



**Ministry of Environment
Ministry of Agriculture and Lands
Information Management Branch**

Systems and Application Technology Standards

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Revision History

Version	Details/Description	Date	Author
1.0	TOC prepared for Initial Review by IMB	2005-Oct	DHK
1.1	Reformatted, published. Format revisions	2006-Mar	TG
1.1.3	Versions, language revisions; removal of Windows servers	2006-Apr-05	TG
1.1.4	Minor spelling corrections; removal of footnote asterisk	2006-May-12	GW
1.2.0	Ant version; changed language in Sections 1 and 2	2006-June-06	TG
1.2.1	Struts version; note on library versions	2006-July-27	TG
1.3.0	Added "Last Updated" column to summary table; updates	2007-05-28	TG
1.3.1	Browser standards language: "or" becomes "and"	2007-06-12	TG
1.3.2	Spelling correction	2007-09-18	TG
1.3.3	Hibernate and Spring discussed	2007-11-01	TG
1.3.4	Hibernate Core and Spring	2008-06-01	GW
1.4.0	Numerous changes	2008-11-10	TG
1.4.1	Correction of typographical error	2009-01-07	TG
1.4.2	Correction of version # error for Application Server	2009-01-28	GW
1.4.3	Update Oracle Database version	2010-10-28	GW

1. Introduction

This document provides an overview of the standard technology environment and a list of standards for applications and systems supported by the Information Management Branch (IMB). The IMB supports systems used by the Ministry of Environment and the Ministry of Agriculture and Lands, (hereafter collectively referred to as "the Ministry"). The technology environment dictates the tools that may be used during design, development, or implementation.

This is the approved list of technology components to choose from when developing an application. No other components may be introduced into the standard technology environment.

1.1 Audience

This document is primarily intended for Ministry contractors engaged in the design and development of systems and applications. It will also be useful to Ministry and vendor project managers who direct such development and to Ministry technical staff involved in the acceptance and deployment of these systems and applications.

1.2 Purpose

The purpose of this document is to provide an overview of the standard technologies for the design or deployment of systems or applications for the Ministry. It contains a list of standards for core technology infrastructure approved for use in the Ministry.

1.3 Assumptions

It is assumed that readers of this document are familiar with the Government Technology Standards (at <http://www.cio.gov.bc.ca>, under Policies and Standards).

1.4 Exceptions

Any exception to existing standards must be approved in writing by the Head of Architecture of the Ministry IMB before proceeding with design or implementation.

2. Definitions

2.1 Standard

A standard is a specific statement of the rules and constraints governing the naming, contents, and operations of software and hardware. A standard **must** be followed. **There is a contractual obligation on the part of the vendor/developer to adhere to all relevant standards.**

There are two types of standards in this document - Government and Ministry. A Government standard is set by the Workplace Technology Services (WTS) of the Ministry of Labour and Citizens' Services, or by the Government Chief Information Officer of the Province of British Columbia (GCIO). A Ministry Standard is set by the Ministry's IMB under the authority of the Ministry Chief Information Officer (MCIO).

In some cases, multiple standards are provided, standards may be interpreted in more than one way, or standards are still to be determined (TBD). For this reason the Ministry will clarify the standard specific to its requirements.

In this document a standard is shown using the following convention. Example:

Ministry Standard: Oracle 10g is the database in the deployment environment
or
Government Standard: Computer Associates SiteMinder is the Enterprise Security gateway service

3. NETWORK STANDARDS		Last Updated
LAN Standards	Ministry Standard: <i>TCP/IP is the only supported protocol</i>	
WAN Standards	Government Standard: <i>Utilize BC Government SPAN/BC (Shared Provincial Access Network)</i> Ministry Standard: <i>TCP/IP is the only supported protocol</i>	
Network Hardware Standards	Government Standard: <i>Network hardware is provided by WTS</i>	
4. APPLICATION STANDARDS		
Application Servers	Ministry Standard: <i>Oracle 10.1.2.3 enterprise with the latest Oracle October Critical Patch Update (Oct2008 CPU) on Sun Solaris 10 (SunOS 5.10)</i>	2009-01-28
Case Tools	Ministry Standard: <i>Oracle Designer Repository 9i</i>	
Development Tools	Ministry Standard: <i>Developers may use any Integrated Development Environment (IDE) that produces J2EE 1.4 compliant code. No proprietary Java extensions are supported within the Ministry's Java deployment environment</i>	
Database	Ministry Standard: <i>Production databases are currently running under Oracle 11g Release 11.2.0.1.0 64bit, with patch CPUJUL2010, on Sun Solaris 10 (SunOS 5.10)</i>	2008-11-10
Spatially Enabled Databases	Ministry Standard: <i>Spatial database geometries may be stored as SDO (Oracle) Geometries in Oracle Database; or as Simple-Feature (non-versioned, non-topological) Geodatabase using ESRI's Spatial Data Engine (SDE) 9.1 SP2 Update 3 over Oracle Database.</i>	2007-05-28
Forms	Ministry Standard: <i>Oracle Forms 10.1.2.3.</i> <i>Note: The use of Oracle Forms for new application development is not permitted; all new application development must use Java.</i>	2008-11-10
Reports	Ministry Standard: <i>Oracle Reports 10.1.2.3.</i>	2008-11-10
Java build utility	Ministry Standard: <i>Ant 1.7.</i>	2008-11-10
Web Mapping Framework	Ministry Standard: <i>Internet Mapping Framework (IMF) services as provided by GeoBC</i>	2008-11-10
5. WEB STANDARDS		
Browser Standards	Ministry Standard: <i>Microsoft Internet Explorer 6 and above.</i>	2007-06-12
HTML Standards	Government Standard: <i>HTML version 4.01+</i>	
Java Standards	Ministry Standard: <i>Java JDK 1.4 as released by Sun. The Ministry expects to move to Java 1.6 in 2010.</i>	2008-11-10
JavaScript	<i>A standard has not been defined for this category. The ministry recommendation is JavaScript version 1.2</i>	

Java Server Pages	Ministry Standard: Java Server Pages as per J2EE 1.4 standard.	2008-11-10
XML	Ministry Standard: XML ver 1.0	
Web Server	Ministry Standard: Apache version 2.2.x on UNIX. For Oracle Application Server, Apache version (OHTTP) as bundled with current version of OAS.	2008-11-10
6. SECURITY		
Encryption	Ministry Standard: Secure Socket Layer 128-bit throughout for any application that requires authentication.	2008-10-11
VPN	Government Standard: VPN services as provided by WTS	
Digital Certificates	Ministry Standard: X.509v3 Digital Certificates as provided by WTS	2008-10-11
Common User Authentication	Government Standard: Enterprise Security Gateway using CA SiteMinder as implemented by WTS through the Corporate Authentication Program	2008-10-11
Common User Authorization	Ministry Standard: WebADE 4.2	2008-10-11
7. JAVA SHARED LIBRARIES		
For reference, library versions are listed as <i>major.minor.patch</i> . Developed code should reference only <i>major.minor</i> . (E.g. use “1.2” not “1.2.9”.) See Java Delivery Standards for details.		
Application Logging	Ministry Standard: Apache log4j 1.2.14	2007-05-28
Charting (Graphing)	Ministry Standard: JFreeChart 1.0.5	2007-05-28
Email Notification	Ministry Standard: Ministry custom library ENCC	2008-11-10
Enterprise Application Framework	Ministry Standard: Spring Framework 2.5.4	2008-11-10
MVC Framework	Ministry Standard: Apache Struts 1.3.8. The Ministry expects to review this standard in 2009/2010	2008-11-10
Object-Relational Mapping	Ministry Standard: Hibernate Core 3.2.6	2007-11-01
Unit Testing	Ministry Standard: JUnit 4.3.1	2007-05-28
XML parser	Ministry Standard: Apache Xerces-J 2.9.0	2007-05-28
XML processing framework	Ministry Standard: Dom4j 1.6.1	2007-05-28
XSLT processor	Ministry Standard: Xalan-J 2.7.0	2007-05-28