

Charter *for the* System Interoperability and Data Synchronization Requirements Team

Introduction and Background

The National Weather Service (NWS), the U.S. Army Corps of Engineers (USACE), and the U.S. Geological Survey (USGS) entered into an Interagency Memorandum of Understanding (MOU) "Collaborative Science Services and Tools to Support Integrated and Adaptive Water Resources Management" to collaborate in activities that are supportive to their respective missions. One of the interagency activities is the development of a highly integrated national modeling framework and information services framework. Together these frameworks establish a common operating picture, improve modeling and synthesis, and support the production of a comprehensive, seamless and consistent suite of high-resolution tree-top-to-bedrock and water resources products and services.

This is an interagency partnership of federal agencies with complementary operational river forecasting and water resources management missions and activities. The overarching goal is to design, develop and implement a broad interagency enterprise to serve as a reliable and authoritative basis for adaptive planning, preparedness, and response activities from national to local levels. The USGS, USACE and NOAA respective missions are:

- USACE: *to strengthen our Nation's security, energize the economy, and reduce risks from disasters.*
- USGS: *to collect and disseminate reliable, impartial, and timely information that is needed to understand the Nation's water resources in order to minimize loss of life and property from natural disasters.*
- NOAA NWS: *to provide weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy.*

The interagency partnership seeks to coordinate and leverage resources of federal agencies engaged in river forecasting and water resources management. Success rests largely on establishing an interagency common operating picture that integrates the processes of individual decision support systems (DSS), allowing them to function collectively as an integrated enterprise. Familiar examples of interoperability and data synchronization include Electronic Financial Transactions Systems (EFTS) and electronic commerce (or eCommerce), consisting of electronic funds transfer, supply chain management, inventory control, marketing, etc.

The interagency common operating picture will:

- **Enable** seamless and transparent information technology connections among the existing, largely-independent river forecast and water resources management DSS used by these agencies;

- **Improve** services and services delivery by maximizing data and information flow and synthesis between agency DSS, as well as the overall quantity, quality, and range of water resources data and information collectively generated by these systems; and,
- **Provide** new information, products, and services to better support the requirements of water resources stakeholders, such as integrated data displays, digital flood inundation maps, and web-based mapping services.

System interoperability and data synchronization are the key information-services-framework components of the common operating picture. *System interoperability* consists of services and tools whereby individual DSS automatically communicate, coordinate, and collaborate seamlessly, transparently, and efficiently at key points of intersection. Interoperability must address the following six DSS components:

- System software and hardware;
- Model compatibility;
- Operational workflows;
- Data formats, datum, and projection transformations;
- System and data security, protection, and access policy; and
- IT infrastructure, including networks.

Data synchronization consists of services and tools that enable efficient, seamless, and transparent automated data sharing and exchange between networks of DSS. Thus a common operating picture, enabled by system interoperability and data synchronization, establishes cross-functionality - effectively creating a single overarching DSS enterprise out of multiple otherwise independent DSS enterprises.

System interoperability and data synchronization will be implemented using sound IT engineering practices that will include, for example, socket-level network programming, client-server software, and the integration of data exchange protocols such as Java Database Connectivity (JDBC) into the existing decision support systems. Also included will be transcendent geospatial and temporal data models, and data transformation tools that facilitate data synchronization and scientific-model-level interoperability.

Purpose and Scope

This Charter is entered into by and among the NWS, USAGE, and USGS (referred to as 'the Parties') to establish a System Interoperability and Data Synchronization Requirements Team; hereinafter referred to as SIDSRT. The primary purpose and scope of SIDSRT is to define requirements and technical specifications for a system interoperability and data synchronization, as described above, mindful of the requirements developed by other teams, including teams focused on the development of a national water modeling system and flood inundation mapping.

Also, for the SIDSRT to be successful, all team members must thoroughly understand the systems and methodologies used by the other agencies.

Pursuant to this purpose, the SIDSRT shall identify and deconstruct existing examples of large-scale system interoperability and data synchronization case uses, such as EFTS and eCommerce.

This process of exploration will reveal a range of state-of-the-art, forward-looking technologies and strategies. The SIDSRT shall evaluate these technologies and strategies, relative to existing DSS capabilities, and document recommendations for designing, developing, and implementing a common operating picture that effectively integrates the Parties' individual DSS into a single enterprise.

System interoperability and data synchronization recommendations must address the following:

- System software and hardware interoperability;
- Model interoperability;
- Operational workflow interoperability;
- Data interoperability, including automated format, datum, and projection transformations;
- System and data security, protection, and access policy interoperability;
- IT infrastructure interoperability, including networks; and
- Automated data sharing and exchange between DSS networks.

Deliverable

The SIDSRT will develop a requirements document that:

- Defines the requirements and technical specifications for system interoperability;
- Defines the requirements and technical specifications for data synchronization;
- Provides IT engineering recommendations and high-level schematic outlines for a common operating picture; and,
- Specifies interoperability and data synchronization implementation guidelines for other development teams, including the teams focused on the development of a national water modeling system and flood inundation mapping.

Authority

The parties rely upon the following authorities, and any others that might be applicable, to enter into this charter.

The authorities of the USACE:

- Economy in Government Act (31 U.S.C. § 1535)
- Interservice and Intragovernmental Support (DoD Instruction 4000.19)

The authorities of the USGS:

- Public Law 99-591--provides in fiscal year 1997 and thereafter that the USGS has permanent authority to "prosecute projects in cooperation with other agencies, Federal, State, and private" (43 U.S.C. § 36c)
 - The USGS Organic Act of March 3, 1879, as amended (43 U.S.C. § 31 et seq.)
 - Cooperative Water Program. 43 U.S.C. 50 (USGS)
 - National Streamflow Information Program, Omnibus Land Management Act of 2009, Section F. Secure Water Act (USGS)
- The authorities of NOAA:
- Department of Commerce (NOAA) authority (33 U.S.C. § 883a et seq.)

- National Weather Service Organic Authority (15 U.S.C. § 313)
- Inland Flood Forecasting and Warning System Act of 2002, Public Law 107-253 (NWS)

Interagency Communications

To provide consistent and effective communication between the Parties, each party shall appoint a point of contact (POC) to provide general oversight of the team and direct respective agency team members to meet charter goals. The POC's for this effort are:

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The POC's will approve members and facilitate the selection of a team leader (hereinafter referred to as 'the Leader') for the SIDSRT. Quarterly conference calls of the POC's and the Leader will be conducted. Each Party will provide a minimum of two and a maximum of four representatives to serve on SIDSRT. The Leader will chair SIDSRT meetings. The Leader is also responsible for organizing, conducting and documenting SIDSRT actions and progress. SIDSRT meetings will be conducted as necessary to address the charter's goals established above. Meetings should be conducted remotely via teleconferencing or virtually, with web capabilities, whenever appropriate. If in-person meetings are necessary, each agency will be responsible for their respective representatives' travel costs.

All commitments and participation by the Parties in the actions and activities covered by this Charter are contingent upon the availability of appropriated funds and budget priorities. Nothing in this Charter, in and of itself, nor any decision made by the team obligates the parties to expend appropriations or to enter into any contract, assistance agreement, interagency agreement or other financial obligation.

Interagency Participation

It is the intent to invite other federal agencies which have complementary activities to join the system interoperability and data synchronization requirements team and become charter members.

Charter


Survival: This Charter shall remain in effect until a) the Deliverable is completed with signed approval from the Parties, or b) the charter is terminated by the Parties.

Survivability: If any provision of the Charter is determined to be invalid or unenforceable, the remaining provisions shall remain in force and unaffected to the fullest extent permitted by law and regulation.

Effective Date and Termination: This Charter shall become effective when signed by the Parties. Termination of the Charter can happen at the discretion of any of the Parties.

Approval

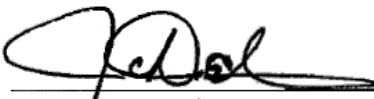
National Weather Service



Don Cline
Chief, Hydrologic Laboratory
Office of Hydrologic Development

Date: July 3, 2012


U.S. Department of Army



James C. Dalton
Chief, Engineering and Construction
U.S. Army Corps of Engineers

Date: 28 JUN 2012

U. S. Geological Survey



Jerad D. Bales
Chief, Research and Programs
Water Mission Area

Date: 6-29-2012