BPM OpenMic

Hot Spot Issue in WebSphere Integration Developer (WID) –
troubleshooting and best practices

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Agenda

- **WID Performance Tuning**
  - -- JVM Tuning
  - -- Tips And Tricks For Improving Performance
  - -- Best Practices

- **XML Mapping in WebSphere Integration Developer V7**
  - -- Mapping refinements
  - -- New features

- **How To Use ClearCase in WID**
  - -- Installation
  - -- Configuration
  - -- Best Practices

- **FAQ**
  - -- FAQs of WebSphere Integration Developer V7

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WebSphere Integration Developer V7.0

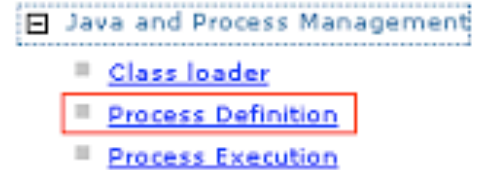| Linux on Intel	

Linux on Intel	• Intel Pentium III processor at 1GHz or faster
	• Minimum 2 GB physical memory (3 GB physical memory is recommended)
	• Minimum disk space requirements (including temporary disk space during installation):
	   ○ 2.34 GB for a default installation;
	   ○ 5.28 GB for a default installation and WebSphere test environment;
	   ○ 8.92 GB for a full installation (including all optional features).
	• Minimum 1024 x 768 display resolution (1280 x 1024 is recommended)

Windows	• Intel Pentium III processor at 1GHz or faster
	• Minimum 2 GB physical memory (3 GB physical memory is recommended)
	• Minimum disk space requirements (including temporary disk space during installation):
	   ○ 2.46 GB for a default installation;
	   ○ 5.45 GB for a default installation and WebSphere test environment;
	   ○ 13.05 GB for a full installation (including all optional features).
	• Minimum 1024 x 768 display resolution (1280 x 1024 is recommended)

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JVM Tuning

Welcome

⊞ Guided Activities

⊟ Servers
   ▪ Application servers
   ▪ Web servers
   ▪ WebSphere MQ servers

- **Eclipse.ini**
  -- Xmx parameter
  -- Xgcpolicy:optavpause

- **Increase UTE Heapsize**
  -- Using Verbosegc data
  -- Set the maximum heapsize so that the server remains about 50% empty during a steady state

- **Note**
  -- For a 32-bit system, the Java Virtual Machine heap size is limited to 1.5GB on Windows and 2.5 GB on AIX
  -- Restart WID or WPS test server to release the memory back to the operating system

Server Infrastructure

⊟ Java and Process Management
   ▪ Class loader
   ▪ Process Definition
   ▪ Process Execution

Additional Properties
   ▪ Java Virtual Machine
   ▪ Environment Entries
   ▪ Process Execution
   ▪ Process Logs
   ▪ Logging and Tracing

Initial Heap Size

Maximum Heap Size

Task Manger

- Javaw.exe --- WID
- Java.exe --- Test Server

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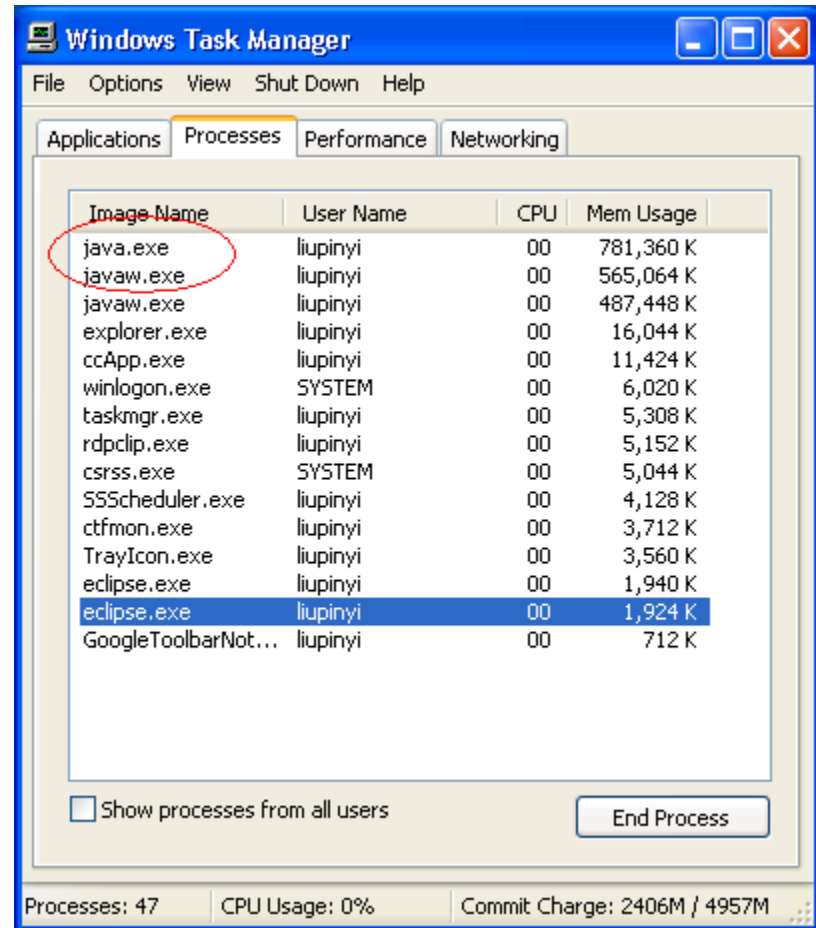
Validation

- Running all of the validators all of the time is a reasonably expensive operation

- In particular

    -- The JSP Compilation Validator is quite expensive to run.

    -- The XML Validator can be expensive to run if it is referencing DTDs or XML schemas on external servers.
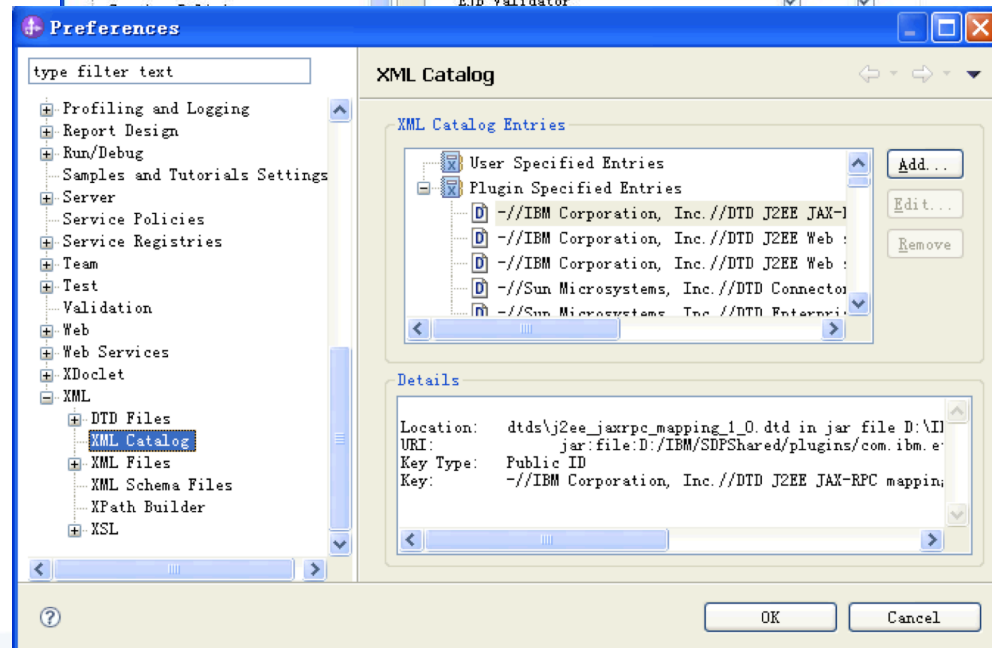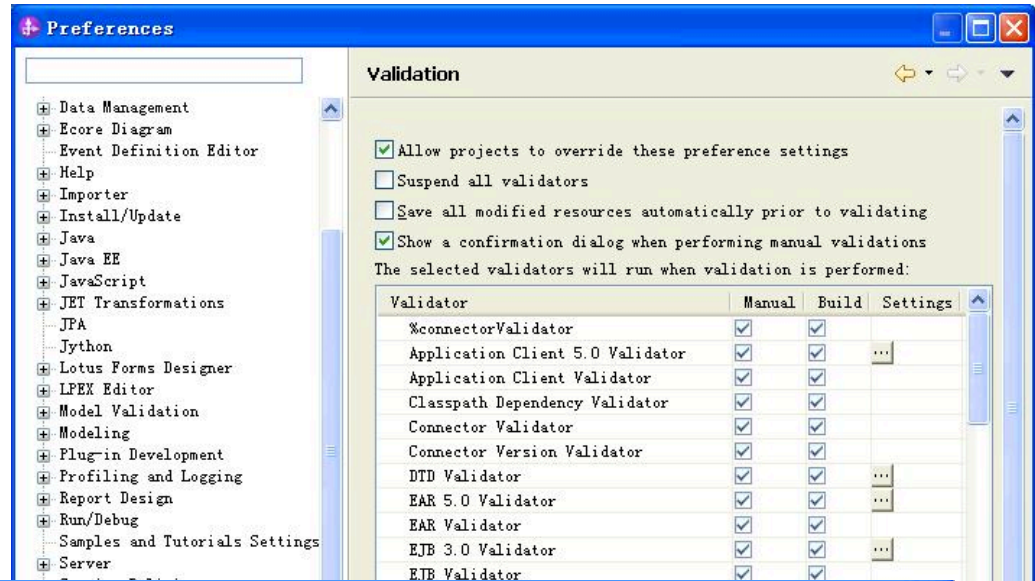
Build automatically and Refresh workspace automatically

- Turning auto build off will improve the performance of your save operations

- Turning Refresh workspace automatically on will start a background process that searches for changes
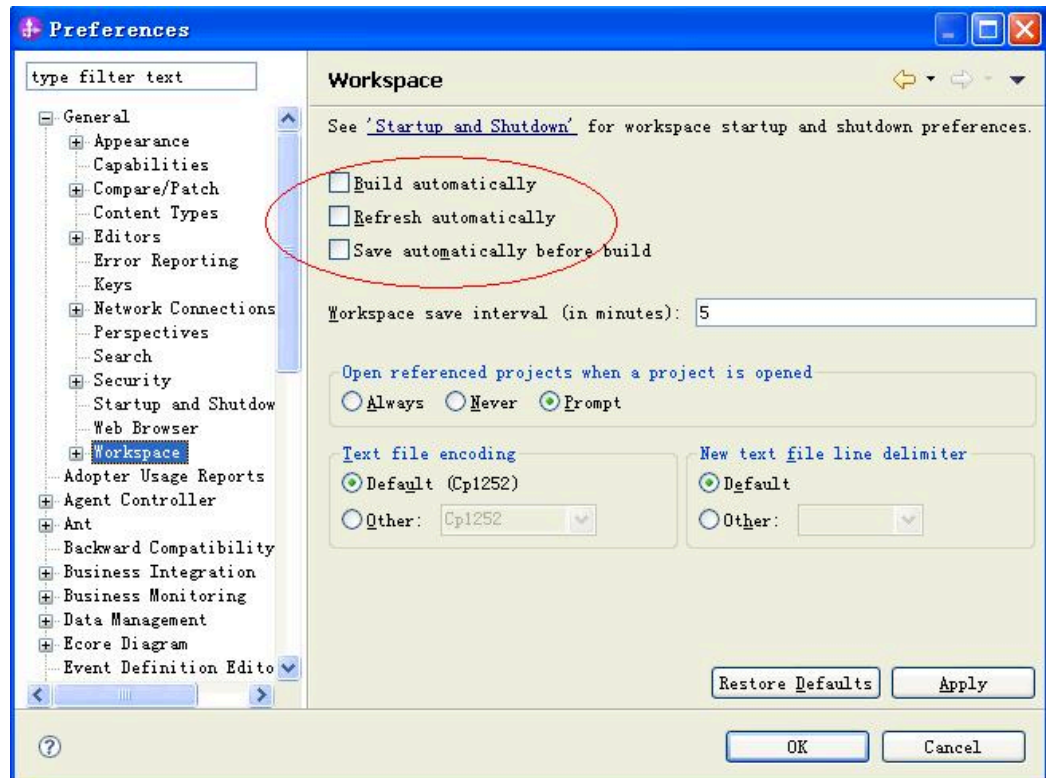
Best Practices

- **Open views**
- **Closing Projects**
- **Label Decorators**
- **Quick Diff**
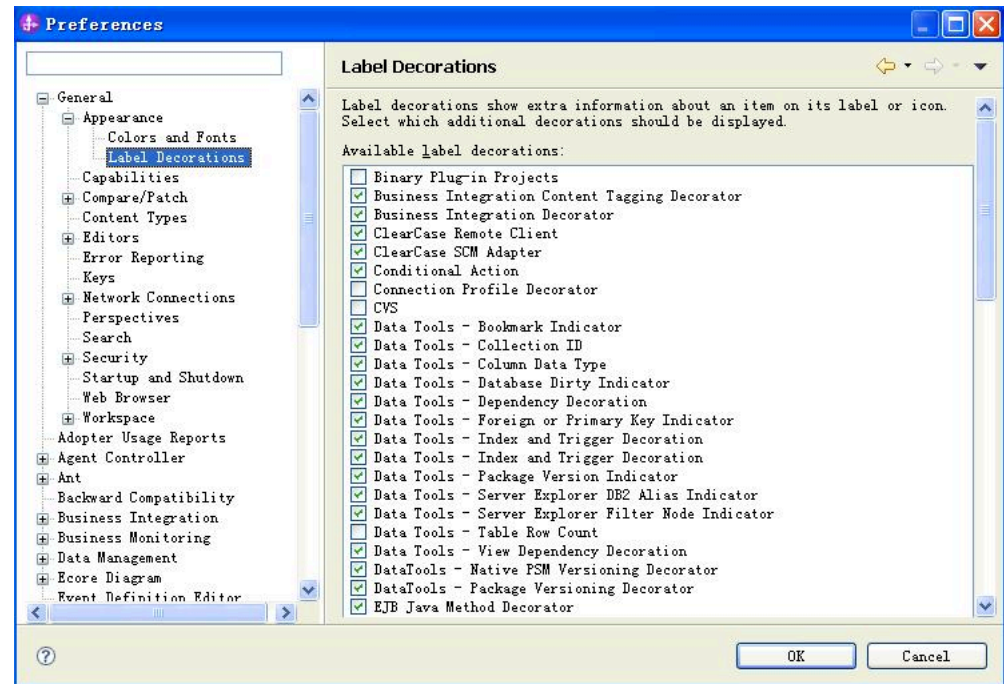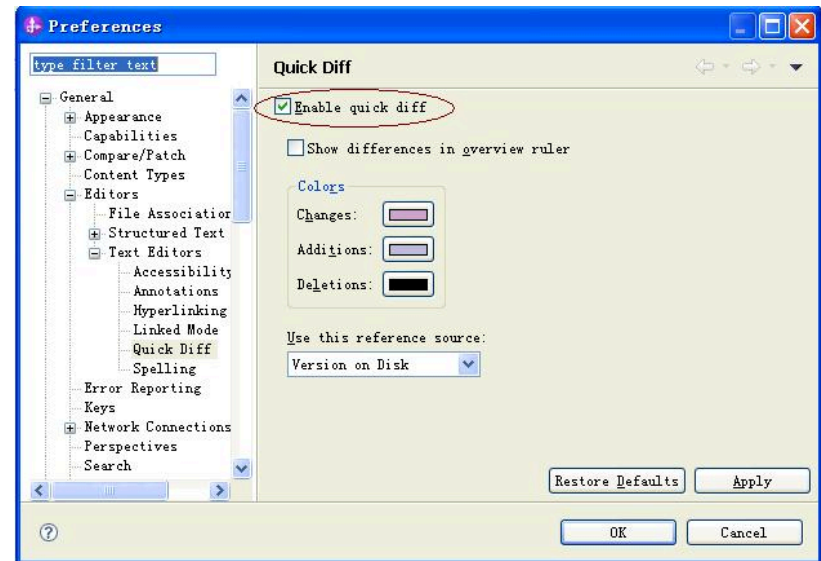
Best Practices

- **Defragmenting periodically post WID installation is recommended**

- **Separating WID & WPS startup**

Known Issue

- Building workspace in WID V7.0, V7.0.0.1 may take really long time

- It caused by the wrong extension generated in *.bpelex files

- It also makes BPEL editor could not be opened

- Problem has been resolved in WID V7.0.0.2

Building Workspace

Operation in progress...

Using command 'BPEL Validation Command' to process '/TestModule/.classpath'

☐ Always run in background

[Run in Background] [Cancel] [Details >>]

```
<extensions>
  <extendedObject href="Update.bpel#//@variables/@children.0"/>
  <extensionObject xsi:type="com.ibm.wbit.bpel.ui.uiextensionmodel:VariableExtension"/>
</extensions>
```

Update.bpel
Update.bpelex
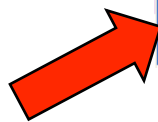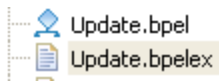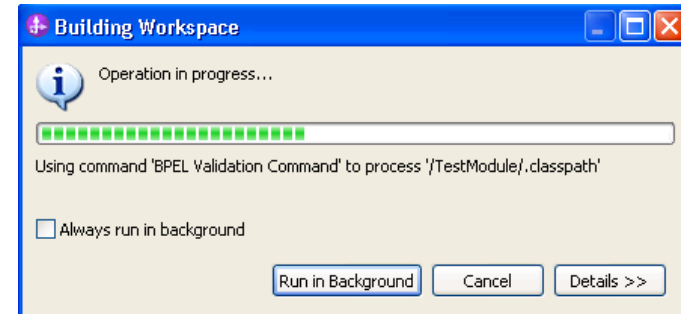
```
<extensions>
  <extendedObject href="file:/D:/cc_views/UPA_Process/mda/edc/process/Update.bpel
  <extensionObject xsi:type="com.ibm.wbit.bpel.ui.uiextensionmodel:ActivityExtens
</extensions>
```

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XML Map

- New Data Map Wizard coverage the business object map and XML map wizards
- XML Map now available in BPEL as Data Map activity
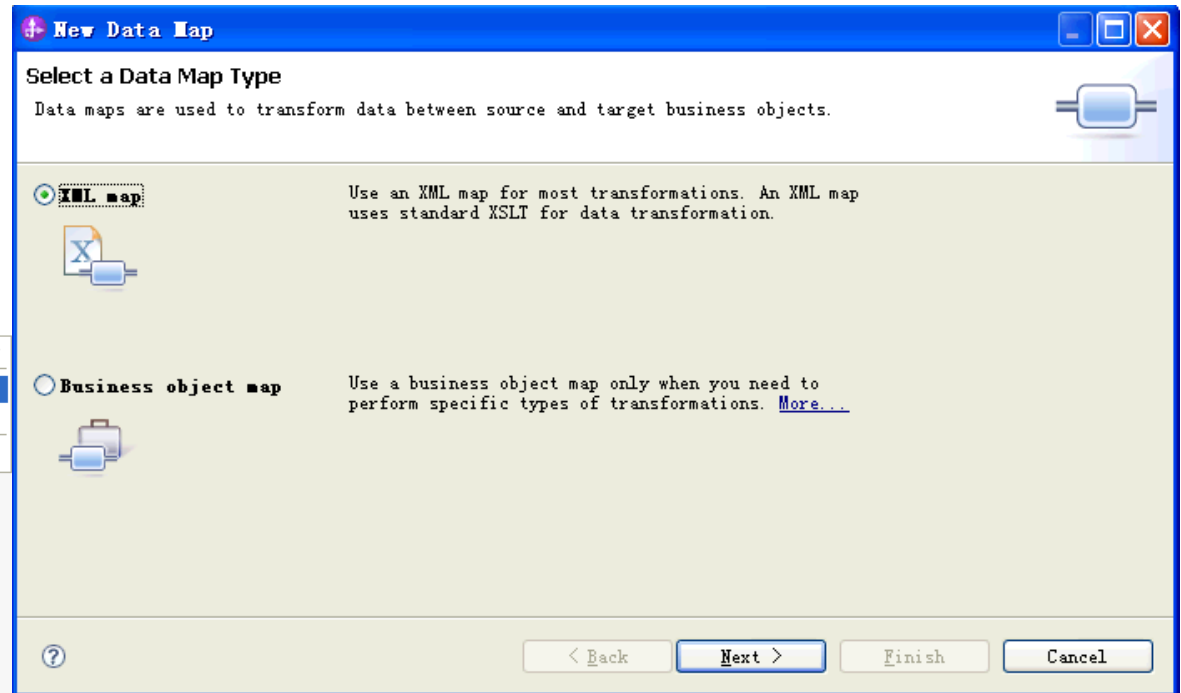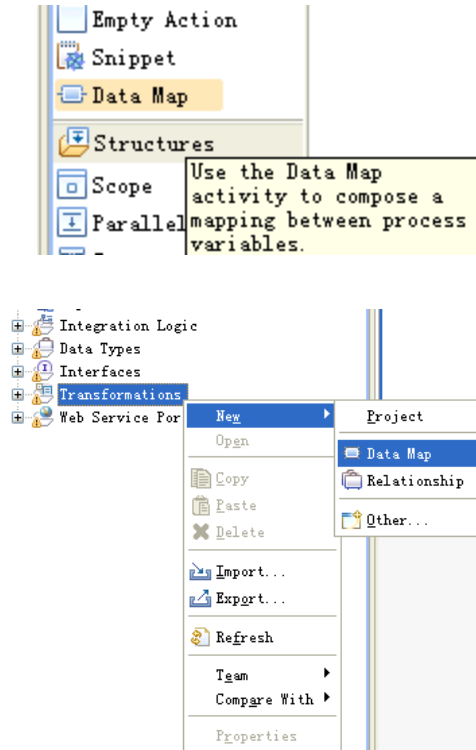
Choosing a mapping root

- Allow to choose any one section of the SMO as a root
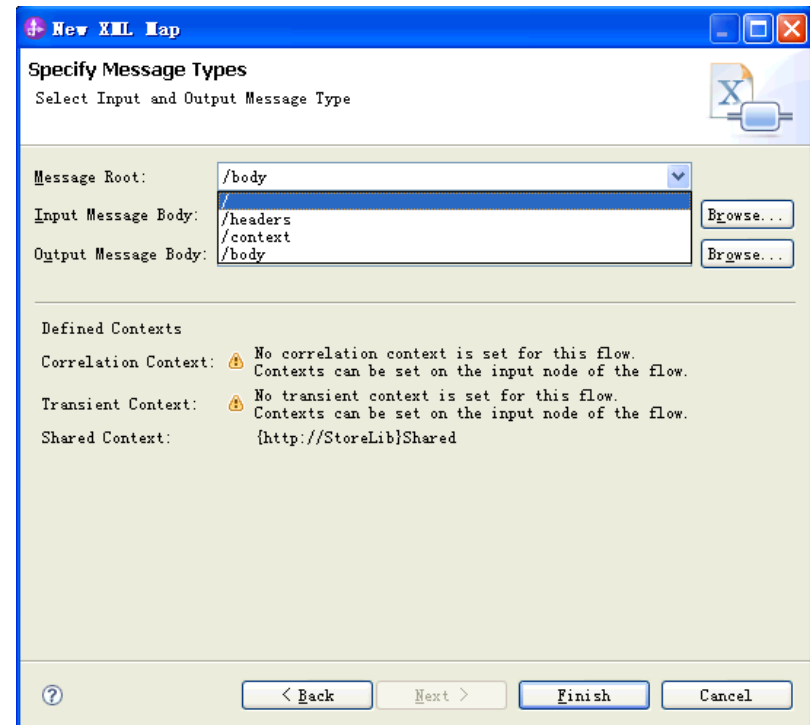
Basic Refinement

- Move
- Assign
- Convert

  -- New in WID V7

  -- The Convert refinement is used to do simple conversions between simple data types.

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Local map

- A Local map is a tool for organizing a mapping file

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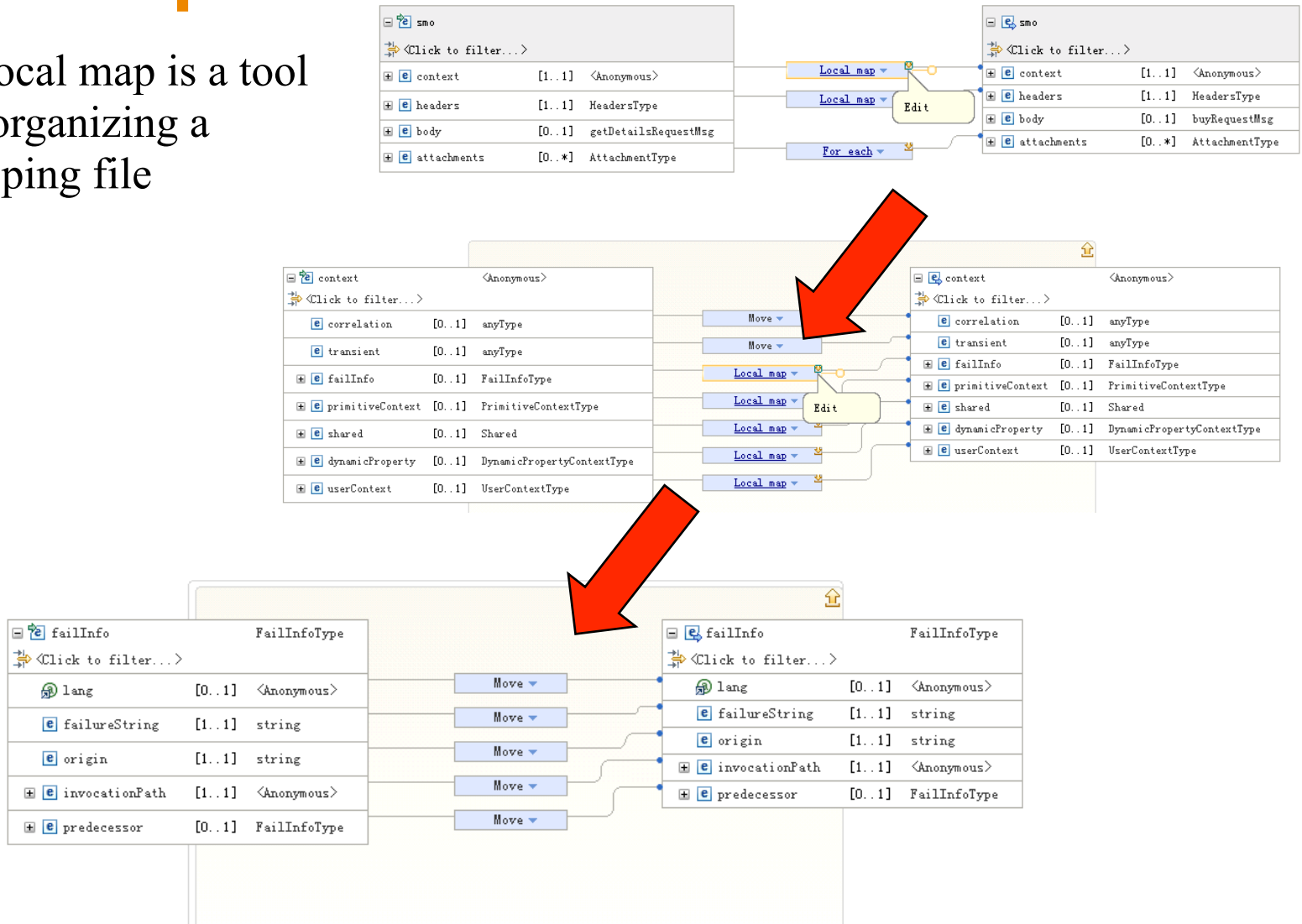
Submap

- A Submap refinement is a mapping between two specific types that is stored in a separate file

- Submaps are designed for re-use

- Limitations: Submap transforms cannot exist between inputs or outputs that involve anonymous complex types.

Submap

- **To Extract In-lined Business Objects**
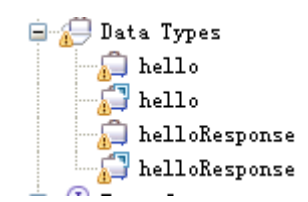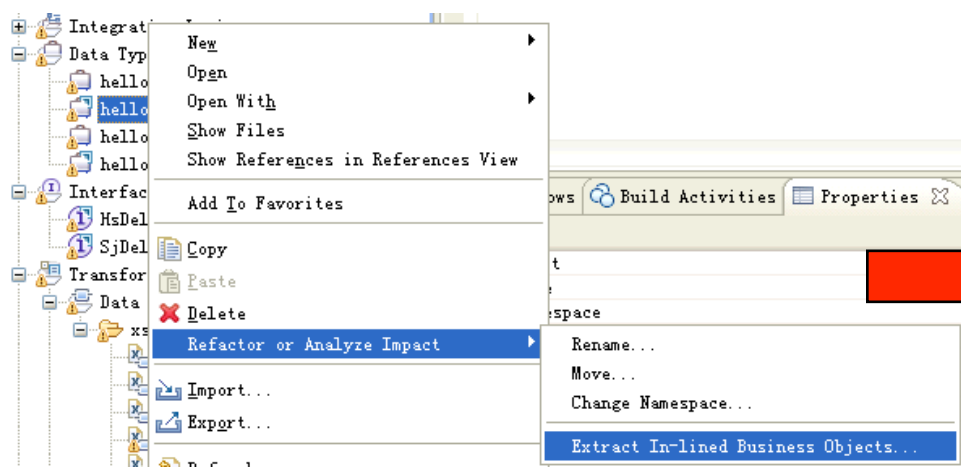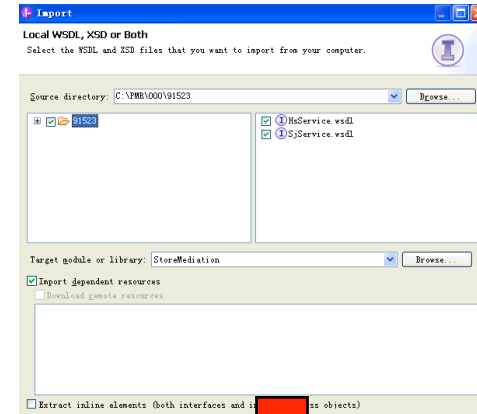
If, Else if, and Else refinements

- Provide ability to make logic decisions in map

- WID 6201 only supported "if" condition. Now support if, else if, and else conditions

If, Else if, and Else refinements

- All target connections within the grouping of If, Else if, and Else refinements must target sibling elements on the target data structure

- Unrelated transform outputs cannot exist within the output scope of the conditional transformation group
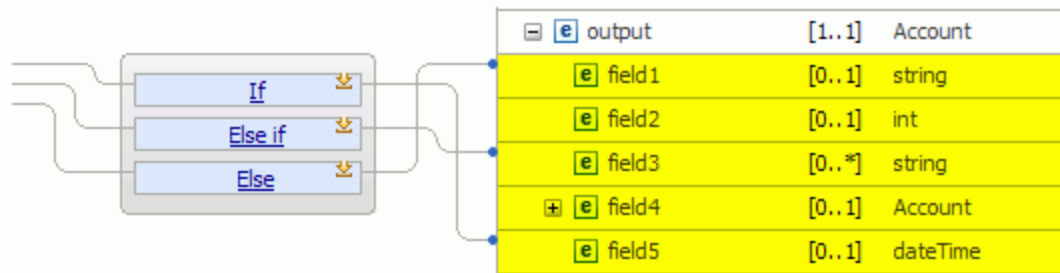
Built-in functions

- The built-in function support has been greatly expanded in version 7
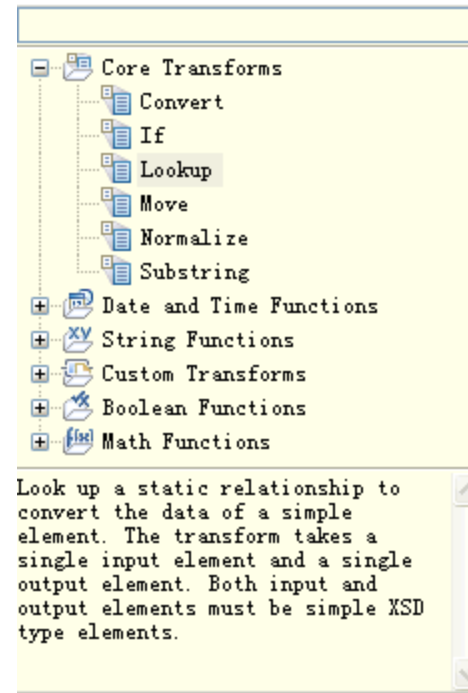
Built In Functions

- Provide first class property pages for date formatting, concat, substring

Built In Functions

- XPath and EXSLT Java functions

- Grouped under String, Math, Boolean, and Data and Time categories

- F1 to xpath 1.0 specs and EXLST functions in Apache

- String Functions: contains, format-number, local-name, name, namespace-uri, starts-with, string, string-length, substring, substring-after, substring-before, system-property, translate, align, array concat, and padding.

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Built In Functions

- Math Functions

  ceiling, count, floor, number, round, sum, abs, acos, asin, atan, atan2, constant, cos, exp, log, max, min, power, random, sin, sqrt, and tan

- Boolean Functions

  boolean, false, lang, not, and true

- Datetime Functions

  date, dateTime, dayAbbreviation, dayInMonth, dayInWeek, dayInYear, dayName, dayOfWeekInMonth, Formate date, hourInDay, leapYear, minuteInHour, monthAbbreviation, monthInYear, monthName, secondInMinute, time, weekInYear, and year

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Lookup Functions

- Enable to lookup a key from a file and return the specific value

- 3 new lookup functions
  - Comma-Separated Values (CSV)
    - Properties File
      - Custom Function Engine

- Previously, only relationship Lookup

Lookup Functions

Working with arrays

- It's not recommend to directly map children of an array element without using a For-each on the parent array.
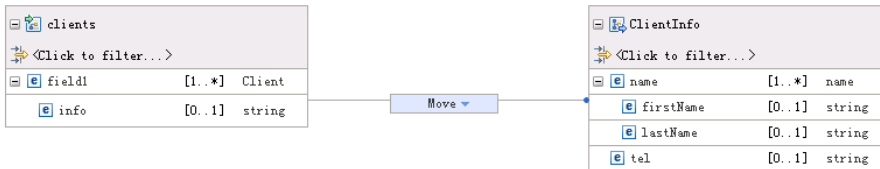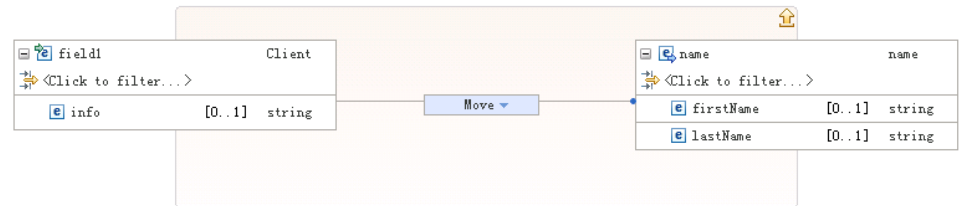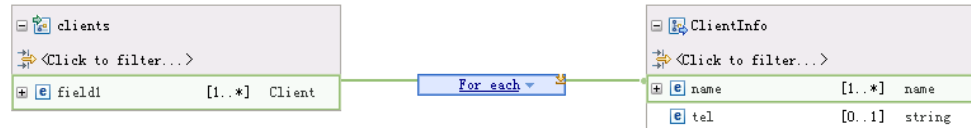
Merge Function

- Allow to merge two or more arrays from the source into a single array on the target
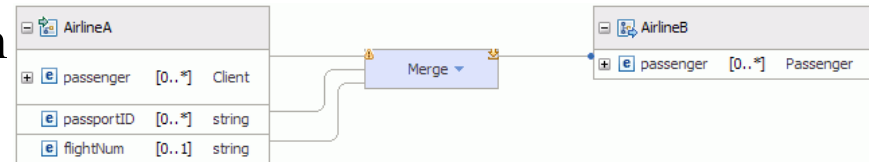- Merge transform is a container mapping

Append Function

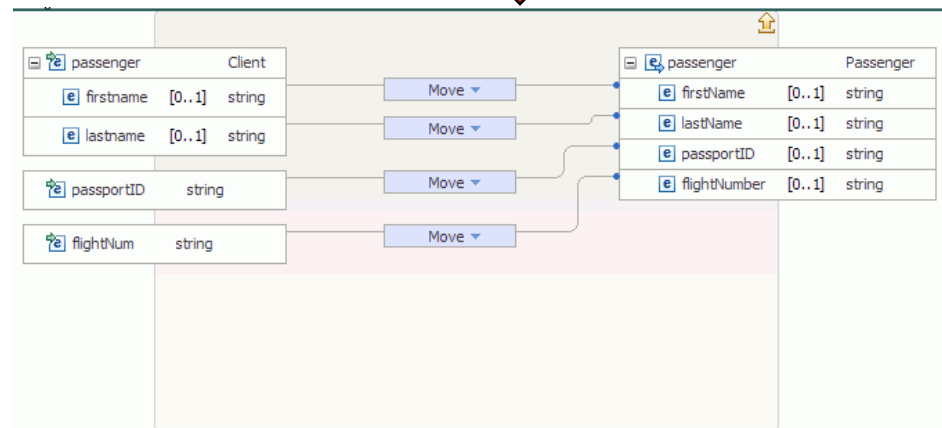- Enable Two or more input arrays be appended to produce one output array
- Append transform is a container mapping
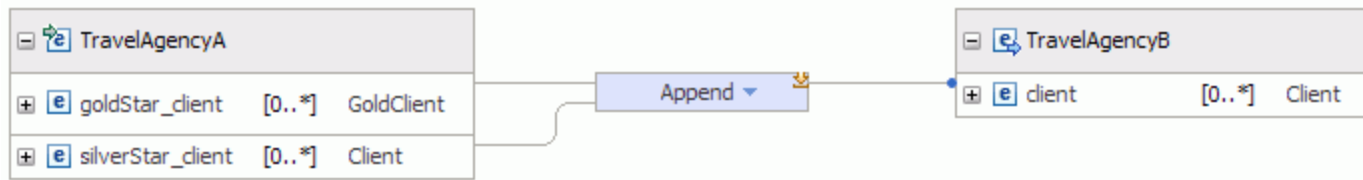
Working with derived types defined through extension and restriction

- Cast a selected type to a derived type

- Some conventions:

  Once a source or target element has been cast to derived types, it's recommend to create mappings to and from the derived types and not to the base type

  On the target, always create mappings to the top level of the optional element
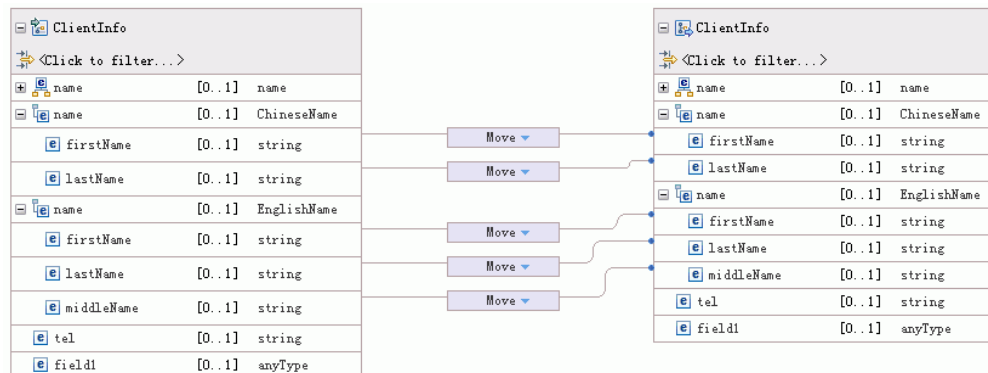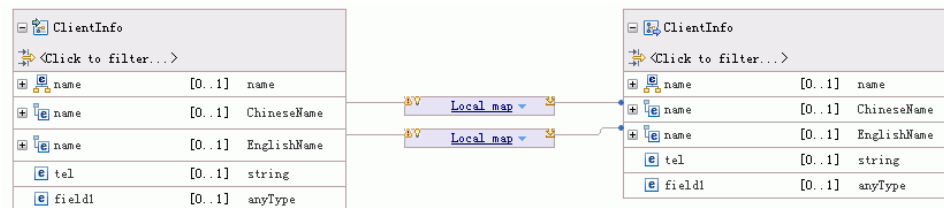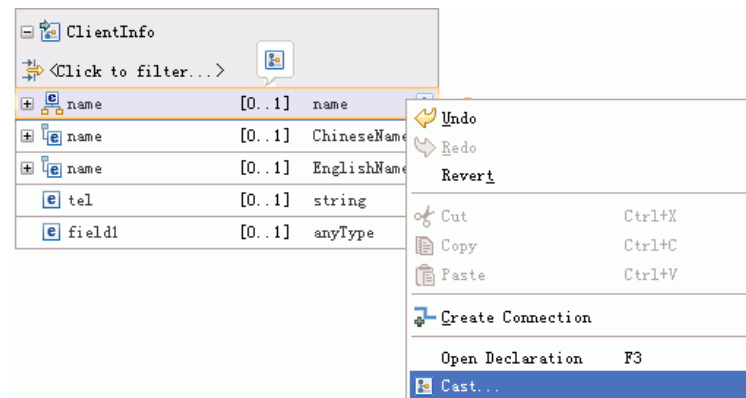
Tips and tricks

- **Cut, Copy, and Paste Transforms**

- **Data Map Catalog**

- **Testing maps on the server**

Testing maps on the server

- Fine-grained trace in the Integration Test Client will allow you to see the inputs and outputs to each XSL Transformation primitive

- Turning on server tracing allow you to examine the messages
  =info:com.ibm.ws.sibx.=fine:com.ibm.wsspi.sibx.*=all:com.ibm.websphere.sibx.*=all:com.ibm.ws.sib.processor.utils.UserTrace=all:com.ibm.ws.sibx.mediation.primitives.*=all:com.ibm.ws.messaging.*=all

Install ClearCase Remote Client For Eclipse into WID

- Switch to Java™ Perspective.
- Navigate to Software Updates Menu.
  Help→Software Updates → Available Software
- Download and install CCRC for Eclipse from your ClearCase server.
- Restart WID
- Known Issue
  CCRC version 7.0.1.CU04 is not supported in WID V7
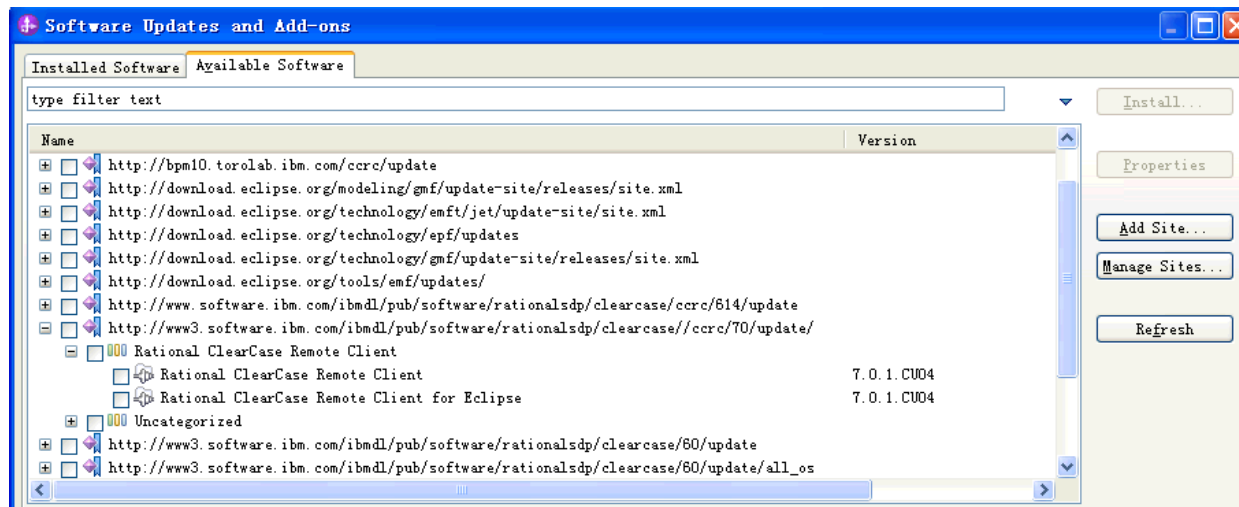
Use SCM Adapter for Eclipse in WID

- ClearCase SCM Adapter for Eclipse come with WID as an option feature
- Enable ClearCase Team capability.
- ClearCase SCM Adapter can not work with a ClearCase server by itself – it needs a ClearCase fat client to be installed in the local system.
- ClearCase SCM Adapter can not decide which ClearCase server to connect to – such setting is in the ClearCase fat client
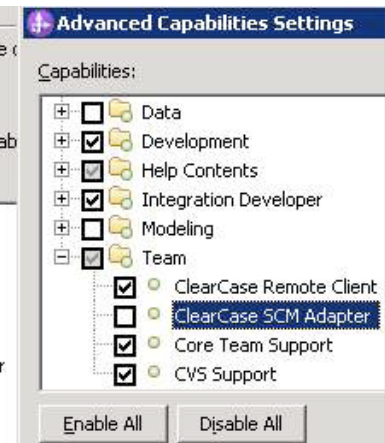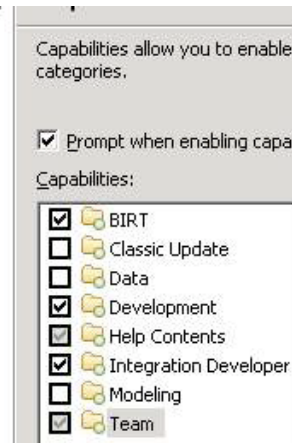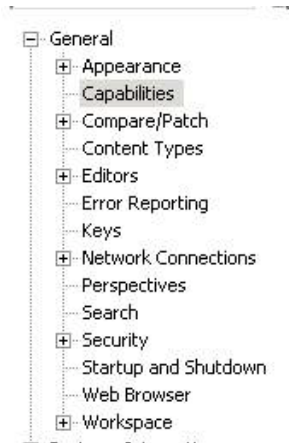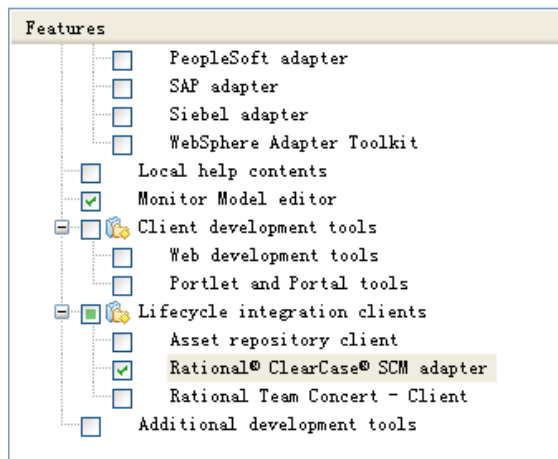
WID Tested ClearCase Configurations

- WID 7.0
  CCRC 7.1.1 For Eclipse with ClearCase Server 7.1.1
  SCM Adapter For Eclipse* with ClearCase Server 7.1.1

- WID 6.2.0.1
  SCM Adapter For Eclipse* with ClearCase Server 7.1.0

- WID 6.2
  CCRC 7.0.1 For Eclipse with ClearCase Server 7.0.1
  SCM Adapter for Eclipse* with ClearCase Server 7.0.0

- WID 6.1.0.1
  CCRC 7.0.1 For Eclipse with ClearCase Server 7.0.1

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Authored files to be added to source control

- All authored files, such as .bpel, .wsdl, .xsd, etc.

- Files in "<project_root>/.settings" folder, etc.

- "<project_root>/.project" and "<project_root>/.classpath" files, etc.

- Other custom files that user would like to persist, such as text file, etc..

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Generated files to be left out of source control

- **Staging projects, such as APP, WEB, EJB projects, etc.**

- **Compiled files, such as Java class files, etc**

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Best Practices

- **Turn on automatic workspace refresh**
  ClearCase decorations may not update if this is not set

- **Checkout as "Reserved" as much as possible**

- **Work in "Business Integration" perspective whenever possible**

FAQs of WebSphere Integration Developer V7

- **Does WID run in 64-bit mode**
  The 7.0 version of this application is not designed to take advantage of 64-bit computing and only uses 32-bit technology

- **Is WebSphere Integration Developer supported on Microsoft Windows 7**

  WebSphere Integration Developer V7.0.0.2 is supported on Windows 7

- **What IBM Software products can be installed together so that they share a common environment**
  There is comprehensive list in the following link:
  http://www-01.ibm.com/support/docview.wss?uid=swg21279139

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Q&A

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References

- [WebSphere Integration Developer Information Center](#)

- [XML mapping in WebSphere Integration Developer V7](#)

- [Use of ClearCase In WeSphere Integration Developer](#)

- [What's new in WebSphere Integration Developer Version 7](#)

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