conferência W3C web.br 2016

Boas Práticas para Publicação de Dados na Web

Bernadette Lóscio, Caroline Burle and Newton Calegari

ceweb.br nic.br cgi.br

Quem somos

Newton Bernadette Caroline

Tópicos a serem discutidos

- Contexto de Dados na Web
  - Dados na Web X Dados Abertos x Dados Conectados
- Casos de uso de Dados na Web
  - Desafios e Requerimentos de Dados na Web
- Boas Práticas para Publicação de Dados na Web
  - Benefícios das Boas Práticas para Publicação de Dados na Web

Como facilitar o reuso dos dados?

É fundamental que haja uma compreensão mútua entre publicadores e consumidores dos dados.
Sem esse entendimento, o esforço dos publicadores pode ser incompatível com o desejo dos consumidores.

Boas Práticas

Consome dados

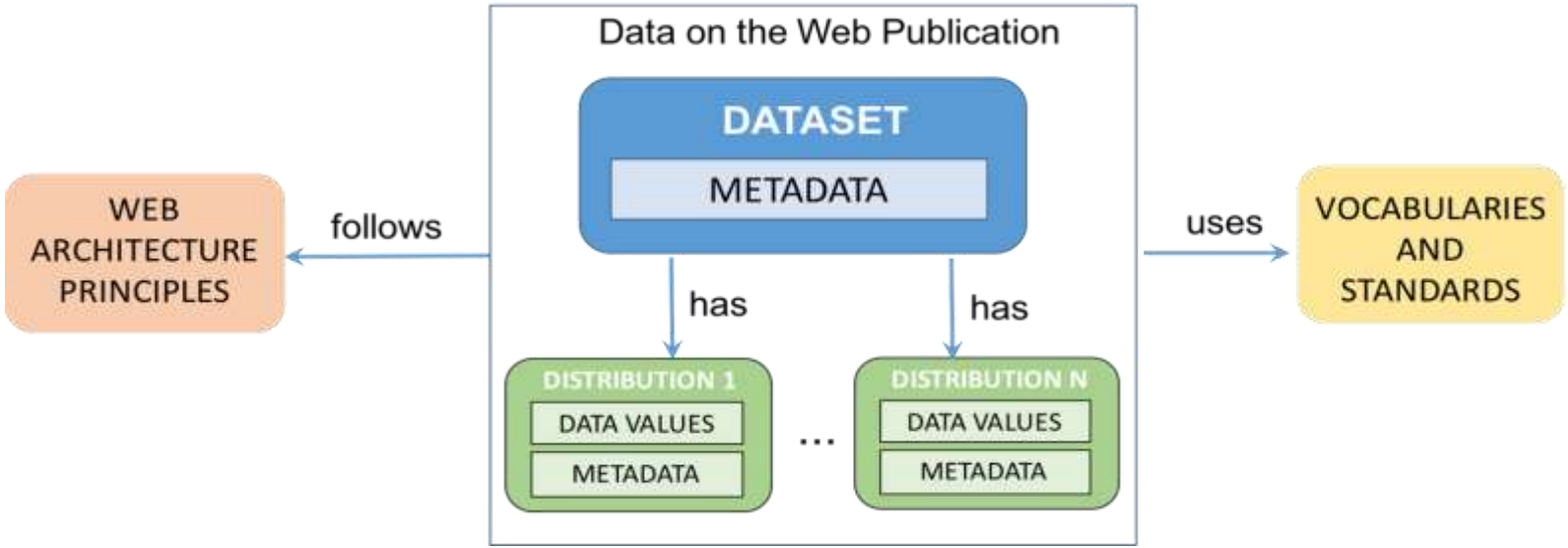
Publica dados

Grupo de Trabalho de Boas Práticas para Publicação de Dados na Web

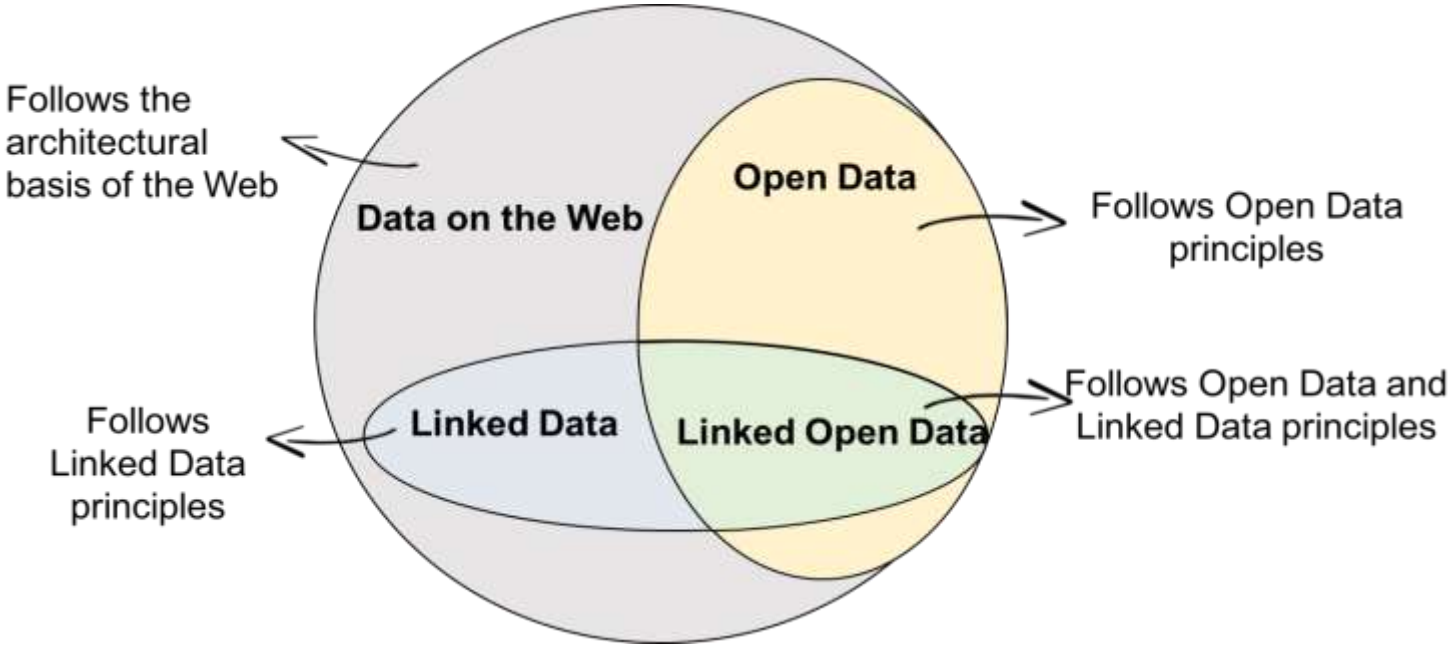
A **Missão** do Grupo de Trabalho de Boas Práticas para Publicação de Dados na Web, parte do Data Activity, do W3C, é:

1. Desenvolver o **ecossistema de dados abertos**, facilitando a comunicação entre desenvolvedores e publicadores de dados;
2. Providenciar **diretrizes para os publicadores de dados**, que promoverá consistência na forma como os dados são gerenciados, provendo assim o reuso de dados;
3. **Fomentar a confiança dos desenvolvedores nos dados**, independente da tecnologia utilizada, aumentando o potencial de inovação.

Contexto dos Dados na Web



Dados na Web x Dados Abertos x Dados Conectados



Casos de Uso de Dados na Web

Data on the Web Best Practices Use Cases & Requirements

W3C Working Group Note 24 February 2015

This version:
http://www.w3.org/TR/2015/NOTE-dwbp-ucr-20150224/
Latest published version:
http://www.w3.org/TR/dwbp-ucr/
Latest editor's draft:
http://w3c.github.io/dwbp/usecasesv1.html
Previous version:
http://www.w3.org/TR/2014/WD-dwbp-ucr-20141014/
Editors:
Deirdre Lee, Derilinx (formerly at Insight@NUIG, Ireland)
Bernadette Farias Lóscio, Centro de Informática - Universidade Federal de Pernambuco, Brazil
Phil Archer, W3C/ERCIM

https://www.w3.org/TR/dwbp-ucr/

Casos de Uso de Dados na Web

Table of Contents

12 desafios e
42 requerimentos

Publicar dados na Web é mais do que apenas publicar dados!

Desafios para Publicar Dados na Web

- Metadados *(para humanos e máquinas)*
- Licença de Dados *(como permitir & restringir o acesso?)*
- Proveniência & Qualidade dos Dados *(como adicionar confiança?)*
- Versionamento dos Dados (*rastrear as versões dos conjuntos de dados)*
- Identificação dos Dados *(identificação dos conjuntos de dados e distribuições)*
- Formatos dos Dados *(quais formatos usar?)*

Desafios para Publicar Dados na Web

- Vocabulários dos Dados *(como promover a interoperabilidade?)*
- Acesso aos Dados *(opções de acesso)*
- Preservação dos Dados
- Feedback *(como engajar usuários?)*
- Enriquecimento dos Dados *(adicionar valor aos dados)*
- Republicação dos Dados *(responsabilidade de reusar os dados)*

Data on the Web Best Practices

W3C Candidate Recommendation 30 August 2016

This version:
https://www.w3.org/TR/2016/CR-dwbp-20160830/

Latest published version:
https://www.w3.org/TR/dwbp/

Latest editor's draft:
http://w3c.github.io/dwbp/bp.html

Implementation report:
https://www.w3.org/2013/dwbp/wiki/BP_Implementation_Report

Previous version:
http://www.w3.org/TR/2016/WD-dwbp-20160519/

Editors:
Bernadette Farias Lóscio, CIn - UFPE, Brazil
Caroline Burle, NIC.br, Brazil
Newton Calegari, NIC.br, Brazil

Contributors:
Annette Greiner
Antoine Isaac
Carlos Iglesias
Carlos Laufer
Christophe Guéret
Deirdre Lee
Eric G. Stephan
Eric Kauz
Ghislain A. Atemezing
Hadley Beeman

https://www.w3.org/TR/dwbp/

Best Practice 1: Provide metadata

Best Practice 2: Provide descriptive metadata

Best Practice 3: Provide structural metadata

Best Practice 4: Provide data license information

Best Practice 5: Provide data provenance information

Best Practice 6: Provide data quality information

Best Practice 19: Use content negotiation for serving data available in multiple formats

Evidence

Relevant requirements: R-ProvAvailable, R-MetadataAvailable

Best Practice 23: Make data available through an API

Intended Outcome

Humans will know the origin or history of the dataset and software agents will be able to automatically process provenance information.

Best Practice 10: Use persistent URIs as identifiers within datasets

Best Practice 11: Assign URIs to dataset versions and series

Best Practice 12: Use machine-readable standardized data formats

Best Practice 13: Use locale-neutral data representations

Best Practice 14: Provide data in multiple formats

Best Practice 15: Reuse vocabularies, preferably standardized ones

Best Practice 16: Choose the right formalization level

Best Practice 17: Provide bulk download

Best Practice 18: Provide Subsets for Large Datasets

Best Practice 26: Avoid Breaking Changes to Your API

Best Practice 27: Preserve identifiers

Best Practice 28: Assess dataset coverage

Best Practice 29: Gather feedback from data consumers

Best Practice 30: Make feedback available

Best Practice 31: Enrich data by generating new data

Best Practice 32: Provide Complementary Presentations

Best Practice 33: Provide Feedback to the Original Publisher

Best Practice 34: Follow Licensing Terms

Best Practice 35: Cite the Original Publication

Best Practice 2: Provide descriptive metadata

Provide metadata that describes the overall features of datasets and distributions.

Why

Explicitly providing dataset descriptive information allows user agents to automatically discover datasets available on the Web and it allows humans to understand the nature of the dataset and its distributions.

Intended Outcome

Humans will be able to interpret the nature of the dataset and its distributions, and software agents will be able to automatically discover datasets and distributions.

Possible Approach to Implementation

Descriptive metadata can include the following overall features of a dataset:

- The **title** and a **description** of the dataset.
- The **keywords** describing the dataset.
- The **date of publication** of the dataset.
- The **entity responsible (publisher)** for making the dataset available.
- The **contact point** for the dataset.
- The **spatial coverage** of the dataset.
- The **temporal period** that the dataset covers.
- The **date of last modification** of the dataset.
- The **themes/categories** covered by a dataset.

Descriptive metadata can include the following overall features of a distribution:

- The **title** and a **description** of the distribution.
- The **date of publication** of the distribution.
- The **media type** of the distribution.

The machine-readable version of the descriptive metadata can be provided using the vocabulary recommended by W3C to describe datasets, i.e. the Data Catalog Vocabulary [VOCAB-DCAT]. This provides a framework in which datasets can be described as abstract entities.

Machine-readable metadata

EXAMPLE 2

Machine-readable

The example below shows how to use [VOCAB-DCAT] to provide the machine-readable **discovery** metadata for the bus stops dataset (`stops-2015-05-05`). The dataset has one CSV distribution (`stops-2015-05-05.csv`) that is also described using the [VOCAB-DCAT]. The dataset is classified under the domain represented by the relative URI `mobility`. This domain may be defined as part of a set of domains identified by the URI `themes`. To describe both concepts and schema concepts, John used SKOS . To express frequency of update an instance from the Content-Oriented Guidelines developed as part of the W3C Data Cube Vocabulary efforts was used. John chose to describe the spatial and temporal coverage of the example dataset using URIs from Geonames and the Interval dataset from data.gov.uk, respectively.

```
:stops-2015-05-05
    a dcat:Dataset ;
    dct:title "Bus stops of MyCity" ;
    dcat:keyword "transport","mobility","bus" ;
    dct:issued "2015-05-05"^^xsd:date ;
    dcat:contactPoint <http://data.mycity.example.com/transport/contact> ;
    dct:temporal <http://reference.data.gov.uk/id/year/2015> ;
    dct:spatial <http://www.geonames.org/3399415> ;
    dct:publisher :transport-agency-mycity ;
    dct:accrualPeriodicity <http://purl.org/linked-data/sdmx/2009/code#freq-A>
    dcat:theme :mobility ;
    dcat:distribution :stops-2015-05-05.csv ;
    .
```

Human-readable metadata

Dataset description

Title	Bus timetable of MyCity
URI	http://data.mycity.example.com/transport/dataset/bus/stops-2015-05-05
Keywords	transport, mobility, bus
Publication date	2015-05-05
Publisher	Transport Agency MyCity
Creator	John <john@mycitytransport.org>
Contact point	http://data.mycity.example.com/transport/contact
Period that the dataset covers	The British calendar year of 2014
Spatial coverage	Fortaleza, Brazil
Update frequency	Annual
Theme	Mobility
Language	English, Portuguese
Date and time formats	ISO 8601
Current version	1.2

Benefícios das Boas Práticas para Publicação de Dados na Web

Cada benefício representa uma melhoria na maneira como os conjuntos de dados são disponibilizados na Web

Reuse

BP: Provide data license information
BP: Provide versioning information
BP: Provide version history
BP: Use non-proprietary data formats
BP: Provide data in multiple formats
BP: Use a trusted serialization format for preserved data dumps
BP: Enrich data by generating new metadata
BP: Provide data provenance information
BP: Provide data quality information
BP: Use persistent URIs as identifiers

Trustworthy

BP: Assess dataset coverage
BP: Assign URIs to dataset versions and series
BP: Provide data up to date
BP: Update the status of identifiers
BP: Gather feedback from data consumers
BP: Provide information about feedback
BP: Provide data provenance information
BP: Provide data quality information

Comprehension

BP: Provide metadata
BP: Provide locale parameters metadata
BP: Provide structural metadata
BP: Provide descriptive metadata

Accessibility

BP: Provide bulk download
BP: Follow REST principles when designing APIs
BP: Provide real-time access
BP: Maintain separate versions for a data API
BP: Assess dataset coverage

Linkability

BP: Use persistent URIs as identifiers
BP: Assign URIs to dataset versions and series

Discoverability

BP: Provide descriptive metadata
BP: Use persistent URIs as identifiers
BP: Assign URIs to dataset versions and series

Processibility

BP: Use machine-readable standardized data formats
BP: Enrich data by generating new metadata

Interoperability

BP: Use standardized terms
BP: Re-use vocabularies

Best Practice 1: Provide metadata

Metadata must be provided for both human users and computer applications

Why

Providing metadata is a fundamental requirement wh
lishers and data consumers may be unknown to eac
that helps human users and computer applications t
aspects that describes a dataset or a distribution.

Intended Outcome

Human-readable metadata will enable humans to un
metadata will enable computer applications, notably

Possible Approach to Implementation

Possible approaches to provide *human readable me*

- to provide metadata as part of an HTML Web pa
- to provide metadata as a separate text file

Possible approaches to provide *machine readable m*

- machine readable metadata may be provided in
  it can be embedded in the HTML page using [HT
  published separately, they should be served fror
  nance of multiple formats is best achieved by ge
  a single source of the metadata.
- when defining machine readable metadata, reus
  ies are strongly recommended. For example, Du
  and Data Catalog Vocabulary [VOCAB-DCAT] sh

Benefícios das Boas Práticas

- **Compreensão**: humanos terão um melhor entendimento sobre a estrutura dos dados, seu significado, os metadados e a natureza do conjunto de dados.
- **Processamento**: máquinas poderão automatizar o processo e manipular os dados do conjunto de dados.
- **Descobrimento:** máquinas poderão descobrir automaticamente os dados ou um conjunto de dados.
- **Reuso**: possibilidade de aumentar o reuso de conjuntos de dados por distintos grupos de consumidores.

Chamada para **Implementação** das Boas Práticas para Publicação de Dados na Web

DWBP Evidences Form

Thank you for your help to collect implementation evidence of the Data on the Web Best Practices (DWBP), a document to be released as a W3C Recommendation in 2016.

There are 35 forms, each one of them is referring to one Best Practice and there is the possibility to create more evidences for each BP.

The Data on the Web Best Practices document is available at https://www.w3.org/TR/dwbp.

The Organisation name will be mentioned as one of the organisations that tested the **Data on the Web Best Practices** in order to become a W3C Recommendation.

You may want to start filling your name and email and then the name of the organisation that published the resource or dataset. After that please start filling the respective forms for the best practices that were implemented.

If you have some questions, feel free to send us a message (public-dwbp-comments@w3.org).

Contact information

Name

Email

Publisher's information *(Organisation that published the resource or dataset)*

Publisher

Site

Save info

http://w3c.br/form-dwbp/

Obrigada!

www.ceweb.br - www.cin.ufpe.br


cburle@nic.br
bfl@cin.ufpe.br
newton@nic.br


@carolburle
@bernafarias
@newtoncalegari

São Paulo, Brasil
14/10/2016