



IBM Software Group

IBM® Rational® Application Developer V6

XSLT Debugger



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Goals

- Provide a brief overview on XSL Transformations (XSLT)
- Describe enhancements made to XSLT debugging

Agenda

- Overview
- XSLT Debugging Enhancements
- Troubleshooting
- Limitations

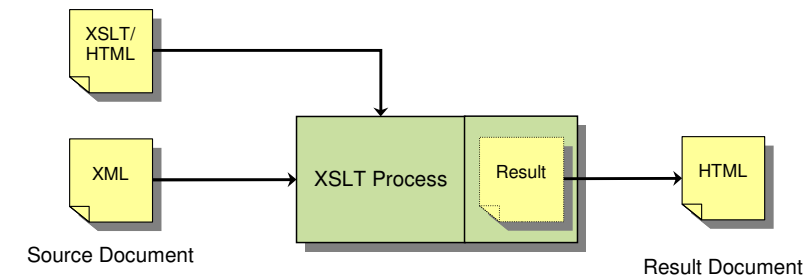
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XSLT Debugging Enhancements

Overview

- XSL Transformations (XSLT) - language for transforming XML documents into other XML documents
 - ▶ XPath (XML Path Language) used in matching parts of the source XML document with one or more predefined templates in the transformation script
 - ▶ Example – XSLT can be used to transform an XML document into an HTML document

Transformation Script



XSLT Debugging

- Debugger implemented using Eclipse Debug Framework
 - ▶ Similar look & feel to other debuggers
 - ▶ Set breakpoints in code
 - ▶ Single step through code
 - ▶ XSLT Context View
- Transformations can be debugged even when source is in DOM (Document Object Model) or SAX (Simple API for XML) format
- Supports XSL Transformations (XSLT) Version 1.0 (<http://www.w3.org/TR/xslt>)

Launch Configurations

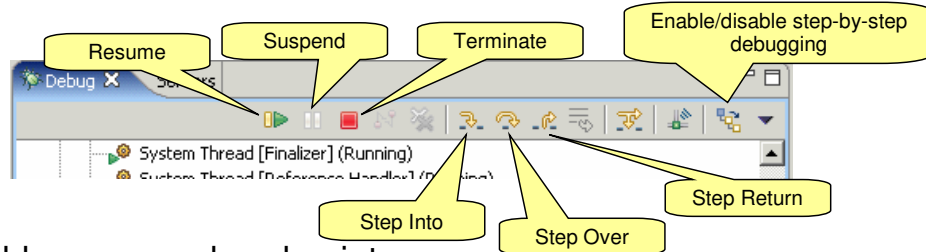
- Stand-alone XSL Transformations
 - ▶ Apply XSL directly to a single XML file
 - Able to step into Java™ extensions called from the transformation
 - ▶ Allows user to verify transformations outside of a complex environment
- Mixed language transformations
 - ▶ Use when debugging Java to XSLT or XSLT involving Java extensions
 - ▶ Allows user to debug transformations in real world scenarios

New Preferences

- Node-by-node stepping
 - ▶ Allows user to step between nodes that appear on the same line (disabled by default)
- Built-in template rules filter
 - ▶ Causes the debugger to step over built-in template rules (enabled by default)
 - ▶ Built-in rules are still displayed on call stack
- Step-by-step debugging for XSLT
 - ▶ Allows step-by-step functionality to additionally work with XSLT debugging (disabled by default)

Debugging Activities

- Iterate through XSLT using standard debugging operations



- Add or remove breakpoints
 - ▶ Set in both the XSL source and the XML input
- Set watches on XPath expressions
- View XSLT processor execution using XSLT Context view
- View XSLT output using XSL Transformation Output view

Setting Breakpoints

- XSL files
 - ▶ Can be set anywhere between opening and closing template tags
- XML files
 - ▶ Must be set on the line containing the closing “>” of either the opening tag or the closing tag of an element
- Breakpoints set in files generated by the transformation are not persisted between debug sessions

XSLT Context View

- Visualizes XSLT processor's execution
- Enables users to debug XPath expressions

MyXSL.xsl

```
<?xml version="1.0" encoding="UTF-8"?>
<catalog>
  <cd>
    <title>Empire Burlesque</title>
    <artist>Bob Dylan</artist>
  </cd>
  ...
</catalog>
```

CDCollection.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<catalog>
  <cd>
    <title>Empire Burlesque</title>
    <artist>Bob Dylan</artist>
  </cd>
  ...
</catalog>
```

XPath expression used

XML file being transformed

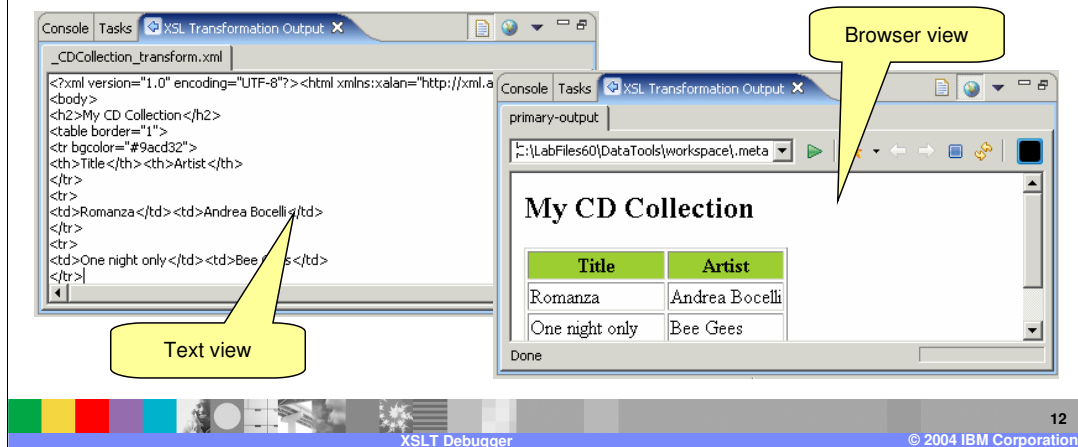
Verify XPath expression selects the nodes that you were expecting

| Index | Node | Location |
|-------|------|------------------------------|
| 9 | cd | CDCollection.xml [line: 67] |
| 10 | cd | CDCollection.xml [line: 75] |
| 11 | cd | CDCollection.xml [line: 83] |
| 12 | cd | CDCollection.xml [line: 91] |
| 13 | cd | CDCollection.xml [line: 99] |
| 14 | cd | CDCollection.xml [line: 107] |
| 15 | cd | CDCollection.xml [line: 115] |
| 16 | cd | CDCollection.xml [line: 123] |
| 17 | cd | CDCollection.xml [line: 131] |

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XSL Transformation Output View

- View output from transformation in either a text or web browser viewer
- Supports Xalan redirect extension



Demo: Debug a Stand-alone XSL Transformation

- Enable XML Development capabilities
- Create a XSL Transformation launch configuration
- Debug XSL transformation
 - ▶ Use debug operations
 - ▶ XSLT Context view
 - ▶ XSL Transformation Output view



Troubleshooting

- Verify launch configuration problems by checking the configuration's properties
 - ▶ Edit Launch Configuration properties through Run > Debug...
- Tracing for XSLT debugging can be enabled by modifying the .options file in
 - ▶ *ROOT_DIR*\rwd\eclipse\plugins\com.ibm.debug.xsl_6.0.0
- Increase debugger timeout values if timeout errors occur
 - ▶ Configure through Window > Preferences > Java > Debug

Troubleshooting

- Verify problems encountered when debugging Java in Mixed Language debugger also occur in Java debugger
 - ▶ Mixed Language debugger is based on Java debugger
- Verify Java process used to launch transformation has correct arguments
 - ▶ View JVM launch properties by right-clicking on the process in Debug view and selecting Properties
- XML Capabilities need to be enabled in order to use XSLT debugging functionality
 - ▶ Configure through Window > Preferences > Workbench > Capabilities

Limitations

- XSLT debugging requires IBM JRE 1.4.2 with XSLT4J 2.6.2 or higher (default that ships with IBM Rational Application Developer 6.0)
 - ▶ Enter “java org.apache.xalan.Version” on the command line to print the Xalan version
- Watch expressions do not work for XSLT variables
 - ▶ Watches can be for XPath expressions
- See Application Developer’s README for more information

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Summary and Reference

Summary

- Application Developer allows you to debug many different languages and environments
- XSLT debugger now utilizes Eclipse Debug Framework
 - ▶ Debugger now has a similar user interface design to the rest of debuggers in Application Developer

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