WebSphere® IBM WebSphere Multichannel Bank Transformation Toolkit

Version 6.1.1

Release notes

Contents

IBM WebSphere Multichannel Bank Transformation Toolkit 6.1.1 release notes

This document contains information about version 6.1.1 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

WebSphere Multichannel Bank Transformation Toolkit version 6.1.1 helps to build transactional applications for retail banking delivery channels, including branch, Internet, intranet, call center, standalone kiosk, automated teller machines (ATMs), and mobile access terminal solutions.

For the internet banking channel, WebSphere Multichannel Bank Transformation Toolkit version 6.1.1 enhances the new Web 2.0 channel. This Web 2.0 channel provides a way for Web 2.0 clients to interact with the business logic on the server side. It also supports popular Web 2.0 technologies, such as Dojo, Asynchronous JavaScript™, and XML (AJAX). The Web 2.0 channel is consisted of XML Request Handler, XML Formatter, JSON Formatter, Session Management, and XML-based widgets container.

For branch channels, WebSphere Multichannel Bank Transformation Toolkit version 6.1.1 enhances extensive rich client support through a new set of rich client components which contain an XML based UI engine and editor, XML based UI flow, and an expanded embedded browser for Rich Client Platform (RCP) development. These rich client components expedite the construction of client banking transaction panels.

WebSphere Multichannel Bank Transformation Toolkit version 6.1.1 also introduces a new set of bank teller components. They are application enabler components specifically tailored for the use in bank teller applications. This release supports the following components:
- Override, which is a typical operation of teller banking
- Access control, which is used to cooperate with other authorization and authentication providers
- Electronic journal and electronic journal viewer, which use the XML based UI to support reconstruction of the transaction panel.

On the tool side, WebSphere Multichannel Bank Transformation Toolkit version 6.1.1 provides an application wizard which helps clients to create and change a multi-tier enterprise application for teller banking, internet banking, and multichannel banking.

This version of the Bank Transformation Toolkit has the following new and enhanced features:
- **Enhanced rich client capabilities**

  Delivers a graphical XML user interface (UI) editor to create a rich client based transaction user interface. Provides a mechanism to create a client transaction flow. A controlled embedded browser enables the interaction with the rich client components.

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- **Enhanced Web 2.0 capabilities**

  Provides a widget container to host different styles of Web 2.0 components which contains XML based widgets. Provides a set of predefined widgets for quick use.
- **Application wizard**

  A tool to help creating the baseline project for teller banking, internet banking, and multichannel bank samples.
- **Additional teller business components**
  - Override
  - Access control
  - Electronic journal
  - Electronic journal viewer with operation scene recurrence

Enhanced rich client capabilities

BTT Rich Client support and desktop integration capability extends the Eclipse Rich Client Platform, which is used by banking customers to rapidly build teller or desktop systems. It provides the following add-on features:

- Activity framework to specify operations
- Automatically generated navigation tree
- XML based perspective layout management support
- Application integration support (Swing, SWT, ActiveX, Web based applications)
- Property broker service to transfer data for different applications
- Global context for data sharing
- SWT widgets theme customization
- Very flexible architecture that is easy to extend
- Minimum coding effort required during development
- Lots of prebuilt client plug-ins and development tools to faster customer teller application development.
- The prebuilt Business components that are ready to use.

BTT Rich Client also provides the extension of Lotus® Expeditor, see the following features:

- BTT Client Components support running on IBM Lotus® Expeditor.
- BTT has wrapped Expeditor property broker to be a BTT Service in order to integrate with Expeditor seamlessly
- If customers have offline, Single Sign-On, role based application management scenarios, it's strongly recommended to use Expeditor as part of final solution

Enhanced Web 2.0 capabilities

BTT version 6.1.1 provides support for Web 2.0 as one of the BTT channels. You can implement presentation tier using Web 2.0 technologies and build server-side applications using the BTT framework.

The Web 2.0 Channel uses multichannel support to send and receive XML and JSON formatted messages. In addition, Web 2.0 provides the request handler and presentation handler required for multichannel support.

BTT version 6.1.1 provides more features about Web2.0 than the previous version. Such as the Personalized Mashup Services Platform, with which users can define interested banking services in their own internet banking home pages or involve the third-party Services Mashup and menus, and the Web2.0 Transaction Flow which provides the screen navigation control and widget event or data sharing. Users can use the entire BTT Web2.0 package to take control and make applications most useful. And BTT version 6.1.1 separates the user interface (UI) from services, which makes services reusable.

Enhanced Tools Support

BTT version 6.1.1 provides the following new development, runtime and support tools:

- Application Wizard:

  This tool intends to help the starter get familiar with BTT in a short time. It helps to create different types of BTT samples for developers to learn and start with. It also helps customers to adjust their channel capabilities dynamically without changing their applications.
- XML UI Editor:

  BTT provides XML based UI (XUI) analyze engine, and XUI editor. The transaction which is developed by the XUI editor can be easily deployed on RCP or Lotus Expeditor applications. Related UI skills are not required, which reduces the training cost and risk.
- Transaction Editor:

  The Transaction Editor is a development tool that provides an easier way for XML based end-to-end programming model.
- Validation Tool:

  The Validation Tool is a development tool with a graphical interface that you can use to validate your definition files .
- SWT Visual Beans Editor:

  The SWT Visual Beans Tool is a development tool that you can use to develop SWT based transaction panels.
- Formatter Simulator:

  The Formatter Simulator is a development tool that simulates the Formatter unformat process (translating binary message, XML and JSON into structured data).
- Runtime Monitor:

  The Runtime Monitor is a runtime tool that you can use to monitor the status of BTT on the server side.
- APAR Tool:

  The APAR Tool is a support tool that you can use to detect the build level of your BTT product version and obtain the detailed APAR numbers.

Business components

Business components are especially tailored for bank teller applications. Business components in version 6.1.1 include the following:

- Cash Drawer Management, which simulates the cash drawers in a retail bank. This helps teller or supervisor to track the total amounts, counts, and cash values in the whole branch. The main functions of this component are creation, maintenance, assignment, and deletion of the cash drawer and its components

- Foreign Exchange, which is responsible for exchanging one type of currency for another. The default implementation of the Foreign Exchange is a design and implementation template, which you can refer to and implement according to your actual business requirements
- Counter, which keeps track of numeric values
- Electronic Journal , which is used to record the transaction information. Electronic Journal Viewer, which is used to query Electronic Journal records and present the results through GUI.
- Override, which manage all the override procedure for you. In the teller system, the teller needs the supervisor's approval or authorization to perform the important transaction for the security reason. This procedure is called override.
- Access Control, which is a Role-Based Access Control system.
- Remote, which is designed for the communication between the Java™ client and the BTT server environment.
- Message, which is a component that can deliver messages between BTT Server and its client.

More business components will be introduced in future releases.

Inversion of Control Container

The Inversion of Control design pattern is a widely accepted design pattern. In BTT version 6.1.1, the Externalizer component is reconstructed as BTT ElementFactory. The BTT ElementFactory is loosely coupled with other BTT components, and can fully support the design pattern of Inversion of Control. BTT ElementFactory is widely used in BTT version 6.1.1, and you can use it directly in your own components.

BTT ElementFactory supports the following features:
- Different ways to instantiate Object: default constructor, constructor, static factory, instance factory, and factory element
- Different ways to inject dependency: setter method, constructor parameters, and self-defined method
- Macro definitions
- Lazy initialization
- Lifecycle management
- Factory extensions: ElementProcessor, FactoryElement, and Lifecycle processor

Formatter

BTT version 6.1.1 introduces a new set of formatters. Although the formatting algorithm is similar to what is in previous versions of BTT, the BTT version 6.1.1 formatters have extended abilities. The new formatters are loosely coupled with BTT DataElement and Context and support the following functions:
- Translating BTT DataElement and Context to and from binary messages, XML and JSON
- Translating Java value object to and from binary message, XML, and JSON
- Translating java.util.HashMap to and from binary message, XML, and JSON.

Invoker

Invoker is an XML-based invocation framework. It removes the technical barriers inherent in technologies such as J2EE, JMS, EJB, DII and WebService.

BTT Invoker supports the following technical invocations in both synchronized and asynchronized modes:
- POJO
- EJB
- Web Service Proxy
- Web Service Dynamic Invocation Interface (DII)
- JMS

SOA integration

For backend integration, BTT enables channel applications to support Service Oriented Architecture (SOA). BTT interfaces with WebSphere Process Server (which contains WebSphere ESB) for business process automation and enterprise application integration. WebSphere Message Broker and WebSphere Business Services Fabric can be added depending on SOA requirements.

The toolkit supports Web Services JSR 109 standard and Web service invocation from the toolkit's business layer. This can be useful when a complex transaction supports backend Web services. Alternatively, BTT business logic can be treated as a service and reused by other application systems.

Product fix history

This section lists the closed APARs by version 6.1.1 of the Bank Transformation Toolkit.

Table 1. 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 sessionpersistence is set to be true in BTTSM.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 BTT.xml
JR30496	When application getting new connection from LU0 Connection Factory is not successful, the bid thread of the unsuccessful ManagedConnection is not destroyed.

Table 2. 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 *getElementAt()* 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	SYNC_GET_LOCAL_LU_NAME and SYNC_GET_PARTNER_LU_NAME verbs added to get the LU name from an LU62 connection:
	• 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.
	
	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.
	
	The following is the sample code for the two verbs:
	
	`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());`

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 provides support for the first conversation mode: the host closes the conversation used by each unsolicited message.
JR27170	This APAR 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 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 2. 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 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 due to 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 3. List of closed APARs against version 4.3

APAR	Description
IZ01114	In the JCA clone environment, a new method in the BTT LU0 service for closing an LU0 session established on anther clone. Currently there is a method ccClose() which uses the user session ID, but customers 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.

The method will call Communication Server NOF API deactive_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. |

Table 3. 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 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:

- The BTT Trace clause must be in the first paragraph in the BTT definition file (btt.xml). This is because BTT components are initialized in sequence specified in this file and the Trace component must be initialized first before all the other components.
- WebSphere Application Server sometimes reports "servlet temporarily unavailable" when you update Java Channel application frequently. The workaround is to restart your application or restart WebSphere Application Server.
- Java Channel/HTMLProcessor doesn't support failover.
- In Windows® Vista platform, Rich Client XUI Engine's radio button may disappear when traverse too fast on eclipse 3.2 or RAD 7. You can upgrade your runtime eclipse to higher version to resolve this problem.
- BTTCHAEJB will deploy failed due to WAS 6.1.0.17 problem, There are two technotes published for this issue:
    - EJBDeploy fails after applying WebSphere Application Server Fix Pack 6.1.0.17. http://www-01.ibm.com/support/docview.wss?uid=swg21307298
    - EJB Deploy Error: java.lang.IllegalStateException: Unable to acquire application service. http://www-01.ibm.com/support/docview.wss?uid=swg21286215

    And WAS team already provide APAR PK67588 to fix it, targeted for WebSphere Application Server Fix Pack 6.1.0.19 was created to address this problem. http://www-01.ibm.com/support/docview.wss?uid=swg1PK67588
- In non-English environment(For example, locale is zh_CN), **JVM parameter: -Dibm.stream.nio=true** is required if double-byte character(for example,Chinese) exists on XML configuration file.

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