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Standard on Web Interoperability

Note to reader

The Treasury Board of Canada Secretariat is currently reviewing the *Standard on Web Interoperability* to realign the dates within the standard to the timelines of the Web Renewal Initiative.

Common Services Policy: Rescinded May 13, 2021 with the exception of subsection 6.5.3, Guard Services, in Appendix E: Mandatory Services which will remain in effect until March 31, 2023. On April 1, 2023, the Common Services policy will be rescinded in its entirety and archived.

1. Effective Date

1.1 This standard takes effect on July 1, 2012, and was updated on March 31, 2013.

2. Application

2.1 This standard applies to “departments” as defined in section 2 of the *Financial Administration Act*, with the exception of paragraphs (b) and (c), and unless excluded by specific acts, regulations or Orders in Council.

2.2 Section 6 applies to all websites and Web applications and Web pages that:

- Are public facing; (i.e., available to individuals and businesses outside of the Government of Canada); and
- Are those for which the department is accountable.

2.3 Section 6.1 does not apply to:

- Web content that the department is not accountable for;
- Web pages that are archived on the Web;
- Third-party websites and Web applications (including social media sites); and
- Web pages of third-party websites and Web applications (including social media sites).

2.4 Section 6.1 is to be implemented in phases and applies as follows:

- Phase I (July 1, 2012 – June 30, 2013)
 - One requirement of the standard;
- Phase II (April 1, 2013 – December 31, 2014)
 - Two more requirements, for a total of three requirements of the standard; and,
- Phase III (January 1, 2015 – June 30, 2015)
 - All four requirements of the standard.

2.5 Sections **7.3** and **8.2** relating to the role of the Treasury Board Secretariat in monitoring compliance and directing consequences for non-compliance do not apply with respect to the Office of the Auditor General, the Office of the Privacy Commissioner, the Office of the Information Commissioner, the Office of the Chief Electoral Officer, the Office of the Commissioner of Lobbying, the Office of the Commissioner of Official Languages and the Office of the Public Sector Integrity Commissioner. The

deputy heads of these organizations are solely responsible for monitoring and ensuring compliance with the standard within their organizations, as well as for responding to cases of non-compliance in accordance with any Treasury Board instruments providing principles and guidance on the management of compliance.

3. Context

3.1 The Web presence of the Government of Canada is highly complex with each department maintaining a unique online presence that provides a wide variety of content and applications to support informational and transactional services for individuals and businesses. The Web channel is an important part of the Government of Canada's commitment to multi-channel access and service delivery.

3.2 Web content is delivered through a variety of technologies that are ever evolving. As Canadians are becoming increasingly reliant upon mobile devices and data-centric technologies, the Government of Canada is committed to ensuring the re-use and the portability of Web content across websites and Web applications, platforms, and devices.

3.3 For the purposes of this standard, Web interoperability is defined as the ability of different types of platforms, devices, networks, and applications to work together effectively, without prior communication, to find, retrieve, exchange, and re-use Web content in a useful and meaningful manner.

3.4 This standard supports the *Policy on the Management of Information Technology* and the *Policy on Information Management*.

3.5 This standard is issued under the authority of section 7 of the *Financial Administration Act* by the Secretary of the Treasury Board pursuant to subsection 6(4) of the *Financial Administration Act* and in section 3.5 of the

Policy on Management of Information Technology and s.3.4 of the *Policy on Information Management*.

3.6 This standard is to be read in conjunction with the *Standard on Web Usability*, *Standard on Web Accessibility*, *Standard for Managing Metadata*, the *Standard on Geospatial Data* and the *Standard on Optimizing Websites and Applications for Mobile Devices*.

4. Definitions

4.1 Definitions to be used in the interpretation of this standard are attached in Appendix A.

5. Standard Statement

5.1 Objective

5.1.1 Ensure re-use, and portability of Government of Canada Web content across websites and Web applications, platforms, and devices.

5.1.2 Ensure Web content can be found, retrieved, and exchanged.

5.2 Expected results

5.2.1 Improved re-use and portability of content across websites and Web applications, platforms, and devices.

5.2.2 Improved search, retrieval, and exchange of Web content.

6. Requirements

6.1 Managers, functional specialists, and equivalents responsible for Web content or Web pages are responsible for:

6.1.1 Ensuring that websites and Web applications meet the Web feed requirements described in [Appendix B](#).

6.1.2 Ensuring that Web pages meet the character encoding requirements described in [Appendix C](#).

6.1.3 Ensuring that Web pages that are in HTML (Hypertext Mark-up Language) or XHTML (eXtensible Hypertext Mark-up Language) meet the mark-up language requirements described in [Appendix D](#).

6.1.4 Ensuring that Web pages that are in HTML (Hypertext Mark-up Language) or XHTML (eXtensible Hypertext Mark-up Language) meet the HTML (Hypertext Mark-up Language) data requirements described in [Appendix E](#).

6.2 The senior departmental official, designated by the deputy head, is responsible for:

6.2.1 Overseeing the implementation of this standard in their department and carrying out the activities referred to in 7.2.

6.2.2 Encouraging personnel to collaborate departmentally and interdepartmentally, to share expertise, and to build reusable components and tools.

6.3 The departmental Chief Information Officer (CIO) or equivalent is responsible for:

6.3.1 Ensuring that software and systems acquired or developed by the department enable websites and Web applications to meet the requirements of this standard or are modifiable to enable websites and Web applications to meet the requirements of this standard.

6.3.2 Encouraging personnel to collaborate departmentally and interdepartmentally, to share expertise, and to build reusable components and tools.

6.4 Centres of Expertise are responsible for:

6.4.1 Serving as the primary point of contact between Treasury Board of Canada Secretariat's Chief Information Officer Branch and their department for questions and communications related to interpretation and implementation of the standards, guidelines and tools.

6.4.2 Participating in the interdepartmental Centres of Expertise forum, chaired by the Treasury Board of Canada Secretariat's Chief Information Officer Branch, to stay current with evolving standards, guidelines and tools.

7. Monitoring and Reporting Requirements

Senior departmental official

7.1 The senior departmental official, designated by the deputy head, is responsible for supporting their deputy head by overseeing the implementation and monitoring of this standard in their department, bringing to the deputy head's attention any significant difficulties, gaps in

performance or compliance issues and developing proposals to address them, and reporting significant performance or compliance issues to the Chief Information Officer Branch of Treasury Board of Canada Secretariat.

Government-wide

7.2 The Treasury Board of Canada Secretariat will monitor compliance with this standard in a variety of ways, including but not limited to, the following:

- assessments under the Management Accountability Framework;
- examinations of Treasury Board submissions, departmental performance reports, results of audits, evaluations and studies; and
- work performed in collaboration with departments; and

7.3 The Treasury Board of Canada Secretariat will review this standard and its effectiveness at the five-year mark from the effective date of the standard (or earlier if warranted).

8. Consequences

8.1 In instances of non-compliance, deputy heads are responsible for taking corrective measures, within their organization with those responsible for implementing the requirements of this standard.

8.2 Consequences of non-compliance with this standard can include any measure allowed by the Financial Administration Act that the Treasury Board would determine as appropriate and acceptable in the circumstances.

8.3 Senior departmental officials are to ensure corrective actions are taken to address instances of non-compliance with the requirements of this standard. Corrective actions can include requiring additional training,

changes to procedures and systems, disciplinary action, and other measures as appropriate.

8.4 For a range of consequences of non-compliance refer to Appendix C: Consequences for Institutions & Appendix D: Consequences for Individuals in the *Framework for the Management of Compliance*.

9. Roles and responsibilities of government organizations

9.1 Treasury Board of Canada Secretariat (Chief Information Officer Branch), in consultation with other departments, is responsible for the following:

9.1.1 Developing standards, guidelines, and tools, and providing interpretive advice and guidance on these instruments.

9.1.2 Communicating and engaging the government-wide Web community on the plans, progress, risks and challenges associated with implementing this standard and its supporting instruments in the federal government.

9.1.3 Providing support to the CIO Council (Chief Information Officer Council) and other committees and working groups, as necessary, to address government-wide challenges and opportunities related to implementing this standard and its supporting instruments.

9.1.4 Amending the *Technical Specifications for the Web and Mobile Presence* as required, in consultation with Strategic Communications and Ministerial Affairs.

10. References

10.1 Relevant Legislation

- *Financial Administration Act*

10.2 Related Policy Instruments and Publications

- *Common Services Policy*
- *Communications Policy of the Government of Canada*
- *Directive on the Management of Information Technology*
- *Directive on Official Languages for Communications and Services*
- *Directive on Privacy Practices*
- *Federal Identity Program Policy*
- *Foundation Framework for Treasury Board Policies*
- *Framework for the Management of Compliance*
- *Policy on Evaluation*
- *Policy Framework for Service Improvement in the Government of Canada*
- *Policy on Government Security*
- *Policy on Information Management*
- *Policy on Internal Audit*
- *Policy on Management of Information Technology*
- *Policy on Privacy Protection*
- *Policy on Official Languages*
- *Standard on Geospatial Data*
- *Standard for Managing Metadata*
- *Standard on Optimizing Websites and Applications for Mobile Devices*
- *Standard on Privacy and Web Analytics*

- *Standard on Social Media Account Management*
- *Standard on Web Accessibility*
- *Standard on Web Interoperability*

10.3 Related External Standards and Specifications

- Atom Syndication Format [RFC 4287]
- HTML5 (Hypertext Mark-up Language 5)
- RDFa 1.1 Lite
- Schema.org
- UTF-8 (Unicode Transformation Format-8) [RFC 3629]
- Web Content Accessibility Guidelines (WCAG (Web Content Accessibility Guidelines)) 2.0

11. Enquiries

Please direct enquiries about this standard to your department's Web Standards Centre of Expertise. For interpretation of this standard, Web Standards Centres of Expertise should contact:

Digital Policy

Office of the Chief Information Officer

Treasury Board of Canada Secretariat

Ottawa ON K1A 0R5

E-mail: DPPN@tbs-sct.gc.ca

Appendix A: Definitions

content (Web content) (*contenu Web*) :

Information and sensory experience to be communicated to the user by means of a user agent, including code or mark-up that defines the content's structure, presentation, and interactions.

(Source: Web Content Accessibility Guidelines (WCAG (Web Content Accessibility Guidelines)) 2.0, Appendix A: Glossary.)

character encoding(*encodage de caractère*) :

A letter, number, space, punctuation mark, or symbol represented by a numeric code of one of several types of character encoding formats, e.g. ASCII (American Standard Code for Information Interchange) or UTF-8 (Unicode Transformation Format-8), in order to facilitate the transmission of data (generally numbers or text) through telecommunication networks such as the Web.

functional specialist (*spécialiste fonctionnel*) :

An employee who carries out roles and responsibilities that require function-specific knowledge, skills and attributes in the following priority areas: finances, human resources, internal audit, procurement, materiel management, real property, information management.

Government of Canada Websites (*sites Web du gouvernement du Canada*):

Websites for which the Government of Canada is accountable. The types of websites include departmental sites, initiative sites, sub sites and Web applications.

HTML (Hypertext Mark-up Language) data(*données HTML (langage hypertexte)*) :

Semantic mark-up embedded in Web pages enabling user agents such as Web browsers and search engines to extract machine-readable content from Web pages intended for end-users, such as contact information, geographic coordinates, and calendar events automatically.

interoperability (*interopérabilité*) :

For the purposes of this standard, Web interoperability is defined as the ability of different types of computers, platforms, devices, networks, and applications to work together effectively, without prior communication, to find, retrieve, understand, exchange, and re-use Web content in a useful and meaningful manner. There are three aspects of interoperability: semantic, structural and syntactical.

(Source: Adapted from Dublin Core Metadata Initiative Glossary)

metadata (*métadonnées*) :

The definition and description of the structure and meaning of information resources, and the context and systems in which they exist.

portability (Web) (*portabilité[Web]*) :

Extent to which Web content can be delivered and consumed on different platforms and devices.

property (*propriété*) :

A specific aspect, characteristic, attribute, or relation used to describe a resource.

schema (encoding schema [*schéma d'encodage*]) :

Machine-processable specifications which define the structure and syntax of metadata specifications in a formal schema language.

(Based on Dublin Core Metadata Initiative Glossary)

system (*système*) :

Organised collections of hardware, software, supplies, policies, procedures and people, to capture, transmit, store, retrieve, manipulate, or display information resources in support of an organisation's day to day operations.

technology (Web content)(*technologie Web*):

Mechanism for encoding instructions to be rendered, played or executed by user agents

Note 1: As used in these guidelines "Web Technology" and the word "technology" (when used alone) both refer to Web Content Technologies.

Note 2: Web content technologies may include markup languages, data formats, or programming languages that authors may use alone or in combination to create end-user experiences that range from static Web pages to synchronized media presentations to dynamic Web applications.

Example: Some common examples of Web content technologies include HTML (Hypertext Mark-up Language), CSS (Cascading Style Sheets), SVG (Scalable Vector Graphics), PNG (Portable Network Graphics), PDF (Portable Document Format), Flash, and JavaScript.

(Source: Web Content Accessibility Guidelines (WCAG (Web Content Accessibility Guidelines)) 2.0, Appendix A: Glossary.)

Web content management system (*système de publication et de gestion du contenu Web*) :

A suite of software tools for managing and publishing Web content.

Web feed(*flux Web*):

A Web feed is a data format used for providing users with content that is new or is substantially changed or reviewed frequently. Content distributors *syndicate* a Web feed, thereby allowing users to *subscribe* to it. Making a collection of Web feeds accessible in one spot is known as *aggregation*, which is performed by an aggregator. A Web feed is also sometimes referred to as a syndicated feed. The two main Web feed formats are *RSS (Really Simple Syndication)* and *Atom*.

Web page (*page Web*) :

A non-embedded resource obtained from a single Uniform Resource Identifier (URI) using HTTP (Hypertext Transfer Protocol) plus any other resources that are used in the rendering or intended to be rendered together with it by a user agent.

Note 1: Although any "other resources" would be rendered together with the primary resource, they would not necessarily be rendered simultaneously with each other.

Note 2: For the purposes of conformance with these guidelines, a resource must be "non-embedded" within the scope of conformance to be considered a Web page. For further information and examples, please consult: Web page, Web Content Accessibility Guidelines (WCAG (Web Content Accessibility Guidelines)) 2.0, Appendix A: Glossary.

Appendix B: Web feed requirements

A Web feed is a data format used for providing users with syndicated content that is new, or, substantially changed, or reviewed frequently. The Atom Syndication Format standardizes on several elements, permitting more flexibility in the re-use of content.

Departmental Web Managers, Functional Specialists, and equivalents are responsible for:

1. Ensuring websites and Web applications have Web feeds for new and updated content.
2. Ensuring each Web feed is available in the Atom Syndication Format specification.
3. Using the **xml:lang** attribute to identify the language of the feed and to identify any changes in language. Use the same values as the corresponding Dublin Core properties, as defined in the *Standard on Metadata – Appendix C: Web Resource Discovery Metadata Requirements*.
4. Using the elements below for Web feeds available in the Atom Syndication Format. Where applicable, use the same values as the corresponding Dublin Core metadata properties, as defined in the *Standard on Metadata – Appendix C: Web Resource Discovery Metadata Requirements*.
 - **feed** (container tag)

- **title** (same value as **dcterms.title**)
- **link** (**attribute rel="self"**) (link to the feed itself)
- **link** (**attribute rel="alternate"**) (links to versions in other languages (**hreflang**) and other formats (**type**), where alternate formats exist)
- **link** (**attribute rel="next"**) (link to next page in feed, where a feed is composed of more than one page)
- **author**
 - **name** (same value as **dcterms.creator**)
 - **uri** (URL (Uniform Resource Locator) of primary departmental Web site)
- **updated** (same value as **dcterms.modified**)
- **id** (unique IRI given to feed by department)
- **logo** (standardized 2x1 visual representation of feed (Canada wordmark))
- **icon** (standardized 1x1 (small) visual representation of feed (feed icon))
- **rights** (Crown copyright statement)

5. Using the following minimum set of mandatory tags to structure and describe Web feed entries:

- **entry** (container tag)
- **title** (same value as **dcterms.title**)
- **link** (**attribute rel="self"**) (link to the referenced content, where applicable)
- **link** (**attribute rel="alternate"**) (links to alternate versions of the content in other languages (**hreflang**) and other formats (**type**))
- **author**
 - **name** (same value as **dcterms.creator**)

- **uri** (URL (Uniform Resource Locator) of the primary departmental website)
 - **updated** (same value as **dcterms.modified**)
 - **published** (same value as **dcterms.issued**)
 - **id** (unique IRI given to entry by department)
 - **rights** (e.g. Crown copyright statement)

Appendix C: Character encoding requirements

A character encoding is a mapping between document characters and how they are represented in computer files when transferred over the Web.

There are many different character encoding formats, such as ACSII and Unicode. The most common character encoding used on the Web is UTF-8 (Unicode Transformation Format-8) (UCS Transformation Format 8).

UTF-8 (Unicode Transformation Format-8) (UCS Transformation Format 8) is used for displaying characters in electronic documents, Web pages, Web applications, and software applications.

Departmental Web Managers, Functional Specialists, and equivalents are responsible for:

1. Ensuring that Web pages and Web feeds are encoded in UTF-8 (Unicode Transformation Format-8).

Appendix D: Mark-up language requirements

Mark-up languages such as HTML (Hypertext Mark-up Language) and XHTML (eXtensible Hypertext Mark-up Language) are used for structuring and presenting content on the Web. HTML5 (Hypertext Mark-up Language 5) (Hypertext Mark-up Language 5), the 5th major revision of HTML (Hypertext Mark-up Language), introduces mark-up and application programming interfaces (APIs) for complex Web applications and improved support for mobile devices.

Departmental Web Managers, Functional Specialists, and equivalents are responsible for:

1. Ensuring that Web pages are built using HTML5 (Hypertext Mark-up Language 5) or later. HTML5 (Hypertext Mark-up Language 5) can also be written in XHTML (eXtensible Hypertext Mark-up Language) syntax, known as XHTML5 (eXtensible Hypertext Mark-up Language 5).
2. Ensuring HTML5 (Hypertext Mark-up Language 5) elements and **rel attribute** values are applied to Web pages, according to the HTML5 (Hypertext Mark-up Language 5) specification.

Appendix E: HTML data requirements

HTML (Hypertext Mark-up Language) data is an approach for embedding and extracting machine-readable content in Web pages. HTML (Hypertext Mark-up Language) data is used in a variety of ways, assisting with the retrieval, extracting and re-use of content in Web pages by Web browsers, search engines, and data re-users.

Departmental Web Managers, Functional Specialists, and equivalents are responsible for:

1. Ensuring that HTML (Hypertext Mark-up Language) data is applied to Web pages to facilitate retrieval and re-use of content, as follows:
 - 1.1 HTML (Hypertext Mark-up Language) data syntax: RDFa 1.1 Lite or later
 - 1.2 Primary HTML (Hypertext Mark-up Language) data vocabulary: Schema.org
2. Ensuring HTML (Hypertext Mark-up Language) data meets the requirements described in the Technical Specifications for the Web and Mobile Presence.

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