Failed Event Management Tooling Wrapper

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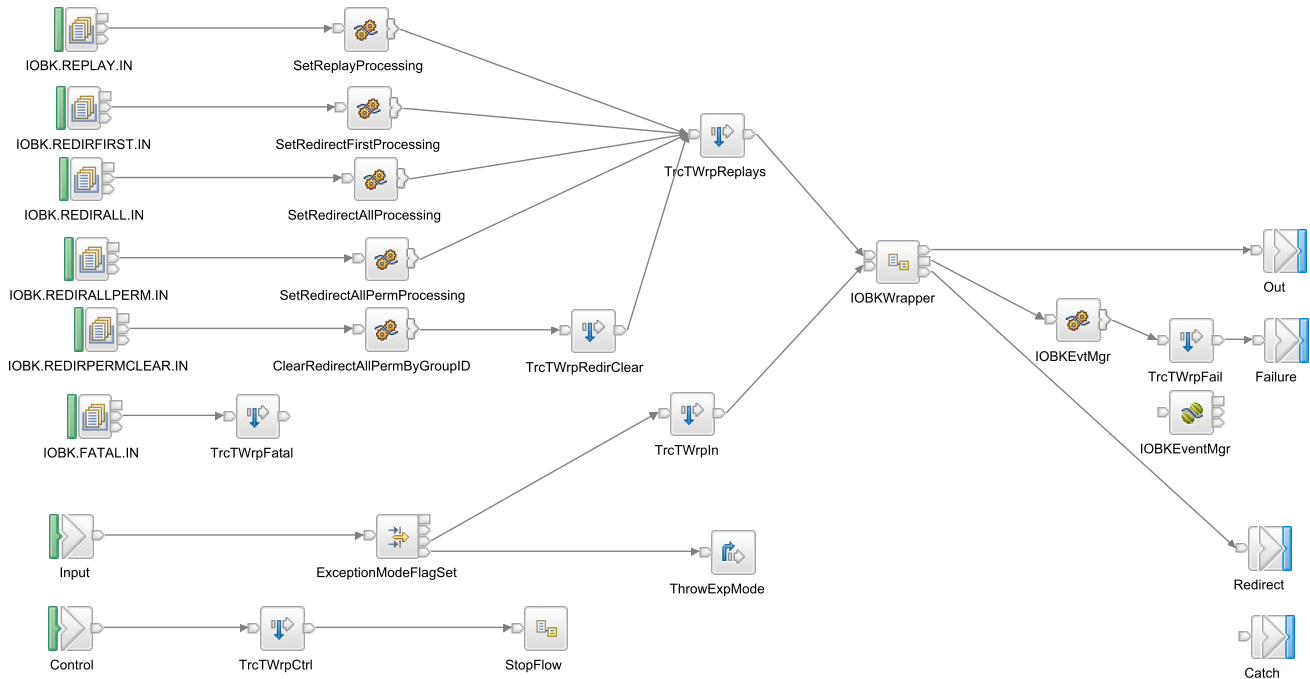
Table of contents

1 Message Flow   "IOBKToolingWrapper"

/IOBKApplication/IOBKToolingWrapper.subflow

1.1 Overview

1.1.1 Short Description

Failed Event Management Tooling Wrapper: Catches and Constructs an Event Message based on a downstream failure. Replays Failed Events. Stops the container Message Flow for upstream failures

1.1.2 Long Description

This Tooling Wrapper implements the following Failed Event Management operator actions:

ReplayOnly: Replay the original failed event directing it to is original out path and release all blocked events of the same GroupID to the original out path
RedirectFirstOnly: Redirect the original failed event to an alternative out path and release all blocked events of the same GroupID to the original out path
RedirectAll: Redirect the original failed event and all blocked events of the same GroupID to the alternative out path.
RedirectAllPermanent: Redirect the original failed event, all blocked events of the same GroupID and any new events of the same GroupID to the alternative out path
ClearRedirectAllPerm: Manually clear the RedirectAllPermanent for the GroupID - this function does not propagate the event to an out path.

This example of a Failed Event Management tooling wrapper utilizes the IIB monitoring framework for failed event capture and the IIB Record and Replay as the operational tooling for logging and replay.

1.2 Node - "Input"

Short Description   Servicing: Inbound messages from the containing message flow

Long Description

1.3 Node - "Out"

Short Description	Driving: The original processing route
Long Description	

1.4 Node - "Control"

Short Description	Servicing: Upstream error messages that cannot be resolved and require the containing message flow to be stopped.
Long Description	

1.5 StopFlowNode - "StopFlow"

Short Description	Stop the Containing Message Flow
Long Description	This subflow performs the following: Determines identity of the containing message flow. Issues a request to the IIB node (broker) to stop the containing message flow Sets Exception Mode On (fail safe against multi-threaded containing message flows Emits an IIB Monitoring Event - FATAL event Ends such that the containing flow can be stopped.
Subflow	StopFlow.subflow

1.6 Node - "Redirect"

Short Description	Driving: Failed Event Message redirection
Long Description	Driven if the following ReplayActions are used: RedirectFirstOnly: Redirect the original failed event to an alternative out path and release all blocked events of the same GroupID to the original out path RedirectAll: Redirect the original failed event and all blocked events of the same GroupID to the alternative out path. RedirectAllPermanent: Redirect the original failed event, all blocked events of the same GroupID and any new events of the same GroupID to the alternative out path

1.7 Node - "Catch"

Short Description	Not implemented at this time
Long Description	

1.8 IOBK.REPLAY.INNode - "IOBK.REPLAY.IN"

Short Description	Target MQ Queue for the ReplayOnly replays
Long Description	In this implementation of the ToolingWrapper a IIB DataDestination configurable service available to the IIB Record and Replay WebGUI references this queue The MQ Queue Name is a promoted property that the developer sets when he includes a ToolingWrapper in the containing message flow.

1.9 IOBK.REDIRALL.INNode - "IOBK.REDIRALL.IN"

Short Description	Target MQ Queue for the RedirectAll replays
Long Description	In this implementation of the ToolingWrapper a IIB DataDestination configurable service available to the IIB Record and Replay WebGUI references this queue The MQ Queue Name is a promoted property that the developer sets when he includes a ToolingWrapper in the containing message flow.

1.10 SetRedirectAllProcessingNode - "SetRedirectAllProcessing"

Short Description	RedirectAll
Long Description	Redirect the original failed event and all blocked events of the same GroupID to the alternative out path.
ESQL File	IOBKToolingWrapper.esql

1.11 SetReplayProcessingNode - "SetReplayProcessing"

Short Description	ReplayOnly
Long Description	Replay the original failed event directing it to is original out path and release all blocked events of the same GroupID to the original out path
ESQL File	IOBKToolingWrapper.esql

1.12 ExceptionModeFlagSetNode - "ExceptionModeFlagSet"

Short Description	Test if Exception Mode is enabled. If enabled the flow is stopping so block new inbound messages.
Long Description	In the event of a fatal / upstream failure the Tooling Wrapper will drive the StopFlow subflow. This direct the IIB node to stop the containing message flow. The StopFlow subflow will set ExceptionMode on during the stop message flow process. Should a new message arrive during the stop flow process an exception will be thrown. Provided that the containing message flow is single threaded no new messages will be received during the stop flow processing. The ExceptionModeFlag is a fail safe. Note To Developers: There may be a case for placing an ExceptionmodeFlagSet check on connections to the Wrapper subflow control terminal to stop replayed events being processed while the message flow is being stopped.

1.13 ThrowExpModeNode - "ThrowExpMode"

Short Description	
Long Description	

1.14 Node - "Failure"

Short Description	Delivering: Copies of the original failed event
Long Description	

1.15 TrcTWrpReplaysNode - "TrcTWrpReplays"

Short Description	
Long Description	

1.16 IOBKEventMgrNode - "IOBKEventMgr"

Short Description	For example purposes - Shows how to build the Failed Event Message including a bitstream of the original data payload in Java
Long Description	Combinations of ESQL and Java may be necessary to obtain all the event and environment information you may need to uniquely identify your failed event. This is an example of a Java implementation. It is not wired into the ToolingWrapper subflow.
Java Class	IOBKFlow_IOBKEventMgr.java

1.17 IOBKEvtMgrNode - "IOBKEvtMgr"

Short Description	Build the Failed Event Message including a bitstream of the original data payload.
Long Description	The EvtMgr capture key information about the failed event and store it temporarily in the Environment This ToolingWrapper uses the IIB monitoring framework to emit details of the failed event and includes a bitstream of the original data. Note: The Wrapper will have inserted an MQRFH2 header at the head of the data. This houses key information (GroupID and sequence number) that must survive the trip through operator tooling. In this case the IIB Record and Replay service. The Evtmgr will use the Monitoring Tab to config the event. It populates the following event fields with information Event Name : $Environment/Exception/SaFUUID - Broker-Name.ExecutionGroupLabel.[ApplicationLabel].MessageFlowLabel - uniquely identify the origin of the event Local Transaction correlator : $Environment/Exception/chrNumber - Exception Number Parent Transaction correlator: $Environment/Exception/Text - Exception Text Global Transaction correlator: $Environment/Exception/userText - User Text
ESQL File	IOBKToolingWrapper.esql

1.18 IOBK.REDIRFIRST.INNode - "IOBK.REDIRFIRST.IN"

Short Description	Target MQ Queue for the RedirectFirst replays
Long Description	In this implementation of the ToolingWrapper a IIB DataDestination configurable service available to the IIB Record and Replay WebGUI references this queue The MQ Queue Name is a promoted property that the developer sets when he includes a ToolingWrapper in the containing message flow.

1.19 SetRedirectFirstProcessingNode - "SetRedirectFirstProcessing"

Short Description	RedirectFirstOnly
Long Description	Redirect the original failed event to an alternative out path and release all blocked events of the same GroupID to the original out path
ESQL File	IOBKToolingWrapper.esql

1.20 IOBK.FATAL.INNode - "IOBK.FATAL.IN"

Short Description	Target MQ Queue for the replay of FATAL events
Long Description	In this implementation of the ToolingWrapper a IIB DataDestination configurable service available to the IIB Record and Replay WebGUI references this queue The MQ Queue Name is a promoted property that the developer sets when he includes a ToolingWrapper in the containing message flow. FATAL events will be emitted by the IOBKEvtMgr and in this example ToolingWrapper appear in the IIB Record and Replay WebGUI. These events may be unrelated to an actual failed event and as such replaying for propagation my not be desirable. However, the operator may wish to clear this from his list of events. Replaying to the FATAL.IN DataDestination configurable service will clear the event. At this point in time the ToolingWrapper simply throws this event away. The implementation could be changed to drive one of the other supported ReplayActions.

1.21 TrcTWrpFatalNode - "TrcTWrpFatal"

Short Description	
Long Description	

1.22 IOBK.REDIRPERMCLEAR.INNode - "IOBK.REDIRPERMCLEAR.IN"

Short Description	Target MQ Queue for the RedirectAllPermanent clear requests
Long Description	In this implementation of the ToolingWrapper a IIB DataDestination config-

urable service available to the IIB Record and Replay WebGUI references this queue The MQ Queue Name is a promoted property that the developer sets when he includes a ToolingWrapper in the containing message flow.

1.23 IOBK.REDIRALLPERM.INNode - "IOBK.REDIRALLPERM.IN"

Short Description	Target MQ Queue for the RedirectAllPermanent replays
Long Description	In this implementation of the ToolingWrapper a IIB DataDestination configurable service available to the IIB Record and Replay WebGUI references this queue The MQ Queue Name is a promoted property that the developer sets when he includes a ToolingWrapper in the containing message flow.

1.24 ClearRedirectAllPermByGroupIDNode - "ClearRedirectAllPermByGroupID"

Short Description	ClearRedirectAllPerm
Long Description	Manually clear the RedirectAllPermanent for the GroupID - this function does not propagate the event to an out path.
ESQL File	IOBKToolingWrapper.esql

1.25 SetRedirectAllPermProcessingNode - "SetRedirectAllPermProcessing"

Short Description	RedirectAllPermanent
Long Description	Redirect the original failed event, all blocked events of the same GroupID and any new events of the same GroupID to the alternative out path
ESQL File	IOBKToolingWrapper.esql

1.26 TrcTWrpRedirClearNode - "TrcTWrpRedirClear"

Short Description	
Long Description	

1.27 IOBKWrapperNode - "IOBKWrapper"

Short Description	Wrapper provides the failed event management capability by adding state information to an MQRFH2 header such that downstream failed events are caught propagated to the failure terminal. Any future messages in the same group as a failed event are blocked until the original is replayed
Long Description	The Wrapper accepts new messages via the In terminal. The Wrapper accepts replayed messages via the Control Terminal. This Wrapper Control terminal supports the following Failed Event Management operator actions which must be set in the MQRFH2.usr.IOBK.ReplayAction field by Tooling Wrapper or message flow/subflow that drives the control terminal. ReplayOnly: Replay the original failed event directing it to is original out path and release all blocked events of the same GroupID to the original out path RedirectFirstOnly: Redirect the original failed event to an alternative out path and release all blocked events of the same GroupID to the original out path RedirectAll: Redirect the original failed event and all blocked events of the same GroupID to the alternative out path. RedirectAllPermanent: Redirect the original failed event, all blocked events of the same GroupID and any new events of the same GroupID to the alternative out path ClearRedirectAllPerm: Manually clear the RedirectAllPermanent for the GroupID - this function does not propagate the event to an out path.
Subflow	IOBKWrapper.subflow

1.28 TrcTWrpInNode - "TrcTWrpIn"

Short Description
Long Description

1.29 TrcTWrpCtrlNode - "TrcTWrpCtrl"

Short Description
Long Description

1.30 TrcTWrpFailNode - "TrcTWrpFail"

Short Description
Long Description

2 Cross Reference

The tables in this section show how resources are related to one another.

3 Documentation generation settings

General settings

Title:	Failed Event Management Tooling Wrapper
Author:	Dave Arnold
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TOC nesting level:	7

Utilized documentation units

Source	Documentation unit	Documentation type
IOBKToolingWrapper.subflow	SubFlow Documentation Unit	detailed