



DELAWARE STATE-WIDE INFORMATION TECHNOLOGY AND ARCHITECTURE STANDARDS

Standard ID:	AP-PROG-001
Title:	Application Programming Languages
Domain:	Application
Discipline:	Development Management
Effective Date:	5/26/2015
Revision no.:	7
Original date:	4/29/2005

I. Authority, Applicability and Purpose

- A. Authority:** Title 29, Chapter 90C provides broad statutory authority to the Department of Technology and Information to implement statewide and interagency technology solutions, policy, standards and guidelines for the State of Delaware's technology infrastructure. "Technology" means computing and telecommunications systems, their supporting infrastructure and interconnectivity used to acquire, transport, process, analyze, store, and disseminate information or data electronically. The term "technology" includes systems and equipment associated with e-government and internet initiatives.
- B. Applicability:** Applies to all State of Delaware communications and computing resources. DTI is an Executive Branch Agency and has no authority over the customers in Legislative and Judicial Branches, as well as School Districts, and other Federal and Local Government entities that use these resources. However, all users, including these entities, must agree to abide by all policies, standards promulgated by DTI as a condition of funding and continued use of these resources.
- C. Purpose:** Currently, the State uses many application programming languages in production. This standard will identify those languages and versions that are considered appropriate for the State to use.

II. Scope

- A. Audience:** This document is intended for Application Developers, their managers and application development contractors for the State, Systems Administrators, Network Administrators, and Computer Auditors. This document is not intended for use by non-IT personnel.

These standards are adopted by the Department of Technology and Information (DTI), through the Technology and Architecture Standards Committee (TASC), and are applicable to all Information Technology use throughout the State of Delaware. Any questions or comments should be directed to dti_tasc@state.de.us.



DELAWARE STATE-WIDE INFORMATION TECHNOLOGY AND ARCHITECTURE STANDARDS

- B. **Applicability:** This standard addresses all application development languages approved for use by the State of Delaware, including applications owned by the State but developed by third-party contractors. This standard does not apply to those instances where the Federal Government dictates the Application Development Environment to be used. This standard addresses programming languages used in multi-user or moderate (or higher) critical applications.
- C. **Environments:** Integrated Development Environments (IDEs), used in the creation of Client/Server, web based and Mainframe applications are referenced by this standard. Often IDEs are defacto standards resulting from the choice of programming language made. A fully integrated IDE is an important tool in the development process.

III. Process

- A. **Adoption:** These standards have been adopted by the Department of Technology and Information (DTI) through the Technology and Architecture Standards Committee (TASC) and are applicable to all Information Technology use throughout the State of Delaware.
- B. **Revision:** Technology is constantly evolving; therefore, the standards will need to be regularly reviewed. It is the intent of TASC to review each standard annually. TASC is open to suggestions and comments from knowledgeable individuals within the State, although we ask that they be channeled through your Information Resource Manager (IRM).
- C. **Contractors:** Contractors or other third parties are required to comply with these standards when proposing technology solutions to DTI or other State entities. Failure to do so could result in rejection by the Delaware Technology Investment Council. For further guidance, or to seek review of a component that is not rated below, contact the TASC at dti_tasc@state.de.us.
- D. **Implementation responsibility:** DTI and/or the organization's technical staff will implement this standard during the course of normal business activities, including business case review, architectural review, project execution and the design, development, or support of systems.
- E. **Enforcement:** DTI will enforce this standard during the course of normal business activities, including business case and architectural review of proposed projects and during the design, development, or support of systems. This standard may also be enforced by others during the course of their normal business activities, including audits and design reviews.
- F. **Contact us:** Any questions or comments should be directed to dti_tasc@state.de.us.

IV. Definitions/Declarations

A. Definitions

1. **Application** – For the purpose of this standard, an application is defined as a multi user application and/or back end process that supports *Moderate or higher* critical business processing as defined in the DR/BCP classifications found in the [Delaware Information Security Policy](#).
2. **Integrated Development Environment (IDE)** - A set of integrated or semi-integrated tools for software development often run from within a single user interface.

These standards are adopted by the Department of Technology and Information (DTI), through the Technology and Architecture Standards Committee (TASC), and are applicable to all Information Technology use throughout the State of Delaware. Any questions or comments should be directed to dti_tasc@state.de.us.



DELAWARE STATE-WIDE INFORMATION TECHNOLOGY AND ARCHITECTURE STANDARDS

- a) Tool integration can either take the form of features built directly into the IDE software or plug-ins (either by the same vendor or third party).
- b) Common tools in IDEs: code editor, debugger, compiler, object browser (for OO languages), database connectivity, visual designers (both for user forms and/or documentation aspects), source code and version control management utilities, code generation, language/framework context sensitive documentation (i.e., on-line help), work list tracking, deployment utilities, and project management features.
- c)

B. Declarations

An Application Programming Language must:

1. Be used to create code written based on best security practices.
2. Work within the State's IT Infrastructure.
3. Utilize the English language.
4. Be in General Support phase by the vendor or community who publishes the language, including free and open source software.



DELAWARE STATE-WIDE INFORMATION TECHNOLOGY AND ARCHITECTURE STANDARDS

V. Definitions of Ratings

Individual components within a Standard will be rated in one of the following categories.

COMPONENT RATING	USAGE NOTES
STANDARD – DTI offers internal support and/or has arranged for external vendor support as well (where applicable). DTI believes the component is robust and solidly positioned in its product life cycle.	These components can be used without explicit DTI approval for both <u>new projects</u> and <u>enhancement</u> of existing systems.
DECLINING – Deprecated - DTI considers the component to be a likely candidate to have support discontinued in the near future. A deprecated element is one becoming invalid or obsolete.	Via the State's waiver process, these components must be explicitly approved by DTI for <u>all projects</u> . They must not be used for <u>minor enhancement</u> and <u>system maintenance</u> without explicit DTI approval via the State's waiver process.
DISALLOWED – DTI declares the component to be unacceptable for use and will actively intervene to disallow its use when discovered.	No waiver requests for new solutions with this component rating will be considered.

- A. Missing Components** – No conclusions should be inferred if a specific component is not listed. Instead, contact TASC to obtain further information.

VI. Component Assessments

Scope: All application programming languages must be licensed in a manner appropriate to the way that they are actually used and they must be up-to-date with all appropriate published service patches. All application programming languages versions must be currently supported.

These standards are adopted by the Department of Technology and Information (DTI), through the Technology and Architecture Standards Committee (TASC), and are applicable to all Information Technology use throughout the State of Delaware. Any questions or comments should be directed to dti_tasc@state.de.us.



DELAWARE STATE-WIDE INFORMATION TECHNOLOGY AND ARCHITECTURE STANDARDS

#	Programming Language	Rating	Comments
1	Java (Standard Edition and Enterprise Edition)	Standard	JRE v 7 or higher
		Declining	JRE v 6 or lower
2	COBOL	Standard	Enterprise Cobol Version 4.2
		Disallowed	OS/390 & VM Version 2
		Disallowed	VS COBOL II Version 1
		Disallowed	OS/VS COBOL Version 1 Release 2
3	Natural	Standard	V8.2 Natural objects that were created with Natural versions 2.3, 3.1, 4.1, or 4.2 can be executed in a Natural 8.2 environment.
4	PHP (not to be used for applications, only scripting)	Standard	v 5.4
		Disallowed	Less than v 5.4
5	Perl	Standard	v 5
		Disallowed	Less than v 5
6	Python	Standard	v 2.6 and higher
		Disallowed	Less than v 2
7	C	Standard	C11
8	C++	Standard	C++11, C++14

These standards are adopted by the Department of Technology and Information (DTI), through the Technology and Architecture Standards Committee (TASC), and are applicable to all Information Technology use throughout the State of Delaware. Any questions or comments should be directed to dti_tasc@state.de.us.



DELAWARE STATE-WIDE INFORMATION TECHNOLOGY AND ARCHITECTURE STANDARDS

9	C# < 4.0	Disallowed	
	C# 4.0	Declining	
	C# 5.0	Standard	
	C# 6.0	Standard	
10	.Net Framework < 4.0	Disallowed	
	.Net Framework < 4.5.2	Declining	
	.Net Framework 4.5.2	Standard	
11	VB .Net	Declining	
12	Visual Basic	Disallowed	No new development*
13	Ruby	Standard	V 1.8x and higher
14	Javascript	Standard	
15	PowerBuilder	Disallowed	No new development*
16	Adobe/Apache Flex	Disallowed	No new development*
17	Classic ASP/VB Script	Disallowed	
18	Lotus Script	Disallowed	No new development*
19	Silverlight	Disallowed	No new development*
21	Clipper	Disallowed	No new development*
22	Delphi	Disallowed	No new development*

These standards are adopted by the Department of Technology and Information (DTI), through the Technology and Architecture Standards Committee (TASC), and are applicable to all Information Technology use throughout the State of Delaware. Any questions or comments should be directed to dti_tasc@state.de.us.



DELAWARE STATE-WIDE INFORMATION TECHNOLOGY AND ARCHITECTURE STANDARDS

23	HTML4 HTML5	Declining Standard	HTML 5 is strongly encouraged for all new development
24	WPS	Standard	v3.02
25	MXG	Standard	V33.33

* = Bug fixes only. Runtime support must be monitored. No forced migration date unless specified.