

***NATIONAL WEATHER SERVICE POLICY DIRECTIVE 60-5***

***January 28, 2010***

***Information Technology***

***ENTERPRISE ARCHITECTURE PROGRAM***

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**NOTICE:** This publication is available at: <http://www.nws.noaa.gov/directives/>.

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***SUMMARY OF REVISIONS:***

1. Enterprise Architecture (EA) is management practice for aligning resources to improve business performance and to help agencies better execute their core missions. Authorities include: The E-Government Act, the Clinger-Cohen Act (CCA), and the Office of Management and Budget (OMB) Circular A-130. OMB requires each agency to document its EA and use it to guide investments and capital planning decisions. The CCA assigns general responsibilities for EA to the Chief Information Officer (CIO).
2. The activity of developing and maintaining a sustainable National Weather Service (NWS) EA is to be performed by the NWS EA Program. This directive sets the program direction, and establishes its governance and the compliance model.
  - 2.1. Program objectives are as follows:
    - a. Provide the architectural framework and procedures for developing EA through collaboration between the Office of the CIO (OCIO) and the NWS Offices and Regions.
    - b. Provide a continuous process for managing change in response to changing mission requirements.
    - c. Support, and synchronize policies and processes such as system engineering, system life cycle management, Information Security, Capital Planning and Investment Control (CPIC), Operations and Services Improvement Process (OSIP), NOAA Enterprise Architecture, and NOAA's Planning, Programming, Budgeting and Execution System (PPBES).
    - d. Provide input for the Department of Commerce's (DOC) EA submissions to OMB via its parent bureau, the National Oceanic and Atmospheric Administration (NOAA).

- e. Acquire and manage IT applications that facilitate architecture modeling and analysis.
- f. Establish and publish policies, procedures, and guidelines for implementation, management, and governance.
- g. Seek approval from the Offices and Regions for EA content.
- h. Publish architectural content for stakeholders and users.
- i. Provide modeling and analysis services for planning and management.
- j. Support DOC and NOAA EA activities.
- k. Evaluate proposed system designs, acquisitions, and enterprise level changes for compliance.

2.2. Objectives for the resulting NWS EA are as follows:

- a. Provide explicit descriptions and documentation of the current and desired relationships among business processes and information technology.
- b. Provide Target Architecture, Baseline Architecture, and Transition Plans (See Attachment 1, Glossary of Terms).
- c. Include at least the following domains: Business Architecture, Application Architecture, Data Architecture, and Technical Architecture (See Attachment 1, Glossary of Terms).
- d. Include standards, design patterns, and best practices for system engineering.
- e. Provide a “system of systems” model or viewpoint which highlights the relationships between constituent systems, and their relationships. The architecture may be segmented or partitioned into functional and organizational components for manageability.
- f. Demonstrate compliance with NOAA, DOC, and OMB requirements and guidance.
- g. Demonstrate that IT supports the NWS mission, strategic plans, and performance and outcome objectives; and align with NOAA, DOC, and Federal Enterprise Architectures (FEA).

3. This directive establishes the following authorities and responsibilities:
  - 3.1. The NWS CIO sponsors EA at the executive level. The OCIO is responsible for:
    - a. Managing the EA Program and allocating resources to it.
    - b. Collaborating with each Office and Region to ensure that the NWS EA reflects NWS business functions and operations.
    - c. Coordinating with the NOAA OCIO.
    - d. Verifying EA compliance when reviewing and making recommendations on annual IT spending plans, and IT acquisitions.
  - 3.2. Each Office and Region is responsible for:
    - a. Collaborating with the OCIO to ensure that the NWS EA reflects NWS business functions and operations.
    - b. Allocating resources for its EA activities to integrate EA into current and planned investments.
    - c. Complying with EA Program policies, procedures, and guidance for developing and documenting the architecture of their systems. This includes business processes, information flow and relationships, applications, data descriptions and relationships, and technology infrastructure.
    - d. Complying with NWS and NOAA EA when designing and maintaining IT resources.
4. Monitoring compliance with this directive will be accomplished through the CPIC process, and CIO supervision of IT expenditures.
5. Procedural directives will be issued to implement this policy as needed.

<u>Signed</u>	<u>01/14/2010</u>
John L. Hayes	Date
Assistant Administrator for Weather Services	

## Attachment 1 – References and Glossary of Terms

### *References*

Clinger-Cohen Act of 1996, as amended.

Government Performance and Results Act of 1993.

Circular A-130, Management of Federal Information Resources, Office of Management and Budget.

Office of the CIO: Enterprise Architecture Policy, U.S. Department of Commerce, June 2007.

Office of the CIO: Enterprise Architecture Responsibilities of Commerce Operating Unit CIOs, U.S. Department of Commerce, December 2004.

NOAA Administrative Order 212-14: Management of Environmental and Geospatial Data and Information.

NOAA Administrative Order 216-111: NOAA Planning, Programming, Budgeting, and Executing System.

### *Glossary of Terms*

**Application Architecture** — the structure and behavior of applications used in an enterprise and how they interact with each other and with users. It describes the logical dependencies and relationships among mission activities. It identifies, defines, and organizes activities that capture, manipulate, and manage business information to support business processes.

**Architecture Domain** — is a partial representation of an enterprise or system with a specific focus. Within the Federal architecture, OMB requires the following domains: Business Architecture, Application Architecture, Data Architecture, and Technical Architecture.

**Baseline Architecture** — captures the current state with just enough detail to develop the target architecture and transition plans.

**Business Architecture** — describes the structure and behavior of a business system. Within the NWS context, its mission is its business. It covers business goals, functions or capabilities, processes and roles etc. It identifies the work performed to support mission, vision and performance goals. It documents change agents, such as legislation or new technologies that will drive changes in the EA.

**Capital Planning and Investment Control (CPIC)** — management process for ongoing identification, selection, control, and evaluation of investments in information resources.

**Clinger-Cohen Act of 1996 (CCA)** — establishes the general responsibilities of the Chief Information Officer of an executive agency to include developing, maintaining, and facilitating the implementation of a sound and integrated information technology architecture for the executive agency.

**Data Architecture** — describes data, information flow used by a business and its applications.

Information flows indicate where the information is needed and how it is shared to support mission functions. It identifies how data is created, maintained, accessed, and used.

**E-Government Act of 2002** — defines ‘enterprise architecture’ to mean a strategic information asset base, which defines the mission; the information necessary to perform the mission; the technologies necessary to perform the mission; and the transitional processes for implementing new technologies in response to changing mission needs; and includes a baseline architecture; a target architecture; and a sequencing plan.

**Enterprise Architecture (EA)** — a management practice for aligning resources to improve business performance and help agencies better execute their core missions. An EA describes the current and future state of the agency, and lays out a plan for transitioning from the current state to the desired future state.

**Federal Enterprise Architectures (FEA)** — an initiative of OMB to comply with the Clinger-Cohen Act and provide a common methodology for information technology (IT) acquisition in the United States federal government.

**Government Performance and Results Act** — integrating guidance for performance with CPIC and EA standards,

**Information Technology Architecture** — integrated framework for evolving or maintaining existing information technology and acquiring new information technology to achieve the agency's strategic goals and information resources management goals.

**Information Technology (IT)** — any equipment or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by an executive agency.

**Offices and Regions** — the Office of Climate, Water, and Weather Services; the Office of Operational Systems; the Office of Science and Technology; the Office of Hydrologic Development; National Center for Environmental Prediction; and the Eastern, Central, Southern, Western, Alaska, and Pacific Regions.

**Planning, Programming, Budgeting and Execution System (PPBES)** — NOAA’s integrated, requirements-based Planning, Programming, Budgeting, and Execution System that is designed to use NOAA’s strategic vision to drive annual investment and management priorities, programmatic and policy choices, and budget development.

**System of Systems** — a collection of task-oriented or dedicated systems that pool their resources and capabilities together to obtain a new, more complex, 'meta-system' which offers more functionality and performance than simply the sum of the constituent systems.

**Target Architecture** — the future state of NWS that reflects its strategic plan, business drivers, closes performance gaps, and takes advantage of opportunities.

**Technical Architecture** — covers the technology infrastructure, describing and identifying functional characteristics, capabilities, and interconnections of the hardware, software, and telecommunications. It includes client and server nodes of the hardware configuration, infrastructure applications that run on them, infrastructure services they offer to applications, protocols and networks that connect applications and nodes.

**Transition Plan** — a strategy that supports the current state and acts as a roadmap to achieve the target architecture.