFI Response

Responders Question and Answer (Q&A) will be ongoing; questions will be addressed as they come to OGC email at:

standards-team@ogc.org

Subject Matter: OGC Testbed-21 RFI

RFI Q&A Responses will be posted
at: https://portal.ogc.org/files/?artifact_id=110212

Responders Q&A ends 2025-01-29 at 23:59 [AoE \(Anywhere on Earth\)](#).

Please respond to this RFI through the online form at
<https://zfrmz.com/Lh9684wud3XeaMpYm4Xf>

Not every question under the RFI Inquiry section needs to be addressed.

All RFI Responses are due by: 2025-02-07 at 23:59 [AoE \(Anywhere on Earth\)](#).