

IBM Integration Bus

Business Transaction Monitoring

Featuring:

- Flow Monitoring Events
- Configuring a BTD
- Viewing Business Transaction instances and events
- Securing access to BTM instances using file-based access controls

April 2016 Hands-on lab built at product Version 10.0.0.4

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1. Introduction

Business Transaction Monitoring (BTM) enables the monitoring of a transaction through various IIB flows deployed on an integration node, to track and report the lifecycle of a message as it is processed by IIB.

A business transaction is a unit of function that can be seen as a unit from a business point of view, like a purchase, a booking, an auction. It is not a transaction in technical sense, neither a one nor a two-phase transaction, but more like a till transaction. A business transaction instance is a specific order or booking, usually identified by a reference number or ID, such as "order123456".

1.1 Scenario

This lab will create and use a business transaction based on the message flows contained within a single application. Schematically, the business transaction can be illustrated as shown below, and is based on a Trade Order scenario.

Each business transaction consists primarily of 5 message flows. The client type is either Gold, Regular or Guest. TRD2 examines the message, determines the client type, and routes the message accordingly. MQ queues are used to pass messages between each message flow.

If TRD1 detects a problem with the incoming message, it is routed directly to TRD6.

The message flows are very simple, and do not contain any significant logic. They do however contain a number of event monitoring points, so that each stage of the overall business transaction can be identified and tracked.



2. Prepare the IIB Node

2.1 Open the Windows Log Monitor for IIB

A useful tool for IIB development on Windows is the IIB Log Viewer. This tool continuously monitors the Windows Event Log, and all messages from the log are displayed immediately.

From the Start menu, click IIB Event Log Monitor. The Monitor will open; it is useful to have this always open in the background.

🔝 11B Event Log Monitor
BIP3132I: < IB10NODE.server1 > The HTTP Listener has started listening on port '
[7800] For Thttp:/ connections. [10/3/2014 3:17:23 Ph]
BIP21541: (_IB10NODE_server1) Execution group finished with Configuration messa
ge. [10/3/2014 3:17:24 PM]
BIP2152I: < IB10NODE.server1 > Configuration message received from broker. [10/3
/2014 5:07:36 PM]
BIP2153I: (IB10NODE.server1) About to ''Change'' an execution group. [10/3/201
4 5:07:36 PM]
BIP2155I: < IB10NODE.server1 > About to ''create '' the deployed resource ''Empl
oyeeService_JSONClient'' of type ''.APPZIP''. [10/3/2014 5:07:37 PM]
BIP2155I: < IB10NODE.server1 > About to ''create '' the deployed resource ''gen.
getEmployee_EmployeeService_EmpServClient_JSON1'' of type ''.SUBFLOW''. [10/3/20]
14 5:07:37 PM]
BIP2155I: < IB10NODE.server1 > About to ''create '' the deployed resource ''EmpS
ervClient_JSON1'' of type ''.MSGFLOW''. [10/3/2014 5:07:37 PM]
BIP2154I: < IB10NODE.server1 > Execution group finished with Configuration messa
ge. [10/3/2014 5:07:43 PM]
BIP3132I: < IB10NODE.HTTPListener > The HTTP Listener has started listening on p
ort ''7080'' for ''http'' connections. [10/3/2014 5:07:47 PM]
BIP2152I: (IB10NODE.server1) Configuration message received from broker. [10/3]
/2014 5:50:41 PM]
BIP2153I: < IB10NODE.server1 > About to ''Change'' an execution group. [10/3/201
4 5:50:41 PM]
BIP2155I: < IB10NODE.server1 $>$ About to ''delete '' the deployed resource ''EmpS

This tool is not shipped as part of the IIB product; please contact us directly if you would like a copy.

2.2 Configure the IIB node for Business Transaction Monitoring

2.2.1 Define an associated queue manager for the IIB node

The Business Transaction Monitoring function requires the IIB node to have an associated queue manager. Make sure that the IIB node that you are using has a queue manager.

If you are using the TESTNODE_iibuser in the workshop environment, perform the following steps.

1. In the Toolkit IIB node view, in the Integration Nodes pane, highlight TESTNODE_iibuser. In the Properties of the node, you will see the property "Queue manager specified on the integration node". If this is already set to a queue manager (eg. IB10NODE), then you are all set.

ſ	🖧 I 🕱 🖧 I 🗞 D 🗰 D			🔲 Properties 🔀 🖹 Pro	oblems 📲 Outline 🧔 1	asks 🔠 Deployment Log
L		<u></u>	=	Property		Value
L		100	_	Integration Node Inform	nation	
L				Build level		ib 1000-L 151118. 116 (S1000-L 151118. 10058)
L	IB10NODE_MFS_C			Name		TESTNODE_iibuser
L	IB10NODE_MFS_P			Operating system a	rchitecture	AMD64
L	TESTNODE_iibuser			Operating system n	ame	Windows 7 Enterprise
L	⊡ ~ 🔁 default			Operating system v	ersion	6.1 build 7601 Service Pack 1
L				Port		4421
L				Queue manager spe	ecified on the integration nod	IB10QMGR
L				Use runtime		Use latest compatible runtime
L				Version		10.0.0.3

2. If a queue manager is not shown, right-click TESTNODE_ibuser and select Change.



3. Specify IB10QMGR as the queue manager name, and click Finish.



4. This will automatically stop and restart the IIB node. When complete, you will see the following message.

Progress Information			×
The task completed	successfully.		
Patricel			
Details >>			
		Cancel	Close

2.2.2 Configure the BTM components

Two further items of configuration need to be done to enable BTM.

1. Activate BTM for the IIB node.

Execute the following command in an IIB Console:

mqsichangeproperties TESTNODE_iibuser -o BrokerRegistry -n productFunctionality -v BUSINESS_TRANSACTION_MONITORING

2. Authorise access the BTM database, BTMDB, for the IIB node.

Execute the following command:

mqsisetdbparms TESTNODE_iibuser -n BTMDB -u iibadmin -p passw0rd

Stop and restart the IIB node:

mqsistop TESTNODE_iibuser

mqsistart TESTNODE_iibuser

2.2.3 Define the MQ resources

Finally, the provided application requires several MQ queues, as well as some system queues for IIB. In a Windows DOS window (or IIB Console window), run the command:

 $\verb"c:\student10\BTM_Trades\commands\defineBTMqueues.cmd"$

3. Prepare the Application

3.1 Import the application

1. To avoid naming clashes with earlier labs, this lab will be developed using a new workspace.

If you already have a workspace open, click File, Switch Workspace. Give the new workspace the name

c:\users\iibuser\IBM\IIB 10\workspace_BTM

2. Import the Project Interchange file

```
c:\student10 \ BTM_Trades \ application \ BTM_Trades.zip
```

This PI file contains one project. Ensure it is selected, and click Finish to import.

Import Project Interchange Contents	
Import Projects Import Projects from a zip file.	ļ,
From zip file: rades\application\BTM_Trades.zip Project location root: C:\Users\jibuser\IBM\IIBT 10\withTool	Browse
BTM_Trades	
Select All Deselect All Select Referenced	
<pre></pre>	Cancel

3.2 Investigate the application

1. The application contains a number of message flows. Each flow is quite simple, and is designed to pass the incoming message on to the next flow in the sequence of the business transaction.



2. Most of the message flows have one or more monitoring events points associated with the nodes in the flow.

Open the BTM_TRD1_Validate message flow.



3. Highlight the "Receive Trade" node, and look at the Properties of the node. Select the Monitoring tab. You will see that a monitoring event point has been defined on this node.

BTM_TRD1_Validate.msgfl	53 WO			□ E
👌 😳 Palette	Flow Exerciser:	■ % I € Q		
		1		
🙀 Favorites				
院 WebSphere MQ			>	
🕞 MQTT		Validation Fai	ilure	
Gims JMS				
💭 НТТР		//		
🙀 Web Services 📃				
🔁 SCA		N		
🖓 WebSphere Adapters	Receive Trade		P	
🕞 Routing			Deade Customer Type	
💭 .NET				
Canal Transformation		- 1 🐲 B.		
Construction		Compute		
Graph User Defined Properties				
🔲 Properties 🔀 Probler	ns 🗄 Outline 🖉	Tasks 🔲 Deployment Log		🛃 🗸 🗖 E
🕼 MQ Input Node Prope	erties - Receive Ti	ade		
Description	Configure monitoring e	vents.		
Basic	Events			
MQ Connection	Enabled	Event Source	Event Source Address	Add
Input Message Parsing		Transaction start	Receive Trade.transaction.Start	C-D-
Parser Options				
Advanced				Delete
Validation				
Security	•			► R
Instances				
Policy				
Monitoring				

4. Highlight the event, and then click the Edit button.

Eve	nts				
[Enabled	Event Source	Event Source Address	Add
[Transaction start	Receive Trade.transaction.Start	
					Edit
					Delete
	•			Þ	요 장

5. The first tab, Basic, will be displayed. This is where the basic details of the event are configured. This event has been set on the start of the transaction, and has had the name of the event set as a literal.

Edit event		
Basic Correlation	Transaction	
Event Source		
Select the source of	of the event.	
Transaction start		
Event Source Ad The integration no and disable event	Idress de identifies an event source using an event source address. Use this value when you enable sources using runtime commands.	
Receive Trade.tr	ansaction.Start	
Event Name		
Provide the name location of a chara	by which events emitted from this source are to be known. Specify either a literal name, or the icter field in the message tree or elsewhere in the message assembly.	
 Literal 	Trade instruction received	
O Data location	Edit	
Event Filter		
Provide an express can reference field If you do not spec	sion to control whether the event is emitted. The expression must evaluate to true or false, an Is in the message tree or elsewhere in the message assembly. ify a value, the value true() is used.	d
true()	Edit	
Event Payload Most events need assembly. Data tal can also contain bi	to contain data taken from fields in the message tree or from elsewhere in the message ken from simple fields or complex fields appears in the event in XML character format. An event itstream data, which appears in the event as hexadecimal bytes.	:
Data location	Add	
	Edit Delete	
I Include bitstre	am data in pavload	
Contont All		
Content Jai		
2	OK Cape	
U		

6. Click the Correlation tab. The most important correlator for Business Transaction Monitoring is the Global Transaction Correlator. This value enables the BTM component in IIB to connect the events from different message flows, in order to provide a status of the business transaction.

In this case, the global transaction correlator has been set to an element contained within the message payload, the TradeOrderID element.

You can examine other monitoring options. When complete, click Cancel.

ic	Correlation Transaction
ven	t Correlation
mor ansi aren pplic r extrans	itoring application uses event correlators to match events emitted by the same, or related, business actions. A local transaction correlator links the events emitted by a single invocation of a message flow. A at transaction correlator links the events from a message flow to a parent message flow or an external action. A global transaction correlator links events from a message flow to one or more related message flow ternal applications. An event must contain a local transaction correlator, but need not contain a parent action correlator or global transaction correlator.
ocal	transaction correlator:
0	Automatic O Specify location of correlator
_D€	escription
Th co	e local correlator will be read from the specified location in the message tree. Ensure the specified location ntains a correlator value unique to this message flow invocation.
\$	Root/XMLNSC/tra:tradeOrder/tra:customerID
	e parent correlator will be read from the specified location in the message tree. Ensure the specified
loc	escription e parent correlator will be read from the specified location in the message tree. Ensure the specified ation contains a suitable parent correlator value.
loc \$	escription e parent correlator will be read from the specified location in the message tree. Ensure the specified ation contains a suitable parent correlator value. Root/XMLNSC/tra:tradeOrder/tra:tradeOrderID
loc \$	escription e parent correlator will be read from the specified location in the message tree. Ensure the specified cation contains a suitable parent correlator value. Root/XMLNSC/tra:tradeOrder/tra:tradeOrderID Edit
loc siloba	escription le parent correlator will be read from the specified location in the message tree. Ensure the specified cation contains a suitable parent correlator value. Root/XMLNSC/tra:tradeOrder/tra:tradeOrderID al transaction correlator: Automatic ③ Specify location of correlator
ilota Siloba O	escription e parent correlator will be read from the specified location in the message tree. Ensure the specified cation contains a suitable parent correlator value. Root/XMLNSC/tra:tradeOrder/tra:tradeOrderID Edit al transaction correlator: Automatic ③ Specify location of correlator escription
iloba iloba De Th loc	escription le parent correlator will be read from the specified location in the message tree. Ensure the specified lation contains a suitable parent correlator value. Root/XMLNSC/tra:tradeOrder/tra:tradeOrderID al transaction correlator: Automatic ③ Specify location of correlator escription le global correlator will be read from the specified location in the message tree. Ensure the specified lation contains a suitable global correlator value.
loc siloba De Th loc	escription le parent correlator will be read from the specified location in the message tree. Ensure the specified lation contains a suitable parent correlator value. Root/XMLNSC/tra:tradeOrder/tra:tradeOrderID lat ransaction correlator: Automatic Specify location of correlator escription le global correlator will be read from the specified location in the message tree. Ensure the specified cation contains a suitable global correlator value. Root/XMLNSC/tra:tradeOrder/tra:tradeOrderID Edit Root/XMLNSC/tra:tradeOrder/tra:tradeOrderID Edit
loc siloba De Th loc	escription le parent correlator will be read from the specified location in the message tree. Ensure the specified lation contains a suitable parent correlator value. Root/XMLNSC/tra:tradeOrder/tra:tradeOrderID al transaction correlator: Automatic O Specify location of correlator escription le global correlator will be read from the specified location in the message tree. Ensure the specified lation contains a suitable global correlator value. Root/XMLNSC/tra:tradeOrder/tra:tradeOrderID Edit
loc siloba De Th loc	escription le parent correlator will be read from the specified location in the message tree. Ensure the specified lation contains a suitable parent correlator value. Root/XMLNSC/tra:tradeOrder/tra:tradeOrderID al transaction correlator: Automatic O Specify location of correlator escription le global correlator will be read from the specified location in the message tree. Ensure the specified lation contains a suitable global correlator value. Root/XMLNSC/tra:tradeOrder/tra:tradeOrderID Edit
loc siloba De Th loc	escription le parent correlator will be read from the specified location in the message tree. Ensure the specified lation contains a suitable parent correlator value. Root/XMLNSC/tra:tradeOrder/tra:tradeOrderID al transaction correlator: Automatic O Specify location of correlator escription le global correlator will be read from the specified location in the message tree. Ensure the specified lation contains a suitable global correlator value. Root/XMLNSC/tra:tradeOrder/tra:tradeOrderID Edit
loc siloba De Th loc	escription le parent correlator will be read from the specified location in the message tree. Ensure the specified cation contains a suitable parent correlator value. Root/XMLNSC/tra:tradeOrder/tra:tradeOrderID al transaction correlator: Automatic O Specify location of correlator escription le global correlator will be read from the specified location in the message tree. Ensure the specified cation contains a suitable global correlator value. Root/XMLNSC/tra:tradeOrder/tra:tradeOrderID Edit

7. Deploy the application to the IIB node (deploy the supplied barfile).



4. Configure the Business Transaction Definition4.1 Define the BTD

1. Open a web browser and connect to the IIB node. (In the workshop VM, connect to betaworks-esb10 using the supplied shortcuts in Firefox. Depending on whether you have performed the Web Admin lab, you may need to use http(4414) or https(4421).

Expand the Business folder, and click the context menu dropdown on the Business Transactions item. Click Create.

IBM Integration	
	Filter Options
🔻 🛃 TESTNODE_iibuser 👻	
🕨 🖻 Servers 🛛 👻	
Image: Comparison of the second se	
🕨 📇 Data	
🕨 🖓 Security	
🕨 ⊼ Monitoring	
🔻 댿 Business	
归 Business Transactions	
	Create

2. Provide a name, BTD_Trades, and click OK.



3. The BTD will be shown, but no message flows have been added yet. You will be on the Define tab.

	iiciii			
			📙 Save	Cancel
 Business Transaction 			Add flow Remove	flow De
Add indiv	idual message flows or whole app	plications by click	sing on the Add flow button.	
Add indiv	idual message flows or whole app	olications by click	ing on the Add flow button.	
Add indiv	idual message flows or whole app	olications by click	king on the Add flow button.	
Add indiv	idual message flows or whole app	olications by click	sing on the Add flow button.	
Add indiv	idual message flows or whole app	plications by click	sing on the Add flow button.	
Add indiv	idual message flows or whole app	olications by click	sing on the Add flow button.	
Add indiv	idual message flows or whole app	olications by click	sing on the Add flow button.	
Add indiv Add indiv No flow selected Usiness Transaction Event Def This section shows the monitoring events that signify the sta	idual message flows or whole app initions vents that are defined for the sele rt, end, and failure of your busine:	olications by click	ting on the Add flow button.	Select the

4. Click "Add flow".

Select an application, and from the drop-down, select BTM_Trades.

Click Add.

Define	Add message flows to BTD Trades	C Add flow
	 Select message flow: Flow Name Select application: Application Name BTM_Trades (from default) 	dd flow button.
No flow sele Business Tr This section sho end, and failure + Message Flow	Service Name No integration services available to add Select REST API: REST API Name No REST APIs available to add	action. Select the monitoring even Iobal Transaction Correlator

5. The message flows will be added to the BTD, and the monitoring points that have been defined on the message flows will be listed on the bottom of the window.

The BTD define process has examined the deployed message flows, and has extracted details of the monitoring events points.

nsaction			
			Add flow
a BTM_TRD6_Failed Trade_Workflow	BTM_TRD3c_Guest _Trade	BTM_TRD3a_Gold _Trade	BTM_TRD5_Trac _Complete
are defined for the selected flow or for all flo	ws in the business tra	insaction. Select the	monitoring event
are defined for the selected flow or for all flo Event Source Address	ws in the business tra	Insaction. Select the Global Transacti	monitoring event
are defined for the selected flow or for all flo Event Source Address 2 Monitoring Events	ws in the business tra	Insaction. Select the Global Transacti	monitoring event
are defined for the selected flow or for all flo Event Source Address 2 Monitoring Events 5 Monitoring Events	ws in the business tra	Insaction. Select the	monitoring event
are defined for the selected flow or for all flo Event Source Address 2 Monitoring Events 5 Monitoring Events 1 Monitoring Event	ws in the business tra	Global Transacti	monitoring even
are defined for the selected flow or for all flo Event Source Address 2 Monitoring Events 5 Monitoring Events 1 Monitoring Event 1 Monitoring Event	ws in the business tra	Global Transaction	monitoring even
are defined for the selected flow or for all flo Event Source Address 2 Monitoring Events 5 Monitoring Events 1 Monitoring Event 1 Monitoring Event 1 Monitoring Event	ws in the business tra	Global Transacti	monitoring even
	a BTM_TRD6_Failed Reconciliation	a BTM_TRD6_Failed BTM_TRD4_Final BTM_TRD3c_Guest _Trade_Workflow _Reconciliation _Trade	a BTM_TRD5_Failed BTM_TRD4_Final BTM_TRD3c_Guest BTM_TRD3a_Gold Trade_WorkflowReconciliationTrade

6. Expand the first message flow, BTM_TRD1_Validate. You will see that two monitoring events have been defined on this flow.

Message Flow - Monitor Event	Event Source Address	Flag as	Global Transaction Correlator	Details
 BTM_TRD1_Validate (BTM_Trades from default)	2 Monitoring Events			
Trade instruction received	Receive Trade.transaction.Start	Do not flag 🔻	\$Root/XMLNSC/tra:tradeOrder /tra:tradeOrderID	More details
Data validation failure	Validation Failure.terminal.in	Do not flag 👻	\$Root/XMLNSC/tra:tradeOrder /tra:tradeOrderID	More details

7. The first event for TRD1 will signify the start of the Business Transaction. In the "Flag As" column, click the drop-down, and select "Start" as the flag for this event.

BTM_TRD1_Validate (BTM_Trades from default)	2 Monitoring Events	
Trade instruction received	Receive Trade.transaction.Start	Do not flag 🔻
Data validation failure	Validation Failure.terminal.in	Progress
BTM_TRD2_Customer_Type (BTM_Trades from default)	5 Monitoring Events	Start End
		Failure

8. For the "Data validation failure" event, select Failure.

BTM_TRD1_Validate (BTM_Trades from default)	2 Monitoring Events	
Trade instruction received	Receive Trade.transaction.Start	Start -
Data validation failure	Validation Failure.terminal.in	Failure *

9. For all the events up to TRD5, set the flag to Progress.

BTM_TRD2_Customer_Type (BTM_Trades from default)	5 Monitoring Events	
Decision: Gold customer	GoldCustomer.terminal.in	Progress -
Decision: Guest customer	GuestCustomer.terminal.in	Progress •

10. For the TRD5 message flow, set the event flag to End.



11. At the top of the window, click Save.



12. You will see a warning message indicating that not all flows contain flagged monitoring events. Close this warning message (click the cross).



4.2 Configure the BTM database

1. The BTM database needs to be specified to the IIB node. Click the Configure tab.

You will see that the Data Source Name for the BTM database has not been set.

Click to specify the data source name.

	BTD_Trades - Business Transaction Define Configure View
[▼ Data source configuration
	Data source name: Not set
	Click here to specify a data source name
[✓ Message flow monitoring status
	A The business transaction definition does not include any message flows with flagged monitoring events. No message flows will be monitored in this business transaction.

2. In the drop-down, select BTMDB. If BTMDB does not appear in the drop-down list, then something has gone wrong in the BTM enablement steps earlier in the lab.

Business Transactions		
🔊 Configuration		
		📙 Save
 Data source configuration 		
Data source name:	•	
Resume editing of business transaction BTD_Trades	BTMDB	

3. Select BTMDB, and click Save.

Business Transactions	
Onfiguration	Save
▼ Data source configuration	
Data source name: BTMDB 👻	

5. Test the Business Transaction Definition5.1 Activate Flow Monitoring for the Application

In order for any business event to emit monitoring data, flow monitoring must be enabled for each message flow that will form part of the business transaction.

In this lab, this can be achieved by activating flow monitoring at the application level; this will activate monitoring for all message flows contained within the application.

In the Web UI navigator, expand the Applications folder, and on the BTM_Trades application, click the drop-down arrow.

Click "Start flow monitoring".

▼ A TESTNODE_iibuser	
🝷 🚍 Servers 📼	
🝷 🔁 default 🔍	
🖲 Services	
🖲 REST APIs	
🝷 🖾 Applications	
▼ 🐼 BTM_Trades	
声 Libraries	🐼 BTM_Trades
🕨 🕮 Message F	Start
🖳 Subflows	Stop
Resources	Belete
D Reference	s Statistics on
声 Libraries	Statistics off
Shared Libraries	Start flow monitoring
Message Flows	Stop flow monitoring

Flow monitoring will be activated.

Flow monitoring successfully started for all message flows in application 'BTM_Trades'

5.2 Execute the Business Transaction

Note - please follow the tests described in this guide. If you send messages with the same TradeOrderID more than once, you will see the status of the associated business event become "Inconsistent". This is not an error, but an indication that there is a problem with a particular business transaction. For example, events for a particular business transaction have been received after the business transaction status has been set to "End".

You will now send a number of messages to the application. These will result in different outcomes in the BTD which you will examine.

- 1. Open an instance of RFHUtil from the Start menu, and set the following values:
 - Queue Manager Name = IB10QMGR
 - Queue Name = TRADE.VALIDATE.IN
 - File Name = c:\student10\BTM_Trades\data\TradeMessageGold_BNY347290.xml

Click the Write Q button to send this message to the first message flow.

🛲 Rfh	Util V7.5.0											_ 🗆 ×
File E	dit Search	Read Write Viev	v Ids MQ He	lp								
Mair	Data	MQMD PS	Usr Prop	RFH	PubSub	pscr	jms	usr	other	CICS	IMS	DLQ
	Queue Mana IB10QMGR	ger Name (to connec	ct to)				•	Queue	Type Q	(ueue depth	I	
	Queue Name	IDATE.IN					•			Move Q		
	, Remote Que	ue Manager Name (r	emote queues on	y)			_	Save	eQ	Pur <u>ge</u> Q		
	Calcatas							Load	IQ J	<u>D</u> isplay Q]	
	Selector											
	Read <u>Q</u>	<u>W</u> rite Q <u>B</u> rows	se Q Start Bro	wse Bro	wse <u>N</u> ext	Browse Pre	ev End B	rowse	Close Q		e Options None Delete	
	437	je							ops	Churter G	Purge	
	File Name	NPTM Trades\data	TradeMessage		7290 uml	Data	Size	C Nor	ne	As Qu	en eue	
	Open File	Save File	ear Data	lear All	Load Names	Set Co	nn.ld	O Yes	12	O Bind L O Not Fi	ypen xed	
	COBOL Copy	Book File Name			Lodd Hamos		- Put/Get	O Con	npat	S Gloop		
	16.58.16 43	3 bytes read from file	C:\student10\BT	M Trades\	data\TradeMe	ssa 🔺	✓ Nev	v Msg Id by Msg Id by Correlid	□ Nev □ Log □ Com	v Correl Id ical Order nolete Mso		
				-			Get Get	by Group Id Iden Conte:	H All A	vail vert		
						T	1. 38	All Context	L Alte	mate useri	- 	
	•					•				E	RIC	

2. In the Web UI, on the View tab, click Refresh.

You will see that an instance of the BTD_Trades business transaction has appeared, denoted by the ID BNY347290.

Note that the Status is **Ended**.

BTD_Trades - I	Business Transaction			
🔮 Define 👔 Config	re 🔲 View			
				\sim
 All instances of BTD)_Trades			Filter. Refresh
Total : 1				\cup
Transaction ID	Start Time	Last Update	Status	
BNY347290	2015-12-29 17:01:02.018	2015-12-29 17:01:02.079	Ended	

3. Click on the line showing the business transaction. The line will highlight in blue, and all the individual events that comprise the business transaction will be shown.

Observe that the business transaction ID is represented by the Trade ID (the Global Transaction Correlator). For each event, you can click "More details" to see the details of the individual event.

 All instances of BTD_Trac 	les								Filter Ref
iotal : 1									
Transaction ID	Start Time		Last Update		Status				
BNY347290	2015-12-29 17:01:02.018		2015-12-29 17:01:02.079 Ended						
Events of BTD_Trades ins	stance BNY347290								Ref
otal : 5									
Event Name	Local Correlation ID	Flow	Name	Timestam	np	BitStream	Exception	Detai	S
Frade instruction received	CG123490	BTM.	_TRD1_Validate	2015-12-2	9 17:01:02.018	E,			More details
Decision: Gold customer	CG123490	BTM <u>.</u> e	_TRD2_Customer_Typ	2015-12-2	9 17:01:02.047				More details
Gold customer: Processing rade	CG123490	BTM	_TRD3a_Gold_Trade	2015-12-2	9 17:01:02.054				More details
Frade reconciliation	CG123490	BTM. iation	_TRD4_Final_Reconcil	2015-12-2	9 17:01:02.057				More details
Frade processing: Complete	CG123490	BTM. ete	_TRD5_Trade_Compl	2015-12-2	9 17:01:02.079				More details

4. Stop the message flow BTM_TRD4_Final_Reconciliation. In the Toolkit, right-click TRD4 and select Stop.



5. Now send several messages through to the message flow.

In a DOS window (or IIB Console), change directory to c:\student10\BTM_Trades\test.

Run the command :

testBTM.cmd

This will send a further 10 messages to the application, each of which has a different Trade ID.

```
10 messages to be written to queue TRADE.VALIDATE.IN on queue
manager IB10QMGR
minimum queue depth 3 max 15 batchsize 2
initial sleep time 20 tune = 0
connecting to queue manager IB10QMGR
opening queue TRADE.VALIDATE.IN for output
First message written at Tue Dec 29 17:10:26 2015
MQ Timestamp of first message written at 17:10:26
number on queue after sleep - min 0, max 0
Last message written at Tue Dec 29 17:10:26 2015
MQ timestamp of last message written at 17:10:26
```

Total messages written 10 out of 10 Total elapsed time in seconds 0.006891 Total bytes written 4330 Total memory used 8180

closing the queue closing the inquiry queue disconnecting from the queue manager MQPUT2 program ended 6. Back in the Web UI, click Refresh.

You will see a number of instances of BTD_Trades. They will have a status of "In progress". This means that they have all been started (have executed TRD1), but have not yet reached the final message flow (TRD5) where the end of the business transaction is defined. This is because TRD4 is stopped.

✓ All instances of BTD_Trades				
Total : 11				
Transaction ID	Start Time	Last Update	Status	
BNY347300	2015-12-30 08:37:47.833	2015-12-30 08:37:47.949	In progress	
BNY347299	2015-12-30 08:37:47.832	2015-12-30 08:37:47.912	In progress	
BNY347298	2015-12-30 08:37:47.831	2015-12-30 08:37:47.908	In progress	
BNY347297	2015-12-30 08:37:47.828	2015-12-30 08:37:47.896	In progress	
BNY347296	2015-12-30 08:37:47.827	2015-12-30 08:37:47.894	In progress	
BNY347295	2015-12-30 08:37:47.826	2015-12-30 08:37:47.889	In progress	
BNY347294	2015-12-30 08:37:47.821	2015-12-30 08:37:47.886	In progress	
BNY347293	2015-12-30 08:37:47.813	2015-12-30 08:37:47.873	In progress	
BNY347292	2015-12-30 08:37:47.804	2015-12-30 08:37:47.860	In progress	
BNY347291	2015-12-30 08:37:47.799	2015-12-30 08:37:47.837	In progress	
▼ Events				

7. You can click on any of the transaction instances to see the individual events that have been received for that instance.

▼ Events of BTD_Trades in	stance BNY347300					Refrest
Total : 3						
Event Name	Local Correlation ID	Flow Name	Timestamp	BitStream	Exception	Details
Trade instruction received	CG123500	BTM_TRD1_Validate	2015-12-30 08:37:47.833	Ξ,		More details
Decision: Gold customer	CG123500	BTM_TRD2_Customer_Type	2015-12-30 08:37:47.944			More details
Gold customer: Processing trade	CG123500	BTM_TRD3a_Gold_Trade	2015-12-30 08:37:47.949			More details

8. Now restart the TRD4 message flow.



9. Back in the Web UI BTD_Trades view, click Refresh again.

You will see the transaction instances have been updated. All should have a status of Ended.

efine 👔 Config	ure 🔲 View			
 All instances of BTI 	D Trades			Filer Refr
tal : 11				
ransaction ID	Start Time	Last Update	Status	
3NY347300	2015-12-29 17:10:27.047	2015-12-29 17:10:27.070	Ended	
NY347299	2015-12-29 17:10:27.031	2015-12-29 17:10:27.066	Ended	
3NY347298	2015-12-29 17:10:26.980	2015-12-29 17:10:27.063	Ended	
NY347297	2015-12-29 17:10:26.976	2015-12-29 17:10:27.056	Ended	
NY347296	2015-12-29 17:10:26.920	2015-12-29 17:10:27.049	Ended	
NY347295	2015-12-29 17:10:26.901	2015-12-29 17:10:27.034	Ended	
NY347294	2015-12-29 17:10:26.874	2015-12-29 17:10:27.002	Ended	
NY347293	2015-12-29 17:10:26.857	2015-12-29 17:10:26.976	Ended	
NY347292	2015-12-29 17:10:26.850	2015-12-29 17:10:26.957	Ended	
NV347201	2015-12-20 17:10:26 844	2015-12-29 17:10:26 900	Ended	

10. Experiment with the Filter options. For example, set the Filter to Transaction ID contains 296, and click OK.

Fi	Iter ify some filtering	; criteria	
>	Transaction ID	contains 💌	296
	Status	equals	In progress 🔻
			OK Cancel

The display will be reduced to the matching transaction.

▼ Filtered instances of BTD_Trades						
Total : 1						
Transaction ID	Start Time	Last Update	Status			
BNY347296	2015-12-29 17:10:26.920	2015-12-29 17:10:27.049	Ended			

11. Clear the filter, then set the filter to "Transaction ID ends with 94", click OK.

When finished, clear the Filter.

Fi	Iter ify some filtering	; criteria		
~	Transaction ID	ends with	▼ 94	
	Status	equals	In progress 🔻	
			OK Cancel	

12. Send a message that is malformed. In RFHUtil, open the file TradeMessage_Malformed.xml.

This message has a missing closing XML tag, and will fail validation on the input node in the TRD1_Validate message flow.

In RFHUtil, click Write Q to send this message.

13. In the Web UI, click Refresh. You will see a new transaction has appeared at the top of the list, with the status Failed.

BTD_Trades - Business Transaction						
🔮 Define 🛛 👔 Config	Define Re Configure					
▼ All instances of BTI) Trades					
Total : 13	5_118865					
Transaction ID	Start Time	Last Update	Status			
BNY590012	2015-12-29 17:19:21.537	2015-12-29 17:19:21.538	Failed			
BNY809092	2015-12-29 17:18:52.435	2015-12-29 17:18:52.481	Ended			
BNY347300	2015-12-29 17:10:27.047	2015-12-29 17:10:27.070	Ended			

14. Highlight the business transaction, and you will see the individual events.

You will see that the second event name is "Data validation failure".

Events of BTD_Trades instance BNY590012 Ref Total: 2							
Event Name	Local Correlation ID	Flow Name	Timestamp	BitStream	Exception	Details	
Trade instruction received	CG123456	BTM_TRD1_Validate	2015-12-29 17:19:21.537	Ξ,		More details	
Data validation failure	CG123456	BTM_TRD1_Validate	2015-12-29 17:19:21.538	Ξ,		More details	

15. Click "More details". You will see the full details of the event. Note that the Correlation IDs are shown correctly. This is because IIB was able to parse the incoming message at least as far as the field that is used for the Global Correlation ID (TradeOrderID). The XML error that caused the validation failure was after this particular element. In cases where IIB is not able to fully parse the message and obtain the value for the Global Correlation ID, it will not be possible to record this data, and a more generic failure will be recorded.

View the details of the 'Data validation failure' event of 'BTD_Trades' instance 'BNY590012'					
Event Name:	Data validation failure				
Event Source Address:	Validation Failure.terminal.in				
Integration Node Name:	TESTNODE_iibuser				
Integration Server Name:	default				
Message Flow Name:	BTM_TRD1_Validate				
Node Name:	Validation Failure				
Node Type:	ComlbmMQOutputNode				
Node Terminal Name:	in				
Local Correlation ID:	CG123456				
Parent Correlation ID:	BNY590012				
Global Correlation ID:	BNY590012				
		Cancel			

6. Add Security Roles for Web Users

So far in this lab, the IIB node has permitted all users to login. This means that users who are only interested in looking at BTM events have also had access to the IIB node, server and applications. You will now introduce administration security, which will provide more granular control of access to these functions.

This is discussed in more detail in the Admin Security lab.

1. First, activate administration security for the IIB node. In an IIB Console, execute the following commands:

```
mqsistop TESTNODE_iibuser
mqsichangeauthmode TESTNODE_iibuser -s active -m file
mqsistart TESTNODE_iibuser
```

2. Define role permissions for various classes of users. In the IIB Console, run the following commands:

```
cd c:\student10\BTM_Trades\webadmin
```

```
set_BTM_users_ACL_using_FileAuth.cmd
```

This cmd file will issue a number of mqsi commands similar to these shown here:

mqsichangefileauth IIBNODE -r iibAdmin2 -p read+ mqsichangefileauth IIBNODE -r iibAdmin2 -e default -p read+,write+,execute+ mqsichangefileauth IIBNODE -r iibAdmin2 -o DataCapture -p read-

For example, these commands define a profile (role) called iibAdmin2 which permits full read/write/execute access to the IIB node, full access to the server (default), but no access to the BTM functions (the DataCapture object).

3. Define the Web UI users who will use these permissions.

From the same directory, run the following command:

Create_BTM_users.cmd

This cmd file will run a number of mqsi commands similar to this:

mqsiwebuseradmin IIBNODE -c -u admin2 -a passw0rd -r iibAdmin2

This example command will define a new user, admin2, with the associated role of iibAdmin2.

4. In the Web browser, first make sure you are fully logged out of the node.

The, login with the user **admin2**, password = admin2.

This user has full (update) access to the IIB node, server and applications, but no access the any BTM events.

/	
	IBM Integration
	User ID: admin2
	Password:
	Log In
	Licensed Materials - Property of IBM Corp. Convright by IBM Corp. and other(s) 2001–2016.
IBN.	IBM, and the IBM logo are trademarks of International Business Machines Corporation, registered in many jurisdictions worldwide. Java and all Java-based marks and logos are trademarks or registered trademarks of Oracle and/or its affiliates. Other product or service names may be trademarks of IBM or other companies. Microsoft is a trademark of Microsoft Corporation in the United States, other countries, or both.

5. In the navigator, you can expand all items, and have full access to control resources.



6. Expand the Business folder, and select the BTD_Trades definition. You will see that you are able to see the definition of the BTD, and indeed make changes to the BTD. This is because admin3 (iibAdmin3) has update access to the IIB node and the server, which controls the definition and saving of BTDs.

IBM Integration	
Filter Options	BTD_Trades - Business Transaction
▼	刘 Define 🐁 Configure 🏢 View
✓	
► 🔁 default 👻	
Image: Policy	▼ Business Transaction
▶ 🖽 Data	
► 🆓 Security	
 Monitoring 	
🔻 🚑 Business	BTM_TRD1_Validat BTM_TRD3b_Regula BTM_TRD6_Failed BTM_TRD4_Final BTM_TRD3c_Guest
🔻 🚑 Business Transactions 🔍	e r_trade _trade_worknow _Reconciliation _trade
BTD_Trades 👻	

7. Click the View tab, and then click Refresh. You will see the message "Business transaction results could not be accessed".

😣 Business trans	saction results c	ould not be accessed	BIP2852	14:28 ×
🔊 Define 📄	Configure	View		
✓ All instances Total : 0	of BTD_Trades			Filter Refresh
Transaction ID	Start Time	Last Update	Status	
Fail	ed to load busine	ss transaction results	for the defintion b	BTD_Trades

8. Clicking on the message will provide more details. Insufficient authority is available for users with role "iibAdmin2". iibAdmin2 does not have "read access" to the DataCapture object.

Business transaction results could not be accessed BIP2852	14:28 ×
BIP2852E: The user 'iibAdmin2' is not authorized to perform the requested operation	n 'view' against the object
'DataCapture' of type 'DataCapture'. The user 'iibAdmin2' needs to have 'Read' perr	nission on the object
'DataCapture' of type 'DataCapture'. The user initiated a request to the integration n	ode to complete an action
on an object. The request was rejected by the integration node because the user d	bes not have the required
authorization. Set up authorizations for this object to grant the required authority to t	his user ID.

9. Logout admin2, and login with **btm1** (password = btm1).

In the navigator, this user cannot see any IIB resources.



10. Expand the Business folder and select BTD_Trades.

This user will not be able to create a new BTD, or make changes to the existing BTD.

Note, you may see a message indicating that the flows that comprise the BTD are not available. Answer No when asked whether to delete these flows. This message appears because this user does not have access to view deployed resources.

The following flows were	not found:
BTM_TRD1_Validate,	
BIM_IRD3a_Gold_Ira	1e, Frada
BTM_TRD30_Regular_	inade,
BTM_TRD3c_Gdest_Tra	nciliation.
BTM_TRD5_Trade_Con	nplete,
BTM_TRD6_Failed_Tra	de_Workflow,
BTM_TRD2_Customer_	Type.
Do you want to delete the	flows?
	Vas
	125 110



12. Click the View tab, and then click the Refresh button. You will see all the transaction instances that were created earlier.

You will be able to perform all the actions that were described earlier, such as filtering, and viewing the individual events.

BTD_Trades - Business Transaction						
Define 👔 🕼	Configure	I View				
 All instances 	Filter Refre					
Total : 12						
Transaction ID	Start T	ïme	Last Update	Status		
BNY590012	2015-1	12-30 08:44:56.084	2015-12-30 08:44:56.085	Failed		
BNY347300	2015-1	12-30 08:37:47.833	2015-12-30 08:43:17.704	Ended		
BNY347299	2015-1	12-30 08:37:47.832	2015-12-30 08:43:17.702	Ended		
BNY347298	2015-1	12-30 08:37:47.831	2015-12-30 08:43:17.698	Ended		
BNY347297	2015-1	12-30 08:37:47.828	2015-12-30 08:43:17.694	Ended		
BNY347296	2015-1	12-30 08:37:47.827	2015-12-30 08:43:17.691	Ended		
54.945 (3665	0045					

END OF LAB GUIDE