The InterNational Committee for Information Technology Standards (INCITS)

US Engagement with Technical Content for International Geospatial Standards (via INCITS GIS)

Note: INCITS GIS was formerly known as INCITS L1 until January 2022

https://www.incits.org/committees/l1

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JACIE Workshop, USGS Reston VA April 17, 2026

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TRUST, TRACEABILITY, & STANDARDS

US Engagement with Technical Content for International Geospatial Standards

Abstract

The Technical Committee (TC) 211 of the The International Organization for Standardization (ISO) is focused on geospatial standards for Geographic Information and Geomatics at the international level. The National Standards Body (NSB) that is tasked by the American National Standards Institute (ANSI) with representing US interests at those meetings and on the national level is the Geographic Information Systems (GIS) section of the InterNational Committee for Information Technology Standards (INCITS).

Do you want to learn more about how GIS, Remote Sensing, IoT, and other systems work together? Do you want to learn what it takes to write international standards while serving as a diplomat and ambassador based upon your professional body of knowledge? Then this session is for you!

At abstract submission time, 27 ISO standards are under development or revision, including projects on metadata, imagery and gridded data, registration and register governance, the Land Administration Domain Model (LADM), building information modelling (BIM) to geographic information systems conceptual mapping, UML modelling, imagery sensor models for geopositioning - Part 2: SAR, InSAR, lidar and sonar; and more.

In addition, INCITS members fulfill liaison roles with ICAO, UN-GGIM, CEOS/WGISS, FIG, IEEE, WMO, and internally to ISO on unmanned aircraft systems, smart cities, AI, space systems and operations, environmental management, sustainable communities, data-driven agrifood and smart farming, with a current vacancy in ISO/TC 172/SC 6 - geodetic and surveying instruments (now filled via NOAA - THANK YOU!).

Innovators and implementers at all levels of professional expertise are greatly appreciated.

Please attend this session to learn how to contribute.

Conclusion

Join the Fray!

- Fine tune the trajectory of global technology innovation
- Represent the United States on multiple fronts
- Interact with top experts in a variety of disciplines
- Develop national and international diplomacy skills
- Participate via virtual or face-to-face options
- Propel the US Standards Strategy
- Stay current with monthly news updates
- Find your niche and fill it
- Earn your sense of pride in those accomplishments

About INCITS

The InterNational Committee for Information Technology Standards (INCITS) is the forum of choice for many developers, producers, and users for the creation and maintenance of formal *de jure* ICT standards.

Standards development is fair, efficient, and legally sound. The INCITS process protects the intellectual property rights of members, prevents antitrust violations, and ensures that every voice counts, with a quick pace to match the market.

INCITS was founded as Accredited Standards Committee X3 in 1961. In 1996, X3 became INCITS. INCITS procedures are accredited by, and operate under the rules approved by, the American National Standards Institute (ANSI). These rules are designed to ensure that voluntary standards are developed by the consensus of directly and materially affected interests. Member organizations create the future with their participation.

About INCITS Summary

INCITS -- the InterNational Committee for Information Technology Standards -- is the **central U.S. forum** dedicated to creating innovation through technology standards.

INCITS **members combine their expertise** to create the building blocks for globally transformative technologies.

From cloud computing to communications, from transportation to health care technologies, **INCITS is the place where innovation begins**.

INCITS is accredited by the **American National Standards Institute** (ANSI) and is affiliated with the Information Technology Industry Council, a global policy advocacy organization that represents U.S. and global innovation companies.

INCITS EB Structure

The INCITS Executive Board (EB) is the Consensus Body:

- Responsible for **all standards** developed and approved by INCITS.
- Responsible for **advancing the interests** of the ICT sector.
- Delegates INCITS/TCs to serve as **U.S. Technical Advisory Group (TAG) to Joint Technical Committee (JTC) 1 Subcommittees** and ISO Technical Committees (TC) for the development of U.S. positions.
- Recommends to ANSI assignment of **Subcommittee TAG responsibilities** within the U.S. JTC 1 community.
- Responsible for providing and maintaining **level playing field** of interest participants.

INCITS Structure

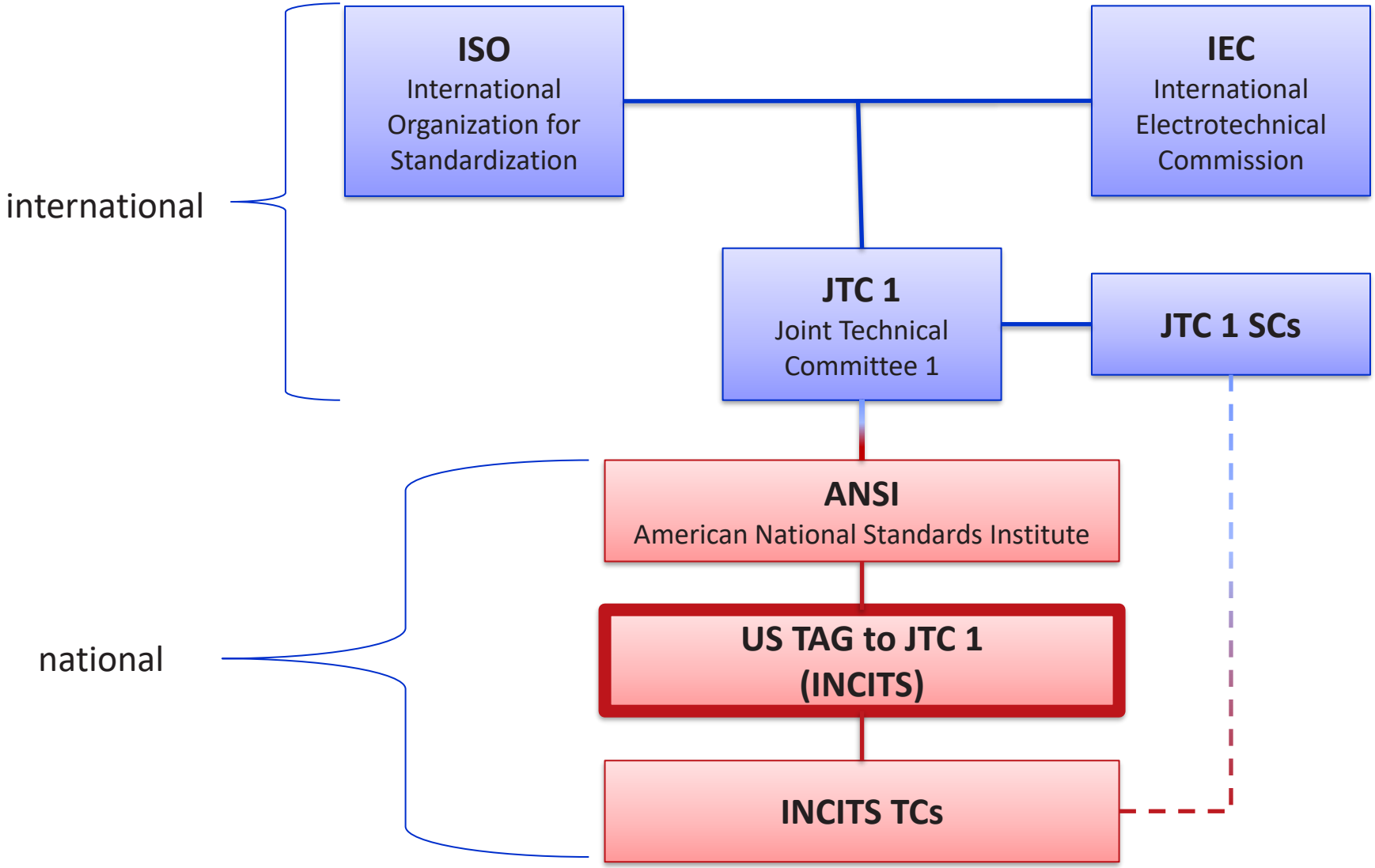
INCITS' program of work - "projects" assigned to Technical Committees (TCs) and Technical Advisory Groups (TAGs):

Each project is related to a specific

- standard
- technical specification (TS), or
- technical report (TR)

Project proposals are assigned upon approval (for national work), or upon initiation of an international standard, a TS, or a TR in assigned TAGs.

Organizational Relationships



INCITS Technical Committees

- Artificial Intelligence
- BigData
- Blockchain and Electronic Distributed Ledger Technologies
- Cyber Security
- Cloud Computing and Distributed Platforms
- Data Usage
- Data Management and Interchange
- Digital Manufacturing (3D Printing)
- Governance of IT
- Governance of Organizations
- Computer Graphics & Image Processing
- Identification Cards and Related Devices
- Internet of Things
- IT Sustainability
- Geographic Information Systems
- Character Sets and Internationalization
- Coding of Audio, Picture, Multimedia and Hypermedia Information (MPEG/JPEG)
- Biometrics
- Programming Languages, their environments and system software interfaces
- Software and Systems Engineering
- Office Equipment
- Open Systems
- Quantum Computing
- Storage Interfaces - SCSI
- Storage Interfaces - Fibre Channel
- Storage Interfaces - ATA
- Trustworthiness

Policies and Procedures

INCITS Organization, Policies and Procedures: http://www.incits.org/policies.

Legal obligations such as copyright, anti-trust and other IPR information:

http://www.incits.org/standards-information/legal-info

Membership Information and Agreement: Applies to all representatives from an organization that participates and signed by all organizations **prior** to participation

http://www.incits.org/participation/membership-info

The INCITS membership cycle runs from December 1 to November 30

INCITS GIS

- Standardization in the field of digital geospatial information to establish a structured set of standards for information concerning objects or phenomena that involve direct or indirect association with a location relative to the Earth, enabling the analysis of planetary spatial relationships, with an emphasis on planet Earth. These standards may specify, for geospatial information, methods, tools and services for data management (including definition and description), acquiring, processing, analyzing, accessing, presenting, exchanging and transferring such data in digital/electronic form between different users, systems and locations.

INCITS GIS Current Membership

Department of Commerce - Census	Department of Commerce - NOAA	esri	Federal Geographic Data Committee (Currently Inactive)
GEORGE MASON UNIVERSITY	GeoSDO	NASA	
Tom (Founder Relic)	United States Dept of Homeland Security (Currently Inactive)	USGS science for a changing world	

INCITS GIS – A Summary

- As the committee that helps define all things geographic – and EVERYTHING is SOMEWHERE, and SOMEWHEN, the activities of this committee touch on the whole of existence. YOU, your company, your organization – joining this committee is your chance to make a difference.
- INCITS is the central U.S. forum dedicated to creating technology standards for the next generation of innovation, and GIS is where members combine their expertise to create the building blocks for globally transformative technologies in GIS and Geospatial intelligence.
- Geospatial intelligence (GEOINT) is intelligence about the human activity on earth derived from the exploitation and analysis of imagery and geospatial information that describes, assesses, and visually depicts physical features and geographically referenced activities on the Earth.

INCITS GIS (Website Version)

The INCITS/GIS (Geographic Information Systems) Technical Committee closely aligns with ISO/TC 211 and their constituent working groups. A substitute for use of the term 'Geospatial', as presently used in the title for the INCITS/Geographic Information Systems and for ISO/TC 211, is the modern and widely used term of 'Geospatial'.

INCITS/GIS strives for standardization in the field of digital geospatial information. The committee aims to establish a structured set of standards for information concerning objects or phenomena that involve direct or indirect association with a location relative to the Earth, enabling the analysis of planetary spatial relationships, with an emphasis on planet Earth.

These standards may specify, for geospatial information, methods, tools and services for data management (including definition and description), acquiring, processing, analyzing, accessing, presenting, exchanging and transferring such data in digital/electronic form between different users, systems and locations.

The work shall link to appropriate standards for information technology and data where possible; and provide a framework for the development of sector-specific applications using geospatial data.

The work of the Geospatial Information Committee consists of adopting or adapting information technology standards and developing digital geospatial data standards. Digital geospatial data standards are concerned with creating, defining, describing, and processing such data.

INCITS/GIS serves as the U.S. Technical Advisory Group (TAG) to ISO/TC 211 …

ISO TC 211 Structure – Working Groups

Standard development projects are binned into working groups

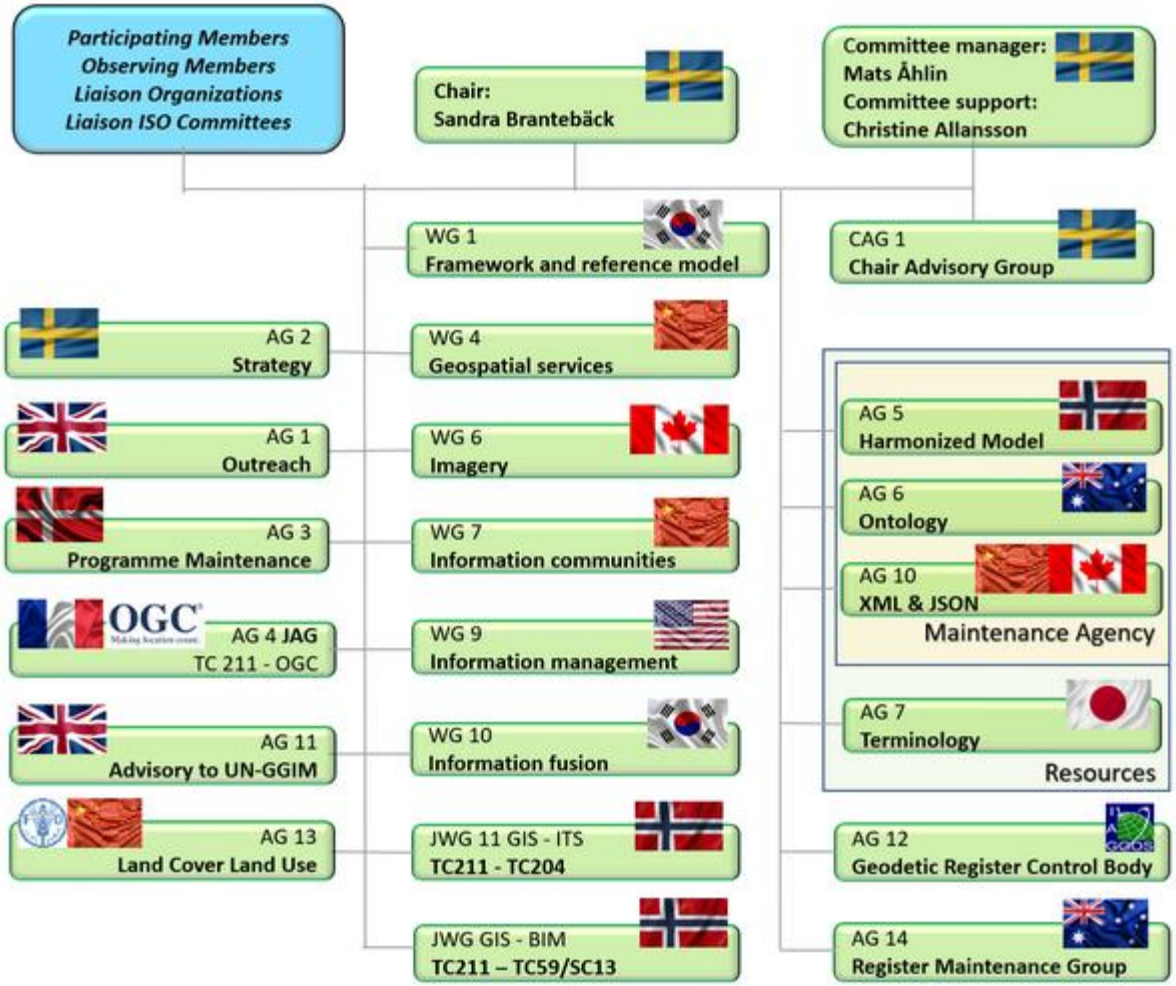
- Working group 1 - Framework and Reference Models
- Working group 4 - Geospatial Services
- Working group 6 - Imagery
- Working group 7 - Information Communities
- Working group 9 - Information Management
- Working group 10 - Ubiquitous Public Access
- Joint Working group 11 – with Intelligent Transport Systems TC 204

ISO TC 211 Advisory Groups

Advisory Groups (AG) provide substantial administrative support for the projects

- Advisory Group 1: Outreach
- Advisory Group 2: Strategy
- Advisory Group 3: Program Maintenance Group (PMG)
- Advisory Group 4: OGC Joint Advisory Group (JAG)
- Advisory Group 5: Harmonized Model Maintenance Group (HMMG)
- Advisory Group 6: Group for Ontology Maintenance (GOM)
- Advisory Group 7: Terminology Maintenance Group (TMG)
- Advisory Group 10: XML Maintenance Group (XMG)
- Advisory Group 11: Advisory group to support UN-GGIM and UN activities
- Advisory Group 12: Control Body for the ISO Geodetic Registry
- Advisory Group 13: Land Cover Land Use
- Advisory Group 14: Register Maintenance Group (RMG)

Country Leadership



US Leadership

US ANSI GIS members are currently (02/2026) engaged on:

- Analysis-Ready Data (ARD) – Project Leader
- Calibration and Validation of Remote Sensing Data Part 2: SAR – Project Leader
- Data Quality – Working Group 9 Convenor
- Discrete Global Grid Systems - Working Group 9 Convenor
- Global Geodetic Registry – Working Group 9 Convenor and an SME
- Land Administration Domain Model (LADM) - SME

US Leadership in ISO - Related Roles

Liaisons to ISO TCs

- ISO/IEC JTC 1/WG 11 Smart Cities
- ISO/IEC JTC 1/SC 36 Information technology for learning, education and training
- ISO/IEC JTC 1/SC 42 Artificial Intelligence
- ISO/TC 20/SC 14 Space systems and operations
- ISO/TC 20/SC 16 Unmanned aircraft systems
- ISO/TC 172/SC 6 Geodetic and surveying instruments
- ISO/TC 207 Environmental management
- ISO/TC 268 Sustainable cities and communities
- ISO/TC 347 Data-driven agrifood systems
- ISO/TMBG/SFCC Smart Farming Coordinating Committee

US Leadership in Associated Organizations

External Liaisons

- Committee on Earth Observation Satellites/Working Group on Information Systems and Services (CEOS/WGISS)
- International Federation of Surveyors (FIG)
- International Association of Geodesy (IAG)
- International Civil Aviation Organization (ICAO)
- IEEE Geoscience and Remote Sensing Society
- International Society for Photogrammetry and Remote Sensing (ISPRS)
- Scientific Committee on Antarctic Research (SCAR)
- Regional Committee of the UN Global Geospatial Information Management Americas (UN-GGIM: Americas)
- United Nations Global Geospatial Information Management Subcommittee on Geodesy (UN-GGIM-SCoG)
- World Meteorological Organization (WMO)

Current ISO Projects (28)

- A handy summary via the ISO HQ website (red icon)
- https://www.iso.org/committee/54904/x/catalogue/p/0/u/1/w/0/d/0
- TC 211 Geographic Information / Geomatics (blue)
- https://committee.iso.org/sites/tc211/home/projects.html

Current ISO Projects (Page 1 of 4)

- ISO/AWI 19101-1 Geographic information — Reference model — Part 1: Fundamentals
- ISO/AWI 19111 Geographic information — Referencing by coordinates
- ISO/AWI 19115-1 Geographic information — Metadata — Part 1: Fundamentals
- ISO/DTR 19115-4 Geographic information —— Metadata — Part 4: JSON schema implementation of metadata fundamentals
- ISO/CD TS 19115-5 Geographic information — Metadata — Part 5: DCAT mapping
- ISO/AWI 19119-1 Geographic information — Services — Part 1: Fundamentals and architectures
- ISO/CD TR 19121 Geographic information — Imagery and gridded data

Current ISO Projects (Page 2 of 4)

- ISO/DIS 19123-2 Geographic information — Schema for coverage geometry and functions — Part 2: Coverage implementation schema
- ISO/DTS 19123-4 Geographic information — Schema for coverage geometry and functions — Part 4: Tiling schema
- ISO/AWI TS 19124-3 Geographic information — Calibration and validation of remote sensing data and derived products — Part 3: Optical sensors
- ISO/AWI TS 19124-4 Geographic information — Calibration and validation of remote sensing data and derived products — Part 4: Lidar
- ISO/FDIS 19127 Geographic information — Geodetic register
- ISO/DTS 19130-2 Geographic information — Imagery sensor models for geopositioning — Part 2: SAR, InSAR, lidar and sonar
- ISO/CD TS 19144-4 Geographic information — Classification systems — Part 4: Registration and implementation aspects

Current ISO Projects (Page 3 of 4)

- ISO/AWI 19150-1 Geographic information — Ontology — Part 1: Framework
- ISO/FDIS 19157-3 Geographic information — Data quality — Part 3: Data quality measures register
- ISO/AWI 19158 Geographic information — Quality assurance of data supply
- ISO/CD 19161-2 Geographic information — Geodetic references — Part 2: Unique identification of geodetic ground stations
- ISO/DIS 19163-2 Geographic information — Content components and encoding rules for imagery and gridded data — Part 2: Implementation schema
- ISO/CD 19178-2 Training data markup language for artificial intelligence — Part 2: JSON encoding
- ISO/CD 19178-3 Training data markup language for artificial intelligence — Part 3: XML encoding
- ISO/CD TR 19179 Geographic Information - Geospatial Aspects Assessment in ESG Standards

Current ISO Projects (Page 4 of 4)

- ISO/AWI TR 19180 Geographic Information — Guidelines for incorporating gender sensitivity in geospatial standards
- ISO/AWI TR 19181 Geographic information — Maintenance and management of common classifiers and their implementation artifacts
- ISO/AWI TR 19182 Geographic information — How to incorporate Geospatial Artificial Intelligence (GeoAI) in geographic information standards
- ISO/CD 19183-1 Geographic Information - Geospatial API for Maps — Part 1: Core
- ISO/AWI TR 19184 Geographic Information – Gap Analysis of Information Models for Seamless Hinterland and Maritime Logistics
- ISO/AWI TR 19185 Geographic Information – Extended Metadata Standards for Urban Digital Twins
- ISO/CD 19186-1 Geographic information — GeoSPARQL — Part 1: A geographic query language for RDF data

ISO WG 6 – Imagery (Hotlinked Projects)

- ISO 19121 Geographic information — Imagery and gridded data
- ISO 19123-2 Geographic information — Schema for coverage geometry and functions — Part 2: Coverage implementation schema
- ISO 19123-4 Geographic information — Schema for coverage geometry and functions — Part 4: Tiling Schema
- ISO 19124-3 Geographic information — Calibration and validation of remote sensing data and derived products — Part 3: Optical sensors
- ISO 19124-4 Geographic information — Calibration and validation of remote sensing data and derived products — Part 4: Lidar
- ISO 19130-2 Geographic information — Imagery sensor models for geopositioning — Part 2: SAR, InSAR, lidar and sonar
- ISO 19163-2 Geographic information — Content components and encoding rules for imagery and gridded data — Part 2: Implementation schema
- ISO 19176-1 Geographic information — Analysis ready data — Part 1: Framework and fundamentals

US Standards Strategy

A national situational analysis with directives

- US Standards Strategy
- https://www.ansi.org/resource-center/publications-subscriptions/usss

- US National Committee of the International Electrotechnical Commission (IEC) publication
- https://share.ansi.org/Shared%20Documents/Standards%20Activities/International%20Standardization/IEC/USNC%20Current/Vol.%2021%20No.%201%20Spring%202026.pdf

So you want to build a standard

- Create a New Work Item Proposal (NWIP) with a project description and dedicated project leader
- Submit NWIP for international ballot requesting support and Subject Matter Experts (SME)
- Obtain support from at least five National Standards Bodies (NSB) i.e. countries
- Create a Committee Draft (CD) in a series of meetings
- Submit the CD for AG review and then NSB vote
- Resolve NSB comments in a series of meetings
- Submit Draft Internation Standard (DIS) for NSB vote
- Resolve any remaining comments
- Publish final version, hopefully within three years from start

Become involved in the process

- Visit the INCITS GIS website for more information
- Visit the ISO TC 211 website for more information
- Support ANSI with your purchase of the standards
- Contact the INCITS GIS representative in your organization
- Investigate becoming a member in INCITS

- Contact the INCITS GIS Chair - Currently: david@geostandards.org

Thank You