



IBM Software Group

WebSphere Message Broker - Common Problems and Solutions with SAP nodes

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Agenda

- Debugging Methodologies
- Issues during Discovery Process
- Issues during Runtime
- Fix Installation
- Q&A



Debugging Methodologies

- Version Info
- Logs/Traces
- Keywords to Look out in traces
- TraceNode
- Event log



Version Information

- Adapter version from WMB Toolkit:
 - Adapter Connection Wizard
 - Manifest.mf file from the CWYAP_SAPAdapter_Tx.rar file
 - *Located at: <WMBT>\ResourceAdapters\SAP6.1.0.X\deploy*
- Adapter version from WebSphere Message Broker runtime
 - Manifest.mf file from the CWYAP_SAPAdapter.jar file
 - *Located at: <WMBRuntime>\adapters\prereqs\jars*

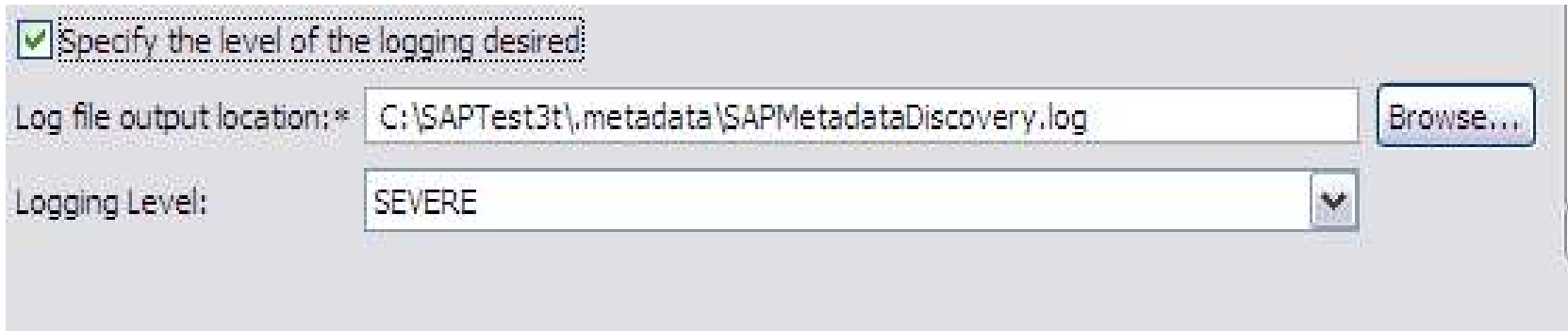


Logs/Traces



Collecting Logs-Discovery Process

- Enabling Logging during Discovery Process:



A screenshot of a configuration window for logging. At the top, there is a checkbox labeled "Specify the level of the logging desired" which is checked. Below this, there are two main fields. The first is "Log file output location: *" with a text box containing the path "C:\SAPTest3t\metadata\SAPMetadataDiscovery.log" and a "Browse..." button to its right. The second is "Logging Level:" with a dropdown menu currently showing "SEVERE".

- Eclipse Error logs: **located under <workspace>\.metadata\.log**

Collecting Logs-Runtime

- ServiceTraces:

- Enable the debug mode:

`mqsichangetrace <brokername> -t -e <egroup> -l debug -r -c 50000`

- URL for collecting servicetraces:

➤ <http://www-1.ibm.com/support/docview.wss?rs=849&uid=swg21177321#2>

- Local Error Log

- Event Logs- Windows®
- SysLogs –Unix®

- RFC Traces and JCO Traces



Trace Node

- Debugging Data related issues

The screenshot shows the 'Properties' dialog box for a 'Trace Node'. The 'Monitoring' tab is selected in the left-hand pane. The 'Basic' sub-tab is active, displaying the following configuration:

Property	Value
Destination	File
File path	c:\hello.txt
Pattern	\${Root}
Message catalog	
Message number	3051

Debug: Inbound Scenario

- For Transactional RFC scenarios (ALE/BAPI)
 - OnCheckTID
 - handleRequest()
 - onCommit()/onRollback()
 - OnConfirmTID()
 - OnNotification



Debug: Outbound Scenario

- For BAPI Outbound:
 - `WBIManagedConnection.getConnection()`
 - `Interaction.Execute()`
 - `invokeBAPI()`
 - `SAPBapiObjectSerializer.cursorToBapiFunction()`
 - `SAPBapiObjectSerializer.eisObjectToBapiCursor()`
 - 'Propagating message to destination terminal',
'ComIbmSAPRequestNode', 'SAP Request', 'out'



Debug: Outbound Scenario

- For ALE Outbound:
 - `WBIManagedConnection.getConnection()`
 - `Interaction.Execute()`
 - `postIDoc()`
 - 'Propagating message to destination terminal' ,
'ComIbmSAPRequestNode', 'SAP Request', 'out'



Issues: Artifact Generation



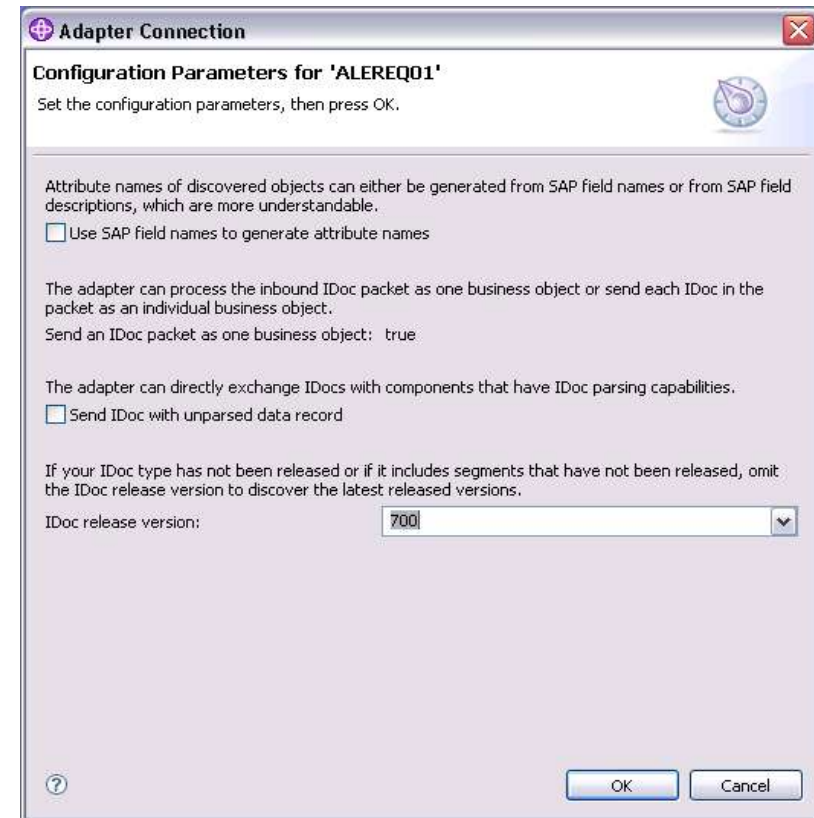
Unable to Access ..

- 'User not authorized to access the QUERY_TABLE' during the discovery of IDocs from SAP
- Solution:
 - Check with the SAP Basis Administrator user account permissions



Unreleased Segments

- 'The Segment couldn't be read for the release' error during discovery of IDOCS from SAP
- Solution:
 - Check with the SAP Basis Admin for user permissions
 - In the Adapter Connection wizard
 - Default value - version of the SAP system against which the wizard is run.
 - Set the field "IDoc release version" wizard to empty if the IDoc has unreleased segments



Setting RFCTracePath

- 'Unable to set the RFCTracePath parameter to an Unix Location'
- Solution:
 - Use mqsicreateconfigurableservice Command
 - Command Usage:
 - `mqsicreateconfigurableservice brokerName -c ConfigurableServiceType -o objectName -n name1,name2 -v value1,value2`
- Additional Info about the mqsicreateconfigurable service
 - http://publib.boulder.ibm.com/infocenter/wmbhelp/v6r1m0/index.jsp?topic=/com.ibm.etools.mft.doc/an37200_.htm

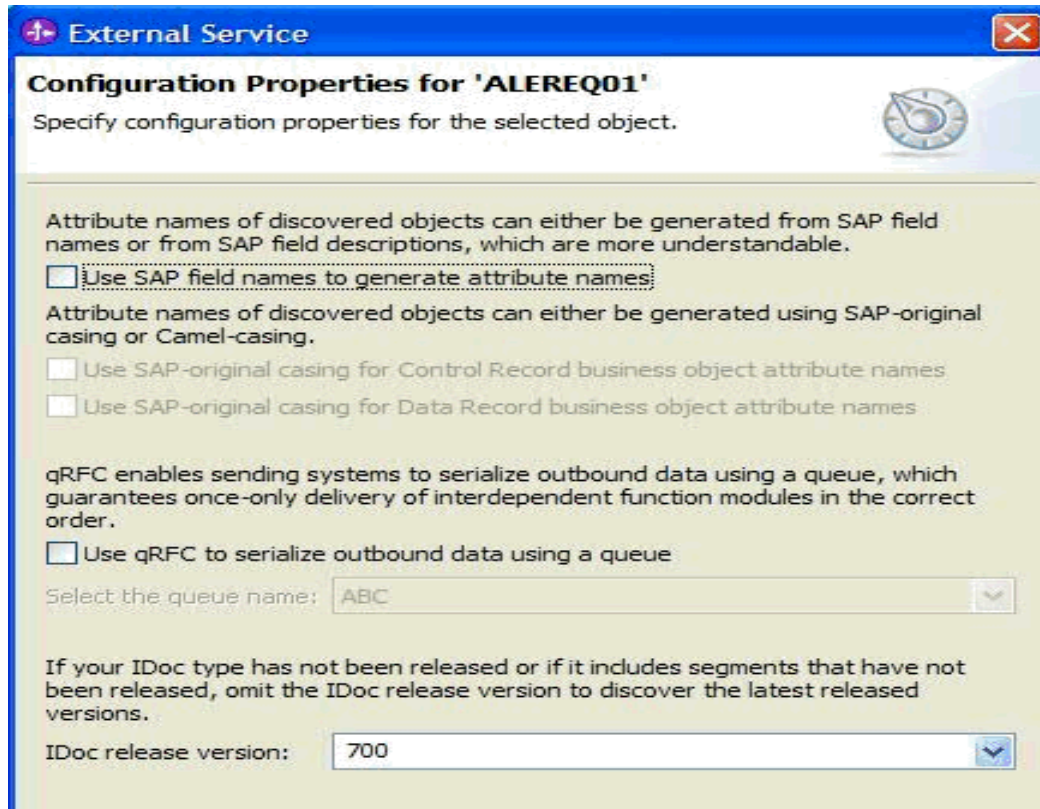


Authorization Objects...

- **Appropriate Access To Authorization Objects:**
 - B_ALE_RECV
 - S_CTS_ADMI
 - S_RFCACL
 - S_TCODE
 - S_RFC
 - S_TABU_DIS
 - S_IDOCCTRL
 - S_IDOCDEFT
- Some of the authorization names will be slightly different depending on the version, but the objects and the concept is the same
- Use **TCode SM19** and **SM20** to determine the exact authorization objects and correct level of permissions
- Following is the URL providing more info about authorizations for ALE/BAPI:
▪ http://www-01.ibm.com/support/docview.wss?rs=695&context=SSMKUK&q1=1293351&uid=swg21293351&loc=en_US&cs=utf-8&lang=en



ALE Schema Naming Conventions



The screenshot shows a Windows-style dialog box titled "External Service" with a close button in the top right corner. The main title is "Configuration Properties for 'ALEREQ01'", and the subtitle is "Specify configuration properties for the selected object." To the right of the subtitle is a circular icon with a clock face. The dialog contains several sections of text and checkboxes:

- A paragraph: "Attribute names of discovered objects can either be generated from SAP field names or from SAP field descriptions, which are more understandable." Below it is a checkbox labeled "Use SAP field names to generate attribute names", which is currently unchecked.
- A paragraph: "Attribute names of discovered objects can either be generated using SAP-original casing or Camel-casing." Below it are two unchecked checkboxes:
 - "Use SAP-original casing for Control Record business object attribute names"
 - "Use SAP-original casing for Data Record business object attribute names"
- A paragraph: "qRFC enables sending systems to serialize outbound data using a queue, which guarantees once-only delivery of interdependent function modules in the correct order." Below it is an unchecked checkbox labeled "Use qRFC to serialize outbound data using a queue".
- A text field labeled "Select the queue name:" with the value "ABC" and a dropdown arrow.
- A paragraph: "If your IDoc type has not been released or if it includes segments that have not been released, omit the IDoc release version to discover the latest released versions." Below it is a text field labeled "IDoc release version:" with the value "700" and a dropdown arrow.

Issues: Runtime



JCO RFC Exceptions

- Types:
 - RFC_ERROR_SYSTEM_FAILURE
 - RFC_ERROR_CANCELLED
 - RFC_ERROR_COMMUNICATION
- Handling JCO Exceptions:
 - Not within the Adapter scope
 - Needs to be investigated on SAP Application end
 - Involve SAP Basis Administrator to investigate the root cause



SAP Server Maintenance/Downtime

- SAPInput:
 - Maximum no of retries in case of system connection failure
 - Default value: 0
 - Time between retries in case of system connection Failure
 - Default value: 60000
- SAPRequest:
 - Automatic retry mechanism
 - Available from 6.1.0.5 onwards
- Enable 'Ensure Once Only Delivery'



SAP Server Maintenance/Downtime

- Best practice:
 - Stop the Application/Message Flows that contain instances of the SAP Adapter
 - Stop the SAP System
 - Perform maintenance
 - Restart the SAP System
 - Restart the application/message flow containing the SAP Adapter



Issues: SAPInput node



RFCProgramID Issue ...

- Typical Scenario would be for instance ...
 - There are two different message flows configured to listen to same RFCProgramId
 - IDocs meant for one message flow was routed to other message flow and exceptions are thrown when IDocs submitted from SAP

- Handling the Scenario:
 - Unique RFCProgramId
 - Limitation addressed in V 7.0



Events not reaching endpoint

- Messages from SAPInput Node disappears and never reaches the message flow end-point. Tcode SM58 in SAP shows no failed transactions
- Solution:
 - Look up the service trace to identify the onNotification() method has been invoked
 - Indicates that adapter has received the message and successfully dispatched to the endpoint
 - There is a known defect addressed in WMB Ver. XXX. Open PMR to get the fix



Limitation in associating operations

- The adapter would only allow to associate with 3-partner profiles during the Artifact Generation using the Create/Update/Delete operations
- Solution:
 - Can only associate max of 3 operations-v6.1.0.x
 - Limitation removed in v7.0



Service unknown error

- 'ERROR service 'sapgw00' unknown' occurs with SAPInput node exception on WMB ver 7.0
- Solution
 - Add the following entry to your "etc/services" file where adapter resides: "sapgw00 3300/tcp"
 - "sapgw00" is the default, please change the port accordingly when using another gateway
 - For example, "sapgw04" represents SAP System Number 04 and the corresponding port should be 3304
 - Please consult your system administrator for any potential port conflicts



Issues: SAPRequest node



Max length ASI issue

- Exception below with error Code CWYAP2009 and CWYAP2017 thrown due to Max length ASI issue:

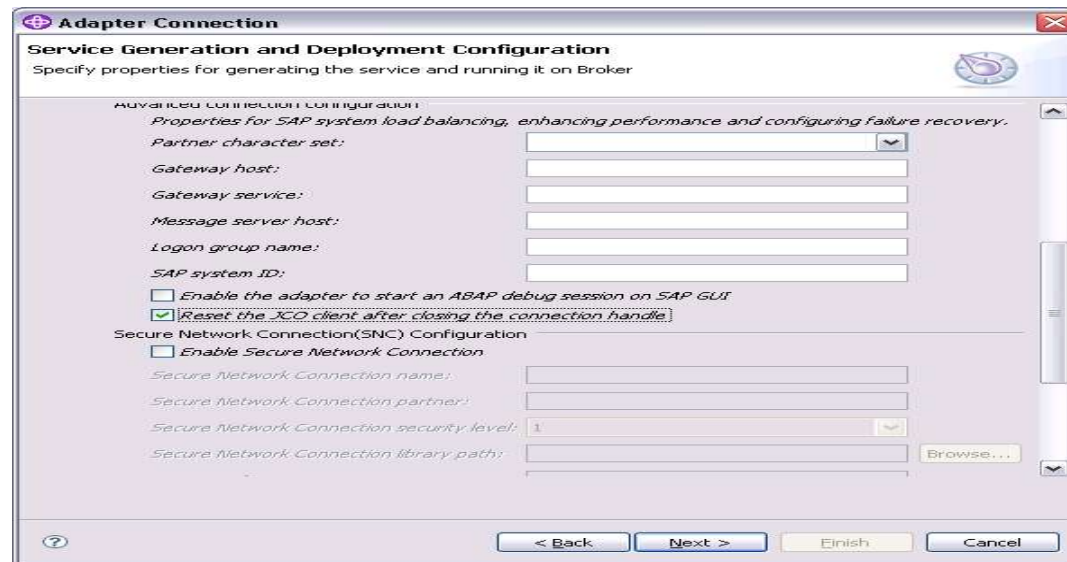
UserTrace BIP3484E: "CWYAP2009:An error occurred because data exceeded the maximum length for BAPI property =xxx asi=xxx ,valid maxLength=0 received length=31 Explanation=Data retrieved from SAP is longer then the property can hold. UserAction=Reduce the data length for the logged property."

- Issue would occur with BAPI OUT and INOUT parameters
- Maxlength ASI is incorrectly set to 0
- Solution:
 - Fixed in the latest IFixes on 6.1.0.3, 6.1.0.4 and 6.1.0.5



Handling ABAP logic change

- BAPI module doesn't retrieve up-to-date values after ABAP Logic change. Requires restart of the message flow
- Solution:
 - 'Reset the JCo Client call after closing the Connection Handle ' property has been added
 - Fix included in the latest IFix on Ver 6.1.0.3 ,6.1.0.4, 6.1.0.5 and Ver 7.0



Scenario 3

- Exception thrown with error code (CWYAP3068), when retrieving IDoc from SAP using SAPRequest node
- Snippet of the error:

'CWYAP3068:Cursor.getNext() method call failed, verify that the input business object Cursor

com.ibm.broker.despi.MbTopLevelInputCursor@69a169a1 data is initialized.

Error Message: getAccessor called for non existent accessor: Cursor = /

Explanation=The input data has not been populated in the input business object Cursor.

UserAction=Input business object data may not have been initialized in the business object specified in the error message , make sure daa is initialized before calling getNext()

Solution

- Make sure all the mandatory fields are populated in the input message
- List of Mandatory Fields for ALE Control Record:
 - ReceiverPort, PartnerTypeOfSender, NameOfBasicType,
 - PartnerNumberOfSender, NameOfTableStructure, Client,
 - LogicalMessageType, PartnerNumberOfRecipient,
 - SenderPort and PartnerTypeOfRecipient
- Data Record should be non-null as well



Scenario 4

- Error in **ASSIGN** statement in the program **SAPLSDTX** with **QISS** module

Reason:

Using the RFC_READ_TABLE

Refer to the SAP OSS note # 758278



Solution ...

SAP recommends using Custom Function per the SAP Note #758278

The screenshot shows a Windows-style dialog box titled 'Adapter Connection'. It has a yellow tab at the top labeled 'Additional details available.' and a red close button. The main area is titled 'Configure Objects' and contains the instruction: 'Specify the properties for the objects that will be imported by the discovery agent.' Below this, there are four input fields: 'Business object namespace: *' with the value 'http://www.ibm.com/xmlns/prod/websphere/j2ca/sap', 'Specify the relative folder for generated business object:' with an empty field, 'Folder:' with an empty field, and 'Specify a custom retrieve function module to use instead of the standard retrieve function module:' with an empty field. At the bottom, there are four buttons: '< Back', 'Next >', 'Finish', and 'Cancel'. A help icon (?) is located in the bottom left corner.

Adapter Connection Additional details available.

Configure Objects

Specify the properties for the objects that will be imported by the discovery agent.

Business object namespace: *

Specify the relative folder for generated business object:

Folder:

Specify a custom retrieve function module to use instead of the standard retrieve function module:

Custom retrieve function name:

? < Back Next > Finish Cancel

Load balancing



Load Balancing

- Relies on SAP for load balancing support
- Properties:
 - Message Server Host
 - Logon Group
 - SAP SystemID
 - SAP Gateway Host
 - SAP Gateway service
 - Username
 - Password



SAPInput node doesn't receive events.

- SAPInput node does not receive events from all the Appservers in the Load balancing setup
- Solution
 - Limitation has been identified. The adapter currently would only listen to/receives requests from only one server host specified in the Message Server Host/Gateway Host property
 - Please contact Support thru the PMR process for fix on the version being used



Applying Adapter Fixes



WebSphere Message Broker Toolkit

- Unzip the Package_WMBT.zip
- Stop your WMB Toolkit
 - Backup the existing CWYAP_SAPAdapter_Tx.rar file
 - Copy the above CWYAP_SAPAdapter_Tx.rar files to WMBT_INSTALL_PATH\ResourceAdapters\SAP_(version_number)\deploy directory
- Restart WMBToolkit



WebSphere Message Broker Runtime

- Unzip the Package_WMB.zip
- Stop all your Brokers that are using this install
 - Backup the existing CWYAP_SAPAdapter.jar and CWYBS_AdapterFoundation.jar jar files
 - Copy the above files to <WMB Runtime install dir\adapters\prereqs\jar directory
- Restart your Brokers



Websites to Bookmark ...

IBM® Support Search page for Adapter for SAP

[http://www-01.ibm.com/support/search.wss?
rs=695&tc=SSMKUK&atr=IBMTask&atr=SP&q=SAP&ibm-go.x=13&ibm-go.y=17](http://www-01.ibm.com/support/search.wss?rs=695&tc=SSMKUK&atr=IBMTask&atr=SP&q=SAP&ibm-go.x=13&ibm-go.y=17)

IBM Software Support Life Cycle

<http://www.ibm.com/software/info/supportlifecycle/>

WebSphere Message Broker 6.1 Infocenter

<http://publib.boulder.ibm.com/infocenter/wmbhelp/v6r1m0/index.jsp>

WebSphere Message Broker 7.0 Infocenter

<http://publib.boulder.ibm.com/infocenter/wmbhelp/v7r0m0/index.jsp>

Hardware and software requirements for WebSphere Adapters

<http://www.ibm.com/support/docview.wss?uid=swg27006249>

Recommended Fixes

<http://www-01.ibm.com/support/docview.wss?fdoc=aimadp&rs=695&uid=swg27010397>



Additional WebSphere Product Resources

- Discover the latest trends in WebSphere Technology and implementation, participate in technically-focused briefings, webcasts and podcasts at:
<http://www.ibm.com/developerworks/websphere/community/>
- Learn about other upcoming webcasts, conferences and events:
http://www.ibm.com/software/websphere/events_1.html
- Join the Global WebSphere User Group Community:
<http://www.websphere.org>
- Access key product show-me demos and tutorials by visiting IBM Education Assistant:
<http://www.ibm.com/software/info/education/assistant>
- View a webcast replay with step-by-step instructions for using the Service Request (SR) tool for submitting problems electronically:
<http://www.ibm.com/software/websphere/support/d2w.html>
- Sign up to receive weekly technical My Notifications emails:
<http://www.ibm.com/software/support/einfo.html>



Questions...

