How To...
Handle
Acknowledgements for IDoc
Version 1.00 – August 2004

Applicable Releases:
SAP NetWeaver '04
SAP Exchange Infrastructure 3.0
1 Scenario

This guide deals with the processing of acknowledgment messages for IDoc-XI-IDoc scenarios. The following scenario is considered:

![Diagram of IDoc-XI-IDoc scenarios]

2 Introduction

For asynchronous messages, an acknowledgment informs the sender about the status of message processing. There are four types of acknowledgment:

- System acknowledgment: sent back when the request arrives at the final receiver.
- System error acknowledgment: sent back when a system error occurs during message processing within SAP XI.
- Application acknowledgment: sent back when the message is successfully processed within the receiver application.
- Application error acknowledgment: sent back when an error occurs during message processing within the receiver application.

In general, acknowledgments have to be requested explicitly by the sender. However, this does not apply to IDocs. The following acknowledgments are sent back by default, unless the corresponding message type is maintained in an exception table (see chapter 3.4):

- System error acknowledgment
- Application acknowledgment
- Application error acknowledgment.

IDocs only return acknowledgments if the receiver is configured for using ALE audit (see chapter 3.1).

ALE audit is only possible for IDocs of type *logical system* (LS).
3 The Step-by-Step Solution

3.1 Configure ALE Audit in the Receiver System

1. Use transaction BD54 to maintain the logical system B6MCLNT000 (sender service).

2. Use transaction BD64 to maintain a distribution model for ALE audit. Select the sender CLNT113, the receiver B6MCLNT000, and the message type ALEAUD. You have the option of selecting a specific message type as a filter object.

3. Use transaction SM59 to maintain the RFC destination U6D_700 to the Integration Server.
4. Use transaction WE21 to create the tRFC Port SAPU6D using the corresponding RFC destination.

5. Use transaction WE20 to maintain the partner profile for the logical partner B6MCLNT000.

6. Select the message type ALEAUD as outbound parameter and the receiver port SAPU6D.
7. Define the sending of confirmations.

Use transaction RBDSTATE to create the variant SAP_AUDIT_SEND for report RBDSTATE.

8. Schedule a background job in the receiver system to periodically send back the audit data to the sender system.

Use transaction SM36 to define a job using RBDSTATE and variant SAP_AUDIT_SEND.
3.2 Configure the Routing for Acknowledgments

1. In the Integration Directory, create a communication channel of adapter type IDoc.

Select the adapter type IDoc, the RFC destination B6M_000, the port SAPB6M, and the appropriate SAP release.

No routing rules are required for acknowledgments; you only have to define a communication channel. If there are several communication channels of adapter type IDoc, the channel starting with Ack is used.
3.3 Message Monitoring Aspects

1. Use transaction SXMB_MONI (Integration Engine - Monitoring ➔ Monitor for Processed XML Messages) to display the message.

   Information about requesting acknowledgments is displayed in the ReliableMessaging message header section.

2. The Main message header section contains the message class, the message ID of the acknowledgment, and the reference to the request message. In the example, the message class is ApplicationAck. Since the status within the Ack message header section is Error, the acknowledgment is of type Application Error Acknowledgment.

3. The Ack message header section contains the status and the category of the acknowledgment, for example, the status OK or Error and the category transient or permanent.
4. The HopList message header section records the path from the original sender to the final receiver in order to route acknowledgement messages back. The request message hop list is copied to the header of the acknowledgment message.

5. For both application and system errors, the Err message header section describes error details. Once you have corrected the error, you can restart the request message.
3.4 Configure the Integration Server (Optional)

1. Use transaction SXMB_ADM (*Integration Engine - Configuration*) to obtain system error acknowledgments from pipeline services of the Integration Server and maintain the specific configuration parameter ACK_SYSTEM_FAILURE of the RUNTIME category.

Whenever a system error occurs within the Integration Server, a system error acknowledgment is sent back to the sender.

2. If you want to suppress any kind of acknowledgment, maintain the IDXNOALE table: specify the port, the client of the sender, and the message type.

3. The upper figure on the right shows that the first message requests an acknowledgment. Once you have maintained the exception table, an acknowledgment will no longer be requested (see the Ack. Status column of the second message).

The lower figure shows the ReliableMessaging message header section of the second message. All attributes indicating an acknowledgment request have disappeared, that is, their values are set to false.
4 Case Studies

4.1 Case Study 1: System Error Within the Integration Server

1. Problem: The RFC destination in the communication channel is not valid.

2. Message monitoring on the Integration Server:

A system error occurs in the Adapter Engine. It is displayed in the message monitoring.

3. Message monitoring on the Integration Server:

An acknowledgment with the message class SystemAck, the status Error, and the category transient is created and sent back to the sender system.
4. Sender – Inbound

Within the IDoc adapter, an IDoc of message type ALEAUD is created and sent to the sender system.

Use transaction WE05 to display the inbound IDoc.

The IDoc ALEAUD refers to the original request IDoc. Among other things, it contains the status 56 and an error text (see the mapping table in the appendix).

5. Sender – Outbound

The status of the request IDoc is updated; the current status is 39, indicating that the IDoc is in the target system. Here, the XI system is the target system.

Note that the current status shows a green light even though an error occurs.

6. If you double-click the current status, the status record is displayed with information about the error.
7. Message monitoring on the Integration Server:

Once you have fixed the problem that caused the system error, the request message is restarted.

8. Receiver – Inbound

The current status of the request IDoc is 53, indicating that the IDoc is successfully posted to the application within the receiver system.

9. Receiver – Outbound

An ALE audit IDoc is created, referring to the request IDoc.

10. Message monitoring on the Integration Server:

Within the IDoc adapter, a positive acknowledgment is created and sent to the sender system. The message class is ApplicationAck, the status is OK, and the category is permanent (see the mapping table in the appendix).
11. Sender – Outbound

The status of the request IDoc is updated; the current status is 41, indicating that the application document is created in the target system. Status 41 is final.
4.2 Case Study 2: System Error in Receiver System

1. Receiver – Partner Profiles
   Problem: An inbound parameter is missing.

2. Sender – Outbound
   The current status of the request IDoc is 12.

3. Receiver – Inbound
   The current status of the request IDoc is 56, indicating that an IDoc with errors is added (partner profile inbound not available).
4. Receiver – Outbound

ALE audit sends back status 56 for the request IDoc.

5. Message monitoring on the Integration Server:

An acknowledgment with message class `SystemAck`, status `Error`, and category `transient`.

6. Sender – Outbound

Update of request IDoc; the current status is 39.

7. Receiver – Partner Profiles

Option 1: Fixing the problem. Add an inbound partner profile and reschedule the IDoc.
8. Receiver – Inbound

The current status of the request IDoc is 53.

9. Receiver – Outbound

ALE audit sends back status 53 for the request IDoc.

10. Message monitoring on the Integration Server:

Acknowledgment with message class ApplicationAck, status OK, and category permanent.

11. Sender – Outbound

The status of the request IDoc is updated, the current status is 41 (final).
12. Receiver

Option 2: The problem could not be fixed. Instead, a permanent system error occurs.

13. Receiver – Outbound

ALE audit sends back status 68: error – no further processing.

14. Message monitoring on the Integration Server:

Acknowledgment with message class SystemAck, status Error, and category permanent.

15. Sender – Outbound

The status of the request IDoc is updated, the current status is 40, indicating that an application document is not created in the target system (final).
### 4.3 Case Study 3: Application Error

1. **Receiver – Inbound**
   
The IDoc is posted to the receiver, but an application error occurs.
   
The current status of request IDoc is 51, indicating that no application document is posted.

2. **Receiver – Outbound**
   
ALE audit sends back status 51.

3. **Message monitoring on the Integration Server:**
   
Acknowledgment with message class `ApplicationAck`, status `Error`, and category `transient`.

![Diagram of IDoc display](image-url)
4. Sender – Outbound

The status of the request IDoc is updated; the current status is 39.

5. Receiver – Outbound

The application problem is solved. ALE audit sends back status 53.

6. Message monitoring on the Integration Server:

Acknowledgment with message class ApplicationAck, status OK, and category permanent.

7. Sender – Outbound

The status of the request IDoc is updated, the current status is 41 (final).
4.4 Case Study 4: Multiple Receivers (Branching)

1. Receiver XID_113 – Inbound

The IDoc is posted successfully to the receiver, the current status of the request IDoc is 53.

2. Receiver XID_112 – Inbound

The IDoc is posted to the receiver, but a system error occurs, and the current status of the request IDoc is 56.

3. Message monitoring on the Integration Server:

The receiver XID_113 first sends a positive acknowledgment with message class ApplicationAck, status OK, and category permanent.
4. Message monitoring on the Integration Server:

The receiver XID_112 afterwards sends a negative acknowledgment with message class `SystemAck`, status `Error`, and category `transient`.

5. Sender – Outbound

Regardless of the order in which acknowledgments are sent to or arrive in the sender system, the positive acknowledgment of the receiver XID_113 results in final status 41 for the request IDoc. Note that once the IDoc has a final status, it will no longer be updated, even though a negative acknowledgment of a second receiver arrives. Hence, ALE does not reflect branch messages.
5 Appendix

5.1 Mapping IDoc Status – XI Acknowledgment Status

The IDoc statuses are categorized into status groups (qualifications). The status of the IDoc at the outbound side is updated depending on the status group that the IDoc status at the inbound side belongs to. You can use transaction WE47 (Status Maintenance) to change the assignment between status and status group.

The mapping table below shows how the IDoc status (inbound and outbound) and the XI acknowledgment status are related to each other. It is assumed that the IDoc status is assigned to the status groups according to the SAP default settings. The mapping table is valid unless this assignment is changed.

<table>
<thead>
<tr>
<th>IDoc Status</th>
<th>XI Acknowledgment Status</th>
<th>Main/MessageClass</th>
<th>Ack/Status</th>
<th>Ack/Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>39 50</td>
<td>SystemAck</td>
<td>OK</td>
<td>Permanent</td>
<td></td>
</tr>
<tr>
<td>39 56, others</td>
<td>SystemAck</td>
<td>Error</td>
<td>Transient</td>
<td></td>
</tr>
<tr>
<td>40 68</td>
<td>SystemAck</td>
<td>Error</td>
<td>Permanent</td>
<td></td>
</tr>
<tr>
<td>39 51</td>
<td>ApplicationAck</td>
<td>Error</td>
<td>Transient</td>
<td></td>
</tr>
<tr>
<td>41 52, 53</td>
<td>ApplicationAck</td>
<td>OK</td>
<td>Permanent</td>
<td></td>
</tr>
</tbody>
</table>

Legend:
39 IDoc is in the target system
40 Application document is not created in target system
41 Application document is created in target system
50 IDoc is added
51 Application document is not posted
52 Application document is not fully posted
53 Application document is posted
56 IDoc with errors is added
68 Error – No further processing