OGC Project Document 22-015

TITLE: Geo for Open Metaverse Domain Working Group Charter

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CATEGORY: Domain Working Group

# Introduction

1. What is the Metaverse and Why do OGC members care about it?
2. The Metaverse is an extension of real and synthetic 2D/3D+ worlds – a synchronously shared and persistent context – interactive, multi-user, social, immersive, and eventually co-present with the real world
3. The Metaverse is not a single thing but a collection of platforms and technologies- a world of objects that can be navigated and with which, through direct presence, users can interact.
4. The Metaverse is a culmination of what we are all building. To be successful, all digital and physical world information will have to work in concert at scale.
5. OGC has always focused on interoperability and open standards – both of which are key to ensuring an open Metaverse
6. Why collaboration?
7. The Metaverse will have a deep impact on our lives, our jobs, and our future.
8. We have a collective responsibility to ensure that the shared future is FAIR (Findable, Accessible, Interoperable, Reusable) and open. Working together, we can have a positive impact on this future.
9. Why Geo interoperability?
10. Everything we do in OGC is applicable to the Metaverse. Our community can contribute expertise in 3D, modeling and simulation, GeoAI, semantics, streaming, Augmented Reality, routing, etc. – all at scale.
11. 3D geospatially-anchored data is powering a revolution across a range of industries. This same data, that is relied upon for construction of the real world, is now driving the creation of virtual/digital worlds.
12. Geospatial Coordinate Reference Systems can anchor information in the Metaverse
13. For the Metaverse to work and scale, we need a consistent ontology of people, places, and things in or referencing the Metaverse. The OGC community can contribute to and help link up ontologies that are already used in many of the OGC domains and working groups.

# Purpose of Working Group

1. Provide a forum for discussion and documentation of interoperability requirements for Open and Interoperable Metaverse components and services.
2. Capture and communicate the value of geospatial tech and expertise and advocate for interoperability and standards that will ensure the successful adoption of and widespread innovation for the Metaverse.
3. Link with other standards bodies and other types of community or stakeholder efforts, that will help to accelerate the enabling of value of geospatial in the Metaverse.
4. Collective experimentation and demonstration around use cases (see Autodesk and Esri presentations from the March 2022 OGC Member Meeting Metaverse session (<https://portal.ogc.org/index.php?m=projects&a=view&project_id=82&tab=2&artifact_id=100394> for some good examples).
5. Identify community standards to bring into OGC.
6. Develop Change Requests (CR’s) for existing OGC standards, as needed, to meet Metaverse requirements.
7. Coordinate with other DWGs in OGC (Digital Twins, Sensor Web Enablement, etc.).
8. Host community building sessions at OGC events.
9. Ensure inclusive, accessible recommendation, adoption, and implementation of Metaverse standards and technologies promoted by OGC.

# Problem Statement

The Metaverse is perhaps the ultimate distributed digital twin of the world. It has the potential of representing everything in the world plus everything that can be imagined. The challenges to Standards Development Organizations (SDOs), technologists, artists, and society are huge, but the payoff is equally tremendous. OGC and this DWG will work on pieces of the Metaverse that pertain to geospatial applications and standards by developing open standards based on FAIR principles. Given that the Metaverse will be an evolutionary development, the working group will identify both near and long-term goals ensuring interoperability, FAIRness and openness. Also given that much of the Metaverse is already happening, collaboration will be key for success and a grounding principle of this working group

# Charter

## Charter Members.

The initial membership of the Geo for Open Metaverse DWG will consist of the following members and individuals with extensive education and experience in Metaverse issues, namely:

Rich Frasier, FGDC

TBD, USGS

Tamrat Belayneh, Esri

Christopher Covert, Microsoft

Leonard Daly, the Khronos Group

Christine Perey, Open AR Cloud

Apurva Shah, Duality Robotics

Stan Tillman, Hexagon

Patrick Cozzi, Cesium

Ashley Antonides, Anno.AI

Nazih Fino, Global Nomad Services

Jordan Dauble, SimBlocks LLC

Patrick Hogan, NASA Earth Scientist Emeritus

## Key Activities.

While the scope of this DWG is broad, it will emphasize key activities:

1. Establishing a list of standards (OGC and more) that are applicable;
2. Define and prioritize requirements for an open and interoperable Metaverse;
3. Identify and prioritize interoperability gaps;
4. Identify community standards that could be brought into OGC (e.g., 3D Tiles Next);
5. Address the semantic interoperability gap; and
6. Set up representative demonstrations to communicate the value of geospatial to be FAIR, open, collaborative.

## Business Case

The DWG will consider issues concerning:

* Taxonomy and semantic interoperability;
* 3D/4D representation of people, places, and things in the Metaverse;
* Data sharing, interface standards, and approaches; and
* The Open Metaverse.

# Organizational Approach and Scope of Work

## Geo for Open Metaverse DWG Business Goals

The working group will establish a set of business goals that frame the basis for determining the nature and type of recommendations made to OGC, framed around the business issues above.

* Focus on issues that will accelerate the building of an open Metaverse.
* Focus on FAIR and open.
* Leverage alliances and other standards bodies and initiatives.
* Identify and review, then when ratified in OGC, build on those community standards.

## Geo for Open Metaverse DWG Mission and Role

* The mission of the group is to be a conduit of the collective geospatial expertise of the OGC community into building and growing the open Metaverse:
  + Identify interoperability requirements and collaboration issues and challenges; and
  + Examine ways to meet requirements while also addressing challenges through application of existing OGC standards, or through development of new interoperability standards under the auspices of OGC.
* The role is to serve as a forum within OGC for discussions leading to shared definitions of an open Metaverse:
  + to present, refine and focus attention on interoperability-related issues to the Technical Committee; and
  + Serve, where appropriate, as a liaison to related industries, governments, independent, research, and standards organizations relevant to the domain.

## Activities planned for Geo for Open Metaverse DWG

Activities to be undertaken by this group include but are not limited to

* Promotion of Geo in metaverse.
* Advancement of 3D standards, AR/VR, GeoPose, Points of Interest.
* Identification of a semantic interoperability process.
* MOUs with other standards bodies and communities that have relevant activities that are meant to increase interoperability and ensure that the FAIR principles and ease-of-use of the Metaverse are acceptable to all stakeholders. Existing relationships with Khronos, W3C, ISO, and others will be important.
* Demonstrate capabilities that will show what is possible and impossible.
* Coordinate with other OGC working groups.
* Organize Metaverse sessions at member meetings and represent at partner events.
* …

# References