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# Activating XML Toolkit V1.10 XML4C Parser for WDI V3.3 for z/OS in a Batch Environment

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WebSphere Data Interchange (WDI) L2 Support

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# Agenda

- Verify XML Toolkit V1.10 (XML4C) Installation
- Obtain WDI Prerequisite Maintenance
- Install WDI Prerequisite Maintenance
- Download WDI APAR SYSMOD for Activation
- Install WDI APAR SYSMOD
- Required Changes to WDI Utility JCL
- Verifying the Installation
- Back-out Process, if needed

# Verify XML Toolkit V1.10 (XML4C) Installation



# Verify XML Toolkit Installation

- It is most important to first obtain and install the proper XML Toolkit version before applying WDI V3.3 activation SYSMOD AM86098
- WDI executes the XML Parser for C++ (XML4C)
- Verify that you have XML Toolkit V1.10 for z/OS
  - ▶ Program Number 5655-J51 / FMID HXML1A0
  - ▶ The Toolkit may already be used by existing applications or be required for another product on your system or in your ServerPac as a prerequisite
- If you do not already have this FMID applied, it is available as a Download from:  
<http://www.ibm.com/systems/z/os/zos/tools/xml/download/index.html>

## Verify XML Toolkit Installation (cont.)

- Downloads include:
  - ▶ XML Toolkit for z/OS V1.10.0 README file in text format – xml1A0.README.txt (19KB)
  - ▶ XML Toolkit for z/OS V1.10.0 package in pax format – xml1A0.pax.Z (255.81MB)
- Program directory IXMZA191.pdf is downloaded separately from:

<http://www.ibm.com/systems/resources/IXMZA191.pdf>
- Start with the xml1A0.README.txt file for instructions on how to process the download
- Then use the Program Directory for complete Toolkit (SMP/E) install instructions

## Verify XML Toolkit Installation (cont.)

- The download package is also available on tape through standard IBM ordering channels, such as a CBPDO from ShopzSeries
- The XML4C parser is wholly contained within the Toolkit's SIXMLOD1 load library
- The XML4C parser is the only functionality of the XML Toolkit that WDI V3.3 uses
- While the SMP/E download package is recommended, if you are a developer seeking individual components without the SMP/E installation, go to the non-SMP/E download:  
<http://www.ibm.com/systems/z/os/zos/tools/xml/download/nonsmpe.html>

# Obtain WDI Prerequisite Maintenance

## Obtain WDI Prerequisites

- The activation of WDI V3.3 support for XML Toolkit V1.10 is ultimately accomplished by applying APAR SYSMOD AM86098
  - ▶ Available for download as we will discuss in a later section
  - ▶ Requires that certain prerequisite PTFs be applied first
- All WDI PTFs are available via normal z/OS PTF ordering processes, such as ShopzSeries.  
<https://www14.software.ibm.com/webapp/ShopzSeries/ShopzSeries.jsp>
- ShopzSeries accepts various types of PTF orders; such as requesting only specific PTF(s) and optionally include prerequisites



## Obtain WDI Prerequisites (cont.)

- There may be many prerequisites depending on when you last applied WDI maintenance
- PTFs required for APAR SYSMOD AM86098:

- ▶ PTF UK93215 / APAR PM86112 - deletes the modules which use the XML parser - EDIUPAMM, EDIUPRFH, EDIXPROC

PRE-REQS: H28N330 UK22724 UK22771 UK33045 UK33915 UK49565  
UK51460 UK79105 UK81800 UK94784. CO-REQS: UK90326. SUPERSEDES:  
UK48626 UK72141 UK83059.

- ▶ PTF UK90326 / APAR PM78840 - adds the modules for XML V1.9 and XML V1.10 and then ALIAS to the V1.9 names to the expected product names

PRE-REQS: H28N330 UK93215. CO-REQS: NONE. SUPERSEDES: NONE

Note: UK90326 is a co-requisite for UK93215, hence both must be applied together



## Obtain WDI Prerequisites (cont.)

- These PTFs are available on PUT1308 or PDO1335 level for WDI FMID H28N330
  - ▶ And exclusively on this specific PUT or PDO level
- Note: PUT and PDO are “preventive service” terms used by z/OS system programmers who are familiar with general SMP/E installation procedures
  - ▶ These simply identify groups of PTFs based on general availability year and month or by RSU “spin” number; respectively

# Install WDI Prerequisite Maintenance



# Install WDI Prerequisites

- All WDI z/OS PTF maintenance is installed via normal SMP/E general installation commands, for example: RECEIVE, APPLY, ACCEPT, RESTORE
- If you have many other prerequisites besides UK93215 and UK90326 to apply, for easier RESTORE consider ACCEPTing everything up through and including PUT1307 (PDO1327) before applying PUT1308 (PDO1335)
  - ▶ Accepting prior WDI maintenance prior to the apply readily accommodates SMP/E RESTORE processing, as will be discussed later

## Install WDI Prerequisites (cont.)

- Now APPLY PUT1308 or PDO1335 containing UK93215 and UK90326 in preparation for activation APAR SYSMOD
  - ▶ WDI utilities will continue to reference (call) the older XML Toolkit V1.9 modules, as if nothing has yet been changed
- Support for XML Toolkit V1.10 can now be activated by applying the WDI V3.3 APAR SYSMOD AM86098 download, as we will cover next



# Download WDI APAR SYSMOD for Activation

# Download WDI APAR AM86098

- Go to: <http://www.ibm.com/support/docview.wss?uid=swg21640207>
- Technote: “Activating XML Toolkit V1.10 XML4C parser for WDI V3.3 z/OS”
  - ▶ Contains the latest information regarding APAR instructions
  - ▶ May also contain any known issues, for which there are none as of 12 November 2013
  - ▶ Contains a link to download Terse file:  
EDI.V3R3M0.SYSMOD.AM86098.TRS
- Download to your PC and upload/FTP to your z/OS host as binary
  - ▶ z/OS sequential dataset must be defined as Fixed Block format (RECFM) = FB with Record Length (LRECL) = 1024

## Download WDI APAR (cont.)

- Run TRSMAIN, a z/OS supplied program, to unpack dataset:

EDI.V3R3M0.SYSMOD.AM86098.TRS

- Sample unpack JCL:

```
//jobcard
//UNPACK EXEC PGM=TRSMAIN,PARM=UNPACK
//SYSPRINT DD SYSOUT=*
//*
//* INPUT FILE TO BE UNPACKED
//INFILE DD DISP=SHR,
// DSN=EDI.V3R3M0.SYSMOD.AM86098.TRS
//*
//* RESULTANT OUTPUT FILE FROM UNPACK
//OUTFILE DD DSN=EDI.V3R3M0.SYSMOD.AM86098,
// UNIT=SYSALLDA,
// DISP=(,CATLG,DELETE),
// SPACE=(0,(5,5,2)),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=0)
//
```



## Download WDI APAR (cont.)

- Resultant dataset  
EDI.V3R3M0.SYSMOD.AM86098 is a Partitioned Data Set (PDS) with two members:
  - ▶ AM86098 is the SMP/E SYSMOD to be applied, and
  - ▶ EDI2XV10 contains sample JCL to run the SMP/E RECEIVE and APPLY commands
- Caution: the APPLY of this SYSMOD will supplant the existing XML Toolkit V1.9 (from a WDI perspective)
  - ▶ WDI will only call XML V1.10 modules; it will no longer call the older XML V1.9 modules
  - ▶ This APPLY does not in any way alter your XML Toolkit installation datasets

# Install WDI APAR SYSMOD



# Install WDI APAR SYSMOD

- Activate WDI V3.3 by using SMP/E to RECEIVE and APPLY this download for SYSMOD AM86098
- Use sample JCL EDI2XV10 to run these SMP/E commands
- This SYSMOD switches WDI V3.3 to instead run with XML Toolkit V1.10
  - ▶ Only those who have already installed XML Toolkit V1.10 should apply AM86098
  - ▶ If V1.10 is not available to the system, all existing Data Transformation jobs (PERFORM TRANSFORM) will fail with error: "CEE3501S The module IXM4C57 was not found."

# Required Changes to WDI Utility JCL



## Required Changes to WDI Utility JCL

- Modify any existing JCL jobs that reference the older V1.9 version of the XML Toolkit
- WDI invokes the Toolkit for any EDIFFUT utility commands involving PERFORM TRANSFORM
  - ▶ This is the case for any Data Transformation (DT) maps, even those not involving XML
- The STEPLIB or JOBLIB concatenation therein must point to the new SIXMLOD1 load library from XML Toolkit V1.10

# Verifying the Installation



# Verifying the Installation

- If you are currently running WDI Data Transformation (DT) maps, use your modified JCL as described earlier as a verification test
- If you are a first time user of DT maps, all WDI documentation is available here:

<http://www.ibm.com/software/integration/wdi/library/pubs/>

- ▶ Refer to “WDI Utility Commands and File Formats Reference” pdf for all PERFORM commands and keywords
- A description of the sample Utility JCL is in the “WDI Programmer’s Reference Guide” Chapter 2, “Using WebSphere Data Interchange in the z/OS environment, Using sample JCL”

## Verifying the Installation (cont.)

- The Programmer's Reference Guide also points to where to get sample JCL, but it would be easier to work from a copy of what you use for a Send map
- For example PERFORM command for ADF to EDI:  
PERFORM TRANSFORM WHERE SYNTAX(D) INFILE(ADFFILE)  
OUTFILE(EDIOUT) DICTIONARY(your\_input\_adf\_dictionary\_name)  
DOCUMENT(your\_input\_data\_format)
- INFILE specifies the DD name for the input file
- OUTFILE specifies the DD name of the output
- DICTIONARY and DOCUMENT must point to your map's Data Format dictionary and Data Format name; respectively

Note: you do need an actual DT map to test – it can be a simple DT map using an existing Send map's Data Format



## Verifying the Installation (cont.)

- Possible error condition if creating a new DT map:
  - ▶ If Dictionary and Document do not exist, you would see RC=8 and this error in DD PRTFILE  
  
FF0608 Severity: 08 An attempt to read data format control string <your\_input\_data\_format> failed
  - ▶ Solution: Verify that DICTONARY and DOCUMENT perform transform parameters refer to an existing data format
  - ▶ If correct, compile your new DT map

Note: execution of the XML Toolkit modules is confirmed even with either of the following RC=8 conditions: “UP0021 Unable to identify the input data record” or “RU0001 No active Rule record was found for the message”

## Verifying the Installation (cont.)

- Alternatively, use the sample DT map, POXML5SR-EDI
- This XML to EDI Data Transformation map is imported during base WDI V3.3 installation
- The following sample JCL includes simple in-stream XML input
  - ▶ Content of in-stream XMLIN DD is case sensitive
- The output EDIOUT DD is written to SYSOUT=\*
- See the WDI V3.3 documentation for a detailed description of the JCL

# Verifying the Installation (cont.)

```
//XDIUTIL EXEC PGM=IKJEFT01,DYNAMNBR=50
//STEPLIB DD DSN=DB2.SDSNLOAD,DISP=SHR
// DD DSN=EDI.V3R3M0.SEDILMD1,DISP=SHR
// DD DSN=EDI.XMLV1R10.SIXMLOD1,DISP=SHR
//SYSTSIN DD *
DSN SYSTEM (DSN)
RUN PROG (EDIFFUT) -
PLAN (EDIENU33) -
PARM('LANGID=ENU SYSID=DIENU APPLID=EDIFFS PLAN=EDIENU33 SYSTEM=DSN')
END
/*
//SYSTSPRT DD SYSOUT=*
//PRTFILE DD SYSOUT=*,DCB=(RECFM=FBA,LRECL=132)
//XMLIN DD *
<?xml version="1.0"?>
<OrderSR>
  <Header typecode="00">
    <PONum>PO12345678901234</PONum>
    <PODate>03232013</PODate>
    <Sender>
      <Id>SenderID</Id>
      <Qualifier>ST</Qualifier>
    </Sender>
    <Receiver>
      <Id>ReceiverID</Id>
      <Qualifier>BT</Qualifier>
    </Receiver>
  </Header>
  <DetailLoop>
    <ItemNumber>89988760964</ItemNumber>
  </DetailLoop>
</OrderSR>
//EDIOUT DD SYSOUT=*,DCB=(RECFM=FBA,LRECL=132)
//FFSEXP DD SYSOUT=*,DCB=(RECFM=FBA,LRECL=132)
//SYSIN DD *
PERFORM TRANSFORM WHERE SYNTAX(X) INFILE(XMLIN) OUTFILE(EDIOUT)
/*
//
```

# Verifying the Installation (cont.)

- Example of expected PRTFILE contents:

```
1Audit Trail Report -DataInterchange Utility- Date: 13/11/18 Time: 09:32:48 Page: 00001
```

```
FF0588 Command: PERFORM TRANSFORM WHERE SYNTAX(X) INFILE(XMLIN) OUTFILE(EDIOUT)
```

```
FF0006 Input File: XMLIN, userid.jobname.JOBnumber.D0000nnn
```

```
Message: RU0003 Severity: 00
```

```
The best rule match for the document was: map name POXML5SR-EDI, sending TP nickname ANY,  
receiving TP nickname ANY, usage indicator P, document POXML5SR, dictionary name TESTS, syntax xml.
```

```
Message: UT0008 Severity: 00
```

```
Map name being processed: POXML5SR-EDI.
```

```
Message: FF0007 Severity: 00
```

```
Data was written to EDIOUT. Message control number or document id was 000000003.
```

```
FF0006 Output File: EDIOUT, userid.jobname.JOBnumber.D0000nnn
```



## Verifying the Installation (cont.)

- Possible error condition:
  - ▶ If the XML Toolkit V1.10 is unavailable to the job, you would see RC=12 and the following error message under DD SYSOUT:

```
CEE3501S The module IXM4C57 was not found. From entry point  
__dllstaticinit at compile unit offset +00000D74 at entry offset  
+00000D74 at address 15A38554.
```

- ▶ And in DD SYSTSPRT:

```
IKJ56641I USER ABEND CODE 4038 REASON CODE 00000001
```

- ▶ Solution: Add SIXMLOD1 from XML Toolkit V1.10 to your JCL JOBLIB or STEPLIB concatenation

## Verifying the Installation (cont.)

- Lastly, even if you have not applied WDI activation SYSMOD AM86098, WDI V3.3 may continue to run successfully with XML Toolkit V1.10
  - ▶ Since the XML Toolkit V1.10 SIXMLOD1 load library includes the older V1.9 modules, such as IXM4C56, no error will be reported

# Back-out Process, if needed

## Back-out Process, if needed

- If you should need to revert WDI back to using XML V1.9, it is necessary to use the SMP/E function to RESTORE the SYSMOD APAR(AM86098)
  - ▶ Note that you will also need to RESTORE UK93215 and UK90326 if these haven't already been ACCEPTed previously since they all contain the EDIXSTUB first introduced in UK90326
  - ▶ If you had previously accepted these two PTFs (UK93215 and UK90326), then you need only to RESTORE AM86098



## Back-out Process, if needed (cont.)

- Sample SMP/E command to RESTORE all three sysmods:

```
//SMPCNTL DD *  
SET BDY(EDITGT) OPTIONS(EDIOPT).  
RESTORE S(  
UK93215,  
UK90326,  
AM86098  
) BYPASS(ID) GROUP COMPRESS(ALL).
```

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