

WebSphere® IBM WebSphere Multichannel Bank Transformation Toolkit
Version 7.0

Release notes



Note!

Before using this information and the product it supports, be sure to read the general information under “Notices” on page 11.

This edition applies to Version 7, Release 0, Modification 0, of *IBM WebSphere Multichannel Bank Transformation Toolkit* (5724-H82) and to all subsequent releases and modifications until otherwise indicated in new editions.

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IBM WebSphere Multichannel Bank Transformation Toolkit 7.0 release notes

This document contains information about version 7.0 of the IBM® WebSphere® Multichannel Bank Transformation Toolkit (Bank Transformation Toolkit). It describes the new components and functions at an architectural level.

New in this release

This version of the Bank Transformation Toolkit (BTT) has the following new and enhanced features:

- WebSphere V7.0 and IBM Rational® Application Developer V7.5.5 certification
- Smart banking components support
- Rule-based channel policy management
- Enhanced Integrated Development Environment
- Enriched and refined samples to serve developers with different experience levels
- Enhanced Web 2.0 capabilities

WebSphere V7.0 and IBM Rational Application Developer V7.5.5 certification

BTT version 7.0 provides support for WebSphere V7.0 and IBM Rational Application Developer V7.5.5.

Smart banking components

BTT version 7.0 provides a set of components that collect information about application usage for exploitation by the business analytics engine.

- Service usage collector: A server-side component that collects information about which business functions are being executed by the end user.
- User behavior collector: A client-side component that collects information about how the widgets are being used.
- A recommendation widget template that can be extended to display cross-selling recommendations identified by the business analytics engine.

Rule-based channel policy management

BTT version 7.0 allows rules-based channel control through IBM WebSphere ILOG rules or simple Java™ rules, based on a predefined channel data model.

Enhanced Integrated Development Environment

BTT version 7.0 supports model driven development and allows transactions to be split into separate files and developed in parallel. The enhancements consist of:

- A dashboard to help perform model driven development from the data definitions, automatically generating view and format definitions.
- The transaction editor now integrates type definition, supports model driven and parallel development, and has improved validation to ensure that definitions are correct.

- The Bank Transformation Toolkit Application Wizard generates improved applications containing Bank Transformation Toolkit V7.0 updated samples.
- An enhanced migration tool provides automatic migration support from Bank Transformation Toolkit V4 and V5.

Enriched and refined samples

BTT 7.0 provides enriched and refined samples to serve developers with different experience levels.

- Showcase for developers allows rapid start-up with each Bank Transformation Toolkit component such as data, types, contexts, formats, operations, or processors.
- "Hello World" sample application for all channels reduces the time to begin a new project.
- Internet Banking and Teller Banking samples that provide real banking cases for you to use as a starting point.
- Multi-channel Banking sample to be used as a reference guide for multi-channel banking solutions.

Enhanced Web 2.0 capabilities

BTT 7.0 has the following Web 2.0 capabilities:

- Two predefined widget themes - a Windows® and iPanel theme
- Enhanced widget communication
- Container widget, capable of wrapping other widgets
- Dojo support at the theme level, which can be used by widget-level content
- Runtime enhancement - XML support that includes the ability to split global files into smaller segments, enabling improved parallel development
- Additional channel support - short message service (SMS) channel support when integrated with an SMS gateway

Product fix history

This section lists the closed APARs before version 7.0 of BTT.

Table 1. List of closed APARs against version 6.1.2

APAR	Description
JR34248	In bColl, when invoking setValue() method using composite key cust.0 to locate the data element, the setValue() method fails. Both array collection and list collection are effected by this issue.
JR34704	BTT Hashtable memory leak - out of memory error occurs when put different large objects with the same key into BTT hashtable.
JR34956	Migration tool: format/context definition migration error.
JR34957	Migration tool: cannot import ContextFactory automatically.
JR34958	Sometimes the system does not throw out root exception for service tag when the exception occurs.
JR34961	Migration tool: implementation class migration error.
JR34963	Migration tool: Chinese comments migration problem in .jsp file.
JR34971	Migration tool error: sequence, settings, device type migrate sequence error.

Table 1. List of closed APARs against version 6.1.2 (continued)

APAR	Description
JR34984	Add support for new Web service data type and WSDL format and AXIS2 + Tomcat environment.
JR35012	Different scenarios throw same exceptions in the page. It is hard to trace and diagnose the problem. The scenarios include: null field, duplicated define input fields, submitted additional fields, data's dynamic property does not set to true, click after HTTP session expired.
JR35131	Serialization error happens for some data type when use it for transferring.
JR35228	concurrentModificationException occurs when taking clean operation.
JR35290	refService invoke problem occurs in operation context: When an operation A is invoking another operation B, the operation B cannot find the services defined in the context of operation A.
JR35596	WSDII invoker throws exception while return type is a not simple type.
JR35784	Sometimes, different user use same session ID in one browser.
JR35870	The input parameter name is mistakenly parsed by BTT Invoker, which result in some wsdl file cannot be invoked by dynamic Web Service invoker.
JR35879	BTT Invoker does not support the base extended type, such as <xs:extension base="tns:actpNWSearchBean"></xs:extension>
JR36111	XML format does not support some nesting format.
JR36293	Session management encounters problem when enabling cookies: A new session is created by mistake and the operation is executed on behalf of this session after that the original session cookie is rewritten.
JR36300	After iColl get the first kColl element, execute clone method, the system memory usage increases by 1G bytes, and a CPU exception occurs.
JR36406	Initialization problem with OperDef in btt.xml, it must support the following code: <pre> <field id="operations"> <operDef id="anSelf0peration" value="anSelf0peration.xml" path="http://stlv:8070/Ur1Ea </field><field id="processors"> <procDef id="self0pProc" value="self0pProc.xml" path="http://stlv:8070/Ur1EarWeb/bttC </field> </pre>
JR36460	In BTT LU0, modified BTT code to check the host application name in USERDATA of BIND RU instead of Primary LU Name of BIND RU.

Table 2. List of closed APARs against version 6.1.1

APAR	Description
JR30349	WAS throws out an Array index out of bound exception when the application gets a JCA Connection.
JR30460	If you define <step1 class="xxx" on1Do="return"/> in the operation step, when the return value of the step is not 1, BTT throws the information: Array index out of bound when getting steps.
JR30462	The Validation tool reports trace type not found error by mistake.
JR30581	CCSID cannot be set for MQ connection.
JR30582	When operState and htmlState are used in mixture, a debug level information should be thrown instead of an information level log.
JR30712	The IO Exception is thrown when there are comments in Chinese in the XML file.
JR30816	Sometimes, BTT LU0 cannot receive multi-frame messages from host.

Table 2. List of closed APARs against version 6.1.1 (continued)

APAR	Description
JR31018	BTT Web Application fails when cookie is disabled in the Internet Explorer.
JR31060	When the re-connection period is over, BTT creates many threads to notify WAS that there is a connection error. The fix avoids creating too many threads.
JR31902	Add the ASYNC event support to LU0.
JR32041	Add CSServer Services, such as <CSServer id="realCSServer" inactivityClientTimeout="600000" timeBetweenSessionCheck="60000"/>. This service is used for channel and session management, and processor timeout.
JR32042	Add Channel Event mechanism. This mechanism is used to check the channel and processor expiration, fire channel timeout event, processor timeout, and handle the event.
JR32043	Add the cookie=false mechanism.
JR32045	Defining <refService> within a context is supported. Context maintains the service lifecycle management. The following code example demonstrates how to define <refService>: <pre><context id="accountTransferCtx" type="oper"> <refKColl refId="accountTransferData"/> <refService refId="JournalService" alias="JournalService" type="journal"/> </context></pre>
JR32194	Establishsessiontimeout should be no less than 50 seconds, because BTT needs at least 50 seconds to identify that the session establishment is failed.
JR32405	MQ 2018 error: MQ connection is unavailable or disconnected after MQ connection pool is initialized.
JR32173	There are globalization problems in initializer and elementfactory. The solution is to make the encoding of the file and the definition in the first line of the file consistent.

Table 3. List of closed APARs against version 6.1.0

APAR	Description
JR29446	NullPointerException is thrown when initiating html flow processor.
JR29837	Improper exception is thrown from BTT LU0 JCA when destroying connection.
IZ25604	OOM error when parsing client request.
JR30273	Html Request Handler throws abnormal exception when the sessionpersistence value is set to be true in BTSM.properties.
JR30458	log.error() can not accept multiple parameters.
JR30459	OperDef Tag supporting multiple operation definitions problem: When more than one operation is defined in one self-defined operation, the self-defined XML must be defined within the same directory as file BTT.xml.
JR30496	When the application fails to get a new connection from LU0 Connection Factory, the bid thread of the unsuccessful ManagedConnection is not destroyed.

Table 4. List of closed APARs against version 5.2

APAR	Description
JR26373	NameNotFoundException is thrown from Context. The JMS function of BTTEvent is turned on by default. So, if JMS queue is not configured in WebSphere Application Server, exceptions are thrown.
JR26375	The <i>getElementAt()</i> API is missing from OperationStep.
JR26378	Several GUI problems are restricting the use of the application. When using the DSEGuiBeans for the Java™ client, frequent screen freezes and unexpected behaviour with text fields and combo boxes are encountered.
JR26627	ava.lang.ClassCastException is thrown when using org.apache.struts.ActionMapping and com.ibm.btt.struts.BTTActionMapping together in BTT 5.2.0.
JR26283	<p>The following two verbs are added to get the LU name from an LU62 connection:</p> <ul style="list-style-type: none"> Verb SYNC_GET_LOCAL_LU_NAME, used to get local LU name for the LU62 conversation Verb SYNC_GET_PARTNER_LU_NAME, used to get remote LU name for the LU62 conversation. <p>For the two new verbs, BTT will call SNA CPI-C APIs: Extract_Local_LU_Name and Extract_Partner_LU_Name by JNI call. Note: The two APIs only apply to the Communication Server running on AIX® and Linux® systems.</p> <p>The following code is the sample code for the two verbs:</p> <pre>Lu62InteractionSpec ixnSpec = new Lu62InteractionSpec(); Lu62Record outgoingData = new Lu62Record(); Lu62Record returnData = new Lu62Record(); ixnSpec.setInteractionVerb(ixnSpec.SYNC_GET_LOCAL_LU_NAME); connection.execute(ixnSpec, outgoingData, returnData); System.out.println("Local LU name :"+returnData.getData());</pre>
JR27142	String leaks in the CHA EJB cache.
JR27127	In general, there are two ways to manage conversations when sending continuous messages. One is to establish a new conversation for every message. The other is to create a single conversation and reuse it for sending different messages. The second method results in better performance. This APAR Viewer provides support for the first conversation mode: the host closes the conversation used by each unsolicited message.
JR27170	This APAR Viewer provides two parameters to configure the length of a TID/thread name in trace.
JR27198	In a performance environment, there might be thousands of threads pending, which can cause an out of memory crash in WebSphere Application Server. Each thread is waitOn Semaphore in the receive() method. When the connection is terminated, the waiting thread cannot be notified on Semaphore. As a result, it cannot exit. This APAR Viewer changes the event notification method to avoid creating too many threads.
JR27406	BTT does not support Opera Browser.
JR27597	BTT provides an extension for WTS to implement the BTTRequestProcessorUtil.getProcessId (HttpServletRequest request) method. However, when processing a transaction request, createProcessorId() is invoked unexpectedly, which causes the BTT module to replace the original processor ID with a new one. As a result, a new context is created. This causes a memory leak.

Table 4. List of closed APARs against version 5.2 (continued)

APAR	Description
JR27322	Referenced objects are reserved after the conversation/ Lu62ManageConnection is terminated. These objects should be deleted, because this causes a memory leak.
JR27685	BTT LU62 JCA parameter establishConversationRetries does not work if its value is greater than 0.
JR27954	When BTT JCA deallocates LU conversation, a conversation object must be printed in the trace. However, before printing, the conversation object is set to null. After BTT JCA deallocates an LU conversation, the object in the conversation is accessed. This APAR Viewer fixed these two problems.
JR28052	Every time BTT JCA creates a conversation, it loads a library, which is time-consuming.
JR28061	When implementing an invoker class which extends com.ibm.btt.cs.invoker.base.BeanInvokerImpl, the reference to the CHA Instance Id from the HttpSession will be removed and the HttpSession will be invalidated. So when the BTT client application calls the logoff operation (BTTServerOperation) on the server, the IllegalStateException from http session will be thrown.
JR28183	Request WAS pool to destroy BTT JCA connection immediately.
JR28225	JCA Performance issue: Exception is thrown when server stops.
JR27898	Missing header message when LU62 Message has multiple frames.
JR28208	Request to add parameter in BTT LU0 JCA to control whether to send TERMSELF after timeout.
JR28209	Change Request: a new custom property "sendInitSelf" is provided in order to disable sending init-self. The default value is true. Set it to false to disable sending init-self.
JR28345	JCAERR00047R timeout problem. Convert the getListenThreadSem() method to a synchronized method to prevent JCA timeout problem.
JR28687	BTT JCA supports 64-bit AIX systems.
JR28841	LU API SYNC_GET_ACTUAL_LU_NAME does not work in version 5.2.
JR28704	Unknown corrupt trace message because of the I18N problem.
JR28375	The establishSession is slow for the listen thread because run() is pending on sleep(timeBetweenBidRetry) if init() is not executed.
IY43326f_1	Session down is not correctly recovered when Lu0SnaSession is using a LU that belongs to a Communication Server pool.

Table 5. List of closed APARs against version 4.3

APAR	Description
IZ01114	<p>In the JCA clone environment, a new method in the BTT LU0 service for closing an LU0 session is established on another clone. Currently, the ccClose() method uses the user session ID, , but you need the same method using the LU0 name, which is passed as a parameter. A new API ccClose(String luName) is added to Lu0SnaSessionService and Lu0SnaSession class.</p> <p>The method will call Communication Server NOF API deactivate_lu0_to_3 to terminate the LU0 session for the specified LU name. On the other clone that has already established a session for the LU, it will receive an UN-BIND message from the host and terminate the session.</p>

Table 5. List of closed APARs against version 4.3 (continued)

APAR	Description
JR26363	Add a new method setInitSelfUserData in Lu0SnaSessionService to send user data to the host when BTT LU0 Connector send INIT-Self to establish LU0 session.
JR24998	Cannot establish conversation with host using LU6.2.

Hardware and software requirements

For details of the hardware and software that are required to set up the Bank Transformation Toolkit development and runtime environments, see Hardware and software requirements in the *IBM WebSphere Multichannel Bank Transformation Toolkit: Installation Guide*.

Limitations, known issues, and workarounds

This section lists the limitations and known issues of this release. It also provides information about any fixes or workarounds that exist for resolving these limitations and issues.

The following limitations have been identified:

- XUI Editor:

If you set an image to a label, the texts on that label cannot be displayed.

- Processor:

BeanCollection and KeyedCollection cannot be defined as nested data elements.

For example, in the following code sample, a BeanCollection is defined as the nested element of a Keyed Collection:

Processor definition:

```
<context id="creditCardsCtx" type="process">
  <refKColl refId="creditCardApp1Data"/>
</context>
```

Data definition:

```
<kColl id="creditCardApp1Data">
  <bColl id="creditCardApp1DataBean" bean="com.ibm.btt.beancoll.CreditCardApp1Bean" />
</kColl>
```

You must revise it as follows:

```
<context id="creditCardsCtx" type="process">
  <refKColl refId="creditCardApp1Data"/>
</context>
```

Data definition:

```
<bColl id="creditCardApp1Data" bean="com.ibm.btt.beancoll.CreditCardApp1Bean" />
```

- Channel:

There is a default rule in BTT Channels to define the data formatter and response formatter.

If you do not specify them in the request, BTT uses csRequestFormat and csReplyFormat configured in operation as data format and response format.

The operation configuration file is as follows:

```

<QueryStockOp.xml>
<operation id="QueryStockOp" context="stockCtx"
  implClass="com.ibm.btt.poc.opstep.QueryStockOp">
  <refFormat name="csRequestFormat" refId="stockFmt" />
  <refFormat name="csReplyFormat" refId="stockFmt" />
</operation>

<fmtDef id="stockFmt">
  <fXML dataName="stockCtxData">
    <fString dataName="code" />
    <fString dataName="price" />
  </fXML>
</fmtDef>
</QueryStockOp.xml>

```

- Migration:

During migration, if you do not set the migration rules for the migration tool, the migration tool will set the BTT Version 4.3 to BTT Version 7.0 migration rules as the default rules.

- Trace:

BTT trace must be initialized at first before the applications use it. Otherwise, the default trace configuration is set and the trace configuration in btt.xml will not take effect.

If BTT is not initialized, the default trace target is WAS by using BTTLogFactoryToWASImp as the implementation class of BTTLogFactory.

- CHA mode:

When passing local mode CHA context across JVM, only the current context is serialized or deserialized. The parent and children of the current context are not serialized or deserialized. If you want to obtain the data of the parent context, you need to transfer the current context and its parent context separately.

- Invoker:

It is recommended to generate the definition information file of the Web Service before runtime when using the Web Service DII invoker. This will improve performance and help problem determination.

- Element Factory

ElementFactory is an implementation of IoC (Inversion of Control) Container. You can use it to apply Dependency Injection pattern in your application.

Following are the best practices in applying Dependency Injection:

1. Follow three phases in developing your services or components:

- a. Startup:

To startup your component, you must set up the configurations and dependencies of your component. Using setter injection helps you to make your configuration file as simple as possible.

You can implement `initialize()` method in your component. In this method, you can check the configurations and dependencies and you can also allocate required resources in this method.

You can implement `com.ibm.btt.element.LifeCycle` interface to enable lifecycle support. Or you can define `InitMethod="destroy"` in the XML definition to enable lifecycle support for your element. The benefit of implementing the `LifeCycle` interface is that the `ElementFactory` will call `init()` and `destroy()` method. As a result, you do not need to add the `InitMethod="initialize"` `DestroyMethod="destroy"` definition and your services or components will import BTT classes.

- b. Handle requests:

After your component starts up, you can call the business logic in your component. Do not name the business logic methods after `get**` and `set**`, because `get**` and `set**` are used in startup phase.

c. Tear down:

Destroy all the allocated resources in the `destroy()` method.

2. Choose stateless style instead of stateful style:

Choose stateless style whenever you can.

3. Choose singleton scope instead of prototype scope:

Singleton is only applicable to stateless style.

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