

NotificationOfFailure

PIDX/RN Revision Project

Business Process Flow: Handling Failures

Failures can occur at any point during the execution of a PIDX business process. Two methods of handling failure are provided in RNIF 2.0: sending an exception signal or initiating a Notification of Failure (NOF). The two failure messages are used for communicating distinct exception conditions. To determine whether an exception signal should be sent or whether to initiate a NOF, the following guidance may be useful. Send an exception signal if the trading partner has not marked the transaction as complete; initiate a NOF if it is possible that your trading partner could have marked the transaction as complete.

Communicating errors in a standard format is essential to the scalability and cost of any automated solution. PIDX leverages the RosettaNet 2.0 standard to enable partners to communicate business messages as well as any exceptions that may arise during the processing of the documents. All PIDX implementations must be able to generate/receive the appropriate failure message when that condition exists.

Section 2.6 of the RosettaNet 2.0 specification described the flow of business message within the RNIF framework. In the diagrams below, the choreography of the business messages and the associated response documents (positive and negative) are depicted.

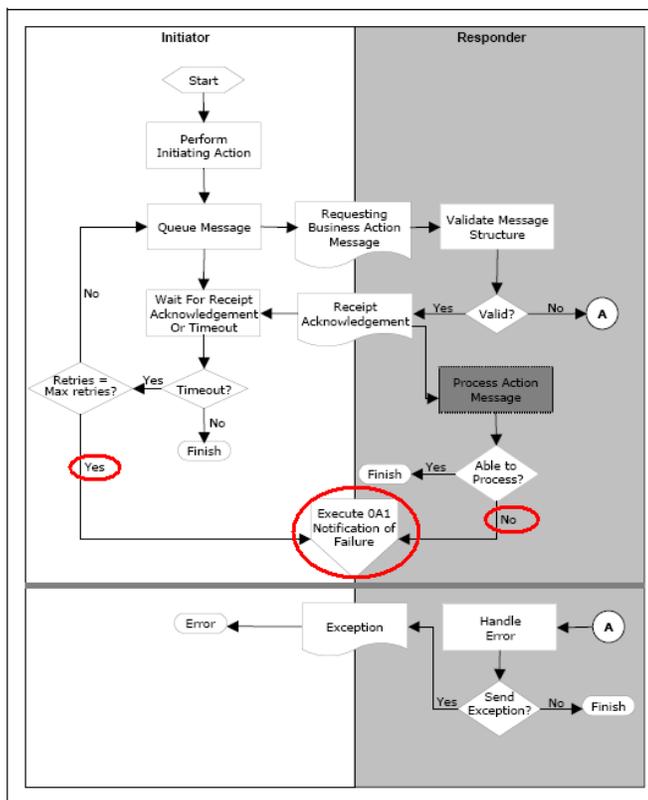


Figure 20. Single-Action Activity (Asynchronous)

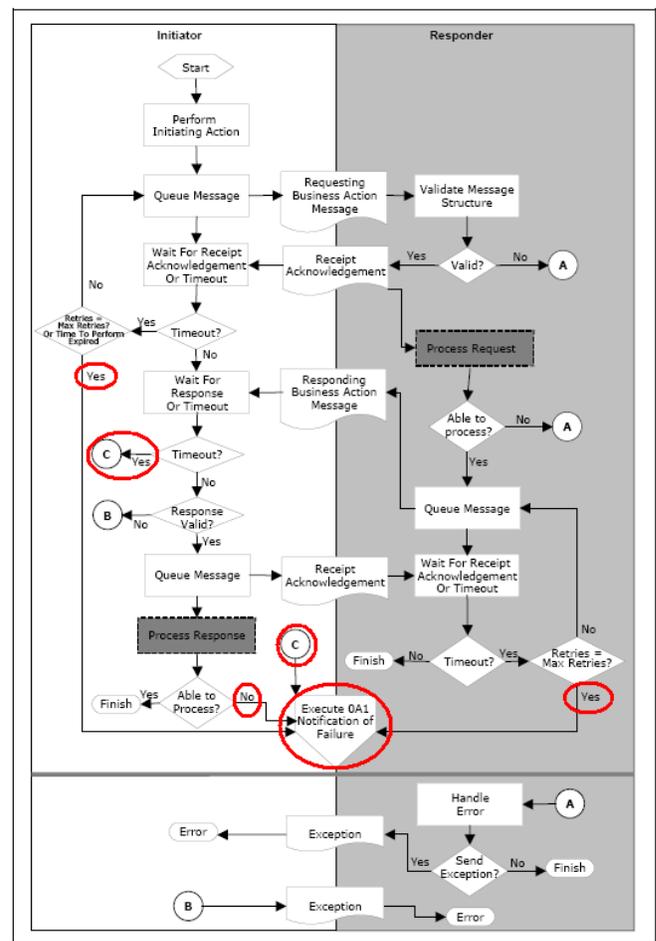


Figure 21. Two-Action Activity (Asynchronous)

Single Action PIP Example (see Figure 20 above)

Partner A will send Partner B a business message that has no associated response document (i.e. ASN). On receipt of the business message, Partner B will validate the structure and return either a positive (Receipt Acknowledgement) or negative (Exception) signal to Partner A. On receipt of the positive or negative signal, Partner A will mark the transaction as complete.

Notification Of Failure (NOF) Usage Guidelines (highlighted in red on Figure 20)

- 1) If Partner B does not send either a positive (Receipt Acknowledgement) or negative (Exception) signal within a specified period of time (i.e. 2 hours). Partner A will resend the business message to Partner B. This cycle will continue until positive or negative signal message is received or until the maximum number of retries is exceeded (i.e. 4 retries). Once the number retries is exceeded, Partner A should submit a NOF to Partner B to communicate the exception. ***Note: The transaction with Partner A's system will be in limbo until a positive or negative signal is received and the purpose of the NOF document in the scenario is to resolve the status of open transactions.***
- 2) After sending the positive (Receipt Acknowledgement), Partner B will attempt to process the business message. In the event of a failure to process the transaction, a NOF message should be submitted to Partner A. ***Note: An Exception document at this point would not be applicable because Partner A will have marked the transaction as complete after receiving the Receipt Acknowledgement.***

*Note: In some cases, a single action business PIP could have a related single action response PIP (i.e. invoice PIP P21 is loosely coupled with invoice response P22). Under this specific the scenario, Partner B could generate either a NOF or a response document to reject the transaction.

Two Action PIP Example (see Figure 21 above)

Partner A will send Partner B a business message that has a business response document explicitly defined within the business process PIP (i.e. Field Ticket and Field Ticket Response). On receipt of the business message, Partner B will validate the structure and return either a positive (Receipt Acknowledgement) or negative (Exception) signal. On receipt of the positive or negative signal, Partner A will start a timer (Time to Respond) to wait for the business response document. Partner B will generate the response document and send it to Partner A. On receipt of the business response message, Partner A will validate the structure and return either a positive (Receipt Acknowledgement) or negative (Exception) signal to Partner B. On receipt of the positive or negative signal, Partner B will mark the transaction as complete.

Notification Of Failure (NOF) Usage Guidelines (highlighted in red on Figure 21)

- 1) If Partner B does not send either a positive (Receipt Acknowledgement) or negative (Exception) signal in reference to the business message within a specified period of time (i.e. 2 hours). Partner A will resend the business message to Partner B. This cycle will continue until positive or negative signal message is received or until the maximum number of retries is exceeded (i.e. 4 retries). Once the number retries is exceeded, Partner A submits a NOF to Partner B to communicate the exception. ***Note: The transaction with Partner A's system will be in limbo until a positive or negative signal is received in reference to the business message and the purpose of the NOF document in the scenario is to resolve the status of open transactions.***
- 2) If Partner B does not send the business response document within the within a specified period of time (i.e. 24 hours), Partner A submits a NOF to Partner B to communicate the exception. ***Note: The time to perform a given business transaction must be defined between the trading partners.***
- 3) If Partner A does not send either a positive (Receipt Acknowledgement) or negative (Exception) signal in reference to the business response message within a specified period of time (i.e. 2 hours). Partner B will resend the business response message to Partner A. This cycle will continue until positive or negative signal message is received or until the maximum number of retries is exceeded (i.e. 4 retries). Once the number retries is exceeded, Partner B submits a NOF to Partner A to communicate the exception. ***Note: The transaction with Partner B's system will be in limbo until a positive or negative signal is received in reference to the business response message and the purpose of the NOF document in the scenario is to resolve the status of open transactions.***
- 4) After sending the positive (Receipt Acknowledgement), Partner A will attempt to process the business response message. In the event of a failure to process the transaction, a NOF message should be submitted to Partner B. ***Note: An Exception document at this point would not be applicable because Partner B will have marked the transaction as complete after receiving the Receipt Acknowledgement.***

Notification of Failure (PIP 0A1)

The NOF specification (0A1_Spec_V02_00_00.pdf) is available on the RosettaNet website. In summary, the NOF document is an xml based on a DTD which contains information regarding the reason for failure and transaction identifier. The document is sent within a RNIF envelope and the receiving partner will send a Receipt Acknowledgement upon receipt. The RNIF envelope containing the NOF can be sent via an alternate delivery method (i.e. secondary HTTPS or SMTP). A sample NOF transmission is attached.

Rnif_nof.txt

RNIF 2.0 Message correlation

The RosettaNet 2.0 specification defines how message correlation occurs across multiple asynchronous messages for a single transaction. In diagram below summarizes the how message correlation process. The first PO transaction is received and acknowledged, the second PO transaction is received and an exception document is sent back, the third PO transaction is sent several time with no response signal (positive or negative) so a NOF is created. The NOF document is tracked as an independent transaction from the original PO transaction and the receiving partner will generate a receipt acknowledgement for the NOF transmission. Within the NOF xml document, the original tracking identifiers for the failed PO transaction indicate which specific transaction will need dealt within the receiver backend system.

Business Message	Delivery-MsgTrackingID	InReplyTo-MsgTrackingID	ServHeader-PIPInstanceID	NOF-MsgTrackingID	NOF-ProcessInstanceID	NOF-thisDocIdentifier
PO	0af840f3f70d118c000003a3		0af840f3f70d118b0000039e			
Acknowledgement	936ce0f9f70d11940000361c	0af840f3f70d118c000003a3	0af840f3f70d118b0000039e			
PO	0af840f3f70d10dd00000280		0af840f3f70d10da0000027b			
Exception	936ce0f9f70d10e3000034c1	0af840f3f70d10dd00000280	0af840f3f70d10da0000027b			
PO	0af840f3f70d141f0000055e		0af840f3f70d141e0000055a			
PO	0af840f3f70d141f0000055e		0af840f3f70d141e0000055a			
PO	0af840f3f70d141f0000055e		0af840f3f70d141e0000055a			
PO	0af840f3f70d141f0000055e		0af840f3f70d141e0000055a			
Notification Of Failure	0af840f3f70d145600000593		0af840f3f70d14550000058d	0af840f3f70d141f0000055e	0af840f3f70d141e0000055a	0af840f3f70d145500000590
Acknowledgement	936ce0f9f70d11940000899d	0af840f3f70d145600000593	0af840f3f70d14550000058d			

Appendix A: PIDX XML Schema to PIDX "PIP" Number

The PIPs and Global Business Action Codes (GBACs) in PIDX_RN-PIP_ParameterMatrix_v2 (01-408-20-45-2007, Version 2.0, published April 7, 2007) have been revised as of October 28, 2020.

PIDX Document Number	Document Title	File Name	Version	Publication Date
01-408-20-45-2007	PIDX_RN-PIP_ParameterMatrix_v2	408_Matrix_XML_RN PIP ParameterMatrix_2007.xls	2.0	April 3, 2007
Superseded by:				
01-408-20-45-2007 (2020 edition)	PIDX_RN-PIP_ParameterMatrix_v3	408_Update_2020_PIDX_RN_PIP_Parameter_Matrix_01-408-20-45-2007_(v.3.0_2020-10-28)	3.0	October 28, 2020

<ServiceHeader> <ProcessControl> <ActivityControl> <BusinessActivityIdentifier>	<ServiceHeader> <ProcessControl> <pipCode> <GlobalProcessIndicatorCode>	<ServiceHeader> <ProcessControl> <ActivityControl> <MessageControl> <fromRole> <GlobalPartnerRoleClassificationCode>	<ServiceHeader> <ProcessControl> <ActivityControl> <MessageControl> <fromService> <GlobalBusinessServiceCode>	<ServiceHeader> <ProcessControl> <ActivityControl> <MessageControl> <toRole> <GlobalPartnerRoleClassificationCode>	<ServiceHeader> <ProcessControl> <ActivityControl> <MessageControl> <toService> <GlobalBusinessServiceCode>	<ServiceHeader> <ProcessControl> <ActivityControl> <MessageControl> <Manifest> <ServiceContentControl> <ActionIdentity> <GlobalBusinessActionCode>
FieldTicket	P11	Seller	Seller Service	Buyer	Buyer Service	Field Ticket Notification
FieldTicketResponse	P12	Buyer	Buyer Service	Seller	Seller Service	Field Ticket Receipt Notification
Invoice	P21	Seller	Seller Service	Buyer	Buyer Service	Invoice Notification
InvoiceResponse	P22	Buyer	Buyer Service	Seller	Seller Service	Invoice Receipt Notification
OrderCreate	P31	Buyer	Buyer Service	Seller	Seller Service	Purchase Order Notification
OrderChange	P32	Buyer	Buyer Service	Seller	Seller Service	Purchase Order Change Notification
OrderResponse	P33	Seller	Seller Service	Buyer	Buyer Service	Purchase Order Receipt Notification
QuoteRequest	P41	Buyer	Buyer Service	Seller	Seller Service	Request for Quote
Quote	P42	Seller	Seller Service	Buyer	Buyer Service	Quote
QuoteNotification	P43	Buyer	Seller Service	Buyer	Buyer Service	Quote Notification

RequestRequisitionReturn	P51	Buyer	Buyer Service	Seller	Seller Service	Requisition Return Notification
OrderStatusRequest	P61	Buyer	Buyer Service	Seller	Seller Service	Order Status Notification
OrderStatusResponse	P62	Seller	Seller Service	Buyer	Buyer Service	Order Status Receipt Response
PipelineNominationChange	P71	Seller	Seller Service	Pipeline	Pipeline Service	Pipeline Nomination Change Notification
PipelineNominationCreate	P72	Seller	Seller Service	Pipeline	Pipeline Service	Pipeline Nomination Notification
PipelineNominationResponse	P73	Pipeline	Pipeline Service	Seller	Seller Service	Pipeline Nomination Receipt Notification
PipelineSchedule	P74	Pipeline	Pipeline Service	Seller	Seller Service	Pipeline Schedule Notification
ASN	P20	Seller	Seller Service	Buyer	Buyer Service	Advance Shipment Notification
CementingTemplate	P90	Seller	Seller Service	Buyer	Buyer Service	Cementing Job Notification
CustodyTicket	P75	Buyer	Buyer Service	Seller	Seller Service	Product Custody Notification
Receipt	P80	Seller	Seller Service	Buyer	Buyer Service	Receipt Notification
BillOfLadingCreate	P81	Carrier	Carrier Service	Shipper	Shipper Service	Bill of Lading Notification
BillOfLadingResponse	P82	Shipper	Shipper	Carrier	Carrier Service	Bill of Lading Receipt Notification
InventoryBalance	P83	Seller	Seller Service	Buyer	Buyer Service	Inventory Balance Notification
InventoryBalanceRequest	P84	Buyer	Buyer Service	Seller	Seller Service	Inventory Balance Request Notification
PriceSheet	P25	Seller	Seller Service	Buyer	Buyer Service	Price Sheet Notification

KEY
Black Text = ComProServ RP3901
Blue Text = 2007 Update
Red Text = 2020 Update