



Define.XML to Define.PDF, Just F.O.P It

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Abstract: Often times, authorities will request submission documentation such as the define.xml into additional formats for ease of reading. This can become a tedious process that requires extensive SAS programming, manual conversions in Pinnacle 21 Community, or researching other off the shelf products. However, with the use of the Apache Formatting Objects Processor (FOP), one can quickly convert an XML document into PDF with working formats, bookmarks, and links that match that of the original XML. In my poster, I will demonstrate how to successfully set up the FOP process in order to make converting pains a thing of the past.

Converting XML into PDF (with working bookmarks!)

What is **Apache™ FOP**?



Apache™ FOP (Formatting Objects Processor) is a print formatter driven by XSL formatting objects (XSL-FO) and an output independent formatter. It is a Java application that reads a formatting object (FO) tree and renders the resulting pages to a specified output

For our purposes, we can easily convert define.xml into define.pdf with all formats and bookmarks intact.

How do we use FOP?

First, one will need to download the latest version:

<http://mirror.reverse.net/pub/apache/xmlgraphics/fop/source/fop-2.2-src.zip>

Unzip the file to your local laptop. There is no registry changes or executables. This is only a Java application. A simple location is recommended where it should be unzipped: (C:\FOP)

Once unzipped, place the specialized *define* XSL stylesheet that communicates with FOP in the directory. A sample define 2.0 compliant version of the XSL can be copied from here: <https://github.com/wbmabe/Apache-FOP---xml2fo-for-define/blob/master/xml2fo.xsl>

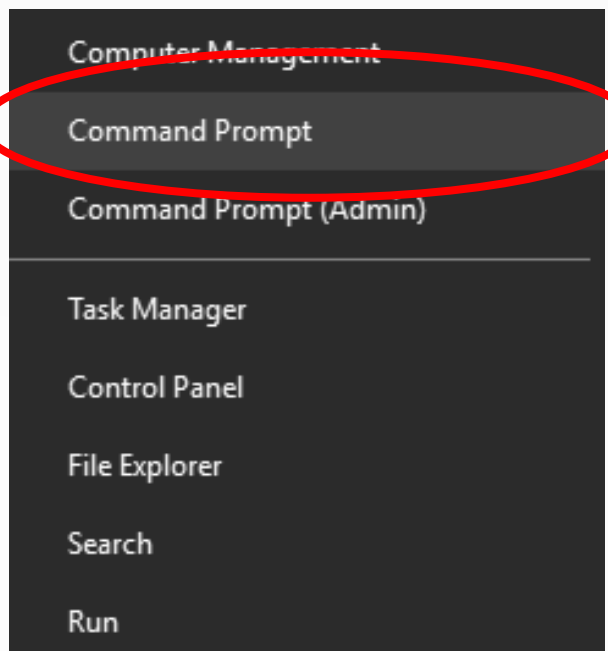
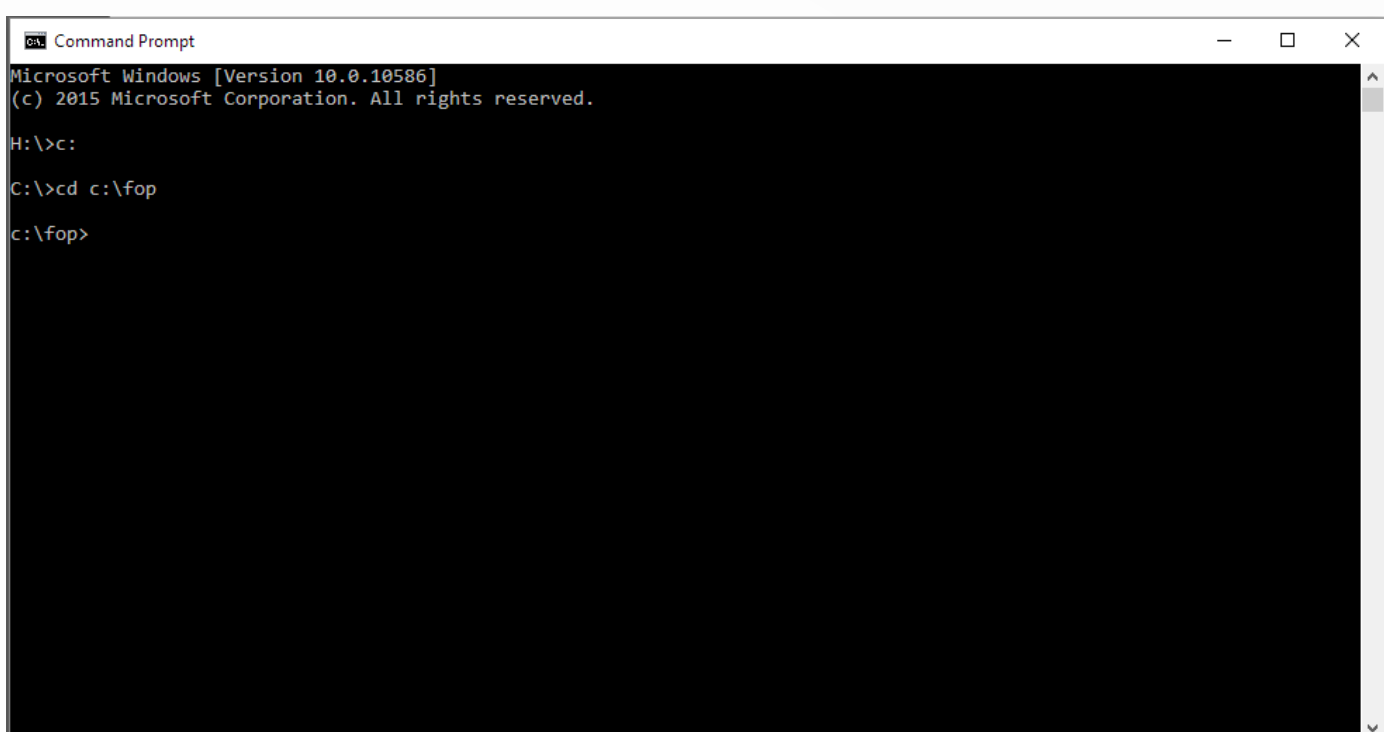
Now, Apache FOP is ready to use!

Once you have FOP unzipped as well as the stylesheet placed, the application is ready for use.

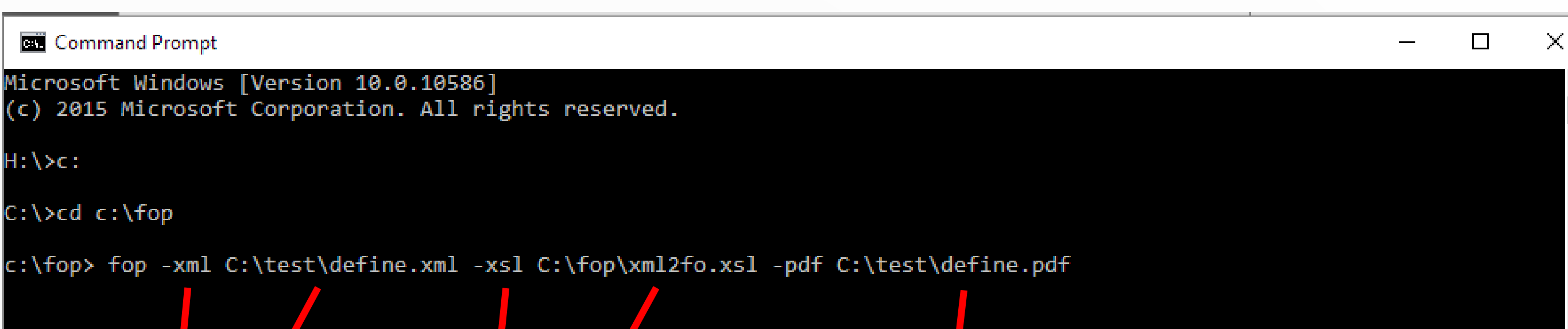
Locate and/or copy the define.xml that need converting to PDF

Open the command prompt on the laptop:

Right click the Start button () and select Command Prompt. When the command prompt window opens, the directory needs to be changed to where FOP is located on the laptop:



To convert XML to PDF, follow the syntax:

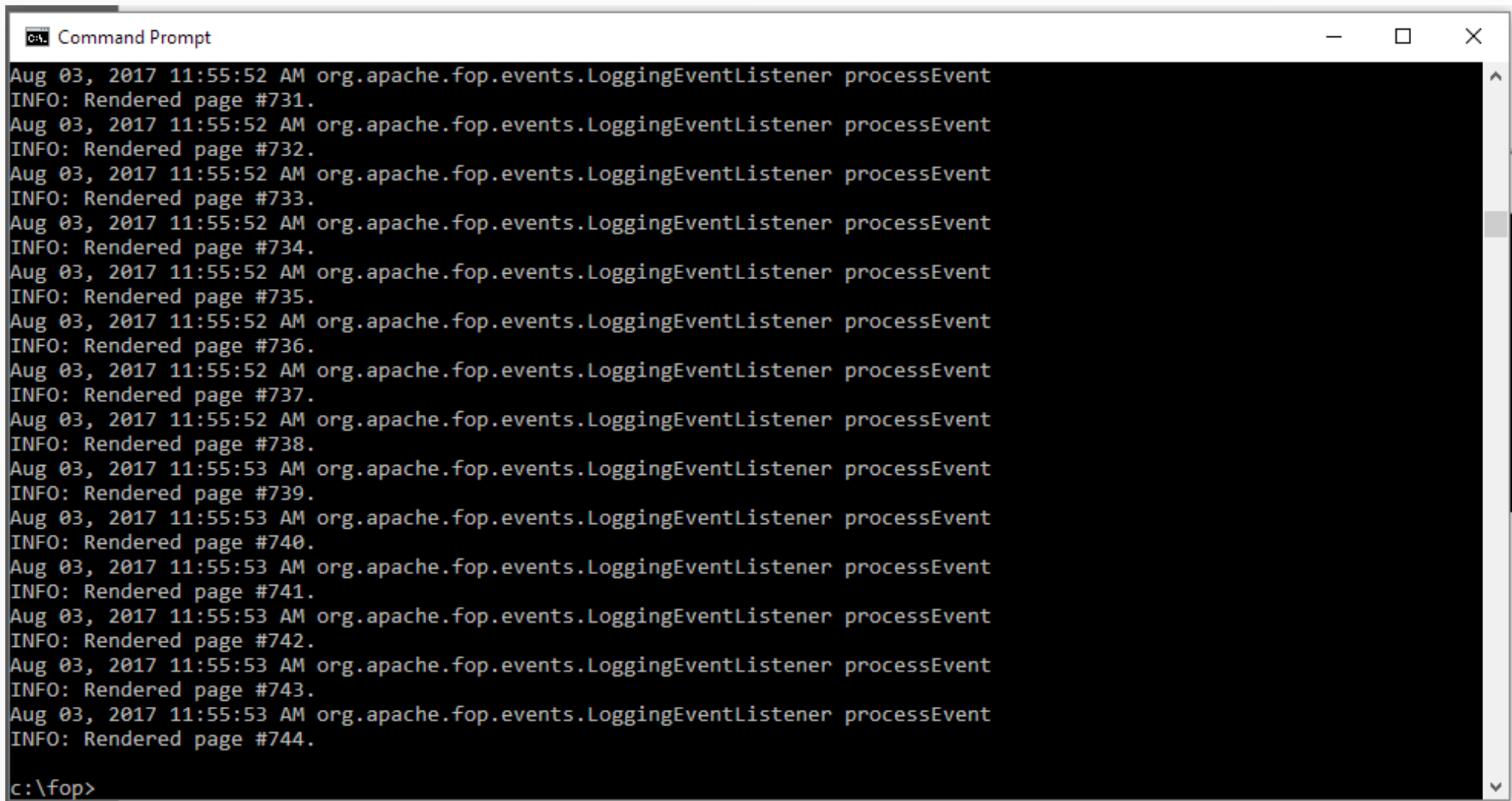


-xml (and source location of XML file)

-xsl (and source location of xml2fo.xsl file)

-pdf (and location of where you want the converted PDF file to go)

If all went well, then you should have something similar:



There should be a fully functional (bookmark enabled) define.pdf available in your destination folder!

Visual Comparison of Define.xml to Define.pdf

Dataset	Description	Class	Structure	Purpose	Keys	Location	Documentation
ADAE	Adverse Events	ADAM OTHER	One record per subject per each AE recorded in SDTM AE domain	Analysis	STUDYID, USUBID, AEDECOD, AESEQ	adse.xml	
ADAEEX	Adverse Events of Special Focus: Time to Event	BASIC DATA STRUCTURE	One or more records per subject per analysis parameter per analysis timepoint	Analysis	STUDYID, USUBID, PARAM, PARAMCD	adseex.xml	
ADAEEXO	Adverse Events of Special Focus: Other	BASIC DATA STRUCTURE	One per subject per analysis parameter	Analysis	STUDYID, USUBID, PARAM, PARAMCD	adseexo.xml	
ADAEIO	Adverse Events: Other	ADAM OTHER	One record per subject per each AE recorded in SDTM AE domain	Analysis	STUDYID, USUBID, AEDECOD, AESEQ	adseio.xml	
ADCM	Concomitant Medications	ADAM OTHER	One record per medication occurrences or dosing interval per ATC code per subject	Analysis	STUDYID, USUBID, CMSEQ, CMTRT, CMDECOD	adcm.xml	
ADCMO	Concomitant Medications - Other	ADAM OTHER	One record per medication occurrences or dosing interval per ATC code per subject	Analysis	STUDYID, USUBID, CMSEQ, CMTRT, CMDECOD	adcmo.xml	
ADCSRS	Suicide Questionnaire	ADAM OTHER	One record per subject per suicidal behavior or attempt	Analysis	STUDYID, USUBID, ADCSEQ	adcsrs.xml	
ADCSRSO	Suicide Questionnaire: Other	ADAM OTHER	One record per subject per suicidal behavior or attempt	Analysis	STUDYID, USUBID, ADCSEQ	adcsrso.xml	
ADRESS	HSS/DRESS Analysis Dataset	BASIC DATA STRUCTURE	One record per subject per interval start date per analysis start date per analysis end date per source per adverse event sequence number per laboratory visit data per parameter	Analysis	STUDYID, USUBID, INTSTDT, INTETD, ADINTALL, SRC, AESEQ, LBCT, PARAMCD	adress.xml	
ADRESSO	HSS/DRESS Analysis Dataset: Other	BASIC DATA STRUCTURE	One record per subject per interval start date per analysis start date per analysis end date per source per adverse event sequence number per laboratory visit data per parameter	Analysis	STUDYID, USUBID, INTSTDT, INTETD, ADINTALL, SRC, AESEQ, LBCT, PARAMCD	adresso.xml	
ADEG	Electrocardiogram	BASIC DATA STRUCTURE	One record per subject per analysis date per visit per parameter	Analysis	STUDYID, USUBID, ADT, ADTSTRT, ADTEND, PARAMCD	adega.xml	
ADEGO	Electrocardiogram: Other	BASIC DATA STRUCTURE	One record per subject per analysis date per visit per parameter	Analysis	STUDYID, USUBID, ADT, ADTSTRT, ADTEND, PARAMCD	adego.xml	
ADEXD	Exposure Daily Dose	ADAM OTHER	One record per subject per exposure sequence	Analysis	STUDYID, USUBID, EXDSEQ	adexd.xml	
ADEXDO	Exposure Daily Dose: Other	ADAM OTHER	One record per subject per exposure sequence	Analysis	STUDYID, USUBID, EXDSEQ	adexdo.xml	
ADEXIO	Exposure by Period: Other	ADAM OTHER	One record per subject per day per actual treatment	Analysis	STUDYID, USUBID, EXDT, EXTRT	adexio.xml	
ADEXPO	Exposure by Period: Other	ADAM OTHER	One record per subject per time period	Analysis	STUDYID, USUBID, AVSTRT, AVSET	adexpo.xml	

XML

PDF

Dataset	Description	Class	Structure	Purpose	Keys	Location	Documentation
ADAE	Adverse Events	ADAM OTHER	One record per subject per each AE recorded in SDTM AE domain	Analysis	STUDYID, USUBID, AEDECOD, AESEQ	adse.xml	
ADAEEX	Adverse Events of Special Focus: Time to Event	BASIC DATA STRUCTURE	One or more records per subject per analysis parameter per analysis timepoint	Analysis	STUDYID, USUBID, PARAM, PARAMCD	adseex.xml	
ADAEEXO	Adverse Events of Special Focus: Other	BASIC DATA STRUCTURE	One per subject per analysis parameter	Analysis	STUDYID, USUBID, PARAM, PARAMCD	adseexo.xml	
ADAEIO	Adverse Events: Other	ADAM OTHER	One record per subject per each AE recorded in SDTM AE domain	Analysis	STUDYID, USUBID, AEDECOD, AESEQ	adseio.xml	
ADCM	Concomitant Medications	ADAM OTHER	One record per medication occurrences or dosing interval per ATC code per subject	Analysis	STUDYID, USUBID, CMSEQ, CMTRT, CMDECOD	adcm.xml	
ADCMO	Concomitant Medications - Other	ADAM OTHER	One record per medication occurrences or dosing interval	Analysis	STUDYID, USUBID, CMSEQ, CMTRT, CMDECOD	adcmo.xml	

Note: The opinions expressed in this poster are those of the author and do not necessarily represent the opinions of their respective company