



Geospatial to the Edge Interoperability Plugfest Call for Participation

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Chapter 1. Introduction

1.1. Purpose

The Open Geospatial Consortium (OGC®) is releasing this *Call for Participation* ("CFP") to solicit proposals for the OGC Geospatial to the Edge Interoperability Plugfest ("Plugfest") initiative.

1.2. Background

This Plugfest, co-sponsored by Army Geospatial Center and the National Geospatial-Intelligence Agency (NGA/CIO&T), will bring together technology implementers and data providers to advance the interoperability of geospatial products and services based on community profiles. The Plugfest will assist tool enhancement and provide guidance to improve the delivery of enterprise geospatial data to end users.

Examples of how end user communities will benefit are:

- First responders, relief workers and fire fighters preparing for and operating in austere network environments.
- Emergency planners and managers supporting hurricane, wildfire, and earthquake preparedness, relief/response activities and damage assessment.
- Soldiers/warfighters during planning and executing operations specifically in disconnected, intermittent, and limited network environments.

The geospatial communities supporting defense, emergency response, and intelligence rely on geospatial data and open standards to accomplish their mission. To make sharing of data meet their specific needs, they used profiles. Profiles provide strict implementation guidance to ensure interoperability of geospatial systems in these highly specialized and demanding environments. Non-compliance to open standards profiles prohibits mission critical operations from executing effectively and efficiently.

Additionally, members of the IC, DoD, non-DoD/IC Federal agency members of the NSG, international partners, state/local municipalities, and Native American tribal organizations that are responsible for the operation, acquisition and/or development of systems and applications which collect, procure, produce, serve, exchange, or use GEOINT data are mandated to comply NSG implementation standards (NSGM 3202). The support of these profiles affect government acquisition decisions to ensure that all systems within the government can communicate appropriately. [From GEOINT Functional Manager Standards Assessment (GFMSA) Program Manual, NSGM 3202, June 2016]

A plugfest, an initiative of the OGC [Innovation Program](http://www.opengeospatial.org/ogc/programs/ip) [http://www.opengeospatial.org/ogc/programs/ip] provides the right venue for sponsors and technology implementers to come together in a collaborative agile process to solve geospatial challenges. A plugfest provides the scenarios and testing environment to advance implementation of profiles in commercial and open source software products. A plugfest allows organizations to test and validate that their software products can interoperate with other products implementing the same standards.

1.3. Benefits of Participation

Participating in this plugfest offers commercial vendors and open source projects significant national (and international) exposure to the GEOINT community, as well as geospatial technology purchasers in general.

The Plugfest is a prime opportunity for software vendors to cooperatively test and refine services, interfaces and protocols in the context of a hands-on engineering experience that raises the visibility of all participants. The Plugfest also calls attention to the importance and availability of interoperability while using community profiles based on open standards. This initiative is designed to increase particular client-server interoperability capabilities in a way that leverages and contributes to interoperable geospatial services across different communities.

This Plugfest offers the opportunity to participants to primarily advance the creation, serving and accessing of vector data in modern OGC standards, such as GeoPackage and WFS 2.0, as well as, raster data using WMS and WMTS Tile Services.

1.4. Policies and Procedures

This Plugfest will be conducted in accordance with the following policies and principles:

- OGC Innovation Program Policies and Procedures (OGC 05-127r8) [<https://portal.opengeospatial.org/files/64320>]
- OGC Plugfest Policies and Procedures (OGC 16-117) [<https://portal.opengeospatial.org/files/69705>]
- Intellectual Property Rights <http://www.opengeospatial.org/about/ipr>
- Principles of Conduct <http://www.opengeospatial.org/ogc/policies/conduct>

Chapter 2. Plugfest Description

2.1. Goal

The goal is to increase interoperability of information system using community profiles. The Plugfest will assist tool enhancement and provide guidance to improve the delivery of enterprise geospatial data to end users.

2.2. Profiles

The profiles that will be used in this initiative are:

- NSG GeoPackage 2.1 (raster and vector data), based on the OGC GeoPackage 1.1 standard: <https://nsgreg.nga.mil/doc/view?i=4379>
- NSG WMS 1.0 (raster data), based on the OGC WMS 1.3 standard: <https://nsgreg.nga.mil/doc/view?i=4209&month=11&day=13&year=2017>
- NSG WMTS 1.1 (raster data), based on the OGC WMS 1.0 standard: <https://nsgreg.nga.mil/doc/view?i=4448>
- NSG WFS 1.0 (vector data), based on the OGC WFS 2.0 standard: <https://nsgreg.nga.mil/doc/view?i=4388&month=11&day=17&year=2017>

2.3. Plugfest Participation Roles

The participants in the plugfest can take the following roles:

- **Data Providers** are organizations that provide data sources that can be tested by other participants either serving it via OGC services or opening in a client.
- **Service Providers** are organizations that produce services for clients to access.
- **Client Providers** are organizations that provide clients that will consume GeoPackage data and services to be used for a specific purpose.

2.4. Schedule and Execution

The following table details the major events and milestones associated with this initiative:

Table 1. Master schedule

Milestone	Date	Event
M01	November 21, 2017	Call for Participation (CFP) Release
M02	December 4 2017	Clarification Q&A Webinar (Open to anyone)

Milestone	Date	Event
M03	January 8, 2018	CFP Proposal Submission Deadline
M04	January 22, 2018	Selected Participants get Notified
M05	March 6, 2018	Participants Kickoff (pre-sprint clarification open to registered participants)
M06	April 20, 2018	Data and Servers Ready for Sprint 1
M07	April 23 - 27, 2018	Sprint 1 - Clients Testing
M08	May 25, 2018	Interim call
M09	June 22, 2018	Interim call
M10	July 20, 2018	Data and Servers Ready for Sprint 2
M11	July 23 - 27, 2018	Sprint 2
M12	Aug 31, 2018	Report Submitted (for OGC TC for public release approval)

2.5. Sprints

Sprints will happen virtually allowing participants around the world to participate and to minimize costs related to travel. Each sprint will last for 1 week. It is expected that during that week participants are available to respond to inquires posted by other participants. In the sprint time clients will perform a set of operations following a scenario and will document their success and failures.

Two sprints are planned on this plugfest.

Sprint 1 will test existing commercial and/or open source products against the scenarios. A limited (not for public dissemination) report on Sprint 1 findings, not revealing vendor information, will be shared with the Sponsors and relevant OGC Standards Working Groups. The findings (need for improvement in data structure, servers and clients) will be properly documented.

Sprint 2 will repeat the test performed in Sprint 1. Participants will have three months to improve their software to better create the GeoPackage files and improve their services and clients based on the feedback from Sprint 1.

2.6. Data Services and Scenarios

The data sets used for the plugfest will be finalized by prior to the kickoff date in March. The data will be unclassified, non-For Official Use Only (FOUO) and free of license restrictions or pursuant to other proprietary protection. Data may be pulled from open sources, government-provided, and

provided by Plugfest participants as long as it meets the non-proprietary requirement stated above. Dataset format testing criteria will be determined by the AGC prior to the beginning of the first sprint. During the Plugfest four NSG Profile standards will be tested, namely, GeoPackage, Web Map Service (WMS), Web Map Tile Service (WMTS) and Web Feature Service (WFS). (More details on these standards can be found at <http://www.opengeospatial.org/standards/> and the NSG Registry at <https://nsgreg.nga.mil/>).

Participants will have their data and services tested with a validator and with participating clients. The OGC Validator tool (TEAM Engine) is available in the [OGC validation portal](http://cite.opengeospatial.org/te2/) [http://cite.opengeospatial.org/te2/]. TEAM Engine and the tests will also be made available as a docker container and installed in the DoD environment. The data and services will also be tested with participating clients to ensure the NSG profiles are properly implemented ensuring interoperability across DoD and Industry. The goal of each scenario is to understand the success rate of interoperability across the various Geospatial platforms.

An overview of each scenario is presented bellow.

In **Scenario 1**, participants will test their software and services for creating and displaying data compliant with the NSG profile for GeoPackage 2.1.

Participants will demonstrate the ability to:

- Produce and display raster and vector data from provided source data
- Interact with vector attribute data
- Use appropriate coordinate systems for the NSG
- Create NSG Metadata Foundation (NMF) metadata within the GeoPackage
- Implement NSG-approved extensions of OGC GeoPackage

In **Scenario 2**, participants will test their implementations of the OGC WMS standard in a variety of commercial and open source GIS software.

The following will be tested:

- Performance
- GetMap, at all zoom levels and for each layer (including transparency)
- GetFeatureInfo, at all zoom levels and for specific layers (including transparency)
- GetCapabilities
- Coordinate systems that are used by the US and other international organizations (e.g. Lat/Long, UTM, UPS, MGRS)
- Test user-friendliness of server throwing exceptions
- Bounding box queries based on a given CRS.
- Authentication with user name and password, using either HTTP or HTTPS

In **Scenario 3**, participants will test their implementations of the NSG Profile of WMTS 1.1 (OGC WMTS 1.0) in a variety of commercial and open source GIS software.

The following will be tested:

- Performance
- Produce and display raster data compliant with the profile
- Comply with Service metadata requirements
- Use appropriate coordinate systems and Tile Matrix sets for the NSG
- Conduct all NSG mandatory operations (GetCapabilities, GetTile, GetFeatureInfo)
- Test user-friendliness of server throwing exceptions
- Authentication with user name and password, using either HTTP or HTTPS

In **Scenario 4**, participants will test their implementations of the NSG Profile for WFS v1.0 (OGC WFS 2.0) standard in a variety of commercial and open source GIS software.

The following will be tested:

- Produce and display vector data compliant with the profile
- Interact with vector attribute data through feature operations
- Comply with service metadata requirements
- Use appropriate coordinate systems for the NSG
- Conduct NSG mandatory operations for NSG Basic and Locking WFS

Chapter 3. Proposal Submission Guidelines

3.1. Submission Procedure

Organizations responding to this CFP must submit their intent for participation in a web form that must be submitted by January 8, 2018.

The web form is available at:

<https://docs.google.com/forms/d/e/1FAIpQLSf68NIu5RNk5KPw7UaD38uZ3qrxfsAGv1IWtv5bek-HshYh1w/viewform>

Information submitted in response to this CFP will be accessible to Sponsors, OGC and Sponsor staff members. This information will remain in the control of these stakeholders and will not be used for other purposes without prior written consent of the responding organization.

3.2. Questions and Clarifications

Once the CFP has been issued, potential responding organization will be permitted to submit questions to support their proposal development and submission. Questions should be emailed to the OGC Technology Desk (techdesk@opengeospatial.org [mailto:techdesk@opengeospatial.org]) before the clarifications webinar. Question submitters will remain anonymous, and answers will be compiled and published in a regularly updated, authoritative CFP Clarifications document, linked to the initiative main page: <http://www.opengeospatial.org/projects/initiatives/geoedgeplugfest>.