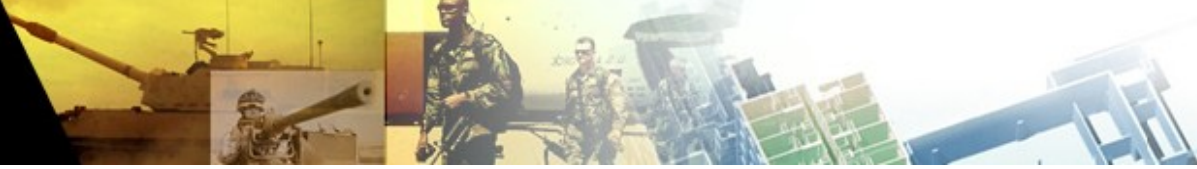


Open Government, Open Data, Open Architecture and Open Source Software

GIS Policy for U.S. Army Installation Management:
Thursday, 9 September 2010
2010
Jaymes Cloninger



Outline

- Government GIS Policy
- Federal Government policies and portals
- Department of Defense policies and portals
- Department of the Army policies and portals
- Army Installation Geospatial Information & Services (IGI&S) policies and portals
- Conclusion

Memorandum on Transparency and Open Government

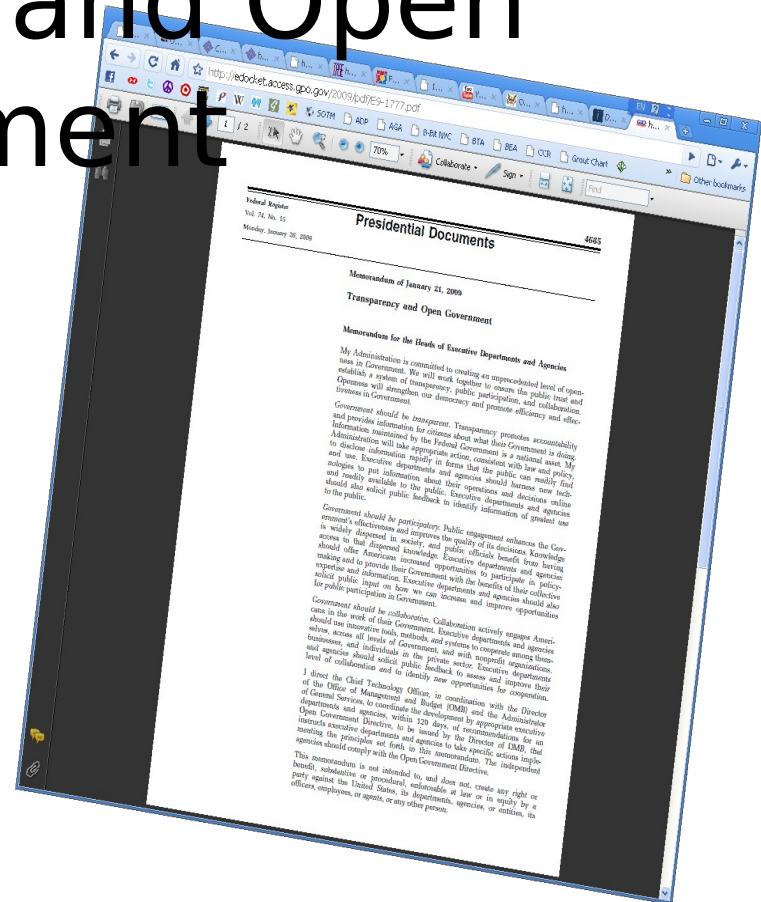
Government should be transparent.

- “Transparency promotes accountability and provides information for citizens about what their Government is doing.”
- “Information maintained by the Federal Government is a national asset.”

Government should be participatory.

“Information maintained by the Federal Government is a national asset.”

President Obama January 21, 2009



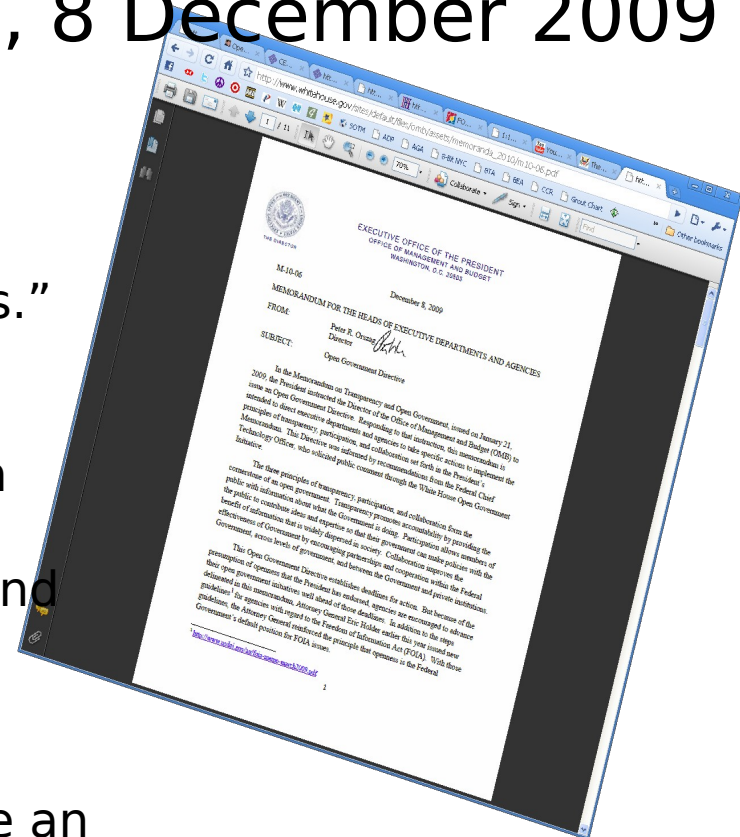
Office of Management & Budget (OMB)

“The three guiding principles of transparency, participation, and collaboration form the cornerstone of an open government.”

“With respect to information, the presumption shall be in favor of openness.”

“To the extent practicable and subject to valid restrictions, agencies should publish information online in an open format that can be retrieved, downloaded, indexed, and searched by commonly used web search applications.”

“Within 60 days, each agency shall create an Open Government Webpage located at [http://www.\[agency\].gov/open ...](http://www.[agency].gov/open ...)”





open.gov

In January 2009, President's Obama's first executive action was to sign the Memorandum on Transparency and Open Government

KEY:

- Meets Expectations
- Progress Toward Expectations
- Fails to Meet Expectations

Agency	High-Value Data	Data Integrity	Open Webpage	Public Consultation	Overall Plan	Formulating the Plan	Transparency Participation	Collaboration	Flagship Initiative
Agency for International Development	Meets	Meets	Meets	Meets	Progress	Progress	Meets	Meets	Meets
Department of Agriculture	Meets	Meets	Meets	Meets	Progress	Progress	Meets	Meets	Meets
Department of Energy	Meets	Meets	Meets	Meets	Meets	Meets	Meets	Meets	Meets
Department of Education	Meets	Meets	Meets	Meets	Meets	Meets	Meets	Meets	Meets
Department of Commerce	Meets	Meets	Meets	Meets	Progress	Progress	Meets	Meets	Meets
Department of Defense	Meets	Meets	Meets	Meets	Meets	Meets	Meets	Meets	Meets
Department of Health and Human Services	Meets	Meets	Meets	Meets	Meets	Meets	Meets	Meets	Meets

OPEN GOV

the WHITE HOUSE PRESIDENT BARACK OBAMA

the ADMINISTRATION the WHITE HOUSE our GOVERNMENT

Open Government Initiative
TRANSPARENCY • PARTICIPATION • COLLABORATION

Open Government Innovations

OPEN GOVERNMENT DASHBOARD

PROGRESS REPORT TO THE AMERICAN PEOPLE



open.gov Executive Dashboards



"Executive departments and agencies should harness new technologies to put information about their operations and decisions online and readily available to the public"

– President Obama, March 9, 2009

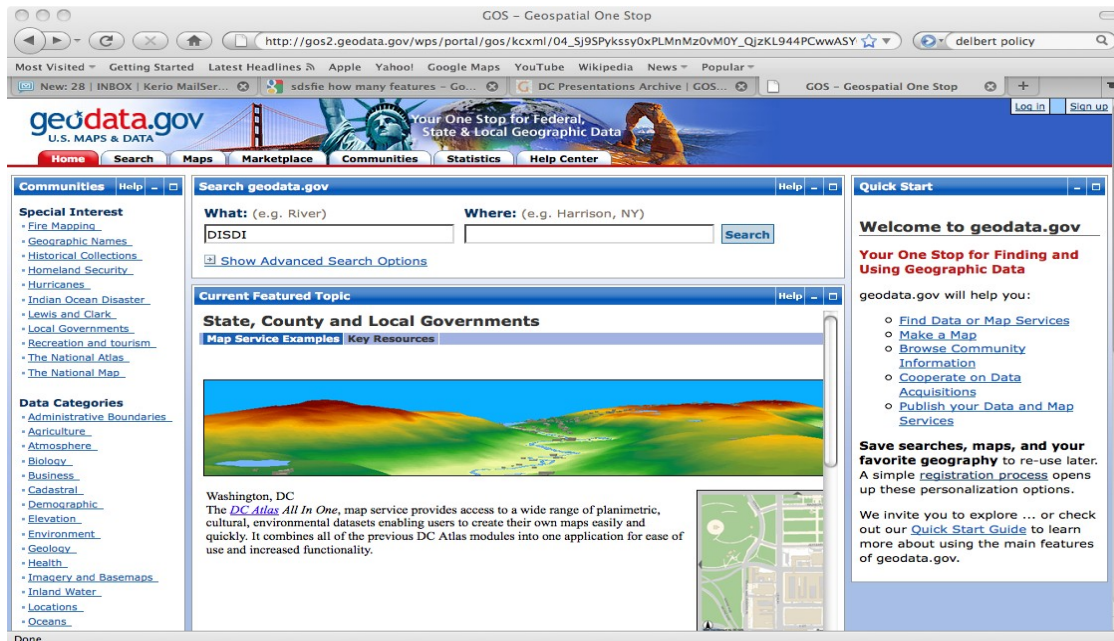


Courtesy of FGDC, Ivan B. DeLoatch, Executive Director

geodata.gov

U.S. Army Non-Classified Data Restriction Classifications:

- Public, subject to a Freedom of Information Act (FOIA) exemption;
- Non-Public, Nonpublic geospatial data may be shared for official purposes within the DoD;
- FOUO (Sensitive)
- Geological & Geophysical (Sensitive)
- Unclassified Controlled Nuclear Information



- Very limited geospatial data available for the Department of Defense (DoD);
- Main reason is that “public” data used within the DoD is not derived from DoD
- Most DoD-authored data falls under FOIA Exemption Numbers 2 or 9



data.gov

What's Happening Now?

- More collaboration and participation with the public
- Social interaction and discussion
- Implementation of new technologies (e.g. outbound web services, service catalog and RSS feeds)
- Centralized metadata authoring / management
- More Data visualizations
- Mash-ups and

The screenshot shows the data.gov website with the following content:

- Navigation:** HOME, DATA, TOOLS, COMMUNITY, METRICS, DIALOGUE, GALLERY, WHAT'S NEW
- Feature Highlight:** GEO VIEWER - We are pleased to announce the availability of the Data.gov GEO Viewer, an interactive mapping tool designed to let users preview geospatial data available through the Data.gov catalogs.
- Most Popular Datasets:**
 1. Food and Drug Administration--Recalls
 2. Worldwide M+ Earthquakes, Past 7 Days
 3. Climate Reference Network Hourlyoz Product
 4. TSCA Inventory
 5. IT Dashboard - Federal IT Spending (major...
- SEARCH OUR CATALOGS:** Search our catalogs...
- APPS:** With so much government data to work with, developers are creating a wide variety of applications, mashups, and visualizations. From crime statistics by neighborhood to the best towns to find a job to seeing the environmental health of your community--these applications arm citizens with the information they need to make decisions every day. Enjoy these highlights of the hundreds of applications available.
- COMMUNITY:** Data.gov is leading the way in democratizing public sector data and driving innovation. The data is being surfaced from many locations making the Government data stores available to researchers to perform their own analysis. Developers are finding good uses for the datasets, providing interesting and useful applications that allow for new views and public analysis. This is a work in progress, but this movement is spreading to cities, states, and other countries. After just one year a community is born around open government data.
 - Just look at the numbers:**
 - 6 Other nations establishing open data
 - 8 States now offering data sites
 - 8 Cities in America with open data
 - 236 New applications from Data.gov datasets
 - 263 Data contacts in Federal Agencies
 - 272,677 Datasets available on Data.gov
- SEMANTIC WEB:** As the Web of linked documents evolves to include the Web of linked data, we're working to maximize the potential of Semantic Web technologies to realize the promise of Linked Open Government Data.

Thanks to our collaboration with the **Tetherless World Constellation** at the **Rensselaer Polytechnic Institute**, Data.gov is now hosting one of the largest open collections of RDF datasets in the world! Check out some of their semantic mashups **we're featuring** and read our blog entry to learn more about where we are, where we're going, and why we think this platform will add tremendous value to democratized data.



data.gov

DATA.GOV
EMPOWERING PEOPLE

HOME DATA TOOLS COMMUNITY METRICS DIALOGUE GALLERY WHAT'S NEW

Data.gov Catalogs

Use the Data.gov catalog below to access U.S. Federal Executive Branch datasets. Click on the name of a dataset to view additional metadata for that dataset. By accessing the data catalogs, you agree to the **Data Policy**. Data.gov offers data in three ways: through the "raw" data catalog, using tools and through the geodata catalog. The "Raw" Data Catalog provides an instant download of machine readable, platform-independent datasets while the Tools Catalog provides hyperlinks which may lead to agency tools or agency web pages that allow you to mine datasets.

"RAW" DATA CATALOG TOOL CATALOG **GEODATA CATALOG**

Search geodata by keywords

Search geodata by single/multiple category

Search geodata by single/multiple agency

- All Categories
- Biology and Ecology
- Administrative and Political Boundaries
- Atmospheric and Climatic
- Business and Economic

- Bureau of Land Management (DOW/BLM)
- Department of Agriculture (USDA)
- Department of Commerce (DOC)
- Department of the Interior (DOI)
- Department of Veterans Affairs (VA)

Page 1 of 727 (7,261 records) Results per page: 10 | 15 | 20

Name (click for metadata and to rate tool)	Rating	Category	Data Download
OLS Analog Derived Lightning Data Set The sun-synchronous Defense Meteorological Satellite Program (DMSP) series has provided one of the longest running nighttime global lightning data set. The Scanning Radio...	★★★★★ (0 votes)	Atmospheric and Climatic	Download
DMSP Total Ozone, Calibrated Radiance and Total Ozone Grid Point Data Archived at NSSDC The objective of this experiment was to obtain vertical temperature, water vapor, and ozone profiles of the atmosphere to support Department of Defense requirements in op...	★★★★★ (0 votes)	Atmospheric and Climatic	Download
Idaho Elevation The Idaho Cooperative Fish and Wildlife Research Unit's Landscape Dynamics Lab extracted this grid of Idaho elevation from the 90 meter digital terrain model used in the ...	★★★★★ (0 votes)		Download
SSM/I Pathfinder ocean wind speed level 2 (NOAA, NASA, MSFC, Wentz); Product #054 This product consists of wind speeds calculated over water areas (plus coastal, sea ice, and possible sea ice areas) using the algorithms developed by F. Wentz (Remote Se...	★★★★★ (0 votes)	Atmospheric and Climatic	Download
SSM/I Pathfinder gridded ocean wind speed level 3 (NOAA, NASA, MSFC, Wentz); Product #057 This oceans data product consists of wind speeds calculated over water areas (plus coastal, sea ice, and possible sea ice areas) using the algorithms developed by F. Wentz...	★★★★★ (0 votes)	Atmospheric and Climatic	Download
SSM/I Derived Global Ocean Surface Wind Components (Atlas et al.); Product #079 This product is one of several products containing SSM/I derived winds over the oceans produced by Robert Atlas and Joseph Ardizzone (NASA Goddard Space Flight Center) in...	★★★★★ (0 votes)	Atmospheric and Climatic	Download



FlyOnTime



Fix My City DC



Check it and See (Superfunds)



Visualizing Community Health Data



Plant Hardiness Zone Map



National Obesity Comparison Tool



Employment Market Explorer



DataMasher



Clean Air Status-Ozone

recovery.gov

- Select a State to zoom to the region
- View locations of Contracts, Grants, Loans
- Filter by type, agency, amount
- Select a site to view



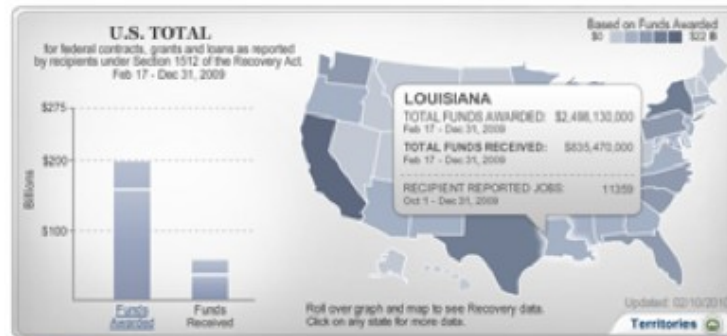
RECOVERY.GOV TRACK THE MONEY

Connect With Us [f](#) [t](#) [g+](#) [v](#)

Recovery.gov is the U.S. government's official website providing easy access to data related to Recovery Act spending and allows for the reporting of potential fraud, waste, and abuse.

All of Recovery.gov

HOME ABOUT ACCOUNTABILITY WHERE IS THE MONEY GOING? OPPORTUNITIES NEWS FAQS & RESOURCES CONTACT US



WHERE IS THE MONEY GOING?

This map shows you where the Recovery Act money is going and who is. The expandable navigation on the right side allows you to refine your data.



View Recovery Information In Your Area: Virginia

Recipient Reported	Agency Reported	Type	# of Awards	Amount
		Contracts	496	\$59,795,345
		Grants	1351	\$3,712,694,703
		Loans	725	\$413,162,259
		Total	2572	\$5,184,852,327

Roll over type to view source. Updated: 11/10/2009

Text View of Map Data

View Recovery Information in Your Neighborhood

RECOVERY FUNDED JOBS REPORTED BY RECIPIENTS

October 1 - December 31, 2009

595,263

Job calculations are based on the number of hours worked in a quarter and funded under the Recovery Act.

FIND RECOVERY JOBS

Job Type = Location

CONTRACTS [Link to: FedBizOpps Gov](#)

GRANTS [Link to: Grants Gov](#)

OVERVIEW OF FUNDING

The American Recovery and Reinvestment Act of 2009 distributes the \$787 billion as follows:

\$288B	\$275B	\$224B
\$92.8B	\$74.4B	\$105B

Tax Benefits | Contracts, Grants, Loans | Funds Paid Out

Total Recovery Act Funds | Funds Paid Out

Updated: 01/25/2010

Source

WHAT'S NEW

[Diversity Map](#)

- Jobs Search - Looking for work?
- State/Territory Totals by Awards - Recipient Funds Awarded and Funds Received.
- Advanced Search - Drill down and then drill down again.
- Map Central - All the maps, all on one page.
- Recipient Data Map - Updated 2/10/2010.
- Watch the Videos - Highlights and Features and How to Use the Maps.

CHAIRMAN'S CORNER

Earl E. Devaney is chairman of the Recovery Accountability and Transparency Board, which manages this website and oversees spending under the American Recovery and Reinvestment Act of 2009.

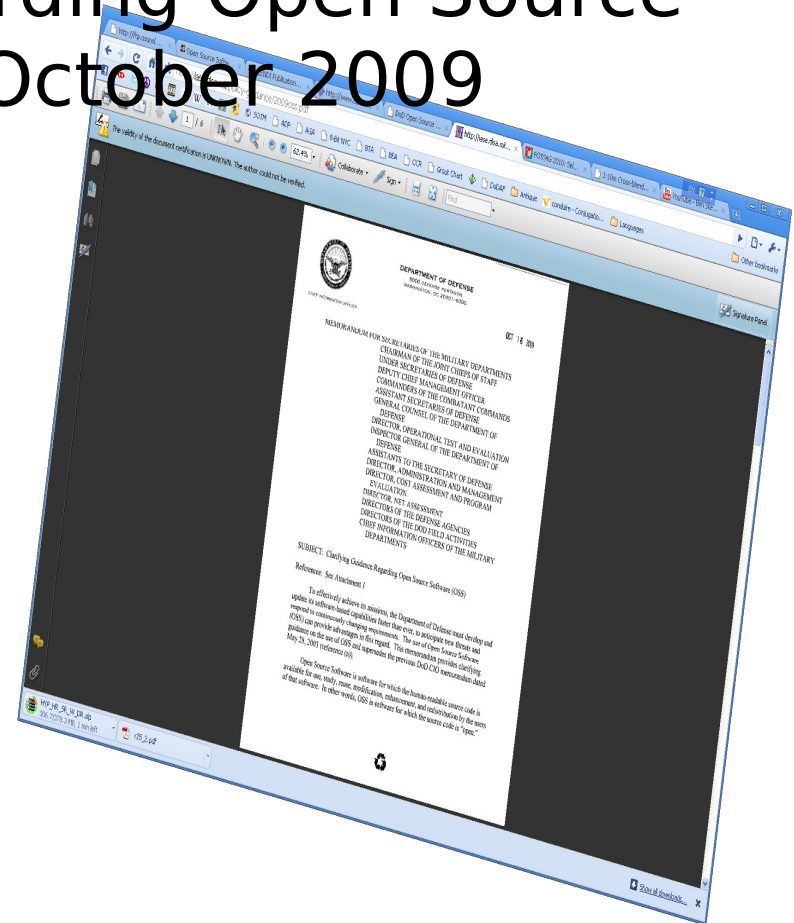
January 27, 2010

With tough economic times still gripping the nation, millions of Americans remain jobless and worry about how to pay their grocery bills and mortgages. Where, they might ask, are the jobs? At the Recovery Board, we have heard those pleas for help and are taking steps to provide Americans with detailed information on Recovery job opportunities across the nation.

Department of Defense Clarifying Guidance Regarding Open Source Software (OSS), 16 October 2009

“In almost all cases, OSS meets the definition of ‘commercial computer software’ and shall be given appropriate statutory preference”

“Since OSS typically does not have a per-seat licensing cost, it can provide a cost advantage in situations where many copies of the software may be required, and can mitigate risk of cost growth due to licensing in situations where the total number of users may not be known in advance.”





DoD Open Technology Development

“Open Technology Development Roadmap Plan” -Apr 2006
<http://www.acq.osd.mil/jctd/articles/OTDRoadmapFinal.pdf>

Three goals:

- 1. Leverage open source infrastructure and technologies**
- 2. Apply open source collaborative technologies**
- 3. Change the default acquisitions and development behavior to default to technology services vs. products**

Implementation strategy:

Crawl: Open standards, interfaces, data

Walk: Open source & concept methodology

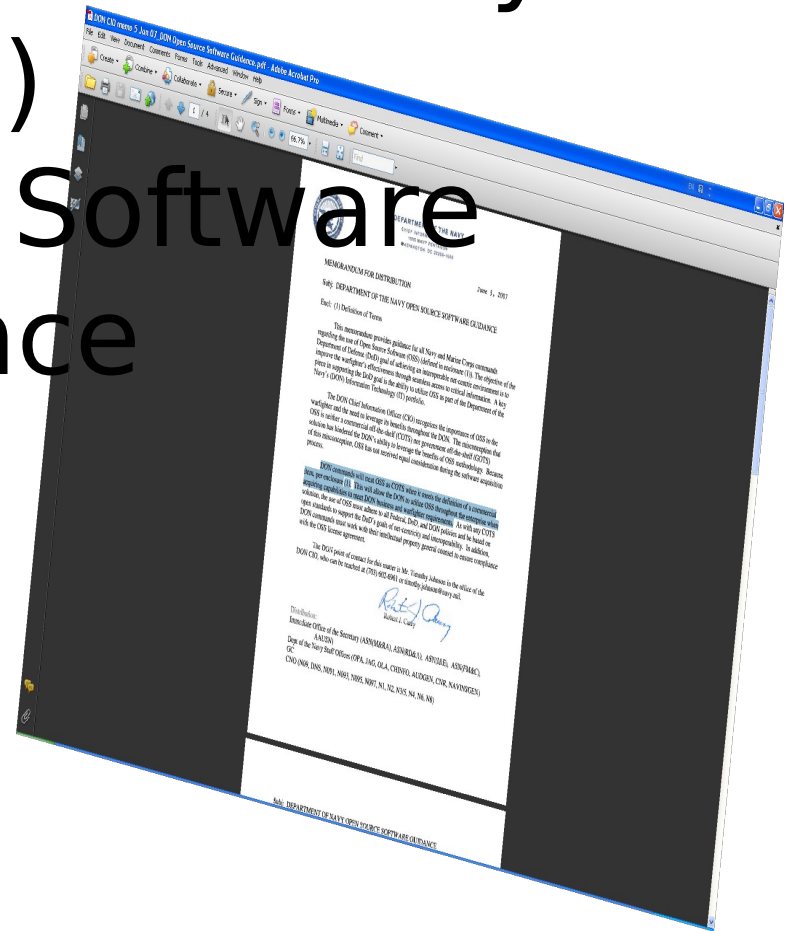
Run: Service/DoD/Industry source repositories



Department of the Navy (DoN)

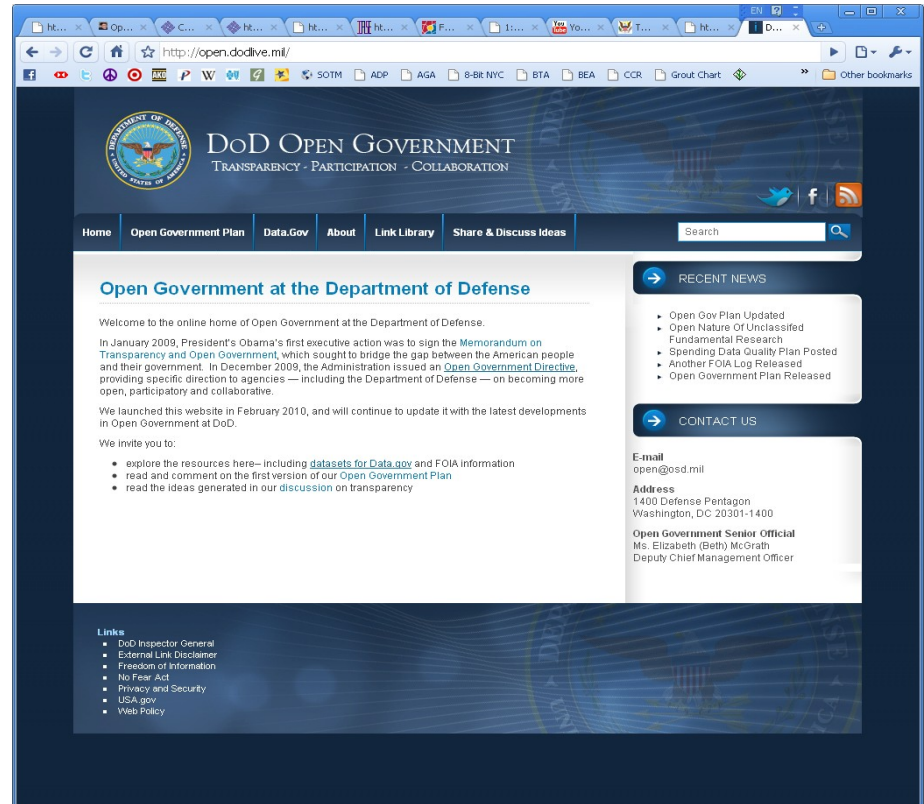
“DoN commands will treat OSS as COTS when it meets the definition of a commercial item... This will allow the DoN to utilize ass throughout the enterprise when acquiring capabilities to meet DoN business and warfighter requirements. “

Open Source Software Guidance



DoD Open Government

- * Office of the Secretary of Defense/Joint Staff Freedom of Information Act (FOIA) Logs
 - * Federal Voting Assistance Program
 - * Service Member Demographic Data
- No geospatial data available yet.





DISDI Portal

Defense Installation Spatial Data Infrastructure

- Limited content; planning level views
- Federated (distributed) architecture
- Data accessed from *Service holdings and Federal sources*
- Data available to any user within the DoD

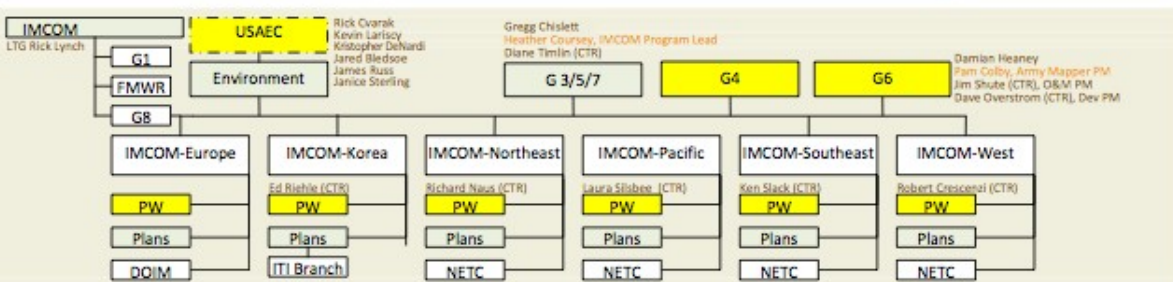
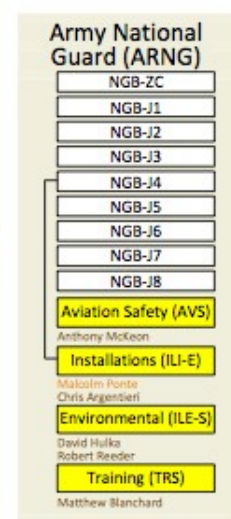
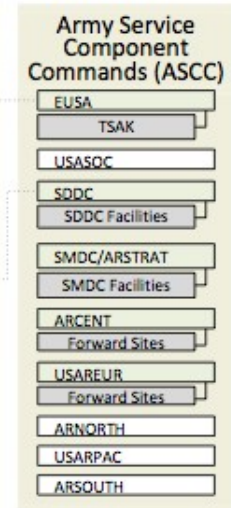
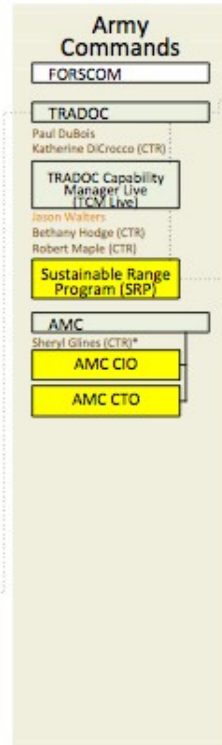
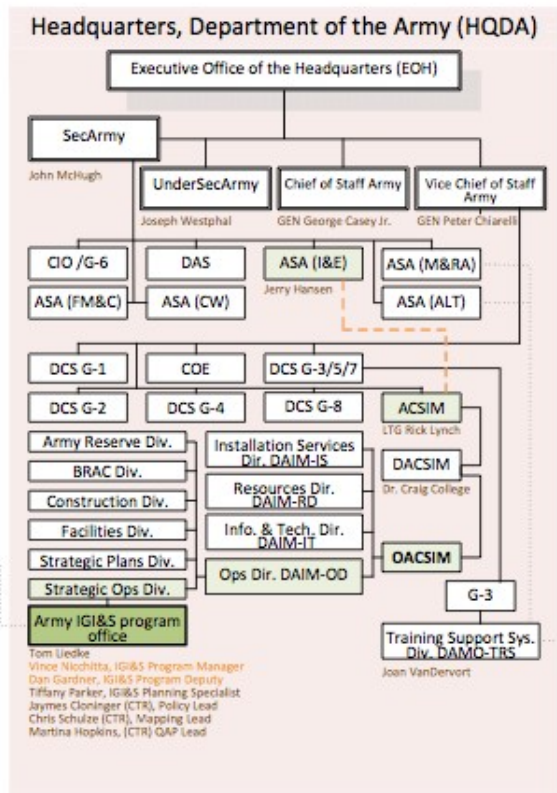
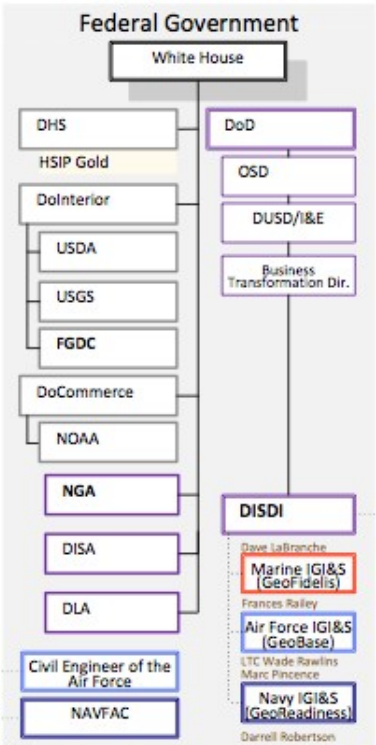


Forge.mil

- Forge.mil enables collaborative development and use of FOSS and DoD community source software behind the DoD firewall.
- Multinational Information Sharing
- Private Project Collaboration
- Goal is to enable rapid development and deployment of DoD products and services on the Global Information Grid (GIG).



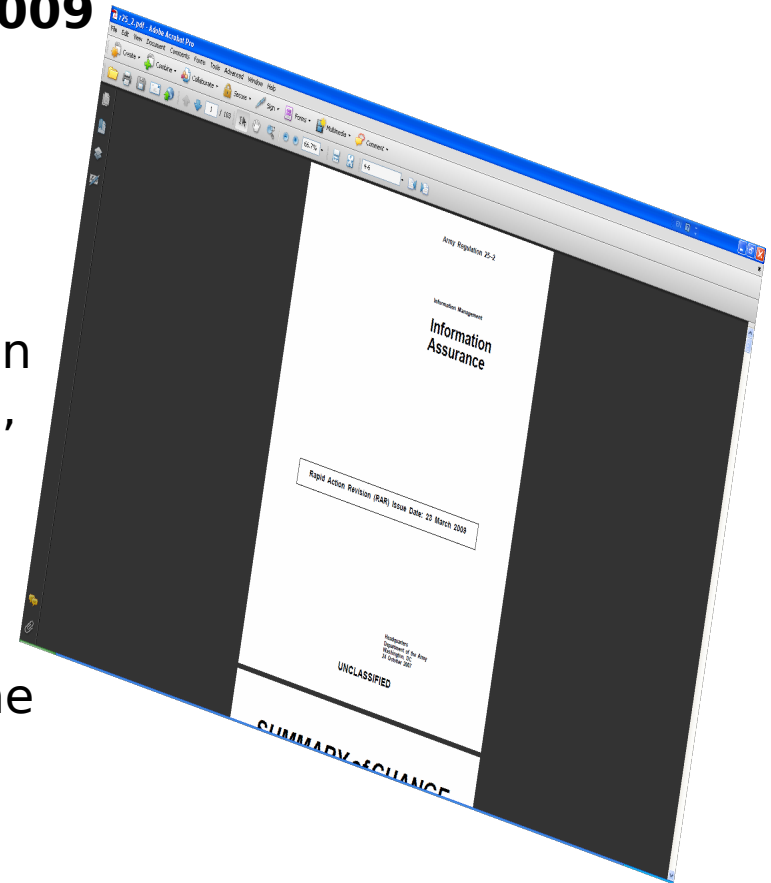
U.S. Army IGI&S Program



Information Assurance

Army Regulation 25-2, 23 March 2009

“Use of ‘open source’ software (for example, Red Hat Linux) is permitted when the source code is available for examination of malicious content, applicable configuration implementation guidance is available and implemented, a protection profile is in existence, or a risk and vulnerability assessment has been conducted with mitigation strategies implemented with DAA and CCB approval and documentation in the C&A package. Notify RCIOs and the supporting RCERT/TNOSC of local software use approval.”



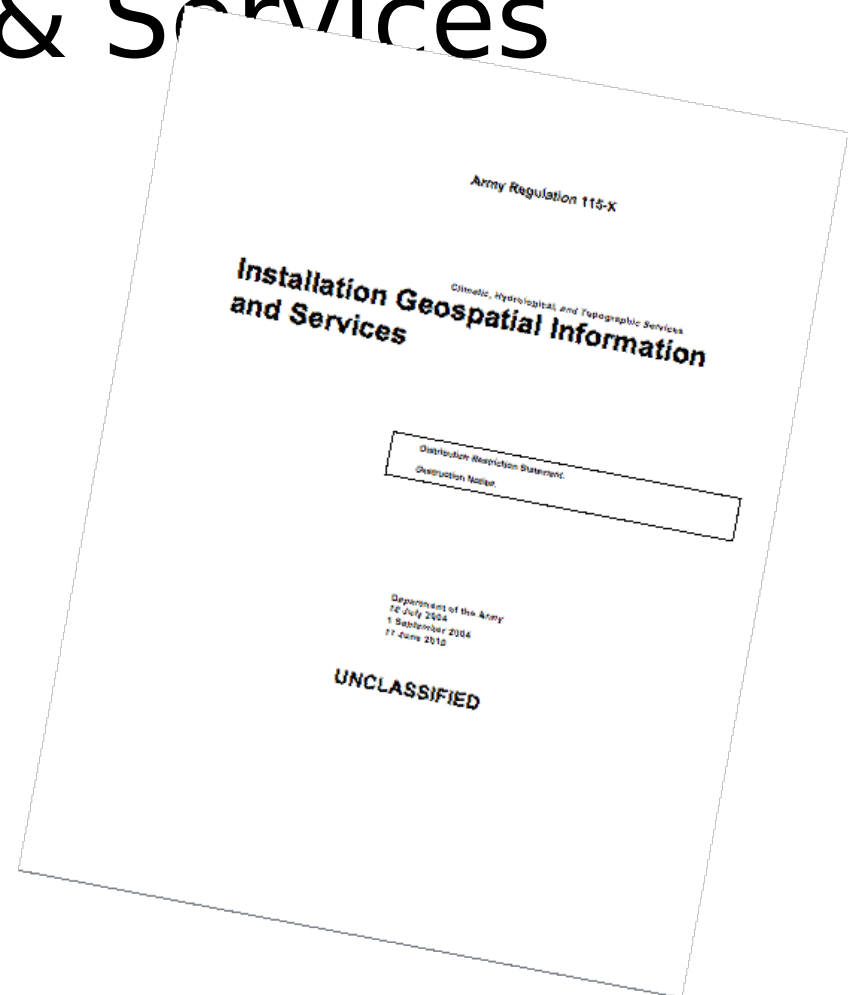


Installation Geospatial Information & Services

Army Regulation 115-x, draft

“All installation, garrison, region and virtual installation geospatial data is Army data.”

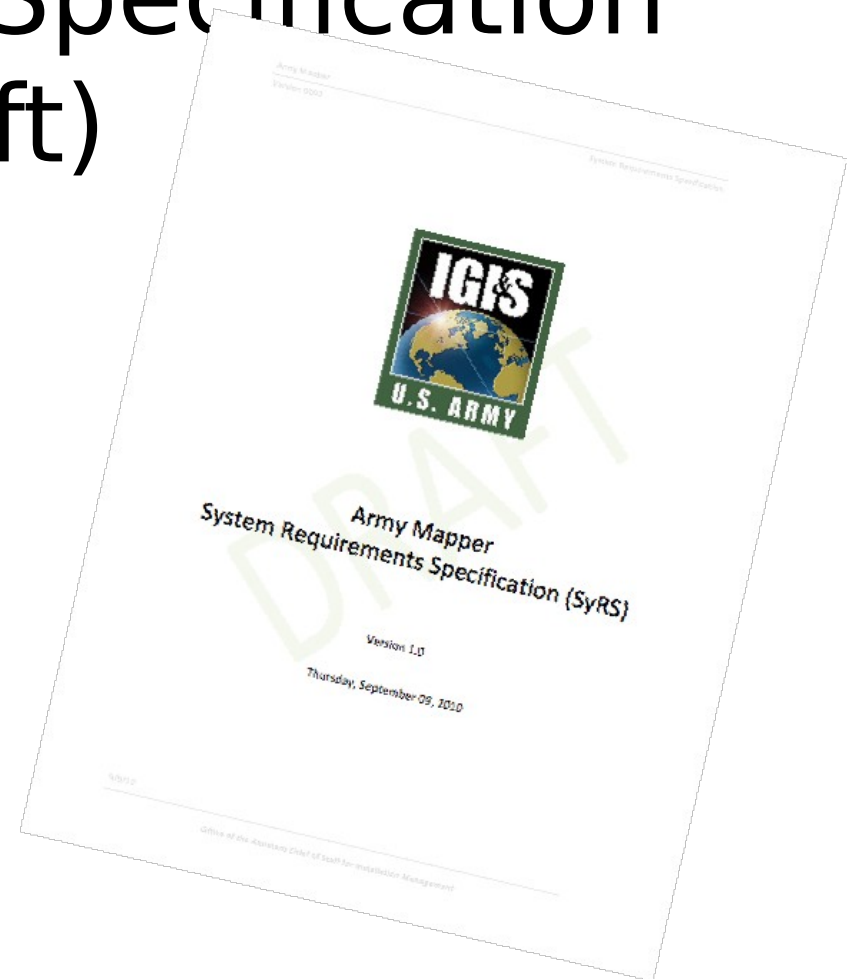
“Army Mapper data will be readily accessible, available and secure for all authorized users when they need it.”



Army Mapper System Requirements Specification

“The Army’s goal is to preserve geospatial data in persistent formats that will enable access to authentic geospatial data indefinitely into the future. An ideal persistent format would be self-describing and validating in accordance with open, nonproprietary standards.”

“The system must accommodate geospatial data regardless of data type or format.”





IGI&S Program Drivers

EO 12906 – Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure

Purpose: Through coordination with the National Spatial Data Infrastructure (NSDI), all spatial (GIS and CADD) data will be shared to avoid wasteful duplication and that the data is effectively and economically managed. All federal agencies are required to participate in the NSDI as per this Executive Order.

OMB A-16 – Coordination of Geographic Information and Related Spatial Data Activities

Purpose: Provides guidance for federal agencies that create, maintain or use spatial data directly or indirectly through the establishment of NSDI and the Federal Geographic Data Committee (FGDC). The Revised version discusses the need for all federal agencies to coordinate and share geospatial data.

DoD Directive 8320.2 – Data Sharing in a Net-Centric Department of Defense

Purpose: Discusses the need for coordinating, sharing, and integrating data across DoD.

Defense Installation Spatial Data Infrastructure (DISDI) Memo – Installation Geospatial Information and Services Guidance

Purpose: Describes how strategies and standards for IGI&S will be coordinated across DOD and that IGI&S shall conform to SDSFI standards and have appropriate metadata

Bottom Line: These Drivers Direct Data Sharing and Data Standardization



Army Mapper

Available

at: <https://mapper.army.mil>

- Enterprise solution for geospatial data management, viewing, mapping, and analysis
- Platform for migration of existing Armysystems and tools
- Web mapping services for data sharing across the Army and DoD



ArmyMapper

U.S. Army Installation Geospatial Information & Services



Army Mapper is the Installation Geospatial Information & Services (IGIS) Program's enterprise geospatial system. Army Mapper provides the infrastructure foundation for secure sharing of geospatial capabilities and data in accordance with Army and DoD enterprise architecture standards. Army Mapper supports every commander, civilian, soldier, and supporting contractor who needs IGIS.

If you are new to IGIS you can use the web-based capabilities to:

- View data from your workstation without the need for specialized software and training
- Prepare a map visualizing force protection zones for use in an emergency planning exercise.
- Perform basic site assessments and planning for new facility construction
- Find a building by building number and determine a travel route

If you are an IGIS professional you can use the advanced capabilities to:

- Store, manage and share geospatial data
- Prepare a map visualizing wetlands in relation to new construction for placement of mitigation barriers
- Build a terrain model for military exercise planning
- Build and publish a custom web map service to support an MWR concert event
- Find a building by building number and determine a travel route



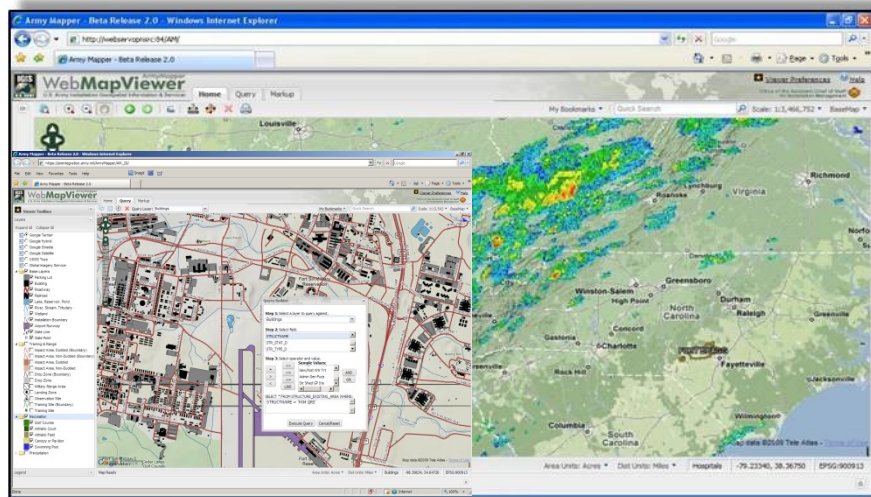
<https://mapper.army.mil>

igisquestions@conus.army.mil



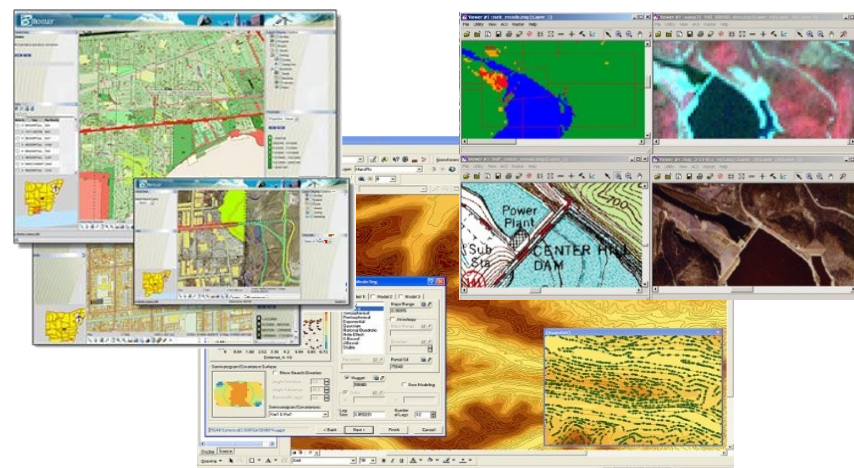
Army Mapper Components

Army Mapper Web Map Viewer



- Supports broad user base - no GIS training required
- Access to common data for all integrated installations
- Interactive navigation and data display
- Buildings query within an installation
- Platform to host business tools
- Currently MapServer and ArcGIS Server versions

Army Mapper Desktop Tools



- Provides ESRI ArcGIS, Bentley Microstation, ERDAS via the web; no desktop software installation and maintenance required
- No current FOSS4G Desktop tools available
- Users can save/retrieve map documents and design files, perform standard functions, add-in toolboxes, and use



DoD Business Enterprise

BEA 7.1

http://www.bta.mil/products/BEA_7_1/index.htm

Most Visited Getting Started Latest Headlines Apple Yahoo! Google Maps

Business Enterprise Architecture

BEA BCL LRP ETP

Material Supply & Services

Lifecycle Management

System Integration

Financial Management

Lifecycle Management

Business Enterprise Architecture (BEA)
The Enterprise Architecture for the Business Mission Area

DR PLAN
S

ASI
P

HQIIS

ISR

delbert policy

news and collaboration events. Another enhancement is the ability for users to track selected pages in the order that they are selected, known as Breadcrumbs in the IT industry. The breadcrumbs icon is located on the top right hand side of this frame.

Ensure your Java Run Time environment software is updated in order to access BEA diagrams. For more information on this or other technical issue go to the technical help page.

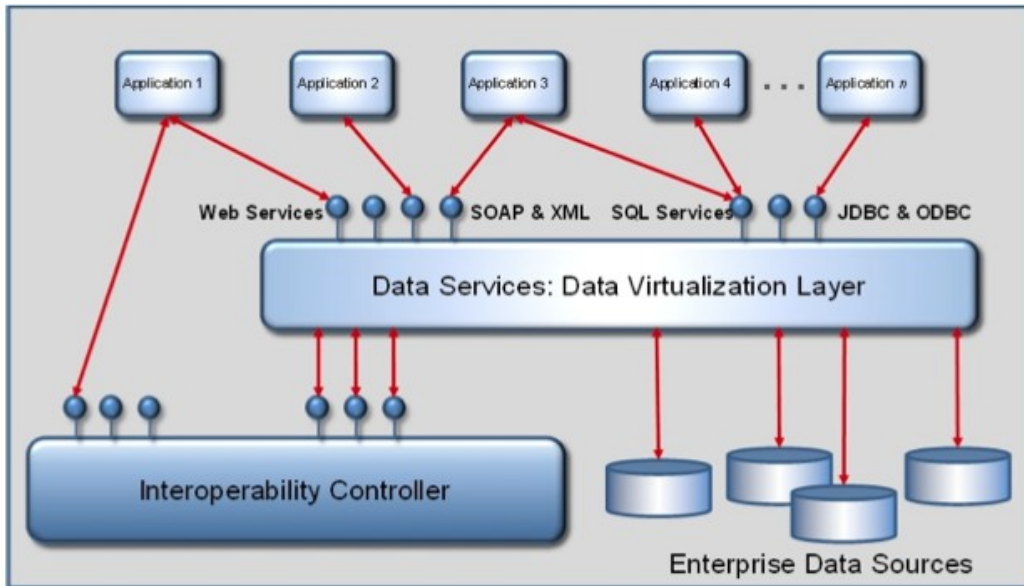




DoD Business Enterprise Architecture

Standard Data Services across the Business Mission Area:

Business Operating Environment (BOE) Guiding Principles:
 “Support Use of Open Source Software: The BOE will use open source software solutions on an equal footing with regular commercial offerings, with due consideration given to support and

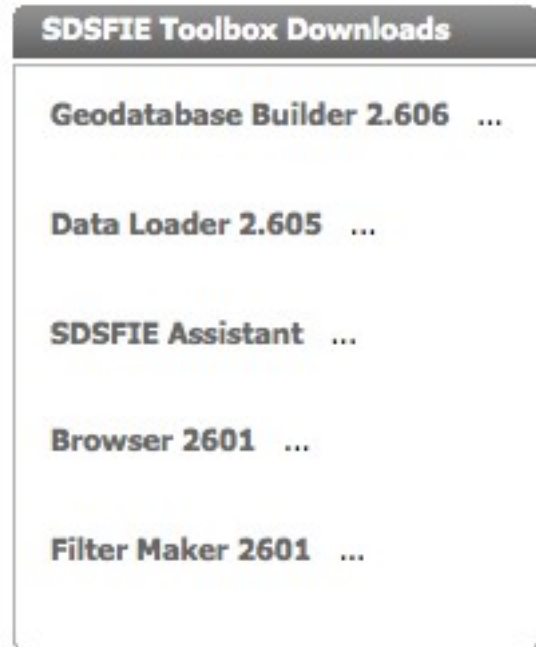


A key aspect of the BMA Federation Strategy is the implementation and utilization of service-oriented architecture (SOA) at the Enterprise level.



Spatial Data Standard for Facilities, Infrastructure and the Environment (SDSFIE)

- Initially built as graphical standards for CAD/GIS in 1993 for Intergraph Modular GIS Environment (MGE) and later ESRI ArcInfo (Browser & Generator);
- Currently SDSFIE 2.6.1 is a physical data model (PDM), with 1585 features;
- Managed by the Defense Installations Spatial Data Infrastructure (DISDI) Group and the U.S. Army Corps of Engineers;
- Re-engineered SDSFIE 3.0 will be an “adaptable” logical data model (LDM), tailored to defense business requirements with approximately 220 features;
- SDSFIE 3.0 will become enterprise data standard in DoD BEA;
- At v3.0 will become an integral part of the National System for Geospatial-Intelligence (NSG)



SDSFIE 3.0

factsheet_sdsfie.pdf (application/pdf Object) - Mozilla Firefox

File Edit View History Bookmarks ScrapBook Tools Help

http://www.acq.osd.mil/ie/bei/dsdi/factsheet_sdsfie.pdf

factsheet_sdsfie.pdf (application/pdf Object)

2 / 2 110% Collaborate Sign Find

Business Enterprise Integration

Current State

- Platform Independent Physical Data Model (Schema)
- Platform Dependent Implementation
- Geospatial Technology Platform

Future State

- Platform Independent Logical Data Model
- Platform Independent Physical Data Model (Schema)
- Platform Independent Implementation
- Geospatial Technology Platform

What is Adaptation?

Adaptation allows authorized users or organizations to tailor the SDSFIE to their mission needs while remaining compliant. Adaptation will be accomplished using the web-based tool to be available starting with once SDSFIE 3.0 is released. The process of Adaptation involves profiling and extension.

Done

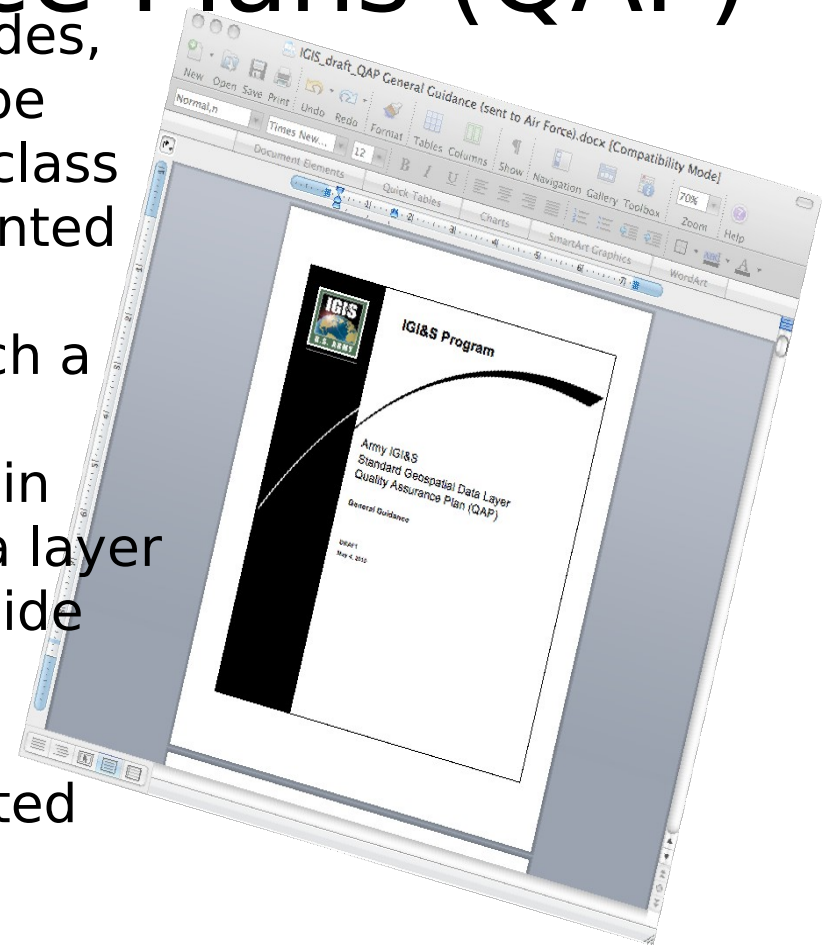
Geospatial Data Layer

Quality Assurance Plans (QAP)

- Features definition, category codes, and descriptions of features to be included in a particular feature class
- How features should be represented geographically
- The minimum frequency at which a data layer must be validated
- Potential source materials used in creating or maintaining the data layer
- Where the data layer should reside within

SDSFIE

- Required attribute fields populated and their acceptable values
- Applicable business systems
- Steps utilized to validate the data



Why are GDL QAPs Needed?

- **Reduce Attribute Variance (i.e. Installation ID = 27682 vs. Camp Swampy)**
 - Specifies required attributes
 - Provides acceptable values
 - Provides an attribute example
- **Identify Acceptable Sources of Data (Survey vs. Hard Copy Digitization)**
 - Identifies a ranking of preferred sources
- **Minimize Redundant Data Collection**
 - Specifies office in charge of data collection
 - Identifies Headquarters Business Systems (Authoritative Data Sources) that already contain the data elements
- **Increase Data Sharing for Informed Decision Making**
 - Data will be able to be aggregated into a single database without costly standardization



Successes

The only Military Service in U.S. DoD with a vendor neutral platform - More data editors than all of the other military services using at least 4 different Desktop GIS platforms

Implemented MapServer and OpenLayers with the support of US Army Corps of Engineers, Mike Smith et al

“Open Source technology may be changing the relationship between democracy and expertise, affording an opportunity to improve competence by making good information available for better governance.” (Census 2010, whitehouse.gov)



Challenges

People actually have to review the code and the data-

More contributors, more review - who is reviewing? Are they qualified?

CoN (Certificate of Networkiness) & Certification & Accreditation - Federal regulations require all applications to be certified as being compliant with information technology (IT) security requirements.

Contracting Office Unfamiliarity with FOSS4G
Vendor/Service Provider Unfamiliarity with FOSS4G

The Army's World

1626 sites
 13,652,096 acres
 148,102 buildings
 \$208,215,642,721.10 Plant Replacement Value





Opportunities

The economic reality requires rethinking how software, systems, architecture and data are acquired and maintained- DoD budget for R&D virtually frozen for the next few years. ***Spend less and get more.***

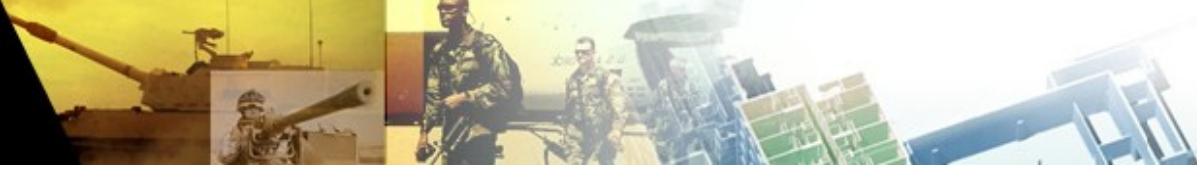
Industry-wide acceptance of open source solutions-

Government is typically several years behind commercial interests, however when the Government jumps in, it makes a big splash

All of DoD moving toward a more data-intense environment

DoD BEA hints at a purple horizon

**"Instilling habits of restraint, of subtracting as well as adding, of elevating affordability on a par with desirability, is a project of years in the making." -
Defense Secretary Robert Gates, August 10, 2010**



Conclusion

DoD and Federal Government have adequate standards in place – current standards pave the way for more openness

Open Data is a challenge in the DoD – the first step is data sharing between data stewards and data consumers

Desktop GIS Users in DoD are a large community with deep roots

Open Architecture (within the Army) is one possibility for better coordination between Army Mapper and installation personnel

The best way to maintain high quality installation management data is by sharing it with as many business users as possible.

Government procedures and policies are not enough - it takes people.