



Release Notes

Note!

Before using this information and the product it supports, be sure to read the general information under “Notices” on page 9.

This edition applies to Version 5, Release 2, Modification 0, of *IBM Branch Transformation Toolkit for WebSphere Studio* (5724-H82) and to all subsequent releases and modifications until otherwise indicated in new editions.

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Branch Transformation Toolkit Product
Diamond Building, ZhongGuanCun Software Park, Dongbeiwang West Road No.8,
ShangDi, Haidian District, Beijing 100094 P. R. China

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Branch Transformation Toolkit for WebSphere Studio 5.2 release notes

This document contains information about version 5.2 of the IBM® Branch Transformation Toolkit for WebSphere® Studio (Branch Transformation Toolkit). It describes the new components and functions in an architectural level.

New in this release

This section describes the new features of version 5.2 of the Branch Transformation Toolkit (BTT). It also provides you with references to other resources that can help you learn more about BTT.

This version of the Branch Transformation Toolkit has the following new and enhanced features:

- Struts Extension enhancement
- BPEL Editor plugins
- Business Process flexibility enhancement
- Common Hierarchy Area (CHA) with performance improvement
- Enhanced Formatting service
- Web Service JSR 109 standard compliance
- Startup beans for Branch Transformation Toolkit component initialization
- Enhanced Branch Transformation Toolkit exception handling and propagation
- Simplified Branch Transformation Toolkit service architecture
- Supports "Operation Steps" (including self-definition)
- Branch Transformation Toolkit HTML client components
- Supports J2EE Connector Architecture (JCA) 1.5 SNA connectors
- End-to-end session management
- Dynamic TPName support at runtime
- Merging tool

Struts Extension enhancement

In BTT 5.2, the function of the struts extension is enhanced:

- **Supports direct mapping from HTTP request data to screen flow context**

In BTT 5.1, the data submitted by the Http Request is mapped to the Struts FormBean, and then the BTT Struts will map the data from the FormBean to the BTT Flow Context when the FormBean's Field name is the same with the Field name of BTT Flow Context.

The disadvantage of the 5.1 mapping method is that the developer has to define the data not only for the FormBean, but also for the Context, and the data name must be the same.

However, the Struts FormBean itself supports both nested object mapping (such as *beanA.beanB.attribute*), and the BTT Context. If you use the mapping between the Struts FormBean and the Flow Context, the nested object is not supported.

In BTT 5.2, if you specify the configuration in the web.xml file as in BTT 5.1, the BTT Struts Extension will follow the same execution sequences as in BTT 5.1: It

will map the data from the FormBean to the Flow Context. But if you want to ignore FormBean, you can define the settings in the web.xml file, and the BTT Struts Extension will retrieve the data from the HTTP Request directly, and then set it into Flow Context.

- **Provides configurable RequestProcessor and TokenProcess names**
 - BTT 5.2 provides a configurable RequestProcessor instead of a hard-coded name so that you can replace the included implementation of BTT RequestProcessor with your own implementation.
 - BTT 5.2 provides modifiable TokenProcess name and implementation of "TokenProcessorInterface extension" instead of a hard-coded name so that you can replace the default implementation of BTT Token Processor with your own implementation.

BPEL Editor plug-ins

BPEL Editor plug-ins add extension to BPEL Editor in WebSphere Integration Developer and provide a node type named "BTTSnippet". Compared with earlier versions of BTT BPEL tools, the new plug-ins are more friendly to users with less limitation on BPEL.

Business Process flexibility enhancement

In BTT 5.2, Business Process has the following enhancements:

- A new node type "BTT Snippet" has been added to allow you to access BTT Components quickly in BPEL.
- BTT BPEL programming model has been changed from strong-type to both strong-type and shared context mode support.

Common Hierarchy Area (CHA) with performance improvement

BTT 5.2 has improved the performance of remote context performance.

Enhanced Formatting service

Because of the performance issue in BTT 5.1, the Formatter service has been redesigned to be combined to CHA in BTT 5.2. The server part has been removed but the facade is kept the same as in BTT 5.1.

Web Service JSR 109 standard compliance

JSR-109 facilitates the building of interoperable Web services in the Java™ 2 Platform, Enterprise Edition (J2EE) environment. It standardizes the deployment of Web services in a J2EE container and provides a universal and simple way to enable stateless EJB and SERVLET to the Web Service. The BTT 5.2 component has been enhanced to comply with the JSR109 standard and can be easily wrapped upon customers' request.

Startup beans for Branch Transformation Toolkit component initialization

The Branch Transformation Toolkit uses the startup beans to do the initialization for some of its components, such as the CHA, Formatter, and services. Startup beans can also do clean up when the application stops.

Startup beans provides the following advantages:

- Startup beans run in security contexts.
- Startup beans use JNDI to lookup and use other resources because they run within the namespace of WebSphere Application Server.

Enhanced Branch Transformation Toolkit exception handling and propagation

In BTT 5.1, many exceptions were caught by BTT components, but the BTT components would not throw them out. In addition, if an exception is caught and re-thrown, the original exception trace will be lost. If you use these exceptions in a web service environment, there might be problems because BTT 5.1 exception objects cannot support class serialization.

BTT 5.2 provides the following features for dealing with exceptions and exception tracing:

- For Web Services Support, two new constructions are added to BTT related exception classes, and 21 files have been modified. However these changes have no impact on the existing code.
- All caught exception are re-thrown out. And if a try-catch is not necessary, you can remove all useless try-catch statements, and let the exception be thrown out by the method itself.

Simplified Branch Transformation Toolkit service architecture

The service architecture of BTT 5.1 is very complex and causes both performance and efficiency problems. In addition, it has web service compatibility problems when used in conjunction with the WAS6 series.

The service architecture of BTT 5.2 has been simplified to provide greater compatibility. It's compatible with the BTT 4.3 service architecture and provides samples of how to deploy the service in the same way as EJB or WebService.

In order to be compatible with BTT 5.1, the BTT 5.1 service infrastructure jar files are still included. You can still use your BTT 5.1 style service at this time.

Note: You need to run your applications in J2EE 1.3 compatible mode to support the 5.1 WSIF framework.

Supports "Operation Steps" (including self-definition)

The BPEL of BTT 5.2 is leveraged on providing the Server Operation with Step functions, which had already been replaced by the IBM WebSphere Process Server (BPEL) in BTT 5.1. To make migration easier, BTT 5.2 provides the Server Operation with a Step Adaptor mechanism, in case you do not want to use the BPEL engine.

The Self-Definition with Operation/OpStep is still supported in BTT 5.2. Using a self-defined operation is preferable when the application is running and cannot be stopped and you need to add a new operation or change an existing one. It is also useful when the application cannot immediately download the full set of toolkit definition files, or the generic definition files become unwieldy due to their large size.

Branch Transformation Toolkit HTML client components

The Branch Transformation Toolkit provides a set of features and mechanisms that support an HTML-based graphical user interface (GUI) that is presented in a Web browser using an HTTP connection. An HTML-based GUI can be particularly appropriate for implementing home-banking applications, but it can also be used in commercial environments including teller, call center, and branch sales environments.

Supports J2EE Connector Architecture (JCA) 1.5 SNA connectors

BTT 5.2 supports JCA 1.5.

Bi-directional connectivity between a J2EE application and an enterprise information system (EIS) is an essential requirement for enterprise integration. In JCA1.0, only outbound communication is supported. It means that, using the CCI API of JCA1.0, the application first sends a message and then waits for the reply message synchronously. J2EE1.4 contains significant changes to two existing features that will extend the capabilities of J2EE applications. JCA1.5 and the EJB2.1 Message Driven Bean combine to handle inbound unsolicited messages from the EIS asynchronously.

Besides inbound communication support, JCA1.5 also provides other new features to make the inbound/outbound communication between J2EE applications and the EIS more reliable, more securely and more efficient. The new system contracts specified in the JCA1.5 specification are: Lifecycle Management Contract, Work Management Contract, Transaction Inflow Contract, Message Inflow Contract.

End-to-end session management

In BTT 5.1, the `httpSession` Object is managed by both WebSphere and BTT to provide the BTT Session Management.

BTT 5.2 provides two ways of Session Management. Besides the BTT 5.1 method, the end-to-end management is also supported. In the end-to-end management mode, BTT session management APIs are wrapper APIs which call `httpSession` APIs directly. No information is stored in BTT 5.2, which means that APIs of query information using `httpSession` ID or TID APIs are not available in this condition. You need to specify `HttpSession` as parameter to let the wrapper go.

Dynamic TPName support at runtime

The TP Name FIX is used to dynamically change the LU62 TP name of the pool connection if required. In general, one WebSphere Application Server pool only supports one TP name. In BTT 5.2, one WAS pool can support multiple LU62 TP for JCA LU62 Connectors.

Merging tool

In order to support parallel developments, BTT 5.2 provides a merging tool to generate a single set of dse configuration files from several separate dse configuration files sets.

Product fix history

This section lists the closed APARs by version 5.2 of the Branch Transformation Toolkit.

Table 1. List of closed APARs against version 5.1

APAR	Description
JR25096	Can not get BTT LU0 session's status by API due to JCA constrain and BTT JCALU0 adapter not providing a suitable interface/method to the application.
JR25150	New API has added for Lu0Record class to get EndBracketIndicator(EBI) from the Lu0Message instance. The application can also get other flags such as BBI, ECI, CDI from the Lu0Message.
JR25343	Support BTT java client SSL configuration.
JR25571	BTT's java client and server will automatically timeout after 2 minutes.
JR25876	After a managed connection is destroyed by WAS, an exception is thrown if the application tries to establish a new connection. The exception message is: "JCAERR00036F: MANAGED CONNECTION FACTORY: Failed to allocate physical connection. REASON=[the maximum number of physical connections reached]".
JR24415	User cannot extend their own Request Processor implementation to override BTTRequestProcessor
JR24577	The locale object is only in BTT's Session Context, but not in HttpSession. Locale object should also be stored in HttpSession.
JR24667	User can't implement their own token processor for use instead of the struts token processor supported by BTT. The original BTT design should be changed to support customers TokenProcessor extensions.
JR24666	SNA TPName problem: The TP Name FIX is used to change the LU62 TP name of the pool connection dynamically if required. Generally, one WAS pool only supports one TP name. If the user needs to make one WAS pool support multiple LU62 TP for JCA LU62 Connectors, this fix can be used.
JR24710	When EJBLLogOffAction is invoked, an exception is thrown.
JR24140	BTT Session Management does not support failover
JR24328	BTT components do not work well in a cluster for PMI port problem
JR24612	If the Host communication times out, it will return an empty string which might be misleading because Host may also return an empty string under other unusual conditions, although this is a rare situation. The customer should throw a timeout exception instead when communication times out.
JR22689	LU0 Session can't be established and a managed connection can't be obtained.
JR22688	Editable combobox has no effect on an execute button. BTT just register SpComboBox instance when an application adds a SpComboBox whose editable attribute is set to true to DSEPanel. In this case, even the SpComboBox will encounter some errors, but the OK_Button still is enabled. Correct behavior is for BTT to also register a SpComboBoxEditor when SpComboBox's editable attribute is set to true.
JR22686	in method establishConversation of class Lu62Conversation will be thrown because the userId is null.
JR22687	After a STOP command is issued, the server does not stop. BTT catches the InterruptedException, but it does not throw it to WebSphere again, So this thread continues to run. To avoid this problem, this thread has been configured as a daemon thread.

Table 2. List of closed APARs against version 4.3

APAR	Description
JR24383	Problem when using BTT desktop. In dse.ini, when paths.desktop was set to fromJAR, the method iniXML() in desktop class wouldn't use the filename defined under settings in files.desktop. Instead, the default value of "Desktop.xml" is used and then the xml file is loaded.
JR24601	JXFMSD problem: <ul style="list-style-type: none"> • Before closing the device without checking the open state. • Currently, when the framework class times out a sync read/write operation with the MSR/E, it does not issue a J/XFS Cancel command to the physical device.
JR24674	Device service timeout value is hard coded in JXFSService.iniOpen() method
JR25425	Provision of additional timeout parameter for BTT JXFS Service
IY86106	Cannot get connection from BTT connection pool occasionally when the pool is being accessed concurrently by a large number of threads.
IY85316	Duplicate BTT session ids sometimes exist.
JR23606	The CSDataSender class sometimes throws data null exceptions.

Hardware and software requirements

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

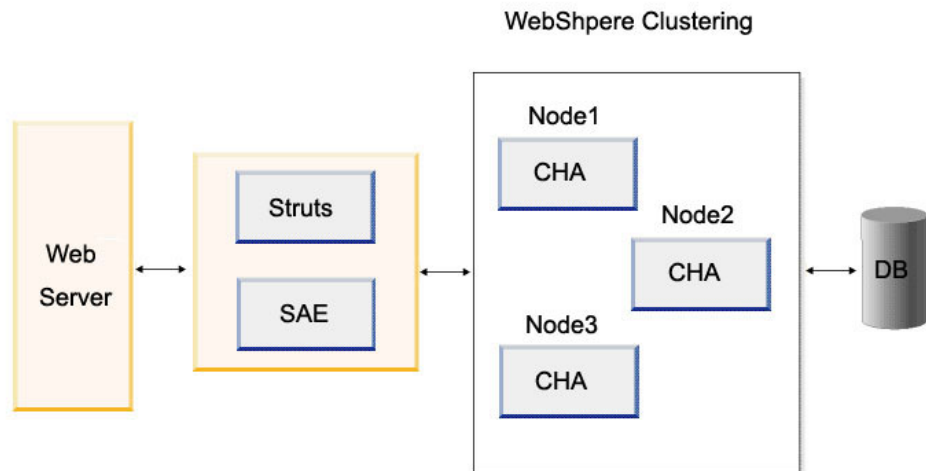
Limitations, known issues, and workarounds

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 and issues have been identified:

CHA

- BTT does not support deploying the CHA server as a cluster. For example, the deployment shown in the figure below is not supported:



This is because the CHA facade accesses the CHA server via a stateless session bean and cache mechanism (singleton + hashmap) is used in each node.

Although the CHA server cannot be deployed as a cluster, it does support distributed deployment.

- It is recommended that the shared data in the root level context is read only, especially in the cluster environment, because updates to the root level context cannot be written back into the database.

Formatter

The new Formatter design and implementation may cause bad performance when the Formatter caller and CHA server reside in different ears and the `unformat()` API is called on a local context but one of its parents is on a remote context. In the CHA architecture, the local context is stored in the CHA facade and the remote context is stored in the CHA server side. A local context can be chained to a remote context. If you call `unformat()` API on a local context, the remote parent context tree will be copied from the CHA server side to the client side. This will cause bad performance if the CHA server is deployed on a separate machine.

Struts Extension

- When you run the logoff transaction, BTT struts does not permit you to define final forward or final action in the transaction configuration file, because the session context has already been pruned and the http session has been invalidated in the logoff business logic before handling the final state.
- When you turn BTT Session Persistence on (HttpSession will be persisted by WebSphere), the maximum length of the path of a nested struts module (parentflow + subflow) cannot be more than 128 characters, because the default key of the session table has a size of 128 characters.
- BTTStrutsExtension does not provide link validation, so when you use final action or final page, make sure that the configuration of final path is correct. The following is a sample, which shows that the value of path in `<forward name="success" path="/transfercomplete.jsp">` and name in final type="forward" name="/transfercomplete.jsp"/ should be identical.

```

<action-mappings>
    <action path="/prepareTransfer" forward="/transfer.jsp"/>
    <action name="transferForm"
        path="/transfer"
        className="com.ibm.btt.struts.config.BTTEJBActionMapping"
        type="com.ibm.btt.struts.actions.EJBAction"
        input="/transfer.jsp"
        scope="request"
        actionContext="accountTransferCtx"
        invokerId="accounttransferinvoker"
        validator="com.ibm.btt.samples.html.TransferXVal">
        <forward name="success" path="/transfercomplete.jsp"></forward>
    </action>
</action-mappings>
<!-- Flow Context Definition -->
<flowcontext contextName="accountTransferCtx" local="false" />
<!--processctxMapper-->
<finals>
    <final type="forward" name="/transfercomplete.jsp"/>
</finals>

```

Single Action EJB

For stateless Single Action EJBs, any setter/getter methods for inner properties of the EJB are useless because of its stateless property.

Session Management

In a session persistence environment (session persistence in the configuration file is turned on), all session related functions will be integrated with the standard HttpSession object. As a result, the APIs which leverage only the session ID/TID as the key parameter are not available and will throw exceptions for incorrect usage. So if you use the session persistence environment, you need to ensure that all the objects inserted into session management are serializable.

OpStep Adaptor

The method `getKeyedCollection()` is supported. But if you make any changes to the KeyedCollection object, such as setting a new Data Element in KeyedCollection, you need to use the `setKeyedCollection()` method to set the KeyedCollection object back to CHA server, otherwise the medication will be lost.

Service

- The Table Service and Electronic Journal Service do not provide database transactions (such as `connection.commit()`) in this release.
- BTT Pool management is removed. BTT leverages WAS feature, such as Object pool, DataSource Connection Pool, and JMS connection Pool, which can be configured using the WAS administrative console.
- DataSource and JMS are not transferable by EJB/JSR109 service.

Tools

The BTT enabled snippet includes BTT related code (such as BTT Context initialized), and these code lines can be generated automatically by BTT BPEL Editor. You need to input the business logic between the `<user code begin>` and `<user code end>` to make sure that the business process execute successfully. Any change of the generated code lines might cause unexpected problem.

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