# Dynamic Conversions through URLs

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Cooking & Single Source Publishing
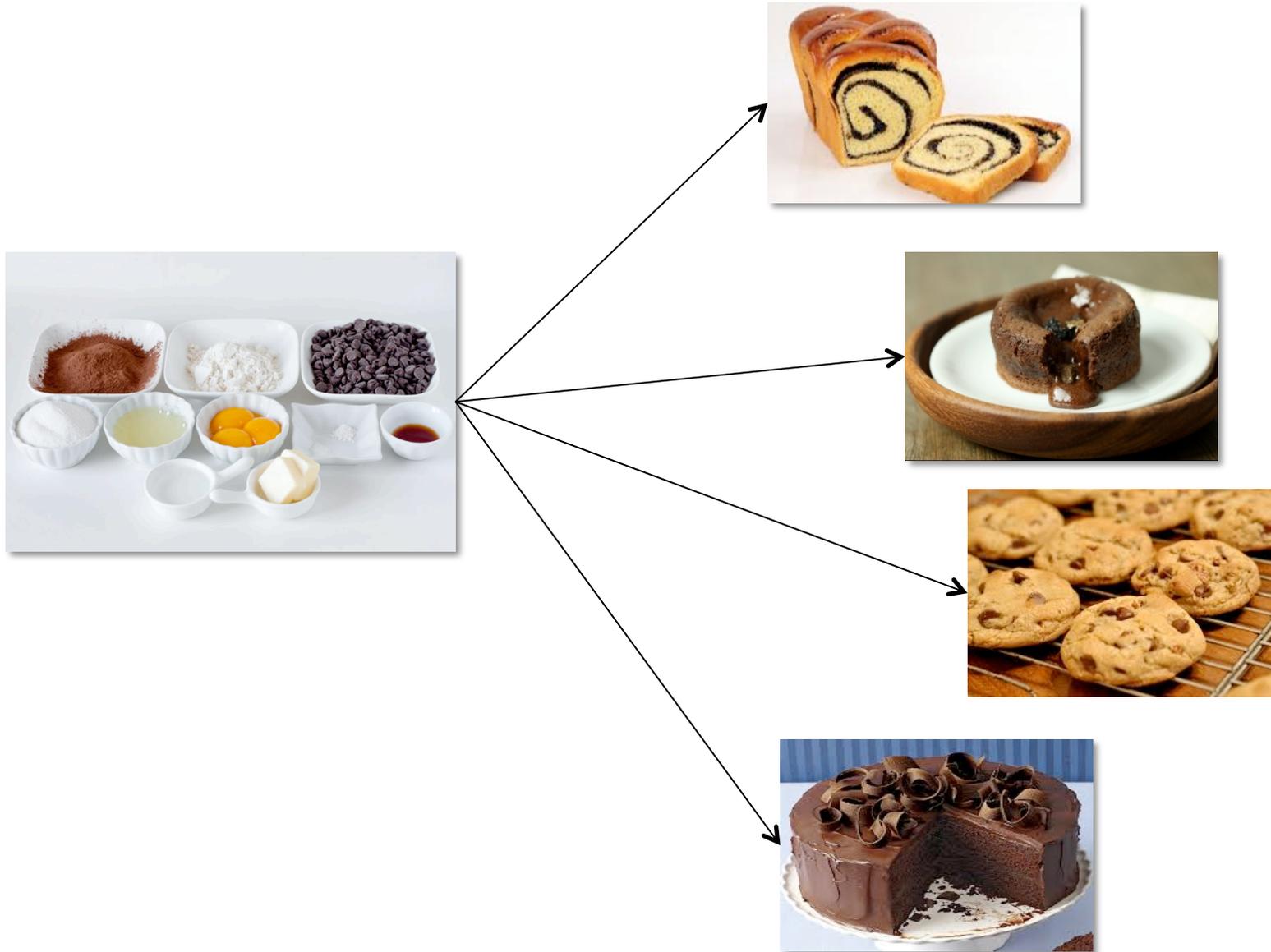
Single Source Publishing
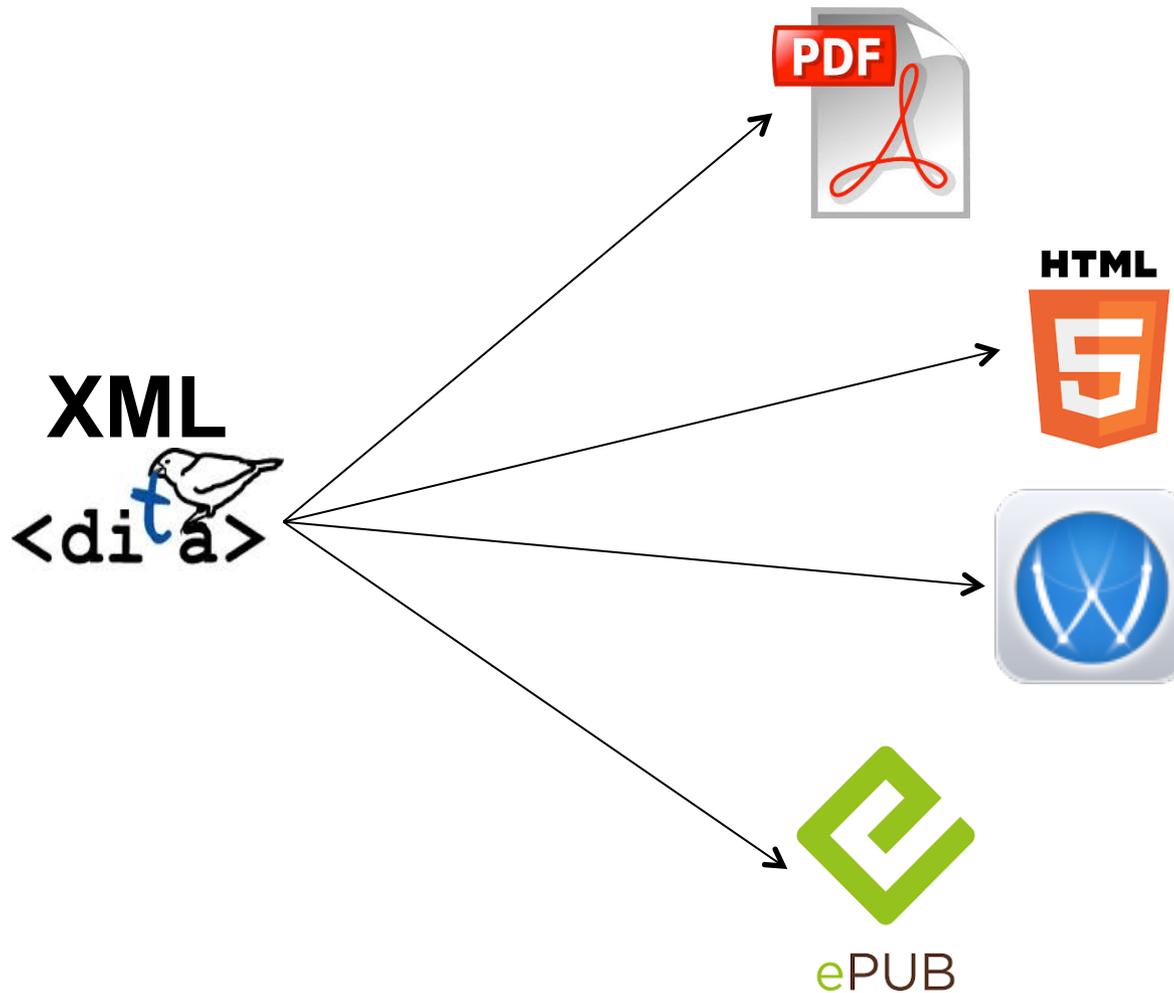
Ingredients

ready to use ingredients

DITA Map
DITA Topic 1
DITA Topic 2

Image 1
Image 2
Image 3

ready to use DITA resources

Ingredients

DITA Map
DITA Topic 1
DITA Topic 2

Image 1
Image 2
Image 3

Getting ready-to-use resources

	Manual mill	Industrial mill	Small/automatic on-demand mill
Wheat to flour			
Excel to DITA	Copy / Paste Manual conversion	Conversion process	Dynamic conversion

This is what we want to solve!

How can we make cookies when we have wheat but not flour?

How can we use DITA publishing when we have Excel files instead of DITA topics or instead of images?

(or Markdown, HTML, Java, CSV, and so on)

Dynamic conversion

	Manual mill	Industrial mill	Small/automatic on-demand mill
Wheat to flour			
Excel to DITA	Copy / Paste Manual conversion	Conversion process	Dynamic conversion

Existing structured content

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Structured content = XML, for example DITA

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We may have also other structured content

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- in more or less consistent formats

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Structured content = XML, for example DITA

We may have also other structured content

- in more or less consistent formats
    - HTML files
    - Markdown
    - Excel or other spreadsheets
    - CSV
    - Java source files
    - etc.

Existing structured content

Structured content = XML, for example DITA

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  - Markdown
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  - CSV
  - Java source files
  - etc.
- that cannot move to XML/DITA over night

Existing structured content

Structured content = XML, for example DITA

We may have also other structured content

- in more or less consistent formats
  - HTML files
  - Markdown
  - Excel or other spreadsheets
  - CSV
  - Java source files
  - etc.
- that cannot move to XML/DITA over night
- that cannot move to XML/DITA at all

Idea

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Use URLs to encode dynamic conversions

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file:/path/to/folder/sample.xls

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Use URLs to encode dynamic conversions

file:/path/to/folder/sample.xls

XML Catalog

urn:files:sample.xls
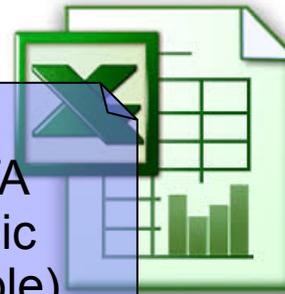
Idea

## Use URLs to encode dynamic conversions

file:/path/to/folder/sample.xls

XML Catalog

urn:files:sample.xls

DITA
Topic
(table)
XML

Idea

Use URLs to encode dynamic conversions

file:/path/to/folder/sample.xls

XML Catalog

urn:files:sample.xls

DITA
Topic
(table)
XML

http://example.com/convertExcel2DITA?file=urn:files:sample.xls

Idea

Use URLs to encode dynamic conversions

file:/path/to/folder/sample.xls

XML Catalog
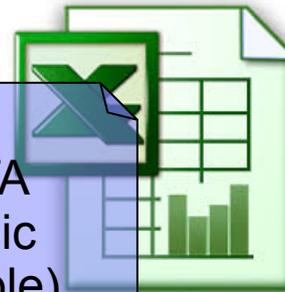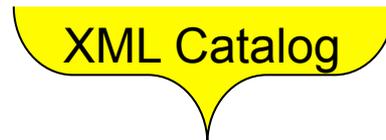
urn:files:sample.xls

DITA
Topic
(table)
XML
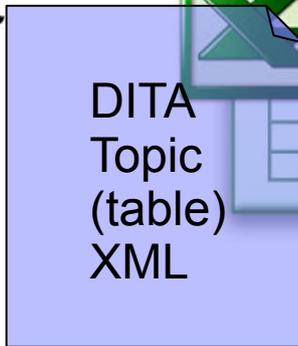
excel2dita:/urn:files:sample.xls

http://example.com/convertExcel2DITA?file=urn:files:sample.xls

Idea

Use URLs to encode dynamic conversions

file:/path/to/folder/sample.xls

XML Catalog

urn:files:sample.xls
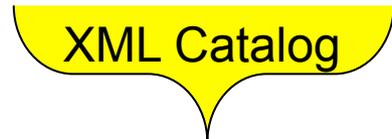
DITA
Topic
(table)
XML
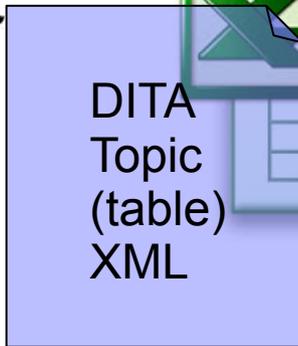
excel2dita:/urn:files:sample.xls

`<topicref href="excel2dita:/urn:files:sample.xls" format="dita"/>`

Let's see this in action!

Demonstrate use of an Excel file as a DITA topic

User perspective

Just add

excel2dita:/

in front of a reference to an Excel file to get a DITA topic!

Not limited to DITA

We can use the same idea for any dynamic conversion from one format to another:

- other XML documents: DocBook, TEI, XHTML, etc.
- dynamic SVG images
- process an Excel sheet with XML processing languages like XSLT, XQuery and XProc
- etc.

Cross-format DITA publishing

Cross-format publishing using DITA tools of

- entire documents

  - just refer a "virtual" topic from a DITA map

- parts of a document

  - refer the "virtual" topic in a DITA map as resource only

  - conref the part that you want from a published topic

Similar concepts can be applied to other XML document types (for example using XInclude)

The DITA Glass project

Moving from idea to implementation

http://www.github.com/oxygenxml/dita-glass

Processors pipeline - read only

Converted content ← [P(n) ... P2 P1] ← Original content

Support "convert:" URLs:

convert:/pipelineStepN/.../pipelineStep1!/targetContentURL

URL Handler which converts content via a pipeline of stages

CSV to DITA

convert:/processor=xslt;ss=urn:processors:csvtext2dita.xsl/processor=wrap!/urn:files:x.csv

csvtext2dita.xsl   wrap

DITA topic   urn:files:x.csv
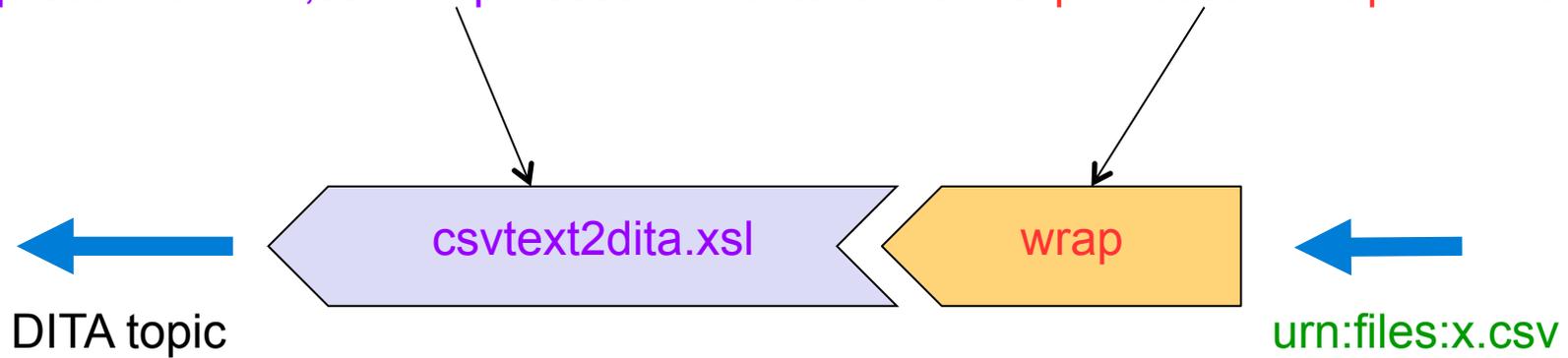
Processors pipeline – read/write

- A pipeline may also contain reverse processors which are applied when the file is saved

- So you can potentially edit content in one format and save in another

CSV to DITA round-trip

convert:/rprocessor=xslt;ss=urn:processors:dita2csv.xsl/

processor=xslt;ss=urn:processors:csvtext2dita.xsl/processor=wrap!/urn:files:x.csv

csvtext2dita.xs

wrap

DITA topic

urn:files:x.csv

dita2csv.xsl
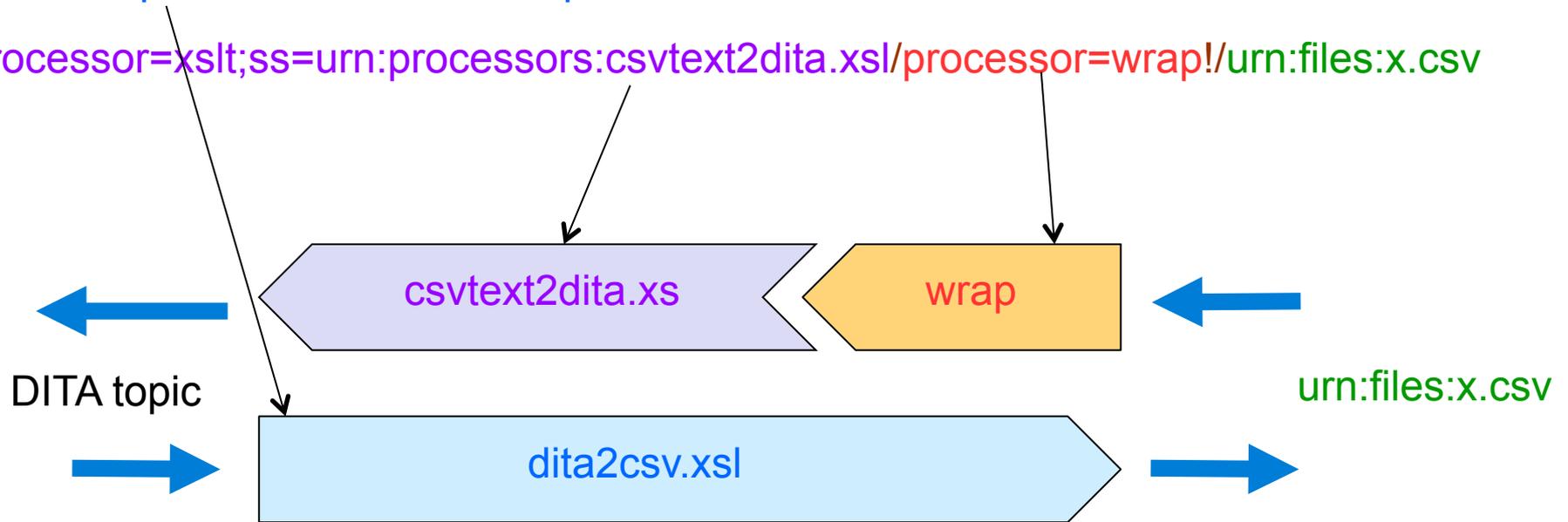
URL Syntax Example

convert:/processor=xslt;ss=/path/to/excel2d.xsl/processor=excel!/

path/to/resources/sample.xls

excel2dita:/urn:files:sample.xls

URL Syntax Example

convert:/processor=xslt;ss=/path/to/excel2d.xsl/processor=excel!/

path/to/resources/sample.xls

<rewriteURI
    rewritePrefix="convert:/processor=xslt;ss=/path/to/excel2d.xsl/processor=excel!/"
    uriStartString="excel2dita:/" />

XML Catalog

excel2dita:/urn:files:sample.xls

URL Syntax Example

convert:/processor=xslt;ss=/path/to/excel2d.xsl/processor=excel!/

path/to/resources/sample.xls

```
<rewriteURI
    rewritePrefix="convert:/processor=xslt;ss=/path/to/excel2d.xsl/processor=excel!/"
    uriStartString="excel2dita:/" />

        <rewriteURI
            rewritePrefix=" path/to/resources/"
            uriStartString="urn:files:" />
```

XML Catalog

excel2dita:/urn:files:sample.xls

Implemented processors

- Excel to XML
- JSON to XML
- HTML to XHTML
- XSLT/XQuery
- JavaScript
- Java
- Wrap Text as XML

Examples of original formats

HTML

Other XML format

Markdown

Excel

Comma separated values (CSV)

Documentation in custom HTML format

Documentation embedded directly in code

Excel to DITA

- Excel to XML
- XML to DITA Topic


```
<topicref href="convert:/proc=xslt;ss=excel2d.xsl/proc=excel;sn=sample!/urn:files/sample.xls"/>

<topicref href="excel2dita:/urn:files/sample.xls"/>
```

Potential Benefits

- Dynamically create DITA tables from spreadsheet tables

- Various table column computations are automatically done in Excel.

- Single source content

MarkDown to DITA

- ## MarkDown to HTML

- ## HTML to XHTML

- ## XHTML to DITA

```
<topicref href="convert:/proc=xslt;ss=h2d.xsl/proc=xhtml/proc=js;js=converter.js..!/../sample.md"/>

<topicref href="md2dita:/urn:files/sample.md"/>
```

Potential Benefits

- Gather API-related input from developers

- Single source content

Java to DITA

- ## Java to XML
- ## XHTML to DITA

`<topicref  href="convert:/processor=xslt;ss=urn:processors:javaToTopic.xsl/`
`processor=java;jars=urn:processors:jars;ccn=j.to.xml.JavaToXML!/`
`urn:files:WSAuthorEditorPage.java"/>`

`<topicref href="javadoc2dita:/urn:files:WSAuthorEditorPage.java"/>`

Potential Benefits

- Access to source documentation and Java class structure in DITA as syntax diagrams

- Single source content

Dynamic reports in DITA

- Excel to XML

- XML to SVG

- SVG referred in DITA topic

`<image href="convert:/proc=xslt;ss=sales.xsl/proc=excel;sn=sample!/../sales.xml"/>`

Potential Benefits

- Publish graphs which dynamically change in time

- Single source content

CSV to DITA (and back...)

- CSV (Comma separated values) to DITA
- DITA to CSV


```
<topicref href="convert:/rprocessor=xslt;ss=urn:processors:dita2csv.xsl/
processor=xslt;ss=urn:processors:csvtext2dita.xsl/processor=wrap
!/urn:files:sample.csv" format="dita"/>
```

Potential Benefits

- Convert database exports to DITA tables
- Edit DITA tables and update CSV content

Let's see all these conversions

Demonstrate publishing a map referring Excel, MarkDown, Java, CSV, etc. to PDF and WebHelp

Demonstrate CSV round-tripping to DITA

DITA-Glass Project and presentation samples

https://github.com/oxygenxml/dita-glass

Conclusions

- DITA Glass can seamlessly bring together different formats in a single DITA publication

- Simple, yet very powerful idea – just refer a resource thought a URL

- A generic approach, not limited to DITA - see the Excel data to SVG graphics example

- Proof of concept implementation available in oXygen XML Editor version 17

Thank you

Questions?

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http://www.oxygenxml.com