

## Saxon - Bug #4684

### NullPointerException compiling a stylesheet using eXist-DB transform() function

2020-08-14 10:42 - Michael Kay

<b>Status:</b>	Closed	<b>Start date:</b>	2020-08-14
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>	Michael Kay	<b>% Done:</b>	100%
<b>Category:</b>		<b>Estimated time:</b>	0:00 hour
<b>Sprint/Milestone:</b>		<b>Spent time:</b>	0:00 hour
<b>Legacy ID:</b>		<b>Fix Committed on</b>	10, 9.9, trunk
<b>Applies to branch:</b>	10, 9.9, trunk	<b>Branch:</b>	
		<b>Fixed in Maintenance</b>	10.2, 9.9.1.8
		<b>Release:</b>	

#### Description

In private email, Johann Schinnerl reports

```
at org.eclipse.jetty.server.Dispatcher.forward(Dispatcher.java:161) ~[jetty-server-9.4.26.v20200117.jar:9.4.26.v20200117]
at org.eclipse.jetty.server.Dispatcher.forward(Dispatcher.java:79) ~[jetty-server-9.4.26.v20200117.jar:9.4.26.v20200117]
at org.exist.http.urlrewrite.Forward.doRewrite(Forward.java:51) ~[exist-core-5.2.0.jar:5.2.0]
at org.exist.http.urlrewrite.XQueryURLRewrite.doRewrite(XQueryURLRewrite.java:525) ~[exist-core-5.2.0.jar:5.2.0]
at org.exist.http.urlrewrite.XQueryURLRewrite.service(XQueryURLRewrite.java:344) ~[exist-core-5.2.0.jar:5.2.0]
at javax.servlet.http.HttpServlet.service(HttpServlet.java:790) ~[javax.servlet-api-3.1.0.jar:3.1.0]
at org.eclipse.jetty.servlet.ServletHolder$NotAsyncServlet.service(ServletHolder.java:1386) ~[jetty-servlet-9.4.26.v20200117.jar:9.4.26.v20200117]
at org.eclipse.jetty.servlet.ServletHolder.handle(ServletHolder.java:755) ~[jetty-servlet-9.4.26.v20200117.jar:9.4.26.v20200117]
at org.eclipse.jetty.servlet.ServletHandler$CachedChain.doFilter(ServletHandler.java:1617) ~[jetty-servlet-9.4.26.v20200117.jar:9.4.26.v20200117]
at org.eclipse.jetty.websocket.server.WebSocketUpgradeFilter.doFilter(WebSocketUpgradeFilter.java:226) ~[websocket-server-9.4.26.v20200117.jar:9.4.26.v20200117]
at org.eclipse.jetty.servlet.ServletHandler$CachedChain.doFilter(ServletHandler.java:1604) ~[jetty-servlet-9.4.26.v20200117.jar:9.4.26.v20200117]
at org.eclipse.jetty.servlet.ServletHandler.doHandle(ServletHandler.java:545) ~[jetty-servlet-9.4.26.v20200117.jar:9.4.26.v20200117]
at org.eclipse.jetty.server.handler.ScopedHandler.handle(ScopedHandler.java:143) ~[jetty-server-9.4.26.v20200117.jar:9.4.26.v20200117]
at org.eclipse.jetty.security.SecurityHandler.handle(SecurityHandler.java:566) ~[jetty-security-9.4.26.v20200117.jar:9.4.26.v20200117]
at org.eclipse.jetty.server.handler.HandlerWrapper.handle(HandlerWrapper.java:127) ~[jetty-server-9.4.26.v20200117.jar:9.4.26.v20200117]
at org.eclipse.jetty.server.handler.ScopedHandler.nextHandle(ScopedHandler.java:235) ~[jetty-server-9.4.26.v20200117.jar:9.4.26.v20200117]
at org.eclipse.jetty.server.session.SessionHandler.doHandle(SessionHandler.java:1607) ~[jetty-server-9.4.26.v20200117.jar:9.4.26.v20200117]
at org.eclipse.jetty.server.handler.ScopedHandler.nextHandle(ScopedHandler.java:233) ~[jetty-server-9.4.26.v20200117.jar:9.4.26.v20200117]
at org.eclipse.jetty.server.handler.ContextHandler.doHandle(ContextHandler.java:1297) ~[jetty-server-9.4.26.v20200117.jar:9.4.26.v20200117]
at org.eclipse.jetty.server.handler.ScopedHandler.nextScope(ScopedHandler.java:188) ~[jetty-server-9.4.26.v20200117.jar:9.4.26.v20200117]
at org.eclipse.jetty.servlet.ServletHandler.doScope(ServletHandler.java:485) ~[jetty-servlet-9.4.26.v20200117.jar:9.4.26.v20200117]
at org.eclipse.jetty.server.session.SessionHandler.doScope(SessionHandler.java:1577) ~[jetty-server-9.4.26.v20200117.jar:9.4.26.v20200117]
at org.eclipse.jetty.server.handler.ScopedHandler.nextScope(ScopedHandler.java:186) ~
```

```

[jetty-server-9.4.26.v20200117.jar:9.4.26.v20200117]
    at org.eclipse.jetty.server.handler.ContextHandler.doScope(ContextHandler.java:1212)
~[jetty-server-9.4.26.v20200117.jar:9.4.26.v20200117]
    at org.eclipse.jetty.server.handler.ScopedHandler.handle(ScopedHandler.java:141) ~[je
etty-server-9.4.26.v20200117.jar:9.4.26.v20200117]
    at org.eclipse.jetty.server.handler.ContextHandlerCollection.handle(ContextHandlerCol
lection.java:221) ~[jetty-server-9.4.26.v20200117.jar:9.4.26.v20200117]
    at org.eclipse.jetty.server.handler.HandlerCollection.handle(HandlerCollection.java:1
46) ~[jetty-server-9.4.26.v20200117.jar:9.4.26.v20200117]
    at org.eclipse.jetty.server.handler.gzip.GzipHandler.handle(GzipHandler.java:767) ~[j
etty-server-9.4.26.v20200117.jar:9.4.26.v20200117]
    at org.eclipse.jetty.server.handler.HandlerWrapper.handle(HandlerWrapper.java:127) ~[
jetty-server-9.4.26.v20200117.jar:9.4.26.v20200117]
    at org.eclipse.jetty.server.Server.handle(Server.java:500) ~[jetty-server-9.4.26.v202
00117.jar:9.4.26.v20200117]
    at org.eclipse.jetty.server.HttpChannel.lambda$handle$1(HttpChannel.java:383) ~[jetty
-server-9.4.26.v20200117.jar:9.4.26.v20200117]
    at org.eclipse.jetty.server.HttpChannel.dispatch(HttpChannel.java:547) [jetty-server-
9.4.26.v20200117.jar:9.4.26.v20200117]
    at org.eclipse.jetty.server.HttpChannel.handle(HttpChannel.java:375) [jetty-server-9.
4.26.v20200117.jar:9.4.26.v20200117]
    at org.eclipse.jetty.server.HttpConnection.onFillable(HttpConnection.java:270) [jetty
-server-9.4.26.v20200117.jar:9.4.26.v20200117]
    at org.eclipse.jetty.io.AbstractConnection$ReadCallback.succeeded(AbstractConnection.
java:311) [jetty-io-9.4.26.v20200117.jar:9.4.26.v20200117]
    at org.eclipse.jetty.io.FillInterest.fillable(FillInterest.java:103) [jetty-io-9.4.26
.v20200117.jar:9.4.26.v20200117]
    at org.eclipse.jetty.io.ChannelEndPoint$2.run(ChannelEndPoint.java:117) [jetty-io-9.4
.26.v20200117.jar:9.4.26.v20200117]
    at org.eclipse.jetty.util.thread.QueuedThreadPool.runJob(QueuedThreadPool.java:806) [
jetty-util-9.4.26.v20200117.jar:9.4.26.v20200117]
    at org.eclipse.jetty.util.thread.QueuedThreadPool$Runner.run(QueuedThreadPool.java:93
8) [jetty-util-9.4.26.v20200117.jar:9.4.26.v20200117]
    at java.lang.Thread.run(Thread.java:748) [?:1.8.0_222-4-redhat]
Caused by: java.lang.NullPointerException
    at net.sf.saxon.functions.SystemProperty.getProperty(SystemProperty.java:129) ~[saxon
9pe.jar:?]
    at net.sf.saxon.functions.SystemProperty.call(SystemProperty.java:86) ~[saxon9pe.jar:
?]
    at net.sf.saxon.functions.SystemProperty.call(SystemProperty.java:31) ~[saxon9pe.jar:
?]
    at net.sf.saxon.expr.FunctionCall.iterate(FunctionCall.java:532) ~[saxon9pe.jar:?]
    at net.sf.saxon.expr.Expression.evaluateItem(Expression.java:846) ~[saxon9pe.jar:?]
    at net.sf.saxon.expr.parser.Evaluator$6.evaluate(Evaluator.java:213) ~[saxon9pe.jar:?]
]
    at net.sf.saxon.expr.SystemFunctionCall.evaluateArguments(SystemFunctionCall.java:446
) ~[saxon9pe.jar:?]
    at net.sf.saxon.expr.FunctionCall.iterate(FunctionCall.java:530) ~[saxon9pe.jar:?]
    at net.sf.saxon.style.UseWhenFilter.evaluateStatic(UseWhenFilter.java:666) ~[saxon9pe
.jar:?]
    at net.sf.saxon.style.UseWhenFilter.processStaticVariable(UseWhenFilter.java:376) ~[s
axon9pe.jar:?]
    at net.sf.saxon.style.UseWhenFilter.startElement(UseWhenFilter.java:209) ~[saxon9pe.j
ar:?]
    at net.sf.saxon.event.StartTagBuffer.startContent(StartTagBuffer.java:246) ~[saxon9pe
.jar:?]
    at net.sf.saxon.event.ProxyReceiver.startContent(ProxyReceiver.java:177) ~[saxon9pe.j
ar:?]
    at net.sf.saxon.event.ProxyReceiver.startContent(ProxyReceiver.java:177) ~[saxon9pe.j
ar:?]
    at net.sf.saxon.event.ReceivingContentHandler.startElement(ReceivingContentHandler.ja
va:446) ~[saxon9pe.jar:?]
    at org.exist.util.serializer.ReceiverToSAX.startElement(ReceiverToSAX.java:105) ~[exi
st-core-5.2.0.jar:5.2.0]
    at org.exist.storage.serializers.XIncludeFilter.startElement(XIncludeFilter.java:233)
~[exist-core-5.2.0.jar:5.2.0]
    at org.exist.storage.serializers.NativeSerializer.serializeToReceiver(NativeSerialize

```

```
r.java:271) ~[exist-core-5.2.0.jar:5.2.0]
    at org.exist.storage.serializers.NativeSerializer.serializeToReceiver(NativeSerialize
r.java:273) ~[exist-core-5.2.0.jar:5.2.0]
    at org.exist.storage.serializers.NativeSerializer.serializeToReceiver(NativeSerialize
r.java:130) ~[exist-core-5.2.0.jar:5.2.0]
    at org.exist.storage.serializers.Serializer.toSAX(Serializer.java:856) ~[exist-core-5
.2.0.jar:5.2.0]
    at org.exist.xslt.StylesheetResolverAndCompiler.compileTemplates(StylesheetResolverAn
dCompiler.java:149) ~[exist-core-5.2.0.jar:5.2.0]
    at org.exist.xslt.StylesheetResolverAndCompiler.templates(StylesheetResolverAndCompil
er.java:99) ~[exist-core-5.2.0.jar:5.2.0]
    at org.exist.xslt.StylesheetResolverAndCompiler.newTransformerHandler(StylesheetResol
verAndCompiler.java:127) ~[exist-core-5.2.0.jar:5.2.0]
    at org.exist.xquery.functions.transform.Transform.createHandler(Transform.java:384) ~
[exist-core-5.2.0.jar:5.2.0]
    ... 74 more
```

Johann Schinnerl

to which I responded

Well, it certainly takes us a big step forward, but it doesn't actually solve it.

At the time of the crash, we're evaluating a call on the `system-property()` function that appears probably in the select expression of a static variable. The code in question is

```
Configuration config = rsc.getConfiguration();
String edition = rsc.getPackageData().getTargetEdition();
where rsc is the RetainedStaticContext of the expression (the function call), and it's telling us
that the RetainedStaticContext exists but has no PackageData. Now we have to work out why, which a
in't easy.
```

The line numbers in `UseWhenFilter` are slightly out from my version; the commit log points to bugs 4326 and 4546, but neither seems directly relevant.

The stack trace shows

```
at net.sf.saxon.event.ProxyReceiver.startContent(ProxyReceiver.java:177) ~[saxon9pe.jar:?]
    at net.sf.saxon.event.ReceivingContentHandler.startElement(ReceivingContentHandler.ja
va:446) ~[saxon9pe.jar:?]
    at org.exist.util.serializer.ReceiverToSAX.startElement(ReceiverToSAX.java:105) ~[exi
st-core-5.2.0.jar:5.2.0]
    at org.exist.storage.serializers.XIncludeFilter.startElement(XIncludeFilter.java:233)
    ~[exist-core-5.2.0.jar:5.2.0]
    at org.exist.storage.serializers.NativeSerializer.serializeToReceiver(NativeSerialize
r.java:271) ~[exist-core-5.2.0.jar:5.2.0]
```

which implies that the stylesheet content is being piped directly into Saxon via SAX events, and this suggests that the initialization is incomplete in some way. I guess the most likely way they do this is via the JAXP `TemplatesHandler` interface. The `TemplatesHandlerImpl` initialization does

```
UseWhenFilter useWhenFilter = new UseWhenFilter(compilation, builder, NestedIntegerValue.TWO);
```

The third argument is the import precedence and I've no idea why this is set to 2! But this doesn't feel relevant.

More to the point, the "compilation" object that's being passed in here doesn't have its `PackageData` initialized and this could well account for the subsequent NPE. So I guess I need to do some tests of the JAXP `TemplatesHandler` using 3.0 constructs that access package data.

I'll raise an issue.

Michael Kay Saxonica

reported against 9.9.1.5

## History

**#1 - 2020-08-17 00:37 - Michael Kay**

Created a new JUnit test JAXPTests/TemplateHandlerTest/testTemplateHandlerStaticExpressions which reproduces the problem (thereby confirming that the problem is with TemplateHandler and static context).

**#2 - 2020-08-17 00:40 - Michael Kay**

Adding the line

```
compilation.setMinimalPackageData();
```

to the initialization of TemplateHandlerImpl fixes the issue.

**#3 - 2020-08-17 00:44 - Michael Kay**

- Status changed from New to Resolved
- Applies to branch 10, trunk added
- Fix Committed on Branch 10, 9.9, trunk added

Patch committed

**#4 - 2020-08-26 10:23 - O'Neil Delpratt**

- % Done changed from 0 to 100
- Fixed in Maintenance Release 10.2 added

Bug fix applied in the Saxon 10.2 maintenance release.

**#5 - 2020-10-22 18:17 - O'Neil Delpratt**

- Status changed from Resolved to Closed
- Fixed in Maintenance Release 9.9.1.8 added

Bug fix applied on the Saxon 9.9.1.8 maintenance release.