



Defence Geospatial Information Working Group (DGIWG) Annual Report 2023 and Business Plan 2024

“Delivering Military Advantage through multi-national geospatial interoperability.”

The activities and achievements of the Defence Geospatial Information Working Group (DGIWG)¹, covering the 2023 calendar year, are captured in this Annual Report. It also looks ahead to planned activities for the 2024 program year.

During 2023, we conducted two in-person Technical Panel Meetings, with the first in Pont-a-Mousson, France, and the second in Garmisch-Partenkirchen, Germany. Face-to-face meetings enable DGIWG members to maintain and strengthen personal relationships, efficiently coordinate work between Technical Panels (TPs), and ultimately, progress the development, implementation and evolution of standards. The requirements for such standards and associated profiles stem from member nations, clients such as co-production programs, and the North Atlantic Treaty Organisation (NATO).

2023 DGIWG Highlights

1. Key Technical Outputs. The technical work this past year includes the collection and validation of client requirements as well as the development of profiles and product specifications to support such requirements. Also, the internal cross-collaboration of TPs was noteworthy and will persist into the next year. Annex A summarises the official standardization artefacts that were finalised in 2023 and were released in calendar year 2023; the key outputs include:

- DGIWG 126 GeoPackage Profile
- DGIWG Symbol Registry Development Environment
- DGIWG 933 DGIWG Geospatial Reference Architecture (DGRA)
- Publication of Test Datasets for standards:
 - DGIWG 250 - Defence Gridded Elevation Data,
 - DGIWG 254 – Defence Raster Product (DRP), and
 - DGIWG 255 – Defence Ortho-Imagery Product (DOP)
- Publication of DGIWG 906-910 TP Roadmaps

Refer to <https://dgiwg.org/documents/dgiwg-standards> for a complete listing of DGIWG standardisation artefacts. Annex B lists the standardization artefacts that will be finalised and are expected to be balloted in 2024.

¹ The Defence Geospatial Information Working Group (DGIWG) is a multi-national body established by a memorandum of understanding between the Defence organisations of respective nations. Its main objective is to provide strategic guidance and recommendations to its membership on the standardisation of geospatial data, products, and services. It also supports the requirements of NATO and the other alliances that its members participate in, including UN sanctioned peacekeeping.



2. Succession Planning and Business Process Evolution. This past year proved to be a year of change. We bid farewell to members seeking new opportunities and welcomed newcomers for the following management roles:

- Director,
- Requirements Manager, and
- Technical Coordinator.

The transition of Secretariat is also underway but will not occur until mid-2024.

Internal DGIWG business processes continued to evolve, to include an External Engagement Plan that will manage DGIWG collaboration with partner organisations supporting mutual defence objectives. As an extension of the Engagement Section of the DGIWG 931 Operations Manual, it will support message and issue tracking at external meetings and ensure alignment with the Program of Work. It is under review and will be issued for ballot early 2024.

3. Quality Panel. The Quality Panel (P0) has continued to assure the structure, quality, and consistency of documents prior to publication. The staffing of the Quality Panel continues to be a challenge and it is currently highly dependent on contributions from Canada and New Zealand. Augmenting this capacity by providing suitable personnel should be a high priority for member nations. Properly resourcing the Quality Panel is essential to facilitate timely finalization and release of DGIWG documentation and ensure they are credible, relevant and implementable. In-lieu of permanent members, the feasibility of cycling members of the technical panels into the Quality Panel will be investigated. The intent is to allow cross pollination of expertise and help inform best practice. The work is not exclusively technical, thus anyone with a good grasp of written English and an eye for detail could make a valuable contribution.

4. Program of Work. The Program of Work (PoW) depicts the status of all requirements, projects and timelines. It is currently only visible to DGIWG members via the portal.

5. Project Activities Refresh. A visible summary project activities is planned for update to improve transparency to all DGIWG clients. This will be updated quarterly and made available on the public website.

6. Vacancies. In order for DGIWG to operate effectively, we are dependent on nations providing key officers such as the Director, Management and Technical Panel Leads. We have been fortunate that most of these roles have been sustained by particular nations and successors have been found automatically. However, in response to continuous business process improvements and technology enhancements, several new roles have been created. We now need the support of nations to fill these vacancies:

- QA Reviewers for P0 (Quality) – generalists with good command of written English and/or Technical Experts
- Panel Site Content Managers – panel members with technical acumen to manage the public website content for their respective panel

All nations are encouraged to help with sharing the overhead of managing DGIWG by offering support in these key areas.



2024 DGIWG Business Plan

The following work items are expected to start in, or continue through 2024:

- **Current Projects**
 - (P1.03) DGIWG 256 Defence City Map (DCM) Data Product Specification.
 - (P1.05) DGIWG 258 Joint Operations Graphic - Air (JOG-A) Data Product Specification.
 - (P1.07) Defence Geospatial Information Framework (DGIF) 3.0 / NATO Geospatial Information Framework (NGIF) 3.0
 - (P1.08) Tactical Pilotage Chart (TPC) Data Product Specification.
 - (P1.10) DGIWG 263 MGCP Urban Vector Data (MUVD) Data Product Specification.
 - (P1.11) International Program for Human Geography - Points of Interest Schema and Specification
 - (P1.12) DGIF 3.0 Data Product Specifications uplift
 - (P1.13) DGIF 3.0 Mapping Tables uplift
 - (P2.05 / P5.07) Sensor Web Enablement for MASINT
 - (P2) Tiled and Gridded Data Extension for DGIWG 126 Geopackage Profile (Ed. 1.1)
 - (P2) Defence Geospatial Elevation Data (DGED)
 - (P2) Point Cloud White Paper
 - (P3.06) DMF 2.1
 - (P3.07) Metadata Registers
 - (P4.05) Symbol Repository
 - (P4.07) Update of Symbol Library for STANAG 3675
 - (P5.04) Update to DGIWG profile of Web Map Tile Service and Web Map Service
 - (P5.05) Defence Profile of OGC's Web Processing Service
 - (P5.11) Defence Profile of OGC Environmental Data Retrieval (EDR) API
 - (P5) API White Paper

- **New Requirements**
 - Update of Symbol Library for Training Area Map Symbology (Anticipated)
 - MGCP Geopackage Exchange (Received, under consultation)
 - Defence Gridded Elevation Data (DGED) New Evolution Proposal (Anticipated)
 - IPHG Metadata (under consultation)

- **Maintenance of the following documents are expected to commence in 2024:**
 - DGIWG Profile of JPEG2000 for Georeferenced and Referenceable Imagery
 - DGIWG 250 Defence Gridded Elevation Data (DGED) Product Implementation Profile

Annex A: DGIWG 2023 Deliveries – Standardisation Artefacts

The table below is a summary of standardization artefacts that were finalised and released in calendar year 2023.

ID	DGIWG Doc. #	Title	Ed. #	Doc. date	Abstract
1	126	DGIWG GeoPackage Profile	1.0	22 Sept 2023	This profile of the Open Geospatial Consortium (OGC) GeoPackage standard enables DGIWG member nations producing and sharing geospatial raster and feature data to discover, understand, and utilize GeoPackages in a consistent interoperable format.
2	933	DGIWG Geospatial Reference Architecture (DGRA)	1.0	18 May 2023	The DGIWG Geospatial Reference Architecture (DGRA) defines a framework for achieving interoperability in the military geospatial domain by showing the intended interrelationship between standards, implementation guides, and industry best practices when implemented in a national or coalition environment. Together these form a framework for achieving interoperability in the military geospatial domain. This is intended to enhance the exchange and use of geospatial data, services and products across an international network of independent military systems and equipment. The DGRA provides direction and defines the best practice(s) by which members can improve the interoperability of geospatial data and systems when developing solutions for new and emerging capabilities.
3	906	DGIWG Metadata-Roadmap	3.0	2023-05-18	The Metadata Roadmap addresses interoperability goals and objectives requiring standards-based solutions for metadata and respective implementation criteria and guidance. The metadata program managers work collaboratively with members of the Defence Community to assess operational requirements and provide solutions for implementation in Defence architectures and system, with special focus on those used by NATO and NATO Nations for NATO lead operations.
4	907	DGIWG Imagery and Gridded Data Roadmap	5.0	2023-05-18	The Imagery and Gridded Data Roadmap addresses the encoding and exchange of geospatial imagery and gridded data/products, utilising a set of web services, with the aim to increase interoperability across the civil and defence user communities, including imagery intelligence, surveillance and reconnaissance, and to provide standards for imagery and gridded data products.
5	908	DGIWG Portrayal Roadmap	4.0	2023-05-18	The Portrayal Roadmap focuses on standardisation requirements for symbology, symbol encoding and exchange, and ruleset creation. It highlights portrayal efforts to support capability and software development within the civil and defence user communities.

ID	DGIWG Doc. #	Title	Ed. #	Doc. date	Abstract
6	909	DGIWG Web-Services Roadmap	3.0	2023-10-23	The Web Service Roadmap captures the needs for geospatial web services and identifies relevant standards and new and emerging technologies that may provide solutions. It defines strategies for monitoring industry for the emergence of new technologies and path to influence the development or modification of standards in order to ensure Defence requirements met.
7	910	DGIWG VectorRoadmap	2.0	2023-05-18	The Vector Roadmap captures needs for the generation of standards and product specifications that facilitate the efficient exchange of vector-based geospatial information and products across the defence user communities. It defines the strategies and direction that ensures target level of interoperability are achieved across the producer and user communities.

Annex B: DGIWG 2024 Scheduled Ballots –Standards and Supporting Documents

The table below is a summary of standardisation and other artefacts expected for balloting in the period of January 2024 - December 2024.

Project Name	Description
Web Service STANAG 6523 Development Support	Revision of DGIWG 112 (WMS) and DGIWG 124 (WMTS) aligning requirements and harmonizing with the corresponding NATO profiles to create a more robust encompassing 2 documents that meets the needs of both the DGIWG nations and NATO.
Urban Data Exchange Model	This Data Product Specification (DPS) addresses the NATO requirement for comprehensive urban vector data exchange. This exchange schema will also incorporate content defined by the MUVD and DCM product specifications. This now will not be formally delivered until it has been uplifted to DGIF 3.0. However a draft schema was delivered in July 2022.
Update of Symbol Library for STANAG 3675	The artefact will provide an update of all the symbols in the extant NATO STANAG 3675 and include them in the portrayal registry. These symbols will be updated in line with the symbology encoding guidelines and existing work on both the DTM 50, Urban Map and JOG Spec.
International Program for Human Geography - Points of Interest	This Data Product Specification (DPS) describes the requirements for defining and exchanging standardised geospatial vector data covering the Points of Interest requirement as set out by the International Program for Human Geography (IPHG).
MUVD Data Product Specification	This Data Product Specification (DPS) describes the requirements for defining and exchanging standardised geospatial vector data covering the Urban Vector Data requirements for the Multinational Geospatial Co-production Program. (MGCP).