Office of the Chief Information Officer

IM/IT DATE AND TIME STANDARD

Architecture, Standards and Planning Branch
Office of the CIO ● Province of BC
People ● Collaboration ● Innovation

Version Draft

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1. Overview

The *Government of British Columbia IM/IT Date and Time Standard* document outlines the date and time standards for the Government of British Columbia. This includes 1) Stored Date and Time Standard-a "machine readable" date and/or time stored in electronic media (database, spreadsheet) and 2) Displayed Date and Time-a "human readable" date and/or time representation for external display (computer screen, report, data entry screen, pick-list).

This document was updated in 2008 by the Government Chief Information Officer (GCIO), Architecture and Standards Branch (ASB), building on the Data Administration Forum's (DAF) 1997 document *Data Standards for the Government of BC.* The GCIO Architecture and Standards Branch is now the steward of cross-government IM/IT standards. This means working with stakeholders to develop and maintain these standards which are then reviewed and authorized by the Architecture and Standards Review Board (ASRB). The *Government of British Columbia IM/IT Date and Time Standard* has been vetted through this process. These standards are mandatory and exceptions must be reviewed by the ASB.

The standards in this document are based on the International Standards Organization's (ISO) 8601 *Data elements and interchange formats—Information interchange—Representation of dates and times.* The use of the 4-digit (YYYY-MM-DD) year is central to the effectiveness of these standards and must be adhered to for both stored and displayed formats. While ISO 8601 does not address alphanumeric dates (2005-Jan-01), some examples are included in the Displayed Date and Time section that may be used for business reasons.

2. Rational

The following is the rational behind having a government-wide date and time standard:

- Enables government-wide information sharing
- Facilitates cross-application data exchange
- Ensures accurate date-dependent calculations
- Ensures that date/time-indexed records and reports are accurately sorted and organized
- Assists in retrieving date/time-indexed information from archived records, files, and information systems
- Facilitates the development and acquisition of standard date and time routines

3. Requirements

The following requirements were considered in developing the date and time standards:

- ISO 8601 is the foundation for the government's date and time standard
- Date and time values should be represented using a consistent, standardized format
- Dates and times must be unambiguous (No 2-digit years, 24 hr clock)
- Both dates and times must be stored and displayed in order of significance. For Date: Year (YYYY)-Month(MM)-Day(DD), for Time: Hour(HH 24 Hour)-Minute(MM)-Second(SS). This also applies when storing/displaying date and time together (Some displayed dates and times may not follow the order of significance standard for usability purposes (e.g. January 26, 1999); however, they must be stored in this fashion.)
- Time must be based on the 24-hour clock (am/pm designation acceptable for display time)
- Standard is based on the Gregorian Calendar (ordinal date included for legacy purposes)
- Date and time values have a fixed number of digits and must be padded with leading zeros (2008-03-01 not 2008-3-1)

4. Stored Date and Time Standards

This section addresses the standards for stored dates and times. A stored date/time is a "machine readable" date stored in electronic media such as a database, or spreadsheet. There are two acceptable formats for these standards: Basic-without separators, Extended-with separators (-) for stored date and (:) for stored time.

4.1. Stored Date: Basic Format

Standard:	YYYYMMDD	where	YYYY is a 4-digit year MM is 2-digit month DD is a 2-digit date
Example(s):	20080301		

Notes:

4.2. Stored Date: Extended Format

Standard:	YYYY-MM-DD	where	YYYY is a 4-digit year MM is 2-digit month DD is a 2-digit date
Example(s):	2008-03-01		

Notes:

4.3. Stored Date: Ordinal Date Format (replaces Julian Date standard)

To accommodate legacy applications and systems there is a requirement for a stored Ordinal Date Standard (referred to as Julian Date in previous document). By definition, the Ordinal Date is:

> Ordinal Date sees each day assigned a 3 character (include leading zeros) numeric value from 1-365 (+1 for leap years) relative to its place in the current calendar year. For example March 1, 2008 would be assigned the value of 060

Standard:	YYYYDDD	where	YYYY is a 4 digit year DDD is a 3 digit day no. (leading zeros)
Example(s):	2007059 2008060	for for	March 1, 2007 March 1, 2008 (leap year)

Notes:

(1) Reference to Julian Date was removed from this section to avoid confusion with ISO 8601 which uses Ordinal Date

4.4. Stored Time: Basic Format

Standard:	hhmmss	where	hh refers to hour (24 hr clock) mm refers to minutes 00-59 ss refers to seconds 00-59
Example(s):	132424		

Notes:

(1) If no time zone information is given, then the time is assumed to be local time
(2) Partial seconds-comma or decimal point after the seconds placeholder (132423,5)

4.5. Stored Time: Extended Format

Standard:	hh:mm:ss	where	hh refers to hour (24 hr clock) mm refers to minutes 00-59 ss refers to seconds 00-59
Example(s):	13:24:24		

Notes:
(1) If no time zone information is given, then the time is assumed to be local time
(2) Partial seconds-comma or decimal point after the seconds placeholder (13:24:24.5)

4.6. Stored Date and Time: Combined Format

It is possible to combine stored date and time and to combine storage formats. Important here is maintaining the order of significance requirement with the date/time information.

Standard:	<date>T<time>	where	<date> follows allowable storage formats T is the time designator (T, space or :) <time> follows allowable storage format
Example(s):	20080301T132424 2008-03-01:13:24:24 2008-03-01 13:24:24		

Notes:

5. Display Date and Time Standards

This section addresses the standards for displayed dates and times. A display date/time is a "human readable" date and/or time representation for external display (computer screen, report, data entry screen, pick-list). There is more flexibility around display date and time as they are "business driven" which means operational requirements may dictate the format be a variation of the ISO 8601 standard. When developing a display date/time keep the following in mind:

1. Always use a 4 digit (YYYY) year.
2. Use the 24 hr clock when applicable. An am/pm designation must be included otherwise.
3. Always display numeric date/time in the order of significance (see requirements above).
4. There are three 5 separators for display date and times: dash(-), slash(/), space, null (no space), and colon((:) for time only)
5. Alphanumeric dates are acceptable for representing month and day (both long and short forms-acceptable abbreviations for both are included at the end of the document).
6. Display date/time must be converted to an acceptable machine readable date for storage as per the stored date and time standards.

5.1. Display Date: Numeric Basic Format

Standard:	YYYYMMDD	where	YYYY is a 4-digit year MM is 2-digit month DD is a 2-digit date
Example(s):	20080301		

Notes:

5.2. Display Date: Numeric Separated Format

Standard:	YYYY-MM-DD	where	YYYY is a 4-digit year

	YYYY/MM/DD YYYY MM DD	MM is a 2-digit month DD is a 2-digit date

Example(s): 2008-03-01
2008/03/01
2008 03 01

Notes:
(1) This format is part of the BC Government Internet Standards and Guidelines located at: <http://www.cio.gov.bc.ca/prgs/standard.pdf>

5.3. Display Date: Alphanumeric Month Long Format

Standard: Month DD, YYYY where Month is unabbreviated alpha month
DD is a 2-digit date
YYYY is a 4 digit year

Example(s): March 01, 2008

Notes:
(1) This format is part of the BC Government Internet Standards and Guidelines located at: <http://www.cio.gov.bc.ca/prgs/standard.pdf>
(2) This is the preferred alphanumeric standard

5.4. Display Date: Alphanumeric Month Short Format

Standard: MMM DD, YYYY where MMM is abbreviated alpha month
DD is a 2-digit date
YYYY is a 4 digit year

Example: Mar. 01 2008

Notes:
(1) This format is part of the BC Government Internet Standards and Guidelines located at: <http://www.cio.gov.bc.ca/prgs/standard.pdf>

5.5. Display Date: Alphanumeric with Day of Week Format

This standard allows for display dates that require day of week (DOW) in both abbreviated and unabbreviated formats. Most often, it will be used in conjunction with Display Date 2.3 and 2.4. DOW should be first in order of significance for this standard.

Standard: DOW, Month DD, YYYY where DOW is day of week
Month (or MMM) alpha month
DD is 2 digit day
YYYY is 4 digit year

Example(s): Saturday, March 1, 2008
Sat. Mar. 1, 2008
Saturday, Mar. 1, 2008

Notes:
(1) Abbreviated and non-abbreviated formats can be combined for this display standard

5.6. Display Date: Numeric with 3 Character Month Format

Standard: YYYY-MMM-DD where YYY is a 4 digit year

			MMM is abbreviated alpha month DD is a 2 digit date
Example:	2008-Mar-01		

Notes:

5.7. Display Date: Fiscal Year Format

Standard:	YYYY/YYYY	where	YYYY 4 digit start of fiscal year YYYY 4 digit end of fiscal year
Example:	2007/2008		

Notes:

(1) The fiscal year for the Government of British Columbia spans calendar years running from April 1 to March 31. The example date of March 1, 2008 would be the final month of fiscal 2007/2008

5.8. Display Date: Ordinal Date Format (replaces Julian Date standard)

To accommodate legacy applications and systems there is a requirement for a display Ordinal Date Standard (referred to as Julian Date in previous document). By definition, the Ordinal Date is:

> Ordinal Date sees each day assigned a 3 character (include leading zeros) numeric value from 1-365 (+1 for leap years) relative to its place in the current calendar year. For example March 1, 2008 would be assigned the value of 060 as it is a leap year.

Standard:	YYYYDDD	where	YYYY is a 4 digit year DDD is a 3 digit day no. (leading zeros)
Example:	2007059 2008060	for for	March 1, 2007 March 1, 2008

Notes:

(1) Reference to Julian Date was removed from this section to avoid confusion with ISO 8601 which uses Ordinal Date

5.9. Display Time: Numeric Basic Format

Standard:	hhmmss	where	hh refers to hour (24 hr clock) mm refers to minutes 00-59 ss refers to seconds 00-59
Example:	132424		

Notes:

(1) If no time zone information is given, then the time is assumed to be local time
(2) Partial seconds-comma or decimal point after the seconds placeholder (132423,5)

5.10. Display Time: Numeric Separated Format

Standard:	hh:mm:ss	where	hh refers to hour (24 hr clock) mm refers to minutes 00-59 ss refers to seconds 00-59
Example:	13:24:24		

Notes:

(1) If no time zone information is given, then the time is assumed to be local time
(2) Partial seconds-comma or decimal point after the seconds placeholder (132423,5)

5.11. Display Date and Time: Combined Format

For display date and time combinations please adhere to standards 5.1 to 5.10 as the foundation. Order of significance should be followed with date coming before time.

Standard: <date>T<time> where <date> follows allowable display formats
T is the time designator (T, space or :)
<time> follows allowable display format

Example(s): 2008-03-01 13:24:24
March 01, 2008 13:24:24
2008-Mar-01 13:24:24
Saturday, Mar. 1, 2008 13:24:24

Notes:

6. Exemption Process

While effort in this space should focus on moving toward compliance, there may be compelling business reasons to exempt GCIO stakeholders from the *Government of British Columbia IM/IT Date and Time Standard*. Exemptions requests should be made by contacting the Director of Information Architecture for a preliminary discussion about the process. (CONTACT INFORMATION) …

If an exception is required, the following form must be completed and submitted to the Director of Information Architecture <Link>. The information in the document will be reviewed and the Architecture and Standards Branch will work with GCIO stakeholders to develop an acceptable solution. The exception process will also be used to enhance and create standards.

7. Alphanumeric Abbreviations

Both day of week (DOW) and month (MMM) may be abbreviated under the Display Date Standard. This standard works off a 3 character DOW and MMM. The following are the acceptable abbreviations under the standard:

Day of Week	DOW
Monday	Mon
Tuesday	Tue
Wednesday	Wed
Thursday	Thu
Friday	Fri
Saturday	Sat
Sunday	Sun
Month	**MMM**
January	Jan
February	Feb
March	Mar
April	Apr
May	May

June	Jun
July	Jul
August	Aug
September	Sep
October	Oct
November	Nov
December	Dec