Software Architecture Documentation

Integrating DoDAF with Views and Beyond

A Comprehensive Guide to Mapping DoDAF Products to Views and Beyond Documentation Practices

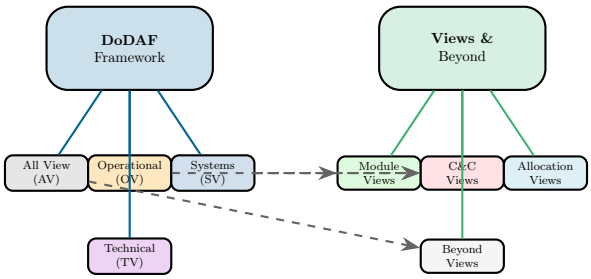
Architecture Documentation Series

Based on DoDAF 2.02 and SEI Views and Beyond

December 9, 2025

Abstract

The Department of Defense Architecture Framework (DoDAF) and the Software Engineering Institute's Views and Beyond approach represent two influential methodologies for architecture documentation. DoDAF provides a standardized framework for defense enterprise architectures, while Views and Beyond offers practical guidance for software architecture documentation. This comprehensive guide provides detailed mappings between DoDAF products and Views and Beyond constructs, enabling architects to leverage the strengths of both approaches. The document covers all DoDAF viewpoints (All View, Operational, Systems and Services, Technical Standards), provides implementation guidance, and includes practical examples demonstrating how to create documentation that satisfies both frameworks simultaneously.



Framework Integration

Contents

1 Introduction

1.1 Purpose of This Guide

This guide provides comprehensive guidance for integrating the Department of Defense Architecture Framework (DoDAF) with the Views and Beyond approach to software architecture documentation. Organizations using DoDAF can benefit from the practical documentation techniques in Views and Beyond, while organizations using Views and Beyond can ensure their documentation meets DoDAF requirements when needed.

1.2 About the Frameworks

Definition

DoDAF (Department of Defense Architecture Framework) is a standardized approach for developing and presenting enterprise architectures within the U.S. Department of Defense. It defines a set of viewpoints and products that describe architectures from multiple perspectives.

Definition

Views and Beyond is an approach to software architecture documentation developed by the Software Engineering Institute (SEI). It emphasizes stakeholder-driven documentation using architectural views selected to address specific concerns.

1.3 Why Integrate Both Approaches?

Key Point

Complementary Strengths:

- **DoDAF** provides a comprehensive enterprise architecture framework with standardized products required for defense acquisitions
- **Views and Beyond** provides practical guidance for documenting software architectures with emphasis on stakeholder needs and quality attributes
- Together, they enable documentation that satisfies acquisition requirements while being useful for development teams

1.4 Document Organization

- **Section 2:** Framework overviews
- **Section 3:** All View (AV) mappings
- **Section 4:** Operational View (OV) mappings
- **Section 5:** Systems and Services View (SV) mappings
- **Section 6:** Technical Standards View (TV) mappings
- **Section 7:** Implementation guidance
- **Appendices:** Complete mapping tables, templates, and references

2 Framework Overviews

2.1 DoDAF Overview

DoDAF organizes architecture descriptions into viewpoints, each containing multiple products (models):

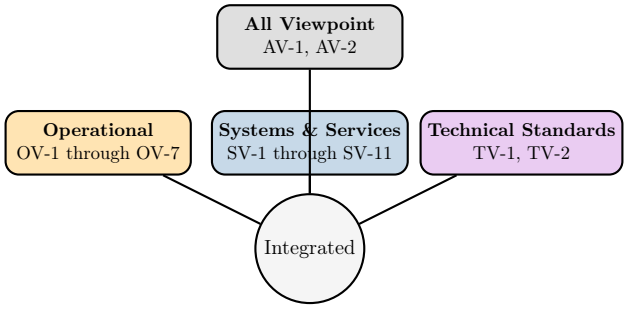


Figure 1: DoDAF Viewpoints

Table 1: DoDAF Viewpoints Summary

Viewpoint	Focus	Key Products
All Viewpoint (AV)	Overview and dictionary	AV-1 Overview; AV-2 Dictionary
Operational (OV)	Mission and business processes	OV-1 Concept; OV-2 Connectivity; OV-3 Information Exchange; OV-4 Organization; OV-5 Activity; OV-6 Rules/State/Trace; OV-7 Data Model
Systems & Services (SV)	Systems and services supporting operations	SV-1 Interface; SV-2 Communications; SV-3 Matrix; SV-4 Functionality; SV-5 Traceability; SV-6 Data Exchange; SV-7 Performance; SV-8 Evolution; SV-9 Technology; SV-10 Behavior; SV-11 Schema
Technical Standards (TV)	Standards and forecasts	TV-1 Profile; TV-2 Forecast

2.2 Views and Beyond Overview

Views and Beyond organizes architecture documentation into three view categories plus documentation beyond views:

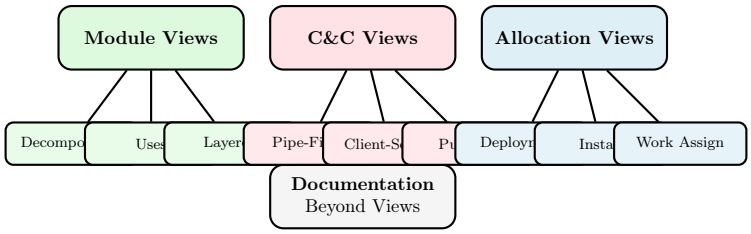


Figure 2: Views and Beyond Structure

Table 2: Views and Beyond Categories

Category	Focus	View Types
Module Views	Code structure and organization	Decomposition, Uses, Generalization, Layered, Data Model, Aspects
C&C Views	Runtime behavior and interaction	Pipe-and-Filter, Client-Server, Peer-to-Peer, Service-Oriented, Publish-Subscribe, Shared-Data
Allocation Views	Mapping to environments	Deployment, Install, Work Assignment
Beyond Views	Cross-cutting documentation	System Overview, Mapping Between Views, Rationale, Directory

2.3 Conceptual Alignment

Table 3: Conceptual Alignment Between Frameworks

DoDAF Concept	V&B Equivalent	Notes
Viewpoint	Viewtype	Both define conventions for views
View/Product	View	Work product expressing architecture
Model	Model within View	Specific representation
Fit-for-Purpose View	View Packet	Tailored for specific stakeholder
Architecture Data	Element Catalog	Detailed element specifications
Integrated Dictionary	Glossary	Term definitions

3 All View (AV) Mappings

The All Viewpoint provides overarching information about the architecture.

3.1 AV-1: Overview and Summary Information

AV-1: Overview and Summary Information

DoDAF Definition: Provides executive-level summary information about the architecture including scope, purpose, intended users, environment depicted, and analytical findings.
Required Content:

- Architecture identification and scope
- Purpose and intended use
- Context and environment
- Analytical findings and recommendations
- Architecture status and development approach

Views and Beyond Equivalent

Primary Mapping: Documentation Beyond Views

- **Documentation Roadmap:** Explains structure and navigation
- **System Overview:** Provides high-level context
- **Rationale:** Captures analytical findings supporting decisions
- **View Template Introduction:** Purpose and scope of each view

Implementation Guidance for AV-1

To satisfy AV-1 using Views and Beyond:

1. Create a **Documentation Roadmap** that:
   - States architecture identification (name, version, date)
   - Defines scope boundaries
   - Lists intended stakeholders
   - Provides navigation guide to views
2. Create a **System Overview** that:
   - Describes system purpose and context
   - Summarizes key capabilities
   - Identifies external interfaces
   - Provides high-level operational concept
3. Include **Analytical Findings** in:
   - Rationale sections of views
   - Architecture Decision Records (ADRs)
   - Trade study results

3.2 AV-2: Integrated Dictionary

AV-2: Integrated Dictionary

DoDAF Definition: Architecture data repository with definitions of all terms used in all products. Provides a single authoritative source for architecture data elements.
Required Content:
- Term definitions
- Acronym expansions
- Data element descriptions
- Cross-references between products

Views and Beyond Equivalent

Primary Mapping: Glossary and Directory

- **Glossary:** Definitions of all terms
- **Acronym List:** Expansion of abbreviations
- **Element Catalogs:** Detailed element definitions within views
- **Index:** Cross-references to content locations

4 Operational View (OV) Mappings

The Operational Viewpoint describes the operational context, activities, and information flows.

4.1 OV-1: High-Level Operational Concept Graphic

OV-1: High-Level Operational Concept Graphic

DoDAF Definition: High-level graphical and textual description of the operational concept. Shows key operational nodes, their activities, and interactions.
Required Content:
- Operational nodes and their missions
- Key interactions and information flows
- Geographic distribution (if relevant)
- Mission context

Views and Beyond Equivalent

Primary Mapping: System Overview (Documentation Beyond Views)
The OV-1 maps primarily to the System Overview in the "documentation beyond views" section. This provides:

- High-level system context
- Key operational concepts
- Stakeholder relationships
- Mission/business purpose

4.2 OV-2: Operational Resource Flow Description

OV-2: Operational Resource Flow Description

DoDAF Definition: Describes operational nodes, connectivity, and information exchange need lines between nodes.
Required Content:
- Operational nodes and their roles
- Connectivity between nodes
- Information exchange requirements
- Resource flows

Views and Beyond Equivalent

Primary Mapping: Context Diagram
For each operational node scope, create a Context Diagram showing:
- System boundary
- External entities (other operational nodes)
- Information/resource flows between system and externals
- This becomes part of a view packet scoped to the node

4.3 OV-3: Operational Resource Flow Matrix

OV-3: Operational Resource Flow Matrix

DoDAF Definition: Information exchanged between nodes and the relevant attributes of that exchange.
Required Content:
- Producer and consumer nodes
- Information elements exchanged
- Exchange attributes (frequency, volume, security)
- Triggering events

Views and Beyond Equivalent

Primary Mapping: C&C View (Information Exchange)
Create a Component-and-Connector view that shows:
- Components representing operational nodes
- Connectors representing information exchanges
- Element catalog with exchange attributes
- Interface specifications for each exchange

4.4 OV-4: Organizational Relationships Chart

OV-4: Organizational Relationships Chart

DoDAF Definition: Organizational, role, or other relations among organizations.
Required Content:
- Organizations involved
- Command/reporting relationships
- Coordination relationships
- Roles and responsibilities

Views and Beyond Equivalent

Primary Mapping: Work Assignment View
A Work Assignment View shows:
- Mapping of architecture elements to organizations/teams
- Relationships between organizations (analogous to showing relations among hardware nodes in deployment view)
- Responsibility assignments
- Organizational structure relevant to development/operation

4.5 OV-5: Operational Activity Model

OV-5: Operational Activity Model

DoDAF Definition: Capabilities, operational activities, relations among activities, inputs, and outputs.
Required Content:
- Operational activities hierarchy
- Activity relationships (sequence, decomposition)
- Inputs and outputs
- Activity-to-capability mappings

Views and Beyond Equivalent

Primary Mapping: Behavior Documentation
OV-5 describes required behavior rather than architecture structure. In Views and Beyond:
- Document using behavior documentation techniques (Chapter 8)
- Use activity diagrams, sequence diagrams
- Include in relevant view packets as behavior models
- May inform C&C view design but is not itself an architecture view

4.6 OV-6a/b/c: Operational Rules, State, and Event-Trace

OV-6: Operational Behavior Models

OV-6a (Rules Model): Business rules constraining operations
OV-6b (State Transition): Business process responses to events
OV-6c (Event-Trace): Scenario or sequence of events

Views and Beyond Equivalent

Primary Mapping: Behavior Documentation
These products describe required operational behavior:

- **OV-6a** → Constraints documented in view rationale or variability guide
- **OV-6b** → State diagrams in behavior documentation
- **OV-6c** → Sequence diagrams, trace descriptions

4.7 OV-7: Logical Data Model

OV-7: Logical Data Model

DoDAF Definition: Documentation of system data requirements and structural business process rules.
Required Content:

- Data entities
- Entity relationships
- Attributes
- Business rules on data

Views and Beyond Equivalent

Primary Mapping: Data Model View (Module Views) + Behavior Documentation

- Logical data structure maps to Data Model View
- Business rules on data map to behavior documentation
- Entity relationships shown in element catalog

5 Systems and Services View (SV) Mappings

The Systems and Services Viewpoint describes systems, services, and their interconnections.

5.1 SV-1: Systems/Services Interface Description

SV-1: Systems/Services Interface Description

DoDAF Definition: Identification of system nodes, systems, system items, services, and service items and their interconnections.
Required Content:
- Systems and services identification
- System/service nodes
- Interconnections and interfaces
- Interface characteristics

Views and Beyond Equivalent

Primary Mapping: C&C Views (Service-Oriented, Client-Server)
Create Component-and-Connector views showing:
- Components representing systems and services
- Connectors representing interconnections
- Ports showing interface points
- Service-oriented or client-server styles as appropriate

5.2 SV-2: Systems/Services Resource Flow Description

SV-2: Systems/Services Resource Flow Description

DoDAF Definition: Systems, services, and their related communications laydowns.
Required Content:
- Communication paths
- Communication mechanisms
- Network topology
- Protocol stacks

Views and Beyond Equivalent

Primary Mapping: C&C Views + Deployment View
- Communication flows in C&C views
- Physical network topology in Deployment view
- Protocol specifications in interface documentation

5.3 SV-3: Systems-Systems/Services Matrix

SV-3: Systems-Systems/Services Matrix

DoDAF Definition: Relations among systems and services showing interfaces of interest.
Required Content:

- System-to-system interfaces
- Service-to-service interfaces
- System-to-service interfaces
- Interface types and status

Views and Beyond Equivalent

Primary Mapping: Mapping Between Views
Create a mapping showing:

- Correspondence between system C&C view and service C&C view
- Interface matrix in element catalog
- Cross-view traceability

5.4 SV-4a/b: Systems/Services Functionality Description

SV-4: Functionality Description

SV-4a: Functions performed by systems and data flows among functions
SV-4b: Functions performed by services and data flows among service functions

Views and Beyond Equivalent

Primary Mapping: Module Decomposition View

- System/service functions documented in Decomposition view
- Functional decomposition of each system/service
- Data flows documented in C&C view or interface specs

5.5 SV-5a/b/c: Traceability Matrices

SV-5: Traceability Matrices

SV-5a: Operational Activity to Systems Function Traceability
SV-5b: Operational Activity to Systems Traceability
SV-5c: Operational Activity to Services Traceability

Views and Beyond Equivalent

Primary Mapping: Requirements Mapping
In Views and Beyond, requirements traceability is documented in:

- Mapping to requirements section
- Traceability matrices in documentation beyond views
- Element catalog annotations linking to requirements

5.6 SV-6: Systems/Services Resource Flow Matrix

SV-6: Resource Flow Matrix

DoDAF Definition: Details of data elements exchanged between systems/services and exchange attributes.
Required Content:

- Data elements exchanged
- Exchange attributes
- Source and destination
- Triggering events

Views and Beyond Equivalent

Primary Mapping: C&C Views + Interface Documentation

- Information exchange in C&C view connectors
- Detailed exchange attributes in interface documentation
- Performance characteristics in element catalog

5.7 SV-7: Systems/Services Measures Matrix

SV-7: Measures Matrix

DoDAF Definition: Performance characteristics of systems and services for appropriate time frames.
Required Content:

- Performance parameters
- Capacity metrics
- Quality of service measures
- Time-phased requirements

Views and Beyond Equivalent

Primary Mapping: C&C View Element Catalog + Quality Attribute Documentation

- Performance characteristics in element properties
- Quality attribute scenarios for performance
- SLA specifications in interface documentation

5.8 SV-8: Systems/Services Evolution Description

SV-8: Evolution Description

DoDAF Definition: Planned incremental steps toward migrating systems/services or evolving to future implementation.
Required Content:
- Current baseline
- Target state
- Migration steps
- Timeline

Views and Beyond Equivalent

Primary Mapping: Rationale + Variability Guide

- Evolution rationale in decision documentation
- Variability guide for planned variation points
- Roadmap in documentation beyond views

5.9 SV-9: Systems/Services Technology and Skills Forecast

SV-9: Technology and Skills Forecast

DoDAF Definition: Emerging technologies and products expected to affect future architecture development.

Views and Beyond Equivalent

Primary Mapping: Rationale

- Technology decisions in ADRs
- Future considerations in rationale
- Technology constraints in variability guide

5.10 SV-10a/b/c: Systems/Services Behavior Models

SV-10: Behavior Models

SV-10a (Rules): Constraints on system/service functionality
SV-10b (State Transition): System/service responses to events
SV-10c (Event-Trace): Critical sequences of events

Views and Beyond Equivalent

Primary Mapping: Behavior Documentation within C&C Views

- Behavior documentation as part of C&C view packets
- State diagrams for stateful components
- Sequence diagrams for interaction scenarios
- Rules documented in variability guide or constraints

5.11 SV-11: Physical Schema

SV-11: Physical Schema

DoDAF Definition: Physical implementation of logical data model—message formats, file structures, physical schema.

Views and Beyond Equivalent

Primary Mapping: Data Model View (Physical)

- Physical data model view showing implementation
- Schema definitions in interface documentation
- Message format specifications

6 Technical Standards View (TV) Mappings

The Technical Standards Viewpoint documents applicable standards.

6.1 TV-1: Technical Standards Profile

TV-1: Technical Standards Profile

DoDAF Definition: Listing of standards that apply to architecture elements.
Required Content:

- Applicable standards
- Standard-to-element mapping
- Compliance requirements
- Standard versions

Views and Beyond Equivalent

Primary Mapping: Element Catalog Relations + View Annotations
Standards are documented in Views and Beyond by:

- Listing standards in the views where they apply
- Recording in "relations" part of element catalog
- Interface documentation for interface standards
- Constraints in variability guide

6.2 TV-2: Technical Standards Forecast

TV-2: Technical Standards Forecast

DoDAF Definition: Emerging standards and their potential impact on current architecture elements.

Views and Beyond Equivalent

Primary Mapping: Same as TV-1

- Forecast standards noted in element catalog
- Future standards in rationale documentation
- Technology evolution in variability guide

7 Implementation Guidance

7.1 Creating Integrated Documentation

Best Practice

Integration Strategy:

1. **Start with stakeholder analysis:** Identify all stakeholders from both DoDAF and development perspectives
2. **Map required products:** Determine which DoDAF products are required for your program
3. **Design Views and Beyond views:** Create views that satisfy both DoDAF products and development needs
4. **Add DoDAF-specific content:** Ensure all required DoDAF content is included
5. **Maintain traceability:** Document mapping between DoDAF products and V&B views

7.2 View Packet Design

When designing view packets that satisfy both frameworks:

Table 4: View Packet Design Guidance

DoDAF Product	V&B View Packet Content	Additional DoDAF Content
OV-2	Context diagram; external entities	Operational node identification; need lines
SV-1	C&C primary presentation; element catalog	System/service identification per DoDAF taxonomy
SV-4	Decomposition view	Function-to-activity traceability
SV-6	Interface documentation	Exchange attributes per DoDAF format

7.3 Documentation Structure

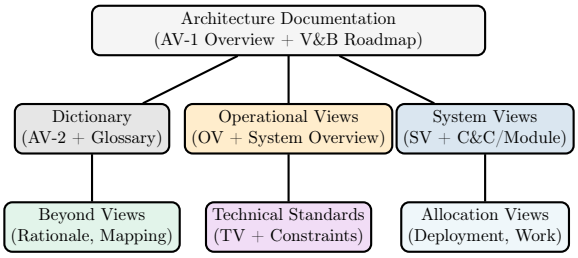


Figure 3: Integrated Documentation Structure

8 Complete Mapping Reference

Table 5: Complete DoDAF to Views and Beyond Mapping

Category	DoDAF ID	DoDAF Product	Description	V&B Equivalent
All View	AV-1	Overview and Summary	Scope, purpose, findings	Documentation roadmap; System overview; Rationale
	AV-2	Integrated Dictionary	Term definitions	Glossary
Operational	OV-1	Operational Concept	High-level concept graphic	System overview
	OV-2	Resource Flow	Node connectivity	Context diagram
	OV-3	Resource Flow Matrix	Information exchange	C&C view
	OV-4	Organizational Chart	Organization relations	Work assignment view
	OV-5	Activity Model	Activities and flows	Behavior documentation
	OV-6a	Rules Model	Business rules	Behavior documentation
	OV-6b	State Transition	Event responses	Behavior documentation
	OV-6c	Event-Trace	Scenarios	Behavior documentation
	OV-7	Logical Data Model	Data requirements	Data model view; Behavior
Systems & Services	SV-1	Interface Description	Systems/services interconnections	C&C views
	SV-2	Communications	Communications laydown	C&C views; Deployment

Category	ID	DoDAF Product	Description	V&B Equivalent
	SV-3	Matrix	Relations among systems	Mapping between views
	SV-4a	System Functionality	System functions	Decomposition view
	SV-4b	Service Functionality	Service functions	Decomposition view
	SV-5a	Activity-Function Trace	Function traceability	Requirements mapping
	SV-5b	Activity-System Trace	System traceability	Requirements mapping
	SV-5c	Activity-Service Trace	Service traceability	Requirements mapping
	SV-6	Data Exchange Matrix	Data exchange details	C&C views; Interface docs
	SV-7	Measures Matrix	Performance characteristics	Element catalog; QA docs
	SV-8	Evolution	Migration plans	Rationale; Variability
	SV-9	Technology Forecast	Emerging technologies	Rationale
	SV-10a	Rules Model	System constraints	Behavior in C&C
	SV-10b	State Transition	System state responses	Behavior in C&C
	SV-10c	Event-Trace	System sequences	Behavior in C&C
	SV-11	Physical Schema	Physical data model	Data model view
Technical Standards	TV-1	Standards Profile	Applicable standards	Element catalog relations
	TV-2	Standards Forecast	Emerging standards	Element catalog; Rationale

9 Appendix A: Checklist for DoDAF Compliance

DoDAF Compliance Checklist Using Views and Beyond

All Viewpoint:

- ☐ AV-1: Documentation roadmap created
- ☐ AV-1: System overview documented
- ☐ AV-1: Analytical findings in rationale
- ☐ AV-2: Glossary complete
- ☐ AV-2: All terms defined

Operational Viewpoint:

- ☐ OV-1: System overview includes operational concept
- ☐ OV-2: Context diagrams for operational nodes
- ☐ OV-3: C&C view shows information exchange
- ☐ OV-4: Work assignment view includes organizations
- ☐ OV-5/6/7: Behavior documented as needed

Systems and Services Viewpoint:

- ☐ SV-1: C&C views show systems and services
- ☐ SV-2: Communications in C&C and deployment views
- ☐ SV-3: View mappings documented
- ☐ SV-4: Decomposition views for functionality
- ☐ SV-5: Requirements mapping complete
- ☐ SV-6/7: Performance in element catalogs
- ☐ SV-8/9: Evolution in rationale
- ☐ SV-10: Behavior in C&C views
- ☐ SV-11: Physical data model view

Technical Standards Viewpoint:

- ☐ TV-1: Standards in element catalog relations
- ☐ TV-2: Emerging standards noted

10 Appendix B: Glossary

DoDAF Department of Defense Architecture Framework; standardized approach for defense enterprise architectures

Views and Beyond SEI approach to software architecture documentation

Viewpoint DoDAF: category of related products; V&B: conventions for view construction

Product DoDAF term for a specific architecture model or artifact

View Work product expressing architecture from a perspective

C&C View Component-and-Connector view showing runtime structure

Module View View showing code-time structure

Allocation View
View showing mapping to environments

Element Catalog
Detailed specification of architectural elements

Operational Node
DoDAF: logical node performing activities

System Node DoDAF: physical location hosting systems

11 Appendix C: References

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