Single-source Publishing with DocBook XSL

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What is Single-source Publishing?

- ► Multiple outputs from single source file.
- ► Reusable content.
- ► Modular writing.
- ► Assembled documents.
- ► "Write once, publish many".

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Multiple outputs

- ► Print, PDF, HTML, slides, Help files.
- ► Different product versions.
- ► Different user levels.
- ► Sight-impaired, WML, text-only.

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Why Single-source?

- ► Reduce redundant writing.
- ► Writers can specialize.
- ► Update in a single place.
- ► Users get more accurate information.
- ► Fewer words to translate.

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What is DocBook?

- ► DTD for technical documentation.
- ► Related stylesheets and tools.
- ► Started in 1991 as SGML, now XML.
- ► OASIS standard since 1998.

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Why use DocBook?

- ► Designed for technical documentation.
- ► Content kept separate from format.
- ► Open to computer processing.
- ► Choose your publishing tools.
- ► Cross platform
- ► Automate your processing.

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What's the downside?

- ▶ XML learning curve.
- ▶ Investment in setup.
- ▶ Technical staff needed.

Best for …

- ▶ Multiple output formats.
- ▶ Multiple releases over time.
- ▶ Large documentation sets.
- ▶ Batch processing environment.
- ▶ Shared authoring.

Who uses DocBook?

- ▶ Sun
- ▶ IBM
- ▶ Microsoft
- ▶ Hewlett Packard
- ▶ Symantec
- ▶ Red Hat, SuSE, Mandrakesoft
- ▶ Linux Documentation Project

What do you need?

- ▶ DocBook DTD (XML version).
- ▶ Writing tools.
- ▶ XSL stylesheets.
- ▶ Processing tools.

Writing tools

- ▶ Notepad or other text editor.
- ▶ XMLMind's XMLEditor (free).
- ▶ Morphon's XML-editor (free).
- ▶ Syntext's Serna.
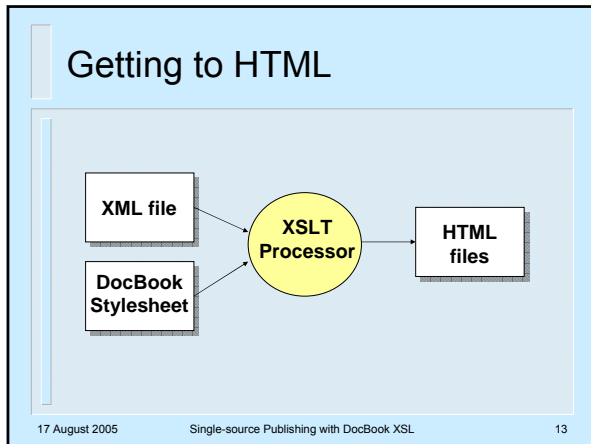- ▶ Blast Radius's XMetal.
- ▶ Arbortext's Epic Editor.

DocBook XSL stylesheets

- ▶ Open source project on SourceForge.
- ▶ Written in XSL.
- ▶ Stylesheet variant for each output form.
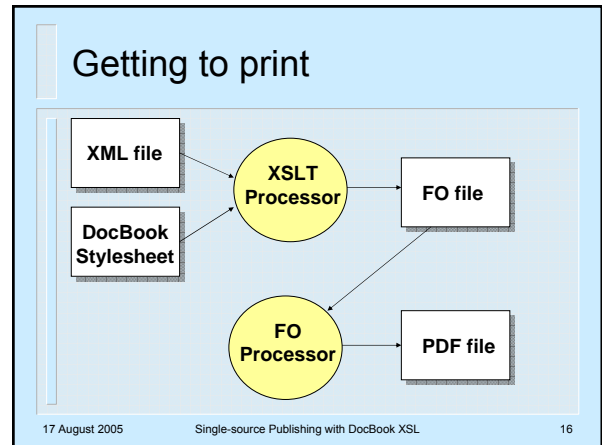- ▶ Designed for customization.
- ▶ Adapt to corporate style.

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Getting to HTML

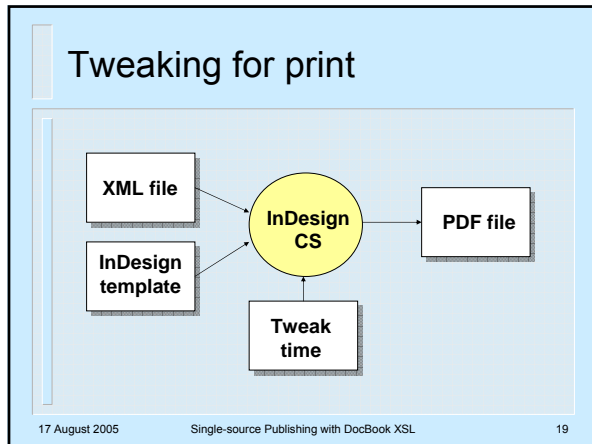XML file → XSLT Processor

DocBook Stylesheet → XSLT Processor → HTML files

XSLT processors

- ► xsltproc from Gnome's xmlsoft.org
- ► Saxon 6 from SourceForge
- ► Xalan Java from Apache XML project

HTML or XHTML

- ► Single file or multiple "chunks".
- ► Use CSS classes for styling.
- ► Post process with
  - • HTML Help Workshop
  - • Java Help indexer

Getting to print

XML file → XSLT Processor

DocBook Stylesheet → XSLT Processor → FO file

FO file → FO Processor → PDF file

XSL-FO processors

- ► XEP from RenderX.
- ► XSL Formatter from Antenna House
- ► FOP from Apache XML Project

Automated print production

- ► Stylesheet flows content onto pages.
- ► Automatic TOC and index.
- ► Automatic page breaking.
- ► Writer does not do formatting.

Tweaking for print

Standard publishing features

- ▶ Front matter
- ▶ Graphics
- ▶ Tables
- ▶ Glossaries
- ▶ Bibliographies
- ▶ Indexes

Technical publishing

- ▶ Nested section levels.
- ▶ Numbered figures, tables, examples.
- ▶ Tasks and procedures.
- ▶ Code synopses.
- ▶ Code examples.
- ▶ Running headers and footers.

Special features

- ▶ Profiling.
- ▶ Modular documentation.
- ▶ Cross referencing.
- ▶ Localization.

Profiling

- ▶ *aka* Conditional text.
- ▶ Multiple versions from same file.
- ▶ Marked with profiling attributes:
  - **os, userlevel, condition**, etc.
- ▶ Use a profiling stylesheet.
- ▶ Select conditions at runtime:
  - **profile.os="linux"**

Modular documentation

- ▶ Separate large documents into multiple XML files.
- ▶ System entity != valid document.
  - No DOCTYPE allowed.
  - xrefs won't resolve.
- ▶ Use Xinclude instead.
  - Modules can be valid documents.
  - Use olink to link between them.

Cross referencing

- ▶ Author or generate hotlink text.
- ▶ Define cross reference "styles".
- ▶ Link within or between documents
- ▶ Between documents:
  - Within a concurrent set.
  - Reference to previously published doc.
  - Reference to remote content.

Olinking

- ▶ Create olink database from documents.
- ▶ XSL processor reads the database.
- ▶ Can generate link text.
- ▶ Can link to base URI per document.
- ▶ Creates dependencies between docs.

Localization

- ▶ Unicode and other encodings
- ▶ Generated text in 46 languages
- ▶ Index collation
- ▶ Mixed language documents

Installing XSLT processor

- ▶ xsltproc
  - Download libxml2 and libxslt C source.
  - Install prebuilt packages.
  - Windows binaries available.
- ▶ Saxon and Xalan
  - Need Java runtime environment.
  - Download and add to CLASSPATH.

Using xsltproc

- ▶ HTML output:

```
xsltproc \
   --output  myfile.html \
   /usr/share/docbook/html/docbook.xsl \
   myfile.xml
```

- ▶ FO output:

```
xsltproc \
   --output myfile.fo \
   /usr/share/docbook/fo/docbook.xsl \
   myfile.xml
```

Generating PDF with FOP

- ▶ Convert a .fo file on Unix or Linux:

```
fop.sh -fo myfile.fo -pdf myfile.pdf
```

- ▶ Convert a .fo file on Windows:

```
fop.bat -fo myfile.fo -pdf myfile.pdf
```

Customization needed

- ► Default style is neutral.
- ► Functional but boring.
- ► Corporate identity requirements.
- ► Enhanced functionality:
  - Better navigation.
  - Readability.

Customizable stylesheets

- ► Modular design.
- ► Templates for each element.
- ► Small reusable templates.
- ► Empty, user-defined templates.
- ► Parameterized (~460 parameters)

Stock DocBook

Stock DocBook   Customized

Customization methods overview

- ► Setting parameters
- ► Customization layer
- ► Attribute sets
- ► CSS for HTML
- ► Generated text
- ► Generating titlepage templates
- ► Placeholder templates
- ► Customizing templates

Customization strategy

- ► Methods are a tool kit.
- ► Easiest to hardest.
- ► Use stylesheet documentation.
- ► *DocBook XSL: The Complete Guide*
  - Free online: http://www.sagehill.net/docbookxsl/
- ► Good XSLT and XSL-FO book(s)
- ► DocBook mailing lists

Stylesheet parameters

▶ What is it:
  • Named variable in stylesheet.
  • Default behavior used otherwise.
▶ When to use it:
  • If the right parameter exists.
  • Read the stylesheet doc:
    http://docbook.sourceforge.net/release/xsl/current/doc/html/

Parameter example

▶ In HTML output:
  • Add icon graphics for Note, Warning, etc.
  • Collectively known as "admonitions".
  • Parameter name is **admon.graphics**

Parameter: how to use it

▶ Each processor has its own command syntax:

```
xsltproc  --output myfile.html  \
--stringparam admon.graphics 1 \
html/docbook.xsl  myfile.xml
```

▶ Before
▶ After

Setting multiple parameters

▶ Command line good for one-off.
▶ Some parameters used consistently.
▶ Many parameters = long command line
▶ Print page size, margins, etc.

Customization layer

▶ New stylesheet that combines:
  • Imports DocBook XSL templates
  • Adds your customizations.
▶ Kept separate, so updates are easy.
▶ Used in place of DocBook stylesheet.

Customization layer contains ...

▶ Standard XSL syntax.
▶ Pull in stock DocBook with:
<xsl:import href="path/to/docbook.xsl"/>
▶ Parameter settings.
▶ Replacement templates.
▶ New generated text.

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Customization example

```
<?xml version='1.0'>
<xsl:stylesheet
  xmlns:xsl="http://www.w3.org/1999/XSL/
  Transform"  version="1.0">

<xsl:import href="html/docbook.xsl"/>
<xsl:param name="admon.graphics" select="1"/>
...

</xsl:stylesheet>
```

Many print parameters

```
<?xml version='1.0'>
<xsl:stylesheet version="1.0"
  xmlns:xsl="http://www.w3.org/1999/XSL/Transform">
<xsl:import href="fo/docbook.xsl"/>
<xsl:param name="page.height">9in</xsl:param>
<xsl:param name="page.width">7in</xsl:param>
<xsl:param name="double.sided">1</xsl:param>
<xsl:param name="page.margin.top">0.5in</...
<xsl:param name="page.margin.bottom">0.6in</...
<xsl:param name="page.margin.inner">0.75in</...
<xsl:param name="page.margin.outer">0.5in</...
<xsl:param name="body.font.family">Helvetica</...
...
</xsl:stylesheet>
```

Stock DocBook   Customized

DocBook community

- ► Mailing lists
  - • **docbook-apps** for processing questions.
  - • **docbook** for DTD questions.
- ► DocBook SourceForge project
  - • Stylesheet CVS files
  - • Bug reports and feature requests.
- ► DocBook Wiki
  - • User contributions.

Questions?

References:
- ► *DocBook XSL: The Complete Guide*
  - • http://www.sagehill.net/docbookxsl/
- ► *DocBook: The Definitive Guide*
  - • http://docbook.org/tdg/en/html/docbook.html
- ► DocBook SourceForge project:
  - • http://docbook.sf.net/