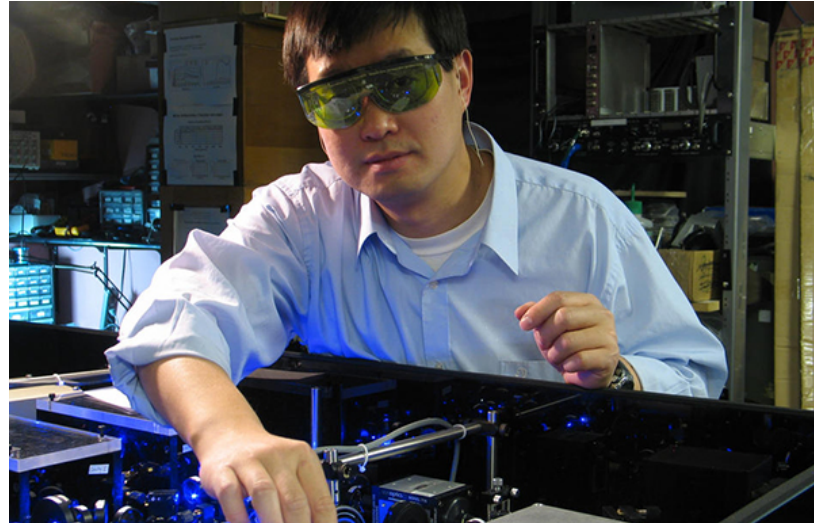


Multiplatform Standards and Guidelines Publishing at NIST

May 20, 2021

Kathryn Miller, Publishing Services Librarian

To promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life

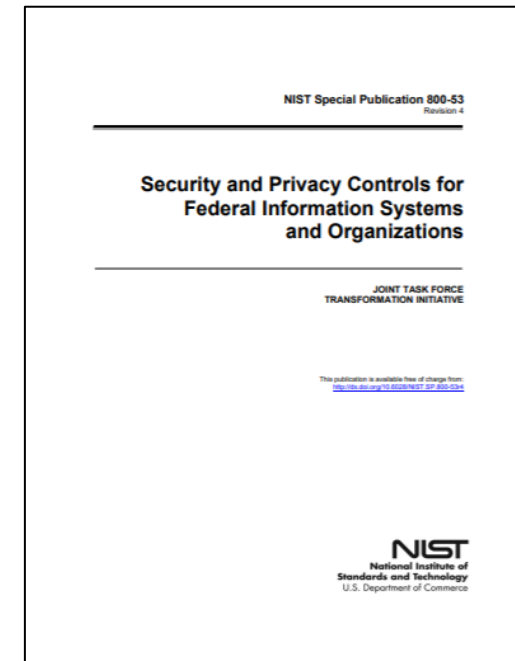
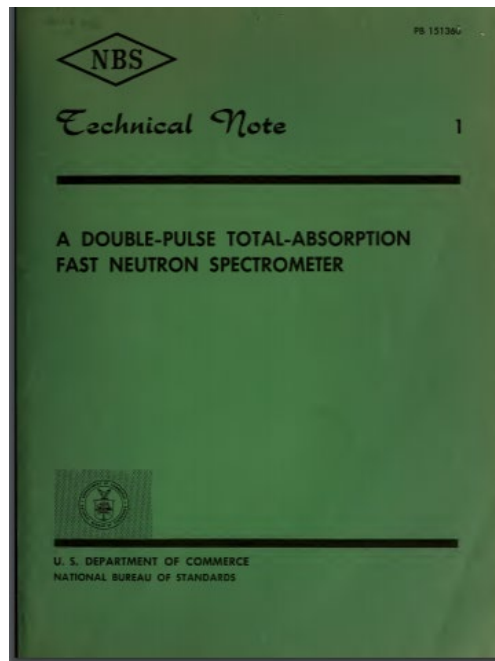


Certain commercial equipment, instruments, or materials are identified in this paper in order to specify the experimental procedure adequately. Such identification is not intended to imply recommendation or endorsement by NIST, nor is it intended to imply that the materials or equipment identified are necessarily the best available for the purpose.

Publishing Guidelines and Standards

One of NIST's responsibilities is to develop industry standards and guidelines, which are published as NIST Technical Series publications.

The NIST Research Library has the unique responsibility for publishing the NIST Technical Series and archiving legacy publications.



PDF isn't Enough...

- Most of the publications are only available as PDFs.
- Creating siloed HTML versions isn't "standard."
- We need to convert to standards-specific XML.
- NIST has already made great strides in making data and software accessible on data.gov and data.nist.gov.

The image shows a JSON metadata record for a software resource. The record includes fields for id, timestamp, machineIdentifier, processIdentifier, counter, time, date, timeSecond, schema, topic, and references. A green callout box highlights the text "Software metadata JSON and HTML landing page". Below the JSON is a screenshot of the HTML landing page for the resource "Sampling-Agnostic Software Framework for Converting Between Texture Map Representations of Virtual Environments". The page includes a description, contact information for Wesley Griffin, and a list of research topics and subject keywords.

```
1 {
2   "ResultCount": 1,
3   "PageSize": 0,
4   "ResultData": [
5     {
6       "id": {
7         "timestamp": 1521220573,
8         "machineIdentifier": 3325465,
9         "processIdentifier": 311,
10        "counter": 8877811,
11        "time": 1521220573000,
12        "date": 1521220573000,
13        "timeSecond": 1521220573
14      },
15      "schema": "https://data.nist.gov/od/dm/nerdm-schema/v0.1#",
16      "topic": [
17        {
18          "schema": "https://www.nist.gov/od/dm/nist-themes/v1.0",
19          "tag": "Information Technology: Visualization research",
20          "@type": "Concept"
21        }
22      ],
23      "references": [
24        {
25          "refType": "IsReferencedBy",
26          "location": "https://doi.org/10.6028/jres.122.025",
27          "@id": "#ref:10.6028/jres.122.025",
28          "@type": "IdentifiableBibliographicReference"
29        }
30      ]
31    }
32  ]
33 }
```

Software metadata JSON and HTML landing page

Public Data Resource
Sampling-Agnostic Software Framework for Converting Between Texture Map Representations of Virtual Environments
Contact: Wesley Griffin
Identifier: doi:10.18434/M3P88M
Visit Home Page

Description

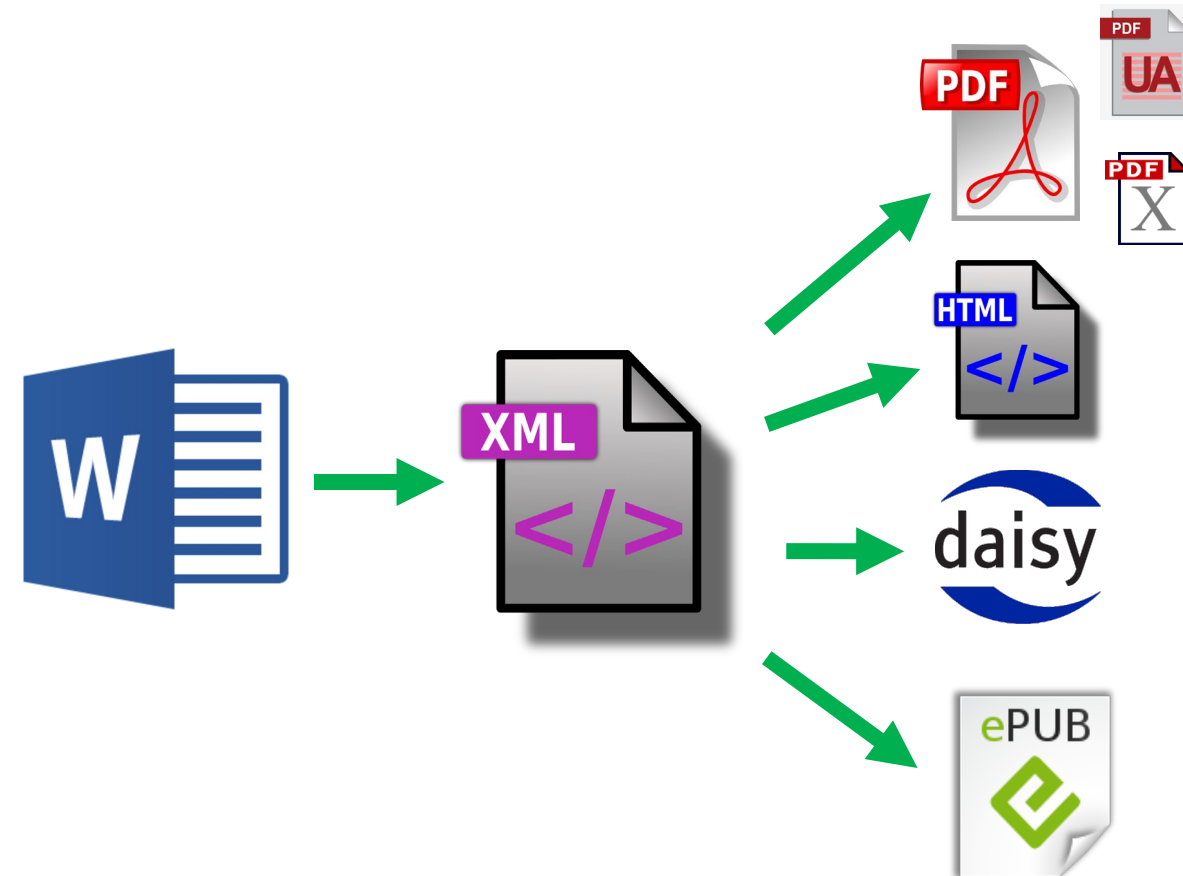
We have developed a utility to both stitch cube maps into other types of texture maps (equirectangular, dual paraboloid, and octahedral), and stitch those other types back into cube maps. The utility allows for flexibility in the image size of the conversion - the user can specify the desired image width, and the height is computed (cube, paraboloid, and octahedral mappings are square, and spherical maps are generated to have 16:9 aspect ratio). Moreover, the utility is sampling-agnostic, so the user can select whether to use uniform or jittered sampling over the pixels, as well as the number of samples to use per pixel. The rest of this paper discusses the mathematical framework for projecting from cube maps to equirectangular, dual paraboloid, and octahedral environment maps, as well as the mathematical framework for the inverse projections. We also describe two sampling techniques: uniform sampling and correlated multi-jittered sampling. We perform an evaluation of the sampling techniques and a comparative analysis of the different projections using objective image quality assessment metrics.

Research Topics: Visualization research
Subject Keywords: equirectangular, octahedral, paraboloid, projection, sampling, texture map, transformation

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NISTIR 8241

Organizational Views of NIST Cryptographic Standards and Testing and Validation Programs

Julie Haney
Mary Theofanos
Yasemin Acar
Sandra Spickard Prettyman

This publication is available free of charge from:
<https://doi.org/10.6028/NIST.IR.8241>

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National Institute of
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U.S. Department of Commerce

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Material Measurement Laboratory

Yasemin Acar
Leibniz University Hannover

Sandra Spickard Prettyman
Culture Catalyst, LLC

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December 2018



U.S. Department of Commerce
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National Institute of Standards and Technology
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December 2018

Abstract

Cryptography is an essential component of modern computing. Unfortunately, implementing cryptography correctly is a non-trivial undertaking. Past research studies have supported this observation by revealing a multitude of errors and pitfalls in the cryptographic implementations of software products. However, the emphasis of these studies was on the practices of less-experienced, individual developers. Therefore, there is little understanding of the cryptographic development practices of organizations, including the benefits and challenges of using cryptographic resources such as standards specifications and libraries. To address this gap, a research team led by the National Institute of Standards and Technology (NIST) Information Technology Laboratory Visualization and Usability Group conducted a qualitative investigation into the processes and resources that organizations employ in the development and testing of cryptographic products. The study involved 21 in-depth interviews of 29 participants representing organizations that develop either a security product that uses cryptography or a non-security product that heavily relies on cryptography. This report categorizes and enumerates a subset of findings that document participant comments specific to NIST cryptographic publications and testing/validation programs, with a goal of informing future decisions of NIST and other standards bodies working in this space.

Disclaimer

Within the participant comments, certain commercial companies or products may be identified to foster understanding. Such identification does not imply recommendation or endorsement by the National Institute of Standards and Technology, nor does it imply that the companies or products identified are necessarily the best available for the purpose.



U.S. Department of Commerce
Wilbur L. Ross, Jr., Secretary



National Institute of Standards and Technology
Walter Copan, NIST Director and Undersecretary of
Commerce for Standards and Technology

Formats

- PDF
- EPUB
- DAISY XML
- Citation

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5.1.2 Challenges

5.2 Testing/Validation Programs and Certifications

- Our publications had metadata that didn't quite fit into NISO STS.
- Our XML needed to be “translated” for Typefi.
- Back and forth with both vendors led to template decisions for future publications.

LESSON LEARNED: our standards publications are not standard

But we can get there!

We've committed to publishing documents that can be read, understood, and ingested by a variety of people and programs.

Multiple technology options



PDF



HTML



EPUB



DAISY

Inclusive language guidelines



[Read more about NISTIR 8366](#)

- Finish DAISY process
- Content review
- Make computer security publications publicly available
- Plan to implement for all NIST Technical Series publications starting FY22

Thank you:

NIST Research Library Leadership Team
Karen Wick, Information Services Office
Andrea Medina-Smith, Information Services Office
Katelynd Bucher, Information Services Office
Jim Foti, Information Technology Laboratory
Katherine Sharpless, Special Programs Office
Sharmon Hawkins, Information Services Office
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