

IBM WebSphere Application Server V8.5

Cross-component trace



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This presentation describes support for cross-component trace (XCT) included in IBM WebSphere® Application Server V8.5

Section

Overview

Cross-component trace

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This section is an overview of cross component trace.

What is cross component trace?

- Cross component trace (XCT) is a log/trace correlation technology.
- XCT enables you to determine which log/trace entries are part of each request.
- XCT can be used in any of three different modes:
 - Request ID mode
 - Request ID and correlation log record mode
 - Request ID, correlation log record, and data snapshot mode
- XCT works best in combination with High Performance Extensible Logging (HPEL).
- HPEL stores XCT request IDs
- HPEL can filter log/trace records by XCT request ID

Cross component trace is a correlation technology that helps administrators see the flow of requests that span multiple threads or processes. XCT simplifies the task of determining which log or trace entries, in each application server log file, are part of each request. When enabled, XCT can be used in any of three different modes. In the first mode, XCT request IDs are added to existing log and trace records. In the second mode, XCT request IDs are added to existing log and trace records and XCT log records are added to log files. In the third mode, XCT request IDs are added to existing log and trace records, XCT log records are added to log files, and data snapshots are captured. XCT works best with the application server's High Performance Extensible Logging (HPEL) log and trace framework. XCT Request Ids are only ever added to HPEL log and trace records – they cannot be stored in SystemOut.log. HPEL also provides the ability to filter log and trace files by request ID and helps minimize the performance impact of enabling XCT log records.

Demonstration



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For a demonstration of how to enable high performance extensible logging, pause this presentation and click the demonstration icon.

What is cross component trace?

- IBM WebSphere Cross Component Trace Logviewer can be used to view files augmented with correlation log records.
 - Available for the IBM Support Assistant
 - Can load multiple files simultaneously
 - Can show flat or hierarchical views

A tool called IBM WebSphere cross component trace log viewer can be used to view log or trace files augmented with correlation log records. The tool is available as a tool add-on for the IBM Support Assistant. It is able to load multiple log files at the same time, and can display log content in either a flat chronologically-ordered view, or a hierarchical request-ordered view.

What is cross component trace?

- XCT comparison with PMI Request Metrics
 - XCT is for log and trace correlation
 - PMI Request Metrics is for performance tracking

XCT and PMI Request Metrics have some overlap. Both technologies provide transaction tracking.

XCT is used for log and trace correlation, making it easy to see which log and trace entries are part of the same requests. XCT can also be used to capture request and response payload data. XCT instrumentation is sparse as it aims mostly to track where requests change threads or processes.

PMI Request Metrics is used for performance tracking. PMI Request Metrics can expose its data to Application Response Measurement (ARM) agents. PMI Request Metrics instrumentation can be verbose as it tracks the performance of individual components.

Understanding XCT correlation log records

- Correlation log records look like this example:

```
[4/23/12 13:54:44:509 IST] 0000008e XCT          I  BEGIN AADx/itMDz-
AAAAAAAAAAAA 00000000000-cccccccc2 HTTPCF(InboundRequest
/JMSApp/LocalMessageSend RemoteAddress(127.0.0.1) RequestContext(2082603117))
```

- Each XCT correlation log record is structured as shown below
 - <Date> <Thread_ID> <XCT_Logger_Name> <Message_Type> <XCT_STATE>
<XCT_ID> <XCT_PARENT_ID> <XCT_MESSAGE>
 - <Date>: The date and time when the log record was generated
 - <Thread_ID>: The thread which generated this message
 - <XCT_Logger_Name>: The XCT logger name is XCT. This logger is used to identify the XCT Records in the Log file
 - <Message_Type>: Type of the log message
 - <XCT_STATE>: Each XCT Record has a State, it can be BEGIN, END
 - <XCT_ID>: A Unique ID generated for correlating the XCT Records
 - <XCT_PARENT_ID>: The XCT_ID of the parent XCT context
 - <XCT_MESSAGE>: The XCT message contains the information about the XCT record; this can contain some Associations and Annotations

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Each XCT record contains a date, thread ID, XCT logger name, message type, XCT state, XCT ID, XCT Parent ID, and message.

The date is the date and time when the message was generated.

The thread ID is the thread which generated the message.

The XCT logger name is the logger name in XCT, the logger is used to identify the XCT records in the log file.

The message type is the type of the log message.

The XCT state identifies whether an XCT context is beginning or ending. Think of an XCT context as a request running on a particular thread.

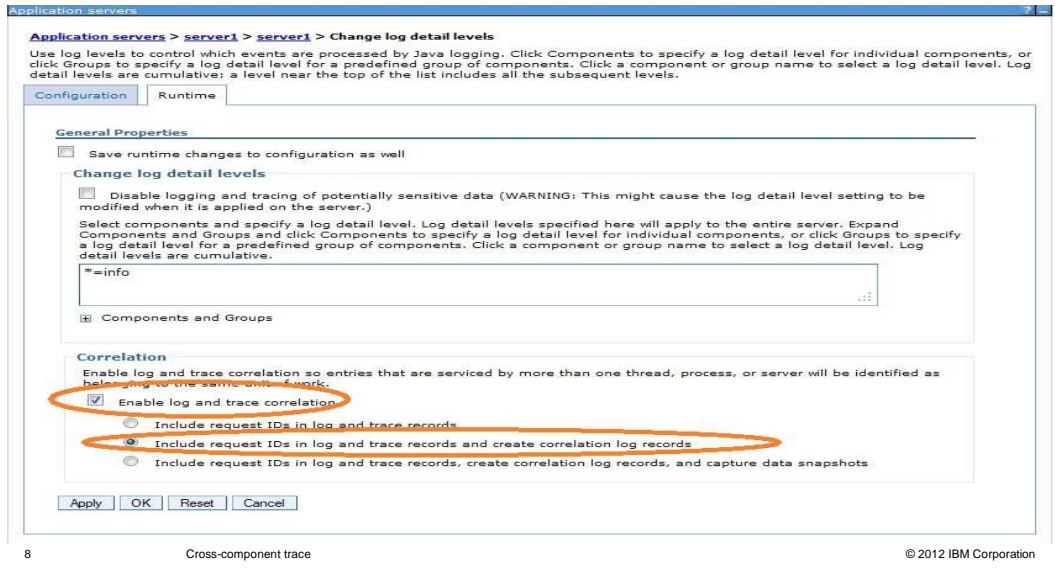
The XCT ID is the unique ID generated to correlate the XCT records.

The XCT parent ID is the XCT ID of the parent request.

The message contains the information about the XCT record; this can contain Associations and Annotations.

Enabling XCT through administrative console

- The panel below is where XCT is enabled on the administrative console
 - The panel can be found here: WebSphere Application Servers > SERVER_NAME > Change log detail levels



Cross Component Trace (XCT) can be enabled using the administrative console or WSADMIN scripts. In this illustration XCT is enabled using administrative console.

To enable XCT for the server, server1, navigate as follows: Servers > Server Types > WebSphere Application Servers > server1 > Change log detail levels > Runtime Tab

Select the check box that says Enable log and trace correlation and select the radio button labeled Include request IDs in log and trace records and create correlation log records

Section

Usage scenarios

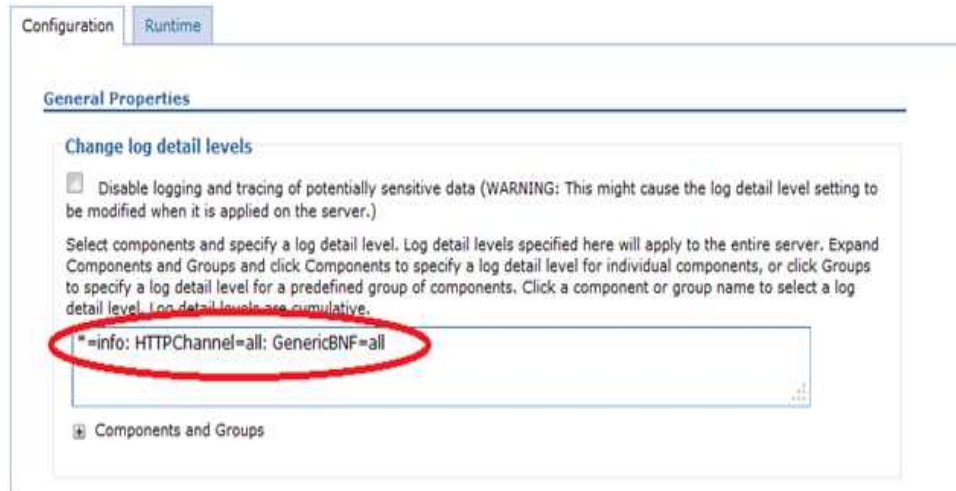
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Cross component trace is used in these scenarios.

HTTP trace

- For the HTTP scenarios these traces were enabled
 - The panel below can be found on this page: WebSphere Application Servers > SERVER_NAME > Change log detail levels



For the HTTP scenarios to follow this trace was enabled:
*=info:HTTPChannel=all:GenericBNF=all

Identifying all log/trace entries that are part of the same HTTP request

- The XCT requestID is added to all log and trace records associated with HTTP requests.
 - The requestID can only be seen when using the HPEL logViewer command-line tool with the advanced format
- Below is an example of logViewer output with the requestID circled in red
- The logViewer can be found within the bin directory on the server
 - Example: logViewer.bat -format advanced
 - The logViewer will display all log and trace entries

```
[5/9/12 19:27:20:843 EDT] 0000002b 1 UOW= source=com.ibm.websphere.XCT
thread=[WebContainer : 2 requestID=(AABZvPwW/cp-AAAAAAAAAAH)
  BEGIN AABZvPwW/cp-AAAAAAAAAAH 0000000000-CCCCCCCCC2 HTTPCF (InboundRequest
  /snoop RequestContext(1283695288))
[5/9/12 19:27:20:843 EDT] 0000002b 3 UOW=
source=com.ibm.ws.http.channel.impl.HttpServiceContextImpl org=IBM prod=WebSphere
component=Application Server thread=[WebContainer : 2 requestID=(AABZvPwW/cp-AAAAAAAAAAH)
  parseMessage() returning true for
  com.ibm.ws.http.channel.impl.HttpRequestMessageImpl@876d44e5
[5/9/12 19:27:20:844 EDT] 0000002b 1 UOW=
source=com.ibm.ws.http.channel.impl.HttpBaseMessageImpl org=IBM prod=WebSphere
component=Application Server thread=[WebContainer : 2 requestID=(AABZvPwW/cp-AAAAAAAAAAH)
  Initializing message:
  com.ibm.ws.http.channel.impl.HttpResponseMessageImpl@89f7e3fc with
  com.ibm.ws.http.channel.inbound.impl.HttpInboundServiceContextImpl@4c83a2b8
```

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An administrator might want to use XCT to identify what trace entries are part of an HTTP request. To accomplish this the HPEL logViewer command-line tool can be used. This tool is found within the bin directory of the server. When the “logviewer” is run with the advanced format option, the requestID can be seen on each trace entry. In order to have the requestID present XCT must be enabled.

To search for log and trace records that match a particular requestID, use the command `logViewer -includeExtensions requestID=<some Id>`.

For example:

```
logViewer -includeExtensions requestID=AABZvPwW/cp-AAAAAAAAAAH
```

Demonstration



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For a demonstration of how to Use request IDs to see log and trace entries related to a particular request, pause this presentation and click the demonstration icon.

Identifying HTTP requests the server is executing

- When an HTTP request arrives, the server executes an XCT BEGIN
 - Indicates the request has started processing
 - The entry in the logs show this information:
 - Parent XCT ID
 - Current XCT ID
 - Type of request(InboundRequest or OutboundRequest)
 - URI of request
 - RequestContext object ID from HTTPChannel
 - RemoteAddress from the connection the request originated from
 - Will only display if XCT correlation log records are enabled

```
[5/29/12 7:15:29:787 EDT] 000000be XCT      I  BEGIN AABPtopIWgZ-AAAAAAA7oMO
AABPtopIWgZ-AAAAAAA7oK8 HTTPCF(InboundRequest /favicon.ico RemoteAddress(9.42.75.112)
RequestContext (-1245247681))
```

An administrator can see what HTTP requests the server is running. When the request arrives, the server does an XCT BEGIN. This marks the request as having started processing. In the logs an XCT BEGIN for an HTTP request can commonly be seen with attributes showing the XCT Parent ID, XCT Current ID, the type of request, which includes InboundRequest and OutboundRequest, the URI of the request, the HTTP Channel RequestContext object ID, and the Remote IP Address from the connection the request originated from.

Identify what HTTP requests the server is executing

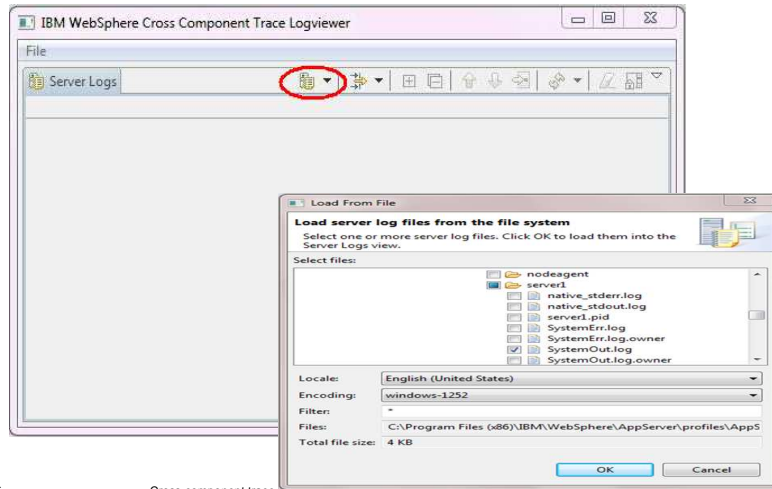
- When the request completes processing and XCT END is executed
 - Indicates the request is complete
 - The entry in the logs show this information:
 - Parent XCT ID
 - Current XCT ID
 - Type of request
 - Return Code of the response that is being returned
 - RequestContext object ID from HTTPChannel
- Will only display if XCT correlation log records are enabled

```
[5/29/12 7:15:29:886 EDT] 000000be XCT      I  END  AABPtopIWgZ-AAAAAAA7oMO  
AABPtopIWgZ-AAAAAAA7oK8 HTTPCF(InboundRequest RC=404 RequestContext(-1245247681))
```

When the request completes processing the server does an XCT END, this marks the request as finished. In the logs an XCT END for a HTTP request can commonly be seen with attributes showing the XCT Parent ID, XCT Current ID, the type of request, which includes InboundRequest and OutboundRequest, the return code of the response, and the HTTP Channel RequestContext object ID.

IBM WebSphere cross component trace log viewer

- The scenarios following this slide use the IBM WebSphere Cross Component Trace Logviewer – available as a tool add-on for the IBM Support Assistant
- Tool used to examine XCT entries in a log
- Logs can be loaded from multiple servers and they are stitched together



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The scenario that follows uses the IBM WebSphere cross component trace log viewer. The tool is used to examine XCT entries from a server log. Log files from multiple servers can be loaded and they are stitched together for a combined view.

Demonstrations

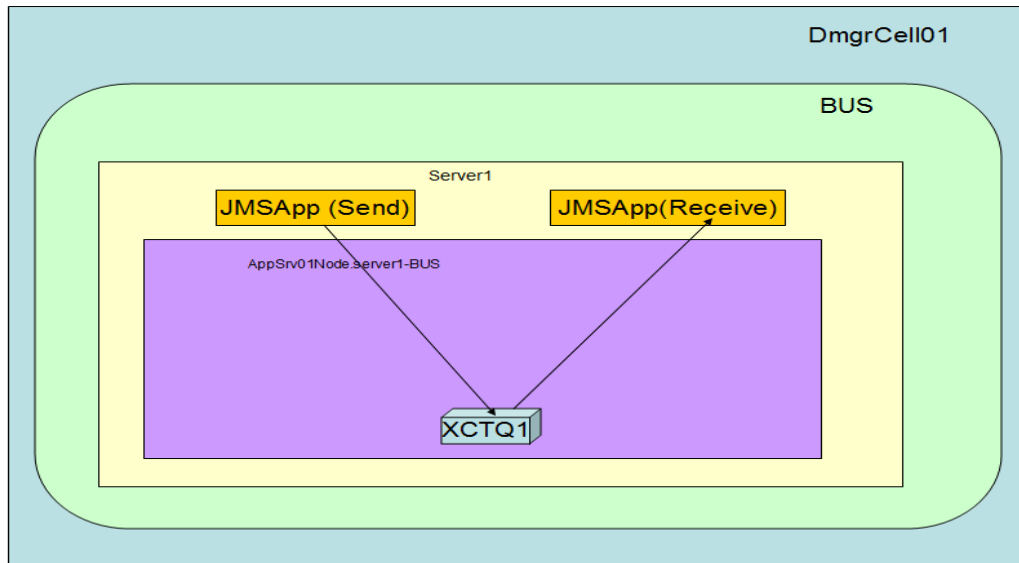


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For demonstrations on how to get the cross-component trace log viewer and on how to see request hierarchy in the log view, pause this presentation and click each demonstration icon.

Messaging topology for sending and receiving a JMS message from a local server scenario



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In this scenario, the JMS application and messaging engine are running in the same server process.

The JMS message is sent to a local queue destination and the message is received from the local queue destination synchronously.

Sending and receiving a JMS message from a local server

- JMS Applications and the Messaging Engine are running in the same process
- Message is received synchronously

Start HTTPCF (InboundRequest /JMSApp)	Apr 23, 2012 13:54:44.509 IST	Http to JMS	0000008e	Start of processing for HTTPCF (InboundRequest /JMSApp/LocalMessageSend).
Start JMS (SendMessage)	Apr 23, 2012 13:54:45.685 IST	Correlation	JMS to SIBus	Start of processing for JMS (SendMessage).
Start SIBus (Send)	Apr 23, 2012 13:54:45.686 IST	Correlation		Start of processing for SIBus (Send).
End SIBus (Send)	Apr 23, 2012 13:54:45.698 IST		0000008e	End of processing for SIBus (Send). Message Send
End JMS (SendMessage)	Apr 23, 2012 13:54:45.698 IST		0000008e	End of processing for JMS (SendMessage).
Log message	Apr 23, 2012 13:54:45.700 IST		0000008e	Message sent successfully: Message
End HTTPCF (InboundRequest RC=200)	Apr 23, 2012 13:54:45.713 IST		0000008e	End of processing for HTTPCF (InboundRequest RC=200).
Start HTTPCF (InboundRequest /JMSApp)	Apr 23, 2012 13:55:50.023 IST	Http to JMS	0000008e	Start of processing for HTTPCF (InboundRequest /JMSApp/LocalMessageReceive).
Start JMS (ReceiveInBound)	Apr 23, 2012 13:55:50.065 IST	Correlation	JMS to SIBus	Start of processing for JMS (ReceiveInBound).
Start SIBus (ReceiveNoWait)	Apr 23, 2012 13:55:50.065 IST	Correlation		Start of processing for SIBus (ReceiveNoWait).
End SIBus (ReceiveNoWait)	Apr 23, 2012 13:55:50.068 IST		0000008e	End of processing for SIBus (ReceiveNoWait). Message Receive
End JMS (ReceiveInBound)	Apr 23, 2012 13:55:50.068 IST		0000008e	End of processing for JMS (ReceiveInBound).
Log message	Apr 23, 2012 13:55:50.069 IST		0000008e	Successfully received message from the Queue: Message
End HTTPCF (InboundRequest RC=200)	Apr 23, 2012 13:55:50.070 IST		0000008e	End of processing for HTTPCF (InboundRequest RC=200).

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Since the JMS application and messaging engine are running in the same server process, the SystemOut.log from that server is loaded

HTTP to JMS Correlation and JMS to systems integration bus correlation can be clearly seen in the IBM WebSphere Cross Component Trace Logviewer

JMS XCT records

The image displays four screenshots of the IBM WebSphere Cross Component Trace Logviewer, showing JMS XCT records. Each window displays message details like Time, Thread ID, and Contents in Raw format. The records show the start and end of JMS messages and SIBus operations with associated metadata.

- Top Left:** Properties window for 'Start JMS (SendMessage)'. Time: Apr 23, 2012 13:54:45.685 IST. Thread ID: 0000008e. Contents: XCT I BEGIN AAADx/itMDz-AAAAAAAAAB AAADx/itMDz-AAAAAAAAAA JMS(SendMessage AcknowledgeMode(AUTO_ACKNOWLEDGE) MessageID:3d4bc16d4885da1889f9c0f3110a134f0000000000000001).
- Top Right:** Properties window for 'Start SIBus (ReceiveNoWait)'. Time: Apr 23, 2012 13:55:50.065 IST. Thread ID: 0000008e. Contents: XCT I BEGIN AAADx/itMDz-AAAAAAAAAG AAADx/itMDz-AAAAAAAF SIBus(ReceiveNoWait Assoc(MessagingEngineUuid 4E958E35D950051) Assoc(DestinationName XCTQ1)).
- Bottom Left:** Properties window for 'Start SIBus (Send)'. Time: Apr 23, 2012 13:54:45.686 IST. Thread ID: 0000008e. Contents: XCT I BEGIN AAADx/itMDz-AAAAAAAC AAADx/itMDz-AAAAAAAB SIBus(Send Assoc(MessagingEngineUuid 4E958E35D950051) Assoc(DestinationName XCTQ1) DestinationType(Queue) Transacted(False) Reliability(ReliablePersistent)).
- Bottom Right:** Properties window for 'End JMS (ReceiveInBound)'. Time: Apr 23, 2012 13:55:50.068 IST. Thread ID: 0000008e. Contents: XCT I END AAADx/itMDz-AAAAAAAE AAADx/itMDz-AAAAAAAE JMS(ReceiveInBound MessageID:3d4bc16d4885da1889f9c0f3110a134f0000000000000001).

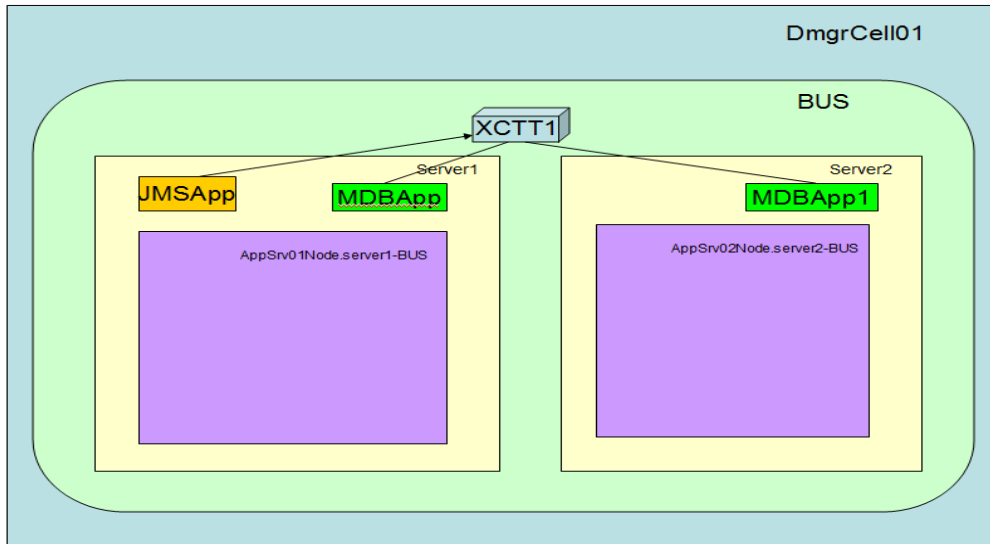
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By double clicking the entry in the record list in the IBM WebSphere Cross Component Trace Logviewer the XCT records with annotations can be seen. In the JMS layer, the JMS Message ID is captured, which helps in correlating the message sent with the message received. In the systems integration bus layer, information related to the destination where the message is sent and from where the message is received is captured, such as messaging engine UUID, destination name etc.

Messaging topology for receiving message asynchronously
(PubSub – Topicspace) JMS scenario



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In this scenario, two servers are involved. Two MDB applications are deployed -- one in server1 and another in server2.

The JMS application running in server1 publishes a message to a topic that is subscribed to by the MDB applications running in server1 and server2

The message is asynchronously consumed by the MDB application.

Receiving message asynchronously (PubSub - Topicspace)

- One MDB Application and the Messaging Engine are running in the same server process
- One MDB Application is running in a different server process
- Message is received asynchronously

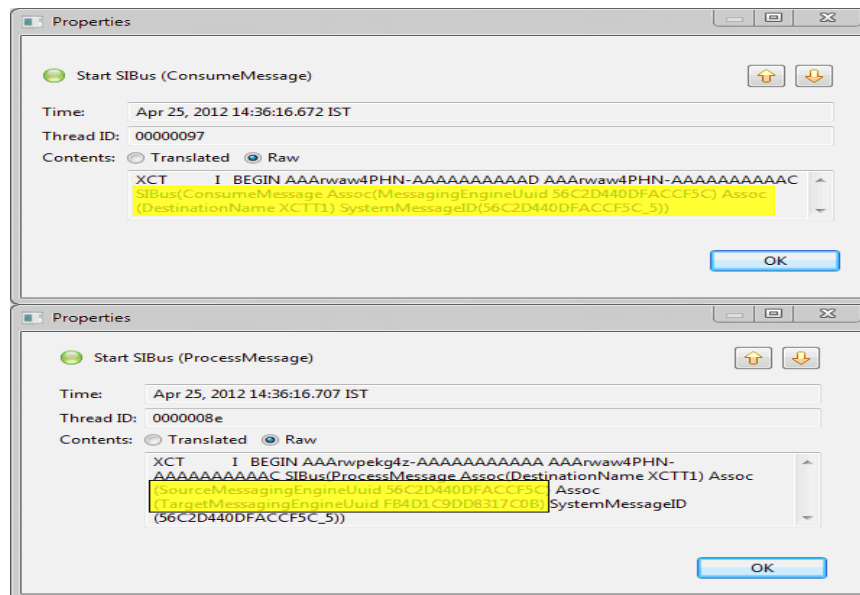
Start HTTPCF (InboundRequest /JMSApp/MessagePubl)	Apr 25, 2012 14:36:15.856 IST	00000095	Start of processing for HTTPCF (InboundRequest /JMSApp/MessagePublish).
Start JMS (SendMessage)	Apr 25, 2012 14:36:16.589 IST	00000095	Start of processing for JMS (SendMessage).
Start SIBus (Send)	Apr 25, 2012 14:36:16.590 IST	00000095	Start of processing for SIBus (Send).
Start SIBus (ConsumeMessage)	Apr 25, 2012 14:36:16.672 IST	00000097	Start of processing for SIBus (ConsumeMessage).
End SIBus (ConsumeMessage)	Apr 25, 2012 14:36:16.685 IST	00000097	End of processing for SIBus (ConsumeMessage).
End SIBus (Send)	Apr 25, 2012 14:36:16.657 IST	00000095	End of processing for SIBus (Send).
End JMS (SendMessage)	Apr 25, 2012 14:36:16.657 IST	00000095	End of processing for JMS (SendMessage).
Log message	Apr 25, 2012 14:36:16.659 IST	00000095	Message published successfully: Message
End HTTPCF (InboundRequest RC=200)	Apr 25, 2012 14:36:16.688 IST	00000095	End of processing for HTTPCF (InboundRequest RC=200).
Start HTTPCF (InboundRequest /JMSApp/MessagePubl)	Apr 25, 2012 14:36:15.856 IST	00000095	Start of processing for HTTPCF (InboundRequest /JMSApp/MessagePublish).
Start JMS (SendMessage)	Apr 25, 2012 14:36:16.589 IST	00000095	Start of processing for JMS (SendMessage).
Start SIBus (Send)	Apr 25, 2012 14:36:16.590 IST	00000095	Start of processing for SIBus (Send).
Start SIBus (ConsumeMessage)	Apr 25, 2012 14:36:16.672 IST	00000097	Start of processing for SIBus (ConsumeMessage).
End SIBus (ConsumeMessage)	Apr 25, 2012 14:36:16.685 IST	00000097	End of processing for SIBus (ConsumeMessage).
Start SIBus (ProcessMessage)	Apr 25, 2012 14:36:16.717 IST	0000009e	Start of processing for SIBus (ProcessMessage).
End SIBus (ProcessMessage)	Apr 25, 2012 14:36:16.721 IST	0000009e	End of processing for SIBus (ProcessMessage).
Start SIBus (ConsumeMessage)	Apr 25, 2012 14:36:17.225 IST	00000094	Start of processing for SIBus (ConsumeMessage).
End SIBus (ConsumeMessage)	Apr 25, 2012 14:36:17.238 IST	00000094	End of processing for SIBus (ConsumeMessage).
End SIBus (Send)	Apr 25, 2012 14:36:16.657 IST	00000095	End of processing for SIBus (Send).
End JMS (SendMessage)	Apr 25, 2012 14:36:16.657 IST	00000095	End of processing for JMS (SendMessage).
Log message	Apr 25, 2012 14:36:16.659 IST	00000095	Message published successfully: Message
End HTTPCF (InboundRequest RC=200)	Apr 25, 2012 14:36:16.688 IST	00000095	End of processing for HTTPCF (InboundRequest RC=200).

The SystemOut.log from server1 is loaded to show the inter-thread communication. Inter-thread communication is captured by XCT and displayed in IBM WebSphere cross component trace log viewer, where the JMS application and MDB application are running in the same server process.

The SystemOut.log from server1 and server2 are loaded to show the Inter server/process communication

Inter server/process communication is captured by XCT and displayed in the IBM WebSphere cross component trace log viewer, where the JMS application and the MDB application are running in different server processes.

XCT records



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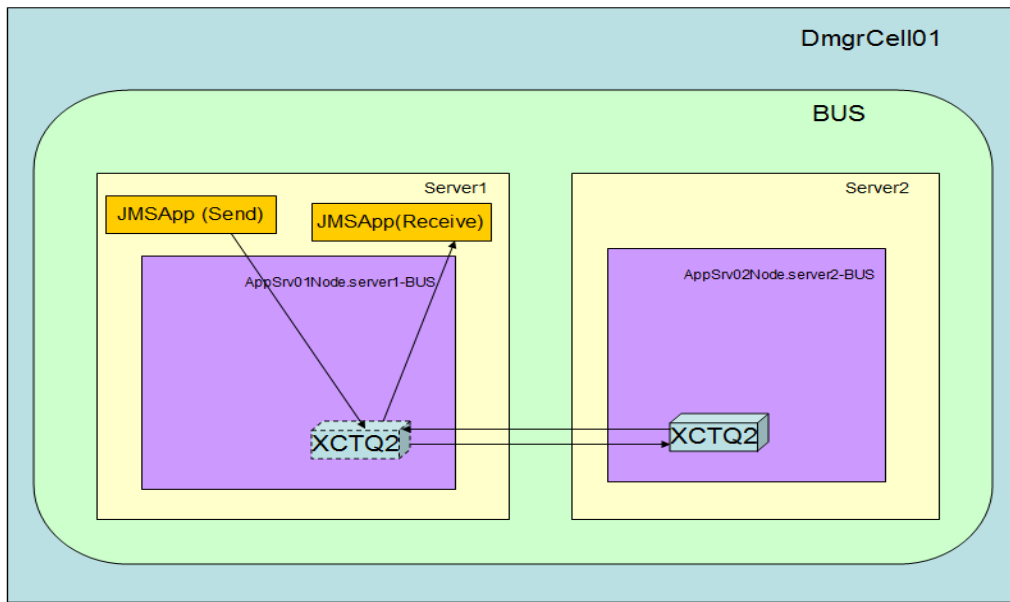
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The top image shows the message being consumed by the first server, where the JMS application and the MDB application are running in the same server process with the messaging engine. The messaging engine UUID, the destination name from where the message is consumed and the system message ID are captured.

The bottom image shows the message being processed by the second server, where the MDB application runs remotely from the JMS application. The messaging engine UUID of both the source and target messaging engines, the destination name where the message is consumed, and the system message ID are captured.

Messaging topology for store and forward and remote get scenario



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In this scenario, the JMS application deployed in server1 sends a message to a destination in server2 and receives a response message from that remote destination

The message is sent from server1 to server2 and a response is sent back from server2 to server1

Store and forward and remote get

Sending a message to, and receiving a message from a remote server

Start HTTPCF (InboundRequest /JMSApp/RemoteMess	Apr 25, 2012 16:04:39.969 IST	00000096	Start of processing for HTTPCF (InboundRequest /JMSApp/RemoteMessageSend).
Start JMS (SendMessage)	Apr 25, 2012 16:04:40.054 IST	00000096	Start of processing for JMS (SendMessage).
Start SIBus (Send)	Apr 25, 2012 16:04:40.055 IST	00000096	Start of processing for SIBus (Send).
Start SIBus (ProcessMessage)	Apr 25, 2012 16:04:40.077 IST	0000008e	Start of processing for SIBus (ProcessMessage).
End SIBus (ProcessMessage)	Apr 25, 2012 16:04:40.078 IST	0000008e	End of processing for SIBus (ProcessMessage).
Start SIBus (ProcessMessage)	Apr 25, 2012 16:08:39.470 IST	00000090	Start of processing for SIBus (ProcessMessage).
End SIBus (ProcessMessage)	Apr 25, 2012 16:08:39.474 IST	00000090	End of processing for SIBus (ProcessMessage).
End SIBus (Send)	Apr 25, 2012 16:04:40.072 IST	00000096	End of processing for SIBus (Send).
End JMS (SendMessage)	Apr 25, 2012 16:04:40.073 IST	00000096	End of processing for JMS (SendMessage).
Log message	Apr 25, 2012 16:04:40.074 IST	00000096	Message sent successfully: Message
End HTTPCF (InboundRequest RC=200)	Apr 25, 2012 16:04:40.077 IST	00000096	End of processing for HTTPCF (InboundRequest RC=200).
Start HTTPCF (InboundRequest /JMSApp/RemoteMess	Apr 25, 2012 16:08:39.189 IST	00000095	Start of processing for HTTPCF (InboundRequest /JMSApp/RemoteMessageReceive).
Start JMS (ReceiveInBound)	Apr 25, 2012 16:08:39.448 IST	00000095	Start of processing for JMS (ReceiveInBound).
Start SIBus (ReceiveNoWait)	Apr 25, 2012 16:08:39.448 IST	00000095	Start of processing for SIBus (ReceiveNoWait).
End SIBus (ReceiveNoWait)	Apr 25, 2012 16:08:39.480 IST	00000095	End of processing for SIBus (ReceiveNoWait).
End JMS (ReceiveInBound)	Apr 25, 2012 16:08:39.480 IST	00000095	End of processing for JMS (ReceiveInBound).
Log message	Apr 25, 2012 16:08:39.480 IST	00000095	Successfully received message from the Queue: Message
End HTTPCF (InboundRequest RC=200)	Apr 25, 2012 16:08:39.483 IST	00000095	End of processing for HTTPCF (InboundRequest RC=200).

In this case, two servers are involved.

The SystemOut.log from server1 and server2 are loaded to show the message flow from server1 to server2 and vice versa

The source and target messaging engines UUID's are captured by XCT

Message send and received with DataSnapshot enabled

Type	Time	Thr...	Contents
Start HTTPCF (InboundRequest /JMSApp/JMSDataSnapsho	Apr 25, 2012...	0000...	Start of processing for HTTPCF (InboundRequest /JMSAp...
Log message	Apr 25, 2012...	0000...	Creating Text Message
Log message	Apr 25, 2012...	0000...	Creation of Text Message Successful
Start JMS (SendMessage)	Apr 25, 2012...	0000...	Start of processing for JMS (SendMessage).
End JMS (SendMessage)	Apr 25, 2012...	0000...	End of processing for JMS (SendMessage).
Log message	Apr 25, 2012...	0000...	Text Message sent successfully: Message
Start JMS (ReceiveInBound)	Apr 25, 2012...	0000...	Start of processing for JMS (ReceiveInBound).
End JMS (ReceiveInBound)	Apr 25, 2012...	0000...	End of processing for JMS (ReceiveInBound).
Log message	Apr 25, 2012...	0000...	Successfully received Message of type null
Log message	Apr 25, 2012...	0000...	Creating Map Message
Log message	Apr 25, 2012...	0000...	Creation of Map Message Successful
Start JMS (SendMessage)	Apr 25, 2012...	0000...	Start of processing for JMS (SendMessage).
End JMS (SendMessage)	Apr 25, 2012...	0000...	End of processing for JMS (SendMessage).
Log message	Apr 25, 2012...	0000...	Map Message sent successfully: java.util.Collections\$1@...
Start JMS (ReceiveInBound)	Apr 25, 2012...	0000...	Start of processing for JMS (ReceiveInBound).
End JMS (ReceiveInBound)	Apr 25, 2012...	0000...	End of processing for JMS (ReceiveInBound).
Log message	Apr 25, 2012...	0000...	Successfully received Message of type null
Log message	Apr 25, 2012...	0000...	Creating Object Message
Log message	Apr 25, 2012...	0000...	Creation of Object Message Successful
Start JMS (SendMessage)	Apr 25, 2012...	0000...	Start of processing for JMS (SendMessage).
End JMS (SendMessage)	Apr 25, 2012...	0000...	End of processing for JMS (SendMessage).
Log message	Apr 25, 2012...	0000...	Object Message sent successfully: 1024
Start JMS (ReceiveInBound)	Apr 25, 2012...	0000...	Start of processing for JMS (ReceiveInBound).
End JMS (ReceiveInBound)	Apr 25, 2012...	0000...	End of processing for JMS (ReceiveInBound).
Log message	Apr 25, 2012...	0000...	Successfully received Message of type null
Log message	Apr 25, 2012...	0000...	Creating Stream Message
Log message	Apr 25, 2012...	0000...	Creation of Stream Message Successful
Start JMS (SendMessage)	Apr 25, 2012...	0000...	Start of processing for JMS (SendMessage).
End JMS (SendMessage)	Apr 25, 2012...	0000...	End of processing for JMS (SendMessage).
Log message	Apr 25, 2012...	0000...	Stream Message sent successfully: String Message
Start JMS (ReceiveInBound)	Apr 25, 2012...	0000...	Start of processing for JMS (ReceiveInBound).
End JMS (ReceiveInBound)	Apr 25, 2012...	0000...	End of processing for JMS (ReceiveInBound).
Log message	Apr 25, 2012...	0000...	Successfully received Message of type null

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Cross-component trace

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In this scenario, a message is sent to and received from a local queue destination with the XCT Data Snapshot option enabled.

When the message is sent and received the message data is stored in a file under the snapdata directory which is typically found under the server log root.

XCT records

Start JMS (SendMessage)

Time: Apr 25, 2012 17:10:39.725 IST

Thread ID: 00000096

Contents: Translated Raw

```
XCT I BEGIN AAArww4PHN-AAAAAAAAAABn AAArww4PHN-
AAAAAAAAABm JMS/SendMessage AcknowledgeMode(AUTO_ACKNOWLEDGE)
MessageID(ID:ea9ec8153a3436cf4ce322e8110a134f000000000000001) Attachment
(2012-4-25-17JMS_SEND.d15c033b-6b58-4b5e-bd4d-249f90928d10.txt)
```

OK

End JMS (ReceiveInBound)

Time: Apr 25, 2012 17:10:39.776 IST

Thread ID: 00000096

Contents: Translated Raw

```
XCT I END AAArww4PHN-AAAAAAAAAABp AAArww4PHN-AAAAAAAAABm JMS
(ReceiveInBound MessageID(ID:ea9ec8153a3436cf4ce322e8110a134f000000000000001)
Attachment(2012-4-25-17JMS_RECV.bde42294-c0f3-49de-8d4c-52efb905ff2d.txt))
```

OK

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Cross-component trace

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The XCT log record has the information on the attachment created

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